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BELL & HOWELL

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CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

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CONSOLIDATED LISTING OF RECENT OFFICIAL GAZETTE NOTICES RE PATENT OFFICE PRACTICES AND PROCEDURES

PATENT SECTION

The following is a compilation of the more important notices and rules changes which have been published in the OFFICIAL GAZETTE *from July 1, 1964, through December 31, 1973. These notices and rules changes are currently in effect except as otherwise noted, and are published as a part of our "Better Service to the Public" program.*

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INFORMATION AND CORRESPONDENCE

(1) INFORMATION RE APPLICATION STATUS

In view of the relatively long pendency of patent applications at the present time, the final disposition of which may, in some cases, be of substantial importance to the public in general or, at least, to persons other than the applicants, it has been decided effective immediately to advise any person who makes written request for information as to the status of a United States application referred to by number in a foreign patent, which patent is identified in the request, whether the application is pending, abandoned or patented and, if patented, what the patent number is. The former practice of giving similar information with respect to an application referred to by number in a United States patent (Manual of Patent Examining Procedure, section 102) will be continued.

EDWARD J. BRENNER,
Commissioner of Patents.

Dec. 11, 1964.

[809 O.G. 1293]

(2) TELEPHONE NUMBERS ON OFFICE ACTIONS

Effective immediately, the full surname of the Examiner who prepares the Office action will, in all cases, be typed below the action on the left side. The Examiner's telephone number will be typed below his name. This number should be called if the case is to be discussed or an interview arranged.

The Notice of December 10, 1964, 810 O.G. 308, and Change Notice 2–15 are rescinded.

RICHARD A. WAHL,
Superintendent, Patent Examining Corps.

Apr. 5, 1965.

[813 O.G. 1099]

(3) EXPEDITING PAPERS RELATING TO APPEALS

In order to expedite the handling and processing of all papers relating to appeals, it is essential that all such documents include the Group Number to which the application is assigned, as well as the Appeal Number and Serial Number.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

May 8, 1965.

[815 O.G. 417]

(4) TELEPHONE NUMBERS ON AMENDMENTS AND OTHER PAPERS

In view of the increased use of telephone interviews regarding matter which can be readily cleared up by a telephone call to applicant or his representative, it is again recommended that amendments and other papers, such as letters of transmittal, include the complete telephone number with area code and extension, preferably near the signature of the writer.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 11, 1966.

[825 O.G. 1]

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Director of Administration.

Mar. 22, 1966.

[825 O.G. 428]

(6) HAND DELIVERY OF DUPLICATE COPY OF PAPERS BY ATTORNEY

The Notice appearing in 833 O.G. 1 is hereby superseded. The practice set out in the above notice is extended as follows:

In further implementation of the Notice in 829 O.G. 1755 concerning discontinuation of the practice of hand delivery by attorneys or others of officially date stamped papers, it is directed that prompt consideration and appropriate action be taken on the hand-delivered duplicate copy of such papers, which may include amendments, powers to inspect, requests for extension of time, etc.

The effect of such consideration and action should be communicated to applicant or his representative at the earliest practicable time to clarify the status of the case.

If requested, at the conclusion of an interview, it would be appropriate to indicate on the attorney's copy and the Office duplicate copy any agreement reached and to initial and date both copies.

Actual clerical entry of amendatory matter usually will require the presence in the file of the original paper; however, pending receipt of the original, examiner and clerical processing of the application should proceed, based on the duplicate copy, as far as practicable in the circumstances of each case.

RICHARD A. WAHL,
Dec. 21, 1966. *Assistant Commissioner.*

[834 O.G. 829]

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(7) HAND DELIVERY OF PAPERS

The notice of November 10, 1969 (869 O.G. 345), regarding Hand Delivery of Papers is modified as indicated below.

The privilege of personal delivery of papers by applicants, their attorneys or agents to the Examining Groups is hereby extended to include any paper which relates to a pending application file. Under this procedure the paper will be date stamped with the Group stamp and made an official paper in the file, thereby avoiding the necessity of processing and forwarding to the Examining Group via the Mail Room. The approval and initials of the examiner will no longer be necessary for delivering papers directly to the Group. In those instances where an additional fee is required, the paper will be date stamped by the clerk, hand carried, together with the check or letter of authorization to charge a Deposit Account, to the Finance Branch for processing and then made an official paper in the file.

This procedure will be re-evaluated after it has been in effect for a period of six months.

RICHARD A. WAHL,
Sept. 8, 1970. *Assistant Commissioner.*

[879 O.G. 667]

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(8) ATTACHMENTS TO OFFICE ACTIONS

To expedite the preparation and mailing of certain Office actions, the following changes in practice are effective July 1, 1967:

Where references are furnished, applicant's copies of the Office action will be camera reproductions of the ribbon copy instead of the usual carbon copies. The list of reference citations, heretofore typed directly on the action, will be on a separate form, Notice of References Cited, PO–892, attached to applicant's copies of the action.

The manner of furnishing copies of the references remains unchanged.

About Aug. 1, 1967, the use of attachments to the Office action will be extended to include notification of informalities in the application and drawings. Where applicable, Notice of Informal Patent Drawings, PO–948, and Notice of Informal Patent Applications, PO–152 (rev.) will be attached to the first action.

The attachments will bear the same paper number and are to be considered as part of the action.

Replies to Office actions should include the 3-digit Art Unit number to expedite handling within the Office.

RICHARD A. WAHL,
June 29, 1967. *Assistant Commissioner.*

[840 O.G. 711]

APPENDIX A

(9) PUBLIC INFORMATION APPENDIX—PATENT OFFICE

A. *Purpose.*

The purpose of this Appendix is to describe, in general, the public information services of the Patent Office, to describe the places at which and the methods whereby the public may obtain information, make submissions or requests or obtain decisions, to inform the public as to the sources or availability of rules, regulations, procedures, forms, instructions, or other requirements of the Patent Office, which affect the public, and otherwise to comply with the requirements of Section 552 of Title 5, U.S.C. as amended by Public Law 90–23, June 5, 1967 (81 Stat. 54).

B. *Public Information Services.*

(1) The Patent Office provides the public with a wide range of information relating to the organization, structure, description, and functions of the Patent Office. This includes material published regularly on a weekly basis, such as the OFFICIAL GAZETTE, and copies of the patents and trademark registrations identified therein. General information concerning the procedures for obtaining patents or registering trademarks, and for utilizing the search rooms and Scientific Library of the Patent Office is readily available.

(2) Publications of the Patent Office are listed in the catalog of publications sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. They are also listed in the Introduction of the "Rules of Practice of the United States Patent Office in Patent Cases," and in the pamphlet "General Information Concerning Patents." The Patent Office also publishes a circular "Patent Office Publications," which lists the available publications, and provides information as to price and source. These publications include:

a. Annual Index of Patents.
b. Decisions of the Commissioner of Patents.
c. Manual of Patent Classification, and Classification bulletins.
d. Patent Laws (pamphlet edition).
e. Directory of Registered Patent Attorneys and Agents Arranged by States and Cities.
f. Guide for Patent Draftsmen.

(3) The Patent Office has an Office of Information Services where the public may obtain a list of current publications and general information concerning the functions and services of the Patent Office. Information relating to patents may be obtained from the Patent Reference Branch of the Office of Patent Services, and information relating to trademarks may be obtained from the search room of the Trademark Examining Operation.

C. *Guide to Published Rules and Regulations.*

(1) Patent Office rules of procedure, descriptions of forms, substantive rules of general applicability, and statements of general policy are published in the Federal Register. Rules are currently codified in Title 37, Chapter I, Code of Federal Regulations, and are also available in pamphlet form entitled "Rules of Practice of the United States Patent Office in Patent Cases" and "Trademark Rules of Practice of the Patent Office with Forms and Statutes," each of which is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(2) The Patent Office maintains also an administrative staff manual, entitled "Manual of Patent Examining Procedure," and an index thereto, for the general guidance of its staff and the public. The manual, with its index, as amended, changed, and supplemented from time to time, is available in the Patent Office (the Public Search Room and Library) for inspection and copying, and copies are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

D. *Submission of Requests and Applications.*

The established places at which and the methods whereby the public may make requests concerning Patent Office functions, operations, and procedures are listed in Sections B and C of this Appendix.

E. (*Reserved*).

F. *Inspection and Copying of Opinions and Orders.*

(1) Final opinions and orders in the adjudication of patent cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Patent Reference Branch in the Main Commerce Building, 14th Street between Pennsylvania Avenue and Constitution Avenue, NW., Washington, D.C., 20231, readily accessible from the entrance on E Street near 14th Street. Instructions concerning the use of this facility are contained in the introductory portion to the pamphlet edition of the Rules of Practice in Patent Cases, and the pamphlet "General Information Concerning Patents."

(2) Final opinions and orders in the adjudication of trademark cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Trademark Examining operation in the Longfellow Building, 1741 Rhode Island Avenue, NW., Washington, D.C., 20231, from 8:00 a.m. to 6:00 p.m. on workdays only. Instructions concerning trademark operations are contained in the pamphlet "General Information Concerning Trademarks."

G. *Inspection of Bureau Records.*

(1) Applications for patents are required by law to be kept in confidence by the Patent Office and no information concerning such applications may be divulged by the Patent office without authority of the applicant or owner, unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commissioner (35 U.S.C. 122).

(2) Special situations are recognized by the regulations (37 C.F.R. 1.11 and 1.14; Manual of Patent Examining Procedure, section 1031, which prescribe the procedures to be followed in the opening of certain patent applications to inspection.

(3) Assignment records, digests, and indexes (37 C.F.R. 1.12) relating to patent applications are not available to the public.

(4) Pending trademark applications are not open to general inspection (37 C.F.R. 2.27).

(5) The procedures for requesting records not disclosed to the public as part of the regular informational activities of the Patent Office, or not included in the material described in Section F, supra, or whose disclosure is not provided for or precluded by the regulations cited in paragraphs (1), (2), (3) and (4) of this section, are prescribed in 37 C.F.R. 1.15.

EDWARD J. BRENNER,
Date: Sept. 12, 1967. *Commissioner of Patents.*

Published in 32 F.R. 13830, Oct. 4, 1967

[843 O.G. 1567]

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(10) POST CARD RECEIPT REMINDER

Applicants and their attorneys or agents are reminded of the provision in Section 717.01(a) of the Manual of Patent Examining Procedure relating to the use of post cards as "receipts" of papers filed in the Patent Office.

If a receipt for any paper filed in the Patent Office is desired, it may be had by enclosing with the paper a self-addressed post card identifying the paper. The Patent Office will stamp the receipt date on the card and place it in the outgoing mail.

The identifying data on the card should be so complete as to match the paper with the application or other document to which it is to be associated. For example, the document should be identified by the applicant's name(s), Serial No., filing date, appeal number, interference number, etc., and the paper should be identified by specifying the type thereof, viz, affidavit, amendment, appeal, application papers, brief, drawings, fees, motions, supplemental oath or declaration, petition, etc.

When papers for more than one document are filed under a single cover a return post card should be attached to the paper for *each* document for which a receipt is desired.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 667]

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(11) OFFICE ACTION—FIRST PAGE FORM

The printed form POL–326 formerly used as the first page of the first Office action, 845 O.G. 1205, has been revised.

The new form is now being attached to all Office actions up to and including final rejections.

RICHARD A. WAHL,
Jan. 22, 1969. *Assistant Commissioner.*

[859 O.G. 677]

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(12) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

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(13) ORDERS FOR COPIES OF FOREIGN PATENTS AND/OR PUBLISHED APPLICATIONS

Some foreign countries are not publishing their patents and/or applications in numerical order. Since the U.S. Patent Office will begin supplying orders for copies of these foreign documents from master microfilm reels made up on weekly or other periodic publishing sequences, effective immediately all orders must include the country, patent or application number, and the publication date (if known) of the ordered document. Reference should be made to Section 901.05(a) of the Manual of Patent Examining Procedure to assist in determining the publication date of the commonly encountered foreign patents and applications.

W. R. ARMSTRONG,
Aug. 21, 1969. *Director, Office of Patent Services.*

[866 O.G. 685]

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(14) GROUP NUMBER SHOULD APPEAR ON COMMUNICATIONS RELATING TO PENDING APPLICATIONS

It is again requested that the Group number be typed on amendments and other communications relating to pending applications in order to expedite the handling of mail and to conserve manpower. The number of the Group should be placed on the right-hand side, opposite the Serial Number or name of applicant. In view of the vast amount of mail, continued careful attention to these details will do much toward avoiding delay in handling of mail.

C. A. KALK,
Nov. 6, 1969. *Director of Administration.*

[869 O.G. 345]

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(15) TRANSMITTAL FORMS

As a convenience to attorneys and to standardize processing, forms have been developed for use in transmitting (1) new applications (PO–1082) and (2) amendments adding claims (PO–1083). These forms were approved by a Notice appearing in the Federal Register, November 26, 1969, and are designated 37 CFR 3.51 and 3.52 (869 OG 1033). Attorneys who desire to use these forms may obtain them without charge from the Correspondence and Mail Branch or the Receptionist in Building 3 in Crystal Plaza.

RICHARD A. WAHL,
Jan. 2, 1970. *Assistant Commissioner.*

[870 O.G. 1040]

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(16) MICROFILM: PATENT NUMBER SEQUENCE CLASSIFICATION RECORD

The Patent Office announces a new microfilm publication entitled Patent Number Sequence Classification Record. This official record lists the original and cross-reference classifications together for each patent number, in patent number order. This sequence contrasts with that of the previously

announced Cumulative Index to the Classification of Patents which lists patent numbers by classification, in separate files for original and cross-reference classifications.

The Patent Number Sequence Classification Record comprises all patents issued through April 29, 1969. The classification includes all reclassifications made effective through January 1, 1969. This publication, which is available only in microfilm form, includes patents, design patents, reissue design patents, reissue patents, plant patents, defensive publications, and patents issued from 1790 to 1836. Updates to this record will be announced periodically, as circumstances warrant.

The Patent Number Sequence Classification Record comprises 16 reels of 16 mm. roll microfilm which are offered for sale in three different ways. The complete record is catalogued as PB–188600 and sells for $70.00. The 7 reels comprising patents issued from numbers 2,225,518 (issued in 1940) to the end of the file are offered together for those who desire only more recent patents. This set is catalogued as PB–188617 and sells for $35.00. Reels ordered individually or in sets other than the two mentioned above, sell for $6.00 apiece and should be ordered using the catalogue number for each reel desired, as shown below;

Cat. No.	Patent Nos. Included
PB–188601	1– 276,927
PB–188602	276,928– 539,569
PB–188603	539,570– 797,464
PB–188604	797,465–1,054,425
PB–188605	1,054,426–1,311,703
PB–188606	1,311,704–1,568,108
PB–188607	1,568,109–1,811,776
PB–188608	1,811,777–2,015,447
PB–188609	2,015,448–2,225,517
PB–188610	2,225,518–2 431,496
PB–188611	2,431,497–2,628,945
PB–188612	2,628,946–2,819,182
PB–188613	2,819,183–3,011,059
PB–188614	3,011,060–3,196,127
PB–188615	3,196,128–3,377,086
PB–188616	3,377,087–3,441,959

and Reissue Patents 1–26,557, Design Patents 1–214,007, Plant Patents 1–2,881 and all other categories mentioned in text above.

Orders may be addressed to:

CFSTI
5285 Port Royal Road
Springfield, Virginia 22151

Payment should be made in the form of a check or money order payable to the National Bureau of Standards—CFSTI.

Inquiries, comments or suggestions concerning this record may be directed to the U.S. Patent Office, Office of Organization and Systems Analysis, Washington, D.C. 20231.

E. A. HURD.
Director, Office of Organization and Systems Analysis.

Jan. 15, 1970.

[871 O.G. 2]

(17) OFFICE ACTIONS

Effective December 1, 1970, applicants or their attorney or agent will be provided with one carbon copy of all Office actions, and the provision of additional or other reproductions of the ribbon copy will be discontinued.

Heretofore, the Office has provided one or two copies of the examiner's action, depending upon the nature of the action. The practice of furnishing more than one copy will be discontinued and, effective with the above change, the applicant will be furnished one copy of all examiner actions.

RICHARD A. WAHL.
Assistant Commissioner.

Oct. 21, 1970.

[880 O.G. 740]

(18) IDENTIFICATION FOR APPLICATION-CORRESPONDENCE

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy).
2. Group Art Unit number (copied from filing receipt or most recent Office Action).
3. Filing date.
4. Name of the Examiner who prepared the most recent Office Action.
5. Title of the invention.

To further reduce the burden on the Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers relating to an allowed application were referred until a notice of allowance (POL–85) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL.
Assistant Commissioner.

Mar. 5, 1971.

[885 O.G. 2]

(19) IDENTIFICATION FOR APPLICATION CORRESPONDENCE

The Patent Office has been receiving an excessively large amount of application correspondence having incorrect identifying data, such as incorrect application serial numbers and incorrect Group Art Unit numbers. Attention is invited to the Notice of March 5, 1971 (885 O.G. 2), which sets forth the identifying data which should be included on all papers relating to a pending application. The failure to correctly identify the application to which a paper pertains delays or precludes the matching of the paper with the application, and may result in an inappropriate action being taken in the application, e.g., application being considered abandoned for failure to respond. Particular attention should be paid to the use of the correct application serial number and the correct Group Art Unit number (copied from the most recent Office action).

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

Oct. 2, 1973.

[915 O.G. 1164]

(20) NEW DECLARATION FORM

To facilitate electronic data input and to expedite processing of new patent applications, a new declaration form has been devised.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
Assistant Commissioner.

May 28, 1971.

[887 O.G. 1840]

(21) DISTRIBUTION OF NEW DECLARATION FORM PO–1147 (REVISED)

In a recent issue of the OFFICIAL GAZETTE (898 O.G. 738) we announced the availability of a new Sole-Joint Declaration Form, PO–1147. The distribution was limited to single copies of the form. We are pleased to report that use of the form has resulted in increased efficiency in processing newly filed applications.

In order to encourage greater use of the form, we now can furnish larger quantities without charge. Accordingly, distribution will be made in single copies or in multiples of 10 forms. Since our supply is limited, only orders for reasonable quantities can be filled.

The forms may be obtained from the receptionist in the lobby of Building 3 at our Arlington, Va. location or by mail request. The latter should be addressed to:

Commissioner of Patents
Washington, D.C. 20231,
Attn: Form Distribution

ROBERT GOTTSCHALK,
Commissioner of Patents.

Sept. 11, 1972.

[903 O.G. 368]

(22) PATENT APPLICATION BRANCH SERVICE

In order to expedite the processing of newly filed applications, improve the efficiency of the Office, and assist in the effort to normally dispose of patent applications within 18 months of their filing date, cooperation from the patent community is solicited with respect to recent procedural modifications.

Prior to examination concerning patentability, patent applications are now examined for compliance with formal requirements, and actions are mailed requiring correction of stated informalities. Many inquiries have arisen concerning the effect of such actions. Since the actions concerning correction of informalities include the setting of a period for response, failure to respond within the period set results in abandonment of the application.

Inquiries directed to the Application Branch, either in person or by telephone, concerning patent applications should not be made during the morning hours between 8:30 and 10:30.

The letter of transmittal accompanying the filing of continuing applications, particularly streamlined continuations and Rule 147 divisionals, should include such additional information as the identification by serial number of the parent application, its status, and location in the Patent Office. The supplying of this information will permit the processing of these new applications more rapidly than at present.

When a new application is filed with a request to transfer drawings under Rule 88, the application papers should include drawing prints to enable the Application Branch to process the case before transfer of the formal drawings is effected.

RICHARD A. WAHL,
Assistant Commissioner.

June 1, 1971.

[887 O.G. 1841]

(23) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.

3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

Aug. 2, 1971.

[890 O.G.301]

(24) STATUS INQUIRIES

In an effort to sharply reduce the volume and need for status inquiries, the past policy that diligence must be established by making timely status requests in connection with petitions to revive is hereby discontinued.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required. It should also be recognized that a petition to revive must be accompanied by the proposed response unless it has been previously filed (Rule 137). Also, under Rule 113, "Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each claim so rejected and, if any claim stands allowed, compliance with any requirement or objection as to form."

New Applications

Current examining procedures now provide for the routine mailing from the Examining Groups of Form POL–327 in *every* case of allowance of an application except where an Examiner's Amendment is promptly mailed. Thus, the separate mailing of a Form POL–327 or an Examiner's Amendment in addition to a formal Notice of Allowance (POL–85) in all allowed cases would seem to obviate the need for status inquiries even as a precautionary measure where the applicant may believe his new application may have been passed to issue on the first examination. However, as an exception, a status inquiry would be appropriate where a Notice of Allowance is not received within three months from receipt of either a Form POL–327 or an Examiner's Amendment.

Current examining procedures also aim to minimize the spread in dates among the various examiner dockets of each Art Unit and Group with respect to actions on new applications. Accordingly, the dates of the "oldest new applications" appearing in the OFFICIAL GAZETTE are fairly reliable guides as to the expected time frames of when the Examiners reach the cases for action.

Therefore, it should be rarely necessary to query the status of a new application.

Amended Applications

Amended cases are expected to be taken up by the examiner and an action completed within two months of the amendment date. Accordingly, a status inquiry is not in order after response by the attorney until five or six months have elapsed with no response from the Patent Office. A post card receipt for responses to Office actions, adequately and specifically identifying the papers filed, will be considered *prima facie* proof of receipt of such papers. Where such proof indicates the timely filing of a response, the submission of a copy of the post card with a copy of the response will ordinarily obviate the need for a petition to revive. Proof of receipt of a timely response to a final action will obviate the need for a petition to revive only if the response was in compliance with Rule 113.

In General

It is expected that this new policy will result in sharply reducing the number of status inquiries and permit the time now spent on them to be used in increasing Patent Office efficiency in other more essential areas.

Such status inquiries as may be still necessary may be more expeditiously processed by the Patent Office if each

inquiry includes the application Serial Number, filing date, name of the applicant, name of the Examiner who prepared the most recent Office action, and Group Art Unit (taken from the most recent Office communication) in addition to the last known status of the application, and is accompanied by a stamped return-addressed envelope. Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without consulting the examiners.

Status replies will be made by the Patent Office clerical support force and will only indicate whether the application is awaiting action by the Examiner or the applicant's response to an Office action. In the latter instance the mailing date of the Office action will also be given.

The Notices of Dec. 5, 1969 (869 O.G. 1031) and Sept. 22, 1965 (819 O.G. 444) are hereby superseded.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Nov. 24, 1971.

[893 O.G. 810]

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(25) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Nov. 26, 1971.

[893 O.G. 807]

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(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Nov. 26, 1971.

[893 O.G. 810]

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(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557-2003.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Nov. 26, 1971:

[893 O.G. 807]

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(28) ACCESS TO PATENT APPLICATION AND INTERFERENCE FILES

In order to insure that access to patent application and interference files is given only to persons who are entitled thereto or who are specially authorized to have access under Rule 14 of the Rules of Practice in Patent Cases, and to insure also that the file record identifies any such specially authorized person who has been given access to a file, the following practice will be observed by all personnel of the Patent Office:

1. Access, as provided for in the Rules of Practice, will be given on *oral request* to any applicant, patentee, assignee, or attorney or agent of record in an application or patent only upon *proof of identity* or upon *recognition* based on personal acquaintance.
2. Where a power of attorney or authorization of agent was given to a registered firm prior to July 2, 1971, access will be given upon oral request as in paragraph 1 above to any registered member or employee of the firm who has signatory power for the firm.
3. Unregistered employees of attorneys or agents, public stenographers, and all other persons not within the provisions of paragraphs 1 and 2 above will be given access only upon presentation of a *written authorization for access* signed by a person specified in paragraph 1 above, which authorization will be entered as a part of the official file.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Nov. 24, 1971.

[893 O.G. 810]

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(29) PATENT OFFICE SERVICES

During recent months we have achieved significant progress in improving various aspects of the operations of the Patent Office, and we are hopeful that this progress will continue. At the same time, it is essential that we consolidate and maintain gains which we have achieved. Unfortunately, it appears that we have not done this in two areas of particular concern to attorneys and others dealing with the Patent Office—(i) filling mail orders for patent copies and (ii) supplying certified copies of patent applications.

Within the past few weeks, criticism by examiners and the public—which I very much appreciate—brought to light these operating deficiencies and also the inadequacy of internal operating information concerning them.

Analysis of these situations in depth was immediately begun, and an all-out remedial program was initiated to eliminate the causes of these difficulties and to improve our services in both of these areas. The purpose of this notice is to confirm to you our awareness of these problems and their importance, to inform you of our efforts to overcome them, and to provide a current report of their status.

Patent Copies

I am pleased to be able to inform you that, as of July 24, 1972, we were back on schedule with respect to the filling of orders for patent copies. These are now being filled within 10 days following receipt of the order in the Patent Office.

Problems of accuracy and quality in the filling of such orders remain, however, and our efforts in this connection have been somewhat handicapped by the pressure to achieve promptness. We fully appreciate the importance of these matters, and have adopted quality control techniques which we will increasingly emphasize to provide necessary improvements.

Certified Copies

Those experiencing difficulty in promptly obtaining certified copies should be aware of the availability in the Patent Office of "on the-spot" service in this connection, so that this may be utilized in appropriate circumstances.

A notice concerning this service appeared in the OFFICIAL GAZETTE of December 21, 1971 (893 O.G. 810) as follows:

> "The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides 'on-the-spot' certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2."

This service continues to be available to provide immediate service on orders for certified copies of patented files.

However, as concerns orders for certified copies of pending applications, delays are still being experienced with respect to both mail orders and walk-in requests, notwithstanding improvements resulting from our continuing efforts. We anticipate that such delays may continue to be experienced with respect to orders received during the next 30 days.

We are mindful of the importance of your being able to obtain certified copies promptly, especially where these are essential to obtaining the benefit of original filing dates with respect to patent applications filed abroad. We are determined to make every effort to meet your needs in this respect and, accordingly, are initiating for the duration of the present emergency period a special program as follows:

(1) Effective immediately, and continuing until further notice, a special "Expedited Service" for certified copies will be available through the Customer Relations Branch located adjacent the Public Search Room in the Patent Office. On request for such service, the Customer Relations Branch will locate and withdraw critically needed orders from the normal flow and fill them on a custom basis. This program will include special courier service between the production operations in the main building of the Department of Commerce in Washington and the Patent Office facilities at Crystal Plaza. This special "Expedited Service" may be requested in person, by mail, or by telephone (703-557-2003). No additional charge will be made for such service.

(2) Attorneys and others requesting certified copies are requested

(i) to file their orders, whenever possible, at least two (2) weeks in advance of the date when such copies are required, and

(ii) to specify, when filing such orders, the exact date by which such copies are required.

Compliance will provide us with necessary lead time and also enable us to establish necessary priorities among the orders to be expedited.

(3) Requests for "Expedited Service" should be requested *only* in cases of critical need. Special handling necessarily detracts from our capability to service other orders within a reasonable time, and indiscriminate use of "Expedited Service" would impair our ability to meet the needs of those having critically urgent problems.

It is our hope and expectation that regular service will soon be restored to an acceptable level. A notice terminating this special program will be published when that has been achieved. In the meantime, your cooperation and understanding will be appreciated.

ROBERT GOTTSCHALK,
Commissioner of Patents.

July 25, 1972.

[901 O.G. 412]

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(30) PATENT OFFICE SERVICES

ADDENDUM TO OFFICIAL GAZETTE NOTICE OF AUG. 8, 1972 (901 O.G. 412)

We wish to call attention to a situation discovered during our study and analysis of the patent copy service. We found that there has been a lack of effective controls affecting orders for printed copies of patents placed by letter, including cash order, and deposit account order forms.

Effective controls for Patent Office coupon orders have been established.

We are now implementing a similar procedure for orders placed by letter, including cash order, and deposit account order forms. It is possible, however, that a few orders submitted in this way in the last few months have gone astray. Accordingly, if you placed such requests for patent copies prior to July 15, 1972, and have not yet received those copies, we suggest that you submit, to the address given below, a follow-up communication which should identify the original request by date and include the Patent Numbers originally ordered.

Address inquiries to:

Director
Office of Public Services
U.S. Patent Office
Washington, D.C. 20231

ROBERT GOTTSCHALK,
Commissioner of Patents.

Sept. 7, 1972.

[903 O.G. 368]

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(31) EARLIER NOTIFICATION OF SERIAL NUMBERS

Various procedures are being revised in an effort to reduce pre-examination processing time for newly filed patent applications and to implement the new Patent Application Locator and Monitoring System. The first change which has been effected results in the assignment of serial numbers in the Correspondence and Mail Division immediately after mail has been opened.

With the implementation of this new procedure, it is no longer necessary to submit two self-addressed post cards when early notification of the serial number is desired. If a self-addressed post card is submitted with a patent application, that post card will be stamped with both the receipt date and serial number prior to returning it to the addressee.

The identifying data on the post card should include: (1) applicant's name(s); (2) title of invention; (3) number of pages of specification, claims, and sheets of drawing; (4) whether oath or declaration used; and (5) amount and manner of paying the fee.

A return post card should be attached to *each* patent application for which a receipt is desired.

This notice supersedes the notice of March 10, 1971 (884 O.G. 970).

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

August 9, 1972.

[902 O.G. 2]

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(32) NOTICE TO APPLICANTS, ATTORNEYS AND AGENTS RE PRELIMINARY CLASSIFICATION OF PATENT APPLICATIONS

The Patent Office is initiating a program for expediting newly filed applications through pre-examination steps. This program requires your cooperation to attain the desired result—a reduction in processing time.

We are, therefore, asking you to include a preliminary classification on newly filed applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example, "Proposed class 2, subclass 129."

This program is voluntary and the classification submitted will be accepted as advisory in nature. The final class and subclass assignment remains the responsibility of the Patent Office.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Aug. 11, 1972.

[902 O.G. 376]

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(33) CHANGE IN COPY CERTIFICATION PROCEDURES

Pursuant to 28 USC 1744 the Patent Office provides "copies of letters patent or of any records, books, papers or drawings belonging to the Patent Office and relating to patents, authenticated under the seal of the Patent Office and certified by the Commissioner of Patents, or by another officer of the Patent Office authorized to do so by the Commissioner. . . ." In the interest of improved efficiency the Patent Office will, effective immediately, change its method of certifying copies of the recited materials. Thereafter, the certificate and the copy will be secured together by a staple in lieu of the ribbon currently employed. The new procedures will retain the use of the Patent Office seal and the certification by the Com-

missioner of Patents or other authorized officer in keeping with the requirements of the above statute.

RICHARD A. WAHL,
Sept. 20, 1972. *Acting Commissioner.*

[903 O.G. 368]

(34) PATENT OFFICE BUSINESS HOURS

This procedure is being published to bring to the attention of the public security provisions concerning the Patent Office premises and Patent Office files.

The public is reminded that the Patent Office working hours are 8:30 a.m. to 5:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia. Outside these hours, only Patent Office employees are authorized to be in areas of the Patent Office other than the Public Search Rooms. Of course, a member of the public engaged in a discussion of business with an Office employee may be invited by the employee to stay beyond Office hours to conclude the discussion.

The hours for the Public Search Room are 8:00 a.m. to 8:00 p.m., and the hours for the Trademark Search Room are 8:00 a.m. to 6:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia.

During working hours, all applicants, attorneys, and other members of the public should announce their presence to the Office personnel in the area of their visit. In the Examining Groups, visitors should inform the group receptionist of their presence before visiting other areas of the Group.

RENE D. TEGTMEYER,
Sept. 27, 1973. *Acting Commissioner of Patents.*

[915 O.G. 1164]

RECORDS AND FILES

(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquires as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only of an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection: similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

(36) NOTIFICATION RE: CONFLICT IN ASSIGNMENT IN CERTAIN APPLICATIONS

Effective September 12, 1966, Assignment Branch will discontinue mailing notification in cases where there is a conflict in assignment between an original application and its divisional, continuation, substitute, or continuation-in-part application.

Assignments from original applications are applied without charge ONLY to divisional, continuation, or substitute applications where the date of the assignment is prior to the filing date of the later-filed application. (Continuation-in-part applications require separate assignments if they are to be issued to the assignee.)

Practitioners are reminded of the provisions of Rule 334. Unless an assignment is filed at or prior to the date of payment of the issue fee, the patent will normally be issued in the name of the inventor.

Section 306 of the Manual of Patent Examining Procedures will be amended appropriately.

W. R. ARMSTRONG,
Director, Office of Patent Services.

Concurred:
(signed) R. A. WAHL,
Assistant Commissioner.

[830 O.G. 442 (Sept. 12, 1966)]

(37) RECORDING OF INSTRUMENTS

Effective April 1, 1967, the Patent Office will accept and record legible certified copies of original assignments or other instruments.

The certified copy, if not in the English language, will not be recorded unless accompanied by a translation signed by the translator.

Certification shall be to the fact that the instrument submitted is a true copy of the original and shall be made by a notary public or, if in a foreign country, by a consular officer of the United States or an officer authorized to administer oaths and authenticated by a consular officer of the United States.

RICHARD A. WAHL,
Mar. 3, 1967. *Assistant Commissioner.*

[836 O.G. 1111]

(38) PUBLIC SEARCH ROOM

Due to budget and personnel limitations which took effect on July 1, 1968, it has become necessary to adopt measures that are consistent with these limitations and that will permit continuance of Patent Office activities and facilities without curtailing their use to the public. Among these measures is the service of returning to the files those patent bundles used by the attorneys and the general public in the Public Search Room.

Beginning August 19, 1968, in order that free access to the stacks may be maintained, persons drawing patent bundles from the search files will be expected to return them to the file slots from which they were withdrawn.

This will enable the personnel in the Public Search Room to concentrate their time and efforts on the necessary updating and storage maintenance for improvement of the integrity of the search files.

RICHARD A. WAHL,
Aug. 12, 1968. *Assistant Commissioner.*

[854 O.G. 287]

(39) ASSIGNMENT INFORMATION FOR ISSUE FEE TRANSMITTAL FORM

Rule 334, revised November 4, 1969, requires . . . "At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent Office. In the event an assignment has been filed, such statement must include the name of the assignee and indicate whether or not an acknowledgment of a recorded assignment has been received from the Patent Office."

The Issue Fee Transmittal Form POL-85b revised December 1969, provides space (Item 2) for Assignment Data which should be completed to comply with the Rule. Unless an assignee's name and address are identified in Item 2 of the Issue Fee Transmittal Form POL-85b, the patent will issue to the applicant. Assignment data printed on the patent will be based on information so supplied.

A request for correction of error arising from failure to correctly provide this Assignment Data in Item 2 will be considered only under the provisions of Rule 323 for a certificate of correction of applicant's mistake.

The recording of instruments in the Assignment Branch is not affected by this notice.

WILLIAM E. SCHUYLER, JR.,
Sept. 28, 1970. *Commissioner of Patents.*

[879 O.G. 988]

(40) CERTIFIED COPIES OF APPLICATIONS AS ORIGINALLY FILED

The Patent Office has discontinued placing the assignments of record on the file wrapper of patent applications, except when a title report is requested or upon allowance of the case. Accordingly, the copies of applications prepared in response to requests for a certified copy of a patent application as filed, will no longer include an indication of assignments. Applicants desiring an indication of assignments of record should request separately certified copies of assignment documents.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

[887 O.G. 1042 (6-22-71)]

(41) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(42) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(43) PATENT OFFICE SERVICES

A notice concerning delays in furnishing Certified Copies was published Aug. 8, 1972 (901 O.G. 412). This notice announced the initiation of a special "Expedited Service" for obtaining copies of pending applications promptly. As indicated in the notice, this special service would be terminated upon restoration of our regular service to an acceptable level.

I am pleased to report that our regular service has been restored to an acceptable level and this special program is being terminated.

However, our efforts to improve our services in these areas will continue. We have made progress, but are not resting on that record. We recognize that there are still problems of accuracy and quality in the filling of orders. These are currently being examined in an effort to bring about necessary improvements.

Thank you for your cooperation and understanding during this difficult period.

ROBERT GOTTSCHALK,
May 30, 1973. *Commissioner of Patents.*

[911 O.G. 1130]

(44) NUMERICAL COLLECTION OF U.S. PATENTS IN MICROFORM FOR PUBLIC SEARCH ROOM

Effective immediately, the Patent Office will implement a program to make available for use, in the Public Search Room, a complete numerical collection of printed U.S. Patents on 16 mm negative microfilm.

The program will require approximately six months for completion. An adequate number of reader-printers will be installed. The present numerical paper collection (bound volumes) will be removed from the mezzanine area when microfilm for the same patent numbers is available.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

[915 O.G. 378]

FEES AND PAYMENT OF MONEY

(45) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office.* This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

(46) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

This notice supplements the Notice of September 10, 1965, 818 O.G. 1207, September 28, 1965, relating to the administration of the act of July 24, 1965, Public Law 89-83, increasing certain fees payable to the United States Patent Office.

That act provides for the payment of additional fees on presentation of certain claims during the prosecution of applications. This provision applies in the case of applications filed on or after October 25, 1965, the effective date of the act. In such cases, when any amendment is filed which presents additional claims over the total number covered by fees previously paid, it should be accompanied by any additional fees due.

As in the case of claims presented after an application is filed and before first action, described in the Notice of September 10, 1965, when independent claims are subsequently presented so that the number of uncanceled independent claims in the application as amended exceeds the number of such claims paid for, an additional fee of $10 is due for each such additional claim. Similarly, an additional fee of $2 is due for each claim added in excess of the number of uncanceled claims, independent or dependent, already paid for.

Treatment of Amendments Unaccompanied by Fees Due

Amendments filed during and after the prosecution of an application and not accompanied by the entire fee due upon such filing will be treated as follows:

If such an amendment is filed in reply to an Office action it will be regarded as not being fully responsive thereto and the practice set forth in section 714.03 of the Manual of Patent Examining Procedure will be followed, care being taken to avoid any abuse of this practice by attorneys as, for example, by habitual submission of such amendments without fees or with insufficient fees.

If an amendment which is not filed in response to an Office action is of such a nature as to require a fee and is not accompanied by the full fee required, it will not be entered and the applicant will be so advised.

Amendment During Interference

An amendment filed in connection with a motion to add counts to an interference (Rule 233) must be accompanied by

the claim or claims to be added and with the appropriate fees, if any, which would be due if the amendments were to be entered. It may be that the amendments will never be entered. Only upon the granting of the motion is it necessary for the other party or parties to present the claims, but the fees must be paid whenever presented.

Claims which have been submitted in response to a suggestion by the Office for inclusion in an application must be accompanied by the fee due, if any.

Amendment After Requirement for Restriction

After a requirement for restriction or election of species, nonelected claims will be included in determining the fees due in connection with a subsequent amendment unless such claims are canceled.

Refunds

Money paid in excess or by mistake in connection with an amendment will be refunded in the usual manner.

Amendments affecting the claims cannot serve as the basis for granting any refund.

Money paid in connection with the filing of a proposed amendment will not be refunded by reason of the nonentry of the amendment.

EDWARD J. BRENNER,
Commissioner of Patents.

Jan. 13, 1966.

[823 O.G. 814]

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(47) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Commissioner.

Feb. 23, 1966.

[824 O.G. 1200]

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(48) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose. Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will not be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Commissioner of Patents.

Apr. 12, 1966.

[825 O.G. 1183]

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(49) DEPENDENT CLAIMS

Although the notice published on October 5, 1965, in 819 O.G. 3, explained that for the purposes of the present fee bill, Public Law 89–83, approved July 24, 1965, the Patent Office will consider a proper dependent claim as being one which incorporates by reference a single preceding claim, whether independent or dependent, and includes all the limitations of the claim so incorporated, there appears to be still some uncertainty on this matter and it is therefore thought to be desirable to elaborate it.

Since the initial determination, for fee purposes, as to whether a claim is dependent must be made by persons other than examiners, it is necessary, at that time, to accept as dependent virtually every claim which refers to another claim, without determining whether there is actually a true dependent relationship. Such acceptance does not, however, preclude a subsequent holding by the examiner that a claim is not a proper dependent claim.

An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim. Thus, for example, if claim 1 recites the combination of elements *a*, *b*, *c* and *d*, a claim reciting the structure of claim 1 in which *d* was omitted or replaced by *e* would not be a proper dependent claim, even though it placed further limitations on the remaining elements or added still other elements.

The fact that a dependent claim which is otherwise proper might require a separate search or be separately classified from the claim on which it depends would not render it an improper dependent claim, although it might result in a requirement for restriction.

The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper. Thus, if claim 1 recites a specific product a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1. Similarly, if claim 1 recites a method of making a product, a claim for a product made by the method of claim 1 could be a proper dependent claim. On the other hand, if claim 1 recites a method of making a specified product, a claim to the product set forth in claim 1 would not be a proper dependent claim if the product might be made in other ways.

Any claim which is in dependent form but which is so worded that it does not, in fact, include every limitation of the claim on which it depends, will be required to be cancelled as not being a proper dependent claim; and cancellation of any further claim depending on such a dependent claim will be similarly required. The applicant may thereupon amend the claims to place them in proper dependent form, or may redraft them as independent claims upon payment of any necessary additional fee.

The basis for the difference in fees between independent and dependent claims is the fact that the examination of a dependent claim is normally a comparatively simple matter after the claim on which it depends has been examined. This relationship, however, obtains only when the independent claim represents a bona fide attempt to define the invention and to distinguish it from the known prior art. Accordingly, the presentation of a claim which on its face is obviously unpatentable or indefinite, as basis on which other claims are dependent, is not considered to be proper practice. One example of such a practice involves the use of a claim drawn to "all the features of novelty herein disclosed," with other claims, which actually recite the features thought to be novel, being dependent on the first. A similarly objectionable arrangement would involve the use, as a basic independent claim, of a claim merely reciting "a wheeled vehicle," "an amino acid" or "an internal combustion engine."

Such a practice as that just described involves not only an attempt to evade the free provisions of Public Law 89–83, but also the presentation of a claim known by the attorney or agent presenting it to be unpatentable. Any registered patent attorney or agent who makes a practice of presenting claims of this character may be called on to explain his actions.

(signed) EDWARD J. BRENNER,
Commissioner.

June 8, 1966.

[828 O.G. 1]

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(50) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
Commissioner.

June 23, 1966.

[828 O.G. 377]

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(51) PRACTICE RE: FILING FEES

It is suggested that attorneys review the notices pertaining to filing fees under the new Fee Act of 1965 appearing at 818 O.G. 1207, September 28, 1965, and 823 O.G. 814, February 15, 1966.

The filing fee includes the basic $65 fee plus an additional fee corresponding to the number and type of claims presented. For filing fee purposes the Patent Office considers any claim that specifically refers back to another claim to be a dependent claim, regardless of statutory class.

It appears that some attorneys are submitting filing fees in excess of their computations, apparently to insure against loss of a filing date should their computations be in error. This is neither necessary nor desirable. The Application Branch has been authorized to accept all applications, otherwise acceptable, if the basic fee of $65 is submitted, and if the deficiency is no more than $25 of the required filing fee, and to require payment of the deficiency within a stated period upon notification of the deficiency. Practitioners are urged to discontinue submitting excessive fees, since processing such fees has proved costly to the Office, and since applicants are believed to be adequately protected against loss of filing date by the practice outlined above.

There appears to be an erroneous impression that a Rule 147 divisional case requires a filing fee based on the claims in the parent case. The 818 O.G. 1207 notice specifically states that an amendment filed with a Rule 147 case will be effective to reduce the number of claims upon which the fee is based.

RICHARD A. WAHL,
Assistant Commissioner.

June 30, 1966.

[828 O.G. 1085]

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(52) ISSUE FEES

Effective March 31, 1969, the Patent Office will discontinue the practice of estimating the number of printed pages of specification in advance of printing.

Instead, a Minimum Issue Fee will be due three months from the date of the Notice of Allowance. This minimum fee, which consists of $100 plus $10 for the first page of printed specification plus $2 for each sheet of drawing, will be shown on the Notice of Allowance which has been revised to reflect the new practice.

After the patent is printed and the number of pages of specification is found to exceed the one already paid for, a Notice of Balance of Issue Fee Due will be attached to the Grant. Failure to pay this balance within THREE MONTHS FROM THE DATE OF THE PATENT will result in lapse of the patent.

Practitioners are urged to use the special fee transmittal forms provided with the Notice of Allowance and the Notice of Balance of Issue Fee Due.

The above fees will not be accepted from anyone other than the applicant, his assignee, attorney, or a party in interest as shown by the records of the Patent Office.

ATTENTION is also directed to the space designated on the Notice of Allowance Transmittal form PO–85*a* wherein the name of the assignee is required *if it is desired to have the patent issued to an assignee or assignees.*

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 31, 1969.

[860 O.G. 2]

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(53) CALCULATION OF ISSUE FEES

This notice is to clairfy the manner in which the balance of issue fee due is calculated for the printed pages of specification (including claims) in excess of the one page already paid for by payment of the Minimum Issue Fee (see the notice of January 31, 1969, 860 O.G. 2).

Under the authority of 35 U.S.C. 151, the charge is disregarded WHERE ONLY ONE ADDITIONAL PAGE OR LESS is involved. Thus, if the patent consists of two pages or less, no balance fee is due. However, if the patent consists of three pages, a Notice of Balance of Issue Fee Due for $20 is mailed together with the original patent grant. (A page consists of one side of a printed sheet containing two columns or less.)

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.

Feb. 4, 1970.

[872 O.G. 1]

(54) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

An increasing number of amendments are being received with improper fees. Because of the problems occasioned thereby, it is suggested that attorneys review the notices pertaining to fees and the Office practice related thereto (823 O.G. 814, Feb. 15, 1966; 828 O.G. 1, July 5, 1966; 828 O.G. 1085, July 26, 1966). Attention is invited to the new form 3.52, Amendment transmittal letter, for additional guidance in computing fees (869 O.G. 1036, Dec. 23, 1969). This form may be obtained from the Receptionist in Building 3 of Crystal Plaza. The new loose-leaf rule book, which will soon be available, includes a sample form (No. 52) also. When submitting the new amendment transmittal letter please include the Art Unit and Examiner's name.

The above notices and new form may also be found as items 24, 25, 29 and 147 in the consolidated listing of notices in the OFFICIAL GAZETTE of Jan. 13, 1970.

RICHARD A. WAHL,
Mar. 13, 1970. *Assistant Commissioner.*

[873 O.G. 1]

(55) EXAMINER AMENDMENTS—CHARGE AGAINST DEPOSIT ACCOUNTS

The Examiner's Amendment practice is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50.00 for each patent application.

In order to expedite the issuance of a patent on an application otherwise ready for allowance, an Examiner's Amendment will be acceptable to make a charge against a deposit account provided prior approval is obtained from the attorney or agent. When such an Examiner's Amendment is prepared, the prior approval will be indicated by identification of the name of the authorizing party, the date and type (personal or telephone) of authorization, the purpose for which the charge is made (drawing correction, additional claims, etc.), and the deposit account number. Further identifying data, if deemed necessary and requested by the attorney, should also be included in the Examiner's Amendment.

RICHARD A. WAHL,
Mar. 17, 1970. *Acting Commissioner of Patents.*

[873 O.G. 667]

(56) CHANGES IN CHARGES FOR COPIES

The Patent Office is announcing a change in the charges for copies of materials produced on coin-operated copiers located at Crystal Plaza. The charge will be 15¢ per page.

This change will be effective within the next 30 to 45 days due to the engineering changes necessary to accommodate the difference in number and value of coins.

The Patent Office will monitor this change for a period of six months to: (1) Evaluate effects on other services, equipment utilization, materials, and facilities; and, (2) Ensure that the new charge of 15¢ per page will enable the Patent Office to fully recover the cost of operating the copiers.

At the end of the period, the data obtained will be evaluated with a view to continuance or discontinuance of the reduced rate.

ROBERT GOTTSCHALK,
June 6, 1972. *Commissioner of Patents.*

[899 O.G. 1230]

POWERS OF ATTORNEY

(57) WITHDRAWAL OF ATTORNEY

To expedite the handling of requests for permission to withdraw as attorney, under Rule 36, the request should be submitted in triplicate (original and two copies) and indicate thereon the present mailing address of the attorney who is withdrawing.

JOSEPH SCHIMMEL,
Apr. 18, 1967. *Solicitor.*

[837 O.G. 667]

(58) RULE 34—APPEARANCES BEFORE BOARD OF APPEALS

Applicants and their attorneys are reminded that Rule 34 provides that *before* any attorney or agent will be allowed to "take action of *any kind* in any application or proceeding, a written power of attorney or authorization . . . must be filed in the particular application or proceeding." [Italics added.]

Henceforth this rule will be strictly enforced. This applies to attorneys appearing at oral hearings before the Board of Appeals.

EDWIN L. REYNOLDS,
July 26, 1967. *First Assistant Commissioner.*

[841 O.G. 669]

(59) WITHDRAWAL OF ATTORNEY

Attorneys and agents are reminded that by notice published April 18, 1967, in 837 O.G. 667, requests for permission to withdraw as attorney or agent of record, pursuant to Rule 36, should be submitted in triplicate (original and two copies) and should indicate thereon the attorney or agent's present mailing address. The Group No. should also appear on all such requests.

JOSEPH F. NAKAMURA,
Sept. 27, 1973. *Acting Solicitor.*

[915 O.G. 1164]

(60) RECOGNITION OF ATTORNEYS AND AGENTS

In connection with the revised rules concerning recognition of attorneys and agents, published in the Federal Register July 2, 1971 (36 F.R. 12616), the Patent Office will operate under the following procedures.

The Patent Office will continue to give effect to powers of attorney and authorizations of agent naming firms filed, with respect to patent applications, before the effective date of the rules, July 2, 1971.

As stated in the revised rules, powers of attorney or authorizations of agent naming firms of attorneys or agents filed in patent applications after July 2, 1971 will not be recognized. However, the Patent Office will construe any such powers or authorizations filed prior to October 1, 1971, as a direction to consider the address of the firm as the correspondence address for the application.

The privilege afforded by revised Rule 34(a) of the Rules of Practice in Patent Cases as to recognition of registered attorneys and agents not of record will apply to all applications whether filed before or after the effective date. Attention is called to the requirement of Rule 34(a) that a paper filed by a registered patent attorney or agent in any application in which he is not of record should include both his signature and registration number.

Powers of attorney and authorizations of agent under Rule 34(b) naming one or more registered individuals may continue to be made.

As prior to the effective date of the revised rules, where a paper is hand delivered to the Office and that paper has been properly signed by a registered attorney or agent whether or not of record in the particular case involved, a duplicate copy may be appropriately marked by the Patent Office employee receiving the original and returned to the person delivering the paper. As an example, a duplicate copy of a request for an extension of time to make a response may be marked approved, initialed or signed, and returned to the delivering person.

WILLIAM E. SCHUYLER, JR.,
Aug. 5, 1971. *Commissioner of Patents.*

[890 O.G. 2]

(61) RECOGNITION OF FIRMS OF ATTORNEYS AND AGENTS

The notice of August 5, 1971, appearing in the OFFICIAL GAZETTE September 7, 1971 (890 O.G. 2) is revised as follows.

The originally announced period terminating October 1, 1971, relating to appointments of firms of attorneys or agents, filed in the Patent Office after July 2, 1971, is hereby extended. Accordingly, until further notice, any power of attorney or authorization of agent naming a firm, received in the Patent Office after July 2, 1971, will be construed as a direction to consider the firm name and address as the correspondence address of the application.

ROBERT GOTTSCHALK,
Sept. 27, 1971. *Acting Commissioner of Patents.*

[891 O.G. 886]

APPLICATION CONTENT

(62) DECLARATION IN LIEU OF OATH—RIBBONING OF PAPERS UNNECESSARY

Recent legislation, 35 U.S.C. 25, and Rule 68 based thereon permit applicants to make a written declaration in lieu of the customary oath or affirmation which accompanies a patent application.

Such a declaration, even if signed in a country foreign to the United States, need not be ribboned to the other papers.

The declaration, like the oath, is an integral part of the application and must be maintained together therewith. When a declaration is used, it is unnecessary to appear before any official in connection with the making of the declaration.

Further details are given in 29 F.R. 18502, Dec. 29, 1964, 811 O.G. 2.

RICHARD A. WAHL,
Mar. 2, 1965. *Superintendent, Patent Examining Corps.*

[813 O.G. 2]

(63) GUIDELINES FOR DRAFTING A MODEL PATENT APPLICATION UNDER THE REVISED RULES

The following guidelines illustrate the preferred layout and content for patent applications. They have been prepared to supplement the amendments to the rules which are effective January 1, 1967. These guidelines are suggested for the applicant's use.

Arrangement and Contents of the Specification

The following order of arrangement is preferable in framing the specification and, except for the title of the invention, each of the lettered items should be preceded by the headings indicated.

(a) Title of the Invention.
(b) Abstract of the Disclosure.
(c) Cross-References to Related Applications (if any).
(d) Background of the Invention.
  1. Field of the Invention.
  2. Description of the Prior Art.
(e) Summary of the Invention.
(f) Brief Description of the Drawing.
(g) Description of the Preferred Embodiment(s).
(h) Claim(s).

(a) *Title of the Invention:* (See Rule 72(a).) The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive.

(b) *Abstract of the Disclosure:* (See Rule 72(b), MPEP 608.01(a), and 831 O.G. 1328, October 25, 1966.)

(c) *Cross-References to Related Applications:* (See Rule 78 and MPEP 201.11.)

(d) *Background of the Invention:* The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definities. The statement should be directed to the subject matter of the claimed invention.

(2) Description of the Prior Art: A paragraph(s) describing to the extent practical the state of the prior art known to the applicant, including references to specific prior art where appropriate. Where applicable, the problems involved in the prior art, which are solved by the applicant's invention, should be indicated.

(e) *Summary:* A brief summary or general statement of the invention as set forth in Rule 73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(f) *Brief Description of the Drawing:* A reference to and brief description of the drawing(s) as set forth in Rule 74.

(g) *Description of the Preferred Embodiment(s):* A description of the preferred embodiment(s) of the invention as required in Rule 71. The description should be as short and specific as is necessary to adequately and accurately describe the invention.

Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field to which the invention pertains, form a part of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(h) *Claim(s):* (See Rule 75.) A claim may be typed with the various elements subdivided in paragraph form. There may be plural indentations to further segregate subcombinations or related steps.

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.

Claims should preferably be arranged in order of scope so that the first claim presented is the broadest. Where separate species are claimed, the claims of like species should be grouped together where possible and physically separated by drawing a line between claims or groups of claims. (Both of these provisions may not be practical or possible where several species claims depend from the same generic claim.) Similarly, product and process claims should be separately grouped. Such arrangements are for the purpose of facilitating classification and examination.

The form of claim required in Rule 75(e) is particularly adapted for the description of improvement type inventions. It is to be considered a combination claim and should be drafted with this thought in mind.

In drafting claims in accordance with Rule 75(e), the preamble is to be considered to positively and clearly include all the elements or steps recited therein as a part of the claimed combination.

Oath

(See Rule 65.) Where one or more previously filed foreign applications are cited or mentioned in the oath, complete identifying data, including the application or serial number as well as the country and date of filing, should be provided.

EDWARD J. BRENNER,
Date: Oct. 12, 1966. *Commissioner of Patents.*

[832 O.G. 5]

(64) PLANT PATENT APPLICATIONS—FILING DATE

Applicants and their attorneys are reminded that an application for a patent for a plant must include two copies of the specification, Rule 163(b), and two copies of the drawing when in color, Rule 165(b).

Effective immediately, applications for plant patents which fail to include two copies of the specification and two copies

of the drawing when in color will be accepted for filing only. The Application Branch will notify the applicant immediately of this deficiency and require the same to be rectified within one month. Failure to do so will result in loss of filing date.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 668]

(65) GUIDELINES FOR INCORPORATION BY REFERENCE IN PATENT APPLICATIONS

An application for a patent may incorporate essential material by reference to a United States patent, or an allowed U.S. application, subject to the conditions set out below. Essential material* is defined as that which is necessary (7) to support the claims, or (2) for adequate disclosure of the invention (35 U.S.C. 112). Material which is essential to the referencing application may not be incorporated by reference to patents issued by foreign countries or to non-patent publications. Essential material may not be incorporated by reference to a patent or application which itself incorporates essential material by reference.

The referencing application must include (1) an abstract, (2) a brief summary of the invention, (3) an identification of the referenced patent or application, (4) at least one view in the drawing in those applications admitting of a drawing, and (5) one or more claims. Where appropriate it would be advisable to direct particular attention to specific portions of the referenced patent or application.

If an application is filed with a complete disclosure, essential material may be cancelled by amendment and the *same* material substituted by reference to a patent or a pending and commonly owned allowed application in which the issue fee has been paid. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the material cancelled from the application is the *same* material that has been incorporated by reference.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned allowed U.S. application for which the issue fee has been paid, applicant will be required prior to examination to furnish the Patent Office with a copy of the referenced material together with an affidavit executed by the applicant or his attorney or agent of record stating that the copy consists of the *same* material incorporated by reference in the referencing application.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned application other than one in issue with the fee paid, applicant will be required prior to examination to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

EDWARD J. BRENNER,
Commissioner.

Approved: Jan. 15, 1969.
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 883; Jan. 18, 1969

*Non-essential subject matter may be incorporated by reference to patents issued by the United States or foreign countries, prior filed commonly owned patent applications filed in the United States, and non-patent publications for purposes of indicating the background of the invention or illustrating the state of the art.

[859 O.G. 346]

(66) INCORPORATION BY REFERENCE—FILING DATE

In clarification of the Notice of December 30, 1968, appearing in the OFFICAL GAZETTE of February 11, 1969, the following amplification is made.

The filing date of any application wherein essential material is incorporated by reference to a foreign patent or to a publication will not be affected because of the presence of such reference. In such a case, as well as any other case which improperly incorporates essential material by reference, the applicant will be required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

ERRATUM

Attention is directed to the error in the above-mentioned notice appearing at 859 O.G. 346. Please delete the phrase, "a U.S. patent or", which was erroneously printed in the second line of the last paragraph.

RICHARD A. WAHL,
Mar. 7, 1969. *Assistant Commissioner.*

[A Notice covering this same subject, in slightly different form, has been published in 34 F.R. 5555, Mar. 22, 1969.]

[861 O.G. 680]

(67) PHOTOCOPIES OF APPLICATIONS

Many of the patent application papers received by the Patent Office are copies of the original, ribbon copy. These are acceptable if, in the opinion of the Office, they are legible and permanent. Legibility includes ability to be photocopied and photomicrographed so that suitable reprints can be made. This requires a high contrast, with black lines and a white background. Gray lines and/or a gray background sharply reduce photo reproduction quality.

Applicants should make every effort to file patent applications in a form that is clear and reproducible. The Office may accept for filing date purposes papers of reduced quality but will require that acceptable copies be supplied for further processing.

Additionally, legibility of some application papers becomes impaired due to abrasion or aging of the printed material during examination and ordinary handling of the file. It may be necessary to require that clear, legible copies be furnished at later stages after filing, especially when preparing for issue.

RICHARD A. WAHL,
Jan. 28, 1970. *Assistant Commissioner.*

[872 O.G. 341]

(68) DIVISIONAL APPLICATION PAPERS

In the interest of expediting the processing of newly filed divisional applications, filed as a result of a restriction requirement, applicants are requested to include the appropriate Patent Office classification on the papers submitted.

The appropriate classification for the divisional application may be found in the office communication of the parent case wherein the requirement was made. It is suggested that this classification designation be placed in the upper right hand corner of the letter of transmittal accompanying these divisional applications.

RICHARD A. WAHL,
June 5, 1970. *Assistant Commissioner of Patents.*

[875 O.G. 702]

(69) REDUCTION IN PATENT APPLICATION DISCLOSURE

Notice of proposed Guidelines for Preparation of Patent Application Disclosure was published in the Federal Register of January 14, 1969 (34 F.R. 524), and in the OFFICIAL GAZETTE of the Patent Office of February 4, 1969 (859 O.G. 1). Comments from the general public were invited.

After consideration of comments received, new guidelines are deemed unnecessary, even though the average length of specification seems to be increasing. Applicants and their attorneys are reminded that 35 U.S.C. 112 requires inventions to be described "in such full, clear, concise, and exact terms as to enable any person skilled in the art * * * to make and use the same * * *." To satisfy the "concise"

requirement, lengthy and unnecessary descriptive detail should be avoided.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: July 24, 1970.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 70-9862; Filed, July 30, 1970; 8:45 a.m.]

35 F.R. 12296, July 31, 1970

[878 O.G. 1]

(70) NEW SOLE-JOINT DECLARATION FORM

The sole declaration form, PO–1147, announced by the notice of May 28, 1971 (887 O.G. 1840) has been revised to permit its use in either sole or joint inventor applications. The revised form comprises two pages to provide space for the additional information. In most applications, only page 1 will be necessary, in which case only that page need be signed and submitted. Page 2 would be used only where insufficient space is available on page 1 to fully furnish the required information. If page 2 is used, page 1 need not be signed, and *all* signatures should appear on page 2.

Where appropriate, the present "sole" declaration form may be used.

Specific instructions appear on the form.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
Apr. 17, 1972. *Assistant Commissioner.*

[898 O.G. 738]

(71) DECLARATION AND POWER OF ATTORNEY FORM PO–1147 (REVISED) (3–72)

A revised Declaration and Power of Attorney Form, PO–1147 (Revised) (3–72), was recently issued and is supplied for use as a master copy for reproduction purposes. Experience with the revised form indicates that some confusion has been caused by the reference to "effective" filing date in item 600 of the form. The form is, therefore, being reprinted to delete the word "effective" from the descriptive language appearing in item 600. Persons who have copies of the old form may use the form by deleting the word "effective" before the form is reproduced. In this connection it is noted that the word "effective" appears three times in item 600, once on page 1 and twice on page 2.

RICHARD A. WAHL,
Aug. 28, 1972. *Assistant Commissioner for Patent Examining.*

[902 O.G. 1172]

(72) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Formula and Table Format

On February 2, 1972, notice of proposed rule making regarding the amendment of §§ 1.52 and 1.75 and the addition of a new § 1.58 of Title 37, Code of Federal Regulations, dealing with Formula and Table Format, was published in the Federal Register (37 F.R. 2520). Interested persons were given until April 30, 1972, to submit written comments, suggestions, or objections. Full and careful consideration was given to all written comments received. In view of these comments the proposed rule language has been revised. The revised rules do not now require that the formulas and tables be presented on separate bristolboard sheets but simply require them to be presented in the specification in a form suitable for photographic reproduction.

These rule changes are intended to facilitate the microfilming of application papers and the printing of patents which contain formulas and tables in the text.

Under the new rules the text of printed patents would continue to be typeset, with formulas and tables being photographically reproduced and appearing at their proper location in the text. This procedure should result in a reduction of printing errors and costs.

This rule change also makes more liberal the size of paper permissible in patent applications.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations, is hereby amended as follows:

1. Section 1.52 is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing or printing thereon to permit the production of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, oath, or declaration, papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of 1½ inches (3.8 cm.) must be reserved on the left-hand side and on the top of each page of the specification, including claims. The lines must not be crowded too closely together; typewritten lines should be double spaced. The pages of the specification, including claims, should be numbered consecutively, starting with 1, the numbers being placed in the center of the bottom margins.

(c) Any interlineation, erasure, or cancellation or other alteration of the application papers as filed must have been made before the application was signed and sworn to or declaration made, and should be dated and initialed or signed by the applicant in a marginal note or footnote on the same sheet of paper to indicate such fact. No such alterations are permissible after execution of the application papers. (See § 1.56.)

2. A new § 1.58 is added to read as follows:

§ 1.58 *Chemical and mathematical formulas and tables.*

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables only if necessary to conform to 35 U.S.C. 112.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on pure white durable paper, the surface of which is calendered and smooth, in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable; watermarks should not be prominent. India ink or its equivalent, or solid black typewriter ribbon must be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet, in which case the formula or table will appear printed across both columns of the page in the printed patent. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.085 inch (2.2 mm.) high (elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.085 inch (2.2 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between the formulas and tables and the text. Tables should have the

lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

§ 1.75 [*Amended*]

3. Section 1.75 is amended by adding at the end of paragraph (d)(1) the expression "(See § 1.58(a).)."

Effective date. These amendments shall become effective on January 1, 1973, and will apply to applications filed after that date.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: Oct. 12, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17727 Filed 10-17-72; 8:48 am]

Published in 37 FR 21994, Oct. 18, 1972

[975 O.G. 255]

PRIORITY APPLICATIONS

(73) REISSUE APPLICATIONS—FOREIGN PRIORITY

A "claim" for the benefit of an earlier filing date in a foreign country under 35 U.S.C. 119 must be made in a reissue application even through such a claim was made in the application on which the original patent was granted. However, no additional certified copy of the foreign application is necessary. The procedure is similar to that for "Continuing Applications" in the last paragraph of MPEP 201.14(b).

The heading on printed copies will not be carried forward to the reissue from the original patent. Therefore, it is important that the file wrapper be endorsed under "Claims Foreign Priority."

RICHARD A. WAHL,
Acting Superintendent Patent Examining Corps.

[807 O.G. 579 (Oct. 20, 1964)]

(74) FILING OF PRIORITY PAPERS

In view of the shortened periods for prosecution leading to allowances, it is recommended that priority papers be filed as early as possible. Although Rule 55 permits the filing of priority papers up to and including the date for payment of the final fee, it is advisable that such papers be filed promptly after filing the application. Frequently priority papers are found to be deficient in material respects such as, for example, the failure to include the correct certified copy and there is not sufficient time to remedy the deficiency. Occasionally a new oath may be necessary where the original oath omits the reference to the foreign filing date for which the benefit is claimed. The early filing of priority papers would thus be advantageous to applicants in that it would afford time to explain any inconsistencies that exist or to supply any additional documents that may be necessary.

It is also suggested that a pencil notation of the serial number of the corresponding U.S. application be placed on the priority papers.

RICHARD A. WAHL,
Dec. 1, 1965. *Assistant Commissioner.*

[821 O.G. 1261]

(75) EFFECTIVE DATE OF UNITED STATES PATENT

In section 706.02, delete penultimate paragraph.

Rewrite section 715.01 to read:

The effective date of a United States Patent for use as a prior art reference is not affected by the foreign filing date to which the patentee may be entitled under 35 U.S.C. 119. *In re Hilmer,* 833 O.G. 13, 149 USPQ 480 (CCPA 1966); *Lilly et al.* v. *Brenner,* 153 USPQ 95 (C.A.D.C. 1967). The reference patent is effective as of the date the application for it was filed in the United States (35 U.S.C. 102(e) and 103). *Haseltine Research, Inc. et al.* v. *Brenner,* 824 O.G. 8 (U.S. Supreme Court 1965).

RICHARD A. WAHL,
Apr. 5, 1967. *Assistant Commissioner.*

[838 O.G. 1]

(76) PATENT HEADINGS

As a service to the public, beginning with the issue of January 16, 1968, the heading of the printed patent will include all identifying parent data of continuation-in-part applications as is now the practice in continuation, divisional, substitute, and reissue applications. It should be noted, however, that inclusion of this information in the heading does not necessarily indicate that the claims are entitled to the benefit of the earlier filing date.

The above practice will not change the procedure with regard to assignments as set forth in the first sentence of paragraph 2 of Section 306 of the M.P.E.P.

RICHARD A. WAHL,
Dec. 18, 1967. *Assistant Commissioner.*

[846 O.G. 337]

(77) CHAINS OF CONTINUING APPLICATIONS

In view of the decision of the Court of Customs and Patent Appeals in *In re Henriksen* (158 USPQ 224) the application of 35 U.S.C. 120 will no longer be limited to a chain of three successively filed continuing cases.

Accordingly, Change Notice 12-8 is rescinded.

RICHARD A. WAHL,
Aug. 9, 1968. *Assistant Commissioner of Patents.*

[854 O.G. 559]

(78) FOREIGN PRIORITY OF CONTINUING APPLICATION

If the Examiner is aware of the fact that the parent of a continuing application has fully complied with the requirements of 35 U.S.C. 119 and is therefore entitled to the benefit of the filing date of an earlier filed foreign application, he should direct it to the applicant's attention in an Office action, as in the following exemplary language:

"Applicant is reminded that in order to be entitled to priority based on papers filed in parent application Serial No. ---------- under 35 U.S.C. 119, a claim for such priority must be made in this application. In making such claim, applicant may simply call attention to the fact that a certified copy of the foreign application is in the parent application (M.P.E.P. 201.14(b))."

RICHARD A. WAHL,
Aug. 30, 1968. *Assistant Commissioner.*

[855 O.G. 1]

(79) GERMANY: NEW REQUIREMENT FOR SUBMISSION OF COPY OF ORIGINAL APPLICATION IN CONVENTION CASES

Under Section 27 of the German Patent Law which came into effect October 1, 1968, all applicants submitting a claim of priority in Germany under the Paris Union will be required to submit a copy of the application upon which the claim for priority is based. The U.S. Patent Office has been advised by the German Office that the copy need *not* be certified correct by the Office in which the application was originally filed.

Accordingly, for U.S. applicants, one method of complying with the new law would be to accompany the German filing with a copy of the prior U.S. applications as filed. This copy can be produced by the applicant himself.

If the applicant does not submit the copy at the time of filing, the German Office will issue, within two months after the German filing, a request to submit the copy. Failure to submit the required copy within two months after notification results in loss of the priority claim.

With respect to application on file in Germany prior to October 1, 1968, the following applies:

Copies of the original application will not be required for those applications already on file if the serial number of the application on which the priority claim is based had been communicated to the German Patent Office prior to October 1, 1968.

With regard to applications on file prior to October 1, 1968, for which the U.S. serial number is communicated after October 1, 1968, the reques: for the copy of the U.S. application will be made together with the notice preceding the laying open to public inspection of the file of the German application.

GERALD D. O'BRIEN,
Jan. 13, 1968. *Assistant Commissioner.*

[859 O.G. 345]

(80) PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY

Entry Into Force of Articles 1-12

The Director General of the World Intellectual Property Organization announced on May 25, 1973, the deposit by the United States of letters of ratification of Articles 1-12 of the Paris Convention for the Protection of Industrial Property of 1883, as revised at Stockholm on July 14, 1967, with the declaration of applicability to all territories and possessions of the United States, including the Commonwealth of Puerto Rico. By operation of the Convention, Articles 1-12 will enter into force with respect to the United States on August 25, 1973, three months after the date of the above notification by the Director.

To carry into effect provisions of the Stockholm Revision of the Paris Convention, the United States has enacted Public Law 92-358, July 28, 1972, which in Section (1) amends 35 U.S.C. 119 to accord under certain circumstances rights of priority to a U.S. patent application based on an earlier filed application for an inventor's certificate and in Section (2) amends 35 U.S.C. 102(d) to provide that under certain circumstances an inventor's certificate becomes a statutory bar to the grant of a U.S. patent.

By the terms of this statutory enactment, Section (1) will enter into force with respect to the United States on the date when Articles 1-12 of the Stockholm Revision of the Paris Convention of March 20, 1883 come into force with respect to the United States, which will be August 25, 1973. A Patent Office rule change implementing this section of the public law by the addition of a new paragraph (c) to § 1.55 (37 CFR 1.55(c)) has been adopted and has been published in the FEDERAL REGISTER, Vol. 38, No. 71, on April 13, 1973.

This statutory enactment also provides that Section (2) will take effect six months from the date when Articles 1-12 of the Stockholm Revision of the Paris Convention come into force with respect to the United States. Accordingly, this date will be February 25, 1974.

The full text of Public Law 92-358, dated July 28, 1972 together with the implementing Patent Office regulation, are reproduced below:

PUBLIC LAW 92-358, JULY 28, 1972

To carry into effect a provision of the Convention of Paris for the Protection of Industrial Property, as revised at Stockholm, Sweden, July 14, 1967.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 119 of title 35 of the United States Code, entitled "Patents" is amended by adding at the end thereof the following paragraph:

"Applications for inventors' certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing."

Sec. 2. Subsection 102(d) of title 35 of the United States Code is amended to read as follows:

"(d) the invention was first patented or caused to be patented; or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or."

Sec. 3. (a) Section 1 of this Act shall take effect on the date when Articles 1-12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply only to applications thereafter filed in the United States.

(b) Section 2 of this Act shall take effect six months from the date when Articles 1-12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply to applications thereafter filed in the United States.

TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

§ 1.55 *Serial number and filing date of application.* * * *

(c) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

Dated: August 20, 1973.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Approved: August 22, 1973.

BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 73-18260; Filed 8-28-73; 8:45 a.m.]

[914 O.G. 1156]

DRAWINGS

(81) PHOTOPRINTS AS DRAWINGS—FILING DATE ONLY

Effective September 1, 1964 the Application Branch is authorized and directed to accept all applications in which photoprints have been submitted in lieu of formal drawings, and to forward them to the Examiner, who will notify the applicant immediately that the application has been accepted *for filing only,* and that to be entitled to examination, the applicant must file formal drawings complying with Rule 84 within 60 days, and pay the cost of comparing the photoprints with the formal drawings.

A comparison charge of $10.00 per hour, with a minimum charge of $10.00 per application is hereby established. This charge may be applied against deposit accounts and authorization to charge such accounts should be included when the formal drawings are filed. For those who have no deposit account acceptance of the formal drawings will be contingent upon payment of the comparison charge within the period set.

This notice supersedes the notice of April 24, 1964, published May 26, 1964, in 802 O.G. 871.

EDWARD J. BRENNER,
Commissioner.

July 16, 1964.

[805 O.G. 3]

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(82) NEW DRAWINGS PREPARED BY PATENT OFFICE

In Section 608.02(x) the paragraphs headed "New Drawings Prepared by Patent Office" are cancelled and the following substituted therefor:

When new drawings have been required in pending applications and have been prepared by the Office draftsman, they are not sent to the applicant for his signature but a copy (print) is sent to him for his file. The name of the inventor(s) will be printed on the drawings by the Office draftsman.

In the event that the application is in condition for allowance, the application will be sent to Issue immediately after the drawing is prepared.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 6, 1966.

[823 O.G. 1]

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(83) TRANSFER OF DRAWINGS

In view of the recent amendment of Rule 138 to permit the express abandonment of patent applications by the attorney, there is no longer any sufficient reason for delaying the formal abandonment of an application after all the drawings thereof have been transferred to another case. Accordingly, effective February 1, 1967, no request to transfer all the drawings from a pending application will be granted unless and until a formal abandonment of the application has been filed. In order to insure copendency, such an abandonment may be so worded as to become effective only after the transfer of the drawings has taken place.

EDWARD J. BRENNER,
Commissioner.

Dec. 15, 1966.

[834 O.G. 431]

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(84) GRAPHIC SYMBOLS FOR PATENT DRAWINGS

Rule 84(g) of the Rules of Practice in Patent Cases indicates that graphic drawing symbols and other labeled representations may be used for conventional elements where appropriate, subject to approval by the Office. Also, suitable legends may be used, or may be required, in proper cases.

The Rules of Practice pamphlet has, since the turn of the century, included a section entitled "Symbols for Draftsman" showing various symbols which may be used on patent application drawings. Although these symbols still reflect current practice they are somewhat limited in number and scope. A more complete set of symbols might be beneficial to both the Office and the public since it would foster uniformity of presentation, and more informative drawings. However, for the Office to develop and maintain a substantially complete listing of all graphic drawing symbols would be both difficult and time-consuming.

Therefore, since the American National Standards Institute Inc., 1430 Broadway, New York, N.Y., 10018, publishes a series of publications relating to graphic symbols under its Y32 and Z32 headings, the Office is calling the attention of patent applicants to these symbols for their consideration and use where appropriate in patent drawings. The below listed publications have been reviewed by the Office and the symbols therein are considered to be generally acceptable in patent drawings. Although the Office will not "approve" all of the listed symbols as a group because their use and clarity must be decided on a case-by-case basis, these publications may be used as guides when selecting graphic symbols. Overly specific symbols should be avoided. Symbols with unclear meanings should be labeled for clarification. As noted in Rule 84(g), the Office will retain final authority to approve the use of any particular symbol in any particular case.

The reviewed publications are the following:

Y32.2–1970. Graphic Symbols for Electrical and Electronics Diagram	$11.50
Y32.10–1967. Graphic Symbols for Fluid Power Diagrams	3.00
Y32.11–1961. Graphic Symbols for Process Flow Diagrams in the Petroleum and Chemical Industries	2.00
Y32.14–1962. Graphic Symbols for Logic Diagrams	4.75
Z32.2.3–1949 (R1953). Graphic Symbols for Pipe Fittings, Valves and Piping	2.00
Z32.2.4–1949 (R1953). Graphic Symbols for Heating, Ventilating and Air Conditioning	2.00
Z32.2.6–1950. Graphic Symbols for Heat-Power Apparatus	2.00

No change in the Rules of Practice is considered necessary at this time.

The above list of publications will be included in the Manual of Patent Examining Procedure.

RICHARD A. WAHL,
Assistant Commissioner.

May 19, 1972.

[899 O.G. 1230]

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(85) LATE SUBMISSION OF FORMAL DRAWINGS

In those situations where an application is filed with informal drawings, applicants are requested to wait until they receive their "Notice of Informal Drawings" form, PO–1094, from the Group Art Unit before submitting the formal drawings and the comparison fee. The letter of transmittal accompanying the formal drawings should identify the Group Art Unit indicated on Form PO–1094. Also, each sheet of drawing should include the serial number and Group Art Unit in the upper right margin. In the past, some drawings have been misdirected because the Group Art Unit indicated on the filing receipt was used rather than that indicated on Form PO–1094.

WILLIAM FELDMAN,
June 28, 1973. *Acting Assistant Commissioner for Patents.*

[912 O.G. 1229]

EXAMINATION OF APPLICATIONS

(86) INFORMAL APPLICATIONS OF FOREIGN APPLICANTS

This Notice is of special interest to attorneys and agents prosecuting applications on inventions originating abroad.

Many applications filed in this Office correspond in form and substance to the requirements (regulations) of countries foreign to the United States. Since they were not originally drafted to comply with our Rules of Practice, especially those based on 35 U.S.C. 112, the first examination cannot be the full and complete one contemplated under current examining procedures. This first examination is necessarily limited, under MPEP 702.01, to pointing out the informalities and citing the results of a search, the search being based upon the invention so far as it can be understood from the foreign type of claims, often coupled with a somewhat generalized disclosure. Since U.S. Patent Office policy is to accord equal treatment to *all* cases regardless of origin, current examining procedures as explained in the address reprinted in 803 O.G. 893, subject these applications to final determination on the second action. It is obviously to applicant's advantage to *file* the application with an adequate disclosure and with claims which conform to the U.S. Patent Office usages and requirements. This should be done whenever possible. If, however, due to the pressure of a Convention deadline or other reasons, this is not possible, applicants are urged to submit *promptly, preferably within three months after filing,* a preliminary amendment which corrects the obvious informalities. The informalities should be corrected to the extent that the disclosure is readily understood and the claims to be initially examined are in proper form, particularly as to dependency, and otherwise clearly define the invention. "New matter" must be excluded from these amendments since preliminary amendments do not enjoy original disclosure status, section 608.04(b), MPEP.

EDWARD J. BRENNER,
Commissioner of Patents.

Mar. 4, 1965.

[812 O.G. 1295]

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(87) TERMINAL DISCLAIMERS FILED IN APPLICATIONS

In view of the increasing number of terminal disclaimers being filed in pending applications under 35 U.S.C. 253, it is considered advisable to point out the practice to be followed in such cases.

Since the claims of pending applications are subject to cancellation, amendment or remembering, a terminal disclaimer directed to a particular claim or claims will not be accepted; the disclaimer must be of a terminal portion of the term of the entire patent to be granted. The statute does not provide for conditional disclaimers and accordingly, a proposed disclaimer which is made contingent on the allowance of certain claims cannot be accepted. The disclaimer should identify the disclaimant and his interest in the application and should specify the date when the disclaimer is to become effective. An acceptable form for such a disclaimer is as follows:

To the Commissioner of Patents:

Your petitioner, John Doe, residing at ——— in the county of ——— and State of ——— represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application No. ———, filed on the ——— day of ——— 19 -- for ———. Your petitioner hereby disclaims all that portion of the term of any patent to be issued on the said application subsequent to ——— 19--.

The disclaimer must be accompanied by the statutory fee.

EDWARD J. BRENNER,
Commissioner.

Apr. 26, 1965.

[814 O.G. 359]

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(88) PRACTICE RE: TECHNICAL REJECTIONS

In the interest of reducing the number of technical rejections and expediting the prosecution of applications the following changes will be instituted effective June 1, 1965:

1. The inclusion of a negative limitation shall not, in itself, be considered a sufficient basis for objection to or rejection of a claim. However, if such a limitation renders the claim unduly broad or indefinite or otherwise results in a failure to point out the invention in the manner contemplated by 35 U.S.C. 112, an appropriate rejection should be made.

2. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited either in the conventional manner heretofore permitted, or alternatively. For example, if ". . . wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation then ". . . wherein R is A, B, C or D" shall also be considered proper.

3. The use of Markush claims of diminishing scope shall not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection shall be made. This change does not in any way affect the substantive law governing the treatment of Markush claims. The foregoing practice with respect to Markush claims of diminishing scope will be effective on an experimental basis until December 1, 1965, and, if it proves satisfactory, will then be adopted permanently.

EDWARD J. BRENNER,
Commissioner.

Apr. 30, 1965.

[814 O.G. 715]

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(89) "SPECIAL" EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The trial of "Special" Examining Procedure for Certain New Applications as announced in 812 O.G. 953 and later modified by 817 O.G. 423 indicates the desirability of making such procedure available on a standard operating basis. Accordingly, an additional category is being added to the list of situations in which an application may be advanced out of turn for examination, Rule 102 and M.P.E.P. 708.01 and 708.02. The M.P.E.P. will be rewritten to incorporate this practice.

Certain further modifications have been incorporated into the conditions and procedure; most importantly, the new case now may be a continuing or divisional application, the prohibition against an application having an earlier effective U.S. filing date has been removed. Original limits on filing date and on number in any Group have previously been deleted.

The full text of conditions and procedures now applicable appears below, and the notices in 812 O.G. 953 and 817 O.G. 423 are accordingly rendered obsolete.

REQUIREMENTS AND PROCEDURES TO EFFECT ACCELERATED EXAMINATION OF NEW APPLICATIONS

Requirements Precedent to Grant of Special Status for Accelerated Examination

A new application (one which has not received any examination by the examiner) may be granted special status provided that applicant (and this term includes applicant's attorney or agent) concurrently:

(a) Submits a written petition to make special.
(b) Agrees that the application will not include more than ten claims at any time. Should the pending application contain more than ten claims when the request for special status is filed, an amendment must be proposed at that time to reduce the number to not more than ten, which amendment will be entered only if the special status is granted. All of the claims presented for this special prosecution must obviously be directed to a single invention.
(c) Submits a statement that a pre-examination search was made, and specifying whether by the inventor, attorney, professional searchers, etc., and listing the field of search by class and subclass, publication, chemical abstracts, foreign patents, etc.
(d) Submits one copy each of the references deemed most closely related to the subject matter encompassed by the claims.
(e) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references. Where applicant indicates an intention of overcoming one of the references by affidavit under Rule 131, the affidavit must be submitted before the application is taken up for action, but in no event later than one month after request for special status.

In those instances where the request for this special status does not meet all the prerequisites set forth above, applicant will be notified and the defects in the request will be stated. The application will remain in the status of a new application awaiting action in its regular turn. In those instances where a request is defective in one or more respects, applicant will be given *one* opportunity to perfect the request. If perfected, the request will then be granted.

Once a request has been granted, prosecution will proceed according to the procedure set forth below; there is no provision for "withdrawal" from this special status.

Special Examining Procedure

1. The new application, having been granted special status as a result of compliance with the requirements set out in the section titled "Requirements Precedent to Grant of Special Status for Accelerated Examination," supra, will be taken up by the Examiner before all other categories of applications except those clearly in condition for allowance and these with set time limits, such as Examiner's Answers, Decisions on Motions, etc., and will be given a complete first action which will include *all* essential matters of merit as to all claims.

The Examiner's search will be restricted to the *subject matter encompassed by the claims.* This first action will terminate with the setting of a three-month shortened period for response.

2. During the three-month period for response, applicant is encouraged to arrange for an interview with the Examiner in order to resolve, with finality, as many issues as possible. In order to afford the Examiner time for reflective consideration before the interview, applicant or his representative should cause to be placed in the hands of the Examiner at least one working day prior to the interview, a copy (clearly denoted as such) of the amendment that he proposes to file in response to the Examiner's action. Such a paper will not become a part of the file, but will form a basis for discussion at the interview.

3. Subsequent to the interview, or responsive to the Examiner's first action if no interview was had, applicant will file his "record" response. The response at this stage, to be proper, must be restricted to the rejections, objections, and requirements made. Any amendment which would require broadening the search field will be treated as not a proper response.

4. The examiner will within one month from the date of receipt of applicant's formal response, take up the application for final disposition. This disposition will constitute either a final action which terminates with the setting of a three-month period for response, or a notice of allowance. No further response will be made by the Examiner after a final action with the exceptions that (a) an Examiner's Answer may be prepared in response to an appeal brief, or (b) the application may be passed to issue.

5. A personal interview after final Office action will not be permitted unless requested by the Examiner. However, telephonic interviews will be permitted where appropriate for the purpose of correcting any minor matters which remain outstanding.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 14, 1965.

[822 O.G. 2]

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(90) SPECIAL EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The practice of granting special status to certain new applications as set forth in the Notice of December 14, 1965, 822 O.G. 2, is modified to the extent indicated below in the case where the Office determines that all of the claims presented are not obviously directed to a single invention.

Where the claims in a case are directed to more than one invention, an election without traverse will be a prerequisite to the grant of special status.

The election may be made by applicant at the time of filing the petition for special status. Should applicant fail to include an election with the original papers or petition and the Office determines that a requirement should be made, the established telephone restriction practice will be followed.

If otherwise proper, examination on the merits will proceed on claims drawn to the elected invention.

If applicant refuses to make an election without traverse, the application will not be further examined at that time. The petition will be denied on the ground that the claims are not directed to a single invention, and the application will await action in its regular turn.

Divisional applications directed to the non-elected inventions will *not* automatically be given special status based on papers filed with the petition in the parent case. Each such application must meet on its own all requirements for the new special status.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 21, 1967.

[837 O.G. 667]

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(91) SPECIAL EXAMINING PROCEDURE

The Special Examining Procedure whereby a new application may be granted special status and advanced for examination is hereby revised to remove the condition limiting the application to no more than ten claims. The petition for special status will be granted regardless of the number of claims pending in the application at any time provided all other remaining conditions of this program are met (see MPEP 708.02).

RICHARD A. WAHL,
Assistant Commissioner.

June 12, 1968.

[852 O.G. 509]

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(92) PROSECUTION OF PATENT APPLICATIONS AFTER FINAL ACTION

Experience over the past several months indicates the need to re-emphasize certain areas of examining procedure outlined in Assistant Commissioner Wahl's address to the Patent Examining Corps on September 24, 1965 (819 O.G. 893). Certain paragraphs or parts thereof are quoted below, with emphasis added.

"It is planned, accordingly, that prosecution before the examiner should be essentially concluded after applicant's first response and the examiner's reply thereto. *No amendments to claims, nor new claims, should be entered after final rejection, except in rare instances, unless it is readily apparent that these place the case in condition for allowance or materially reduce or simplify the issues for appeal. Also, no amendments should be entered which raise new issues or require further search.* However, if a response to a final rejection is received and it would clearly place the case in condition for allowance except for minor matters which could be cleared up over the telephone, the examiner should telephone applicant or his attorney or agent to try to promptly clear up such matters."

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"In general, a very complete and thoroughly considered first response by applicant will be in order because it will determine the form and content of the claims, not only for the final consideration by the examiner, but also by the Board of Appeals if appeal be taken. In this connection, attention is directed to suggestions set forth in notices in the OFFICIAL GAZETTE in recent years that applicant should include in his application at the time of filing, or after the first complete action, the most detailed claim that he would be willing to accept as well as the broadest claim to which he considers himself entitled."

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"A third change in procedure is that in all cases wherein the examiner decides that a requirement for restriction to one invention or for election of species must be made, a telephone call will be made to applicant or his representative advising him of the situation and requesting a prompt election by return telephone call if the decision cannot be made immediately. When the election is made by telephone, the examiner in his action will make of record the complete requirement and will state the date of the call, the name of the applicant or his representative who made the election, and the result of the election. Such restriction or election requirements will, of course, be subject to written requests for reconsideration (traverse) in accordance with Rule 143. If no reply is received to the examiner's telephoned requirement within a reasonable period, about three working days, he will proceed to make the requirement in a written action as heretofore."

In further implementation of these precedures, the following paragraphs add further details to take effect on the date of this notice and to apply to all Office actions taken or written, and to all communications received from applicant, on or after the effective date.

FINAL ACTION AND PRE-APPEAL

The prosecution of an application before the examiner should ordinarily be concluded with the final action. However, one personal interview and one written response by applicant may be entertained after such final action if circumstances warrant. Thus, only one request by applicant for a personal interview after final should be granted, but

in exceptional circumstances, a second personal interview may be initiated by the *examiner* if in his judgment this would *allowance.* Any amendment submitted under Rule 116(a) and Rule 116(b) *for purposes of appeal* should be presented in materially assist in placing the application in condition for the first response after final action and will be considered as heretofore; if any amendments are submitted after the examiner's reply to such first response, they should be refused entry as not warranted at this stage of prosecution, even though such amendments allegedly present rejected claims in better condition for appeal. Similarly, no affidavit should be considered if presented later than with the first response after final unless a showing is made under Rule 116(b).

The practice will be continued of advising applicant by means of the recently introduced form letter (POL–303) as to the disposition of proposed amendments to the claims and as to the effect of any argument or affidavit submitted in the *first* response after final action.

If a response subsequent to the first response after final action is received before appeal and which *on its face* clearly places the application in condition for allowance, it should be entered and a notice of allowability (POL–255) promptly sent to applicant; if such subsequent response does not *on its face* place the application in condition for allowance, it should not be considered further (unless, in the examiner's judgment, there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and should be refused entry. A form letter (POL–309) will be used for notification that such subsequent responses do not place the application in condition for allowance.

Requests for extension of the shortened statutory period for reply after final action, under Rule 130(b), will be considered by the Primary Examiner and if granted will be for not more than one month; petitions for further extensions will be decided by the Commissioner or his designees in this matter. It should be noted that, under Rule 181(f), the filing of a Rule 181 petition will not stay the period for reply to an Examiner's action which may be running against an application.

APPEAL AND POST-APPEAL

The record on appeal should be essentially the record before the examiner at the time appeal is taken. Thus, no amendments, except under Rule 193(b), presented after appeal has been taken should be entered *for purposes of appeal, and no exception should be made to this,* see Rule 116(c). Amendments, arguments, or affidavits filed concurrently with or of even date with appeal notice will be construed as filed after appeal for the purpose of this procedure, even though they may be the first response to the final action. In accordance with Rule 195, affidavits or exhibits submitted after the case has been appealed should be considered for entry *only if applicant makes the necessary showing* why they were not earlier presented; Rule 195 should be strictly construed in this regard. If after appeal has been taken, a paper is presented which *on its face* clearly places the application in condition for allowance, such paper should be entered and a notice of allowability (POL–255) promptly sent to applicant. If such paper does not *on its face* place the application in condition for allowance, it should not be considered further (unless in the examiner's judgment there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and proposed amendments therein should not be entered. Notification that such papers do not place the application in condition for allowance will be made by use of a form letter (POL–309).

In accordance with the above, the Brief should be directed to the claims and to the record of the case as they appeared upon filing the appeal, but it may, of course, withdraw from consideration on appeal any claims or issues as desired by appellant.

Upon timely filing of a Brief, it will be referred to the examiner for his consideration of its propriety as to the appeal issues and for preparation of an Examiner's Answer if the Brief is proper and the application is not allowable. The Examiner's Answer will normally be of the shortened type referring to and relying on the final action; it may withdraw rejection of claims or any objection or requirement as desired by the examiner. No new ground of rejection or objection should be incorporated in the Examiner's Answer *without express approval in each case by the Group Manager.*

RESTRICTION AND ELECTION

A basic policy of the streamlined examining program is that the second action on the merits should be made final. In those applications wherein a requirement for restriction or election is accompanied by the rejection of linking or generic claims, such action will be considered to be an action on the merits and the next action by the examiner should be made final. It may thus be to applicant's advantage to make a telephone election in such cases prior to the first action.

Requirements for restriction or election will continue to be governed by existing criteria. However, in stating a requirement for restriction hereafter there should be no citation of patents to show separate status or classification or utility. The separate inventions should as heretofore be identified by a grouping of the claims with a short description of the total extent of the invention claimed in each group, specifying the type or relationship of each group as by stating the group is drawn to process, or to subcombination, or to product, etc., and should indicate the classification or separate status of each group, as for example, by class and subclass.

The period for response to a requirement for restriction or election, where there is no rejection of claims, will hereafter be set at 30 days.

MANUAL OF PATENT EXAMINING PROCEDURE

Procedures currently set forth in the Manual of Patent Examining Procedure which may be in conflict with the above are superseded by those anounced above. Change Notices and replacement pages will be issued in due course.

MANUAL OF CLERICAL PROCEDURE

This information will also be incorporated in the Manual of Clerical Procedure.

RICHARD A. WAHL.

[824 O.G. 4 (Mar. 1, 1966)]

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(93) DOUBLE PATENTING

In view of the uncertain situation which has arisen as a result of recent decisions dealing with "double patenting" it is thought to be advisable to restate the practice which should be followed in this area, particularly as regards the effect of terminal disclaimers. The term "double patenting" is properly applicable only to cases involving two or more applications and/or patents of the same inventive entity and should not be applied to situations involving commonly owned cases of different inventive entities. Sole and joint inventors cannot constitute a single entity, nor do two or more sets of joint inventors constitute a single entity if any individual is included in either set who is not also included in the other.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted, if the claims do not overlap, even though the subject matter to which the claims of one case are directed may be obvious in view of the subject matter claimed in the other case. *In re Robeson,* 1964 C.D. 561, 141 USPQ 485; *In re Kaye,* 1964 C.D. 630, 141 USPQ 829. Claims overlap within the meaning of this statement if it is possible for them to be infringed by the same process, machine, manufacture, or composition of matter. Cross reading is not necessary to constitute such an overlap.

Overlapping claims should not be allowed in cases filed by the same inventive entity if they are directed to identical inventive concepts, or if the concept to which one set of claims is directed would be obvious in view of that to which the other set is directed. This is true regardless of the relative filing dates of the cases or the relative scope of the claims.

In situations involving cases filed by different inventive entities, regardless of ownership, Sections 102 and 103 of 35 U.S.C. preclude the granting of two or more patents when directed to identical inventive concepts or when one of the concepts would be obvious in view of the other. A terminal disclaimer can have no effect in this situation since the basis for refusing more than one patent is not connected with any extension of monopoly.

In view of 35 U.S.C. 135, it is necessary to determine priority of invention whenever two different inventive entities are claiming a single inventive concept, and this determination

should ordinarily be made before any patent is issued. This is true regardless of ownership, and the provision of Rule 201(c) that interferences will not be declared or continued between commonly owned cases unless good cause is shown therefor does not mean that two patents are to be allowed in such cases, but that the common assignee should be called on to state which of the entities involved is prior to the other in date of invention.

Accordingly, the assignee of two or more cases of different inventive entities, containing conflicting claims, should be called on to maintain a line of demarcation between them. If such a line is not maintained then, when one of the cases is in condition for allowance, claims covering the conflicting subject matter should be suggested as provided in Rule 203, care being taken to insure that such claims cover all the conflicting matter and the assignee should be called on to state which entity is the prior inventor of that subject matter and to limit the claims of the other application accordingly. If the assignee does not comply with this requirement and presents the interfering claims in both cases, an interference should be declared, attention being directed to Rule 208 if there is a common attorney. If suggested claims are not presented within the time allowed, rejection should be made on the ground of disclaimer as indicated in Rule 203(b).

In the event that a common assignee, after taking out a patent on one of two or more applications, for the first time presents claims in a pending application which are not patentably distinct from claims of the patent, the claims of the application should be rejected on the ground that the assignee, by taking out the patent at a time when the application was not claiming the patented invention, is estopped to contend that the patentee is not the prior inventor.

If a patent is inadvertently issued on one of two commonly owned applications by different inventive entities which at the time when the patent issued were claiming inventions which are not patentably distinct, the assignee should be called on to make a determination of priority as in the case of pending applications and, if no election is made, an interference should be declared. An election of the applicant as the first inventor should not be accepted without a complete (not terminal) disclaimer of the conflicting claims in the patent.

EDWARD J. BRENNER,
Commissioner.

Jan. 9, 1967.

[834 O.G. 1615]

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(94) MODIFICATION OF NOTICE OF JANUARY 31, 1967

The practice set forth in the notice of January 31, 1967, entitled "Double Patenting" (834 O.G. 1615), is modified to the extent that when a single inventive entity is involved a terminal disclaimer will be accepted to avoid a double patenting rejection even if the claims overlap, if the claims which would otherwise be subject to such rejection could not have been allowed in the other application or patent, and if the terminal disclaimer further provides that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

EDWARD J. BRENNER,
Commissioner.

Feb. 14, 1968.

[848 O.G. 1]

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(95) DOUBLE PATENTING AND TERMINAL DISCLAIMER

The practice concerning double patenting and the effect of a terminal disclaimer on such a rejection is set out below. The notices of January 9, 1967, and February 14, 1968, relating to this subject are hereby superseded except with reference to the practice described involving different inventive entities.

Claims should be rejected on double patenting only in cases involving two or more applications and/or patents of the same inventive entity and not in situations involving commonly owned cases of different inventive entities. Commonly owned cases of different inventive entities are to be treated in the manner set out in MPEP 804.03.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted provided the claims of the different cases are not drawn to the same invention (*In re Knohl*, 155 USPQ 586; *In re Griswold*, 150 USPQ 804).

Claims that differ from each other (aside from minor differences in language, punctuation, etc.), whether or not the difference is obvious, are not considered to be drawn to the same invention. In cases where the difference is obvious, terminal disclaimers are effective to overcome rejections on double patenting. However, such terminal disclaimers should include a provision that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

Where there is no such difference, the inventions are the same and a terminal disclaimer is ineffective.

EDWARD J. BRENNER,
Commissioner.

Feb. 18, 1969.

[860 O.G. 661]

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(96) NON-FINAL SECOND ACTION REJECTION PRACTICE

Experience since September 1, 1966, indicates that the non-final second action rejection practice announced on a trial basis at 829 O.G. 1755 (M.P.E.P. Change Notice 10—1) has worked out satisfactorily for both the Office and the applicants. Effective immediately, that practice as restated below will be followed on a regular basis.

Second actions on the merits will not be made final where the examiner introduces a new ground of rejection not necessitated by amendment of the application by the applicant. Further, in carrying out this policy, a second action on the merits in any application will not be made final if it includes a rejection of any claim not amended by applicant where that rejection relies on newly cited art. Also, amendments complying with objections or requirements as to form are to be permitted after final action in accordance with Rule 116(a).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 30, 1967.

[835 O.G. 715]

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(97) NEW FIRST ACTION PROCEDURE

Effective January 2, 1968, a new practice involving the use of a revised form for the first page of the first Office Action will be instituted. The use of this new form will introduce some new practices and procedures and will terminate the "Interview Practice Preliminary to Notice Under 35 U.S.C. 132" announced August 1, 1967, at 841 O.G. 1.

The heading of the revised form containing the address and application identification will have a completely revised format to facilitate future pre-action addressing by automatic typewriter.

Under the new procedure, the Examiner will signify on the revised form certain information including the period set for response, any attachments, and, in a "summary of action," the position taken on all claims.

The new procedure will also allow the Examiner, in the exercise of his professional judgment, to indicate that a discussion with applicant's representative may result in agreements whereby the application may be placed in condition for allowance and that the Examiner will telephone the representative within about two weeks. Under this practice the applicant's representative can be adequately prepared to conduct such a discussion. Any resulting amendment may be made either by the applicant's attorney or agent or by the Examiner in an Examiner's Amendment. It should be recognized that when extensive amendments are necessary it would be preferable if they were filed by the attorney or agent of record, thereby reducing the professional and clerical workload in the Patent Office and also providing the file wrapper with a better record, including applicant's arguments for allowability as required by Rule 111.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 11, 1967.

[845 O.G. 1205]

(98) CONTINUATIONS—RES JUDICATA REJECTIONS

Some confusion exists in the interpretation of the established Office policy regarding the use of *res judicata* rejections. To clarify the Manual on this point the following changes are made—

The second paragraph of MPEP 201.07 is rewritten to read:

At any time before the patenting or abandonment of or termination of proceedings on his earlier application, an applicant may have recourse to filing a continuation in order to introduce into the case a new set of claims and to establish a right to further examination by the primary Examiner.

The last two sentences of MPEP 201.11 are deleted. MPEP 706.03(w) is rewritten to read:

A prior adjudication against the inventor on the same or similar claims constitutes a proper ground of rejection as *res judicata*. See *Ex parte Buddc*, 150 USPQ 469; 828 O.G. 409. The rejection should be used only when the earlier decision was a decision of the Board of Appeals or any of the reviewing courts, and when the time for further court review has expired and no such review has been sought, or, if filed, the review action is terminated. The timely filing of a second application copending with an earlier application does not preclude the use of *res judicata* as a ground of rejection for the second application claims.

When making a rejection on *res judicata*, action should ordinarily be made also on the basis of prior art.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 18, 1968.

[849 O.G. 277]

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(99) GUIDELINES FOR CONSIDERING DISCLOSURES OF UTILITY IN DRUG CASES

On December 5, 1967 the text of certain guidelines which the Patent Office proposed to adopt in the examination of applications for drugs, was published in the OFFICIAL GAZETTE (845 O.G. 1). A hearing was had on January 16, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. The following guidelines are being published after consideration of all the material and opinions, both written and oral, which were submitted in response to that invitation.

EDWARD J. BRENNER,
Commissioner of Patents.

Mar. 19, 1968.

General

These guidelines are set down to provide uniform handling of applications disclosing drug or pharmaceutical utility. They are intended to guide patent examiners and patent applicants as to criteria for utility statements. They deal with fundamental questions and are subject to revision and amendment if future case law indicates this to be necessary.

The following two basic principles shall be followed in considering matters relating to the adequacy of disclosure of utility in drug cases:

(1) The same basic principles of patent law which apply in the field of chemical arts shall be applicable to drugs, and

(2) The Patent Office shall confine its examination of disclosure of utility to the application of patent law principles, recognizing that other agencies of the government have been assigned the responsibility of assuring conformance to the standards established by statute for the advertisement, use, sale or distribution of drugs.[1]

A drug is defined by 21 U.S.C. 321(g)

> The term "drug" means (A) articles recognized in the official United States Pharmacopeia, official Homeopathic Pharmacopeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) articles intended for use as a component of any articles specified in clause (A), (B), or (C); but does not include devices or their components, parts or accessories.

In addition, compositions adapted to be applied to or used by human beings, e.g., cosmetics, dentifrices, mouthwashes, etc., may be treated in the same manner as drugs subject to the conditions stated.

Any proof of a stated utility or safety required pursuant to these guidelines may be incorporated in the application as filed, or may be subsequently submitted by affidavit if and when required. The Patent Office, in reaching its own independent decisions on questions of utility and how to use under 35 U.S.C. 101 and 112, will continue to avail itself of assistance and information from the Secretary of Health, Education, and Welfare as authorized by 21 U.S.C. 372(b), when necessary.

In accordance with the basic principles set forth above, the following procedures shall be followed in examining patent applications in the drug field with regard to disclosures relating to utility.

35 U.S.C. 101

Utility must be definite and in currently available form,[2] not merely for further investigation or research but commercial availability is not necessary. Mere assertions such as "therapeutic agents,"[3] "for pharmaceutical purposes,"[4] "biological activity,"[5] "intermediates,"[6] and for making further unspecified preparations are regarded as insufficient.

If the asserted utility of a compound is believable on its face to persons skilled in the art in view of the contemporary knowledge in the art, then the burden is upon the examiner to give adequate support for rejections for lack of utility under this section.[7] On the other hand, incredible statements[8] or statements deemed unlikely to be correct by one skilled in the art[9] in view of the contemporary knowledge in the art will require adequate proof on the part of applicants for patents.

Proof of utility under this section may be established by clinical or *in vivo* or *in vitro* data, or combinations of these, which would be convincing to those skilled in the art.[10] More particularly, if the utility relied on is directed *solely* to the treatments of humans, evidence of utility, if required, must generally be clinical evidence.[11] Although animal tests may be adequate where the art would accept these as appropriately correlated with human utility.[12] If there is no assertion of human utility,[13] or if there is an assertion of animal utility,[14] operativeness for use on standard test animals is adequate for patent purposes.

Exceptions exist with respect to the general rule relating to the treatment of humans. For example, compositions whose properties are generally predictable from a knowledge of their components, such as laxatives, antacids and certain topical preparations, require little or no clinic proof.[15]

Although absolute safety is not necessary to meet the utility requirement under this section, a drug which is not sufficiently safe under the conditions of use for which it is said to be

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[1] *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

[2] *Brenner* v. *Manson*, 383 U.S. 519, 148 USPQ 689.

[3] Cf. *In re Lorenz et al.* 49 CCPA 1227, 305 F.2d 875, 134 USPQ 312, cf. *Ex parte Brockmann et al.*, 127 USPQ 57.

[4] *In re Diedrich*, 50 CCPA 1355, 318 F.2d 946, 138 USPQ 128.

[5] *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48; *Ex parte Lanham*, 135 USPQ 106.

[6] *In re Joly et al.*, 54 CCPA 1159, 153 USPQ 45; *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48.

[7] *In re Gazave*, 54 CCPA 1524, 154 USPQ 92.

[8] *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Oberweger*, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455; *Ex parte Moore et al.*, 128 USPQ 8.

[9] *In re Ruskin*, 53 CCPA 872, 354 F.2d 395, 148 USPQ 221; *In re Pottier*, 54 CCPA 1293, 153 USPQ 407; *In re Novak et al.* 49 CCPA 1283, 306 F.2d 924, 134 USPQ 335. See also, *In re Irons*, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351.

[10] *In re Irons*, 52 CCPA 938, 340 F.2d 924, 144 USPQ 351; *Ex parte Paschall*, 88 USPQ 131; *Ex parte Pennell et al.*, 90 USPQ 56; *Ex parte Ferguson*, 117 USPQ 229; *Ex parte Timmis*, 123 USPQ 581.

[11] *Ex parte Timmis*, 123 USPQ 581.

[12] *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419; *Ex parte Murphy*, 134 USPQ 134.

[13] Cf. *Blicke* v. *Treves*, 44 CCPA 753, 241 F.2d 718, 112 USPQ 472; *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Dodson*, 48 CCPA 1125, 292 F.2d 943, 130 USPQ 224; *In re Hitchings*, 52 CCPA 1141, 342 F. 2d 80, 144 USPQ 637.

[14] *In re Bergel et al.*, 48 CCPA 1102, 292 F.2d 955, 130 USPQ 206; *Ex parte Melvin*, 155 USPQ 47.

[15] *Ex parte Harrison et al.*, 129 USPQ 172; *Ex parte Lewin*, 140 USPQ 70.

effective will not satisfy the utility requirement.[16] Proof of safety shall be required only in those cases were adequate reasons can be advanced by the examiner for believing that the drug is unsafe, and shall be accepted if it establishes a reasonable probability of safety.

35 U.S.C. 112

A mere statement of utility for pharmacological or chemotherapeutic purposes may raise a question of compliance with Section 112, particularly ". . . as to enable any person skilled in the art to which it pertains . . . to use the same." If the statement of utility contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration are contemplated, Section 112 is satisfied.[17] If the use disclosed is of such nature that the art is unaware of successful treatments with chemically analogous compounds, a more complete statement of how to use must be supplied than if such analogy were not present.[18] It is not necessary to specify the dosage or method of use if it is obvious to one skilled in the art that such information could be obtained without undue experimentation.[17]

With respect to the adequacy of disclosure that a claimed genus possesses an asserted utility representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if it would be deemed likely by one skilled in the art, in view of contemporary knowledge in the art, that the claimed genus would possess the asserted utility.[19] Proof of utility will be required for other members of the claimed genus only in those cases where adequate reasons can be advanced by the examiner for believing that the genus as a whole does not possess the asserted utility. Conversely, a sufficient number of representative examples, if disclosed in the prior art will constitute a disclosure of the genus to which they belong.

In the case of mixtures including a drug as an ingredient, or mixtures which are drugs, or methods of treating a specific condition with a drug, whether old or new, a specific example should ordinarily be set forth, which should include the organism treated. In appropriate cases, such an example may be inferred from the disclosure taken as a whole and/or the knowledge in the art (e.g., gargle).

Where the claimed compounds are capable of several different utilities and one use is adequately described in accordance with these guidelines, additional utilities will be investigated for compliance with Sections 101 and 112 only if not believable on their face to those ordinary skill in the art in view of the contemporary knowledge of the art. Failure to meet these standards may result in a requirement to cancel such additional utilities.[20]

[16] *In re Hartop et al.* 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

[17] Cf. *In re Johnson*, 48 CCPA 733, 282 F.2d 370, 127 USPQ 216; *In re Hitchings et al.*, 52 CCPA 1141, 342 F.2d 80, 144 USPQ 637.

[18] *In re Mourcu et al.*, 52 CCPA 1363, 345 F. 2d 595, 145 USPQ 452; *In re Schmidt et al.*, 54 CCPA 1577, 153 USPQ 640.

[19] *In re Oppenauer*, 31 CCPA 1248, 143 F.2d 974, 62 USPQ 297; *In re Cavallito et al.*, 48 CCPA 711, 282 F.2d 357, 127 USPQ 202; *In re Cavallito et al.*, 48 CCPA 720, 282 F.2d 363, 127 USPQ 206; *In re Schmidt*, 48 CCPA 1140, 293 F.2d 274, 130 USPQ 404; *In re Cavallito*, 49 CCPA 1335, 306 F.2d 505, 134 USPQ 370; *In re Surrey*, 54 CCPA 855, 370 F.2d 349, 151 USPQ 724; *In re Lund et al.*, 54 CCPA 1361, 153 USPQ 625.

[20] *Ex parte Lanham*, 121 USPQ 223; *Ex parte Moore et al.*, 128 USPQ 8; *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Gottlieb et al.*, 51 CCPA 1114, 328 F.2d 1016, 140 USPQ 665.

[849 O.G. 567]

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(100) APPLICATIONS TO BE TAKEN UP SPECIAL

Hereafter the existence of the following facts will place the application concerned in the category of special cases, i.e., those to be advanced out of regular order for examination.

Once a case is taken up for action by an Examiner according to its effective filing date, it should be treated as special by any Examiner, Art Unit or Group to which it may subsequently be transferred. Exemplary situations includes: (1) new cases transferred as the result of a telephone election, and (2) cases transferred as the result of a timely response to any official action.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 29, 1968.

[850 O.G. 4]

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(101) REJECTIONS NOT BASED ON PRIOR ART

The primary object of the examination of an application is to determine whether or not the claims define a patentable advance over the prior art. This consideration should not be relegated to a secondary position while undue emphasis is given to non-prior art or "technical" rejections. Effort in examining should be concentrated on truly essential matters, minimizing or eliminating effort on matters which may have played a part in the examination process in the past but which are not really critical. Where a major technical rejection is proper (e.g., lack of proper disclosure, undue breadth, utility, etc.) such rejection should be stated with a full development of the reasons rather than by a mere conclusion coupled with some stereotyped expression.

Generally speaking, the inclusion of (1) negative limitations and (2) alternative expressions, provided that the alternatively expressed elements are basically equivalents for the purpose of the invention, are permitted if no uncertainty or ambiguity with respect to the question of scope or breadth of the claim is presented.

The examiner has the responsibility to make sure the wording of the claims is sufficiently definite to *reasonably* determine the scope. It is applicant's responsibility to select proper wording of the claim, except to the extent that the selection of words makes the claims indefinite. Under no circumstances should a claim be rejected merely because the Examiner prefers a different choice of wording.

Rejections not based on prior art are explained in 706.03(a) to 706.03(y). IF THE ITALICIZED LANGUAGE IN THESE SECTIONS IS INCORPORATED IN THE REJECTION, THERE WILL BE LESS CHANCE OF A MISUNDERSTANDING AS TO THE GROUNDS OF REJECTION.

RICHARD A. WAHL,
Assistant Commissioner.

July 23, 1968.

[853 O.G. 603]

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(102) REVISED DESIGN PATENT PRACTICE

The following changes are being instituted in order to clarify the distinction between the ornamental design for an article being claimed in a design patent and its environment. These changes are to be followed in the examination of all design applications as of the date of this notice. It is suggested that applicants initiate compliance with these changes in all pending design applications.

The ornamental design which is being claimed must be shown in solid lines in the drawing. Dotted lines for the purpose of indicating unimportant or immaterial features of the designed article are no longer permitted. There are no portions of a design which are immaterial or unimportant. In re *Blum*, 852 O.G. 1045; 153 USPQ 177.

The title of the article being claimed in a design patent must correspond to the name of the article shown in solid lines in the drawing.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 26, 1969.

[860 O.G. 999]

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(103) "MERE FUNCTION OF MACHINE"—REJECTION

In view of the decision of the Court of Customs and Patent Appeals in *In re Tarczy-Hornoch* appearing at 158 USPQ 141, process or method claims will no longer be subject to a rejection by Patent Office examiners solely on the ground that they define the inherent function of a disclosed machine or apparatus. Accordingly, the subject matter of MPEP 706.03(r) is inapplicable and hereby cancelled.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 10, 1969.

[861 O.G. 343]

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(104) FINAL REJECTION—FIRST ACTION

The claims of a new application may be finally rejected in the first Office action in those situations where (1) the new application is a continuing application of, or a substitute for, an earlier application, and (2) all claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the art of record in the next Office action if they had been entered in the earlier application. A first action final rejection in a continuation-in-part application is not proper where any claim includes subject matter not present in the parent case.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 20, 1969.

[861 O.G. 1011]

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(105) CLAIM INTERPRETATION

The notice of January 15, 1968, appearing in the OFFICIAL GAZETTE of February 13, 1968 (847 O.G. 331) and concerned with statements relating to the scope of the invention claimed in patent applications, is hereby rescinded.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 12, 1969.

[867 O.G. 1]

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(106) EXAMINATION OF PATENT APPLICATIONS ON COMPUTER PROGRAMS

Notice of Rescission of Guidelines

Notice regarding the adoption by the Patent Office of guidelines for the examination of patent applications on computer programs was published in the Federal Register of October 22, 1968 (33 F.R. 15600), and in the OFFICIAL GAZETTE of the Patent Office of October 22, 1968 (855 O.G. 829).

In view of the decision by the U.S. Court of Customs and Patent Appeals in "In re Prater et al.," 162 USPQ 541, 866 O.G. 1034 (1969), the adopted guidelines are hereby rescinded, effective immediately. For the time being, adontion of new guidelines for the examination of patent applications is being deferred pending further judicial interpretation of the law on a case-by-case basis.

Consideration of "In re Prater et al.," has brought into question the advisability of issuing guidelines for the examination of patent applications on computer programs. Parties who desire to present their views, recommendations, or suggestions concerning such guidelines are invited to do so, by letter addressed to the Commissioner of Patents, Washington, D.C. 20231. Those parties who recommend the issuance of such guidelines are invited to submit comments concerning the proposed language of the guidelines.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: October 3, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 6912194; Filed, Oct. 9, 1969, 8:48 a.m.]

Published 34 F.R. 15724, October 10, 1969

[868 O.G. 349]

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(107) CERTAIN CASES

Reopening After Decision, Board of Appeals

Effective with the date of this notice the Commissioner of Patents will, on a trial basis, entertain petitions under § 1.198 of Title 37, Code of Federal Regulations (Patent Office Rule 198), to reopen certain cases in which an applicant has sought review under 35 U.S.C. 141 or 145. This procedure is restricted to cases which have been decided by the Board of Appeals and which are amendable to settlement without the need for going forward with the court proceeding. Such petitions will ordinarily be granted only in the following categories of cases:

1. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the claims do not include a disclosed limitation or because they suffer from some other curable defect, and the decision reasonably is suggestive that claims including the limitation or devoid of the defect will be allowable;

2. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the record does not include evidence of a specified character, and is reasonably suggestive that if such evidence were presented, the appealed claims would be allowable, and it is demonstrated that such evidence presently exists and can be offered; or

3. When the decision of the Board of Appeals is based on a practice, rule, law, or judicial precedent which, since the Board's decision, has been rescinded, repealed, or overruled.

Any such petition must be accompanied by the proposed amendment, evidence, or argument said to justify allowance of the claims. The petition further must point out how the case falls within one of the preceding categories. Failure to do so or failure of the case to qualify as coming within one of the categories will usually constitute bases for denying the petition. In any event, no case will be reopened unless it is for the consideration of matters not already adjudicated, and sufficient cause has been shown.

Such petitions will not be ordinarily entertained after the filing of the Commissioner's brief in cases in which review has been sought under 35 U.S.C. 141, or after trial in a 35 U.S.C. 145 case.

In the case of an appeal under 35 U.S.C. 141, if the petition is granted, steps will be taken to request the court to remand the case to the Patent Office and if so remanded the proposed amendments, evidence, and arguments will be entered of record in the application file for consideration, and further action will be taken by the Board of Appeals in the first instance or by the Examiner as may be appropriate. In the case of civil action under 35 U.S.C. 145, steps will be taken for obtaining dismissal of the action without prejudice to consideration of the proposals.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: Oct. 16, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-12674; Filed Oct. 22, 1969; 8:48 a.m.]

Published in 34 F.R. 17210, Oct. 23, 1969

[868 O.G. 1058]

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(108) PROSECUTION AND DELIVERY OF AMENDMENTS

General

Many of the difficulties encountered in the prosecution of patent applications after final rejection may be alleviated if each applicant includes, at the time of filing or no later than the first response, claims varying from the broadest to which he believes he is entitled to the most detailed that he is willing to accept.

Prosecution After Final Rejection

To expedite the resolution of cases under final rejection, an amendment filed at any time after final rejection but before an appeal brief is filed, may be entered upon or after filing of an appeal provided the total effect of the amendment is to (1) remove issues for appeal, and/or (2) adopt Examiner suggestions. Of course, if the amendment necessitates a new search, raises the issue of new matter, presents additional claims without cancelling a corresponding number of finally rejected claims, or otherwise introduces new issues, it will not be entered. Examiners will continue to respond to all non-entered amendments after final rejection, and will indicate the status of each claim of record or proposed, including the designation of claims that would be entered on the filing of an appeal if filed in a separate paper. It should be noted that an amendment placing a case in condition for allowance will be enterable by the Examiner at any stage prior to forwarding the answer on appeal. Except where an amendment merely cancels claims and/or adopts Examiner suggestions, removes issues for appeal, or in some other way requires only a cursory review by the Examiner, compliance with the requirement of

a showing under Rule 116(b) will be expected of all amendments after final rejection.

In accordance with prior practice, in order to prevent abandonment, a timely filed amendment after final rejection that reaches the Examiner near the end or after the expiration of the period for response, may be entered in part if this can be done to make the case allowable (e.g., a second amendment after final rejection filed on the last day of the response period, where no appeal has been filed and the amendment cancels all rejected claims and proposes to add claims, at least one of which is unpatentable, entry would be approved to the extent of cancelling the rejected claims and entering only the patentable claims).

Only one attorney-initiated personal interview will be permitted after final rejection. However, the Examiner may initiate an interview anytime he believes it would expedite the prosecution of the application.

Hand Delivery of Papers

For purposes of convenience in those cases where the attorney and the Examiner agree that a proposed amendment discussed during a *personal* interview would place the application in condition for allowance, the amendment may be left with the Examiner to become an official paper in the file without routing through the mail room, provided no additional fees are required. Where the case is under final rejection, if changes in the proposed amendment are necessary and these changes are not practical to be made by Examiner's Amendment, the attorney or a local associate will be permitted to hand deliver a corrected amendment to the Examiner, provided no additional fees are required and further that the amendment is submitted to the Examiner by the end of the next working day following the interview and within the period for response.

The Examiner who accepts these amendments will write "entry approved" in the left-hand margin of the first page of the amendment, date and initial the amendment, and then have it date stamped with the Group Stamp. For applications under final rejection acceptance of a hand delivered amendment will require the initials of a Primary Examiner.

The privilege of personal delivery of papers by attorneys to the Examining Groups is extended to requests for extensions of time in addition to amendments of the type referred to above.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 10, 1969.

[869 O.G. 345]

(109) PETITION TO REVIVE PRACTICE

Effective immediately, a decision on a petition to revive an abandoned application will be based solely on whether a satisfactory showing has been made that the delay was unavoidable (35 U.S.C. 133). A petition to revive will not be considered unless the petition fee and a proposed response to the last Office action have been received (Rule 137).

The granting of a petition to revive does not serve in any way as a determination that the proposed response to the Office action is completely responsive. Revived applications will be forwarded to the examiner to determine the completeness of the proposed response. Such applications must be taken up *Special*. If the examiner determines that the response is complete, he should promptly take the case up for action. If the proposed response is not a complete response to the last Office action the examiner should write a letter to the applicant informing him of the specific defects in his response and set a one-month time limit for applicant to complete his response. If the applicant does not complete his response within the set one-month limit, the application is again abandoned.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 11, 1969.

[869 O.G. 1362]

(110) PETITION TO REVIVE PRACTICE—CLARIFICATION

In clarification of the notice of Dec. 11, 1969 (869 O.G. 1362), the practice set forth in the second paragraph thereof is limited to proposed "responses" *before* final rejection. While a response to a non-final action may be either an argument or an amendment under Rule 111, a response to a final action "must include cancellation of, or appeal from the rejection of, each claim so rejected" under Rule 113.

Accordingly, in any case where a final rejection had been made, the proposed response required for consideration of a petition to revive must be either an appeal or an amendment that cancels all the rejected claims or otherwise prima facie places the application in condition for allowance.

In those situations where abandonment occurred because of the failure to file an appeal brief, the proposed response, required for consideration of a petition to revive, must include a brief accompanied by the proper fee.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 20, 1970.

[873 O.G. 1]

(111) MAIL DELAYS AND PETITIONS TO REVIVE

Since applications that become abandoned unintentionally present burdens to both the Patent Office and the applicant or his representatives, a simplified procedure has been devised to alleviate these burdens when the abandonment results from a delay in the mails. This procedure provides for an automatic petition to revive or petition to accept the delayed payment of issue fee.

It is suggested that when a communication, complying with the circumstances enumerated below, is mailed to the Patent Office more than three calendar days prior to the due date, a conditional petition be attached to the communication. If the communication is received in the Patent Office after the due date and the application becomes abandoned, the conditional petition will become effective, subject to the following requirements. The petition must include (1) an authorization to charge a deposit account for any required fees, including the petition fee (35 U.S.C. 41(a) 7), and (2) an oath or declaration signed by the person mailing the communication and also signed by the applicant or his registered representative stating that the communication and petition were either placed in the United States mail as first class or air mail, or placed in the mail outside the United States as air mail. Since mail handled in this manner may reasonably be expected to reach the Patent Office within three days of posting, any mail delays beyond such time will be considered to constitute unavoidable delay and sufficient cause to grant a petition to revive (35 U.S.C. 133) or a petition to accept delayed payment of an issue fee (35 U.S.C. 151).

The circumstances under which this procedure may be used are those where the communication, if timely filed, (1) would be a proper and complete response to an action or request by the Patent Office, and (2) would stop a period for response from continuing to run. Accordingly, this procedure would be appropriate for:

1. A response to a non-final Office action.
2. A response to a final Office action in the form of an amendment that cancels all rejected claims or otherwise prima facie places the application in condition for allowance.
3. A notice of appeal and requisite fee.
4. An appeal brief, in triplicate, and requisite fee.
5. A base issue fee.
6. A balance of issue fee.

Examples of which this procedure would not be appropriate and will not apply include:

1. Application papers.
2. A response to a final Office action other than that indicated in categories 2 and 3, above.
3. Extensions of time.
4. Petitions for delayed payment of either the issue fee or balance of issue fee.
5. Amendments under Rule 312.
6. Priority documents.

Normal petition practices are not affected in those situations where this procedure is either not elected or appropriate.

A suggested format for the conditional petition is shown below:

Applicant(s) _____ ☐ Petition to revive

Serial No. _____ ☐ Petition to accept delayed payment of issue fee

Date Filed _____

For _____

I hereby certify that the attached communication is being deposited in

☐ the United States mail as first class or air mail

☐ the mail outside the United States as air mail

in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on _____, which date is more than three (3) calendar days prior to the due date from _____, by _____
(Location) (Name of Individual)

In the event that such communication is not timely filed in the United States Patent Office, it is requested that this paper be treated as a petition and that the:

☐ delay in prosecution be held unavoidable—35 U.S.C.133.

☐ delayed payment of the fee be accepted—35 U.S.C. 151.

The petition fee required by 35 U.S.C. 41(a) 7 is authorized to be charged to Deposit Account No. _____ in the name of _____.

The undersigned declare further that all statements made herein are true, based upon the best available information; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date _____ _____
(Signature of applicant or signature and registration number of Registered Representative)
And

Date _____ _____
(Signature of person mailing, if other than the above)

April 13, 1973. WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

[910 O.G. 402]

(112) ENVIRONMENTAL QUALITY

In signing the National Environmental Policy Act on the first day of this decade, President Nixon declared, "The 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment." This landmark legislation declares that it is the continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act.

In accordance with the desires of the President and this mandate of the Congress, the Patent Office will accord "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the applications by serial number and filing date, and should be accompanied by affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of these life-sustaining elements.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Jan. 29, 1970.

[871 O.G. 673]

(113) TIMELY PRESENTATION OF AFFIDAVITS OF DECLARATIONS UNDER RULES 131 AND 132

All affidavits or declarations under Rule 131 or 132 must be timely presented in order to be admitted.

Affidavits and declarations submitted prior to a final rejection will be considered timely.

An affidavit or declaration presented with a first response after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection will be entered and considered without a showing under Rule 116(b).

No other affidavit or declaration, under Rule 131 or 132, presented after a final rejection, will be considered unless a satisfactory showing is made under Rule 116(b) or 195.

All admitted affidavits or declarations will be acknowledged and commented upon by the Examiner in his next succeeding action.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

July 9, 1970.

[877 O.G. 243]

(114) ABBREVIATED FIRST ACTIONS OF THE MERITS

Starting on or about February 1, 1971, and continuing for a trial period of up to twelve months, a newly developed form (PO–1142) will be used for first actions on the merits of patent applications involving claims subject to rejection and/or objection on statutory or other legal grounds.

The form is designed to furnish a clear, full, and complete first action including the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution, all in accordance with the statute (35 U.S.C. 132); and it is intended to abridge the action with condensed language using essential words and phrases in abbreviated form, in order to expedite the prosecution and reduce the pendency time of applications awaiting examination. Where found necessary in exceptional cases, a regular action without the form will be used.

For abbreviation purposes, references referred to on the form will be designated by capital letters and identified on revised reference list PO–892, and their correlation as applied to the claims will be indicated by symbols illustrated and explained on the bottom of the form. Sections 100–103, and 112 of the patent statute are reproduced on the back of the form.

Summary sheet POL–326 will continue in use with all first actions, and has been revised to identify different parts of the sheet as "Part I" and "Part II." Form PO–1142 will be distinguished as "Part III," and if a second copy of the form is necessary and is used to complete the action it will be marked for distinction as "Part IIIa" (a regular typed page if annexed to an action with the form will be designated as "Part IV"). All parts of the action after Part I (Parts II, III, and IV) will each have numbered paragraphs starting with the numeral 1, and communications relating thereto may be properly identified by the number on the particular part (for example, paragraph 2 on Part III may be identified as paragraph III–2).

As noted, Form PO–1142 will be used only for first actions on the merits concerned with claims subject to rejection and/or objection on statutory or other legal grounds. It will not be used for any subsequent action nor a first action made final as in a continuing application.

Second actions on the merits will be final according to prevailing practice, and any reference referred to in these or subsequent actions will be identified by name or otherwise in conventional manner, not by capital letters as used on Form PO–1142. For this reason, use of conventional reference identification in response to all Office actions will be helpful.

Only one carbon copy of the action will be furnished in accordance with the Notice of October 21, 1970, entitled "Office Actions" and appearing in 880 O.G. 740.

All other Office policies, practices, and procedures remain in effect.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 5, 1971.

[883 O.G. 2]

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(115) ABBREVIATED FIRST ACTION PROGRAM

The Abbreviated First Action Program using Form PO–1142 announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2) has been reviewed in the light of comments received from examiners, attorneys, and other members of the public, pursuant to the notice of November 10, 1971 (893 O.G. 1). As a result of this review the program will be continued and the form modified to incorporate some of the suggested improvements. The space for the explanation of the rejection will be expanded. In addition, the instructions to the examiners will be supplemented to reinforce the original stress on the importance of legibility, clarity and completeness in setting forth the examiner's position, and desirability of including suggestions that would render the case allowable.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 17, 1972.

[897 O.G. 762]

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(116) AFTER FINAL REJECTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.116, 1.191, 1.192, and 1.193, and by adding § 1.130.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 2 p.m., e.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed changes, if adopted, will provide a basis for a revised procedure for treating amendments filed after a final rejection. A proposed additional section is added to incorporate the existing practice relative to affidavits.

The proposed procedure will provide that all timely filed first amendments after final rejection be entered as a matter of right, subject to the limitation that additional claims will not be entered beyond the number that would result in the total number of claims under prosecution equalling the number of claims finally rejected. Only those second and subsequent amendments which cancel claims will be entered as a matter of right. The entry and treatment of any other amendments filed at this stage will be entirely within the discretion of the examiner.

A distinction will be made between first amendments after final rejection filed within 2 months from the date of the final rejection and those filed after that period.

A first amendment after final rejection filed within 2 months of the final rejection will receive a full and complete advisory action as soon as possible after its receipt in the Patent Office. Under these circumstances, the revised procedure would permit the filing of an appeal within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. However, if an appeal had been filed before the mailing of the advisory action, the appeal brief would not be due until 2 months after the date of the advisory action.

Amendments filed later than 2 months after the date of the final rejection in nonappeared cases may be answered at the examiner's discretion, but no additional time will be allowed for appeal. However, if an appeal is filed in these cases, a full and complete advisory action will be rendered and the time for filing the brief will be extended to expire 2 months from the date of the advisory action.

After jurisdiction of an application transfers to the Board of Appeals, no amendments will be considered for entry except those restricted to cancellation of claims or copying claims for purposes of interference.

If new issues are presented in the claims as amended or presented after final rejection, they will be rejected in the advisory action on the ground of being drawn to new issues. These rejections will be reviewable by the Board of Appeals as "adverse decisions of examiners" (35 U.S.C. 7).

The current practice of normally making the second action on the merits final and setting of a 3-month period for response will continue. However, the practice of granting an automatic 1-month extension of time if an amendment is filed (notices of Aug. 7, 1967; 841 O.G. 1411 and of Sept. 26, 1968; 855 O.G. 1109) will be terminated, and extensions of time at this stage of the prosecution will not be encouraged. Further, any extension of time granted after a final rejection will not affect the 2-month period and the privilege of an advisory action.

The present policy concerning consideration of affidavits, declarations, and exhibits will remain unchanged.

Holding of interviews after final rejection will be at the primary examiner's discretion.

This procedure will also allow the examiner to prepare examiner's answers which simply refer to the final rejection or the advisory action in most instances.

The sections, if amended as proposed, would read as follows:

§ 1.116 *Amendments after final action.*

• • • • •

(b) A first amendment presented after final rejection will be entered and considered, but the total number of claims under prosecution may not exceed the total number finally rejected. Entry of second and subsequent amendments after final rejection will normally be limited to only those which cancel claims.

(c) A first amendment filed within 2 months after the date of the final rejection, or after appeal, will receive a full and complete advisory action. If not previously filed, an appeal may be filed in such cases within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. In those cases where an appeal was filed before the date of the advisory action, the appeal brief is due 2 months after the date of the advisory action.

(d) After jurisdiction of an appealed case passes to the Board of Appeals no amendments may normally be made (see § 1.191(d)). After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

(e) Amendments after final rejection shall not introduce new issues into the prosecution.

§ 1.130 *Affidavits, declarations, or exhibits after final rejection.*

Affidavits, declarations, or exhibits submitted with a first reply after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection, shall be admitted and considered. No other affidavit, declaration, or exhibit presented after final rejection will be admitted and considered without a showing of good and sufficient reasons why they were not earlier presented.

§ 1.191 *Appeal to Board of Appeals.*

(a) Every applicant for a patent or for reissue of a patent, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113) may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response. (See § 1.116(c).)

• • • • •

(d) The jurisdiction of an appealed case is retained by the primary examiner until the time for filing a reply to the examiner's answer (§ 1.193(b)) has expired, at which time the Board of Appeals will take jurisdiction of the same.

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, or within the time allowed in an advisory action (§ 1.116(b)), whichever is later, file a brief, accompanied by the requisite fee. Said brief shall include all of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Two extra copies of the brief are required if an oral hearing is requested. Upon a showing of sufficient cause the time for filing the brief may be extended to a date not later than 2 months after the original expiration date. Any longer or further extensions must be sought from the Commissioner. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

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§ 1.193 *Examiner's answer.*

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(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within 1 month from the date of such answer. However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within 2 months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 71–1167 Filed 1–27–71; 8:47 a.m.]

Pub. in 36 F.R. 1356–57, Jan. 28, 1971

[883 O.G. 880]

(Pending—No Final Action Taken)

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(117) DEPOSIT OF MICROORGANISMS

Some inventions which are the subject of patent applications depend on the use of microorganisms which must be described in the specification in accordance with 35 U.S.C. 112. No problem exists when the microorganisms used are known and readily available to the public. When the invention depends on the use of a microorganism which is not so known and readily available, applicants must take additional steps to comply with the requirements of Section 112.

In re Argoudelis et al., 168 USPQ 99 (CCPA, 1970), accepted a procedure for meeting the requirements of 35 U.S.C. 112. Accordingly, the Patent Office will accept the following as complying with the requirements of Section 112 for an adequate disclosure of the microorganism required to carry out the invention:

(1) The applicant, no later than the effective U.S. filing date of the application, has made a deposit of a culture of the microorganism in a depository affording permanence of the deposit and ready accessibility thereto by the public if a patent is granted, under conditions which assure (*a*) that access to the culture will be available during pendency of the patent application to one determined by the Commissioner to be entitled thereto under Rule 14 of the Rules of Practice in Patent Cases and 35 U.S.C. 122, and (*b*) that all restrictions on the availability to the public of the culture so deposited will be irrevocably removed upon the granting of the patent;

(2) Such deposit is referred to in the body of the specification as filed and is identified by deposit number, name and address of the depository, and the taxonomic description to the extent available is included in the specification; and

(3) The applicant or his assigns has provided assurance of permanent availability of the culture to the public through a depository meeting the requirements of (1). Such assurance may be in the form of an averment under oath or by declaration by the applicant to this effect.

A copy of the applicant's contract with the depository may be required by the Examiner to be made of record as evidence of making the culture available under the conditions stated above.

RICHARD A. WAHL,
Assistant Commissioner.

Apr. 29, 1971.

[886 O.G. 638]

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(118) EVIDENCE OF PATENTABILITY OR PRIORITY

[37 CFR Part 1]

Proposed Special Statement in Affidavit or Declaration When Relying Upon Facts, Data, Test Results or Other Evidence

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) the Patent Office proposes to amend Title 37, Code of Federal Regulations, by adding a new § 1.69.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed new section, to the Commissioner of Patents, Washington, D.C. 20221, on or before June 27, 1972, on which date a hearing will be held at 9 a.m. in Room 8C06, Building 2, Crystal Plaza, 2011 Jefferson Davis Highway, Arlington, Va. 22202. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

New § 1.69 seeks to guard against the omission from facts, data, test results, or other evidence presented in connection with patentability or priority of invention, of known evidence which is inconsistent with that presented or which would convey a different impression. The purpose is to insure presentation to the Patent Office of the evidence needed to make an informed decision on patentability or priority of invention. The section thus requires a verified statement that no such inconsistent evidence is known to the person making the statement, if such is the fact.

The text of the proposed new § 1.69 is as follows:

§ 1.69 *Special statement in affidavit or declaration when relying upon facts, data, test results, or other evidence.*

(a) An affidavit or declaration filed during the prosecution of an application presenting evidence urged as bearing on patentability or priority of invention will be considered only if the applicant or other person making the affidavit or declaration states therein that no evidence is known to him which is inconsistent with that relied on in the affidavit or declaration, or which would tend to give an impression different from that conveyed by the affidavit or declaration.

(b) If, during the prosecution, the applicant, to establish patentability, relies on representations as to facts, data, or test results set forth in the specification, such representations will be considered for that purpose only if applicant files an affidavit or declaration attesting as to the truth of the representations and asserting that no facts, data, or test results are known to him which are inconsistent with those set forth in the specification, or which would tend to give an impression different from that conveyed by the specification.

Dated: April 28, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: May 1, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72–6925 Filed 5–5–72; 8:49 a.m.]

Published in 37 F.R. 9225, May 6, 1972

[899 O.G. 2]

(Pending—No Final Action Taken)

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(119) STATUS OR RULE 69 PROPOSAL

This notice is in response to numerous inquiries received by the Patent Office relative to the status of the proposal, published at 37 F.R. 9225 on May 6, 1972 and at 899 O.G. 2

on June 6, 1972, to add a new section 1.69 to Title 37, Code of Federal Regulations.

All of the many written and oral comments received have been analyzed and are currently being studied. The analysis indicates that comments in favor of and against the principle of the rule were about evenly divided. Many comments expressed reservations concerning the language used. The "inconsistency" and "tend to give an impression" clauses drew the most criticism. The first clause was viewed as being too absolute, forcing the affiant or declarant to abdicate reasonable judgment concerning validity of seemingly inconsistent or maverick test results. The second clause was viewed as being too subjective or vague which would result in second guessing later. The additional burden on both applicants and examiners was also advanced as reason to change the proposed language.

In summary, the proposal is still under study with the view of developing a satisfactory way to accomplish the intent of the proposed rule.

S. WM. COCHRAN,
Solicitor.

Nov. 22, 1972.

[905 O.G. 448]

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(120) STATEMENTS FILED UNDER ATOMIC ENERGY ACT AND NASA ACT

Attention is called to the provisions of section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182) and section 305(c) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457). These statutes provide that the title to inventions useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Atomic Energy Commission, and any invention made in the performance of any work under any contract of the National Aeronautics and Space Administration, shall be vested in the United States. They also provide that no patent may be granted for any invention useful in the production or utilization of special nuclear material or atomic energy, or which in the opinion of the Commissioner has significant utility in the conduct of aeronautical or space activities, unless the applicant files with his application or within 30 days after request therefor by the Commissioner, a statement under oath setting forth (a) the full facts in regard to the making or conception of the invention, and (b) the situation with regard to the contractual relationships involving the Commission or the Administration. Careful attention should be given the exact wording of the requirements of whichever of these sections is pertinent in order to assure that all of the requirements are met. Since the duty of requiring the statements is placed by law on the Commissioner of Patents, it is incumbent on the Commissioner to determine whether the statements are timely filed and sufficient in substance to comply. Since these laws do not provide for any extension of the 30-day period or for reviving an application which has become abandoned for failure to file a proper statement, it is important that such statements be timely filed and that they do so comply in order to avoid loss of valuable patent rights.

The "full facts" involved in the conception and making of an invention should include those which are unique to that invention. The use of form paragraphs or printed forms which set forth only broad generalized statements of fact is not ordinarily regarded as meeting the requirements of these statutes.

This Office has construed the word "applicant" in both of these statutes to mean the inventor or joint inventors in person. Accordingly, in the ordinary situation, the statements must be signed by the inventor or joint inventors, if available. This construction is consistent with the fact that no other person could normally be more knowledgeable of the "full facts concerning the circumstances under which such invention was made," (42 U.S.C. 2457) or, "full facts surrounding the making or conception of the invention or discovery" (42 U.S.C. 2182).

In instances where an applicant does not have first-hand knowledge whether the invention involved work under any contract, subcontract, or arrangement with or for the benefit of the Atomic Energy Commission, or had any relationship to any work under any contract of the National Aeronautics and Space Administration, and includes in his statement information of this nature derived from others, his statement should identify the source of his information. Alternatively, the statement by the applicant could be accompanied by a supplemental declaration or oath, as to the contractual matters, by the assignee or other person, e.g., an employee thereof, who has the requisite knowledge.

Where an applicant is deceased or incompetent, or where it is shown to the satisfaction of this Office that he refuses to furnish a statement or cannot be reached after diligent efforts, declarations or statements under oath setting forth the information required by the statutes may be accepted from an officer or employee of the assignee who has sufficient knowledge of the facts. The offer of such substitute statements should be based on the actual unavailability of or refusal by the applicant, rather than mere inconvenience. Where it is shown that one of joint inventors is deceased or unavailable, a statement by all of the other joint inventor(s) may be accepted.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

Aug. 13, 1973.

[914 O.G. 2]

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(121) APPLICATIONS RELATED TO ENERGY

In his Message of April 18, 1973, to The Congress "Concerning Energy Resources," the President stated that "with 6 percent of the world's population, we consume almost a third of all the energy used in the world." The President noted that our energy demands "now outstrip our available supplies, and at our present rate of growth, our energy needs a dozen years from now will be nearly double what they were in 1970." The President's Message of April 18 called for the development of a more comprehensive, integrated national energy policy and announced specific steps to carry out the policy. On June 29, 1973, the President announced a series of additional actions to deal with the Nation's energy problem. Among those actions were major efforts in energy research and development and in energy conservation.

In order to enhance and further the goals and actions announced by the President, the Patent Office will, on request, accord "special" status to all patent applications for inventions which materially contribute to (1) the discovery or development of energy resources, and (2) the more efficient utilization and conservation of energy resources. Examples of inventions in category (1) would be those relating to further developments in fossil fuels (natural gas, coal, and petroleum), nuclear energy, solar energy, etc. Category (2) would include inventions relating to the reduction of energy consumption in combustion systems, industrial equipment, household appliances, etc. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the application by serial number and filing date, and should be accompanied by affidavits or declarations under rule 102 by the applicant or his attorney or agent explaining how the invention materially contributes to category (1) or (2) set forth above.

Requests should be addressed to the Commissioner of Patents, Washington, D.C. 20231.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Date: Oct. 26, 1973.

Approved:

BETSY ANCKER-JOHNSON, Ph.D.,
Assistant Secretary for Science and Technology.

[916 O.G. 2]

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(122) PROTESTS TO THE GRANT OF A PATENT

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended Oct. 5, 1971, Public Law 92-132, 85 Stat. 364, the Patent Office proposes to amend title 37 of the Code of Federal Regulations by revising §§ 1.11(b) and 1.291.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C., 20231, on or before Oct. 31, 1973, on which date a hearing will be held at 9:30 a.m. in Room 11C24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The underlying purpose of the proposed rule change is to assure that the best art and information relevant to the patentability of an application for patent are brought to the Patent Office's attention. Under present procedures, ex parte examination of patent applications is conducted as thoroughly and in as effective a manner as possible. However, it is noted that a significant number of patents involved in litigation are held invalid because prior art or other information having a bearing on patentability, which was not known to the examiner during the prosecution of the case, is brought to the court's attention.

The proposed rule change is designed to elicit this additional prior art or other information. An applicant would be given the opportunity to open his application to public inspection prior to issuance of a patent. The public would then have the opportunity to bring to the attention of the Office information which bears on the question of patentability of the pending patent application. Presumably, interested and affected members of the public may be aware of relevant prior art which the Office did not find, or might know of other information unavailable to the Office, bearing on the question of patentability. If in the opinion of the Commissioner, consideration of such new evidence would lead to a more complete appraisal of patentability, the Commissioner may reopen prosecution of the application.

It is believed that there are several benefits which this proposed procedure would bring about. First, applicants would benefit from a more meaningful presumption of validity where a patent is issued after appropriate consideration of evidence submitted by the public under this procedure. Second, potential competitors of the applicant would benefit from having the opportunity to call to the attention of the Office information that could either prevent a patent from issuing or lead to claims of more restricted scope. And by use of the proposed procedure such determinations would be helpful in avoiding the more expensive conventional procedure following the issue of the patent, of litigating the questions of validity and scope of such patent on the same grounds at a later date. Finally, the public would benefit from the resultant strengthening of the presumption of validity of patents granted on applications which underwent this procedure and the strengthening of the patent system for its intended purposes.

Paragraph (b) of § 1.11 is proposed to be amended to allow the Patent Office to open the file of a pending patent application to the public in accordance with a written authorization from the applicant as specified in the proposed § 1.291(b).

It is proposed to amend present § 1.291 by incorporating a new paragraph (a) which provides that protests filed by the public to the grant of a patent, including the identity of the protesting party, be made of record in the patent application concerned, if such application is identified by the protesting party. The proposed rule change would also afford the examiner an opportunity to ask the protesting party for submission of additional evidence bearing on the question of patentability. Any such evidence received would be forwarded to the applicant. Under § 1.291(a) the protesting party would not be permitted to inspect the application file.

In paragraphs (b), (c) and (d) of § 1.291, a new procedure is proposed whereby an applicant, whose application for patent has been indicated as being allowable by the examiner (Form PO-327), may within thirty days of such indication authorize the Office to open his application to public inspection. The application would be available for inspection for a period of three months from the time a notice to that effect appeared in the OFFICIAL GAZETTE. The notice would be in the form of a publication of data necessary to identify the application in question and would include a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. The applicant would be charged a fee of $25.00 to defray the printcost of this notice in the OFFICIAL GAZETTE.

On the basis of such notice, any person would be permitted access to the application in question and could obtain copies of any papers contained therein (see proposed amendment to § 1.11(b)).

If any person, after inspection of an application, is of the opinion that the relevant prior art of record is not complete, he can notify the Commissioner and the applicant in writing, of any grounds, including additional publications or patents, which he believes have a bearing on the patentability of any claim contained in such application, together with an explanation of the relevance of such publications or patents to the allowed claims. He would, in addition or alternatively, have the opportunity to comment on the manner in which the prior art of record was applied and raise any other matter which could affect the patentability of the claimed invention.

All evidence and comments received in this fashion, including the identity of the protesting party, would be made of record in the application after the time period for protest had elapsed. The protesting party would thereafter be privy to all further proceedings in the Patent Office insofar as they relate to the evidence he submitted. If, in the opinion of the Commissioner, such evidence constituted a prima facie showing of non-patentability of the subject matter as claimed, or unenforceability of a patent if granted, prosecution of the application would be reopened.

As a result of any reexamination of the application, the applicant would be permitted to present amended or new claims which would be subject to a determination of patentability by a primary examiner. The protesting party who made evidence of non-patentability available to the Patent Office would be informed of any action taken by the Office and given the opportunity to comment thereon.

In cases involving evidence of prior public use or sale of the invention, the procedure outlined in present § 1.292 would be utilized to provide the person presenting such evidence with an opportunity to be heard.

An adverse determination to the patentability of any claim may, of course, be appealed by the applicant to the Board of Appeals under § 1.191.

Applications considered under the above procedure and ultimately allowed after a decision by the Board of Appeals would not be reconsidered under this proposed procedure. If, after the three-month period from the date of publication, no evidence was received or if in the opinion of the Commissioner the evidence submitted does not bar the granting of a patent on grounds of patentability or enforceability, a notice of allowance (Form POL-85) would be transmitted in due course. This determination would be final and not subject to petition by the protesting party.

The text of the proposed amended sections is as follows:

§ 1.11 *Files open to the public.*

• • • • • •

(b) Applications in which the Office has accepted a request filed under § 1.139 or received an authorization under § 1.291 (b), are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

§ 1.291 *Protests to the grant of a patent.*

(a) The patent statutes do not provide for protests to the grant of a patent as a matter of right on the part of the public. Where protests to the grant of a patent are filed with the Office, and the protesting party identifies the application, the protest papers will be referred to the examiner having charge of the application. In such case, the protest papers, including the identity of the protesting party, will be placed in the application file and a copy will be forwarded to the applicant. The examiner may request submission of further evidence from the protesting party, and any further evidence adduced will be made of record and also forwarded to the applicant. However, the protesting party will not be permitted to inspect the application file unless the Office has received an authorization under paragraph (b) of this section or § 1.14 (a). Where the protesting party cannot identify the application, the protest will be acknowledged and referred to the examiner having charge of the subject matter involved for his information.

(b) Applications may be voluntarily opened to public inspection. Within thirty days from the mailing date of a notice of allowability from the examiner, an applicant may waive his right to have his pending application for patent kept in con-

fidence (§ 1.14). Such waiver may be accomplished by filing in the Office a written authorization, signed by the applicant and assignee of record or by the attorney or agent of record, to open the complete application to inspection and protest by the general public to the granting thereof, together with a fee of $25.00.

(c) Upon receipt of an authorization under paragraph (b) of this section, the Office shall publish suitable notice of such fact in the OFFICIAL GAZETTE together with a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. At any time up to three months thereafter, any person may protest the grant of a patent by filing with the Commissioner and serving the applicant with publications, patents or any other information which might have a bearing on the patentability of any claims contained in the patent application or on the enforceability of any patent issuing on said application; said protest must include a memorandum explaining the relevance of the submitted evidence. All protest papers filed, together with the identity of the real party in interest originating the protest shall be made of record in the application after the time period for protest has elapsed. Examination of the application shall be reopened if, in the opinion of the Commissioner, it appear that any claim thereof may not be patentable or any patent granted on said application would be unenforceable in view of such evidence. In the event that examination is reopened, the protesting party shall be apprised of all further proceedings in the Patent Office insofar as they relate to or are concerned with the evidence submitted by the protesting party, and accorded the opportunity to comment thereon. All further papers received from the protestor will be made of record. If the examination of the application is not reopened, the protesting party shall be so apprised. A decision by the Commissioner not to reopen an application for examination after the close of the protest period, shall be final and not subject to petition by the protesting party. In cases involving evidence of public use or sale of the invention more than one year before the filing of the application, the procedure outlined in § 1.292 shall be followed.

(d) The transmittal of a formal notice of allowance shall be held in abeyance until the patentability of the claimed invention has been determined in light of such evidence. If no protest to patentability is submitted to the Commissioner within the time specified, or if he determines that no further examination is necessary, a notice of allowance shall be transmitted to the applicant, his attorney or his agent in due course. A copy of said notice of allowance will also be forwarded to the protesting party.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 15, 1973.

Approved:
DR. BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

(Pub. FR 1469, June 4, 1973)

[911 O.G. 760]

(Pending—No Final Action Taken)

AMENDMENTS

(123) AMENDMENTS—BASIS IN ORIGINAL DISCLOSURE MANUAL OF PATENT EXAMINING PROCEDURE

When an amendment is filed in response to an objection or rejection based on incomplete disclosure, a study of the entire application is often necessary to determine whether or not "new matter" is involved. In the interest of expeditious prosecution, Examiners are directed, whenever such an objection or rejection is made, to call attention to Rule 111(c). Applicant should specifically point out the support for any amendments made to the disclosure.

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 13, 1965.

[818 O.G. 4]

(124) EXAMINER'S AMENDMENT PRACTICE

The present practice in making Examiner's Amendments when passing an application to issue is modified to permit the amendment or cancellation of claims where these have been authorized by applicant (or his representative) in a telephone or personal interview. The Examiner's Amendment should include a statement indicating that the changes were authorized, the date and type (personal or telephone) of interview, and with whom it was had.

The current policy prohibiting changes in the drawing and/or description of an application is maintained with the exceptions noted in MPEP Section 1302.04.

The new procedure resulted from an employee's suggestion.

RICHARD A. WAHL,
Assistant Commissioner.

May 11, 1966.

[827 O.G. 2]

(125) BRACKETS AND RULE 121—AMENDMENT OF CLAIMS

In view of the number of inquiries requesting an interpretation of the word "brackets" appearing in amended Rule 121 concerned with the amendment of claims, it is thought that clarification is desirable.

The term brackets [ ] as set forth in the amendment to Rule 121 and first announced in 843 O.G. 373 does not encompass and is to be distinguished from parentheses ( ). Therefore, any amendment using parentheses to indicate cancelled matter in a claim rewritten under Rule 121(b) may be held non-responsive in accordance with Rule 121(c).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 15, 1968.

[847 O.G. 331]

INTERVIEWS

(126) INTERVIEW PRACTICE

To assist in early and equitable conclusion of examination of applications, the use of interviews in person or by telephone is encouraged, subject to the following guidelines.

Interviews with Examiners, whether in person or by telephone, shall be governed in general by the provisions of Rule 133. A request for an interview, whether made orally or in writing, before the first Office action is untimely and will not be acknowledged if written, or granted if oral; Rule 133(a).

If upon examination or re-examination, It is found that *minor* changes could be made to place the application in condition for allowance, the attorney or pro se inventor should be so notified by telephone. This practice should be followed whether or not there has been a specific request for interview or for such notification.

Where an interview is arranged, both the Examiner and the attorney should be familiar with the issues in the application before starting the conference. It is the responsibility of both parties to the interview to see that it is not extended beyond a reasonable time, usually not longer than thirty minutes. The Primary Examiner personally responsible for the final disposition of the application should be notified of the results of the interview at its conclusion.

Interviews in person or by telephone are to be encouraged after the first Office action on the merits. In addition to interviews initiated by applicant, the Examiner may initiate interviews where he believes it would be productive. This practice may result in the filing of a first response that will so effectively advance the prosecution to permit disposing of the case in a bare minimum number of actions. The telephone procedure set forth in part 4 of Optimum Examining Procedure Memorandum #3, 801 O.G. 267, *requiring* a call by the Examiner, if requested by applicant, before taking final action has been found not satisfactory and will no longer be followed.

An interview may be granted after final rejection; however, except in rare instances, only one such interview should be granted.

An interview should not be requested or approved, except in very unusual circumstances, after filing of a Brief on appeal or after an application has been passed to issue by the Primary Examiner.

Interviews are permissible any working day of the week except on overtime Saturdays.

RICHARD A. WAHL,
Acting Superintendent, Patent Examining Corps.

Sept. 16, 1964.

[807 O.G. 307]

(127) TELEPHONE INTERVIEWS

Present Office policy places great emphasis on telephone interviews initiated by the Examiner. For this reason, it is no longer deemed necessary for an attorney to request a telephone interview as specified in the old Optimum Examining Procedure memos. Examiners are no longer required to note or acknowledge requests for telephone calls or state reasons why such proposed telephone interviews would not be considered effective to advance prosecution. However, it is still desirable for an attorney to call the Examiner if the attorney feels the call will be beneficial to advance prosecution of the case.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 11, 1967.

[846 O.G. 1022]

JOINDER

(128) TELEPHONE PRACTICE IN RESTRICTION AND ELECTION OF SPECIES SITUATIONS

If an examiner determines that a requirement for restriction should be made in an application, he should formulate a draft of such restriction requirement including, if any, the grounds of rejection of linking or generic claims. Thereupon, he should telephone the attorney of record and ask if he will make an oral election, with or without traverse if desired, after the attorney has had time to consider the restriction requirement. The examiner should arrange for a second telephone call within a reasonable time, generally within three working days. If the attorney objects to making an oral election, or fails to respond, the usual restriction letter will be mailed, and this letter should NOT contain any reference to the unsuccessful telephone call.

When an oral election is made, the examiner will then proceed to incorporate into his letter a formal restriction requirement including the date of the election, the attorney's name, and a complete record of the telephone interview, followed by a complete action on the elected claims including linking or generic claims if present.

If on examination the examiner finds the elected claims to be allowable and no traverse was made, the letter should be written on POL-37 (Examiner's Amendment) and should include cancellation of the non-elected claims, a statement that the prosecution is closed and that a notice of allowance will be sent in due course. Correction of formal matters in the above-noted situation which cannot be handled by a telephone call and thus requires action by the applicant should be handled under the *Ex parte Quayle* practice, using POL-90; these would usually be drawing corrections or the like requiring payment of charges.

Should the elected claims be found allowable in the first action, and an oral traverse was noted, the examiner should include in his action a statement under Section 821.01, M.P.E.P., making the restriction final and giving applicant thirty days (Rule 136) to either cancel the non-elected claims or take other appropriate action. Failure to take action will be treated as an authorization to cancel the non-elected claims by an Examiner's Amendment and pass the case to issue. Prosecution of this application is otherwise closed.

In either situation (traverse or no traverse), caution should be exercised to determine if any of the allowed claims are linking or generic before cancelling the non-elected claims.

Where the respective inventions are located in different groups the requirement for restriction should be made only after consultation with and approval by all groups involved. If an oral election would cause the application to be examined in another group, the initiating group should transfer the application with a signed memorandum of the restriction requirement and a record of the interview. The receiving group will incorporate the substance of this memorandum in its official letter as indicated above. Differences as to restriction should be settled by the existing chain of command, e.g. Supervisory Primary Examiner or Manager.

This practice is limited to use by examiners who have at least negotiation authority. Other examiners must have the prior approval of their Supervisory Primary Examiner.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 27, 1966.

[824 O.G. 408]

(129) RESTRICTION AND ELECTION PRACTICE

Effective April 1, the practice and procedure in cases involving a requirement for restriction or election is changed as indicated below.

Under the new practice, whenever a written or telephoned requirement is made in a case which includes claims considered by the Examiner to be generic or linking, it will not include any rejection of these claims. The Examiner should specify which claims are considered to be generic or linking.

Although no art will be cited where linking claims are present, a search should be made and art cited where generic claims are involved. In the latter situation the generic claims will not be rejected but merely indicated as not allowable in view of the cited art (Rule 146).

A 30-day shortened statutory period will be set for response to a written requirement. Such action will not be an "action on the merits" for the purpose of the second action final program. In either situation, with linking or generic claims, a response, to be complete, need only include a proper election.

The only exception to the above practice will be in the case where the Examiner gives a complete action on the merits of all the claims in addition to the requirement for restriction.

The use of the telephone to make an initial requirement will be continued and is encouraged.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 28, 1967.

[837 O.G. 668]

(130) ELECTION OF SPECIES

Effective June 1, 1967, the following practice will be instituted on a trial basis for 6 months.

In cases involving Markush claims or generic claims of the formula type including such a number and diversity of members as to require an unduly extensive and burdensome search for the embodiments encompassed, the Examiner may require election of species without a search on the merits (Rule 105).

The election requirement may be made in the same manner as that described in the Change Notice 12-6 of Feb. 28, 1967, with a 30 day shortened statutory period which will not be an "action on the merits" for the purpose of second action final program. If a telephone requirement, made by the Examiner, is complied with the first written action will be a complete action on the merits and the usual 3 months shortened statutory period will be set.

As pointed out in Change Notice 12-6, the use of the telephone to make an initial requirement will be continued and is encouraged.

EDWARD J. BRENNER,
Commissioner.

May 4, 1967.

[838 O.G. 1223]

(131) ELECTION OF SPECIES

The practice set forth in the Notice of May 4, 1967 (838 O.G. 1223) is made permanent and modified to permit a requirement for election of species in cases involving multiple species whether or not generic claims are present or searched prior to the election. Also, if no claims to species are presented but the generic claim is of the burdensome type referred to in the Notice, a requirement for election of species prior to search of the generic claims should be made.

As in the original Notice, if an election is made pursuant to a telephone requirement, the action should include a full and complete action on the elected species as well as on any generic claims that might be present. If generic claims are found allowable, no change in the practice currently in effect is contemplated.

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 19, 1968.

[854 O.G. 287]

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(132) NON-ELECTED CLAIMS

In the interest of expediting the prosecution of pending applications, the following change in procedure is made. When preparing a final action in an application where there has been a traversal of a requirement for restriction or election of species, the Examiner should indicate in his action that a complete response must include cancellation of the non-elected claims or other appropriate action (Rule 144).

In the above situations where a response to the final action has otherwise placed the application in condition for allowance, the failure to take appropriate action with respect to the non-elected claims will be construed as authorization to cancel these claims by Examiner's Amendment and pass the case to issue after the expiration of the statutory period.

RICHARD A. WAHL,
Assistant Commissioner.

May 24, 1968.

[851 O.G. 893]

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(133) RESTRICTION BETWEEN INVENTIONS

Combination claims (other than genus claims linking species claims), whether allowable, allowed, or not, will no longer automatically be permitted to serve as a basis for joining claimed inventions which otherwise would be properly the subject of a restriction requirement. In other words, applicant will be required to elect one of the claimed inventions which are the subject of a proper restriction requirement. Combination claims, formerly considered linking claims should be grouped as a separate invention. Rejoinder of the divided inventions, should any combination claim be allowed, however, also will no longer automatically be permitted. The statutory criteria for distinctness will be satisfied if the subcombinations and/or combinations involved are shown to be separately classified, or to have acquired a separate status in the art, or to involve different fields of search.

RICHARD A. WAHL,
Assistant Commissioner.

June 20, 1968.

[852 O.G. 509]

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(134) RESTRICTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, Public Law 92–132, 85 Stat. 364, the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146.

All persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before December 12, 1972, on which date a hearing will be held at 9:30 a.m. in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed changes have three main purposes, (1) to clarify when a requirement for restriction may properly be made by an examiner, (2) to remove the limitation of five species if there is an allowable generic claim in the case, and (3) to provide a basis in the rules for requiring restriction to a single invention when two or more patentably different inventions are claimed in a single Markush-type claim. See "Ex parte Markush," 1925 C.D. 126 (Comm'r. Pat. 1924).

The expression "patentably different" emphasizes the importance of requiring restriction between two or more inventions only where there are unobvious differences between those inventions and separate patents can properly be granted to each invention. Otherwise due to the double patenting prohibition of 35 U.S.C. 121, multiple patents would be granted on a single invention. The proposed changes make it clear that a requirement for restriction is proper only when two or more patentably different inventions are claimed in one application.

The practice under present §§ 1.141 and 1.146 of limiting an application to five species, even though a generic claim has been allowed, has caused some problems since 1953 when the present language of section 121 of the patent statute became effective. Section 121 prohibits the use of a patent as a reference in a subsequent divisional application filed as the result of a requirement for restriction in the application on which such a patent is based. Present §§ 1.141 and 1.146 indicate that an application may be limited to five species even though an allowable generic claim appears therein. If an application is so limited to five species, the other species can be specifically protected only if refiled in a divisional application. Such applications may be filed even though the species are not patentably different from each other. Since the first patent cannot be used as a reference against the second application, limiting the number of species in the first patent would result in a second patent issuing on species which are not patentably different from the species in the first patent. The proposed changes would avoid this problem by removing from the rules the language limiting the claims in one application to five species.

The Markush-type claim practice which allows enumeration in a claim of a plurality of alternatively usable substances or members, has been sanctioned to permit the inclusion of such members in a claim when a generic term covering them is not available. Over the years, this form of claim has been used, for example, in claiming compounds having a large variety of substituent groups, and as a result, Markush-type claims are presented which are each directed to a plurality of independent and distinct inventions.

More than one invention is present in a Markush-type claim if the alternatively usable members of the Markush group are so unrelated and diverse that a prior art reference which shows one of the members and otherwise anticipates the claim could not ordinarily be used to reject under 35 U.S.C. 103 a claim reciting another of the members. In such circumstances, the claim is considered to be an improper Markush-type claim and not a generic claim. Such a claim imposes an undue burden on the Patent Office, particularly with respect to the search which would have to be made for proper examination.

The proposed changes expressly sanctioned the withdrawal of improper Markush-type claims. It should be noted that the "withdrawal" of such improper Markush-type claims would provide the applicant with the benefits of the double patenting prohibition of 35 U.S.C. 121. This benefit would not be available if such improper Markush-type claims were rejected.

The proposed changes will permit examiners to expedite prosecution and make more meaningful searches to determine whether the disclosed and claimed inventions are novel and patentable.

The text of the proposed revised rules is as follows:

§ 1.141 *Different inventions in one application.*

An application claiming two or more independent and distinct, patentably different inventions may be required to be restricted to one of the inventions. Inventions are patentably different when one is not obvious in view of the other, and they may properly appear in separate patents.

§ 1.142 *Requirement for restriction between inventions.*

(a) If two or more independent and distinct, patentably different inventions are claimed in a single application and the examiner deems that restriction is appropriate, he may require the applicant to elect for prosecution in the application a single invention, to which his claims shall be restricted. Such a requirement may be made at any time before final action in the case, at the discretion of the examiner.

(b) In an application containing a claim which enumerates alternatively usable substances or members which are so unrelated that the claim is, in fact, directed to independent and distinct, patentably different inventions, the examiner may require the applicant to elect the invention to which his claims shall be restricted. After election by applicant, such an improper claim by enumeration may be withdrawn by the examiner from further examination because more than one invention is being claimed (35 U.S.C. 121).

(c) Claims not restricted to the elected invention, if not canceled, are nevertheless withdrawn from further consideration by the examiner by the election, subject, however, to reinstatement in the event the requirement for restriction is withdrawn or overruled pursuant to a petition under § 1.144.

§ 1.144 *Petition from requirement for restriction.*

Within 2 months after the examiner's adverse reply to a request for reconsideration of a requirement for restriction, the applicant may petition the Commissioner to review the requirement. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.)

§ 1.145 *Subsequent presentation of claims for different invention.*

If, after an examiner's action on an application, the applicant presents a claim or claims therein directed to a patentably different invention, distinct from and independent of the invention previously claimed, the examiner may require the applicant to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144.

§ 1.146 *Election of species.*

In an application containing a generic claim and claims directed to a plurality of independent and distinct, patentably different species embraced thereby, the examiner may require the applicant to elect that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable. If a generic claim is later found allowable, the application may also contain claims to species in addition to the one elected, provided that such additional species claims are either written to be dependent from a generic claim (§ 1.75 (c)) or to otherwise include all the limitations of the generic claim.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: October 13, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17925 Filed 10-19-72; 8:47 am]

Pub. in 37 F.R. 22625, Oct. 20, 1972

[905 O.G. 251]

(Pending—No Final Action Taken)

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(135) CHANGE OF INVENTORS

Where a person is added or removed as an inventor during the prosecution of an application before the Patent Office, problems may occur upon claiming U.S. priority in a foreign filed case. One such problem results from the apparent conflict between the inventor(s) named in the foreign application and the inventor(s) shown on the priority papers obtained from the U.S. Patent Office. Another problem may occur where there is no conflict between the inventors in the foreign application as filed and the priority papers but a change of inventors has been made in the U.S. application and a similar change is to be made in the foreign application.

In order to overcome the possibility of these problems arising in the future, Examiners should acknowledge any addition of inventors made in accordance with the practice under Rule 45 including the following statement in the next communication to the applicant or his attorney:

"In view of the papers filed _____, it has been found that this application, as filed, through error and without any deceptive intention, failed to include _____ as an actual joint inventor and accordingly, this application has been corrected to include him in accordance with Rule 45."

A similar statement, appropriately modified, should be made in the case where an inventor is removed from those included in the application as filed.

RICHARD A. WAHL,
Assistant Commissioner.

June 10, 1968.

[852 O.G. 509]

TIME FOR RESPONSE

(136) EXTENSION OF TIME

It is ordinarily desirable that notice of the action taken by the Patent Office on requests for extension of time be communicated to the persons making the requests as soon as is reasonably possible. In order to improve Patent Office service to patent and trademark applicants in this regard, the following procedure is being instituted effective immediately. If a request for extension of time is filed in duplicate and accompanied by a stamped return-addressed envelope, the Office will indicate the action taken on the duplicate and return it promptly in the envelope. Utilization of this procedure is optional on the part of applicant.

EDWARD J. BRENNER,
Commissioner of Patents.

Aug. 3, 1966.

[829 O.G. 1307]

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(137) EXTENSIONS OF TIME

Effective immediately, a new liberal policy for interpretation and application of Rule 136(b) will apply with respect to first requests for a one-month extension of time for reply to Office actions where a shortened statutory period for response has been set. Any request under Rule 136(b) for extension of time must state a reason in support thereof; under the above policy the application of the rule will entail only a limited evaluation of the stated reason.

This liberality will not apply to (1) any requests for more than a one-month extension, and (2) second and subsequent requests for extension of time.

In order to provide prompt notification of the action taken on extension requests, the request may be filed in duplicate, accompanied by a stamped return-addressed envelope (including a ZIP code), as announced in the OFFICIAL GAZETTE of, August 3, 1966, 829 O.G. 1307).

It is expected that requests for extension of time will continue to be made only when a need exists and will not become a standard operating procedure. Routine use of this practice may necessitate abandoning the new policy and a return to a less liberal interpretation of Rule 136(b).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 26, 1967.

[835 O.G. 716]

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(138) FINAL REJECTION—TIME FOR RESPONSE

Effective Sept. 1, 1967, the filing of a timely response to a final rejection having a shortened statutory period for response will operate to extend the period for appeal or filing of a continuing case an additional month, but in no case to exceed six months from the date of the final action.

An object of this practice is to obviate the necessity for appeal or filing a continuing case merely to gain time to consider the Examiner's position in reply to an amendment timely filed after final rejection.

Present practice relating to the treatment of amendments after final rejection will continue to apply and failure to file a response during the three-month period will, as heretofore, result in abandonment of the application. In any case where this one-month extension applies and an amendment is officially received during this additional month, the amendment will not be entered or responded to unless it *prima facie* places the application in condition for allowance (e.g. cancels all rejected claims, fully complies with all Examiner suggestions, requirements, etc.).

Also, during this additional month no applicant- or attorney-initiated interview will be permitted.

EDWARD J. BRENNER,
Commissioner.

Aug. 7, 1967.

[841 O.G. 1411]

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(139) FINAL REJECTION—TIME FOR RESPONSE

In clarification of the Notice of August 7, 1967, published in the OFFICIAL GAZETTE of August 29, 1967 (841 O.G. 1411), the filing of a timely response after a final rejection is construed as including a request for a one month extension of the shortened statutory period.

If the response is complete but fails to place the application in condition for allowance, the request will be granted. The entry of any further amendments filed during the additional month shall be restricted to those which *prima facie* place the application in condition for allowance.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 26, 1968.

[855 O.G. 1109]

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(140) OFFICE ACTIONS—TIMELY RESPONSE

The Patent Office has been receiving an excessively large volume of petitions to revive based primarily on the late filing of amendments and other responses to official actions. Many of these petitions indicate that the late filing was due to unusual mail delays; however, the records generally show that the filing was only two or three days late.

In order to alleviate, for applicants and the Office, the problems and expenditures of time and effort occasioned by abandonments and petitions to revive, it is suggested that responses to official action be mailed to the Patent Office at least one, and preferably two, week(s) prior to the expiration of the period within which a response is required. This suggestion is made in the interest of improving efficiency, thereby providing better service to the public.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patent Examining.

Aug. 25, 1972.

[902 O.G. 1172]

APPEALS

(141) APPEAL BRIEFS

It appears that many appeal briefs are being filed which omit reference to the drawing in describing the appellant's invention. As a reminder that the Board of Appeals is aided in its consideration if such a reference appears, attention is directed to the following language in the first sentence of Rule 192(a):

". . . including a concise explanation of the invention which should refer to the drawing by reference characters . . ."

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Aug. 3, 1965.

[817 O.G. 1241]

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(142) APPEAL BRIEFS

While Rule 192(a) requires two extra copies of appeal briefs only if an oral hearing is requested, such copies are of substantial assistance to the Board when appeals are submitted on brief and it is desirable that they be supplied in such cases also. All claims reproduced in appeal briefs should be double spaced.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Jan. 24, 1966.

[823 O.G. 411]

(143) PRACTICE RE: WITHDRAWAL OF FINAL REJECTION BY THE EXAMINER AFTER NOTICE OF APPEAL TO THE BOARD OF APPEALS

Where Notice of Appeal to the Board of Appeals has been filed and the Examiner withdraws the final rejection for allowance or further rejection, applicants are reminded that this results in automatic removal of the appeal from the records of the Board of Appeals in that application.

Accordingly, a proper response to a subsequent final rejection requires the filing of a new Notice of Appeal [without fee] and if this appeal is carried forward, the appropriate fee on filing a brief in support of the second appeal is required.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Mar. 29, 1967.

[837 O.G. 667]

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(144) RULE 192—FILING OF APPEAL BRIEF

Attention is directed to the fact that the seasonable filing of an appeal brief is determined by Rule 192, irrespective of whether the applicant or his attorney has received the appeal acknowledgment with its *reminder* of the brief's due date.

The above should be reflected in any docketing system for filing appeal briefs.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Aug. 4, 1967.

[841 O.G. 1412]

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(145) ORAL HEARINGS UNDER RULE 194

Effective September 1, 1968, for a trial period of six months, new procedures will be initiated which will permit Primary Examiners to present an oral argument before the Board of Appeals in appeals where the applicant has been granted an oral hearing.

After the attorney or agent representing the appellant has made his presentation, the Examiner will be allowed fifteen minutes to reply as well as to present a statement which clearly sets forth his position with respect to the issues and rejections of record. Appellant may utilize any allotted time not used in the initial presentation for rebuttal.

RICHARD A. WAHL,
Assistant Commissioner.

July 26, 1968.

Concur:

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[855 O.G. 827]

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(146) APPEAL HEARINGS

The practice of permitting oral arguments by Primary Examiners in appeals, announced for a trial period in the OFFICIAL GAZETTE of Oct. 22, 1968 (855 O.G. 827), is hereby made permanent.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 27, 1969.

Concur:

E. L. REYNOLDS,
First Assistant Commissioner.

[861 O.G. 1011]

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(147) ABANDONMENT OF APPLICATIONS BEFORE BOARD OF APPEALS

There have been recent instances of the Board of Appeals rendering a decision in an application which had already been refiled as a streamlined continuation.

To avoid recurrence of this situation, applicants should promptly inform the Clerk of the Board in writing as soon as they have positively decided to refile or to abandon an application containing an appeal awaiting a decision. Failure to exercise appropriate diligence in this matter may result in the Board's refusing an otherwise proper request to vacate their decision.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[857 O.G. 1005 (Dec. 24, 1968)]

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(148) REPLY BRIEFS

Applicants should clearly and specifically indicate in their reply briefs the new points of argument "raised in the examiner's answer" to which said reply briefs are directed. Rule 193(b) does not permit general rebuttal of each statement made in the examiner's answer; Consequently a reply brief which is not restricted to answering "new points" may be refused consideration in toto.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Apr. 15, 1969.

[862 O.G. 343]

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(149) APPEALS—CONFIDENTIAL MEMORANDA

The practice of presenting confidential memoranda to the Board of Appeals is hereby terminated. All correspondence with the Board of Appeals, whether by the Examiner or the applicant will be on the record. No unpublished decisions which are unavailable to the general public by reason of 35 U.S.C. 122 will be cited by the Examiner or the applicant except that either the Examiner or the applicant has the right to cite an unpublished decision in an application having common ownership with the application on appeal.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

July 28, 1970.

[877 O.G. 733]

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(150) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICES IN PATENT CASES

Extensions of Time To File Appeal Briefs

After the effective date of this rule change, the examining group clerical staffs will perform all processing and record-keeping relating to appeals to the Board of Appeals up to and including the time when an examiner's supplemental answer to a reply brief is mailed or the time for filing a reply brief has expired. At this time jurisdiction of an appealed application passes from the examiner to the Board of Appeals.

Therefore, all inquiries and papers concerning an application under appeal should be directed to the appropriate examining group until the application is in condition for consideration by the Board of Appeals.

Papers filed in an appealed application under the jurisdiction of the Board of Appeals, such as requests for reconsideration or confirmation of an oral hearing date, should include an expression in the heading such as "Before the Board of Appeals" so that it may be properly routed by the mailroom.

The examining group appeal clerks are authorized to grant, upon the first request therefor, 1-month extensions of time to file the brief or reply brief. Any further extensions or any initial request for an extension of more than 1 month may be granted by the group directors.

After the effective date, there will be no Patent Office acknowledgements of notices of appeals or briefs.

There was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20010) a proposal to revise § 1.192 of Title 37, Code of Federal Regulations, to broaden the authority to grant extensions of time for filing appeal briefs.

Interested persons were given the opportunity to participate in the rule making through submission of comments in writing, and at an oral hearing held on February 19, 1971.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), § 1.192 of Title 37 of the Code of Federal Regulations is hereby revised as follows:

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate, accompanied by the requisite fee, of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

Effective date. This amendment shall be effective March 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: March 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-4414; Filed 3-29-71; 8:50 a.m.]

Published in 36 F.R. 5850; Mar. 30, 1971

[885 O.G. 644]

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(151) APPEAL BRIEFS UNDER RULES 192 AND 193(b)

Appellants are reminded that their briefs in appealed cases must be responsive to every ground of rejection stated by the examiner, including new grounds stated in his answer.

Where an appellant fails to respond by way of brief or reply brief to any ground of rejection, and it appears that the failure is inadvertent, appellant shall be notified that he is allowed one month to correct the defect by filing a supplemental brief. Where this procedure has not been followed, the Board of Appeals should remand the application to the examiner for compliance. When the record clearly indicates intentional failure to respond by brief to any ground of rejection, for example, by failure to file a supplemental brief within the one-month period allowed for that purpose, the examiner should inform the Board of Appeals of this fact in his answer and merely specify the claims affected.

Where the failure to respond by brief appears to be intentional, the Board of Appeals may dismiss the appeal as to the claims involved. Oral argument at a hearing will not remedy such deficiency of a brief.

This notice supersedes the notices of May 4, 1966, 826 O.G. 1060, and of Oct. 20, 1966, 833 O.G. 1.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Apr. 26, 1971.

[886 O.G. 424]

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(152) EXAMINER TESTIMONY

As stated in Section 1701 of the Manual of Patent Examining Procedure, patent examiners are forbidden to testify as patent experts or to express opinions, in testimony or otherwise, as to the invalidity of any issued patent. Patent examiners have, in connection with litigation involving patent validity, been called to testify on factual matters. In those cases, the practice has been to permit the examiner to testify only upon the issuance of a subpoena.

Henceforth, patent examiners will be permitted to testify on deposition in patent suits, without the need for a subpoena, provided the following conditions are satisfied:

1. The party proposing to take the testimony will state in writing, that the questions to be asked of the examiner will be phrased to comply with the permissible scope of

inquiry as outlined in the protective orders contained in the Court opinions in *In re Mayewsky*, 162 USPQ 86, 89 and *Shaffer Tool Works* v. *Joy Manufacturing Co.*, 167 USPQ 170, 171: " . . . the scope of the oral depositions of the patent examiners is hereby limited to matters of fact and must not go into hypothetical or speculative areas or the bases, reasons, mental processes, analyses, or conclusions of the patent examiners in acting upon the patent applications maturing into the patent [in suit]." 167 USPQ 171.

2. That in addition to complying with the requirements of Rule 30 of the Federal Rules of Civil Procedure, the party taking the testimony will agree to give notice of the taking of the deposition of the patent examiner to the Solicitor, at least thirty days prior to the date on which the taking of the deposition is desired.
3. That the party taking the deposition arrange with the Solicitor to notice the deposition at a place convenient to the Patent Office.

If the party desiring to take the testimony of the examiner does not agree to the conditions enumerated, the Patent Office will not permit the examiner to be deposed without a subpoena and compliance with the precedure set forth in Section 7.02, Department of Commerce Administrative Order 205-12, June 29, 1967 as amended April 10, 1970. That section states:

> In any case where it is sought by subpoena, order or other compulsory process or other demand of a court or other authority (hereinafter referred to as a "demand") to require the production or disclosure of any record in the files of the Department of Commerce or other information acquired by an officer or employee of the Department as a part of the performance of his official duties or because of his official status, the matter shall be immediately referred for determination to the appropriate official described in subsection 4.01 of this order. If such official has discretion with respect to disclosure and he determines that it would be improper to comply with the demand, or if he has no discretion with respect to disclosure, the matter shall be promptly referred to the Secretary of Commerce for final determination. Unless and until the Secretary determines that the records or information should be produced, the officer or employee who appears in answer to the demand shall inform the court or other authority (a) that the section 7 of this order prohibits the officer or employee from producing or disclosing the records or other information demanded without the prior approval of the Secretary of Commerce, and (b) that the demand has been, or is being, as the case may be, referred for the prompt consideration of the Secretary. The officer or employee shall also provide the court or other authority with a copy of the regulations prescribed in this section 7 of this order, and shall respectfully request the court or other authority to stay the demand pending the receipt of instructions or directions from the Secretary of Commerce concerning the demand.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Mar. 13, 1972.

[897 O.G. 762]

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(153) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 1.301 is amended by adding a new sentence at the end. As amended, § 1.301 reads as follows:

§ 1.301 *Appeal to U.S. Court of Customs and Patent Appeals.*

Any applicant dissatisfied with the decision of the Board of Appeals, and any party to an interference dissatisfied with the decision of the Board of Patent Interferences, may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (a) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see §§ 1.302 and 1.304); (b) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see paragraphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The times specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5-11-72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-7159; Filed 5-10-72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. 409]

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(154) SERVICE OF COURT PAPERS ON COMMISSIONER OF PATENTS

Those having occasion to serve on the Commissioner of Patents papers having to do with court proceedings are hereby reminded that proper service by mail may be effected only by mailing the papers to the Solicitor of the Patent Office as counsel for the Commissioner. Rule 5(b) of the Federal Rules of Civil Procedure provides in pertinent part:

> Whenever under these rules service is required or permitted to be made upon a party represented by an attorney the service shall be made upon the attorney unless service upon the party himself is ordered by the court. Service upon the attorney • • • shall be made by delivering a copy to him or by mailing it to him at his last known address • • •.

Rule 25(b) of the Federal Rules of Appellate Procedure similarly provides, "Service on a party represented by counsel shall be made on counsel." The clerk of the U.S. Court of Customs and Patent Appeals has stated that, inasmuch as the rules of the Court are not specific on the manner of service in patent cases, the procedure outlined herein has the Court's approval.

Accordingly, all service copies of papers filed in court proceedings in which the Commissioner of Patents is a party which are served by mail should be addressed:

"(Name of Solicitor), Solicitor
U.S. Patent Office
Washington, D.C. 20231."

S. WM. COCHRAN,
Solicitor.

Apr. 28, 1972.

[898 O.G. 1500]

INTERFERENCES

(155) INTERFERENCE—DECLARATION

Effective July 1, 1964, no interference will be declared between pending applications, if there is a difference of more than three (3) months in the effective filing dates of the applications in the case of inventions of a simple character, or a difference of more than six (6) months in other cases, except in exceptional situations, as determined and approved by the Commissioner.

EDWARD J. BRENNER,
Commissioner.

June 26, 1964.

[804 O.G. 297]

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(156) INTERFERENCE PRACTICE—AFFIDAVITS UNDER RULE 204(c)

There has been difficulty in a number of cases due to uncertainty on the part of applicants concerning the requirements of affidavits to be filed under Rule 204(c) to secure interference contests with patentees whose filing dates antedate their own by more than three months, and it is hoped that the following explanation will be helpful.

In preparing affidavits under this rule applicants should have in mind the provisions of Rule 228, and especially the following facts:

1. That after these affidavits are forwarded by the Primary Examiner for the declaration of an interference they will be examined by a Board of Patent Interferences.

2. If the affidavits fail to establish with adequate corroboration acts and circumstances which would prima facie entitle applicant to an award of priority relative to the effective filing date of the patentee, an order will be issued concurrently with the notice of interference, requiring applicant to show cause why summary judgment should not be rendered against him.

3. Additional affidavits in response to such order will not be considered unless justified by a showing under the provisions of Rule 228, and if the applicant responds the patentee will receive from the applicant a copy of the response (Rule 247) and from the Patent Office a copy of the original showing (Rule 228), and will be entitled to present his views with respect thereto.

4. It is the position of the Board of Patent Interferences that all affidavits submitted must describe acts which the affiants performed or observed or circumstances observed, such as structure used and results of use or test, except on a proper showing as provided in Rule 204(c). Statements of conclusion, for example, that the invention of the counts was reduced to practice, are generally considered to be not acceptable. It should also be kept in mind that documentary exhibits are not self-proving and require explanation by an affiant having direct knowledge of the matters involved. However, it is not necessary that the exact date of conception or reduction to practice be revealed in the affidavits or exhibits if the affidavits aver observation of the necessary acts and facts, including documentation when available, before the patentee's effective filing date. On the other hand, where reliance is placed upon diligence, the affidavits and documentation should be precise as to dates from a date just prior to patentee's effective filing date. The showing should relate to the essential factors in the determination of the question of priority of invention as set out in 35 U.S.C. 102(g).

5. The explanation required by Rule 204(c) should be in the nature of a brief or explanatory remarks accompanying an amendment, and should set forth the manner in which the requirements of the counts are satisfied and how the requirements for conception, reduction to practice or diligence are met.

GEORGE W. BOYS,
Chairman, Board of Patent Interferences.

Apr. 21, 1966.

[826 O.G. 712]

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(157) DESIGNATION OF INTERFERENCE RECORD RELIED UPON

During the taking of testimony in an interference it is frequently not clear just what testimony is necessary to a party's case, since the contentions to be made by the opposing party are not known, and in the case of a junior party it is frequently not known whether or not the senior party will take testimony. Therefore counsel taking testimony will normally cover all matters which might possibly have an effect on his case. Then, in preparing his briefs it may become apparent that certain portions of his record have no real significance as to issues involved. A review of these portions by the Board of Patent Interferences is thus unnecessary.

Accordingly, in order to reduce the time required by the Board of Patent Interferences to study the record, and to more effectively and efficiently decide the issues involved, counsel relying on an evidentiary record in interference cases are requested to file a statement as to the portions of their record upon which they rely. Such statement should be included in the briefs of the respective parties.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[846 O.G. 679 (Jan. 16, 1968)]

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(158) RULE 283
Testimony taken in another interference or action

A discovery proceeding under the control of a U.S. District Court, ancillary to an interference proceeding, is now considered to be an "action" within the meaning of Rule 283. Accordingly, "pretrial depositions" taken in a discovery proceeding in accordance with the Federal Rules of Civil Procedure and under court control may be used in the interference as to which the discovery proceeding is ancillary, subject to all other provisions of Rule 283.

RICHARD A. WAHL,
May 2, 1972. *Assistant Commissioner.*

[898 O.G. 1500]

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(159) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 5—SECRECY OF CERTAIN INVENTIONS AND LICENSES TO FILE APPLICATIONS IN FOREIGN COUNTRIES

Interference Practice

These rules changes are intended to clarify the current practice before the Board of Patent Interferences and to correct several inconsistencies in rule language. The rule change: (1) Provides for a 30-day period in which the junior party may request a final hearing to review a decision granting a motion over his opposition, (2) changes several 10-day periods to be 20-day periods, (3) provides for consideration of a motion to add or remove names of inventors, filed after the time for taking testimony has been set, to be deferred to final hearing, (4) provides that documentary exhibits not be included in bound volumes of testimony, (5) provides that in testimony papers, questions to a witness need not be consecutively numbered if paper with numbered lines is used, and (6) provides that a notice be placed in the file wrapper of a patent if claims therefrom are copied in an application under secrecy order.

On June 30, 1972, notice of proposed rulemaking regarding the amendment of §§ 1.225, 1.231, 1.251, 1.253, 1.272, 1.277, 1.281, and 5.3 of title 37, Code of Federal Regulations, dealing with interference practice, was published in the Federal Register (37 FR 12966). Interested persons were given until October 10, 1972, to submit written comments or suggestions regarding the proposed amendments. The changes in §§ 1.243 and 1.244 are made without publication of proposed rule change since it merely relieves a restriction.

Full consideration having been given to all comments received in response to the public notice, the amendments originally proposed have been somewhat modified and are hereby adopted as set forth below.

Effective date.—These amendments shall become effective June 25, 1973, and shall apply only to interferences declared after such effective date.

In consideration of the comments received and pursuant to the authority contained in section 6 of the act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971 (85 Stat. 364), parts 1 and 5 of title 37, Code of Federal Regulations are hereby amended as follows:

1. Section 1.225 is revised to read as follows:

§ 1.225 *Failure of junior party to file statements or to overcome filing date of senior party.*

If a junior party to an interference fails to file a preliminary statement, or if his statement fails to overcome the prima facie case made by the filing date of the application of another party, judgment on the record will be entered against such junior party unless he has filed a motion under § 1.231, within the time set for such motions, for some action in the interference or he has opposed a motion under § 1,231(a) (2), (3), (4), or (5). If such a motion has been timely filed but does not result in action in the interference which will remove the basis for a judgment on the record, such judgment on the record will be entered unless the motion related to matters which may be reviewed at final hearing under § 1.258, and within 30 days of the decision disposing of the motion the junior party concerned requests that final hearing be set to review such matter. Also, such a junior party may within such 30-day period request a final hearing to review such a matter raised by his opposition to motion under § 1.231(a) (2), (3), (4), or (5) which was granted over his opposition.

2. In § 1.231, subparagraphs (4) and (5) of paragraph (a) and paragraph (d) are revised to read as follows:

§ 1.231 *Motions before the primary examiner.*

(a) • • •

(4) To be accorded the benefit of an earlier application or to attack the benefit of an earlier application which has been accorded to an opposing party in the notice of declaration. See § 1.224.

(5) To amend an involved application by adding or removing the names of one or more inventors as provided in § 1.45. (See par. (d) of this section.)

• • • • • •

(a) All proper motions as specified in paragraph (a) of this section, or of a similar character, will be transmitted to and considered by the primary examiner without oral argument, except that consideration of a motion to dissolve will be deferred to final hearing before a Board of Patent Interferences where the motion urges unpatentability of a count to one or more parties which would be reviewable at final hearing under § 1.258(a) and such unpatentability is urged against a patentee or has been ruled upon by the Board of Appeals or by a court in ex parte proceedings. Also consideration of a motion to add or remove the names of one or more inventors may be deferred to final hearing if such motion is filed after the times for taking testimony have been set. Requests for reconsideration will not be entertained.

§ 1.243 [*Amended*]

3. In § 1.243, the last sentence is amended by deleting "10 days" and inserting in lieu thereof, the expression "20 days from the date of service of the motion."

§ 1.244 [*Amended*]

4. In § 1.244, paragraph (c) and paragraph (d), last sentence, is amended by deleting "10 days from the filing" and inserting in lieu thereof, the expression "20 days from the date of service."

5. In § 1.251, paragraph (a) is revised to read as follows:

§ 1.251 *Assignment of times for discovery and taking testimony.*

(a) A period for preparation for testimony will be set in which all parties should complete discovery and other preparatory activities, except for service by the senior party required by § 1.287(a)(1) which is governed by § 1.287(a)(2)(iii).

• • • • • •

6. In § 1.253, paragraph (f) is revised to read as follows:

§ 1.253 *Copies of the testimony.*

• • • • • •

(f) When the copies of the record are in typewritten form, they must be clearly legible on opaque unglazed, durable paper approximately 8½ by 11 inches in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277). The typing shall be on one side of the paper, in not smaller than pica type; and double-spaced with a margin of 1½ inches on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

• • • • • •

7. In § 1.272, paragraph (c) is revised to read as follows:

§ 1.272 *Manner of taking testimony of witnesses.*

• • • • • •

(c) By agreement of the parties, the testimony of any witness or witnesses of any party may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated. When evidence is submitted in one of these forms, four copies of such affidavit or stipulated testimony (§ 1.253 (a), (c), (f)) are required.

8. In § 1.277, paragraph (a) is revised to read as follows:

§ 1.277 *Form of deposition.*

(a) The testimony must be written on letter size paper, with a wide margin on the left-hand side of the page, and with the writing on one side only of the sheet. The pages must be serially numbered throughout the entire record for each party (§ 1.253(c)) and the name of the witness must be plainly and conspicuously written at the top of each page. The questions propounded to each witness must be consecutively numbered, unless paper with numbered lines is used, and each question must be followed by its answer.

• • • • • •

9. Section 1.281 is revised to read as follows:

§ 1.281 *Additional time for taking testimony.*

If either party has proceeded with the taking of testimony on his behalf but is unable to complete his case because of inability to procure the testimony of a witness or witnesses within the time limited and said time has expired, and he desires additional time for such purpose, he must file a motion, accompanied by a statement under oath or in the form of a declaration setting forth specifically the cause of such inability, the name or names of the witness or witnesses, the facts expected to be proved by such witness or witnesses, the steps which have been taken to procure such testimony, and the dates on which efforts have been made to procure it. (See § 1.245 for extensions of time in other situations.)

10. In § 5.3, paragraph (b) is revised to read as follows:

§ 5.3 *Prosecution of application under secrecy order; withholding patent.*

• • • • • •

(b) An interference will not be declared involving applications under secrecy order. However, if an application under secrecy order copies claims from an issued patent, a notice of that fact will be placed in the file wrapper of the patent.

• • • • • •

Date: April 10, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-7744; Filed 4-20-73; 8:45 am]

[910 O.G. 992]

CORRECTION OF ERRORS

(160) CERTIFICATES OF CORRECTION LISTING

Certificates of Correction are issued every Tuesday. Beginning on January 7, 1969, each issue of the OFFICIAL GAZETTE will numerically list all U.S. patents having Certificates of Correction issuing that Tuesday. The list will appear under the heading "Certificates of Correction Issued (date)."

RICHARD A. WAHL,
Nov. 22, 1968. *Assistant Commissioner.*

[857 O.G. 1005]

(161) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Issuance of Certificates of Correction

On October 11, 1968, notice of proposed rulemaking regarding the amendment of §§ 1.322 and 1.323 of Title 37, Code of Federal Regulations, dealing with the issuance of certificates of correction, was published in the Federal Register (33 F.R. 15218). Interested persons were given 40 days in which to submit written comments, suggestions, or objections regarding the proposed amendments.

Full consideration having been given to all comments that were received in response to the public notice, the amendments originally proposed are hereby adopted without change and are set forth below.

As a result of these rule changes it will no longer be necessary for the patentee to forward his patent to the Patent Office when requesting the issuance of a certificate of correction. Upon receipt of an appropriate request, a certificate of correction will be issued and forwarded to the patentee, with an authorization permitting the patentee to physically attach same to the patent.

In connection with this change of procedure, arrangements have been made with Shepard's Citations to indicate under its listing of patents in its set entitled "Shepard's United States Citations, Patents and Trademarks" those patents for which certificates of correction have been issued. Beginning in April of this year the information will be published in that set's quarterly cumulative supplement and will appear in the bound volume thereof, when it is released.

Effective date. These amendments shall become effective upon publication in the Federal Register.

Dated: Mar. 18, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:
ALLEN V. ASTIN,
Assistant Secretary for Science and Technology.

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[861 O.G. 680]

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(162) NEW PROCEDURE FOR HANDLING CERTIFICATES OF CORRECTION

In compliance with amended Rules 322 and 323, and to expedite the issuance of certificates and reduce printing costs, practitioners are urged to submit the text of the certificate on a special form which could serve as the final copy for use in direct process reproduction (offset printing) of the certificate of correction. The *request* for issuance of the certificate (together with the fee where the error is due to applicant's mistake) should be in a separate letter accompanied by two copies of the form and a self-addressed envelope.

Where the recommended format is used and approved, one copy of said form, duly certified, will be returned to the patentee for attachment to his copy of the patent. This will eliminate the present necessity for returning the patent when requesting a certificate. The other copy of the form will be used for direct offset printing of copies of the certificate which, as heretofore, will be attached to every printed copy of the patent subsequently sold or distributed.

Copies of the form are obtainable for reproduction purposes from Correspondence and Mail Branch and from the receptionist in Bldg. 3, Crystal Plaza. Below is a sample form illustrating a variety of corrections and the suggested manner of setting out the format. Particular attention is directed to:

a. Identification of the exact point of error by reference to column and line number of the printed patent.
b. Conservation of space on the form by *typing* single space, beginning two lines down from the printed message.
c. Starting the correction to each separate column as a sentence, and using semi-colons to separate corrections within said column, where possible.
d. Two inch space left blank at bottom for signature of attesting officer.

e. Use of quotation marks to enclose the exact subject matter to be deleted or corrected; use of double hyphens (--) to enclose subject matter to be added, except for formulas.
f. Where a formula is involved, setting out only that portion thereof which is to be corrected.

Where the recommended format is not used or where the nature of the subject matter is such that it is more expedient to print by the direct image offset technique, e.g., entire sheet(s) of drawing or page(s) of specification omitted, multiple pages of corrections, intricate chemical formulas, etc., Issue and Gazette Branch will prepare the certificate as heretofore. Patentee will receive a copy for attachment to his copy of the patent.

RICHARD A. WAHL,
Assistant Commissioner.

Apr. 1, 1969.

UNITED STATES PATENT OFFICE

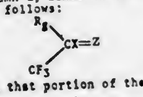
CERTIFICATE OF CORRECTION

Patent No. 3,667,999 Dated April 1, 1969

James W. Worth

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

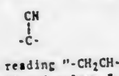
In the drawings, Sheet 3, Fig. 3, the reference numeral 225 should be applied to the plate element attached to the support member 207. Column 2, lines 45 to 49, the left-hand formula should appear as follows:



Column 6, formula XXIV, that portion of the formula reading



should read



Formula XXXVII, that portion of the formula reading "-CH_2CH-" should read -CH_2CH_2-. Column 2, line 68 and column 3, lines 3, 8 and 13, the claim reference numeral "2", each occurrence, should read -- 1 --. Column 10, line 16, cancel beginning with "12. A sensor device" to and including "tive strips." in colwnn 11, line 8, and insert the following claim:

12. A control circuit of the character set forth in claim 1 and for an automobile having a convertible top, and including; means for moving said top between raised and lowered retracted positions; and control means responsive to said sensor relay for energizing the top moving means for moving said top from retracted position to raised position.

[862 O.G. 2]

ABSTRACTS

(163) EXAMINATION REQUIREMENTS AND PROCEDURE IN RELATION TO ABSTRACTS OF THE DISCLOSURE

The newly adopted amendment to Rule 72 which requires the submission of an *Abstract of the Disclosure* is being applied to patent applications which receive a first Office action of any kind from the Examiner on or after November 1, 1966; however, on cases filed before January 1, 1967, abstracts will not be required where the application is passed to issue on the first action.

The Examiner in the first office action on and after November 1, 1966, should require the submission of a brief abstract of the technical disclosure in the specification, the abstract to appear immediately after the title of the invention and preceding the disclosure in a separate paragraph under the heading "Abstract of the Disclosure." The following form paragraph may be used to make the requirement:

"An abstract is required, see new Rule 72(b)."

Responses to such actions should be treated under Rule 111(b) practice like any other formal matter.

Upon passing the case to issue, the Examiner should see that the abstract is an adequate and clear statement of the contents of the disclosure and generally in line with the guidelines in the following paragraphs; the abstract shall be changed by Examiner's Amendment in those instances where deemed necessary.

1. The purpose of the abstract is to provide a non-legal technical statement of the contents of the disclosure. The abstract should be an objective condensation (rather than a description) of the disclosure, in clear and concise language. Statements as to the relative merits or value, or speculative applications of the invention should be omitted.

2. The abstract should be especially designed to serve as a searching-scanning tool for the scientist, engineer or researcher in the particular art, and therefore should serve to indicate whether there is a need for consulting the full specification for details.

3. The abstract should be as brief as the subject permits. A single paragraph of 50–100 words should be sufficient.

4. Especially in the chemical field, the abstract should include a statement of the utility of the subject matter of the disclosure, particularly that which is related to the invention.

5. The abstract should be separate and independent of the "Summary of the Invention." One of the purposes of the abstract is to determine quickly the nature and gist of the technical disclosure.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 7, 1966.

[831 O.G. 1328]

(164) CHANGE IN CONTENT OF THE PATENTS SECTION OF THE OFFICIAL GAZETTE

In keeping with the Patent Office program to encourage the use of patents in the scientific, engineering and business communities, as well as the patent profession, a change in the content of the patents section of the OFFICIAL GAZETTE is being made.

Beginning with the first issue of the OFFICIAL GAZETTE in January 1968, a copy of the abstract of each patent where an abstract is available will appear, in lieu of the claim. This change in content is being made in order that patent information may be better utilized by the patent public.

In addition to the regular issue of the OFFICIAL GAZETTE an extract of the patents section, i.e., the descriptive matter relating to patents only, will be made available. The subscription rate for the patents section extract only for the first six months period beginning with the first issue in January 1968, will be twenty-seven dollars ($27.00) and one dollar and twenty-five cents ($1.25) for a single copy. The extract will be mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed. The title of the extract will be "Official Gazette—Patent Abstracts Section."

It is to be noted that the Government Printing Office has determined that the subscription rate for the regular issue of the OFFICIAL GAZETTE will be increased to sixty-seven dollars ($67.00) for the subscription year beginning January 1968, and the price of individual copies will be increased to one and a half dollars ($1.50). The increased rate is not related to the new program.

EDWARD J. BRENNER,
Commissioner of Patents.

Sept. 25, 1967.

[843 O.G. 747]

(165) PARAGRAPH REQUIREMENTS FOR ABSTRACTS

In view of some difficulties experienced in determining the extent of the abstracts, the Patent Office is supplementing the Notice of October 7, 1966 (831 O.G. 1328).

An abstract should usually be limited to a single paragraph, under the heading, "Abstract of the Disclosure" as stated in Rule 72(b) and MPEP 608.01(b).

In unusual circumstances where the application disclosure does not lend itself to a single paragraph abstract, a plural paragraph abstract may be acceptable. An example of these rare situations would be an application having claims to different statutory classes, it being recognized that an abstract of the disclosure should be written to include the advancement in the art.

To avoid errors in printing where a plural paragraph abstract is deemed necessary and appropriate, the complete abstract must be set off by suitable headings to indicate where the abstract begins and ends. Appropriate headings useable between the abstract and the subsequent description are to be found in the "Guidelines for Drafting a Model Patent Application Under the Revised Rules" (832 O.G. 5; MPEP 608.01(a)).

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 16, 1968.

[854 O.G. 287]

(166) PATENT ABSTRACTS

The provision in Rule 72(b) of the Rules of Practice in Patent Cases, relating to inclusion of a "brief abstract of the technical disclosure" in applications for patent, has now been in effect for two and one-half years.

Instructions regarding abstract preparation were published at 831 O.G. 1328, October 25, 1966, and at about the same time a pamphlet entitled "Guidelines for the Preparation of Patent Abstracts" was published and made available to personnel concerned with the preparation and review of abstracts of the type noted.

Abstracts are becoming more and more significant in the field of mechanized and computerized prior art retrieval. It is therefore important that they reach the optimum quality level at the earliest possible date.

During the past year abstracts, in a random sample of approximately 1000 allowed applications, were audited or reviewed for purposes of determining degree of compliance with the aforenoted instructions and guidelines. Steady improvement in the quality of the abstracts was noted in the course of the review. The review clearly indicated, however, a need for further improvement as well as a need for certain modifications and revisions in the earlier published guidelines. There also appeared to be a need for reemphasis of portions of the guidelines.

Accordingly, a revised set of guidelines consonant with the needs suggested by the audit have been promulgated, and are set forth below for use in the preparation and review of patent abstracts.

GUIDELINES FOR THE PREPARATION OF PATENT ABSTRACTS

Background

The Rules of Practice in Patent Cases require that each application for patent include an Abstract of the Disclosure, Rule 72(b).

The content of a patent abstract should be such as to enable the reader thereof, regardless of his degree of familiarity with patent documents, to ascertain quickly the character of the subject matter covered by the technical disclosure and should include that which is new in the art to which the invention pertains.

The abstract is not intended nor designed for use in interpreting the scope or meaning of the claims, Rule 72(b).

Content

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is *new* in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or a use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

With regard particularly to chemical patents, for compounds or compositions, the general nature of the compound or composition should be given as well as the use thereof, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Language and Format

The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 250 words. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should sufficiently describe the disclosure to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "This disclosure concerns," "The disclosure defined by this invention," "This disclosure describes," etc.

Responsibility

Preparation of the abstract is the responsibility of the applicant. Background knowledge of the art and an appreciation of the applicant's contribution to the art are most important in the preparation of the abstract. The review of the abstract, for compliance with these guidelines, with any necessary editing and revision on allowance of the application is the responsibility of the examiner.

Sample Abstracts

A heart valve with an annular valve body defining an orifice and having a plurality of struts forming a pair of cages on opposite sides of the orifice. A spherical closure member is captively held within the cages and is moved by blood flow between open and closed positions in check valve fashion. A slight leak or backflow is provided in the closed position by making the orifice slightly larger than the closure member. Blood flow is maximized in the open position of the valve by providing an inwardly convex contour on the orifice-defining surfaces of the body. An annular rib is formed in a channel around the periphery of the valve body to anchor a suture ring used to secure the valve within a heart.

A method for sealing, by application of heat, overlapping closure panels of a folding box made from paperboard having an extremely thin coating of moisture-proofing thermoplastic material on opposite surfaces. Heated air is directed at the surfaces to be bonded, the temperature of the air at the point of impact on the surfaces being above the char point of the board. The duration of application of heat is made so brief, by a corresponding high rate of advance of the boxes through the air-stream, that the coating on the reverse side of the panels remains substantially non-tacky. The bond is formed immediately after heating within a period of time for any one surface point less than the total time of exposure to heated air of that point. Under such conditions the heat applied to soften the thermoplastic coating is dissipated after completion of the bond by absorption into the board acting as a heat sink without the need for cooling devices.

Amides are produced by reacting an ester of a carboxylic acid with an amine, using as catalyst an alkoxide of an alkali metal. The ester is first heated to at least 75° C. under a pressure of no more than 500 mm. of mercury to remove moisture and acid gases which would prevent the reaction, and then converted to an amide without heating to initiate the reaction.

RICHARD A. WAHL,
Assistant Commissioner.

Apr. 23, 1969.

[862 O.G. 653]

(167) DISCONTINUATION OF THE PUBLICATION "PATENT ABSTRACTS SECTION OF THE OFFICIAL GAZETTE"

Effective Mar. 31, 1970, the Patent Office will no longer print the publication "Patent Abstracts Section of the Official Gazette." Reasons for this decision are the desire to incur a

saving in printing costs, the same information now appears in the OFFICIAL GAZETTE, and the number of subscribers no longer warrants a separate publication.

The Superintendent of Documents, U.S. Government Printing Office, will contact subscribers to the "Patent Abstracts" for appropriate action regarding their subscriptions.

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.

Feb. 9, 1970.

[872 O.G. 1]

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(168) CLAIMS VERSUS ABSTRACTS FOR PUBLICATION IN THE PATENT OFFICIAL GAZETTE

Abstracts have been required for all patent applications filed since January 1, 1967. Subsequent to the requirement for abstracts, the Office began substituting abstracts for patent claims in the OFFICIAL GAZETTE. At the present time, abstracts are used exclusively in the OFFICIAL GAZETTE to describe the inventions for which patents issue each week.

Over the last several months, the Office has become increasingly aware of the disparity of views which exist regarding the merits of the publication of claims or abstracts in the OFFICIAL GAZETTE. The utilization of abstracts in the OFFICIAL GAZETTE was initially based on a desire to make that publication more useful to the non-patent community. However, it now appears that a significant portion of the patent community, especially in the chemical area, would prefer the publication of claims in the OFFICIAL GAZETTE as more useful than the publication of abstracts.

To assist the Office in resolving this issue, it is requested that interested parties submit their comments in writing prior to January 1, 1973. Such comments should be addressed to the Commissioner of Patents, Washington, D.C., 20231.

ROBERT GOTTSCHALK,
Commissioner of Patents.

May 22, 1972.

[899 O.G. 820]

REFERENCES

(169) CITATION OF PUBLICATIONS AND FOREIGN PATENTS

Foreign Patents

In accordance with Rule 107, for each foreign patent cited, there should be indicated the number of sheets of drawing and pages of specification and also the sheet number(s) and page number(s) specifically relied upon if less than the entire disclosure is used. Because it is essential to conserve space in the Examiner's file of applications and to minimize the cost to applicant under the automatic supply of references cited, whenever the total number of sheets and pages in any foreign patent exceeds ten, the Examiner should keep the total relied on as near to ten as possible. Applicants who desire a copy of the complete foreign patent or of the portion not "relied on" must order it, not through the automatic supply system, but in the usual manner.

Publications

Publications such as German allowed applications and Netherlands printed specifications should be similarly handled. With other publications such as books, periodicals and catalogues, the specific pages relied upon should be cited. If the copy relied upon is located only in the Group making the action (there is no call number), the additional information, "Copy in Group —" should be given.

RICHARD A. WAHL,
Acting Superintendent, Patent Examining Corps.

Jan. 4, 1965.

[811 O.G. 293]

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(170) AUTOMATIC FURNISHING FREE COPIES OF CITED REFERENCES

Commencing November 1, 1965, one complete set of references cited by Examiners in Office Actions will be automatically supplied without charge simultaneously with the mailing of the actions.

Additional copies of references desired must be properly identified and purchased from the regular Patent Office copy supply facilities.

This supersedes the notice, "Providing Copies of Cited References to Applicants" which was published in 809 O.G. 317 on December 8, 1964.

C. A. KALK,
Director of Administration.

Oct. 1, 1965.

[819 O.G. 1335]

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(171) CITATION OF REFERENCES AT TIME OF ALLOWANCE

Commencing March 15, 1966, references cited by examiners when passing an application to issue will no longer be supplied under the automatic plan. Copies of these references, if desired, must be purchased from the regular Patent Office copy supply facilities.

Except as above indicated references cited by examiners in Office actions will continue to be automatically supplied without charge simultaneously with the mailing of the actions.

This modifies the notice, "Automatic Furnishing Free Copies of Cited References," which was published in 820 O.G. 1 on November 2, 1965.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Feb. 24, 1966.

[824 O.G. 805]

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(172) ORDERS FOR REFERENCES CITED IN SHORTENED STATUTORY PERIOD ACTIONS

Effective immediately, the Patent Office will no longer supply copies of references cited on a "Special Handling" basis without the usual additional charge. This service was announced in the OFFICIAL GAZETTE on June 2, 1964.

The Patent Office has, since November 1, 1965, been furnishing one complete set of references cited by Examiners in Office Actions automatically, without charge, simultaneously with the mailing of the actions.

[825 O.G. 811 (Apr. 19, 1966)]

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(173) POLICY RE: VOLUNTARY CITATION OF PRIOR ART BY APPLICANTS

Effective immediately, the following policy is being adopted in the hope of encouraging more frequent and meaningful citation of prior art by applicants and their attorneys on a voluntary basis.

Prior art cited by applicants or their attorneys within thirty days of the filing of a patent application, or prior to the first Office action, whichever is later, will be fully considered by the Examiner, will be part of the official record, and will be included in the list of references cited in the patented file and in the printed patent provided the applicant:

(a) Limits the number of references cited to not more than five separate items, unless a satisfactory explanation is given as to why more than five citations are necessary, and submits one copy of each of the references; and

(b) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references.

References cited by applicants or attorneys under the "special" examining procedure announced on March 2, 1965, and published in 812 O.G. 953 will also be included in the list of references cited in the patented file and printed patent.

Prior art cited by applicants and attorneys under the practice set forth in the notices published in 797 O.G. 733; 802 O.G. 601; 804 O.G. 1 and 805 O.G. 294 will no longer be listed in the printed patent.

EDWARD J. BRENNER,
Commissioner of Patents.

Apr. 13, 1967.

[837 O.G. 1032]

(174) REFERENCE CITATION IN CONTINUATION APPLICATIONS

Effective December 1, 1967, the Office will discontinue the practice of furnishing, automatically and without charge, copies of references cited in continuation applications if they had been previously cited in the parent application.

In the rare instance where no art is cited in a continuation application, all the references cited during the prosecution of the parent application will be listed at allowance for printing in the patent.

Other continuing applications, including continuation-in-part and divisional applications, are not affected by this change.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 1, 1967.

[846 O.G. 1022]

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(175) PATENT CLASSIFICATION

As a service to the public, effective with the issue of December 10, 1968, all patents will contain at the end of the specification, after the "List of References," a list of all classes and subclasses in the U.S. Classification System into which the patent was cross-referenced at the time of issue. This listing will be headed "U.S. Cl.—X.R."

Beginning with the issue of January 7, 1969, all patents will also include International Patent Classifications in the heading and identified as " Int. Cl."

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 29, 1968.

[858 O.G. 1029]

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(176) CONCORDANCE: UNITED STATES PATENT CLASSIFICATION TO INTERNATIONAL PATENT CLASSIFICATION

A revised and updated edition of the "Concordance: United States Patent Classification to International Patent Classification" has been published and is available from the Superintendent of Documents, U.S. Government Printing Office, for $1.50. This second edition is a revision of the edition of April 1969, and contains about 3,000 changes, corrections and additions suggested by users of the book. It includes all new U.S. classes published up to and including November 1971.

W. W. BURNS, JR.,
Administrator, Office of Search Systems and Documentation.

Apr. 12, 1972.

[898 O.G. 368]

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(177) MACHINE SEARCH SERVICE

The Mechanized Search Service presently used by the Patent Office in making examiner searches in the field of Data Processing is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00 each. The instruction manual "Search System Manual for the Field of Data Processing-ICIREPAT System DP" is included as part of the "package." A renewal fee of $35.00 per year entitles the subscriber to receive a set of cards for new issues.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content[1]
Data processing	235	157	2,965 U.S. Patents.
	340	172.5	622 Literature articles.

[1] Approximate number of documents in the files as of June 30, 1971.

The scope and organization of this file is described in the publication "Search System Manual for the Field of Data Processing-ICIREPAT System DP."

A substantial portion of this publication is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed publication. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of Data Processing may be directed to the Supervisory Primary Examiner of Group Art Unit 237.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. patent and non-patent literature references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address request to the Patent Office, Office of Search Systems and Documentation, Washington, D.C., 20231.

After any necessary consultation with the Examiner in preparing the search query, address search requests together with the completed code sheet and fee to the Commissioner of Patents, Washington, D.C., 20231. Attention should be directed to the Office of Search Systems and Documentation, Office of the Adminstrator.

[891 O.G. 886 (Oct. 19, 1971)]

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(178) MACHINE SEARCH SERVICE

The mechanized retrieval system formerly used by the Patent Office in making examiner searches in the field of steroids has been replaced by the ICIREPAT Shared System for this field (System ST). This new system is based upon the original U.S. Patent Office system, with certain additions and modifications. Following are the changes that have been or are being effected:

1. Two sub-systems have been created, one for steroid structures and the other for processes which produce steroid structures.
2. Patents relating to seco, nor, homo- and hetero steroids are within the scope of the new ICIREPAT system and are being added to the system.
3. The new system does not at this time include U.S. patents issued prior to 1965. It is anticipated that U.S. patents from 1961–1964 will be added. To date, no plans have been made for the indexing of non-patent literature.
4. Foreign patents relating to structures and processes within the scope of the sub-systems are being indexed by cooperating foreign patent offices.
5. The ICIREPAT structure sub-system includes substantially the same capabilities for searching compounds as the old system; the card format, however, has been modified.
6. Both the manual and the code sheet have been revised to reflect these additions and modifications as well as a number of other minor changes. The manual is still under revision; however, draft copies are available to users of the system.

The ICIREPAT System ST is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00. The instruction manual is still under revision; however, as noted above, draft copies are provided with the card file. A renewal fee of $35.00 per year entitles the subscriber to receive cards for newly issuing patents as well as for older documents (i.e., those indicated in items 2, 3 and 4 above) as these cards become available.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Steroid	260	239.5+	1,937 U.S. Patents.
		397+	1,111 Foreign Patents.

[1] Approximate number of documents in the files as of October 1, 1972.

A substantial portion of the instruction manual is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed manual. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of steroids may be directed to the Supervisory Primary Examiner of Group Art Unit 124.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. and foreign patent references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address requests to the Patent Office, Office of Patent Classification, Washington, D.C. 20231.

Requests for searches in the original Steroid system will still be accepted, since the revised ICIREPAT system at present includes among the U.S. patents only those which issued after January 1, 1965. The content of this original file, updating for which terminated with the issues of January 1972, is as follows:

5940 U.S. patents
111 Foreign patents
4179 Non-patent literature items

The instruction manual is entitled "Revised Steroid Search System Coding Manual," R & D Report No. 19. Copies of this manual and code sheets may also be obtained from the Office of Patent Classification, and searches may be submitted according to the same procedures and guidelines set forth above for the new ICIREPAT Steroid system.

EDWIN R. MACKERT,
Acting Administrator,
Office of Patent Classification.

[905 O.G. 70]

POSTAL SERVICE EMERGENCY

(179) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16 and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connnecticut is located at:

Room 610–B, Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Mar. 19, 1970.

[872 O.G. 1383]

(180) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents.

Mar. 27, 1970.

[873 O.G. 319]

(181) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Apr. 27, 1970.

[874 O.G. 688]

(182) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Apr. 27, 1970.

[874 O.G. 688]

(183) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92–34.

Public Law 92–34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92–34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceedings in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statuory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71–10469; Filed 7–22–71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

MISCELLANEOUS

(184) JOINT UNITED STATES-REPUBLIC OF THE PHILIPPINES PROGRAM

I am pleased to announce the availability of an exchange program on examination results between the United States

and the Republic of the Philippines. The program involves patent applications filed in the United States which are subsequently followed by corresponding applications filed in the Republic of the Philippines and patent applications filed in the Philippines subsequently followed by corresponding applications filed in the United States.

The program would operate as follows:

The applicant would file his application in the U.S. Patent Office which would process the application in the normal manner and examine the application in the usual time sequence.

If the applicant should later file a corresponding application in the Philippines Patent Office, he may elect to use the special filing procedure. Under this special filing procedure, applicant files his application in the Philippines accompanied by a notice of election to participate in the special procedure; which notice of election contains a certification that the description (excluding references to related applications), claims and drawings are identical to those of the corresponding application originally filed in the United States. The earlier filed application must be fully identified; and, in applications without a claim of priority, a certified copy of the earlier filed U.S. application must be submitted to the Philippines Patent Office. In addition, applicant must also agree that all amendments to his U.S. application will also be made with respect to his application filed in the Philippines.

In the U.S. Patent Office, applicant will regularly file two copies of each amendment, one copy must be marked "Copy for Philippines Patent Office." Upon termination of prosecution the U.S. Patent Office shall remove all copies so marked from the U.S. file and promptly forward the same to the Philippines Patent Office.

Election forms for participation in this special program must be signed in duplicate and simultaneously accompany the application to be filed in the Philippines.

Upon receipt of properly filed notice of election, the Philippines Patent Office would notify the U.S. Patent Office of the election by forwarding one copy of the election forms to the U.S. Patent Office. The Philippines Office would defer action on the Philippines application pending receipt of information as to the disposition of the application by the U.S. Patent Office. If no such information is received by the Philippines Office within a reasonable amount of time from the date of filing in the Philippines, the Philippines Office may, either on its own initiative, or applicant's request, inquire as to the status of the U.S. application and, if desired, proceed with its own independent examination.

Upon disposal of the application by the U.S. Patent Office, appropriate information will be sent to the Philippines Patent Office which will include all necessary identifying data, whether allowed or abandoned, notice of allowance, copies of documents cited during examination, a copy of the last office action and, when necessary, any earlier actions which may be included by reference in the last action. The Philippines Office would then make their own complete office action based upon the claims as amended with the U.S. Patent Office, performing whatever checks desired and search for copending interfering applications. Alternatively, the Philippines may request applicant to show cause why the results of the U.S. examination should not be accepted in the Philippines. All avenues of appeal would remain open to the applicant.

Where copending applications are cited and applied during examination in the U.S. Patent Office, full examination would not be forwarded to the Philippines Patent Office, and the fact that a U.S. copending application was cited would be noted as a matter of information, since such references would be inapplicable in the Philippines.

Where the application originates in the Philippines Patent Office and is subsequently filed in the U.S. Patent Office, a similar procedure as outlined above consonant with U.S. Law will be followed.

It is believed that this program will facilitate the handling of U.S. origin applications filed in the Republic of the Philippines resulting in a savings in time and expense of prosecution to U.S. applicants.

Election forms for participation in this special program are now available from The Foreign Exchange Section, Office of Patent Services.

GERALD D. O'BRIEN,
Assistant Commissioner.

[847 O.G. 331 (Feb. 13, 1968)]

(185) JOINT U.S.-SWEDISH SEARCH EXCHANGE

A program for the exchange of search results between the patent offices of Sweden and the United States was initiated in February 1969. The program which is now in full operation involves patent applications filed in one country which are subsequently followed by corresponding applications filed in the other.

The program operates as follows:

The applicant files an application in the U.S. Patent Office which then processes the application in the customary manner and in the usual time sequence.

If the applicant later files an application in Sweden claiming the priority of the U.S. application, the Patent Office of Sweden notifies the U.S. Patent Office of this filing by forwarding a request for a list of the references cited by the U.S. examiner in the first office action on the merits.

Where the application originates in Sweden and is subsequently filed in the U.S. Patent Office, a similar procedure is followed whereby the U.S. office requests and the Swedish office supplies a list of references cited by the Swedish examiner.

This program, which involves only the furnishing of listings of references cited, could improve the quality of the patents granted by each office.

WILLIAM E. SCHUYLER, JR.,
Aug. 26, 1969. *Commissioner of Patents.*

[866 O.G. 1031]

(186) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Amendment of Rules re New Defensive Publication Program; Additional Form

Section 1.11, 1.14, 1.101, 1.103 and 1.108 of Title 37 CFR (Patent Rules 11, 14, 101, 103 and 108) are amended or revised and a new § 1.139 (Patent Rule 139) is added to take effect May 1, 1968, for the purpose of instituting a new defensive publication program. A new section 3.50 is added for the purpose of implementing the new program.

The general substance of the proposed revisions and additions was published in the Federal Register of February 20, 1968 (38 F.R. 3189). A hearing was held on March 27, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. Both oral and written comments were carefully considered. The sections are being revised substantially as published with a few additional changes.

This program is intended to provide better service to the public by making available the technical disclosure of certain applications in which the owner may prefer to publish an abstract in lieu of obtaining an examination by the Patent Office. The defensive publication would be in the form of an abstract of the technical disclosure, printed in the OFFICIAL GAZETTE and made a part of the Patent Office search files.

This program will be open to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application and agrees to the conditions of the program, including waiving his patent rights based on the designated application, opening the complete application to inspection by the general public upon publication of the abstract, expressly abandoning his application, the abandonment to take effect five (5) years after the earliest U.S. effective filing date of the application unless within that period interference proceedings have been initiated, and waiving his rights to a patent on a continuing application filed after the expiration of thirty (30) months from the earliest U.S. effective filing date of the designated application. *Until November 1, 1968, this program will be open to any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.*

In accordance with existing rules and procedures interferences may be declared with applications and patents. During the period beginning with the suggestion of claims by the Patent Office or the filing of claims by the applicant copied from a patent and ending with the termination of proceedings if an interference is declared or the mailing of a decision refusing to declare the interference, abandonment by reason of the expiration of the five year period will be stayed. Since the applicant has waived his patent rights and agreed to a defensive publication, termination of interference proceedings in his favor would render the express abandonment ineffective but would not result in the issuance of an enforceable patent. Instead, a normal Notice of Allowance would be issued except that the applicant would be notified that when the issue fee is remitted a disclaimer of the entire term of the patent to be granted in accordance with the second paragraph of 35 U.S.C. 253 should be included.

No special fees will be required for entrance into this program. The applicant will be permitted to include with his request a replacement or expanded abstract of the technical disclosure of up to two hundred (200) words. Acceptance of a request to enter this program will be contingent upon screening by the Patent Office to exclude such material that may be considered advertising, frivolous, scandalous, against public policy, subject to national security controls, etc. Acceptance of a designated application in this program is not intended to preclude the examination of any continuing application filed under 35 U.S.C. 120 within thirty (30) months after the earliest effective U.S. filing date of the designated application.

Upon receipt and approval of the request the application abstract will be published in the OFFICIAL GAZETTE. Publication of the abstract in the OFFICIAL GAZETTE would be in a separate section identifying the application as being open for inspection by the general public and indicating that it is subject to the New Defensive Publication Program.

Following publication the application would be filed in the Record Section of the Patent Reference Branch where it will be available for inspection upon written request. Copies of the application will be furnished by the Patent Office upon request and payment of fee. The application abstract and suitable drawing copies would then be made a part of the official search files.

After the defensive publication has appeared in the OFFICIAL GAZETTE the abstract and suitable drawing copies will be available as prior art from the date of publication under 35 U.S.C. 102(a) or 102(b) as a printed publication. Also, at this time the application will be available as prior art under 35 U.S.C. 102(a) as evidence of prior knowledge from the actual date of filing the application in the Patent Office.

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EDWARD J. BRENNER,
Commissioner of Patents.

Approved: Apr. 9, 1968.
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 33 F.R. 5623; Apr. 11, 1968

[849 O.G. 1221]

(187) DEFENSIVE PUBLICATION PROGRAM

The open season of the New Defensive Publication Program, originally announced in the OFFICIAL GAZETTE of May 7, 1968 (850 O.G. 1) as terminating November 1, 1968, is hereby extended. Accordingly, until January 1, 1969, this program will be open for any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.

As originally announced this program will continue to be open until further notice to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application.

RICHARD A. WAHL,
Oct. 1, 1968. *Assistant Commissioner.*

[855 O.G. 1109]

(188) DEFENSIVE PUBLICATION PROGRAM

The notice of October 1, 1968 (855 O.G. 1109) which extended the open season of the New Defensive Publication Program until January 1, 1969, is herby modified to further extend the open season indefinitely. Accordingly, until further notice any patent application which has not been given a first action may be entered in the Defensive Publication Program.

RICHARD A. WAHL,
Dec. 20, 1968. *Assistant Commissioner.*

[858 O.G. 687]

(189) DEFENSIVE PUBLICATION PROGRAM

1. To resolve certain inherent publication and reference problems, and to establish and treat Defensive Publication. Applications (notices published in 33 F.R. 5623, April 11, 1968, and O.G. 1221, April 30, 1968) in the same manner as patents, the following changes are being made:

a. Publication is to be weekly beginning with 869 O.G. No. 3, December 16, 1969, and

b. Distinct numbers are to be assigned per example:

T 869 001
- Number series, 001–999 available monthly,
- O.G. volume number,
- Document category, T for Technical disclosure.

2. Defensive Publications will continue to be included in sub-class lists and subscription orders. The new number will be used for all official reference and document copy requirements.

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RICHARD A. WAHL,
Nov. 21, 1969. *Assistant Commissioner.*

[869 O.G. 687]

(190) PATENT PRINTING PRIORITY

In view of the backlog of allowed cases waiting to be printed, the applications placed in the weekly formulation of an issue set aside for printing will be selected according to the following priorities:

1. Allowed cases which were made special by the Commissioner (including those under the New Special Examining Procedure).
2. Allowed cases that are more than five years old.
3. Allowed reissue applications.
4. Allowed applications having an effective filing date earlier than that required for declaring an interference with a copending application claiming the same subject matter.
5. Allowed application of a party involved in a terminated interference.
6. Allowed applications in which the applicant has filed a request in the nature of a petition setting forth his reasons for advancing the printing date.
7. Allowed applications ready for printing and not covered by any of the six preceding categories. The selection of cases in the involved category will be by chronological sequence based on the date the issue fee was paid.

To ensure that any application falling within the scope of the categories outlined above and identified by numbers 1 to 5 receives special treatment the Examiners should staple on the file wrapper a tag entitled "Special in Issue and Gazette Branch." The special tag, PO–364, may be obtained from the Group Clerk. The Examiner shall print directly on the tag the recitation "In Issue and Gazette Branch" and the appropriate printing category outlined above. The application is then forwarded to Issue and Gazette Branch in accordance with existing procedures.

The personnel in Issue and Gazette Branch will then set the tagged cases aside and make a notation on all copies of the Notice of Allowance to be mailed that further processing of this application will be "special."

In cases falling in category No. 6, the request must be filed after the Notice of Allowance has been received and no later than the date the issue fee is paid. The request must be directed to the Head of the Issue and Gazette Branch.

RICHARD A. WAHL,
Nov. 29, 1968. *Assistant Commissioner.*

[857 O.G. 1327]

(191) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

SUBCHAPTER A—GENERAL

SUBCHAPTER B—GOVERNMENT INVENTIONS JURISDICTION

EDITORIAL NOTE: Chapter I of Title 37 of the Code of Federal Regulations is changed by designating the existing text as Subchapter A—General, and inserting a new Subchapter B—Government Inventions Jurisdiction, containing former Parts 300, 301, and 302 which are transferred from Chapter III of this title and redesignated as follows:

Part
100 Administration of a uniform patent policy with respect to the domestic rights in inventions made by Government employees.
101 Acquisition and protection of foreign rights in inventions.
102 Licensing of foreign patents acquired by the Government.

Accordingly, all references to sections in former Parts 300, 301, or 302 shall be deemed to be to sections in Parts 100, 101, and 102. Thus, a reference to former § 300.1 shall be considered a reference to § 100.1.

CHAPTER III—GOVERNMENT INVENTIONS JURISDICTION, PATENT OFFICE, DEPARTMENT OF COMMERCE

TRANSFER OF REGULATIONS

The text of Chapter III of Title 37 of the Code of Federal Regulations is transferred to Chapter I of this title as Subchapter B—Government Inventions Jurisdiction. Former Parts 300, 301, and 302 are redesignated Parts 100, 101, and 102 respectively.

Published in 34 F.R. 20383, Dec. 31, 1969

[870 O.G. 1039]

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(192) DELAY IN ISSUANCE OF PATENTS

On June 9 and June 16, 1970, only reissue patents, design patents, and trademark registrations will be issued due to circumstances involving the printing of patent specifications.

Delays may occur in filling orders for newly issued patents.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

May 21, 1970.

[875 O.G. 327]

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(193) PATENT FRONT PAGE FORMAT

August 4, 1970 marks the inauguration of certain changes and innovations in the form and method of producing printed copies of patents. Nearly 100 patents in this issue were electrophotographically composed for printing as part of a comprehensive system for developing and utilizing a patent full-text library in computer processable form. Numbers of patents produced in this manner are scheduled to increase until all patents enter the machineable data base.

Patents produced by this new system are distinguishable in appearance from all others in the following respects:

(a) Front page

The first sheet of each patent presents an arrangement of the applicable bibliographic type of data elements which are itemized and discussed elsewhere; an abstract of the disclosure (or a claim when no abstract is available); and, a reduced reproduction of a representative drawing figure when the patent contains any drawings.

(b) Other changes

With identification of the patent appearing on the front page, the title of the invention and the name of the inventor will no longer be printed in the heading of drawings. The patent number, date of issuance, and sheet-of-sheets information will continue to be printed on the drawings.

All of the bibliographic type of data and the abstract which previously appeared on sheets containing text matter are removed from such pages and consolidated on the front page.

Data elements presented on the front page are accompanied by a number which appears in brackets.

The numbers are data element identifiers which have been adopted internationally for use on patents and published applications to facilitate the worldwide use of such documents as set forth below:

[11] Patent number
[21] Application number
[22] Filing date
[31] Application number (of a Convention priority application)
[32] Filing date (of Convention priority application)
[33] Country in which the Convention priority application was filed
[45] Date of Patent issue: followed by terminal disclaimer, if any
[51] International Patent Classification: basic classification in bold face type; other in light face
[52] U.S. Classification: Original class and subclass in bold face type; cross-references in light face
[54] Title of the invention: Followed by the number of claims and drawing figures
[56] References cited: List of prior art documents cited by the examiner, arranged in the following categories:
  United States Patents
  Foreign Patents or Applications
  Other Publications
[60] Related U.S. Applications:
  [62] Due to Division(s)
  [63] Due to Continuation(s)
  [64] Due to reissue(s)
[72] Name(s) of the Inventor(s)
[73] Assignee(s)
[•] Field of Search: Subclasses recorded on the file wrapper as searched by the examiner
[•] Primary Examiner: The person responsible for review of the patent allowance or who, in addition, examined and allowed the patent application
[•] Assistant Examiner: the person who examined and allowed the patent application, other than a primary examiner
[•] Attorney: the principal attorney of record at the time the allowed application was prepared for patent printing
[•] Abstract

Element numbers have not been assigned to the items denoted by the sign [•]

For earlier information respecting the front page format and date entries, reference is made to the notice published in the OFFICIAL GAZETTE of March 11, 1969 (860 O.G. 336–7).

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

July 16, 1970.

[877 O.G. 1]

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(194) CHANGES IN PATENT FRONT PAGE

Changes in the front page format of patents inaugurated August 4, 1970 will become effective with the issue of patents on January 18, 1972. They relate mainly to the sequence and grouping of data items and to various features of typography. The revised format is illustrated in a specimen which appears below.

Data elements presented on the front page are accompanied by a number which appears in brackets. They are the "ICIREPAT Numbers for Identification of Data" (INID) which have been adopted internationally for use on patents and published applications to facilitate the use of such documents.

The definitions of INID numbers for data elements which appear in U.S. patents are set forth below:

[15] "Number of an examined patent, inventor's certificate or like granted or approved document."
[21] "Number as assigned to the application. . . ."
[22] "Date(s) of filing of application(s)."
[30] "Convention priority data."
  The separate elements comprising such data—i.e., application number, filing date, and country—are not individually coded on U.C. patents. Only the generic INID number is used.
[45] "Date of publication by printing or similar process of a patent or like approved document."
[51] "International Patent Classification (preferably preceded by "Int. Cl.")."

[52] "Domestic or national classification."
[54] "Title of the invention."
[56] "List of prior art documents, if separate from the text of the document."
[57] "Abstract or claim."
[58] "Field of search."
[60] "Reference to other applications filed or documents issued in the same country, to which the document is legally related."
  This generic INID number is used when the relationship of the patent to other applications is due both to [62] division and [63] continuation.
[62] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to division(s)."
[63] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to continuation(s)."
[72] "Name(s) of inventor(s) if known to be such."
[73] "Name of grantee(s) if other than applicant or inventor."

R. J. RISH,
Acting Assistant Commissioner for Administration.

Dec. 21, 1971.

SPECIMEN

United States Patent

Clark et al.

[15] **3,624,090**

[45] **Nov. 30, 1971**

[54] PREPARATION OF PYRIDINE

[72] Inventors: **Duncan Clark**, Norton-on-Tees; **Percy Hayden**, Norton-on-Tees; **Alan Bell**, Runcorn; **John Edward Colchester**, Runcorn, all of England

[73] Assignee: **Imperial Chemical Industries Limited**, London, England

[22] Filed: **Apr. 7, 1969**

[21] Appl. No: **817,251**

Related U.S. Application Data

[60] Continuation-in-part of Ser. No. 669,733, Sept. 22, 1967, abandoned, which is a division of Ser. No. 493,231, Oct. 5, 1965, abandoned.

[30] **Foreign Application Priority Data**

Apr. 7, 1965 Great Britain 14,778/65

[52] **U.S. Cl.** ..... **260/83.7 R**, 252/431, 260/94.2 M
[51] **Int. Cl.** **C08d 1/32**, C08f 1/56, C08f 15/04
[58] **Field of Search** ..... 260/94.2 M, 83.7, 665; 252/431, 431 P

[56] **References Cited**

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3,372,128	3/1968	Maeda et al.	260/604
3,177,257	4/1965	Detling et al.	260/604

FOREIGN PATENTS OR APPLICATIONS

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999,836	7/1965	Great Britain	260/530 U
903,034	8/1962	Great Britain	260/533

OTHER PUBLICATIONS

Dandegaonker et al. Monatsh. Chem. Vol. 96, No. 2; pages 614–624 (1965) Q 1.M73
Jerchel et al. Liebig's Ann. Chem. Vol. 575, pages 162–173 (1952). QD1.L7
Rao et al. Chem Abst. Vol. 53, columns 18012–3 (1959) QD1.A51.

Primary Examiner—Henry R. Jiles
Assistant Examiner—Cecilia M. Shurko
Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

There is provided a process for preparing pyridine wherein substituted or unsubstituted glutaraldehydes or precursors thereof are reacted in the liquid phase with ammonium ions in the presence of molecular oxygen and cupric ions and in a medium comprising an alkanoic acid. The alkanoic acid preferably has up to 6 carbon atoms in the alkyl group, such as acetic acid. The cupric ions may be supplied in the form of a salt such as cupric acetate. Conveniently, the reaction temperature is up to 150° C. and the partial pressure of oxygen is at least 0.5 atmospheres.

10 Claims, No Drawings

[894 O.G. 464]

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(195) PRINTING PRACTITIONER'S NAMES ON PATENTS

On September 8, 1972 (903 O.G. 369), the Patent Office requested comments on a proposal regarding the printing of a firm name or the names of individual practitioners on the patent, as indicated by the applicant at the time the issue fee is paid. The comments received indicated strong support for the proposed procedure.

In view of these comments, the Patent Office has adopted the following revised procedure for printing a firm name, the names of up to three registered patent practitioners, or no practitioner's name on the patent.

The Notice of Allowance form, POL–85, has been redesigned in part to provide a space on POL–85b, the Base Issue Fee Transmittal form, for the person submitting the base issue fee to indicate, for printing, the names of up to three registered patent attorneys and agents or, alternatively, the name of a single firm which has as a member at least one registered patent attorney or agent. If the person submitting the base issue fee desires that no practitioner's name be printed on the patent, the space provided on the revised Base Issue Fee Transmittal form should be left blank. If no name is given, no name will be printed.

The adoption of this new procedure is intended to solve various problems encountered since the practice of recognizing firms was discontinued. While some slight additional effort on the part of the attorney or agent is thus involved if he desires to have a printed entry on the patent, the following advantages are provided by the new procedure: (1) it permits printing firm names on patents even though firms are no longer registered with or recognized by the Patent Office in new application; (2) it allows the names of those individuals who actually performed the work of preparing and prosecuting the application to appear on the printed patent; and (3) it grants an attorney or agent the option of not having his name appear on the printed patent.

The revised form POL–85 will be placed in use as soon as a supply of the form is received from the printer. Thereafter, the new practice, as indicated above, will be followed in patent printing as the Base Issue Fee Transmittal Portion of that form (POL–85b) is received.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Aug. 3, 1973.

[913 O.G. 1042]

(196) DISCLOSURE DOCUMENT PROGRAM

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program.

Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

THE PROGRAM

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

CONTENT OF DISCLOSURE DOCUMENT

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included. The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8½ by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A $10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the $10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

RETENTION

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

WARNING AS TO LIMITATIONS

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Jan. 4, 1971.

[883 O.G. 3]

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(197) SUPPLEMENTAL TO THE MANUAL OF CLASSIFICATION

Over a span of years, Patent Examiners have created "unofficial" subclasses and digests to facilitate searches within the arts under their jurisdiction. A recent inventory of the unofficial U.S. patents in the Examiner search file (exclusive of designs) has enabled the issuance of a listing of unofficial subclasses and digests as a supplement to the Manual of Classification.

Current subscribers to the Manual of Classification shall receive the Supplement as soon as it becomes available (Sept.–Oct. '71), at a cost to be included in a forthcoming renewal fee. New subscriptions shall include the Supplement at a slightly higher cost.

It should be noted that the Supplement is intended only as an interim publication until such time as the Manual of Classification can be completely reprinted with the unofficial subclasses and digests shown in their proper relationship to respective official classes and subclasses. The reprinted Manual, in the described integrated format, shall be derived from computer stored data now in the process of being compiled and should be available by mid-1972.

WILLIAM R. NUGENT,
Assistant Commissioner.

July 27, 1971.

[889 O.G. 1064]

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(198) PRESIDENTIAL DOCUMENTS, TITLE 3—THE PRESIDENT

MEMORANDUM OF AUGUST 23, 1971

GOVERNMENT PATENT POLICY

Memorandum for Heads of Executive Departments and Agencies

THE WHITE HOUSE,
Washington, August 23, 1971.

On October 10, 1963, President Kennedy forwarded to the Heads of Executive Departments and Agencies a Memorandum and Statement of Government Patent Policy for their guidance in determining the disposition of rights to inventions made under Government-sponsored grants and contracts. On the basis of the knowledge and experience then available, this Statement first established Government-wide objectives and criteria, within existing legislative constraints, for the allocation of rights to inventions between the Government and its contractors.

It was recognized that actual experience under the Policy could indicate the need for revision or modification. Accordingly, a Patent Advisory Panel was established under the Federal Council for Science and Technology for the purpose of assisting the agencies in implementing the Policy, acquiring data on the agencies' operations under the Policy, and making recommendations regarding the utilization of Government-owned patents. In December 1965, the Federal Council established the Committee on Government Patent Policy to assess how this Policy was working in practice, and to acquire and analyze additional information that could contribute to the reaffirmation or modification of the Policy.

The efforts of both the Committee and the Panel have provided increased knowledge of the effects of Government patent policy on the public interest. More specifically, the studies and experience over the past 7 years have indicated that:

(a) A single presumption of ownership of patent rights to Government-sponsored inventions either in the Government or in its contractors is not a satisfactory basis for Government patent policy, and that a flexible, Government-wide policy best serves the public interest;

(b) The commercial utilization of Government-sponsored inventions, the participation of industry in Government research and development programs, and commercial competition can be influenced by the following factors: the mission of the contracting agency; the purpose and nature of the contract; the commercial applicability and market potential of the invention; the extent to which the invention is developed by the contracting agency; the promotional activities of the contracting agency; the commercial orientation of the contractor and the extent of his privately financed research in the related technology; and the size, nature and research orientation of the pertinent industry;

(c) In general, the above factors are reflected in the basic principles of the 1963 Presidential Policy Statement.

Based on the results of the studies and experience gained under the 1963 Policy Statement certain improvements in the Policy have been recommended which would provide (1) agency heads with additional authority to permit contractors to obtain greater rights to inventions where necessary to achieve utilization or where equitable circumstances would justify such allocation of rights, (2) additional guidance to the agencies in promoting the utilization of Government-sponsored inventions, (3) clarification of the rights of States and municipal governments in inventions in which the Federal Government acquires a license, and (4) a more definitive data base for evaluating the administration and effectiveness of the Policy and the feasibility and desirability of further refinement or modification of the Policy.

I have approved the above recommendations and have attached a revised Statement of Government Patent Policy for your guidance. As with the 1963 Policy Statement, the Federal Council shall make a continuing effort to record, monitor and evaluate the effects of this Policy Statement. A Committee on Government Patent Policy, operating under the aegis of the Federal Council for Science and Technology, shall assist the Federal Council in these matters.

This memorandum and statement of policy shall be published in the Federal Register.

RICHARD NIXON.

STATEMENT OF GOVERNMENT PATENT POLICY

BASIC CONSIDERATIONS

A. The Government expends large sums for the conduct of research and development which results in a considerable number of inventions and discoveries.

B. The inventions in scientific and technological fields resulting from work performed under Government contracts constitute a valuable national resource.

C. The use and practice of these inventions and discoveries should stimulate inventors, meet the needs of the Government, recognize the equities of the contractor, and serve the public interest.

D. The public interest in a dynamic and efficient economy requires that efforts be made to encourage the expeditious development and civilian use of these inventions. Both the need for incentives to draw forth private initiatives to this end, and the need to promote healthy competition in industry must be weighed in the disposition of patent rights under Government contracts. Where exclusive rights are acquired by the contractor, he remains subject to the provisions of the antitrust laws.

E. The public interest is also served by sharing of benefits of Government-financed research and development with foreign countries to a degree consistent with our international programs and with the objectives of U.S. Foreign policy.

F. There is growing importance attaching to the acquisition of foreign patent rights in furtherance of the interests of U.S. industry and the Government.

G. The prudent administration of Government research and development calls for a Government-wide policy on the disposition of inventions made under Government contracts reflecting common principles and objectives, to the extent consistent with the missions of the respective agencies. The policy must recognize the need for flexibility to accommodate special situations.

POLICY

SECTION 1. The following basic policy is established for all Government agencies with respect to inventions or discoveries made in the course of or under any contract of any Government agency, subject to specific statutes governing the disposition of patent rights of certain Government agencies.

(a) Where

(1) a principal purpose of the contract is to create, develop or improve products, processes, or methods which are intended for commercial use (or which are otherwise intended to be made available for use) by the general public at home or abroad, or which will be required for such use by governmental regulations; or

(2) a principal purpose of the contract is for exploration into fields which directly concern the public health, public safety, or public welfare; or

(3) the contract is in a field of science or technology in which there has been little significant experience outside of work funded by the Government, or where the Government has been the principal developer of the field, and the acquisition of exclusive rights at the time of contracting might confer on the contractor a preferred or dominant position; or

(4) the services of the contractor are

(i) for the operation of a Government-owned research or production facility; or

(ii) for coordinating and directing the work of others,

the Government shall normally acquire or reserve the right to acquire the principal or exclusive rights throughout the world in and to any inventions made in the course of or under the contract.

In exceptional circumstances the contractor may acquire greater rights than a nonexclusive license at the time of contracting where the head of the department or agency certifies that such action will best serve the public interest. Greater rights may also be acquired by the contractor after the invention has been identified where the head of the department or agency determines that the acquisition of such greater rights is consistent with the intent of this Section 1(a) and is either a necessary incentive to call forth private risk capital and expense to bring the invention to the point of practical application or that the Government's contribution to the invention is small compared to that of the contractor. Where an identified invention made in the course of or under the contract is not a primary object of the contract, greater rights may also be acquired by the contractor under the criteria of Section 1(c).

(b) In other situations, where the purpose of the contract is to build upon existing knowledge or technology, to develop information, products, processes, or methods for use by the

Government, and the work called for by the contract is in a field of Technology in which the contractor has acquired technical competence (demonstrated by factors such as know-how, experience, and patent position) directly related to an area in which the contractor has an established nongovernmental commercial position, the contractor shall normally acquire the principal or exclusive rights throughout the world in and to any resulting inventions.

(c) Where the commercial interests of the contractor are not sufficiently established to be covered by the criteria specified in Section 1(b) above, the determination of rights shall be made by the agency after the invention has been identified, in a manner deemed most likely to serve the public interest as expressed in this policy statement, taking particularly into account the intentions of the contractor to bring the invention to the point of commercial application and the guidelines of Section 1(a) hereof, provided that the agency may prescribe by regulation special situations where the public interest in the availability of the inventions would best be served by permitting the contractor to acquire at the time of contracting greater rights than a nonexclusive license.

(d) In the situations specified in Sections 1(b) and 1(c), when two or more potential contractors are judged to have presented proposals of equivalent merit, willingness to grant the Government principal or exclusive rights in resulting inventions will be an additional factor in the evaluation of the proposals.

(e) Where the principal or exclusive rights in an invention remain in the contractor, he should agree to provide written reports at reasonable intervals, when requested by the Government, on the commercial use that is being made or is intended to be made of inventions made under Governmental contracts.

(f) Where the principal or exclusive rights in an invention remain in the contractor, unless the contractor, his licensee, or his assignee has taken effective steps within three years after a patent issues on the invention to bring the invention to the point of practical application or has made the invention available for licensing royalty-free or on terms that are reasonable in the circumstances, or can show cause why he should retain the principal or exclusive rights for a further period of time, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable under the circumstances.

(g) Where the principal or exclusive rights to an invention are acquired by the contractor, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by governmental regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the contract.

(h) Whenever the principal or exclusive rights in an invention remain in the contractor, the Government shall normally acquire, in addition to the rights set forth in Sections 1(e), 1(f), and 1(g),

(1) at least a nonexclusive, nontransferable, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the Government of the United States (including any Government agency) and States and domestic municipal governments, unless the agency head determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments; and

(2) the right to sublicense any foreign government pursuant to any existing or future treaty or agreement if the agency head determines it would be in the national interest to acquire this right; and

(3) the principal or exclusive rights to the invention in any country in which the contractor does not elect to secure a patent.

(i) Whenever the principal or exclusive rights in an invention are acquired by the Government, there may be reserved to the contractor a revocable or irrevocable nonexclusive royalty-free license for the practice of the invention throughout the world; an agency may reserve the right to revoke such license so that it might grant an exclusive license when it determines that some degree of exclusivity may be necessary to encourage further development and commercialization of the invention. Where the Government has a right to acquire the principal or exclusive rights to an invention and does not elect to secure a patent in a foreign country, the Government may permit the contractor to acquire such rights in any foreign country in which he elects to secure a patent, subject to the Government's rights set forth in Section 1(h).

SEC. 2. Under regulations prescribed by the Administrator of General Services, Government-owned patents shall be made available and the technological advances covered thereby brought into being in the shortest time possible through dedication or licensing, either exclusive or non-exclusive, and shall be listed in official Government publications or otherwise.

SEC. 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. The Federal Council for Science and Technology shall continue to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the Government has any right or interest; and

(b) acquire data from the Government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions to serve as bases for policy review and development; and

(c) make recommendations for advancing the use and exploitation of Government-owned domestic and foreign patents.

Each agency shall record the basis for its actions with respect to inventions and appropriate contracts under this statement.

SEC. 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any executive department, independent commission, board, office, agency, administration, authority, Government corporation, or other Government establishment of the executive branch of the Government of the United States of America.

(b) *States*—means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam and the Trust Territory of the Pacific Islands.

(c) *Invention, or Invention or discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(d) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(e) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the Government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(f) *Made*—when used in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(g) *To the point of practical application*—means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

[FR Doc. 71-12623; Filed 8-25-71; 10:41 a.m.]

36 F.R. 16887-16892; Aug. 26, 1971

[890 O.G. 1302]

(199) PUBLIC LAW 92-132

[92nd Congress, S. 1253]

October 5, 1971

AN ACT

85 Stat. 364

To amend section 6 of title 35, United States Code, "Patents," to authorize domestic and international studies and programs relating to patents and trademarks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 6 of title 35, United States Code, is amended to read as follows:

Patents, trademarks. International programs, U.S. participation. 66 Stat. 793.

"§ 6. *Duties of Commissioner*

"(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies and programs regarding domestic and international patent and trademark law; and shall have charge of property belonging to the Patent Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

"(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

Transfer of funds.

"(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States."

Approved October 5, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-475 (Comm. on the Judiciary).
SENATE REPORT No. 92-71 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Apr. 22, considered and passed Senate.
Sept. 28, considered and passed House.

[892 O.G. 1600]

(200) NUMBERS FOR WHICH NO PATENTS HAVE ISSUED

The Calendar Year 1970 Index of Patents will be available from the Superintendent of Documents, Government Printing Office in the very near future. Beginning with this year's Index, Part II "Subjects of Inventions" will list each patent number for which no patent was issued during the year. The 1970 Index will also include all the patent numbers for the years 1920 through 1969 for which no patents issued.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

Dec. 13, 1971.

[894 O.G. 464]

(201) NOTICE TO OFFICIAL GAZETTE SUBSCRIBERS

It has come to the attention of the Patent Office that some subcribers to the OFFICIAL GAZETTE have not been receiving all of their copies of the patent and/or trademark sections of the OFFICIAL GAZETTE. Several of the incidents brought to our attention involved situations where subscribers had recently renewed their subscriptions.

This matter was brought to the attention of the Superintendent of Documents who advised us that subscribers to the OFFICIAL GAZETTE are notified approximately 3 months in advance that their subscriptions are about to expire. It was indicated that if these notices are promptly utilized to renew subscriptions, no difficulties will arise.

However, in order to facilitate the resolution of any problems which may arise concerning subscriptions to the OFFICIAL GAZETTE, an official liaison has been established between the Patent Office and the Superintendent of Documents. Under this arrangement, any person experiencing difficulties in obtaining copies of the OFFICIAL GAZETTE should contact Robert Rish, Director, Office of Public Services, U.S. Patent Office, Washington, D.C., 20231. All such inquiries will be given prompt attention.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Apr. 18, 1972.

[898 O.G. 738]

(202) NEW SALES PRICES FOR OFFICIAL GAZETTE

The U.S. Government Printing Office recently announced changes in the sales prices for copies of the OFFICIAL GAZETTE of the U.S. Patent Office. The new scale is effective January 1, 1974.

OFFICIAL GAZETTE—Patents:
Subscription price ---------- $211.00
Add for foreign mailing ---------- 52.75
Single copy price ---------- 4.10
OFFICIAL GAZETTE—Trademarks:
Subscription price ---------- $ 60.25
Add for foreign mailing ---------- 15.10
Single copy price ---------- 1.25

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Nov. 7, 1973.

[916 O.G. 805]

(203) LEGAL JOURNALS

[37 CFR Parts 1, 2]

Withdrawal of Proposed Rule Making Regarding Placing of Announcements

Under date of May 11, 1972, 37 FR 9488 (FR Doc. 72-7160), notice of proposed rule making was given concerning a proposed revision of §§ 1.345(b) and 2.14(b) of Title 37 of the Code of Federal Regulations. The purpose of the proposed revision was to permit persons practicing before the Patent Office to place in legal journals announcements of their availability to act as consultants to or as associates of other lawyers in patent or trademark practice. After careful consideration of all of the comments received on the proposed revision, it has been determined that the proposed revision will not be made at this time and, accordingly, the notice of proposed rule making is canceled and withdrawn.

Dated: Jan. 29, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Jan. 29, 1973.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-3097; Filed 2-15-73; 8:45 am]

Published in 38 F.R. 32; Feb. 16, 1973

[908 O.G. 784]

(204) SOLICITATION OF PUBLIC VIEWS CONCERNING CHANGES IN PATENT OFFICE PRACTICES AND PROCEDURES

In the effort to continually improve operations and to respond to changing circumstances, the procedures and practices of the Patent Office are revised from time to time. While comments are requested and public hearings held on proposed changes in the Rules of Practice, changes in other practices and procedures of the Office have generally been implemented on the basis of informal and more limited liaison with our constituents. This has, on occasion, given rise to inquiries as to the reasons for and wisdom of certain of these changes, as well as to criticisms and proposals for further changes.

While all changes in procedure must take into consideration the efficient operation of the Patent Office, we have determined that on a trial basis, we will, where appropriate, solicit views and comments of the patent community so that they might be taken into account in shaping the procedures of the Patent Office. The solicitation of such views will focus primarily on proposed changes in practices and procedures of the Office which have substantial impact on individuals dealing with the Patent Office. Our first such effort involves the question of whether claims or abstracts are more appropriate for publication in the OFFICIAL GAZETTE, and this is the subject of a separate notice in this issue.

Whether this practice of public participation is continued will depend in large part upon the public response to notices of this nature. In the past, public response to the solicitation of views has been rather limited and has principally been from those who were opposed to proposed changes in rules and practices. Accordingly, it is requested that interested parties submit their views irrespective of whether they agree or disagree with the proposal under consideration.

ROBERT GOTTSCHALK,
Commissioner of Patents.

May 22, 1972.

[899 O.G. 820]

(205) REDUCTION IN PATENTS GRANTED

The backlog of patent applications awaiting printing has been virtually eliminated. Effective with patents issuing on October 31, 1972, the weekly number of General and Mechanical, Electrical, and Chemical patents granted will be determined by the availability of applications in which the Base Issue Fee has been paid. Applicants who desire to obtain early patent grant dates are encouraged to remit payment of Base Issue Fees promptly.

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Oct. 10, 1972.

[903 O.G. 1512]

(206) ICIREPAT NUMBERS FOR IDENTIFICATION OF BIBLIOGRAPHIC DATA ON THE FIRST PAGE OF PATENT AND LIKE DOCUMENTS

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

[10] *Document identification*
- [11] Number of the document
- [19] ICIREPAT country code, or other identification, of the country publishing the document

[20] *Domestic filing data*
- [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
- [22] Date(s) of filing application(s)
- [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]

[30] *Convention priority data* [2]
- [31] Number(s) assigned to priority application(s)[1]
- [32] Date(s) of filing of priority application(s)[1]
- [33] Country (countries) in which priority application(s) was (were) filed [1]

[40] *Date(s) of making available to the public*
- [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
- [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
- [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
- [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]

See footnotes at end of item.

- [45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
- [46] Date of publication by printing or similar process of the claim(s) only of a document [1]
- [47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]

[50] *Technical information*
- [51] International Patent Classification
- [52] Domestic or national classification
- [53] Universal Decimal Classification [1]
- [54] Title of the invention
- [55] Keywords [1]
- [56] List of prior art documents, if separate from descriptive text
- [57] Abstract or claim
- [58] Field of search

[60] *Reference(s) to other legally related domestic document(s)* [2]
- [61] Related by addition(s)[1]
- [62] Related by division(s)
- [63] Related by continuation(s)
- [64] Related by reissue(s)

[70] *Identification of parties concerned with the document*
- [71] Name(s) of applicant(s)[1]
- [72] Name(s) of inventor(s) if known to be such [1]
- [73] Name(s) of grantee(s)
- [74] Name(s) of attorney(s) or agent(s)[1]
- [75] Name(s) of inventor(s) who is(are) also applicant(s)
- [76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

[905 O.G. 684]

(207)

GSA PATENT LICENSING REGULATIONS FOR GOVERNMENT-OWNED INVENTIONS

The General Services Administration issued on January 29, 1973, regulations that will govern the granting of licenses, both exclusive and nonexclusive, under government-owned patents and patent applications. The regulations were promulgated pursuant to Section 2 of the August 23, 1971, Memorandum and Statement of Government Patent Policy issued by President Nixon, and will form new Subpart 101-4.1, Title 41, of the Code of Federal Regulations.

Each government agency is required by Section 101-4.104-1 of the regulations to cause lists of their inventions that are available for licensing to be published in the Federal Register, the Patent Office OFFICIAL GAZETTE, *and at least one other publication. In response to this requirement, the* OFFICIAL GAZETTE *will republish all such lists published in the Federal Register. Copies of listed patents are available from the Commissioner of Patents, Washington, D.C., 20231, for 50¢ each. Copies of patent applications, however, must be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22152. Also available from NTIS are two publications that include all patents and patent applications of the National Aeronautics and Space Administration that are available for licensing. These publications include abstracts of inventions which are listed by field of technology. The publications are entitled "NASA Patent Abstracts Bibliography," dated January 1972 and July 1972, and are identified as NASA SP-7039, Section 1, and NASA SP-7039(01), Section 1. Section 2 of both documents, representing a continuous indexing system, is also available.*

The GSA licensing regulations are republished below. Also republished are the various listings of government-owned patents and patent applications that have previously appeared in the Federal Register as available for licensing under these regulations. As additional listings are published in the Federal Register, they will be included in future issues of the OFFICIAL GAZETTE.

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Apr. 2, 1973.

Title 41—Public Contracts and Property Management

CHAPTER 101—FEDERAL PROPERTY MANAGEMENT REGULATIONS

SUBCHAPTER A—GENERAL

PART 101—4—PATENTS

Licensing of Government-Owned Inventions

This amendment of the Federal Property Management Regulations adds new Part 101–4, Patents, and new Subpart 101–4.1, Licensing of Government-Owned Inventions. The amendment sets forth regulations which implement the Presidential Statement of Government Patent Policy dated August 23, 1971. The statement specifically directs the General Services Administration to issue regulations which provide for the licensing and dedication of Government-owned inventions for the purpose of enhancing the utilization of such inventions. Development of the regulation was accomplished in cooperation with the Committee on Government Patent Policy, Federal Council for Science and Technology. Agency and industry comments were considered.

The table of contents for Subchapter A is amended to add new entries, as follows:

Subpart 101–4.1—Licensing of Government-Owned Inventions

Sec.
101–4.100 Scope of subpart.
101–4.101 Policy.
101–4.102 Definitions.
101–4.103 Types of licenses and conditions for licensing.
101–4.103–1 Government inventions available for licensing.
101–4.103–2 Nonexclusive license.
101–4.103–3 Limited exclusive license.
101–4.103–4 Additional licenses.
101–4.103–5 Royalties.

101–4.103–6 Reports.
101–4.104 Procedures.
101–4.104–1 Government agency publication requirements.
101–4.104–2 Contents of a nonexclusive license application.
101–4.104–3 Contents of an exclusive license application.
101–4.104–4 Published notices.
101–4.104–5 Modification or revocation.
101–4.104–6 Appeals.
101–4.105 Litigation.
101–4.106 Transfer of custody of Government inventions.

AUTHORITY: Sec. 205(c), 63 Stat. 390; 40 U.S.C. 486(c).

Part 101–4 is added as follows:

§ 101–4.100 Scope of subpart.

This subpart prescribes the terms, conditions, and procedures for the licensing of rights in domestic patents and patent applications vested in the United States of America, and for dedication of Government-owned inventions by a Government agency.

§ 101–4.101 Policy.

(a) A major premise of the Presidential Statement of Government Patent Policy, August 23, 1971 (36 FR 16887, August 26, 1971), is that Government-owned inventions normally will best serve the public interest when they are developed to the point of practical application and made available to the public in the shortest possible time. The granting of express nonexclusive or exclusive licenses for the practice of these inventions may assist in the accomplishment of the national objective to achieve a dynamic and efficient economy. However, it is recognized that there may be inventions as to which a Government agency deems dedication preferable to accomplish these objectives.

(b) The granting of nonexclusive licenses generally is preferable since the invention is thereby laid open to all interested parties and serves to promote competition in industry, if the invention is in fact promoted commercially. However, to obtain commercial utilization of the invention, it may be necessary to grant an exclusive license for a limited period of time as an incentive for the investment of risk capital to achieve practical application of an invention.

(c) Whenever the grant of an exclusive license is deemed appropriate, it shall be negotiated on terms and conditions most favorable to the public interest. In selecting an exclusive licensee, consideration shall be given to the capabilities of the prospective licensee to further the technical and market development of the invention, his plan to undertake the development, the projected impact on competition, and the benefit to the Government and the public. Consideration shall be given also assisting small business and minority business enterprises, as well as economically depressed, low income, and labor surplus areas, and whether each or any applicant is a U.S. citizen or corporation. Where there is more than one applicant for an exclusive license, that applicant shall be selected who is determined to be most capable of satisfying the criteria and achieving the goals set forth in this subpart.

(d) Subject to the following: (1) Specific statutes governing the utilization of patent rights of certain Government agencies, or (2) any existing or future treaty or agreement between the United States and any foreign government or intergovernmental organization, or (3) licenses under or other rights to inventions made or conceived in the course of or under Government research and development contracts where such licenses or other rights to such inventions are granted to or provided for in the contract and acquired by the party contracting with the Government agency, no license shall be granted or implied in a Government-owned invention except as provided for in this subpart.

(e) No grant of a license under this subpart shall be construed to confer upon any licensee any immunity from the antitrust laws or from a charge of patent misuse, and the acquisition and use of rights pursuant to this subpart shall not be immunized from the operation of State or Federal law by reason of the source of the grant.

§ 101–4.102 Definitions.

(a) "Government invention" means an invention covered by a domestic patent or patent application that is vested in the United States and is designated by the Government agency having custody of the invention as appropriate for the grant of an express nonexclusive or exclusive license.

(b) "To the point of practical application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

(c) "Government agency" means any executive department, independent commission, board, office, agency, administration, authority, wholly owned corporation, or other independent establishment of the executive branch of the Government of the United States of America.

(d) "The head of the Government agency" means the head of the agency or his designee.

§ 101–4.103 Types of licenses and conditions for licensing.

§ 101–4.103–1 Government inventions available for licensing.

Government inventions normally will be made available for the granting of express nonexclusive or limited exclusive licenses to responsible applicants according to the factors and conditions set forth in §§ 101–4.103–2 and 101–4.103–3, subject to the applicable procedures of § 101–4.104.

§ 101–4.103–2 Nonexclusive license.

(a) *Availability of licenses.* Each Government invention normally shall be made available for the granting of nonexclusive revocable licenses, subject to the provisions of any other licenses, including those under § 101–4.103–4.

(b) *Terms of grant.* (1) The duration of the license shall be for a period as specified in the license agreement, provided that the licensee complies with all the terms of the license.

(2) The license shall require the licensee to bring the invention to the point of practical appplication within a period specified in the license, or such extended period as may be agreed upon, and to continue to make the benefits of the invention reasonably accessible to the public.

(3) The license may be granted for all or less than all fields of use of the invention, and throughout the United States of America, its territories and possessions, the Commonwealth of Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(4) After termination of a period specified in the license agreement, the Government agency may restrict the license to the fields of use and/or geographic areas in which the licensee has brought the invention to the point of practical application and continues to make the benefits of the invention reasonably accessible to the public.

(5) The license may extend to subsidiaries and affiliates of the licensee but shall be nonassignable without approval of the Government agency, except to the successor of that part of the licensee's business to which the invention pertains.

§ 101–4.103–3 Limited exclusive license.

(a) *Availability of licenses.* Each Government invention may be made available for the granting of a limited exclusive license provided that:

(1) The invention has been published as available for licensing pursuant to § 101–4.104–1 for a period of at least 6 months;

(2) The head of the Government agency has determined that (i) the invention may be brought to the point of practical application in certain fields of use and/or in certain geographical locations by exclusive licensing, (ii) the desired practical application has not been achieved under any nonexclusive license granted on the invention, and (iii) the desired practical application is not likely to be achieved expeditiously in the public interest under a nonexclusive license or as a result of further Government-funded research or development;

(3) The notice of the prospective licensee has been published, pursuant to § 101–4.104–4(a) for at least 60 days; and

(4) After termination of the period set forth in § 101–4.103–3(a)(3), the Government agency has determined that no applicant for a nonexclusive license has brought or will bring, within a reasonable period, the invention to the point of practical application as specified in the exclusive license, and that to grant the exclusive license would be in the public interest.

(b) *Selection of exclusive licensee.* An exclusive licensee shall be selected on bases consistent with the policy set forth in § 101–4.101 and in accordance with the procedures set forth in § 101–4.104.

(c) *Terms of grant.* (1) The license may be granted for all or less than all fields of use of the Government invention and throughout the United States of America, its territories and possessions, the Commonwealth of Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(2) Subject to the rights reserved to the Government in §§ 101–4.103–3(c)(6) and 101–4.103–3(c)(7), the licensee shall be granted the exclusive right to practice the invention in accordance with the terms and conditions specified in the license.

(3) The duration of the license shall be negotiated but shall be for a period less than the terminal portion of the patent, the period remaining being sufficient to make the invention reasonably available for the grant of a nonexclusive license; and such period of exclusivity shall not exceed 5 years unless the head of the Government agency determines on the basis of a written submission supported by a factual showing that a longer period is reasonably necessary to permit the licensee to enter the market and recoup his reasonable costs in so doing.

(4) The license shall require the licensee to bring the invention to the point of practical application within a period specified in the license, or within a longer period as approved by the Government agency, and to continue to make the benefits of the invention reasonably accessible to the public.

(5) The license shall require the licensee to expend a specified minimum amount of money and/or to take other specified actions, within a specified period of time after the effective date of the license, in an effort to bring the invention to the point of practical application.

(6) The license shall be subject to the irrevocable royalty-free right of the Government of the United States to practice and have practiced the invention by or on behalf of the Government of the United States and on behalf of any foreign government or intergovernmental organization pursuant to any existing or future treaty or agreement with the United States.

(7) The license shall reserve to the Government agency the right to require the licensee to grant sublicenses to responsible applicants on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by Government regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the license.

(8) The license may extend to subsidiaries and affiliates of the licensee but shall be nonassignable without approval of the Government agency, except to successors of that part of the licensee's business to which the invention pertains.

(9) An exclusive licensee may grant sublicenses under his license, subject to the approval of the Government agency. Each sublicense granted by an exclusive

licensee shall make reference to the exclusive license, including the rights retained by the Government under the exclusive license, and a copy of such sublicense shall be furnished to the Government agency.

(10) The license may be subject to such other terms as may be in the public interest.

§ 101–4.103–4 Additional licenses.

Subject to any outstanding licenses, nothing in this subpart shall preclude a Government agency from granting additional nonexclusive or limited exclusive licenses for Government-owned inventions when the Government agency determines that to do so would provide for an equitable exchange of patent rights. The following exemplify circumstances wherein such licenses may be granted:

(a) In consideration of the settlement of an interference;

(b) In consideration of a release of a claim of infringement; or

(c) In exchange for or as part of the consideration for a license under adversely held patents.

§ 101–4.103–5 Royalties.

(a) Normally, royalties shall not be charged under nonexclusive licenses granted to U.S. citizens and U.S. corporations on Government inventions; however, the Government agency may require other considerations.

(b) An exclusive license on a Government invention may require the payment of royalties, and/or other considerations, when the licensing situation and the policy in § 101–4.101 considered together, indicate that it is in the public interest to do so.

§ 101–4.103–6 Reports.

A license shall require the licensee to submit periodic reports on his efforts to achieve practical application of the invention. The reports shall contain information within his knowledge, or which he may acquire under normal business practices, pertaining to the commercial use being made of the invention and other information which the Government agency may determine is pertinent to its licensing activities and is specified in the license.

§ 101–4.104 Procedures.

§ 101–4.104–1 Government agency publication requirements.

Each Government agency shall cause to be published in the FEDERAL REGISTER, the Official Gazette of the U.S. Patent Office, and at least one other publication that the Government agency deems would best serve the public interest, a list of the Government inventions in its custody available for licensing under the conditions specified in § 101–4.103. The list shall be revised periodically to include directly, or by reference to a previously published list, all inventions currently available for licensing. Other publications on inventions available for licensing are encouraged and may include abstracts, when appropriate, as well as information on the design, construction, use, and potential market for the inventions.

§ 101–4.104–2 Contents of a nonexclusive license application.

An application for a nonexclusive license under a Government invention should be addressed to the head of the Government agency having custody of the invention, and shall include:

(a) Identification of invention for which license is desired, including the patent application serial number or patent number, title and date, if known, and any other identification of invention;

(b) Name and address of the person, company, or organization applying for license and whether the applicant is a U.S. citizen or a U.S. corporation;

(c) Name and address of representative of applicant to whom correspondence should be sent;

(d) Nature and type of applicant's business;

(e) Source of information concerning the availability of a license on this invention;

(f) Purpose for which license is desired and a brief description of applicant's plan to achieve that purpose;

(g) A statement of the fields of use for which applicant intends to practice the invention; and

(h) A statement as to the geographic areas in which the applicant would practice the invention.

§ 101–4.104–3 Contents of an exclusive license application.

In addition to the information indicated in § 101–4.104–2, an application for an exclusive license shall include:

(a) Applicant's status, if any, in any one or more of the following categories: (1) Small business firm, (2) minority business enterprise, (3) location in a surplus labor area, (4) location in a low-income area, and (5) location in an economically depressed area;

(b) A statement of applicant's capability to undertake the development and marketing required to achieve the practical application of the invention;

(c) A statement describing the time, expenditure, and other acts which the applicant considers necessary to achieve practical application of the invention and the applicant's offer to invest that sum to perform such acts if the license is granted;

(d) A statement that contains the applicant's best knowledge of the extent to which the Government invention is being practiced by private industry and the Government; and

(e) Any other facts which the applicant believes are evidence that it is in the public interest for the Government agency to grant an exclusive license rather than a nonexclusive license and that such exclusive license should be granted to the applicant.

§ 101–4.104–4 Published notices.

(a) A notice that a prospective exclusive licensee has been selected shall be published in the FEDERAL REGISTER, and a copy of the notice shall be sent to the Attorney General. The notice shall include:

(1) Identification of the invention;

(2) Identification of the selected licensee;

(3) Duration and scope of the contemplated license; and

(4) A statement to the effect that the license will be granted unless:

(i) An application for a nonexclusive license, submitted by a responsible applicant pursuant to § 101–4.104–2, is received by the Government agency having custody of the invention within 60 days from the publication of the notice in the FEDERAL REGISTER, and the Government agency determines in accordance with its prescribed procedures under which procedures the Government agency shall record and make available for public inspection all decisions made pursuant thereto and the basis therefor, that the applicant has established that he has already achieved or is likely to bring the invention to the point of practical application within a reasonable period under a nonexclusive license; or

(ii) The Government agency determines that a third party has presented evidence and argument which has established that it would not be in the public interest to grant the exclusive license.

(b) If an exclusive license has been granted pursuant to this Subpart 101–4.1, notice thereof shall be published in the FEDERAL REGISTER. Such notice shall include:

(1) Identification of the invention;

(2) Identification of the licensee; and

(3) Duration and scope of the license.

(c) If an exclusive license has been modified or revoked pursuant to § 101–4.104–5, notice thereof shall be published in the FEDERAL REGISTER. Such notice shall include:

(1) Identification of the invention;

(2) Identification of the licensee; and

(3) Effective date of the modification or revocation.

§ 101–4.104–5 Modification or revocation.

(a) Any license granted pursuant to this Subpart 101–4. 1 may be modified or revoked by the Government agency granting the license if the licensee at any time defaults in making any report required by the license or commits any breach of any covenant or agreement therein contained.

(b) A license may also be revoked by the Government agency granting the license if the licensee willfully makes a false statement of a material fact or willfully omits a material fact in the license application or any report required in the license agreement.

(c) Before modifying or revoking any license granted pursuant to this subpart for any cause, the Government agency shall furnish the licensee and any sublicensee of record a written notice of intention to modify or revoke the license, and the licensee and any sublicensee shall be allowed 30 days after such notice to remedy any breach of any covenant or agreement as referred to in (a) of this section or to show cause why the license should not be modified or revoked.

§ 101–4.104–6 Appeals.

An applicant for a license, a licensee, or such other third party who has participated under § 101–4.104–4(a) (4) (ii) shall have the right to appeal, in accordance with procedures prescribed by the Government agency, any decision concerning the granting, denial, interpretation, modification, or revocation of a license.

§ 101–4.105 Litigation.

An exclusive licensee shall be granted the right to sue at his own expense any party who infringes the rights set forth in his license and covered by the licensed patent. The licensee may join the Government upon consent of the Attorney General as a party complainant in such suit but without expense to the Government, and the licensee shall pay costs and any final judgment or decree that may be rendered against the Government in such suit. The Government shall have an absolute right to intervene in any such suit at its own expense. The licensee shall be obligated to furnish promptly to the Government, upon request, copies of all pleadings and other papers filed in any such suit and of evidence adduced in proceedings relating to the licensed patent including, but not limited to, negotiations or settlement and agreements settling claims by a licensee based on the licensed patent, and all other books, documents, papers, and records pertaining to such suit. If as a result of any such litigation the patent shall be declared invalid, the licensee shall have the right to surrender his license and be relieved from any further obligation thereunder.

§ 101–4.106 Transfer of custody of Government inventions.

A Government agency having custody of a Government-owned invention may enter into an agreement to transfer its custody to another Government agency for purposes of administration, including the granting of licenses pursuant to this subpart.

Effective date. This subpart is effective May 7, 1973, but may be observed earlier. However, the head of a Government agency may exclude from the terms, conditions, and procedures set forth in this subpart any license that was in the process of being negotiated on the effective date.

Dated: January 29, 1973.

ARTHUR F. SAMPSON,
Acting Administrator of General Services.

[FR Doc.73–2119 Filed 2–2–73;8:45 am]

[909 O.G. 1171]

(208) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 2, 1970.

[881 O.G. 1707]

EDITORIAL NOTE: Sec. 6103(c) states that January 20 of each fourth year after 1965, Inauguration Day, is also a legal public holiday.

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(209) OFFICE OF THE SECRETARY

[Dept. Organization Order 30–3A]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 27 FR 11469 of November 21, 1962.

SECTION 1. *Purpose.* This order delegates authority to the Commissioner of Patents and prescribes the functions of the Patent Office.

SEC. 2. *Status and line of authority.* .01 The Patent Office is hereby continued as a primary operating unit of the Department of Commerce. First established as an independent bureau under the direction of a Commissioner of Patents by the general revision of patent laws enacted by Congress July 4, 1836 (5 Stat. 117), it became a bureau of the Department of Commerce by Executive Order of April 1, 1925, in accordance with the authority contained in the act of February 14, 1903 (32 Stat. 830). When the patent laws were codified as Title 35, United States Code, effective January 1, 1953, the Patent Office was continued as an office in the Department of Commerce.

.02 The Commissioner of Patents (hereinafter called the Commissioner), who is appointed by the President by and with the advice and consent of the Senate shall be the head of the Patent Office. He shall be principally assisted by a Deputy Commissioner and four assistant commissioners, whose titles and status are specified below. The First Assistant Commissioner (Deputy Commissioner) and the first two assistant commissioners are provided for by 35 U.S.C. 3 and are appointed by the President by and with the advice and consent of the Senate.

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3).

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3).

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3).

d. The Assistant Commissioner for Legal Affairs.

e. The Assistant Commissioner for Administration.

.03 The Deputy Commissioner or, in the event of a vacancy in that office, the assistant commissioner appointed under 35 U.S.C. 3 who is senior in date of appointment, shall act as Commissioner during a vacancy in that office until a Commissioner is appointed and takes office. In the absence of the Commissioner, the Deputy Commissioner shall act as Commissioner. If the Deputy Commissioner is likewise absent or that office is vacant, one of the assistant Commissioners appointed under 35 U.S.C. 3 or the Assistant Commissioner for Legal Affairs or the Solicitor of the Patent Office shall act as Commissioner in an order of precedence prescribed by the Commissioner.

.04 The Commissioner shall report and be responsible to the Assistant Secretary for Science and Technology.

SEC. 3. *Delegation of authority.* .01 Pursuant to the authority vested in the Secretary of Commerce by 35 U.S.C. 3 and Reorganization Plan No. 5 of 1950, the functions of the Patent Office and its officers specified in Title 35 of the United States Code, as amended, are hereby vested in the Secretary of Commerce and redelegated to the Commissioner of Patents.

.02 Pursuant to the authority vested in the Secretary of Commerce by law, the Commissioner of Patents is hereby delegated authority to perform the following functions vested in the Secretary of Commerce.

a. The functions in Title 15, Chapter 22 of the United States Code, which pertain to trademarks.

b. The functions in Executive Order 10096 of January 23, 1950, and the Executive Order 10930 of March 24, 1961, which pertain to inventions made by Government employees.

c. The functions in 42 U.S.C. 2181 and 2182, which pertain to inventions relating to atomic weapons, and in 42 U.S.C. 2457, which pertain to property rights in inventions made in performance of work under contract for the National Aeronautics and Space Administration.

d. Such functions under other authorities of the Secretary of Commerce as are applicable to performing the functions assigned in this order.

.03 Exercise of the functions delegated in paragraphs .01 and .02 of this section shall be subject to such policies or directions as may be prescribed by the Secretary of Commerce or the Assistant Secretary for Science and Technology.

.04 The Commissioner of Patents may, except as precluded by law or regulation, redelegate his authority to employees of the Patent Office subject to such conditions in the exercise of the delegated authority as he may prescribe.

SEC. 4. *Functions.* The Patent Office shall perform the following functions:

.01 Examine applications for patent to determine if they meet the requirements of law for the issuance of patents and, upon such determination, granting patents.

.02 Administer special laws and regulations as to secrecy of certain inventions, licenses for foreign filing, and those relating to atomic energy and space technology.

.03 Decide the ownership of patents and the rights to inventions made by Government employees, as provided by Executive Orders 10096 and 10930.

.04 Provide for the publication, storage, dissemination, and exchange of patents and related documentation.

.05 Maintain systems and facilites providing appropriate access to United States and foreign patents and other technical literature for use of the examiners and the public.

.06 Examine applications for the registration of trademarks to determine their entitlement to registration under the law; give public notice of trademarks allowed for registration and publish registered trademarks; maintain the principal and supplemental registers of trademark registrations, and provide for public access to such registers and related trademark records.

.07 Issue patents and certificates of trademark registration.

.08 Reissue defective patents and issue certificates of correction of patents and trademark registrations.

.09 Maintain records as to proprietary interests in patents and trademarks and applications therefor.

.10 Carry on or authorize studies and programs, separately or in coordination with other United States, foreign and international agencies, regarding domestic and international patent and trademark law.

.11 Perform other functions required, or which the Commissioner deems necessary and proper, in exercising the authority delegated herein.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary for Administration.

[FR Doc. 73-320; Filed 1-5-73; 8:45 am]

[Dept. Organization Order 30–3B]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 36 FR 9078 of May 19, 1971.

SECTION 1. *Purpose.* This order prescribes the organization and assignment of functions within the Patent Office. Department Organization Order 30–3A prescribes the scope of authority and functions.

SEC. 2. *Organization structure.* The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. A copy of the organization chart is attached to the original document on file in the Office of the Federal Register.

SEC. 3. *Office of the Commissioner.* The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by Deputy Commissioner and four Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office with immediate responsibility for the Office of Petitions and shall perform the duties of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction for the patent examining and related operations which consist of the organizational elements enumerated in section 5 of this order. He is assisted by a Deputy Assistant Commissioner who shall, among other duties, have immediate responsibility for the patent examining groups and shall perform the duties of the Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the trademark registration and related operations which consist of the organizational elements enumerated in section 6 of this order.

d. The Assistant Commissioner for Legal Affairs shall be the chief law officer of the Patent Office and as applicable shall provide administrative and policy direction to the organizational elements enumerated in section 7 of this order. Pursuant to Department Organization Order 10–6, he shall be subject to the overall authority of the Department's General Counsel with respect to legal and legislative matters involving the Patent Office, other than in connection with the issuance of patents or the registration of trademarks.

e. The Assistant Commissioner for Administration shall be the principal advisor to the Commissioner on the formulation and application of management policies and shall provide administrative, management, and operational support services to components of the Patent Office. In addition, he shall provide administrative and policy direction to a staff assigned to his office as well as to the organizational elements enumerated in section 8 of this order. He shall be assisted by a Deputy Assistant Commissioner who shall perform the duties of the Assistant Commissioner during the latter's absence.

SEC. 4. *Office reporting to the Commissioner.* .01 The Offices of Petitions shall receive, docket, maintain records, and take other appropriate action with respect to petitions to the Commissioner submitted under applicable law and regulations; assign petitions to appropriate officials for decision or recommend and prepare decisions for review and approval by the Deputy Commissioner; and recommend changes in office policy, practices, and procedures, where the need for such appears evident from the records of the office.

.02 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinate functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provided executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide policy.

.03 The Office of Advanced Systems Development shall apply analytical basic research techniques to the development of new machine-assisted experimental search, retrieval, and display systems; to the exploration and application of advanced technology for the betterment of operating systems; and to increasing the effectiveness of technical information dissemination and accessing measures. This work is directed primarily to providing solutions to hitherto unresolved problems and to the development of experimental or test applications, for simulations of original techniques or operations. It shall assist in the installation, pilot use, and evaluation of experimental systems in operating environments.

.04 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

SEC. 5. *Offices reporting to the Assistant Commissioner for Patents.* .01 The Office of Patent Program Control shall develop procedures for and establish quality, quantity, and other performance standards relating to the conduct of the patent examination and classification functions; establish program activity targets and continually evaluate status against program objectives; provide training to examiners in patent practices and procedures; and monitor compliance with examination and classification standards and procedures.

.02 The Office of Patent Classification shall develop, implement, and maintain subject matter classification systems for patent search files of prior art; evaluate and adapt experimental or other search systems developed elsewhere; determine requirements for and initiate procurement of foreign patent and literature abstracting services for use by examiners; and provide technical specifications, guidance, advice, and assistance to the contracting officer in such procurements; coordinate the classification of U.S. and foreign patent documents and nonpatent literature; and participate in developing and fostering harmonization of the United States and the International Patent Classification systems.

.03. The Examining Groups shall examine applications for patents to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category assigned to it. The number of examining groups and the coverage of the generic categories shall be determined by the Commissioner.

SEC. 6. *Offices reporting to the Assistant Commissioner for Trademarks.* .01 The Office of Trademark Program Control shall develop guidelines governing trademark examining procedures; establish program activity targets and continually evaluate status against program objectives; and provide instruction in trademark practice and procedures and coordinate trademarks administrative support activities.

.02 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellations, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.03 The Trademark Examining Operation shall be responsible for the classification of trademark applications into classes of goods and services, the examination and processing of these applications, and the registration of trademarks, service marks, and certification marks; and maintain the principal and supplemental registers of trademarks.

SEC. 7. *Offices reporting to the Assistant Commissioner for Legal Affairs.* .01 The Office of the Solicitor shall handle all litigation to which the Commissioner is a party and provide other legal services, including advice and assistance on legislative matters, and maintenance of the law library.

.02 The Examiners-in-chief sitting as a Board of Patent Appeals shall be responsible for hearing and deciding appeals from adverse decisions of examiners upon applications for patents.

.03 The Board of Patent Interferences shall conduct patent interference proceedings and make final determinations in the Patent Office as to priority of invention. The Board shall also hear and decide questions concerning prop-

erty rights in inventions in the atomic energy and space fields brought before it under the provisions of sections 2182 and 2456 (d) and (e) of title 42, U.S.C.

.04 The Office of Legislation shall develop recommendations and advise policy and action concerning matters which may require changes in the patent and trademark laws; review and prepare analysis of bills or drafts of legislation concerning patent or trademark matters received for technical appraisal; prepare legislative proposals and, after appropriate clearance, draft legislation and supporting documentation for clearance with the Department's Office of the General Counsel and the Office of Management and Budget, for consideration by the Congress; and maintain liaison with patent and trademark bar associations, industry, and others concerned with proposed and pending legislation.

.05 The Office of International Affairs shall coordinate the development of policy and program recommendations or positions respecting international patent and trademark affairs, including all proposed new or modified agreements under the Paris Union, Patent Cooperation Treaty, or like treaties; maintain liaison in such matters with the Office of the Secretary, the Department of State, and concerned elements of the public; and participate in negotiating patent and trademark matters in establishing international agreements and in the implementation of programs affecting Patent Office commitments or responsibilities in these areas.

SEC. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01. Management Planning Organizations:

a. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive budget program collaborating with cost center officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary accountability of available funds; maintain external liaison in budgetary matters; and review and evaluate the fulfillment of budget-based program commitments.

b. The Office of Management and Organization shall plan and conduct studies designed to improve organization, methods, procedures, workflow, work measurement, managerial technicals, and resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review and submission of reportable plans and accomplishments thereon; coordinate a program for the management and control of external reports; and make special studies as required.

c. The Office of Program Planning and Evaluation shall formulate plans for and coordinate the development of Patent Office-wide long and short range program objectives within the framework of budgetary constraints; define, project, and allocate the manpower and other resources required to achieve Patent Office-wide objectives; develop and monitor a management information system which prescribe code structures for and consolidates all administrative management systems into a single integrated data base to provide information designed to measure performance and achievement against planned objectives; and develop and issue a wide variety of timely internal analytical and interpretive reports to the managers of the Patent Office.

.02 Public service organizations:

a. The Office of Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the OFFICIAL GAZETTE; provide requisition and scheduling services for trademark publications; monitor the quality or performance by contributing sources and maintain close liaison with U.S. Government Printing Office; and prepare and issue patent grants and periodic publications of patent indexes.

b. The Office of Patent and Trademark Services shall provide the materials and services offered directly to the public, many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents, trademark registrations, and office records to examiners, and others in the Office, as well as to the public; providing drafting services; and maintaining appropriate collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by the public. It shall also conduct an initial examination of patent applications for compliance with law and regulation as to form and certain matters of factual content; grant or deny a filing date based on such examination and forward to the Examining Groups those granted a filing date; acknowledge the acceptance or rejection of applications for examination; originate documentation of pending applications; initially assign accepted applications to units of the examining groups for examination; and maintain records on the status and location of all applications.

.03 Administrative service organizations:

a. The Office of Computer Services shall be responsible for providing data processing services to other elements of the Patent Office: This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques; preparation or procurement and testing of computer programs, and supplemental data processing services; operation of all general purpose ADP equipment including that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organization units.

b. The Office of Finance shall develop and maintain the financial accounting system of the Patent Office, perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

c. The Office of General Services shall plan and administer a broad Office-wide program of general services, including procurement control; property, space, and facilities management; communications, records, files, mail, and forms management; administrative printing; and clearance of all requirements involving contractual pocurements, including liaison with the Department, in connection therewith.

d. The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, equal employment opportunity programs for employees, training and career development, incentive awards, performance rating, position classification and wage administration, group management relations, and various employee benefit programs.

.04 The Office of Technology Assessment and Forecast shall continually assess the status of technological activities in all countries; compare inventive activity in the United States relative to other nations; and forecast developments on a world-wide basis.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, Jr.,
Acting Assistant Secretary for Administration.

[FR Doc. 73-321; Filed 1-5-73; 8:45 am]

Published in 38 F.R. 1068, Jan. 8 1973

[907 O.G. 2]

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(210) PATENT OFFICE

Organization and Functions

This order, effective August 1, 1973, amends the material appearing at 38 FR 1068 of January 8, 1973.

Department Organization Order 30-3B, dated December 15, 1972 is hereby amended as follows:

1. SEC. 7. *Offices reporting to the assistant commissioner for legal affairs.*

a. Paragraph .04 is amended to read:

.04 The *Office of Legislation and International Affairs* shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State, and appropriate congressional committees; and conduct negotiations in technical patent and trademark matters in establishing or implementing international agreements.

b. Paragraph .05 is deleted.

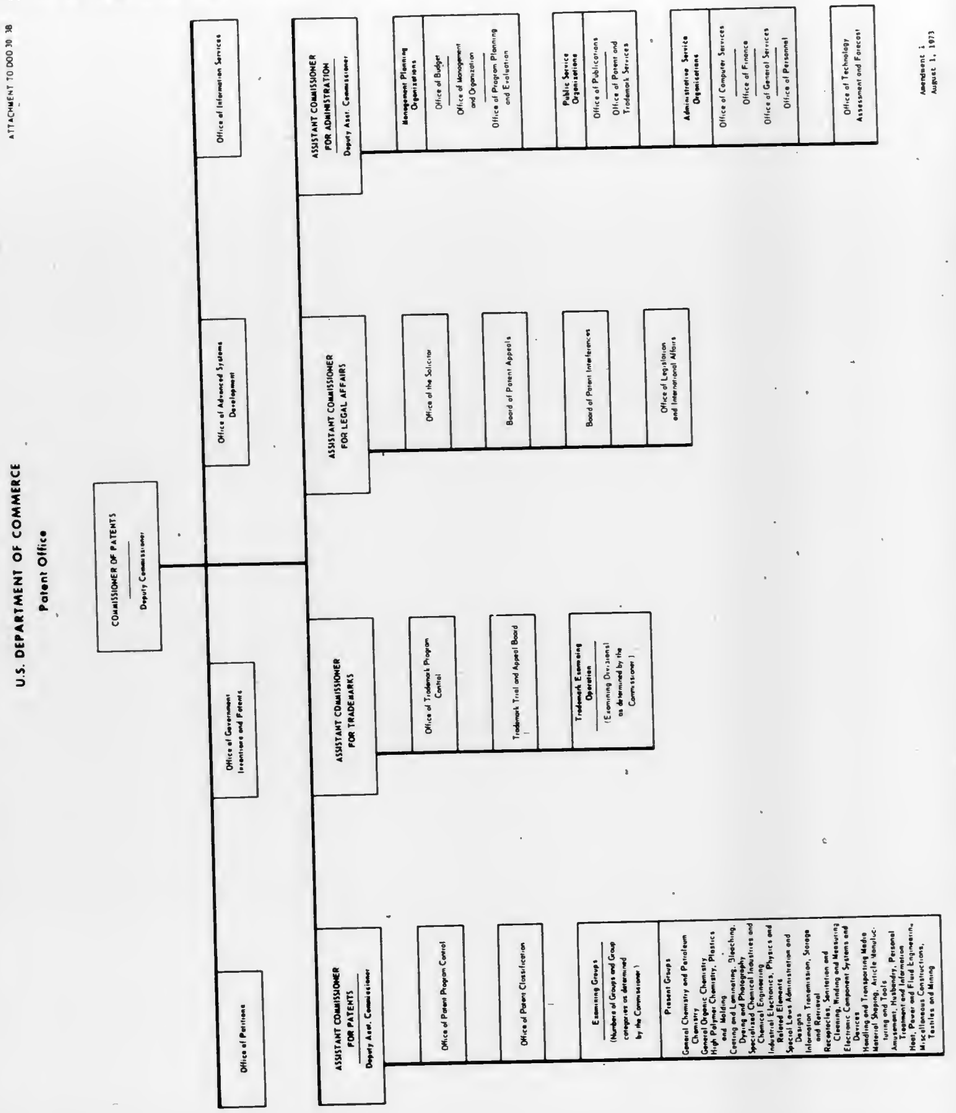
2. The organization chart of December 15, 1972 is superseded by the organization chart attached to this amendment. Copy of the Organization Chart is attached to the original of this document on file in the Office of the Federal Register.

Effective date: August 1, 1973.

HENRY B TURNER,
Assistant Secretary for Administration.

[FR Doc. 73-19292; Filed 9-11-73; 8:45 am]

[915 O.G. 378]



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TRADEMARK SECTION

The following is a compilation of the more important notices and rule changes concerning trademarks which have been published in the OFFICIAL GAZETTE *from July 1, 1964 through December 31, 1973. Notices which have been rescinded are not included. Some notices issued prior to July 1, 1964, which have not been specifically rescinded and are still in effect, are not reproduced here.*

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(300) INTERVIEWS INVOLVING TRADEMARK APPLICATION

Interviews frequently result in a better understanding of the issues involved, shorten the prosecution and facilitate disposal of applications.

Interviews for discussion of registrability of the mark of a pending application will not be had before the first official Office action thereon and ordinarily not before filing the first response. Arrangements for an interview should be made in advance so that the Examiner may review the case and be familiar with the details involved.

Interviews on Friday will no longer be prohibited as a matter of policy but all interviews should be set at a time satisfactory to all parties concerned.

A memorandum summarizing the conclusions reached at the interview should be prepared by the Examiner and placed in the application file. The memorandum will be retained in the application file until the prosecution is completed. Such procedure will not, however, relieve the applicant of the responsibility of complying with the requirements of Trademark Rule 2.62.

HORACE B. FAY, JR.,
Assistant Commissioner.

July 6, 1964.

This supersedes the notice of February 10, 1958, 728 O.G. (TM 1).

[804 O.G. TM 147]

(301) OPPOSITIONS UNDER SECTION 13 OF THE TRADEMARK ACT OF 1946

Section 13 of the Trademark Act of 1946 provides that any person who believes that he would be damaged by the registration of a mark upon the Principal Register may, upon payment of the required fee, file a verified opposition in the Patent Office, stating the grounds therefor, within thirty days after publication under Section 12(a) of the mark sought to be registered.

An unverified opposition may be filed by a duly authorized attorney, but the opposition will be null and void unless verified by the opposer within a reasonable time after such filing to be fixed by the Commissioner.

An opposition will not be accepted unless it complies with the statutory requirements, namely, it must be filed in the Patent Office within thirty days after publication under Section 12(a) of the mark opposed, be accompanied by a fee in the proper amount, must state the grounds therefor and, if filed by the opposer, must be verified.

A request to extend the time for filing an opposition under Rule 2.102 must be received in the Patent Office before the expiration of thirty days from date of publication under Section 12(a) of the mark sought to be registered. The request should specify the period of extension desired and be accompanied by a showing of good cause for the extension requested, but in the event circumstances do not permit submission of the showing of good cause with the request, it must be furnished within ten days after filing the request for extension.

Two or more parties may be joined in opposition to the registration of a mark, but separate fees for each party so joined must be paid. Likewise, a mark may be opposed in each of a plurality of classes, but a separate fee of $25.00 for each class in which opposition is sought, must accompany the opposition. To be complete, oppositions accompanied by fees insufficient to cover each class named in the application, must specify the particular classes in which opposition is sought.

HORACE B. FAY, JR,
Assistant Commissioner.

July 15, 1964.

[805 O.G. TM 39]

(302) CHANGE IN FORMAT FOR PUBLISHING TRADEMARKS FOR OPPOSITION

Section 30 of the Trademark Act of 1946 as amended by Public Law 772, 87th Congress, approved October 9, 1962, 76 Stat. 769, provides for the filing of a combined application for the registration of a trademark in more than one class.

The present practice of publishing the mark with pertinent data under each class in which registration is sought results in needless duplication.

Beginning with the issue of November 3, 1964, "Marks Published for Opposition" will be divided into two sections. In Section 1, all marks presented in combined applications

for registration in more than one class will be published with only one reproduction of each mark.

The reproduction of the mark will be followed by the class numbers and titles, and under each class will appear the description of the goods in connection with which the trademark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

Trademarks presented in applications for registration in a single class will be published, as in the past, in class order, in Section 2.

The same procedure will be followed in the notice of the issuance of registrations on the Supplemental Register.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Sept. 18, 1964.

[807 O.G. TM 51]

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(303) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Allowance of Application

The following amendment is made, to take effect on publication in the Federal Register. Notice and public procedure and deferment of the time of taking effect are deemed unnecessary in view of the nature of the amendment, which is procedural only,

The purpose of the change is to eliminate the procedural step of signing a trademark application file prior to allowance, which has been found to be burdensome and which is unnecessary since the allowance of the application, subject to possible inter partes proceedings, has already been approved by an Examiner having full signatory authority.

Section 2.82 is amended by striking out the clause "the Examiner will sign the application file to indicate allowance and," so that the section as amended will read as follows:

§ 2.82 *Allowance of application.*

If no opposition is filed within the time permitted (§§ 2.101 and 2.102), or if filed and dismissed, and if no interference is declared, or concurrent use proceeding instituted, the application will be prepared for issuance of the certificate of registration as provided in § 2.151.

(Sec. 1, 66 Stat. 793, 35 U.S.C. 6; 60 Stat. 427, 15 U.S.C. 1057)

Dated: Mar. 23, 1966.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

J. HERBERT HOLLOMAN,
Assistant Secretary for Science and Technology.

[F.R. Doc. 66–3785; Filed, Apr. 7, 1966; 8:45 a.m.]

Published in 31 F.R. 5554; Apr. 8, 1966

[826 O.G. TM 61]

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(304) PUBLICATION OF MATERIAL IN "NOTICES" SECTIONS OF PATENTS AND TRADEMARKS OFFICIAL GAZETTE

Effective Jan. 3, 1967, publication of material in the Patent and Trademark "Notices" sections of the OFFICIAL GAZETTE will occur only once.

Dec. 1, 1966.

[833 O.G. TM 108]

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(305) POWERS OF ATTORNEY IN REGISTERED TRADEMARK FILES

On and after February 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

Jan. 30, 1967.

C. M. WENDT,
Director.

[835 O.G. TM 95]

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(306) CHARGES AGAINST DEPOSIT ACCOUNTS UNDER SPECIAL CONDITIONS

The practice as to deposit accounts is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50 for each trademark application, registration or notice of opposition.

The Director and the Assistant to the Director of the Trademark Examining Operation are authorized to make a charge against a deposit account provided prior approval, as by telephone, is obtained from the applicant, registrant, attorney or agent. This practice is limited to ex parte appeals to the Trademark Trial and Appeal Board, notices of opposition, affidavits under the provisions of Section 8, and applications for renewal and may be exercised only in emergency situations, such as where a party is unable to file the fee within the statutory period.

When such a charge is made, prior approval will be indicated in the file by identification of the name of the authorizing party, the date and the type of authorization, the purpose for which the charge is made, and the deposit account number.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

[879 O.G. TM 151 (Oct. 27, 1970)]

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(307) SEPARATION OF THE PATENT AND TRADEMARK SECTIONS OF THE OFFICIAL GAZETTE

Effective February 2, 1971, the OFFICIAL GAZETTE will be separated into two parts to be known as the *Patent Official Gazette* and the *Trademark Official Gazette*. The subscription prices for these publications are as follows:

Patent Official Gazette:
$89.00 per year
22.25 additional for foreign mailing
2.00 per single copy
Trademark Official Gazette:
$17.00 per year
4.25 additional for foreign mailing
.40 per single copy

Also effective February 2, 1971, the OFFICIAL GAZETTE will no longer contain "Decisions in Patent and Trademark Cases." Decisions of the type heretofore found in the "Decisions in Patent and Trademark Cases" are published by non-Federal organizations such as, for example, the Bureau of National Affairs, Inc., 1231 25th St. NW., Washington, D.C. 20037, and West Publishing Co., 50 Kellogg Blvd., St. Paul, Minn. 55102.

Finally, the "Decisions Leaflet" of the OFFICIAL GAZETTE will no longer be supplied as a separate subscription item after January 26, 1971. According to present plans, however, both the PATENT OFFICIAL GAZETTE and the TRADEMARK OFFICIAL GAZETTE will have identical "Patent Office Notices" sections containing notices of the various types heretofore published in the Gazette decision leaflet and Trademark Section. Those notices of particular interest to Patent Office employees will be accumulated and published approximately every fourth week, and distributed separately to employees.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 29, 1970.

[882 O.G. TM 33]

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(308) PREFACE TO THE TRADEMARK O.G. NOTICES

In September 1970, a Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce.

The Purpose of this Committee was to advise the Patent Office on ways to increase the efficiency and effectiveness of the administration of the Trademark Act. A report of this Advisory Committee has been received by the Commissioner of Patents. After reviewing the recommendations, although the review is not complete, it has been decided to make certain changes in trademark practice and procedure, and to propose changes in the rules of practice. Beginning with this issue of the OFFICIAL GAZETTE and in subsequent issues as needed, announcements will be published concerning changes in procedures and proposed amendments to the Trademark Rules of Practice.

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WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 2]

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(309) REQUEST FOR EXTENSION OF TIME IN WHICH TO OPPOSE

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 3]

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(310) RECORDING OF DOCUMENTS AFFECTING TITLE

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13231; July 16, 1971

[889 O.G. TM 2]

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(311) TRADEMARK EXAMINING PROCEDURE FOR AMENDED APPLICATIONS; REPORTING OLDEST DATES OF AMENDED TRADEMARK APPLICATIONS

Effective immediately, the order in which amendments to trademark applications are examined is changed. Previously, Examiners have usually acted on amended cases in order of filing date of the application which the amendment concerned, i.e., amended cases with the oldest filing date were examined first. Under the new procedure, amended cases will normally be examined in the order in which the amendment or other response is received, i.e., amendments that are received first will normally be examined first.

Effective with this issue of the OFFICIAL GAZETTE (Trademark Section) in order to reflect more accurately the condition of division dockets, the column reporting the date of the oldest amended application in each division has been changed to indicate the date of receipt of the oldest filed amendment. Under this new method of reporting the oldest date of receipt of a filed amendment upon which no action has been taken by an Examiner will be indicated for each division of the Trademark Examining Operation.

RENE D. TEGTMEYER,
Assistant Commissioner.

July 15, 1971.

[889 O.G. TM 6]

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(312) ESTABLISHMENT OF MANUAL OF TRADEMARK EXAMINING PROCEDURE

Preliminary work has begun on the preparation of a Manual of Trademark Examining Procedure.

Directives on trademark examining procedure will be issued by the Patent Office from time to time and, when appropriate, will be included in the Manual at a later date. The directives will be numbered sequentially and those issued prior to publication of the Manual will be designated as Series 1. These directives will constitute the guidelines for the examination of trademark applications.

Trademark Examining Directives are available through the Superintendent of Documents, Washington, D.C., 20013 at an annual subscription of $1.50 plus 50¢ for foreign mailing.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

July 27, 1971.

[889 O.G. TM 226]

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(313) TRADEMARKS—STATUS INQUIRIES

In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed to the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. The original inquiry will be entered in the file and the duplicate will be marked with a response and returned to the applicant. The date when the next office action can be expected will not be given unless specifically requested.

Status letters have been used by applicants to establish diligence in support of a later petition to revive should the application become abandoned. Under current practice, attorneys have frequently submitted status letters as a matter of course for such purposes. This has proved burdensome both to attorneys and the Patent Office. Until further notice, in new applications, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to the initial office action if inquiry as to the status of the application is received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months from the filing date of the application, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the filing date of the oldest new case awaiting action in the Division to which the application is assigned is more recent than the filing date of the application.

For amended cases, the applicant will be considered to have exercised diligence if inquiries as to the status of the application are received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months after filing a response to the examiner's last received action, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the date of the oldest amendment filed that is awaiting action in the Division to which the application is assigned is more recent than the date of filing the last amendment to the application.

It should be noted as an exception to the above that status inquiries are totally unnecessary during period(s) of time when an application is suspended pursuant to 37 CFR 2.67.

Applicants are urged not to file status inquires within the first year after filing due to the current backlog of new applications.

Dated: July 28, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Approved: July 30, 1971.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-11532; Filed 8-10-71; 8:48 am]

Published in 36 F.R. 14771, Aug. 11, 1971

[890 O.G. TM 5]

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(314) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Recognition of Attorneys and Agents, Standards of Conduct, and Patent Application Petitions

These rules changes eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The changes further establish the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as the Code is not inconsistent with Patent Office rules. Other changes eliminate the present requirement for a petition or other express request for a patent and liberalize requirements as to inventor names.

The changes relating to the discontinuance of the recognition and registration of firms are intended to obviate problems incident to such registration such as, for example, the lack of certainty as to the responsibility of individual attorneys and agents for actions taken by registered nonpartnership business entities, such as professional corporations, the problems associated with the rights to firm names and registration numbers upon dissolution or reorganization of firms, and the recognition as "firms" of groups of attorneys or agents, such as parts of corporation organizations, when the attorneys and agents are not in fact associated as partners. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is for the purpose of facilitating responses on behalf of applicants in patent applications, and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will, in view of 35 U.S.C. section 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department, a firm of attorneys or agents, or an individual attorney, agent, or other person. In connection with patent applications pending upon the effective date of the changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by the applicant), the address of the firm will be considered to be the correspondence address for the application. Powers of attorney and authorizations of agent in favor of registered individual attorneys and agents will, of course, continue to be recognized and accepted.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for those engaged in practice before the Patent Office than do present rules. The Code of Professional Responsibility of the American Bar Association is incorporated by reference in the rule with a statement as to where copies thereof may be inspected or obtained. The rule specifies that the standards referred to are those set forth in the Code of Professional Responsibility as amended February 24, 1970, and the rule does not, therefore, refer to standards imposed by later amendments of the Code. Any standards in other Patent Office rules which are inconsistent with standards imposed by the Code (as, for example, the limitations in § 1.345(b) on the distribution of professional announcements and the duties imposed by § 1.205(b)) remain in force.

The elimination of the requirement for a petition requesting the grant of a patent and the relaxation of requirements as to the names of applicants are intended to simplify patent application procedures. Section 1.76 is being revoked as redundant in view of revisions in § 1.57.

Notice of proposed rule making regarding revocation of §§ 1.35 and 1.61 and revision of §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 of Title 37, Code of Federal Regulations was published in the Federal Register of January 15, 1971 (36 F.R. 611). Interested persons were given an opportunity to participate in the rulemaking process through submission of comments in writing and at an oral hearing held on March 23, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective date. This revision shall become effective on the date of its publication in the Federal Register (7-2-71).

In consideration of the comments received and pursuant to the authority contained in Section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), and Section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), Title 37 of the Code of Federal Regulations is hereby amended as follows:

• • • • •

18. Section 2.13 is revised to read as follows:

§ 2.13 *Professional conduct.*

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 East 60th Street, Chicago, Ill. 60637.

19. Section 2.15 is revised to read as follows:

§ 2.15 *Signature and certificate of attorney or agent.*

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-9387; Filed 7-1-71; 8:49 am]

Published in 36 F.R. 12616; July 2, 1971

[890 O.G. TM 60 (Sept. 14, 1971)]

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(315) STATUS INQUIRIES; AMENDMENT

The notice entitled Status Inquiries which appeared in the Federal Register of August 11, 1971 (36 F.R. 14771-14772), indicated that all status inquiries regarding trademark applications will be entered in the application files. That procedure will not, however, be followed in all cases, and the first paragraph of the notice has, accordingly, been amended to read as follows:

"In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed in the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. Both the original inquiry and the duplicate will be marked with a response and the duplicate will be returned to the applicant. The original inquiry will be entered in the file only if the applicant has requested an estimated date for the next Office action; otherwise, the original inquiry will be placed in a separate file."

Dated: Sept. 14, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[FR Doc. 71-14129; Filed 9-23-71; 8:50 a.m.]

Pub. in 36 F.R. 18961, Sept. 24, 1971

[891 O.G. TM 142]

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(316) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Access to Pending Applications

A proposal was published at 36 F.R. 16194 to amend § 2.27 by deleting the requirement to show good cause in order to obtain access to a pending application file.

After consideration of all comments and suggestions submitted by interested persons, the amendment as proposed is hereby adopted, subject to the following changes:

1. The title of § 2.27 is changed by inserting the word "trademark" after the word "pending."

2. In paragraph (b) of § 2.27 the word "trademark" after the word "pending" is deleted.

Access to a pending application will be granted upon oral request at the office of the Director of the Trademark Examining Operation. The files will be ordered at 2 p.m. each day and will usually be available for inspection by 3 p.m. the same day. Files must be inspected in the presence of office personnel and papers may not be removed without authorization. Copies of the contents of files may be made only in the Trademark Search Room or by the Document Service Branch. Written requests for copies of the contents of application files may be addressed to the Document Service Branch; the cost is 30 cents per page.

The procedure for access to published and registered files and terminated inter partes proceedings will remain unchanged. Access to a published application is granted by request in the Trademark Docket Section. In order to obtain access to a registered file or terminated inter partes proceeding, an order must be placed in the Trademark Docket Section. These files are available either the same day or the morning of the following day.

Effective date. This amendment is effective on the date of its publication in the Federal Register (12-31-71).

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

December 21, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.
December 22, 1971.

The text of the revised section is as follows:

§ 2.27 *Pending trademark application index; access to applications.*

(a) An index of pending applications including the name and address of the applicant, a reproduction or description of the mark, the goods or services with which the mark is used, the class number, the dates of use and the serial number and filing date of the application will be available for public inspection as soon as practicable after filing.

(b) Access to the file of a particular pending application will be permitted prior to publication under § 2.81 upon written request.

(c) Decisions of the Commissioner and the Trademark Trial and Appeal Board in applications and proceedings relating thereto are published or available for inspection or publication.

(d) After a mark has been registered, or published for opposition, the file of the application and all proceedings relating thereto are available for public inspection and copies of the papers may be furnished upon paying the fee therefor.

[F.R. Doc. 71-19801; Filed 12-30-71; 8:45 a.m.]

Published in F.R. 24506, Dec. 31, 1971

[895 O.G. TM 2]

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(317) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Application and Drawing Requirements

A proposal was published at 36 F.R. 18002 to amend and revise §§ 2.21-2.23, 2.52, and 2.56. Pursuant to this notice, a number of comments have been received from interested persons. In light of the comments submitted, some changes have been made in the rules as proposed.

An additional subparagraph has been added to § 2.21 requiring that the application state the name of the applicant. In the same section, a paragraph (c) has been added. This paragraph incorporates the substances of proposed § 2.22. Section 2.52 has been revised to state that drawings must be 8 to 8½ inches wide and 11 inches long. In view of the change in § 2.52, § 2.31 has also been revised to make it clear that applications submitted on either letter or legal-size paper are acceptable.

Effective date. This revision shall become effective on *February 1, 1972.* However, as to § 2.52, drawings which comply only with the existing rule will be accepted until March 1, 1972.

1. Section 2.21 is revised to read as follows:

§ 2.21 *Requirements for receiving a filing date.*

(a) Materials submitted as an application for registration of a mark will not be accorded a filing date as an application until all of the following elements are received:

(1) Name of the applicant;

(2) A name and address to which communications can be directed;

(3) A drawing or other identification of the mark sought to be registered;

(4) An identification of goods or services;

(5) At least one specimen or facsimile of the mark as actually used;

(6) A date of first use of the mark in commerce, or a certification or certified copy of a foreign registration if the application is based on such foreign registration pursuant to section 44(e) of the act, or a claim of the benefit of a prior foreign application in accordance with section 44(d) of the act;

(7) The required filing fee for at least one class of goods or services.

Compliance with one or more of the rules relating to the elements specified above may be required before the application is further processed.

(b) The filing date of the application is the date on which all of the elements set forth in paragraph (a) of this section are received in the Patent Office.

(c) If the papers are so defective that they cannot be accepted, the applicant will be notified and the papers and fee held 6 months. If the requirements for receiving a filing date have not been satisfied within such time, the papers and fee will be returned to the applicant or otherwise disposed of; the drawing or fee of an unaccepted application may be transferred to a later application.

§ 2.22 [*Revoked*]

2. Section 2.22 is revoked.

3. Section 2.23 is revised to read as follows:

§ 2.23 *Serial number.*

Applications will be given a serial number as received, and the applicant will be informed of the serial number and the filing date of the application.

4. Section 2.31 is revised to read as follows:

§ 2.31 *Application must be in English.*

The application must be in the English language and plainly written on but one side of the paper. It is deemed preferable that the application be on legal or letter-size paper, typewritten double spaced, with at least a one and one-half inch margin on the left-hand side and top of the page.

5. Section 2.52 is amended by revising paragraph (c) to read as follows:

§ 2.52 *Requirements for drawings.*

• • • • •

(c) *Size of paper and margins.* The size of the sheet on which a drawing is made must be 8 to 8½ inches wide and 11 inches long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at least 1 inch on the sides and bottom of the paper and at least 1 inch between it and the heading.

• • • • •

6. Section 2.56 is revised to read as follows:

§ 2.56 *Specimens.*

The application must include five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actual used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable flat material and of a size not to exceed 8½ inches wide and 13 inches long.

Dated: January 11, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary
for Science and Technology.

[FR Doc. 72-924; Filed 1-20-72; 8:48 am]

Published in 37 FR 931; Jan. 21, 1972

[895 O.G. TM 193]

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(318) INITIAL PROCESSING OF APPLICATIONS

On February 1, 1972, the operations of the Trademark Application Section of the Patent Office will be reorganized. The purpose of the reorganization is to provide the public and applicants with more current information concerning newly filed applications.

The prompt initial processing of trademark applications is necessary in order to fulfill one of the main Patent Office functions, that of producing a record, accessible to the public, of new trademark activity to facilitate the clearance of new marks for use, determine the registrability of proposed marks, and avoid conflicts with the rights of others. In order to maintain a record of marks applied for which reflects the most current information available to the Office concerning them, the early processing of drawings in order to have them placed in the search room is considered as a first priority. The processing of these drawings includes the assignment of serial numbers, initial classification, duplication of the drawing and the forwarding of copies of the drawing to the search room. Other functions which are necessary in the processing of applications, such as the processing and mailing of filing receipts, are secondary to the processing of drawings.

In past years, there have been delays in processing applications and forwarding application drawings to the search room. These delays have varied from several weeks to several months. In view of the importance, both to applicants and the public, of recording essential information concerning newly filed applications as quickly as possible, a reorganization of the workflow in the Application Section is being effected.

There is no change in the processing of applications through the mail room and finance branch to the Application Section. However, under the new plan, upon receipt in the Trademark Application Section, all applications will be stamped with a serial number, and the drawing of the mark will be reproduced immediately and placed in the search file. This processing will occur as soon as the application files reach the Application Section. Such procedures as determining whether or not an application will receive a filing date, preparation of the file jackets, and mailing of the filing receipt will take place at a later time.

Applicants who wish to be notified promptly of the date their papers were received in the office and their serial number, may send two self-addressed postcards with their application papers. The mail room will stamp both postcards with the date of receipt and return one to the applicant; the second postcard will be stamped with the serial number and forwarded to the applicant from the Application Section. The postcards should contain the applicant's name and the trademark which is the subject of the application. When more than one set of application papers are forwarded under one cover, postcards should be attached to each set of papers for which a receipt is desired.

Under the new system of processing application papers, your particular attention is directed to the following changes as compared to the present procedure.

1. Application drawings will be placed in the public search file prior to the mailing of the filing receipt.

2. By using the postcard system described above, applicants will be notified sooner of the date of receipt of their papers and the serial number of their application. Applicants are encouraged to use the postcard system.

3. Additional papers sent in by the applicant or attorney should be identified by serial number, thereby enabling the office to process these papers quickly.

4. When an application is accompanied by a petition to the Commissioner under § 2.146, the petition will not be considered until processing by the Application Section is complete.

Effective date. The procedure outlined in this notice will become effective February 1, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

January 11, 1972.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 72-925; Filed 1-20-72; 8:48 am]

Published in 37 FR 942; Jan. 21, 1972

[895 O.G. TM 193]

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(319) IDENTIFICATION OF GOODS AND SERVICES IN TRADEMARK APPLICATIONS—(REPRINT OF NOTICE AND AMENDMENT)

Effective immediately, the Alphabetical List of Goods and Services which appears in the volume entitled "International Classification of Goods and Services to Which Trade Marks Are Applied" (published by the World Intellectual Property Organization (WIPO)) is adopted as a general guideline for determining the degree of particularity of identification of goods and services required in trademark applications.

Terms which appear in the International Classification listing will generally be accepted as proper identifications of goods and services. The use in the listing of more specific identifications indented below the heading term does not necessarily preclude acceptability of that heading. For example, the International Classification lists, as Item A407, *Ammunition,* followed by specific types of ammunition, as Items A408 and A409 and A410. "Ammunition" will be accepted as an identification in accordance with *In re Dynamit Nobel AG,* 169 USPQ 499 (TTAB, 1971). However, if the more specific term is used whenever appropriate, prosecution of the application may be shortened since the possibility of a requirement of greater particularity (see below) is reduced.

Greater particularity than is set forth by the terms in the International Classification listing may not be required by the Examiner in the absence of a clear need therefor. Typical illustrations of clear need can be found in the following situations:

(1) The broad term includes items which are classified in more than one class. (For example, "artists' materials.")

(2) The broad term is too indefinite for proper examination. (For example, "metallic parts.")

(3)(*a*) The identification is inconsistent with the goods or services disclosed by the specimens.

(*b*) The ordinary meaning of the identification is at variance with the goods or services disclosed by the specimens or the record. (For example, "decalcomanias" are not adequately identified by the term "publications." See also *Ex parte Consulting Publishing Co.,* 115 USPQ 240.)

(4) Wording included in the mark requires limitation of the identification. (For example, "beer" may not be included in the identification where the mark is "Newark 'Olde Town' Ale" (*Ex parte Consumers Brewing Co.,* 55 USPQ 426).)

On the other hand, some situations do *not* constitute clear need, as illustrated by the following:

(1) The existence of a decision holding that a likelihood of confusion exists in relation to items which are narrowly identified does not in itself constitute a clear need to require amendment of a broad identification to the more specific items mentioned in the decision.

(2) If the identification is understood when read in association with the title of the class in which it is placed and is otherwise satisfactory, further qualifying amendment should not be required. (For example, "mullers" in the clothing class would not require further modification to indicate that articles of clothing are intended; similarly the term "house organ" in the class for printed publications would not need further qualification.)

In a few instances, the terminology in the International Classification of Goods and Services is not in common usage in the United States. Where this occurs, the term more commonly used in this country should be selected.

The English edition of the "International Classification of Goods and Services to Which Trade Marks Are Applied" can be ordered from:

Sales Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Certain modifications and additions to the Classification have been published as supplements and are also available from the British Office.

We have been advised by the British Patent Office that the only acceptable methods of payment are by International Money Order or banker's draft, payable in sterling and drawn on a bank in the United Kingdom. Orders for the International Classification and for the supplements can be made by remittance in the following amount(s):

International Classification	50 pence
Nov. 15, 1967, supplement	5 pence
Mar. 18, 1970, supplement	Free
Mar. 3, 1971, supplement	10 pence
Total cost (including postage by surface mail)	65 pence
Additional charge for postage by air mail	1 pound 55 pence
Total cost by airmail	2 pounds 20 pence

Orders should be sent directly to:

Sales Branch, The Patent Office, Block C.
Station Square House, St. Mary Cray,
Orpington, Kent, England

RENE D. TEGTMEYER,
Assistant Commissioner for Appeals,
Legislation and Trademarks.

Date: Jan. 13, 1972.

[895 O.G. TM 54]

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(320) TRADEMARK OFFICE ACTIONS

Effective Apr. 1, 1972, trademark applicants or their attorneys will be provided with only one carbon copy of any office action, and the mailing of an additional carbon copy will be discontinued.

This change is consistent with the current practice in the patent examining operations and should result in greater efficiency in the preparation and mailing of office actions.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Feb. 7, 1972.

[895 O.G. TM 238]

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(321) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Interferences

A proposal was published at 36 F.R. 18002 to amend, revise, or redesignate §§ 2.27, 2.61, 2.80–2.82, 2.91, 2.92, 2.98, 2.101, and 2.103. Pursuant to this notice, a number of comments have been received from interested persons, and due consideration has been given to all matter presented. Only editorial changes have been made in the rules as proposed.

Effective date. This revision shall become effective on March 1, 1972, and will apply to all applications except those in which a notice of publication was mailed prior to March 1, 1972.

§ 2.27 [*Amended*]

1. Section 2.27 is amended by changing "2.81" in paragraph (b) to read "2.80."

§ 2.61 [*Amended*]

2. Section 2.92(c) is redesignated as § 2.61(c).

3. Section 2.81 is redesignated as § 2.80 and revised to read as follows:

§ 2.80 *Publication for opposition.*

If, on examination or reexamination of an application for registration on the Principal Register, it appears that the applicant is entitled to have his mark registered, the mark will be published in the OFFICIAL GAZETTE for opposition. The mark will also be published in the case of an application to be placed in concurrent use proceedings, if otherwise registrable.

§§ 2.81, 2.82 [*Redesignated*]

4. Sections 2.82 and 2.83 are redesignated as §§ 2.81 and 2.82, respectively.

5. A new § 2.83 is added and reads as follows:

§ 2.83 *Conflicting marks.*

(a) Whenever an application is made for registration of a mark which so resembles another mark or marks pending registration as to be likely to cause confusion or mistake or to deceive, the mark with the earliest effective filing date will be published in the OFFICIAL GAZETTE for opposition if eligible for the Principal Register, or issued a certificate of registration if eligible for the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the earliest filed mark.

(b) In situations in which conflicting applications have the same effective filing date, the application with the earliest date of execution will be published in the OFFICIAL GAZETTE for opposition or issued on the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the application with the earliest date of execution.

(c) Action on the conflicting application which is not published in the OFFICIAL GAZETTE for opposition or not issued on the Supplemental Register will be suspended by the Examiner of Trademarks until the published or issued application is registered or abandoned.

6. The heading for §§ 2.91–2.99 entitled "Interferences" is revised to read "Interferences and Concurrent Use Proceedings."

7. Section 2.91 is revised to read as follows:

§ 2.91 *Interferences.*

(a) An interference will not be declared between two applications or between an application and a registration except upon petition to the Commissioner. Interferences will be declared by the Commissioner only upon a showing of extraordi-

nary circumstances which would result in a party being unduly prejudiced without an interference. In ordinary circumstances, the availability of an opposition or cancellation proceeding to the party will be deemed to remove any undue prejudice.

(b) Registrations and applications to register on the Supplemental Register, registrations under the Act of 1920, and registrations of marks the right to use of which has become incontestable are not subject to interference.

8. Section 2.92 is revised to read as follows:

§ 2.92 *Preliminary to interference.*

Before the declaration of an interference, the marks which are to form the subject matter of the controversy must have been decided to be registrable by each party except for the interfering mark.

9. Section 2.98 is revised to read as follows:

§ 2.98 *Adding party to interference.*

If, during the pendency of an interference, another case appears involving substantially the same registrable subject matter, the Examiner of Trademarks may request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course if no testimony has been taken. If any testimony has been taken or is about to be taken, the case will not be added except upon approval of a member of the Trademark Trial and Appeal Board. If the case is not added, the Examiner of Trademarks may suspend action on such case pending termination of the interference proceeding.

§ 2.101 [*Amended*]

10. Section 2.101 is amended by changing "2.81," to read "2.80."

§ 2.103 [*Amended*]

11. Section 2.103 is amended by changing "2.81" in the second sentence to read "2.80."

Dated: February 2, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-1863; Filed 2-8-72; 8:46 am]

Pub. 37 F.R. 2880, Feb. 9, 1972

[896 O.G. TM 2]

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(322) TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Miscellaneous Amendments

A proposal was published at 36 F.R. 19315 to revise §§ 2.54, 2.67, 2.87, 2.88, and 2.187. Pursuant to this notice, comments have been received from interested persons. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Section 2.54 is being revised to permit the Patent Office to accept substitute drawings in appropriate situations.

The revision of § 2.67 clarifies the situations in which an examiner may suspend action on an application.

Sections 2.87 and 2.88 are being revised to state that both goods and services may be the subject of a single application or certificate of registration in accordance with section 30 of the Trademark Act of 1946. Additionally, § 2.87 requires five specimens be submitted for each class.

The revision to § 2.187 insures that the certificate of registration issues to the current owner of the mark.

Effective date. This revision shall become effective March 17, 1972.

In consideration of the foregoing and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. Section 2.54 is revised to read as follows:

§ 2.54 *Informal drawings.*

A drawing not in conformity with §§ 2.51 to 2.53 may be accepted for purpose of examination, but the drawing must be corrected or a new one furnished, as required, before the mark can be published or the application allowed. The necessary corrections will be made by the Patent Office upon applicant's request and at his expense.

2. Section 2.67 is revised to read as follows:

§ 2.67 *Suspension of action by the Patent Office.*

Action by the Patent Office may be suspended for a reasonable time for good and sufficient cause. The fact that a proceeding is pending before the Patent Office or a court which is relevant to the issue of registrability of the applicant's mark, or the fact that the basis for registration is, under the provisions of Section 44(e) of the Act, registration of the mark in a foreign country and the foreign application is still pending, will be considered prima facie good and sufficient cause. An applicant's request for a suspension of action under this section filed within the 6-month response period (see § 2.62) may be considered responsive to the previous office action. The first suspension is within the discretion of the Examiner of Trademarks and any subsequent suspension must be approved by the Commissioner.

3. Section 2.87 is revised to read as follows:

§ 2.87 *Combined applications.*

An application also may be filed to register the same mark for any or all of the goods and/or services upon or in connection with which the mark is actually used and which fall within a plurality of classes. However, dates of use for each class, five specimens for each class, and a fee equaling the sum of the fees for filing an application in each class are required. A single certificate of registration for the mark may be issued.

4. Section 2.88 is revised to read as follows:

§ 2.88 *Applications may be combined.*

(a) When several applications have been filed by the same applicant for registration on the same register of a mark shown in identical form on the drawings for goods and/or services in different classes and each of the applications has been allowed, a single certificate based on such applications may be issued. A request for the issuance of a consolidated certificate must be made of record in each of the applications involved prior to the allowance of any of the applications.

(b) The issuance of any original certificate may be suspended upon request of the applicant, for a period not exceeding 6 months, to permit such consolidation.

5. Section 2.187 is revised to read as follows:

§ 2.187 *Certificate of registration may issue to assignee.*

The certificate of registration may be issued to the assignee of the applicant provided the assignment is recorded in the Patent Office at least 10 days before the application is allowed, and written notice of the recording of the assignment and the address of the assignee is made of record in the application file by the applicant or assignee.

Dated: February 14, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-2684; Filed 2-23-72; 8:46 a.m.]

Published in 37 F.R. 3897, Feb. 24, 1972

[896 O.G. TM 130]

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(323) TRADEMARK MANUAL OF EXAMINING PROCEDURE

Work is in progress on a Manual of Trademark Examining Procedure which is being designated in brief as "TMEP." The preliminary material for the Manual consists of directives which are being prepared and issued at intervals. Each directive is devoted to a particular procedure in the trademark examining process, and the directives constitute official guidelines for the examination of trademark applications.

Ten directives have been issued to date.

Trademark Examining Directives can be ordered from the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, at an annual subscription of $1.50, plus 50¢ for foreign mailing.

(See original announcement dated July 27, 1971 in the OFFICIAL GAZETTE of August 31, 1971, vol. 889, No. 5.)

ROBERT GOTTSCHALK,
Commissioner of Patents.

Feb. 29, 1972.

[897 O.G. TM 2]

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(324) PETITION TO MAKE TRADEMARK APPLICATIONS SPECIAL

The practice of expediting the prosecution of new trademark applications on request of the applicant (accelerated prosecution) was rescinded, effective Aug. 1, 1971 (36 F.R. 13231, July 16, 1971; 825 O.G. 2). This action was taken after a careful study of the practice, including a recommendation of the Public Advisory Committee for Trademark Affairs that the Patent Office terminate accelerated prosecution of trademark applications. The study considered both the effect of the procedure on the workload of the Trademark Operations and the broader interest of examining trademark applications in an order which is equitable to all applicants.

Since the termination of this practice, the Office has experienced some increase in the number of petitions requesting the Commissioner to invoke his supervisory authority pursuant to Rule 2.146 in order to advance the examination of applications out of their regular order. This was to be expected since applicants who might have been able to show special circumstances entitling them to advanced examination could previously achieve this special treatment without resorting to a petition. However, some of the petitions now being received are not considered sufficient to justify the extraordinary relief of invoking the supervisory authority of the Commissioner for the purpose of advancing the applications out of their regular order.

In particular, a number of such petitions have been based on the ground that the applicant is about to embark on an advertising campaign or to commit advertising or promotional expenditures in which the mark applied for is material. Such a ground is not considered to constitute appropriate circumstances justifying the advancement of the application out of its regular turn and the petitions based on such ground have been and will continue to be denied. The principal reason for the denial is that these circumstances are applicable to a substantial portion of the trademark applications filed in the Patent Office. The supervisory authority of the Commissioner should be exercised only where an extraordinary reason for such action has been disclosed. See *Anderson & Dyer* v. *Lowry*, 89 O.G. 1861, 1899 C.D. 230, and *Wilputte* v. *Van Ackeren*, 103 USPQ 235. Thus, the extraordinary remedy of invoking the supervisory authority of the Commissioner is not considered appropriate under these circumstances.

In the interest of equitable treatment of all applicants, the policy of the Office in granting such petitions will be restricted to those cases in which particular and very special circumstances exist, such as a demonstrable possibility of loss of substantial rights, rather than circumstances which would be equally applicable to a large number of other applicants for trademark registration.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: Mar. 13, 1972.

[897 O.G. TM 2]

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(325) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Inter Partes Procedure

A proposal was published at 36 F.R. 18002 to revise, amend, redesignate, or revoke §§ 2.99, 2.104, 2.112, 2.117, 2.119, 2.120, 2.122–2.125, and 2.127–2.129 of the Rules of Practice in Trademark Cases. Pursuant to the notice, written comments have been received and a public hearing was held October 22, 1971. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Amendments to the present text of the rules are described below. In cases where the amendment differs from that set forth in the notice of proposed rule making, that change is also described below.

Sections 2.104 and 2.112 are being revised by adopting langage from the Federal rules requiring a short and plain statement showing how the party would be damaged. The proposal required a statement "tending to show why" the party would be damaged.

Section 2.117 is being redesignated as § 2.116 and is being revised to clarify the applicability of the Federal Rules of Civil Procedure to Patent Office proceedings.

A new § 2.117 authorizing suspension of proceedings by the Trademark Trial and Appeal Board when the parties are engaged in civil litigation which may be dispositive of the case, has been added. The new rule gives the Board discretion in matters of suspension whereas the proposed rule required a mandatory suspension.

Section 2.119 is being amended by incorporating the substance of § 1.248 in a new paragraph.

Section 2.120 is being revised to adopt the Federal Rules of Civil Procedure insofar as they are applicable to Patent Office proceedings. The numbers of the applicable Federal rules are not listed since they are incorporated by reference in § 2.120. For example, § 2.120(a)(3) as adopted does not refer to Federal Rule 32 which governs use of discovery depositions.

Section 2.120(a) sets forth restrictions on deposition procedures, discovery of a foreign party and use of discovery depositions.

Existing § 2.120(b) is being deleted and the proposed paragraph is not being adopted. Rule 36 of the Federal Rules of Civil Procedure will govern requests for admissions. A new paragraph (b) governing use of admissions and answers to interrogatories is being adopted.

Existing § 2.120 paragraphs (c) through (e) are being deleted.

Section 2.120(f) is also deleted and proposed § 2.120(c) is not being adopted. Rule 33 of the Federal Rules of Civil Procedure will govern the interrogatory practice. It is believed that the Federal rule will provide uniformity in practice and a body of law which will serve as a guideline to both attorneys and the Board. Some comments were received, however, which expressed a preference for limited interrogatories. In view of such comments, the Office plans to evaluate on a continuing basis the effectiveness and utilization of Federal Rule 33. If instances arise in which Rule 33 does not appear to be fully satisfactory, it may be that consideration will be given to a more limited practice.

A new § 2.120(c) entitled "Failure to Make Discovery: Sanctions" has been added.

Section 2,122(b) is being revised to state that before a pleaded registration will be received in evidence, two copies of the registration showing its status and title or an order for such copies must accompany the opposition or petition to cancel.

Section 2.123(c) relating to printed publications and official records, is being redesignated as § 2.122(c) and revised to incorporate § 1.282 (Patent Rule 282).

A new § 2.122(d) is being added and incorporates the substance of § 1.283 (Patent Rule 283).

Section 2.123 has been completely revised to incorporate the provisions of §§ 1.273–1.281, 1.285, and 1.286 (Patent Rules 273–281, 285, and 286). Portions of the Patent Rules which are not applicable to trademark practice have been omitted and in some instances the Federal Rules of Civil Procedure apply. A few changes have been made in this section as originally proposed; they are as follows:

The title of § 2.123 is being amended by inserting the word "trial" before "testimony."

Proposed § 2.123(e)(5) is being revised to permit a witness to sign a deposition before any officer authorized to administer oaths.

Proposed § 2.123(f)(5) is being deleted and § 2.123(f)(6) is being redesignated as § 2.123(f)(5).

Section 2.124(b) is being amended to require testimony by written questions to be prepared with each answer preceded by its corresponding question.

Section 2.124a is being revoked. Testimony in foreign countries will be covered in § 2.124(d) which provides that such testimony will be taken by depositions upon written questions.

Reference numbers in § 2.125 have been changed and the reference to "the original transcript" in the second sentence of paragraph (a) is being changed to read "the certified transcript."

Section 2.127(a) provides that the Trademark Trial and Appeal Board may treat a motion as conceded when a party fails to file a brief in opposition to the motion. Sections 2.127 (b) and 2.129(c) are amended by adding a sentence requiring briefs in opposition to petitions for reconsideration to be filed within 15 days.

Section 2.128(b) includes certain changes with respect to the form required for briefs.

In consideration of the comments and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793, 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. In § 2.99, a new paragraph (d) is added and reads as follows:

§ 2.99 *Application to register as concurrent user.*

• • • • •

(d) When concurrent registration is sought on the basis of a court determination of the rights of the parties to use the marks in commerce, the application shall be examined by the Examiner of Trademarks. If the applicant is entitled to registration subject only to the concurrent lawful use of a party to the court proceeding, the Examiner of Trademarks may publish or allow the application, provided the court decree specifies the rights of the parties.

2. Section 2.104 is revised to read as follows:

§ 2.104 *Contents of opposition.*

The opposition must set forth a short and plain statement showing how the opposer would be damaged by the registration of the opposed mark and state the grounds for opposition. A duplicate copy of the opposition including exhibits shall be filed.

3. Section 2.112 is revised to read as follows:

§ 2.112 *Petition for cancellation.*

The petition to cancel, which must be verified, or include a declaration in accordance with § 2.20, must set forth a short and plain statement showing how the petitioner is or will be damaged by the registration, state the grounds for cancellation, and indicate the respondent party to whom notice shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition. Applications to cancel different registrations owned by the same party may be joined in one petition when appropriate, but the fee for each application to cancel a registration must accompany the petition.

4. Section 2.117 is redesignated as § 2.116 and paragraph (a) is revised as amended, § 2.116 reads as follows:

§ 2.116 *Federal Rules of Civil Procedure.*

(a) Except as otherwise provided, and wherever applicable and appropriate, procedure and practice in inter partes proceedings shall be governed by the Federal Rules of Civil Procedure.

• • • • • •

5. A new § 2.117 is added and reads as follows:

§ 2.117 *Suspension of proceedings.*

Whenever it shall come to the attention of the Trademark Trial and Appeal Board that parties to a pending case are engaged in a civil action which may be dispositive of the case, proceedings before the Board may be suspended until termination of the civil action.

6. Section 2.119 is amended as follows: Paragraph (a) is revised, paragraph (b) is redesignated as paragraph (c), and a new paragraph (b) is added. As amended, § 2.119 reads as follows:

§ 2.119 *Service of papers.*

(a) Every paper filed in the Patent Office in inter partes cases, including notice of appeal, must be served upon the other parties except the notice of interference (§ 2.93), the notice of opposition (§ 2.105), the petition for cancellation (§ 2.113), and the notice of a concurrent use proceeding (§ 2.99), which are mailed by the Patent Office. Proof of such service must be made before the paper will be considered by the Office. A statement signed by the attorney or agent, attached to or appearing on the original paper when filed, clearly stating the date and manner in which service was made will be accepted as prima facie proof of service.

(b) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in either of the following ways: (1) by delivering a copy of the paper to the person served; (2) by leaving a copy at the usual place of business of the person served, with someone in his employment; (3) when the person served has no usual place of business, by leaving a copy at his residence, with a member of his family over 14 years of age and of discretion; (4) transmission by first-class mail, which may also be certified or registered. Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining service or serving the paper is practicable, service may be by notice published in the OFFICIAL GAZETTE.

(c) When service is made by mail, the date of mailing will be considered the date of service. Whenever a party is required to take some action within a prescribed period after the service of a paper upon him by another party and the paper is served by mail, 5 days shall be added to the prescribed period.

7. Section 2.120 is revised to read as follows:

§ 2.120 *Discovery procedure.*

The provisions of the Federal Rules of Civil Procedure relating to discovery shall apply in inter partes trademark cases except as otherwise provided in this section. The Trademark Trial and Appeal Board will specify the closing date for the taking of discovery.

(a) *Depositions for discovery—(1) Procedure.* The deposition of a person shall be taken in the Federal judicial district where he resides or is regularly employed. The responsibility for securing the attendance of a propose deponent, other than a party or anyone who at the time set for the taking of the deposition was an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, rests wholly with the interested party. See 35 U.S.C. 24.

(2) *Discovery of foreign party.* The discovery deposition of a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Procedure to testify on behalf of a party, domiciled in a foreign country may be taken in the manner prescribed by § 2.124.

(3) *Use of discovery depositions.* A discovery deposition shall not be considered as part of the record in the case unless the party offering the deposition, or any part thereof, files the same before the close of his testimony period (testimony-in-chief or rebuttal as appropriate) and also files a notice of reliance thereon. A discovery deposition should not be filed in the Patent Office in the absence of a notice of reliance. Objections, including any made during the examination, will be considered only if made or renewed at the hearing.

(b) *Use of admission or answer to interrogatory.* No admission or answer to an interrogatory shall be considered as part of the record in the case unless the party propounding the request for admission or interrogatory files, before the close of his testimony period (testimony-in-chief or rebuttal, as appropriate), a copy of the admission and the request therefor and/or a copy of the interrogatory and its answer and also files a notice of reliance thereon.

(c) *Failure to make discovery: Sanctions.* If any party fails or refuses to answer any proper question in taking discovery depositions or fails or refuses to answer any proper question propounded by interrogatories or fails or refuses to comply with a request to produce and permit the inspection and copying of designated things, the party seeking discovery may apply to the Trademark Trial and Appeal Board for an order compelling discovery. If a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, fails to obey an order to provide or permit discovery, the Trademark Trial and Appeal Board may strike out all or any part of any pleading of that party, dismiss the action or proceeding, or deny any part thereof, enter judgment as by default against that party or take any such other action as may be deemed appropriate.

8. In § 2.122, paragraph (b) is revised and new paragraphs (c) and (d) are added. As amended, those paragraphs of § 2.122 read as follows:

§ 2.122 *Matters in evidence.*

• • • • • •

(b) A registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if two copies showing status and title of the printed registration or an order for such copies accompany the opposition or petition.

(c) Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation, and official records, if competent evidence and pertinent to the issue, may be introduced in evidence by filing in the Patent Office a notice to that effect during the period for the taking of the testimony of the party (during the period for taking of testimony-in-chief if such matters are not in rebuttal), specifying the record or the printed publication, the page or pages to be used, indicating generally its relevance, and accompanied by the record or authenticated copy or the printed publication or a copy. When a copy of an official record of the Patent Office is filed, it need not be a certified copy. The notice and copy of the record or publication must be served on each of the other parties.

(d) Upon motion duly made and granted, testimony taken in another proceeding, or testimony taken in a suit between the same parties or those in interest, may be used in a proceeding, so far as relevant and material, subject, however, to the right of any contesting party to recall or demand the recall of witnesses whose testimony has been taken, and to take other testimony in rebuttal of the testimony.

§ 2.123 *Trial testimony in inter partes cases.*

(a) Manner of taking testimony: Testimony of witnesses in inter partes cases may be taken (1) by depositions upon oral examination as provided by this section, or (2) by depositions upon written questions in accordance with the requirements of this section and § 2.124.

(b) Stipulations: If the parties so stipulate in writing, depositions may be taken before any person authorized to administer oaths, at any place, upon any notice, and in any manner and when so taken may be used like other depositions. By agreement of the parties, the testimony of any witness or witnesses of any party, may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated.

(c) Notice of examination of witnesses: Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given to the opposing party or parties, as provided in § 2.119(b), of the time when and place where the depositions will be taken, of the cause or matter in which they are to be used, and the name and address of each witness to be examined; if the name of a witness is not known, a general description sufficient to identify him or the particular class or group to which he belongs, together with a satisfactory explanation, may be given instead. Neither party shall take depositions in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other is not available.

(d) Persons before whom depositions may be taken: Depositions may be taken before persons designated by Rule 28 of the Federal Rules of Civil Procedure.

(e) Examination of witnesses:

(1) Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition is to be taken.

(2) The deposition shall be taken in answer to questions, with the questions and answers recorded in their regular order by the officer, or by some other person (who shall be subject to the provisions of Rule 28 of the Federal Rules of Civil Procedure) in the presence of the officer except when his presence is waived on the record by agreement of the parties. The Testimony shall be taken stenographically and transcribed, unless the parties present agree otherwise. In the absence of all opposing parties and their attorneys or agents, depositions may be taken in longhand, typewriting, or stenographically.

(3) The opposing party shall have full opportunity to cross-examine the witnesses. If the opposing party shall attend the examination of witnesses not named in the notice, and shall either cross-examine such witnesses or fail to object to their examination, he shall be deemed to have waived his right to object to such examination for want of notice.

(4) All objections made at the time of the examination to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, or to the conduct of any party, and any other objection to the proceedings, shall be noted by the officer upon the deposition. Evidence objected to shall be taken subject to the objections.

(5) When the deposition has been transcribed, the deposition shall be carefully read over by the witness or by the officer to him, and shall then be signed by the witness in the presence of any officer authorized to administer oaths unless the reading and the signature be waived on the record by agreement of all parties.

(f) Certification and filing by officer. The officer shall annex to the deposition his certificate showing:

(1) Due administration of the oath by the officer to the witness before the commencement of his deposition;

(2) The name of the person by whom the deposition was taken down, and whether, if not taken down by the officer, it was taken down in his presence;

(3) The presence or absence of the adverse party;

(4) The place, day, and hour of commencing and taking the deposition;

(5) The fact that the officer was not disqualified as specified in Rule 28 of the Federal Rules of Civil Procedure.

If any of the foregoing requirements are waived, the certificate shall so state. The officer shall sign the certificate and affix thereto his seal of office, if he has such a seal. Unless waived on the record by agreement, he shall then, without delay, securely seal in an envelope all the evidence, notices, and paper exhibits, inscribed upon the envelope a certificate giving the number and title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelope, it shall, unless waived on the record by agreement of all parties, be authenticated by the officer and transmitted in a separate package marked and addressed as provided in this section.

(g) Form of deposition:

(1) The pages of each deposition must be numbered consecutively, and the name of the witness plainly and conspicuously written at the top of each page. The deposition may be written on legal-size or letter-size paper, with a wide margin on the left hand side of the page, and with the writing on one side only of the sheet. The questions propounded to each witness must be consecutively numbered and each question must be followed by its answer.

(2) Exhibits must be numbered or lettered consecutively and each must be marked with the number and title of the case and the name of the party offering the exhibit. Entry and consideration may be refused to improperly marked exhibits.

(h) Depositions must be filed. All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies; and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

(i) Inspection of depositions: After the depositions are filed in the Office, they may be inspected by any party to the case, but they cannot be withdrawn for the purpose of printing. They may be printed by someone specially designated by the Office for that purpose, under proper restrictions.

(j) Effect of errors and irregularities in depositions: Notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in the case of such injury it must be made to appear that, as soon as the party became aware of the ground of objection, he gave notice thereof. Rule

32(d)(1), (2), and (3)(a) and (b) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions.

(k) Objections to admissibility: Subject to the provisions of paragraph (j) of this section, objection may be made to receiving in evidence any deposition or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence according to the established rules of evidence, which will be applied strictly by the Office.

(l) Evidence not considered: Evidence not obtained and filed in compliance with these sections will not be considered.

10. In § 2.124, paragraphs (a) and (b) are revised and a new paragraph (d) is added. As amended, § 2.124 reads as follows:

§ 2.124 *Testimony by depositions upon written questions.*

(a) A party may take the testimony of a witness by written questions to be propounded by an officer before whom depositions may be taken. See Rule 28 of the Federal Rules of Civil Procedure. The questions shall be served upon the other party within 10 days after the opening date set for taking the testimony of the party submitting the questions, together with a notice stating the name and address of the person who is to answer them and the name or descriptive title and address of the officer before whom the deposition is to be taken. Within 10 days thereafter, a party so served may serve cross questions upon the party proposing to take the deposition. Within 5 days thereafter, the latter may serve redirect questions upon a party who has served cross questions. Within 3 days after being served with redirect questions a party may serve recross questions upon the party proposing to take the depositions. Written objections to questions may be served on the party propounding the questions, and in response thereto substitute questions may be served, within 3 days.

(b) A copy of the notice and copies of all questions served shall be delivered by the party taking the testimony to the officer designated in the notice, who shall proceed to take the testimony of the witness in response to the questions and to prepare each answer immediately preceded by its corresponding question, then certify, and file the deposition, attaching thereto the copy of the notice and the questions received by him. Such depositions are subject to the same rulings for filing and serving copies as other depositions.

* * * * * *

(d) Testimony in foreign countries shall be taken only by depositions upon written questions unless the parties stipulate otherwise in writing. Rule 28(b) of the Federal Rules of Civil Procedure shall apply to the taking of testimony in foreign countries.

§ 2.124a [*Revoked*]

11. Section 2.124a is revoked.

12. Section 2.125 is revised to read as follows:

§ 2.125 *Copies of testimony.*

(a) One copy of the transcript of testimony (taken in accordance with § 2.123(e) through (h) or § 2.124), together with copies of documentary exhibits, shall be served on each adverse party within 30 days after completion of the taking of such testimony. The certified transcript and exhibits and one copy of the transcript shall be filed in the Patent Office as promptly as possible.

(b) Each transcript and the copies thereof shall comply with § 2.123(g) as to arrangement, indexing and form.

13. In § 2.127, paragraphs (a) and (b) are revised. As amended, § 2.127 reads as follows:

§ 2.127 *Motions.*

(a) Motions shall be made in writing and shall contain a full statement of the grounds therefor. Any brief or memorandum in support of a motion shall accompany or be embodied in the motion. Briefs in opposition to a motion shall be filed within 15 days from the date of service of the motion unless another time is specified by the Trademark Trial and Appeal Board or the time is extended on request. Where a party fails to file a brief in opposition to a motion, the Trademark Trial and Appeal Board may treat the motion as conceded. Oral hearings will not be held on motions except on order of the Trademark Trial and Appeal Board.

(b) Any petition for reconsideration or modification of a decision, if it is not appealable, must be filed within 10 days after the decision or, if the decision is appealable, within the time specified in § 2.129(c). Any brief in opposition shall be filed within 15 days after service of the petition.

14. In § 2.128, paragraph (b) is revised. As amended, § 2.128 reads as follows:

§ 2.128 *Final hearings and briefs.*

(b) Briefs shall be submitted in typewritten or printed form, double spaced on letter or legal size paper. Without leave of the Trademark Trial and Appeal Board, no brief shall contain more than 50 pages of argument and, in case of the reply brief, the entire brief shall not exceed 25 pages. Each brief shall contain an alphabetical index of cases therein.

* * * * * *

15. In § 2.129, paragraph (c) is revised. As amended, § 2.129 reads as follows:

§ 2.129 *Oral argument.*

* * * * * *

(c) Any petition for rehearing, reconsideration, or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

Effective date. This revision shall be applicable to all proceedings instituted on or after July 1, 1972.

Date: April 5, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 11, 1972.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-5830; Filed 4-17-72; 8:52 am]

Published in 37 F.R. 7605; Apr. 18, 1972

[898 O.G. TM 170]

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(326) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

* * * * * *

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see paragraphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The time specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a Saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5-11-72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-7159; Filed 5-10-72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. TM 77]

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(327) BULKY SPECIMENS IN TRADEMARK AND SERVICE MARK APPLICATIONS

Many of the applications which are being received in the Trademark Application Section contain specimens which are too bulky to be placed inside the application file. The handling and storing of these bulky specimens is taking more time and space than can be justified. The trademark rules do not provide for filing bulky specimens, and applicants and attorneys are requested to adhere to the precise provisions of the rules.

Trademark Rule 2.56 requires that specimens be of a material suitable for being placed in a file, be capable of being arranged flat (preferably not more than one inch in thickness), and not be larger than 8½ x 13 inches. If specimens of this character cannot be furnished, Trademark Rule 2.57 provides that facsimiles in the nature of photographs or similar reproductions be filed. Facsimiles must not be larger than 8½ x 13 inches and should clearly and legibly show the mark and all matter used in connection therewith.

In order to reduce the quantity of bulky specimens and to avoid the possibility of delay in examination due to bulky specimens, the following procedure has been adopted:

When specimens cannot be fitted into the file, the Trademark Application Section forwards the specimens to the Examiner separate from the file and attaches to the file two copies of a form which is a pre-examination memorandum pointing out that the bulky specimens are not acceptable and that proper specimens should be filed promptly. Upon receipt of the file and the forms, the Examiner mails one copy of the form to the applicant, or applicant's attorney if there be one, and places the other copy in the file. The Examiner will then destroy four of the bulky specimens, retaining one until proper specimens or facsimiles are received. Failure to furnish proper specimens as requested in the memorandum may delay the process of examination of the application.

ROBERT GOTTSCHALK,
Commissioner of Patents.

June 16, 1972.

[900 O.G. TM 176]

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(328) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Petition for Review of Interlocutory Decision

The Commissioner of Patents is amending § 2.127(b) of the rules of practice to extend the time for filing a petition for reconsideration or modification of an interlocutory decision. The existing rule requires that such petition be filed within 10 days from the date of the decision. Recent experience has demonstrated that this time period is insufficient in view of the possibility of delays in communicating the decision to the concerned parties. Accordingly, the rule is amended to permit filing of a petition within 30 days from the date of the decision. Since this change imposes no burden on any person, notice and public procedures thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

§ 2.127 *Motions.*

* * * * * *

(b) Any petition for reconsideration or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

* * * * * *

Effective date. This amendment shall be applicable to all decision dated on or after September 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

July 18, 1972.

Approved: July 21, 1972.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-11883; Filed 7-28-72; 8:54 am]

Published in 37 F.R. 15304; July 29, 1972

[902 O.G. TM 2]

(329) MEETING OF THE PUBLIC ADVISORY COMMITTEE FOR TRADEMARK AFFAIRS

The Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce to advise the Patent Office of the Department of Commerce on steps which can be taken in order to increase the efficiency and effectiveness of the administration of the Trademark Act and to provide a continuing source of knowledge from the private sector to the Government in the trademark field.

The next meeting of the committee will be held on February 22nd and 23rd, 1973, at the Cherry Hill Inn, Cherry Hill, New Jersey, beginning at 9:00 a.m. each day in the Currier and Ives Room.

The following agenda is to be considered:

1. Review of pending Advisory Committee projects;
2. Report and discussion of the implementation of previous Advisory Committee recommendations of a recently completed study relating to trademark application processing and record keeping;
3. Report and discussion of the ataus of the Trademark Operations;
4. Discussion of the use of forms in the Trademark Operations; and
5. Discussion of working hours in the Trademark Operations.

The membership of the Advisory Committee consists of nine members of the Patent Office-Trademark Affairs Committee of the United States Trademark Association.

Meetings of the Advisory Committee are open to the public. Public attendance depending on available space, may be limited to those persons who have notified the Advisory Committee Management Officer in writing, at least five days prior to the meeting, of their intentions to attend the February 22–23 meeting.

Any member of the public may file a written statement with the Committee before, during, or after the meeting, and to the extent that time for the meeting permits the Committee Chairman may allow public presentation of oral statements at the meeting.

All communications regarding this Advisory Committee should be addressed to Mr. Rene D. Tegtmeyer, Advisory Committee Management Officer for Trademark Affairs, Room 3–11D27, U.S. Patent Office, Washington, D.C. 20231.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Jan. 16, 1973.

[907 O.G. TM 68]

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(330) TRADEMARKS, TRADE NAMES, AND COPYRIGHTS

[19 CFR Part 133]

Filing of Increased Number of Copies of Documents With Application To Record Trademark or Copyright

Notice is hereby given that under the authority of R.S. 251, as amended (19 U.S.C. 66), and section 624, 46 Stat. 759 (19 U.S.C. 1624), it is proposed to amend §§ 133.3 and 133.33 of the Customs regulations to provide that the number of copies of documents required by the Bureau of Customs to be filed with an application to record a copyright or trademark is increased from 700 to 1,000.

Accordingly, it is proposed to amend paragraph (a) of § 133.3, and paragraph (a)(2) of § 133.33 to read as follows:

§ 133.3 *Documents and fee to accompany application.*

(a) *Documents.* The application shall be accompanied by:

(1) A status copy of the certificate of registration certified by the U.S. Patent Office showing title to be presently in the name of the applicant; and

(2) One thousand copies of this certificate, or of a U.S. Patent Office facsimile. The copies may be reproduced privately and shall be on paper approximately 8½ x 11 in size. If the certificate consists of two or more pages, the copies may be reproduced on both sides of the paper.

• • • • • •

§ 133.33 *Documents and fee to accompany application.*

(a) • • •

(2) One thousand 8 x 10½ photographic or other likenesses reproduced on paper of any three-dimensional work, design, print, label, or other work not readily identifiable by title and author. An application shall be excepted from this requirement if it covers a work such as a book, magazine, periodical, or similar copyrighted matter readily identifiable by title and author. One thousand likenesses of a component part of a copyrighted work, together with the name or title, if any, by which the part so depicted is identifiable, may accompany an application covering an entire copyrighted work.

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Consideration will be given to relevant data, views, or arguments pertaining to the proposed amendment which are submitted to the Commissioner of Customs, Attention: Regulations Division, Washington, D.C. 20226, and received no later than March 19, 1973.

Written material or suggestions submitted will be available for public inspection in accordance with § 103.0(b) of the Customs regulations (19 CFR 103(b)), at the Regulations Division, Bureau of Customs, Washington, D.C., during regular business hours.

Approved: Feb. 8, 1973.

EDWARD L. MORGAN,
Assistant Secretary of the Treasury.

[SEAL]

EDWIN F. RAINS,
Acting Commissioner of Customs.

[FR Doc. 73-3039; Filed 2-14-73; 8:45 am]

Published in 38 F.R. 4515–4516; Feb. 15, 1973

[908 O.G. TM 136]

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(331) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Abandonment of Application

A proposal was published at 37 FR 18391 to revise § 2.68. Full consideration has been given to all comments received pursuant to this notice and changes in the text of the original proposal have been made in view thereof.

The revision of § 2.68 permits an attorney or other person representing the applicant to abandon or withdraw an application. Prior to this revision, the applicant was required to sign the statement of abandonment. The rule is further revised by the addition of a sentence which indicates that in a Patent Office proceeding, abandonment of the application does not affect any rights which the applicant may have in the mark. The word "withdrawal" which has been added to the rule is synonymous with the word "abandonment" in the context of this rule and may be used by those who prefer to do so.

Effective date. This revision shall become effective on March 27, 1973.

Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is amended by revising § 2.68 to read as follows:

§ 2.68 *Express abandonment (withdrawal) of application.*

An application may be expressly abandoned by filing in the Patent Office a written statement of abandonment or withdrawal of the application signed by the applicant, or the attorney or other person representing the applicant. The fact that an application has been expressly abandoned shall not, in any proceeding in the Patent Office, affect any rights that the applicant may have in the mark which is the subject of the abandoned application.

Dated: Mar. 15, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-5768; Filed 3-26-73; 8:45 am]

Published in 38 F.R. 7985; Mar. 27, 1973

[909 O.G. TM 254]

(332) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PARTS 2 AND 6—RULES OF PRACTICE IN TRADEMARK CASES

International Trademark Classification

A proposal was published at 37 F.R. 6404 to revise § 6.1 of the Rules of Practice in Trademark Cases. The Patent Office proposed to establish the "International Classification of Goods and Services to Which Trademarks Are Applied" (the subject of the "Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks" of 1957, as revised at Stockholm on July 14, 1967) as the primary classification of goods and services for registration of trademarks and service marks. Pursuant to the Notice, written comments have been received, and a public hearing was held on June 14, 1972. Full consideration has been given to all matter presented, and changes in the text of the original proposal have been made in view thereof. It has been determined that adoption of the international classification system is desirable.

The Patent Office has studied the international classification and, since Mar. 5, 1968, has indicated the appropriate international class in all publications and on all issued registrations and renewals as a subsidiary classification. Based on this experience and the comments received, it is now believed that adoption of the international schedule as the primary classification system is desirable. The international system is easier to administer because of fewer classes of goods and the availability of an alphabetical listing of goods and services.

The Nice Agreement provides for an International Committee of Experts whose objective is to keep the classification current. The classification of specific goods and services is set forth in the Alphabetical List entitled "International Classification of Goods and Services to Which Trademarks Are Applied" (published by the World Intellectual Property Organization). In addition, the International Trademark Classification List contains the names of the classes setting forth the basic contents of each class. The Alphabetical List also comprises explanatory notes which serve as guidelines for determining the appropriate international class for a specific product or service.

The alphabetical listing within the International Trademark Classification Manual is currently used by the Office as a guideline for determining the degree of particularity of identification of goods. See "Identification of Goods and Services in Trademark Applications," 36 F.R. 13232; July 16, 1971.

Applications for registrations filed on or after Sept. 1, 1973, and registrations issuing thereon, will be classified according to the international classification set forth in the new § 6.1. Accordingly, the international classification is adopted under Section 30 of the Trademark Act for all purposes under the statute and rules; and, therefore, will be the criterion for determining, inter alia, fees.

Applications for the registration of marks filed on or before Aug. 31, 1973, appeals or petitions to revive or oppositions filed in connection with said applications, and affidavits, renewals and petitions for cancellation filed in connection with registrations issuing thereon, will continue to be processed under the classification system existing at the time the mark was registered.

All applications which are published and registrations which are issued will carry both the appropriate international classification and existing U.S. classification number.

An insufficient fee, in connection with an appeal or opposition on any application or in connection with an affidavit or renewal filed in connection with any registration, will not render the same unacceptable, if the proper fee is submitted within a time limit set forth in a notification of the defect, providing the proper fee for at least one class has been originally submitted within the applicable time limit. This will be the case even if the full fee is not received within the sixth year in the case of an affidavit filed under Section 8 or before the end of the twentieth year, including the grace period, in the case of renewal applications, or within the six-month statutory response period in the case of an appeal, or within the thirty-day opposition period, or any extension thereof in the case of the filing of an opposition.

The existing classification system will continue to be used for searching registered and pending marks until all documents in the search file are organized on the basis of the international system of classification. Until this changeover is effected, the U.S. class designation will continue to be printed on all published applications and registrations issued under the existing or the international classification system to facilitate searching on the basis of the existing U.S. system of classification.

Until all applications filed on or before Aug. 31, 1973, have been disposed of, the trademark sections of the OFFICIAL GAZETTE, which are organized by class, will include two sections: one for applications published or registrations issued on the basis of applications filed on or before Aug. 31, 1973, organized by class according to the U.S. schedule of classes; the other section for applications published or registrations issued on the basis of applications filed on or after Sept. 1, 1973, organized by class according to the new international schedule.

Certification marks and collective membership marks will continue to be classified as set forth in redesignated §§ 6.3 and 6.4.

Efforts will be made to have the International Trademark Classification List printed by the Government Printing Office or otherwise assure the availability of the List from local sources. Notification will appear in the OFFICIAL GAZETTE when the List is available from local sources or the Government Printing Office.

The English edition of the "International Classification of Goods and Services to Which Trademarks Are Applied" can presently be ordered from:

Sales Branch, The Patent Office, Block C
Station Square House, St. Mary Cray
Orpington, Kent, England

Certain modifications and additions to the international trademark classification have been published as supplements and are also available from the British Office. In addition, and inasmuch as the World Intellectual Property Organization (WIPO) has issued the List in several languages, it is anticipated that an English version will be published by that organization.

We have been advised by the Patent Office of the United Kingdom that the only acceptable methods of payment for the International Trademark Classification List are by International Postal Money Order or by banker's draft payable in sterling and drawn on a bank in the United Kingdom. Orders for the international classification and for the supplements can be made by remittance in the following amount(s):

International Trademark Classification		50 pence
Nov. 15, 1967, supplement		5 pence
Mar. 18, 1970, supplement		Free
Mar. 3, 1971, supplement		10 pence
Total cost (including postage by surface mail)		65 pence
Additional charge for postage by air mail	1 pound	55 pence
Total cost by airmail	2 pounds	20 pence

Effective Date.—This revision shall become effective as of Sept. 1, 1973. In consideration of the comments and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 792, 35 U.S.C. 6), as amended Oct. 5, 1971 (85 Stat. 364), and in section 30 of the Trademark Act of 1946 as amended (Oct. 9, 1962, 76 Stat. 773, 15 U.S.C. 1112), Parts 2 and 6 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 2.85 is revised to read as follows:

§ 2.85. *Classification Schedules*

(a) Section 6.1 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to trademark application filed in the Patent Office on or after Sept. 1, 1973, and to registrations issued on the basis of such applications. It shall not apply to applications filed on or before Aug. 31, 1973, nor to registrations issued on the basis of such applications.

(b) With respect to applications filed on or before Aug. 31, 1973, and registrations issued thereon, including older registrations issued prior to that date, the classification system under which the registration was granted will govern for all statutory purposes, including, inter alia, the filing of petitions to revive, appeals, oppositions, petitions for cancellation, affidavits under Section 8 and Renewals, even though such peti-

tions to revive, appeals, etc., are filed on or after Sept. 1, 1973.

(c) Section 6.2 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to all trademark applications filed in the Patent Office on or before Aug. 31, 1973, and to registrations issued on the basis of such applications, except when the registration may have been issued under a classification system prior to that set forth in § 6.2. Moreover, this classification will also be utilized for facilitating trademark searches until all pending and registered marks in the search file are organized on the basis of the international system of classification.

(d) Renewals filed on registrations issued under a prior classification system will be processed on the basis of that system.

(e) Where the amount of the fee received on filing an appeal or petition to revive in connection with an application or on filing an affidavit under § 8(a) or § 8(b) or on an application for renewal or in connection with an opposition or petition for cancellation is sufficient for at least one class of goods or services but is less than the required amount because a multiple class application or registration is involved, the appeal or petition to revive or the affidavit or renewal application or opposition or petition for cancellation will not be refused on the ground that the amount of the fee was insufficient if the required additional amount of the fee is received in the Patent Office within the time limit set forth in the notification of this defect by the Examiner.

(f) Sections 6.3 and 6.4 specify the system of classification which applies to certification marks and collective membership marks.

(g) Classification schedules shall not limit or extend the applicant's rights.

2. Sections 6.1, 6.2 and 6.3 are redesignated as §§ 6.2, 6.3 and 6.4, respectively.

3. A new § 6.1 is added and reads as follows:

§ 6.1. ***International schedule of classes of goods and services***

Goods

1. Chemical products used in industry, science, photography, agriculture, horticulture, forestry; artificial and synthetic resins; plastics in the form of powders, liquids or pastes, for industrial use; manures (natural and artificial); fire extinguishing compositions; tempering substances and chemical preparations for soldering; chemical substances for preserving foodstuffs; tanning substances; adhesive substances used in industry.
2. Paints, varnishes, lacquers; preservatives against rust and against deterioriation of wood; colouring matters, dyestuffs; mordants; natural resins; metals in foil and powder form for painters and decorators.
3. Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring and abrasive preparations; soaps; perfumery, essential oils, cosmetics, hair lotions; dentifrices.
4. Industrial oils and greases (other than oils and fats and essential oils); lubricants; dust laying and absorbing compositions; fuels (including motor spirit) and illuminants; candles, tapers, night lights and wicks.
5. Pharmaceutical, veterinary, and sanitary substances; infants' and invalids' foods; plasters, material for bandaging; material for stopping teeth, dental wax, disinfectants; preparations for killing weeds and destroying vermin.
6. Unwrought and partly wrought common metals and their alloys; anchors, anvils, bells, rolled and cast building materials; rails and other metallic materials for railway tracks; chains (except driving chains for vehicles); cables and wires (nonelectric); locksmiths' work; metallic pipes and tubes; safes and cash boxes; steel balls; horseshoes; nails and screws; other goods in nonprecious metal not included in other classes; ores.
7. Machines and machine tools; motors (except for land vehicles); machine couplings and belting (except for land vehicles); large size agricultural implements; incubators.
8. Hand tools and instruments; cutlery, forks, and spoons; side arms.
9. Scientific, nautical, surveying and electrical apparatus and instruments (including wireless), photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching apparatus and instruments; coin or counterfreed apparatus; talking machines; cash registers; calculating machines, fire extinguishing apparatus.
10. Surgical, medical, dental and veterinary instruments and apparatus (including artificial limbs, eyes and teeth).
11. Installations for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.
12. Vehicles; apparatus for locomotion by land, air or water.
13. Firearms; ammunition and projectiles; explosive substances; fireworks.
14. Precious metals and their alloys and goods in precious metals or coated therewith (except cutlery, forks and spoons); jewellery, precious stones, horological and other chronometric instruments.
15. Musical instruments (other than talking machines and wireless apparatus).
16. Paper and paper articles, cardboard and cardboard articles; printed matter, newspapers and periodicals, books; bookbinding material; photographs; stationery, adhesive materials (stationery); artists' materials; paint brushes; typewriters and office requisites (other than furniture); instructional and teaching material (other than apparatus); playing cards; printers' type and cliches (stereotype).
17. Gutta percha, india rubber, balata and substitutes, articles made from these substances and not included in other classes; plastics in the form of sheets, blocks and rods, being for use in manufacture; materials for packing, stopping or insulating; asbestos, mica and their products; hose pipes (nonmetallic).
18. Leather and imitations of leather, and articles made from these materials and not included in other classes; skins, hides; trunks and travelling bags; umbrellas, parasols and walking sticks; whips, harness and saddlery.
19. Building materials, natural and artificial stone, cement, lime, mortar, plaster and gravel; pipes of earthenware or cement; roadmaking materials; asphalt, pitch and bitumen; portable buildings; stone monuments; chimney pots.
20. Furniture, mirrors, picture frames; articles (not included in other classes) of wood, cork, reeds, cane, wicker, horn bone, ivory, whalebone, shell, amber, mother-of-pearl, meerschaum, celluloid, substitutes for all these materials, or of plastics.
21. Small domestic utensils and containers (not of precious metals, or coated therewith); combs and sponges; brushes (other than paint brushes); brushmaking materials; instruments and material for cleaning purposes, steel wool; unworked or semi-worked glass (excluding glass used in building); glassware, porcelain and earthenware, not included in other classes.
22. Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks; padding and stuffing materials (hair, kapok, feathers, seaweed, etc.); raw fibrous textile materials.
23. Yarns, threads.
24. Tissues (piece goods); bed and table covers; textile articles not included in other classes.
25. Clothing, including boots, shoes and slippers.
26. Lace and embroidery, ribands and braid; buttons, press buttons, hooks and eyes, pins and needles; artificial flowers.
27. Carpets, rugs, mats and matting; linoleums and other materials for covering existing floors; wall hangings (nontextile).
28. Games and playthings; gymnastic and sporting articles (except clothing); ornaments and decorations for Christmas trees.
29. Meat, fish, poultry and game; meat extracts; preserved, dried and cooked fruits and vegetables; jellies, jams; eggs, milk and other dairy products; edible oils and fats; preserves, pickles.
30. Coffee, tea, cocoa, sugar, rice, tapioca, sago, coffee substitutes; flour, and preparations made from cereals; bread, biscuits, cakes, pastry and confectionery, ices; honey, treacle; yeast, baking powder; salt, mustard, pepper, vinegar, sauces, spices; ice.
31. Agricultural, horticultural and forestry products and grains not included in other classes; living animals; fresh fruits and vegetables; seeds; live plants and flowers; foodstuffs for animals, malt.
32. Beer, ale and porter; mineral and aerated waters and other nonalcoholic drinks; syrups and other preparations for making beverages.
33. Wines, spirits and liqueurs.
34. Tobacco, raw or manufactured; smokers' articles; matches.

SERVICES

35. Advertising and business.
36. Insurance and financial.
37. Construction and repair.
38. Communication.
39. Transportation and storage.
40. Material treatment.
41. Education and entertainment.
42. Miscellaneous.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 14, 1973.

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

(Pub. in 38 F.R. 14681, June 4, 1973)

[911 O.G. TM 210]

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(333) TRADEMARK REGISTRATION TREATY

At the conclusion of the Vienna Diplomatic Conference on industrial property, the Trademark Registration Treaty was signed on June 12, 1973 for the United States. This Treaty is designed to simplify the procedures for obtaining international registration of trademarks for United States companies doing business abroad.

The Treaty was unanimously adopted at the final plenary session. In addition to the United States, the United Kingdom, the Federal Republic of Germany, Italy, Portugal, Hungary, San Marino and Monaco also signed. Some forty-six countries were represented at the Conference. In their closing statements most of the other delegations present indicated their hope to sign before the end of the year. The Treaty remains open for signature through December 31, 1973. The Treaty will enter into force six months after five States have deposited their instruments of ratification or accession.

The negotiations at Vienna represent the climax of the work of several committees of experts and working groups which have met at Geneva since 1970 with the assistance of the World Intellectual Property Organization (WIPO). The U.S. delegation to the Vienna Conference was composed of officials from the Department of State, the U.S. Patent Office and advisors from the private sector. Previous versions of the proposed Treaty were published on February 22, 1972; September 19, 1972; and February 20, 1973; in the OFFICIAL GAZETTE of the U.S. Patent Office. Published in this issue is the complete text of the Trademark Registration Treaty and its Regulations, as adopted by the Conference. For convenience, in addition to the text of the Articles and Regulations as adopted there is included a table of contents at the end of each section.

Additional copies of this material are available upon request to the Commissioner of Patents.

ROBERT GOTTSCHALK,
June 22, 1973 *Commissioner of Patents.*

[912 O.G. TM 205]

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(334) FORM PARAGRAPHS AND PRINTED FORMS IN TRADEMARK CASES

In September of 1971, the Trademark Examining Operation began utilizing form paragraphs for the purpose of accelerating the preparation and typing of first action Office letters and to increase the uniformity in the application of the Trademark Statute and the Rules by Trademark Examiners.

The form paragraphs presently total 136 and cover those objections and grounds for refusal which are commonly relied upon by Trademark Examiners in first Office actions. In some cases, the paragraphs contain blanks to be filled in by the Examiner. In addition, the Examiner may add additional sentences to the paragraphs.

The form paragraphs have been placed on magentic tapes mounted on automatic typewriters. Where the use of a form paragraph is appropriate, the Examiner identifies the paragraph to be typed by a preassigned number which is used by the typist to effect the automatic typing of the paragraph.

The Examiner may add any additional paragraphs to the letter which are not covered by an appropriate form paragraph, in which case the typist merely manually adds the paragraph to the letter.

The form paragraphs are amended from time to time to incorporate improvements in the wording as the need for such becomes apparent. Also, new paragraphs are added and old paragraphs eliminated, as experience dictates the need.

In addition, the Office has adopted a printed first action form with check-off boxes to indicate to the applicant the appropriate objection or ground of refusal in first Office actions. This form is used only where it can be used appropriately as a complete first Office action. It is not used in any case to supplement a first Office action incorporating paragraphs not encompassed by the form action. It has been found that the form action is appropriate for use in approximately 15–20% of the first actions going out of the Office.

The form first action is also designed for use as a notice of the publication of an application for opposition.

Copies of the text of the form paragraphs used with the automatic typewriters and copies of the first action form may be obtained by addressing a request for the same to the "Commissioner of Patents, Washington, D.C. 20231."

Date: June 29, 1973.

RENE D. TEGTMEYER,
Assistant Commissioner for Trademarks.

[912 O.G. TM 310]

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(335) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Lawful Use for Supplemental Register and Size of Facsimiles

The Patent Office is revising §§ 2.47 and 2.57 of the trademark rules of practice. Section 2.47 is being revised to set forth that the year's use which is the basis for registration on the Supplemental Register must be lawful use. Existing § 2.47 states that the year's use for the Supplemental Register must be "continuous use," whereas section 23 of the Trademark Act of 1946 specifies that such use must be "lawful use." The purpose of this revision is to conform the wording of § 2.47 to the wording of the statute. This revision does not effect any change in practice, as in applying the rule the term "continuous use" has been treated as having the same meaning as the term "lawful use" in the statute.

Section 2.57 is being revised to set forth that facsimile-specimens are not to exceed 8½ inches wide and 13 inches long. Existing § 2.57 states that facsimiles shall be not larger than specified for the drawing. That statement is now incorrect due to a recent amendment of the drawing length to 11 inches. The purpose of this revision is to correct the wording of §2.57, and to conform the wording of rule 2.57 to the wording of § 2.56 (Specimens) which has already been amended to specify that specimens are not to exceed 8½ inches wide and 13 inches long.

Since these revisions impose no burden on any person, notice and public procedures thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6, as amended October 5, 1971, 85 Stat. 364), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby revised as follows:

1. Section 2.47 is revised to read as follows:

§ 2.47 ***Supplemental register.***

In an application to register on the Supplemental Register, the application shall so indicate and shall specify that the mark has been in lawful use in commerce, Specifying the

nature of such commerce, by the applicant for the preceding year, if the application is based on such use. When an applicant requests registration without a full year's use of the mark, in accordance with the last paragraph of section 23 of the act, the showing required must be separate from the application.

(Sec. 23, 60 Stat. 435; 15 U.S.C. 1091)

2. Section 2.57 is revised to read as follows:

§ 2.57 *Facsimiles.*

When, due to the mode of applying or affixing the trademark to the goods, or to the manner of using the mark on the goods, or to the nature of the mark, specimens as above stated cannot be furnished, five copies of a suitable photograph or other acceptable reproduction, not to exceed 8½ inches wide and 13 inches long, and clearly and legibly showing the mark and all matter used in connection therewith, shall be furnished.

Effective date. These revisions shall become effective on July 16, 1973.

Dated: July 5, 1973.

RENE D. TEGTMEYER,
Acting Commissioner of Patents.

Approved:
BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc. 73-14453; Filed 7-13-73; 8:45 am]

Published in 38 F.R. 18876; July 16, 1973

[913 O.G. TM 2]

PATENT NOTICES ALSO PERTINENT TO TRADEMARKS
(Repeated Here for Convenience)

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Mar. 22, 1966. *Director of Administration.*

[825 O.G. 428]

(12) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents,
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

(23) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.
3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Aug. 2, 1971. *Acting Assistant Commissioner for Administration.*

[890 O.G. 301]

(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service (1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557-2003.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(34) PATENT OFFICE BUSINESS HOURS

This procedure is being published to bring to the attention of the public security provisions concerning the Patent Office premises and Patent Office files.

The public is reminded that the Patent Office working hours are 8:30 a.m. to 5:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia. Outside these hours, only Patent Office employees are authorized to be in areas of the Patent Office other than the Public Search Rooms. Of course, a member of the public engaged in a discussion of business with an Office employee may be invited by the employee to stay beyond Office hours to conclude the discussion.

The hours for the Public Search Room are 8:00 a.m. to 8:00 p.m., and the hours for the Trademark Search Room are 8:00 a.m. to 6:00 p.m. Monday through Friday, excluding legal holidays in the District of Columbia.

During working hours, all applicants, attorneys, and other members of the public should announce their presence to the Office personnel in the area of their visit. In the Examining Groups, visitors should inform the group receptionist of their presence before visiting other areas of the Group.

RENE D. TEGTMEYER,
Sept. 27, 1973. *Acting Commissioner of Patents.*

[915 O.G. 1164]

(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquiries as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.
2. The Office will not open certain parts only at an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.
3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.
4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

(43) PATENT OFFICE SERVICES

A notice concerning delays in furnishing Certified Copies was published Aug. 8, 1972 (901 O.G. 412). This notice announced the initiation of a special "Expedited Service" for obtaining copies of pending applications promptly. As indicated in the notice, this special service would be terminated upon restoration of our regular service to an acceptable level.

I am pleased to report that our regular service has been restored to an acceptable level and this special program is being terminated.

However, our efforts to improve our services in these areas will continue. We have made progress, but are not resting on that record. We recognize that there are still problems of accuracy and quality in the filling of orders. These are currently being examined in an effort to bring about necessary improvements.

Thank you for your cooperation and understanding during this difficult period.

ROBERT GOTTSCHALK,
May 30, 1973. *Commissioner of Patents.*

[911 O.G. 1130]

(45) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office.* This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air-Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

(47) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that

any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Commissioner.

Feb. 23, 1966.

[824 O.G. 1200]

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(48) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose, Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Commissioner of Patents.

Apr. 12, 1966.

[825 O.G. 1183]

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(50) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
Commissioner.

June 23, 1966.

[828 O.G. 377]

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(59) WITHDRAWAL OF ATTORNEY

Attorneys and agents are reminded that by notice published April 18, 1967, in 837 O.G. 667, requests for permission to withdraw as attorney or agent of record, pursuant to Rule 36, should be submitted in triplicate (original and two copies) and should indicate thereon the attorney or agent's present mailing address. The Group No. should also appear on all such requests.

JOSEPH F. NAKAMURA,
Acting Solicitor.

Sept. 27, 1973.

[915 O.G. 1164]

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(111) MAIL DELAYS AND PETITIONS TO REVIVE

Since applications that become abandoned unintentionally present burdens to both the Patent Office and the applicant or his representatives, a simplified procedure has been devised to alleviate these burdens when the abandonment results from a delay in the mails. This procedure provides for an automatic petition to revive or petition to accept the delayed payment of issue fee.

It is suggested that when a communication, complying with the circumstances enumerated below, is mailed to the Patent Office more than three calendar days prior to the due date, a conditional petition be attached to the communication. If the communication is received in the Patent Office after the due date and the application becomes abandoned, the conditional petition will become effective, subject to the following requirements. The petition must include (1) an authorization to charge a deposit account for any required fees, including the petition fee (35 U.S.C. 41(a) 7), and (2) an oath or declaration signed by the person mailing the communication and also signed by the applicant or his registered representative stating that the communication and petition were either placed in the United States mail as first class or air mail, or placed in the mail outside the United States as air mail. Since mail handled in this manner may reasonably be expected to reach the Patent Office within three days of posting, any mail delays beyond such time will be considered to constitute unavoidable delay and sufficient cause to grant a petition to revive (35 U.S.C. 133) or a petition to accept delayed payment of an issue fee (35 U.S.C. 151).

The circumstances under which this procedure may be used are those where the communication, if timely filed, (1) would be a proper and complete response to an action or request by the Patent Office, and (2) would stop a period for response from continuing to run. Accordingly, this procedure would be appropriate for:

1. A response to a non-final Office action.
2. A response to a final Office action in the form of an amendment that cancels all rejected claims or otherwise prima facie places the application in condition for allowance.
3. A notice of appeal and requisite fee.
4. An appeal brief, in triplicate, and requisite fee.
5. A base issue fee.
6. A balance of issue fee.

Examples of which this procedure would not be appropriate and will not apply include:

1. Application papers.
2. A response to a final Office action other than that indicated in categories 2 and 3, above.
3. Extensions of time.
4. Petitions for delayed payment of either the issue fee or balance of issue fee.
5. Amendments under Rule 312.
6. Priority documents.

Normal petition practices are not affected in those situations where this procedure is either not elected or appropriate.

A suggested format for the conditional petition is shown below:

Applicant(s) ---------- ☐ Petition to revive

Serial No. ---------- ☐ Petition to accept delayed payment of issue fee

Date Filed ----------

For ----------

I hereby certify that the attached communication is being deposited in

☐ the United States mail as first class or air mail

☐ the mail outside the United States as air mail

in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on ----------, which date is more than three (3) calendar days prior to the due date from ----------, by ----------.
(Location) (Name of Individual)

In the event that such communication is not timely filed in the United States Patent Office, it is requested that this paper be treated as a petition and that the:

☐ delay in prosecution be held unavoidable—35 U.S.C.133.

☐ delayed payment of the fee be accepted—35 U.S.C. 151.

The petition fee required by 35 U.S.C. 41(a) 7 is authorized to be charged to Deposit Account No. ---------- in the name of ----------.

The undersigned declare further that all statements made herein are true, based upon the best available information; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date ---------- ----------
(Signature of applicant or signature and registration number of Registered Representative)
And

Date ---------- ----------
(Signature of person mailing, if other than the above)

April 13, 1973.

WILLIAM FELDMAN,
Deputy Assistant Commissioner for Patents.

[910 O.G. 402]

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(179) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16, and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connecticut is located at:

Room 610–B Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Mar. 19, 1970.

[872 O.G. 1383]

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(180) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents.

Mar. 27, 1970.

[873 O.G. 319]

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(181) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed

during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Apr. 27, 1970.

[874 O.G. 688]

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(182) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Apr. 27, 1970.

[874 O.G. 688]

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(183) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92-34.

Public Law 92-34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92-34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceeding in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statutory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

(199) PUBLIC LAW 92-132

[92nd Congress, S. 1253]

October 5, 1971

AN ACT

85 Stat. 364

To amend section 6 of title 35, United States Code, "Patents," to authorize domestic and international studies and programs relating to patents and trademarks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 6 of title 35, United States Code, is amended to read as follows:

Patents, trademarks. International programs, U.S. participation. 66 Stat. 793.

"§ 6. *Duties of Commissioner*

"(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies and programs regarding domestic and international patent and trademark law; and shall have charge of property belonging to the Patent Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

"(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

Transfer of funds.

"(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States."

Approved October 5, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-475 (Comm. on the Judiciary).
SENATE REPORT No. 92-71 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Apr. 22, considered and passed Senate.
Sept. 28, considered and passed House.

[892 O.G. 1600]

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(203) LEGAL JOURNALS

[37 CFR Parts 1, 2]

Withdrawal of Proposed Rule Making Regarding Placing of Announcements

Under date of May 11, 1972, 37 FR 9488 (FR Doc. 72-7160), notice of proposed rule making was given concerning a proposed revision of §§ 1.345(b) and 2.14(b) of Title 37 of the Code of Federal Regulations. The purpose of the proposed revision was to permit persons practicing before the Patent Office to place in legal journals announcements of their availability to act as consultants to or as associates of other lawyers in patent or trademark practice. After careful consideration of all of the comments received on the proposed revision, it has been determined that the proposed revision will not be made at this time and, accordingly, the notice of proposed rule making is canceled and withdrawn.

Dated: Jan. 29, 1973.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Jan. 29, 1973.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 73-3097; Filed 2-15-73; 8:45 am]

Published in 38 F.R. 32; Feb. 16, 1973

[908 O.G. 784]

(208) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 2, 1970.

[881 O.G. 1707]

EDITORIAL NOTE: Sec. 6103(c) states that January 20 of each fourth year after 1965, Inauguration Day, is also a legal public holiday.

(209) OFFICE OF THE SECRETARY

[Dept. Organization Order 30-3A]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 27 FR 11469 of November 21, 1962.

SECTION 1. *Purpose.* This order delegates authority to the Commissioner of Patents and prescribes the functions of the Patent Office.

SEC. 2. *Status and line of authority.* .01 The Patent Office is hereby continued as a primary operating unit of the Department of Commerce. First established as an independent bureau under the direction of a Commissioner of Patents by the general revision of patent laws enacted by Congress July 4, 1836 (5 Stat. 117), it became a bureau of the Department of Commerce by Executive Order of April 1, 1925, in accordance with the authority contained in the act of February 14, 1903 (32 Stat. 830). When the patent laws were codified as Title 35, United States Code, effective January 1, 1953, the Patent Office was continued as an office in the Department of Commerce.

.02 The Commissioner of Patents (hereinafter called the Commissioner), who is appointed by the President by and with the advice and consent of the Senate shall be the head of the Patent Office. He shall be principally assisted by a Deputy Commissioner and four assistant commissioners, whose titles and status are specified below. The First Assistant Commissioner (Deputy Commissioner) and the first two assistant commissioners are provided for by 35 U.S.C. 3 and are appointed by the President by and with the advice and consent of the Senate.

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3).

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3).

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3).

d. The Assistant Commissioner for Legal Affairs.

e. The Assistant Commissioner for Administration.

.03 The Deputy Commissioner or, in the event of a vacancy in that office, the assistant commissioner appointed under 35 U.S.C. 3 who is senior in date of appointment, shall act as Commissioner during a vacancy in that office until a Commissioner is appointed and takes office. In the absence of the Commissioner, the Deputy Commissioner shall act as Commissioner. If the Deputy Commissioner is likewise absent or that office is vacant, one of the assistant Commissioners appointed under 35 U.S.C. 3 or the Assistant Commissioner for Legal Affairs or the Solicitor of the Patent Office shall act as Commissioner in an order of precedence prescribed by the Commissioner.

.04 The Commissioner shall report and be responsible to the Assistant Secretary for Science and Technology.

SEC. 3. *Delegation of authority.* .01 Pursuant to the authority vested in the Secretary of Commerce by 35 U.S.C. 3 and Reorganization Plan No. 5 of 1950, the functions of the Patent Office and its officers specified in Title 35 of the United States Code, as amended, are hereby vested in the Secretary of Commerce and redelegated to the Commissioner of Patents.

.02 Pursuant to the authority vested in the Secretary of Commerce by law, the Commissioner of Patents is hereby delegated authority to perform the following functions vested in the Secretary of Commerce.

a. The functions in Title 15, Chapter 22 of the United States Code, which pertain to trademarks.

b. The functions in Executive Order 10096 of January 23, 1950, and the Executive Order 10930 of March 24, 1961, which pertain to inventions made by Government employees.

c. The functions in 42 U.S.C. 2181 and 2182, which pertain to inventions relating to atomic weapons, and in 42 U.S.C. 2457, which pertain to property rights in inventions made in performance of work under contract for the National Aeronautics and Space Administration.

d. Such functions under other authorities of the Secretary of Commerce as are applicable to performing the functions assigned in this order.

.03 Exercise of the functions delegated in paragraphs .01 and .02 of this section shall be subject to such policies or directions as may be prescribed by the Secretary of Commerce or the Assistant Secretary for Science and Technology.

.04 The Commissioner of Patents may, except as precluded by law or regulation, redelegate his authority to employees of the Patent Office subject to such conditions in the exercise of the delegated authority as he may prescribe.

SEC. 4. *Functions.* The Patent Office shall perform the following functions:

.01 Examine applications for patent to determine if they meet the requirements of law for the issuance of patents and, upon such determination, granting patents.

.02 Administer special laws and regulations as to secrecy of certain inventions, licenses for foreign filing, and those relating to atomic energy and space technology.

.03 Decide the ownership of patents and the rights to inventions made by Government employees, as provided by Executive Orders 10096 and 10930.

.04 Provide for the publication, storage, dissemination, and exchange of patents and related documentation.

.05 Maintain systems and facilites providing appropriate access to United States and foreign patents and other technical literature for use of the examiners and the public.

.06 Examine applications for the registration of trademarks to determine their entitlement to registration under the law; give public notice of trademarks allowed for registration and publish registered trademarks; maintain the principal and supplemental registers of trademark registrations, and provide for public access to such registers and related trademark records.

.07 Issue patents and certificates of trademark registration.

.08 Reissue defective patents and issue certificates of correction of patents and trademark registrations.

.09 Maintain records as to proprietary interests in patents and trademarks and applications therefor.

.10 Carry on or authorize studies and programs, separately or in coordination with other United States, foreign and international agencies, regarding domestic and international patent and trademark law.

.11 Perform other functions required, or which the Commissioner deems necessary and proper, in exercising the authority delegated herein.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, JR.,
Acting Assistant Secretary
for Administration.

[FR Doc. 73-320; Filed 1-5-73; 8:45 am]

[Dept. Organization Order 30-3B]

PATENT OFFICE

Organization and Functions

This order effective December 15, 1972, supersedes the material appearing at 36 FR 9078 of May 19, 1971.

SECTION 1. *Purpose.* This order prescribes the organization and assignment of functions within the Patent Office. Department Organization Order 30-3A prescribes the scope of authority and functions.

SEC. 2. *Organization structure.* The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. A copy of the organization chart is attached to the original document on file in the Office of the Federal Register.

SEC. 3. *Office of the Commissioner.* The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by Deputy Commissioner and four Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office with immediate responsibility for the Office of Petitions and shall perform the duties of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patents (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction for the patent examining and related operations which consist of the organizational elements enumerated in section 5 of this order. He is assisted by a Deputy Assistant Commissioner who shall, among other duties, have immediate responsibility for the patent examining groups and shall perform the duties of the Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the trademark registration and related operations which consist of the organizational elements enumerated in section 6 of this order.

d. The Assistant Commissioner for Legal Affairs shall be the chief law officer of the Patent Office and as applicable shall provide administrative and policy direction to the organizational elements enumerated in section 7 of this order. Pursuant to Department Organization Order 10-6, he shall be subject to the overall authority of the Department's General Counsel with respect to legal and legislative matters involving the Patent Office, other than in connection with the issuance of patents or the registration of trademarks.

e. The Assistant Commissioner for Administration shall be the principal advisor to the Commissioner on the formulation and application of management policies and shall provide administrative, management, and operational support services to components of the Patent Office. In addition, he shall provide administrative and policy direction to a staff assigned to his office as well as to the organizational elements enumerated in section 8 of this order. He shall be assisted by a Deputy Assistant Commissioner who shall perform the duties of the Assistant Commissioner during the latter's absence.

SEC. 4. *Office reporting to the Commissioner.* .01 The Offices of Petitions shall receive, docket, maintain records, and take other appropriate action with respect to petitions to the Commissioner submitted under applicable law and regulations; assign petitions to appropriate officials for decision or recommend and prepare decisions for review and approval by the Deputy Commissioner; and recommend changes in office policy, practices, and procedures, where the need for such appears evident from the records of the office.

.02 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinate functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provided executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide policy.

.03 The Office of Advanced Systems Development shall apply analytical basic research techniques to the development of new machine-assisted experimental search, retrieval, and display systems; to the exploration and application of advanced technology for the betterment of operating systems; and to increasing the effectiveness of technical information dissemination and accessing measures. This work is directed primarily to providing solutions to hitherto unresolved problems and to the development of experimental or test applications, for simulations of original techniques or operations. It shall assist in the installation, pilot use, and evaluation of experimental systems in operating environments.

.04 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

SEC. 5. *Offices reporting to the Assistant Commissioner for Patents.* .01 The Office of Patent Program Control shall develop procedures for and establish quality, quantity, and other performance standards relating to the conduct of the patent examination and classification functions; establish program activity targets and continually evaluate status against program objectives; provide training to examiners in patent practices and procedures; and monitor compliance with examination and classification standards and procedures.

.02 The Office of Patent Classification shall develop, implement, and maintain subject matter classification systems for patent search files of prior art; evaluate and adapt experimental or other search systems developed elsewhere; determine requirements for and initiate procurement of foreign patent and literature abstracting services for use by examiners; and provide technical specifications, guidance, advice, and assistance to the contracting officer in such procurements; coordinate the classification of U.S. and foreign patent documents and nonpatent literature; and participate in developing and fostering harmonization of the United States and the International Patent Classification systems.

.03 The Examining Groups shall examine applications for patents to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category assigned to it. The number of examining groups and the coverage of the generic categories shall be determined by the Commissioner.

SEC. 6. *Offices reporting to the Assistant Commissioner for Trademarks.* .01 The Office of Trademark Program Control shall develop guidelines governing trademark examining procedures; establish program activity targets and continually evaluate status against program objectives; and provide instruction in trademark practice and procedures and coordinate trademarks administrative support activities.

.02 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellations, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.03 The Trademark Examining Operation shall be responsible for the classification of trademark applications into classes of goods and services, the examination and processing of these applications, and the registration of trademarks, service marks, and certification marks; and maintain the principal and supplemental registers of trademarks.

SEC. 7. *Offices reporting to the Assistant Commissioner for Legal Affairs.* .01 The Office of the Solicitor shall handle all litigation to which the Commissioner is a party and provide other legal services, including advice and assistance on legislative matters, and maintenance of the law library.

.02 The Examiners-in-chief sitting as a Board of Patent Appeals shall be responsible for hearing and deciding appeals from adverse decisions of examiners upon applications for patents.

.03 The Board of Patent Interferences shall conduct patent interference proceedings and make final determinations in the Patent Office as to priority of invention. The Board shall also hear and decide questions concerning property rights in inventions in the atomic energy and space fields brought before it under the provisions of sections 2182 and 2456 (d) and (e) of title 42, U.S.C.

.04 The Office of Legislation shall develop recommendations and advise policy and action concerning matters which may require changes in the patent and trademark laws; review and prepare analysis of bills or drafts of legislation concerning patent or trademark matters received for technical appraisal; prepare legislative proposals and, after appropriate clearance, draft legislation and supporting documentation for clearance with the Department's Office of the General Counsel and the Office of Management and Budget, for consideration by the Congress; and maintain liaison with patent and trademark bar associations, industry, and others concerned with proposed and pending legislation.

.05 The Office of International Affairs shall coordinate the development of policy and program recommendations or positions respecting international patent and trademark affairs, including all proposed new or modified agreements under the Paris Union, Patent Cooperation Treaty, or like treaties; maintain liaison in such matters with the Office of the Secretary, the Department of State, and concerned elements of the public; and participate in negotiating patent and trademark matters in establishing international agreements and in the implementation of programs affecting Patent Office commitments or responsibilities in these areas.

SEC. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01. Management Planning Organizations:

a. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive budget program collaborating with cost center officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary accountability of available funds; maintain external liaison

in budgetary matters; and review and evaluate the fulfillment of budget-based program commitments.

b. The Office of Management and Organization shall plan and conduct studies designed to improve organization, methods, procedures, workflow, work measurement, managerial technicals, and resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review and submission of reportable plans and accomplishments thereon; coordinate a program for the management and control of external reports; and make special studies as required.

.c. The Office of Program Planning and Evaluation shall formulate plans for and coordinate the development of Patent Office-wide long and short range program objectives within the framework of budgetary constraints; define, project, and allocate the manpower and other resources required to achieve Patent Office-wide objectives; develop and monitor a management information system which prescribe code structures for and consolidates all administrative management systems into a single integrated data base to provide information designed to measure performance and achievement against planned objectives; and develop and issue a wide variety of timely internal analytical and interpretive reports to the managers of the Patent Office.

.02 Public service organizations:

a. The Office of Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the OFFICIAL GAZETTE; provide requisition and scheduling services for trademark publications; monitor the quality or performance by contributing sources and maintain close liaison with U.S. Government Printing Office; and prepare and issue patent grants and periodic publications of patent indexes.

b. The Office of Patent and Trademark Services shall provide the materials and services offered directly to the public, many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents, trademark registrations, and office records to examiners, and others in the Office, as well as to the public; providing drafting services; and maintaining appropriate collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by the public. It shall also conduct an initial examination of patent applications for compliance with law and regulation as to form and certain matters of factual content; grant or deny a filing date based on such examination and forward to the Examining Groups those granted a filing date; acknowledge the acceptance or rejection of applications for examination; originate documentation of pending applications; initially assign accepted applications to units of the examining groups for examination; and maintain records on the status and location of all applications.

.03 Administrative service organizations:

a. The Office of Computer Services shall be responsible for providing data processing services to other elements of the Patent Office: This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques; preparation or procurement and testing of computer programs, and supplemental data processing services; operation of all general purpose ADP equipment including that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organization units.

b. The Office of Finance shall develop and maintain the financial accounting system of the Patent Office, perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

c. The Office of General Services shall plan and administer a broad Office-wide program of general services, including procurement control; property, space, and facilities management; communications, records, files, mail, and forms management; administrative printing; and clearance of all requirements involving contractual pocurements, including liaison with the Department, in connection therewith.

d. The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, equal employment opportunity programs for employees, training and career development, incentive awards, performance rating, position classification and wage administration, group management relations, and various employee benefit programs.

.04 The Office of Technology Assessment and Forecast shall continually assess the status of technological activities in all countries; compare inventive activity in the United States relative to other nations; and forecast developments on a world-wide basis.

Effective date: December 15, 1972.

GUY W. CHAMBERLIN, Jr.,
Acting Assistant Secretary for Administration.

[FR Doc. 73-321; Filed 1-5-73; 8:45 am]

Published in 38 F.R. 1068, Jan. 8 1973

[907 O.G. 2]

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(210) PATENT OFFICE

Organization and Functions

This order, effective August 1, 1973, amends the material appearing at 38 FR 1068 of January 8, 1973.

Department Organization Order 30-3B, dated December 15, 1972 is hereby amended as follows:

1. SEC. 7. *Offices reporting to the assistant commissioner for legal affairs.*

a. Paragraph .04 is amended to read:

.04 The *Office of Legislation and International Affairs* shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State, and appropriate congressional committees; and conduct negotiations in technical patent and trademark matters in establishing or implementing international agreements.

b. Paragraph .05 is deleted.

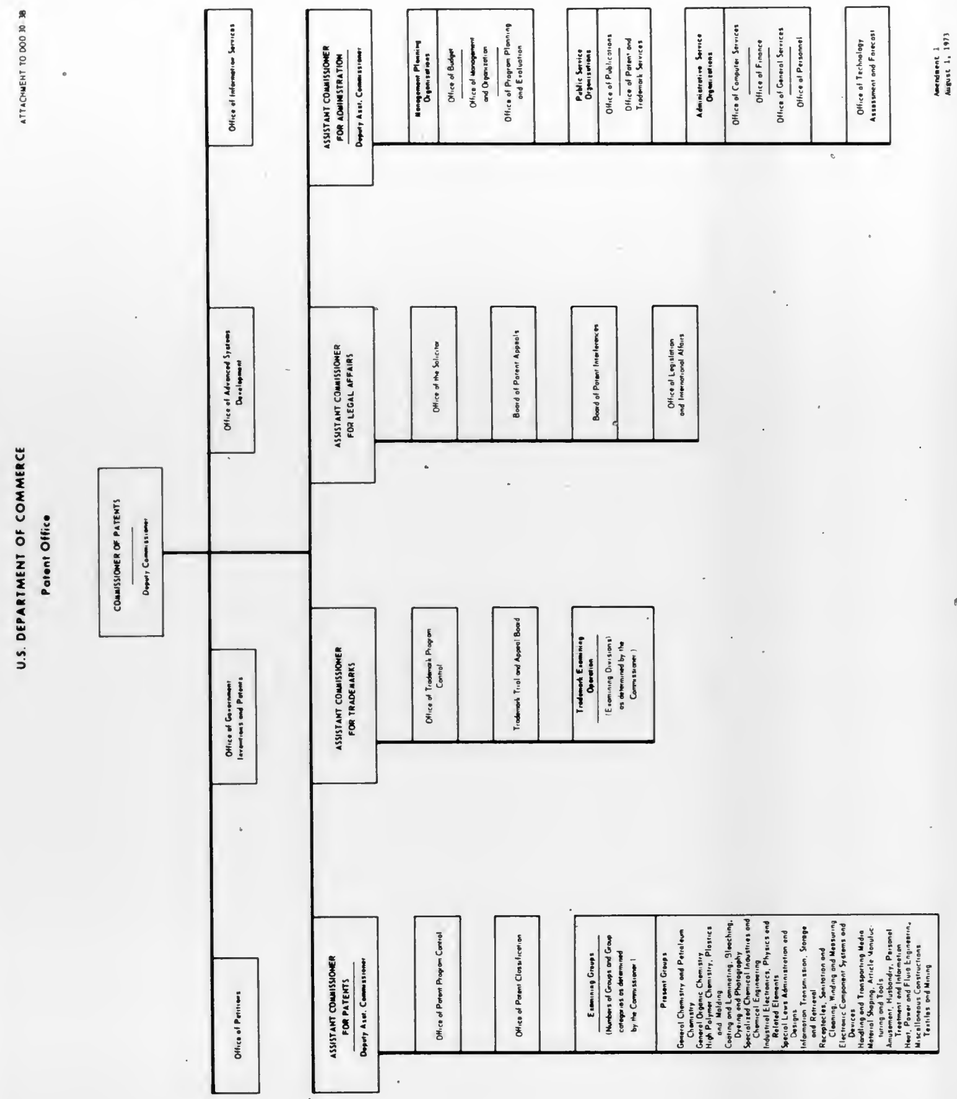
2. The organization chart of December 15, 1972 is superseded by the organization chart attached to this amendment. Copy of the Organization Chart is attached to the original of this document on file in the Office of the Federal Register.

Effective date: August 1, 1973.

HENRY B TURNER.
Assistant Secretary for Administration.

[FR Doc. 73-19292; Filed 9-11-73; 8:45 am]

[915 O.G. 378]



PATENT OFFICE NOTICES

Notice to Counsel in CCPA Appeals

On or about January 1, 1974, the revised rules of the Court of Customs and Patent Appeals will become effective. One of the significant revisions will be an increase of the filing fee from $15.00 to $50.00. Counsel filing Notices of Appeal to the Court should plan to deposit the new fee if the appeal is docketed after January 1, 1974.

GEORGE E. HUTCHINSON,
Clerk.

Dec. 5, 1973.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,685,536, Starkey and Ransburg, METHOD FOR ELECTROSTATICALLY COATING ARTICLES; **2,794,417,** same, APPARATUS FOR ELECTROSTATICALLY COATING ARTICLES; **2,893,893,** W. W. Crouse, METHOD AND APPARATUS FOR ELECTROSTATIC COATING; **2,893,894,** E. M. Ransburg, METHOD AND APPARATUS FOR ELECTROSTATICALLY COATING, **filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-471, *Ransburg Corporation* v. *R & R Metal Finishing Co., Inc.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-472, *Ransburg Corporation* v. *Baldwin Hardware Corporation.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-474, *Ransburg Corporation* v. *Acro Wire Inc.* **Same, filed** Mar. 1, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-475, *Ransburg Corporation* v. *Slaymaker Lock Company, Inc.* **Same, filed** Mar. 23, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-654, *Ransburg Corporation* v. *Perkasie Industries Corporation.* **Same, filed** Mar. 23, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-653, *Ransburg Corp.* v. *Ajax Products, Inc.*

2,750,055, J. D. Huffines, REFUSE COMPRESSOR MECHANISM FOR VEHICLES, **filed** Oct. 31, 1972, D.C., E.D. Mo. (St. Louis), Doc. 72C682(A), *James Donie Huffines* v. *R-V Industries.* Consent judgment entered May 8, 1973.

2,764,766, Boyle and Taylor, INFLATABLE LIFE RAFT; **2,804,633,** Taylor and Fraebel, INFLATABLE LIFE RAFT COMPRISING IMPROVED CANOPY AND SUPPORTING MEANS THEREFOR, **filed** Apr. 13, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-806-R, *American Safety Flight Systems, Inc.* v. *The Garrett Corporation.* Final judgment and order enjoining defendant, May 22, 1973.

2,781,399, S. H. Shapiro, PREPARATION OF SECONDARY AMINES; **2,950,318,** same, PROCESS FOR THE PRODUCTION OF QUATERNARY AMMONIUM COMPOUNDS; **3,136,819,** Shapiro and Pilch, PREPARATION OF TERTIARY ALIPHATIC METHYL AMINES; **3,222,402,** M. C. Cooperman, PREPARATION OF N-ALIPHATIC TRIMETHYLENE DIAMINES, **filed** Apr. 24, 1973, D.C., W.D. Tenn. (Memphis), Doc. C-68-40, *Armour & Company and Armour Industrial Chemical Company* v. *Enenco Inc.* Judgment: complaint dismissed with prejudice; judgment between the parties entered by default against plaintiffs and in favor of defendant on defendant's counterclaims as to invalidity and noninfringement, Apr. 24, 1973.

2,790,516, Wright and Butler, VEHICLE DISC BRAKE ASSEMBLY; **2,921,650,** H. J. Butler, DISC BRAKE, **filed** Feb. 7, 1973, D.C., E.D. Mich. (Detroit), Doc. 39637, *Dunlop Holdings Limited* v. *General Motors Corporation.*

2,794,417. (See 2,685,536.)

2,804,633. (See 2,764,766.)

2,835,319, M. J. Fleming, Jr., INFLATABLE SELF-CONTRACTING TIRE BEAD SEATING DEVICE; **2,844,126,** R. H. Gaylord, FLUID ACTUATED MOTOR SYSTEM AND STROKING DEVICE, **filed** Oct. 7, 1969, D.C.N.J. (Trenton), Doc. 1180-69, *Gould, Inc.* v. *Tool Aid Manufacturing Co., Inc.; Meyer Iglewitz and Rita Iglewitz.* Consent judgment for permanent injunction; patents of plaintiff valid and infringed, Feb. 16, 1973.

2,844,126. (See 2,835,319.)

2,844,992, Spound and Martin, RECLINING CHAIR HEADREST CONSTRUCTIONS; **2,958,374,** same, AUTOMATICALLY PROJECTIBLE HEADREST; **2,982,340,** A. M. Spound, RECLINING CHAIR HEADREST CONSTRUCTIONS; **3,024,064,** same, **filed** June 4, 1973, D.C., N.D. Ill. (Chicago), Doc. ------ *Albert M. Spound et al.* v. *The Lane Company, Inc. et al.*

2,893,893. (See 2,685,536.)

2,893,894. (See 2,685,536.)

2,921,650. (See 2,790,516.)

2,950,318. (See 2,781,399.)

2,958,374. (See 2,884,992.)

2,965,040, J. Elsenberg, GEAR PUMPS, **filed** June 6, 1973, D.C.N.J. (Newark), Doc. 787-73, *Eco Pump Corporation* v. *Picut Mfg. Co., Inc.*

2,980,037, E. C. Elsner, SELF-LOCKING BAR ATTACHMENT; **2,984,885,** same, RELEASABLE ATTACHMENT FITTING; **Re. 25,069,** same, WEB-TENSIONING BUCKLE. **filed** Apr. 20, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-885-CC, *Acroquip Corporation* v. *ANCRA Corporation.*

2,984,885. (See 2,980,037.)

2,982,340. (See 2,884,992.)

2,995,437, C. A. Hollingsworth, DEFLUORINATION OF PHOSPHATE ROCK, **filed** Apr. 30, 1973, D.C., S.D. Tex. (Houston), Doc. 73-H-549, *Bordon, Inc.* v. *Olin Corp.*

3,024,064. (See 2, 884,992.)

3,054,447, R. Brydolf, FOLDING DOOR HARDWARE; **3,058,173,** same, PANEL FRAME; **3,169,249,** Brydolf and Kellems, JIG FOR ASSEMBLING POCKET DOOR FRAMES; **3,261,129,** same, PANEL HARDWARE; **3,450,426,** K. K. Kellems, PANEL FRAME CORNER CONNECTOR; **3,597,790,** Kellems and Brydolf, FOLDING DOOR HARDWARE, **filed** Oct. 31, 1972, D.C., S.D. Fla. (Miami), Doc. 72-1722-C-WM, *Acme General Corp.* v. *Labrie Manufacturing Co., Inc.*

3,058,173. (See 3,054,447.)

3,090,050, Fraser and McLean, EYE AND FACE WASH, **filed** Dec. 30, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c3136, *Speakman Co.* v. *Water Saver Faucet Co., Inc.* Enter judgment order dismissing cause, Apr. 25, 1973.

3,103,666, A. R. Bone, TAG ATTACHING APPARATUS, **filed** Apr. 30, 1973, D.C., E.D. Mo. (St. Louis), Doc. 73C264 (1), *Dennison Manufacturing Company* v. *Consolidated Foods Corp.*

3,136,819. (See 2,781,399.)

3,169,249. (See 3,054,447.)

3,222,402. (See 2,781,399.)

3,334,361, R. E. Watson, SHIELDED-HINGE TOILET SEAT CONSTRUCTION, **filed** Sept. 29, 1971, D.C., E.D. Wis. (Milwaukee), Doc. 71-C-495, *Swedish Crucible Steel Company* v. *Bemis Manufacturing Company.* Stipulation of dismissal entered pursuant to Rule 41(a) FRCP, Oct. 6, 1972.

3,358,658, M. V. Dadd, LUBRICANT FLOW METERING MEANS FOR ENGINE ROCKER ARM LUBRICATION SYSTEM; **Re. 25,154,** P. F. Bergmann, MEANS FOR METERING LUBRICATING OIL FROM AN HYDRAULIC TAPPET TO A HOLLOW PUSH ROD; **Re. 25,974,** M. V. Dadd, ROCKER ARM OIL CONTROL MEANS, **filed** Mar. 9, 1973, D.C.N.J. (Newark), Doc. C-330-73, *Johnson Products Inc.* v. *Welles Manufacturing Corp.*

3,432,793, Muska, Schacker and McHattie, GROUNDING CONNECTION FOR ELECTRICAL UNIT, **filed** June 12, 1973, D.C.N.J. (Trenton), Doc. C-831-73, *William A. Muska, James C. Schacker, Earl McHattie and Arrow-Hart, Inc.* v. *Circle F Industries.*

3,438,520, M. A. Williams, SLUG FILLING OF BINS, **filed** May 31, 1973, D.C., W.D. Mo. (Kansas City), Doc. 73CV302-W-4, *Standard Havens, Inc.* v. *CMI Corporation.*

3,450,426. (See 3,054,447.)

3,475,561, Krasin and Greene, TELEPHONE CARRIER SYSTEM HAVING SELF-CONTAINED INDEPENDENTLY ATTACHABLE LINE TAP UNITS, **filed** May 26, 1971, D.C.,

E.D.N.C. (Raleigh), Doc. 1232–C, *Superior Continental Corporation* v. *Anaconda Wire and Cable Company*. Stipulation of dismissal with prejudice, May 1, 1973.

3,578,745, Garnier and Blanc, DENTAL INSTRUMENT, **filed** Jan. 3, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73C–12, *Micro-Mega S.A.* v. *Ruthal Industries, Ltd.* A consent judgment was filed May 2, 1973.

3,597,790. (See 3,054,447.)

3,625,711, M. E. Eisenstadt, CYCLAMATE-FREE ARTIFICIAL SWEETENER, **filed** June 11, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73–C–847, *Cumberland Packing Corporation* v. *Weight Watchers International, Inc.*

3,638,439, O. C. Niederer, EMBEDDING CABLE LIKE MEMBERS, **filed** May 31, 1973, D.C., S.D. Fla. (Miami), Doc. 73–934–C–PF, *Aqua-Tech, Inc.* v. *Little Fin, Inc. and Robert T. Spearman.*

3,691,727, F. Doerscheln, MULTIPLE SHEET DISPENSING APPARATUS, **filed** June 12, 1973, D.C., N.D. Ohio (Cleveland), Doc. C–73–597, *Heat Sealing Equip. Mfg. Co.* v. *Cleveland-Detroit Corp. and Clamco Corp.*

3,736,197, Messerschmidt, Heyman and Johnsen II, POWDERLESS ETCHING BATH COMPOSITIONS AND ADDITIVES, **filed** May 29, 1973, D.C. Del. (Wilmington), Doc. 4663, *Mona Industries, Inc.* v. *Philip A. Hunt Chemical Corporation.*

Re. 25,069. (See 2,980,037.)

Re. 25,154. (See 3,358,658.)

Re. 25,974. (See 3,358,658.)

Certificates of Correction for the Week of Jan. 1, 1974

P.P. 3,369	3,730,841	3,748,302	3,757,085
3,496,812	3,730,879	3,748,454	3,757,114
3,575,287	3,732,176	3,748,840	3,757,140
3,632,582	3,732,243	3,748,976	3,757,410
3,649,719	3,732,328	3,749,171	3,757,579
3,653,259	3,733,630	3,749,172	3,758,233
3,657,066	3,733,704	3,749,483	3,758,291
3,666,022	3,734,675	3,749,673	3,758,420
3,676,146	3,734,682	3,749,801	3,758,502
3,678,167	3,734,720	3,749,803	3,758,585
3,685,806	3,735,003	3,750,179	3,758,693
3,686,217	3,735,281	3,750,239	3,758,695
3,687,026	3,735,987	3,751,242	3,759,062
3,687,998	3,736,047	3,751,337	3,759,176
3,691,096	3,736,878	3,751,420	3,759,217
3,691,357	3,737,343	3,751,469	3,759,314
3,696,161	3,737,439	3,751,513	3,759,380
3,701,701	3,737,578	3,751,761	3,759,626
3,705,926	3,739,027	3,751,925	3,759,650
3,706,696	3,739,498	3,752,199	3,759,714
3,707,993	3,739,905	3,752,409	3,759,914
3,708,550	3,739,941	3,752,477	3,759,997
3,709,654	3,740,155	3,752,563	3,760,153
3,718,384	3,740,264	3,753,657	3,760,252
3,719,446	3,741,134	3,753,697	3,760,273
3,721,680	3,741,731	3,753,897	3,760,367
3,722,737	3,741,921	3,753,999	3,760,807
3,724,711	3,742,477	3,754,035	3,761,006
3,725,343	3,742,565	3,754,126	3,761,206
3,725,382	3,742,824	3,754,453	3,761,344
3,725,548	3,745,137	3,754,599	3,761,890
3,725,710	3,745,592	3,755,064	3,762,365
3,725,984	3,745,917	3,755,102	3,762,524
3,726,634	3,745,986	3,755,207	3,762,816
3,726,858	3,746,212	3,755,211	3,763,068
3,727,608	3,746,725	3,755,229	3,763,107
3,727,992	3,746,759	3,755,303	3,763,114
3,728,112	3,746,925	3,755,378	3,763,129
3,728,386	3,747,093	3,755,442	3,763,341
3,728,561	3,747,156	3,755,575	3,763,815
3,728,564	3,747,191	3,755,978	3,763,874
3,728,614	3,747,253	3,755,986	3,763,932
3,728,650	3,747,449	3,756,151	3,764,071
3,728,696	3,747,605	3,756,269	3,764,159
3,728,697	3,747,938	3,756,658	3,764,369
3,728,712	3,748,168	3,757,051	3,767,073
3,728,892	3,748,233	3,757,060	3,768,001

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 8, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	11-24-72
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-25-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-30-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	10-02-72
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-17-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-02-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	8-11-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-29-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-10-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-26-72
DESIGNS, GROUP 290—R L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-14-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-22-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-10-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	1-19-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	2-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines	9-25-72

Expiration of patents: The patents within the range of numbers indicated below expire during December 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 2,772,415 to 2,775,761, inclusive
Plant Patents ..... Numbers 1,532 to 1,542, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JANUARY 1, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T918,001
FLAME RETARDANT MOLDING COMPOSITIONS HAVING DESIRABLE MECHANICAL PROPERTIES

Theodore F. Gray, Jr., 2153 Westwind Drive 37660; James C. Weaver, 1549 Garden Drive 37664; and Marvin A. McCall, 4519 Mitchell Road 37664, all of Kingsport, Tenn.

Continuation of abandoned application Ser. No. 16,953, Aug. 5, 1970. This application Feb. 1, 1971, Ser. No. 111,668

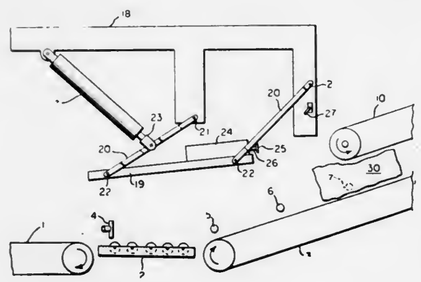
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 R
No Drawing. 15 Pages Specification

A flame retarder which is a brominated diphenyl compound such as decabromodiphenyl ether or decabromodiphenyl carbonate alone or in combination with antimony trioxide is added to poly(tetramethylene terephthalate) or poly(ethylene terephthalate) and glass fiber to provide a composition moldable into a self-extinguishing article with mechanical properties, particularly impact strength, substantially the same as a nonself-extinguishing article molded from only poly(tetramethylene terephthalate) or poly(ethylene terephthalate) and glass fiber alone without a flame retarder. Articles molded from these compositions unexpectedly retain their self-extinguishing character even after prolonged exposure to an elevated temperature.

T918,002
AUTOMATIC SYSTEM FOR PRINTING INFORMATION ON THE TRAILING END OF CONTINUOUSLY TRANSPORTED ARTICLES

Eugene Edward Knoth, 940 Benston Road, Whitehall, Mich. 49461

Filed Jan. 29, 1973, Ser. No. 327,663
Int. Cl. B41f *17/16, 17/34*
U.S. Cl. 101—41
Sheet Drawing. 13 Pages Specification



An automatic continuous printing system for printing information on the trailing end of articles as they are transported through the system comprising a conveyor, means to position the articles a predetermined distance apart on the conveyor, a printing carriage reciprocably mounted to assume a printing position and a non-printing position, detecting means to sense conveyance of an article past a predetermined location immediately in advance of the printing carriage, controlling means responsive to the detecting means to position the printing carriage in its printing position a predetermined distance behind the trailing end of an article as it is conveyed, extensible printing means mounted on the printing carriage which automatically advance in the direction of article conveyance to make contact with the trailing end of an article upon positioning of the printing carriage in its printing position, and means to retract the printing means and to return the printing carriage to its non-printing position upon printing of an article. In a preferred embodiment, the article being printed is a bag filled with particulate material and the bag is compressed during printing by a weighted conveyor positioned above the transporting conveyor, thereby forming a firm trailing end to receive printed information such as lot number.

T918,003
ANTIOXIDANT COMPOSITIONS

Ernest R. Sherwin, 4044 Skyland Drive 37664; Bobby M. Luckadoo, 504 Robindale Lane 37663; and Emma J. Freeman, 1849 Fairoaks Road 37663, all of Kingsport, Tenn.

Continuation-in-part of application Ser. No. 153,838, June 16, 1971. This application Apr. 2, 1973, Ser. No. 347,002

Claims priority; application Argentina, Apr. 11, 1972, 241,401; Canada, May 9, 1972, 141,666; Venezuela, May 26, 1972, 2,675; Mexico, June 14, 1972, 136,283; Australia, June 15, 1972, 43,436; Brazil, June 15, 1972, 3,875; Japan, June 15, 1972, 47/59,100; Great Britain, June 15, 1972, 28,015/72

Int. Cl. A23d *5/04*; A23l *3/34*
U.S. Cl. 426—181
No Drawing. 24 Pages Specification

An antioxidant composition for oils and fats particularly those used for frying is retained in the oil or fat even after many fryings at high temperatures. Included in the composition are

(A) about 60 to 99% by weight of the composition of an antioxidant selected from the group consisting of mono-tertiary-butylhydroquinone, a gallic acid ester selected from propyl, octyl or dodecyl gallates; and blends of these antixodants with butylated hydroxyanisole and butylated hydroxytoluene;

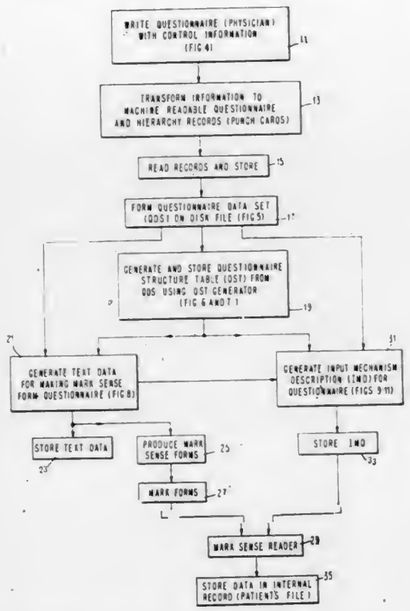
(B) 0 to 34% by weight of the composition of an organic acid synergist selected from the group consisting of citric acid, ascorbic acid, tartaric acid, fumaric acid, and esters thereof, ethylene-diaminetetraacetic acid and its sodium and calcium salts; and

(C) about 0.1 to 5% by weight of the composition of a compound from the class consisting of polydimethyl and polydiethyl siloxane having a viscosity of 100 to 100,000 centistokes at 100° F.

T918,004
PROGRAM GENERATOR FOR BRANCHING QUESTIONNAIRE

William M. Chappell, Yorktown Heights, Hugh C. Fallon, Mohegan Lake, Gerald Geortzel, White Plains, and William G. Strohm, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 213,909, Dec. 30, 1971. This application Apr. 3, 1973, Ser. No. 347,591
Int. Cl. G06f *7/00*
U.S. Cl. 340—172.5
20 Sheets Drawing. 82 Pages Specification



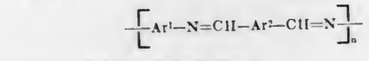
A computer system is provided, as represented by FIG. 3, for automatically generating, in response to a specified tree-structured branching questionnaire, the decode program instructions required by the computer to decode the responses to the respective queries of said questionnaire. The creator of the branching questionnaire specifies same, on a convenient form, via writing the basic information required by the computer to generate the data and programs for producing both the branching questionnaire text and decode program instructions therefor. After the basic information specified by the creator of the questionnaire, along with appropriate control information therefor, is entered into the computer, the computer automatically arranges same to form a questionnaire data set, which is stored on disk file as shown at **17**. The questionnaire data set provides a conveniently addressable compilation of the information entered into the computer. The computer then acts to retrieve from the questionnaire data set, that information defined therein which is basically representative of the tree structure, and transforms this information into a questionnaire structure table as shown at **19**, which table uniquely and unambiguously represents, in a particular tree form arrangement, the essential data required by the computer to automatically generate the decode program instructions. The questionnaire structure table and questionnaire data set are cooperatively employed by the computer to generate an image of the text of the queries of said questionnaire as shown at **21** and **23** and, in association with the position of the respective designated locations or spots in the text of said queries at which a manual response to each query is to be made, to generate at **31** the decode instructions (called IMD's) required by the computer to decode the responses thereto.

T918,005
TRACTABLE AROMATIC POLY(SCHIFF BASES)

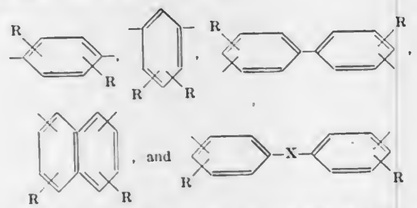
William P. Baker, Jr., deceased, late of Chadds Ford, Pa., by Sara Z. Baker, executrix, Chadds Ford, Pa., and Ronald A. Sahatjian, Chadds Ford, Pa.; said Sahatjian assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of application Ser. No. 186,406, Oct. 4, 1971. This application Apr. 12, 1973, Ser. No. 350,644
Int. Cl. C08g *9/06*
U.S. Cl. 260—72.5
No Drawing. 11 Pages Specification

A tractable, aromatic poly(Schiff base) having the recurring structural formula:

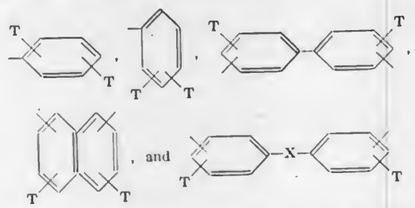


wherein Ar^1 is selected from



wherein R is independently selected from H, Cl, Br and Q, Q being alkyl of 1 to 3 carbon atoms, and X is selected from

of 1 to 3 carbon atoms; wherein Ar^2 is selected from



wherein T is independently selected from H, OH, OQ, Q, Cl and Br, and wherein X and Q are as defined above; and *n* is high enough to provide a film-forming molecular weight, the polymer having an inherent viscosity of at least about 0.2 and being substantially free from cross-linking.

T918,006
METHOD OF SECURING STACKED POLYOLEFIN CONTAINERS AGAINST SLIPPING

James N. Schramm, 12342 Brookshire 70815; and Carroll J. Macalusa, 8295 Bontura Court 70808, both of Baton Rouge, La.; and Robert C. Schumann, Jr., 65 Willow Court, Lake Jackson, Tex. 77566

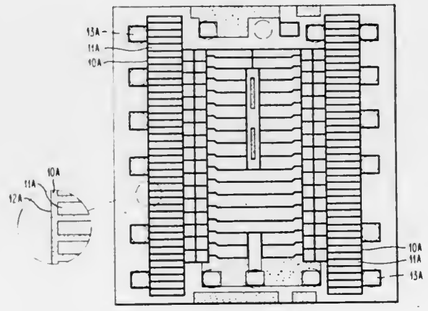
Filed May 7, 1973, Ser. No. 358,189
Int. Cl. C08f *3/22*
U.S. Cl. 117—94
No Drawing. 5 Pages Specification

A method of securing stacked substantially rigid, self-supporting polyolefin containers such as pails, bottles and the like against slippage comprising applying a lacquer coating to adjacent contacting portions, such as contacting outer rims of such containers, said lacquer coating consisting essentially of an organic solvent, such as the aromatic hydrocarbons toluene and xylene or chlorinated aliphatic hydrocarbons such as trichloroethylene and ketones such as methyl ethyl ketone, having dissolved or dispersed therein a substantially linear chlorinated polyethylene which contains from about 25 to 50 and preferably from about 36 to 48 weight percent of chemically combined chlorine and has a relative crystallinity of between about 15 and 28 percent when containing about 25 weight percent chlorine and a relative crystallinity of less than about 10 percent when containing about 34 weight percent chlorine; wherein the dried residue of the lacquer coating provides a slip angle between the adjacent contacting surfaces of such containers of between about 10 and 50 degrees, such slip angle being determined by raising one end of the platform on which such containers are supported and determining the angle from the horizontal when the uppermost container commences to slide or move.

T918,007
INTEGRATED CIRCUIT JUNCTION ISOLATION STRUCTURE

Mario A. Battista, Ridgefield, Conn., and Larry E. Freed, Poughkeepsie, and Richard S. Harbison, William J. Nestork, and James R. Struk, Wappingers Falls, and Daniel Tuman, Beacon, N.Y., assignors to International Business Machines, Inc., Armonk, N.Y.

Continuation of application Ser. No. 239,173, Mar. 29, 1972. This application June 6, 1973, Ser. No. 367,603
Int. Cl. H01l *5/00*
U.S. Cl. 317—235
2 Sheets Drawing. 11 Pages Specification



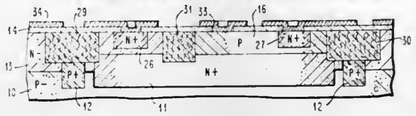
A planar monolithic semiconductor integrated circuit masterslice structure comprising a surface from which a plurality of regions of different conductivity types extend into the chip to provide the active and passive devices of the circuit and having a substantially continuous isolation region of one of said conductivity types also extending from said surface to form isolation junctions with regions of opposite conductivity types abutting the isolation regions. Substantially all isolation regions surrounding active and passive devices in the circuit have a uniform planar width.

The uniform width of the isolation regions appears to reduce stacking faults and similar crystallographic defects in epitaxial layers in which the integrated circuits are formed. Such faults contribute to "pipes."

T918,008
INTEGRATED CIRCUIT STRUCTURE ELECTRICALLY ISOLATED BY A COMBINATION OF AMORPHOUS SILICON WALLS AND ISOLATING PN JUNCTION

Karl Brack, Bobingen, Germany, and Majid Ghafghaichi and Hans Wimpfheimer, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 27, 1973, Ser. No. 383,229
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R
1 Sheet Drawing. 15 Pages Specification



A planar monocrystalline silicon integrated circuit structure having a plurality of electrically isolated pockets extending from the silicon substrate surface. Each pocket is isolated by sidewalls of amorphous silicon, formed by the bombardment of the silicon substrate with silicon ions, laterally enclosing an upper portion of the pocket and an isolating junction continuous with said sidewalls enclosing the lower portion of the pocket.

Each isolated pocket is silicon of one conductivity type, and said isolating junction is formed by a silicon region of opposite conductivity type abutting the pocket. The pockets contain regions of only said opposite conductivity type extending from the surface into the pocket but spaced from said sidewalls and isolating junctions. The structure avoids the problem of parasitic capacitances which tend to occur in completely junction isolated integrated circuits along vertical junctions. By limiting the structure to only regions of opposite conductivity type diffused into pockets of said one conductivity type, the structure avoids vertical PN junctions which are adjacent to each other and, thus, are subject to parasitic capacitance effects.

T918,009
METHOD FOR PRODUCING A HIGH STRETCH TEXTURED POLYESTER YARN FOR PACKAGE DYEING

Robert G. Wrye, Rte. 14, 4503 Grace Drive 37664, and Giuliano Gambino, 685 Sherman Place 37660, both of Kingsport, Tenn.

Filed July 30, 1973, Ser. No. 383,762
Int. Cl. D02g *1/02*
U.S. Cl. 57—157 TS
No Drawing. 8 Pages Specification

A method for producing a high stretch multifilament textured yarn of the torque stretch type, the textured yarn retaining skein shrinkages after package dyeing of 20% to 35%. The method includes the steps of feeding the multfilament yarn from a supply source to a false twist device, false twisting the yarn, heat setting the false twisted yarn in a heating zone, removing the false twist after heat setting and feeding the yarn to a take-up package. The improvement comprises overfeeding the multifilament yarn to the take-up package at about 30 to 60 percent. Thereafter, the take-up package may be package dyed under pressure at about 250° to 265° F. to retain such high skein shrinkages. One embodiment of the invention involves the use of a single heater, the multifilament yarn being overfed to the take-up package at about 50 to 60 percent. After package dyeing the take-up package retains 30 to 35 percent skein shrinkage. A second embodiment of the invention involves the use of a second heater, the multifilament yarn being overfed to the second heater by about 40 percent, the yarn being heatset in this second heating zone and then fed to the take-up package. After package dyeing the take-up packages have skein shrinkages of about 20 to 25 percent.

REISSUES

JANUARY 1, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,856

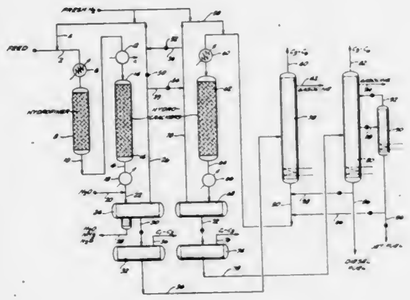
HYDROCRACKING PROCESS WITH REGULATION OF THE AROMATIC CONTENT OF THE PRODUCT

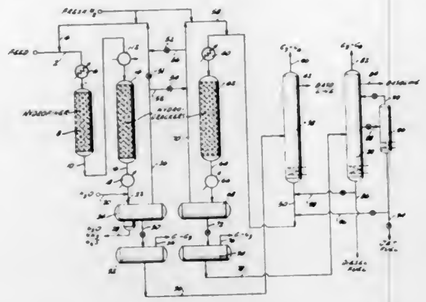
Paul F. Helfrey, Whittier, Nicholas L. Kay and Bernal Peralta, Fullerton, and Cloyd P. Reeg, Orange, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Original No. 3,132,090, dated May 5, 1964, Ser. No. 168,058, Jan. 23, 1962. Application for reissue May 27, 1968, Ser. No. 743,535

Int. Cl. C10g *13/02, 13/10*

U.S. Cl. 208—59 13 Claims





In the hydrocracking of mineral oils with a Group VIII noble metal hydrocracking catalyst, a relatively aromatic gasoline product is produced by maintaining relatively high hydrogen sulfide/hydrogen ratios in the reaction zone, while relatively non-aromatic products, e.g. jet fuels and/or diesel fuels, are produced by reducing the hydrogen sulfide/hydrogen ratio.

27,857

HYDROCRACKING PROCESS WITH REGULATION OF THE AROMATIC CONTENT OF THE PRODUCT

Paul F. Helfrey, Whittier, Nicholas L. Kay and Bernal Peralta, Fullerton, Cloyd P. Reeg, Orange, and Rowland C. Hansford, Yorba Linda, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Original No. 3,132,090, dated May 5, 1964, Ser. No. 168,058, Jan. 23, 1962. Application for reissue June 18, 1971, Ser. No. 154,632, which is a continuation of abandoned reissue application Ser. No. 745,645, May 27, 1968

Int. Cl. C10g *13/02, 13/10*

U.S. Cl. 208—111 7 Claims

In the hydrocracking of mineral oils with a Group VIII noble metal hydrocracking catalyst, a relatively aromatic gasoline product is produced by maintaining relatively high hydrogen sulfide hydrogen ratios in the reaction zone, while relatively non-aromatic products, e.g. jet fuels and/or diesel fuels, are produced by reducing the hydrogen sulfide/hydrogen ratio.

27,858

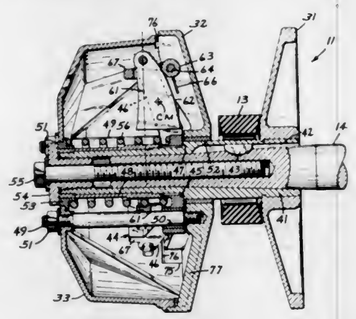
CENTRIFUGAL CLUTCH

Eugene W. Laughlin, Minneapolis, Minn., by Textron, Inc., assignee, Providence, R.I.

Original No. 3,605,510, dated Sept. 20, 1971, Ser. No. 869,165, Oct. 24, 1969. Application for reissue Sept. 20, 1972, Ser. No. 290,631

Int. Cl. F16h *55/52*

U.S. Cl. 74—230.17 E 16 Claims



The disclosure is directed to a variable ratio centrifugal clutch having driving and driven assemblies connected by an endless belt. The driving assembly consists of a pair of sheaves affixed to a drive shaft, one being axially stationary and the other being axially movable with respect thereto. The movable sheave forms part of a closed housing which fully encloses a plurality of flyweights pivotally mounted on the shaft for rotation therewith. In response to increases in drive shaft speed, the flyweights swing outward and engage the housing, moving it in its entirety along the shaft to bring the sheaves together.

27,859

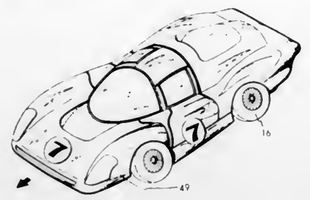
TOY CAR

Keiichiro Miura, Tokyo, Japan, assignor to Asahi Toy Co., Ltd., Tokyo, Japan

Original No. 3,541,725, dated Nov. 24, 1970, Ser. No. 753,670, Aug. 19, 1968. Application for reissue Apr. 25, 1972, Ser. No. 247,388

Int. Cl. A63h *17/00*

U.S. Cl. 46—206 10 Claims



A toy car moved by a repulsive force of spiral spring. The spiral spring is wound by pressing the car downwardly and moving it forwardly, thereby making a gear provided on a driving shaft drive a gear which is connected to an end of the spiral spring through another shaft. The repulsive force of the wound spiral spring is transmitted to driving wheels by means of a gear train.

27,860

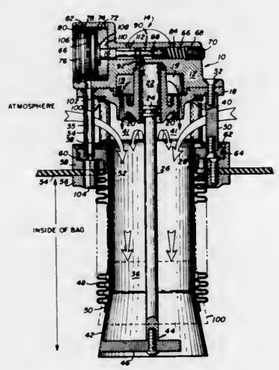
ASPIRATOR APPARATUS FOR BAG INFLATION SYSTEMS

Ronald H. Day, Mill Valley, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Original No. 3,572,974, dated Mar. 30, 1971, Ser. No. 813,660, Apr. 4, 1969, which is a continuation-in-part of Ser. No. 803,178, Feb. 28, 1969. Application for reissue Mar. 13, 1972, Ser. No. 234,149

Int. Cl. F04f *5/48*

U.S. Cl. 417—184 24 Claims



An improved aspirator device for bag inflation systems and the like, which is rotationally symmetric about the axis of the device and includes an annular atmospheric flow path concentric with one or more rings of aspirating jets to provide a high efficiency aspirating function. The aspirator includes a single operation closure component which acts to open the atmospheric flow path upon actuation of the device and close the atmospheric flow path when a predetermined pressure has been built up within the inflated device. Means are provided for allowing a selected inflated device pressure to initiate closure of the atmospheric flow path.

27,861

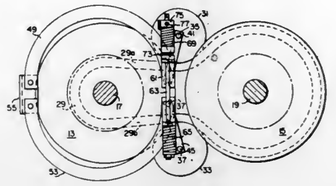
MOTION TRANSMISSION DEVICE

Charles E. Kraus, Austin, Tex., assignor to Excelermatic, Inc.

Original No. 3,575,058, dated Apr. 13, 1971, Ser. No. 753,941, Aug. 20, 1968, which is a continuation-in-part of Ser. No. 499,560, Oct. 21, 1965. Application for reissue Feb. 16, 1972, Ser. No. 226,991

Int. Cl. F16g *1/24;* F16h *7/12, 55/56*

U.S. Cl. 74—227 18 Claims



A power transmission device having a pair of pulleys connected by a traction transmitting member such as a chain, such chain being of sufficient length to provide intentionally a certain amount of sag between the pulleys with control of both slack and tight side chain pull and control of maximum ratio of tight to slack pull. Continuous tension on both tight and slack sides of the member around the pulley. The pulleys may be of variable pitch type to provide for adjustable speed operation under suitable control.

The chain has longitudinally extending contact surfaces engaging the pulley flanges which lie along the centerline of the chain, are essentially flat, match the pulley flange surfaces, and are positioned between the joints of the chain links.

27,862

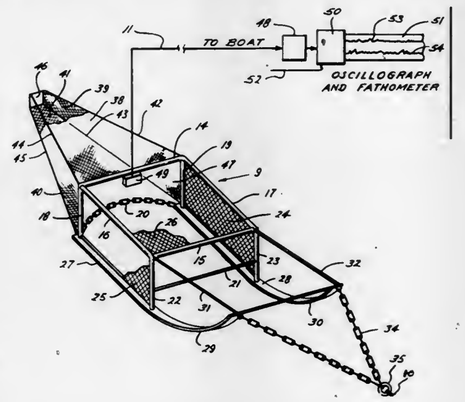
MEANS AND METHOD FOR LOCATING SHRIMP AND OTHER MARINE ANIMALS

Albert B. Silchenstedt, Box 255, Rockport, Tex. 78382

Original No. 3,561,150, dated Feb. 9, 1971, Ser. No. 846,545, July 31, 1969, which is a continuation-in-part of abandoned Ser. No. 767,781, Oct. 15, 1968. Application for reissue July 1, 1971, Ser. No. 159,072

Int. Cl. A01k *73/02*

U.S. Cl. 43—4.5 10 Claims



A try net is provided with an acoustic-electrotransducer which transmits electrical oscillations to a remote filter device. The filter device is tuned to isolate the characteristic vibrations produced by selected marine animals and the signals therefrom are transmitted to an indicator.

27,863
VARIABLE RESISTOR OF SLIDING TYPE WITH SWITCH ACTIVATED BY SLIDER

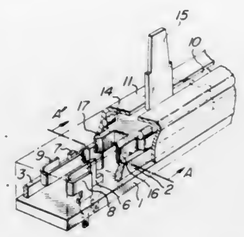
Tadashi Yano, Osaka, and Shunzo Oka, Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Original No. 3,622,934, dated Nov. 23, 1971, Ser. No. 39,738, May 22, 1970. Application for reissue Oct. 3, 1972, Ser. No. 294,505

Claims priority, application Japan, Aug. 8, 1968, 43/68,917; May 30, 1969, 44/52,233; July 22, 1969, 44/71,631

Int. Cl. H01c *9/08*

U.S. Cl. 338—198 **12 Claims**



A variable resistor of sliding type with switch including a dielectric base having a resistance element and a conductive element, a slider being movable along a predetermined line on the dielectric base, a variable resistor of sliding-type means including the resistance element, the conductive element and a plurality of contactors being provided on the underside of the slider, a switching means including movable and stationary contacts and being provided on at least one of the both end portions of the dielectric base in the predetermined line, and a switch-working means being provided at the slider and being engaged with the movable contacts to actuate the switching means in connection with movement of the slider.

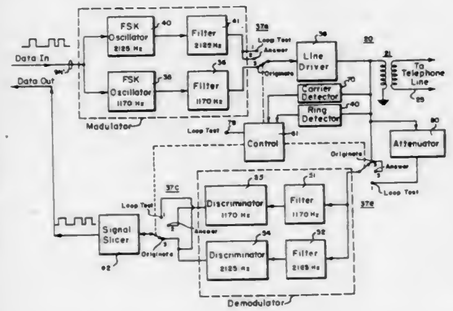
27,864
CLOSED LOOP TEST METHOD AND APPARATUS FOR DUPLEX DATA TRANSMISSION MODEM

Steven J. Davis, Ridgefield, and Richard A. Liberman, Stratford, Conn., assignors to General Datacomm Industries, Inc., Norwalk, Conn.

Original No. 3,655,915, dated Apr. 11, 1972, Ser. No. 35,454, May 7, 1970. Application for reissue June 29, 1972, Ser. No. 267,390

Int. Cl. H04m *11/06*

U.S. Cl. 179—2 DP **8 Claims**



A duplex data transmission modem is provided having facilities for transmitting data on either a call originate frequency F1 or a call answer frequency F2 while simultaneously receiving data on a call originate frequency F2 and a call answer frequency F1. Control apparatus is provided in the modem for closed loop testing wherein the modem receiver is forced to receive the normal outgoing data modulated carrier signal and return the data signal back to the incoming line and thereby provide loop-back on the analog or tone side of the telephone line interface.

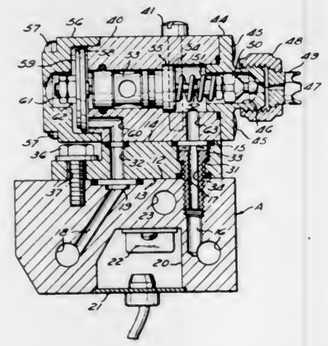
27,865
APPLICATOR HAVING A FIXED MODULE WITH STATIC PARTS AND A REMOVABLE MODULE WITH MOVING PARTS

Robert G. Baker, Avon, and Samuel R. Rosen, Lorain, Ohio, assignors to Nordson Corporation, Amherst, Ohio

Original No. 3,570,725, dated Mar. 16, 1971, Ser. No. 776,177, Nov. 15, 1968. Application for reissue Oct. 13, 1972, Ser. No. 297,455

Int. Cl. B67d *3/00*

U.S. Cl. 222—504 **27 Claims**



A fluid-operated modular apparatus for extruding and applying viscous liquids such as molten adhesives. The apparatus includes a gun in the form of a readily removable module that attaches to a fixed service block module which receives the supply lines for the viscous liquid and the operating air for example. The service block and gun have passages which register when the apparatus is assembled whereby the gun may be easily removed from the fixed service block and replaced without disconnecting any fluid lines or other service equipment.

27,866
APPARATUS FOR THE AUTOMATIC DETERMINATION OF THE COAGULATION, AGGREGATION AND/OR FLOCCULATION, OR THE LIKE, RATES OF FLUIDS, AND NOVEL REACTION INTENSIFYING AGENT FOR USE THEREWITH

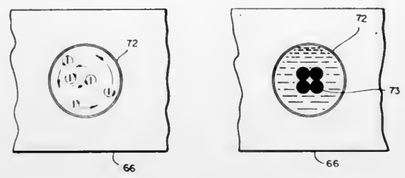
Stanford L. Adler, Westchester County, N.Y., assignor to Technicon Corporation, Tarrytown, N.Y.

Original No. 3,650,698, dated Mar. 21, 1972, Ser. No. 881,971, Dec. 4, 1969. Application for reissue Dec. 14, 1972, Ser. No. 314,930

Int. Cl. B03c *1/02*; **G01n** *11/00, 33/16*

U.S. Cl. 23—253 R **11 Claims**

Apparatus for the determination of the coagulation rate or the like of fluids, wherein dispensing means are operable to successively dispense blood plasma samples, in turn and at a precisely metered rate, onto spaced-apart measured quantities or spots of a dried suspension of a reaction intensifying agent carried on an advancing film strip. The intensifying agent may comprise magnetic iron oxide particles. Subsequent to incubation of the sample-intensifying agent mixture, additional dispensing means are operable to dispense a precisely metered quantity of prothrombin reagent into the film strip. The resulting sample-reagent-intensifying agent mixture is subjected to rotating magnetic fields, with the result that the moving magnetic particles promote mixing and, also, are operative to collect one or more of the fibrin strands, whereby the mixture, which is substantially turbid, undergoes a sharp change in its optical transmission properties, which change is detected by light sensitive means for the measurement of the prothrombin time of the blood plasma sample of interest.



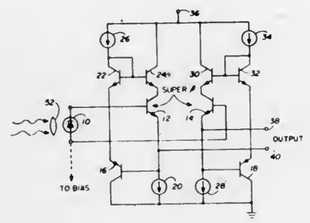
27,867
RADIATION-SENSITIVE CAMERA SHUTTER AND APERTURE CONTROL SYSTEMS

Kenneth E. Years, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original No. 3,626,825, dated Dec. 14, 1971, Ser. No. 41,402, May 28, 1970. Application for reissue May 5, 1972, Ser. No. 250,799

Int. Cl. G01j *1/00*

U.S. Cl. 95—10 C **8 Claims**



A voltage that varies linearly with light intensity variation is generated by an amplifier having a differential input stage connected to a light responsive diode. Two high gain transistors are included in the differential input stage to provide amplification of the signal currents of the light responsive diode. In a camera shutter and aperture control system, the linearly varying light intensity voltage is amplified to control two threshold detector circuits. An inhibiting circuit prevents one of the threshold detector circuits from responding to the light intensity voltage until the first threshold circuit has completed its desired operation.

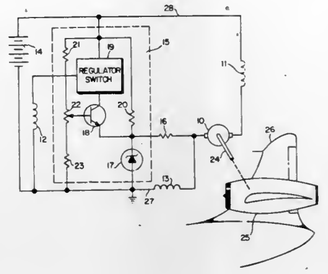
27,868
DC SHUNT STARTER GENERATOR

Dennis Allan Porter, Staunton, Va., assignor to General Electric Company

Original No. 3,493,776, dated Feb. 3, 1970, Ser. No. 565,240, July 14, 1966. Application for reissue Jan. 24, 1972, Ser. No. 220,498

Int. Cl. F02n *11/04*

U.S. Cl. 290—31 **9 Claims**



A shunt starter generator is modified to provide the starting characteristics of a series starter generator, by weakening the field by paralleling the series compensating winding with a Zener reference diode in the voltage regulator to effect interruption of the excitation as the armature current falls, thereby allowing the field current to decrease to reduce the back EMF. When the back EMF is reduced, the supply voltage exceeds such back EMF and the armature current and resultant current increase, to provide the high speeds required to ignite and start a jet engine.

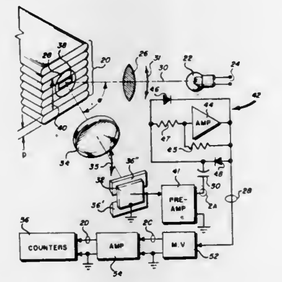
27,869
PITCH MATCHING DETECTING AND COUNTING SYSTEM

Samuel P. Willits and William L. Mohan, Barrington, Ill., assignors to Spartanics, Limited, Palatine, Ill.

Original No. 3,581,067, dated May 25, 1971, Ser. No. 780,367, Dec. 2, 1968. Application for reissue Aug. 15, 1972, Ser. No. 279,615

Int. Cl. G06m *9/00*

U.S. Cl. 235—92 SB **28 Claims**



An apparatus for counting stacked sheetlike materials having no sheet separation requirements. The active area of the sensor array is matched to the width of a sheet of the stack and the sensor array caused to traverse the stack, the complex signal output of the sensor array being stripped of the unwanted components in a high gain, diode clamped capacitive input operational amplifier whose square wave output is processed and counted in conventional counting circuits.

PLANT PATENTS

GRANTED JANUARY 1, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing

3,413
PEACH TREE

Grant Merrill, 416 N. Anderson Road, Exeter, Calif. 93221

Filed Jan. 28, 1971, Ser. No. 110,676

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—43 **1 Claim**

1. A new and distinct variety of peach tree substantially as illustrated and described; being particularly characterized by a vigorously growing, regularly and heavily bearing tree, with fruit that is firm and large, has a bright red skin color over 50% to 75% of its surface and a bright yellow undercolor, and ripening about two weeks after Rio Oso Gem (U.S. Plant Pat. No. 84); and most nearly resembling the Angelus (U.S. Plant Pat. No. 1,966), but being an improvement thereon in ripening about three weeks later.

3,414
ROSE PLANT

Reimer Kordes, Sparrieshoop, near Elmshorn, Germany, assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Nov. 22, 1971, Ser. No. 201,217

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—15 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the combination of a very double, large flower of Lemon yellow, overlaid in early stages by Neyron rose and Nasturtium orange, borne on stiff, erect, thorny stems.

3,415
ROSE PLANT

Mathias Tantau, Schliebfach, Germany, assignor to Jackson & Perkins, Medford, Oreg.

Filed Nov. 12, 1971, Ser. No. 198,484

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—15 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright but branching plant, leathery foliage, ovoid pointed bud of Buttercup Yellow (Wilson) fading very little as the flower opens and holding open form and color for several days on the plant.

3,416
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Oct. 22, 1971, Ser. No. 191,893

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Illini Spinwheel by its light yellow flower color, its sharper, more uniform response, particularly in the early spring period of mid-March through April and the very late fall period from mid-November through December, and by its earlier response, ranging from one day in May through mid-November and up to three days earlier in the periods of mid-March through April and mid-November through December.

3,417
AZALEA PLANT

William J. Skou, Akron, Walter W. Knicely, Barberton, and William E. Duffett, Akron, Ohio, assignors to Henry W. Motzkau, Whitewater, Wis.

Filed Oct. 22, 1971, Ser. No. 191,766

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—55 **1 Claim**

1. A new and distinct variety of azalea characterized particularly as to novelty when compared to the patent cultivar Skylark by its pink and white variegated flower color.

3,418
APPLE TREE

Herbert S. Mason, 1210 Gilmer Ave., Tallassee, Ala. 36078

Filed Oct. 15, 1971, Ser. No. 189,681

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—34 **1 Claim**

An apple tree which was discvered as a bud mutation of the variety Golden Delicious Gilbert strain (Plant Pat. No. 202). In contrast with its parent, the fruit of the new variety has a brilliant yellow color, with non-russeting characteristics, which fruit matures approximately one and one-half weeks before Golden Delicious, Gilbert strain (Plant Pat. No. 202).

3,419
DICENTRA PLANT

Marion Ownbey, Pullman, Wash., assignor to The Wayside Gardens Company, Mentor, Ohio

Filed Aug. 23, 1971, Ser. No. 174,066

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. The new and distinct variety of Dicentra plant herein shown and described.

3,420
APPLE TREE

Franklin Andrew Gilbert, 403 W. Pine St., Sturgeon Bay, Wis. 54235

Filed Sept. 20, 1971, Ser. No. 182,271

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct variety of apple tree substantially as described and illustrated in the foregoing specification and drawing.

3,421
CHRYSANTHEMUM PLANT

Jack S. Sweet, St. Petersburg, Fla., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Earl J. Small Growers Inc., Pinellas Park, Fla.

Filed Jan. 17, 1972, Ser. No. 218,568

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Torch by its yellow flower color when bud development and finishing temperatures are above 65°–70° F., flowers which are approximately one-half inch smaller, approximately 1" shorter habit, and by its foliage which is approximately one-half inch shorter in length.

3,422
CARNATION PLANT

William Pomeroy Thomson, West Hartford, Conn., assignor to The W. W. Thomson Company, Inc., West Hartford, Conn.

Filed Jan. 24, 1972, Ser. No. 220,503

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—70 **1 Claim**

A new variety of carnation plant resulting from meristem propagation of the unpatented variety Barta, the new variety being a sport of Barta and being particularly distinguished from Barta by its larger and better formed flowers which have a more intense coloring, an almost complete absence of splitting, and a taller overall growth.

PATENTS

GRANTED JANUARY 1, 1974

GENERAL AND MECHANICAL

3,781,914
SAFETY HELMET VISORS

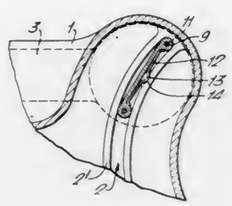
Ian Ramsay, Welwyn Garden City, England, assignor to Stadium Limited, Middlesex, England

Filed Feb. 11, 1972, Ser. No. 225,450

Claims priority, application Great Britain, Feb. 15, 1971, 4,643/71

Int. Cl. A61f 9/04

U.S. Cl. 2—10 — 6 Claims



A safety helmet visor comprises a curved transparent faceshield having an arcuate slot formed therethrough at each end thereof. A capping member is fitted through each slot and internally of the faceshield is secured to the headband which is mountable on the helmet. Each capping member provides cam portions engageable with the slot so that the faceshield can be moved in an arc, and spring means act between the capping member and the slot to take up play and define positions at which the faceshield is held locked in place.

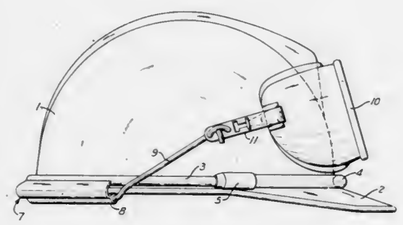
3,781,915
GOGGLE-SUPPORTING ASSEMBLY FOR HARD HATS

Robert F. Menold, Monroeville, and James J. Summers, Bethel Park, both of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed June 29, 1972, Ser. No. 267,380

Int. Cl. A61f 9/02

U.S. Cl. 2—10 — 3 Claims



A loop member, adapted to encircle a hard hat directly above its outwardly flared lower edge, is joined to the upper flange of a longitudinally curved and laterally opening channel member for receiving the rear portion of the flared edge. The lower flange of the channel member is provided with a tubular edge, through which a cord extends for connection to goggles.

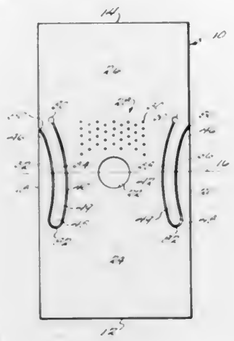
3,781,916
PROTECTIVE GARMENTS

Matt J. Vitol, 146 E. Court St., Woodstock, Va.

Filed Nov. 2, 1972, Ser. No. 303,019

Int. Cl. A41d 13/00

U.S. Cl. 2—88 — 8 Claims



There is disclosed a one-piece body cover having a neck opening and front and rear panels which overlap at the sides. Each panel side margin has a tie which secures with the tie on the opposite side margin of the same panel, one set tying across the wearer's back and the other across the wearer's front. The body cover is die cut, e.g., of thermoplastic film with lines designed to accommodate stress in use without tearing. An arm and shoulder cover and a head covering cowl are also shown.

3,781,917
HIP JOINT PROSTHESIS

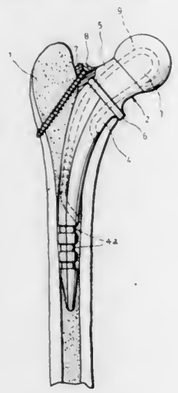
Robert Mathys, Guterstrasse 5, Bettlach, Switzerland

Filed Oct. 12, 1971, Ser. No. 187,964

Claims priority, application Switzerland, Oct. 13, 1970, 15079/70

Int. Cl. A61f 1/24

U.S. Cl. 3—1 — 4 Claims



A hip joint prosthesis of the type incorporating a ball head, a curved shaft intended to be inserted into the femur, and a support collar located between the shaft and the ball head. A screw hole is provided at the side of the support collar located at the outside curvature of the curved shaft for the purpose of anchoring the prosthesis by means of a screw at the outer corticalis.

3,781,918
ARTIFICIAL JOINT SOCKET

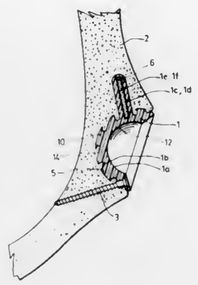
Robert Mathys, Guterstrasse 5, Bettlach, Switzerland

Filed Oct. 30, 1972, Ser. No. 302,017

Claims priority, application Switzerland, Nov. 29, 1971, 017317/71

Int. Cl. A61f 1/24

U.S. Cl. 3—1 — 4 Claims



An artificial plastic joint socket comprising a plastic joint socket body having a segmented spherical-shaped outer surface equipped with recesses for growth therein of the bone. Two essentially parallel plugs protrude from the outer surface of the joint socket body and are elastically connected therewith in such a manner that such plugs can adjust themselves with regard to the segmented spherical-shaped joint socket body owing to the bending forces occurring during implantation into the bone.

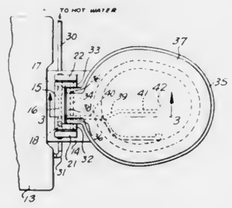
3,781,919
BIDET ATTACHMENT

Justino Ramos Ayala, Ave. Hnos. Davila-F-3 Urb. San Fernando, Bayamon, P.R.

Filed Aug. 11, 1972, Ser. No. 279,762

Int. Cl. A47k 3/22, 11/08

U.S. Cl. 4—7 — 10 Claims



A seat and cover assembly for a toilet bowl having a built-in bidet. The bidet is carried on a fixture including a conduit having hot and cold water fittings attachable to the toilet bowl to secure the assembly thereto. The fittings have control valves with handles extending from the opposite ends of the fixture and contoured to be flush therewith in the closed position of the valves. The toilet seat and cover are pivoted on a shaft carried by a pair of forwardly extending lugs on the fixture.

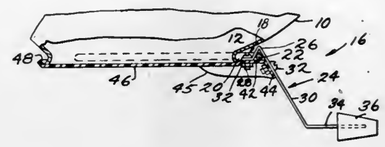
3,781,920
WASTE DISCHARGE VALVE FOR TOILET BOWL

Ronald O. Browne, and James L. Huffman, both of Staunton, Va., assignors to Brown Engineering Corporation, Staunton, Va.

Filed June 21, 1972, Ser. No. 264,711

Int. Cl. E03d 11/10

U.S. Cl. 4—85 — 3 Claims



An improved waste discharge valve having a simplified mounting arrangement that generally facilitates final assembly to the flush bowl of a portable toilet. The preferred embodiment of the unique valve mounting arrangement simultaneously serves as a pivot axis about which the valve is freely movable. The preferred embodiment of the invention also utilizes a valve flap construction that is slightly dish-shaped so as to trap a small amount of flushing fluid and thereby form a water seal which prevents the passage of noxious odors from a holding tank located below the flush bowl.

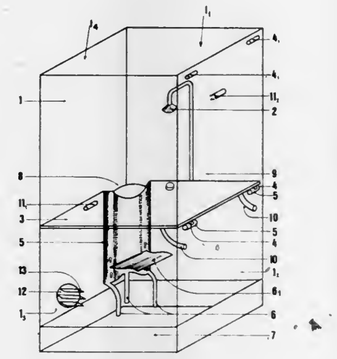
3,781,921
CABIN FOR SWEATING BY MEANS OF HEAT BATHS

Pierrette Dahem Rouat, Le Lichern, Quimperie, France

Filed Nov. 29, 1971, Ser. No. 202,883

Int. Cl. A61h 33/06

U.S. Cl. 4—161 — 5 Claims

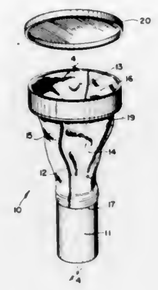


A sweating cabin for obtaining heat baths and the like, the cabin including screens, a movable wall, locking elements, means for selectively supporting the members.

3,781,922
SANITARY URINE COLLECTOR

Richard E. Ericson, Keene, N.H., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 774,696, Nov. 12, 1968, Pat. No. 3,579,652. This application Feb. 26, 1971, Ser. No. 119,108
Claims priority, application Canada, July 2, 1970, 087042; Great Britain, July 3, 1970, 32373/70. The portion of the term of this patent subsequent to May 25, 1988, has been disclaimed.
Int. Cl. E03d 13/00
U.S. Cl. 4—110 5 Claims

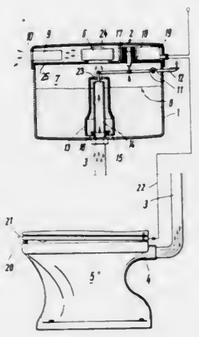


A funnel for use in the collection of urine specimens having a side wall of flexible material and two openings at either end and a rigid member coupled about one end to hold the opening in an open position and to provide a foundation for a sealing cap.

3,781,923
VENTILATING SYSTEM FOR A WATER CLOSET

Hans Maisch, and Ernst Jung, both of Gaggenau-Rotenfels, Germany, assignors to Eisenwerke Gaggenau GmbH, Gaggenau/Baden, Germany

Filed July 27, 1971, Ser. No. 166,449
Claims priority, application Germany, July 30, 1970, P 20 37 830.7
Int. Cl. A47k 3/22; E03d 9/04, 13/00
U.S. Cl. 4—213 6 Claims

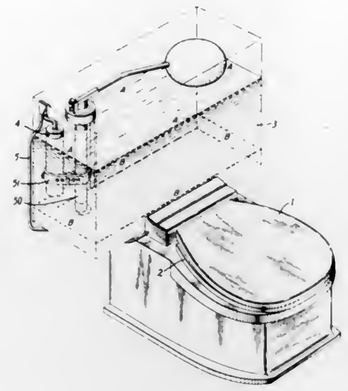


A ventilating system for a water closet installation comprises a hollow cover member mounted on the flushing tank to replace the standard cover. Extractor fan means in the hollow cover draws foul air from the installation and passes it through a filter to ambient atmosphere. The hollow cover member may also include electrically controlled flush-actuating means.

3,781,924
TOILET LID OR LID AND SEAT CLOSER

Charley W. Davis, Jr., 12 Wilmont Ave., White Plains, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,059
Int. Cl. A47k 13/10
U.S. Cl. 4—251 7 Claims

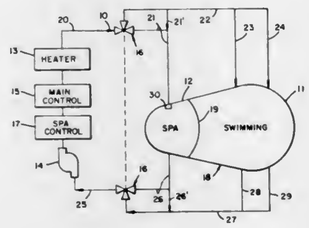


A toilet lid or lid and seat closer device for tank-type toilets comprises pneumatic means actuable upon flushing of the toilet for moving the raised toilet lid or lid and seat from a position behind the vertical to a position forward of the vertical and gravity restraining means for gradually lowering the toilet lid or lid and seat to the closed position.

3,781,925
POOL WATER TEMPERATURE CONTROL

George C. Curtis, 7252 Moore Rd. South, Salem, Oreg., and James S. Spight, 3306 Freeman Rd., Walnut Creek, Calif.

Filed Nov. 26, 1971, Ser. No. 202,221
Int. Cl. E04h 3/16, 3/18
U.S. Cl. 4—172.15 4 Claims

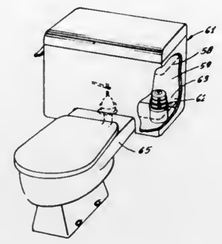


A dual temperature control system to regulate separately the water temperature in a swimming pool and in an adjacent therapeutic pool with the use of a single heater and circulating pump. Valve means in one position direct substantially all circulating water to the swimming pool at low back pressure and in a second position direct substantially all water flow to the therapeutic pool at a higher back pressure. A spa temperature control which is responsive to the higher back pressure or is electrically actuated in concurrence with the valve means, overrides the main heater thermostatic control and regulates the temperature of water flowing to the therapeutic pool at a level higher than that normally supplied to the swimming pool.

3,781,926
ADJUSTABLE SANITIZER DISPENSER FOR TOILET TANK

John Levey, Westlake Village, Calif., assignor to Sandra Levey, Los Angeles and Robert Levey, Encino, Calif., part interest to each

Filed Mar. 27, 1972, Ser. No. 238,111
Int. Cl. E03d 9/02
U.S. Cl. 4—228 6 Claims

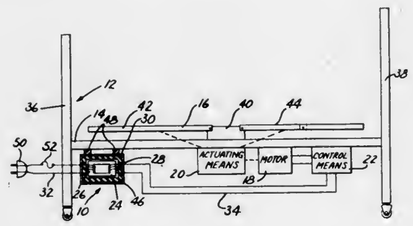


In a cylindrical type dispenser of a sanitizer material in the form of a solid cake disposed in the lower portion of the dispenser cylinder for use in a toilet flush tank, where water from a toilet tank is admitted through one or more openings in a cap placed on top of the cylinder to reach the top of the cake and dispensation of the sanitizing solution takes place with each flushing of the toilet as the water level in the tank drops below the openings in the cap, a double-walled cap is provided. One of the two walls of the cap is rotatable relative to the other, and each of the walls is provided with tiers of one or more openings which upon rotation of the rotatable wall to predetermined points are placed in register with one or more openings in the other wall. Means are provided to enable the rotatable wall to be manually rotated from above the cap to any predetermined position. Thereby, the user may determine the volume of water which will be admitted to the top of the cake to become saturated with sanitizer material and which, upon flushing of the toilet, will pass out from the cap into the toilet tank and bowl.

3,781,927
MOTOR OPERATED BED HAVING LOW LEAKAGE CURRENT

Anthony E. Zakaras, Palos Park, Ill., assignor to Simmons Company, New York, N.Y.

Filed Aug. 9, 1972, Ser. No. 279,095
Int. Cl. A61g 7/10; H02h 9/00; A61n 1/36
U.S. Cl. 5—67 10 Claims

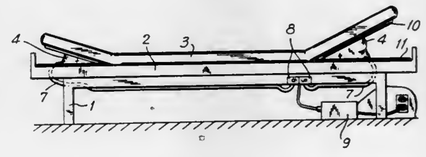


A motor operated adjustable hospital bed having a mattress supporting frame pivotally mounted on a lower supporting frame. The mattress supporting frame is pivoted with respect to the lower supporting frame by an actuating means which is driven by an electric motor mounted on the lower supporting frame. An on/off electrical control controls the electrical power supplied to the motor. A power supply means supplies power to the electrical control which power supply means includes a transformer having isolated primary and secondary insulated windings, the electrostatic coupling between the primary and secondary windings being less than 241 picofarads. Supplementary electrical insulation is disposed on the transformer and the electrically insulated transformer is mounted on the lower supporting frame. The primary winding of the transformer is connected to a source of alternating current power and the secondary winding is connected to the electrical control.

3,781,928
DEVICE FOR RAISING THE HEAD END AND/OR FOOT END OF A BED

Sven Arild Swallert, Geneva, Switzerland, assignor to Per-Erik Pettersson, Branninze Gard, Sadertalje, Sweden

Filed Apr. 5, 1971, Ser. No. 241,211
Claims priority, application Sweden, Apr. 6, 1971, 4454/71
Int. Cl. A61g 7/10, 7/06
U.S. Cl. 5—68 5 Claims

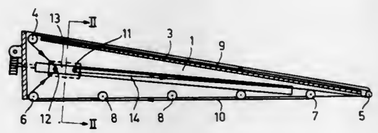


A device for raising an lowering the head end and/or foot end of a mattress of a bed from a bedstead comprising an inflatable pad positioned at the head end and/or foot end of the bedstead between the bedstead and the mattress to raise or lower the associated end of the mattress. The pad is mounted in a frame which is composed of upper and lower hinged U-shaped parts each of which includes a plate of thin rigid material fixedly attached to the parallel legs of the associated frame part. The pad is attached only to the plate of the bottom part and is free to slide on the plate of the upper part when the mattress is raised and lowered in the course of inflation and deflation of the pad.

3,781,929
STRETCHER

Simon Stevens, Den Helder, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

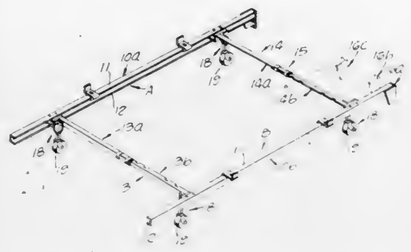
Filed June 22, 1971, Ser. No. 155,584
Claims priority, application Netherlands, July 11, 1970, 7010299
Int. Cl. A61g 1/02
U.S. Cl. 5—81 R 3 Claims



A stretcher comprising a frame having at least two parallel upper guides incorporated in said frame on the front and rear sides, respectively, for guiding a belt portion which is capable of supporting a human body, and at least two lower guides

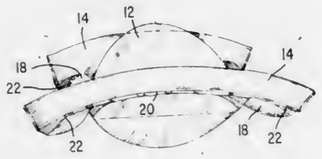
likewise incorporated in the frame on the front and rear sides, respectively, for guiding a belt portion which is in contact with the ground. Both ends of the belt portion guided over the upper guides are coupled to a coupling member incorporated in the frame so as to be movable in the direction of movement of the stretcher. The two ends of the belt portion guided over the lower guides are also coupled to said movable member.

3,781,930
CONNECTING DEVICE FOR ADJUSTABLE BEDFRAME
Melvin P. Spitz, 619 N. Elm Dr., Beverly Hills, Calif.
Filed Apr. 24, 1972, Ser. No. 246,695
Int. Cl. A47c *19/02*
U.S. Cl. 5—201 **5 Claims**



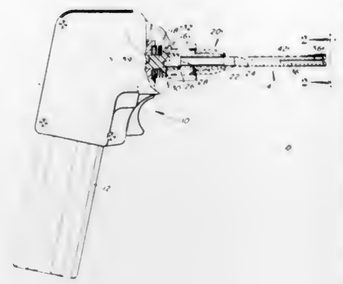
A bedframe in which side rails are interconnected by adjustable end crossbars, each crossbar comprising a pair of elongate angle sections connected with the side rails and having nested overlapped adjacent end portions manually interconnectible at a plurality of selectable positions to provide a plurality of different standard bed widths, the connecting means comprising permanently affixed pin and spring clip members which are manually operable without the necessity of using supplemental tools.

3,781,931
INFLATABLE THERAPEUTIC DEVICE
Barbara Knickerbocker, 240 Cold Soil Rd., Princeton, N.J.
Filed Feb. 17, 1972, Ser. No. 227,217
Int. Cl. A47c *7/08*
U.S. Cl. 5—337 **8 Claims**



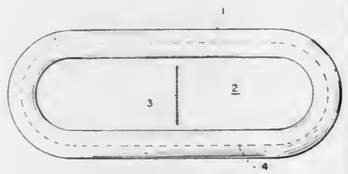
Inflatable devices are adapted for use in therapeutic activity, and for physical exercise or amusement purposes comprising one layer of opaque, nonreflective material, and another layer of transparent, flexible material which preferably presents a non-slippery surface. The layers are sealed about their edges and the devices are inflated with a fluid in the form of a gas and/or a liquid to support a person in an elevated position, and/or to stabilize and aid in the balancing of the individual. The devices may embody a plurality of cells or compartments and means may be located adjacent the edge or on the surface of the device to be engaged by the person as an aid in positioning or repositioning himself on the yieldable surface of the device.

3,781,932
CUTTING, STRIPPING, AND WRAPPING BIT FOR INSULATED CONDUCTOR WIRE
William J. Baker; Clifford L. Galloup, both of Reed City, and John R. Bos, Grand Haven, all of Mich., assignors to Gardner-Denver Company, Quincy, Ill.
Filed Dec. 16, 1971, Ser. No. 208,791
Int. Cl. B21f *15/00*
U.S. Cl. 7—14.1 R **6 Claims**



A bit and sleeve assembly for cutting, stripping and wrapping an insulated conductor comprising a rotary wrapping bit mounted within a fixed tubular sleeve. The bit includes a longitudinal conductor receiving groove having disposed therein a transverse cutting edge or blade insert cooperable with the sleeve to cut the conductor insulation upon commencement of the wrapping operation. The sleeve includes a radially extended wall portion forming an opening to the bit end face which is alignable with the conductor receiving groove to facilitate loading an insulated conductor into the groove. An opening in the sleeve alignable with the conductor receiving groove defines a cutting edge cooperable with the bit to cut a predetermined length of wire to be wrapped.

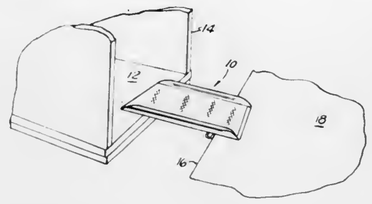
3,781,933
MODIFICATION OF ONE MAN LIFE RAFT
Ernest J. Soter, Newport News, Va., assignor to The United States of America as represented by the Administration of the National Aeronautics and Space Administration, Washington, D.C.
Filed Oct. 29, 1971, Ser. No. 193,672
Int. Cl. B63c *9/04*
U.S. Cl. 9—11 A **7 Claims**



A life raft, preferably of the one-man inflatable type wherein an inflatable tube perimetrically bounds an occupant receiving space having a flexible floor member, includes a zippered opening in the floor to be used for entry, thus avoiding the necessity of climbing over the peripheral tube, and facilitating the use of a constant diameter tube as opposed to conventional tubes tapered at one end to facilitate boarding

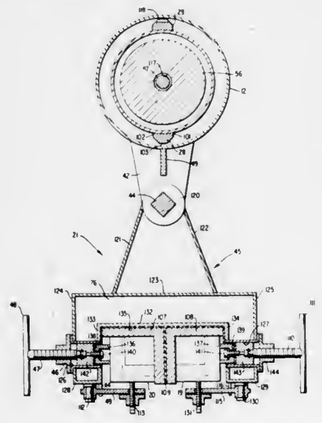
over the side. An airtight fabric bulkhead divides the peripheral tube longitudinally into two inflatable tube sections, whereby if either tube section were punctured, the bulkhead would move into the punctured section to substitute for the punctured wall portion and maintain the inflatable volume of the tube. The floor member is preferably attached to the central portion of the tube wall so that either side of the raft can be the "up" side.

3,781,934
DOCKBOARD
David A. Pink, Cadillac, Mich., assignor to Brooks & Perkins, Incorporated, Southfield, Mich.
Filed Sept. 22, 1972, Ser. No. 291,229
Int. Cl. E01d *15/12*
U.S. Cl. 14—72 **10 Claims**



A dockboard having a combined stop bracket and handle attached to the underside thereof, said bracket being of L-shape and having one leg attached to the dockboard, the handle being generally U-shaped and having the free ends of its legs attached, preferably by continuous welding, to the leg of the bracket which is attached to the dockboard.

3,781,935
METHOD OF OPERATION OF A CONVERTIBLE ESR FURNACE INSTALLATION
Boris Izrailevich Medovar, Bulvar Lesi Ukrainki, 2, kv. 8; Vikitor Andreevich Popov, ulitsa Andreevskaya, 11, apt. 2; Jury Fedorovich Alferov, Bulvar Lepse, 29, kv. 64; Alexey Georgievich Bogachenko, ulitsa Milyutenko, 15/2, apt. 141, and Jury Vadimovich Latash, Vozdukhoflotsky prosp. 81/2, kv. 14, all of Kiev, U.S.S.R.
Division of Ser. No. 100,709, Dec. 20, 1970, Pat. No. 3,709,997. This application Oct. 27, 1972, Ser. No. 301,502
Int. Cl. H05b *3/60, 7/12*
U.S. Cl. 13—34 **9 Claims**

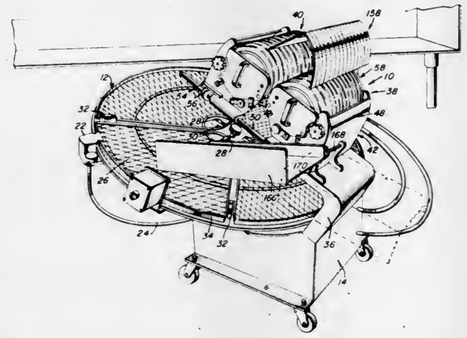


An electric furnace installation and process of operation in which a simple interchangeability of electrode clamping assemblies is provided to permit electrode melting operation in which single or plural electrodes can be mounted on the basic furnace tower for melting in a crucible means. The interchangeable electrode clamping assemblies are designed for ease of rapid removal from and rapid connection onto an upper carriage of the basic furnace. A lower carriage which helps support and stabilize the crucible can accommodate crucibles for single and for plural electrode melting.

ERRATUM

For Class 14—72 see:
Patent No. 3,781,934

3,781,936
MEAT HANDLING EQUIPMENT
Herman F. Russell, Detroit, Mich., assignor to Hobart Manufacturing Company, Troy, Ohio
Continuation-in-part of Ser. No. 877,229, Nov. 17, 1969, Pat. No. 3,606,628, which is a continuation-in-part of Ser. No. 734,729, June 5, 1968, Pat. No. 3,478,380, which is a continuation-in-part of Ser. No. 583,206, Sept. 30, 1966, Pat. No. 3,389,414, and a continuation-in-part of Ser. No. 704,971, Jan. 15, 1968, Pat. No. 3,439,369, which is a continuation-in-part of Ser. Nos. 583,206, Aug. 5, 1966, abandoned, and Ser. No. 570,616, Aug. 9, 1967, abandoned, and Ser. No. 659,937, Aug. 9, 1967, abandoned. This application Sept. 2, 1971, Ser. No. 177,302
Int. Cl. A22c *17/08*
U.S. Cl. 15—3.17 **14 Claims**

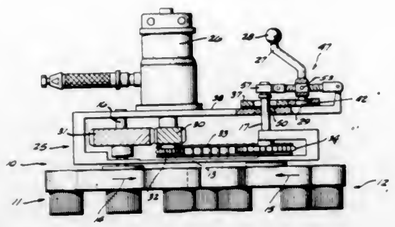


A meat cleaning machine mounted over a circularly traveling meat receiving unit which moves the cleaned meat outward of the cleaning machine incorporates a pair of laterally adjustable sections each incorporating a wire-like rotating gripping roller which engage and move cuts of meat therebetween. A brush is associated with each roller for cooperation therewith in effecting a cleaning of the moved meat. Each roller is defined by a series of simultaneously driven toothed rings mounted on and traveling about arcuate spaced shields or supports.

3,781,937
VARIABLE CAMBER CLEANER
Harold J. Jacobs, 1047 First St., San Pedro, Calif.
Filed June 14, 1971, Ser. No. 152,638
Int. Cl. A47l *11/16*
U.S. Cl. 15—49 R **11 Claims**

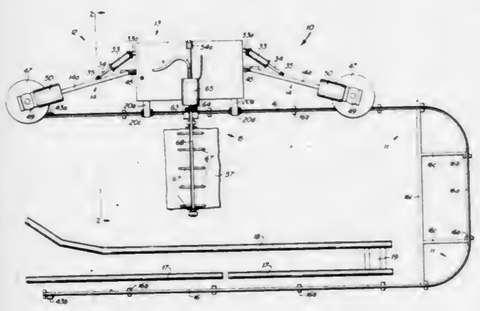
Two brushes are mounted on the cleaner for rotation on axes and have cleaning faces substantially normal to the axes and substantially lying in the same plane. The brushes are counter rotatively driven, and the cleaning faces of the

brushes are the only substantial contact between the cleaner and the surface being cleaned. The axes are tiltable with respect to each other so that different portions of the brush



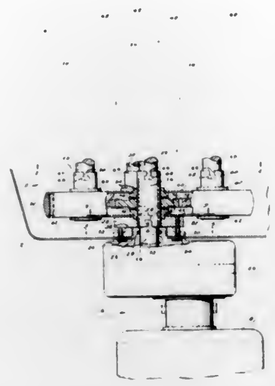
face periphery are in greater contact with the surface being cleaned so that the cleaner is urged along the surface, in accordance with the relative tilt of the axes.

3,781,938
CAR WASH
Willis R. Dunkley, 2804 Pierce Ave., Ogden, Utah
Filed Mar. 29, 1972, Ser. No. 239,237
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **9 Claims**



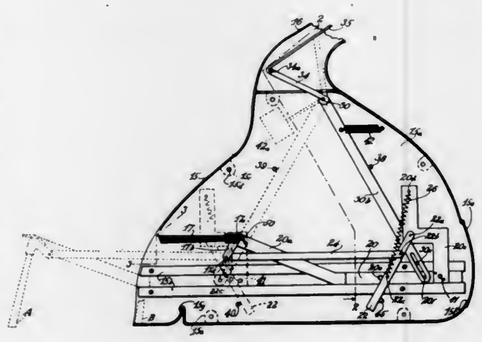
A car wash wherein a vehicle is subjected to an arrangement of rotating brushes that efficiently scour the vehicle sides, ends and top while soap and water rinse sprays are being alternately directed thereover. The car wash incorporates a movable console arranged to travel about the vehicle on a track within which the vehicle is positioned. Maintained within the movable console are the support apparatus such as soap dispensing and water spray pumps, hydraulic and electrical motors, and associated lines and valves as well as timing mechanisms for controlling the operations within the car wash. Arms are pivotally connected to the sides of the movable console that mount upstanding rotatable brushes suitable for washing. The sides and ends are mounted on the free ends of the arms. Motors rotate the brushes and the brushes are resiliently maintained in contact with the vehicle as the movable console travels around the vehicle. The movable console operates the brushes to provide alternate pushing of one upstanding brush over crevices and bends in the vehicles contoured surfaces and a dragging of the other rotating brush over the surfaces. A cantilever arm is mounted to the top of the console and another motor driven rotating brush journaled thereby is arranged to wipe the top and hood and rear deck areas of the vehicle. Soap and water sprays and clear water rinse sprays are also dispensed onto the vehicles top and hood areas from a spray arrangement carried by the cantilever arm.

3,781,939
GLASS WASHER FOR BEVERAGE GLASSES AND THE LIKE
Harold J. Qualheim, 641 Tower Cir., Racine, Wis.
Filed Aug. 17, 1972, Ser. No. 281,422
Int. Cl. A47l *15/38*; **B67c** *1/08*
U.S. Cl. 15—76 **5 Claims**



A glass washer for use in washing beverage glasses and the like, comprising a washer unit having multiple rotating brushes, and mounted in a sink, and submerged in the washing solution. The means of rotating the brushes comprises a drive unit positioned under the sink, which unit has a shaft extending upwardly therethrough to engage the washer unit. The washer unit is portable to permit convenient removal from the sink for cleaning and servicing. Downwardly extending means on the washer unit engages corresponding fixed means to prevent rotation of the body of the washer unit when in operation.

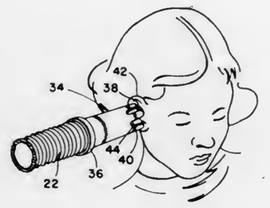
3,781,940
HAND-OPERATED SWEEPERS
Solomon J. Lehrer, 77 W. Washington St., Chicago, Ill.
Filed Mar. 15, 1972, Ser. No. 234,818
Int. Cl. A46b *13/08*; **A47l** *13/52*
U.S. Cl. 15—104.8 **9 Claims**



A sweeper for litter dropped on floors and carpets which has a broom in a bottom housing. A push rod rises from the latter to terminate with a handle. A trigger in the handle operates by way of slides in the housing to advance the broom from a raised position in the housing to a sweeping position

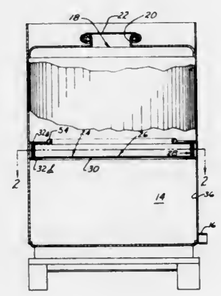
spaced forwardly from the same; and the broom takes a rearward sweeping movement when the trigger is released. A spring mechanism in the housing is automatically actuated to hold the broom in the raised position on the advance of the slides and in the sweeping position on the return thereof.

3,781,941
VACUUM INTAKE SAFETY MEANS
Charles H. MacFarland, Cleveland, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio
Continuation-in-part of Ser. No. 35,490, May 7, 1970, abandoned. This application Jan. 21, 1972, Ser. No. 219,688
Int. Cl. A47l *9/24*
U.S. Cl. 15—339 **5 Claims**



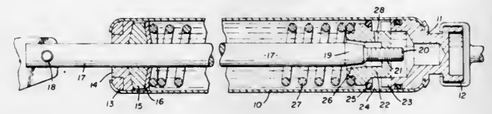
A coupling is provided for a vacuum cleaner including a male connector member adapted for sliding fit with an associated female connector member. One of the connector members is integrally connected to the vacuum intake tube or hose adjacent the intake end thereof and forms a vacuum intake mouth having a notched or apertured configuration adapted to prevent sealing engagement when the intake mouth is pressed against portions of the human body while the vacuum cleaner is running. The connector members are designed to interfit and form a fluid-tight seal, closing off the notched or apertured configuration, and transmitting the suction effect of the vacuum cleaner.

3,781,942
FOLLOWER FOR MATERIAL CONTAINERS
Clarence B. Coleman, Oakland, Calif., assignor to Fabricated Metals, Inc., San Leandro, Calif.
Filed June 14, 1971, Ser. No. 152,721
Int. Cl. B67d *5/64*
U.S. Cl. 15—246.5 **9 Claims**



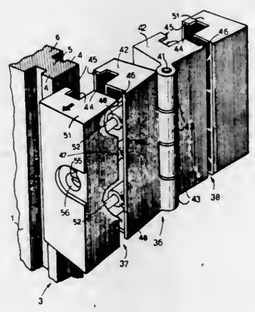
A flexible follower assembly for use in withdrawing viscous material from bulk containers consisting of a flexible diaphragm coextensive with the transverse cross-section of the container and including annular members attached to the diaphragm sheet for wiping up against the inside walls of the container. The flexible diaphragm and wiping rings are maintained in position within the container by a relatively stiff circumferential frame. The entire follower assembly, wiper and diaphragm and frame, are disassemblable so as to be insertable through the normal access opening of such a container, for assembly therewithin.

3,781,943
HYDRAULIC DOOR CLOSER
James P. Cain, Youngstown, Ohio, assignor to Marlboro Manufacturing Inc., Alliance, Ohio
Filed June 23, 1972, Ser. No. 265,515
Int. Cl. E05f *3/10*
U.S. Cl. 16—52 **1 Claim**



A hydraulic cylinder has a piston movable therein on a piston road threadably engaged in said piston. The rod extends out of the cylinder through a gland at one end and a spring is positioned between that end of the cylinder and the piston and normally urges the piston toward the other end of the cylinder which is closed. Valve means in the piston control the flow of fluid in the cylinder from either side of the piston and permit a rapid flow of fluid in one direction and a controlled flow of fluid when the piston is moved in the other direction. Rotation of the cylinder or the piston rod adjusts the controlled valving action and thereby the rate of closing action of the door closer.

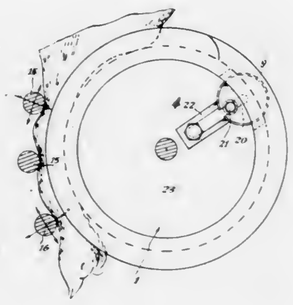
3,781,944
HINGE FOR THE ARTICULATED CONNECTION OF PARTITIONING PANELS, FURNITURE AND THE LIKE FOR OFFICES
Agostino Gianardi, Arcola, Italy, assignor to Ing. C. Olivetti & C., S. p.A., Torino, Italy
Filed Sept. 12, 1972, Ser. No. 290,920
Int. Cl. E05f *1/20*
U.S. Cl. 16—187 **7 Claims**



A hinge for the articulated connection of first and second releasably held members comprises first and second hinge elements pivotally inter-connected by means of a first block of each element mutually hinged. A second block of each element is connected to the first block by a screw operable to adjust the spacing between opposed pairs of slots and projections to clamp the connecting edge of each member between the

first and second blocks. The first and second blocks are resiliently biased away from each other by a spring. The screw extends through a hole in the second block and is engaged in a threaded hole in the first block, whereas the head of the screw provides has a radially projecting lug to prevent the first and second blocks moving further than predetermined distances.

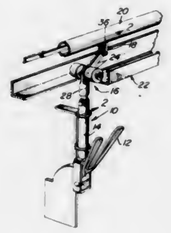
3,781,945
POULTRY PROCESSING MACHINE AND METHOD
John Taylor, Gloucester, England, assignor to Gordon-Johnson-Stephens Limited, Gloucester, England
Filed Oct. 28, 1971, Ser. No. 193,311
Claims priority, application Great Britain, Nov. 9, 1970, 53,214/70
Int. Cl. A22b *3/08*
U.S. Cl. 17—11 **7 Claims**



A machine and method for processing birds uses a screw to convey one extremity of the birds to or in work stations, the other extremity being conveyed conventionally.

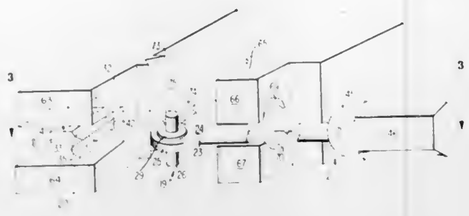
To facilitate a later crop-extracting operation, the screw may be provided with a knife and receive the necks of the birds so that the knife cuts a slit in the skin of the neck. A preferred form of screw is a conical screw and means for pressing the extremity into the screw may be rotatable rods lying generally parallel to its surface.

3,781,946
POULTRY SHACKLE SUSPENSION
William F. Altenpohl, Union Hill Rd., West Conshohocken, Pa.
Filed Apr. 21, 1972, Ser. No. 246,409
Int. Cl. A22b *5/08*
U.S. Cl. 17—44.1 **10 Claims**



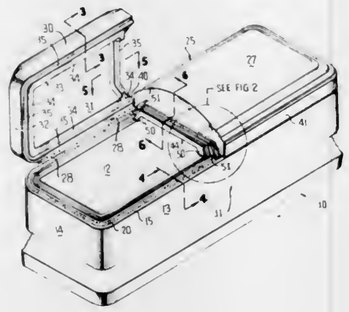
A poultry shackle body suspended from an overhead conveyor or a track spaced therebelow by a single axis suspension assembly which includes a pair of rollers pulled along the track by a clevis element pivotally connecting the conveyor to a shaft on which the rollers are mounted. The shaft is non-rotatably fixed to a link member straddled by the yoke. The shackle body is pivotally suspended from the link member.

3,781,947
COUPLING APPARATUS FOR CONTAINERS
John A. Germer, New Galena Rd., R.D. No. 1, Doylestown, Pa.
Filed Feb. 9, 1972, Ser. No. 224,864
Int. Cl. A44b *21/00*
U.S. Cl. 24—81 E **2 Claims**



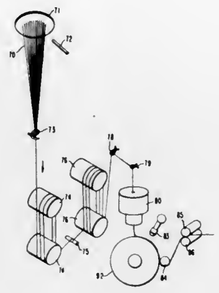
Coupling mechanism for joining a pair of adjacent containers together. The mechanism includes a pair of corner fittings, one being mounted in one container and the other in an opposite corner of an adjacent container. A threaded element having a spherical end is retractable from the interior of one corner fitting to engage a keeper element on the other corner fitting. The opposed corner fittings include complemental key portions for precision alignment and, are effective to transmit vertical and lateral forces between the containers when fastened together.

3,781,948
SPLIT LID CASKET
William V. Pitt, Waco, Tex., assignor to The Merit Company, Chicago, Ill., a part interest
Filed Nov. 1, 1971, Ser. No. 194,319
Int. Cl. A61g *17/00*
U.S. Cl. 27—17 **2 Claims**



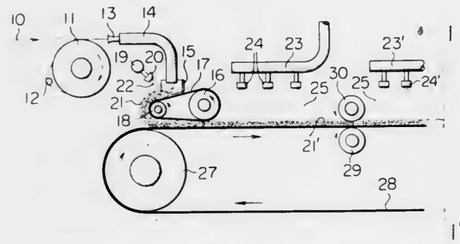
This disclosure relates to a split lid casket in which a pair of lid sections include depending tongues for reception in an upwardly facing groove adapted to receive sealing compound in an uppermost peripheral edge of the casket, the upper peripheral edge also including gasket means for seating against sealing surfaces of the lid sections with the gasket means being inboard of the grooves and tongues, the lid sections having adjacent transverse edge portions of a stepped configuration, and one transverse edge portion having a groove and an additional gasket means for respectively receiving a tongue and seating against a sealing surface of the other transverse edge portion.

3,781,949
PROCESS AND APPARATUS FOR JET-TEXTURING YARN AT HIGH SPEED
Alvin L. Breen, and Herbert G. Lauterbach, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 721,403, April 15, 1968, which is a continuation-in-part of Ser. Nos. 43,897, July 19, 1960, abandoned, and Ser. No. 698,103, Nov. 22, 1957, abandoned. This application May 3, 1972, Ser. No. 249,763
Int. Cl. D02g *1/16*
U.S. Cl. 28—1.4 **9 Claims**



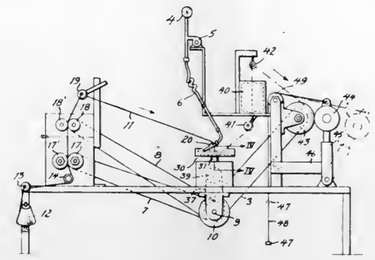
Process and apparatus are disclosed for jet-texturing yarn of continuous filaments at high speed to increase the bulk. Thermoplastic filaments are crimped by forwarding the yarn in a jetted stream of hot compressible fluid, such as heated air or steam onto a moving screen, cooling the yarn to set the crimp prior to imposing any substantial tension on the filaments and taking up the crimped yarn from the moving screen at a take-off roll to fix the take-off position.

3,781,950
APPARATUS FOR THE SCOURING OF WET-SPUN FILAMENT BUNDLES
Shigeo Katsuyama; Atsumi Asami; Masahide Watanabe; Tsutomu Sato; Toshiaki Norimatsu, and Eizo Nakajma, all of Miyazaki-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 881,345, Dec. 2, 1969, Pat. No. 3,672,819. This application Feb. 25, 1972, Ser. No. 229,384
Claims priority, application Japan, Dec. 3, 1968, 43/88229; Feb. 13, 1969, 44/10212
Int. Cl. B08b *3/00*
U.S. Cl. 28—1 SM **3 Claims**



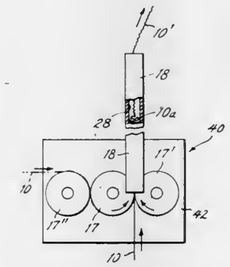
A process for the scouring treatment of wet-spun continuous multifilament bundles wherein said bundles are arranged in a plurality of elongated and parallel fleece mat strips on a pervious endless belt, each of said strips having a thickness of at least 5mm and 100–1,000 crossings of multifilament bundles.

3,781,951
METHOD AND APPARATUS FOR COMPRESSIVELY CRIMPING TEXTILE STRANDS
Robert K. Stanley, Media, Pa., assignor to Textured Yarn Co., Inc., Kennett Square, Pa.
Filed Aug. 30, 1971, Ser. No. 176,029
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **16 Claims**



Textile strands are compressively crimped by propelling them lengthwise, as by a fluid jet, into buckling contact with a smooth solid surface. The crimped strand accumulates on an adjacent moving screen, which preferably has a cylindrical strand-supporting surface. Rotation of the screen aids in collection and retention of the crimped strand until it is withdrawn therefrom at the leading edge of the strand accumulation after about half a revolution.

3,781,952
TEXTILE TREATMENT METHOD AND APPARATUS
Robert K. Stanley, 620 Meadowvale Ln., Media, Pa.
Continuation-in-part of Ser. Nos. 717,882, April 1, 1968, Pat. No. 3,500,519, and Ser. No. 680,851, Nov. 6, 1967, Pat. No. 3,518,733, and Ser. No. 684,230, Nov. 20, 1967, and Ser. No. 678,428, Oct. 26, 1967, and Ser. No. 606,420, Dec. 30, 1966, and Ser. No. 835,883, June 9, 1969, said Ser. No. 684,230, and Ser. No. 678,420, each is a continuation-in-part of Ser. No. 302,758, July 31, 1963, Pat. No. 3,376,622, which is a continuation of Ser. No. 216,524, Aug. 13, 1962, abandoned, said Ser. No. 717,882, is a continuation-in-part of Ser. No. 600,986, Dec. 12, 1966, abandoned, said Ser. No. 606,420, is a continuation-in-part of Ser. No. 386,489, July 31, 1964, Pat. No. 3,317,977, which is a continuation of Ser. No. 216,447, Aug. 13, 1962, Pat. No. 3,145,947, said Ser. No. 835,883, is a continuation-in-part of Ser. No. 650,762, July 3, 1967, abandoned, which is a continuation of Ser. No. 349,338, March 4, 1964, Pat. No. 3,348,283. This application July 31, 1969, Ser. No. 846,457
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **8 Claims**

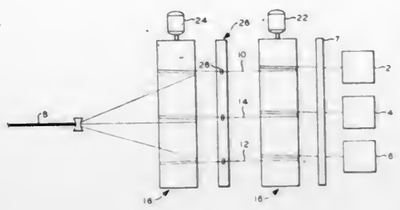


Textile yarns or strands are heated, as by contact with hot rolls, and if undrawn are also drawn by roll contact, and then are compressively crimped.

3,781,953
YARN PROCESSING APPARATUS

Albert F. Stegelman, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 26, 1972, Ser. No. 247,523
Int. Cl. D02j 1/22
U.S. Cl. 28—71.3 3 Claims

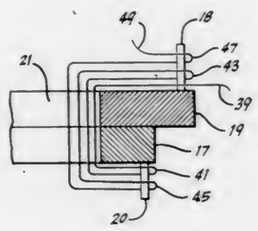


In an improved apparatus and method for simultaneously drawing a plurality of spaced-apart yarns and thereafter combining said yarns along their length to form a yarn bundle, at least one yarn guide having at least two yarn contacting elements is positioned between adjacent roll sets in the pathway of the yarn being drawn between the roll sets for maintaining each of said yarns between the roll sets at spaced-apart preselected relative locations.

3,781,954
THREE-DIMENSIONAL STITCHERY ORNAMENTS, APPARATUS AND METHODS FOR MAKING SAME

Alice Stewart, 32761 Seven Seas Dr., Laguna Niguel, Calif.

Filed Dec. 17, 1971, Ser. No. 209,058
Int. Cl. D03d 27/00
U.S. Cl. 28—15 11 Claims

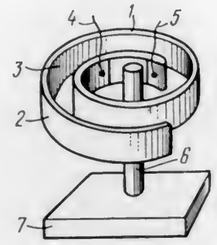


Three-dimensional stitchery creations are formed according to predetermined stitchery methods on apparatus compromising a base member having dimensions of height, width and length according to the three-dimensions of the stitchery creations formed thereon. The base member has a plurality of surfaces over which are distributed a multiplicity of projections about which stitchery materials may be looped and woven on a given surface and from one surface to another according to the predetermined stitchery methods forming the three-dimensional stitchery creation.

3,781,955
METHOD OF MAKING A PIEZOELECTRIC ELEMENT

Vyacheslav Vasilievich Lavrinenko, ulitsa Klovskaya, 12/7 kv. 61; Anatoly Petrovich Miroshnichenko, ulitsa Rozy Ljuxemburg 15, kv. 23, and Vitaly Alexeevich Khraschevsky, ulitsa Scherbakova, 57v, kv. 15, all of Kiev, U.S.S.R.

Filed Dec. 15, 1971, Ser. No. 208,306
Claims priority, application U.S.S.R., May 24, 1971, 1611885; Dec. 21, 1970, 1658506; Jan. 18, 1971, 1658786; Jan. 25, 1971, 1608697; May 31, 1971, 1600106
Int. Cl. B01j 17/00; H04r 17/00
U.S. Cl. 29—25.35 5 Claims

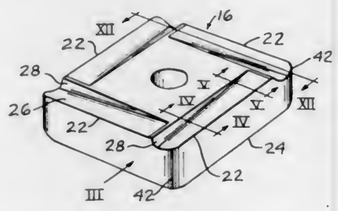


The present invention relates to the instrument manufacturing industry and, more particularly, the invention relates to piezoelectric elements made in the form of a spiral, to the method of their making and to apparatus that make use of said elements, for example piezoelectric relays, piezoelectric trigger devices, a clock with a piezoelectric drive, piezoelectric step-by-step motors, measuring instruments with a piezoelectric element, piezoelectric transfilters, piezoelectric bells and piezoelectric dynamic loudspeakers. The double-layer spiral piezoelectric element includes a piezoceramic material (1), electrodes on the outer surface (2) and the inner surface (3) of the spiral, terminals (4) and (5), a support (6) for mounting the piezoelectric element, a massive base (7), an electrode (8) between the two layers of the piezoelectric material and an electrode (9).

3,781,956
CUTTING INSERT

Dennis G. Jones, Greensburg, and James F. McCreery, Latrobe, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Filed Feb. 23, 1972, Ser. No. 228,605
Int. Cl. B26d 1/00
U.S. Cl. 29—95 R 11 Claims

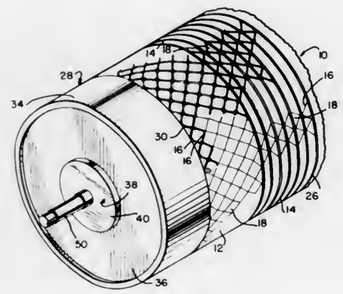


A cutting insert, especially a molded cutting insert formed of a hard wear resistant material, such as a is super-chilled carbide. The insert comprises a body having parallel top and bottom faces and a peripheral wall and is polygonal when viewed perpendicular to the faces. Cutting edges are formed at the juncture of at least one of the faces and the peripheral wall and a recess is formed in the one face extending inwardly A heat the center and each recess is in the form of a skewed or helical plane to impart a shearing type cutting action to the insert when it is presented to a workpiece.

3,781,957
DRUM INCLUDING ANNULAR GRID STRUCTURE

Oscar Luthi, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H.

Filed Sept. 15, 1972, Ser. No. 289,663
Int. Cl. B21b 27/02
U.S. Cl. 29—121 R 22 Claims

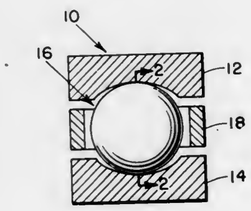


A drum comprising an annular grid structure which includes end portions formed only from coils of waved strip material and an intermediate portion formed from alternate coils of waved and planar strip material. The head plates at the ends of the drum have stiffening spokes or ribs connected thereto in a manner accommodating differential expansion and contraction of the head plates and spokes generally radially of the grid structure.

3,781,958
METHOD OF MAKING ROLLING ELEMENT BEARINGS

Richard J. Parker, North Olmsted, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 201,904, Nov. 24, 1971. This application Aug. 14, 1972, Ser. No. 280,390
Int. Cl. B23p 11/00; B21h 1/14
U.S. Cl. 29—148.4 A 8 Claims

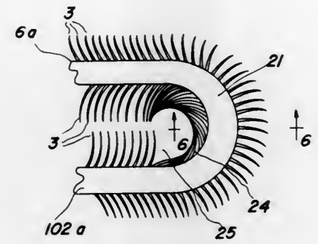


Making rolling elements by forming low mass cores having either hollow centers or being of a low mass material. The low mass cores are plated and heat treated to provide hard surfaces on the rolling elements. After grinding to the proper diameter the rolling elements are assembled between races to form a bearing.

3,781,959
METHOD OF FABRICATING A FINNED HEAT EXCHANGER TUBE

Joseph M. O'Connor, Chicago, Ill., assignor to Peerless of America, Incorporated, Chicago, Ill.

Division of Ser. No. 68,910, Sept. 2, 1970, Pat. No. 3,692,105, which is a continuation-in-part of Ser. No. 34,715, May 5, 1970. This application Apr. 24, 1972, Ser. No. 247,109The portion of the term of this patent subsequent to Sept. 19, 1989, has been disclaimed.
Int. Cl. B21d 53/02; B23p 15/26
U.S. Cl. 29—157.3 B 3 Claims

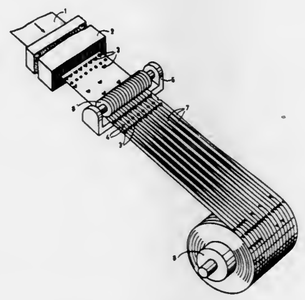


A heat exchanger embodying an elongated tubular member with integral elongated fins extending transversely thereacross and projecting outwardly therefrom, the fins terminating at their outer longitudinal edges in spaced spines.

3,781,960
METHOD OF MANUFACTURING A TUBE AND TIN RADIATOR

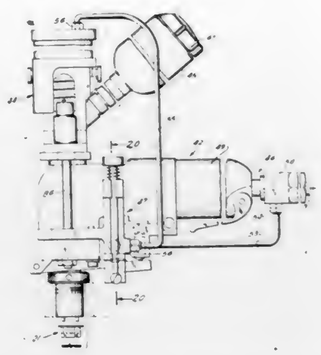
Willem Van Der Hoek, Emmasingel, Eindhoven, Netherlands, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,589
Claims priority, application Netherlands, Feb. 17, 1972, 72/02071
Int. Cl. B21d 53/02; B23p 15/26
U.S. Cl. 29—157.3 B 5 Claims



A method of manfuacturing a radiator from a strip of sheet material having a maximum thickness of 1 mm; by means of a die, rows of uniform apertures are punched, after which the strip is cut longitudinally through the centers of the apertures, so that strips having a maximum width of 25 mm are formed. The strips are then spaced apart a maximum distance of 3 mm with the apertures in alignment, and cooling water pipes are inserted in each row of apertures and soldered.

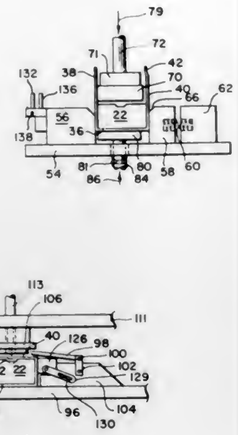
3,781,961
INSERT POSITIONING AND FASTENING APPARATUS
Peter Schenk, West Islip, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed Feb. 4, 1972, Ser. No. 223,455
Int. Cl. B23p 19/00, 19/04
U.S. Cl. 29—200 P 9 Claims



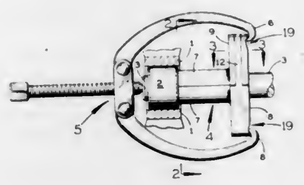
An apparatus for automatically positioning and fastening an insert in a panel. The apparatus includes a supporting structure and a releasable holding member on the supporting structure for holding the insert prior to and during the positioning thereof in the panel. A drive mechanism is on the supporting structure to automatically position the insert in the panel at the desired location. A reservoir of potting material is associated with the supporting structure for supplying a potting compound to the apparatus. The structure includes potting mechanisms for automatically supplying a predetermined amount of potting material to the positioned insert in the panel to fasten the insert therein. The apparatus provides for ejection automatically to release the insert from the structure after it has been properly positioned in the panel. Finally, the apparatus controls and orients the insert with respect to the panel and activates the drive, potting and eject mechanisms at the appropriate time.

3,781,962
APPARATUS FOR APPLYING A METAL PLATE TO A REFRACTORY BRICK
Clarence G. Norris, Parkville, and Woodrow W. Merrick, Upperco, both of Md., assignors to General Refractories Company, Philadelphia, Pa.
Division of Ser. No. 51,223, June 30, 1970, Pat. No. 3,698,068.
This application July 3, 1972, Ser. No. 268,633
Int. Cl. B23p 19/00
U.S. Cl. 29—200 B 11 Claims

A furnace block comprising a refractory brick having a metal casing is provided. In the construction of the furnace block, overlapping ends of the metal plate are secured together at an elongated groove formed along one surface of the brick to provide a metal casing for the brick. One end of the metal plate has an offset which is received in the elongated grove. The overlapping ends of the metal plate are connected by puncturing or welding to lock the overlapping ends together and to secure the metal plate to the brick. A method of applying a metal plate to a refractory brick is also provided. In this method, the brick is positioned on one surface of the metal plate at a position intermediate between the ends of the metal plate, and the ends of the plate are bent into contact with the sides of the brick by using the brick as a male die. During the bending, the metal plate is held firmly against the bottom surface of the brick. Then the portions of the metal plate which extend above the top surface of the brick are bent into contact with the top surface to overlap the ends of the metal plate while holding the previously bent portions of the metal plate firmly against the sides of the brick. Finally, the overlapping ends of the metal plate are secured together to provide a metal casing for the brick. An apparatus for producing the metal encased bricks is also provided.



3,781,963
BEARING EXTRACTION DEVICE
Joseph Felser, Jr., 2208 Segori Cir., Coral Gables, Fla.
Filed Sept. 28, 1972, Ser. No. 292,949
Int. Cl. B23p 19/04
U.S. Cl. 29—201 4 Claims

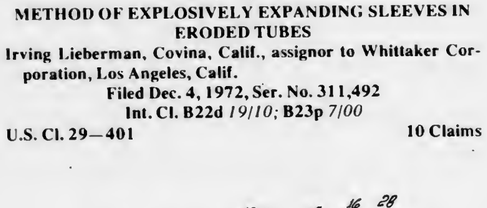


A fixture for removing bearings from a rotary shaft in a machine or device without disassembling same, which consists of a pair of slidable mating members which form a cylindrical sleeve applied to the shaft adjacent to the bearing to be removed and applying a well known screw type wheel or gear-puller onto the fixture with the screw of the puller centered in the end of the shaft. Clockwise rotation of the screw will urge the fixture against the inner end of the bearing [illegible]ithdraw the bearing from its support.

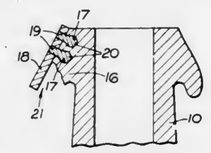
3,781,964
APPARATUS FOR ASSEMBLING A CABLE COUPLING
Francis V. Cunningham, Western Springs, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.
Filed July 19, 1971, Ser. No. 163,863
Int. Cl. H01r
U.S. Cl. 29—203 HM 5 Claims

There is provided an improved jack for assembling a cable coupler, including an elongated jack base provided with holes along its length. The jack base has an end support adjacent one end for receiving and positioning a cable end portion. A brace is provided operatively associated with the end support.

A jack lever is engageable with said holes for applying mechanical leverage progressively to components of a cable coupler. The method of assembly includes the provision of pre-formed elastomer under unitial load or stress which are assembled into final position. The load of stress is then released or transferred to provide the completed assembly.

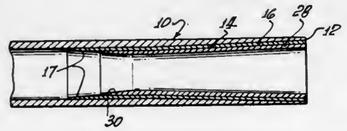


3,781,965
REPAIR OF LIFTING LUGS ON INGOT MOULDS
Donald Bone, Cheadle Hulme, England, assignor to Hilti Aktiengesellschaft, Landstrasse, Schaan, Liechtenstein
Filed Oct. 2, 1972, Ser. No. 294,202
Claims priority, application Great Britain, Oct. 29, 1971, 50,305/71
Int. Cl. B22c 9/12; B23p 7/00
U.S. Cl. 29—401 4 Claims



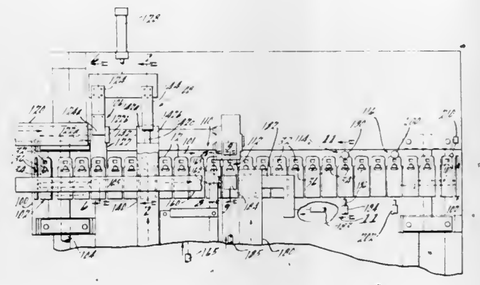
To restore an ingot mould to usefulness after a lifting lug thereof has been damaged by its lobe having been broken off, a repair plate is secured to the upper outer surface of the remaining part of the lifting lug by means of anchorages of weld metal which fill bulb holes in the remaining part of the lug and corresponding holes in the repair plate which is disposed to project downwards adjacent and to define a cavity between itself and the fractured surface of the lug, which cavity is then filled with weld metal.

3,781,966
METHOD OF EXPLOSIVELY EXPANDING SLEEVES IN ERODED TUBES
Irving Lieberman, Covina, Calif., assignor to Whittaker Corporation, Los Angeles, Calif.
Filed Dec. 4, 1972, Ser. No. 311,492
Int. Cl. B22d 19/10; B23p 7/00
U.S. Cl. 29—401 10 Claims



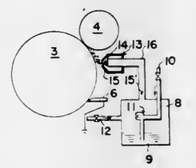
The method comprises explosively expanding a first metallic sleeve into engagement with a severely eroded section of a tube and thereafter explosively expanding a second metallic sleeve of approximately the same diameter as the first sleeve into engagement with the first sleeve to cover cracks formed in the first sleeve due to excessive expansion of portions of the first sleeve resulting from the erosion-produced, tapering of the inner wall of the tube.

3,781,967
BUCKLE ASSEMBLY MACHINE AND METHOD
Robert C. Fisher, 580 E. Long Lake Rd., Bloomfield Hills, Mich.
Filed Sept. 25, 1972, Ser. No. 291,678
Int. Cl. B23p 21/00
U.S. Cl. 29—430 29 Claims



A buckle assembly machine and method wherein buckles are fabricated by assembling the component parts thereof on individual tongues connected together in a driven endless belt. The tongues are similar to those with which the buckles are ultimately used.

3,781,968
METHOD FOR MANUFACTURING STEEL SHEETS WITH LAYERS OF PROTECTIVE METAL
Hidehisa Yamagishi, and Fumitoshi Yokoi, both of Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed June 2, 1972, Ser. No. 259,287
Claims priority, application Japan, June 16, 1971, 46/42498
Int. Cl. B22f
U.S. Cl. 29—420 4 Claims

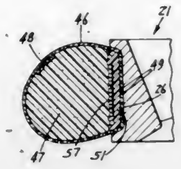


In a method of manufacturing a steel sheet coated with a layer of protective metal wherein a powder of the metal is coated on the surface of the steel sheet and the coated steel sheet is dried and then rolled by means of a rolling mill to form a layer of the protective metal bonded to the surface of the steel sheet, a small quantity of atomized oil is electrostatically applied onto the surfaces of the rolls of the rolling mill and the applied oil is treated with equalizing rolls to form thin oil films of uniform thickness on the surfaces of the rolls whereby to prevent the powder of metal from adhering to the surfaces of the rolls.

3,781,969
METHOD OF FORMING ROTATABLE SUTURING MEMBER ON A DEVICE

Lawrence Anderson, Minneapolis, Minn., assignor to Medical Incorporated, Minneapolis, Minn.

Continuation-in-part of Ser. No. 235,502, March 17, 1972. This application Aug. 11, 1972, Ser. No. 279,936
Int. Cl. B23p 9/00
U.S. Cl. 29—445 9 Claims

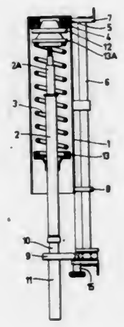


A suturing member and method of forming the suturing member on an implantable device, as a heart valve. The suturing member has a porous fabric cover surrounding a semi-rigid plastic core. An annular sleeve of heat shrinkable plastic material located within the cover holds the cover in assembled relation with the device in a manner which allows for rotaton of the device after the suturing member has been attached to the heart tissue. In the method of forming and mounting the suturing member on the device, the suturing member is shaped and cured on the device with the use of a mold. The mold is heated to cure the plastic core of the suturing member and bond the core to the inner surface of the cover.

3,781,970
METHOD AND A TOOL FOR MOUNTING AND DISMOUNTING SPRING SHOCK ABSORBING MEANS

Carl Ewert Ferdriksson, Rimbo, Sweden, assignor to Domkraft AB Nike, Eskilstuna, Sweden

Filed Aug. 13, 1971, Ser. No. 171,581
Claims priority, application Sweden, Aug. 19, 1970, 11290/70
Int. Cl. B23p 11/02
U.S. Cl. 29—446 15 Claims

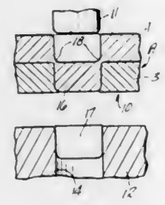


A tool for mounting and dismounting a suspension unit comprising a shock absorber with a surrounding helical spring member in motor cars. On mounting the spring is brought into a protective tube and made to engage an abutment at one end of the tube. A ram acting against one end of the shock absorber is activated and compresses the spring to bring the opposite end of the shock absorber level with the corresponding extremity of the spring so as to allow for connection therewith. On dismounting the opposite steps are taken. In known tools accidents have occurred due to the spring having loosened abruptly during the clamping operation. This danger and other disadvantages are eliminated in the tool according to the present invention.

3,781,971
METHOD OF PRODUCING A MECHANICAL JOINT BETWEEN METAL SHEETS

Verne L. Middleton, East Alton, Ill., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 64,983, Aug. 9, 1970, Pat. No. 3,729,804. This application Dec. 29, 1971, Ser. No. 213,517
Int. Cl. B23k 21/00
U.S. Cl. 29—470.1 5 Claims

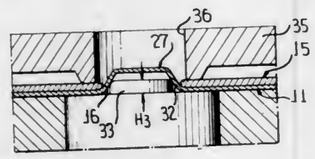


A method and apparatus for joining two or more sheets of metal together and the composite metal blank and mechanical joint produced thereby. A punch and die apparatus is employed wherein a slug is extruded from a first sheet and embedded in a hole provided in a second sheet by the punching action of the slug. The punch never contacts the die itself and the resulting joint is between the slug from the first sheet and the second sheet in which it is embedded. The slug formed from the second sheet is sheared from the composite. By performing this operation in opposing corners of the two sheets, the sheets are secured together so as to prevent relative motion between them. The invention is particularly applicable to the information of composite metal blanks having a pattern of stop-weld material sandwiched between the sheets.

3,781,972
METHOD OF SECURING A PULL RING TO AN EASY OPENING CAN END

Christian Enjolras, Pavillons-s-Bois; Pierre Gautier, Ville-d Avray, and Emile Billy, St-Cloud, all of France, assignors to Etablissements J. J. Carnaud & Forges De Gasse-Indre, Paris, France

Filed Oct. 22, 1971, Ser. No. 191,731
Claims priority, application France, Oct. 30, 1970, 7039180
Int. Cl. B21d 39/00; B23p 11/00
U.S. Cl. 29—509 12 Claims

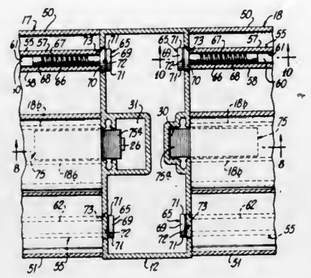


This invention relates to the attachment of a pull tab to an easy opening end for cans and like receptacles by means of a novel rivet formation wherein the head of the rivet is of a thickness substantially approaching the original thickness of the material of the end. The rivet is formed in two punching steps each employing a flat headed punch.

3,781,973
METHOD OF WALL CONSTRUCTION

S. Eugene Hubbard, and Lawrence F. Biebuyck, both of Niles, Mich., assignors to American Metal Climax, Inc., New York, N.Y.

Division of Ser. No. 41,951, June 1, 1970, abandoned. This application Oct. 26, 1971, Ser. No. 192,534
Int. Cl. B23p 19/00
U.S. Cl. 29—526 4 Claims

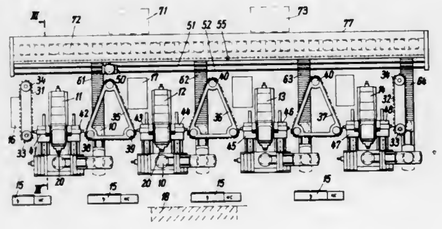


There is provided an improved wall construction including a vertical mullion and a horizontal member. The horizontal member is provided with longitudinally extending screw splines. The members may be assembled in the known shear block method, or in a known screw spline system, or further in accordance with the present invention the members may be assembled in accordance with an improved shear pin system. The shear pin system employs a shear pin which joins the horizontal members to the vertical mullions. The vertical mullion is prepared for the attachment of a horizontal member by forming holes to receive the head of a shear pin, and the horizontal member is prepared by the insertion of the shear pins into screw splines formed in the horizontal member. The horizontal member is then installed on the vertical by installing the head of the shear pin into the hole previously drilled in the vertical mullion, and then tapping the horizontal downward until the shear pins bottom in the holes.

3,781,974
WORKPIECE MANUFACTURING AND MACHINING DEVICE

Horst Holzl, Ludwigsburg; Max Rosskopf, Marbach, and Laszlo Csikor, Ludwigsburg, all of Germany, assignors to Karl Huller Gesellschaft mit beschrankter Haftung, Ludwigsburg, Germany

Filed Jan. 11, 1971, Ser. No. 105,569
Claims priority, application Germany, Jan. 10, 1970, P 20 00 998.7
Int. Cl. B23q 3/157, 41/02
U.S. Cl. 29—568 24 Claims

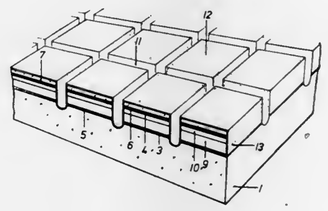


An arrangement wherein a plurality of machine tools are arranged in a row with each machine tool having an spindle and a tool changing device on each side for inserting tools into the spindle or removing tools from the spindle. On each side of each machine tool is a tool storage element for cooperation with the tool changing devices and each having an endless tool supporting conveyor. The storage elements between adjacent machine tools can cooperate with the machine tool on each side thereof while all storage elements cooperate with a main storage element extending along the row of machine tools. Each machine tool also has a workpiece supply conveyor leading from the machine tool to a main workpiece conveyor and storage device adjacent the main tool storage element. The installation is under automatic control for the supply of tools to the machine tools and the movement of workpieces therebetween and for the exchange of tools between the machine tools and between the main tool storage element and the machine tools or the storage elements adjacent the machine tools.

3,781,975
METHOD OF MANUFACTURING DIODES

Franz Ressel, and Andreas Ritter, both of Heilbronn, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed June 24, 1971, Ser. No. 156,242
Claims priority, application Germany, June 24, 1970, P 20 31 071.8
Int. Cl. B01j 17/00
U.S. Cl. 29—583 10 Claims



A method of manufacturing diodes comprises mounting, by one side, a semiconductor disc metallised on both sides on a carrier, and mounting a thin cover on the other side of the semiconductor disc, dividing the disc into a plurality of parts, forming an insulating coating on the divided parts, thereafter removing the insulating coating and the thin cover from the metallised surface of the disc parts and finally detaching the disc parts from the carrier.

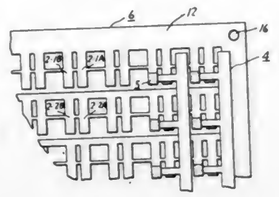
3,781,976
METHOD OF MANUFACTURING CHIP-SHAPED SOLID STATE ELECTROLYTIC CAPACITORS

Hiroshi Tomiwa, Osaka, Japan, assignor to Matsuo Electric Company, Limited, Osaka-fu, Japan

Filed May 8, 1972, Ser. No. 251,304
Claims priority, application Japan, May 26, 1971, 46/36151; July 19, 1971, 46/53780
Int. Cl. B01j 17/00
U.S. Cl. 29—583 3 Claims

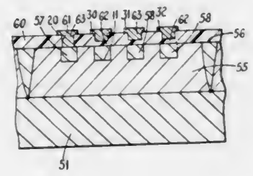
A method for manufacturing chip-shaped capacitor elements wherein a terminal array is formed within a rectangular frame with the terminals being arranged in rows and columns and held by supporting members. Capacitor elements with lead conductors are bonded to the terminals and then each

row of capacitors is enclosed within a synthetic resin. The molded rows of capacitors are then severed from the frame



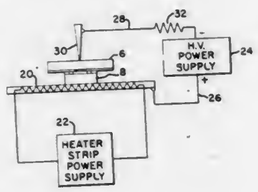
and supporting members and the individual capacitors are then cut from said molded rows of capacitors.

3,781,977
SEMICONDUCTOR DEVICES
Harold Hulmes, Cheadle, England, assignor to Ferrant Limited, Hollinwood, Lancashire, England
Filed Sept. 8, 1971, Ser. No. 178,745
Claims priority, application Great Britain, Sept. 19, 1970, 44725/70
Int. Cl. B01j *17/00*
U.S. Cl. 29—584 **4 Claims**



The formation of a contact individually on at least one selected region of a semiconductor body, such as is required in the manufacture of a read-only memory store, comprises providing on each selected region a layer of contact material on a layer of insulating material, and applying a potential between the contact material and the selected region to cause the contact material to penetrate through the layer of insulating material.

3,781,978
PROCESS OF MAKING THERMOELECTROSTATIC BONDED SEMICONDUCTOR DEVICES
Alexander M. Intrator, Dewitt, and Norbert Adams, Syracuse, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.
Filed May 16, 1972, Ser. No. 253,879
Int. Cl. B01j *17/00*; **H01l** *7/02, 7/16*
U.S. Cl. 29—589 **1 Claim**

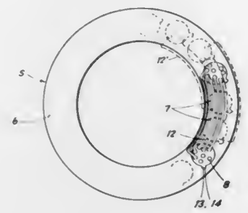


Semiconductor devices are provided in which a vitreous support member such as translucent glass plate serves as a principal support member for the semiconductor body of the device. One or more metallized paths are provided on a face of the vitreous support member which serves as a sealing surface. A major face of the semiconductor body equipped with one or more conductive contacts are provided, if desired, with an insulative and passivating layer, through which the contacts are exposed, is situated in confronting contacting relation with the vitreous support member and so arranged that the semiconductor body contacts register with the metallized paths on the vitreous support member. The vitreous support member and semiconductor body are permanently united by a thermo-electrostatic bond formed by heating to a temperature in the range of about 300-450° C and application of an electrostatic field of about 200-500 volts d.c. and a magnetic field having a flux density of about 3,000 to 20,000 gauss, such thermo-electrostatic bond also permanently uniting the metallized paths to the support member and to the semiconductor body, as well as permanently uniting the contacts on the semiconductor body to the metallized paths.

3,781,979
IMAGE INTENSIFIERS AND THE LIKE
Henry Dermott Stone, Surrey, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 8, 1971, Ser. No. 196,289
Claims priority, application Great Britain, Nov. 18, 1970, 54,817/70
Int. Cl. H01s *4/00*
U.S. Cl. 29—592 **10 Claims**

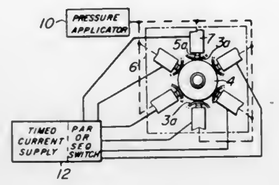
Method of manufacturing a channel plate having membranes or films at an end of each channel, comprising allowing a liquid to extend by capillary action along the channels to form a meniscus at the channel mouths, solidifying the menisci to provide temporary supports, forming the membranes on the temporary supports and removing the temporary supports to leave the membranes behind. Also, the channel plate produced by this method.

3,781,980
METHOD OF MAKING AN IMPROVED STATOR OR ARMATURE
Zinon C. Possis, Edina, Minn., assignor to Possis Corporation, Minneapolis, Minn.
Division of Ser. No. 187,398, Oct. 7, 1971, Pat. No. 3,725,708. This application Nov. 30, 1972, Ser. No. 310,816
Int. Cl. H02k *15/00*
U.S. Cl. 29—596 **2 Claims**



A method of making stators and armatures for dynamo electric machines in which the customary windings are replaced by extruded inserts seated in circumferentially spaced holes that extend axially through the core of the stator or armature, each of which inserts consists of a group of parallel spaced apart wires embedded in insulating material, the ends of the wires being connected to conductivity paths of printed circuit boards at the axially opposite faces of the core.

3,781,981
METHOD FOR MAKING ARMATURE-COMMUTATOR ASSEMBLY HAVING ARMATURE WINDING OF VERY SMALL DIAMETER
Tatuo Miura, and Toshiro Kaneko, both of Kariya, Japan, assignors to Nippondenco Co., Ltd., Kariya-shi, Japan
Continuation-in-part of Ser. No. 810,238, March 25, 1969, abandoned. This application Feb. 28, 1972, Ser. No. 229,991
Int. Cl. H01r *43/00*
U.S. Cl. 29—597 **15 Claims**



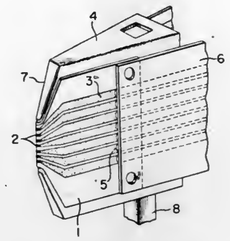
Apparatus and method for making an armature-commutator assembly having an armature winding wire of very small diameter comprising forming a plurality of wire-engaging fingers on the commutator, engaging a plurality of insulated conductors led out of the armature winding with the fingers, applying equal pressure simultaneously to all the engaging portions by a plurality of electrode bars whose number is equal to the number of the fingers and which have at their engaging end a recess portion of a depth which is approximately equal to the diameter of the comductor, and while continuing to apply that pressure, supplying to the electrode bars either equal valued currents simultaneously, or successively reduced currents sequentially for electrically connecting the fingers with the conductors.

3,781,982
METHOD OF MAKING A SUPERCONDUCTOR
Gerhard Ziemek, Hannover, and Ernst Scheffler, Langehagen, both of Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
Division of Ser. No. 884,846, Dec. 15, 1969, abandoned. This application Feb. 18, 1972, Ser. No. 227,367
Int. Cl. H01u *11/08*
U.S. Cl. 29—599 **1 Claim**



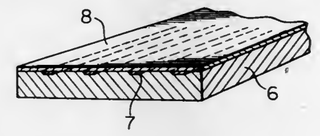
A superconductor is provided as a tube made from a self-supporting thin sheet with axial welding seam and attached to a separately made carrier, either as an outside envelope or, in case of a tubular carrier, as an inside lining, but always in intimate contact with the respective cylindrical carrier surface.

3,781,983
METHOD OF MAKING PRINTING HEAD FOR THERMAL PRINTER
Kenji Hiruma, and Inawo Sugaya, both of Tokyo, Japan, assignors to Ricoh Co. Ltd., Tokyo, Japan
Division of Ser. No. 178,876, Sept. 9, 1971, Pat. No. 3,715,564. This application Aug. 14, 1972, Ser. No. 280,091
Claims priority, application Japan, Sept. 16, 1970, 45/81085
Int. Cl. H05b *3/00*
U.S. Cl. 29—611 **5 Claims**



A plurality of heating resistors and their lead wires are formed upon a heat-resistive flexible film, and the flexible film is then curved and mounted upon a head structure in such a manner that the heating resistors are arrayed along a projecting edge of the head structure.

3,781,984
METHOD FOR MANUFACTURING ELECTRODES OF A DISPLAY DEVICE UTILIZING GAS DISCHARGE
Takashi Maeda, and Yasunari Shirouchi, Akashi, both of Japan, assignors to Fujitsu Limited, Kamikodanake, Nakahara-ku, Kawasaki-shi, Kanagawa-ken, Japan
Filed July 5, 1972, Ser. No. 269,236
Claims priority, application Japan, July 15, 1971, 46/52104
Int. Cl. H05k *3/10, 3/28*
U.S. Cl. 29—624 **9 Claims**

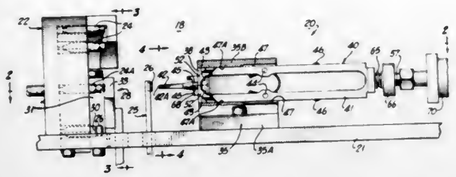


Electrodes manufactured by the method according to the present invention are used for generating a firing spot, which is utilized for an indication in a display device utilizing gas discharge or a plasma display panel. First, an electrode pattern having a predetermined dimension is formed in grooves on the inside surface of the dielectric supporting substrate; second, metal paste for electrodes is inlaid in the above-mentioned grooves then, said metal paste inlaid in the grooves is baked, and then the electrodes are formed on the supporting substrate.

3,781,985
METHOD AND APPARATUS FOR ASSEMBLING LINERS IN CONNECTORS
John L. Yonkers, 2030 Sunset Ridge Rd., Northbrook, Ill.
Continuation-in-part of Ser. No. 230,566, March 1, 1972. This application Mar. 21, 1973, Ser. No. 343,547
Int. Cl. H02g *15/00*
U.S. Cl. 29—629 **8 Claims**

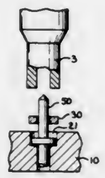
There is provided an improved method and apparatus for assembling inner liners with a connector of the type open at

one end and having a plurality of inwardly extending protuberances. In accordance with the method, the liner is inserted into the connector in generally U-shape with the ends thereof projecting from the open end of the connector. An elastic band is positioned at the open end of the connector and ex-



panded over the connector to fit over the surface of the connector. The expanded band is then moved over the folded ends of the liner onto the outer surface of the connector thereby securing the ends of the liner with the elastic band. An apparatus is provided for carrying out this method.

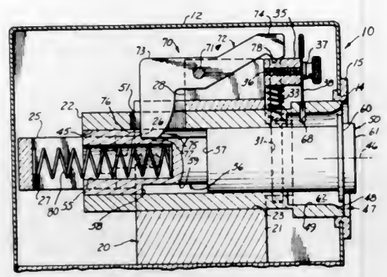
3,781,986
METHOD OF MOUNTING ELECTRICAL CONTACTS WITHIN A CONNECTOR BODY
Carl R. Joslyn, Unadilla, and John W. Dyce, Sidney, both of N.Y., assignors to The Bendix Corporation, Southfield, Mich.
Filed May 30, 1972, Ser. No. 257,614
Int. Cl. H01r *9/00*
U.S. Cl. 29—630 D **10 Claims**



A method of assembling metal contacts in thermoplastic inserts of an electrical connector, the thermoplastic body having a plurality of contact receiving passages therethrough, each of which has a shoulder therein and terminates through one face of the insert through a projection so that when a contact with a shoulder thereon is placed against the shoulder in the passage and the projecting portion is heated and caused to abut against the shoulder of the contact, the contact will be secured in the passage when the thermoplastic material cools.

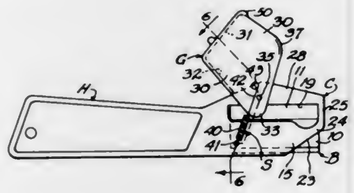
3,781,987
DEVICE FOR SLITTING THE SIDEWALL OF A WRAPPING OF A ROLL OF COINS
Stojan Gentscheff, 314 E. Floral Ave., Arcadia, Calif.
Filed Sept. 1, 1972, Ser. No. 285,639
Int. Cl. B26b *27/00*
U.S. Cl. 30—2 **15 Claims**

A device for slitting the sidewall of a wrapping of a roll of coins which includes a frame that has a plunger passage therein. The plunger passage has an axis and an open end. A plunger is axially slidable in the plunger passage. First bias means applies an axial force on the plunger tending to force it out of the plunger passage. Slitting means is mounted to the frame so as to be movable laterally relative to the axis, toward and away from the same. Linkage means interlinks the plunger and the slitting means, whereby pressing the end of a wrapped roll of coins against the plunger to force the plunger into the plunger passage to a sufficient depth will cause the linkage



means to force the slitting means toward the axis and sufficiently far into the plunger passage so that it will slit the sidewall of the coin wrapper.

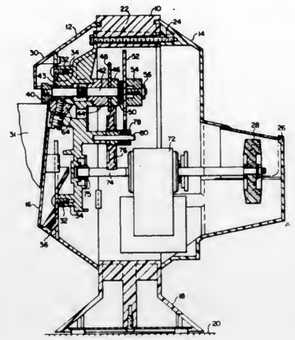
3,781,988
SAFETY PAPER CARTON OPENING BLADE HOLDER
Roger E. Jones, P.O. Box 68, Agoura, Calif.
Filed Aug. 29, 1972, Ser. No. 284,607
Int. Cl. B26b *5/00, 29/02*
U.S. Cl. 30—2 **8 Claims**



A blade holder comprising a grip and a handle molded integrally therewith, of hard plastic material, is provided with a guard pivotally attached thereto for retracting movement to uncover the corner of a blade held in the grip, the pivotal attachment being provided by trunnions integral with respective sides of the grip and received in apertures in respective side walls of the guard, which are of sufficient resiliency to be sprung over the trunnions during assembly of the guard to the grip. A tension spring is connected to integral posts on a side of the grip and on a corresponding side wall of the guard, positioned so that the spring will move over center with respect to the pivot axis in shifting from a closed to an open position, and the guard will be held in each of such positions by the spring.

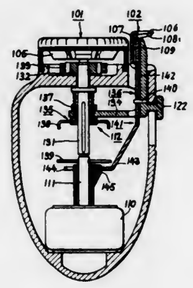
3,781,989
CAN OPENER
Myron Swetlitz, and James A. Richard, both of Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 1, 1972, Ser. No. 258,594
Int. Cl. B67b *7/38, 7/30*
U.S. Cl. 30—4 R **9 Claims**

The disclosed device is a power driven can opener in which the outer layer of the end seam of a can is severed. The disclosure is particularly directed to specific critical dimensions and relationships of the parts which yield a commercially practical



electrically powered can opener adapted to open most of the cans encountered in normal use in the home.

3,781,990
DRY SHAVER WITH SELECTIVELY ENGAGABLE SHORT AND LONG HAIR CUTTERS
Aldo Loner, Klagenfurt, Austria, assignor to U.S. Philips Corporation, New York, N.Y.
Division of Ser. No. 44,150, June 8, 1970, Pat. No. 3,690,000.
This application July 24, 1972, Ser. No. 274,673
Int. Cl. B26b *19/20*
U.S. Cl. 30—34.1 **4 Claims**



A dry shave appliance having a shaver part composed of at least one long hair cutting part with upper and lower cutters and a motor with a drive member. A coupling piece and an operating element are also provided with the coupling piece displaceable by the operating element positionable in at least two working positions.

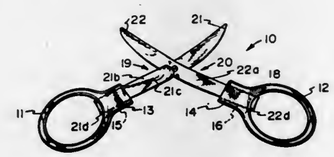
3,781,991
BRUSH CUTTER
Joseph Blake Stretton, Wilton, and William Borachok, Byram, both of Conn., assignors to Textron, Inc., Providence, R.I.
Filed Sept. 17, 1971, Ser. No. 181,322
Int. Cl. B26b *25/00;* **A01d** *55/18*
U.S. Cl. 30—276 **8 Claims**

A rotary brush cutter blade comprises a flat plate shaped to provide a relatively small number of blade portions, for example, from three to 10, radiating from a central hub portion. The blade portions are symmetrical and have bevelled cutting edges at both sides so that the blade is reversible. The cutting edges are bevelled downwardly so that the leading edges are in the plane of the upper face of the blade. The blade portions



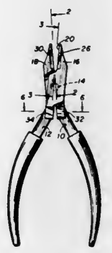
merge smoothly into the central hub portion to avoid stress concentrations and provide a strong structure.

3,781,992
COLLAPSIBLE SCISSORS
William M. Barr, 1512 S. 19th East, Salt Lake City, Utah
Filed Mar. 24, 1972, Ser. No. 237,657
Int. Cl. B26b *13/12*
U.S. Cl. 30—255 **1 Claim**



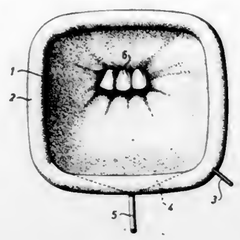
A scissors that can be collapsed to present a small, safely handled unit. Reversely turned blades each provide a cutting portion and a spring loaded handle engaging portion, the spring loaded handle engaging portion being arranged to prevent inadvertent collapsing of the scissors.

3,781,993
LIGHT WIRE PLIERS FOR ORTHODONTISTS
Anthony J. Cusato, Closter, N.J., assignor to Henry Mann, Inc., Feasterville, Pa.
Filed June 15, 1972, Ser. No. 263,010
Int. Cl. A61c *7/00*
U.S. Cl. 32—66 **2 Claims**



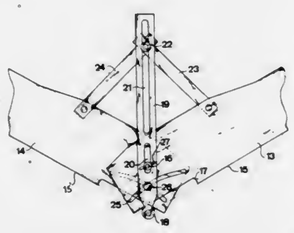
A light wire pliers particularly for use by orthodontists is particularly disposed for the making of very small helical loops as well as vertical loops in light tempered wire such as is used by orthodontists. Inserted hardened high speed steel facing portions are fixed, as by soldering, to stainless steel jaw members of the pliers so as to face the jaws so that those extremely small size jaw ends may be used to form the wire without bending, deformation, wear or breaking of these jaw portions.

3,781,994
ARRANGEMENT FOR SEPARATING AN AREA OF OPERATION OR TREATMENT IN THE ORAL CAVITY
Sven-Gunnar Hesselgren, Nybrogatan 12, Stockholm, Sweden
Filed Feb. 2, 1972, Ser. No. 222,892
Claims priority, application Sweden, Feb. 8, 1971, 1548/71
Int. Cl. A61c 5/12
U.S. Cl. 32—35 6 Claims



A device for separating a larger or smaler area, i.e., teeth, of the oral cavity for dental treatment consisting of a dam of an elastic material intended to be applied over said area and to be fixed in its position by a streching means, whereby said dam is surrounded by and connected to a inflatable frame piece.

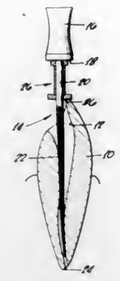
3,781,995
COMPASSES
Pierre Debeaux, 2 Boulevard d'Arcole, Toulouse-Haute-Garonne, France
Filed Mar. 22, 1972, Ser. No. 236,906
Int. Cl. B43l 9/00
U.S. Cl. 33—27 F 5 Claims



Improved compasses consisting of two arms adapted to be locked in adjustable angular positions and of a scriber arranged at the intersection of the useful edges of these arms; a circle is drawn by placing the compasses on the sheet and causing it to slide in such a manner that the straight edges of the arms pass at all times through two fixed points.

3,781,996
ROOT CANAL REVERSIBLE STOP
Dennis W. Saffro, 10158 Hollow Glen Cir., Los Angeles, Calif.
Filed Sept. 11, 1972, Ser. No. 287,773
Int. Cl. A61c 11/00
U.S. Cl. 32—57 6 Claims

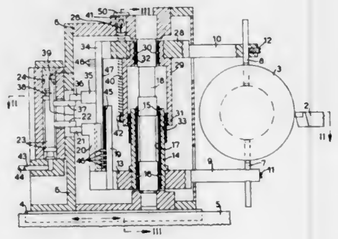
An endodontic instrument for treating a pulp canal includes an elongated member having a flated cutting portion at one end, a handle at the other and an intermediate part between the cutting portion and the handle. Selected stops of a set of reversible stop members are individually positionable on the intermediate portion in abutment with a lower shoulder of the handle, each of the stop members having a different length so as to adjust the effective length of the cutting portion. Each stop has a small and large stopping end to allow files to be used individually or together on a single tooth, and each stop has an interior rubber holding section penetrated by the cutting portion to hold the stop.



ERRATUM

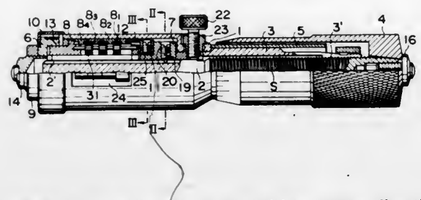
For Class 33—27.6 see:
Patent No. 3,781,995

3,781,997
DIAMETER GAUGE FOR MACHINE TOOLS
Elio Pagella, and Carlo Guerici, both of Ivrea, Italy, assignors to Ing. C. Olivetti &C., S.p.A., Ivrea, Turin, Italy
Filed Sept. 28, 1971, Ser. No. 184,566
Claims priority, application Italy, Sept. 30, 1970, 70262 A/70
Int. Cl. G01b 5/00
U.S. Cl. 33—143 L 6 Claims



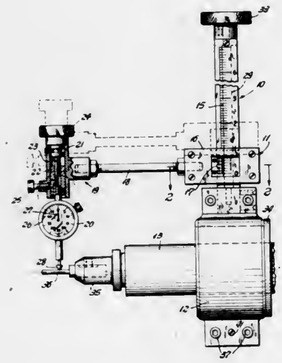
A diameter measuring gauge for machine tools comprising two opposed feelers both movable with respect to one another. The feelers are mounted on arms carried by sleeves that slide on a column. The arms are biased in so that the feelers contact the workpiece with the proper pressure. A hydraulic cylinder coupled to the arms drives the two arms until the feelers make initial contact with the workpiece, then the hydraulic pressure is removed. Measurement is accomplished by a pair of windings carried by the arms in juxtaposition to each other to electrically interact to produce an electrical signal proportional to the diameter of the workpiece.

3,781,998
INSIDE MICROMETER COMPRISING A COUNTER
Katsutoshi Okazaki, Kure, Japan, assignor to Yehan Numata, Tsurumi-ku, Yokohama, Japan
Filed Feb. 1, 1972, Ser. No. 222,566
Claims priority, application Japan, Apr. 2, 1971, 46/24882
Int. Cl. G01b 5/00
U.S. Cl. 33—166 1 Claim



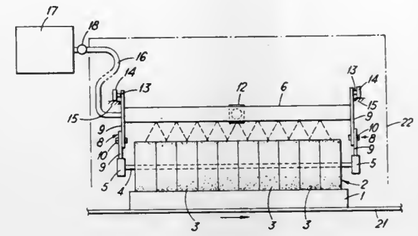
Compact inside micrometer comprising counter directly or indirectly connected to a guide which operates scale-carrying rings in the counter through a connecting bush interlocked with a spindle. The counter may be adjusted by separating the connecting bush from the guide.

3,781,999
CUTTING TOOL SETTING DEVICE
Peter J. Colangelo, 168 Laughlin Rd., East, Stratford, Conn.
Filed Apr. 26, 1972, Ser. No. 247,843
Int. Cl. B27g 23/00; G01b 3/22
U.S. Cl. 33—185 R 6 Claims



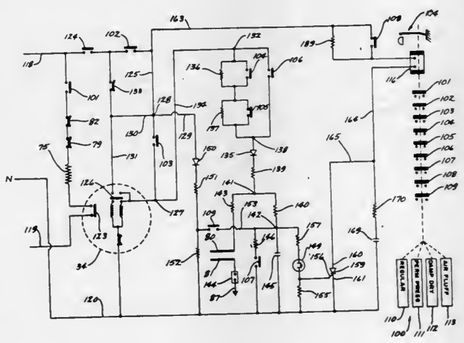
A device for temporary attachment over the spindle arm of a boring machine to enable the precise positioning of a boring tool in the machine. The tool setting device comprises a mounting element and an adjustable carriage slidably attached to the mounting element, the exact positioning of the carriage on the mounting element being made possible by the cooperation of a ture scale on the latter with a vernier on the carriage. The carriage also comprises an indicator gauge which is adjustably secured thereto and which is adapted to correlate the position of the carriage on the mounting element with the axis of rotation of the spindle and to indicate the precise position at which the cutting bit of the boring tool should be secured in the machine in order to bore a hole having the precise dimensions indicated by the vernier.

3,782,000
DRYING OF TIMBER
John H. Pless, 48 Kinnerton St., London, S.W. 1, England
Filed June 12, 1972, Ser. No. 261,716
Claims priority, application Great Britain, June 16, 1971, 28,271/71
Int. Cl. F26b 3/00
U.S. Cl. 34—9.5 7 Claims



A process for seasoning boards or planks of lumber is described in which the lumber is continuously moved through a drying chamber and the lumber is heated to reduce the moisture content to a required level. To prevent the surface of the lumber drying out in advance of the centre the surface of the lumber is intermittently brought into contact with one or more freely rotatable wetting rollers during the passage of the lumber through the drying chamber.

3,782,001
CLOTHES DRYER CONTROL
Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa
Continuation-in-part of Ser. No. 124,042, March 15, 1971, Pat. No. 3,710,138, which is a division of Ser. No. 803,687, March 3, 1969, Pat. No. 3,599,342. This application Aug. 10, 1972, Ser. No. 279,659
Int. Cl. F26b 19/00
U.S. Cl. 34—45 12 Claims



A control system for a clothes dryer including a dryness sensing circuit comprising a resistance-capacitance circuit portion operable for initiating termination of the clothes dryer responsive to preselected dryness conditions of articles therein. The control system further includes selectable means for precharging a capacitance circuit and effecting a treatment for "permanent press" fabrics, for example, whether they be wet or dry.

3,782,002
HAIR DRYER PARTICULARLY ADAPTED TO THE DRYING OF LONG HAIR

Bruno P. Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed May 12, 1972, Ser. No. 252,593
Claims priority, application France, May 21, 1971, 7163200
Int. Cl. A45d *20/00*
U.S. Cl. 34—99 5 Claims

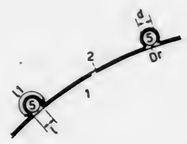


Hair dryer is provided with an accordion-pleated duct at its head-receiving opening and means for locating a head centrally of the free end of said duct, so that hot air flows outwardly near the periphery of the duct but the hair on said head is drawn inwardly near the axis of said duct.

3,782,003
DEVICE FOR SHIFTING PRODUCTS TO BE DRIED ON A PERFORATED DRYING DRUM

Felice Garzotto, Valdagno, Italy, assignor to Rimar S.p.A., Trissino, Vicenza, Italy

Filed Aug. 16, 1971, Ser. No. 172,009
Claims priority, application Italy, Aug. 22, 1970, 28885 A/70
Int. Cl. F26g *13/12*
U.S. Cl. 34—110 5 Claims

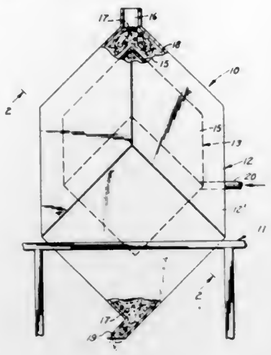


A device for shifting products to be dried on a perforated drying drum in order to increase the drying efficiency and to prevent the formation of a pattern of the drum holes on the same products, comprises a cylinder, having its longitudinal axis parallel to the axis of the drying drum, at a given distance which is adjustable. Said cylinder can be actuated by a side drive independently of the actuating system of said drum. When the diameter of said cylinder has been chosen, the distance from the drum surface can be varied in order to avoid the increase in the path of the product due the device becoming equal to the center distance between the drum holes or an integral multiple thereof. A plurality of these devices can be advantageously mounted on a drying drum.

3,782,004
DRYING APPARATUS FOR GRAIN AND THE LIKE

Floyd P. Black, 124 Downs Ave., Urbana, Ohio

Filed May 8, 1972, Ser. No. 251,248
Int. Cl. F26b *17/12*
U.S. Cl. 34—174 1 Claim

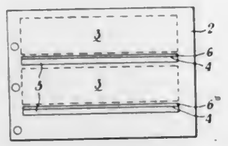


A drying device for bulk grain or other substances. This device consists primarily of a hollow box-like structure having spaced away from the walls on the interior, a perforated box-like structure through which hot air is placed under pressure so as to dry the grain carried within the space defined by the walls of both of the box structures.

3,782,005
AUDIO-VISUAL TEACHING SYSTEM CONSISTING OF A SELF PROPELLING MAGNETIC READING UNIT, SLIDING ALONG MAGNETIC TRACKS PRE-RECORDED ON PAGED SHEETS

Alessandro Oliveti, Rome, Italy, assignor to Soc. S.A.M.E.R., Rome, Italy

Filed Oct. 4, 1971, Ser. No. 186,185
Claims priority, application Italy, Oct. 14, 1970, 54027 A/70
Int. Cl. G09b *5/04*; G11b *5/80*
U.S. Cl. 35—8 A 3 Claims



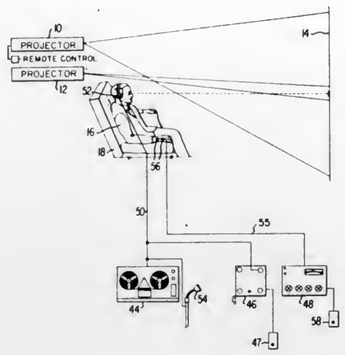
An audio-visual teaching system for rendering easier the learning of scholastic matters at any level, wherein the support of the information and/or the images consists of illustrative sheets suitably paged and the sound reproduction is obtained by a self propelling magnetic reading unit slidable with a precisely constant speed along a pre-recorded magnetic track, secured to the paged illustrative sheet.

3,782,006
MEANS AND METHODS TO ASSIST PEOPLE IN BUILDING UP AN AVERSION TO UNDESIRABLE HABITS

Eliot N. Symmes, San Francisco, Calif., assignor to American Clinic, Inc., San Jose, Calif.

Filed May 26, 1972, Ser. No. 254,786
Int. Cl. G09b *19/00*
U.S. Cl. 35—22 R 10 Claims

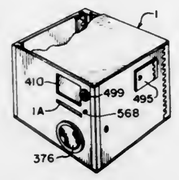
Methods and means for assisting persons in breaking undesirable habits include means for projecting first and second images onto a screen. The first image is a fixation image to induce a person to concentrate in a small limited area. The second image relates to an object or message relating to the habits to be broken. Various additional sensory messages, such as electrical or audio signals, are communicated to the person while one or both of the images are being projected on the screen.



3,782,007
LESSON SELECTOR ELEMENT CONTROLLED DEVICE FOR PRESENTING VISUAL AND AUDIO LESSONS AND RECEIVING RECORDED ANSWERS ON A SOUND TRACK

James L. Streit, Rt. 3, Box 364, Vernon, Tex.

Filed July 17, 1972, Ser. No. 272,641
Int. Cl. G09b *5/06*; G03b *31/06*
U.S. Cl. 35—8 A 14 Claims

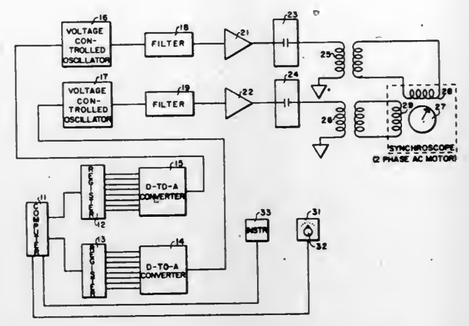


A device for teaching a multiplicity of students the same subject matter or different subject matter on each of a plurality of machines, by presenting these in visual and audio form, asking pertinent test questions and receiving the answers on a sound track, such as a removable cassette tape, to enable the teacher to evaluate the progress of the student in the subjects being studied. A lesson selector element is utilized for each lesson to be taught. The lesson selector element automatically sets or resets the machine to the particular lesson to be taught. The lesson selector element thus teaches the lesson for a predetermined number of minutes, when the visual and audio portions are cut off, at which time a signal is given the student to answer or to recite answers to questions relative to the particular material taught, and to automatically stop and reject the lesson selector element, after the recorded material has been properly identified on the sound strip by indicia. The teacher may thus evaluate the answers in accordance with the subject matter exposed to the student.

3,782,008
SYNCHROSCOPE TRAINING DEVICE

Evan E. Lloyd, Columbia, Md., assignor to The Singer Company, Binghamton, N.Y.

Filed May 9, 1972, Ser. No. 251,892
Int. Cl. G09b *23/06*
U.S. Cl. 35—19 A 7 Claims

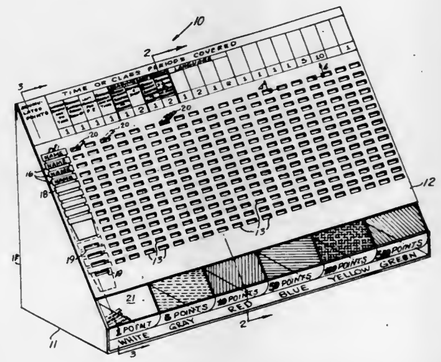


This is a system for simulating the operation of a synchroscope in an alternating current generating system which includes a power network or bus and a plurality of alternators which are to be paralleled to that bus. The system is usually a part of a large simulation system such as that which depicts the operation of a complete power plant. The simulator computer designates one of the alternators as the reference alternator which is presently supplying power to the bus. The reference frequency is designated by a number output from the computer, the value of which number represents the frequency of a variable frequency oscillator. A second output word from the computer represents the frequency of the second alternator which is to be paralleled to the first. This word is also converted to a voltage which determines the output frequency of a second variable frequency oscillator. The outputs of the two oscillators are then applied to the two coils of a standard synchroscope.

3,782,009
BEHAVIOR MODIFICATION POINT BOARD

Eula K. Darnell, 307 Baldwin, West Helena, Ark.

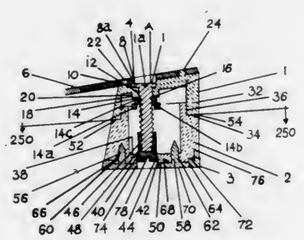
Filed Sept. 26, 1972, Ser. No. 292,451
Int. Cl. G09b *1/02*
U.S. Cl. 35—23 R 9 Claims



A device is described for keeping records of a point system for rewarding students for desirable classroom behavior and

scholastic achievement. The device comprises a board having an outer sheet with open rectangular slots, elevated by a plurality of transversely extending ribs mounted on an inner sheet. The slots are arranged in rows and columns, each row corresponding to a student's name and each column corresponding to a particular behavior trait or scholastic achievement. At the leftmost portion of the outer sheet, is a column of slots designed to accept pockets bearing the name of the student, so that the students' names line up with each row of slots and the pockets fit within one another. Scoop drawers at the bottom of the board hold sticks of cardboard, or another suitable material, of various colors, representing points of gradated magnitudes. When a student has accomplished a particular scholastic achievement or fulfilled a desired behavior pattern, a stick of the appropriate point value is placed in the slot in the particular student's row in the column corresponding to the scholastic achievement or behavior trait. At the end of a day, all the student's markers, which he has accumulated, are then placed in his envelope, or exhanged for a marker of a larger denomination and placed in his envelope. The student's envelope will then contain an accumulation of points earned which, in accordance with the particular incentive system employed, may be exchanged for a treat or favor.

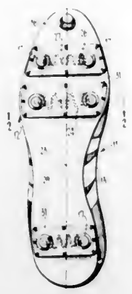
3,782,010
DETACHABLE HEEL FOR SHOES
Michele Frattallone, Fulvia Vella Piazza Parte Guelfa, 3/50123 Firenze, Italy
Filed Oct. 2, 1970, Ser. No. 77,559
Claims priority, application Italy, Oct. 3, 1969, 4798 A/69
Int. Cl. A43b *21/36*
U.S. Cl. 36—42 **3 Claims**



A heel for shoes having detachable main body, intermediate portion and base portion held into the innersole by a depending threaded member and upward positioned member engageable with the threaded portion.
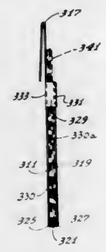
3,782,011
SAFETY SOLE FOR SPORT SHOE
Raymond F. Fisher, 2407 Hillside Ave., Berkeley, Calif.
Filed Oct. 5, 1972, Ser. No. 295,242
Int. Cl. A43b *23/28*
U.S. Cl. 36—59 R **7 Claims**

A safety sole for a football shoe is described which substantially reduces injuries to a player's ankle or knee without detracting from the shoe's ability to provide the player with firm footing. Rather than the ground engaging cleats of the shoe being rigidly secured to the remainder of the shoe, they are secured thereto through a flat, zig-zag spring having a resistance to deformation chosen to prevent movement of the shoe with respect to the cleats under normal playing conditions, but enable limited, resisted movement of such shoe with



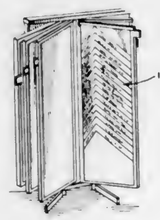
respect to the cleats upon the shoe being subjected to lateral forces exceeding a predetermined value.

3,782,012
NAMEPLATE AND BUSINESS CARDHOLDER
Charles Frederick J. Price, 11115½ Inglewood Ave., Inglewood, Calif.
Continuation-in-part of Ser. No. 44,002, June 8, 1970, abandoned. This application July 22, 1971, Ser. No. 165,307
Int. Cl. A44c *3/00*
U.S. Cl. 40—1.5 **1 Claim**



An identification device having a surface for the display of a person's name or other information and a compartment for the receipt of business calling cards.

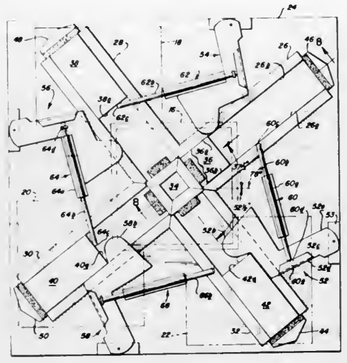
3,782,013
MICROFICHE OR CARD INDEX
Edward T. Hutchison, Jr., Silver Spring, Md., assignor to Walcott-Taylor Company Incorporated, Bethesda, Md.
Filed Mar. 10, 1972, Ser. No. 233,420
Int. Cl. G09f *1/10*
U.S. Cl. 40—124.2 **2 Claims**



A microfiche or card index including a backing sheet having a plurality of shingled pocket members superimposed thereon,

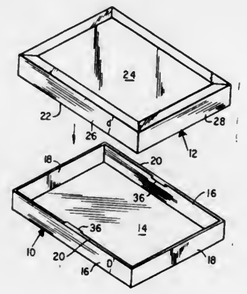
the pocket members being inclined to the longitudinal axis of the backing sheet. Each pocket is formed by a sheet which has been cut, scored and folded to form a rectangular recess.

3,782,014
ROTATABLE DISPLAY DEVICE
Allen Galen, 3470 Lake Shore Dr., Chicago, Ill.
Filed Jan. 8, 1973, Ser. No. 321,666
Int. Cl. G09f *11/30*
U.S. Cl. 40—64 R **10 Claims**



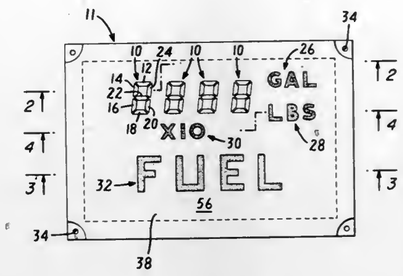
A rotatable display device which has a central display aperture in its front face where each of a plurality of photographs or the like may be viewed individually in sequence. The device is arranged for generally vertical orientation and the photograph at the display aperture may be changed by rotating the device about a horizontal axis. An internal gravity-actuated mechanism maintains all but one photograph in a stored position and prevents movement of a second stored photograph to the viewing position until the first photograph has moved from the viewing position to its stored position.

3,782,015
DISPLAY FRAMES
Walter Esry, 32 E. 10th St., New York, N.Y.
Filed Aug. 26, 1970, Ser. No. 67,186
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **5 Claims**



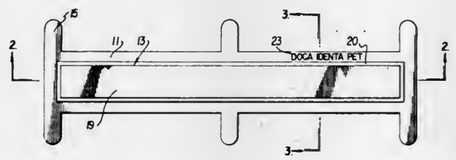
A display frame having an outer shell with a transparent face, and a plurality of peripheral sides forming an opening into which an object may be inserted. A core of corresponding configuration is provided which can be inserted within the opening to secure the object against the face of the shell, the shell being provided with tab means for releasably engaging the core to retain the core within the shell.

3,782,016
ANNUNCIATOR DISPLAY
Donald M. Ashton, Glen Ridge, and Richard Dubois, Jr., No. Caldwell, both of N.J., assignors to Wagner Electric Corporation, Newark, N.J.
Filed June 29, 1972, Ser. No. 267,488
Int. Cl. G09f *13/06*
U.S. Cl. 40—130 E **6 Claims**



An annunciator display especially useful in aircrew stations is disclosed. The annunciator display is a single integrated panel capable of transmitting fixed and variable messages under ambient light conditions.

3,782,017
COLLAR IDENTIFICATION TAG
Granville Y. Graham, 7212 Richland Dr., Lynchburg, Va.
Filed Nov. 11, 1971, Ser. No. 197,722
Int. Cl. G09f *3/16*
U.S. Cl. 40—303 **8 Claims**

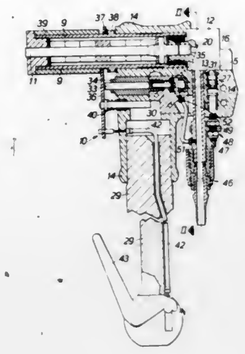


An animal identification tag is described herein comprising a main body, for attaching the identification tag to a collar, and a porous indicia-receiving coating material, for receiving and displaying a marking material. In one embodiment, the main body is formed of a soft aluminum and has protruding tabs which can be wrapped around a collar. In another embodiment, the main body is permanently attached to a collar by rivets, or the like. Both paint and tape are disclosed as indicia-receiving coating materials. In the case of an indicia receiving paint a primer paint is applied between the main body and the paint.

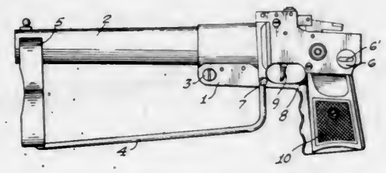
3,782,018
HUMANE CATTLE KILLERS AND SIMILAR MANIPULATABLE APPLIANCES
Roger John Hancox, Burntwood, England, assignor to Accles & Shelvoke Limited, Aston, Birmingham, England
Filed June 26, 1972, Ser. No. 266,254
Claims priority, application Great Britain, June 26, 1971, 30,056/71
Int. Cl. F41c *3/00*; **A22b** *3/02*; **F41c** *13/00*
U.S. Cl. 42—1 M **16 Claims**

An improved humane killer and associated apparatus. The invention introduces into the known captive bolt pistol type

humane killer means for pneumatically firing and ejecting the spent cartridge. This enables the pistol to be connected to pneumatic supply apparatus including a hopper, a cartridge orientating device, and a cartridge transfer device, whereby cartridges placed in the hopper are successively passed to the orientating device which ensures that each one is turned nose first into the transfer device which then transfers it to a pressurized feed tube abutting the breech block of the pistol and which serves as a magazine for continuous supply. Each time the breech is turned to the loading position a cartridge from the feed tube enters a cartridge chamber in the breech block. A pneumatic control mechanism senses a drop in pressure in the feed tube each time the breech block is in the loading position and this actuates the orientating device and the transfer device to supply a new cartridge into the feed tube.



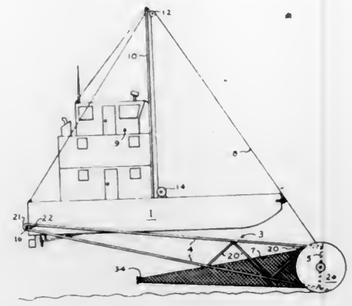
3,782,019
GAS-EXPELLING PISTOLS
Guerrino Venturini, Martinex, Argentina, assignor to Establecimientos Venturimi S.A. Industrial, Comercial y Financiera, Buenos Aires, Argentina
Filed Feb. 2, 1972, Ser. No. 222,818
Claims priority, application Argentina, Feb. 2, 1971, 233,791
Int. Cl. F41c *23/00*
U.S. Cl. 42—72 **2 Claims**



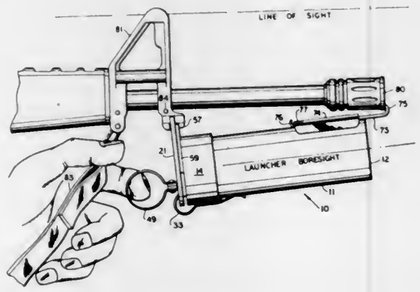
A gas expelling pistol having a reversible butt end movable between a first or extended position wherein the pistol may be used as a long arm that is placed against the shoulder of the user, and a second position wherein the pistol may be used as a short arm.

3,782,020
FISHING APPARATUS
Delbert Vernon Puckett, 447 Demontluzin St., Bay St. Louis, Miss.
Filed Mar. 3, 1972, Ser. No. 240,555
Int. Cl. A01k *73/02*
U.S. Cl. 43—8 **12 Claims**

Apparatus and method for net-fishing from points forward of the bow of a fishing vessel, which may be a powered boat or a barge pushed by a powered craft. The net is supported by a tubular frame having beams that are pivoted at or near the stern of the vessel. A deck winch lowers the forward end of the connected frame and net from their elevated position over the bow and to a fishing location below the bow by means of a line over a pulley on a high mast. From this location the net trails below the vessel, with its forward opening for entry of fish during forward movement of the vessel. This mouth of the net is kept open by spaced cross pieces of the net frame. When used for fishing just above the sea bottom the apparatus preferably includes a fish-moving chain or set of teeth, extending across and in front of the base of the net mouth, fastened at its ends to forwardly projecting ends of side arms of the frame. When fishingfor oysters, the set of teeth is preferably used, for breaking oyster shells loose from an oyster bed. After a desired load of fish is in the net it and the forward end of the frame are pivotally lifted by the winch and line over the bow until the axis of the net is upright. Then its lower portion is untied (or un-zippered), and the fish is thus dumped onto the deck (or into the hold or a container).

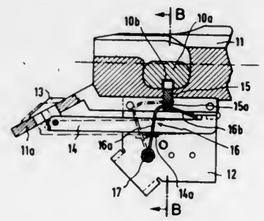


3,782,021
PROJECTILE LAUNCHING APPARATUS
Maxwell G. Atchisson, Apt. 1, Bldg. 14, Sussex Cir., Marietta, Ga.
Filed Jan. 31, 1973, Ser. No. 328,322
Int. Cl. F41c *27/06*
U.S. Cl. 42—1 F **16 Claims**



Apparatus for lauching a projectile such as a 40-mm cartridge grenade. A short barrel is provided to receive a grenade or other round to be launched, the barrel being dimensioned to be positionable beneath the front portion of the barrel of a firearm such as the U. S. Rifle M16. The launching apparatus includes a front support which is extendable to engage the flash suppressor of the firearm, while a rear support of the launcher includes a socket for engaging the bayonet lug of the firearm. Both the front support and the rear support are deliberately designed to undergo a predetermined amount of structural deformation when subjected to recoil force produced by launching a projectile from the apparatus, and this predetermined deformation absorbs a portion of the recoil force. A hammer in the form of a spring is cocked by a pair of levers which pull the hammer back and which become disengaged from the hammer, so that the hammer and associated firing pin can fall to discharge the round. A safety mechanism prevents cocking of the hammer unless the launching apparatus is installed on a bayonet lug.

3,782,022
RELEASABLE LOCK FOR A BOLT OF A FIREARM
Heinz Bielfeldt, and Manfred Birkenhagen, both of Eckernforde, Germany, assignors to Firma J.P. Sauer & Sohn G.m.b.H., Eckernforde, Germany
Filed Mar. 27, 1972, Ser. No. 238,428
Claims priority, application Germany, Sept. 16, 1971, P 21 46 401.7
Int. Cl. F41c *17/08, 17/00*
U.S. Cl. 42—70 R **10 Claims**

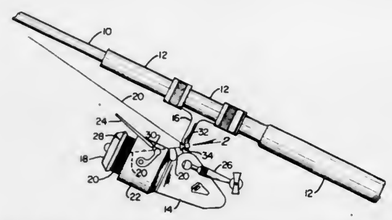


A bolt lock assembly is provided for a firearm which has a rotatable bolt and safety actuating means for securing the firearm against firing. The lock assembly is connected to the safety means such that the bolt is secured when the actuating means secures the firearm against firing. A hand-manipulable release element is carried by the bolt handle to release the bolt for turning, independently of operation of the actuating means, such that the bolt may be turned even while the firearm is secured against firing.

ERRATUM

For Class 43—8 see:
Patent No. 3,782,020

3,782,023
SPINNING REEL LINE CLAMP
Doyle D. Hendrickson, Evansville, Wyo., assignor to Reel Assist Corporation, Casper, Wyo.
Filed May 10, 1971, Ser. No. 141,517
Int. Cl. A01k *87/00*
U.S. Cl. 43—25 **5 Claims**



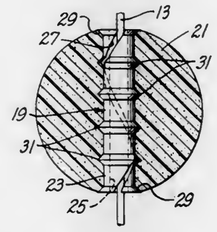
Spin fishing accessory for releasably securing the line at a point relative to the reel spool which prevents stripping line therefrom which may normally occur in its absence. In a preferred embodiment it comprises a lever member pivoted between its ends, one end forming a resiliently urged releasable clamping jaw, the other end forming a finger engaging portion for opening the jaw, and means for securing the member to the fishing apparatus. It is preferably secured to a part of the reel, such as the reel mounting shank, but may be secured to the reel butt when suitably proportioned.

3,782,024
FISH LURE
Carl R. Cordell, Jr., P.O. Box 2020, Hot Springs, Ark.
Filed June 23, 1972, Ser. No. 265,583
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.31 **10 Claims**



A fish lure having a two-piece plastic body cemented together along a vertical longitudinal plane. A weighted eye member is positioned in a bore at the front of the body and secured in place by an intermediate flange extending into a groove formed in the bore. The weighted eye member simulates an eye for the lure and additionally is loosely mounted so as to rattle to produce fish attracting sounds as the lure is drawn through the water. Metallic eyes are secured to the lure for attaching the lure to a fish line and for attaching hooks to the lure.

3,782,025
SINKER PUTTY MOUNTING MEMBER
Rudolph J. Kochevar, 252 Arbolada Dr., Arcadia, Calif.
Filed Jan. 22, 1973, Ser. No. 325,424. The portion of the term of this patent subsequent to Jan. 31, 1989, has been disclaimed.
Int. Cl. A01k *95/00*
U.S. Cl. 43—44.9 **17 Claims**

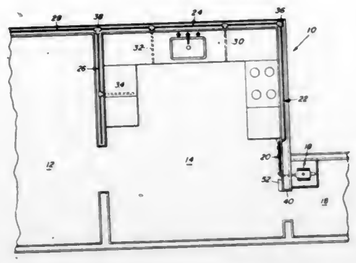


A sinker comprising readily manually moldable sinker putty molded on a mounting member attached to a fishing line. The mounting member is configurated to increase the strength of the attachment between the sinker putty and the mounting member and may comprise a sleeve slidable on the line or a plate, stem or piece of twisted wire fixedly attached to the line.

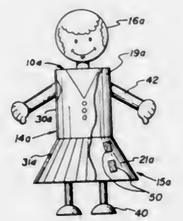
3,782,026
PEST EXTERMINATING APPARATUS
William A. Bridges, Rt. 2, Box 49 D, and Charles L. Harris, Rt. 2, Box 31, both of Luling, La.
Filed Apr. 7, 1972, Ser. No. 242,108
Int. Cl. A01m
U.S. Cl. 43—124 **10 Claims**

An apparatus for exterminating pests such as roaches, ants and the like including a vaporizer unit for converting a liquid

pesticide into a vaporous state and a distribution system for directing the pesticide in its vaporous state to desired locations. The distribution system will permit the vaporous pesticide to be emitted during the operation of the vaporizer unit. A portion of the pesticide which is reconverted into a liquid state during distribution will accumulate on the distribution system to produce a residual exterminating potential.



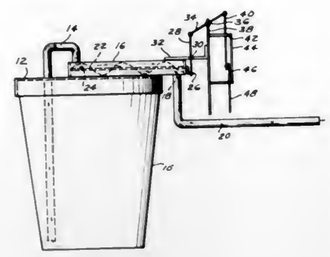
3,782,027
DOLL DRESS UP SET
Adolph E. Goldfarb, Tarzana, and Howard L. Dekan, Chatsworth, both of Calif., assignors to Adolph E. Goldfarb, Tarzana, Calif.
Filed Feb. 28, 1972, Ser. No. 229,832
Int. Cl. A63h *9/00*
U.S. Cl. 46—22 **4 Claims**



A doll figure provided with a regular smooth outer surface, and changeable dress-up means comprising a formable sheet having an outer surface on which a representation of clothing for the doll may be provided. The sheet is wrapped around the doll immediately adjacent and conforming to the doll's outer surface. The sheets are readily removable and replaceable with other sheets.

3,782,028
TOY OPERATED BY DRINKING STRAW
Henry J. Kelly, Buffalo, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Oct. 19, 1972, Ser. No. 298,851
Int. Cl. A63h *29/10*
U.S. Cl. 46—41 **1 Claim**

A toy comprising a hollow tube through which liquid can flow; a screw in the tube and rotated by the flow; a crank rotated by the screw; a linkage secured to said crank to convert the rotary motion to up and down linear motion; and a horse secured to said linkage and moved up and down thereby.

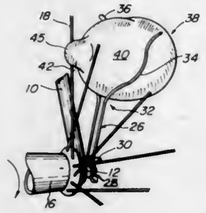


3,782,029
CONSTRUCTION SET AND ELEMENT THEREOF
Ernest Roger Bardot, Juziers, France
Filed Mar. 31, 1972, Ser. No. 240,055
Claims priority, application France, Apr. 2, 1971, 7111658
Int. Cl. A63h *33/10*
U.S. Cl. 46—26 **5 Claims**



A construction set comprises a plurality of skeletal tetrahedrons and interconnecting means therefor so that they can be assembled in a plurality of groups of different configuration and rotated relative to each other. The legs of the tetrahedrons have flange configurations for receiving correspondingly flanged resilient connectors.

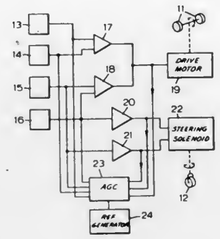
3,782,030
SINGING SOUND PRODUCER FOR BICYCLES
Frank A. Gergovich, 1114 Eighth St., La Salle, Ill.
Filed Dec. 4, 1972, Ser. No. 311,462
Int. Cl. A63h *5/00*
U.S. Cl. 46—175 R **4 Claims**



A harmonic sound producer comprising a hollow body with a B—B loaded resilient nipple adapted to be repeatedly engaged by a continuous series of rapidly moving elastic string-like elements, such as the wire spokes of a bicycle wheel, so as to produce singing sounds by the wire spokes of the wheel as

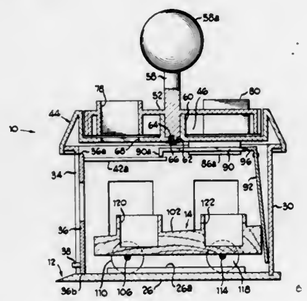
vibrating string-like elements that are resonant and tuned to various frequencies by changing the tension on the spokes.

3,782,031
CONTROLLABLE AMUSEMENT DEVICE
Melville Byron, Toronto, Ontario, Canada, assignor to Creative Patents & Products Limited, Ontario, Canada
Filed Feb. 23, 1972, Ser. No. 228,630
Claims priority, application Canada, Feb. 24, 1971, 106,134
Int. Cl. A63h *11/10*
U.S. Cl. 46—244 R **3 Claims**



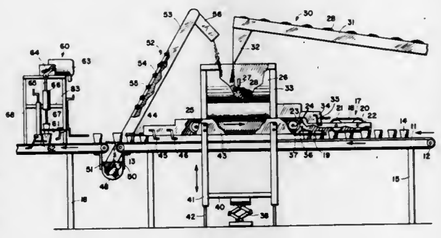
A self propelled amusement device including a body member shaped in any form which appeals to a child, a pair of drive wheels and at least one steering wheel for supporting the body member. The drive wheels are driven by means of a battery operated motor, and the steering wheel is controlled by a solenoid. Proximity detectors or other sensing devices are placed at both ends of the body member and at both sides. The proximity detectors may be sensitive to changes in capacity in their vicinity, and in such a case the presence of a hand of the child near one of the proximity devices causes a voltage to appear at the output thereof. Appropriate electronic circuitry is provided for controlling the operation of the drive motor and the steering solenoid in response to changes in electrical capacity occurring near any of the proximity detectors, so that the body member can be caused to travel forwards or backwards or to turn any desired direction by merely placing a hand or other body having electrical capacity near selected ones of the proximity detectors.

3,782,032
COMBINATION PRESCHOOL TOY VEHICLE AND LAUNCHING STATION
Marvin I. Glass, Chicago, and Palmer Schoenfield, Evanston, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Sept. 14, 1972, Ser. No. 288,931
Int. Cl. A63h *11/10*
U.S. Cl. 46—202 **2 Claims**



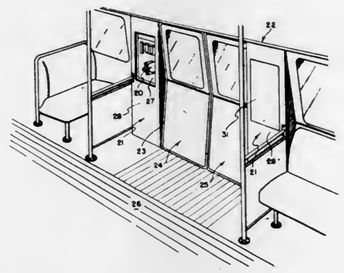
A combination preschool toy vehicle and launching station set characterized by the provision of an enclosure having a top with a drum rotatably mounted on the top. Both the drum and the top have alignable openings of different shapes. Further included are different block-like pieces with shapes corresponding to the openings in the drum and the top of the enclosure so that when the drum and top openings are in register the blocks or playing pieces may fall therethrough. In addition, vehicles that are provided with the set have different shaped openings which correspond to the shape of the blocks and the openings in the top and drum for receiving the blocks as they fall through the openings in the top. Also, the enclosure is provided with audible signal means and a door that is associated with a trip mechanism for striking the rear of the vehicles and imparting rolling action thereto when the door is lifted and moved to a raised position.

3,782,033
POT FILLING AND COMPACTING APPARATUS AND METHOD
Norman E. Hickerson, P.O. Box 1148, Apopka, Fla.
Filed Sept. 30, 1971, Ser. No. 185,037
Int. Cl. A01c *9/08*
U.S. Cl. 47—1 **10 Claims**



An apparatus and method for filling pots with soil and compacting the soil in the pots. Spilled soil is collected and returned to a hopper for re-use and a punch is provided for driving a hole in the soil in the pot.

3,782,034
ELECTRICAL DOOR OPERATOR
Robert J. Lynn, Morton Grove; Kristupas Daugirdas, Wilmette, and Redreddy Sukumar Reddy, Chicago, all of Ill., assignors to Vapor Corporation, Chicago, Ill.
Filed Apr. 14, 1972, Ser. No. 244,161
Int. Cl. E05f *15/00*
U.S. Cl. 49—13 **12 Claims**

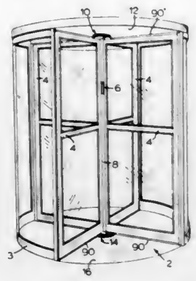


A door operator for a vehicle wherein resilient means couples the drive arm to the door to control the force applied by the door operator throughout the door closing cycle. The operator is compact and mountable in the side wall of the vehicle above the floor and includes an independent locking system, together with an emergency opening assembly.

3,782,035
COLLAPSIBLE REVOLVING DOOR HAVING PAIRS OF PIVOT DETENTS AT THE TOP AND BOTTOM OF EACH LEAF

Dennis Lowe, 58 Pitfield Rd., Agincourt, Ontario, Canada

Filed Oct. 26, 1972, Ser. No. 300,971
Int. Cl. E05d *15/02*
U.S. Cl. 49—44 9 Claims

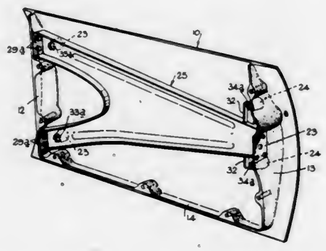


A collapsible revolving door with upper and lower mechanisms which enable the folding of the revolving door leaves upon the application of a predetermined abnormal pressure thereto. A mechanism includes a retaining plate concentrically mounted on the end of the central vertical door shaft; horizontal bearing plates mounted on the horizontal edge of each door leaf adjacent to the central shaft; and a pair of detents connecting each bearing plate to its associated retaining plate, one detent on either side of the door leaf axis. Upon application of an abnormal force, the upper and lower detents on one side of the door leaf yield allowing the door leaf to pivot about the detents on the other side of the leaf enabling folding.

3,782,036
DOORS FOR VEHICLES

George William Joseph Clark, Bayston Hill, near Shrewsbury; Gerald William Golder, Wellington, and Frederick Leslie Hart, Cressage, all of England, assignors to GKN Sankey Limited, Bilston, Staffordshire, England

Filed Aug. 17, 1972, Ser. No. 281,518
Claims priority, application Great Britain, Aug. 21, 1971, 39,314/71; Aug. 21, 1971, 39,315/71
Int. Cl. B60j *5/04*
U.S. Cl. 49—502 8 Claims

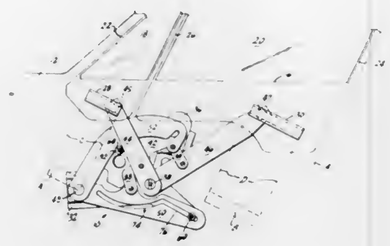


The specification discloses a vehicle door body of plastics material comprising an outer skin and an inner panel releasably secured together. A Y-shaped metal reinforcement is interposed between the skin and the panel and provides anchorages for the door hinges and lock and latch mechanism. The reinforcement is adjustably fixed to the outer panel so that the latter can be adjusted in position in a door aperture relative to the hinges. A vehicle body shell with the outer skins secured thereto is painted and then the inner panels carrying the door mechanisms are secured to the outer skins.

3,782,037
CAM OPERATED TWO-STAGE WINDOW REGULATOR

Max O. Heesch, Brooklyn, Mich., assignor to Hancock Industries, Inc., Jackson, Mich.

Continuation-in-part of Ser. No. 208,556, Dec. 16, 1971. This application July 31, 1972, Ser. No. 276,581
Int. Cl. E05f *5/12*
U.S. Cl. 49—103 10 Claims

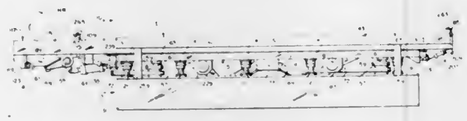


An automobile window regulator which sequentially operates two window panels adjacently mounted and substantially related in a coplanar manner, one of the panels constituting a small vent, while the other panel forms a primary window. The regulator is operated by a single crank, or electric motor, which oscillates a gear sector about a fixed pivot point. Pivotally mounted levers having cam surfaces defined thereon are engaged by cam followers mounted upon the gear sector wherein oscillation of the gear sector pivots the levers which indirectly operate the window panels. The cam surfaces produce the desired sequential operation, and are of such configuration as to further function as locking means for maintaining the window panels in terminal positions.

3,782,038
APPARATUS FOR GRAINING PLATES

Robert E. Harrell, Manchester; Roy C. Bax; Leonard P. Kumpf, both of St. Louis, and Donald R. Toliver, Bridgeton, all of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed May 5, 1971, Ser. No. 140,333
Int. Cl. B24b *19/00*
U.S. Cl. 51—6 3 Claims

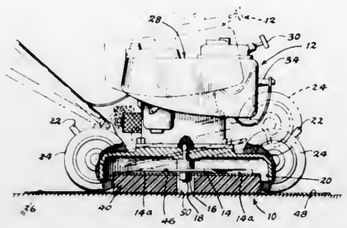


Apparatus for graining aluminum lithographic plates comprising a vacuum table adapted to hold plates to be grained thereon by vacuum, and to be oscillated in level position with steel balls thereon in a slurry for graining the exposed faces of the plates. The table carries a ball hopper at one end thereof, and is tiltable from its level graining position to a ball-unloading position inclined downward toward this end for gravity discharge of balls from the table to the hopper, and also to a ball-loading position inclined downward away from this end for delivery of balls from the hopper to the table, with the hopper swingable between a ball-receiving position and a ball-delivery position relative to the table.

3,782,039
SELF SHARPENER FOR ROTARY CUTTER

David W. Warwick, 3640 Upper Mountain Rd., Sanborn, N.Y.

Continuation-in-part of Ser. No. 96,565, Dec. 9, 1970, Pat. No. 3,665,658. This application May 16, 1972, Ser. No. 253,735. The portion of the term of this patent subsequent to May 30, 1989, has been disclaimed.
Int. Cl. B24b *19/00*
U.S. Cl. 51—250 13 Claims

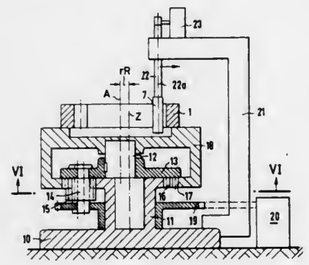


A rotary mower blade sharpener device including a resiliently deformable body portion provided with an abrasive upper surface, and an anchor sheet fixed to the lower surface of the body portion to extend outwardly thereof. Relative rotation of the mower blade with respect to the upper surface of the body portion effects sharpening of the blade; the body portion being constrained from rotation by the wheels of the mower pressing the anchor sheet into engagement with the ground or other expansive surface. The anchor sheet may be formed of a pliable material and of sufficient size to permit its being folded or wrapped upwardly to enclose the body portion in a decorative shipping and/or storage envelope.

3,782,040
GEAR MACHINE

Hermann Harle, Laucherthal/Hohenzollern, and Siegfried Eisenmann, Sigmaringendorf, both of Germany, assignors to Furstlich Hohenzollernsche Huttenverwaltung Laucherthal, Laucherthal, Germany

Filed Aug. 19, 1971, Ser. No. 173,110
Claims priority, application Germany, Aug. 20, 1970, P 20 41 483.9
Int. Cl. B24b *1/00*, *5/36*
U.S. Cl. 51—52 R 20 Claims



This invention relates to an improvement in a gear machine comprising an internally toothed outer wheel meshing with an externally toothed inner wheel wherein the outside diameter of the inner wheel is smaller than the root diameter of the outer wheel by at least the height of a tooth. The improvement comprises the tooth flanks of the outer wheel in sections normal to the axis of the outer wheel are defined at least in the upper half of the height of the teeth by equidistant curves from one or two like hypocycloids;

the diameter of a rolling circle which by rolling on a base circle that is concentric about the axis of the outer wheel is a fraction of the diameter of the base circle, wherein the numerator and denominator are integers;

the denominator of the fraction is equal to the number of teeth of the outer wheel;

in the event of the numerator of the fraction being equal to or greater than two, the numerator and denominator of the fraction have no common submultiple;

the equidistant curve is radially outside the cycloid or cycloids;

the outer wheel is hardened;

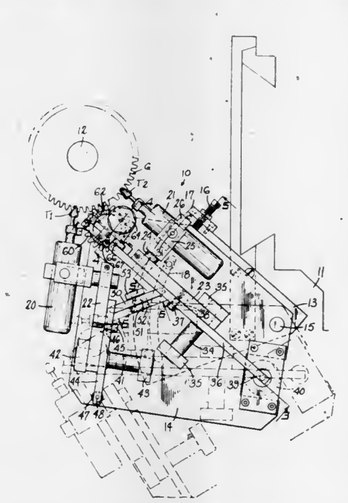
the tooth flanks of the outer wheel in the region defined by the equidistant curve are ground, and the tooth form of the inner wheel in the region of engagement is at least approximately defined by the rolling of the inner wheel in the outer wheel.

The invention also includes a method and apparatus for making the gear machine.

3,782,041
GEAR FINISHING APPARATUS

Edward J. Batorski, Cheshire, Conn., assignor to Textron, Inc., Providence, R.I.

Filed Mar. 7, 1972, Ser. No. 232,445
Int. Cl. B24b *17/00*, *19/00*
U.S. Cl. 51—33 W 12 Claims



A gear tooth finishing machine wherein finishing tools are simultaneously brought into engagement with the edges of gear teeth and withdrawn therefrom as the gear is rotated and rotates a master gear which controls movement of the finishing tools.

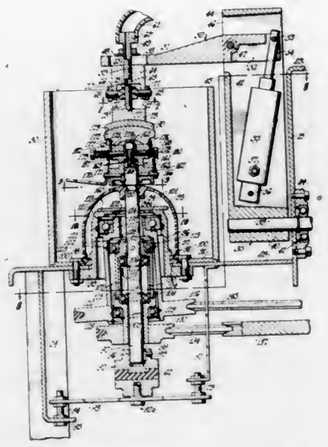
3,782,042
LENS GRINDING AND POLISHING UNITS

Ray Howard Strasbaugh, 3400 Airport Way, Long Beach, Calif.

Filed July 3, 1972, Ser. No. 268,914
Int. Cl. B24b *13/02*
U.S. Cl. 51—58 10 Claims

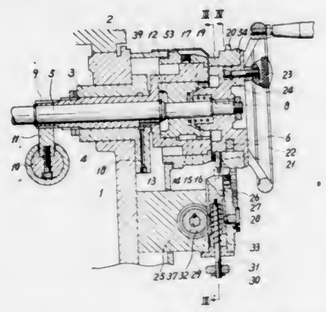
A lens grinding and polishing unit wherein either the workpiece or lap is supported by a laterally oscillatable head and the other is held atop a non-rotating flexible spindle (e.g. aluminum) which is simultaneously flexed at different speeds and courses in a repetative pattern compounded by rotation thereabout of (a) an inner tubular housing which eccentrically

embraces the spindle at a circumference intermediate its length, and (b) an intermediate tubular housing spaced outward from the inner housing and which eccentrically bears on the inner housing adjacent the same circumferential area, separated from the inner housing by a ball bearing raceway. The intermediate housing is outwardly surrounded by a fixed housing from which it is separated by another ball bearing raceway, and all three generally concentric housings are mounted within an outermost dome of somewhat flexible material, the dome being supportingly transected by the spin-



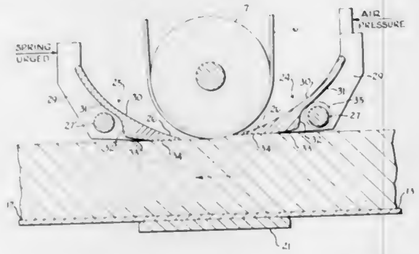
dle at a circumference between the carried lap and the top of the inner rotatable housing, so as to be jointly flexed by oscillation of the spindle. Both rotatable housings are pulley-operated from an electric motor which also oscillates the head (carrying the workpiece), thus totally eliminating cam and gear mechanisms previously employed in polishers. Adjacent units located in a cabinet can be operated by a single motor. Such units also carry a pneumatic element to supply down-pressure for the head, and provide circulation of lubricating fluid to the lap.

3,782,043
FEED MECHANISM FOR MACHINE TOOL
Tokio Shiga, Okazaki, Japan, assignor to Toyoda Kodi Kabushiki Kaisha, Aichi-ken, Japan
Filed Nov. 1, 1971, Ser. No. 194,306
Claims priority, application Japan, Aug. 11, 1971, 46/60820
Int. Cl. B24b *49/00*
U.S. Cl. 51—165.78 **6 Claims**



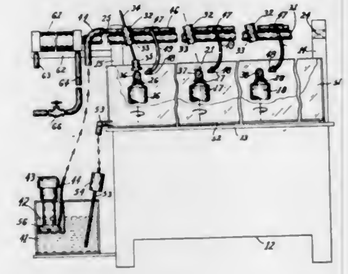
In a feed mechanism of a grinding machine for feeding a tool thereof, an annular member is adjustably mounted on the outer periphery portion of a feed wheel and a clamping member is provided on the feed wheel for locking the adjustable annular member thereto. A first stop member is secured on the annular member being movable in a circular path with the feed wheel when locked thereto and a second stop member is provided being reciprocatably movable into and out of the circular path of the first stop. Rotary movement of the feed wheel is transmitted by suitable transmission means to the second stop for advancing the same into the circular path so that the first stop may engage the second stop at a predetermined position of advancement of a tool support being effected by turning the feed wheel through a predetermined number of revolutions.

3,782,044
WIDE ABRASIVE BELT TYPE LUMBER PLANING MACHINE
Paul H. Olin, Minneapolis, Minn., assignor to Timesavers, Inc., Minneapolis, Minn.
Filed May 1, 1972, Ser. No. 249,175
Int. Cl. B24b *21/00*
U.S. Cl. 51—138 **6 Claims**



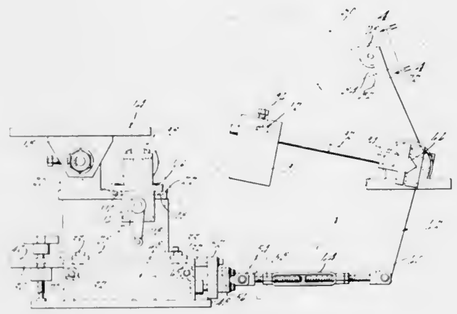
A wide abrasive belt lumber planing machine in which the planing action is performed by a contact drum-supported abrasive belt as the workpiece is moved through the machine, with its top surface in contact with the belt. An in-feed pressure shoe and an out-feed pressure shoe press down on the workpiece just as it enters and leaves the abrasion zone, and to preclude the generation of abnormally high friction loads due to variations in thickness of the workpiece, the force with which the in-feed shoe is pressed down is produced by a pressure-regulated air cylinder.

3,782,045
CONTACT LENS POLISHING SYSTEM
Masami Kanda, 1515 W. 48th Ave., Denver, Colo.
Filed Dec. 29, 1971, Ser. No. 213,395
Int. Cl. B24b *7/22*
U.S. Cl. 51—124 L **4 Claims**



A polishing solution recirculating system for use with contact lens polishing machines wherein lenses held by separate holders are brought into contact with a wetted surface polishing element disposed on a rotating spindle with additional polishing solution being applied to the wetted surface as the holder is rocked to alternate angular positions of contact with respect to said spindle for exposing further areas of the lenses to polishing action and wherein nozzles of a distributor manifold are mounted for movement with a rocking mechanism to keep the nozzles in operative position for polishing solution application at all reciprocal positions for said holders. A splash tray is disposed about the spindles and connected to a sump whereby the polishing solution is collected for intermixture and recirculation by a pump disposed in the sump and having its pressure side connected to said manifold.

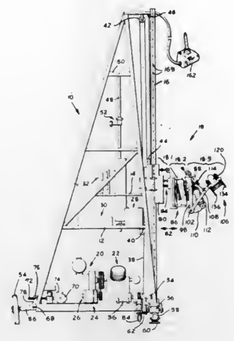
3,782,046
TOOL REST FOR GRINDING WHEEL WITH AUTOMATIC WEAR COMPENSATION
Sanford Schaap, Southfield, and Borys Zura, Sterling Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Feb. 2, 1972, Ser. No. 222,859
Int. Cl. B24b *41/06*
U.S. Cl. 51—238 R **6 Claims**



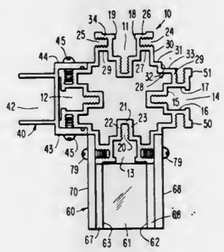
A movable tool rest for a grinder having a grinding wheel and a tool platform mounted adjacent the periphery of the grinding wheel wherein provision is made for adjusting automatically the position of the platform with respect to the periphery of the wheel as the wheel decreases in diameter due to wear.

3,782,047
APPARATUS FOR POSITIONING BRICKS
Andries Johannes Stoltz, Pretoria, Transvaal, South Africa, assignor to Monres (Proprietary) Limited, Johannesburg, South Africa
Filed Sept. 8, 1971, Ser. No. 178,705
Claims priority, application South Africa, Sept. 17, 1970, 6354; Aug. 11, 1971, 5359
Int. Cl. E04g *21/22*
U.S. Cl. 52—749 **11 Claims**

A building method is disclosed in which bricks are roughly positioned on a layer of mortar and are then, a number at a time, aligned and pressed into the mortar by a horizontally elongated member which is vibrated. One machine disclosed includes a head structure mounted on a rig and displaceable vertically, fore and aft and laterally. The head includes a clamping structure having brick-gripping fingers on each side of said member and pneumatic actuators for operating the fingers. The clamping structure is capable of swinging in an arc about a horizontal axis. The rig includes a system for automatically returning said rig to an upright position. Another disclosed machine has a plate which has a vertical surface against which the bricks are laid before being pressed into the mortar.



3,782,048
LONGITUDINAL SUPPORT POST
Daniel L. Corman, 1829 Fielden Dr., Lexington, Ky.
Filed Apr. 7, 1972, Ser. No. 242,016
Int. Cl. E04c *3/32*
U.S. Cl. 52—738 **8 Claims**

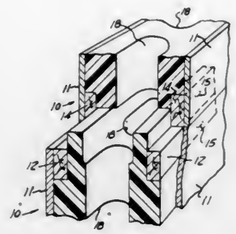


An extruded aluminum support post has a unique configuration to enable various elements to be readily secured thereto for support thereby. One form of the unique configuration has four recesses disposed 90° from each other with a threaded groove in the bottom wall of each recess to form a first set of threaded grooves extending for the length of the post. Each of the side walls of each recess forms a bottom wall of a threaded groove forming a second set of threaded grooves with the two threaded grooves adjacent each recess being disposed perpendicular to the threaded groove forming the bottom wall of the recess and having their mouths open away from the recess. A second form has a circular post with a first set of threaded grooves disposed at a lesser radius from the longitudinal axis of the post than a second set of threaded grooves, which are disposed between each adjacent pair of the first set of the threaded grooves.

3,782,049
WALL FORMING BLOCKS

Melvin H. Sachs, 26765 Fullerton Ave., Detroit, Mich.

Continuation-in-part of Ser. No. 21,981, March 23, 1970, and a continuation-in-part of Ser. No. 732,973, May 29, 1968, abandoned. This application May 19, 1972, Ser. No. 254,953
Int. Cl. E04c 1/10, 2/10
U.S. Cl. 52—309 7 Claims

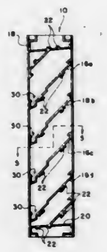


Wall forming blocks made of foamed plastic material, and having vertical openings and upwardly opening channels extending along their upper edges, are formed with pre-formed rigid sheets bonded to their opposite faces, with furring strips secured to the inner faces of the sheets and embedded within the plastic. The blocks are stacked in courses to form a wall, with their vertical openings aligned with and their channels covered by the blocks next above them. Concrete slurry poured into such openings and channels forms a concrete supporting grid within the wall.

3,782,050
LOUVER ASSEMBLY HAVING IMPROVED WEATHERPROOFING AND AIR FLOW CHARACTERISTICS

Joshua R. Dowdell, Dallas, and Paul H. Sanderson, Jr., Lake Dallas, both of Tex., assignors to Dowco Corporation, Dallas, Tex.

Filed June 16, 1971, Ser. No. 153,668
Int. Cl. F24f 13/08
U.S. Cl. 52—473 5 Claims

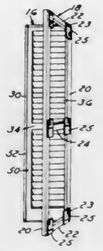


The specification discloses a louver assembly for being mounted in a building and which includes a plurality of louver blades mounted in inclined positions sloping downwardly from back to front. Each of the louver blades includes an elongated open-topped trough having a rhomboidal cross section which extends along the lower edge of the louver blades. Each of the louver blades also includes a vertical rise along the mid-region thereof to allow water to freely drain down the blade into the trough while restraining water from flowing up the blade. A lip portion extends along the upper edge of each of the louver blades to prevent water from flowing over the upper edge of the blades. Apertures are defined at the ends of each of the troughs to allow water to drain therefrom. The louver assembly may be utilized in a conventional rectangular building louver or in a penthouse louver configuration.

3,782,051
WINDOW SHUTTER CONSTRUCTION

Edward G. Quinif, Richmond, Ind., assignor to Walled Lake Door Company, Richmond, Ind.

Filed June 21, 1972, Ser. No. 264,738
Int. Cl. E06b 7/08, 9/00
U.S. Cl. 52—473 1 Claim

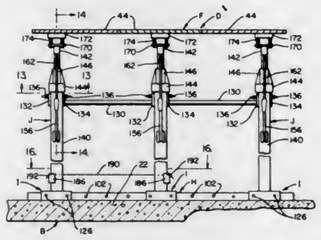


A window shutter construction comprising a mounting frame and a shutter affixed as by clips in overlying relation to the mounting frame so as to conceal the mounting frame when the shutter is viewed from the front.

3,782,052
APPARATUS AND METHOD FOR BUILDING CONSTRUCTION

William W. Vetovitz, 7486 Strongsville Blvd., Strongsville, Ohio

Filed Sept. 25, 1972, Ser. No. 292,171
Int. Cl. E04b 1/04; E04c 2/06
U.S. Cl. 52—745 31 Claims



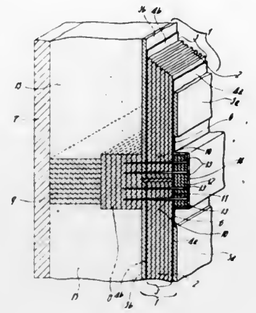
A plurality of modular wall units are constructed on a base area within a temporary shelter removably positioned on the base area. The temporary shelter is then moved from the base area. With the shelter removed from the base area, the wall units are first lifted vertically and moved horizontally for lowering into position on a building foundation.

3,782,053
JOINT CONSTRUCTION FOR LOW TEMPERATURE PURPOSE LIQUID-TIGHT PANELS

Kenji Nakano; Ichizo Okano; Ryuzo Teramoto, and Koji Hayakawa, all of Osaka, Japan, assignors to Hitachi Shipbuilding and Engineering Company Ltd., Osaka, Japan

Filed July 6, 1972, Ser. No. 269,447
Claims priority, application Japan, July 9, 1971, 46/50831; July 9, 1971, 46/50832
Int. Cl. F16b 5/00
U.S. Cl. 52/753 J 3 Claims

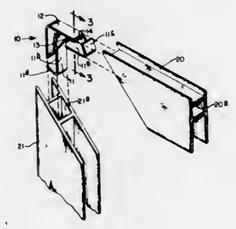
A construction for a liquid-tight joint between adjacent edges of panels forming the inner wall of a low temperature liquid storage tank, each being of multi-layer construction and having a liquid-tight membrane as an interior layer. A patch member covers the adjacent edge portions of a pair of panels at the joint and is secured to the panels and to a supporting joist. Each panel is relieved to expose a portion of the surface of the liquid-tight membrane adjacent each side of the patch member, and a low temperature resistant adhesive is applied to the joint area, covering the exposed membrane surfaces and the patch member.



3,782,054
CORNER ANGLE FOR WINDOWS

Lorane G. Goss, Jr., Mechanicsburg, Pa., assignor to Capitol Products Corporation, Mechanicsburg, Pa.

Filed Sept. 15, 1971, Ser. No. 181,108
Int. Cl. F16d 7/04
U.S. Cl. 52/758 H 3 Claims



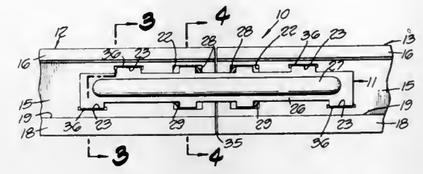
A one-piece, drive-in, spring steel corner or clip for joining mitered joint window frames.

3,782,055
EXPANSION JOINT ASSEMBLY FOR CEILING GRID SYSTEM

William H. Spencer, La Canada; John O. Dorius, Hacienda Heights, both of Calif., and James D. Brown, Grants Pass, Oreg., assignors to Trend Ceilings Systems Co., Los Angeles, Calif.

Filed Jan. 27, 1972, Ser. No. 221,142
Int. Cl. E04c 2/42; E04b 1/68
U.S. Cl. 52—758 D 16 Claims

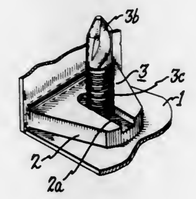
An expansion joint assembly for the grid system of a suspended ceiling subject to severe expansion and contraction forces caused by temperature changes. The aligned ends of main grid members are joined together by a one piece expansion joint control member having provision for limited lost motion and including tangs designed for limited deflection in response to either expansion or contraction of the grid members. By this technique stresses acting lengthwise of the main grid members are distributed from end to end of the grid members in any row, the tangs flexing if necessary to absorb and accommodate further expansion or contraction. The control member of the joint assembly also includes tabs having multiple functions including holding a grid joint assembled and limiting expansion and contraction as well as excessive flexing of the tangs.



3,782,056
JOINT STRUCTURE

Mitchell M. Osteen, Zirconia, N.C., assignor to General Electric Company

Filed Apr. 27, 1972, Ser. No. 247,959
Int. Cl. F16b 5/00
U.S. Cl. 52/758 F 6 Claims



Joint formed by superposed members fastened together by a self-drilling, self-tapping screw is provided with a recess in the surface of the member where the screw exits. The recess provides space for receiving the shavings produced by the drill end of the screw while the portion of the joint member adjacent the recess is threadably engaged by the self-tapping portion of the screw to provide increased holding strength for the screw.

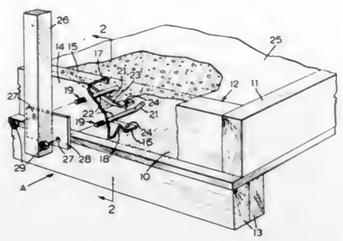
3,782,057
DECKING STRUCTURE WITH GUARD RAIL SUPPORT

Rudolph Leonard Gross, 20 Valencia Crescent, Toronto, Ontario, Canada

Filed July 12, 1971, Ser. No. 161,702
Int. Cl. E04c 5/18; E04b 1/38
U.S. Cl. 52—27 11 Claims

In a balcony structure in which the front edge portion of a concrete body is clad with a channel-shaped metal frame, metal securement rods are disposed through the frame and are welded thereto with one end portion of each rod being embedded in the concrete body and a further end portion of each rod projecting from the frame and disposed outwardly of the concrete body. The rods are disposed with a predetermined spacing therebetween which spacing is identical to the spacing between apertures provided in upright members of a guard railing, the further end portions of the rods being disposed

through these apertures and having nuts screw-threadedly mounted therein whereby securely to connect the guard rail-



ing to the rods. The lower limb portion of the frame has a portion which is of inverted V-shape in cross-section and which extends substantially longitudinally relative to the frame.

3,782,058

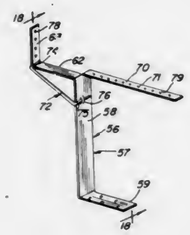
TYING DEVICES FOR TYING WOODEN MEMBERS TO COMPOSITE BRICK AND MASONRY WALLS

George E. Allen, Dolton, Ill., assignor to Allen Anchor Corporation, Dolton, Ill.

Filed Jan. 17, 1972, Ser. No. 218,294

Int. Cl. E04b *1/38*; **E04h** *12/00*

U.S. Cl. 52—300 **7 Claims**



A tying device for tying a wooden board or so-called "-plate," to the uppermost tier of face bricks and a composite face brick and concrete block or like composite wall construction. In the preferred embodiment of the invention the tying device is formed in its entirety, as by stamping, from a relatively thin sheet of flat metal stock, such as thin sheet metal or aluminum, without the need or necessity for any welds, rivets, or attachments, and is designed to be installed at any desired point laterally between the inside faces and the outside faces of the concrete or like masonry blocks, and to lie between the butt joints of the concrete or like masonry blocks and does not require installation at the butt joints, and does not require the use of any diagonally extending or like brace member. A first modified form of the tying device is likewise formed, as by stamping, from a single sheet of flat relatively thin metal stock, without the need for any welds, rivets, or attachments, or any diagonally extending or like brace member, and may be positioned at any selected point along the face brick between the butt joints or at the butt joints between the face bricks. A second modified form of construction is similar to the first modification but employs a brace member which is formed separately from the body of the tying device but is adapted to be mounted thereon in use.

3,782,059

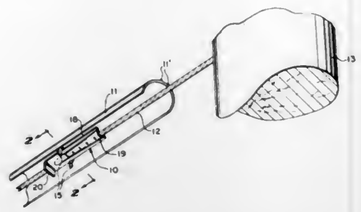
GUY-WIRE GUARD FASTENERS

Robert H. Reed, Rockford, Ill., assignor to Redmon Products Co., Sterling, Ill.

Filed July 26, 1972, Ser. No. 275,242

Int. Cl. E04h *12/20*

U.S. Cl. 52—147 **15 Claims**



The guy-wire guard fasteners of both forms involve the wedging action of a semi-conical shaped portion of a wedge plate against one side of the guy-wire by driving the wedge plate endwise in one direction while the parallel lateral edge portions of the wedge plate that are in a plane oppositely inclined relative to the semi-conical portion of the plate slide in grooves provided therefor in the two legs of an inverted U-shaped fastener bolt or element, these legs extending through holes in the middle portion of the guard on opposite sides of the guy-wire so that the guy-wire is clamped firmly against the inside of the guard by the wedge plate.

In the other form of fastener in which downwardly bent tapered flanges define the parallel side edge portions of the wedge plate and these flanges are slit vertically at regularly spaced intervals so that lugs can be bent outwardly from the flanges on opposite sides of the legs of the U-shaped fastener element in which grooves are defined for sliding engagement of the flanges in the endwise movement of the wedge plate to wedged position, the outwardly bent lugs positively lock the wedge plate against endwise movement from wedged position. This prevents loosening of the wedge plate in the event of any endwise movement of the guard relative to the guy-wire.

3,782,060

BEARING FOR SUPPORT OF ROOFING TILES

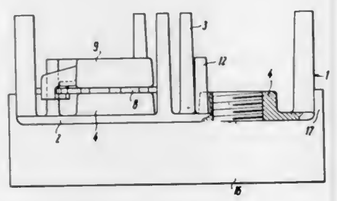
Klaus Gobel, 55, Trier-Trach, am Forst, Germany

Filed Nov. 9, 1972, Ser. No. 305,157

Claims priority, application Germany, Nov. 22, 1971, P 21 57 750.4

Int. Cl. E04b *1/35*

U.S. Cl. 52—126 **7 Claims**



A bearing for supporting a roofing tile comprises a base plate which is bushed to receive one end of one or more threaded members. The threaded members comprise bolts with threaded portions of opposite pitch carrying a toothed wheel between the threaded portions. The other end of each threaded member is received in a support plate which is

received in a recess in a roofing slab. Each support plate has a fork on one side the lugs of which extends below the base of the support plate. Spacing pins on the base plate separate the roofing slabs and a locking pin on the base plate can be used to turn the toothed wheels and thus tighten or slacken the bolts.

3,782,061

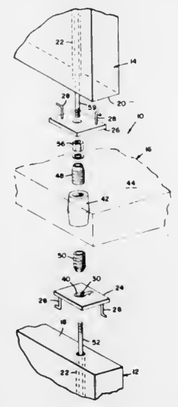
CONCRETE BUILDING CONSTRUCTION WITH IMPROVED POST TENSIONING MEANS

Andrea J. Minutoli, 1624 Merritt Dr., Novato, Calif., and Reginald A. J. Locke, 915 Douglass St., San Francisco, Calif.

Filed Mar. 23, 1972, Ser. No. 237,420

Int. Cl. E04b *1/41*; **E04g** *21/12*

U.S. Cl. 52—125 **11 Claims**



A building assembly having aligned first panels and a second panel between each pair of adjacent first panels with the first panels having aligned, rod-receiving conduits and the second panels having sleeves aligned with the conduits so that reinforcing rods can extend through the assembly of the first and second panels. Each sleeve has means for guiding reinforcing rods therethrough and a nut is received within the guide means for interconnecting the proximal ends of a pair of adjacent reinforcing rods. Each conduit is wide enough to receive a rod-connecting nut and the string of reinforcing rods are tensioned at the upper end of the building assembly, whereby uniform stress is applied to the first and second panels and thereby to the overall building assembly.

3,782,062

MODULAR ASSEMBLY FOR ATTACHING SKIRT FACADE TO AN AIR HANDLING UNIT

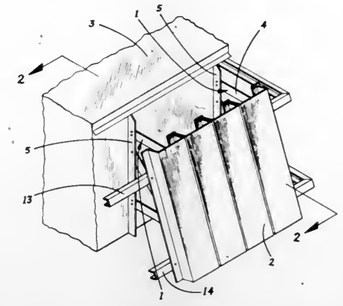
Walter E. Woods, and Paul E. Hammann, both of Bettendorf, Iowa, assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed July 14, 1972, Ser. No. 272,079

Int. Cl. E04f *10/08*

U.S. Cl. 52—75 **1 Claim**

A modular assembly for supporting a skirt facade and attaching same to an air handling unit, the assembly being adapted to be cantilevered from a wall support at one end pro-



jecting therefrom and engaging with a skirt facade in a preselected angular relationship at the other end.

3,782,063

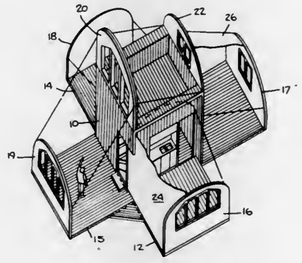
EXPANDABLE PREFABRICATED BUILDING SYSTEM AND METHOD OF CONSTRUCTION

Valeria Batorewicz, and Jerry P. Loving, both of New Haven, Conn., assignors to Housing Systems Corporation, New Haven, Conn.

Filed Aug. 31, 1971, Ser. No. 176,636

Int. Cl. E04b *1/12*, *1/347*, *1/35*

U.S. Cl. 52—63 **12 Claims**



An expandable prefabricated building system combines a preassembled rigid core unit with auxiliary floor sections and attached self-erecting or inflatable flexible membrane forms for satellite rooms surrounding the core unit.

A preferred method of construction includes the steps of prefabricating a core unit and at least one floor section and flexible membrane form for a satellite room; transporting the prefabricated items to a construction site; erecting the core unit, floor section and flexible form; and applying hardenable plastic material to the flexible form to produce a permanent building.

3,782,064

MOISTURE DEFLECTOR FOR A WALL SYSTEM

S. Eugene Hubbard, 540 Phillips Rd., Niles, Mich., and Lawrence F. Biebuyck, 2500 Interstate 20, Mesquite, Tex.

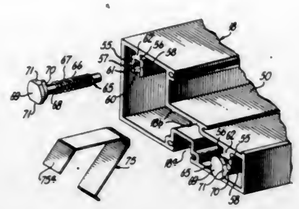
Division of Ser. No. 41,951, June 1, 1970, abandoned. This application Nov. 11, 1971, Ser. No. 197,739

Int. Cl. E04b *7/4*, *1/18*

U.S. Cl. 52—97 **3 Claims**

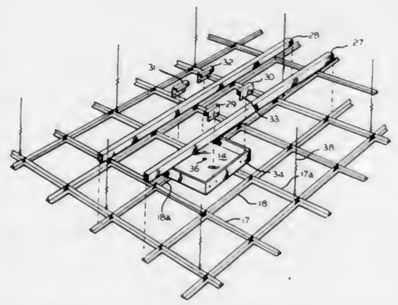
There is provided an improved wall construction including a vertical mullion and a horizontal member. A glazing pocket is

provided in the side face of the vertical mullion and a glazing pocket is provided in the upper surface of the horizontal mullion. A moisture deflector is provided on the horizontal mullion protruding into the glazing pocket of the vertical mullion directing moisture from the glazing pocket of the horizontal



mullion into the glazing pocket of the vertical mullion so that moisture which enters the glazing pocket in the horizontal mullion may be directed downwardly through the glazing pocket of the vertical mullion and thereafter outside of the building.

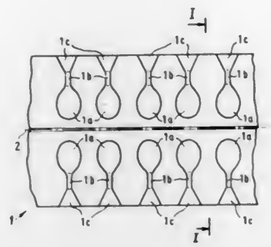
3,782,065
CEILING MOUNTING ARRANGEMENT
Walter Griffing, 208 Lansdale Rd., Prospect Heights, Ill.
Filed Feb. 25, 1972, Ser. No. 229,521
Int. Cl. E04b *5/52*; **G09f** *7/18*
U.S. Cl. 52—39 **11 Claims**



An arrangement to enable mounting heavy loads, such as large screen television receivers, to suspended ceilings. The arrangement includes a box-like section that replaces a ceiling tile and is supported between the runners of the suspended ceiling. The box-like section is attached to a pair of support bars that bridge a plurality of runners thereby distributing the weight of the load which is suspended from the box-like section.

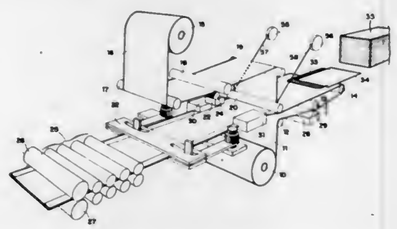
3,782,066
METHOD OF MAKING AND FILLING AN ASEPTIC PACKING CONTAINER
Roland Schmitt, Forchheim, Germany, assignor to Industriewerke Karlsruke Augsburg Aktiengesellschaft, Karlsruke, Germany
Filed Feb. 18, 1972, Ser. No. 227,577
Claims priority, application Germany, Feb. 25, 1971, P 21 20 274.4
Int. Cl. B65b *61/00*
U.S. Cl. 53—14 **10 Claims**

A method for the production of aseptic packings, particularly a single use packing such as an ampoule, etc., comprises a plurality of oppositely directed substantially identical indentations on a foil on each side of a fold line. Thereafter, the foil material is folded along the fold line to align the indentations so that they form half portions of individual containers. The foil sections are welded or otherwise sealed together so that they close the container around the juncture line. Each container indentation includes a neck portion terminating in an outwardly widening funnel opening adjacent the edge of the foil material. The individual containers are then filled through the funnel and the neck portion is thereafter sealed



directly below the bottom of the funnel by pressure welding. The area adjacent the closed weld line is provided with tear lines to facilitate easy opening and removal of the contents from the containers. An aseptic packing comprises a strip of two superposed foil sheets, each having aligned recessed portions forming container halves which together form a complete closed container which is closed around the periphery by the foil material. The strip includes tear line portions for both separating individual containers from the strip and for opening the mouth of each container.

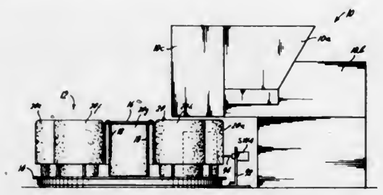
3,782,067
METHOD AND APPARATUS FOR CONTINUOUSLY WRAPPING FLEXIBLE SHEETS
Albert Emiel Smolderen, Aartselaar, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium
Filed Aug. 25, 1971, Ser. No. 174,807
Claims priority, application Great Britain, Aug. 26, 1970, 41,126/70
Int. Cl. B65b *9/02*
U.S. Cl. 53—28 **12 Claims**



In a wrapped film package, particularly sheets of X-ray film, produced by the method of USP 3,411,263 in which the margins of one web of wrapping material are folded inwardly over the edge margins of a narrower web of wrapping paper with the film sheets sandwiched in between at spaced intervals, the contacting web portions are adhered together and the webs are sealed along lines between adjacent sheets and cut to produce individually wrapped film sheets, the inherent tendency of the folded over web marginal portions to unfold and

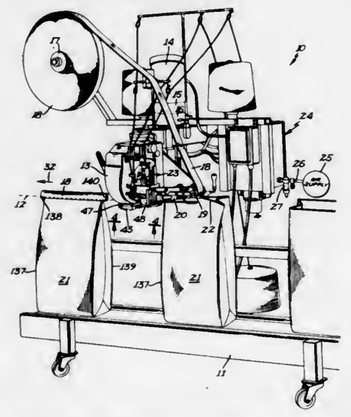
draw air into the partially wrapped package is overcome by mechanically creasing the folded web edge to set the web in its folded condition and overcome the natural resiliency of the web. Preferably, each web fold edge is creased along two closely spaced parallel lines spaced apart approximately the thickness of the wrapped film sheet so as to impart to the folded edge a generally square cornered configuration.

3,782,068
CAROUSEL FOR SOLID WASTE COMPACTOR
Stanley J. Woyden, Stamford, Conn., and Maurice E. Aaron, Bound Brook, N.J., assignors to Resources Control Corporation, Middlesex, N.J.
Filed Feb. 29, 1972, Ser. No. 230,271
Int. Cl. B65b *57/02*
U.S. Cl. 53—64 **6 Claims**



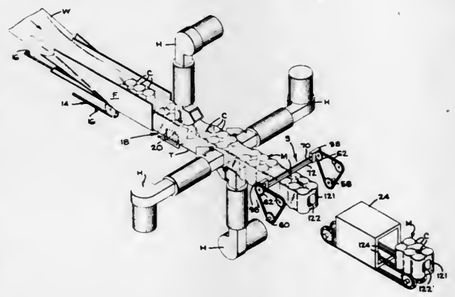
A carousel for handling compacted refuse in a refuse compactor system includes a circular turntable adapted carrying a selected number of refuse receptacles and a drive mechanism for indexing the turntable in coordination with the compactor ejection cycle. The carousel is designed to insure that each receptacle receives one and only one refuse slug and that no slug is ejected unless an empty receptacle is properly positioned beneath the compactor ejection port. The system is adapted to accommodate turntables of different sizes carrying different numbers of receptacles so that it may be used in installations handling different daily volumes.

3,782,069
BAG CLOSING MACHINE WITH FLUIDIC CONTROL SYSTEM
I. George Fischbein, Minneapolis; Harold Fischbein, Edina, and Sam Shark, Minneapolis, all of Minn., assignors to Dave Fischbein Manufacturing Co., Minneapolis, Minn.
Filed Nov. 12, 1971, Ser. No. 198,167
Int. Cl. B65b *57/02, 61/06*
U.S. Cl. 53—67 **10 Claims**



An automatic bag closing machine for bags moving along a path wherein tape is folded over and along the open ends of successively arriving bags and then stitched to the bags to close them and the tape clipped adjacent leading and trailing edges of each bag. A fluidic control system with fluidic bag detection apparatus, including sensors located at spaced intervals along the path of the bags, actuates a sewing head when a bag is detected and continues sewing head operation until the bag passes through the machine. The fluidic control system also actuates a tape clipper assembly including a moving knife, swinging the knife to clip the tape adjacent the leading and trailing edges of the bag, the tape clipper assembly further including a pair of alternating pistons operatively connected to the knife to swing it across the path and return, a first piston being actuated by the control system when the detection apparatus signals the control system that the bag is a predetermined distance upstream from the knife, and a second piston being actuated to again swing and return the knife when the bag is a predetermined distance downstream of the knife. The invention also includes a method of closing taped bags with a bag closing machine having a fluidic control system wherein bags passing through the machine are detected by a fluidic bag detection apparatus.

3,782,070
MACHINE FOR OVERWRAPPING MULTIPLE CONTAINERS
Howard W. Erlandson, Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.
Filed Aug. 4, 1971, Ser. No. 168,927
Int. Cl. B65b *53/02*
U.S. Cl. 53—184 **4 Claims**

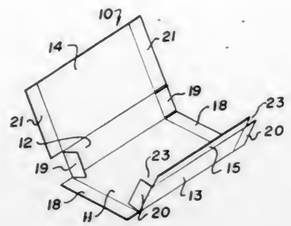


A plurality of rigid containers or articles are grouped into a unit for overwrapping in thermoplastic, heat shrinkable film. The unit is inserted in a moving tube of the film which is subsequently rendered taut by directing streams of heated air on the film. As a result, the film tightens around the groups of articles and those portions of the tube at each end of the articles become constricted or necked down to retain the articles against longitudinal movement relative to the film tube. While still moving, each group of articles then encounters an orbiting hot wire for perpendicularly severing the tube at its constricted portion. After the severing of the tube, the overwrapped articles pass through a heat tunnel which further shrinks the film so that the film beomes tightly stretched and all portions thereof, including the severed free ends, closely conform to the overall shape of each group of articles.

3,782,071
SIMULTANEOUS CARTON FORMER AND LOADER
Hans Hagedorn, 947 Huntington Cres., North Vancouver, British Columbia, Canada
Filed June 1, 1971, Ser. No. 148,540
Int. Cl. B65b *41/06, 43/10, 47/06*
U.S. Cl. 53—191 **26 Claims**

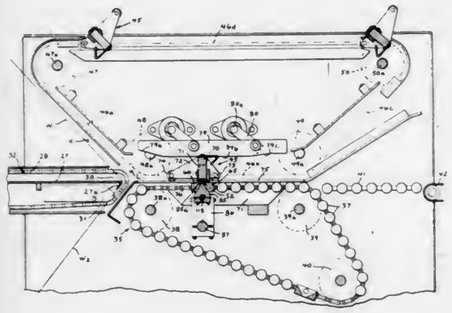
Apparatus for directing a single or double tier load of containers onto a flat carton blank, folding the blank around the

load, and securing end flaps in position to complete the loading and forming of the carton. A blank is partly formed as it is drawn into position to receive the load, and after the load has



been received, the forming operation continues with the various elements of the carton being secured in position during this operation.

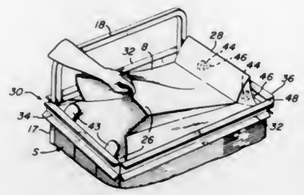
3,782,072
APPARATUS FOR WRAPPING ARTICLES
Robert P. Sorensen, and Leo Strombeck, both of Rockford, Ill., assignors to Anderson Bros. Mfg. Co., Rockford, Ill.
Filed Aug. 31, 1972, Ser. No. 285,491
Int. Cl. B65b *11/08, 9/02*
U.S. Cl. 53—229 **14 Claims**



An apparatus for wrapping articles of the type wherein articles are advanced along an article path into a curtain of heat sealable wrapping material, and upper and lower jaw assemblies are sequentially moved laterally of the article path into positions at the trail side of the article to clamp overlapping portions of the web therebetween, and then forwardly along the article path in a sealing run. The lower jaw assemblies each include a pair of spaced clamping jaw members having a jaw opening therebetween, and a rotary heat sealing and cutting member is mounted for movement into and out of the jaw opening as the jaw assemblies move past a zone intermediate the ends of the sealing run, to sever and seal overlapping portions of the webs.

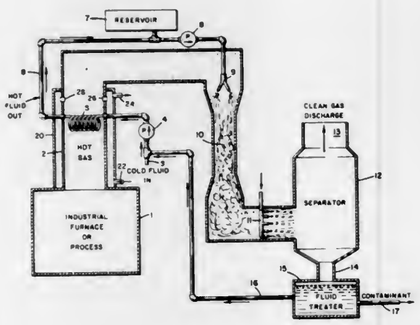
3,782,073
BAG HOLDER AND OPENING DEVICE
Malcolm E. Musser, P.O. 386, Jackson Center, Ohio
Filed Aug. 19, 1971, Ser. No. 173,063
Int. Cl. B65b *43/26*
U.S. Cl. 53—384 **10 Claims**

A stack of collapsed or folded paper bags is placed on a horizontal platform supported by a tubular base frame having an upwardly projecting portion for guiding a rectangular vertically movable bag retaining frame. In one embodiment, the bag retaining frame supports on one end inwardly projecting curved tabs which rest on the uppermost bag in the stack. On its other end, the frame supports cylindrical members which frictionally grip and restrain the folded bottom edge portion of the uppermost bag as the top portion of the bag is pulled upwardly from the tabs, thereay causing the bag to unfold to an



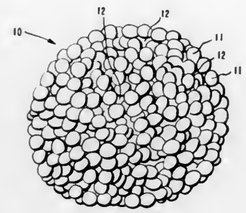
open condition. The bag retaining frame is reversible on the vertical guide portion of the base frame for accommodating a stack of bags packaged in groups with their bottom portions arranged at opposite ends of the stack. In another embodiment, the bag retaining frame supports an L-shaped arm which carries the frictional gripping members and is pivotable to locate the gripping members at either end of the frame where the arm is retained by a catch member.

3,782,074
PROCESS AND APPARATUS FOR CLEANSING AND PUMPING CONTAMINATED INDUSTRIAL GASES USING A NOZZLE HAVING A VARIABLE THROAT AREA
Hugh Emory Gardenier, Tullahoma, Tenn., assignor to Aronetics, Inc., Tullahoma, Tenn.
Filed July 21, 1972, Ser. No. 273,873
Int. Cl. B01d *47/10*
U.S. Cl. 55—19 **31 Claims**



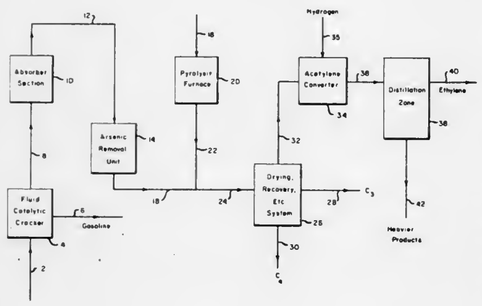
Process and apparatus for removing contaminants from a gas stream by heating a liquid cleansing medium, introducing the liquid cleansing medium into the gas in vaporized and atomized form through a nozzle having a variable throat area, mixing the gas and the high energy cleansing medium thereby entrapping the contaminants, and separating clean gas from the cleansing medium containing the contaminants. The flow rate of the liquid cleansing medium is varied by changing the throat area of the nozzle to thereby control one of the process variables such as the temperature of the liquid.

3,782,075
COMPLETELY POROUS MICROSPHERES FOR CHROMATOGRAPHIC USES
Joseph J. Kirkland, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 7, 1972, Ser. No. 242,038
Int. Cl. B01d *15/08*
U.S. Cl. 55—67 **16 Claims**



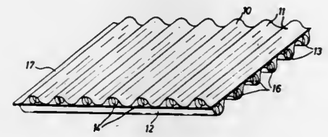
This invention relates to an improved packing material for chromatographic columns, prepared from a powder of uniform-sized porous microspheres composed of a plurality of interconnected colloidal oxide particles.

3,782,076
PROCESS FOR REDUCING THE ARSENIC CONTENT OF GASEOUS HYDROCARBON STREAMS BY USE OF SUPPORTED LEAD OXIDE
Norman L. Carr, The Hague, Netherlands; Franklin E. Massoth, Middlesex Township, Butler County, Pa.; Donald L. Stahlfeld, Glenshaw, Pa., and John E. Young, Jr., Middlesex Township, Butler County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Apr. 27, 1972, Ser. No. 247,983
Int. Cl. B01d *53/04*
U.S. Cl. 55—74 **18 Claims**



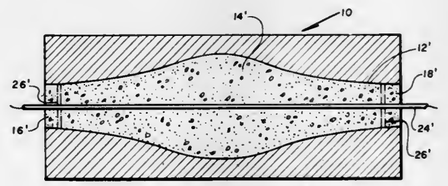
A process for reducing the arsenic content of a gaseous hydrocarbon stream by contacting the stream with a sorbent comprising an oxide of lead dispersed upon a supporting material.

3,782,077
DIFFUSION CELL
Ralph George Hollister, and Denis Arthur Stiles, both of London, England, assignors to Johnson, Matthey & Co. Limited, London, England
Filed Mar. 20, 1972, Ser. No. 236,397
Claims priority, application Great Britain, Mar. 23, 1971, 7,566/71
Int. Cl. B01d *53/22*
U.S. Cl. 55—158 **6 Claims**



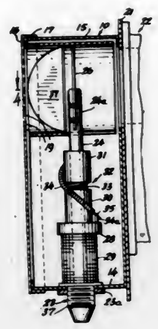
This specification describes a hydrogen diffusion unit for separating mixtures from gaseous mixtures containing hydrogen. The unit comprises two superimposed metal foils bonded together at their edges to form an envelope and at least one of the foils is corrugated or undulated and each corrugation or insulation is supported by a helix of stainless steel or like wire adapted to prevent collapse of the unit when subject to high external pressures in use.

3,782,078
APPARATUS FOR CHROMATOGRAPHIC SEPARATIONS
James H. Jerpe, 7120 Edgerton Ave., Pittsburgh, Pa.
Filed Feb. 14, 1972, Ser. No. 225,948
Int. Cl. B01d *15/08*
U.S. Cl. 55—197 **23 Claims**



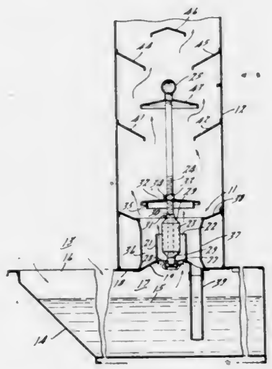
The subject chromatographic column employs certain excitation means to alter the sorption of a sample passing through a sorbent contained within the column to better effect separation of the various components of the sample. These excitation means include a geometric curvature of the central cavity of the column, or a voltage gradient established within the cavity between the column wall which defines the cavity and an electrically isolated wire extending along the longitudinal axis of the cavity, or a combination of the two. The columns can be housed in series within composite blocks and these blocks can be stacked to permit columns of substantial length within a confined space.

3,782,079
SPIT BACK WATER, OIL AND FUEL RE-CYCLE
Leo A. Heintzelman, 4990 Burlingame S.W., Wyoming, Mich.
Filed July 6, 1971, Ser. No. 159,980
Int. Cl. F02m *35/00*
U.S. Cl. 55—218 **3 Claims**



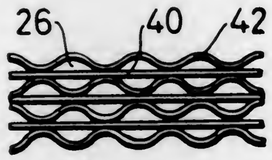
The present invention relates primarily to a spit back water, oil and fuel re-cycle for internal combustion engines. The device forming the embodiment of this invention preferably may consist of a rectangular valve housing mounting an automatically operable spit back needle valve and an exhaust pipe. The needle valve in question has a vertical shaft which may be provided with a flipper plate. The latter can be swivelled by means of the action of the air entering the housing and being directed against a stationary baffle plate. The flipper plate with its spit back needle valve is automatically closed and opened. The aforesaid action exhausting the residue of oil in the housing and delivering it back to the engine.

3,782,080
AIR WASHER
Edward F. Gallagher, Union Lake, Mich., assignor to Gallagher-Kaiser Corporation, Detroit, Mich.
Filed Apr. 11, 1972, Ser. No. 242,933
Int. Cl. B01d *47/00*
U.S. Cl. 55—226 **13 Claims**



An air washer for removing relatively small particles from the air. An annular passage is disposed within the lower end of a plenum chamber or eliminator which is mounted above a collection trough. The passage has a water pipe descending therethrough, the water impacting a deflector which sprays the water across the mouth of the passage. An enlargement is removably mounted on the pipe to decrease the size of the passage. Air is drawn upwardly through the passage, the velocity increasing due to the narrow size, and the water is broken up into small droplets which surround the particles. An impact plate immediately above the narrow passage returns the water-enveloped particles to an annular catch basin which surrounds the narrow passage. A return pipe leads from this basin to the trough. The enlargement may be replaced with one of a different size, to obtain the optimum velocity for removing particles of a given type or size.

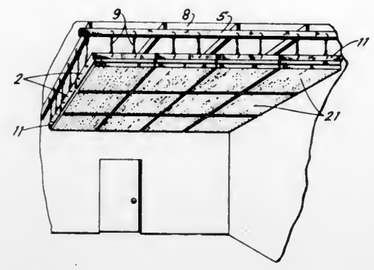
3,782,081
PACKING OR BODY FOR MOISTURE EXCHANGER
Carl George Munters, Danderydsvagen 3, Stocksund, Sweden
Continuation-in-part of Ser. No. 505,501, Oct. 28, 1965, abandoned, which is a division of Ser. No. 164,880, Jan. 8, 1962, Pat. No. 3,231,409. This application Feb. 11, 1970, Ser. No. 10,610
Int. Cl. B01d *46/60*
U.S. Cl. 55—278 **5 Claims**



A packing element for heat and moisture exchange assembled of thin corrugated sheets of asbestos fiber, the corrugations serving to form cells and separate the cells one from the next, whereby air can be passed from one side of the packing to the other for modification of either its heat or moisture content, the asbestos fibers of the packing being first treated with an organic binder for temporary stability in assembling the thin corrugated sheets into a green packing element, further impregnated with inorganic binder and moisture absorptive substance to provide structural stability and moisture absorbency after the organic binder has been burned out, so that the packing assembly is composed entirely of inorganic fiber and binder substance which may be a hygroscopic salt to enhance the moisture absorbency.

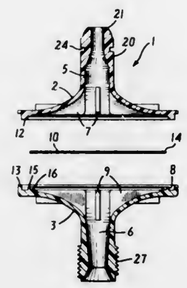
3,782,082
CEILING FILTER SYSTEM FOR CLEAN ROOM
Thomas R. Smith; Robert W. Pond, and Richard D. Rivers, all of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.
Filed Nov. 8, 1971, Ser. No. 196,555
Int. Cl. B01d *31/00*
U.S. Cl. 55—494 **7 Claims**

An air filtering ceiling system having a plurality of flow-through filtering ceiling panels, each panel being adapted for fluid tight communication with adjacent ceiling panels wherein all of the air entering a plenum enters through the



panels, the individual panels being further adapted to be snapped in and out of a ceiling panel support structure.

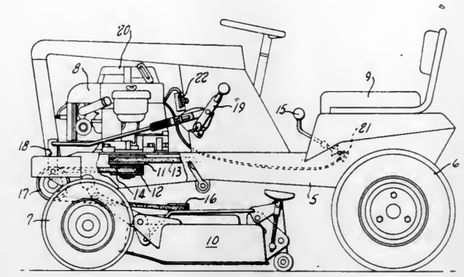
3,782,083
DISPOSABLE GAS FILTER
David J. Rosenberg, Glen Cove, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.
Filed Sept. 16, 1971, Ser. No. 181,123
Int. Cl. B01d *39/08*
U.S. Cl. 55—491 **9 Claims**



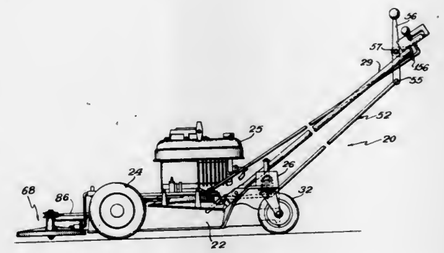
A disposable filter is provided that is especially suited for filtering gases, and for manufacture in a small size, comprising a housing in at least two portions defining therewith a fluid chamber with two fluid ports, and a filter element in sheet form extending across the fluid chamber and held at its sides to one housing portion across the line of flow between the fluid ports, the housing portions being bonded together and the filter element being bonded to one housing portion in a fluid-tight and microorganism-tight seal.

3,782,084
SAFE START SYSTEM FOR RIDING MOWERS
Joseph R. Harkness, Germantown, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.
Filed Nov. 1, 1972, Ser. No. 302,871
Int. Cl. A01d *75/18*
U.S. Cl. 56—10.5 **2 Claims**

A safe start interlock between the ignition system of the engine of a riding mower prevents starting of the engine while either the transmission through which the engine drives the traction wheels or the clutch connecting the engine with the mower is "in gear," wherein a centrifugally responsive switch with considerable inherent hysteresis is built into the engine to keep the engine ignition system grounded until a relatively high engine speed is reached, and upon being opened to disrupt the grounding circuit, remains open despite a substantial reduction in engine speed.



3,782,085
LAWN MOWER AND AUXILIARY UNIT WITH CONTROL MEANS
James M. Parker, Ellsworth, Kans., and Carl N. Rydin, Naperville, Ill., assignors to Parkton Corporation, Ellsworth, Kans.
Continuation-in-part of Ser. No. 79,783, Oct. 12, 1970, abandoned. This application Jan. 17, 1972, Ser. No. 218,150
Int. Cl. A01d *69/08*
U.S. Cl. 56—11.6 **9 Claims**

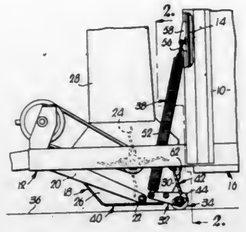


A rotary lawn mower including an engine, an edger-trimmer unit mounted on the mower and driven by the engine, power control means for engaging and disengaging the drive to the unit, and position control means for moving the unit between its edging and trimming positions. Coordinating means interrelates the power control means and the position control means to insure that the drive is always disengaged before the position control means can move the unit. Caster wheels are provided on the mower opposite the unit for ease of maneuvering and height control means engageable with the caster wheels raise and lower the mower to respectively lower and raise the unit.

3,782,086
SPRING-LOADED GAUGE ROLLER

John Dale Anderson, Canton, Kans., assignor to Hesston Corporation, Hesston, Kans.

Filed Apr. 9, 1973, Ser. No. 349,078
Int. Cl. A01d *89/00*
U.S. Cl. 56—344 10 Claims

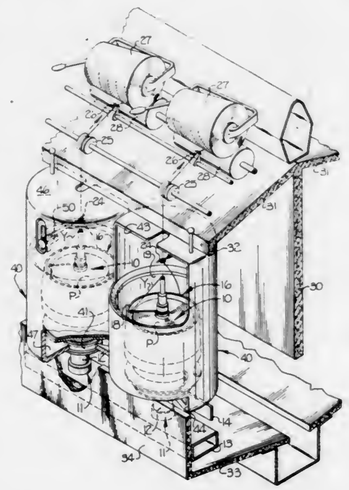


A crop pickup component of a farm implement is floatingly supported by a four point linkage and associated springs that are, in turn, coupled with a swingable gauge roller in such manner as to yieldably bias the latter toward the ground so that shocks are absorbed as the roller follows the ground contours while the crop is being gathered and loaded.

3,782,087
SOUND REDUCING HOUSINGS IN TEXTILE YARN PROCESSING MACHINES

Gustav Franzen, Dusseldorf, and Klaus Nimtz, Krefeld, both of Germany, assignors to Palitex Project Company-GmbH, Krefeld, Germany

Filed June 19, 1972, Ser. No. 264,132
Claims priority, application Germany, June 21, 1971, P 21 30 621.8
Int. Cl. D01h *1/00*; G10k *11/04*
U.S. Cl. 57—1 R 28 Claims



Sound reducing housings in twisters, spinning frames or the like having a plurality of spindle assemblies. The sound reducing housings reduce undesirable sound produced in the machine and are characterized by providing access to the spindle assemblies for servicing while also reducing sound during such servicing. The sound reducing housings include stationary housing elements and movable housing elements mounted on the machine for cooperating with each other for at least partially encapsulating the spindle assemblies and for shielding the interior of the machine. The movable housing elements are displaceable to positions for allowing access by an operator to certain portions of the spindle assemblies for servicing while the stationary housing elements continue to reduce undesirable sound produced by the yarn processing machine.

3,782,088
FALSE TWISTER

David Bakewell, Mobile, Ala., assignor to Courtaulds North America, Inc., Mobile, Ala.

Filed Aug. 5, 1971, Ser. No. 169,175
Int. Cl. D02g *1/02*, *1/08*
U.S. Cl. 57—34 HS 9 Claims



Yarn under tension in the draw span of a drawing machine is false twisted by rotation of the yarn by frictionally contacting the yarn with the rims of each of two rotating discs canted with respect to the yarn path.

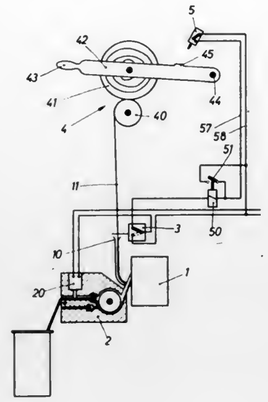
3,782,089
APPARATUS FOR PIECING-UP YARN IN AN OPEN-END-SPINNING DEVICE

Hans Landwehrkamp, Gerolfing, and Gerhard Hoeber, Ingolstadt, both of Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Filed Nov. 18, 1971, Ser. No. 200,125
Claims priority, application Germany, Nov. 28, 1970, P 20 58 603.2
Int. Cl. D01h *15/00*, *13/18*
U.S. Cl. 57—34 R 11 Claims

A momentary contact switch connected in parallel with a yarn tension monitoring switch is actuated by swinging of the bobbin holder beyond a normal servicing position immediately prior to swinging such holder into working position. Such switch overrides the yarn-monitoring switch to effect fiber feed to the yarn formation zone earlier than such feed would normally be effected by the yarn-monitoring switch since the latter switch is not actuated until the yarn tension is increased to normal spinning tension. A holding switch is actuated by the momentary contact switch to maintain the overriding function between the time the momentary contact switch is released by the bobbin holder being swung out of contact and the time the yarn-monitoring switch is reversed. Alternatively, a Bowden wire connecting the bobbin holder and the yarn-

monitoring switch reverses such switch to begin fiber feed. Other overriding switch constructions include a button on the bobbin holder manually operable to release the bobbin holder from a latched servicing position and simultaneously to actu-

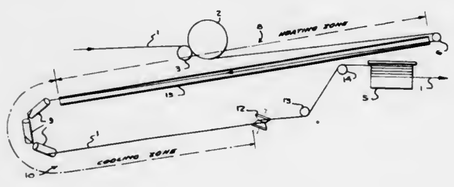


ate the overriding switch, a swingable switch lever moved into and out of switch-actuating contact with a leaf spring contact as a cam slides past it on opposite passes of the swinging bobbin holder, or a ratchet-and-pawl latch for the bobbin holder in which the pawl constitutes a switch-actuating cam.

3,782,090
METHOD AND APPARATUS FOR PRODUCING TEXTURED YARN

John J. Edwin, Charlotte, N.C., and J. Milton Lathem, Gainesville, Ga., assignors to Chadbourn, Inc., Charlotte, N.C.

Filed Dec. 8, 1971, Ser. No. 206,031
Int. Cl. D02g *1/04*
U.S. Cl. 57—34 HS 13 Claims

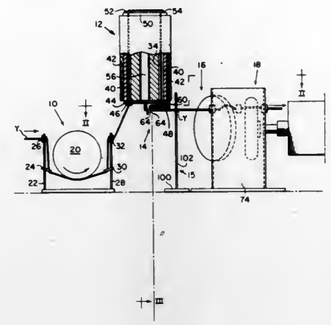


A method for producing textured yarn wherein yarn is drawn through a heating zone, then a cooling zone, and then at least partially around an idler grooved roll which has its axis of rotation at an angle other than a right angle to the direction of yarn travel, and finally delivered from the treatment area. In passing around the grooved roll, the yarn drives the grooved roll and first contacts one side surface of the groove above the bottom, then moves down into the groove bottom, and finally up the opposite side wall before leaving the roll surface. Apparatus is disclosed schematically in the form of a drawtwister, with the drawtwister feed roll serving as the means to feed yarn to the texturing means, and the drawtwister draw roll serving as the means for delivering the yarn from the treatment area.

3,782,091
TEXTURING YARNS BY FALSE TWISTING

Richard C. Spurgeon, R.D. No. 2, Lansdale, Pa.

Filed Feb. 3, 1972, Ser. No. 223,227
Int. Cl. D02g *1/02*; D01h *13/08*; D02g *1/08*
U.S. Cl. 57—34 HS 6 Claims

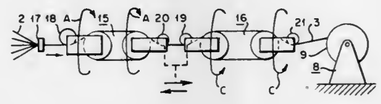


Untextured yarn is drawn from a producer's package, threaded through apparatus comprising a tension leveling device, an electric heater and a false twist device and, having been textured thereby, is wound on yarn take-up means. Close to the yarn exit from the heater is a twist stop device which effectively restricts twisting of the yarn to the downstream side thereof, and close to the downstream side of the false twist device is a check device which effectively restricts to the downstream side thereof the tendency of the yarn to relax due to untwisting thereof.

3,782,092
SZ CABLING DEVICE FOR COMMUNICATION CABLES

Dieter Vogelsberg, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 24, 1972, Ser. No. 220,191
Claims priority, application Germany, Jan. 25, 1971, P 21 05 843.5
Int. Cl. H01b *13/04*
U.S. Cl. 57—34 AT 7 Claims



Cabling device has means for twisting strand elements into respective twisted units having a twist direction which varies from section to section thereof (alternate-reverse twist), and means for simultaneously twisting a plurality of such twisted units into a twisted group also having a twist direction varying from section to section thereof. This two-stage cabling operation is effected by the aid of accumulators. Between the two twisting stages, i.e. the twisted unit-forming means and the twisted group forming means, at least one pulling device is disposed, the pulling device being revolvable about an axis corresponding to the axis of the twist of the twisted units and the twisted group.

3,782,093
APPARATUS FOR WINDING UNDRAWN THREAD MATERIAL ONTO A WASTE YARN TAKE-UP MEMBER OF A DRAW-TWISTING SPINDLE

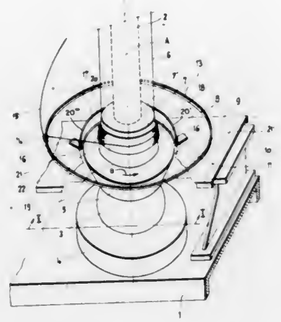
Kurt Angst, Wangi, and Peter Pfyffer, Winterthur, both of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Nov. 29, 1971, Ser. No. 202,822

Claims priority, application Switzerland, Dec. 1, 1970, 17764/70

Int. Cl. D01h *1/38*

U.S. Cl. 57—34.5 **16 Claims**



An apparatus for winding not normally drawn thread material onto a waste yarn take-up member of a draw-twisting spindle comprising a waste yarn take-up member disposed below a tube placed on a spindle. A twisting ring can be lowered into a stationary position with respect to the waste yarn take-up member. A stationary guide member for the thread to be wound onto the waste yarn take-up member is arranged below the upper boundary or upper extent of the waste yarn take-up member. This stationary guide member extends upwardly to a height or location above the base of the waste yarn take-up member and externally thereof along a portion of the circumference of such waste yarn take-up member.

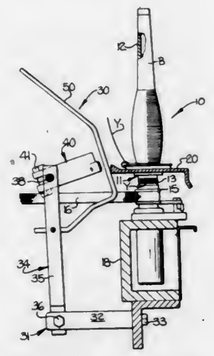
3,782,094
APPARATUS FOR REMOVING WRAPS OF YARN REMAINING ON TEXTILE SPINDLES

Thad T. Flowers, Fort Mill, S.C., assignor to Spring Mills, Inc., Fort Mill, S.C.

Filed May 4, 1972, Ser. No. 250,243

Int. Cl. D01h *1/00*

U.S. Cl. 57—34.5 **3 Claims**



Apparatus for removing the last few wraps of yarn from the lower portion of spindles in a yarn processing machine which are left thereon as a result of doffing full bobbins of yarn. The apparatus comprises blades pivotally mounted for movement toward and away from the lower portion of the spindles in generally a transverse direction with respect to the spindles for assuming an operating position in which the blades are in close proximity to the lower portion of the spindle for removing the wraps during rotation of the spindles in the yarn processing operation and for assuming a non-operation position away from the lower portion of the spindles so that the ring rail mechanism may move to a lower position with respect to the spindles for applying the last few wraps of yarn around the lower portion of the spindle. The apparatus further includes a control device operatively connected with the blades and responsive to movement of the ring rail mechanism for moving the blades to the operating and non-operating positions.

3,782,095
METHOD AND ARRANGEMENT FOR WITHDRAWING AIR FROM SPINNING UNITS

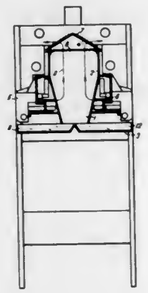
Ladislav Bures, Usti nad Orlici; Jaroslav Rajnoha, Tyniste nad Orlici; Milan Chrtek, Ceska Trebova; Miroslav Cerny; Citbor Doudlebsky, both of Usti nad Orlici, and Josef Hybl, Ceska Trebova, all of Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi, Liberec, Czechoslovakia

Filed Feb. 2, 1972, Ser. No. 222,797

Claims priority, application Czechoslovakia, Feb. 19, 1971, 1248/71

Int. Cl. D01h *11/00*

U.S. Cl. 57—56 **10 Claims**



A textile installation for spinning fibrous material and converting it into yarn includes a plurality of spinning units arranged in substantially side-by-side relationship along a given direction. Each such unit has an air-discharge outlet for discharging air. A passage system extends along said direction, communicates with the discharge outlets, and communicates with the ambient atmosphere over at least a major portion of its length. In this way, the air flow discharged from each outlet will travel through such passage means to the atmosphere along substantially identical flow paths so as to maintain the air-flow and pressure conditions in each spinning unit substantially identical.

3,782,096
APPARATUS AND METHOD FOR PRODUCING NO-TWIST CENTER-PULL ROVING PACKAGES

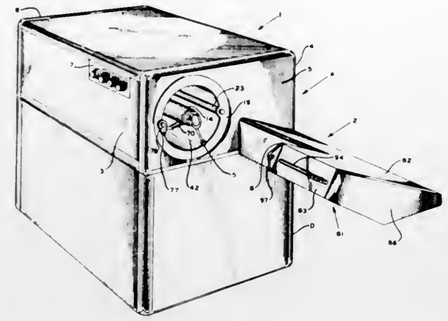
Harald E. Karlson, Santa Monica, Calif., assignor to Goldsworthy Engineering, Inc., Torrance, Calif.

Filed Sept. 25, 1970, Ser. No. 75,524

Int. Cl. D01h *1/04*; **B65h** *54/02*

U.S. Cl. 57—71 **25 Claims**

An apparatus and a method for producing a roving package by pretwisting a roving band during winding of the package to produce a one-twist per revolution band layer configuration. A roving band feeding eye is reciprocated with respect to and simultaneously orbited about a mandrel for winding filament containing roving strands thereupon. The winding is accomplished over the end of the mandrel so that a twist is incorporated in each turn of the roving strand for every revolution of the feeding eye. A device is also provided for shifting the winding eye radially outwardly as the diameter of the roving package increases during winding.



3,782,097
IMPROVEMENT OF SPINNING MACHINERY PROVIDED WITH THE FLYER TWISTING AND WINDING MECHANISM

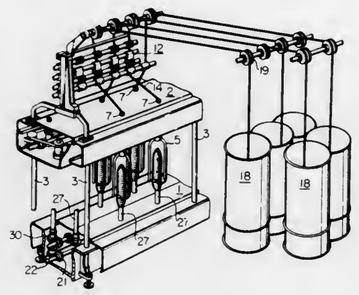
Minoru Nakamura, Amagasaki, and Akira Umefuji, Itami, both of Japan, assignors to Osaka Kiko Kabushiki Kaisha, Osaka, Japan

Filed Sept. 2, 1971, Ser. No. 177,410

Claims priority, application Japan, Sept. 10, 1970, 45/79732

Int. Cl. D01h *1/04, 7/40, 7/42*

U.S. Cl. 57—96 **9 Claims**



The spinning machinery of the present invention is provided with an improved twisting and winding mechanism comprising a bobbin rail provided with means for driving and lifting each spindle so as to make a package upon a bobbin held by each spindle, and a flyer rail rotatably suspending each flyer at each position facing the corresponding spindle head and holding means for driving each flyer at a predetermined constant rotation speed. The flyer rail is rigidly supported by supporting pillars vertically mounted upon the bobbin rail, and the draft mechanism is rigidly mounted upon the flyer rail.

3,782,098
CLOSURE MEANS FOR THREADING SLOT OF BALLOON RESTRAINER DEVICE FOR TEXTILE YARN PROCESSING MACHINE

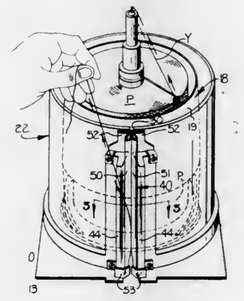
Manfred Bermges, Nettetal, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany

Filed June 6, 1972, Ser. No. 260,139

Claims priority, application Germany, June 12, 1971, P 21 29 259.1

Int. Cl. D01h *1/42, 13/12*

U.S. Cl. 57—106 **7 Claims**



Improved closure means for the threading slot of a balloon restrainer device in a textile yarn processing machine, such as a twister or the like, which includes a spindle assembly for carrying a package of yarn to be withdrawn and processed and which produces a rotating balloon of the yarn around the package as it is withdrawn therefrom. The improved closure means comprise resilient means secured to the outside surface of the balloon restrainer and spanning the threading slot for resiliently closing the threading slot from the outside thereof during yarn processing operations for allowing the formation of a cushioning column of air within the threading slot from the inside of the balloon restrainer for preventing the escape of rotating air produced by the rotating balloon of yarn through the threading slot and thereby eliminating undesirable noise and which allows the opening of the slot during yarn threading for movement of the yarn therethrough.

3,782,099
FLYER

Hans-Jorg Schwager, Chemin de la Plaisante 6, 1012 Lausanne, Switzerland

Filed Dec. 8, 1971, Ser. No. 205,818

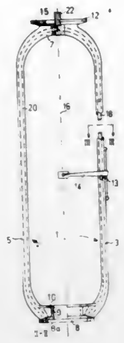
Claims priority, application Switzerland, Jan. 13, 1971, 448/71

Int. Cl. D01h *7/32*

U.S. Cl. 57—117 **3 Claims**

A flyer has a unitary frame that is cast of a light alloy metal and includes a pair of legs joined at their upper ends by a connecting and supporting arch and a lower annular member to which the legs are securely joined at their lower extremities to form a closed loop. The frame also includes at least one rigid

tubular member in the arch that extends downwardly through the legs and is embedded in the lower member. A press-finger



is mounted on one of the legs with the tubular member of that leg being a guiding tube for the sliver.

3,782,100

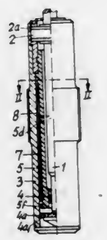
SPINDLE FOR SPINNING OR TWISTING MACHINES

Fritz Stahlecker, Bad Ueberkingen, Germany, assignor to Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H., Suessen, Germany

Filed Jan. 20, 1971, Ser. No. 107,936

Int. Cl. D01h *7/12*

U.S. Cl. 57—135 **12 Claims**



A spindle with a common housing for the collar bearing and footstep bearing of the rotatable center shaft in which the footstep bearing is provided with centering means which counteract the deflections of the lower end of the center shaft and comprise a tube of plastic of a certain inherent resilience in the lower end of which at least the part of the footstep bearing is mounted which is subjected to radial pressures of the lower end of the shaft, while its upper end is mounted in the housing underneath the collar bearing so that the lower end is resiliently pivotable either due to the resilience of the tube when its upper end is rigidly secured to the housing or due to a so-called basket spring acting upon the lower end of the tube when the upper end of the latter is pivotably mounted in the upper part of the housing. These centering means further comprise suitable resilient damping means of a conventional type, for example, an oil-immersed coil spring, which act upon the lower part of the plastic tube.

3,782,101

TIMEPIECES WITH TORSION RESONATORS

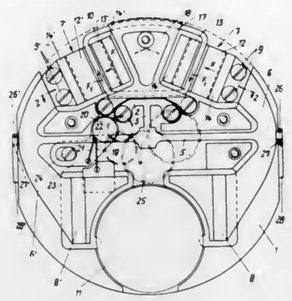
Philippe Kuffer, Bienne, Switzerland, assignor to Montres Rolex S.A., Geneva; Manufacture Des Montres Rolex S.A., Bienne and Societe Anonyme De La Fabrique D'Horlogeric Le Coultre & Cie, Le Sentier, all of Switzerland

Filed Sept. 20, 1971, Ser. No. 182,085

Claims priority, application Switzerland, Sept. 29, 1970, 14403/70

Int. Cl. G04c *3/00, 5/00*

U.S. Cl. 58—23 V **5 Claims**



A torsion resonator comprises an elongated torsion bar made in one flat piece with anchor-shaped ends supporting masses and an enlarged median zone at one side of which it is fixed by an elastically deformable branch to the bottom plate of a timepiece. An electrical transducer maintains torsional oscillation of the resonator and the relatively high torsional moment of inertia of the median zone compared to the rest of the bar prevents torsional efforts being transmitted to the supporting branch. Cooperating parts at the ends of the torsion bar and on the plate limit the amplitude of displacement of the torsion bar about the elastic branch.

3,782,102

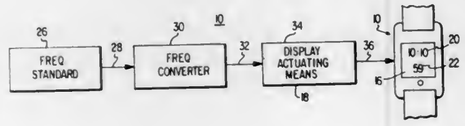
SOLID STATE WATCH WITH MAGNETIC SETTING

John M. Bergey, Lancaster, Pa., assignor to Time Computer, Inc., Lancaster, Pa.

Filed Apr. 29, 1971, Ser. No. 138,557

Int. Cl. G04b *19/30, 27/00*

U.S. Cl. 58—50 R **5 Claims**



Disclosed is a solid state electronic wristwatch with no moving parts. The watch electronics are hermetically sealed in the watch case to be free of dust and moisture and the sealed components are resiliently mounted for improved shock resistance. Two setting switches and a demand switch within the casing are operated from outside the watch by permanent magnets, the demand magnet operating with a demand push-button. The setting magnet may be stored in the watch bracelet.

3,782,103

DRIVING ARRANGEMENT FOR LIQUID CRYSTAL DISPLAY IN TIMEPIECES

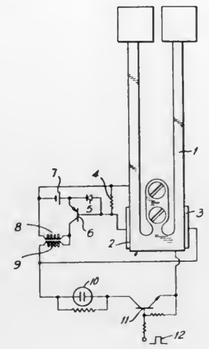
Toshiaki Saito, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jan. 28, 1972, Ser. No. 221,687

Claims priority, application Japan, Feb. 3, 1971, 46/3769

Int. Cl. G04b *19/30*; **G04c** *3/00*

U.S. Cl. 58—50 R **4 Claims**



A driving arrangement for liquid crystal displays for timepieces wherein the relatively low voltage of a battery is stepped up in response to the oscillating frequency of the time standard oscillator for application to the liquid crystal displays. Where said time standard vibrator is a piezo-electrically driven tuning fork type vibrator, the driving signal for said vibrator is also obtained from the secondary of the step-up transformer.

3,782,104

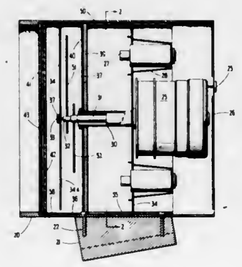
TIMER HAVING A COLOR-DISPLAY SYSTEM

Jordan Kirsch, 78 Huron Ave., Cambridge, Mass.

Division of Ser. No. 93,051, Nov. 27, 1970, Pat. No. 3,694,054. This application Aug. 10, 1972, Ser. No. 279,618

Int. Cl. G04b *19/24*; **G02b** *1/24*

U.S. Cl. 58—50 R **10 Claims**



A color-display system embodied in a clock mechanism wherein the face of the clock constantly changes color. A pair of transparent, light-polarizing sheets are arranged parallel to one another with one of the sheets forming the face of the clock. A pair of birefringent sheets are positioned between the polarizing sheets with one of the sheets having a greater retardance than the other. The one sheet is arranged with one of the principal axes at a fixed 45-degree angle relative to each of the polarizing axes. The other birefringent sheet is supported for rotation about an axis normal to the first birefringent sheet. Rotation of this birefringent sheet by the clock mechanism effectively changes the color of the clock face.

3,782,105

RECTANGULAR WATERPROOF WATCH CASING ASSEMBLY

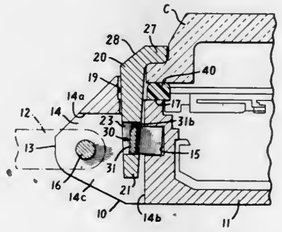
Hideo Nozawa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed May 4, 1972, Ser. No. 250,150

Claims priority, application Japan, May 4, 1971, 46/35394; May 4, 1971, 46/29880; May 7, 1971, 46/35809

Int. Cl. G04b *37/08*

U.S. Cl. 58—90 R **18 Claims**



A rectangular waterproof watch casing assembly comprises a unitary rectangular casing, a deformable sealing member positioned around the top periphery of the rectangular casing, a rectangular watch crystal positioned atop the sealing member, and means for releasably attaching the watch crystal to the rectangular casing to effect compression of the sealing member to a sufficient degree to obtain a watertight assembly. The attaching means comprises a rectangular retaining member connected to the watch crystal and having a pair of projections which are inserted into appropriate slots provided in the rectangular casing. Locking means are employed for releasably engaging with the projections to releasably lock the rectangular retaining member in a predetermined position wherein the retaining member compresses the sealing member between itself and the top of the rectangular watch casing. The locking means comprises an opening provided in each projection and a locking member insertable into the opening and engageable with the projection.

3,782,106

IDLING SPEED CONTROL FOR STIRLING CYCLE ENGINE

Sven Anders Samuel Hakansson, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed June 23, 1972, Ser. No. 265,626

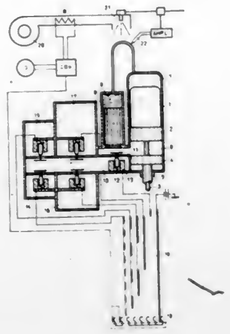
Claims priority, application Great Britain, July 7, 1971, 31,822/71

Int. Cl. F03g *7/06*

U.S. Cl. 60—24 **5 Claims**

An idling speed control is provided for a Stirling cycle engine wherein a variable volume working space is provided by a selectively controlled series of dead volume chambers. The idling speed control comprises a dual action system loading the engine in response to (1) a governor speed setting by

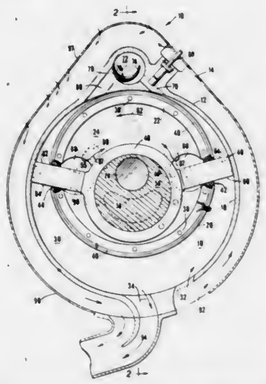
coupling an electrical generator loaded by a heater resistor in the air flow path to the burner to increase shaft load and (2) a temperature responsive feedback system to decrease the supply of fuel and air to the burner when said heater raises the temperature.



3,782,107
AIR-COOLED ROTARY INTERNAL COMBUSTION ENGINE

Wilfrid H. Bendall, 19 N. Broad St., Pawcatuck, Conn.

Filed Nov. 10, 1972, Ser. No. 305,334
Int. Cl. F02c *5/12*
U.S. Cl. 60—39.61 **21 Claims**



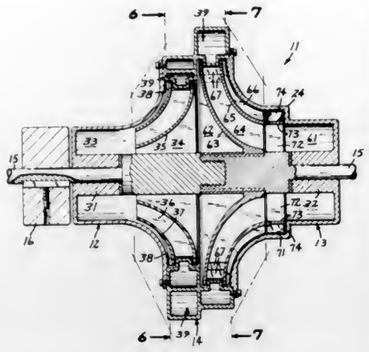
An air-cooled rotary vane engine utilizing external and internal cooling air flow and a turbulence combustion chamber controlled by an automatic valve operated by the working fluid pressures; the engine is further constructed for operation with clearance sealing and dry internal lubrication.

3,782,108
GAS TURBINE

Merrill R. Holste, 2228 St. Stephens St., St. Paul, Minn.

Filed Sept. 25, 1972, Ser. No. 292,075
Int. Cl. F02c *3/12, 3/08, 7/12*
U.S. Cl. 60—39.2 **22 Claims**

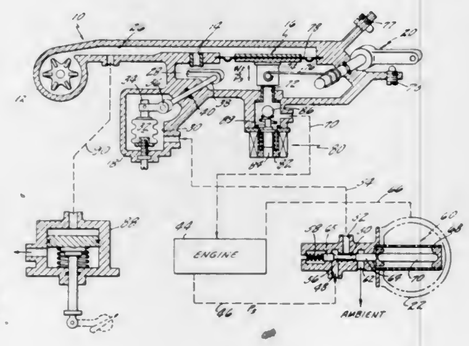
The disclosure is directed to a centrifugal flow gas turbine consisting of a centrifugal compressor and an inward flow power turbine interconnected by a spirally shaped combustion chamber. The compressor and power turbine are commonly mounted on a rotating shaft which also carries a flywheel to store rotational energy of the turbine after it has reached higher rotational velocities. Means are included for intermittently firing the turbine to maintain smooth and economical operation within a predetermined range of engine speeds.



3,782,109
FUEL CONTROL

Kail L. Linebrink, Bloomfield, Conn., and Charles F. Stearns, East Longmeadow, Mass., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 14, 1972, Ser. No. 244,080
Int. Cl. F02c *9/08*
U.S. Cl. 60—39.28 T **12 Claims**

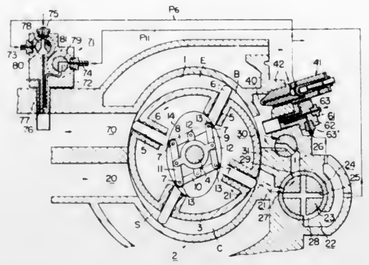


A fuel control for gas turbine power plant adapted for automotive use includes an open loop scheduling control for acceleration which varies the pressure drop across the metering orifice as a function Wf/P_3 (W_f = fuel flow in pounds/hours, P_3 = compressor discharge pressure in pounds/square inch absolute) and varies the area of said metering orifice as a function of P_3 divided by another engine operating parameter such as turbine exhaust temperature to effectuate multiplication of the Wf/P_3 and P_3 values for establishing the value of W_f, where Wf/P_3 is scheduled by the foot pedal position.

3,782,110
VANE-TYPE ROTARY ENGINE

Akira Kobayashi, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

Filed Aug. 7, 1972, Ser. No. 278,202
Claims priority, application Japan, Oct. 18, 1971, 46/82343
Int. Cl. F02c *3/12, 3/18*
U.S. Cl. 60—39.43 **6 Claims**

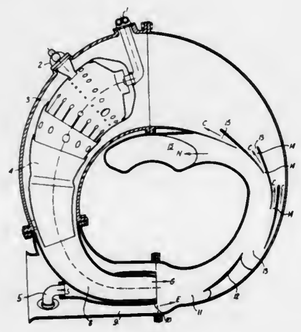


A plurality of operative chambers are defined by a rotor and its radially movable vanes within a substantially elliptical cylinder. A fluid compressed in the successive operative chambers is first introduced into a fluid storage chamber through a rotary valve and a pressure control valve and thence into a combustion chamber back through the said valves at suitable pressure and at the proper time. The gaseous products of combustion thus initiated in the combustion chamber and discharged through an exhaust port after expanding in the successive operative chambers may be further subjected to secondary combustion caused by another fuel injection means provided to a passageway extending from the exhaust ports into intake ports of a second vane-type rotary engine from which the various combustion means provided in the first engine are absent. The first engine may be supercharged by a blower constructed similarly to the second engine and driven by the first engine.

3,782,111
METHOD AND APPARATUS FOR GENERATING WASTE GASES

Stefan Kotoc, Prague, Czechoslovakia, assignor to Ustav pro vyzkum motorovych vozidel, Prague, Czechoslovakia

Filed Apr. 7, 1972, Ser. No. 242,074
Int. Cl. F23r *1/04*; **F02g** *1/00*; **F02k** *11/00*
U.S. Cl. 60—39.69 **12 Claims**

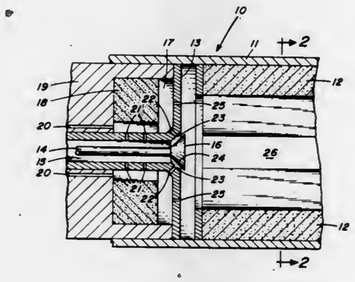


This invention deals with a method for generating waste gases in which the chemical energy of a fuel supplied to a generator is released in the combustion chamber of the generator by the presence of an oxidant and due to the pressure, thermal and kinetic energy of the waste gases which, after expansion and acceleration, are led into an ejection and a contact area where exchange of energy takes place between the waste gases and the oxidant. The waste gases are then set in motion in a curvi linear path while at the same time transmission of the heat and motion of the oxidant which is sucked into and mixed with the waste gases in the contact area and in which area a part of the so called working medium, compressed by centrifugal force is braked by a diffusion means and guided back into the generator combustion chamber as oxidant for changing the chemical energy of the fuel into another form of energy while the remaining portion of the working medium is supplied to exhaust where it is put to a desired use, such as operating turbines, jet reactors, and the like or used to heat kettles or reactors and the like.

3,782,112
HYBRID GENERATOR

Raymond J. Muzzy, Saratoga, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 24, 1972, Ser. No. 230,538
Int. Cl. F02k *9/06*
U.S. Cl. 60—251 **9 Claims**



An improved hybrid injector to gasify and aerate a liquid oxidizer. A solid propellant gas generator is enclosed in an annular manifold surrounding the passageway leading from a source of liquid oxidizer to the main combustion chamber. Openings through the manifold communicate the gas generator with the liquid oxidizer passageway to thereby gasify and aerate the liquid oxidizer passing into the main combustion chamber.

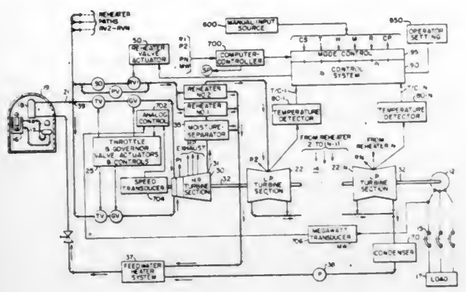
3,782,113
ELECTRIC POWER PLANT SYSTEM AND METHOD FOR OPERATING A STEAM TURBINE ESPECIALLY OF THE NUCLEAR TYPE WITH ELECTRONIC REHEAT CONTROL OF A CYCLE STEAM REHEATER

Michael C. Luongo, Brookhaven, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 27, 1972, Ser. No. 221,185
Int. Cl. F01k *7/16*
U.S. Cl. 60—73 **38 Claims**

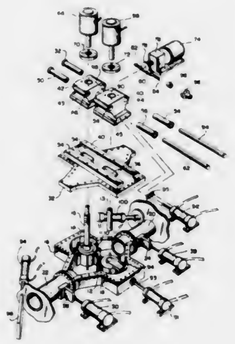
An electronic system is provided for operating a nuclear electric power plant with electronic steam reheating control applied to the nuclear turbine system in response to low pressure turbine temperatures, and the control is adapted to

operate in a plurality of different automatic control modes to control reheating steam flow and other steam conditions, each



of such modes of control permitting turbine temperature variations within predetermined constraints and according to predetermined functions of time.

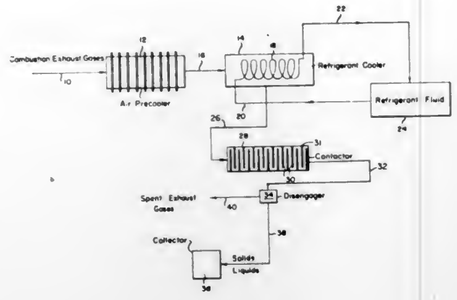
3,782,114
HYDRAULIC PROPULSION SYSTEM
Frank Broes, Washington, D.C., assignor to Stradco, Inc., Washington, D.C.
Filed Mar. 24, 1972, Ser. No. 237,717
Int. Cl. B63h *11/08*
U.S. Cl. 60—221 **4 Claims**



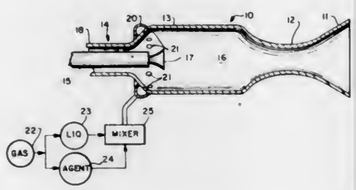
An hydraulic propulsion system of the type employing a pair of drive rotors intersecting fluid flow in an hydraulic conduit. At least one of the rotors is laterally displaceable with respect to the other, so as to vary the degree of engagement of the rotors with fluid flow.

3,782,115
METHOD AND APPARATUS FOR REDUCING NITROGEN OXIDE AIR POLLUTION
Cecil J. Johnson, 314 N. Chauncey St., Columbia City, Ind.
Continuation-in-part of Ser. No. 776,973, Nov. 19, 1968, abandoned. This application Sept. 30, 1970, Ser. No. 77,045
Int. Cl. F01n *3/02*
U.S. Cl. 60—274 **1 Claim**

A method and apparatus for reducing the nitrogen dioxide content of internal combustion engine exhaust gases by cooling the gases, condensing the water vapor therein and dissolving and taking off the nitrogen dioxide in the water condensate.



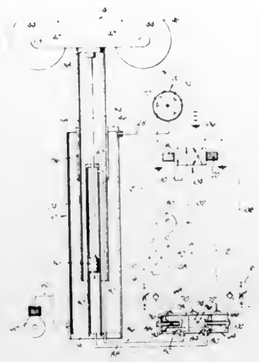
3,782,116
FOAM COOLING AND ACOUSTIC DAMPING FOR INTERNAL COMBUSTION ENGINES
Harland L. Burge, Tarzana, and Newell C. Rodewald, Manhattan Beach, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Mar. 10, 1971, Ser. No. 122,858
Int. Cl. F02k *1/26, 9/02*; **F01n** *1/00*
U.S. Cl. 60—258 **7 Claims**



There is disclosed a method and apparatus for providing thermal protection and acoustic damping in an internal combustion engine by means of injecting a liquid base foam into the gas boundary zone of the combustion gases. A foaming agent, a liquid, and a gas are processed to produce a high expansion foam solution. In one embodiment the foam is generated external to the combustion chamber and is supplied to a distribution manifold located at the injector end of a rocket motor. The foam is then distributed through a plurality of orifices which direct the foam along the walls of the combustion zone and thus into the boundary layer of the combustion gases. The foam may be injected at any point along the gas boundary zone including the free jet boundary layer immediately downstream of the exhaust exit.

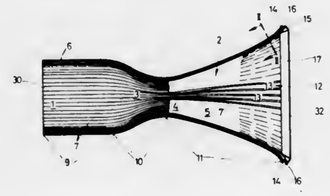
3,782,117
OIL WELL PUMPING APPARATUS
Robert G. James, 10813 Enger St., Bakersfield, Calif.
Filed June 9, 1971, Ser. No. 151,276
Int. Cl. F15b *15/18*
U.S. Cl. 60—372 **5 Claims**

A deep well pumping device including a vertically reciprocating pump piston supporting a pulley on a horizontal axis with a flexible band-like tension member anchored at one end, extending over the pulley and thence downwardly to connect to the polish rod in vertical alignment with said rod, the pumping apparatus being hydraulically reciprocated in a circuit including a pump and reversing valve with limit switches activated by the reciprocating member at its limits of move-



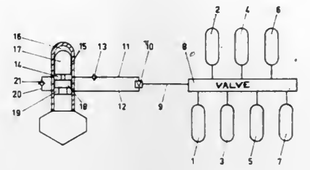
ment to reverse the valve; and piston air pressure means surrounding the reciprocating member and connected thereto to cushion the return stroke thereof; the apparatus being mounted on a base and movable from an upright operative position to a horizontal collapsed position without affecting the relationship of the various operating parts.

3,782,118
REGENERATIVELY COOLED THRUST GAS GENERATOR CONSTRUCTION AND METHOD OF MAKING SAME
Karl Butter, Munich; Michael Kaufmann, Neubiberg, and Helmut Dederra, Ottobrunn, all of Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Ottobrunn bei Munich, Germany
Continuation of Ser. No. 62,448, Aug. 10, 1970, abandoned. This application Dec. 18, 1972, Ser. No. 315,984
Int. Cl. F02k *11/02*
U.S. Cl. 60—260 **9 Claims**



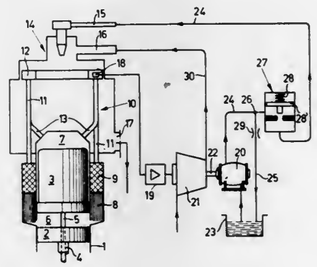
A thrust gas generator includes combustion chamber and a thrust nozzle and has a plurality of longitudinally arranged and circumferentially spaced capillary tubes which form closed canals for the cooling medium, especially a liquid. A metallic layer particularly one which is applied by electroplating, joins the capillary tubes to form a pressure-tight combustion chamber. The electroplated metal is applied to positively embrace the capillary tubes at their radially outward portions or their radially inward portions to bridge the spaces between the tubes. The tubes are shaped so that they have a substantially constant cross section over major portion of their length and they may include a variable cross section in the thrust nozzle or neck portion.

3,782,119
STIRLING CYCLE ENGINE WITH POWER CONTROL BY CHARGE OF WORKING GAS PRESSURE
Yngve Roland Gothberg, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden
Filed Apr. 12, 1972, Ser. No. 243,340
Claims priority, application Great Britain, Apr. 24, 1971, 11,228/71
Int. Cl. F02g *1/04, 1/06*
U.S. Cl. 60—521 **5 Claims**



In a Stirling cycle engine, the power is controlled by manipulating a valve arrangement to connect one of a plurality of gas reservoir chambers containing working gas at different pressures to the working chamber.

3,782,120
THERMODYNAMIC RECIPROCATING MACHINE WITH TEMPERATURE-CONTROLLED FUEL SUPPLY TO BURNER
Klaus Brandenburg, Kirchen-Wehbach, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 24, 1972, Ser. No. 229,002
Claims priority, application Netherlands, Mar. 4, 1971, 7102861
Int. Cl. F23k *5/00*; **F02g** *1/06*
U.S. Cl. 60—524 **9 Claims**

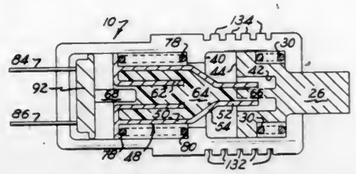


A thermodynamic reciprocating machine comprising a burner device having an inlet for air of combustion to which air of combustion can be supplied by a fan or the like and having a fuel inlet to which fuel originating from a fuel container can be supplied by a fuel pumping device, the outlet of which communicates with the fuel inlet via a fuel supply duct, a fuel return duct being present which at a place at the outlet of the pumping device is connected to the fuel supply duct, a temperature-sensitive element being furthermore present which controls tbe number of revolutions of the pumping device and the fan coupled thereto which each have an output which is directly proportional to the number of revolutions, a pressure control valve which during operation maintains a constant pressure at the outlet of the pumping device being incorporated in the fuel supply duct between the connection plase of the fuel return duct thereto and the fuel inlet, a flow restricting element being incorporated in the fuel return duct.

3,782,121
ACTUATOR APPARATUS

Leo Marcoux, Rehoboth, and Peter G. Berg, Norton, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 1, 1972, Ser. No. 248,942
Int. Cl. F03g *7/06*
U.S. Cl. 60—527 **22 Claims**



An actuator for converting electrical energy into linear mechanical movement comprises a chamber containing an expandable material and a positive temperature coefficient (PTC) of resistance heater located in thermal communication with the chamber. A first piston transmits force from the expandable material to an external load against the force of a first return spring. The first piston moves out of a casing from a retracted position at a first stop to a protracted position at a second stop at which point continued expansion of the expandable material in one embodiment causes a second piston to separate the chamber from the heat source against the bias of a second return spring. As the chamber separates the thermal resistance between the heat source and the chamber greatly increases until equilibrium is obtained between heat input to the expandable medium and pressure exerted by the medium.

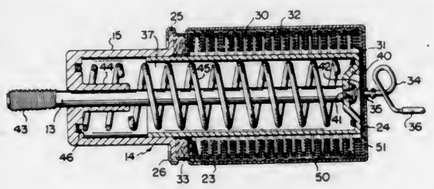
Another embodiment particularly useful for high ambient temperatures and for a longer time period before the actuator returns to its at rest position after deenergization of the heat source employs a chamber fixed in the casing but having a secondary piston which moves to expand the chamber volume to match the volume increase of the expandable material.

Several variations are shown for mounting the actuator to a support.

3,782,122
HEAT MOTOR

Jerome L. Lorenz, Columbus, Ohio, assignor to Ronco Incorporated, Columbus, Ohio

Filed Feb. 14, 1972, Ser. No. 225,953
Int. Cl. F03g *7/06*
U.S. Cl. 60—531 **18 Claims**

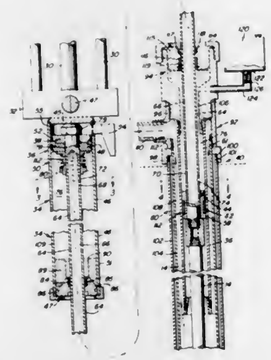


A heat motor comprises a sealed fluid vaporizing and condensing chamber formed by the insides of a container having a bellows assembled therein to form a shiftable wall of the chamber. The bellows moves an actuator shaft in a power stroke upon increase in the vapor pressure of a volatile liquid inside the container and against a loading spring acting on the shaft. A screen wick extends along a substantial portion of the insides of the container and is saturated by a limited fill of the volatile liquid. One portion of the wick is heated by an electric heater to vaporize the liquid therein and the vaporized liquid condenses on the unheated portion of the wick and is transported by capillary attraction to the heated portion. The electric heater circuit is controlled in accordance with a command signal voltage so as to maintain a predetermined vaporizing temperature of the liquid corresponding to a given signal voltage whereby the vapor pressure in the chamber is controlled to maintain the actuator shaft in a predetermined position in its actuating stroke according to the signal.

3,782,123
HYDRAULIC STROKE INCREASER

Ben E. Muschalek, Jr., 1104 Apache, McCamey, Tex.

Filed Jan. 11, 1972, Ser. No. 217,054
Int. Cl. F15b *7/00*; **F16h** *21/18*
U.S. Cl. 60—533 **10 Claims**



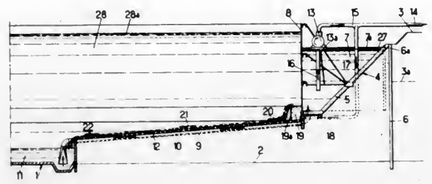
A stroke increaser for use in well pumping systems and the like has a fluid motor, with the cylinder of the fluid motor attached to an actuator, such as the bridle of a walking beam assembly, and the piston of the fluid motor connected to a longitudinally extending hollow polish rod. A fluid pump has a cylinder arranged in the pump assembly and has a piston connected to the other end of the hollow polish rod. A transverse bore is arranged in each end portion of the hollow polish rod. A hydraulic fluid is provided in the cylinders in the hollow polish rod. When the actuator begins an upward stroke, both pistons are in the bottom portion of their respective cylinders. The piston of the fluid pump will be forced upwardly with respect to its associated cylinder by the upward movement of the actuator. The hydraulic fluid will be forced from the cylinder of the fluid pump through the hollow polish rod and into a cylinder of the fluid motor. The piston of the fluid motor will thus be forced upwardly relative to the cylinder of the fluid motor and increase the stroke of sucker rods attached to the piston of the fluid pump. The above process is reversed for a downward stroke of the actuator.

3,782,124
LIQUID STORAGE TANK

Nestor Pladys, Dunkerque, France, assignor to Societe Anonyme dite: Societe Francaise Des Petroles B.P., Courbevoie and Societe Anonyme dite: Soletanche, Paris, both of France

Filed Oct. 13, 1972, Ser. No. 297,354
Claims priority, application France, Oct. 15, 1971, 7137193
Int. Cl. B65g *5/00*
U.S. Cl. 61—.5 **10 Claims**

A novel semi-buried liquid storage tank is disclosed which comprises a frustoconical base, having a central well and a separate annular basin for containment of a hydrostatic balancing liquid. A duct is provided to permit fluid flow

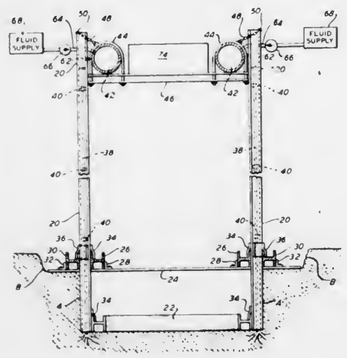


between the annular basin and the storage area of the tank. The tank is built on a natural or artificial impermeable soil layer or bottom.

3,782,125
EARTH SHORING APPARATUS

Edward J. Holl, 320 Warwick Ave., South Orange, N.J.

Filed Jan. 11, 1972, Ser. No. 216,936
Int. Cl. E21d *5/12*
U.S. Cl. 61—41 A **7 Claims**



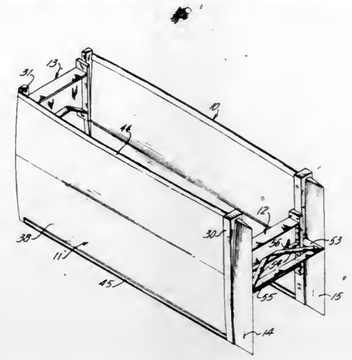
Two opposed, parallel series of suitably guided, elongate, non-interlocking, steel sheeting elements are driven vertically into the earth adjacent to an area where earth is to be excavated, to shore against earth collapse. The driving of the sheeting elements is accomplished by hydraulic or other fluid means associated with such elements, and the weight of relatively massive manifolds and fluid-supply and fluid-distribution pipes is utilized to assist gravitation of the sheeting elements into the earth as the hydraulic fluid flushes earth away from beneath the sheeting elements. Under many soil conditions, additional weight is imposed upon the upper ends of the sheeting elements to assist the hydraulic or fluid means. The imposition of suction through the hydraulic means may be employed under some soil conditions to de-water the earth area at or adjacent to the excavation.

3,782,126
STRESSED SKIN SAFETY TRENCHING BOX

John R. Pavese, 761 Cathy Ann Ct., Paramus, N.J.

Filed May 22, 1972, Ser. No. 255,202
Int. Cl. E21d *5/12*
U.S. Cl. 61—41 A **17 Claims**

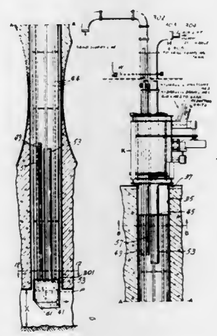
A safety trenching box is provided having a "stressed skin" wall construction which permits the box to be strong, yet light-in-weight. Each of the wall members of the box has a pair of end columns which are adapted to be bolted to spreader members of varying widths, so that the box may be used in trenches of differenet size. The wall members are constructed of one or more flexible plates which are curved or "pre-stressed" about a substantially horizontal axis, so that the lateral forces exerted by the sides of the trench are borne by tension and compression stresses in the flexible plates or "skin" of the wall members.



3,782,127
METHOD AND APPARATUS FOR DEPOSITING FOUNDATIONS UNDER SUBMERGED STRUCTURES

Kaare Ritter Olsen, 80 Selkirk Crescent, Hudson, Quebec, Canada

Filed June 12, 1972, Ser. No. 261,655
Int. Cl. E02d *27/52*
U.S. Cl. 61—50 **8 Claims**

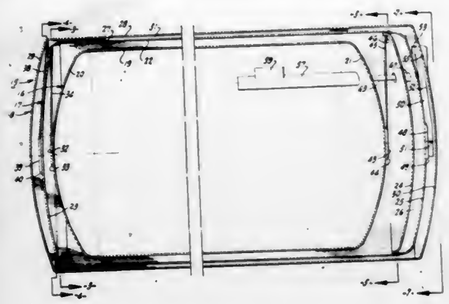


The disclosure teaches a novel method for depositing foundation-providing sand under structures submerged in water, such as underwater tunnels, as well as apparatus for carrying out the method. In accordance with the teachings, the structure contains an opening extending from the top to the bottom of the structure. An arrangement comprising sand-jetting means and water suction means are extended through the opening from the top such that the jetting and suction means extend beyond the base of the structure. The jetting means is rotatable through 360°. Sand is jetted through the arrangement while water under the structure is simultaneously removed by the suction means whereby a bank of sand is built up under the structure. The jetting means is aimed slightly above the horizontal.

3,782,128
CRYOGENIC STORAGE VESSEL

Robert S. Hampton; Cesar Cavanna; Stasys J. Kungys, all of Livermore, and Paul J. Eifel, Walnut Creek, all of Calif., assignors to Lox Equipment Company, Livermore, Calif.

Filed June 1, 1970, Ser. No. 42,052
Int. Cl. F17c 7/02
U.S. Cl. 62—51 **24 Claims**

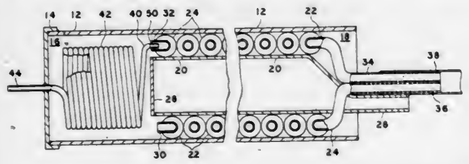


A vessel for storing and transporting cryogenic fluids such as liquid helium. The vessel comprises a plurality of elongated containers supported one within another in coaxial circumjacent relation in a manner minimizing heat transmission therebetween, and it further comprises a cooling system forming a temperature barrier that restricts inward migration of heat from the outer to the inner container. Respecting the support system, the inner fluid-receiving container is supported by an encapsulating intermediate heat shield container which in turn is supported by an outer jacket surrounding and enclosing the intermediate heat shield. The support means effecting such interrelationship includes both transverse support structure constraining the containers relative to each other against transverse or radial displacements and longitudinal support structure interconnecting the containers one with another and constraining the same against relative longitudinal displacements at least at one end of the vessel. The transverse support structure constitutes a plurality of structurally independent supports as respects the interconnection of the inner container with the intermediate heat shield and interconnection of the heat shield with the outer jacket; and all of the support structures define restricted thermal flow paths through which heat migration from the outer container to the inner container is sharply limited Respecting the cooling system, two flow-separated cooling coils surround the heat shield container, one of which carries a coolant such as liquid nitrogen and the other of which connects both with the inner fluid-receiving container and with a delivery system through which fluid is withdrawn from the inner container.

3,782,129
PROPORTIONATE FLOW CRYOSTAT

Rodney J. Peterson, Pomona, Calif., assignor to General Dynamics Corporation, Pomona, Calif.

Filed Oct. 24, 1972, Ser. No. 300,003
Int. Cl. F25b 19/00
U.S. Cl. 62—56 **10 Claims**

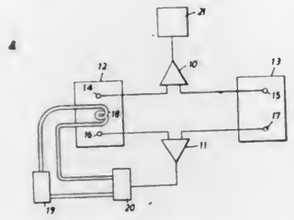


Disclosed is a proportionate flow cryostat for remotely cooling an associated object without being physically connected thereto. The invention herein described was made in the course of or under a contract, or subcontract thereunder, with the Department of the Navy.

3,782,130
APPARATUS FOR PROVIDING AN INDICATION OF THE IMMINENCE OF ICE-FORMATION

John Anderson Irvine, Penicuik, Scotland, assignor to Findlay, Irvine Limited, Penicuik, Midlothian, Scotland

Filed May 9, 1972, Ser. No. 251,816
Claims priority, application Great Britain, May 20, 1971, 16109/71
Int. Cl. F25d 21/02
U.S. Cl. 62—128 **10 Claims**

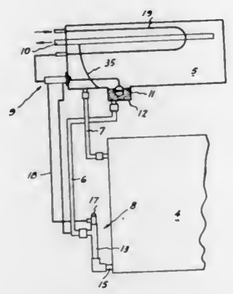


A refrigerator is arranged to cool part of an area for which an indication of the imminence of ice-formation is required. A first temperature sensitive circuit and a first conductivity probe are situated in that part of the area while a second temperature sensitive circuit and a second conductivity probe are situated outside it. A first differential amplifier compares the conductivities of the conductivity probes and a second differential amplifier compares the outputs of the temperature sensitive circuits. The outputs of one of the differential amplifiers controls the refrigerator while the output of the other differential amplifier provides the said indication.

3,782,131
REFRIGERATION SYSTEM EVAPORATOR

Albert Edward Merryfull, 17 Ayres Rd. East, St. Ives, N. S. W., Australia

Filed Mar. 29, 1972, Ser. No. 239,159
Claims priority, application Australia, Mar. 31, 1971, 4465
Int. Cl. F25b 41/04
U.S. Cl. 62—218 **4 Claims**

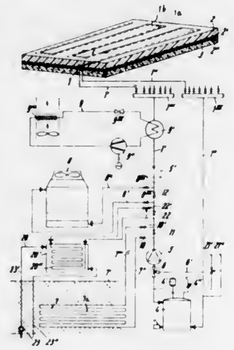


The evaporator includes a heat exchange element adapted to be filled with liquid refrigerant and a surge drum disposed ab ove the element. A first duct connects the drum interior to an inlet at the lower end of the heat exchange element, and a second duct connects an outlet, adjacent the upper end of the heat exchange element, to the drum interior. A high pressure liquid ejector is included in the first duct and a refrigerant supply valve controls the supply of high pressure liquid refrigerant to the ejector. A float valve control means opens and closes the supply valve responsive to variation of liquid level in the drum, and high pressure liquid fed to the ejector entrains refrigerant to flow from the drum to the heat exchange element. An adjustable threaded needle controls flow to the jet nozzle. The drum has a refrigerant vapor suction line outlet, and an oil pick-up tube extends from a point near the bottom of the interior of the drum to the suction line outlet.

3,782,132
HEAT-EXCHANGE SYSTEM

Hermann Lohoff, Bochum, Germany, assignor to CTC GmbH, Hamburg, Germany

Filed June 7, 1972, Ser. No. 260,389
Claims priority, application Germany, June 8, 1971, P 21 28 331.8
Int. Cl. F25d 23/12
U.S. Cl. 62—260 **15 Claims**



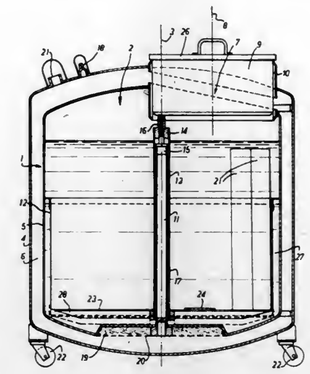
A conduit has an inlet portion, an outlet portion, and a main body portion which is to be embedded in a structural element and which is composed of at least two parallel sections having identical internal cross-sectional areas and being in heat-exchanging contact with one another over their entire length. One of these sections is adapted to receive fresh incoming heat exchange fluid from the inlet portion and the other section is adapted to receive spent heat-exchange fluid from the first section and to conduct it to the outlet portion. A pump is provided for circulating heat-exchange fluid through the conduit and one or more identical or different heat-exchanges are interposed for adjusting the temperature of the heat-exchange fluid.

3,782,133
LOW TEMPERATURE STORAGE VESSEL

Jean-Michel Desperier, St. Maurice, and Gerard Sermanet, Yerres, both of France, assignors to L'Air Liquide, Societe Anonyme Pour L'Etude Et L'Exploitation Des Procedes Georges Claude, Paris, France

Filed Aug. 14, 1972, Ser. No. 280,166
Int. Cl. F25d 25/02
U.S. Cl. 62—381 **3 Claims**

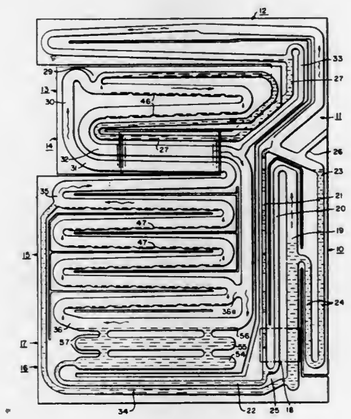
A low temperature storage vessel for storing receptacles containing perishables has a tray rotatable about a vertical axis, access to the tray being had through a laterally offset upper opening. The tray is supported for rotation on a vertical screw that bears on the upper end of an elongated vertical pivot. Manipulation of the screw raises and lowers the tray. In the lowered position, the tray rests on the container bottom for stability during transport. In the raised position, the tray is rotatable and can be raised above ice formations.



3,782,134
ABSORPTION REFRIGERATION SYSTEM

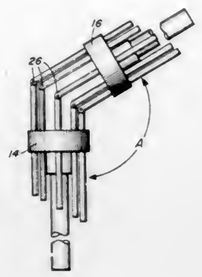
Jack D. Meess, Export; John C. Kastovich, Delmont, and Robert S. Lackey, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 13, 1969, Ser. No. 824,114
Int. Cl. F25b 15/10
U.S. Cl. 62—476 **7 Claims**



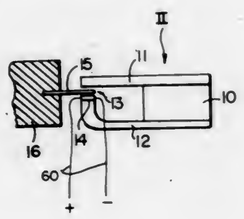
An absorption refrigeration system formed in substantially its entirety from at least two superimposed sheets bonded at their interfaces except for the portions defining operating components and interconnecting passages which are in outwardly expanded or embossed form, so that mass production techniques may be applied to the fabrication of the system.

3,782,135
COUPLING
Moses Beden, 466 Union St., Lynn, Mass.
Filed Feb. 11, 1972, Ser. No. 225,545
Int. Cl. F16d *3/08*
U.S. Cl. 64—20 **5 Claims**



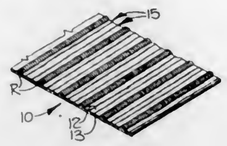
A rotary joint couples a driving and driven shaft to transmit torque with the shafts being rotatably supported at a fixed or variable angle to each other. The coupling includes a collar secured to the proximate ends of each shaft. The collars are connected by a plurality of rods which are freely and slidably received through holes circumferentially spaced and formed through the collars. Each of the rods is bent between its ends in the same angle as that between the shafts. As the driving shaft turns, the rods transmit torque to the driven collar and shaft. During operation the rods slide reciprocally within the holes formed in the collar.

3,782,136
PULSE GENERATOR FOR AN ELECTRICAL CONTROL SYSTEM OF A MACHINE
Jurgen Ploppa, and Wilhelm Hadam, both of Reutlingen, Germany, assignors to H. Stoll and Company, Reutlingen, Stollweg, Germany
Filed July 31, 1972, Ser. No. 276,409
Claims priority, application Germany, Aug. 10, 1971, P 21 40 063.5
Int. Cl. D04b *7/28, 15/70*
U.S. Cl. 66—75 **10 Claims**



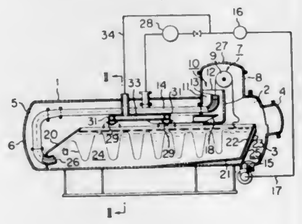
A pulse generator for an electrical control system of a machine having relatively movable parts such as for a programmed control system of a knitting machine. One machine part has a permanent magnet forming an air gap with at least one field plate in the air gap arranged such that the current therethrough depends on the nature of the magnetic field in the air gap. The other machine part has on it items to affect the nature of the magnetic field at the air gap upon relative movement of the machine parts, these items including a magnetically conductable body movable through the air gap and/or a magnetically conducting shunt body movable in the vicinity of the air gap. The magnetically conductable body may take the form of teeth on a soft iron comb, a soft iron plate with apertures, or separate soft iron pieces mounted separately for relative movement through the air gap.

3,782,137
STITCHED NON-WOVEN TEXTILE FABRIC HAVING VARIED PATTERN OF RAISED RIBS ON ONE FACE
George H. Hughes, Asheville, N.C., assignor to National Distillers and Chemical Corporation, New York, N.Y.
Filed June 2, 1972, Ser. No. 258,975
Int. Cl. D04b *23/10*
U.S. Cl. 66—192 **10 Claims**



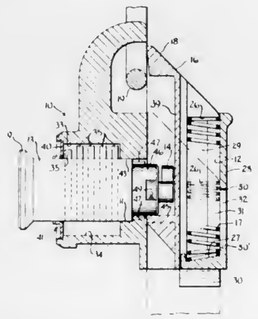
A non-woven, textile fabric adaptable for use as bedspread, drapery, upholstery or the like material characterized by varied pattern of raised ribs on one face thereof. The fabric comprises a non-woven base reinforced with spaced-apart rows of stitch chains including interconnected stitch loop components on one face and stitch components on the other face of the base, both being formed from a first set of yarns. A second set of yarns is stitched with the first set in selected rows of stitch chains only to form selected double yarn stitch loop components on the one face of the base in the selected rows of stitch chains and diagonally-extending, shogged stitch components on the other face of the base extending back and forth between adjacent selected rows of stitch chains causing the corresponding rows of stitch loop components on the one face of the base to draw closer together and form raised ribs of the base therebetween. The portions of the one face of the base between unselected rows of stitch chains not including any yarns of the second set being substantially planar and non-ribbed thereby providing a varied pattern of raised ribs on the one face of the resulting fabric.

3,782,138
APPARATUS FOR TREATING CLOTH WITH LIQUID
Takuji Kawasaki; Shoki Ogihara, and Mikio Watanabe, all of Fukui, Japan, assignors to Sakai Sen-I Kogyo Kabushiki Kaisha, Fukui-shi, Fukui-ken and Hokuriku Kakoki Kabushiki Kaisha, Komatsu-shi, Ishikawa-ken, Japan
Filed Dec. 29, 1971, Ser. No. 213,414
Int. Cl. B05c *3/02*
U.S. Cl. 68—177 **6 Claims**



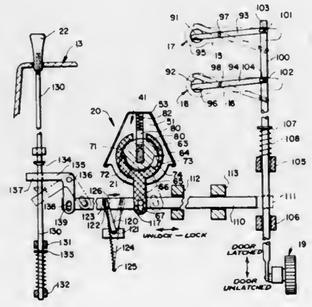
A liquid flow type treating apparatus for treating cloth with liquid in which a staying chamber of treating liquid is provided inside of an axially extending drum shaped vessel, an overflow transfer mechanism and a driving reel are furnished inside of an accommodating cylinder provided in an upper end portion of the vessel, a guide tube connects the overflow transfer mechanism with the staying chamber, and a liquid falling mechanism prevents cloth transferred through the guide tube into the staying chamber from floating up in the staying chamber, so that any unevenness in the cloth is avoided and a uniform treatment of cloth is obtained.

3,782,139
LATCH MECHANISM
Hugo G. Rubner, Milwaukee, Wis., assignor to Briggs and Stratton, Wauwatosa, Wis.
Filed Jan. 21, 1972, Ser. No. 219,644
Int. Cl. E05b *65/02*
U.S. Cl. 70—81 **14 Claims**



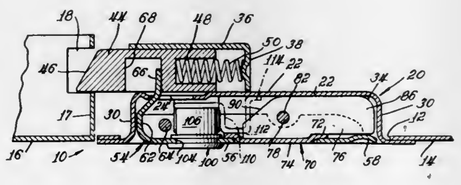
Latch mechanism having a lock cylinder which provides an actuator by which an exceptionally long retraction stroke of the latch bolt is effected in consequence of rotation of the cylinder through an arc of only 90°. A cavity which opens to the cylinder receiving bore accommodates the lock tumblers during withdrawal of the key from the cylinder in an unlocked position of cylinder rotation. The cavity also accommodates a bolt actuating cam on the cylinder at the time the cylinder is assembled with the lock body from the front thereof.

3,782,140
SECURITY DOOR LOCKING SYSTEM FOR AUTOMOBILES
William R. Price, 2226 Petrarca Rd., Cleveland, Ohio
Filed Apr. 3, 1972, Ser. No. 240,737
Int. Cl. E05b *65/34*
U.S. Cl. 70—124 **10 Claims**



A security door locking system including interiorly and exteriorly key operable locks for disabling the interior and exterior door handles. The interior latch lock buttons are operable to lock the car doors, but are inoperable to unlock the doors. Once the doors are locked, unauthorized access cannot be gained to the automobile by manipulating either the exterior or interior door handles.

3,782,141
FLUSH TYPE DOOR LATCH
Robert E. Doerrfeld, Lake Forest, Ill., assignor to A. L. Hansen Manufacturing Company, Gurnee, Ill.
Filed Oct. 26, 1972, Ser. No. 301,079
Int. Cl. E05b *5/00, 65/02*; **E05c** *1/14*
U.S. Cl. 70—146 **7 Claims**

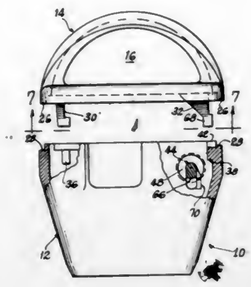


A door latch embodying the principles of this invention is designed to be assembled in a conventional pan-shaped housing having a shallow depth and having a slot provided in the back wall. A guide member is supported on the outside surface of the back wall and open to the slot to slidably receive a lock bolt therein. A compression spring biases the bolt outwardly into the projected latching position. A latching member having a plate portion of a shape conforming to the outer dimensions of the open front face of the door latch housing is pivotally mounted between the opposite side walls of the housing and has a lever portion which projects through the back wall slot and into a recess formed in the lock bolt for retracting the lock bolt against the force of the compression spring. An eject member is also pivotally supported between the side wall housings and includes a push button member which projects through an opening provided in the latching member plate portion. The eject member also includes a nose portion which engages the under surface of the plate portion latching member adjacent its outer free end such that upon an inward force applied to the push button member causes the nose portion to swing outwardly and force the free end of the latching member away from the housing a sufficient distance to be gripped by the user.

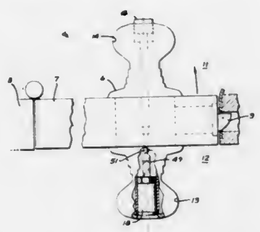
3,782,142
HOUSING FOR COIN OPERATED CONSTRUCTIONS
George I. Wimpffen, Wheaton, Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.
Filed July 31, 1972, Ser. No. 276,704
Int. Cl. E05b *65/52*
U.S. Cl. 70—170 **14 Claims**

A coin handling construction including a housing provided with a cap for closing access to the interior of the construction. Locking means are provided for securing the cap in place on the housing. These locking means comprise a rotatable rod positioned within the housing. First locking elements are mounted on the cap, and second locking elements are mounted on the housing. The locking elements define a sur-

face for inter-engagement of the elements which prevents separation of the cap and housing. The rod is rotatable between a first position for maintaining the locking element surfaces in the engaged condition, and a second position which frees the cap for separation from the housing.



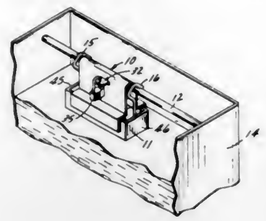
3,782,143
PICKPROOF LOCK CYLINDER
Ernest L. Schlage, Burlingame, Calif., assignor to Schlage Lock Company, San Francisco, Calif.
Filed May 1, 1972, Ser. No. 248,962
Int. Cl. E05b 27/00
U.S. Cl. 70—362 22 Claims



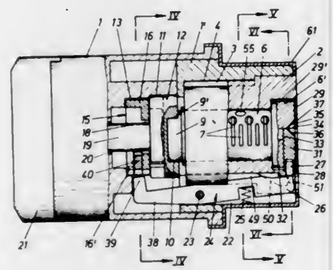
A lockset for installation on a door panel is accessible from the outside as well as from the inside of the door. An outside keyway in a cylinder plug receives a key to turn the plug in a cylinder housing and so actuate the lockset. An inside manual control moves a blocking device from a free position permitting the plug to turn into a blocking position preventing the plug from turning. The blocking device may be a ball moved into and held in a blocking position engaging both the plug and the housing. When not held, the ball stays or is moved out of blocking position upon relative rotation of the plug and housing.

3,782,144
SECURITY LID FOR PLATING CONTAINER
Newell Joseph Gonyo, Milwaukee, and Kenneth Eugene Lower, Oconomowoc, both of Wis., assignors to Globe-Union Inc., Milwaukee, Wis.
Filed Sept. 28, 1972, Ser. No. 292,852
Int. Cl. B65d 55/14
U.S. Cl. 70—164 8 Claims

A security device for a plating container which prevents access to the contents of the container when it is supported from a support in a plating tank. The cover extends substantially over the entire area of the top of the plating container as well as around the supporting means. A flanged tab bar member extends through opposing sides of the cover and a side of the bar member opposite to that which is surrounded by the cover member to prevent the cover member from being moved away from the container. A locking device such as a padlock is employed to secure the flanged tab on the cover member.

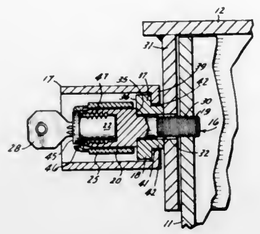


3,782,145
STEERING-LOCK, PARTICULARLY FOR AUTOMOTIVE VEHICLES
Heinz Wolter, Cologne-Lindenthal, Germany, assignor to Firma Josef Voss KG., Bruhl Bez., Cologne, Germany
Filed Sept. 23, 1971, Ser. No. 183,073
Claims priority, application Germany, Sept. 24, 1970, P 20 47 054.6
Int. Cl. B60r 25/02
U.S. Cl. 70—186 3 Claims



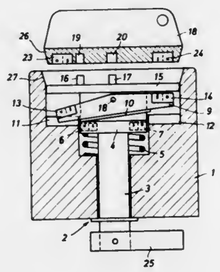
A steering lock equipped with a lock cylinder, in particular for automotive vehicles, which comprises a steering column including a lock housing and a bolt for locking the steering column upon entering its locking position. A spring causes the bolt to enter the locking position. A locking member is mounted in the lock housing and engages resiliently the bolt in the opening position of the latter, for securing the bolt against unintentional locking of the steering column. A lock cylinder is disposed in the lock housing. An intermediate member is disposed in the lock cylinder and has an end portion. A lock key operates tumblers. The locking member is controlled by the lock key by means of the intermediate member, whereby the transfer of the locking member into the bolt releasing position is possible after at least nearly complete removal of the key. A cylinder core is mounted in the lock cylinder to receive the key and rotatable into corresponding locking positions by means of the key. The closing cylinder has a projection capable of being pressed back into the releasing position only with the angularly displaced cylinder core, and a run-up inclination for the end portion is coordinated to the intermediate member.

3,782,146
LOCKING DEVICE
Ronald E. Franke, 7617-30th Ave., Kenosha, Wis.
Filed Oct. 8, 1971, Ser. No. 187,680
Int. Cl. F16b 41/00
U.S. Cl. 70—232 6 Claims



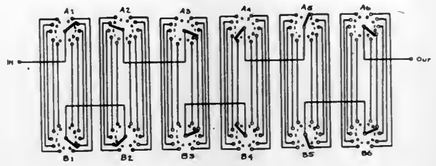
A locking device which provides a means of securing two elements together in a tamperproof manner and is especially adaptable to securing a cap member on a pipe such as a cap on a well casing. A bolt is used to engage a base member through an outer member which is secured on the base with a cover member rotatably held around the head of the bolt to prevent its disengagement and affording a variety of locking methods for securing the bolt in a tamperproof manner.

3,782,147
SECURITY LOCKS
Hermann Hallmann, Ruppichteroth, Germany, assignor to MRT Magnet-Regeltechnik GmbH, Hamburg, Germany
Filed Dec. 7, 1971, Ser. No. 205,654
Claims priority, application Germany, May 11, 1971, P 21 23 168.5
Int. Cl. E05b 47/00
U.S. Cl. 70—276 7 Claims



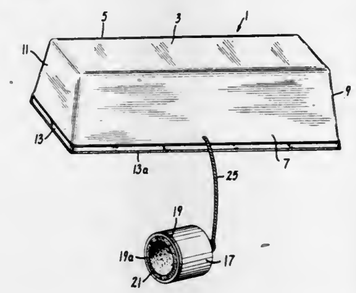
A security lock adapted to be operated by magnetic induction and comprising a case, a bolting unit containing at least one group of magnets displaceably mounted in the case and at least one protective blocking member in the case arranged normally to engage with the bolting unit in detent fashion to prevent operation of the lock, the bolting unit being movable by magnets contained in a key for the lock to a position in which it is no longer engaged by the blocking member and in which operation of the lock is possible.

3,782,148
ELECTRONIC ANTI-THEFT LOCKING SYSTEM
Gerald M. Goldman, Knollwood Extension, Elmsford, N.Y.
Continuation-in-part of Ser. No. 864,801, Oct. 8, 1969, Pat. No. 3,631,301. This application Nov. 18, 1971, Ser. No. 199,883
Int. Cl. E05b 47/04
U.S. Cl. 70—278 10 Claims



An electronic anti-theft locking system comprising a key for unlocking the mechanism, and a mating key for setting the combination of the system. The mechanism operates using logic principles, but uniquely features electromechanical circuitry. Since no expensive electronics need be used, the system is highly reliable and inexpensive to manufacture. A combination is set in both the unlocking segment of the system, and the combination segment of the system. When the two combinations match, a bolt, solenoid or other output is activated. The combinations in the two segments of the system are formed by a number of SPDT switches. The combination segment of the system may be made like the keyway of the unlocking segment. A key throws the switches in each keyway to form a pattern or combination. Another embodiment of the invention features setting the combination by a set of multi-pole rotary switches. A corresponding panel of multi-pole rotary switches are electrically connected to the other set of switches. A matching combination in both switch panels will effect release of a locking mechanism, or send a signal to an output circuit. A high number of permutations is possible.

3,782,149
PROTECTIVE DEVICE FOR AUTOMOBILE DOOR HANDLE AND LOCKS
Carol Y. Carter, 1408 Gilbert Dr., Charleston, W. Va.
Filed Feb. 17, 1972, Ser. No. 227,195
Int. Cl. E05b 17/18
U.S. Cl. 70—455 4 Claims

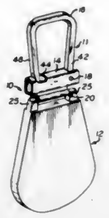


A device for covering automobile door handles and locks thereby protecting them against freezing. This device is defined by a housing having an edge surface comprising magnetic element sealably bonded thereto in order to secure the housing in position to the exterior surface of the automobile door. The housing is internally insulated thereby affording further protection against the elements.

3,782,150
FOB-KEY-RING ASSEMBLY

Kermit Wolpin, Atlantic Beach, N.Y., assignor to Hit Sales Corporation, New York, N.Y.

Filed Mar. 22, 1972, Ser. No. 236,944
Int. Cl. A47g *29/10*
U.S. Cl. 70—459 **9 Claims**

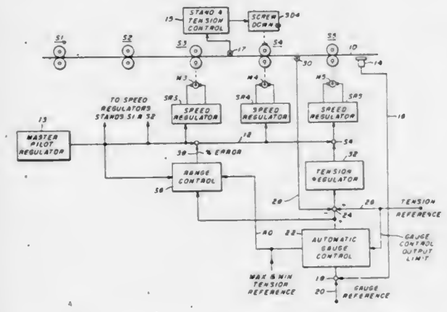


A fob-key-ring assembly and method of joining same in which the fob is provided with an attaching bar extending linearly along one edge of the fob at a spaced distance therefrom, and the key-ring is formed with a base and a key engaging bail portion. A securing sleeve extends from the ring base to encircle and journal the fob attaching bar to provide the fob-key-ring assembly with the fob subject to pivoting with respect to the key ring about the attaching bar axis. Assembly is accomplished by forming the securing sleeve as a longitudinally split cylinder in which the attaching bar is positioned when the sleeve is separated along the split line, and which is closed by passing the assembly beneath a pressure roll.

3,782,151
AUTOMATIC GAUGE CONTROL SYSTEM FOR TANDEM ROLLING MILL

Robert S. Peterson; John W. Cook, both of Williamville, and Harold B. Bolkey, Lancaster, all of N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 29, 1972, Ser. No. 230,298
Int. Cl. B21b *37/06*
U.S. Cl. 72—9 **8 Claims**

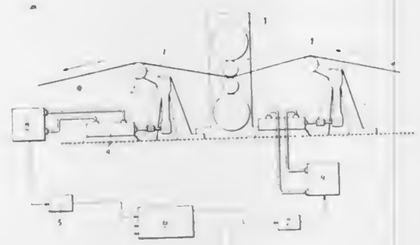


An automatic gauge control system for a multi-stand rolling mill of the type wherein output guage is normally controlled by varying tension in the rolled strip material between the last two stands in the mill, this tension between the last two stands being limited between upper and lower maximum values. Due to variations in mill set-up and incoming product variations, the allowable tension range between the last two stands is not sufficient to adequately control thickness. Accordingly, when the tension reference is exceeded in either direction, range control means are provided for simultaneously changing by the same percentage the speeds of the fourth and fifth stands in a five-stand mill, for example, permitting tension to remain constant between the fourth and fifth stands while varying tension between the third and fourth stands to effect a correction in output gauge. The range control means is automatically turned ON when the magnitude of a guage error correction signal indicates that the tension between the last two stands is outside its permissible range. When the tension between the last two stands is again within limits, the range control holds its speed correction signal to the last two stands (i.e., does not apply it to the last two stands) until activated again by an out-of-range tension condition.

3,782,152
APPARATUS FOR IMPROVING THE FLATNESS OF ROLLED STRIPS

Bruno Sabatini, Rome, Italy, assignor to Centro Sperimentale Metallurgico S.p.A., an Italian Manufacturing Co., Rome, Italy

Filed Apr. 4, 1972, Ser. No. 240,400
Claims priority, application Italy, Apr. 22, 1971, 49910 A/71
Int. Cl. B21b *37/12*
U.S. Cl. 72—9 **1 Claim**



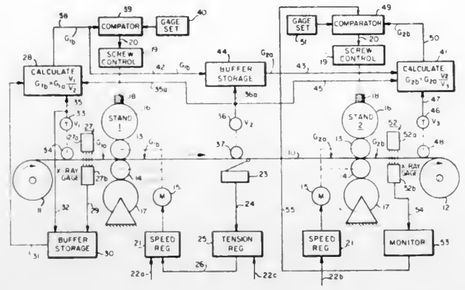
A device for improving the flatness of metal strips during rolling, comprising a set of cylindrical rollers located side by side, located upstream of the rolling stand, independent from one another and with their respective axes parallel to the axes of the rolling cylinders, in such a manner as to correspond to the strip width. The said cylindrical rollers are so arranged as to take positions always parallel, and mutually staggered in the vertical plane by the action of servo-controls coming from detecting means for the planarity and/or the rolling tension in the strip, said last cited means being located downstream of the rolling stand, through a checking and adjusting equipment.

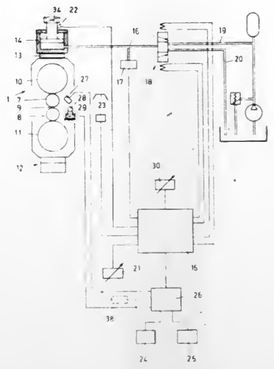
3,782,153
METHOD AND SYSTEM FOR CONTROLLING A TANDEM ROLLING MILL

Amos J. Winchester, Scotia, N.Y., assignor to General Electric Company, Salem, Va.

Filed May 3, 1972, Ser. No. 249;955
Int. Cl. B21b *37/02*
U.S. Cl. 72—9 **6 Claims**

An automatic gage control system for a tandem rolling mill wherein separate control loops are provided for the roll opening controls of each stand. Each control loop responds to a feedback signal based on the predicted gage of the rolled strip leaving the associated stand whereby control errors caused by transport lag are eliminated without causing system instability.



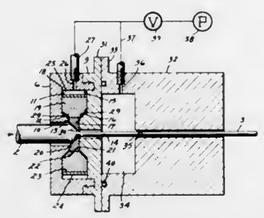


more of the stands thereof can be operated as a soft stand in order to reduce the workpiece more or less uniformly across its width to aid in entrance of the front end of the strip into the next stand or coil forming reel, after which the stand can be converted to a hard stand to roll to a desired gauge.

3,782,154
VARIABLE ORIFICE DIE AND CONTROL THEREFOR

Francis Joseph Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 122,319, March 9, 1971, Pat. No. 3,719,065. This application Sept. 22, 1972, Ser. No. 291,502
Int. Cl. B21b *37/00*
U.S. Cl. 72—12 **17 Claims**



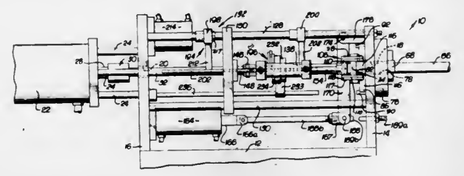
Fluid-pressure operable segments surrounding rod-deforming die are controlled by wire-diameter sensing device. As die wear occurs, sensing device responds to increased wire diameter and raises fluid pressure to advance segments inwardly against die thereby to constrict die and decrease diameter of die orifice.

3,782,155
PROCESS AND MECHANISM FOR THE OPERATING OF A ROLLING MILL

Wilfried Bald, Hilchenbach-Dahlbruch, Germany, assignor to Siemag Siegener Maschinenbau, GmbH, Hilchembach-Dahlbruch, Germany

Filed Mar. 27, 1972, Ser. No. 238,032
Claims priority, application Germany, Mar. 30, 1971, P 21 15 344.6
Int. Cl. B21b *37/00*
U.S. Cl. 72—14 **8 Claims**

The disclosure of this invention relates to a method and apparatus for operating a tandem rolling mill, wherein one or



An annularly seamless stacked bellows formed from a metal tube by initially forming convolutions in the tube in a die and crimping the outer edge of each convolution individually while in the die. The convolutions are sharp rolled at their inner edges and then compressed axially to form the seamless stacked bellows.

3,782,156
STACKED BELLOWS AND APPARATUS AND METHOD FOR MANUFACTURING THE SAME

Harry Panfill, Los Angeles, Calif., assignor to Master Products Manufacturing Co., Los Angeles, Calif.

Division of Ser. No. 697,058, Jan. 11, 1968, abandoned. This application Jan. 25, 1971, Ser. No. 109,695
Int. Cl. B21d *15/06*
U.S. Cl. 72—59 **2 Claims**

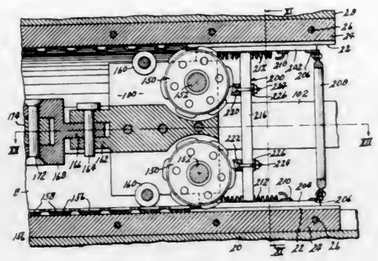
3,782,157
CUTTER GUIDE FOR PIPE PERFORATING MACHINE

Noah E. Foulks, and Earl Lowry, both of Rt. No. 1, Dodge City, Kans.

Filed Sept. 20, 1972, Ser. No. 290,578
Int. Cl. B21d *28/28*
U.S. Cl. 72—71 **10 Claims**

In a pipe perforating machine including a cutter head movable through a pipe and cooperating with shear blades carried by the machine frame, a cutter guide consisting of guide ways extending through the pipe and on which the cutter head is slidably mounted, a fixed support for one end of the guide ways, a movable support for the free other end of the guide ways which is detachable from the ways to permit the pipe to be threaded longitudinally over the ways, a fixture detachably mountable on the guide ways at the free end thereof and in-

cluding a roller on an axis transverse to the pipe and engageable with the frame to support the free ends of the ways when said movable support is disengaged, while still permitting the threading of the pipe over the ways, the cutter head including a toothed cutter wheel and being movable outwardly from the



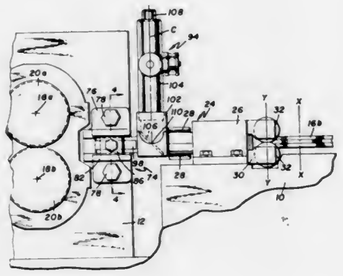
end of the pipe, and a fixture carried by the frame and urged against the end of the pipe, and operable to catch and secure the cutter wheel against rotation as it emerges from the pipe, whereby when it re-enters the pipe, its teeth will always begin cutting perforations at the same distance from the end of the pipe.

3,782,158

APPARATUS AND METHOD FOR ALIGNING ROLLER ENTRY GUIDES IN A ROLLING MILL

Charles L. MacPherson, Jr., Sterling Junction, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Filed Oct. 13, 1972, Ser. No. 297,251
Int. Cl. B21c *51/00*
U.S. Cl. 72—37 **7 Claims**



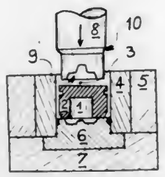
An optical device of the type which may be focused along an observed centerline is employed to accurately align roller entry guides in a rolling mill. The optical device is temporarily mounted at a location separate from and preceding that of the roller entry guide to be aligned, with its observed centerline coinciding with the center of the roll pass into which proudct is to be directed by the guide. By thereafter shifting the focus of the optical device to the guide rollers, the gap defined by the guide rollers can be centered with respect to the observed centerline of the optical device by laterally shifting the entire roller entry guide.

3,782,159

ISOSTATIC WORKING PROCESS

Charles Martinet, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugot, Paris, France

Filed June 16, 1972, Ser. No. 263,612
Claims priority, application France, June 17, 1971, 7122098
Int. Cl. B22d *22/12*
U.S. Cl. 72—60 **7 Claims**



The invention relates to a process for the working of pieces of metal by high-pressure isostatic die-stamping.

After insertion of the ingot 1 covered with plastic material 2 into the pressure chamber 3 whose walls are constituted by collars 4 and 5 and the floor by the bottom die 6 mounted on the base 7 of the press, the top die 8 is lowered as indicated in FIG. 2, its surface 9 containing the upper shaping impression.

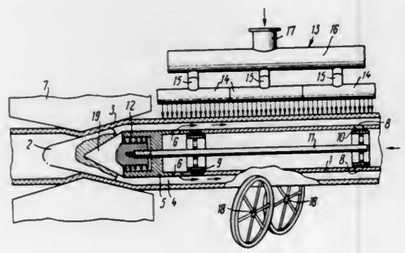
During its re-ascent, the top die 8 takes with it the covering 2 and the article 1, which remains adhering to the top die owing to the fact that its die-stamping seam tightly overlaps the residue of covering material 2 in the clearance 11 between the dies 9 and 6.

3,782,160

PIPE QUENCHING UNIT

Georgy Naumovich Kheifets, ulitsa Kirova, i, kv. 29; Oskar Alexandrovich Plyatskovsky, ulitsa Kirova, 8, kv. 27; Vladimer Mikhailovich Yankovsky, prospekt Gagarina, 2, kv. 6, all of Dnepropetrovsk; Baba Abbas Ogly Akhmedov, ulitsa Lenina, 23, kv. 14, Sumgait; Zelman Iosifovich Lange, ulitsa Prikaznaya, 11, kv. 12, Dnepropetrovsk; Jury Vasilievich Golubev, ulitsa Azizbekova, 42, kv. 16, Sumgait; Elizaveta Andreevna Solomadina, ulitsa Karavaiva, 21, kv. 16; Vladimir Mikhailovich Statnikov, ulitsa Dnepropetrovskaya, 1a, kv. 40, both of Dnepropetrovsk; Israfil Naftali Ogly Ibragimov, ulitsa Druzhby, 36, kv. 4; Tagi Rza Ogly Guliev, ulitsa Lenina, 23, kv. 12, both of Sumgait, and Jury Zinovievich Porokhovnikov, ulitsa Leningradskaya, 38, kv. 5, Dnepropetrovsk, all of U.S.S.R.

Filed Nov. 13, 1970, Ser. No. 89,373
Int. Cl. B21b *45/02*
U.S. Cl. 72—201 **2 Claims**



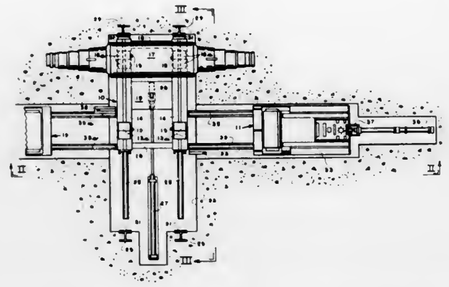
Pipe quenching units used in pipe rolling lines with a plug mill.

3,782,161

APPARATUS FOR DISMANTLING AND ASSEMBLING ROLL ASSEMBLIES FOR A 4-HIGH ROLLING MILL

William S. McGeeney, Pittsburgh; George S. Trapp, Bethel Park, and Leslie Zsamboky, Pittsburgh, all of Pa., assignors to Wean United, Inc., Pittsburgh, Pa.

Filed Apr. 24, 1972, Ser. No. 246,794
Int. Cl. B21b *31/08*
U.S. Cl. 72—239 **15 Claims**



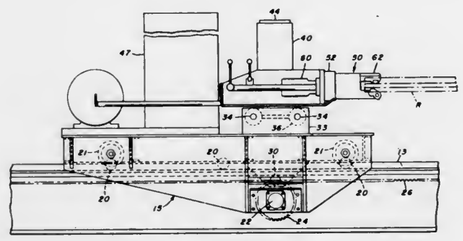
This disclosure is directed to dismantling and assembling operations for work rolls and/or backup rolls, which may include backup rolls with an additional pair of bearing chocks for backup roll bending facilities such as employed in a 4-high rolling mill. The apparatus disclosed includes a pair of extractor cars horizontally displaceable towards and away from each other at spaced-apart locations. Displaced at right angles between these cars is a roll carriage having support saddles for carrying in a horizontal spaced relation a worn roll assembly and a refurbished roll assembly. The roll carriage has stop means employed to align at different times the rolls carried by the saddles in relation to travel of the extractor cars. The extractor cars have guides to assure their mutual alignment with respect to each other and with respect to a roll supported by the saddles.

3,782,162

MANIPULATOR

Haran W. Bullard, Birmingham, Ala., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 9, 1972, Ser. No. 233,241
Int. Cl. B21j *13/12*
U.S. Cl. 72—250 **11 Claims**



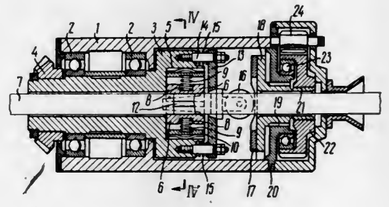
Manipulator apparatus for rotating an elongated article such as a rail about its longitudinal axis and propelling such rail longitudinally. The apparatus includes a carriage, a drive mechanism for the carriage, a rail gripping mechanism, and a rail rotating mechanism. The apparatus is characterized by instant response to fingertip control. Retractable rollers are disclosed for supporting the body of the article.

3,782,163

MECHANISM OF TURNING A BILLET OF TUBE COLD ROLLING MILLS

Sergei Nikolaevich Kozhevnikov, Vystavochnaya ulitsa, 3, kv. 73, Kiev; Arkady Semenovich Tkachenko, prospekt Gagarina, 63, kv. 22, Dnepropetrovsk; Vadim Anatolievich Verderevsky, Volgogradsky prospekt, 171, kv. 35, Moscow; Jury Ivanovich Cherevik, ulitsa Belostotskogo, 114, kv. 1, Dnepropetrovsk; Jury Evgenievich Alexeev, prospekt Pushkina, 25/27, kv. 38, Dnepropetrovsk; Alexandr Grigorievich Bondarenko, ulitsa Universitetskaya, 10, kv. 22, Dnepropetrovsk, and Valery Trofimovich Vyshinsky, prospekt K. Marxa, 34, kv. 41, Dnepropetrovsk, all of U.S.S.R.

Filed Aug. 16, 1972, Ser. No. 281,012
Int. Cl. B21b *39/20, 39/26*
U.S. Cl. 72—250 **6 Claims**



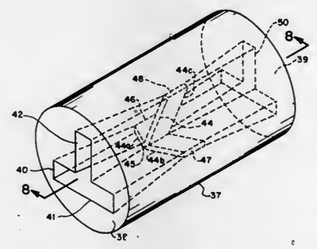
A mechanism having a spindle, one end of which carries a device for clamping a billet. The device comprises a washer having wedges on one end and rollers adapted to interact with a guide block at the other end. The device is provided with expansible cams with chamfers arranged relative to one another so that a space is formed between them for periodical introduction of wedges ensuring a mutual displacements of said cams relative to the spindle axis of rotation.

3,782,164

METAL DRAWING DIE

Theodore S. Felker, 651 Rockhill Ave., Kettering, Ohio

Continuation-in-part of Ser. No. 17,648, March 3, 1970, abandoned, which is a continuation-in-part of Ser. No. 686,064, Nov. 28, 1967, abandoned. This application Feb. 19, 1971, Ser. No. 116,920
Int. Cl. B21c *3/00*
U.S. Cl. 72—274 **13 Claims**



A method and die for drawing a complex elongated structural member formed with at least one extending fin which consists of drawing said member through a die of substantial complimentary orifice configuration disposed to effect a predetermined gage reduction of said fin, the metal working surface of said die disposed to effect a gage reduction of said fin being inclined in the drawing direction so that said fin is gradually and sequentially engaged by said working surfaces

from its innermost surface to an unrestrained edge. The orifice portion of the die corresponding to said fin extends laterally from the direction of drawing a distance greater than the lateral growth of the fin to avoid any lateral restraint. Also, where said member has a cross-bar which does not terminate on a free edge said working surfaces are optionally inclined in the drawing direction to an intermediary position between the ends of the cross-bar where there is provided in the die orifice or the cross-bar a local relief of restraint to receive metal flow.

3,782,165

RIVETING TONGS FOR BLIND RIVETS

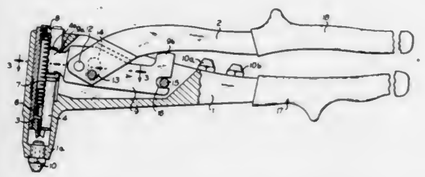
Karl Bosch, Hermaringen/Brenz, Germany, assignor to Gesipa, Gesellschaft Fur Internationale Mit Beschrankter Haftung, Frankfurt am Main, Germany

Filed Apr. 26, 1971, Ser. No. 137,535

Claims priority, application Germany, Apr. 24, 1970, P 20 19 954.6

Int. Cl. B21j *15/34*

U.S. Cl. 72—391 **13 Claims**



Hand riveting tongs for blind rivets which comprise a movable tongs leg and a tongs housing. A receiving mouth piece is provided for a riveting thorn of a blind rivet, and serving as a rotary bearing for the movable tongs leg. A chuck mechanism for gripping said riveting thorn is arranged and an intermediate lever is pivotally connected with the movable tongs, the intermediate lever engages the chuck mechanism and has an abutment for contacting the movable tongs leg.

3,782,166

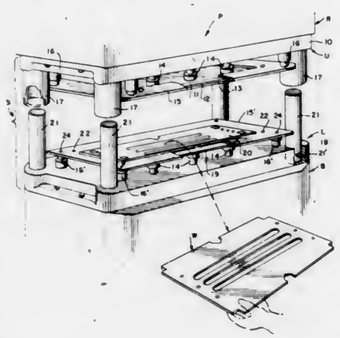
DIE SET ASSEMBLY AND MAGNET MEANS FOR RELEASABLY ATTACHING DIES THEREIN

Lawrence V. Whistler, Jr., 251 Doncaster Rd., and Lawrence V. Whistler, III, 368 Argonne Dr., both of Kenmore, N.Y.

Filed June 9, 1972, Ser. No. 261,402

Int. Cl. B21j *13/02*

U.S. Cl. 72—462 **12 Claims**



A die set assembly is disclosed with magnets provided for releasable attaching the dies in the assembly. A punch holder or shoe is provided with a die shoe spaced therefrom in aligned, confronting relationship. Magnets having opposite ends releasable attach at one end thereof to a punch means of the die set and releasable attach at the other end thereof to the punch holder. Other such magnets releasable attach one end thereof to a die means of the die set and releasably attach the other end thereof to the die shoe. A template arrangement is provided for aligning the die set.

3,782,167

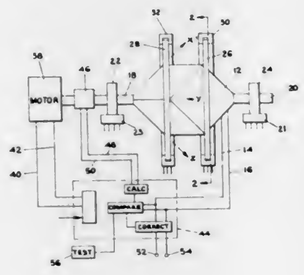
ONBOARD CALIBRATION AND TEST OF AIRBORNE INERTIAL DEVICES

John C. Stuelpnagel, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 5, 1971, Ser. No. 196,067

Int. Cl. G01c *25/00*

U.S. Cl. 73—1 E **18 Claims**



A system and method for mounting an inertial instrument, such as a reference gyro, an accelerometer triad, or an inertial platform in an aircraft so that the instrument can be tested and calibrated on board the aircraft in its final mounting position without the necessity of test flying the aircraft for such calibration purposes. The inertial instrument is mounted for rotation about an axis angularly displaced with respect to reference axes of the aircraft so that the attitude of the instrument with respect to the reference axes of the aircraft can be changed by rotating the instrument about its mounting axis. The degree of angular movement of the instrument is detected and a theoretical output for the instrument is calculated by an onboard computer. This calculated output is then compared by the computer to the actual instrument output signal. The difference between the calculated signal and the actual signal can then be used to determine whether the instrument is suitable for use on the aircraft. In addition, the difference between the calculated signal and the actual output signal from the instrument can be used to calibrate the instrument and provide a correction signal thereto during normal operation of the instrument.

3,782,168

METHOD AND APPARATUS FOR CALIBRATING AND TESTING PRESSURE RESPONSIVE APPARATUS

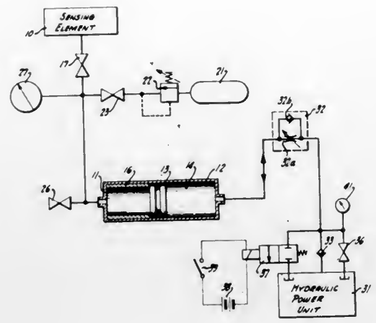
Rodney A. Wailes, Houston, Tex., assignor to M & J Valve Company, Houston, Tex.

Filed Oct. 2, 1972, Ser. No. 294,349

Int. Cl. G01l *27/00*

U.S. Cl. 73—4 R **8 Claims**

Method and apparatus for generating a gas pressure signal for calibrating and testing line break controls and other pressure responsive apparatus. Gas is confined in a chamber and expanded by increasing the volume of the chamber at a substantially constant rate under the control of hydraulic means. The pressure of the gas drops at a substantially constant rate determined by the setting of the hydraulic means.



3,782,169

REGULATING THE FREQUENCY OF AN OSCILLATORY SYSTEM INCLUDING A BALANCE AND A COILED SPRING

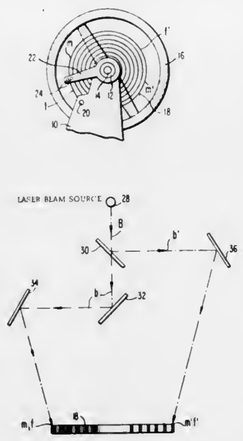
Andre Simon-Vermot, Le Locle, Switzerland, assignor to Les Fabriques d'Assortiments Reunies, Le Locle, Canton of Neuchatel, Switzerland

Continuation-in-part of Ser. No. 52,123, July 2, 1970, abandoned. This application July 13, 1972, Ser. No. 271,361

Claims priority, application Switzerland, July 11, 1971, 10608/71

Int. Cl. G04b *17/16*

U.S. Cl. 73—6 **12 Claims**



The regulation of the frequency of an oscillatory system including a pivotally mounted balance and a coiled spring is effected by modifying one of the cross sectional width or thickness of the spring in correlation to correction necessary to obtain the desired oscillating frequency.

3,782,170

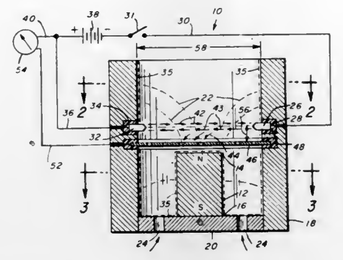
OXYGEN ANALYZER

Howard A. Cramer, Tulsa, Okla., assignor to Lowrance Electronics, Inc., Tulsa, Okla.

Filed Mar. 22, 1972, Ser. No. 237,105

Int. Cl. B01d *11/00*; **G01n** *33/18*

U.S. Cl. 73—19 **10 Claims**



This invention describes a small instrument that can be inserted into a body of water or other liquid to make a determination of the concentration of free dissolved oxygen in the water. It comprises a cylindrical tube with an end plate and a permanent magnet placed coaxial with the tube with its south pole in contact with the end plate. The length of the magnet is approximately one half or less the length of the cylindrical tube. A pair of electrodes are positioned in the wall of the tube, approximately at the middle of the length of the tube. A disc having a number of holes to permit passage of water axially along the inside of the tube, is mounted across the cross section of the tube, closely spaced from the electrodes. When a battery is connected to the electrodes a current will flow. Negative ions will be deflected by the magnetic field toward the magnet and so will be intercepted by the grid. The magnitude of this current can be determined by a meter which is connected in the lead from the grid to the positive pole of the battery.

3,782,171

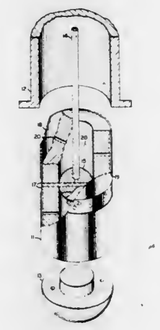
PRECISION HOLE VERIFICATION SYSTEM

Gordon James Watt, 245 Unquowa Rd., Apt. 106, Fairfield, Conn.

Filed Aug. 19, 1971, Ser. No. 172,984

Int. Cl. G01b *13/10*

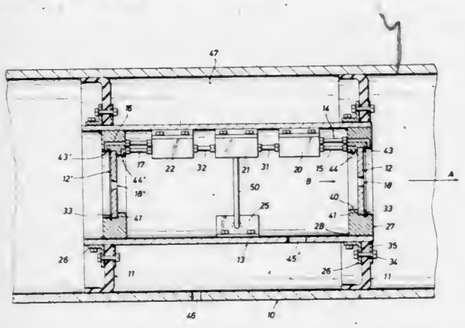
U.S. Cl. 73—37.9 **7 Claims**



A Flexible Membrane Bearing is used as a gage to sense variations in the surface shape of a hole which acts as the bearing bore, the deformation characteristics of the thin cylindri-

cal tube which constitutes the bearing surface being used to amplify the effects of clearance and out of roundness as sensed by the outlet restrictor edge of the bearing. Secondary sensing means are employed to measure membrane deflections with respect to the bearing shaft at selected points behind the bearing surface using bridge type detection means to correlate said deflections with the different modes of deformation which are characteristic of a thin tube supported at the ends. Secondary measurements are in turn correlated with angular position of the bearing and its axial position in the hole. The system comprises the bearing, power and control, sensors, and means for data handling including display, recording, and processing.

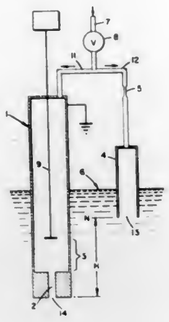
3,782,172
LEAK DETECTOR FOR FLUID CONDUCTORS
John K. McCarron, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Sept. 1, 1972, Ser. No. 285,761
Int. Cl. G01m *3/28*
U.S. Cl. 73—40.5 R **7 Claims**



Pipeline leaks are detected by an in-line pig like device having an orifice plate mounted at each end of a frame member and differential pressure measuring means across each orifice at each end, the output of each differential pressure measuring means is in turn fed to another differential pressure sensing means, the output of which is transmitted to a recording means whereby a leak is detected when the duration of any change in a signal recorded corresponds to the difference in the distance between two sealing members disposed at each end of said frame member.

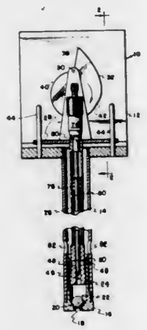
3,782,173
VISCOSIMETER
Cornelis J. Van Vessem, Bergen Op Zoom, and Dirk J. F. Geerdes, Hogeheide, both of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands
Filed June 2, 1972, Ser. No. 259,286
Claims priority, application Netherlands, June 3, 1971, 7107611
Int. Cl. G01n *11/08*
U.S. Cl. 73—56 **6 Claims**

An apparatus for measuring the viscosity of a liquid product in a vessel, for instance, a reaction vessel, a dilution vessel and an evaporator, includes a) a measuring cell whose measuring chamber of constant volume is connected to a capillary, b) a conduit system communicating with the measuring chamber and having both a two-way valve for controlling the supply of



a pressurized gas and a constriction for the pressurized gas, and c) a compensation device to compensate for variations in the liquid level and the gas pressure in the vessel.

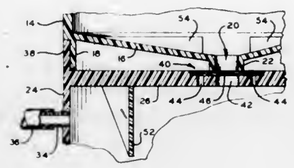
3,782,174
ADJUSTABLE VISCOSIMETER
Joseph Varadi, 8655 S.W. 89th Ave., Portland, Oreg., and Thomas C. Easton, 13069 S.W. 63rd Ave., Portland, Oreg.
Filed Aug. 9, 1971, Ser. No. 170,148
Int. Cl. G01n *11/06*
U.S. Cl. 73—57 **29 Claims**



A falling body viscosimeter suitable for measuring and continually monitoring the viscosity of any of a variety of fluids having widely divergent viscosities. A constant speed electric motor drives a cam which alternately elevates and releases a droppable piston within a tubular housing immersed in the particular fluid to be monitored. As the piston is elevated it draws a sample of fluid inside the housing through a check valve. When the piston is released it travels downwardly through the fluid by force of gravity while the fluid is simultaneously displaced upwardly through an orifice in the piston. A timing cam also driven by the constant speed electric motor actuates a switch at a predetermined time interval after the release of the piston, thus establishing a reference time interval. A second switch senses the point in time when the piston has travelled a predetermined distance through the fluid, and an electrical circuit coupled with the two switches generates a signal equal in duration to the difference in the two times. The degree of restriction of the orifice in the falling piston is adjustable by means of a micrometer which varies the size of the

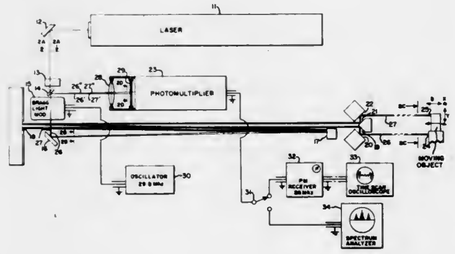
orifice. This allows standardization of the time period required for the piston to fall through any fluid within a wide range of viscosities, irrespective of the viscosity.

3,782,175
APPARATUS FOR TESTING FILTERABLE SOLIDS CONTENT IN LIQUIDS
Michael H. Roman, 18 Eugene St., Lowville, N.Y.
Filed June 5, 1972, Ser. No. 259,800
Int. Cl. B01d *37/00;* **G01n** *33/04*
U.S. Cl. 73—61 R **9 Claims**



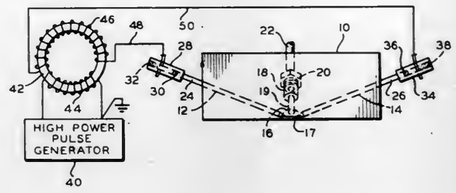
Apparatus for testing the amount of filterable solids in a liquid sample by passing the sample from one receptacle to another through communicating openings in each with a filter element interposed therebetween. The two receptacles are constructed for releasable engagement, and a negative pressure applied to the interior of the second container serves the dual purposes of rapidly drawing the sample through the filter and urging a lip around the opening in the first container into tight engagement with the filter element.

3,782,176
APPARATUS FOR MEASURING VIBRATION IN A MOVING OBJECT
Gordon B. Jacobs, Manlius, N.Y., assignor to General Electric Company, Syracuse, N.Y.
Filed Mar. 30, 1972, Ser. No. 239,680
Int. Cl. G01b *9/02*
U.S. Cl. 73—71.3 **9 Claims**



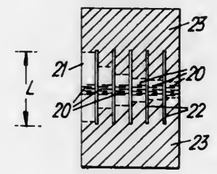
Apparatus is disclosed for measuring small vibrations in an object that is in overall motion in relation to the measuring apparatus. The apparatus employs coherent optical comparator techniques which produce a shift in the optical frequency of a laser beam as a result of motion of one object surface in relation to another object surface. A Bragg modulator is employed in an optical heterodyne technique to convert the frequency terms expressive of object vibration into a convenient electrical format. The apparatus includes means for forming the coherent illumination into a large fan-shaped beam through which the vibrating object may move without imprecision in vibration measurement.

3,782,177
METHOD AND APPARATUS FOR NON-DESTRUCTIVE TESTING
James M. Hoop, Hazel Green, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Adminstration, Washington, D.C.
Filed Apr. 20, 1972, Ser. No. 246,056
Int. Cl. G01n *29/04*
U.S. Cl. 73—71.5 U **2 Claims**



A high voltage is applied to an arc gap adjacent to a test specimen to develop a succession of high-frequency arc discharges. Those high frequency arc discharges generate pulses of ultrasonic energy within the test specimen without requiring the arc discharges to contact that test specimen and without requiring a coupling medium between those arc discharges and that test specimen. Those pulses can be used for detection of flaws, for measurement of certain properties of the test specimen, and for measurement of stresses within that test specimen.

3,782,178
FATIGUE SENSORS
Ernest Derek Reginald Thomas, Banstead, England, assignor to Hawker Siddeley Aviation Limited, Kingston-upon-Thames, Surrey, England
Filed July 28, 1971, Ser. No. 166,775
Claims priority, application Great Britain, July 31, 1970, 37,143/70
Int. Cl. G01n *3/32*
U.S. Cl. 73—88.5 R **4 Claims**

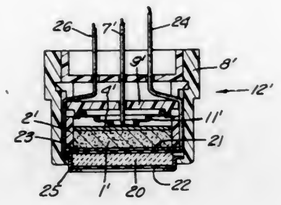


An assembly of strain gauges, constituting a fatigue sensor, in which each strain gauge is mounted on a strain multiplier, in the form of a slotted sub-base, and the multiplication factor of each strain multiplier is different.

3,782,179
TEMPERATURE AND SALINITY COMPENSATION FOR SOIL WATER SENSITIVE RESISTORS
Lorenzo A. Richards, 4455 Fifth St., Riverside, Calif.
Continuation-in-part of Ser. No. 763,218, Sept. 27, 1968, abandoned. This application Sept. 4, 1970, Ser. No. 69,717
Int. Cl. G01n *13/00*
U.S. Cl. 73—73 **5 Claims**

Relative wetness (matric suction) of soil is measured by two water-sensitive resistors buried closely adjacent one another, where they are similarly exposed to matric suction, salinity

and temperature of the soil. Each resistor incorporates a layer of specially-selected granular fill material compressed between appropriate electrodes, which are connected to an electrical circuit for measuring the ratio of the two resistances. The pore structure of the fill material is more or less filled with soil solution at the same temperature, salinity and matric suction as the solution in the adjacent soil. The fill material of one unit is relatively fine, and that of the other is relatively coarse.

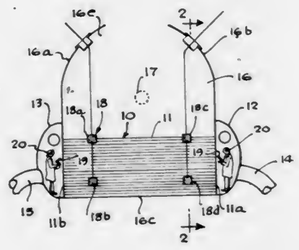


The different particle size causes one unit to have a greater change in the amount of soil solution held by the fill material for a given change of matric suction, than the other, with a correspondingly greater resistance change. Both units have the same fractional resistance change for any given change in temperature and/or salinity of the soil solution, and the ratio of the resistance of the two units is therefore translated by the said circuit into terms of matric suction, free from adverse temperature and salinity effects.

3,782,180
METHOD FOR DETECTING LEAKS IN CONDENSER TUBES

George A. Harris, 7764 W. Fourteenth Ct., Hialeah, Fla.

Continuation-in-part of Ser. No. 161,515, July 12, 1971, which is a division of Ser. No. 736,917, May 20, 1968, Pat. No. 3,592,967. This application Aug. 31, 1971, Ser. No. 176,479
Int. Cl. G01n *29/00*
U.S. Cl. 73—69 **6 Claims**

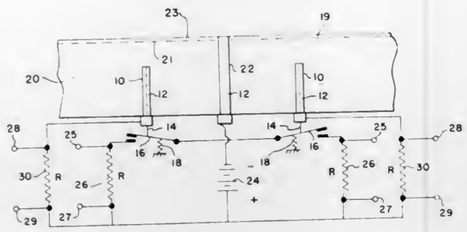


This application discloses a method of detecting leaks or thin spots in condenser tubes by means of ultrasonic radiations. A number of ultrasonic generators is placed within the chamber or enclosure of the tubes of a condenser, and the generators transmit ultrasonic waves to flood the chamber with energy. A detector sensitive to the frequency of the ultrasonic waves is scanned over the open ends of the condenser tubes. When the detector is at the end of a tube having a hole or thin spot, the intensity of vibrations picked up by the detector will be relatively high, and thus the defective tube is located. A condenser particularly adapted to testing of the tubes thereof by this method is also disclosed.

3,782,181
DUAL MEASUREMENT ABLATION SENSOR

Charles A. Gurtler, Yorktown, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1971, Ser. No. 170,680
Int. Cl. G01n *17/00*
U.S. Cl. 73—86 **11 Claims**

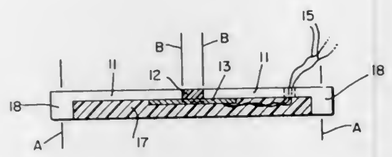


A dual measurement ablation sensor for measuring both char-interface and surface recession at a point in an ablating material to allow an accurate calculation of the thickness of the char layer. Char-interface recession is indicated by a drop in the resistance to a current passed through the ablation material. Surface recession is indicated by the closing of an electrical circuit when melting causes the release of a spring switch.

3,782,182
STRAIN MULTIPLIER

James E. Starr, Plymouth, Mich., assignor to Vishay Intertechnology, Inc., Malvern, Pa.

Filed Apr. 29, 1971, Ser. No. 138,522
Int. Cl. G01b *7/18*
U.S. Cl. 73—88.5 R **3 Claims**



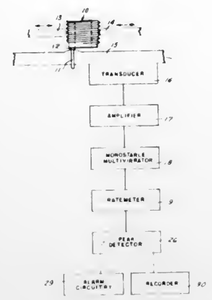
A strain multiplier is provided which is designed to be firmly attached to both a structural surface and a sensing gage at all points of contact between the multiplier and the structural surface and the multiplier and the sensing gage while preventing direct contact between the sensing gage and the structural surface.

3,782,183
DETECTION OF PASTER WELDS WITH ACOUSTIC EMISSION

Donald T. O'Connor, Barrington Hills, and David W. Prine, Maywood, both of Ill., assignors to Magnaflux Corporation, Chicago, Ill.

Filed Dec. 2, 1971, Ser. No. 204,110
Int. Cl. G01n *3/32*
U.S. Cl. 73—100 **7 Claims**

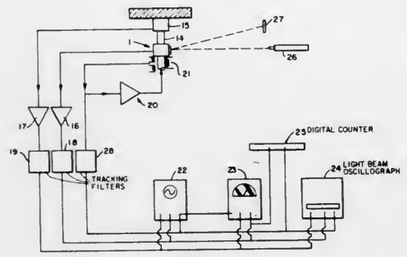
Method and apparatus for the nondestructive detection of paster welds wherein the test piece is repeatedly flexed at the weld to be tested, and then any acoustic emission produced by such flexing, indicative of the presence of a paster weld, is detected. The invention provides for apparatus to convert the acoustic emission to electrical pulses which may then be integrated to provide a signal dependent upon the amplitude and rate of such acoustic emission.



3,782,184
TORQUE TRANSDUCER AND METHOD OF MEASURING TORQUE

Lowell Zane Shuck, Rt. No. 1, Box 361, Rock, W. Va.

Filed Aug. 3, 1971, Ser. No. 168,602
Int. Cl. G01n *3/32*
U.S. Cl. 73—101 **27 Claims**



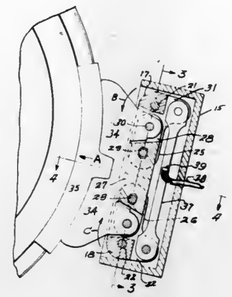
A torque transducer and method for measuring the complex-shear modulus of very low-modulus materials subjected to sinusoidal, oscillating torques at various freqeuncies wherein means are provided for cancelling from the output signal the inertia effect of the transducer.

3,782,185
RAILWAY TRUCK BRAKE TESTING DEVICE

Robert L. Hassenauer, Wilmette; Thomas J. Wolak, Cicero, and George E. Novak, Riverside, all of Ill., assignors to Evans Products Company, Plymouth, Mich.

Filed Aug. 21, 1972, Ser. No. 282,477
Int. Cl. G01l *5/28*
U.S. Cl. 73—121 **5 Claims**

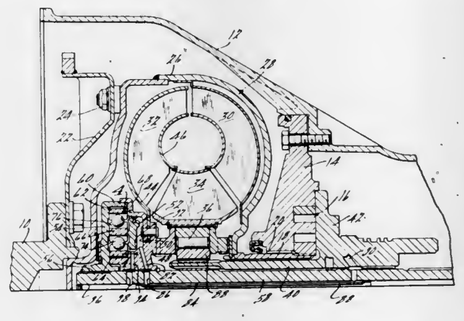
A transducer device for converting a compression force, applied perpendicularly between two relatively sliding objects, into a tension force to be measured by a strain gauge rosette and, more particularly, for measuring a braking force when applied by a railway brake beam to a brake head and shoe unit in a direction normal to the periphery of a rotating vehicle wheel irrespective and independently of a tangential force due to friction between the wheel and the brake shoe unit. There exist devices for measuring a similar force applied normal to a railway wheel when stationary but they do not accurately measure such normal force under dynamic operating conditions because of the ancillary frictional force between the brake shoe and the rotating wheel. The present invention utilizes one or more bell cranks fulcrumed on a force-transmitting member so as to actuate a strain gauge rosette which can measure a tension force but cannot measure a compression force.



3,782,186
MECHANICAL TORQUE SENSOR FOR A HYDROKINETIC TORQUE CONVERTER

Daniel G. Burch, Westland; Po-Lung Liang, Livonia; Stanley L. Pierce, Jr., Birmingham, and William C. Winn, Inkster, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 15, 1972, Ser. No. 234,740
Int. Cl. G01l *3/14*
U.S. Cl. 73—136 R **10 Claims**



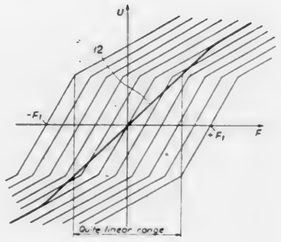
A torque sensor for determining the torque acting on a bladed member of a hydrokinetic torque converter comprising a reaction ring mounted coaxially with respect to the bladed member, inner and outer control rings disposed concentrically with respect to the reaction ring, one of the control rings being connected drivably to the bladed member, the other control ring being connected drivably to a torque delivery shaft, helical grooves formed in one of the control rings and in the adjacent surface of the reaction ring, cam balls registering with the grooves whereby torque delivered through the reaction ring develops an axial thrust component, a fluid pressure reaction piston acting on said reaction ring, the piston and the cooperating annular cylinder defining a pressure chamber and having registering parts that define a flow restricting orifice

communicating with a low pressure exhaust passage, the degree of restriction developed by the flow restricting orifice being proportional to the thrust acting on the reaction ring whereby a back pressure related to torque is developed in the cylinder.

3,782,187
MAGNETO-ELASTIC TRANSDUCER FOR FORCE MEASUREMENT

Orvar Dahle, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Continuation-in-part of Ser. No. 881,550, Dec. 1, 1969, abandoned. This application Jan. 20, 1972, Ser. No. 219,395
Claims priority, application Sweden, Dec. 9, 1968, 16782/68
Int. Cl. G01l *1/12*
U.S. Cl. 73—141 A **4 Claims**



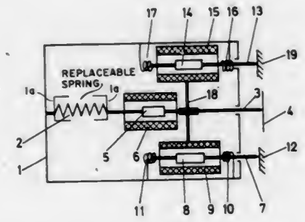
A magneto-elastic transducer for measuring mechanical forces is constituted by a laminated core of magneto-strictive sheet metal with tubular channels containing excitation and measuring windings. The sheet metal at least in the operative measuring zone of the transducer has residual mechanical stresses, the average value of the magnitude of these stresses being at least of the same order as the magnitude of the stresses induced in the measuring zone when the transducer is subjected to its rated load.

The residual stresses may be produced by heat treatment, cold rolling, drawing, bending, pressing, blasting, radiation or martensite formation.

3,782,188
APPARATUS FOR MEASURING MUSCULAR CONTRACTIONS AND THE LIKE

Karl-Heinz Korber, Kiel-Heikendorf; Hermann Steiert, Bucheim, and Heinz Dehnert, Freiburg, all of Germany, assignors to Hugo Sachs Elektronik KG, Am Bahnhof, Hugstetten, Germany

Filed Nov. 20, 1972, Ser. No. 307,905
Claims priority, application Germany, Dec. 17, 1971, P 21 62 683.5
Int. Cl. A61b *5/05*; G01l *5/02*
U.S. Cl. 73—141 AB **13 Claims**

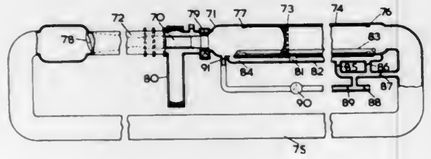


An apparatus is provided for measuring the displacement of an object which is acted upon by a force, e.g., to measure muscular contractions, or to measure thoracic motion during breathing, or to measure tooth mobility. The apparatus comprises a first measuring rod which engages the object to be measured, and a second measuring rod engaging a reference point which is stationary relative to the object being measured. A spring, which may be replaceable to select appropriate spring characteristics, is disposed between one side of a housing and the first measuring rod; and an electrical sensing device is provided to measure forces which act upon the spring. A second electrical sensing device, associated with both the first and second measuring rods, is provided to measure relative motion between the first and second measuring rods. The two rods are mounted parallel to one another, and a third measuring rod, mounted parallel to the first and second rods and placed on the side of said first rod opposite to said second rod, may also be provided, and associated with a third electrical sensing device associated with the first and third measuring rods, to provide a further measure of relative motion between the first and third measuring rods.

3,782,189
WIND TUNNEL

John Yorath Gwynne Evans, Farnham, England, assignor to National Research Development Corporation, London, England

Filed Apr. 12, 1972, Ser. No. 243,345
Int. Cl. G01m *9/00*
U.S. Cl. 73—147 **21 Claims**



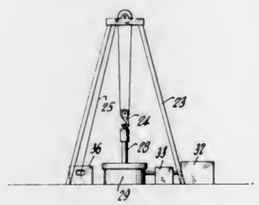
A wind tunnel having a main piston in cylinder arrangement upstream of its working section, and driving means for driving the piston to force gas from the cylinder at the downstream side of the piston and through the working section.

The tunnel is capable of providing flow speeds up to Mach 3.

3,782,190
METHOD AND APPARATUS FOR ROTARY DRILL TESTING

Robert W. Pittman, Sugarland, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,838
Int. Cl. E21b *47/00*
U.S. Cl. 73—151 **6 Claims**



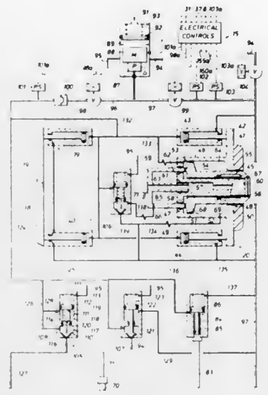
Rotary drilling method and apparatus for indicating incipient roller cone bearing failure of a bit, or similar downhole conditions. Use is made of signals representing the torque being applied and the weight on the bit, both during drilling,

while a constant that is proportional to bit diameter is included in determining the ratio of torque to weight times diameter.

3,782,191
APPARATUS FOR TESTING EARTH FORMATIONS

Frank R. Whitten, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 8, 1972, Ser. No. 313,240
Int. Cl. E21b *49/00*
U.S. Cl. 73—155 **21 Claims**

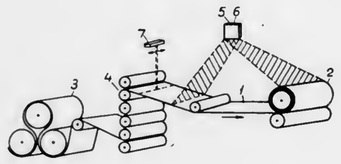


In the representative embodiment of the new and improved apparatus for testing earth formations disclosed herein, fluid-admitting means are selectively extended into sealing engagement with a potentially-producible earth formation and a selectively-operable valve on the fluid-admitting means is opened to place a filtering medium arranged on the fluid-admitting means into communication with the isolated formation without inducing the erosion of loose formation materials as the testing is conducted. Then, when the testing is completed, the fluid-admitting means are retracted and the valve is reclosed in readiness for subsequent testing operations.

3,782,192
MEANS FOR DETERMINING A MAGNITUDE CORRESPONDING TO THE THICKNESS PROFILE OF A PAPER WEB

Henry Sandblom, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Feb. 23, 1972, Ser. No. 228,707
Claims priority, application Sweden, Feb. 25, 1971, 2383/71
Int. Cl. G01m *25/56*
U.S. Cl. 73—159 **9 Claims**

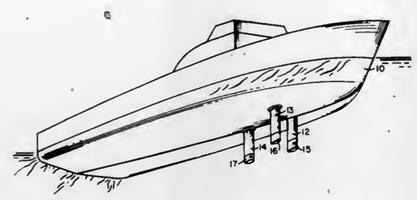


In order to determine the thickness of a web of paper which is being wound on rolls, the temperature profile in the web is measured transversely as the web is rolled up to indicate the thickness. A second temperature profile is also measured at a point located ahead of the roll and a moisture profile is also registered ahead of the roll. Some of these signals or their combinations are used to control the mechanism.

3,782,193
FLOWMETER APPARATUS

Thomas I. Meyer, Severna Park; Thomas N. Shaffer, Silver Spring, and Lawrence G. Wright, Pasadena, all of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 6, 1972, Ser. No. 260,227
Int. Cl. G01c *21/10*
U.S. Cl. 73—181 **11 Claims**



Three posts mounted on the underside of a ship transmit acoustic signals to and from one another for computation of ship's speed. The posts are streamlined for traveling through the water and each includes at the lower end thereof a streamlined housing having a cavity in which is positioned a transducer assembly. The cavity is covered by a thin acoustic window along the streamlined surface. Water is introduced between the transducer assembly and the window for proper signal coupling such that a propagated acoustic signal is properly transmitted to the transducer assembly in another post. Due to the streamlining, the acoustic signals impinge at different angles upon at least two of the posts and the acoustic windows for these two different posts are of different materials and carefully chosen to insure proper signal reception.

3,782,194
ADJUSTABLE TEMPERATURE INDICATORS

Donald E. Brodie, 706 Briarwood Ct.; Mathew Camarota, 904 Gainsway Rd., both of Yardley, and Charles R. Jankowski, 109 Lions Dr., Morrisville, all of Pa.

Filed Sept. 30, 1971, Ser. No. 185,317
Int. Cl. G01k *11/08*
U.S. Cl. 73—343 R **17 Claims**



An adjustable temperature indicator which, in one preferred embodiment, may take the form of a confectionary lollipop candy having a stem imbedded into the head of the

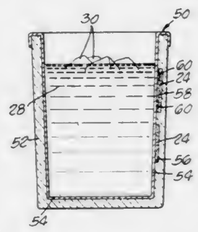
lollipop. A cavity is provided within the lollipop head which houses a temperature sensitive indicator, preferably of a distinctive shape, which is adapted to melt at a predetermined temperature level. Since the temperature sensitive element is completely non-toxic, the confectionary head (including the temperature sensitive element) may be completely ingested without danger of harming the user. Similar structures may be provided in the form of confectionary straws or pacifiers. Confectionary members may be provided with a plurality of temperature sensitive devices, each sensitive to a differing temperature level.

3,782,195

TEMPERATURE INDICATING VESSEL

John S. Meek, 14 Outrigger St., Venice, Calif., and J. Roy Nelson, 8741 Shoreham Dr., Los Angeles, Calif.

Filed May 25, 1972, Ser. No. 256,746
Int. Cl. G01d *11/26*; **G01k** *5/00*
U.S. Cl. 73—343 B **18 Claims**



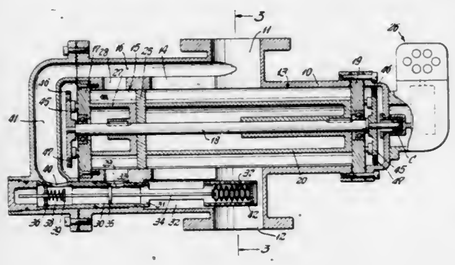
An open vessel having a sealed chamber in a sidewall thereof. The chamber is filled with a liquid having a predetermined freezing point so that upon filling the vessel with a liquid, the temperature of that liquid is indicated relative to the freezing point of the liquid held in said chamber by the change of state of said liquid within said chamber.

3,782,196

TEMPERATURE COMPENSATED ROTARY GAS METER

Theodore A. St. Clair, Fairfield, Conn., assignor to Textron Inc., Providence, R.I.

Filed Feb. 28, 1972, Ser. No. 229,943
Int. Cl. G01f *3/08*
U.S. Cl. 73—254 **5 Claims**



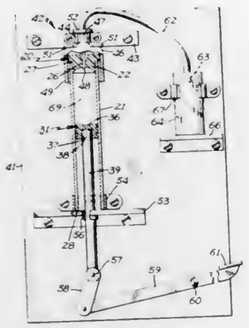
There is disclosed a rotary type gas meter having a shaft, a primary section and a secondary rotor section proportional to each other in displacement, the rotors of each section being secured to said shaft, and a temperature controlled valve means which diverts the output of the secondary rotor section proportionally to either the outlet of the primary rotor section or back to the inlet of the secondary rotor section, the proportions being such that the total flow of metered gas issuing from said meter is adjusted to a base temperature in accordance with Charles law regardless of the temperature of the flowing gas.

3,782,197

BIOLOGICAL FLUID SAMPLING AND TESTING APPARATUS

Grams, Ralph R., 1404 Primrose Curve, St. Paul, Minn.

Filed May 10, 1971, Ser. No. 141,629
Int. Cl. G01n *1/10*
U.S. Cl. 73—421 R **14 Claims**



Biological fluid sampling and testing apparatus includes a fluid sample container assembly of novel construction, and apparatus for transferring a selected portion of the fluid sample out of the container without the necessity of opening it. The container assembly has a puncturable wall portion through which a cannula needle may be inserted for removal of the sample. The container assembly also has a movable externally accessible delivery member, such as a piston, for urging the selected sample portion out of the container. The apparatus for removal of samples from the container includes a positioning means for a cannula needle, a supporting means for the container assembly, an actuator means for engagement with the delivery member of the container assembly, and moving means connected to at least one of the positioning means, supporting means and actuator means for causing relative movement of the delivery member in the container assembly to urge the selected sample portion out through the cannula needle. Preferred arrangements of delivery members and other closure members for such a container assembly and various control means for the transfer apparatus are also shown, such as control means for selective removal of sample portions of different volumes, monitoring or interuption of sample delivery in response to a predetermined characteristic of the sample, and both manual and automatic starting, stopping, and resetting or reversing means for the apparatus.

3,782,198

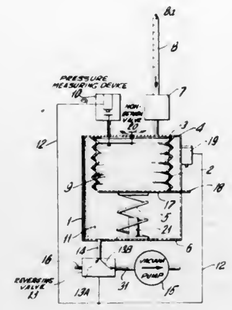
DEVICE FOR MEASURING OR DETECTING GAS

Karl-August Wachter, Lubeck, and Horst Rabenecker, Am Muhlenteich, both of Germany, assignors to Dragerwerk Aktiengesellschaft, Lubeck, Germany

Filed Aug. 24, 1972, Ser. No. 283,507
Claims priority, application Germany, Aug. 30, 1971, P 21 43 282.6
Int. Cl. G01n *1/24*
U.S. Cl. 73—421.5 R **12 Claims**

A device for measuring or detecting gas comprises a mounting base having a sample connection for connecting an opened vessel thereto which is adapted to contain a sample to be tested. A container carries a collapsible bellows therein and

the bellows has one wall which is common to a container wall. A reversing valve is connected to the container and also to a pump to selectively connect the pump to the container or connect the container to atmosphere. The container includes a check valve for permitting discharge of gas therefrom and a switch is actuated by movement of the bellows to switch the reversing valve in accordance with whether it is desired to



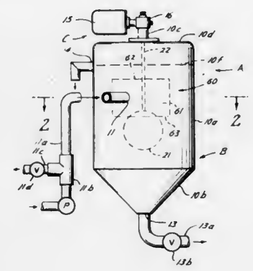
have the pump or the atmosphere connected into the container. An under pressure measuring device is connected into the container and is also connected to the reversing valve to switch the valve in accordance with the pressure sensed in the bellows or the container. This control works in conjunction with the control which operates upon expansion and contraction of the bellows to operate the reversing valve.

3,782,199

MUD WEIGHING UNIT

Leo A. Bell, 35 Traderee Ct., Shannon, Ireland

Filed Sept. 8, 1971, Ser. No. 178,714
Int. Cl. G01n *9/08*
U.S. Cl. 73—434 **5 Claims**



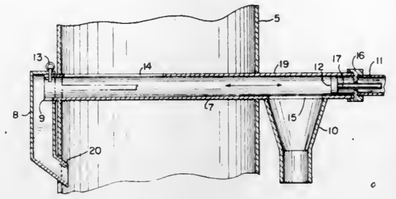
A new and improved device for determining the density of flowing drilling mud which includes a pneumatic level transmitter mounted on a vessel through which the drilling mud flows. The pneumatic level transmitter senses the buoyant force exerted on a displacer element immersed in the drilling fluid flowing through the vessel; and a special flow directing means is mounted in the housing at the inlet in order to control and direct the flow of drilling mud into a substantially circular pattern to eliminate substantially all forces except buoyancy which might otherwise act on the displacer element by the flowing drilling mud.

3,782,200

SAMPLER

Melvin L. Maas, Quincy, Ill., assignor to Moorman Manufacturing Company, Quincy, Ill.

Filed Nov. 24, 1972, Ser. No. 309,351
Int. Cl. G01n *1/20*
U.S. Cl. 73—422 R **7 Claims**



An automatic sampling apparatus for location in a hopper, conduit or pipe through which a particulate material flows includes a sample and apparatus support tube which extends either into a hopper, conduit or pipe through one side opening only or through aligned openings in opposite sides of the hopper, conduit or pipe, with the tube receiving support from the hopper, conduit or pipe at the openings therein. The sample and support tube on the plunger end projects a substantial distance from the hopper, conduit or pipe so as to provide space for a sample discharge opening in the projecting end emptying into a sample discharge chute. The opposing end of the sample tube which projects into or, if desired, completely through the hopper, conduit or pipe is provided with a depending clean-out chute. When the clean-out chute is disposed within a hopper, conduit or pipe filled with particulate material it serves to prevent packing of the particulate material by the clean-out stroke of the piston. When the sample and support tube projects through opposite sides of a hopper, conduit or tube the clean-out chute and the sample discharge chute by engaging the outside of the hopper, conduit or pipe on opposite sides adjacent each of the aligned openings therein prevent axial shifting of the sample tube and apparatus. The reciprocating plunger or piston which is provided can be actuated by an air cylinder mounted on the projecting end of the sample tube which carries the sample discharge chute. The portion of the sample tube within the hopper, conduit or pipe has one or more sample inlet openings in the upstream side with respect to flowing material to be sampled. In operation the air cylinder is preferably timer-actuated and in its outward stroke the piston expels through the clean-out chute material that has collected in the sample tube and on the return stroke withdraws and discharges through the sample discharge opening a sample that has collected through the sample inlet opening or openings.

3,782,201

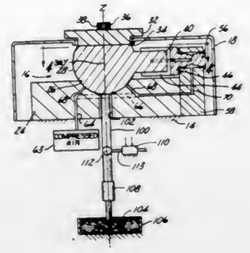
METHOD AND APPARATUS FOR STABILIZING A SPHERICAL BEARING

Frederick L. Fitts, Ann Arbor, Mich., assignor to Balance Technology, Inc., Ann Arbor, Mich.

Filed Apr. 20, 1972, Ser. No. 245,813
Int. Cl. G01m *1/04*, *1/12*
U.S. Cl. 73—455 **15 Claims**

A segmented part such as a fan blade is supported on a spherical air bearing so that unbalance in the blade causes the bearing to tilt. Displacement of the bearing is sensed by a pair of orthogonally oriented transducers, and the displacement signals therefrom are processed to provide a direct readout of the two specific blades to which weight must be added or subtracted and a direct readout of the amount of unbalance cor-

rection required at each blade. The air bearing has a particular stop arrangement to prevent rotation of the bearing while permitting the bearing to tilt along the orthogonal axes of the

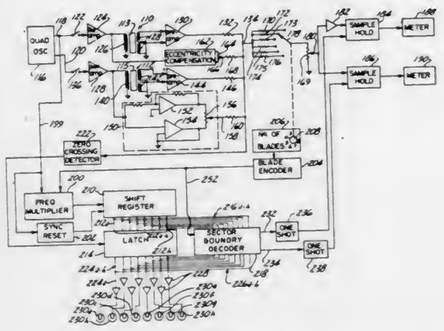


transducers. The circuit that processes the transducer displacement signals is selectively adjustable so that direct readings can be obtained for parts having different numbers of segments.

3,782,202
METHOD AND APPARATUS FOR BALANCING SEGMENTED PARTS

Ronald W. Anderson, Champaign, Ill., and William B. Henry, Chelsea, Mich., assignors to Balance Technology, Inc., Ann Arbor, Mich.

Filed Apr. 20, 1972, Ser. No. 245,814
Int. Cl. G01m *1/12*
U.S. Cl. 73—455 **26 Claims**

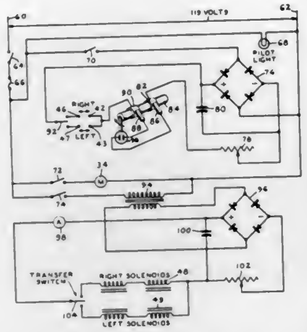


A segmented part such as a fan blade is supported on a spherical air bearing so that unbalance in the blade causes the bearing to tilt. Displacement of the bearing is sensed by a pair of orthogonally oriented transducers, and the displacement signals therefrom are processed to provide a direct readout of the two specific blades to which weight must be added or subtracted and a direct readout of the amount of unbalance correction required at each blade. The air bearing has a particular stop arrangement to prevent rotation of the bearing while permitting the bearing to tilt along the orthogonal axes of the transducers. The circuit that processes the transducer displacement signals is selectively adjustable so that direct readings can be obtained for parts having different numbers of segments.

3,782,203
DYNAMIC BALANCING APPARATUS

Donald D. Dalrymple, North Warren, Pa., assignor to National Forge Company, Irvine, Pa.

Filed Jan. 12, 1972, Ser. No. 217,358
Int. Cl. G01m *1/20*
U.S. Cl. 73—468 **11 Claims**

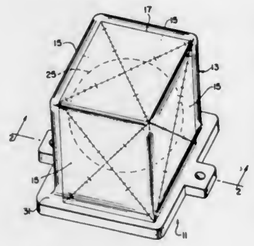


A work piece is rotated by a motor through a flexible connection while being supported on rollers mounted on a frame flexibly mounted for horizontal movement. The horizontal vibration of the frame due to the unbalance of the rotated work piece opens and closes a pair of electrical contacts and thereby energizes a light rotated in synchronism with the work piece. The angular orientation at which the light is lit during its revolution indicates the angular position of the unbalance of the work piece. The amount of unbalance is determined by measuring the amount of current required by a pair of rigidly mounted solenoids which are energized to grip a projection of the frame and suppress the vibration, as indicated when the lamp ceases to flash.

3,782,204
APPARATUS AND METHODS FOR RECORDING ACCELERATION

Harry Lynn Boardman, Clayton, Mo., assignor to H. L. Boardman Inc., Clayton, Mo.

Filed July 7, 1971, Ser. No. 160,311
Int. Cl. G01p *15/04*
U.S. Cl. 73—492 **1 Claim**



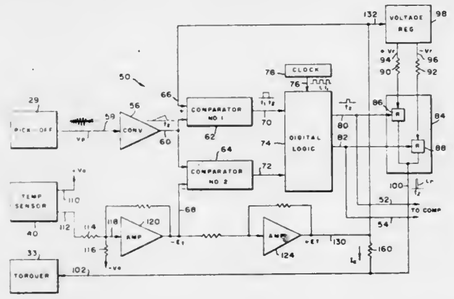
A peak-recording accelerometer including a substantially rigid receptacle with a plurality of interior surfaces and including means for mounting the receptacle for exposure to acceleration. A liner for the receptacle includes panels closely conforming to interior surfaces of the receptacle. The panels are imprintable with a pattern to record acceleration. A resilient mass cooperable with the liner in the receptacle is shaped and dimensioned for fitting, when free of acceleration,

in point contact with the panels of the liner. The mass is deformable for uniform increased area contact of its surface with at least one panel of the liner as a continuous function of the mass acceleration. Printing media is positioned between said surface and said liner panel so that the increased area contact imprints on the panel a pattern whose dimensions are a precise predetermined function of the peak acceleration experienced by the mass.

3,782,205
TEMPERATURE COMPENSATED DIGITAL INERTIAL SENSOR

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Patrick J. Hand, Altadena, Calif., assignors to The United States of America as represented by the National Aeronautics & Space Administration, Washington, D.C.

Filed Nov. 9, 1972, Ser. No. 305,012
Int. Cl. G01p *15/08*; **G01c** *19/30*
U.S. Cl. 73—497 **8 Claims**



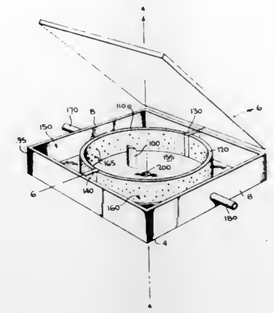
A circuit of the type which maintains the inertial element of a gyroscope or accelerometer at a constant position by delivering pulses to a rebalancing motor, wherein the circuit compensates for temperature changes by utilizing a temperature sensor that varies the threshold of inertial element movement required to generate a rebalance pulse, to thereby compensate for changes in viscosity of the floatation fluid. The output of the temperature sensor also varies the output level of the current source, to compensate for changes in the strength of the magnets of the rebalancing motor, and the sensor also provides a small signal to the rebalance motor to provide a temperature-dependent compensation for fixed drift or fixed bias.

3,782,206
VORTEX LINEAR ACCELEROMETER

Arthur J. Ostdiek, Wheaton, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 13, 1972, Ser. No. 262,404
Int. Cl. G01p *15/02*
U.S. Cl. 73—515 **6 Claims**

A vortex linear accelerometer comprising an axisymmetric chamber, two bilaterally symmetric plena opening into said chamber, and a drain located in the center of said chamber with an airfoil pickoff located nearby and mounted within the chamber. The two plena supply fluids of different densities to the chamber. The chamber is in the shape of a flat cylinder and the plena supply fluid through the sidewall of said cylinder. When acceleration occurs along the bilateral axis of symmetry of the accelerometer a vortex is generated due to the unequal body forces acting upon the two different fluids. The intensity of the vortex is a function of the component of acceleration parallel to this axis of symmetry. The airfoil pickoff measures the streamline angle of the vortex within the chamber. The output of the pickoff is thus a function of this component. For applications involving angular motion about

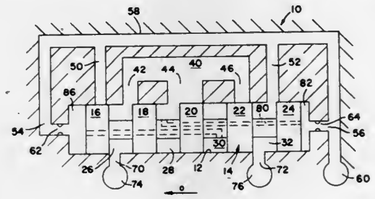


the cavity axis the angular component measured by the pickoff is cancelled by operating two accelerometers back to back.

3,782,207
SPOOL AND SLEEVE PNEUMATIC ACCELEROMETER

Harold J. Straut, Jr., 1532 Neola Tr., Winter Park, Fla., and Raymond E. Weber, 27 Zabriskie St., Jersey City, N.J.

Filed Sept. 14, 1972, Ser. No. 289,022
Int. Cl. G01p *15/02*
U.S. Cl. 73—515 **4 Claims**



A pneumatic accelerometer employing a five land spool operating in a cylinder, wherein, the fluidic output of the assembly is linear with the amount and direction of the displacement of the spool within the cylinder.

ERRATUM

For Class 73—457 see:
Patent No. 3,782,217

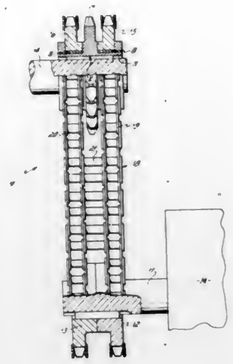
3,782,208
INTERMITTENT DRIVE

Earl Hacker, Rt. 1, Long Branch Rd., Beattyville, Ky.

Filed Sept. 24, 1971, Ser. No. 183,453
Int. Cl. F16h *27/00*
U.S. Cl. 74—112 **12 Claims**

A chain and sprocket drive for transposing rotary motion to intermittent rotary motion. The drive interconnects two shafts, one of which is an input shaft and has two drive sprockets keyed thereto and the other of which is an output

shaft and has three sprockets mounted thereon. The outer two of the three sprockets are idler sprockets driven from the two drive sprockets on the input shaft. The inner or central



sprocket of the three sprockets is keyed to the output shaft and is intermittently driven by a link connected between the two endless chains.

3,782,209

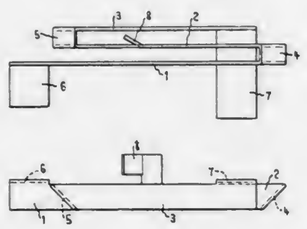
MECHANICAL RESONATOR OF ROTATION

Robert Favre, Lausanne, Switzerland, assignor to Fabriques Movado, Canton of Neuchatel, Switzerland

Continuation of Ser. No. 39,785, May 22, 1970, abandoned. This application Mar. 14, 1972, Ser. No. 234,571

Int. Cl. F16h *27/02*

U.S. Cl. 74—142 **6 Claims**



A mechanical resonator of rotation, particularly for use in a timepiece, comprising an oscillatory mass having an axis of symmetry, a support, spring means connecting said mass to said support for oscillation of the latter about a rotational axis substantially coinciding with said axis of symmetry, said spring means including leaf springs consisting of rectilinear active sections interconnected by connecting elements adapted to be very rigid with respect to the effective stresses of oscillation and determining the useful length of said active sections; preferably, said springs are obtained by suitably folding single cut out pieces.

3,782,210

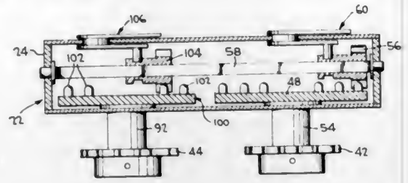
CHANGEABLE SPEED GEAR ATTACHMENT FOR BICYCLES

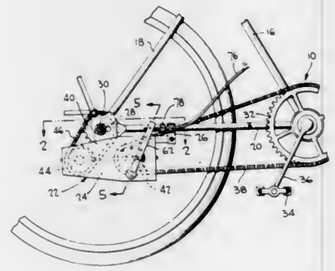
Quanah P. Holleman, 146 E. Bayview Blvd., Norfolk, Va.

Filed Oct. 4, 1972, Ser. No. 294,878

Int. Cl. F16h *9/00*

U.S. Cl. 74—217 B **16 Claims**





A changeable speed gear attachment for mounting on a standard bicycle without the need for modification of the bicycle is disclosed. The attachment includes a housing which mounts on the frame of the bicycle and includes a driving pinwheel gear having several adjacent concentric rows of teeth, a driven pinwheel gear having at least one row of teeth, a driving pinion gear operating off the driving pinwheel gear and slidably mounted so as to selectively engage one of the several rows of teeth, and a driven pinion gear which is driven by the driving pinion gear and which, in turn, drives the driven pinwheel gear. The pinwheel gears are each connected to a sprocket externally of the housing and the sprockets are connected to the sprockets of the bicycle by means of conventional bicycle chains.

3,782,211

MULTIPLE GROOVE PULLEY CONSTRUCTION

James D. Campbell, Jr., Lombard, and Joseph E. Maurey, Chicago, both of Ill., assignors to Maurey Manufacturing Corporation, Chicago, Ill.

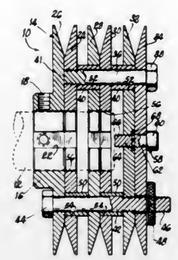
Filed Feb. 9, 1972, Ser. No. 224,817

Int. Cl. F16h *55/52*

U.S. Cl. 74—230.17 C **7 Claims**

An adjustable pulley construction of the type having a plurality of flange members associated in pairs and mounted on a shaft. The respective pairs each define a bolt receiving groove, and one flange member of a pair is tied to a corresponding flange member of every other pair whereby the flange members are divided into first and second sets. The outermost pair of flange members is located beyond the end of the shaft, and

a screw is associated with this pair of flange members and aligned coaxially with the shaft. Rotation of the screw operates to change the relative positions of the associated



flange members. The means tying the sets of flange members together provide for simultaneous adjustment of all pulley grooves.

3,782,212

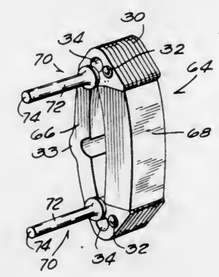
COMBINED SHEAVE AND FLYWHEEL ASSEMBLY AND METHOD OF MAKING SAME

Harry M. Ward, III, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Dec. 29, 1972, Ser. No. 319,775

Int. Cl. F16h *55/36*

U.S. Cl. 74—230.3 **3 Claims**



A combined sheave and flywheel assembly which includes a smooth, imperforate radially inclined surface for driving a transmission drive belt and which further includes one or more electrical components, such as a pole shoe and magnet assembly, cast in place as an integral part of the flywheel assembly. Also a method for die casting such a combined sheave and flywheel assembly whereby the cast-in-place electrical component is accurately held in a predetermined position within the die cavity by the casting die without producing a hole or opening which can cause excessive wear of the transmission drive belt on the inclined belt-driving surface thereof. The electrical component is installed onto one or more locator pins extending from one die section into the die cavity and includes one or more elongated rivet means which extend through the die cavity to the other die section and become cast in as an integral part of the flywheel assembly casting. When the die sections are moved to the casting position, the die section which defines the inclined driving surface of the flywheel assembly removably engages the outer end of the rivet means and cooperates with the rivet means and the locator pins to clamp the electrical component in place.

3,782,213

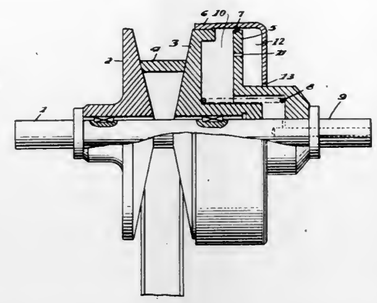
INFINITELY VARIABLE CONE PULLEY TRANSMISSION

Manfred Rattunde, Bad Homburg v.d.H., Germany, assignor to Werner Reimers Kommanditgesellschaft, Bad Homburg, Germany

Filed June 16, 1972, Ser. No. 263,599

Int. Cl. F16h *55/22*

U.S. Cl. 74—230.17 F **7 Claims**



In an infinitely variable cone pulley transmission with one cone fixed on a shaft and the other slidable thereon but rotatable therewith, a pressure chamber is formed connected with the movable disc. This is separated into two spaces by a partition secured on the shaft. Pressure fluid is supplied to the space nearest the pulley disc, and is allowed to pass through a throttled passage into the space remote from the pulley disc and to escape therefrom through a narrow annular slot in the portion of the space closest to the shaft axis.

The axial pressure caused by centrifugal force in the first space is at least substantially counter-balanced by the axial force produced by the centrifugal force in the second space. Further, the continuous flow of pressure fluid prevents the build-up of localized heating in the pressure chamber.

3,782,214

REMOTELY CONTROLLABLE CHANGE SPEED GEAR

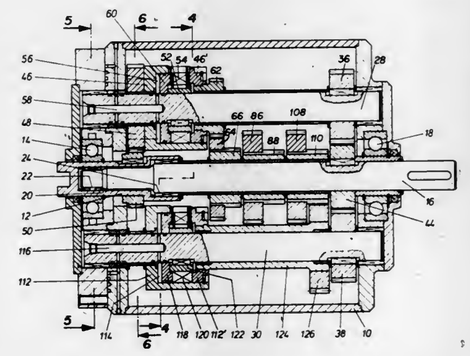
Ilie Chivari, Wanne-Eickel, Germany, assignor to Firma Hackforth & Co. Maschinen-Fabrik, Wanne-Eickel, Germany

Filed Dec. 10, 1971, Ser. No. 206,599

Claims priority, application Germany, Dec. 10, 1970, P 20 60 787.8

Int. Cl. F16h *3/08*

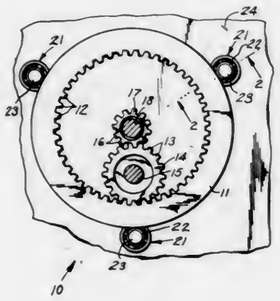
U.S. Cl. 74—331 **15 Claims**



Input and output shafts are positioned coaxially in a gear box housing with four auxiliary shafts positioned about and

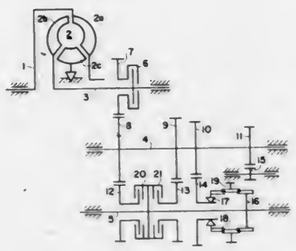
parallel thereto. A gear on the output shaft is engaged by respective gears on the auxiliary shafts. Clutches are associated with each of the auxiliary shafts and have their output parts engaging the respective auxiliary shafts. The input part of one clutch is gear connected to the input shaft and the remaining input parts are in series in a speed reducing gear train from the input part of the one clutch. The gear train is rotatably mounted on the output shaft and the various auxiliary shafts.

3,782,215
FREELY MOUNTED GEAR
Robert E. Moody, 7202 Gammage, Houston, Tex.
Filed July 6, 1972, Ser. No. 269,303
Int. Cl. F16h *57/00, 1/20*
U.S. Cl. 74—410 **1 Claim**



A ring gear arrangement providing an uninterrupted source of power for mechanical and electrical applications. This arrangement consists primarily of a toothed ring supported in rolling engagement with rotatable bearings positioned in an equally spaced apart relationship with each other, the bearings being supported upon a plate or the like.

3,782,216
SPEED CHANGE CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION
Ichio Sakai, Aichi-ken, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Apr. 10, 1972, Ser. No. 242,406
Claims priority, application Japan, Apr. 28, 1971, 46/27550
Int. Cl. F16h *3/08*; **B60k** *21/06*; **F16d** *25/063*
U.S. Cl. 74—364 **5 Claims**



In a speed change control system for automatic transmissions, clutch assemblies are provided for second speed and third speed, respectively, and they are arranged in back-to-back relationship in a power transmission arrangement for changing the transmission gear ratio. The clutch assemblies share some components in common. In addition the system includes a control circuit for engaging or disengaging the clutches by oil pressure, a 2-3 shift valve provided in the control circuit for stopping oil feed into the clutch assembly for second speed while feeding oil into the clutch assembly for third speed when shifting from second speed to third speed, an oil exhaust port provided in a servo oil chamber in the clutch assembly for second speed, and a drum element provided in the clutch assembly for third speed. The drum element is displaced by the pressing force of an assembly of plates and discs for opening the oil exhaust port when the clutch assembly for third speed is engaged, so that the actuation of the clutch assembly for second speed, which is disengaged when second to third speed shifting is effected, is synchronized with the pressing action of the assembly of plates and discs in the clutch assembly for third speed which is engaged when the shifting is effected.

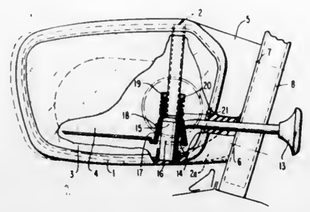
3,782,217
BALANCING OF WHEEL/TYRE ASSEMBLIES
William Wortley, Birmingham, England, assignor to Dunlop Limited, London, England
Filed Apr. 14, 1972, Ser. No. 244,123
Claims priority, application Great Britain, Apr. 22, 1971, 10,754/71
Int. Cl. G01m *1/28*
U.S. Cl. 73—457 **7 Claims**

A method of balancing a tyre and wheel assembly which comprises rotating said assembly and measuring the kinetic and dynamic out of balance forces so generated. A known proportion of the correction weight for the kinetic unbalance so measured is then applied to one flange of the wheel and the kinetic and dynamic out of balance forces measured again. The new measurements are compared with the initial ones to determine the total correction weight required and its distribution between the wheel rim flanges. The method is particularly suited to on-the-car balancing.

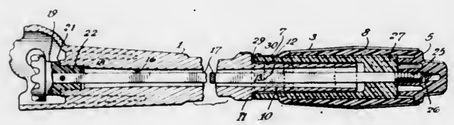
3,782,218
ADJUSTABLE AND TILTABLE REARVIEW MIRROR ESPECIALLY FOR PASSENGER MOTOR VEHICLES
Gunter Gmeiner, Sindelfingen; Christian Grabner, Maichingen; Gerhard Sigmund, Stuttgart, and Rudolf Binder, Schonaich, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed July 27, 1971, Ser. No. 166,435
Claims priority, application Germany, July 27, 1970, P 20 37 101.1
Int. Cl. G05g *1/00*
U.S. Cl. 74—491 **26 Claims**

An outside rearview mirror adapted to be remotely adjusted from within the vehicle interior space and adapted to be tilted by pivoting in a direction opposite the driving direction in case

of an accident, especially for passenger motor vehicles in which a hinge for a housing is provided that is adapted to be secured at the vehicle; a mirror glass support which is supported in the housing, is adapted to be adjusted by way of an actuating lever connected therewith and projecting into the vehicle interior space.

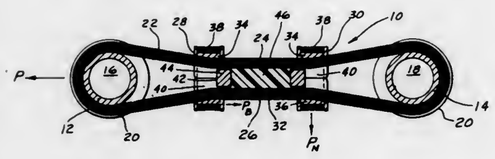


3,782,219
FRICTION LOCK FOR OUTBOARD MOTOR THROTTLE HAND GRIP
Robert J. Beck; Wilbert Heikkinen, and Robert T. Johnson, all of Oshkash, Wis., assignors to The Brunswick Corporation, Skokie, Ill.
Filed Apr. 21, 1972, Ser. No. 246,339
Int. Cl. G05g *5/06*
U.S. Cl. 74—531 **6 Claims**



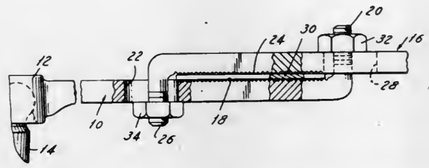
The invention is a friction lock which operates upon a throttle hand grip mounted on the steering arm of an outboard motor. An end cap threaded axially with respect to the steering arm urges the hand grip against the shoulder on the steering arm, thereby creating friction to hold the throttle grip in a selected position.

3,782,220
TENSION-TORSION TIE BAR
Richard J. Ditlinger, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.
Filed May 18, 1972, Ser. No. 254,515
Int. Cl. F16c *7/04*
U.S. Cl. 74—579 R **6 Claims**



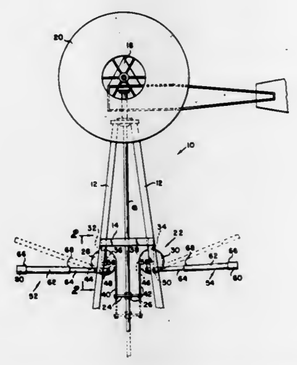
A laminated tie bar or coupling particularly adapted to interconnect a helicopter rotor arm and rotor blade is provided with a pair of spaced-apart end bushings interconnected by an endless belt. A pair of annular clips encircle the belt adjacent the bushings to draw opposite sides of the belt into parallel alignment. Each clip abuts an associated transverse bar or pin extending between the belt sides and attached to an adjacent end bushing by a layer of flexible strands or wires wound around the end bushing and bar or pin. The bars or pins hold the clips apart and permit twisting of the coupling about an axis extending through the end bushings.

3,782,221
ADJUSTABLE TIE ROD LINK
Edward C. Nalodka, Dearborn Heights, and Thomas R. Street, Taylor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Dec. 5, 1972, Ser. No. 312,403
Int. Cl. F16c *7/06*
U.S. Cl. 74—586 **11 Claims**



An adjustable tie rod assembly for a motor vehicle steering linkage system is constructed in accordance with one embodiment of the invention by providing transverse serrations near the ends of each of two rod parts. Each rod has an end portion that is bent 90 degrees to its serrated portion and each bent end is provided with screw threads. Each rod has an axially extending slot disposed inwardly of its serrated portion. The two rods are assembled by extending the bent end of each rod through the slot of the other rod so that the serrated portions are placed in face-to-face relationship. A soft metal shim is interposed between the two serrated portions. The rods are then adjusted axially for length and nuts are tightened on the threaded ends so that the serrated portions bite into the soft metal shim and lock the two rods together to form an assembly of fixed length.

3,782,222
COUNTERBALANCING ASSEMBLY FOR AIR MOTIVATED DEVICE
John L. Berggren, 1148 Clark Ave., Billings, Mont.
Continuation-in-part of Ser. No. 85,432, Oct. 30, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 295,841
Int. Cl. F03d *11/00*
U.S. Cl. 74—590 **8 Claims**



This invention is a counterbalancing assembly for air motivated devices such as windmills, for use in pumping water

or other liquids from wells. The assembly includes arms extending outwardly from opposite sides of the reciprocating lifting rod of the windmill. The arms are affixed to rotatable discs, each of which is provided with a flexible member secured to the disc periphery and extending to a cross member secured to the lifting rod and movable therewith. In order to counterbalance the weight of the lifting rod and the material being pumped, the arms of the assembly are constructed of telescopic sections to increase or decrease the arm length to effect the desired leverage.

3,782,223

POWER TRANSMISSION SYSTEMS

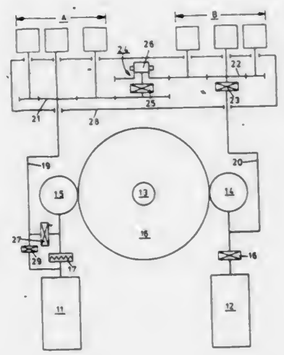
Kenneth Watson, Yeovil, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England

Filed May 15, 1972, Ser. No. 253,239

Claims priority, application Great Britain, June 1, 1971, 18,361/71

Int. Cl. F16h *37/06*

U.S. Cl. 74—665 L **5 Claims**



A power transmission system for a twin engine helicopter includes drive shafts and gearing connecting the engines to a rotor drive shaft and two gear trains, each gear train being arranged to drive a set of helicopter accessories. The transmission is arranged so that at least one of the gear trains remains operational through a wide range of failure conditions in both the engines and the transmission system.

3,782,224

POWER TRANSMISSION DEVICE

Michael Stasiuk, Winnipeg, Manitoba, Canada, assignor to Versatile Manufacturing, Ltd., Winnipeg, Manitoba, Canada

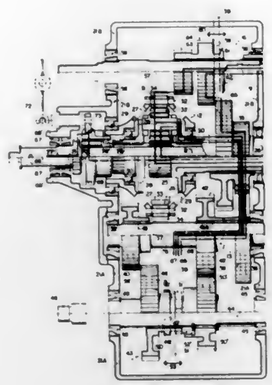
Filed Apr. 5, 1972, Ser. No. 241,248

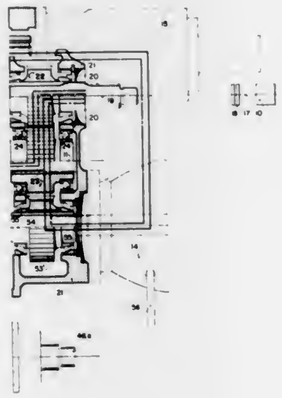
Claims priority, application Great Britain, Apr. 6, 1971, 8,834/71

Int. Cl. F16h *47/04, 37/00*

U.S. Cl. 74—687 **12 Claims**

A power transmission device for mobile units such as tractors or the like is driven by a source of power such as a diesel engine and includes at least three modes of power transmission which can be selected by the operator. It includes a planetary train, a constant mesh gear box, an hydrostatic pump and an hydrostatic motor driven by said pump. The hydromechanical mode transmits power via the pump and motor through the planetary gear train to the constant mesh gear box and hence to the output shaft. The basic mechanical mode transmits power via the planetary train directly to the constant mesh gear box. The hydrostatic mode transmits power from the hydrostatic motor to the constant mesh gear box. A power takeoff can be operatively connected to these three modes and means are provided to shift the power takeoff





connecting means to a portion of the planetary gear train casing so that a further mechanical road gear or mode is provided which has a higher speed range than the basic mechanical mode.

3,782,225

TRANSMISSION ESPECIALLY FOR MOTOR VEHICLES

Fritz Grabow, Muhlweg, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

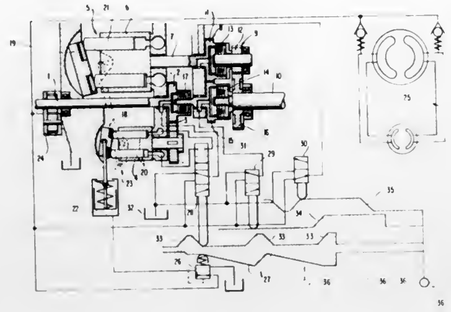
Filed Apr. 2, 1971, Ser. No. 130,612

Claims priority, application Germany, Apr. 3, 1970, P 20 15 945.9

Int. Cl. F16h *47/02*

U.S. Cl. 74—720 **18 Claims**

A transmission, especially for motor vehicles, which includes an infinitely variable converter adjoining an engine shaft and several pairs of meshing gears following the converter which are adapted to be selectively engaged or disengaged by way of shifting clutches, whereby one shifting clutch is adapted to connect the engine shaft with a pair of meshing



gears, while actually selectively engaged, and the converter, such as a hydrostatic converter, is adapted to be internally uncoupled.

3,782,226

MACHINE TOOLS

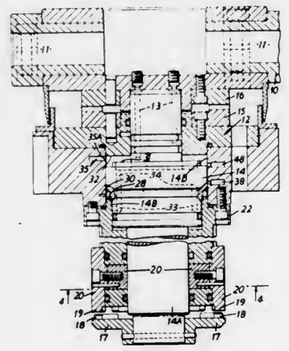
Gordon A. Boyd, Dorking, and Franz Berger, West Wickham, both of England, assignors to Autologic Limited, Surrey, England

Filed Jan. 25, 1971, Ser. No. 109,284

Claims priority, application Great Britain, Feb. 3, 1970, 5,200/70

Int. Cl. B23b *29/32*

U.S. Cl. 74—821 **19 Claims**



A tool turret assembly for a machine tool which is movable to present different tools at an operating station. The tool turret mounted on an operating member which is rotatable between tool presenting positions and is also axially displaceable. The operating member is adapted to engage respectively in its axially displaced positions, members for rotating the turret through an angle corresponding to the angle between tool presenting positions, and members for accurately locating the turret in its tool presenting positions. A hydrostatic bearing is provided under the operating member during rotation. Axial displacement is collinear with the axis of rotation of the members for rotating the turret.

3,782,227

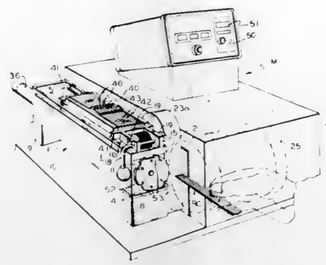
INSULATION-SLITTING AND STRIPPING MACHINE

Cornelis Teunis Veenendaal, Milwaukie, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed July 6, 1971, Ser. No. 159,792

Int. Cl. H02g *1/12*

U.S. Cl. 81—9.51 **10 Claims**



An insulation-slitting and stripping machine is provided with slitting members adjacent feeding means to slit insulated-conductor means of an electrical cable means so that they are separated from each other as the feeding means feeds a predetermined length of electrical cable means therein. A splaying means is disposed adjacent the slitting members to space the separated free ends from one another. Insulation-stripping means is movable relative to the slit and splayed free insulated-conductors means to strip insulation from the insulated-conductors means and to cut them at predetermined lengths.

3,782,228

METHOD AND MACHINE FOR SCALPING ROD STOCK

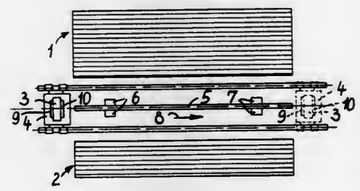
Hans Lindemann, Lindenstrasse 39, Grossdornbert, and Wolfgang Lindemann, Im Johannisthal 41, Aachen, both of Germany

Filed Apr. 13, 1971, Ser. No. 133,493

Claims priority, application Germany, May 4, 1970, P 20 21 812.6

Int. Cl. B23b *5/00, 3/00*

U.S. Cl. 82—20 **11 Claims**



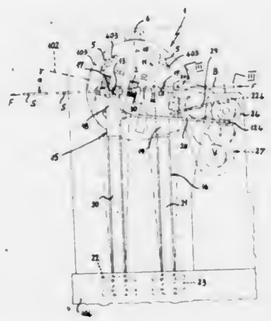
A method and machine for scalping solid or tubular rod stock by means of a cutter head revolving about and movable along a nonrotatable piece of said stock, in which this machine is also provided with at least one flaw testing apparatus which detects the possible presence of flaws in the piece of stock at least during a first scalping run of the cutter head so that during one or more subsequent runs the flaws may be eliminated. The longitudinal movement of the cutter head is preferably reversible at the end of each run and the machine is in this case provided with two flaw testing apparatus each of which searches for flaws remaining in the workpiece after just being scalped in the respective run. Each cutter in the cutter head must then be provided with left and right cutting edges and preferably with an intermediate smoothing edge. If the

machine is provided with a flaw testing apparatus which not only detects flaws during the first scalping run of the cutter head but also determines the depth at least of the deepest flaw, the cutters will be adjusted accordingly at the end of the first run, so that during the second scalping run a layer of a sufficient thickness will be removed from the workpiece so as to leave it at least substantially flawless.

3,782,229
SYSTEM AND DEVICE FOR CUTTING AND REDUCING ROD SEGMENTS

Athos Cristiani, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed Nov. 13, 1972, Ser. No. 305,925
Int. Cl. A24c *05/12*
U.S. Cl. 83—37 **10 Claims**



A method and apparatus for making cigarettes by forming a continuous cigarette rod and continuously advancing the formed rod axially, cutting segments of predetermined lengths each equal to multiple cigarettes from the advancing rod, and cutting each segment into cigarettes of equal predetermined lengths before the next succeeding segment is cut from the continuous rod.

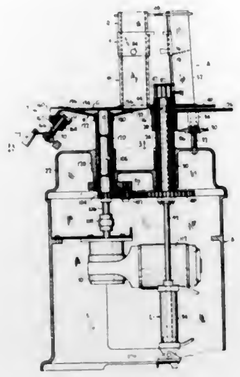
Two rotatable discs are mounted on an angularly adjustable base, the discs being mutually parallel, spaced from each other and mounted on a shaft that is vertically inclined with respect to a horizontally advancing cigarette rod. A vertical plane passing through the shaft is parallel to a vertical plane passing through the rod. Each disc has a cutting blade mounted thereon, the blades being angularly displaced by 180°. A pair of ledgers are mounted on supports, are spaced axially along the rod, are separated by a hollow guide for receiving and supporting a portion of the rod between the ledgers, and are connected to gear driven links which cause the supports and the ledgers thereon to reciprocate in opposite directions along the rod. When the upstream disc encounters the rod, it cuts off a segment of two cigarette lengths. The segment advances so as to be supported by the guide and the downstream ledger where the second disc cuts the same into two cigarettes before the next segment is cut by the upstream disc.

3,782,230
COMESTIBLE SLICING APPARATUS

Louis A. Bettcher, Amherst, Ohio, assignor to Bettcher Industries, Inc., Birmingham, Ohio

Continuation-in-part of Ser. No. 785,088, Dec. 19, 1968, Pat. No. 3,587,689, which is a continuation-in-part of Ser. No. 561,180, June 28, 1966, Pat. No. 3,434,519. This application Jan. 5, 1972, Ser. No. 215,462
Int. Cl. B26d *7/06, 7/12*
U.S. Cl. 83—174.1 **11 Claims**

Slicing apparatus having a magazine with upright product receptacles for carrying comestible workbodies in a circular path past a rotating knife in a table recess to sever slices from the bottom of workbodies, product followers slidable on receptacle guides to urge workbodies toward the knife, table

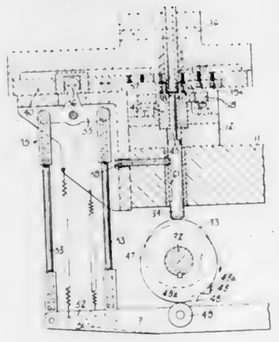


height adjustment for controlling the thickness of slices being severed, a fluid-pressure actuated ram for lifting the product followers, a unitary plastic or like guard for the knife, and knife sharpening apparatus carried by the guard.

3,782,231
PIERCING ASSEMBLY

Louis F. Jannetty, 78 Lynwood Dr., Cheshire, Conn.

Continuation-in-part of Ser. No. 105,247, Jan. 11, 1971, abandoned. This application July 21, 1972, Ser. No. 273,697
Int. Cl. B26d *5/08*
U.S. Cl. 83—143 **11 Claims**

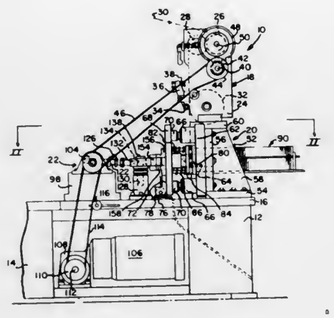


A piercing assembly is incorporated as a work station in a cam-operated machine such as a cam eyelet machine by mounting in the machine frame the combination of: a movable pin adapted to engage a work piece, an advancing cam and a pair of lifting cams mounted on a rotatable shaft, a cam follower to the advancing cam adapted to engage and move the pin, a slide carrying a punch for piercing the work piece, a centrally pivoted arm having a head for engaging and reciprocating the slide, a pair of lever arms linked one to each end of the centrally pivoted arm, and a pair of cam followers mounted one on each of the lever arms for alternate engagement with the lifting cams; the cam surfaces of the advancing cam and the pair of lifting cams being positioned such that engagement of the advancing cam and the lifting cams with their respective cam followers causes piercing of the work piece by the punch when the work piece has been engaged by the pin, alternating with disengagement of the pin from the work piece when the punch is withdrawn.

3,782,232
DIE CUTTER DRIVE FOR AN ENVELOPE BLANK FORMING MACHINE

Walter Oggoian, Libertyville, Ill., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed Feb. 22, 1972, Ser. No. 227,864
Int. Cl. B31b *1/16;* **B26d** *5/08*
U.S. Cl. 83—236 **11 Claims**



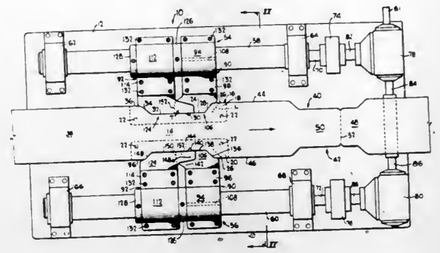
The envelope blank forming machine has a web feeder unit mounted above a die cutting unit. The web feeder unit is arranged to intermittently feed web material into a die cutter in the die cutter unit. One of the die plates in the die cutter unit is movably supported on a base and is reciprocally driven by a die cutter drive. A drive motor is positioned beneath the base and transmits rotation to a drive shaft rotatably mounted on the base in spaced relation to the movable die plate. The drive shaft has an enlarged hub portion connected to one end with a radially spaced bore therein. An arm member extends forwardly from the drive shaft and is connected at one end to the end of the drive shaft by a pin positioned in the radially spaced bore so that upon rotation of the drive shaft the arm member reciprocates on the base portion. A support member extends upwardly from the base between the drive shaft and movable die plate. A lever member is pivotally connected at one end to the support member and at the other end to the forwardly extending arm so that the reciprocation of the arm member upon rotation of the drive shaft pivots the lever member and reciprocates the die plate through a yoke connection to the movable die plate. The lever member has a forwardly extending connector member that is pivotally pinned to the yoke member. The upwardly extending support for the lever serves as a fulcrum of a second class lever and the distance between the fulcrum and the connection to the forwardly extending arm increases the torque imparted to the lever by the arm member. The movable die plate has rollers that are rotatably supported on the base portion to support the die plate.

3,782,233
ROTATABLE CUTTER MECHANISM FOR CUTTING DIFFERENT LENGTH NOTCHES IN A MOVING WEB

Herbert W. Helm, Hollidaysburg, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed Nov. 12, 1971, Ser. No. 198,232
Int. Cl. B26d *3/14*
U.S. Cl. 83—356.3 **6 Claims**

The cutter mechanism includes a fixed cutter having side notches therein over which either a sheet, strip or an endless web of paper travels at a preselected speed. A pair of rotatable cutters are mounted on shafts for rotation in timed relation to each other and to the speed of the sheet, strip or web. The rotatable cutters are positioned on opposite sides of the fixed cutter. Each of the rotatable cutters has a first radially extending cutter blade and a second radially extending cutter blade

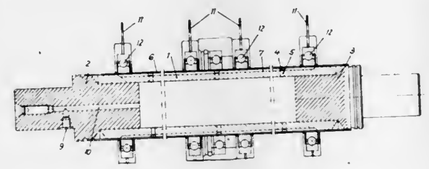


arranged longitudinally along the shaft and adjacent to each other. One of the radially extending blades is adjustable angularly relative to the other. The relative radial angle between the blades determines the length of the notch cut by the respective rotatable cutters in the side of the sheet, strip or web.

3,782,234
GRIPPING SHAFT

Alexander Rodach, Pforzheim, Germany, assignor to Frau Irma Ungerer, Pforzheim, Germany

Filed Dec. 3, 1971, Ser. No. 204,602
Claims priority, application Germany, May 27, 1971, P 21 26 407.3
Int. Cl. B26d *1/12*
U.S. Cl. 83—665 **5 Claims**



A clamping shaft for clamping a rotating element comprises a generally closed tubular core having an inlet adapted to be connected to a pressure fluid source, and radial bore means communicating with said inlet and open on the outside peripheral surface of said core. The shaft also comprises an expansible clamping sleeve enclosing the outside peripheral surface of said core and firmly and tightly joined thereto at least at two spaced-apart portions of its length to define around said core at least one annular space, which communicates with said radial bore means.

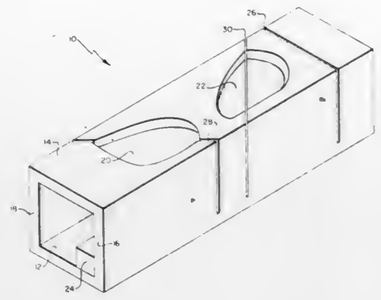
3,782,235
MITER BOX

Michael P. Curcio, 50 Lind Rd., Totowa, N.J.

Filed Dec. 29, 1972, Ser. No. 319,547
Int. Cl. B27g *5/02*
U.S. Cl. 83—762 **2 Claims**

The present invention relates to an improved miter box for use by carpenters and others in making miter joints, particu-

larly for mitering picture, cove, casing and base mouldings. The general improvement lies in substituting a square-shaped box for the conventional U-shaped form, and making this miter box in the form of a single, integrally moulded, transparent plastic unit. This structure with its inherent rigidity gives durability, strength and precision to the box itself, all of which aid in achieving precision in the mitering of joints. A support bar is placed along one inside base edge to support



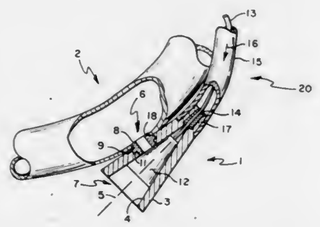
hand-held, angularly disposed mouldings and L-shaped corner mouldings in particular at proper cutting angles. Cut-outs are provided in the top for holding work pieces in place. The use of a transparent plastic provides full visibility of the work piece to the user. It also improves the durability of the miter box and increases precision in the cutting or mitering because the saw will not cut easily into the saw cutting guides of its side walls.

3,782,236

WATER VALVE FOR HORN-TYPE MUSICAL INSTRUMENT

Ernest Shalek, 33 Evergreen Rd., Billerica, Mass., and Roy Trafton, 75 Birch Ridge Rd., Acton, Mass.

Filed Dec. 4, 1972, Ser. No. 311,697
Int. Cl. G10d *7/10*
U.S. Cl. 84—397 **10 Claims**



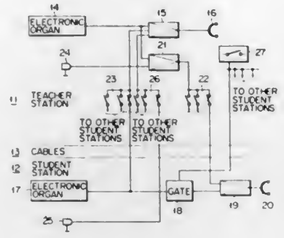
A water valve on a horn-type musical instrument attached to the outside of the instrument includes a tapered plug in a tapered sleeve alongside a hole in the instrument tube which permits water in the tube to escape out of the tapered sleeve when the plug uncovers the hole. The plug is controlled by a mechanical linkage which leads to a position on the instrument where the player normally holds the instrument with one hand permitting the player to manipulate the valve without moving his hand from the playing position on the instrument.

3,782,237

GROUP TRAINING SYSTEMS UTILIZING ELECTRONIC MUSICAL INSTRUMENTS

Eisaku Okamoto, Shizuoka, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Dec. 5, 1972, Ser. No. 312,266
Claims priority, application Japan, Dec. 28, 1971, 47/4342
Int. Cl. G09b *15/00*
U.S. Cl. 84—470 **7 Claims**



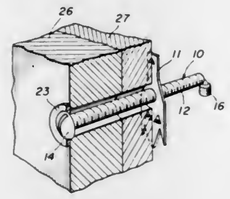
The group training system comprises a plurality of student stations and a teacher station. Each student station comprises an electronic musical instrument, a headphone connected to the electronic musical instrument through a gate circuit, and a microphone. The teacher station comprises an electronic musical instrument, a headphone connected to this electronic musical instrument, a switch for supplying disenabling signal to the gate circuits of all student stations, a microphone, and other switches for selectively supplying the outputs from the microphone and musical instrument of the teacher station to respective headphones of the student stations and the outputs from respective electronic musical instruments and microphones of the student stations to the headphone of the teacher station, whereby one to one training as well as simultaneous training of a group of students can be attained by interrupting the conduction between the musical instruments of the student stations and the headphones thereof through the operation of the disenabling switch.

3,782,238

SELF-DRILLING TOGGLE BOLT ASSEMBLY

Constantine D. Polos, 1955 Cheshire Ln., Wheaton, Ill.

Filed Mar. 2, 1972, Ser. No. 231,117
Int. Cl. F16b *35/04*
U.S. Cl. 85—3 R **4 Claims**



A self-drilling toggle bolt assembly comprises an elongated toggle head provided at one end with a cutting head used for drilling a hole through the surface on which the assembly is to be installed. The toggle head is equipped with a threaded hole intermediate its ends through which a bolt having a short threaded transverse member attached to its end is passed.

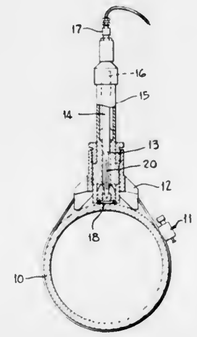
Supported by the transverse member, the toggle head can be swung from a position parallel to the bolt to one in which the toggle head is perpendicular to the bolt. In use, the toggle bolt assembly, with the toggle head parallel to the bolt, is passed through a hole previously drilled in the mounting surface using the toggle head as a bit. The toggle head is then manipulated to a perpendicular position, permitting the threads of the bolt to engage the threaded opening of the head, thereby permitting the entire assembly to be drawn up tightly.

3,782,239

PENETRATING ARRANGEMENT

Reyburn Wick, Southampton, and Bruce Travor, Holland, both of Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 4, 1972, Ser. No. 215,330
Int. Cl. F42b *33/00*
U.S. Cl. 86—1 A **2 Claims**



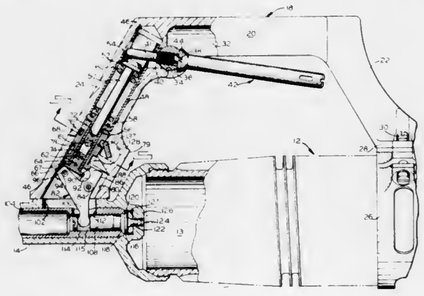
A metal penetrating arrangement in which a steel projectile containing a sample contents is penetrated by a propellant actuated steel needle provided with an electro-deposited indium plating or coating. The coating has a 0.0001 to 0.0002 inch thickness that surrounds the entire needle for penetration of the projectile wall without fusion therebetween.

3,782,240

FIRING MECHANISM FOR MORTARS

James T. Feldmaier, Latham, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 3, 1973, Ser. No. 320,798
Int. Cl. F41f *1/06*
U.S. Cl. 89—1 J **18 Claims**



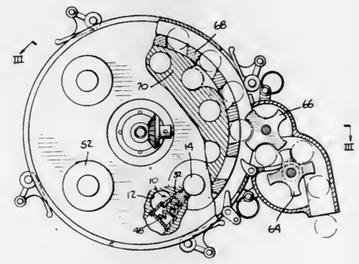
A firing mechanism for a hand-held mortar is located in the rear leg of a carrying handle secured to the exterior of the barrel in the vicinity of the firing chamber therein and comprises a trigger pivotally mounted in the handle so as to project from the upper end of the rear leg, a firing pin slidably disposed in the barrel for movement into and out of the firing chamber, and a connection between the trigger and firing pin for transferring movement of one to the other so that the position of the trigger serves as a visual indicator of the position of the firing pin in order to prevent unintended firing of a mortar round dropped into the muzzle end of the barrel. A manual selector serves to position and lock the firing pin in either a fixed firing or a safe retracted arrangement. In addition, the selector may be rotated to an inactive position which frees the firing pin to respond to the actuation of the trigger.

3,782,241

ZERO ULLAGE INJECTION VALVE

Eugene Ashley, Burlington, Vt., assignor to General Electric Company, Burlington, Vt.

Filed Oct. 28, 1971, Ser. No. 193,351
Int. Cl. F41j *1/04*
U.S. Cl. 89—7 **6 Claims**



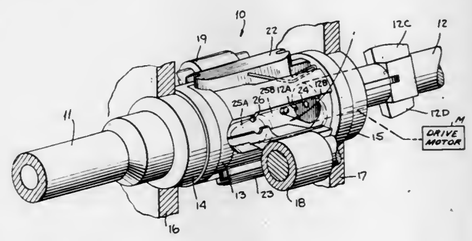
A valve has a conical passageway which is obturated by a conical spool. The spool is preloaded closed by spring means, and is operated by the hydraulic presence of the liquid flowing through the passageway.

3,782,242

WEAPON HAVING PARTIBLE FIRING CHAMBER

Robert H. Angell, 514 E. 88th St., New York City, N.Y.; Robert S. Frielich, 396 Broome St., New York City, N.Y., and James P. Angell, 1119 N. Jackson, River Forest, Ill.

Filed Feb. 9, 1972, Ser. No. 224,661
Int. Cl. F41d *7/02*
U.S. Cl. 89—11 **5 Claims**



A semi-automatic or automatic weapon provided with a split or partible firing chamber, adapted to be fed laterally with cartridges and operating in conjunction with a reciprocating bolt mechanism having an exceptionally short stroke, whereby the weapon may be fired at a high rate. The chamber is composed of a pair of complementary sections

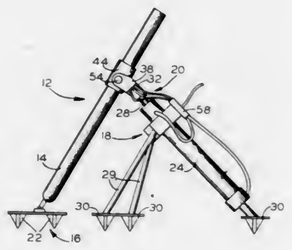
which in the course of each cycle of rotation or reciprocation, depending upon the nature of the weapon, are caused by associated cams to first separate to receive a laterally-fed incoming round, and thereafter to draw together to define a cavity enclosing the round, at which point the bolt mechanism acts to engage and fire the round in the chamber, the case then being extracted and ejected.

3,782,243

AUTOMATIC AZIMUTH RECOVERY SYSTEM FOR CANNONS

William H. Ziegler, Waterford, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 27, 1972, Ser. No. 266,802
Int. Cl. F41f *21/08*
U.S. Cl. 89—37 C **9 Claims**



The rear end of a mortar tube is supported by a base plate with the front end supported in an elevated position by a tripod. The tripod comprises a cylinder with a cooperating fluid actuated piston rod which carries a yoke that is pivotally connected to a sleeve slidingly disposed on the tube to vary the elevation angle thereof responsive to axial movement of the piston rod. The yoke is slidingly mounted to the piston rod for lateral displacement responsive to fluid pressure applied thereto. Rearward recoil displacement of the base plate relative to the tripod rotates the trunnions that pivotally mount the sleeve to the yoke. This angular movement of the trunnions is sensed by a fluidic system whereby the piston rod is actuated linearly to move the sleeve along the tube until the pre-adjusted elevation angle thereof is recovered. Any lateral movement of the base during the rearward recoil displacement rotates the piston rod about its central axis. A fluidic sensor on the cylinder senses the angular movement of the piston rod and through a fluidic system actuates the yoke laterally to where the pre-determined azimuth adjustment is quickly recovered simultaneously with the recovery of the pre-selected elevation angle.

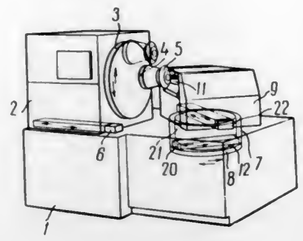
3,782,244

MACHINE FOR CUTTING STRAIGHT-TOOTH BEVEL GEARS

Gennady Vasilievich Levashov, N-Astrakhanskoe shosse, 37, kv. 76, Saratov; Sergei Nikiforovich Kalashnikov, 1 Kozhukhovsky proezd, 11 korpus "m" kv. 47; Ivan Ivanovich Glukhov, Rogozhinsky val, 13 korpus 8 kv. 40, both of Moscow, and Mikhail Pavlovich Shemyrev, Ilinsky proezd, 11, kv. 1, Saratov, all of U.S.S.R.

Filed Mar. 22, 1972, Ser. No. 237,080
Int. Cl. B23f *1/08*
U.S. Cl. 90—9 **6 Claims**

The machine is equally applicable both for rough and finish machining of the tooth space of a bevel gear being cut; it possesses an increased rigidity attainable due to the provision of a device for orienting the tool carriage with respect to the work



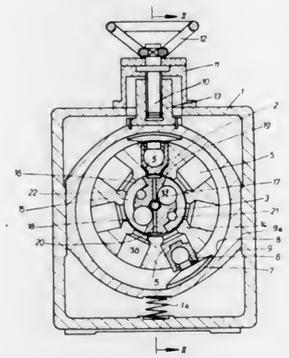
spindle, defined as straight slideways and another straight slideways square with the former one, to provide setup motions of the tool carriage.

3,782,245

PRESSURE BALANCED RADIAL PISTON MACHINE

Ulrich Aldinger, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 18, 1971, Ser. No. 172,706
Claims priority, application Germany, Aug. 20, 1970, P 20 41 328.9
Int. Cl. F01b *13/06*
U.S. Cl. 91—6.5 **4 Claims**



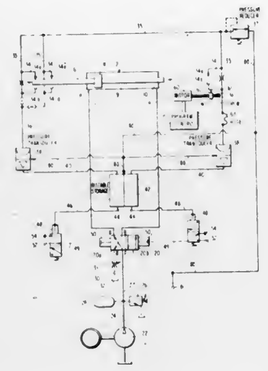
The inward pressure exerted by the cylinder rotor of a hydraulic radial piston machine on the stationary control member on which the rotor rotates, is compensated by balancing chambers on control portions between the high and low pressure ports of the control member. Fluid under high pressure is supplied from the high pressure port to the respective control portion on which the inward pressure of the cylinder of the piston in the inner radial dead center position acts. The conduit system of the control member includes check valves preventing communication between the high pressure port and the low pressure port.

3,782,246

HYDRAULICALLY OPERATED VIBRATION DRIVES

Jan Willem Hilbrands, Hattingen/Ruhr, Germany, assignor to Maschinenfabrik Koppern & Co. KG, Hattingen Ruhr, Germany

Continuation-in-part of Ser. No. 53,482, July 9, 1970, abandoned. This application July 6, 1972, Ser. No. 269,431
Claims priority, application Germany, July 11, 1969, P 19 35 253.5
Int. Cl. F01l *31/00*, *25/02*
U.S. Cl. 91—277 **22 Claims**



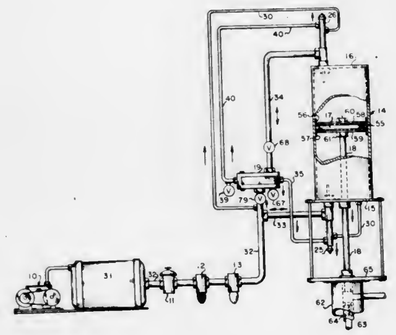
A vibratory drive comprises a double acting power piston arranged to be reversed by position detecting jet sensing means. The latter are connected with a reversing valve via bistable fluidics storage means.

3,782,247

PNEUMATIC COUNTER BALANCED OIL WELL PUMP ACTUATOR UTILIZING AN IMPROVED SNIFTER VALVE

Joseph H. Klaeger, 147 Stardream Dr., San Antonio, Tex.

Continuation-in-part of Ser. No. 125,560, March 18, 1971, abandoned. This application Dec. 20, 1971, Ser. No. 209,788
Int. Cl. F01l *25/06*; F01b *7/18*
U.S. Cl. 91—306 **9 Claims**



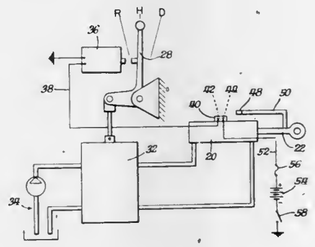
An oil well pump actuator utilizing a counter balance over pressure for lifting the sucker rods and fluid load. Reciprocation is accomplished by applying air or gas pressure to the top of the pumping cylinder overriding the counter balance pressure. The controls comprise a floating piston bleeder valve in conjunction with an improved snifter valve to replace a conventional button bleeder valve, the device also comprises a braking means in conjunction with the snifter valve constructed to arrest and cushion the pumping piston at each end of a cyclic stroke.

3,782,248

ELECTRONIC COMPONENT POSITIONER FOR LOADER VEHICLES AND THE LIKE

Joe E. Fuzzell, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 11, 1972, Ser. No. 287,604
Int. Cl. F15b *13/16*
U.S. Cl. 91—358 A **9 Claims**



A conventional hydraulic fluid pump is hydraulically coupled via a self-centering control valve means to a hydraulic cylinder having a reciprocatable cylinder rod coupled to a vehicle component. An electromagnet is disposed to latch the control valve means in a selected position when energized. Switch means is secured to the hydraulic cylinder, and means for actuating the switch means is secured to the cylinder rod for translation therewith. A logic circuit is connected to the switch means and to the electromagnet, whereby the electromagnet is energized in response to the degree of movement, and a first direction of movement, of the cylinder rod to latch the control valve means. The electromagnet is deenergized via the switch means and the means for actuating, when the cylinder rod reaches a preselected position proceeding from the opposite direction. This unlatches the control valve means which allows it to seek its self-centered position. Thus, fluid flow to the hydraulic cylinder ceases when the vehicle component reaches a preselected position.

3,782,249

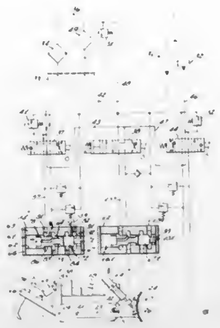
HYDRAULIC CONTROL SYSTEM WITH LOCKING VALVE TO PREVENT ACCIDENTAL OR UNAUTHORIZED LOWERING OF A TRACTOR IMPLEMENT

Gary A. Drone, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 307,055
Int. Cl. F15b *13/01*
U.S. Cl. 91—411 R **15 Claims**

A hydraulic control system for a tractor implement includes a locking valve which is interposed between the control valve and the lift motor. The locking valve prevents accidental or unauthorized lowering of the implement when the tractor en-

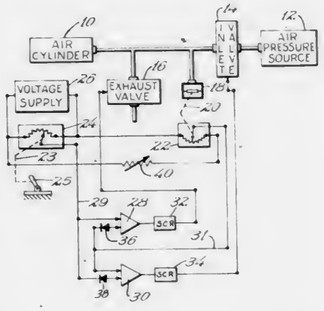
gine is not running. The control valve for the system may include a float position in which event the locking valve will include a spring for biasing it toward its open position so as to insure fluid communication between opposite sides of the hydraulic motor when the tractor is being operated with the implement control system in a float condition.



3,782,250
CONTROL SYSTEM

Robert F. Kiszewski, Superior, Wis., assignor to Microdot, Inc., Greenwich, Conn.

Filed Nov. 3, 1971, Ser. No. 195,113
Int. Cl. F15b *11/10, 13/04, 13/044*
U.S. Cl. 91—433 **2 Claims**



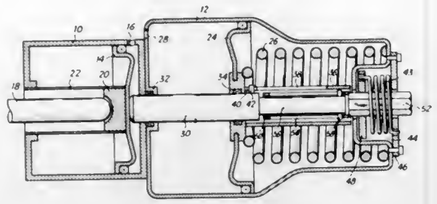
A control system for an air cylinder in which electronic links are used to control a cylinder from a remote location without the delay normally encountered with air transmission lines. Inlet and exhaust valves are electronically activated in response to a pressure measuring device on the air cylinder which produces a voltage signal which signal is compared to a voltage signal generated at the control location.

3,782,251
SPRING BRAKE WITH MANUAL RELEASE MECHANISM

Claude Le Marchand, Villiers-Le-Bel, France, assignor to Societe Anonyme D.B.A.

Filed Feb. 14, 1972, Ser. No. 226,134
Claims priority, application France, Mar. 2, 1971, 7107092
Int. Cl. F01b *7/00*
U.S. Cl. 92—63 **6 Claims**

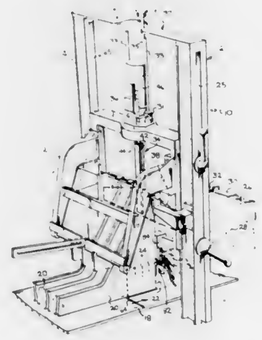
Spring brake actuator having a manual release mechanism. In this actuator, the push-rod is slidably received through an opening in the piston, the piston being connected to the push-rod by a bayonet type locking means in which members can be engaged with one another by rotating the push-rod in one direction. A telescopic connection arranged rearwardly of the piston includes a control member manually operable from the exterior of the actuator housing for rotating the push-rod in the other direction to thereby dissociate the push-rod from the piston and cancel the braking action of the actuator. The push-rod is rotationally urged in the locking direction by a spring for allowing the actuator to be automatically reset when its supply in fluid pressure is restored.



3,782,252
NOTCH SENSING CONTROL SYSTEM FOR A PARTITION ASSEMBLY MACHINE

Tadeusz Kozlowski, Toledo, Ohio, and Ernest H. Pemberton, Hoffman Estates, Ill., assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 153,955, June 17, 1971, Pat. No. 3,712,183. This application Sept. 26, 1972, Ser. No. 292,276
Int. Cl. B31d *3/04*; **B31b** *11/02*
U.S. Cl. 93—37 R **4 Claims**

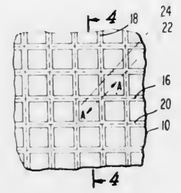


A fluid flow sensing control system to sense the presence of notches in a series of longitudinal partition strips and initiate the insertion of a cross strip into the notches in a continuous process to produce a cell-type filler for a carton. A stream of fluid under pressure is directed across a gap in a fluid flow interruption sensing head from a series of emitting orifices to a corresponding series of collecting orifices. One of a plurality of longitudinal partition strips is directed to pass through the gap in the sensing head, thereby disrupting the normal flow from the emitting to the collecting orifices. The passage of a notch in the longitudinal partition is sensed and the signal is processed by a fluid logic system, which in turn causes a transverse partition strip to be inserted by a feeding mechanism into the aligned notches in the longitudinal strips. It should be understood that longitudinal strips are in parallel with the sensed strip so that the transverse strip is inserted in all longitudinal strips at the same time. Also these sets of plural longitudinal strips are introduced in series into the insertion area. Provision is also made to automatically clear the collecting orifices of any buildup of corrugated material debris blown off of the longitudinal strips.

3,782,253
COLOR TELEVISION PICTURE TUBE SCREENING METHOD

Frans Van Hekken, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed May 2, 1973, Ser. No. 356,455
Int. Cl. G03b *27/00*
U.S. Cl. 95—1 R **14 Claims**

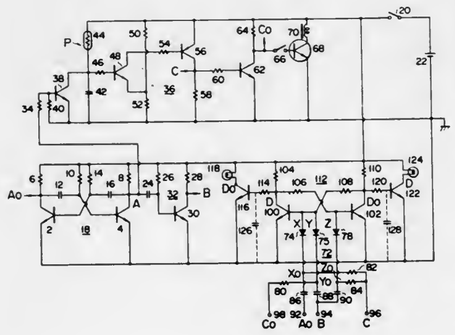


The discontinuities on a correction lens having an effective surface made up of a plurality of elements are masked. The masked lens is displaced in a linear direction diagonal to the directions of the discontinuities during exposure of a picture tube screen. The diagonal corners of the mask pattern can be filled in to provide uniform exposure over the screen.

3,782,254
APPARATUS FOR INDICATING EXPOSURE CONDITIONS OF CAMERAS EQUIPPED WITH ELECTRIC SHUTTER MECHANISMS

Soichiro Matsuzaki, and Isao Kondo, both of Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 29, 1972, Ser. No. 284,464
Claims priority, application Japan, Sept. 3, 1971, 46/68165; Sept. 3, 1971, 46/68166; Nov. 17, 1971, 46/92062; Apr. 4, 1972, 47/33744
Int. Cl. G03b *17/18, 9/62*
U.S. Cl. 95—10 CE **7 Claims**

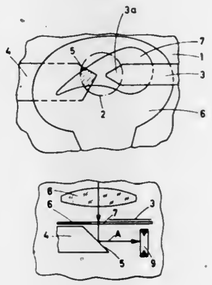


In apparatus for indicating exposure conditions of a photographic camera equipped with an automatic exposure control device for opening the shutter at a shutter speed corresponding to the quantity of light received from an object, there are provided first and second electric pulse generating circuits for producing first and second reference time pulses having pulse widths corresponding to the maximum and minimum shutter speeds respectively, comparator means to compare the pulse widths with the width of the output pulse from the automatic exposure control device, and indicating means responsive to the output from the comparator means to indicate adequate and inadequate exposure conditions.

3,782,255
PHOTOGRAPHIC APPARATUS WITH AUTOMATIC DIAPHRAGM ADJUSTING MEANS

Gerhard Boerner, Musberg, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Oct. 5, 1972, Ser. No. 295,365
Claims priority, application Germany, Oct. 8, 1971, P 21 50 185.9
Int. Cl. G01j *1/04, 1/16*; **G03b** *9/02*
U.S. Cl. 95—10 C **32 Claims**



The diaphragm of a camera is adjustable by a light meter which is in circuit with a photoelectric transducer receiving scene light from a stationary vane of the diaphragm. The diaphragm has a movable vane which is located in front of the stationary vane. The stationary vane has a surface which reflects some light from the incoming beam of scene light, and the reflected light impinges upon the transducer which can be mounted on a support for the stationary and/or movable vane or is attached directly to the stationary vane. The area of the light reflecting surface or the reflectivity of such surface varies with changes in the aperture size so that the ratio of the amount of scene light which is reflected against the transducer to the amount of scene light which passes through the aperture is constant for all positions of the movable vane. The same result can be obtained if the stationary vane embodies a filter or an auxiliary diaphragm whose light transmissivity or shape varies with changes in the aperture size to insure that the ratio of the amount of light reaching the transducer to the amount of light which passes through the aperture remains constant for all positions of the movable vane.

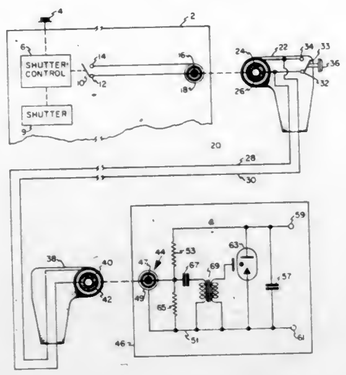
3,782,256
PUSH BUTTON CONNECTOR CONNECTING CABLE WITH INTEGRAL PUSH BUTTON SWITCH

Peter T. Quinn, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

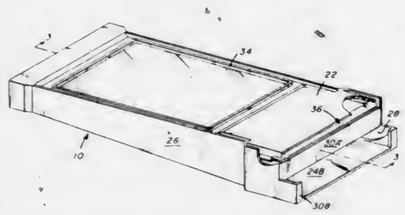
Filed Nov. 20, 1972, Ser. No. 308,154
Int. Cl. G03b *9/70, 15/05*
U.S. Cl. 95—11.5 R **6 Claims**

A photographic camera is connected to a remotely located electronic flash unit by a connecting device which includes first and second end connector assemblies. A selectively operable switch forms a part of at least one of the end connector assemblies thereby allowing the testing of the remotely

located flash unit from the camera location without actuating the shutter of the camera. One embodiment of an end connector assembly includes a diode in series with the selectively operable switch for use with a camera which includes a light sensing circuit of a computer-flash system.



3,782,257
CARTRIDGE FOR FILM UNITS
Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 5, 1972, Ser. No. 268,933
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **10 Claims**

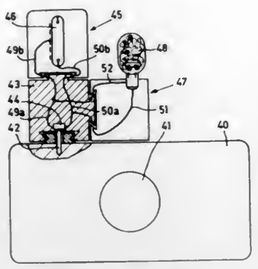


A cartridge for a plurality of photographic film units of the self-processing type wherein the film units each include an image-recording unit releasably coupled at the leading end to a leading member which comprises elements that can be separated from the finished photographic print and constitute waste that must be disposed of. The cartridge comprises a substantially rectangular container having an exposure aperture in one surface. The cartridge is provided with a trailing and a leading end, the leading end being provided with a film unit dispensing slot for the removal of an exposed image-recording unit from the cartridge. The lower portion of the leading end of the cartridge extends beyond the portion containing the dispensing slot and is arranged to accept and retain the leading member as it is separated from the image-recording unit.

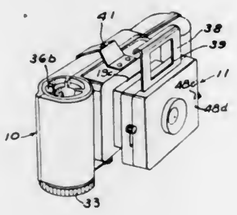
3,782,258
IGNITION ARRANGEMENT FOR A DISCHARGE TUBE
Anton Boekkooi; Meerten Luursema, and Taeke Tol, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 3, 1971, Ser. No. 204,461
Int. Cl. G03b *15/03*
U.S. Cl. 95—11.5 R **4 Claims**

The invention relates to an arrangement for igniting a discharge tube provided with an external ignition electrode.

According to the invention this discharge tube is ignited with the aid of a mechanically operable piezo-electric element. The invention leads to a simple ignition circuit. In addition, the use of the invention in the field of flashing equipment in photocameras has the advantage that exchangeability is possible so that different kinds of flash lamps can be flashed on one and the same camera.



3,782,259
CAMERA
Samuel Noble, 2608 Watonga, Union Lake, Mich.
Continuation-in-part of Ser. No. 801,513, Feb. 24, 1969, abandoned. This application Dec. 10, 1971, Ser. No. 206,032
Int. Cl. G03b *17/04*, *19/04*
U.S. Cl. 95—31 R **44 Claims**

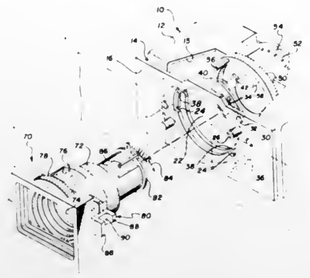


A factory-loaded film magazine and a camera is supported on the intermediate portion of the magazine between the supply chamber and take-up chamber for the film. The magazine when fitted to the camera forms a light tight enclosure. A winding knob is pivoted to the camera body and may be moved from a retracted to an extended position.

3,782,260
PHOTOGRAPHIC CAMERA WITH INTERCHANGEABLE LENSES AND BAYONET LOCK
Helmut Ettischer; Dietmar Blattner, both of Schwaikheim, and Wolfgang Ort, Stuttgart-Wangen, all of Germany, assignors to Eastman Kodak Company, Rochester, N.Y.
Filed July 14, 1972, Ser. No. 271,846
Int. Cl. G03b *7/14*
U.S. Cl. 95—45 **13 Claims**

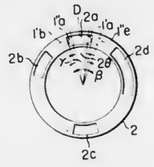
A mechanism for mounting interchangeable lens units on photographic apparatus includes a coupling member movable

under urging of an adjusting ring to unlock a spring loaded bayonet lock and thereby permit insertion of a lens unit.



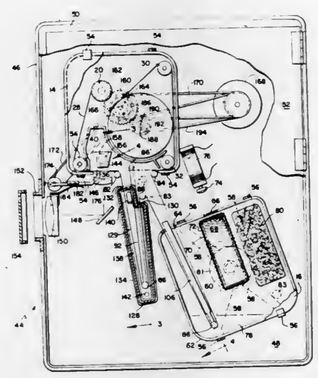
Means may also be provided for transmitting movement of the adjusting ring to an adjustable diaphragm associated with the lens unit.

3,782,261
DATA TRANSMISSION DEVICE FOR USE WITH INTERCHANGEABLE-LENS-CAMERAS
Kunihiko Araki, Yokohama, Japan, assignor to Ricoh Co. Ltd.,, Tokyo, Japan
Filed Apr. 11, 1972, Ser. No. 243,033
Claims priority, application Japan, Apr. 16, 1971, 46-23873
Int. Cl. G03b *3/00*
U.S. Cl. 95—45 **7 Claims**



A device for exchanging information, such as exposure data, between a camera body and an interchangeable lens mounted thereon. The device provides accurate data exchange even when the machining tolerances of the camera mount and the lens mount are eased. The device includes an annular surface on the camera mount which has a uniform circular array of data transmission elements. Each of the data transmission elements is biased towards a projected position in which it sticks out of the camera mount annular surface, but can be pushed into a retracted position. The lens mount has a corresponding annular surface which is provided with one or more arcuate grooves adapted to receive loosely selected data transmission elements when the lens is mounted in its final position on the camera. Thus, when the lens is mounted on the camera, selected data transmission elements are received in the groove or grooves and thus remain in their projected position, while other data transmission elements are pushed into their retracted position by the annular surface of the lens mount. The data transmitted between the camera and the lens is determined by the particular combination of retracted and projected data elements when a lens is mounted on the camera. Because of the digital nature of the data exchange, the machining tolerances of the camera mount and the lens mount may be eased, since each of the circumferential edges of the grooves in the lens can be anywhere between particular data transmission elements when the lens is in its final position on the camera, so long as it does not overlap the outline of an element which must remain in its projected position. With eased machining tolerances, the cost of producing cameras with interchangeable lenses can be reduced substantially without sacrificing quality.

3,782,262
MOTION PICTURE PROCESSING AND PROJECTION SYSTEM EMPLOYING MULTI-PURPOSE CASSETTE
Roger B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Division of Ser. No. 761,771, Sept. 23, 1968, Pat. No. 3,597,062. This application Oct. 23, 1970, Ser. No. 83,593
Int. Cl. G03d *3/08*
U.S. Cl. 95—89 R **3 Claims**

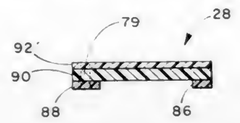


A motion picture system utilizing a cassette having two releasably connected sections. In one section respective ends of a strip of film are permanently attached to reels for reversible transport across a film gate, while the other section contains development fluid. Initially, when the two sections are connected together, the cassette is adapted to be positioned in a camera for exposure purposes. Subsequently, the two sections are separated and mounted independently in a unique projector in which the film is sequentially and simultaneously developed, by passing a loop thereof drawn from the film gate of the first section through the developing fluid contained in the second section, dried and projected through an appropriate optical system. Specially devised features are employed in the projector to release the development fluid from a sealed container into a reservoir section of the developing section of the cassette, to draw the loop of film from the film gate of the first section and insert the loop into the reservoir of development fluid, to dry the developed film and to subsequently retain the development fluid in a safe manner.

3,782,263
PHOTOGRAPHIC SYSTEM EMPLOYING FILM MARGIN RAILS
Edwin H. Land, Cambridge, and Lucretia Weed, Boston, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Jan. 3, 1972, Ser. No. 214,918
Int. Cl. G03d *3/00*
U.S. Cl. 95—89 R **24 Claims**

Photographic system having a processor adapted to apply a thin layer of processing fluid on an exposed strip of motion picture film as it is progressively drawn thereacross and a spool member for convolutely storing the film strip substan-

tially immediately following application of the fluid thereon, employs protuberances located along both lateral margins of the film strip for spacing adjoining turns of the latter when it is convolutely stored on the spool member so as to prevent



disturbance of the not yet fully dried fluid layer. Additionally, the protuberance of either or both margins may be a continuous, elongated rail configured for magnetically recording sound information. Preferably, the margin rail would include a thin surface coating for the latter purpose.

3,782,264

PHOTOGRAPHIC DEVELOPER APPARATUS

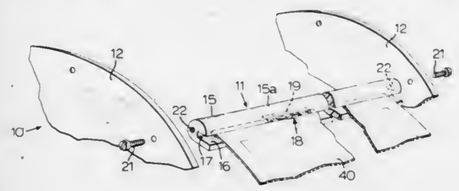
Raymond Joseph Masygan, Burlington, Ontario, Canada, assignor to Alex Clark Limited, Toronto, Ontario, Canada

Continuation of Ser. No. 80,836, Oct. 15, 1970, abandoned. This application Sept. 25, 1972, Ser. No. 292,094

Claims priority, application Great Britain, Oct. 22, 1969, 51809/69; Jan. 27, 1970, 4008/70

Int. Cl. G03d *3/08*

U.S. Cl. 95—93 **6 Claims**



A method and apparatus for processing photographic sheet material, in which the edge of the sheet is attached to a rod having an aerofoil cross-section. Upon passing the rod through processing liquid the liquid flows over the leading edge of the rod and produces turbulence on the face of the sheet which is lying in the plane of the aerofoil. In a reel comprising spaced rods the sheets may overlap and the turbulence will keep them separated. Sheet film may be attached at opposed edges to such rods placed back-to-back. Inner and outer concentric reels may be used, and such reels may carry roll film. A trough for use with developer reels has a longitudinal slot for rapid drainage. In another embodiment a closed tank having an air inlet and a longitudinal air outlet slot controls ambient conditions. In a further embodiment a pair of slotted end discs carry photographic sheet material without supporting rods.

3,782,265

ASSEMBLY FOR SEPARATING A DUST-FREE PART FROM A SPACE, AND METHOD FOR DISINFECTING THE SAME

Jacob Pielkenrood; Piet Van Galen, both of Krommenie, and Johannes G. Th. Van Nes, Heerhugowaard, all of Netherlands, assignors to Pielkenrood-Vinitex B.V., Assendelft, Netherlands

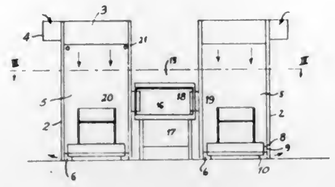
Filed May 5, 1971, Ser. No. 140,549

Claims priority, application Netherlands, May 6, 1970, 7006660

Int. Cl. F24f *13/00*

U.S. Cl. 98—33 **7 Claims**

An assembly of tent-like units for isolating patients, each unit comprising four columns supporting an air supply chamber and pliable side walls, the air supply chamber being designed for producing a uniform downward air flow in the unit in question for keeping out dust at the lower side of the pliable side walls. Such units may be coupled with one another at corresponding side walls or with auxiliary devices for transferring objects to and from such units. The inner space of such an assembly may be disinfected unit by unit by closing the connection between the unit to be disinfected and an adjacent unit so that a patient should not be removed from the assembly during disinfection.



3,782,266

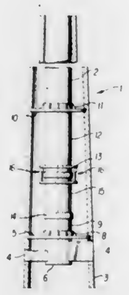
APPARATUS FOR PROVIDING EXPANSIBLE CHIMNEYS

Randolph W. Snook, Yorktown Heights, N.Y., assignor to Pullman, Incorporated, Chicago, Ill.

Filed Apr. 7, 1972, Ser. No. 241,952

Int. Cl. E04h *12/28*

U.S. Cl. 98—58 **12 Claims**



A lined chimney having upper and lower support means for the liner, and at least two expansion joints separated by toggle sections between the upper and lower liner supports, at least one expansion joint having plural expansible or compressible hangers on the exterior thereof, and a method for providing the same.

3,782,267

APPARATUS FOR PRESSURE COOKING FOOD

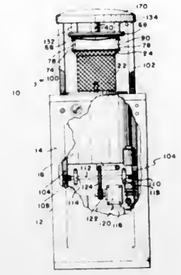
George A. Moore, 843 N. Dellrose, Wichita, Kans.

Division of Ser. No. 608,168, Jan. 9, 1967. This application Feb. 2, 1971, Ser. No. 111,936

Int. Cl. A47j *37/12*

U.S. Cl. 99—410 **22 Claims**

Deep-fat pressure cooker apparatus including a power driven cover that coacts with the cooking vessel in the manner of a piston and a cylinder to enable both the closure of the vessel and also the compression of the contents of the vessel to pressurize the latter. The apparatus also includes a food basket that is releasably coupled to depend from the cover,



and which basket, if previously positioned in the vessel, is automatically coupled to the cover on the subsequent lowering of the latter.

3,782,268

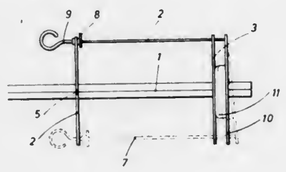
ROTARY ROASTING DEVICE

Jorge Roca Navarro, Lauria St. 123, Barcelona, Spain

Filed Sept. 25, 1972, Ser. No. 291,557

Int. Cl. A47j *37/04*

U.S. Cl. 99—421 P **2 Claims**



An improved rotary roasting device for mounting at least one spit, comprising a square section axle, and three substantially parallel plates mounted on said axle, two at one extremity and the third at the other, the first plate being held elastically in parallel against the second plate, the second plate having orifices for receiving the extremity of the spit, and the third plate having square windows with slots opening to the periphery of the plate, and the spit having a handle portion at one end and a triangular enlargement with a backing stop adjacent the handle portion, the triangular enlargement being positionable in said square window.

3,782,269

OMELET PREPARING MACHINE AND PROCESS

S. Duane Latham; Robert D. Seeley, both of Crestwood; Henry F. Reitz, and Ronald F. Reitz, both of St. Louis, all of Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

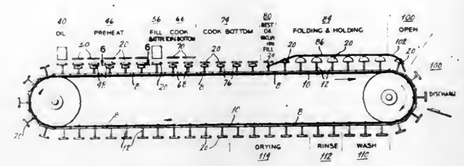
Division of Ser. No. 79,922, Oct. 12, 1970. This application Sept. 8, 1972, Ser. No. 287,524

Int. Cl. A47j *37/10, 43/18*; **A23p** *1/00*

U.S. Cl. 99—427 **16 Claims**

The invention comprises a machine and process for producing a folded egg omelet using an egg batter mixture. The mixture is deposited into a preheated omelet cooking pan which has hinged sides which are folded upwardly together after partial cooking of the omelet.

The omelet batter is deposited into the preheated foldable pan and is heated from the top and from the bottom. After direct heating is terminated, flavoring ingredients or inclusions are deposited onto the partially cooked omelet and CO_2 and steam are allowed to escape before the pan is closed. The omelet while folded continues to cook from the residual heat in the omelet cooking pan.



3,782,270

APPARATUS FOR MAKING FOOD UNITS

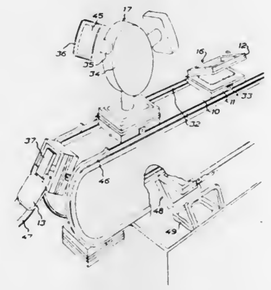
Soren Elof Mauritz Sollerud, Norrkoping, Sweden, assignor to Maskin AB Solco, Norrkoping, Sweden

Filed Nov. 1, 1971, Ser. No. 194,470

Claims priority, application Sweden, Nov. 2, 1970, 14744/70

Int. Cl. A21c *15/02*

U.S. Cl. 99—450.4 **7 Claims**



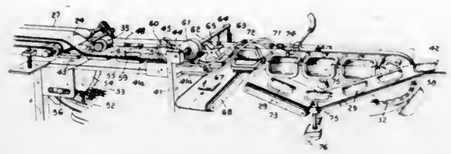
Food units consisting of two slices of bread and a filling interleaved with them are prepared by slicing fresh bread and conveying the slices to means in which the desired filling is placed on one slice, whereupon another slice is placed on top of the filling on the first slice. The conveying means includes successive pairs of frames each accomodating one slice of bread, and one frame in each pair of frames is approximately horizontally oriented while the other frame is pivotally connected to the first frame and adapted to be raised ahead of the filling means to permit the filling to be spread over the horizontal slice, leaving adjacent the edges thereof a zone free of filling, whereafter the frames are swung together and pressure is exerted against the marginal zones of the slices to bond them together with the aid of their starch content.

The food units are made ready for consumption by being heated for a short time in a conventional toaster.

3,782,271
AUTOMATIC PIE APPARATUS

Hubert E. Tobey, Milltown; John W. Hood, East Brunswick, and Dee L. Irvin, Moonachie, all of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 27, 1972, Ser. No. 248,319
Int. Cl. A21c 9/06, 9/08, 11/00
U.S. Cl. 99—450.6 11 Claims

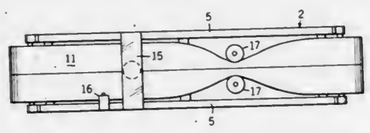


An automatic pie forming apparatus for individual fruit pies which are produced in a continuous in-line system. The apparatus includes an arrangement for providing a continuous strip of dough to a number of individual pie molds moving in a continuous loop. The strip of dough is fed into the molds to be filled, formed, trimmed, and a pie is dispensed automatically and positioned to be delivered to the cooking facility. The apparatus automatically provides the forming, trimming, and dispensing of the individual filled pies.

3,782,272
FOOD HANDLING EQUIPMENT AND METHOD OF USE

Ernest A. Cooper, Poway, Calif., assignor to Toolmakers, Inc., San Diego, Calif.

Filed May 19, 1971, Ser. No. 144,742
Int. Cl. A21c 9/06, 11/00
U.S. Cl. 99—450.7 2 Claims



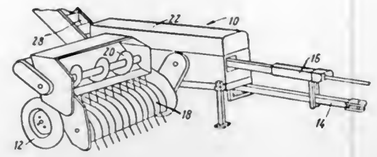
The method and apparatus for continuously and automatically metering or dispensing a material to be utilized in the preparation of a food product is disclosed. More particularly this relates to a method and apparatus for automatically handling food products which may be effectively utilized in automatically producing a taco food product. The method consists of conveying tortillas past a metering position wherein a predetermined quantity of meat material is deposited on the tortilla, and thereafter the tortilla is conveyed between a pair of opposed rollers for folding and enclosing the tortilla about the meat filler to form the taco food product.

The apparatus which may be utilized for effecting the metering or dispensing of materials in this manner consists of a valve member having a metering chamber therein, the valve member being movable between a supply position and a discharge position. The movement of the valve and the discharge of the material from the metering chamber is effected in response to an applied force or a signal indicating the presence of a receiving member beneath the metering valve.

3,782,273
APPARATUS FOR COMPACTING FODDER OR THE LIKE

Gerhard Romer, Nillbergstr. 13, Einod, Germany

Division of Ser. No. 769,143, Oct. 21, 1968, Pat. No. 3,673,951. This application Sept. 3, 1971, Ser. No. 177,572
Int. Cl. B30b 11/00
U.S. Cl. 100—50 57 Claims

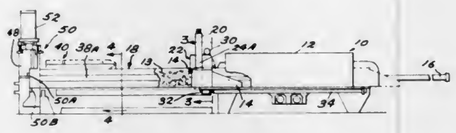


Fodder is converted into shape-retaining blocks or cakes by an apparatus which collects fodder off the ground and subjects it to a preliminary compacting action, thereupon to a twisting action which results in the formation of ropes of convoluted material, and to final compacting action resulting in conversion of ropes into blocks or cakes of firmly compacted material. The twisting and final compacting actions can be carried out sequentially or simultaneously.

3,782,274
APPARATUS FOR CONTINUOUSLY PRODUCING BLOCKS FROM SCRAP METAL

Wallace M. Thompson, R.F.D. No. 3, Cordele, Ga.

Filed Mar. 17, 1972, Ser. No. 235,719
Int. Cl. B30b 15/08
U.S. Cl. 100—95 12 Claims



An apparatus for continuously producing blocks from scrap metal including a compression box which squeezes scrap metal loaded therein into an elongated charge and which includes a ram means for pushing this charge into an axially aligned feeding section. In the feeding section, a plate slidably mounted upon a carriage is vertically lowered behind the rear end of the charge and the charge is driven out the discharge end of the feeding section into the path of a reciprocating shearing blade by a second ram which engages the carriage. The compression box may be reloaded while the feeding and shearing operations take place whereby a continuous process is possible.

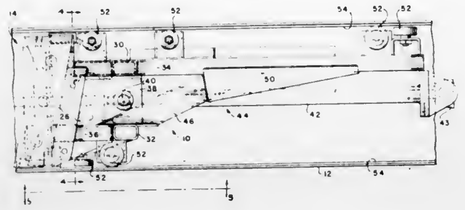
3,782,275
LIGHT WEIGHT PLUNGER FOR A HAY BALER

Neil W. Webster, Pottstown, and Donald L. Sheesley, New Holland, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed May 15, 1972, Ser. No. 253,403
Int. Cl. B30b 9/00
U.S. Cl. 100—98 R 9 Claims

The present invention relates to a light weight plunger of the type reciprocably mounted in a bale case of a hay baler and driven fore-and-aft therein to compact crop material being

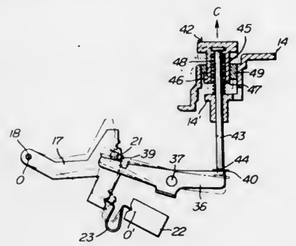
received within said bale case into rectangular bales. In particularly, the present plunger construction comprises a tubular subframe assembly mounted behind a head construction, the tubular subframe assembly being particularly adapted to receive one end of a connecting rod that is driven fore-and-aft within the bale case by a crank type drive provided with the baler. The tubular subframe structure comprises a pair of vertically spaced transversely extending tubular members secured to the backside of said head construction and joined at one end with a pair of vertically spaced fore-and-aft extending tubular members, the fore-and-aft tubular members being disposed on the same side of the plunger as a knife structure that acts to cut crop material being fed into the bale case as the plunger moves by the crop inlet area on the compression stroke. Also, the pair of fore-and-aft extending tubular members form an integral part of a single guide rail assembly that projects rearwardly from the plunger head construction and particularly includes roller means confined within a track structure such that during the reciprocable movement of the plunger with the bale case, the guide rail assembly provides a stabilizing influence on the entire plunger construction.



3,782,276
CARRIAGE LOCKING ARRANGEMENT FOR A MANUAL PRINTER

Tetsuo Nakada, Kanagawa-ken, and Noboru Oyama, Tokyo, both of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed May 26, 1972, Ser. No. 257,329
Claims priority, application Japan, May 28, 1971, 46/43310; June 2, 1971, 46/45281
Int. Cl. B41l 47/56
U.S. Cl. 101—56 9 Claims

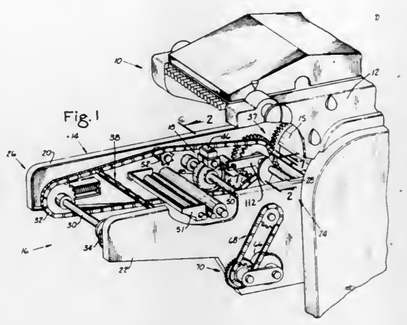


An arrangement for locking the carriage of a manual printer in an initial position after a printing stroke and a return stroke so that the operator cannot repeat the printing stroke without first releasing the carriage by operation of a release button. In this manner, the operator is reminded to reset a series of type wheels over which the platten roller of the released carriage passes during the following printing stroke. If repeated printing in unchanged position of the type wheels is desired, the release button is turned and mechanically held in a position in which the carriage is not locked in the initial position so that printing strokes can be repeated until the release button is returned to its normal position.

3,782,277
OFFSET PRESS NUMBERING ASSEMBLY

Maurice M. Neal, 1922 22nd St., Des Moines, Iowa

Filed June 21, 1972, Ser. No. 264,917
Int. Cl. B41l 45/00
U.S. Cl. 101—76 7 Claims

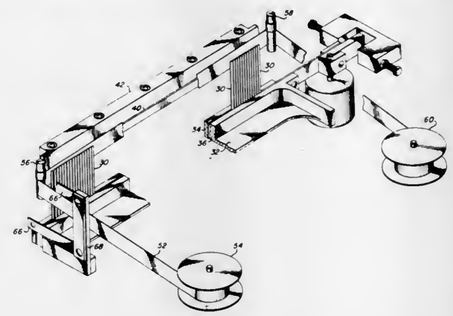


A serial numbering machine assembly is incorporated with a conventional offset printing press for the printing of numbers on checks, invoices, statements and similar forms where numbering is desired. Adjustments are provided to print at different selected places on the form, to render the number machine inoperative if desired, and, when the offset press is in operation, to render the number machine inoperative if no printed material is released from the press.

3,782,278
IMPACT LINE PRINTER

David L. Barnett; Stanley E. Rose, and Robert S. Zurcher, all of Phoenix, Ariz., assignors to Tally Corporation, Kent, Wash.

Filed Dec. 11, 1970, Ser. No. 97,166
Int. Cl. B41j 5/08
U.S. Cl. 101—93 C 11 Claims



A plurality of hammers are aligned laterally across a flexible sheet and are mounted on a support that is horizontally stepped a discrete number of step positions. A plurality of electromagnets, each associated with a single hammer, are mounted in a fixed position and are energized to cause the hammer to impact the flexible sheet. As the hammers are

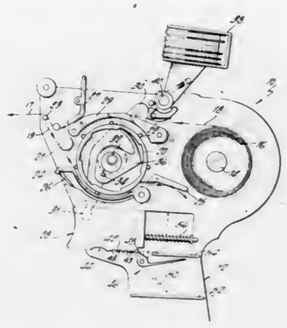
stepped back and forth, and as selected electromagnets are energized, the paper is stepped or advanced to result in a character being impact-printed on the sheet. Each character comprises a plurality of dots or marks arranged in a matrix.

3,782,279

POSITIVE REGISTRATION LABELING GUN

Victor B. Carboni, Jr., San Mateo, and Paul Harrison, Santa Barbara, both of Calif., assignors to Consolidated Foods Corporation, Chicago, Ill.

Continuation of Ser. No. 246,894, April 24, 1972, abandoned.
This application Feb. 14, 1973, Ser. No. 332,351
Int. Cl. B41f *3/18, 19/00, 1/08*
U.S. Cl. 101—288 **10 Claims**



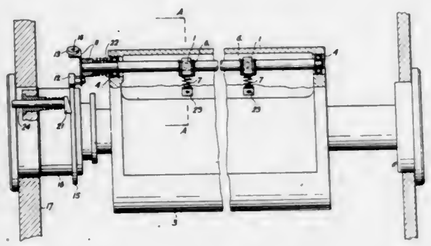
A labeling device of the type having a housing, tape, and a stamp to imprint the tape. Means for unidirectionally advancing the tape are provided as well as means for activating the advancing means. The activating means prevents the advancing means from being reactivated until the advancing means has been advanced a selected distance.

3,782,280

SENSING MECHANISM FOR IMPRESSION CYLINDERS

Josef Jurny, Sebranice, and Vaclav Sedlak, Jedovnice, both of Czechoslovakia, assignors to Adamovske Strojurny, narodni podnik, Adamov, Czechoslovakia

Filed May 17, 1972, Ser. No. 254,051
Claims priority, application Czechoslovakia, May 20, 1971, 3667/71
Int. Cl. B41f *13/24*
U.S. Cl. 101—232 **5 Claims**



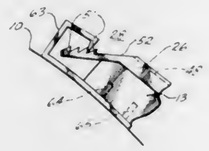
An impression cylinder of a printing press is provided with a rotatable shaft journalled parallel to its axis. The shaft has at least two feelers mounted thereon which are resiliently urged upward out of the cylinder, so as to contact the sheet fed to the cylinder. The shaft and the feelers are provided with cooperating abutment means which cause the feelers to rotate the shaft in one direction. The shaft is provided with lever means at one of its exterior ends which cooperate with the tripping-off control means. The shaft is provided with spring means which rotates the shaft counter to the action of the feeler spring. The feeler spring has a force greater than that of the shaft spring so that in the absence of the effect of a paper sheet, the shaft is rotated to cause the lever means to activate the tripping-off mechanism but to be ineffective when a sheet is properly aligned on the cylinder and properly sensed.

3,782,281

SELF-TENSIONING FLEXIBLE PRINTING PLATE

John C. Darnall, Jr., Van Nuys, Calif., assignor to The Time Mirrow Company, Los Angeles, Calif.

Filed Feb. 2, 1971, Ser. No. 111,884
Int. Cl. B41f *27/06, 27/12*
U.S. Cl. 101—415.1 **9 Claims**



A flexible printing plate is disposed on the surface of a rotating printing cylinder. The leading edge of the printing plate is secured to the printing cylinder so the leading edge is fixed in the direction toward the trailing edge of the printing plate by the engagement between a transversely elongated claw and a transversely elongated hook. The trailing edge of the printing plate is secured to the printing cylinder by a ratchet arrangement so the trailing edge is fixed in the direction toward the leading edge and is movable in the direction away from the leading edge by the engagement between one of a plurality of transversely elongated parallel serrations and a transversely elongated hook. As a rotating blanket cylinder disposed adjacent to the printing cylinder presses against the printing cylinder, the printing plate is tensioned. The hooks are set in from the printing surface of the plate and the portions of the plate between the printing surface and the leading and trailing edges are permanently deformed to angle inwardly toward the hooks. The claw and its hook are keyed to insure transverse registration. The serrations and the claw are parallel to insure circumferential registration.

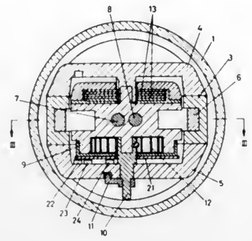
3,782,282

ARMING DEVICE FOR A SUBMERSIBLE EXPLOSIVE WEAPON

Jan Bjork, Malmo, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Mar. 22, 1972, Ser. No. 237,026
Claims priority, application Sweden, Mar. 31, 1971, 4165/71
Int. Cl. F42b *15/10*
U.S. Cl. 102—16 **5 Claims**

An underwater arming device responsive to water pressure comprises a rotating body including a printed circuit for electrically actuating a detonator after a predetermined degree of rotation. A latch prevents rotation until water pressure exceeds a predetermined value. Rotation speed is controlled by a set of discs engaging a viscous medium.



3,782,283

DEFINED DISINTEGRATION OF THE CASING OF AN EXPLOSIVE ELEMENT

Paul Lingens, Leverkusen, and Gerhard Martin, Troisdorf, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed Aug. 5, 1971, Ser. No. 169,272
Claims priority, application Germany, Aug. 6, 1970, P 20 39 131.5
Int. Cl. F42d *1/00, 1/04*
U.S. Cl. 102—23 **29 Claims**



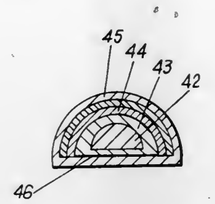
An explosive device and processing for causing, upon detonation, the defined disintegration of the casing of the explosive device. This result can be achieved directly by providing cavities in the explosive charge of the device which conduct the high velocity gas flow generated during the reaction of the explosive to predetermined points along the casing. Preferably the explosive charge has a central bore which connects radially extending gaps. Alternatively, a defined disintegration can be obtained indirectly by including cavities in the explosive charge of the device which are subdivided into chambers by either explosive or inert materials. Finally, a fuze trail of explosive wires can be incorporated into the explosive charge to yield the same effect. Moreover, the explosive charge can be employed as a primer charge and disposed inside a main charge which, in turn, is enclosed by a casing.

3,782,284

AIRCREW ESCAPE SYSTEMS

Robert David Gibb, Hessle; Donald Rowand Smith, Kirk Ella; Geoffrey Charles Wickenden, Hull; Graham Norman Galton, Kingston-upon-Thames, and Dennis Robert Shepherd, Bromley, all of England, assignors to Hawker Siddeley Aviation Limited, Surrey and Secretary of State for Defence of Great Britain, London, both of England

Filed Feb. 18, 1972, Ser. No. 227,433
Claims priority, application Great Britain, Feb. 19, 1971, 5,021/71
Int. Cl. C06c *5/04*
U.S. Cl. 102—27 R **7 Claims**



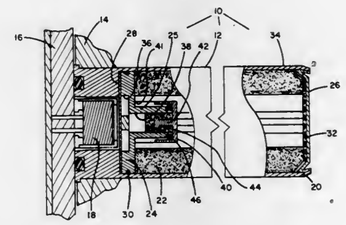
A detonating cord is provided, for causing fracture and break-up of an aircraft cockpit canopy for the purpose of emergency escape, consisting of an explosive core contained in a lead casing and surrounded by a plastic sheath, the cord being of substantially semi-circular or D-shaped cross-section. The semi-circular surface, but not the flat face, of the casing has several layers of lead tape applied to it within the plastic sheath which lead tape acts as blast-containing and reflecting material to direct the blast effect of the detonation preferentially through the flat-face.

3,782,285

FLARE CARTRIDGE

Warren P. Froehner, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 14, 1972, Ser. No. 289,201
Int. Cl. C06d *1/00*
U.S. Cl. 102—32 **2 Claims**

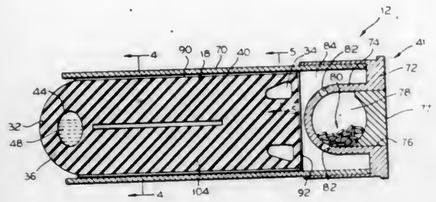


A simplified bore safe cartridge flare comprising a cartridge case configured for muzzle loading which may be easily manufactured by modern production methods allowing greater tolerance of dimensions with increased safety and reliability.

3,782,286
NON-LETHAL PROJECTILE AND LAUNCHER THEREFOR

Kenneth W. Jones, 205 Railroad, Clarendon Hills, Ill., and Edward H. Richie, 4327 Elm St., Downers Grove, Ill.

Division of Ser. No. 88,687, Nov. 12, 1970, Pat. No. 3,733,727.
This application Nov. 20, 1972, Ser. No. 308,010
Int. Cl. F42b 5/14, 5/22
U.S. Cl. 102—41 6 Claims

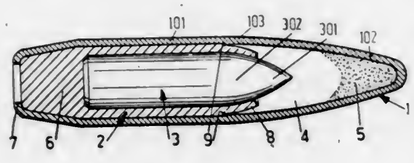


A non-lethal projector and launcher therefor for riot control and the like comprising a body formed from a relatively soft, pliant latex material compressed to projectile form and mounted within a restraining cup which in turn is mounted in a firing shell. The body at its rearward end includes retracted guidance structure that extends on the projectile being fired, a chamber at its forward end to receive a marking fluid for marking the target, and internal subdivisions in its mid portion designed to permit the body to expand laterally on impacting into a soft textured mass that flattens on impact to avoid injury to the target. The projectile launcher is in the form of a barrel assembly including a bell shaped muzzle which permits the projectile to be fired without jamming even when held against the target and braking slots for discharging the propelling gases rearwardly of the launcher to reduce recoil.

3,782,287
ARMOR PIERCING BULLET

Liep Swan Sie, Brandaris, Netherlands, assignor to Staatsbedrijf Artillerie Inrichtingen, Hembrug-Zaandam, Netherlands

Filed Oct. 26, 1971, Ser. No. 192,001
Claims priority, application Netherlands, Oct. 28, 1970, 7015837
Int. Cl. F42b 11/14, 13/04
U.S. Cl. 102—52 2 Claims



An armor piercing bullet is made by first forcing a hard metal core into a sleeve-shaped filler and embedding the core therein. Thereafter the filler and the core are forced, as one unit, into a soft metal bullet jacket. In this way a very good centering of the core within the bullet is obtained, which is necessary for stabilising the bullet in its trajectory. Furthermore, the forces exerted on a quantity of incendiary material which may be located in the jacket's tip are limited in this way so that the risk of spontaneous combustion of this material is decreased.

3,782,288
REMOVABLE FIRING PIN ASSEMBLY MUNITION

Aaron S. Berlin, Wilmington, Del.; Vincent C. Little, Fallston, and Toney Leadore, Havre De Grace, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 21, 1971, Ser. No. 210,422
Int. Cl. F42b 27/00
U.S. Cl. 102—64 3 Claims

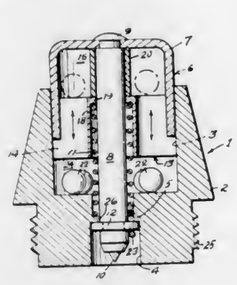


A munition for delivery of a payload to an adverse target site wherein the munition has a firing pin assembly which separates from the munition after actuation of the primer means by the firing pin to prevent reuse of the firing pin assembly after delivery of the munition to the adverse target site.

3,782,289
DELAYING ARM FUZE PRINCIPLE

Onofrio P. Bruno, 237 Rogers St., Aberdeen, Md.

Filed Dec. 15, 1971, Ser. No. 208,061
Int. Cl. F42c 15/00
U.S. Cl. 102—76 R 2 Claims

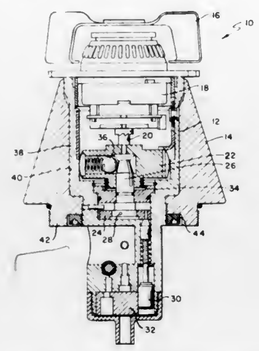


A delay arming fuze for a fin stabilized mortar round or rocket for the prevention of premature arming of the fuze while the round is in the mortar tube. The fuze consists of a fuze head which has axial bores, a spring biased striker carrying a firing pin slidable in the bores, a radially slotted adapter carried by the striker and a plurality of steel balls which, when the round is in a mortar tube assume a position rearward of the adapter to maintain the fuze unarmed. When the round is fired acceleration forces hold the balls in their rearward position until the round decelerates, at which time the balls under inertial forces roll forward through the radial slots in a metered manner to the forward side of the adapter to arm the fuze and to thereby permit firing upon target impact. The metering effect is produced by providing more balls than there are radial slots in the adapter so that all of the balls cannot enter the slots at the same moment. Relative movement between the round and the balls which are subjected to the same gravitational forces is due to the fact that the round is subjected to frictional resistance of the atmosphere through which it passes and therefore decelerates more rapidly than the balls which are not subjected to such resistance.

3,782,290
ORDNANCE ARMING ASSEMBLY

William H. Reams, Boonsboro, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 19, 1973, Ser. No. 219,064. The portion of the term of this patent subsequent to July 18, 1989, has been disclaimed.
Int. Cl. F42c 15/12
U.S. Cl. 102—76 R 4 Claims



An arming assembly for an air-delivered ordnance vehicle comprising an arming device which is normally maintained in an unarmed mode capable of becoming armed in response to a predetermined stimulus. A collar member having a tapered configuration is positioned around the arming device to protect the device from any shocks which may cause injury to the explosive elements contained therein. The collar may be formed of 4340 steel hardened to a value of Rc 38.

3,782,291
ROTATABLE BRIDGE SWITCH FOR TRACKLESS AIR CUSHION VEHICLE

Richard L. Maison, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Apr. 3, 1972, Ser. No. 240,422
Int. Cl. E01b 25/26
U.S. Cl. 104—130 12 Claims

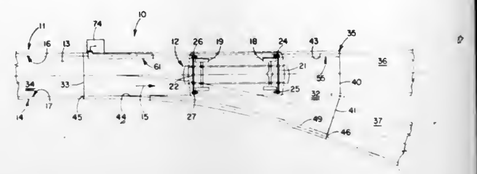


A bridge switch with a body having a right triangular cross section is positioned between a main guideway and a pair of other guideways for rotation about a canted axis passing through the center of gravity of the body. A pair of guideway sections are provided and the body extending in different directions and each is positioned on one of the right angle sides of the body and carrying a reaction rail. A pair of containers are mounted on the body and a pump and motor arrangement is provided for transferring liquid from one container to the other at will to rotate the body to align each of the guideway sections with the main guideway and one of the other guideways to define a pair of switch positions. Solenoid locking pins are provided for locking and provided for locking and unlocking the body in each of the switch positions. A rotary dash pot connected to the body pivot limits rotational velocity of the body when rotated. Dash pots are utilized for stopping rotation of the body at each of the switch positions.

3,782,292
SWITCHING SYSTEM FOR A TRANSPORTATION SYSTEM EMPLOYING A GUIDEWAY

John M. Metcalf, Dallas, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.

Filed Nov. 29, 1971, Ser. No. 202,753
Int. Cl. E01b 23/12
U.S. Cl. 104—130 30 Claims

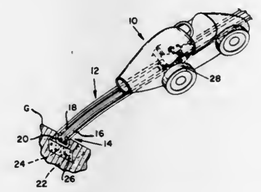


A switching system for a transportation system of the type employing a guideway and vehicles adapted to travel along the guideway. A guideway junction is provided having a first end communicating with a first portion of the guideway and having a bifurcated, second end communicating with second and third, mutually diverging portions of the guideway. A movable guide rail is positioned adjacent the first end of the junction and pivotable between first and second positions for initially guiding a vehicle in a respective one of two directions upon the vehicle entering the junction from the junction first end. A fixed, guiding means is positioned between the movable guide rail and the second guideway portion and is operable to guide a vehicle through the junction and onto the second guideway portion upon the vehicle being initially guided by the movable guide rail while the movable guide rail is in its first position; and another fixed, guiding means is operable to guide a vehicle through the junction and onto the third guideway portion upon the vehicle being initially guided by the movable guide rail positioned in its second position. In one embodiment of the switching system, the movable guide rail is positioned by actuating means operable for moving the guide rail to a selected one of its two positions. In another embodiment adapted particularly to accomodate vehicles entering the junction from the second or third guideway portions, the movable guide rail is normally held in its first position by positioning means operable for resiliently urging the movable guide rail to its first position, and is deflected to its second position by vehicles which enter the junction from the third guideway portion.

3,782,293
VEHICLE-TO-TRACK LINKAGE

Allen C. Donohue, Santa Clara; Albert O. Grote, and Bernard P. Tielborg, both of Fresno, all of Calif., assignors to Mini-Motor Speedways, Inc., San Francisco, Calif.

Filed Feb. 3, 1972, Ser. No. 223,172
Int. Cl. B61f 9/00
U.S. Cl. 104—245 6 Claims



A linkage is disclosed for connecting a self propelled vehicle to horizontally oriented guide rollers rollably supported by

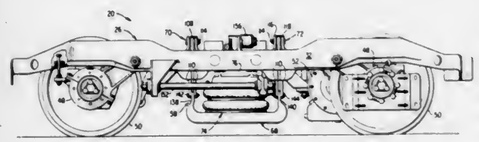
and between parallel pipe rails. The linkage includes a tongue plate with one end pivotally carried about a vertical pin secured to the guide roller support plate and the other end slidably and rotatably mounted on a horizontal rod secured to the undercarriage of the vehicle. The slidable tongue end is centered on the rod by a pair of opposing compression springs entwined on the shaft so as to urge the plate to its central position, yet permit the tongue to slide from one side of the shaft to the other when the vehicle departs from a course directly over the guide rails.

3,782,294

ARTICULATED RAILWAY TRUCK SWINGING BOLSTER

Gustav B. Sundby, Atchison, Kans., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Aug. 5, 1971, Ser. No. 169,231
Int. Cl. B61f *3/08, 5/10, 5/12*
U.S. Cl. 105—182 R **8 Claims**



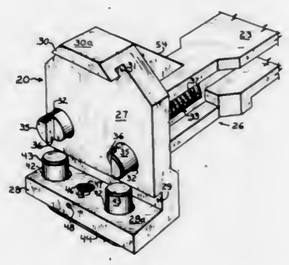
Railway trucks which include front and rear wheel and axle assemblies, frame sections supported from said wheel and axle assemblies, spherical bearing assemblies connecting said frame sections for pivotal movement about a diagonal axis, spring seats supported from the side frames by articulated swing hangers, laterally deflectable spring assemblies on the spring seats, and a bolster supported by said spring assemblies.

3,782,295

CARGO RESTRAINING BAR

Henry A. Balinksi, Hoffman Estates, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Continuation-in-part of Ser. No. 79,583, Oct. 9, 1970, abandoned. This application May 9, 1972, Ser. No. 255,872
Int. Cl. B61d *45/00*; **B60p** *7/16*
U.S. Cl. 105—369 B **22 Claims**



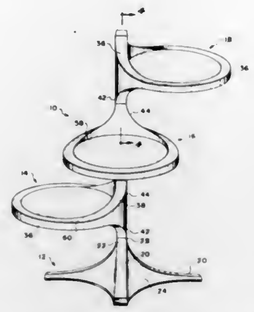
A load bracing apparatus adapted to fit a multiplicity of the belt rail systems used to support and restrain freight in transportation vehicles such as railway freight cars, trucks and ships.

3,782,296

MODULAR MERCHANDISE DISPLAY DEVICE

Billy Moretini, Chicago, Ill., assignor to International Design Corporation, Chicago, Ill.

Filed Apr. 20, 1972, Ser. No. 245,969
Int. Cl. A47b *57/00*
U.S. Cl. 108—101 **13 Claims**



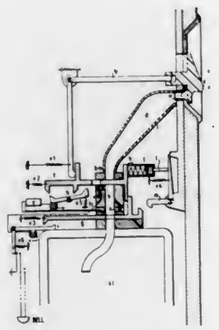
A modular merchandise display device having a pedestal and a plurality of cantilevered shelf units mounted one on the other upon said pedestal. The shelf units and the pedestal each include a vertical columnar formation having an end portion of square cross section arranged to abut the next adjacent formation, said formation having an axial channel suitable for receiving an elongate support member therethrough. The shelf units include a pair of opposite top and bottom arcuate wall portions each carrying said vertical columnar formation and being symmetrical about the horizontal axis thereof. The shelf units can be arranged in aligned, staggered or horizontally parallel relationship, or in a stair-step arrangement with a continuity of exterior surface being maintained overall.

3,782,297

DEVICE FOR DEPOSITING MONEY AND VALUABLE OBJECTS

Christiaan Johannes Van Dalen, Voorburg, Netherlands, assignor to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door De Directeur-Generaal Der Posterijen, Telegrafie En Telefonie, The Hague, Netherlands

Filed Aug. 18, 1971, Ser. No. 172,712
Claims priority, application Netherlands, Aug. 18, 1970, 7012148
Int. Cl. E05g *1/00*
U.S. Cl. 109—38 **5 Claims**



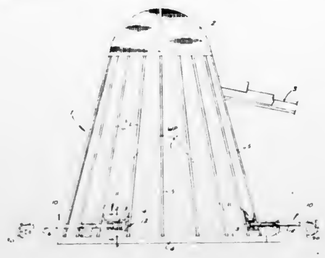
A deposit box, the entrance of which comprises means to ensure that only the desired objects can reach the box in the desired state and that inserted objects that may lead to damage cannot penetrate into the box.

3,782,298

IGNITER SUPPORT FOR A WASTE WOOD BURNER

Aubrey E. Wing, Springfield, Oreg., assignor to Industrial Construction Company, Inc., Eugene, Oreg.

Filed Jan. 17, 1973, Ser. No. 324,497
Int. Cl. F23g *7/00*
U.S. Cl. 110—1 F **5 Claims**



A support for an oil fired igniter unit mounted within the wall of a waste wood burner. The support includes pivot means supporting the elongate igniter for horizontal swinging movement and further includes roller means permitting inward and outward positioning of the igniter unit for efficiency purposes while permitting retraction of the igniter unit during formation of the waste pile.

3,782,299

METHOD FOR RENDERING REFUSE DEPOSITS, INDUSTRIAL WASTE AND THE LIKE, HARMLESS

Hans Egger, 811 Hagen b. Murnau, Haus Nr. 44, Hagen, Germany

Filed May 11, 1972, Ser. No. 252,223
Claims priority, application Germany, May 14, 1971, P 21 24 018.6
Int. Cl. F23g *5/00*
U.S. Cl. 110—7 R **7 Claims**

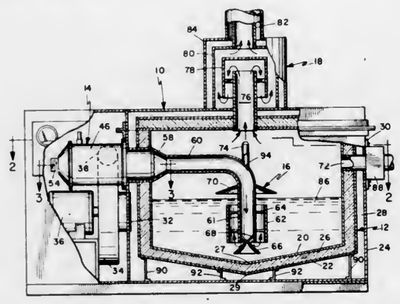
Refuse deposits and industrial wastes are rendered harmless by at least partially encasing them in a foam material. The refuse deposits and industrial wastes may also be permeated with the foam material. After encasement the coated deposits may be burnt.

3,782,300

HUMAN WASTE INCINERATOR

David J. White, Torrance, and Donald J. Dion, Lakeside, both of Calif., assignors to Mobile Systems International, Inc., El Cajon, Calif.

Filed Sept. 30, 1971, Ser. No. 185,213
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 R **8 Claims**



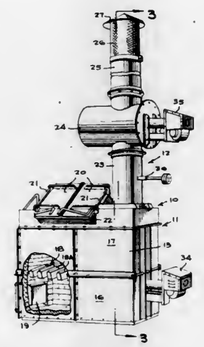
An incinerator for disposing of sewage that incorporates a combustor to develop high temperatures and an injection tube to deliver heat directly to the sewage. The sewage is vaporized and passes through a residence chamber. The residence chamber is raised to an elevated temperature of approximately 1600 degrees F. by gas from the combustor. This high temperature oxidizes any organic contaminates. The exterior surfaces of the device are maintained at close to ambient temperatures through the use of an induction system that brings the combustor air through a passage between the inner and outer tanks.

3,782,301

INCINERATOR WITH STACK TRANSITION CHAMBER

Paul Livengood, and Reuben L. Christophel, both of Harrisonburg, Va., assignors to Shenandoah Manufacturing Co., Inc., Harrisonburg, Va.

Filed Apr. 21, 1972, Ser. No. 246,463
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 C **8 Claims**



An incinerator for disposing of biological or pathological wastes and other materials, including a refractory lined lower primary combustion chamber having an upper fill opening and a grate sub-dividing the primary combustion chamber into an upper chamber portion and a lower chamber portion, a first burner for producing combustion in the lower chamber portion, an exhaust gas outlet stack extending upwardly from the primary combustion chamber having a transition chamber interposed therein at a location spaced above the primary combustion chamber, the transition chamber and the outlet stack between the transition chamber and the primary combustion chamber being refractory lined, a secondary burner communicating with the transition chamber defining a secondary combustion chamber therein. The transition chamber defines a horizontal cylindrical chamber wherein the blower flame extends along its center axis and includes an interrupted cylindrical metallic baffle member spanning part of the axial length of the secondary combustion chamber and having a downwardly facing open segment.

3,782,302

METHOD OF THERMAL PURIFICATION OF WASTE NOT FORMING A BURNING MIXTURE WITH FUEL OR AIR SEPARATELY

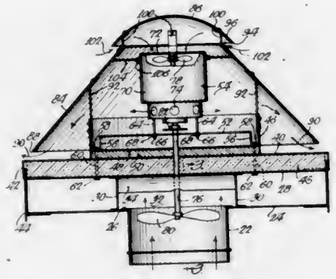
Isaak Yakovlevich Sigal, ulitsa Ezhena Petie, II, kv. 107; Georgy Fedorovich Naidenov, ulitsa Saratovskaya, 39, kv. 21; Nikolai Alexandrovich Gurevich, ulitsa Frunze, 118/2 kv. 13; July Iosifovich Danilevich, ulitsa Saksaganka go, 112, kv. 10, all of Kiev; Andrei Matveevich Shiman, ulitsa Sadovaya, 2, kv. 2, Shebekino; Viktor Fedorovich Shishkin, Ulitsa B. Khmelnitskogo 8, kv. 7, Shebekino, and Nikolai Ivanovich Goncharenko, ulitsa Sadovaya 16, kv. 1, Shebekino, all of U.S.S.R.

Continuation of Ser. No. 42,864, June 2, 1970. This application Oct. 12, 1972, Ser. No. 297,065
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 R **5 Claims**

A method of thermal purification of waste gases from impurities, mainly organic ones, consisting in burning them directly

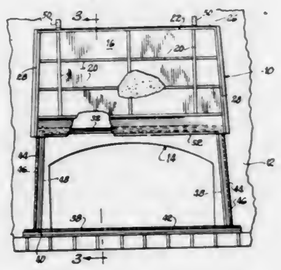
in the furnaces of boiler units including those whose main function is generation of thermal and electrical energy. The waste gases to be purified are delivered under, or into the beginning of, the fuel burning zone instead of part or all of the air required for the combustion of the fuel.

3,782,303
DRAFT INDUCER
Leo F. Pfister, Mendota, and Darold K. Rosenow, LaSalle, both of Ill., assignors to Conco, Inc., Mendota, Ill.
Filed July 6, 1972, Ser. No. 269,498
Int. Cl. F23l *17/16*
U.S. Cl. 110—162 **6 Claims**



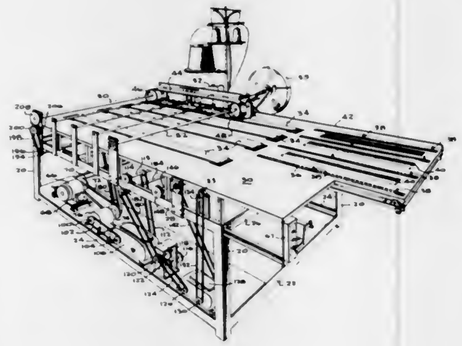
A draft inducer adapted to be secured to flues or the like to improve draft conditions therein. The inducer includes a tubular element to be secured to a flue and a gas directing housing located above the tube and in fluid communication therewith for directing gases radially outwardly of the tube at a high velocity. To assist in inducing the draft, a motor is located above the gas directing housing and includes a shaft extending into the tube and mounting a fan blade. Insulation is provided between the gas directing housing and the motor and a motor housing structured to insure excellent cooling of the motor is also included.

3,782,304
FURNACE DOOR ASSEMBLY
Joseph K. Balaz, Northbrook, Ill., assignor to Flinn & Draffein Engineering Co., Northbrook, Ill.
Filed Mar. 6, 1972, Ser. No. 232,047
Int. Cl. F23m *7/00, 7/02*
U.S. Cl. 110—173 **5 Claims**



This invention is addressed to an improved furnace door assembly including a furnace door having inwardly (toward the furnace) extending members substantially outlining the peripheral boundary of the door which, when the door is closed, form a sealing contact with corresponding outwardly extending members affixed to the furnace wall containing the door portal, said sealing surfaces being disposed perpendicular to the furnace wall containing the door portal and therefore substantially unaffected with respect to their fluid tightness by commonly encountered warpage of the door.

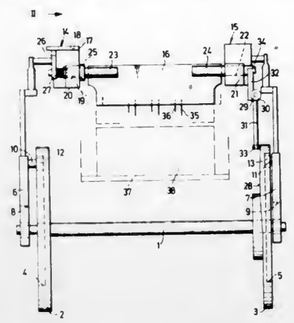
3,782,305
BAG TUBE FEEDING AND CLOSING MEANS
James A. Robinette, Bristol, Tenn., assignor to Strong-Robinette Bag Company, Inc., Bristol, Tenn.
Filed Nov. 21, 1972, Ser. No. 308,445
Int. Cl. D05b *13/00*
U.S. Cl. 112—10 **15 Claims**



A feed table is disclosed for feeding successive bag tube ends past a sewing head for closing the tube ends; a work conveyor belt system feeds the bag tubes past the sewing head and a plurality of infeed chains with upwardly extending lugs feed successive bag tubes onto the work conveyor belt feed system with positive infinitely variable transmissions providing independent adjustment of the work belts and the infeed chains and microswitch means engageable with completed bags downstream of the sewing head for actuating a pneumatic knife to sever the tape section between adjacent bags with the infinitely adjustable transmission driving the infeed chains enabling conversion from one bag size to another while maintaining proper spacing between bags passing through the sewing head.

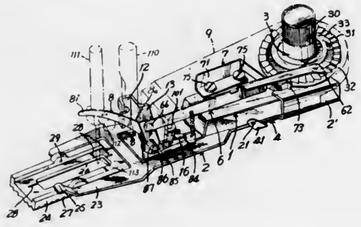
3,782,306
BOOK BINDING METHOD AND MACHINE THEREFOR
Fritz Bosshard, Zur Friedou CH-8251, Kaltenbach, Switzerland
Filed Dec. 13, 1971, Ser. No. 207,509
Claims priority, application Switzerland, Dec. 14, 1970, 18466/70;
Int. Cl. B42b *1/02*
U.S. Cl. 112—21 **7 Claims**

A swingable saddle supplies signatures to be bound, and a needle plate has at least one sewing needle and at least one hooked needle laterally spaced therefrom, the needle plate being mounted in two arms which can move it up and down between a position in which the needles enter into the signature and another in which they are withdrawn therefrom. The needle plate can also be moved transversely to this up and down movement, being urged to one side by biasing means,



and can be moved in a direction opposite to the urging of the biasing means by a cam and cam follower arrangement. A method of operating this machine is also disclosed.

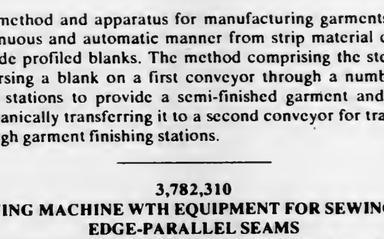
3,782,307
BUTTON HOLE ATTACHMENT FOR ZIGZAG SEWING MACHINES
Susumu Hanyu, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Nov. 4, 1968, Ser. No. 773,198
Claims priority, application Japan, Nov. 6, 1967, 42/93245; Nov. 10, 1967, 42/94386
Int. Cl. D05b *3/24*
U.S. Cl. 112—77 **10 Claims**



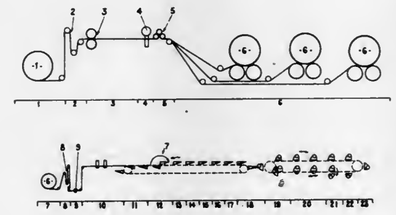
A buttonhole attachment for a zigzag sewing machine having a laterally oscillating needle bar includes a lever means angularly reciprocated by a pin on the needle bar during the longitudinal stitching movement, and operating a ratchet wheel by means of a pawl. A rack member with an oblong endless inner gear engaged by a pinion turning with the ratchet wheel is connected with the presser foot so that the same moves along an oblong endless path corresponding to the outline of a buttonhole, and moves the fabric accordingly so that the laterally oscillating needle stitches a buttonhole.

3,782,308
SEWING UNIT HAVING A STENCIL RAIL FOR GUIDING THE MATERIAL
Gunther Mall, Kaiserslautern, Germany, assignor to Firma Pfaff Industriemaschinen GmbH, Kaiserslauten/Pfalz, Germany
Filed May 1, 1972, Ser. No. 249,398
Claims priority, application Germany, May 3, 1971, G 71 16 976.1
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.15 **3 Claims**

Sewing unit comprising a stencil bar driven in longitudinal direction having a pressure strip for sewing blanks and a guide bar which continuously is in frictional engagement with a guide means engaged by a support which effects movements superimposed laterally of the longitudinal direction which depend on the form of the guide bar, where a support plate is movable transversely of and independently of the longitudinal movement of the stencil bar.



3,782,309
METHOD AND APPARATUS FOR MANUFACTURING ARTICLES OF CLOTHING
Harold Barry Lee, Heidelberg, Victoria, Australia, assignor to Bond's-Wear Pty. Limited, Camperdown, New South Wales, Australia
Filed Mar. 28, 1972, Ser. No. 238,783
Claims priority, application Australia, Mar. 30, 1971, PA 4452
Int. Cl. D05b *23/00*
U.S. Cl. 112—121.29 **20 Claims**

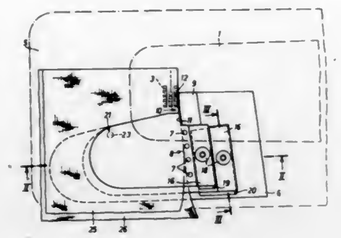


A method and apparatus for manufacturing garments in a continuous and automatic manner from strip material cut to provide profiled blanks. The method comprising the steps of traversing a blank on a first conveyor through a number of work stations to provide a semi-finished garment and then mechanically transferring it to a second conveyor for traverse through garment finishing stations.

3,782,310
SEWING MACHINE WTH EQUIPMENT FOR SEWING OF EDGE-PARALLEL SEAMS
Wilhelm Stockel, Hann-Munden, Germany, assignor to Pfaff Industriemachinen GmbH, Kaiserslautern/Pfalz, Germany
Filed Sept. 21, 1972, Ser. No. 290,880
Claims priority, application Germany, Oct. 1, 1971, P 21 49 069.7
Int. Cl. D05b *35/10*
U.S. Cl. 112—153 **3 Claims**

The disclosure relates to a sewing machine including means for edge seaming together two or more layers of sewing material of any configuration comprising a succession of

spaced, superposed supporting plates between each adjacent pair of which a separate layer of sewing material to be seamed together is passed. Means associated with the supporting plates provide a straight guiding line running at an acute angle away from the stitch forming line and means on the forming



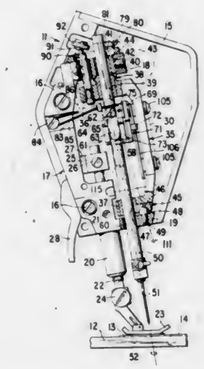
plates located in front of and laterally to the stitch forming means provide a fulcrum for pivoting the layer of sewing material passing therethrough so that the edge of each layer approaches and passes along said straight guiding line before being pulled into the stitch forming line.

3,782,311

SIMPLIFIED BASTING STITCH MECHANISM

Kenneth D. Adams, Madison, N.J., and Salvatore A. D'Orio, Staten Island, N.Y., assignors to The Singer Company, New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,426
Int. Cl. D05b *3/02*
U.S. Cl. 112—158 R **5 Claims**



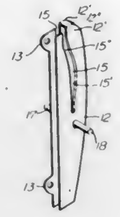
A basting stitch mechanism in a zigzag sewing machine utilizing a latch carried by a needle bar selectively to connect and disconnect the actuating mechanism of the sewing machine to drive the needle bar in endwise reciprocation. To impart zigzag motion to the needle, the needle bar is supported for endwise reciprocation in a gate journaled for lateral oscillation about an axis inclined to the axis of needle bar reciprocation. This arrangement amplifies the relative motion between the needle bar and the gate so that it may be utilized during an extreme lateral excursion of the gate to trip the latch mechanism carried by the needle bar by means of an abutment member mounted on the gate. By mounting the gate in a supporting bracket which is attachable to the sewing machine, the gate, needle bar and basting stitch mechanism may be subassembled and partially adjusted prior to installation into the sewing machine with only simple adjustments required after installation.

3,782,312

TAKE-UP LEVER FOR A SEWING MACHINE AND PROTECTING COVER

Noboru Kasuga, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed June 1, 1972, Ser. No. 263,387
Claims priority, application Japan, June 9, 1971, 46/40193
Int. Cl. D05b *49/00*
U.S. Cl. 112—241 **7 Claims**



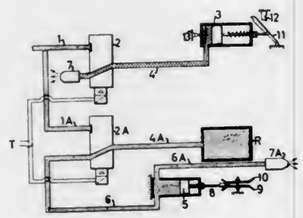
A thread take-up lever of a sewing machine is mounted in the hollow machine frame and has a hook-shaped free end engaging the sewing thread and being movable between an upper and a lower dead center position. The machine frame is formed in its front wall with an opening substantially closed by a cover protecting the hook-shaped end of the thread take-up lever and being formed with slots permitting insertion of a thread into the hook-shaped end of the lever in any position of the latter.

3,782,313

DEVICE FOR SYNCHRONIZING THE SLACKENING OF THE NEEDLE THREAD WITH THE THREADCUTTING, WITH TIMING OF THE SLACKENING OF THE NEEDLE THREAD AND INDEPENDENT CONTROL OF THE DELAY OF DISC OPENING FOR LOCKSTITCH SEWING MACHINES

Cesare L. Conti, Via Varese 18, Milan, Italy

Filed Nov. 20, 1972, Ser. No. 308,297
Claims priority, application Italy, Nov. 24, 1971, 31523 A/71
Int. Cl. D05b *65/02*
U.S. Cl. 112—252 **3 Claims**



An electropneumatic device is disclosed for synchronizing the thread slackening mechanism of a lock stitch sewing machine with the cutting of the thread, said device being capable of controlling the delay in the opening of the thread tensioning discs independently of the stroke of the piston which actuates the thread cutter. In its simplest embodiment, the device comprises, in addition to a pneumatic thread cutting device and a pneumatic device for controlling the tension of the needle thread and a source of compressed air, two valve means, the first of which is connected to the thread cutting

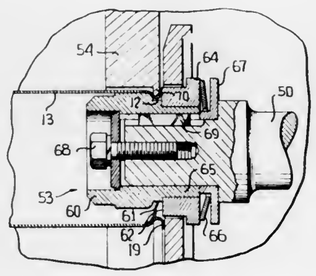
mechanism and to a flow restrictor, the second valve means being connected to the thread tension control mechanism and to a storage reservoir for compressed air.

3,782,314

MAKING CAN BODIES

Jozef Tadeusz Franek, Chorleywood, and Peter Rhodes, Watford, both of England, assignors to The Metal Box Company Limited, London, England

Filed Apr. 21, 1971, Ser. No. 135,862
Int. Cl. B21d *19/06*
U.S. Cl. 113—1 G **11 Claims**



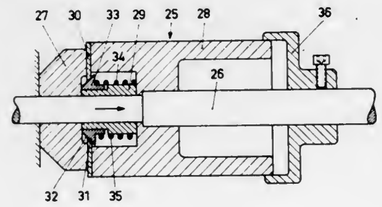
A metal can body is given an end neck by a two stage process in which it is first flanged, and then has the neck formed immediately behind and merging with the flange by a spinning (rolling) process in which the flange is itself reduced in diameter.

3,782,315

METHOD AND APPARATUS FOR PRODUCING A STEPPED RIM ON A SEAMLESS CAN BODY

Wolfgang Passenheim, Seesen/Harz, Germany, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed July 27, 1971, Ser. No. 166,464
Claims priority, application Switzerland, July 31, 1970, 11585/70
Int. Cl. B21d *51/26*
U.S. Cl. 113—7 A **3 Claims**



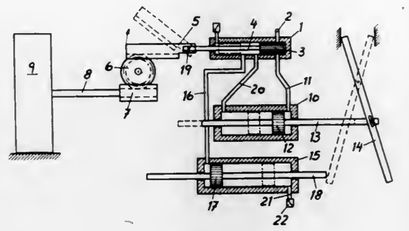
The invention refers to a method and an apparatus for producing a stepped rim on seamless can bodies by putting them on a rimming mandrel and applying a forming pressure by means of a cooperating roller, both mandrel and roller having parts movable eccentrically to their shaft during the forming of the rim, against the pressure of a spring.

3,782,316

ACTUATING DEVICE FOR SUBMARINE VEHICLES

Peter Schaloske, Oberhausen-Sterkr, and Erich Maurer, Oberhausen, both of Germany, assignors to Deutsche Babcock & Wilcox Aktiengesellschaft, Oberhausen/Rhld., Germany

Filed Nov. 3, 1971, Ser. No. 195,179
Claims priority, application Germany, Dec. 22, 1970, P 20 63 059.5
Int. Cl. B63g *8/00*
U.S. Cl. 114—16 R **6 Claims**



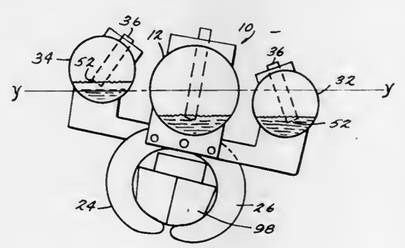
An actuating device for submarine vehicles in which power to control the vehicle is provided by apparatus responsive to the surrounding water pressure. At least one control cylinder, coupled to a wheel of the vehicle by a gear system, and at least one operating cylinder, coupled to a valve by a piston rod, are fluidly coupled together by a plurality of hose or pipe lines which selectively admit ocean-water surrounding the vehicle to the operating and control cylinders to control movement of the vehicle.

3,782,317

SUBMERSIBLE SALVAGE UNIT

Frederick A. Kriedt, 604 Alma St. S.E., Vienna, Va.; Thomas H. Sundstrom, 5712 Chippewa Rd., Virginia Beach, Va., and Richard Walko, 15913 Martin Rd., Roseville, Mich.

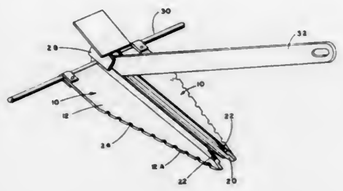
Filed Sept. 1, 1971, Ser. No. 177,074
Int. Cl. B63c *7/08*
U.S. Cl. 114—52 **20 Claims**



A submersible salvage unit is provided with a central elongated pontoon to which are pivotally attached opposed pairs of downwardly depending arms for grasping a sunken vessel or other object. At points remote from their depending portions, the arms are connected to outer pontoons which can be actuated to move the arms from grasping to inoperative positions by relative vertical movement of these latter pontoons with respect to the central pontoon. The relative movements are effected by varying the buoyancy of the outer pontoons with respect to the central pontoon. Buoyancy compensators are provided in each of the pontoons to adjust their buoyancies to match the distribution of loads which are to be lifted, and for

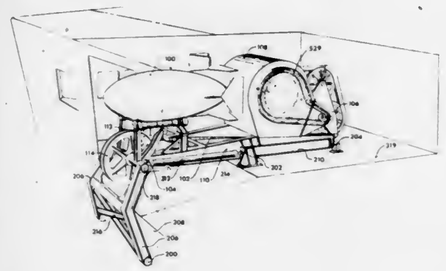
rapidly releasing buoyancy gas from the pontoons, if necessary, so that the buoyancy compensators on the pontoons also function as stabilizers to maintain the unit in a stable attitude when it is lifting a load. Self-contained gas generating means are provided to supply buoyancy gas to the interiors of the pontoons.

3,782,318
ANCHOR FLUKE
Daniel Comstock Hungerford, North Palm Beach, Fla., assignor to Brunswick Corporation, Skokie, Ill.
Filed Sept. 7, 1971, Ser. No. 178,231
Int. Cl. B63b *21/26*
U.S. Cl. 114—207 **3 Claims**



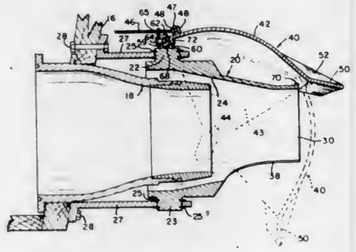
An anchor of the twin fluke type with increased penetrating ability for hard or vegetation covered under water bottoms wherein the fluke leading edges have a plurality of indentations and the fluke leading points have sharp edges and saw-like teeth adjacent the sharp edge portion.

3,782,319
APPARATUS FOR LAUNCHING, TOWING AND RECOVERING A SUBMERSIBLE BODY FROM A VESSEL
Neville E. Hale, Mississauga, Ontario, Canada, assignor to Fathom Oceanology Limited, Port Credit, Ontario, Canada
Filed Jan. 26, 1973, Ser. No. 327,003
Claims priority, application Canada, Feb. 29, 1972, 135768
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 B **12 Claims**



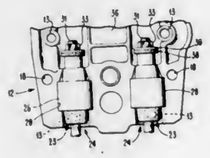
Apparatus for launching, towing and recovering a submersible and towable body from a vessel includes a saddle, a winch and cable spooling and tension apparatus. The saddle includes a roller box which is rotatable about the axis of the tow sheave to maintain constant pressure against the cable during towing. A skewable A-frame for lowering the saddle near the water surface includes a transom arm which is pivotally mounted to the transom and to the tow sheave. The winch may be a multi-drum assembly, where the drums are co-axially mounted; and the drums are rotatably mounted in peripheral bearings at each end, which are mounted in the ends of the winch enclosure. The winch enclosure has a cover plate with a transverse slot to permit reeling and unreeling of cable from a drum. A latch mechanism provides for positive locking of a drum for rotation or non-rotation, depending on whether it or another drum is the one on which cable is being reeled or unreeled. The drums of a multi-drum assembly also have a transverse slot formed in them; and the lips of each slot are profiled to turn inwardly with a smaller apparent radius of curvature than the nominal radius of the drum.

3,782,320
CONTROL ASSEMBLY FOR JET BOAT
Richard N. Groves, Jr., 2619 Cambridge St., West Lafayette, Ind.
Filed Apr. 12, 1971, Ser. No. 133,179
Int. Cl. B63h *11/00*
U.S. Cl. 115—12 R **8 Claims**



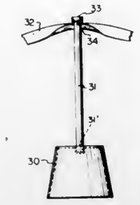
A control assembly for a boat having a water jet propulsion system in which the jet is discharged successively through a discharge conduit and a nozzle. The nozzle, which is movable with respect to the conduit, is provided with movable bucket whereby said nozzle and bucket are movable into different positions of adjustment to control the jet for thus controlling the steering, fore and aft movements, and desired planing of the boat.

3,782,321
MOUNTING ARRANGEMENT FOR AN OUTBOARD MOTOR
Raymond L. Ellingsen, Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.
Filed July 26, 1972, Ser. No. 275,231
Int. Cl. B63h *21/30*
U.S. Cl. 115—17 **5 Claims**



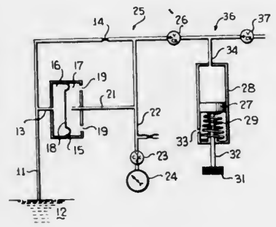
The upper resilient mounts for connecting the power unit of an outboard motor to the swivel bracket are supported within cavities formed by cooperating semi-circular recesses in the driveshaft housing plate and the exhaust extension plate.

3,782,322
FIELD MARKING SYSTEM AND A MARKER THEREFOR
Porter Carol Wilson, Box 11010, Tucson, Ariz.
Filed Sept. 28, 1970, Ser. No. 75,919
Int. Cl. E01f *9/10*
U.S. Cl. 116—63 P **2 Claims**



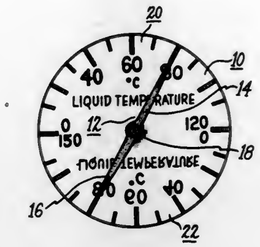
Predetermined distances are visually marked by a plurality of markers so arranged that a progressively varying distance from a predetermined point is designated by a progressively darker color. The individual markers comprise a hollow, nestable, substantially conical base provided with a receptacle means in the upper surface of said base; a flexible shaft one end of which is adapted to removably engage the receptacle means; and an indicator means affixed to the other end of the shaft.

3,782,323
SELF CONTAINED FLUIDIC LEVEL SENSOR
Donnie Roland Jones, Silver Spring, Md., assignor to Bowles & Fluidics Corporation, Silver Spring, Md.
Filed June 9, 1972, Ser. No. 261,381
Int. Cl. G01f *23/00*
U.S. Cl. 116—118 R **10 Claims**



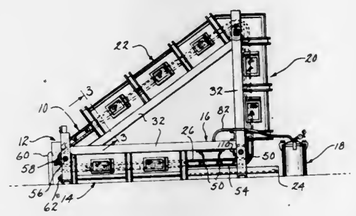
A pressure pulse, selectively initiated from the dashboard of a motor vehicle, is applied to two compartments separated by a diaphragm. One compartment is vented and receives the pressure pulse via a sensor tube extending toward the diaphragm. The second compartment communicates with a dip tube extending to the sensing level in the vehicle oil reservoir. If the oil is above the dip tube, the diaphragm is flexed by the pressure pulse and blocks the sensor tube so that the pulse cannot be vented. The pulse is thus shunted to a pressure responsive indicator which provides a momentary indication that the oil level is above the sensing level. If the oil is below the dip tube, the pressure pulse is vented through the dip tube and sensor tube, rendering the indicator unactuated.

3,782,324
METER DIAL WITH MIRROR IMAGE PORTION
Stanley A. Zembaty, Hickory, N.C., assignor to General Electric Company
Filed Nov. 29, 1972, Ser. No. 310,399
Int. Cl. G09f *9/00*
U.S. Cl. 116—129 T **3 Claims**



A meter dial provided with one portion directly readable and a second portion a mirror image of the first portion, such that the meter dial may be read either normally or by means of a mirror.

3,782,325
WINDING IMPREGNATION SYSTEM
Le Moyne E. Farnsworth, Racine, and Lawrence A. Johnson, Milwaukee, both of Wis., assignors to Ro-Band Corporation, Menomonee Falls, Wis.
Filed Jan. 17, 1972, Ser. No. 218,196
Int. Cl. B05b *13/02*; **B05c** *5/02*
U.S. Cl. 118—58 **5 Claims**

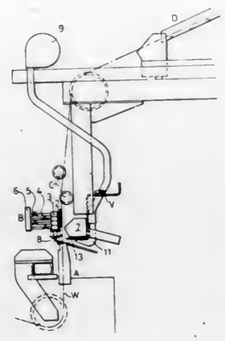


An endless conveyor chain is fitted with a plurality of longitudinally spaced fixtures which are adapted to carry electrical motor windings. The windings are carried by the conveyor chain from a load/unload station through a horizontal heating chamber for preheating the windings, then under an applicator station which applies a varnish coating to the windings, then through a heating chamber which is disposed in a generally upright plane adjacent to the applicator station, and then through a diagonal heating chamber which extends diagonally from the top of the upright heating chamber to the load/unload station. The upright heating chamber is long enough to allow the varnish to jell on the windings so that there will be no drippage in the diagonal heating chamber. A drip pan is positioned under the applicator station and under the bottom end of the upright heating chamber to catch any drippage in those two areas, the heating means in the upright chamber being at a side of the upwardly moving windings so as to be out of the path of drippage.

3,782,326
PRIMARY WATER QUENCH

Neville Charles Faggotter, Miranda, New South Wales, Australia, assignor to Australian Wire Industries Proprietary Limited, Melbourne, Victoria, Australia

Filed Mar. 13, 1972, Ser. No. 234,002
Claims priority, application Australia, Mar. 16, 1971, 4328/71
Int. Cl. B05c *11/00*
U.S. Cl. 118—67 12 Claims

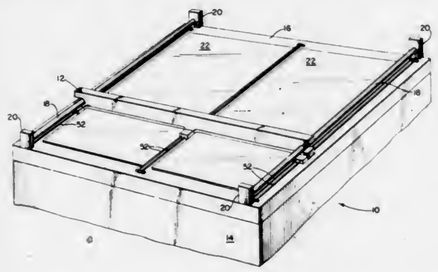


This specification discloses an apparatus for freezing the molten zinc coating on a moving wire after it issues from a wiping box for controlling the coating, comprising two or more water discharge passages for forming jets of water spaced along and transversely intersecting the line of movement of the wire, said jets being controlled whereby the flow of water in each jet is non-turbulent, and an air discharge duct having a narrow discharge slit for creating a flow of air directed transversely to the line of movement of the wire between said jets and the wiping box.

3,782,327
APPARATUS FOR LAYERING A LIQUID COMPOSITION

Forrest A. Wessells, Baltimore, and John P. Conrey, Marriottsville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Feb. 23, 1971, Ser. No. 118,040
Int. Cl. B05c *11/04*
U.S. Cl. 118—100 1 Claim

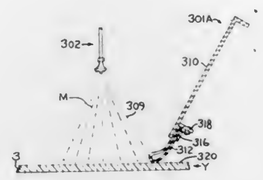


The invention disclosed is directed to a device for layering a liquid photocurable composition. The device includes an elongate body having along its lower end a recess for spreading liquid composition, and includes arms attached adjacent recess sides for preventing spreading beyond sides of a region which may be traversed by the recess. When used in combination with an assembly also disclosed, the device forms liquid photocurable composition into layers of close tolerance thickness from which articles such as polymeric printing plates may be formed.

3,782,328
SQUEEGEE /SHIELD

Helmut Franz, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 159,747, July 6, 1971. This application Jan. 18, 1973, Ser. No. 324,730
Int. Cl. B05c *11/04*
U.S. Cl. 118—118 23 Claims

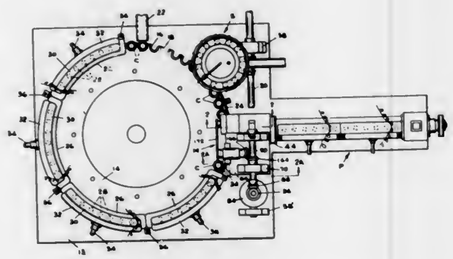


A transparent substrate to be spray coated passes beneath a squeegee/shield apparatus to avoid formation of finger-like fronts or puddles in the spray area and to prevent splashing of the spray medium onto the substrate surface. The squeegee/shield element functions to doctor a prior applied coating while intercepting of portion of the subsequent spray stream.

3,782,329
APPARATUS FOR DISPENSING PLASTIC MATERIAL OR THE LIKE

George Everett, Unionville, Conn., assignor to Gros-Ite Industries, Inc., Farmington, Conn.

Continuation-in-part of Ser. No. 91,665, Nov. 23, 1970, abandoned. This application Feb. 9, 1972, Ser. No. 224,757
Int. Cl. B05c *7/00*
U.S. Cl. 118—215 12 Claims

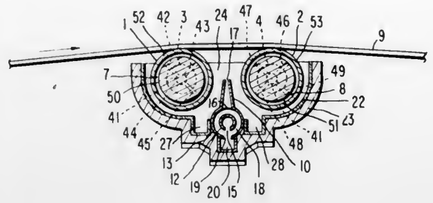


Plastic dispensing apparatus in which charges of plastic material are deposited in successive caps carried by a conveyor, the plastic material being metered and delivered by a blade which executes coordinated rotational and translational movement to controllably deposit the plastic charges in deeply recessed caps.

3,782,330
WEB MOISTENING DEVICE

Masao Kanda, Fujimiya-shi, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation-in-part of Ser. No. 827,679, May 26, 1969, abandoned. This application July 12, 1971, Ser. No. 161,813
Int. Cl. B05b *13/02*; B05c *5/00*
U.S. Cl. 118—325 4 Claims

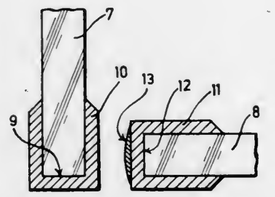


A steam jet nozzle is disposed between a pair of cylindrical rollers whose peripheries are in contact with a moving web to form in conjunction with a housing on the opposite side of the roller from the web, a steam chamber to insure moistening of the web. A fluid contacts the inner surface of the cylindrical roller to insure condensation of the steam on the roller periphery which in turn moistens the moving web.

3,782,331
TRANSPARENT SHEET

Ebe Huizinga, 35, De Kromte, Drachten, Netherlands

Filed Mar. 3, 1972, Ser. No. 231,602
Claims priority, application Netherlands, Mar. 10, 1971, 7103168
Int. Cl. A01k *64/00*
U.S. Cl. 119—5 5 Claims



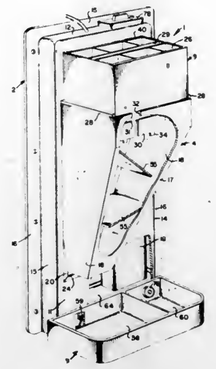
A transparent sheet, particularly a glass plate, which may form part of a receptacle, in particular an aquarium, comprising a bottom plate and marginal profiles, in which the glass plates are interconnected via sealing material, whereas the edges of the plates are surrounded by profiles obtained by spraying plastics or elastomer material (consisting a.o. of silicon rubber, thermoplastic etc.), the spray-edged profiles being sealingly interconnected thereby.

3,782,332
AUTOMATIC FEEDING DEVICE

Fritz Depenthal, 6506 W. 66th St., Overland Park, and Karl M. Swartz, 6034 Windsor Dr., Shawnee Mission, both of Kans.

Filed Sept. 18, 1972, Ser. No. 290,011
Int. Cl. A01k *5/02*
U.S. Cl. 119—51.13 8 Claims

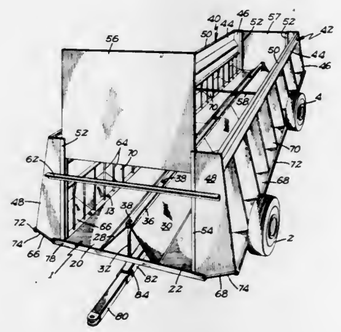
A feeding device for the automatic feeding and watering of cats, dogs and the like. The feeding device includes a food container having a plurality of individual food storage compartments mounted on a delivery chute for delivering food from each compartment to a feeding pan upon selectively opening of closure members normally closing the respective compartments. The feeding device also includes a watering device comprising a water storage container and a valve operably connected to the water storage container and a watering pan for supplying water from the container to the watering pan on demand.



3,782,333
LIVESTOCK FEEDER

Leon G. Feterl, Salem, S. Dak.

Filed Dec. 23, 1971, Ser. No. 211,293
Int. Cl. A01k *05/00*
U.S. Cl. 119—52 R 4 Claims

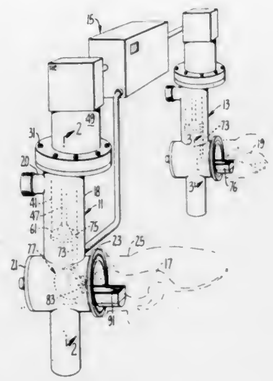


A wagon feeder for livestock having feed troughs extending along both sides thereof, with the feed troughs being divided by upright plates into horizontally spaced feed compartments which communicate with flat feed accumulating and feeding floor segments interiorly of the feeder through open bottom portions of upright side walls of the feeder. The open portions of the feeder side walls are divided into a plurality of livestock feeding spaces within each of the feeding compartments by upright bars.

3,782,334
AUTOMATIC REAL-TIME PAIR-FEEDING SYSTEM FOR ANIMALS

Henry A. Leon, Los Altos; James P. Connolly, San Jose; Maurice J. Hitchman, Saratoga, and John E. Humbert, Santa Clara, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 30, 1971, Ser. No. 203,271
Int. Cl. A01k 5/02
U.S. Cl. 119—54 4 Claims

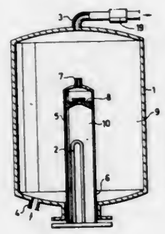


A pair-feeding method and apparatus are provided for experimental animals wherein the amount of food consumed by the experimental animal is immediately delivered to a normal or control animal so that there is a qualitative, quantitative and chronological correctness in the pair-feeding of the two animals. The invention also provides a novel feeding mechanism for delivering precisely measured amounts of food to a feeder. Circuitry is provided between master and slave feeders so that there is virtually no chance of a malfunction of the feeding apparatus, causing erratic results. Recording equipment is also provided so that an hourly record is kept of food delivery.

3,782,335
HEAT EXCHANGER FOR LIQUID AT OVERPRESSURE

Bengt-Olof Ingemar Hecktor, Bjarred, Sweden, assignor to AB Gustavsbergs Fabriker, Gustavsberg, Sweden

Filed Sept. 8, 1972, Ser. No. 287,571
Claims priority, application Sweden, Sept. 10, 1971, 11473/71
Int. Cl. F24h 1/20
U.S. Cl. 122—13 A 11 Claims

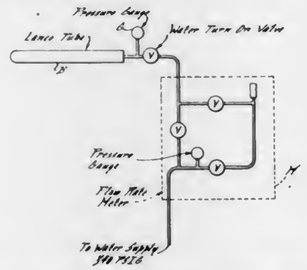


A heat exchanger for liquid under pressure in which a casing is divided by a partition into large and small chambers, with a heat surface being located within the small chamber and the chambers being in communication via an opening. The upper portion of the partition is provided with a valve means for conducting gas from the small chamber to the large chamber, with the valve means being so constructed that the difference in pressure between the gas-filled upper portion of the small chamber and the corresponding level in the large chamber, and which pressure arises upon the opening of an outflow valve for the outlet of the large chamber, is sufficient for pressing at least a part of the gas included in the small chamber out through the valve member.

3,782,336
METHOD AND APPARATUS FOR CLEANING HEATED SURFACES

John E. Nelson, Lancaster, Ohio, assignor to Diamond Power Specialty Corporation

Filed Oct. 21, 1971, Ser. No. 191,422
Int. Cl. F22b 37/48
U.S. Cl. 122—379 12 Claims

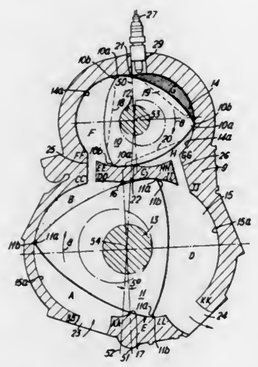


A method and apparatus for deslagging high temperature water walls of boilers while steaming, utilizing a jet of water applied in such manner as to develop sufficient mechanical energy to dislodge the slag without chilling the wall to a harmful degree.

3,782,337
ROTARY PISTON INTERNAL COMBUSTION ENGINE

Fritz Feller, Crewe, England, assignor to The Secretary of State for Defense, London, England

Filed Aug. 30, 1971, Ser. No. 176,059
Claims priority, application Great Britain, Sept. 1, 1970, 41,709/70
Int. Cl. F02b 53/00
U.S. Cl. 123—8.05 6 Claims

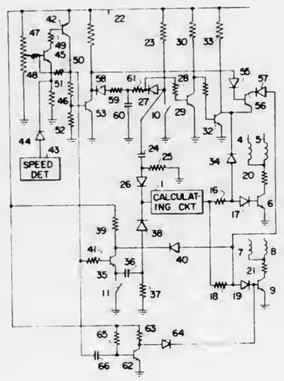


A rotary piston engine has two pistons mounted in two communicating housings. The pistons are disposed in the order of 180° out of phase and the eccentrics for the housings are slightly offset from each other to improve the positioning of the communicating ducting between the housings.

3,782,338
FUEL INJECTION CONTROL ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Fusao Hayashi, and Yasunori Mori, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 8, 1971, Ser. No. 113,268
Claims priority, application Japan, Feb. 6, 1970, 45/9942
Int. Cl. F02b 3/00
U.S. Cl. 123—32 EA 16 Claims



A fuel injection control arrangement for internal combustion engines, wherein a calculating circuit is triggered in response to a signal produced by the fuel-supply timing of the internal combustion engine, which determines the time required for injecting fuel in accordance with the engine operating condition at that time, and at the same time a plurality of gate circuits for controlling the electromagnetic valves associated with the cylinders to be supplied with fuel are selectively controlled in sequence by the signal, characterized in that, when the rotating speed of the engine exceeds a predetermined value, each of the gate circuits is controlled collectively by said signal and the duration for which the gate circuits are actuated is increased.

3,782,339
AIR METER SWITCHING ARRANGEMENT FOR AN ELECTRIC FUEL INJECTION SYSTEM

Hermann Scholl, Stuttgart; Harald Mauch, Korntal; Norbert Rittmannsberger, Stuttgart, and Wolfgang Soll, Dieburg, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

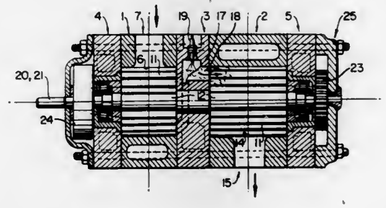
Filed July 20, 1971, Ser. No. 164,304
Claims priority, application Germany, Nov. 26, 1970, P 20 58 089.6
Int. Cl. F02m 51/00
U.S. Cl. 123—32 EA 14 Claims

An electromagnet, energized only when the engine operates at full load and high r.p.m., attracts the static plate of the air meter out of the air path of the engine intake manifold. A switch, operated by the static plate only when the latter is pivoted to at least the idling position, is associated with a circuit that insures that the fuel pump operates only when the engine is turning over.

3,782,340
GEAR-TYPE ROTARY ENGINE

Joong Woo Nam, 170-152 Rimoon-dong Dongdaemoon, Seoul, South Korea

Filed Feb. 4, 1972, Ser. No. 223,474
Int. Cl. F02b 53/08
U.S. Cl. 123—8.23 3 Claims



A gear-type rotary engine having partitioned compression and combustion cylinders and communicable through a gas inlet and a ignition chamber positioned therebetween, a set of gear-like rotors accomodated respectively in the compression and combustion cylinders secured fixedly on two different rotor shafts in twisted positions from one another so that the transmission of compressed gas by the set of rotors in the compression cylinder in their respective gear-like rotation in opposite direction coincides with the reception of the compressed gas by the set of rotors in the combustion cylinder in their respective gear-like rotation in the opposite direction.

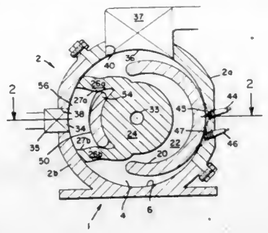
3,782,341
ROTARY INTERNAL COMBUSTION ENGINE

Thomas M. Eells, 10680 W. Pico Blvd., Rm. 260, Los Angeles, Calif.

Filed Apr. 6, 1972, Ser. No. 241,659
Int. Cl. F02b 55/14
U.S. Cl. 123—8.45 8 Claims

A rotary internal combustion engine is described wherein a rotor wheel with rigidly extending vanes is mounted in a piston

drum, the vanes being slidably fitted in slots in the drum. The wheel and drum rotate together within the engine housing and



eccentrically of one another, and the vanes are shaped to allow free sliding motion in the unyielding slots.

3,782,342

CYLINDER UNIT FOR AN AIR-COOLED TWO-STROKE-CYCLE ENGINE

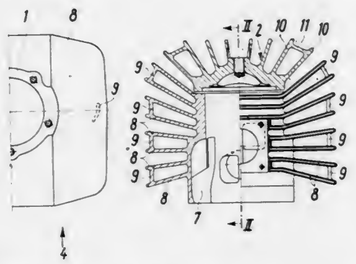
Gunther Schier, Pfaffingen, Germany, assignor to Maico Fahrzeugfabrik GmbH, Pfaffingen, Germany

Filed Nov. 15, 1972, Ser. No. 306,876

Claims priority, application Germany, Nov. 16, 1971, P 21 56 754.4

Int. Cl. F02f *1/06, 1/30*

U.S. Cl. 123—41.69 **17 Claims**



A cylinder unit for an air-cooled two-stroke-cycle engine, especially for motorcycles, whose cylinder and cylinder head are equipped with projecting cooling ribs whereby the cooling ribs of the cylinder are inclined to the cylinder axis transversely to the approach flow direction of the cooling air in such a manner that the spacings of these cooling ribs increase from the inside toward the outside, i.e., from the cooling rib bottom toward the free edges thereof.

3,782,343

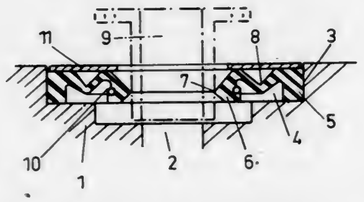
CARBURETOR MOUNTING

John Arthur Notaras, and Angelo Lambrinos Notaras, both of 15-21 Reynolds St., Balmain, New South Wales, Australia

Filed Aug. 7, 1972, Ser. No. 278,384

Int. Cl. F02b *77/00, 77/12*

U.S. Cl. 123—52 M **5 Claims**



A mounting assembly for a carburettor, the assembly including a seal made of heat insulating material housed in an opening in an engine block or manifold and sealing against the outside of a delivery tube from the carburettor.

3,782,344

INTERNAL COMBUSTION ENGINE

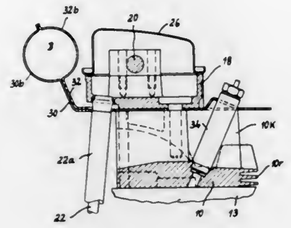
Johann Schmuck, Feilnbach, Germany, assignor to Motorenfabrik Hatz KG., Ruhstorf, Germany

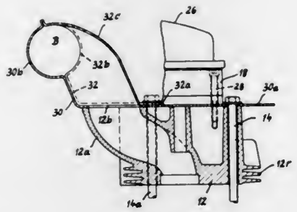
Filed May 12, 1972, Ser. No. 252,915

Claims priority, application Germany, June 15, 1971, P 21 29 738.1

Int. Cl. F02f *1/30, 7/00*

U.S. Cl. 123—52 M **1 Claim**





In an internal combustion engine having at least one cylinder defined by a cylinder head and a cylinder block, attaching means connecting said cylinder head to said cylinder block, said cylinder including a combustion chamber, intake and exhaust ports communicating with said combustion chamber and a connection means connecting said ports to a pipe, the improvement which comprises forming said pipe and connection means of at least two molded elements which are held on the engine in the required operational position by the attaching means connecting together said cylinder heads to said cylinder block.

3,782,345

METERED MECHANICAL TAPPET WITH SLOTTED PUSH ROD SEAT

Ronald R. Erickson, and Richard D. Cornell, both of Muskegon, Mich., assignors to Johnson Products, Inc., Muskegon, Mich.

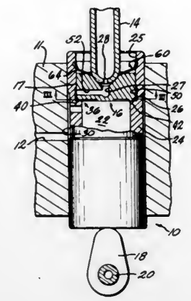
Division of Ser. No. 29,915, April 20, 1970, Pat. No. 3,614,942. This application June 3, 1971, Ser. No. 149,483

Int. Cl. F01l *1/14*; **F01m** *9/10*

U.S. Cl. 123—90.35 **4 Claims**

A metered mechanical tappet utilizing a push rod seat permanently retained by a separate retainer or by a press-fit within the cavity of the tappet upon an annular shoulder of t he latter. Oil flow is obtained by a slot in the surface of the seat supported by said shoulder, the slot at least extending radially from the oil reservoir directly below the seat to the outer wall of the seat, from whence it passes to the interior of the seat and to the push rod by means of an annular path between the outer seat wall and the cavity along at least a portion of the

axial extension of the seat. The actual metering is accomplished by either the slot, in which case the annular path has a



substantial radial thickness; or by the annular path, in which case its thickness is considerably less than any of the dimensions of the slot.

3,782,346

INTAKE SYSTEM FOR INTERNAL COMBUSTION ENGINE

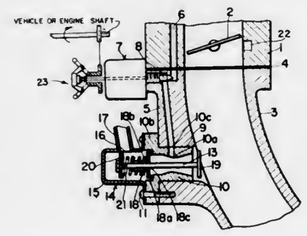
Yasuo Tatsutomi, and Shigetake Yoshimura, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Aki-gun, Hiroshima-ken, Japan

Filed Mar. 29, 1971, Ser. No. 128,723

Claims priority, application Japan, Mar. 30, 1970, 45/30590

Int. Cl. F02m *7/04*

U.S. Cl. 123—97 B **19 Claims**



An intake system for an internal combustion engine which is effective to maintain the air-fuel mixture ratio at an appropriate value even when the engine is decelerated, so that complete combustion of the air-fuel mixture can be achieved with substantial elimination of noxious unburned compounds normally present in an exhaust gas emerged from the exhaust system of the engine. In addition, since complete combustion can be achieved, the occurrence of an after-burning in the exhaust system can be advantageously prevented.

3,782,347

METHOD AND APPARATUS TO REDUCE NOXIOUS COMPONENTS IN THE EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Peter Jurgen Schmidt, and Harald Kizler, both of Schwieberdingen, Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhohe, Germany

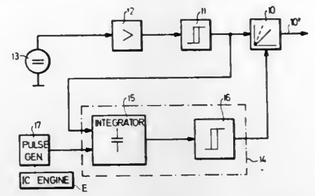
Filed June 2, 1972, Ser. No. 259,254

Claims priority, application Germany, Feb. 10, 1972, P 22 06 276.6

Int. Cl. F02d *5/02*

U.S. Cl. 123—119 R **13 Claims**

The composition of exhaust gases from internal combustion engine is sensed, particularly the oxygen component thereof, and a sensed signal is derived, which is applied to a threshold detector, which triggers whenever the sensed signal passes a certain threshold value. The trigger signal controls and integrating controller to commence integrating, the integrating controller providing an output signal which is applied to set the air-fuel ratio such that the air number lambda is constantly



controlled to be about 1. If integration by the integrating controller persists for a period of time in excess of a predetermined lapsed time, as determined by a pulse source controlled by speed of the engine, the integrating rate of the integrating controller is changed to provide for more rapid response when large changes have to be compensated.

3,782,348

COMBUSTION ENGINE CONSTRUCTION

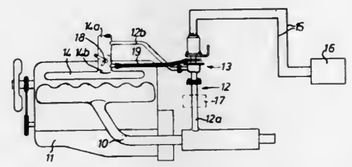
Ernst Linder, Muhlacker, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed June 26, 1972, Ser. No. 266,442

Claims priority, application Germany, July 28, 1971, P 21 37 694.3

Int. Cl. F02m *25/06*

U.S. Cl. 123—119 A **10 Claims**



An intake conduit in a combustion engine admits a stream of combustion air and has a throttle interposed in it. An exhaust conduit exhausts combustion gases from the engine. A first passage communicates with the intake conduit downstream of the throttle and a second passage communicates with the intake conduit upstream of the throttle. A third passage communicates with the exhaust conduit. A valve is connected with the three passages and movable between one position in which it connects the second and the third passage and another position in which it connects the first and the second passage.

3,782,349

INTAKE AIR TEMPERATURE AUTOMATIC ADJUSTING DEVICE AND AIR CLEANER WITH SUCH DEVICE FOR INTERNAL COMBUSTION ENGINES

Hideo Kamo, Chiryo; Hajime Akado, Karaiya, and Yasutosi Kato, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya-shi, Aichi-ken, Japan

Filed Oct. 20, 1972, Ser. No. 299,449

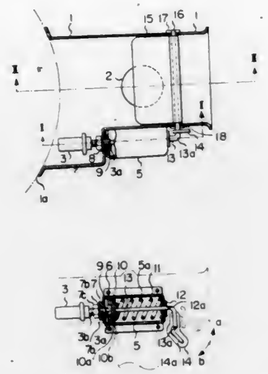
Claims priority, application Japan, Oct. 22, 1971, 46/84211; Oct. 30, 1971, 46/86503; July 22, 1972, 47/73706

Int. Cl. F02m *35/04*

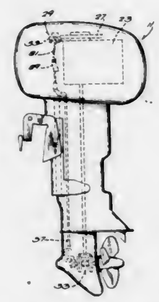
U.S. Cl. 123—122 D **3 Claims**

An intake air temperature automatic adjusting device for internal combustion engines, in which a temperature feeler hav-

ing a heat-sensitive expanding compound sealed therein is provided in a cold air intake pipe and a push rod adapted to be operated by said feeler and having a crank-shaped arm formed at one end thereof is engaged at said arm with a cam having formed therein a crank-shaped slot composed of a first slot section and a second slot section and further a directional control valve operating incident to movement of said cam for regulating the amounts of air supplied from said cold air intake pipe and a hot air intake pipe connected thereto is provided in said cold air intake pipe, whereby when said push rod is operated by said feeler, said directional control valve is shifted between said cold air intake pipe and hot air intake pipe, with said arm sliding in the first slot section of the crank-shaped slot of the cam and, when said push rod is further operated in excess of its preset stroke, the amount of movement of said push rod is absorbed by said cam, with said arm sliding in the second section of said crank-shaped slot.

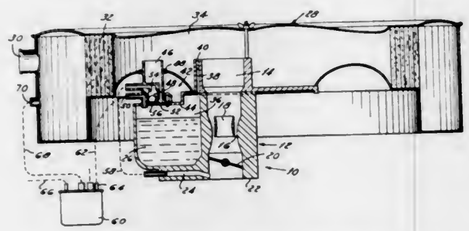


3,782,350
NEUTRAL START ONLY MECHANISM
Edward D. McBride, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed July 17, 1972, Ser. No. 272,552
Int. Cl. F02n *17/00*
U.S. Cl. 123—179 K **2 Claims**



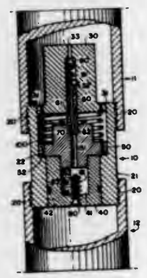
Disclosed herein is an engine including a reversing clutch and a starter pinion, together with a clutch actuating member movable relative to a neutral position, means for causing axial movement of the starter pinion toward a starting gear engaging position in response to rotation of a drive member and including a spring and means connecting the spring to the starter pinion for releasably and frictionally restraining rotary movement of the starter pinion and for common movement of the spring with the starter pinion axially of the axis of starter pinion rotary movement, a blocking element pivotally movable relative to a position blocking movement of the spring end therefore of the starter pinion in the direction toward the starting gear engaging position, and means connecting the clutch actuating member to the blocking element for displacing the blocking element to the blocking position when the clutch actuating member is moved from the neutral position.

3,782,351
FUEL VAPOR-LOSS CONTROL VALVE AND SYSTEM
Jerry B. Rogerson, 627 N. Rosevere, Dearborn, Mich.
Division of Ser. No. 191,266, Oct. 21, 1971. This application Oct. 2, 1972, Ser. No. 294,047
Int. Cl. F02d *19/00*
U.S. Cl. 123—136 **3 Claims**



Described is a valve and a system employing such valve to control fuel vapor-loss from the bowl of a carburetor. In the fuel vapor-loss control system, the valve is positioned between the fuel bowl of the carburetor and the air cleaner attached to it. In the preferred form, the valve has a valve body including three passages. The first passage extends from the carburetor fuel bowl to a point within the air cleaner. The second passage is located in part within the first passage, but includes a second part extending to a point outside of the first passage. A third passage is connected with the carburetor fuel bowl and with a canister for the storage of fuel vapor. The second passage in the valve body has a movable member for preventing flow of vapor from the fuel bowl of the carburetor to the air cleaner when the movable member is in contact with a valve seat. Movement of the movable member is controlled by engine manifold vacuum attached to one end of the second passage in the valve body.

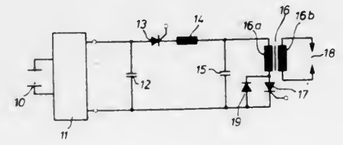
3,782,352
PRESSURE SENSITIVE FLUID INJECTOR AND POGO STICK UTILIZING SAME
Frederick J. Sparber, RD No. 1, Box 192A, Belen, N. Mex.
Filed July 26, 1971, Ser. No. 166,159
Int. Cl. F02m *49/00*
U.S. Cl. 123—139 AJ **4 Claims**



A fluid injector including a pressure sensitive piston through a hole in which is injected a predetermined quantity of fluid into an adjacent area, when a predetermined pressure is presented onto a face of the piston. The piston includes therein a cavity to contain the fluid to be injected and a valve in the hole for constraining the fluid within the cavity until the predetermined pressure is presented. As the pressure in the adjacent area increases, the fluid supply to the cavity of the piston is restricted, and the movement of the piston after the predetermined pressure is reached forces the fluid through the valve into the adjacent area.

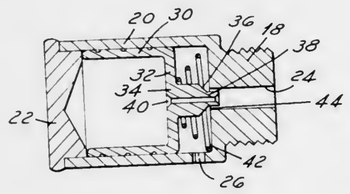
Also presented is a pogo stick incorporating a combustion engine, the fuel to which is fed by the fluid injector of the invention.

3,782,353
CAPACITIVE TYPE IGNITION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES
Heinz Kammerer, Nellingen, and Heinz Moller, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Sept. 30, 1971, Ser. No. 185,162
Claims priority, application Germany, Oct. 6, 1970, P 20 48 960.5
Int. Cl. F02p *1/00*
U.S. Cl. 123—148 E **9 Claims**



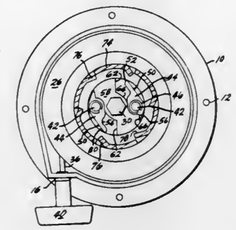
Energy from a storage capacitor is transferred to an ignition capacitor when a first switch is made conductive, and the spark is initiated by discharge from the ignition capacitor through the ignition transformer upon closing of a second switch. The current limiting element between the storage capacitor and the ignition capacitor is an inductance.

3,782,354
AUTOMATIC COMPRESSION RELIEF VALVE
Charles H. Tuckey, Cass City, Mich., assignor to Walbro Corporation, Cass City, Mich.
Filed May 5, 1972, Ser. No. 250,682
Int. Cl. F01l *13/08*; **F04b** *49/02*
U.S. Cl. 123—182 **4 Claims**



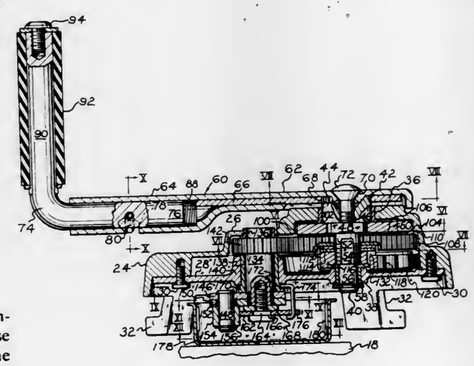
An automatic compression relief valve which opens an engine cylinder to atmosphere for starting and closes in response to cylinder pressure under normal operating conditions. The relief valve includes a hollow body having a screw-end to fasten into a cylinder wall, a valve passage and seat at the cylinder end of the valve body leading to a vent in the body, a cup-like piston positioned in the body with the open end facing away from the cylinder and valve seat, and a valve projection at the valve seat end of the cup having a perforation to the inside of the cup so that pressure in the cylinder will move the cup against a spring bias to close the valve seat from the vent during engine operation.

3,782,355
RECOIL STARTER
Lyle J. Hamman, Eaton Rapids, Mich., assignor to Eaton Stamping Company, Eaton Rapids, Mich.
Filed July 29, 1971, Ser. No. 167,216
Int. Cl. F16d *11/06*; **F02n** *1/00*; **F16d** *13/04*
U.S. Cl. 123—185 B **4 Claims**



A recoil starter construction for internal combustion engines particularly suitable for use with engines of the type used with snowmobiles and other recreational vehicles subject to heavy duty use. The starter employs a lightweight plastic rope pulley having a radially spaced shoulder within a rope receiving groove, and rope guide means defined within the groove insure the laying of the rope in the groove during recoiling in a predetermined manner which minimizes rope bind during cranking. The starter also utilizes a cam dog of a generally flat configuration having an outer periphery including dog-extending and dog-retaining surfaces, the cam dog positively retaining the engine clutch engaging dogs against operative contact with the flywheel components when the starter has recoiled and rewound the starter rope.

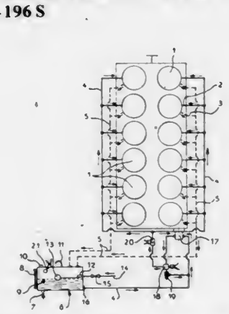
3,782,356
KICK STARTER
Lyle J. Hamman, Eaton Rapids, Mich., assignor to Eaton Stamping Company, Eaton Rapids, Mich.
Filed Feb. 28, 1972, Ser. No. 229,970
Int. Cl. F02n *3/04*
U.S. Cl. 123—185 C **8 Claims**



A kick starter for small internal combustion engines capable of being exteriorly attached to the engine flywheel housing in

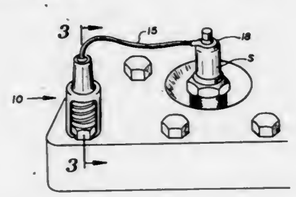
place of the usual recoil type rope starter. A pair of spaced parallel shafts are rotatably mounted at their end regions within a casing, one shaft being connected to a foot operated crank arm, and the other shaft supporting engine flywheel starter clutch mechanism. Meshing gears are mounted upon the shafts and one of the gears is connected to its associated shaft through a torque limiting connection permitting slippage to occur between the foot operated crank and flywheel clutch mechanism in the event of premature ignition or "backfire" during cranking. A recoil spring returns the crank arm to its original position after the cranking operation, and stop means insure consistent and uniform positioning of the crank arm to its original position at the end of the cranking stroke. The flywheel clutch mechanism includes a radially movable dog which engages a drive cup mounted upon the engine flywheel, and dog actuating structure radially extends the dog during cranking, and radially retracts the dog during return of the starter components to the non-cranking condition. A sheet metal crank defines a socket pivotally receiving a foot pedal and a pin limits rotation of the pedal in the socket.

3,782,357
INTERNAL-COMBUSTION-ENGINE VALVE-ROCKER AND VALVE-STEM LUBRICATION CIRCUIT
Karl Walter Kuhn, Saint-Germain-en-Laye, and Marcel Pierre Ernest Marie Corbin, L'Isle Adam, both of France, assignors to Societe d'Etudes de Machines Thermiques, Saint-Denis, France
Filed Mar. 3, 1972, Ser. No. 231,611
Claims priority, application France, Mar. 8, 1971, 7107906
Int. Cl. F16n *29/04*; **F01m** *11/10*
U.S. Cl. 123—196 S **2 Claims**



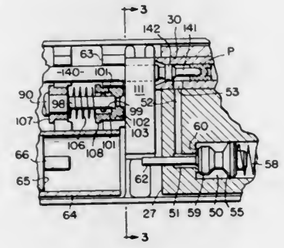
A valve-rocker and valve-stem lubrication circuit for an internal combustion engine provided with cooled valves and a general engine-lubricating circuit, wherein the improvement consists in that said valve-lubricating circuit is completely independent of said general engine-lubrication circuit.

3,782,358
ENGINE TEMPERATURE GUARD
John O. Lenz, Coon Rapids, Iowa, assignor to Havir Manufacturing Company, St. Paul, Mich.
Filed Oct. 4, 1972, Ser. No. 294,853
Int. Cl. F02b *77/00*; **F02p** *11/02*; **H01h** *37/76*
U.S. Cl. 123—198 DC **6 Claims**



A device for slowing down or stopping of sparkplug fired internal combustion engines whenever the engine reaches a predetermined temperature to prevent damaging of the engine including means for mounting a heat sensing device upon a selected portion of the engine and providing therein a conductive member being held in a first position by a heat destructable member and shiftable from this position when the heat destructable member has been destroyed to a second conducting position and including a conductive wire extending from the area of contact of the conductive member in its second position to the spark plug such that when the heat destructable holding element is destroyed the circuitry will be completed to short the electrical energy from the distributor to the engine block and thereby bypass the spark plug. An inspection aperture is provided to permit inspection of the unit without total removal from the engine block.

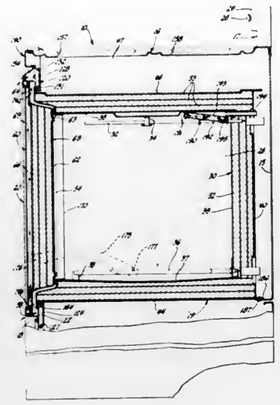
3,782,359
REMOVABLE CLIP WITH ROTARY PROJECTILE CYLINDER FOR A GUN
Charles E. Kester, Hilton, and Thomas E. Hughes, Palmyra, both of N.Y., assignors to The Coleman Company, Inc., Wichita, Kans.
Division of Ser. No. 128,910, March 29, 1971, Pat. No. 3,741,189. This application Mar. 9, 1973, Ser. No. 339,897
Int. Cl. F41c *25/10*, *25/08*
U.S. Cl. 124—48 **3 Claims**



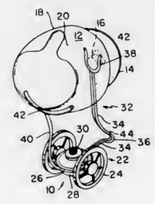
The clip comprises a housing and a rotatably indexible cylinder in the housing having thereon spaced clutch teeth which releasably engage through a central opening in the back of the housing like teeth formed on an indexing shaft that is pivoted in the gun. A plurality of pellets are removably mounted in angularly spaced chambers in the cylinder. The housing is removably insertable into a gun rearwardly of the gun barrel to have a small opening in the front of the clip register with the rear end of the barrel. The pellet chambers are indexed successively into registry with the gun barrel and the opening in the front of the housing by the indexing shaft which is rotated step-by-step upon cocking of the gun. A leaf spring in the housing prevents accidental rotation of the cylinder.

3,782,360
HEAT-CLEANING RANGE CONSTRUCTION
Byron L. Brucken, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 20, 1972, Ser. No. 308,027
Int. Cl. F24c *15/16*
U.S. Cl. 126—19 R **3 Claims**

A venting structure for a domestic range having a heat-cleaning oven wherein maximum cooling room air flow maintains reduced range cabinet surface temperatures during a heat-cleaning cycle. An oven liner is cantilevered from the front wall of the range and separated therefrom by a stainless steel throat member positioned around the oven liner access opening. Air channel means are provided to vent heated air from a vertical air passageway in the oven door to a plenum chamber beneath the range cooktop for exhausting via the surface heating units or back panel vents.



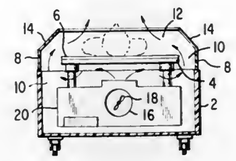
3,782,361
BRANDY WARMER & SERVER
Fred Hagen, 3351/2 S. Water St., Marine City, Mich.
Filed Apr. 23, 1973, Ser. No. 353,344
Int. Cl. F24c *3/08*
U.S. Cl. 126—43 **6 Claims**



A movable frame, including a heater support, which is connected to a stand for holding a brandy snifter above a heater. The stand holds both the stem and goblet portions of the snifter at an angle with respect to the heater for warming a greater surface area of the goblet. The snifter is rotatably mounted in the stand for warming the entire goblet and the brandy in the goblet. The frame may include either wheels or skids and the stand holds goblets of different sizes.

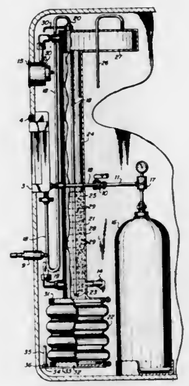
3,782,362
BABY INCUBATOR
Eugene T. Puzio, 1385 Nottingham Way, Trenton, N.J.
Filed June 1, 1971, Ser. No. 148,408
Int. Cl. A61g *11/00*
U.S. Cl. 128—1 B **13 Claims**

Baby incubators are provided with wall forming members projecting upward about the sides of a support for an infant and conditioned air is circulated over the inner surfaces of the walls in a manner to prevent loss of heat from the patient to the walls or ambient air. The construction in its preferred embodiments includes wall forming members movable to either



opened or closed positions whereby access to the patient is afforded while the preservation of a protective environment is assured.

3,782,363
PNEUMO-INFUFFLATOR APPARATUS
Gilbert L. Davis, 7620 N. 48th Ave., Glendale, Ariz.
Filed July 15, 1971, Ser. No. 162,908
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 R **2 Claims**



Apparatus is disclosed for providing pressurized gas to a cavity within a living person or animal for the purpose of assisting a physician or surgeon in carrying out diagnostic or corrective procedures. Very close control over the maximum pressure introduced within the body cavity is achieved by utilizing a water column as a back pressure element in such a manner that, when the gas pressure within the body cavity equals that exerted by the water column, further gas flow results in the escape of excess gas through the water column. The unit includes means for carrying an integral supply of pressurized gas and for selectively switching to an external supply of gas as well as means for rapidly adjusting the height of the water column and the gas flow rate. The water column includes a bellows structure at its lower end, and the means for adjusting the height of the water column operates to raise or lower the bottom of the bellows. The height of the water column is read on a water manometer.

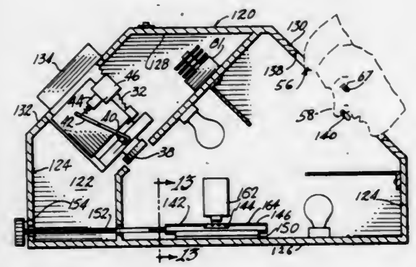
3,782,364
METHOD FOR DETECTING AND RECORDING ABNORMAL HUMAN EYE RESPONSES
John R. Watt, 2140 Peachtree Rd. Apt. 404, Atlanta, Ga.
Filed Dec. 20, 1971, Ser. No. 209,623
Int. Cl. A61h *5/00*; **A61b** *5/00*
U.S. Cl. 128—2 T **25 Claims**

This invention is believed especially useful for detecting and recording drug abuse and chemically or disease caused abnor-

malities in eye behavior. Its principal proposed method is to photographically record visible changes in the eyes caused by certain stimuli, including the intensity of ambient light.

The subject person is positioned so that his eyes are first photographed at short range by a "POLAROID"-type of camera in a regulated amount of light. Then the light conditions or other stimuli are changed in ways which normally stimulate known changes in the pupil sizes or direction of view, and a second photograph is recorded preferably on the same photo print alongside the previous image. At the same time the face of the subject is photographed for positive identification. The eye images can be photographed accurately enough to allow measuring the pupil diameters within acceptable limits of accuracy.

For further data, it may also be desirable to photograph more than two pictures of each pupil on the same print: one pair with a standard level of illumination or stimulation, the others with different amounts of illumination or different stimulations.



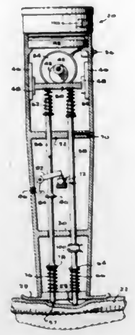
Apparatuswise, several embodiments of this system are possible. In one, the "POLAROID"-type camera can be mounted in one end of a "look-in" box, which has a face hole for the subject. This would have lights within to illuminate the subject's eyes with different and controlled amounts of illumination, starting with comfortable soft light and increasing greatly, all operated by a timing system which includes sequential timing switches electrically connected to the camera shutter and to the lights.

The camera or its view could be shifted in position slightly between successive photographs so as to put one image above, below or beside the other, or the subject's eyes could be induced to shift slightly from one side to the other between photographs, accomplishing the same result.

Instead of changing the light level as the stimulus, other embodiments of this system use other stimuli such as moving objects, verbal or pictorial stimuli, or psychological media. Either way, eyes which are drugged or are affected by certain nervous disabilities, photograph differently from normal ones.

3,782,365
DETECTOR FOR LOCATING VEINS IN LIVING BODIES
Sanford Pinna, 500 68th Ave. South, St. Petersburg, Fla.
. This application Mar. 13, 1973, Ser. No. 340,924
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 R **7 Claims**

A casing is provided with an elongated sensor rod and a marking rod mounted for axial reciprocation by a motor driven cam through compression springs so that the sensor is moved outwardly of the casing by a pulsating force with the end of the sensor engaging a living body so that the compressive force on the sensor depends on the resistance of the body, a latch release lug is held in latched position by an electromagnet controlled through a piezo crystal in the sensor for releasing the latch when compressive force on the sensor goes below a given level to release a spring urged marking rod for outward movement to mark the surface of the body in response to lessened resistance to outward movement of the sensor and consequent compressive force on the sensor occasioned by a vein positioned beneath the sensor.



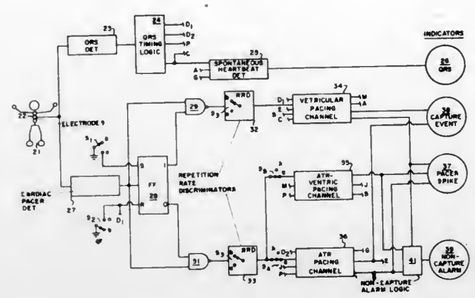
3,782,366
DENTAL PULP TESTER
Ronald W. Brown, 8340 S.W. 65th Ave., Miami, Fla.
Filed Mar. 16, 1972, Ser. No. 235,391
Int. Cl. A61b *10/00*
U.S. Cl. 128—2.1 R **5 Claims**



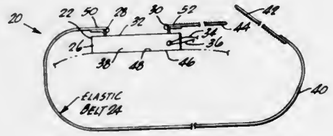
A hand-held dental pulp tester comprising in one integral unit means for selectively applying heat, cold, electrical shock and mechanical impact to the tip of the tester which is in contact with a patient's tooth.

3,782,367
"PACEMAKER" MONITORING TECHNIQUE AND SYSTEM
Howard Martin Hochberg, East Windsor, N.J., and Eugene King, Yardley, Pa., assignors to Hoffman-La Roche Inc., Nutley, N.J.
Filed Feb. 25, 1972, Ser. No. 229,495
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 A **23 Claims**

A monitoring system operates to indicate the effectiveness of cardiac pacer operation in a cardiac pacer carrying patient. A predetermined time interval from the onset of a pacer spike defines minimum and maximum specific times as criteria for establishing digital techniques to ascertain a capture event or whether the patient's QRS is driven by the pacer spike. Additional digital circuitry indicates when a non-capture event has occurred as the cardiac pacer output has failed. By selective switching which includes proper routing of the atrial and ventricular spikes, the system is adapted to monitor atrial, ventricular and atrial-ventricular sequential pacing, whether in the fixed or demand modes. With atrial-ventricular sequential pacing the predetermined interval from onset of the atrial spike defines minimum and maximum times to ascertain if atrial-ventricular capture has occurred.



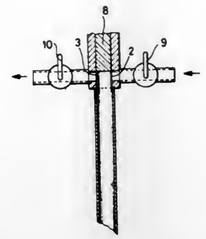
3,782,368
TRANSDUCER CONSTRUCTION AND SYSTEM FOR MEASURING RESPIRATION
Robert C. Reibold, Garden Grove, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed May 24, 1971, Ser. No. 146,156
Int. Cl. A61b *5/08*
U.S. Cl. 128—2.08 **7 Claims**



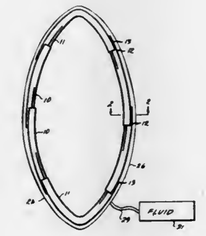
A moment-actuated transducer unit mounted to an elastic belt having Velcro-type fastener means for attaching the belt and transducer unit snugly around the chest or abdomen region of a subject's body provides a highly sensitive and easily installed respiration transducer assembly. The output of the transducer unit can be connected directly to a high input impedance recorder or to a signal conditioning circuit which includes an unfiltered output and a high frequency filtered output wherein a regular high input impedance recorder can be selectively connected to either of such outputs.

3,782,369
ENDOSCOPE WITH IRRIGATION MEANS
Karl Storz, Hermannstrasse 14, Tuttlingen, Germany
Filed Sept. 2, 1971, Ser. No. 177,349
Claims priority, application Germany, Apr. 3, 1971, 7112995
Int. Cl. A61b *1/12, 1/30*
U.S. Cl. 128—7 **3 Claims**

An endoscope comprising a shaft having a head in which is mounted an eye-piece for direct viewing. Inlet and outlet means for passing a fluid irrigation media through the shaft is provided beneath the head. A transparent body extends from the eye-piece to the inlet-outlet means and serves to prevent formation of air bubbles or the entrapment of particles in the head.



3,782,370
SURGICAL RETRACTOR
Bernard McDonald, 18212 Pacific Coast Hwy., Malibu, Calif.
Continuation-in-part of Ser. No. 230,299, March 1, 1972. This application July 12, 1972, Ser. No. 271,037
Int. Cl. A61b *17/02*
U.S. Cl. 128—20 **12 Claims**

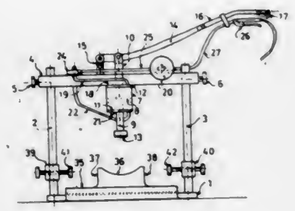


This surgical retractor has a pair of opposed slat-like sides interconnected by an elastic V-shaped end piece so that the side slats are elastically bowed in arcuate paths with the concave sides of the slats facing each other. Each of the slats has cooperating ratchet and pawl arrangements to permit substantially free lengthwise extension and restricted lengthwise retraction for enlarging the size of the retractor. An extensible inflatable tube extends around the retractor and is intermittently connected thereto for extending the retractor in response to increasing fluid pressure in the tube.

3,782,371
RESUSCITATION APPARATUS FOR SIMULTANEOUS CARDIAC MASSAGE AND ARTIFICIAL RESPIRATION
Rene Derouineau, Moulin de Pelissey, Gradignan, France
Filed May 26, 1972, Ser. No. 257,076
Claims priority, application France, June 7, 1971, 71.21400
Int. Cl. A61h *31/00*
U.S. Cl. 128—28 **10 Claims**

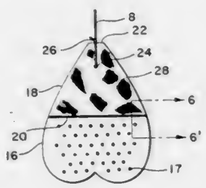
A light and self-contained device which allows resuscitation of an accident victim by a single person, even if inexperienced in resuscitation techniques. The apparatus has a base on which are mounted two vertical columns which are sufficiently spaced apart to admit the chest of a prone person. On the upper portions of these columns slides a cross-piece which can be clamped on the columns at an adjustable distance from the

base. A vertical cylinder is mounted below the centre of the crosspiece and in it slides a piston provided with two piston rods. The upper rod is linked to a second order lever with which the piston can be reciprocated vertically. The lower piston rod is provided at its lower end with a rubber-based plunger for application to the chest of the patient. The upper end of the cylinder is linked by a pipe to a rubber air reservoir balloon. The lower end of the cylinder is linked by a pipe to a bellows made of a flexible, synthetic material. The air reservoir balloon is connected by a pipe to a face-mask for pumping air to the patient. The bellows is linked to a pistol with a manually controlled valve for suction of vomit from the mouth of the patient. In the piping of the face-mask is situated a



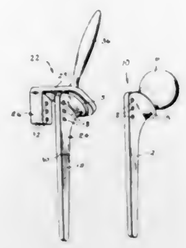
safety valve set for a determined excessive air pressure, and on the pipe circuit for suction of vomit is placed a vomit reservoir. By means of T-pieces, the pipes connecting the cylinder to the balloon and the bellows are connected to a three-way valve on the crosspiece, allowing the connection to atmosphere of one or the other of these elements. A movable panel between the columns supports the head and chest of the patient and movement of the panel allows the plunger to be situated precisely at the base of the sternum of the patient. The handle of the lever is adjustable and dynamometric, so that the force applied to the chest by the plunger can be adjusted to the size of the rib cage and the age of the patient, to avoid possible fracture of the ribs.

3,782,372
CAMOUFLAGED DEVICE FOR TEMPORARY FACE LIFTING
Jacqueline H. Carlton, Rt. 3, Box 359, Ft. Pierce, Fla.
Filed Apr. 20, 1972, Ser. No. 245,865
Int. Cl. A61f *5/08*
U.S. Cl. 128—76 B **4 Claims**



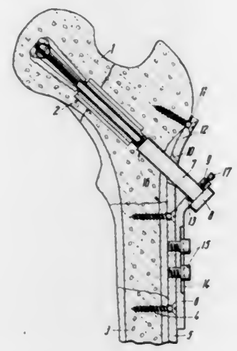
Tabs are applied adhesively to each side of the face and pulled upward by attached cords passed through the hair atop the head. The tabs are heart-shaped and divided into two sections— a skin-colored adhesive section and a reinforced section covered with hair-colored cloth and pierced to receive the cord. A protective paper cover is provided for use over the adhesive section before use.

3,782,373
DRILL JIG FOR A FEMORAL PROSTHESIS
Walter J. Smythe, Mentone, Ind., assignor to Orthopedic Equipment Company, Inc., Bourbon, Ind.
Filed May 22, 1972, Ser. No. 255,817
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 EB **2 Claims**



A jig for forming one or more holes in the femur for the purpose of accommodating securement means utilized to anchor a prostheses forming a part of a hip joint to the femur. The jig includes an insert which is shaped like the shank of the femoral prosthesis and which is fitted into and seated in the femur in substantially the same manner as the prosthesis. This insert of the jig contains one or more guide bores for a work tool which forms one or more holes in the femoral bone for the purpose of accommodating the securement means utilized to anchor the prosthesis to the femur.

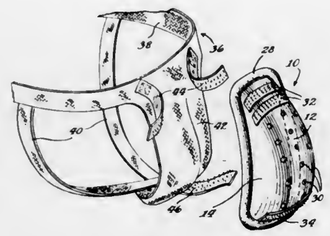
3,782,374
SURGICAL DEVICE
Artur Fischer, Altheimer Strasse 219, Tumlingen, Germany
Filed Aug. 16, 1972, Ser. No. 281,057
Claims priority, application Germany, Aug. 17, 1971, 2141111
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 BB **9 Claims**



A surgical device for joining broken bone segments includes a rail member configurated to abut against one segment of the bone and has an aperture therein. A holder member has an aperture therein and is configurated to slide along the rail member and has a longitudinal slot through which fixing screws can pass and engage with the rail member for fixing the members against relative movement with respect to one another. An elongated connecting means passes through the apertures of the rail member and of the holder member. Each

of the apertures define a pivot point in which the elongated member is pivotally mounted and forms an angle with the bone which is a function of the relative positions of the two members. One end of the elongated member is anchored to the holder member and another end is fixed to another segment of the bone, the elongated member being arranged to pull the last-mentioned segment towards said holder member while abutting against said rail member.

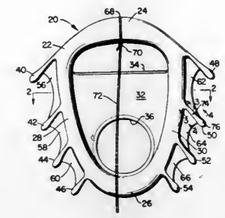
3,782,375
ATHLETIC PROTECTOR
Davis W. Donars, 7520 Main St., Downers Grove, Ill.
Filed Apr. 7, 1972, Ser. No. 242,085
Int. Cl. A41b *9/12*
U.S. Cl. 128—158 **5 Claims**



An athletic protector comprising a substantially rigid cup or shell integrally formed with a generally U-shaped configuration in transverse cross-section wherein the front curvilinear wall merges with opposite spaced side walls, which side walls are generally parallel to each other along the length of the shell, and wherein the distance between the spaced side walls forming the width of the shell is substantially uniform and equal throughout the length of the shell, and in which the side edges have a slight curvature extending from the top downwardly, with the bottom transverse edge extending slightly above the bottom point of the shell, with said bottom transverse edge extending rearwardly of a vertical plane passing through the top transverse edge of the shell, so that said rear bottom edge extends between the legs and under the scrotum of the wearer, said shell adapted to be detachably secured to a jock-strap support but spaced from the occupied pouch so that any blow or impact against the shell will not be transmitted to the occupied pouch or to the organs therein supported. The shape of the shell is such that it may be comfortably worn without interfering with the movement of the legs.

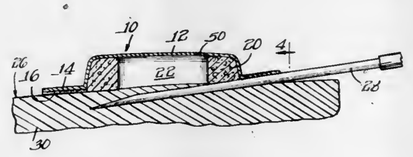
3,782,376
INTRAUTERINE CONTRACEPTIVE DEVICE
Irwin S. Lerner, Greenwich, Conn., assignor to A. H. Robins Company, Incorporated, Richmond, Va.
Filed June 23, 1971, Ser. No. 155,769
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **115 Claims**

An intrauterine contraceptive device made from plastic and having a perimetral ring with or without a central membrane and including short retrograde spurs having bulbous contour located on each of the outer side portions of the perimetral ring. The spurs preferrably have a retrograde inclination and are of decreasing length from a nose portion of the perimetral ring toward the tail portion, the nose portion being slightly wider than the tail portion providing the IUD with an inverted pear shaped outline when viewed in plan. A marker and extraction string or line is preferrably secured at the nose portion but can be secured to the tail portion. Between spurs, thin webs may be utilized to provide increased IUD surface area. The webs may or may not be secured to the spurs and may terminate between or beyond the spurs. Internal of the perimetral ring is preferrably a membrane having openings at



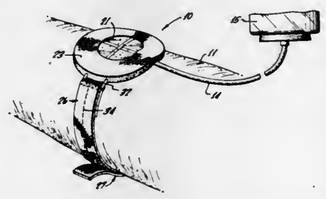
least adjacent the nose and the tail. The membrane may be secured at both sides or it may be secured by a plurality of intermediate narrow membrane portions spaced around the interior of the perimetral portion.

3,782,377
STERILE PLASTIC SHIELD
Frank J. Rychlik, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Sept. 7, 1971, Ser. No. 177,951
Int. Cl. A61f *13/00*
U.S. Cl. 128—132 **2 Claims**



The present invention relates generally to improvements in protective shields for application to a body surface area in which an infusion needle has been inserted. An embodiment of the invention disclosed herein includes a relatively rigid transparent cup-shaped cover or shield member and a laterally flexible circumferential flange radiating from the open margin of the cover member. Surrounding the interior wall of the cover member is a disinfectant impregnated wick-like member. The flange is adapted for adhesive attachment to the above-mentioned surface area.

3,782,378
SHIELD FOR INTRAVENOUS FEEDING APPARATUS
Sarah J. Page, 1218 Concord Ave., Fullerton, Calif.
Filed Oct. 12, 1972, Ser. No. 296,919
Int. Cl. A61f *13/00*
U.S. Cl. 128—133 **8 Claims**



A shield for surrounding and protecting an infusion needle during an intravenous feeding operation and for holding the

excess fluid supply tubing while permitting visual observation of the intravenous fluid. A soft, resilient, non-absorbent annulus surrounds the infusion needle and has a wire, stiffening ring in contact with the top surface thereof. A transparent, flexible window covers the opening in the center of the annulus and is sealed to the top surface thereof by an annular cover. A pair of elastic bands are connected to the stiffening ring and extend across the center thereof to hold the excess tubing in place. First and second bands are connected to the stiffening ring for connecting the shield to an arm or leg.

3,782,379

METHOD OF OBTAINING ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER EAR PLUGS

Warren R. Lampe, Ballston Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Division of Ser. No. 76,265, Sept. 28, 1970, Pat. No. 3,696,090. This application Jan. 24, 1972, Ser. No. 220,532

Int. Cl. A61f *1/02*; **B29c** *5/00*

U.S. Cl. 264—222 **1 Claim**

A room temperature vulcanizable silicone rubber composition comprising, (a) a high molecular weight liquid diorganopolysiloxane having terminal hydroxy groups bonded to the silicon atom and a viscosity of 3×10^6 to 2×10^8 centipoise at 25°C, (b) 0–60 percent by weight of said high molecular weight organopolysiloxane of a low molecular weight liquid organopolysiloxane having terminal hydroxy groups bonded to the silicon atoms and a viscosity of 100 to 3.0×10^5 centipoise at 25°C. There is also present a filler and an alkyl silicate which acts as the cross-linking agent during curing of the composition. As a catalyst there is used a metallic salt of an organic monocarboxylic acid. The composition may be mixed and placed in the ear canal to form an ear plug in situ.

3,782,380

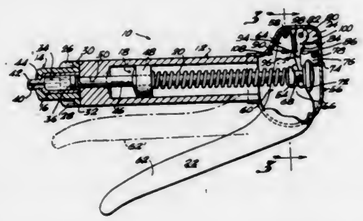
MEDICAMENT INJECTING DEVICE

Harry Van Der Gaast, 289 N. Hibiscus Dr., Miami Beach, Fla.

Filed Jan. 4, 1973, Ser. No. 320,994

Int. Cl. A61m *11/08*

U.S. Cl. 128—173 H **10 Claims**



A device for pressure administration of a fluent medicament in which a cartridge, containing the medicament, includes a small discharge orifice in communication with an enlarged chamber containing the medicament, encapsulated therein by a dispensing piston. The capsule is removably mounted in one end of a barrel of the device containing a force transmitting means, operable by a handle lever, to discharge the medicament from the orifice at a skin-penetrating pressure. Means are provided for automatically resetting the device for subsequent use with another cartridge when hand applied pressure is released from the handle.

3,782,381

METHOD FOR PREVENTING SKIVING OF A CATHETER

Alon P. Winnie, Wilmette, Ill., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Nov. 26, 1971, Ser. No. 202,256

Int. Cl. A61b *17/34*; **A61m** *25/00*

U.S. Cl. 128—214.4 **2 Claims**



A catheter for the administration of fluids into the body which includes a length of precurved, flexible tubing permanently attached to a gripping member having a winglike structure projecting therefrom.

A catheter assembly comprising a catheter having a precurved distal portion and a gripping member permanently attached thereto, an introducer needle disposed partially in the catheter and a sleeve slidably disposed over the catheter tubing, the sleeve being operable to prevent internal skiving of the tubing when the introducer needle is moved forwardly within the catheter tubing. A detachable, rigid grip is provided which may be used to operatively connect the introducer needle with a syringe or other pressure indicating accessory.

3,782,382

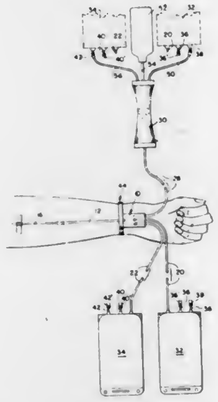
MEANS FOR BLOOD ADMINISTRATION AND THE LIKE

Henry Naftulin, and Leon Kirschner, both of Skokie, Ill., assignors to K-N Enterprises, Inc., Skokie, Ill.

Filed Feb. 3, 1972, Ser. No. 223,236

Int. Cl. A61m *5/00*

U.S. Cl. 128—214 R **8 Claims**



Fluid or blood administration equipment comprising, a plastic manifold, a plurality of flexible conduits connected at one end to said manifold and at their opposite ends each respectively connected to a bag for receiving blood, another flexible conduit connected to said manifold at one end with the opposite end of said flexible conduit adapted to be connected to a blood flow tube, another flexible conduit adapted to be connected at one end to said manifold with the opposite end thereof connected to an intravenous needle, with said pair of conduits leading to said blood bags having at their inner ends within said manifold a removable valve and with said manifold having a filter at the inner end of the conduit from

the needle, and a band secured to said manifold whereby said band is strapped around the wrist or arm of the patient to prevent dislodgement of the needle if there should be any pull on the equipment.

3,782,383

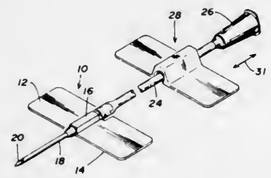
WINGED INFUSION HOLDING DEVICE WITH THERMOPLASTIC ELASTOMERIC BODY

Thomas C. Thompson; John L. Center, both of Dallas, Tex., and Paul M. Stocton, Clarendon Hills, Ill., assignors to Vicra Sterile, Inc., Dallas, Tex.

Continuation of Ser. No. 184,555, Sept. 28, 1971, abandoned. This application Mar. 6, 1973, Ser. No. 338,424

Int. Cl. A61m *5/00*, *5/32*

U.S. Cl. 128—214 **14 Claims**



An intravenous infusion device includes a first wing member attached to a needle. A flexible conduit for supplying fluid to the needle is connected thereto via an intermediate sleeve of the same material as the conduit. A tiedown wing is removably attached to and movable along the conduit. Both the wing portion attached to the needle and the movable tiedown wing are composed of a synthetic thermoplastic elastomer, preferably a block copolymer of styrene and butadiene.

3,782,384

SURGICAL SUCTION JAR

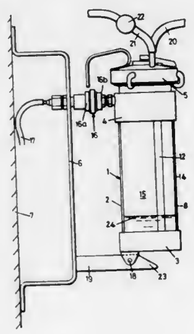
Claus Jurgen Timmermans, Schiphorsterweg 15, De Wijk, Netherlands

Filed Feb. 16, 1971, Ser. No. 115,420

Claims priority, application Netherlands, Feb. 20, 1970, 7002440

Int. Cl. A61m *1/00*

U.S. Cl. 128—277 **7 Claims**



A surgical suction jar is provided with a disposable flexible bag having two nipples at the top passed in air-tight fashion through the cover of the jar. One nipple has an extension to the bottom of the bag into a layer of antiseptic liquid acting as a water seal and can be connected to a conduit to be attached to a catheter. The other nipple is connected to a source of vacuum for the application of vacuum to the interior of the bag. The bag is maintained in relatively inflated condition by means of vacuum applied to the interior of the jar outside the bag, for which purpose the jar has a third passage for connection to the source of vacuum. In a preferred embodiment the interior of the bag and the interior of the jar outside the bag are selectively connected to the source of vacuum and the atmosphere through a three-way valve, and a pressure reducing valve controls the vacuum applied to the interior of the bag.

3,782,385

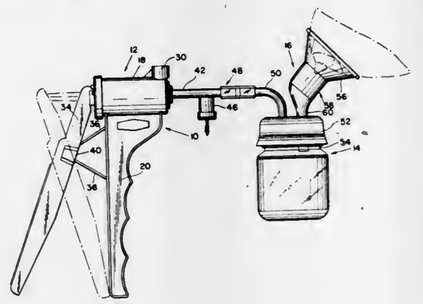
BREAST PUMP

Patrick V. Loyd, 6117 Parkway Dr., West Laurel, Md.

Filed Oct. 24, 1972, Ser. No. 300,394

Int. Cl. A61m *1/06*

U.S. Cl. 128—281 **5 Claims**



A breast pump utilizing a breast receiving element in the shape of a truncated cone in which the base of the cone is enlarged in order to avoid constriction of the nipple disposed therein and which further employs a suction pump capable of exerting various levels of vacuum force as required by the user.

3,782,386

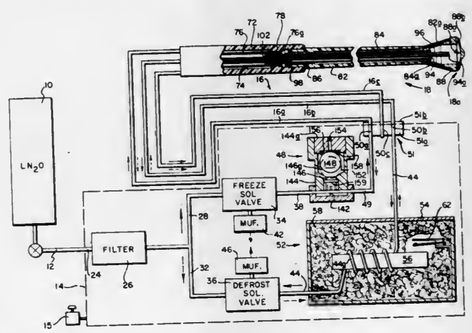
CRYOSURGICAL APPARATUS

J. P. Barger, Winchester; William H. Crandell, Westboro, both of Mass., and Thomas W. Gardner, South Nashua, N.H., assignors to Dynatech Corporation, Burlington, Mass.

Filed May 8, 1972, Ser. No. 251,433

Int. Cl. A61b *17/36*

U.S. Cl. 128—303.1 **18 Claims**



Cryosurgical apparatus feeds liquid refrigerant to the hollow tip of a cryosurgical probe through a first conduit to freeze

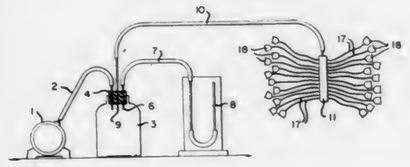
the tip, the refrigerant exhausting from the tip through a second conduit. To defrost the tip, refrigerant in the second conduit is heated and then back-flushed through the tip so that it exhausts therefrom through the first conduit. To maintain proper fluid flow through the probe during the defrost mode of operation, the probe contains a third conduit which bleeds fluid from the tip during both modes of operation.

3,782,387

APPARATUS AND METHODS FOR OBTAINING AND MAKING SKIN GRAFTS

Rafael Falabella, Calle 46 Norte No. 5 AN-60, Cali, Colombia

Filed Feb. 29, 1972, Ser. No. 230,336
Int. Cl. A61b *17/32*
U.S. Cl. 128—305.5 **7 Claims**



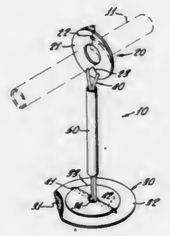
An apparatus and method are provided for obtaining skin grafts and making skin grafts by subjecting a donor site to vacuum to produce blistering of the epidermal layer and removing and transferring the blister to the recipient site.

3,782,388

MEDICAL TUBE HOLDER

Sarah J. Page, 1218 Concord Ave., Fullerton, Calif.

Filed June 6, 1972, Ser. No. 260,115
Int. Cl. A61m *25/02*
U.S. Cl. 128—348 **8 Claims**



An article for attaching a medical tube to the body of a patient comprising a clip releasably connectable to the medical tube, a pad having an adhesive on one side thereof for adherence to the body of the patient, and a flexible, stretchable band connected between the clip and the pad.

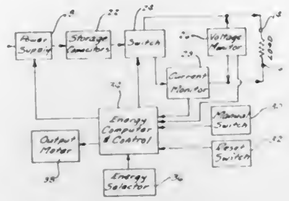
3,782,389

COMPUTER CONTROLLED DEFIBRILLATOR

David Bell, Omaha, Nebr., assignor to Health Technology Labs, Inc., Omaha, Nebr.

Filed Jan. 20, 1972, Ser. No. 219,455
Int. Cl. A61n *1/36*
U.S. Cl. 128—419 D **4 Claims**

A computer controlled defibrillator comprising a set of electrodes which are engageable with a patient and which are connected to a source of electrical energy by a circuit means. The circuit means comprises storage capacitors, energy selector, computer, manual and reset switches, voltage monitor, current monitor, and output meter. The computer responds to certain external inputs, automatic and manual, and controls the output delivered to the patient. The energy selector permits the selection of the energy which is desired to be delivered to the patient. The sequence is started by closing the manual reset switch which zeroes the output meter and activates the power supply (electric energy) at a voltage which is dependent on the energy selector. The energy drived from the power supply is stored in the storage capacitors. The energy



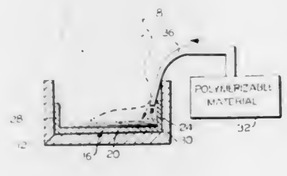
selector, which is manually set to the energy desired, also feeds an input to the computer. When the manual switch is activated, the computer causes the stored energy source to be connected to the patient through the electrodes. The current monitor and voltage monitor feed instantaneous signals to the computer which computes the energy as a continuous integration process. When the computer energy equals the selected energy, the computer causes the energy source to be disconnected from the patient. The total energy delivered to the patient is indicated as a steady reading on the output meter.

3,782,390

PEDICURE PROSTHESIS FOR THE METATARSAL ARCH OF THE FOOT

Amos N. Johnson, P.O. Box 158, Garland, N.C.

Filed July 23, 1971, Ser. No. 165,610
Int. Cl. A41f *5/14*
U.S. Cl. 128—595 **14 Claims**



A support for the metatarsal arch of the foot is formed by injection of a self-curing non-foamable fluid material into the arch support enclosure. This fluid material automatically cures into a rigid support or prosthesis for the arch of the foot. This polymerizable material is normally contained in either a insert under the foot or by a balloon like material, in either case the polymerizable material is pumped or injected into the resulting enclosure. The same method can be used to form in situ prosthesis casts for any part of the body, i.e., to form splints, braces, etc., contured directly to the portion of the human body for which it is designed to lend support. The self-curing material is preferably a cross-linkable prepolymerized material which includes an initiator, and the self-curing is achieved by the application of mild temperatures, e.g., 120° F.

3,782,391

β-METHYLVALERIC ACID ALKYL ESTERS AS TOBACCO FLAVORANTS

Richard E. Means; Andrew G. Kallianos, and Kinwood P. Tenney, all of Durham, N.C., assignors to Liggett & Meyers Incorporation, New York, N.Y.

Filed Mar. 24, 1971, Ser. No. 127,792
Int. Cl. A24h *15/04*
U.S. Cl. 131—17 R **5 Claims**

An article of manufacture comprising tobacco and a small but effective amount of a flavoring agent selected from the group consisting essentially of C_n–C_{10} alkyl esters and β-phenethyl ester of β-methylvaleric acid. The esters haye such volatility that the greater part of the ester is released into the smoke stream, as said ester without decomposition during smoking.

3,782,392

SMOKING TOBACCO COMPOSITION

Matthew Sallee Monte, deceased, 181 Highland Ave., late of Stratford, Conn. (by Teresa B. Monte, administratrix)

Filed May 13, 1971, Ser. No. 143,193
Int. Cl. A24b *03/14, 15/00*
U.S. Cl. 131—17 **2 Claims**

This invention is for a new smoking composition having improved burning characteristics and comprises tobacco, an ammonium polyphosphate of high molecular weight and a natural or synthetic gum binder. The average molecular weight of the polyphosphate is between about 20,000 and 1,500,000 and the tobacco constitutes about 60–95 percent of the composition.

3,782,393

METHOD OF MAKING A CIGARETTE OF REDUCED BIOLOGICAL DAMAGE CAPABILITY

Irving Michelson, New Rochelle, N.Y., assignor to American Safety Equipment Corporation, New York, N.Y.

Filed Aug. 2, 1972, Ser. No. 277,335
Int. Cl. A24b *15/02*; **A24d** *1/02*
U.S. Cl. 131—9 **7 Claims**

This invention relates to a method for making a cigarette which has the same smoking properties as an ordinary cigarette but reduces components contained in the smoke of such a cigarette which cause cancer on the skin of mice. The method includes adding to the cigarette paper calcium sulfamate in an amount of from 0.1% to 1.0%, by weight, based on the combined weight of the tobacco and cigarette paper. Ammonia is added to the tobacco in an amount of from 0.015% to 0.15%, by weight, based on the combined weight of the cigarette paper and tobacco and the tobacco containing ammonia is wrapped with the cigarette paper containing the sulfamate salt. The preferred amount of calcium sulfamate in the paper, by weight, is from 0.2% to 0.8% and the preferred amount of ammonia in the tobacco is from 0.03% to 0.12%, by weight.

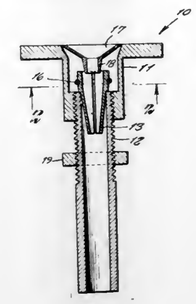
3,782,394

CIGARETTE SNUFFING DEVICE FOR VEHICLES

Milton Foote, 831 S. Water St., Silverton, Oreg.

Filed May 1, 1972, Ser. No. 249,188
Int. Cl. A24f *13/18*
U.S. Cl. 131—256 **1 Claim**

A device for installation in automotive vehicles for safely snuffing out cigarettes. The device primarily includes a base fitting in which is carried an expandable split tube which is



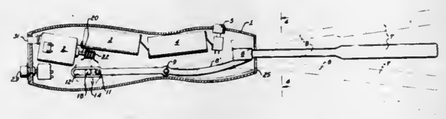
tapered at its lower extremity in order to snuff out a cigarette completely, prior to the placing or urging it into an ashtray.

3,782,395

HAIR TEASER

Toby R. Sarna, 12 Avalon Dr., North Little Rock, Ark.

Filed Sept. 29, 1971, Ser. No. 184,680
Int. Cl. A45d *2/00*
U.S. Cl. 132—9 **6 Claims**



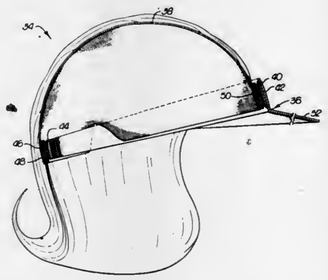
A hair teasing device has a handle portion housing a source of power which is connected to a movable hair teasing implement extending out of the forward portion of the handle. The source of power, preferably electric, is connected to an eccentric in driving association with the shank of the implement to move same back and forth about a pivot and rock a hair teasing member.

3,782,396

DETACHABLE AND INTERCHANGEABLE COMBINATION WIG AND HAT

Barbara L. Tomlinson, 812 S. Burnside Ave., Los Angeles, Calif.

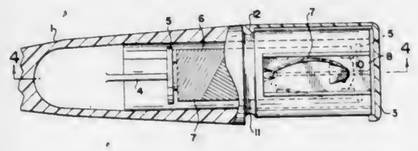
Filed Sept. 10, 1971, Ser. No. 179,361
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 **5 Claims**



A combination wig and hat wherein either the wig or the hat may be detached, one from the other, and a different wig or

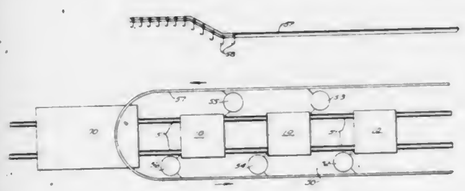
hat substituted, as the case may be, easily and rapidly. The invention is also adapted for a combination wig and cap, which is equally detachable and interchangeable, the one from the other, and for a combination visor and wig, which also can be easily and rapidly detached and interchanged, the one from the other.

3,782,397
TOOTHBRUSH AND DENTAL-FLOSS DISPENSER
Robert C. McCord, Florence, Mass., assignor to Vistron Corporation, Cleveland, Ohio
Filed Oct. 13, 1972, Ser. No. 297,210
Int. Cl. A45d *44/18*
U.S. Cl. 132—84 A **1 Claim**



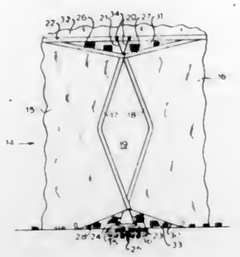
A toothbrush is described which is so constructed as to contain a novel dental-floss dispenser in the handle thereof.

3,782,398
APPARATUS FOR TRANSPORTING, UNLOADING AND PROCESSING LIVE POULTRY
James B. Powell, 8 Bon Haven; Beverly G. Yeiser, Robin Rd., and Joseph R. Lightner, Rt. 4, all of Winchester, Ky.
Filed May 22, 1972, Ser. No. 255,842
Int. Cl. B08b *3/00*
U.S. Cl. 134—133 **7 Claims**



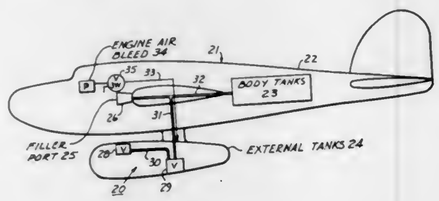
Apparatus and method for loading, transporting, unloading and processing live poultry, wherein poultry is loaded into foraminous metal enclosures, each enclosure having a plurality of tiers of superimposed compartments of equal size, a slidable access door to each enclosure, readily releasable locking means for each door, and rollers mounted on the bottom of each enclosure. Track means are provided at a processing plant along which said enclosures are aligned and moved through unloading stations, with means at a final unloading station to elevate each enclosure to facilitate unloading the lowermost compartments, and a washer-sterilizer into which an unloaded enclosure is moved and subjected to high-velocity jets of hot water, steam, detergent, germicide and the like to clean & sterilize all surfaces. The enclosures are placed in a truck trailer when loaded with poultry for transportation to the processing plant and are returned in the same manner after unloading and cleaning.

3,782,399
SELF CLOSING TENT DOOR
Freddy L. Milner, 904 Flewelling Ave., Ocoee, Fla.
Filed Mar. 6, 1972, Ser. No. 231,929
Int. Cl. A45f *1/08*
U.S. Cl. 135—14 D **2 Claims**



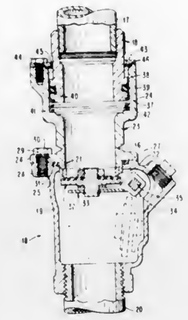
A tent door apparatus is provided which is self closing and has a pair of flaps which overlap and each flap is suspended from either end with an elastic material so that the flaps can be pulled apart for entry into the tent and will automatically close when the flaps are released. The suspension elastic cords are attached at the top to the frame of the tent and at the bottom to a stake driven in the ground, and are separated to pull the flaps into overlap.

3,782,400
VALVING SYSTEM FOR SUPPLYING FUEL TO TANKS AND TRANSFERRING FUEL BETWEEN TANKS
Artson P. Hardison, and E. Ellsworth Hieber, both of Glendale, Calif., assignors to Xar Industries Incorporated, City of Industry, Calif.
Filed Mar. 17, 1972, Ser. No. 235,613
Int. Cl. F16k *31/34*
U.S. Cl. 137—39 **10 Claims**



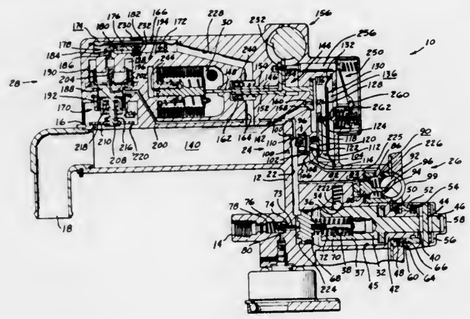
A flow control system to admit fuel to an aircraft fuel tank and to provide for fuel transfer between that tank and another tank. The system includes a pilot valve which is sensitive to fuel level at an upper elevation of the tank, and a flow valve disposed at a lower elevation of the tank. A fuel conduit connects the flow valve to a source of supply and to other tanks to which fuel is to be transferred, and a pilot line interconnects the pilot valve and the flow valve. The flow valve is a differential pressure type valve, and a flow signal for selecting its flow condition is supplied by the pilot valve. Means is provided to change the condition of the pilot valve for shutoff and for checkout purposes. The flow valve may also include shutoff means responsive to an empty tank and to negative g-forces.

3,782,401
SHUT-OFF VALVE ASSEMBLY
Glenn E. Moore, and Robert C. Carl, both of Cincinnati, Ohio, assignors to Dover Corporation, Cincinnati, Ohio
Division of Ser. No. 55,436, July 16, 1970, abandoned. This application July 20, 1972, Ser. No. 273,394
Int. Cl. F16k *17/36*; **F16l** *21/02*
U.S. Cl. 137—68 **10 Claims**



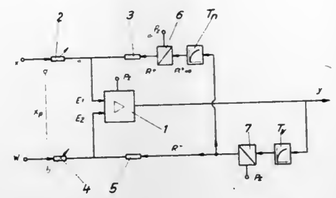
A shut-off assembly has a tubular member supported thereby for connection to a fixed conduit of a pump pedestal so that the tubular member may move with respect to the shut-off valve assembly both axially and pivotally relative to its axis.

3,782,402
SERVO CONTROLLED OXYGEN REGULATOR
Robert L. Cramer, and John W. Henneman, both of Davenport, Iowa, assignors to The Bendix Corporation, South Bend, Ind.
Filed Oct. 24, 1972, Ser. No. 300,073
Int. Cl. A62b *9/00*
U.S. Cl. 137—81 **11 Claims**



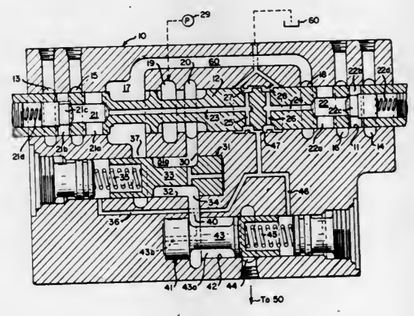
An oxygen regulator wherein oxygen under pressure passes into a mixing chamber through a first inlet port and a first valve, controlled by a first pressure differential, and ambient air passes into the mixing chamber through a second inlet port and a second valve, controlled by a second pressure differential, to provide breathable fluid capable of maintaining physiological well being in a recipient. The first and second pressure differentials are created by the pressure in the mixing chamber and ambient air pressure. A proportional valve controlled by an aneroid, modifies the effect of the first and second pressure differentials causing the first and second valve to correspondingly open and supply the mixing chamber with correctly ratioed oxygen and ambient air.

3,782,403
CIRCUIT FOR PNEUMATIC CONTROLLERS
Horst Bader, Stuttgart-Fasanenhof, Germany, assignor to J. C. Eckardt AG., Stuttgart, Germany
Filed Aug. 13, 1971, Ser. No. 171,635
Claims priority, application Germany, Aug. 13, 1970, P 20 40 169.8
Int. Cl. G05d *16/00*
U.S. Cl. 137—86 **20 Claims**



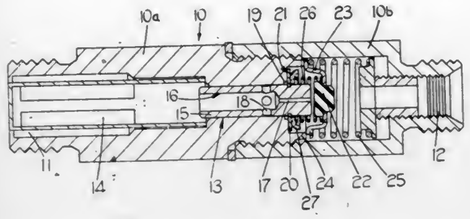
A circuit for pneumatic PID controllers including a differential pressure amplifier having positive and negative feedback paths each including a timing element and a pressure divider wherein a buffer amplifier is connected between the timing element and the control point pressure divider and/or between the timing element and the setpoint pressure divider for energy decoupling.

3,782,404
ADJUSTABLE, METERED, DIRECTIONAL FLOW CONTROL ARRANGEMENTS
Robert F. Hodgson, Canfield, Ohio, assignor to Commercial Shearing Inc., Youngstown, Ohio
Filed June 14, 1972, Ser. No. 262,460
Int. Cl. G05d *15/00*
U.S. Cl. 137—101 **6 Claims**



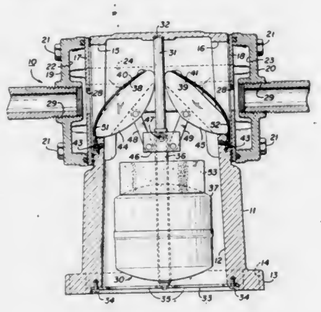
A directional control valve is provided having a pair of standard work positions and a pair of extreme work positions and having a pressure compensating piston arranged between an input and a parallel input line controlling the flow to said control valve, said compensating valve acting as a check valve when the control valve is in its extreme positions and a flow dividing and control valve between the pressure compensating valve and an overflow outlet for delivering excess fluid to a separate load circuit.

3,782,405
RELIEF VALVE
Matthew Potts, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Apr. 24, 1972, Ser. No. 246,582
Claims priority, application Great Britain, Apr. 29, 1971, 12249/71
Int. Cl. F16k 17/06
U.S. Cl. 137—110 5 Claims



A relief valve includes a plunger in a bore in a body which is movable against spring loading by the pressure in the body to a position such that fluid can spill past the plunger when the pressure rises above a predetermined level. The plunger has a restricted passage through which vapour can leak away. On application of pressure to the bore the plunger is first moved against a light spring until it engages a closure member which closes the passage and the plunger and closure member there after move against a stronger spring to control spilling.

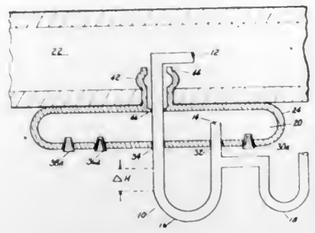
3,782,406
FLUID SEPARATOR
Howard E. Siebold, Libertyville, Ill., assignor to Liquid Controls Corporation, Chicago, Ill.
Filed May 18, 1972, Ser. No. 254,415
Int. Cl. F16k 1/14, 31/18
U.S. Cl. 137—202 7 Claims



A float actuable valve mounted in an accumulator chamber includes a flexible, imperforate strip connected at one end adjacent a valve seat and at the other end to a swingable back-up shoe which is connected by a linkage to the float.

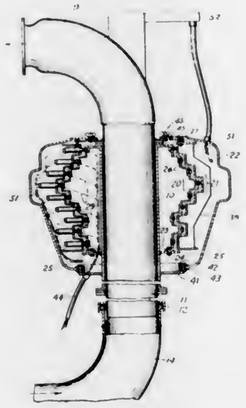
3,782,407
TAP ARRANGEMENT USEFUL WITH MEASURING MEANS
William L. Blackwell, 1202 New Market Rd., Immokalee, Fla.
Filed June 26, 1972, Ser. No. 266,134
Int. Cl. F16k 51/00
U.S. Cl. 137—317 4 Claims

An arrangement for tapping a tube having a liquid flowing therethrough comprising in combination an elongated chamber adapted to be disposed alongside the outer wall of a tube to be tapped, having an extended wall adapted to rest next to said outer tube wall and a plurality of apertures adjacent said extended wall, a tap bore duct extending from said



chamber at right angles thereto including an outer retaining ring towards the outer end of said bore for securing the elongated chamber to said tube outer wall, and a small ridge within said bore, narrowing the flow stream into said chamber.

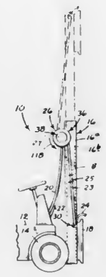
3,782,408
CONTINUOUS CONTACT DISTRIBUTOR FOR USE WITH IRRIGATION SYSTEMS
William T. Martin, Touchet, Wash., assignor to Ivan C. Bollman and Vernon O. Bollman, both of Walla Walla, Wash., part interest to each
Filed May 26, 1972, Ser. No. 257,380
Int. Cl. B05b 9/02
U.S. Cl. 137—344 9 Claims



This distributor is used in connection with irrigation systems for irrigating large tracts of land. These systems comprise long horizontal sprinkler pipes made up of a plurality of sections connected with each other by flexible tubular couplings. One end of this sprinkler pipe is connected with a centrally positioned source of supply of water under pressure by an upright conduit formed of a rotatable part and a non-rotatable part. The sprinkler pipe is carried on supports called towers which rest on wheels. An electric motor drives the wheels of each tower and current to these towers is supplied through this distributor. The distributor comprises two parts of insulating material, one carrying slip rings and supported by the non-

rotatable part and the other supported by the rotatable part and carrying contact members engaging the slip rings. A shroud encloses and shields both distributor parts. The walls of the distributor parts which carry the slip rings and contacts are of stepped construction to provide adequate spacing and insulation of each set of rings and contacts relative to adjacent sets.

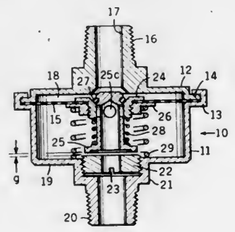
3,782,409
LINE TAKE-UP ASSEMBLY
Marshall K. House, and Michael D. Train, both of Portland, Oreg., assignors to Cascade Corporation, Portland, Oreg.
Filed Mar. 31, 1972, Ser. No. 240,101
Int. Cl. B65h 75/36
U.S. Cl. 137—355.17 16 Claims



A take-up assembly for hydraulic hose. The assembly includes a rotary fluid coupling formed by a journal member and a hose connector which is rotatably mounted on the journal member--these two parts including intercommunicating fluid passages. The hose connector has flange which mounts other parts in the assembly that collectively form a hose-storing reel. These other parts contain cutaways which both axially and radially expose for access that portion of the hose connector to which a hose end may be attached.

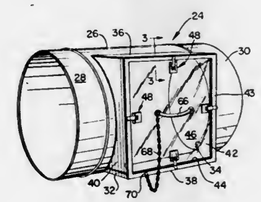
A take-up string in the assembly acts between the journal member and the reel, and features a nonangular inner end which is releasably locked to the shaft through mechanism that releases such end to prevent back-winding damage to the spring.

3,782,410
VALVE
Thomas A. Steuby, 6363 Olive Blvd., Kirkwood, Mo.
Filed Dec. 26, 1972, Ser. No. 318,010
Int. Cl. F16k 17/04
U.S. Cl. 137—496 6 Claims



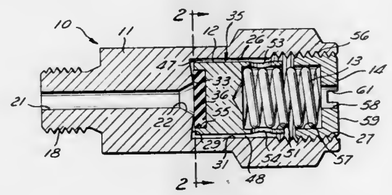
A check valve for preventing outflow of fuel from a broken or disconnected fuel line of an engine has coacting valve elements mounted on a diaphragm which normally is subjected to the negative intake pressures of the engine fuel pump. A relatively light spring tends to hold the valve elements in passage-closed position. The valve opens automatically when suction from the engine fuel pump moves the diaphragm, causing one of the valve elements to abut an adjustable stop member, whereafter continued movement of the diaphragm opens the valve passage. Such diaphragm movement is opposed by a second spring. Adjustment of the stop member enables the valve passage to be opened at a selected point in the range of diaphragm movement.

3,782,411
DUCT ACCESS SECTION
Lloyd Bowman Turner, Columbus, Ohio, assignor to United McGill Corporation, Columbia, Ohio
Filed June 30, 1972, Ser. No. 267,990
Int. Cl. F16k 17/04
U.S. Cl. 137—467 20 Claims



A combination duct access section which, installed in a duct, provides the duct with an access opening, a transparent inspection door, and/or a vacuum relief valve.

3,782,412
UNBALANCED POPPET RELIEF VALVE
Raymond Nicholas Darash, Euclid, Ohio, assignor to The Weatherland Company, Cleveland, Ohio
Filed May 11, 1972, Ser. No. 252,407
Int. Cl. F16k 15/06
U.S. Cl. 137—514 4 Claims

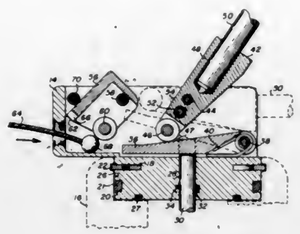


A relief valve assembly in which a spring supported poppet is stabilized against random movement or chatter by damping means responsive to relief flow. The damping means comprises a relief flow circuit which develops a fluid pressure distribution on the poppet having a net lateral component causing the poppet to frictionally engage axial guide surfaces of a poppet receiving chamber. Since frictional damping forces are only produced during relief flow, initial valve opening pressure is not adversely affected by irregular static frictional forces.

3,782,413
TRIGGER MECHANISM FOR GAS VALVING APPARATUS

Joseph Chacko, San Francisco, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 68,512, Aug. 31, 1970, which is a continuation of Ser. No. 801,640, Feb. 24, 1969, abandoned.
This application June 12, 1972, Ser. No. 261,909
Int. Cl. F16k *31/524*
U.S. Cl. 137—565 12 Claims

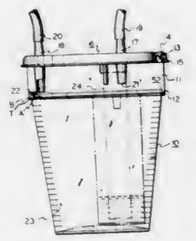


A triggering mechanism for a gas valving apparatus including a lever for displacing the valve poppet into its off position, an arming cam for applying force to the lever and a triggering cam for locking the lever in the poppet off position. The mechanism is armed by rotating the arming cam into poppet displacing engagement with the lever and then rotating the pull-cable actuated triggering cam into engagement with the lever to lock the poppet in the off position. Tension applied to the pull-cable releases the lever and allows the poppet to open.

3,782,414
BODY FLUID COLLECTION BOTTLE

LeGrand K. Holbrook, Salt Lake City, Utah, assignor to Medical Development Corporation, Salt Lake City, Salt Lake County, Utah

Continuation-in-part of Ser. No. 85,075, Oct. 29, 1970, Pat. No. 3,699,815. This application May 22, 1972, Ser. No. 255,768
Int. Cl. A61f *5/44*; E03c *1/181*
U.S. Cl. 137—575 4 Claims

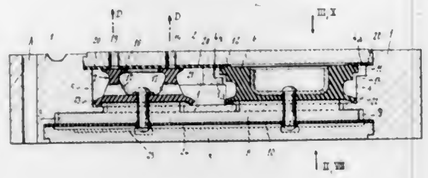


A vacuum operated body fluid collection bottle having an insert container of receptacle which is calibrated to receive accurately measurable, small quantities of body fluid collected within the bottle. Such insert includes overflow means whereby quantities in excess of a predetermined amount can overflow into the interior of the outside container. The insert container, in a preferred form of the invention, is positioned by means of a flange disposed against a shoulder provided within the interior of the bottle. Both outside and interior containers are uniquely calibrated to satisfy a variety of conditions. An anti-splash tube is incorporated and uniquely positioned within the bottle construction and is appropriately spaced from the lid thereof to provide for a free exhaust of air and hence a creation of reduced pressure conditions proximate the liquid inlet of the bottle.

3,782,415
DISTRIBUTOR FOR FLUID UNDER PRESSURE

Jean Gachot, 179 Avenue de la Division Leclerc, Enghien-les-Bains, and Simeon Lekarski, 138 Boulevard de la Republique, Saint-Cloud, both of France

Filed June 5, 1972, Ser. No. 259,830
Claims priority, application France, July 8, 1971, 7125024
Int. Cl. F16k *11/10*
U.S. Cl. 137—596.18 8 Claims

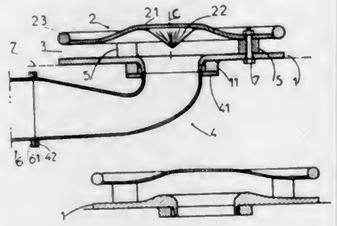


The invention relates to a distributor for fluid under pressure. The distributor is of the kind which comprises a first valve for controlling communication between an inlet and an outlet for the fluid, and a second valve for controlling communication between the outlet and atmosphere. According to the invention, the two valves are carried and controlled by a large area member comprising a membrane secured to a piston to permit actuation of the distributor by a low pressure fluid.

3,782,416
APPARATUS FOR FILLING AND EMPTYING RESERVOIRS

Leon Levin, Seyssinet, France, assignor to B.V.S., Grenoble, France

Filed May 23, 1972, Ser. No. 256,025
Claims priority, application France, June 28, 1971, 7123434
Int. Cl. F17d *1/10*
U.S. Cl. 137—590 2 Claims

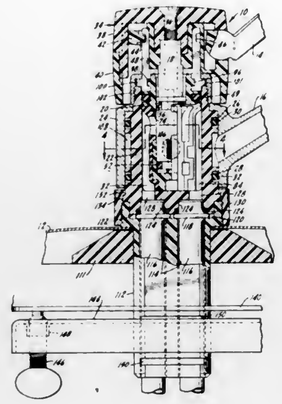


A device for filling and emptying reservoirs through a lateral annular orifice providing a high through-put, low-speed fluid flow whose stream lines are slight and substantially equal right around the vertical axis of the device. The device includes a curved duct of constant cross-section whose wall portion on the side of the concavity substantially conforms to the shape of the fluid jet. An end of the duct opens vertically into a shaped diffusing opening covered by a deflector screen spaced from the shaped outlet.

3,782,417
FAUCET CONSTRUCTION

Alfred M. Moen, 25 Lakeview Dr., Grafton, Ohio

Continuation-in-part of Ser. No. 147,327, May 27, 1971. This application June 22, 1972, Ser. No. 265,278
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.17 25 Claims

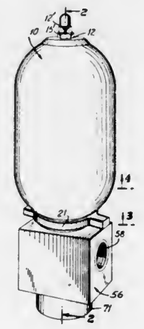


A single lever mixing faucet has a stem rotatable and reciprocal relative to a surrounding sleeve. The stem and sleeve are positioned within a receiver and are pressure balanced by means of an air passage extending through the stem and connecting the interior space between the stem and the sleeve with atmosphere. The seals between the stem and receiver have portions in sealing contact with the stem, sleeve and receiver and cooperate with the interior surface of the receiver to define water passages between the receiver inlets and the sleeve inlets. The receiver and valve are supported on a body member and there are means to connect the receiver to the body member and to interlock the conduits within the body member to the receiver and to the body member.

3,782,418
PRESSURE PULSE DAMPENER DEVICE

Abduz Zahid, Monterey Park, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Filed Nov. 3, 1971, Ser. No. 195,243
Int. Cl. F16l *55/04*
U.S. Cl. 138—26 12 Claims

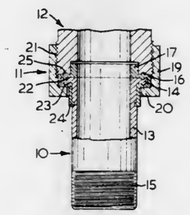


The invention relates to a pressure pulse dampener device comprising a pressure vessel having a movable partition therein defining two chambers, each having a port in communication therewith, one of the ports defining a gas port for charging of one of said chambers with gas under pressure and the other an oil port, said oil port having a hollow fitting rigidly secured at one end thereto, said fitting having an inlet port and an outlet port, the fitting having means therein defining a tortuous path for oil under pressure from said inlet port to said outlet port, the oil port being in communication with the tortuous path and means are provided in the fitting to afford a direct path from said inlet port to the outlet port for a portion of the oil under pressure entering the inlet port.

3,782,419
PIPE UNION

Thomas A. Hanson, 455 Devonshire Ave., Woodstock, Ontario, Canada

Filed Nov. 8, 1971, Ser. No. 196,540
Claims priority, application Great Britain, Nov. 7, 1970, 53,053/70
Int. Cl. F16l *11/12*
U.S. Cl. 138—109 1 Claim

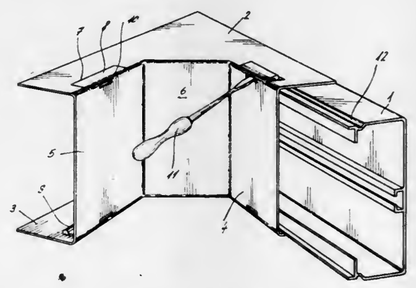


A pipe union member includes a pipe having an outwardly directed annular flange adjacent a forward end of the pipe, the flange having forward and rear faces and an outer annular edge. A coating of electrical insulating material is moulded on to and extends around the forward end portion of the pipe. The coating extends over the forward and rear faces and the outer annular edge of the flange, and also extends forwardly of the flange to form a spigot insertable into the open end of another pipe.

3,782,420
CABLE INSTALLATION CONDUIT WITH L AND T JOINTS

Peter Kolb, Pirmasens; Gottfried Pollak, Waldfischbach-Burgalben, and Rolf Sternjakob, Pirmasens, all of Germany, assignors to Firma Tehalit Kunststoffwerke GmbH, Helterburg/Pfalz, Germany

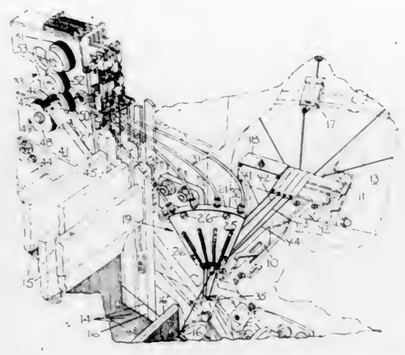
Filed Apr. 14, 1972, Ser. No. 244,015
Claims priority, application Germany, Apr. 14, 1971, P 21 18 058.5
Int. Cl. F16l *9/00*
U.S. Cl. 138—156 3 Claims



Cable conduit installation equipped with L-and T-connecting members which are provided with releasable means for

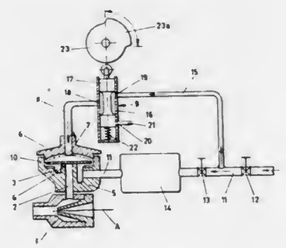
sliding on and interengagement with the installation conduit and/or means for sliding on and underlapping or overlapping with the conduit covering.

3,782,421
WEFT YARN CONTROL DEVICE
Edward S. Budzyna, East Douglas, Mass., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed June 1, 1972, Ser. No. 258,554
Int. Cl. D03d *47/38*
U.S. Cl. 139—122 W **4 Claims**



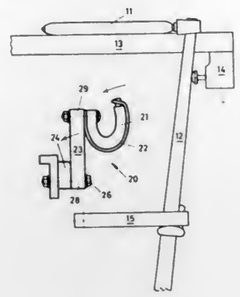
A weft yarn control device for looms having a control unit and a mechanism functioning in cooperation therewith for supporting and guiding a plurality of weft yarns from separate sources of supply and for enabling individual selection of the yarns in accordance with a desired pattern.

3,782,422
DEVICE FOR PERIODICALLY SUPPLYING MEASURED QUANTITIES OF A PRESSURE FLUID TO A NOZZLE
Geert Jan Vermeulen, Deurne, Netherlands, assignor to N.V. Machinefabrik L. Te Strake, Deune, Netherlands
Filed Apr. 7, 1971, Ser. No. 131,934
Claims priority, application Netherlands, Apr. 14, 1970, 7005367
Int. Cl. D03d *47/28*
U.S. Cl. 139—127 P **1 Claim**



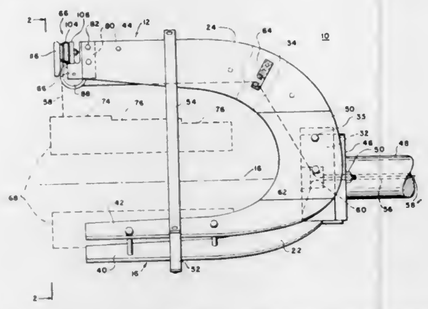
A device for periodically supplying measured quantities of a pressure fluid to a nozzle adapted to blow a weft thread into the shed of a pneumatic loom, comprising a metering chamber fed by a pressure fluid source and connected to the nozzle through a periodically opening valve means, control means being provided to influence the behaviour of the weft thread and more particularly to stabilize the position of the weft thread in the fluid jet irrespective of the nature of that thread.

3,782,423
ARRANGEMENT FOR BRAKING THE PICKER STICK OF A LOOM
Friedrich Lutz, Durnten/Zh, Switzerland, assignor to Ruti Machinery Works Ltd. (formerly Caspar Honegger), Ruti/ZH, Switzerland
Filed Aug. 10, 1972, Ser. No. 279,395
Claims priority, application Switzerland, Aug. 31, 1971, 12753/71
Int. Cl. D03d *49/40*
U.S. Cl. 139—166 **4 Claims**



The present invention relates to an arrangement for braking a picker stick of a loom which comprises an elastic element which is compressed upon the braking of the picker stick.

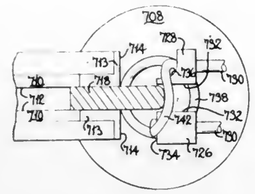
3,782,424
REVERSIBLE CAST CONTROL DEVICE FOR FLYER WINDER
Ralph A. Vogel, Three Rivers, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.
Filed Sept. 22, 1972, Ser. No. 291,228
Int. Cl. B21f *3/00*
U.S. Cl. 140—92.2 **5 Claims**



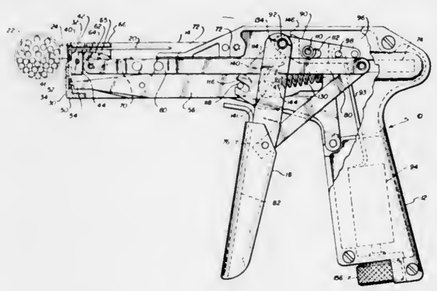
A device for use with a flyer coil winder for guiding wire to the coil being wound in either direction of rotation of the flyer and during reversal thereof, the device imparting a cast to the wire as it is wound in a direction to inhibit unwinding of the coil upon relaxation of tension thereon.

3,782,425
MANUFACTURE OF SPRINGS
Terence James Leonard Clarke; Robert Charles Quarmby, both of Groby, and Philip Michael Lett, Leicester, all of England, assignors to The British United Shoe Machinery Company Limited, Leicester, England
Filed Feb. 28, 1972, Ser. No. 230,014
Int. Cl. B21f *35/02*
U.S. Cl. 140—103 **4 Claims**

The invention relates to machines and methods for use in forming loops at end portions of coil springs of the type disclosed in U.S. Pat. No. 3,662,788 (U.S. Pat. application No. 33,271) but differing in that tools are provided whereby "German" type loops may be formed. A spring is supported by support means and operated on by three tools which bend a coil of the spring away from the remainder of the spring and permanently set it to form a loop.



3,782,426
STRAP TENSIONING AND CUT-OFF TOOL
Thomas Edward Morgan, Cleveland Heights, and Robert Carl Koslo, Mentor, both of Ohio, assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 7, 1972, Ser. No. 223,900
Int. Cl. B21f *9/02*
U.S. Cl. 140—123.6 **6 Claims**

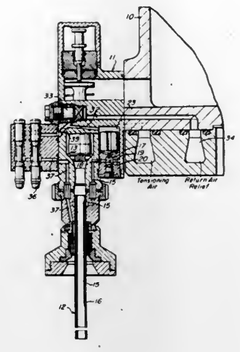


A pistol-grip, hand-operated tensioning and cut-off tool for cable straps or bundle ties is disclosed.

The tool receives the free end of the strap with the buckle or strap head held against the tool barrel. The strap is tensioned to a level which may be adjusted. When this level is reached, the tool automatically cuts off adjacent to the strap head. During the tensioning, the trigger responds to manual pressure to pivot about a pintle and slide a draw bar in a strap tightening direction. When the tension of the strap exceeds the tension of a counter biasing spring member, the trigger and the pintle-bearing member are pivoted together to slide a shearing edge against and through the cable strap at the tool barrel.

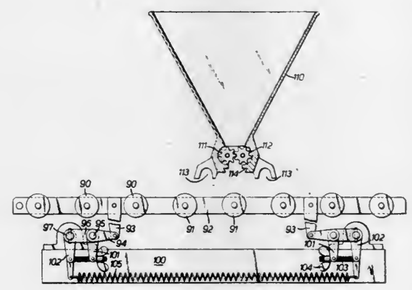
3,782,427
DEVICE FOR SHUTTING OFF THE RETURN GAS LINE OF COUNTERPRESSURE FILLING ELEMENTS OF MULTI-CHAMBER VESSEL FILLING MACHINES
Heinrich Zeimet, Bingen-Budesheim; Alfred Rentel, Bad Kreuznach-Winzenheim, and Horst Monz, Bad Kreuznach, all of Germany, assignors to Seitz-Werke G.m.b.H., Bad Kreuznach, Germany
Filed Dec. 17, 1971, Ser. No. 209,097
Claims priority, application Germany, Dec. 19, 1970, P 20 62 669.1
Int. Cl. B65b *31/00*
U.S. Cl. 141—39 **12 Claims**

A device for shutting off the return gas conduit of a counterpressure filling device, which comprises a flow chamber interposed in the gas return conduit and communicating with a valve chamber interposed in said gas return and preceding said flow chamber while a load or weight body movable in said flow chamber sets upon the valve member in said valve chamber. This load body is adapted by means of its weight to adjust the valve body so that the latter occupies its opening



position in which it is arrested by said load body. On the other hand, liquid rising in the valve chamber and from there into the flow chamber brings about lifting of the control member and movement of the valve member into closing position to shut off communication of the valve chamber with the flow chamber.

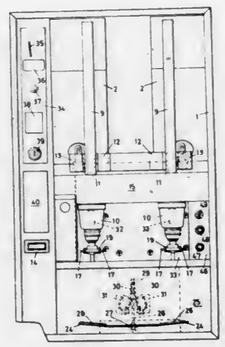
3,782,428
FOOD DISPENSING APPARATUS
Thomas Edward Cartwright, and John Clifford Wightman, both of Glamorgan, England, assignors to Jones D. Ayers and Company Limited, Glamorgan, England
Filed July 20, 1971, Ser. No. 164,337
Claims priority, application Great Britain, Aug. 22, 1970, 40,553/70
Int. Cl. A21c *9/08*, **B65b** *3/36*, *57/00*
U.S. Cl. 141—115 **6 Claims**



Apparatus for dispensing batter, or other pasty foods, into a container on a travelling conveyor, including a motor driven pump dispenser and a motor driven conveyor and including means for reversing the direction of the pump for a brief moment at the end of each dispensing cycle, and simultaneously giving the container a vertical "jogging" movement. At the start of the next cycle the movement of the container is delayed by a stop for a brief interval after the pump has started

to dispense. The pump itself is of the gear type and one or both of the gear pinions has cut-away teeth to provide cavities in which small fruits can be carried through the pump without being damaged.

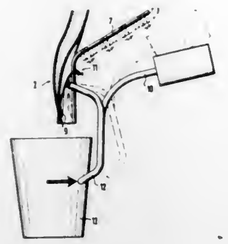
3,782,429
VENDING MACHINE
Arthur Adam Barber, Weston-Super-Mare, England, assignor to Barber Electrical Services Limited, Somerset, England
Filed Apr. 26, 1972, Ser. No. 247,729
Claims priority, application Great Britain, May 4, 1971, 12,860/71
Int. Cl. G07f *13/04*
U.S. Cl. 141—359 **7 Claims**



A drink vending machine has a cabinet in which two liquor containers are supported. A rubber hose connects each container to an optic type measure and to the bottom of a sight glass which extends upwardly from the optic type measure. Two platforms are mounted on a common lever below the measures respectively, and the lever is tipped by the weight of a drinking glass placed on one of the platforms, thereby closing a circuit which causes a drink to be discharged from the selected measure if coins are simultaneously deposited in a coin-feeding apparatus. A float in each sight glass may cause the coin slot to be blocked and an "empty" sign to light up when the float interrups the passage of light between a light source and a photoelectric cell.

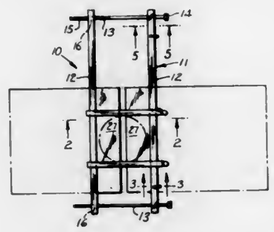
3,782,430
RELATIVELY MOVABLE VALVE ACTUATOR
Matti Gunnar Wilska, Ukovkinenpolku 2C27, Helsinki, Finland
Filed Mar. 16, 1971, Ser. No. 124,901
Claims priority, application Sweden, Apr. 14, 1970, 5053/70; Norway, Apr. 13, 1970, 1351/70; Denmark, Apr. 17, 1970, 1934/70; Great Britain, Dec. 17, 1970, 59,887/70; Netherlands, Dec. 11, 1970, 7018098; France, Dec. 11, 1970, 7044764; Germany, Dec. 10, 1970, P 20 60 910.3; Finland, Nov. 10, 1969, 3237/69
Int. Cl. B65b *3/04*; **B67d** *3/02*
U.S. Cl. 141—362 **1 Claim**

A method of forming a container includes placing two heat sealable material pieces in overlapping relationship and a method of forming a container for dispensing liquid using two pieces of material in overlapping relationship, forming a seam line at a location spaced inwardly from the edges of the materials around the periphery thereof and outwardly adjacent one end thereof to define a pouring spout portion extending outwardly from said body by spaced apart substantially parallel seam lines extending to the end of said pouring spout and defining a pouring opening therebetween, filling the container with a liquid through the opening of the spout portion, and thereafter forming a seal closure between the seal lines of the spout portion. The container thus formed includes



openings in a marginal area of the spout which provide a mounting engagement for the container on a support. The support carries a pivotal tongue which is biased by a weight to close the spout but which is shiftable such as by a drinking glass to be filled to open the spout to pour out the liquid.

3,782,431
ADJUSTABLE ROUTER GUIDE
Robert E. Cox, R. R. No. 1, Glencoe, Okla.
Filed May 11, 1971, Ser. No. 142,263
Int. Cl. B27c *5/10*; **B23q** *35/42*
U.S. Cl. 144—144.5 **2 Claims**

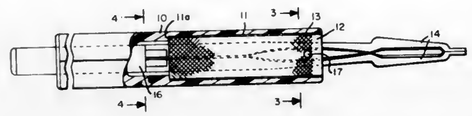


A tool for use by a carpenter and used particularly in cabinet construction work, the tool comprising a guide for a router and wherein the guide is adjustable, the guide being comprised of a pair of parallel guide bars interconnected by transverse extending adjustable bolts for selectively spacing the guide bars apart, and a plurality of transverse extending clamps extending across the guide bars for locating the router position.

3,782,432
SCREW HOLDING DRIVER
Philip H. Allen, Los Gatos, Calif., assignor to H.J.J. Co., Inc., Los Gatos, Calif.
Filed Mar. 1, 1972, Ser. No. 230,777
Int. Cl. B25b *15/02*
U.S. Cl. 145—50 E **1 Claim**

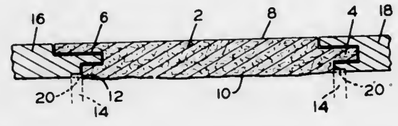
An insulated screw holding driver has a tubular plastic handle which encases the working elements of the screw holder

including twin expanding bits and their control housing, rod and cam pin pre-assembled as an insert into the handle which



holds this assembly and its components in place. The handle has an outer polygonal contour and an inner circular contour.

3,782,433
METHOD OF CUTTING A JOINT IN A CEILING TILE
John R. Garrick, Lancaster, and Jerald E. Miller, Fleetwood, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.
Filed Oct. 30, 1972, Ser. No. 302,248
Int. Cl. B27f *1/06*; **B27m** *3/00*
U.S. Cl. 144—323 **1 Claim**

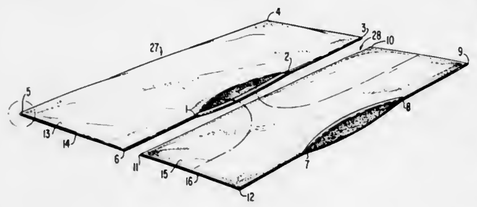


Conventional ceiling tiles are provided with tongue and groove joints for interconnecting a plurality of tiles together. The method herein is directed to the technique for cutting the joints in a ceiling tile. The method comprises the prescoring of the painted board face surface immediately prior to the joint formation. This permits a very uniform edge to be formed at the joint-face surface interface without disruption of the painted face surface of the tile.

ERRATUM

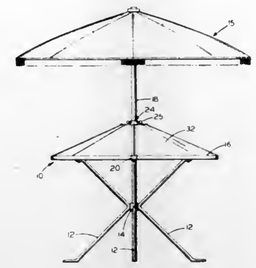
For Class 145—50 E see:
Patent No. 3,782,432

3,782,434
BOOKBAGS
Eugenia D. Lebherz, 1011 Shipman Ln., McLean, Va.
Filed June 25, 1971, Ser. No. 156,761
Int. Cl. B65d *29/02*
U.S. Cl. 150—1 **4 Claims**



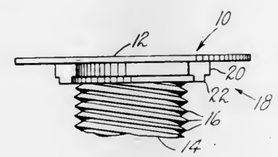
This invention relates to bookbags and more particularly to bookbags constructed solely from fabric materials. This bookbag is designed specifically to be balanced over the shoulder.

3,782,435
TABLE PROTECTOR
Ralph H. Sherman, Central St., Georgetown, Mass.
Filed June 13, 1972, Ser. No. 262,348
Int. Cl. A47b *37/04*
U.S. Cl. 150—52 R **5 Claims**



A table ordinarily suitable for dining outdoors is provided with an upstanding shaft from the horizontal eating surface and pivotally mounted thereon a spaced distance from the horizontal surface of the table are a plurality of elongated arms. The arms carry a flexible sheeting and may be selectively positioned against the upper face of the table in oblique relationship. In this position the protector prevents birds or debris from landing on the table. The elongated arms may be selectively positioned upwardly to allow normal usage of the table.

3,782,436
CLINCH STUD
Joseph Steiner, 16 Forest Glen Rd., Valley Cottage, N.Y.
Filed July 21, 1972, Ser. No. 274,086
Int. Cl. F16b *39/282*
U.S. Cl. 151—41.73 **5 Claims**

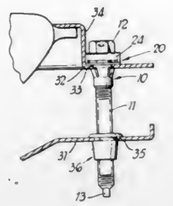


A self-clinching stud has a head and a threaded shank adapted to be secured in sheet material. In the locality integrally adjoining the head and shank, stepped concave lands alternate circumferentially with convex unstepped lands. This configuration produces a flow in sheet metal, when the stud is pressed into a hole having a diameter about equal to the shank diameter and less than that of the lands, that holds the stud against unscrewing as well as axial pull out.

3,782,437
THREADED BOLT AND MOUNTING THEREFOR
Clifford Alexander Seckerson, Iver Heath, Buckinghamshire, England, assignor to TRW Inc., Cleveland, Ohio
Filed Sept. 29, 1971, Ser. No. 184,754
Claims priority, application Great Britain, Oct. 5, 1970, 47,319/70
Int. Cl. F16b *39/26*
U.S. Cl. 151—49 **5 Claims**

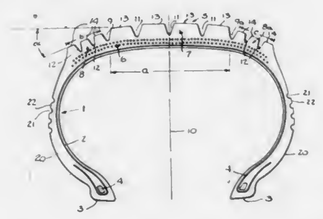
A two-part threaded fastener comprising a bolt and a retainer captive on the bolt suitable for use as a vehicle

headlamp reflector bowl adjustment screw. The bolt has a threaded shank which is formed with resilient projecting means adjacent to but spaced from an externally non-circular head. The retainer comprises a base having an aperture through which the resilient projecting means on the shank of the bolt is a force fit so that the base is captive between the head and the resilient means. The retainer is also formed with



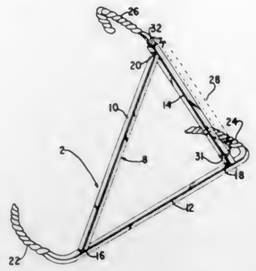
at least one upstanding wall and the head of the bolt with at least one face adapted to inter-engage with the wall on the retainer to resist relative rotation between the bolt and the retainer, the wall of the retainer being sufficiently resilient to allow rotation of the head of the bolt relative to the retainer when the bolt is subjected to a predetermined torque sufficient to deflect the wall.

3,782,438
PNEUMATIC TIRE AND TREAD THEREFOR HAVING VARIABLE ROLLING CONTACT WITH THE GROUND
Henri Jean Mirtain, Compiegne, France, assignor to Uniroyal, Clairoix Oise, France
Filed Mar. 6, 1972, Ser. No. 232,130
Claims priority, application France, Mar. 12, 1971, 7108761
Int. Cl. B60c *11/04*
U.S. Cl. 152—209 R **40 Claims**



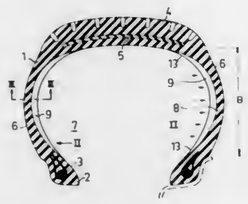
A high speed pneumatic tire with a tread whose width of running contact with the ground is automatically variable. The tread consists of a central portion that is in constant contact over its entire width with the ground and two lateral shoulder portions which are respectively arranged on each side of the central portion and are each separated from the central portion by an essentially continuous circumferential groove that forms a flexible joint or coupling. Each lateral shoulder portion of the tread is radially contracted and inclined with respect to the central portion so that it contacts the ground where required by the dynamic forces on the tire, e.g., acceleration, turning and braking. The central and lateral shoulder portions of the tread each may have the same or different design patterns for particular purpose, e.g., snow, antiskid. The tire may have a radial carcass and may also include a reinforcing breaker formed of continuous or discontinuous layers.

3,782,439
ANTI-SKID TRACTION DEVICES
Henry Pergament, Hawley Rd., North Salem, N.Y.
Continuation-in-part of Ser. No. 215,536, Jan. 5, 1972, abandoned. This application Feb. 25, 1972, Ser. No. 229,417
Int. Cl. B60c *27/04, 27/10, 27/20*
U.S. Cl. 152—218 **7 Claims**



An anti-skid traction device for mounting on the wheel of a vehicle comprises a triangular frame having means at two apices thereof for gripping the wheel, a slidable rod contained in one hollow arm of the frame, this rod having means adjacent the third apex for gripping the wheel, and resilient means for moving the rod into the hollow arm to securely grip the wheel.

3,782,440
PNEUMATIC VEHICLE TIRE
Lothar Depmeyer, Garbsen, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Mar. 20, 1972, Ser. No. 236,054
Claims priority, application Germany, Mar. 20, 1971, P 21 13 627.6
Int. Cl. B60c *9/14*
U.S. Cl. 152—330 **7 Claims**

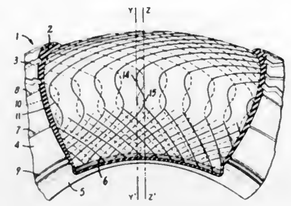


A pneumatic vehicle tire, in which the side walls consist of rubber material only without having strength members members embedded therein, but are reinforced by ribs on the inside of the side walls and integral therewith.

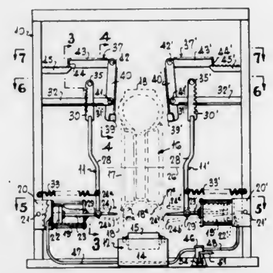
3,782,441
TIRE HAVING CARCASS CORDS DESCRIBING S-SHAPED AND Z-SHAPED PATHS
Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France
Filed Oct. 15, 1971, Ser. No. 189,657
Claims priority, application France, Oct. 19, 1970, 7037730; July 30, 1971, 7128183
Int. Cl. B60c *9/10*
U.S. Cl. 152—356 **10 Claims**

The carcass reinforcement of a pneumatic tire extends continuously from one bead wire to the other. The cords of the reinforcement have a substantially longitudinal orientation

under the tread portion, an oblique orientation between the midpoint of each sidewall and the corresponding bead wire, and, between the midpoint of each sidewall and the corresponding shoulder, an S-shaped path tangent at two circumferentially and radially separated points to radial planes of the tire.



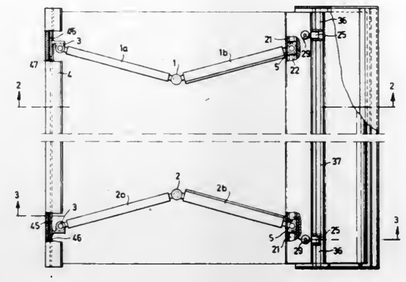
3,782,442
ADJUSTABLE THRUST MECHANISM FOR SEPARATING THE BONDS BETWEEN ANNULAR COMPONENTS OF PNEUMATIC TIRE-WHEEL ASSEMBLIES
Jake James, Jr., Rt. No. 1, Danville, Ark.
Filed Sept. 2, 1971, Ser. No. 177,394
Int. Cl. B60c *25/06*
U.S. Cl. 157—1.26 **2 Claims**



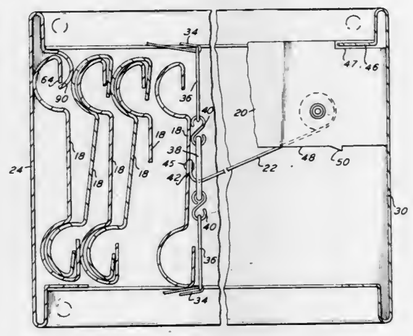
Apparatus for separating bonds between annular tire-wheel components such as wheel flanges, bead rims, locking rings and tire beads. In the separation of tire beads from wheel rims, for example, the free contact end of an elongated reciprocable thrust tool is swingably mounted about a fixed pivot, transversely of a bead-engaged flange, and to selected pressure-applying positions where it may be releasably fixed in position. The thrust tool may be employed singly in breaking only one bead of an assembly, or in combination with an opposing thrust tool when simultaneously breaking both tire beads. The mechanism is further characterized by a pair of manually operable levers engageable with opposed faces of the tire at points diametrically opposite the thrust tool to thereby stabilize the assembly during a bond breaking operation.

3,782,443
ROLL-UP AWNING CONSTRUCTION
Manfred Clauss, and Ulrich Clauss, both of Esslingen-Mettingen, Germany, assignors to Firma "Clauss-Markisen" Manfred u. Ulrich Clauss, Esslingen-Mettingen, Germany
Filed Sept. 9, 1971, Ser. No. 179,052
Claims priority, application Germany, Feb. 17, 1971, P 21 07 477.1
Int. Cl. E04f *10/06*
U.S. Cl. 160—22 **19 Claims**

A box-like housing, made of formstable, rigid material such as extruded aluminum has a holder for an awning roll therein, the awning roll terminating in a terminal bar, likewise an extruded aluminum or other light-weight metal member. The terminal bar is connected to the housing by jointed, articulated arms which are secured to the housing itself by bearing members attached to a transverse rail hooked into the housing so that a single box-like structure is provided which can be secured to a support surface, such as a wall, and additional attachments of support arms, and the like, are avoided. Adjustable stops limit the angle of inclination permitted to the bearings for the arms, so that the angle of the projecting awning can be adjusted. The projecting arms are made of interfitting light-weight metal sections, such as a generally U-shaped section into which a trapeze-shaped section fits, the awning housing being formed with a recess against which a brush can bear to clean the awning as it is rolled in or out.



3,782,444
FIRE DAMPER BLADES AND SPECIAL FRAME
Fred E. Rapp, Andorra Rd., Lafayette Hill, Pa., and William V. Bault, 1300 Prospect Hill Rd., Villanova, Pa.
Filed May 17, 1971, Ser. No. 144,148
Int. Cl. E06b *9/00;* **E05f** *15/20*
U.S. Cl. 160—235 **4 Claims**



Fire damper blades and special frame for use in a safety fire damper assembly wherein a first embodiment involves substantially identical blades that are interlocked at the ends thereof, one to the other, wherein each blade end is comprised of an arcuate section extending for approximately 180° to form a semi-circle and terminating in a tab which partially closes the semi-circle, with the arc being essentially truly circular. In one form, a blade assembly having the foregoing construction the various blades will rotate, one on the other, for at least 180° to provide the greatest theoretical coverage for a given blade width. In this form of the invention each blade is essentially identical. In another form of the invention, one

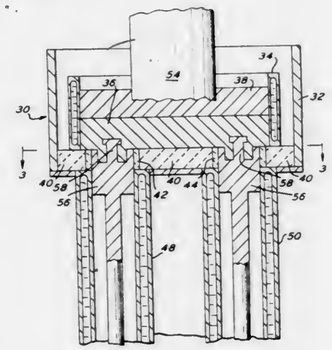
blade end will be as previously described, but the other blade end will terminate in a tab which covers a greater portion of the semi-circular opening and which includes a further tab extension which is bent back over the original tab to provide a double fold. In this form of the invention the blades will rotate with respect to each other for only about 120°, but this will form a more rigid structure that may be necessary under certain conditions.

3,782,445

METHOD OF CASTING A PLURALITY OF INGOTS IN A CONSUMABLE ELECTRODE FURNACE

John Luchok, Delran, and Patrick J. Wooding, Moorestown, both of N.J., assignors to Consarc Corporation, Rancocas, N.J.

Filed Sept. 7, 1971, Ser. No. 177,939
Int. Cl. B22d *27/02, 11/10*
U.S. Cl. 164—52 **5 Claims**



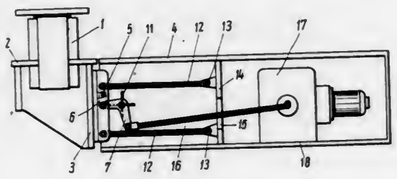
A method and apparatus for continuously casting one or more ingots by maintaining a pool of molten metal in a first ingot section that has a larger transverse cross-sectional area than the transverse cross-sectional area of the ingot mold or molds which are in open communication with said first ingot section by causing said molten metal to flow continuously from said pool into said ingot mold or molds while preventing the molten metal in said pool from freezing at the interface of said first mold section and said mold or molds. A refractory lining for said first mold section is used to prevent the molten metal from freezing.

3,782,446

DEVICE FOR OSCILLATING A CONTINUOUS CASTING MOLD

Gustav Walter, Duisburg, Germany, assignor to Demag AG, Duisburg, Germany

Filed June 21, 1971, Ser. No. 154,754
Int. Cl. B22d *27/08*
U.S. Cl. 164—260 **11 Claims**



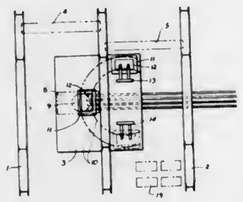
In a continuous casting plant, a mold is mounted in a mold table which is supported on a rigid frame by oscillating means. The oscillating means includes a bell crank attached to the mold table and pivotally supported on the rigid frame. A drive member and power transmission rod mounted on the support frame pivot the bell crank lever which in turn oscillates the mold table and mold. Guide members symmetrically arranged about the power transmission rod extend between the mold table and the support frame to which they are pivotally attached.

3,782,447

CONTINUOUS CASTING PLANT

Fritz Willim, Birmensdorf, Switzerland; Hans-Dieter Schulz, Dusseldorf, and Hans Otto Thorner, Erhrath, both of Germany, assignors to Concast AG, Zurich, Switzerland and Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Apr. 7, 1971, Ser. No. 132,109
Claims priority, application Germany, Apr. 7, 1970, P 20 16 435.6
Int. Cl. B22d *11/10*
U.S. Cl. 164—281 **11 Claims**



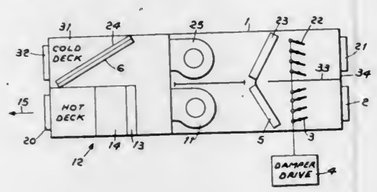
In a continuous casting plant the casting mold or molds are mounted at a casting station on a platform in a casting shop adjacent to a side shop. The platform extends into the side shop, and tundishes are transported on curved tracks from the side shop where they may be repaired or heated to the casting station in the casting shop. The ladle crane in the casting shop can, therefore, be used exclusively for transporting the heavy ladle to and from the casting station, and the tundishes can be moved by other means including a separate crane.

3,782,448

AIR CONDITIONING STRUCTURE

Ralph E. Clark, Abington, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 18, 1972, Ser. No. 254,686
Int. Cl. F28f *27/00*
U.S. Cl. 165—16 **4 Claims**



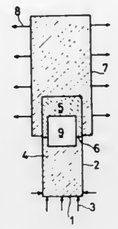
An air conditioning structure wherein an outside air flow path is vertically positioned above a return air flow path, each flow path including an evaporator structure and an air drive fan. The two paths are separated by a floor to minimize the commingling of the return and outside air and separate air drive fans are provided for each path driven. The return air path includes a hot deck and the outside air path includes a cold deck.

3,782,449

TEMPERATURE STABILIZATION SYSTEM

Claus Busse, Laveno, and Karl Schlitt, Ispra, both of Italy, assignors to European Atomic Energy Community (Euratom), Luxemburg European Center Kirchberg, Luxembourg

Filed Nov. 24, 1969, Ser. No. 879,505
Claims priority, application Luxembourg, Dec. 5, 1968, 57.482
Int. Cl. F28d *15/00*
U.S. Cl. 165—32 **7 Claims**



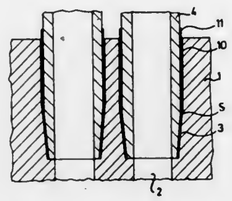
A system for temperature stabilization through the use of a heat pipe, that zone of the heat pipe which is remote from the heating zone having an inert gas plug whose volume varies with the vapour pressure of the heat vehicle. The plug effects variation in the heat pipe wall area actually radiating heat according to changes in the volume of the plug, and includes a secondary heat pipe which is in good thermal connection with that part of the first heat pipe where the inert gas plug is disposed.

3,782,450

HEAT EXCHANGER WITH NESTS OF TUBES

Adolf Swozil, Ellgau Uber Donauworth, Germany, assignor to Sigri Elektrographit GmbH, Augsburg, Germany

Filed Apr. 6, 1972, Ser. No. 241,585
Claims priority, application Germany, Apr. 23, 1971, P 21 19 820.9
Int. Cl. F28b *5/00*
U.S. Cl. 165—81 **3 Claims**



Heat exchanger with nests of tubes having tube plates consisting of graphite. The tubes are cemented into recesses or holes of the tube plates. The depth of the recess is greater, preferably at least twice as great, as the height of the cement layer. The remaining ring gap is filled with substances in powder form or with such substances which do not bond with the cement mass.

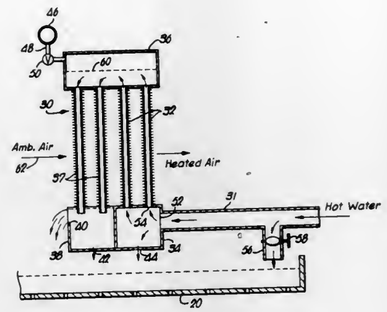
3,782,451

HYDRAULIC FLOW DISTRIBUTION SYSTEM FOR MULTIPLE PASS AIR COOLED HEAT EXCHANGER

Robert E. Cates, Leawood, Kans., assignor to The Marley Company, Mission, Kans.

Filed June 19, 1972, Ser. No. 264,150
Int. Cl. F28g *9/02*
U.S. Cl. 165—38 **17 Claims**

A multiple pass heat exchanger for cooling a fluid and having upright fluid conveying structure including separate, intercommunicating heat exchanger tube sections for upward and downward flow of fluid relative to a cooling medium such as air and wherein a fluid supply header is joined to the lower end of one of the sections, an overflow weir box is provided at the lower end of the other section with the weir box having an overflow opening while the header has an inlet opening, a fluid supply line is joined to the header inlet and has a valve controlled by-pass line extending therefrom and the weir box and



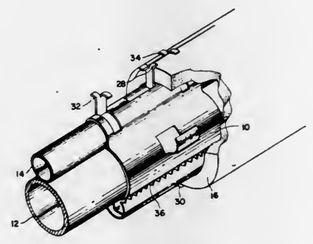
header both have drain orifices therein of smaller size than the overflow opening and inlet respectively, yet larger in diameter than the inlets of the heat exchanger tubes whereby upon interruption of the normal supply of fluid to the sections through said supply line, automatic draining of the sections occurs without the use of mechanical or electrical controls. Similarly, automatic filling of the sections may be accomplished, and if desired any proportion of the fluid to be cooled may be bypassed around the sections.

3,782,452

SPACER SYSTEM FOR USE WITH PIPES EMPLOYING TRACER LINES

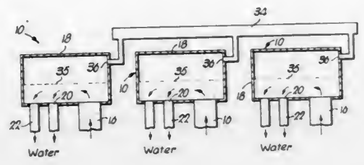
Peter Sol Ceplon, 267 S. Main St., Mansfield, Mass.

Filed May 5, 1972, Ser. No. 250,698
Int. Cl. F28f *13/00*
U.S. Cl. 165—135 **7 Claims**



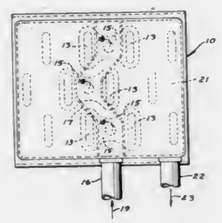
A spacer system, including a removeable metal spacer and a standoff; for use with pipelines employing tracer lines for heat transfer. The spacer system serves to support an outside casing of insulation at a distance from the inner pipe to create an air space and also serves to improve the heat transfer between the tracer line and the pipe.

3,782,453
SIPHON BREAKING VENT MANIFOLD FOR MULTIPLE PASS HEAT EXCHANGER
Robert E. Cates, Leawood, Kans.; Robert M. Mitchell, and James R. Houx, both of Kansas City, Mo., assignors to The Marley Company, Mission, Kans.
Filed June 19, 1972, Ser. No. 264,148
Int. Cl. F28f 9/26
U.S. Cl. 165—138 9 Claims



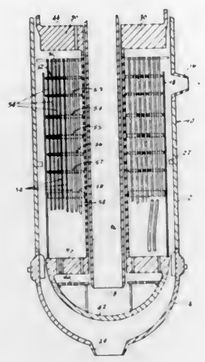
Liquid cooling apparatus comprising a series of upright heat exchange structures, each of which is provided with a top header cooperable therewith to present a siphon piping loop for assisting in filling, draining and uniform liquid flow through the exchangers. A common vent manifold interconnects all of the headers to maintain nearly atmospheric pressure above the liquid level therewithin while required vent air is supplied through the bottom of at least one of the heat exchange structures. As a result, during filling of the exchangers, siphon action is initiated substantially simultaneously in conjunction with automatic closing of the venting conditions through the bottom of at least one heat exchanger to assure equal liquid flow distribution from the common supply to all of the headers and thereby the heat exchangers joined thereto.

3,782,454
HEAT EXCHANGER
Raymond S. Slaasted, and Edward D. Smith, both of Racine, Wis., assignors to Modine Manufacturing Company, Racine, Wis.
Filed Feb. 24, 1972, Ser. No. 229,062
Int. Cl. F28f 9/26
U.S. Cl. 165—144 10 Claims



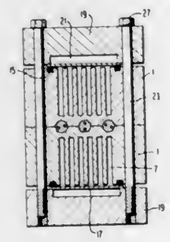
A heat exchanger including a header plate and a plurality of tubes having ends extending through the plate with an inlet tank mounted on the plate enclosing a number of the tube ends with a liquid pipe to the inlet tank for supplying liquid thereto and thereby distributing liquid by way of the inlet tank to the tubes enclosed by the inlet tank. There are also provided additional flow tank means mounted on the plate enclosing the remaining tube ends for flow of liquid through the tubes. The result of this construction is that the liquid is distributed evenly to the tubes whose ends are enclosed by the inlet tank so that flow in parallel paths is substantially uniform through these enclosed tubes.

3,782,455
HEAT EXCHANGER TUBE MOUNTS
Walter Wolowodiuk, New Providence; John Anelli, Parsippany, and Bruce Edgar Dawson, Chatham, all of N.J., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed May 1, 1972, Ser. No. 248,842
Int. Cl. F28b 9/00
U.S. Cl. 165—162 8 Claims



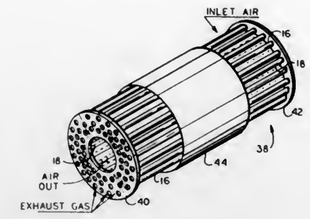
A heat exchanger in which tubes are secured to a tube sheet by internal bore welding, which tubes may be moved into place in preparation for welding with comparatively little trouble. A number of segmented tube support plates are provided which allow a considerable portion of each of the tubes to be moved laterally after the end thereof has been positioned in preparation for internal bore welding to the tube sheet.

3,782,456
HEAT EXCHANGE WITH RESILIENT LIQUID ACCUMULATOR
Frederick E. Gusmer, 1121 Ocean Ave., Mantoloking, N.J.
Filed Nov. 30, 1972, Ser. No. 310,946
Int. Cl. F28d 7/00
U.S. Cl. 165—164 7 Claims



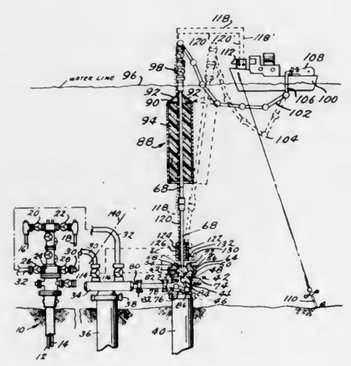
A heat exchanger with resilient liquid accumulator comprises a pair of heater blocks back-to-back on opposite sides of heater elements and having oppositely outwardly opening grooves for a liquid to be heated. The grooves are closed by spring metal plates that are held in place by cover plates. The cover plates are recessed on the outer side of the spring metal plates to permit expansion of the spring metal plates. The assembly is held together in sandwich fashion by tie bolts.

3,782,457
RECUPERATOR AND METHOD OF MAKING
Walter C. Troy, National City, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Oct. 26, 1971, Ser. No. 191,998
Int. Cl. F28d 9/00
U.S. Cl. 165—165 4 Claims



Recuperator having unusually high heat transfer capability is made up of casing with headers, and matrix having tubes extending between headers and fins integral with tubes. In preferred form a continuous web of metal foil, such as stainless steel, is repeatedly folded on itself to form multiple spaced corrugations extending from one side of web. Each corrugation is pinched together at its open edge and seam welded to produce tube integral with web. Web is then wrapped on itself in spiral arrangement to produce matrix of multiplicity of very small parallel tubes. The tubes of each wrap are in contact with the web of the adjacent wrap but not secured thereto. All portions brace each other, and integral fins provide maximum heat transfer. Tubes are rigidly connected only to headers, and mid portion of matrix is free to work in response to temperature gradients, greatly reducing localized stresses.

3,782,458
UPRIGHT, SWIVELABLE BUOYED CONDUIT FOR OFFSHORE SYSTEM
John Slack, Houston, Tex., assignor to Gray Tool Company, Houston, Tex.
Filed Aug. 4, 1971, Ser. No. 169,036
Int. Cl. E21b 33/035
U.S. Cl. 166—.5 26 Claims



The basic device of the invention includes a submerged, bottom supported ball joint having a conduit extending upwardly therefrom, a body of flotation material secured on the conduit above the center of gravity thereof so that the conduit is buoyed in a generally vertical condition and emergent means at the upper end of the conduit for accomplishing the desired use of the device. This latter means may include means for connecting another conduit thereto, valving and control means, visual indicators and the like. The means which anchor the device to the bottom may be a partly or fully completed petroleum well wellhead, or a portion thereof, an anchor pipe or similar means.

3,782,459
METHOD FOR CUTTING AND RETRIEVING PIPE FROM A FLOATING DRILL SHIP
William K. Murray, Bossier City, La., assignor to Tri-State Oil Tool Industries Inc., Bossier City, La.
Filed Dec. 16, 1971, Ser. No. 208,652
Int. Cl. E21b 29/00
U.S. Cl. 166—.5 15 Claims



A method and apparatus for cutting and retrieving a well pipe (having connecting collars and disposed within a well bore) from a floating drill ship utilizing a drill string, slack joint, downhole swivel, washover pipe, overshot and outside cutter; wherein the cutter is lowered into the well bore by means of the drill string until the cutter is in cutting relationship with the pipe and spaced longitudinally from one of the collars, the drill string is anchored in the well bore at a point between the cutter and the slack joint, the cutter is operated to sever the pipe, and the severed pipe section is retrieved by means of the drill string.

This abstract is neither intended to define the invention of the application, which of course is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,782,460
METHOD OF INSTALLING A COMBINATION PEDESTAL CONDUCTOR AND CONDUCTOR STRING AT AN OFFSHORE LOCATION
Denis J. Skinner, The Hague, Netherlands, assignor to Shell Oil Company, Houston, Tex.
Filed Aug. 1, 1972, Ser. No. 277,004
Claims priority, application Great Britain, Aug. 24, 1971, 39,636/71
Int. Cl. E21b 7/12, 33/035
U.S. Cl. 166—.5 4 Claims

A pedestal conductor, buoyancy member, and conductor string are installed at an offshore location by lowering the con-

ductor string into the borehole during drilling, cementing the conductor string in the borehole, and subsequently lowering



the pedestal conductor and the buoyancy member along a drill string to engage said conductor string prior to removing said drill string from said conductor string.

3,782,461

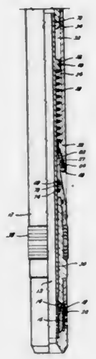
PRESSURIZED CHAMBER WELL SAFETY VALVE

Fred E. Watkins, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.

Filed June 1, 1971, Ser. No. 148,607

Int. Cl. E21b *33/03, 43/12*

U.S. Cl. 166—72 **4 Claims**



In a well safety valve for controlling the flow through a well conduit which has a pressurized chamber acting to move the valve toward the closed position and control pressure means extending from the well surface acting to move the valve toward the open position, the improvement of insuring that the control pressure is applied to all of the seals enclosing the pressurized chamber and that the pressure in the well conduit is isolated from the pressurized chamber seals to provide a fail safe valve. Passageway means extending from the control pressure to a position to apply the control pressure against the pressurized chamber seals on a side remote from the pressurized chamber, and seal means between the interior of the well conduit and said control pressure thereby isolating the pressurized chamber from the pressure in the well conduit.

3,782,462

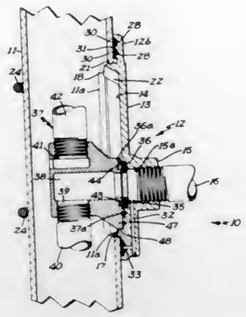
PITLESS WELL ADAPTOR

Dean C. Kramer, Mason City, Iowa, assignor to Martinson Mfg. Co., Inc., Sheffield, Iowa

Filed Apr. 28, 1972, Ser. No. 248,618

Int. Cl. E21b *33/03*

U.S. Cl. 166—88 **3 Claims**



A pitless well adaptor includes a casing engaging member or saddle which is clamped against the well casing and around the opening therein, and is connected to a horizontal delivery pipe. A pair of positioning elements on the casing engaging member permit the latter to be properly orientated with respect to opening in the casing, and a pair of annular sealing elements are interposed between the exterior surface of the casing and the casing engaging member to form a seal thereat. The annular space between the sealing elements defines a pressure passage which communicates with the main passage through the adaptor so that the external seal is under system pressure. A coupling member, which is connected to the well pipe, is releasably interconnected to the casing engaging member by coacting tapered guide elements to thereby intercommunicate the well pipe to the delivery pipe.

3,782,463

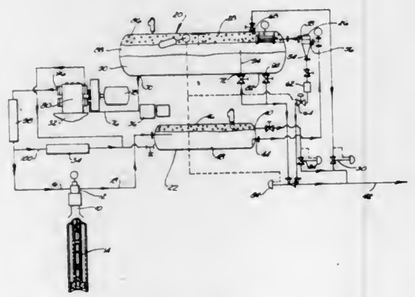
POWER FLUID CONDITIONING UNIT

Harold H. Palmour, Humble, Tex., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Nov. 14, 1972, Ser. No. 306,391

Int. Cl. E21b *43/00*

U.S. Cl. 166—68 **13 Claims**



A one well, self contained, wide producing range, hydraulic pumping system comprising a power fluid conditioning unit to condition produced fluid from the produced well fluid so that it will be suitable for use as a power fluid, to economically pump a well which produces medium to large volumes from average to greater depths of lift, with the operator being able to use either power oil or power water for power fluid from the same power fluid conditioning unit, as desired.

3,782,464

DEVICE FOR SUSPENDING MEASURING INSTRUMENTS IN A DRILL STRING

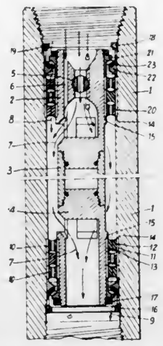
Claude Quichaud, Rue Des Chenes; Jean-Pierre Le Peuvedic, Montardon, and Jacques Tinchon, Torrance, all of France, assignors to Societe Nationale Des Petroles D'Aquitaine, Courbevoie, France

Continuation of Ser. No. 141,722, May 10, 1971, abandoned. This application Aug. 29, 1972, Ser. No. 284,553

Claims priority, application France, May 11, 1970, 7017018

Int. Cl. E21b *33/00*

U.S. Cl. 166—224 **5 Claims**



A collar for holding an instrument in a drill string is provided with a housing for attachment to the instrument, and elastomeric suspension means connecting the housing to the collar. Both housing and suspension means are pierced to pass drilling mud. A passage in the housing is controlled by a first valve responsive to the instrument. A second valve controls the passage defined between the housing and drill collar and containing the suspension means. The second valve is pressure responsive and closes whenever the first valve is closed. The object is to provide a sharper change in volume of drilling mud flow when the first valve is operated and consequently to transmit a clearer signal along the column of drilling mud.

3,782,465

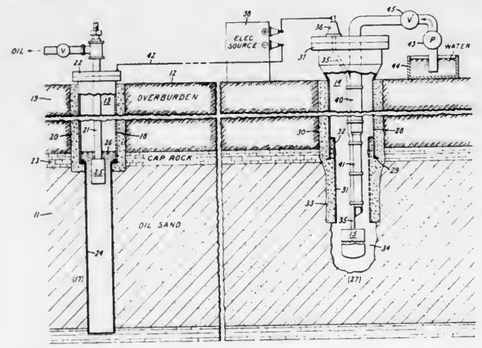
ELECTRO-THERMAL PROCESS FOR PROMOTING OIL RECOVERY

Christy W. Bell, Berwyn, and Charles H. Titus, Newtown Square, both of Pa., assignors to Electro-Petroleum Inc.

Continuation-in-part of Ser. No. 88,854, Nov. 12, 1970, abandoned, and a continuation-in-part of Ser. No. 855,637, Sept. 5, 1969, abandoned. This application Nov. 9, 1971, Ser. No. 196,917

Int. Cl. E21b *43/24*

U.S. Cl. 166—248 **19 Claims**



The flow of oil from underground oil-bearing formations is stimulated and directed by the steps of locating a relatively small anode in a cavity at an approximately medial elevation of one region of the formation, injecting saline water into that cavity, raising the electric potential of the anode with respect to a laterally adjacent region of the formation, and withdrawing oil from a producing well penetrating said adjacent region.

3,782,466

BONDING CASING WITH SYNTACTIC EPOXY RESIN

Jimmie Brown Lawson; Edwin A. Richardson, and George O. Suman, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed July 19, 1972, Ser. No. 273,082

Int. Cl. E21b *33/14*

U.S. Cl. 166—254 **2 Claims**



In a well in which a movement of earth formation material is apt to collapse a casing, an improved bond between the casing and the sur-rounding earth-formations is formed by a syntactic epoxy resin foam that collapses progressively and has a compressive strength slightly less than that of the casing.

3,782,467

METHOD FOR REDUCING GAS PRODUCTION

James E. Hessert, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 244,223, April 14, 1972, abandoned. This application July 26, 1972, Ser. No. 275,440

Int. Cl. E21b *33/138, 43/24*

U.S. Cl. 166—261 **7 Claims**

A method for reducing gas permeability in a hydrocarbon bearing subterranean formation having zones of gas permeability and at least two penetrating well bores, comprising the injection into said zones of a basic pH aqueous-thickener slug containing an acidic responsive crosslinking system and acidifying the aqueous-thickener slug with carbon dioxide for plugging in situ the zones of gas permeability.

3,782,468

GEOTHERMAL HOT WATER RECOVERY PROCESS AND SYSTEM

James T. Kuwada, Richmond, Calif., assignor to Rogers Engineering Co., Inc., San Francisco, Calif.

Filed Sept. 20, 1971, Ser. No. 182,054

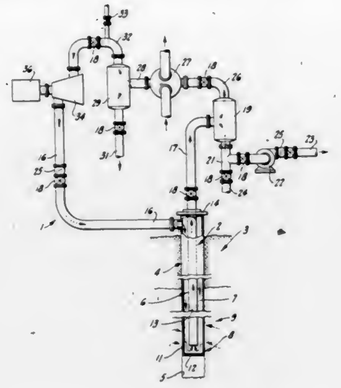
Int. Cl. E21b *43/00*

U.S. Cl. 166—267 **8 Claims**

An improved process and system for recovering high temperature hot water from a geothermal supply. A well casing assembly is sunk to position an apertured end portion of a casing in proximity to an underground hot water supply with an apertured end portion of a centrally disposed conduit within the casing adjacent the apertured casing end. By reducing the pressure at the well head, flashing of the hot water to steam occurs to elevate a two phase mixture of steam and hot water through the casing assembly. Such flashing is accompanied by the evolution of substantially non-condensible gases, including carbon dioxide. Such gases are separated with the steam from the elevated hot water, the latter being withdrawn from the system for its intended use, such as the generation of electric

power. The separated steam and gases are heat exchanged to condense the steam and to withdraw useful heat from the gases, following which the gases are compressed and recycled into contact with the underground hot water supply to assist in elevating additional hot water.

The carbon dioxide containing gases are effective in countering the problems normally created when geothermal hot water is allowed to flash to steam, namely the formation of system clogging deposits, of which calcium carbonate and



magnesium hydroxide are typical, within the well and related apparatus. The presence of carbon dioxide in the recycled gases during the steam flashing maintains chemical equilibrium in the system to prevent formation of such deposits.

Thus, without utilizing mechanical or other pumping devices within the well, recovery of a substantially constant stream of geothermal hot water from a deep underground well may be effected without attendant precipitation of clogging chemical compounds commonly encountered when geothermal hot water is elevated utilizing a steam flashing procedure.

3,782,469

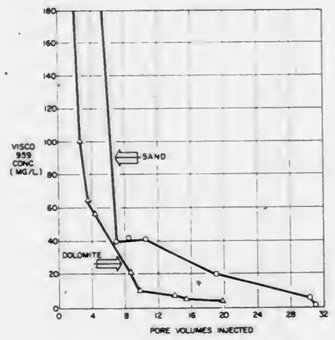
FORMATION AND WELLBORE SCALE PREVENTION

Richard S. Fulford, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

Continuation of Ser. No. 63,193, Aug. 11, 1970, abandoned. This application May 25, 1972, Ser. No. 256,722

Int. Cl. E21b *43/26*

U.S. Cl. 166—279 **8 Claims**



Disclosed herein is a method for the reduction of the scale deposition in the formation and fractures about a producing wellbore. In particular, gypsum scale deposition is avoided by the addition of scale preventative to an absorbent which may be used as a propping agent and positioned in hydraulically created fractures within the formation. Subsequent production from the formation, through the fractures, slowly bleeds the gypsum scale preventative into the produced water and thereby prevents gypsum scale deposition in the wellbore.

3,782,470

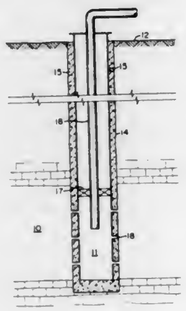
THERMAL OIL RECOVERY TECHNIQUE

Robert C. West, and Walter L. Penberthy, Jr., both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Continuation-in-part of Ser. No. 59,611, July 30, 1970, abandoned. This application Aug. 23, 1972, Ser. No. 283,122

Int. Cl. E21b *43/24*

U.S. Cl. 166—303 **10 Claims**



A thermal method for recovering oil from a subterranean formation. Steam is injected by means of a well into the formation to heat the oil and to lower its viscosity. Following the steam injection, a noncondensing gas which is substantially free of oxidizing components is introduced into the steam injection system and is then injected into the formation at the same location at which the steam was injected. The temperature of the gas upon introduction into the steam injection system is no higher than substantially ambient temperature. After the gas has been injected into the formation, the heated oil is withdrawn from the formation by means of the well.

3,782,471

DISPERSING CELLULAR-MICRO-ORGANISMS WITH CHELATING AQUEOUS ALKALINE SURFACTANT SYSTEMS

Ted S. Felmann, Phoenix, Ariz.; Hollis B. Carlile, Jr., Hacienda Heights, and Charles F. Blankenhorn, La Habra, both of Calif., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 144,275, May 17, 1971, abandoned. This application Feb. 9, 1972, Ser. No. 224,932

Int. Cl. E21b *43/27*

U.S. Cl. 166—307 **8 Claims**

A contaminent composed of cellular micro-organism materials is dissolved or dispersed by contacting it with an aqueous solution containing at least one surfactant adapted to disperse the outer wall layers of micro-organism cells, at least one chelating agent adapted to disperse the inner wall layers of micro-organism cells and an alkali metal hydroxide adapted to enhance the dispersing action.

3,782,472

STEAM INJECTION OF OIL FORMATIONS

Charles P. Siess, Jr., St. Louis, Mo., assignor to Petrolite Corporation, Wilmington, Del.

Filed Mar. 20, 1967, Ser. No. 624,133

Int. Cl. E21b *43/24*

U.S. Cl. 166—303 **12 Claims**

In the process of stimulating the production of petroleum from underground formations by treating the formation with steam, including steam flooding and the "huff and puff" steam soak techniques, the improvement which is characterized by the use of demulsifiers in conjunction with steam.

3,782,473

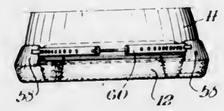
HORSESHOE

Dudley W. C. Spencer, 619 Shipley Rd., Wilmington, Del.

Continuation-in-part of Ser. No. 71,121, Sept. 10, 1970, Pat. No. 3,664,428. This application May 12, 1972, Ser. No. 252,546

Int. Cl. A01l *1/00*

U.S. Cl. 168—4 **7 Claims**



A horseshoe comprises a U-shaped shoe unit which is secured to the hoof by thermo-adhesive means and which includes heat conductive metal means in contact with the adhesive means for curing the adhesive when the metal is heated.

3,782,474

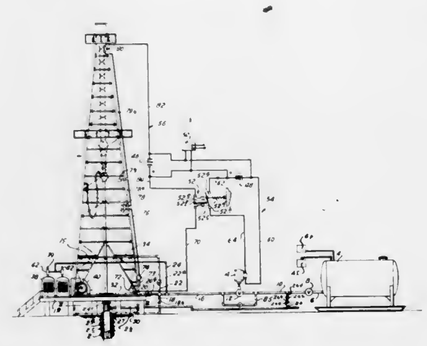
METHOD OF PUTTING OUT OIL WELL FIRES

Ben W. Wiseman, Jr., 303 Wall Towers, West, Midland, Tex.

Continuation-in-part of Ser. No. 793,692, Jan. 24, 1969, Pat. No. 3,620,299. This application Nov. 4, 1971, Ser. No. 195,713

Int. Cl. A62c *3/02*

U.S. Cl. 169—2 R **15 Claims**



A method of putting out oilwell fires comprising the steps of providing carbon dioxide in liquid state at a well site and releasing the carbon dioxide to ambient atmosphere, allowing expansion to a gaseous state, to displace oxygen required for combustion and to dilute the combustible fuel for increasing the temperature required for combustion.

3,782,475

FIRE EXTINGUISHER

Verna Grace Schmidt, 323 N. Walnut St., Starke, Fla.

Filed Oct. 21, 1971, Ser. No. 191,552

Int. Cl. A62c *7/00*

U.S. Cl. 169—1 R **12 Claims**



The disclosure herein pertains to the fabrication and use of articles for extinguishing fires. More particularly, the disclosure, in its preferred embodiment, pertains to flexible sheeted structures having fire extinguishing material enclosed between sheets of heat-rupturable material and fire-proof or fire-resistant material; alternative embodiments are also disclosed. Such fire extinguisher structures are particularly suitable for small fires and may be fabricated into easily accessible household articles such as towels, tidys, blankets, tapestries, draperies, etc.

3,782,476

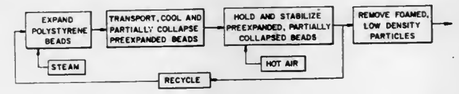
FLAME PROOFING METHOD

Irby H. Leach, 2094 Emerson, Napa, Calif.

Filed June 7, 1972, Ser. No. 260,619

Int. Cl. A62c *1/12*

U.S. Cl. 169—1 A **16 Claims**



Expanded, foamed plastic such as foamed plastic beads having a minimum density of 0.5 pounds per cubic foot and preferably of 0.4 pounds per cubic foot or less are fire extinguishing or retard the propagation of flames even though constructed of an otherwise flammable substance. The low density foamed material can be applied to exterior surfaces of objects, can be intermixed with flammable material or can be filled inside soft or hard shells to provide flame proofing. Flames can be retarded or extinguished by placing the low density foamed plastic material on burning objects.

3,782,477

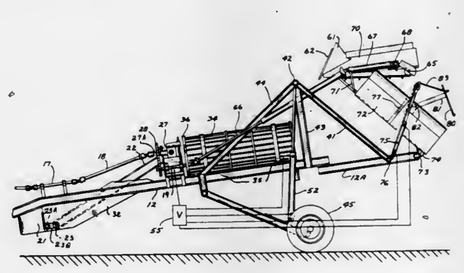
ROCK PICKER WITH HIGH LIFT DUMP BOX

Harley D. Fahrenholz, Box 278, Clarissa, Minn.

Filed Mar. 2, 1972, Ser. No. 231,245

Int. Cl. A01d *17/16*

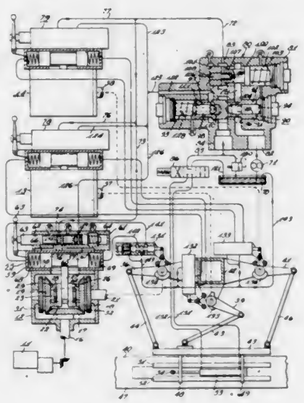
U.S. Cl. 171—12 **7 Claims**



A rock picker utilizing a tumbler member for separating the dirt from the rocks being picked, and including a unitary

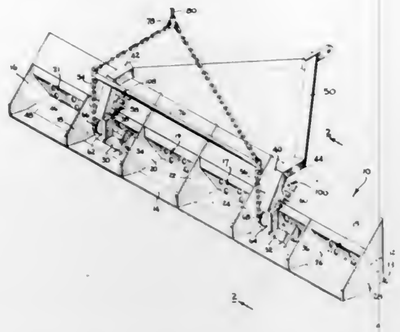
frame with a storage dump box into which the rocks are delivered mounted on the frame. The rocks can be dumped from the storage box into a truck or the like. The frame is mounted on a support that permits directly raising the frame to a dumping position. The support is made so the support balance line of the rock picker does not shift significantly even when the frame is raised a substantial amount.

3,782,478
FLUID CONTROL SYSTEM FOR EARTHWORKING APPARATUS INCLUDING AUTOMATIC PRESSURE REGULATING MEANS
Ferris L. McRay, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Division of Ser. No. 140,698, May 6, 1971. This application Mar. 2, 1973, Ser. No. 337,532
Int. Cl. E02f *3/76*
U.S. Cl. 172—4.5 **2 Claims**



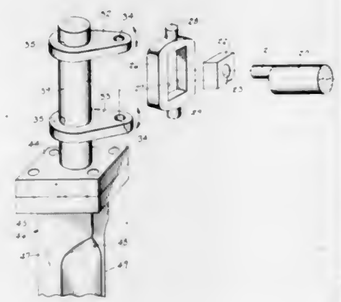
The control box jaw clutches of a motor grader are hydraulically operated through parallel connected closed center control valves. An automatic pressure regulator is interposed between the source of pressurized fluid and the parallel connected inputs to the control valves. When all the control valves are in neutral, an unloading valve in the pressure regulator bypasses fluid flow from the pressure source to the reservoir at a moderate pressure. When any one of the control valves is moved to an operating position, the unloading valve is automatically conditioned to establish a higher operating pressure. The higher operating pressure is established by hydraulically biasing the unloading valve fluid flow control element by pressurized fluid delivered to the jaw clutch actuators by the associated control valve. Upon the controlled apparatus moving to a limit position, a dumping valve is opened, thereby reducing the pressure to the jaw clutch actuator allowing the centering spring in the jaw clutch mechanism to return it to neutral position even though its control valve is still in an operating position. The reduction in control valve operating pressure, resulting from opening of the dumping valve, reduces the fluid pressure bias on the unloading valve flow control element thereby reducing the bypass pressure level until the 100 psi level is re-established. Fluid bypassed by the unloading valve element is delivered to an auxiliary control valve circuit having a high pressure relief valve. A pressure limiting valve downstream of the unloading valve prevents the jaw clutch control circuits from being subjected to more than an intermediate pressure.

3,782,479
BAR SCRAPER AND MUD DRAG
Mervin S. Moak, 6189 N. Libby, Paradise, Calif.
Filed June 29, 1971, Ser. No. 157,924
Int. Cl. E02f *3/60*
U.S. Cl. 172—26.5 **24 Claims**



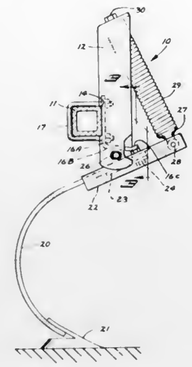
A bar scraper and mud drag particularly adpated to be used for scraping, cleaning and filling the bed of a water course having a heavy press plate member with a scraping and cutting bar on its underside and control cables or chains, including a drag line and lifting line, for tilting the apparatus onto its scraper and cutting bar.

3,782,480
SLIT TRENCH FORMING APPARATUSES
Calvin O. Schmahl, Chilton, Wis., assignor to Arps Corporation, New Holstein, Wis.
Filed Nov. 15, 1971, Ser. No. 198,852
Int. Cl. A01b *35/00*
U.S. Cl. 172—110 **14 Claims**



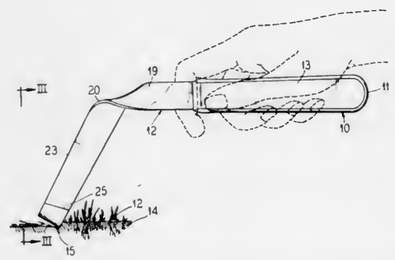
A device adapted to be pulled by a tractor or the like including a trench-forming blade and featuring a novel blade driving mechanism connectible to the power take-off shaft of the pulling vehicle, or to a separate prime mover, adapted to impart lateral oscillating motion to said blade to form a slit trench in the earth into which underground cables or pipes, etc. can be laid by a guide device associated with said apparatus, said novel drive mechanism producing a minimum of vibrations of the type characterizing conventional trench formers, which vibrations cause wear and rapid deterioration not only of the structural components of the apparatus, but which constant vibrations are detrimental to the human operator as well as to the cables or pipes being installed.

3,782,481
FIELD CULTIVATOR TOOL SUPPORT
Sherman H. Quanbeck, 705 S. 6th St., Breckenridge, Minn.
Filed Dec. 29, 1971, Ser. No. 213,670
Int. Cl. A01b *65/00*
U.S. Cl. 172—265 **5 Claims**



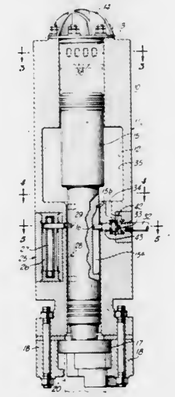
An earth working tool support for use with large field cultivators comprising a mounting member adapted to be mounted onto the provided frame of a field cultivator. A shank holder is pivotally mounted to a support bracket and resilient means are provided for holding the shank holder and tool into working position. The shank holder is positioned for maximum clearance in its operating position. The support bracket is held securely on the frame of the field cultivator with only one U bolt, and the bracket includes integral stop means to retain the shank support in a normal operating position.

3,782,482
PISTOL-GRIP GARDEN HOE
Eugene Boyd Miller, 14515 S. Michigan Ave., Riverdale, Ill.
Filed May 24, 1972, Ser. No. 256,393
Int. Cl. A01b *1/08*
U.S. Cl. 172—381 **6 Claims**



Hand-held hoe for use in cultivating and gardening particularly in close places difficult to cultivate with the average hoe or other cultivating tools. A generally pistol-grip handle affords a pulling and gripping surface for the index finger of the hand and a mounting for a flat blade support member offset from the center of the handle. The handle may be molded about the blade support member and is of a length to fit the average hand. The blade support member extends from the handle and is twisted at different curvatures adjacent the handle to offset the blade support member to extend to the outside of the handle and to add rigidity to the blade support member to accommodate the use of a light gauge steel. Offsetting of the blade member provides a leg portion extending angularly downwardly from the handle in a plane generally parallel to the plane of the handle, which terminates into a right-angled hoeing blade normally inclined at a cutting angle with respect to the ground when hoeing or cultivating, and sharpened along its ground engaging edge. The outer end of the hoeing blade is upturned to provide strength to the blade and prevent twisting thereof during a hoeing or cultivating operation and also to aid in cutting weeds or plants.

3,782,483
PERCUSSION HAMMER
George C. Wandell, Soddy, Tenn., assignor to Vulcan Iron Works Inc., Chattanooga, Tenn.
Filed Nov. 15, 1971, Ser. No. 198,923
Int. Cl. E02d *7/10*
U.S. Cl. 173—15 **3 Claims**

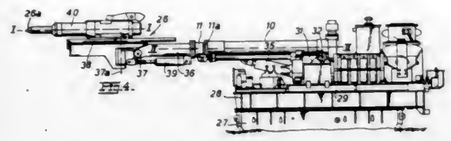


There is provided a percussion hammer of the type used for driving piles and the like, and including a differential diameter piston defining a ram reciprocally positioned within a differential diameter cylinder. An anvil is mounted for limited movement in one end of the cylinder positioned in the path of the ram to receive percussion blows therefrom. Main valve means are provided for controlling the working fluid so as to cycle the ram through power and return strokes. Safety means are provided for shutting off the supply of working fluid rendering the ram inoperative when the percussion hammer is out of engagement with a pile.

3,782,484
TOOL POSITIONING EXTENSIBLE BOOM
Dennis Douglas Martin, Wigan, England, assignor to Dobson Park Industries Limited, Nottingham, Nottinghamshire, England
Filed July 18, 1972, Ser. No. 272,954
Claims priority, application Great Britain, Aug. 4, 1971, 36622/71
Int. Cl. E21c *11/00*
U.S. Cl. 173—43 **18 Claims**

An extensible boom, particularly for mounting on a mobile rock breaking or mining machine, comprises an extensible member mounted for rotation about an axis extending in the direction of its length, a non-rotatable extensible member operative to impart extension to said rotatable member of the boom, means for extending the non-rotatable extensible member of the boom and means on said rotatable member of the boom for mounting a rock breaking or other tool thereon

so that said tool operates on an axis which is different to said axis of the rotatable member of the boom and is movable relatively thereto. In one preferred arrangement the tool is supported on a tiltable turntable pivotally mounted on the forward end of the boom.



3,782,485

WEIGHING BALANCES WITH PARALLELOGRAM SUPPORT FORMED BY TWO PARALLEL GUIDE MEMBERS

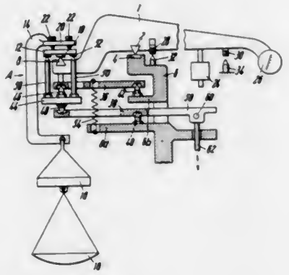
Ludwig Weickhardt, Bovenden, Germany, assignor to Sartorius-Werke GmbH, Gottingen, Germany

Filed July 24, 1972, Ser. No. 274,802

Claims priority, application Germany, Aug. 4, 1971, 2138902

Int. Cl. G01g *21/24, 23/02*

U.S. Cl. 177—157 **4 Claims**



A weighing balance includes an unsymmetrical beam, a frame having a bearing surface, a beam-supporting knife edge located on the beam and engaging the bearing surface, a load-supporting knife edge carried by the beam at a spaced distance from the beam-supporting knife edge, a load suspension member supportable by the load-supporting knife edge during a weighing operation, the load suspension member being liftable from the load-supporting knife edge to stop the weighing operation, counterweight means carried by the beam, the beam, in condition when the load suspension member is lifted from the load-supporting knife edge, being tiltable under action of the counterweight to a stop position wherein the beam-supporting knife edge is raised from the bearing surface, combined with the weighing balance are means for arcuately stopping the weighing operation by lifting the load suspension member from the load-supporting knife edge and for arcuately starting the weighing operation by permitting the load suspension member to be supported by the load-supporting knife edge, the arcuate stopping and starting means including a parallelogram support formed by two parallel guide members, lifting means mounted at one end of the guide members and engageable with the load suspension member, the guide members having another end thereof mounted on the frame, each of the guide members having an effective length approximately equal to the distance between the beam-supporting and the load-supporting knife edges, the guide members of the parallelogram support maintaining parallelism with an imaginary line extending between the knife edge in condition when the lifting pins engage the load suspension member and the guide members tilt with the beam.

3,782,486

MEASURING TRANSIENT LOADS

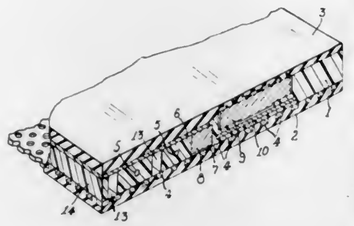
Stephanus Hendrik Kuhn; Charles Richard Freeme, both of Everhardus; Rombout Beulink, and John Edgar Baron Basson, both of Transvaal, all of South Africa, assignors to South African Inventions Development Corporation

Continuation-in-part of Ser. No. 846,909, Aug. 1, 1969, abandoned. This application May 12, 1971, Ser. No. 142,717

Claims priority, application South Africa, Aug. 1, 1968, 68/4975; Mar. 14, 1969, 69/1840

Int. Cl. G01g *3/14*

U.S. Cl. 177—210 **7 Claims**



A device for sensing and measuring a transient load, such as a load imposed by at least one wheel on an axle of a passing vehicle, comprising a flexible and resilient mat formed of a dielectric and elastomeric material and adapted to be engaged by the load, and at least two vertically spaced capacitor electrodes embedded in and extending over substantially the entire operative area of the mat. The electrodes are connected to a device for detecting variations in the electrode spacing owing to transient loads. Void areas are located in the body of the mat to provide for mat deformation that is linearly proportional to the magnitude of the applied load. Preferably, the void areas are uniformly distributed in the mat and extend substantially from one of the electrodes to the other electrode.

3,782,487

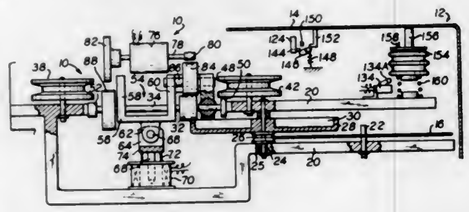
WEIGHT ANNUNCIATOR

Morris W. Leen, 2911 Saddle Ridge Dr., Yorktown Heights, N.Y.

Filed June 22, 1972, Ser. No. 265,211

Int. Cl. G01g *23/00*

U.S. Cl. 177—245 **21 Claims**



A weight annunciator for announcing the weight of a load placed on a weighing machine of the type having a platform adapted to be moved to a loaded position which is related to the value of the weight placed on the platform. A record having weight announcement segments sequentially recorded thereon is provided and is adapted to move past a reading station which includes a reading device for converting the weight announcement segments into audible information. A moving arrangement responsive to the movement of the platform to the loaded position is adapted to move the record to a position wherein the weight announcement segment associated with the value of the weight on the platform is positioned at the reading station. Thereafter, relative movement between the reading device and the record is effected whereby the weight announcement positioned at the reading station is read out.

3,782,488

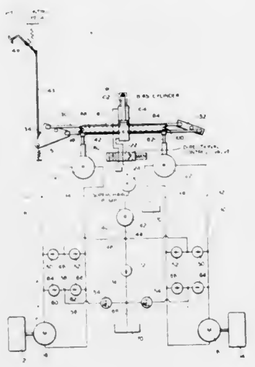
CONTROL SYSTEM FOR DIFFERENTIAL HYDROSTATIC STEERING

William A. Williamson, Niles, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Mar. 10, 1972, Ser. No. 233,495

Int. Cl. B62d *11/04*

U.S. Cl. 180—6.48 **12 Claims**



A steering control system for a vehicle having a manual steering means such as a steering wheel and a dual path hydrostatic drive with separate motors for two steerable wheels, and separate variable output pumps for the motors in which a linkage interconnects the two motors. A pair of bars, preferably forming part of a parallelogram, controls and limits the movement of the linkage either in the same direction or in an angular direction to equalize the output of the motors or to vary the output of the motors to steer the vehicle. The movement of the interconnecting linkage is controlled by the steering means and the position of the two bars is preferably controlled by a foot pedal. Forward and reverse operation of the vehicle are obtained by shifting the linkage toward one or the other of the parallel members through the use of a resilient means, preferably a hydraulic motor. The present control system is particularly adapted for lift trucks in which the two front wheels are driven by the motors and a caster or casters are used for the rear wheels.

3,782,489

HYDROSTATIC TRANSMISSION CONTROL WITH HYDRAULIC FOLLOW-UP

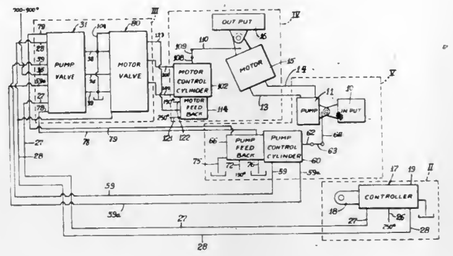
Charles A. H. Ruhl, Wheaton; Edward Meyer, North Riverside, and Probir K. Chatterjea, Des Plaines, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Division of Ser. No. 97,899, Dec. 14, 1970, Pat. No. 3,693,503. This application May 19, 1972, Ser. No. 255,288

Int. Cl. B62d *11/04*

U.S. Cl. 180—6.48 **2 Claims**

A hydraulic follow-up for use with a hydraulic system placed between a rotating input member and a rotating output member. The hydraulic system is a hydrostatic transmission for driving a tractor, and comprises a hydrostatic pump and a hydrostatic motor driven by the pump. When the hydrostatic pump is angularly shifted with respect to the input member, the shifting is controlled by the hydraulic follow-up, which also shifts the motor in relation to the output member.



3,782,490

STEERING ARRANGEMENT FOR VEHICLES, ESPECIALLY MOTOR VEHICLES, WITH A STEERING SERVO MECHANISM

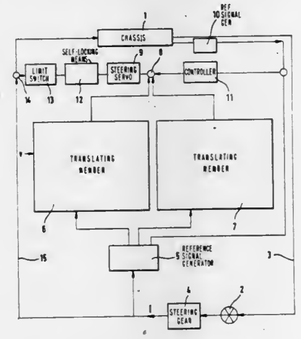
Harald Schimkat, Flechtorf, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Aug. 4, 1971, Ser. No. 168,917

Claims priority, application Germany, Aug. 27, 1970, 2042428

Int. Cl. B62d *5/04*

U.S. Cl. 180—79.1 **12 Claims**



A steering arrangement for vehicles, especially for motor vehicles comprising a steering gear and a steering servo mechanism, and means coupled between the steering gear and the servo mechanism for superimposing a further translation ratio independent from the velocity of the vehicle to the steering translation ratio of the steering gear without changing the steering momentum.

3,782,491

POWER STEERING SYSTEM FOR ADJUSTABLE TRACK VEHICLES

Edward J. Herbenar, Detroit, Mich., assignor to TRW Inc., Cleveland, Ohio

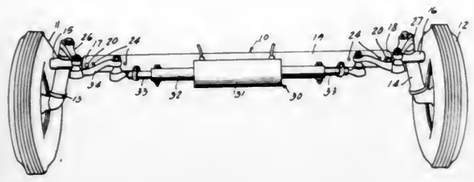
Filed Feb. 22, 1972, Ser. No. 227,770

Int. Cl. B62d *5/10, 17/00*

U.S. Cl. 180—79.2 R **3 Claims**

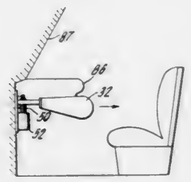
A power steering system for adjustable track vehicles wherein a double-ended power cylinder moves a piston which

carries a hollow power rod. The power rod in turn receives end portions of tie rod socket arms telescopically. The socket arms are attachable to the power rod at various points along



the length of the socket arm to accommodate adjustability in the vehicle track. The socket arms terminate in movable stud joints which are connected to tie rod arms which in turn are connected to the wheel steering arm.

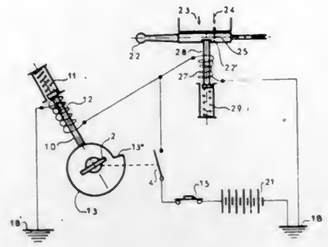
3,782,492
MOTORIZED RETRACTABLE PADDED CUSHION
Jesse R. Hollins, 1 Chester Dr., Great Neck, N.Y.
Filed Oct. 15, 1971, Ser. No. 189,650
Int. Cl. B60r *21/10*
U.S. Cl. 180—82 C **5 Claims**



An assembly for protecting a passenger of a vehicle. The assembly includes a padded cushion and electrically activated means coupled to the cushion for moving the cushion toward a desired position and retracting the cushion from that position. The electrically activated means includes a motor gear meshed to a threaded shaft. The activated means also includes a threaded nut mechanically engaging the threaded shaft, which nut is attached to the frame of the cushion. Electric circuits are provided for activating the motor so as to turn the shaft in one direction causing the cushion to move to an extended horizontal position, and to turn the shaft in the opposite direction causing the cushion to retract from the extended horizontal position.

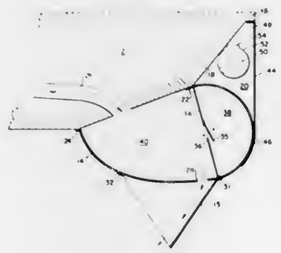
3,782,493
ANTI-THEFT DEVICES
Paul Lipschutz, Croissy-Sur-Seine, and Jean Leroy, Saint-Cyr-L Ecole, both of France, assignors to Societe d'Exploitation des Brevets NEIMAN, Neuilly Seine, France
Continuation-in-part of Ser. No. 47,706, June 19, 1970, Pat. No. 3,688,861. This application Sept. 21, 1971, Ser. No. 182,385
Claims priority, application France, Sept. 25, 1970, 7034733; Sept. 25, 1970, 7034734
Int. Cl. B60r *25/04*
U.S. Cl. 180—114 **4 Claims**

A lock having a bolt engageable with a control element of an automotive vehicle and including key-operated means having a first position in which the bolt is engaged with the control element and a second position in which the bolt is disengaged therefrom, means for blocking movement of the key-operated



means between both positions, and comprising an electromagnet energizable by an electrical circuit of the automotive vehicle for operating said blocking means.

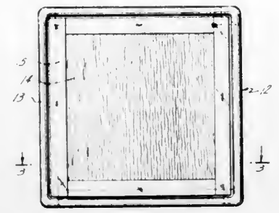
3,782,494
AIR CUSHION VEHICLE SEAL
Anthony Yelverton Simpson, New Orleans, La., assignor to Textron Inc., Providence, R.I.
Filed May 25, 1972, Ser. No. 256,653
Int. Cl. B60v *1/16*
U.S. Cl. 180—124 **10 Claims**



A system for bracing/stiffening any side section, such as the bow section of an air cushion vehicle seal of the inflated bag or trunk type against "plow-in" or "tuck-under" tendencies. The system provides (without undue outward extension of the vehicle deck) a "third stage" extension to the conventional "two-stage stiffness" bag type air cushion seal, whereby a new and improved "three-stage stiffness" seal system is provided. Also, the device of the invention incidentally operates as a novel pneumatic bumper device protecting the vehicle hard structure against damage when docking or the like.

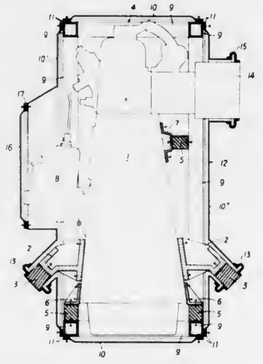
3,782,495
CEILING TILE
Martin Nassof, 2608 Rockville Ctr. Pky., Oceanside, N.Y.
Filed June 8, 1972, Ser. No. 260,852
Int. Cl. E04b *1/82, 5/52*
U.S. Cl. 181—33 G **7 Claims**

A substantially square frame made of wire is covered on one side or both sides with a skin of metal foil or thin metal sheet, preferably aluminum, or thin plastic film. The skin is secured on the frame by adhesive means, such as heat sealing. The surface of the skin may be treated by wrinkling, embossing, perforating, printing, coloring or other suitable decorating process. The thus obtained lightweight tile is usable for



decorating ceilings, either suspended below or in conjunction with sound absorbing materials such as glass fiber or mineral wool.

3,782,496
INTERNAL COMBUSTION ENGINE IN A SOUND-PROOF CASING
Gerhard Thien; Othmar Skatsche, and Heinz Fachbach, all of Graz, Austria, assignors to Hans List, Graz, Austria
Filed Sept. 27, 1972, Ser. No. 292,802
Int. Cl. F02b *77/00*
U.S. Cl. 181—33 K **10 Claims**

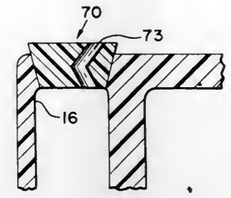


An internal combustion engine in a sound-proof casing supported by means of sound-proofing stays extending through the sound-absorbing casing upon a foundation, to which a supporting frame designed as a rigid framework is attached by means of sound-proofing members, the wall members forming the sound-proofing casing being attached to said supporting frame.

3,782,497
SOUND MUFFLER FOR DRAINAGE DEVICE
Robert E. Bidwell, Melville, and Leonard D. Kurtz, Woodmere, both of N.Y., assignors to Deknatel, Inc., Queens Village, N.Y.
Filed Oct. 18, 1972, Ser. No. 298,505
Int. Cl. E04b ; A61m
U.S. Cl. 181—33 **9 Claims**

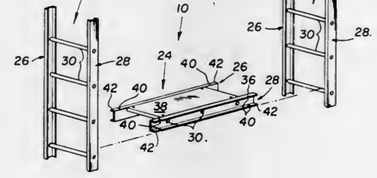
Drainage device of the type shown in U.S. Pat. Nos. 3,363,626; 3,363,627 and 3,683,913. For use with vacuum,

the device has three chambers: collection, seal, and manometer. In operation, a gas bubbles through a body of liquid in the manometer chamber and this is sometimes quite noisy. In accordance with the invention, the opening of the manometer chamber which is open to atmosphere is closed with a sound



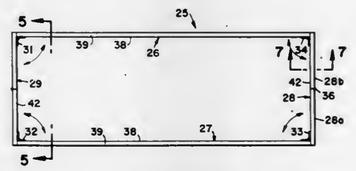
muffling member which does not substantially impede gas flow through the opening. The sound muffling member is preferably a member having a tortuous aperture extending therethrough, the size of the aperture being sufficient to permit the free flow of gas.

3,782,498
IMPROVED SCAFFOLD
Robert K. Gleisen, 825 Calalpa Ave., Teaneck, N.J.
Filed Aug. 21, 1972, Ser. No. 282,480
Int. Cl. E04g *1/30*
U.S. Cl. 182—119 **3 Claims**



A scaffold capable of being erected for use on a level surface or on multi-level surfaces (such as a staircase) and constructed from three components, which each advantageously use U-shaped sides. Interconnection of the components, preparatory to erection of the scaffold, is achieved by orienting the U shapes in facing relation and obtaining a locking accommodation of one within the other. In unassembled condition, two of the components function as ladders.

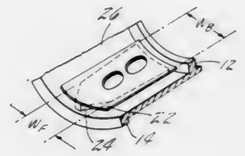
3,782,499
TOE BOARD ASSEMBLY FOR SCAFFOLD PLATFORMS
Robert E. Fisher, Larkspur, Calif., assignor to Up-Right, Inc., Berkeley, Calif.
Filed Dec. 7, 1972, Ser. No. 313,122
Int. Cl. E04g *5/00*
U.S. Cl. 182—230 **15 Claims**



A toe board assembly for surrounding and extending upwardly from the perimeter of a flat scaffold platform, the toe

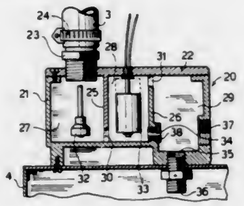
board assembly having side and end girder members hinged together to fold into a small compact package and to unfold into an open rectangular frame, the toe board assembly having platform-engaging surfaces to prevent longitudinal, transverse or vertical movement of the toe board assembly relative to the scaffold and platform when assembled thereto, the toe board being easily attachable and detachable without the use of tools.

3,782,500
LUBRICATION MEANS
Philip Young, Westfield, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed June 16, 1972, Ser. No. 263,492
Int. Cl. F16n *7/12*
U.S. Cl. 184—64 **3 Claims**



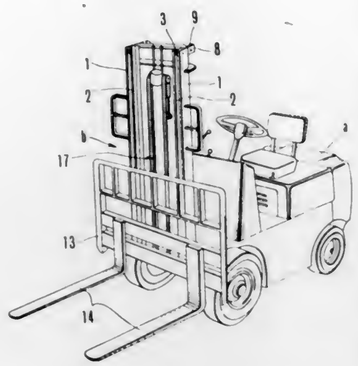
An elongated generally T-shaped member forming a gutter is disposed on the bottom inner wall of a sleeve like element horizontally disposed adjacent a bearing of a rotating machinery so that lubricant admitted into the sleeve migrates to the T-shaped member judiciously tapered for increasing the hydrostatic head of the lubricant for directing it into the bearing instead of being returned to the reservoir as was the case heretofore.

3,782,501
LUBRICATING-OIL CONTROL DEVICE FOR USE IN MACHINES, FOR INSTANCE MACHINE TOOLS
Elio Pagella, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Turin, Italy
Filed Feb. 22, 1971, Ser. No. 117,261
Claims priority, application Italy, Mar. 5, 1970, 67736 A/70
Int. Cl. F01m *11/12*
U.S. Cl. 184—6.4 **4 Claims**



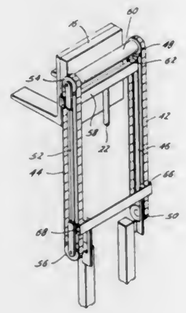
A machine control device for arresting the operation of a machine in response to an insufficient rate of lubricant flow in the machine lubrication system. A chamber interposed in the lubricant return circuit to the reservoir comprises a float for sensing the level of lubricant therein, an upper discharge port, and a lower discharge port of such size as to allow a flow equal to that necessary in the lubrication system to allow the machine to complete its cycle. A signal responsive to a predetermined position of the float announces the condition of insufficient rate of flow, and provides an input to an AND gate. The other input to the AND gate is provided by the machine control system at the end of a cycle, whereby the arresting of machine operation thereupon occurs.

3,782,502
MAIN POLE OF A FORK LIFT TRUCK
Motori Kobayashi, Uji; Masaoki Sakaguchi, Kusesa Tononishi, and Masahiro Maeda, Uji, all of Japan, assignors to Nissan Shatai Co., Ltd., Kanagawa-ken, Japan
Filed Aug. 30, 1971, Ser. No. 176,057
Int. Cl. B66b *7/02*
U.S. Cl. 187—9 **3 Claims**



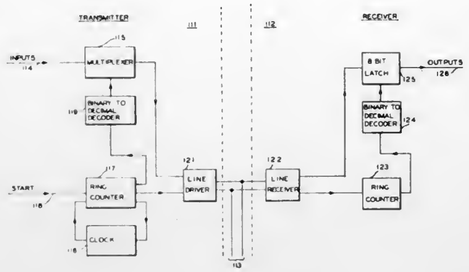
A fork lift mainpole comprises inner and outer-most elements on each side, the inner element comprising a U channel having added a shouldered rear flange engaging rollers attached to the outer masts in which the latter rollers are made adjustable by eccentric mountings for immediate and accurate adjustment to avoid shaking.

3,782,503
MAST STABILIZER FOR LIFT TRUCKS
Stuart W. Sinclair, Houston, Tex., assignor to Anderson, Clayton & Co., Houston, Tex.
Filed Dec. 14, 1972, Ser. No. 315,218
Int. Cl. B66b
U.S. Cl. 187—9 **4 Claims**



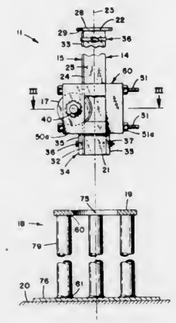
A stabilizer for reducing side-tilting moments in a lift truck mast by overcoming the moments imposed by side loads on the mast. An endless chain loop tauntily positioned on either side of the mast by a separating column with a sprocket at each end. One side of the chains is connected to the load bearing structure and the other side of the chains is anchored. One of the sprockets engaging each of the chains are connected together by a common torque shaft whereby any side loads on the carriage is transmitted to the chains and the torque shaft to compensate for the side loads.

3,782,504
MULTIPLEX SYSTEM FOR ELEVATOR CONTROL
Joseph F. Billmaier, and Gordon P. Sprague, both of Toledo, Ohio, assignors to Reliance Electric Company, Euclid, Ohio
Filed Dec. 14, 1972, Ser. No. 314,918
Int. Cl. B66b *3/00*
U.S. Cl. 187—29 R **34 Claims**



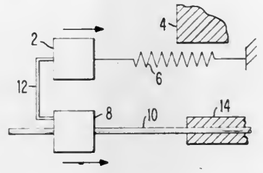
A system of transmitting control and indicator signals between elements of an elevator system such as between a car movable along a hatch-way and car control or supervisory equipment wherein the signals are coded and transmitted in multiplexed form over a single transmission line. A two station system between a car and a fixed location is illustrated with a transmitter and receiver at each station. The coded signals are time sequenced so that all signals are considered cyclically.

3,782,505
BRAKING DEVICE
Homer T. Armstrong, Arlington, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.
Filed Feb. 25, 1972, Ser. No. 229,464
Int. Cl. F16f *7/12*
U.S. Cl. 188—1 C **19 Claims**



A device for braking and dissipating the kinetic energy of a linearly moving object. The device employs an elongated probe rigidly attached to the object to be braked, the probe having at least one cutting edge. A strip of sheet material is removably mounted on the probe and over the probe's cutting edge. Means for holding and positioning a shearing member is slidingly mounted on the probe with the strip of sheet material between the probe and the shearing member. The shearing member cooperates with the probe's cutting edge to shear and deform the strip during movement of the shearing member relative to the probe and strip. Such movement of the shearing member is effected by the passage of the probe through an open end of a fixed structure, which open end is larger than the combined cross-sectional dimensions of the probe and strip of sheet material, but smaller than the outside dimension of the means for holding and positioning the shearing member.

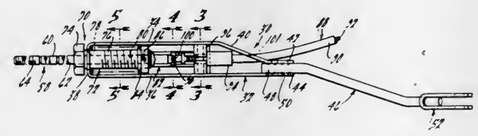
3,782,506
MECHANICAL MOTION RETARDING MEANS
James Clifford Yarrington, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 30, 1972, Ser. No. 257,592
Int. Cl. F16f *7/10*
U.S. Cl. 188—1 B **9 Claims**



Inertial retardation of mechanical motion is obtained by coupling an inertia element, which is relatively massive, to a mechanical load device, by a unidirectional coupling means, arranged so that the load device is effectively connected to the inertia element during the time that its motion is to be retarded. At the termination of the motion of the load device, by some arresting means, the inertia element is effectively uncoupled, and the stored energy in the inertia element is suitably dissipated. The load device is accordingly stopped with an arresting impulse equal only to the reduced momentum of the load.

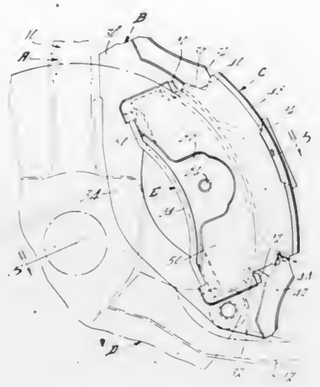
A preferred embodiment of the invention comprises a relatively massive flywheel coupled to the load device via an overrunning clutch.

3,782,507
BRAKE ACTUATED MECHANISM
Russell L. Shreve, 88 Linda, Troy, Mich.
Filed Mar. 29, 1971, Ser. No. 129,053
Int. Cl. B62l *3/02*; **F16c** *1/14*
U.S. Cl. 188—2 D **2 Claims**



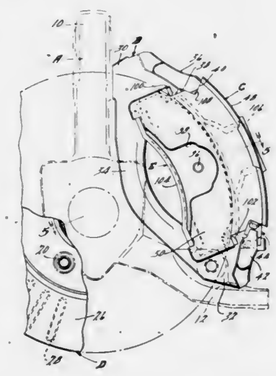
A brake actuating mechanism for two wheel vehicles such as motorcycles, motor bikes or the like having front and rear wheel brakes, the mechanism being operable to sequentially operate the front and rear brakes upon actuation of the vehicle brake pedal by the operator, whereby the rear wheel brake is applied prior to the front wheel brakes so as to prevent excessive front wheel braking relative to rear wheel braking, whereby instability and possible loss of vehicle control are minimized.

3,782,508
RELEASABLE CALIPER RETAINING MEANS FOR A DISC BRAKE
Harry E. Cook, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed July 2, 1971, Ser. No. 159,377
Int. Cl. F16d 55/224
U.S. Cl. 188—73.3 19 Claims



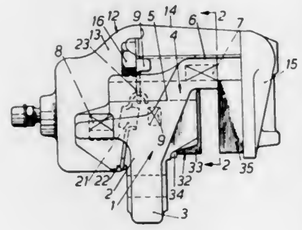
A disc brake for a motor vehicle having an anchor plate secured to a wheel support member. A brake caliper is slidably supported on the anchor plate and straddles a brake rotor. The caliper is constructed to urge a pair of brake shoes into engagement with the braking surfaces of the rotor. A unique releasable retaining means secures the caliper to the anchor. In the presently preferred embodiment, the unique releasable retaining means comprises a sheet metal spring clip and a V-shaped key interposed between the caliper and anchor.

3,782,509
CALIPER RETAINING MEANS FOR A MOTOR VEHICLE DISC BRAKE
Harry E. Cook, Detroit, and Francis L. Janosi, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed July 2, 1971, Ser. No. 159,379
Int. Cl. F16d 55/224
U.S. Cl. 188—73.3 17 Claims



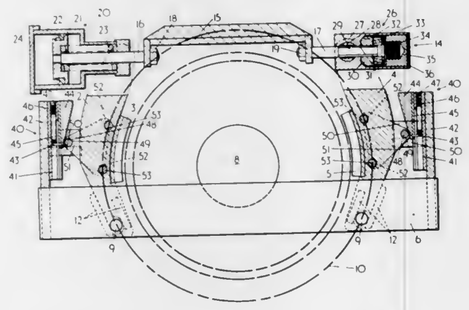
A disc brake for a motor vehicle having an anchor plate secured to a wheel support member. A brake caliper is slidably supported on the anchor plate and straddles a brake rotor. The caliper is constructed to urge a pair of brake shoes into engagement with the braking surfaces of the brake rotor. A unique releasable retaining means secures the caliper to the anchor. In the presently preferred embodiment, the unique releasable retaining means comprises a leaf spring and a channel-shaped key.

3,782,510
DISC BRAKE AND SUPPORT STRUCTURE THEREFOR
Heinrich Bernhard Rath, Koblenz, Germany, assignor to Girling Limited, Birmingham, England
Filed May 25, 1971, Ser. No. 146,751
Claims priority, application Great Britain, May 29, 1970, 25968/70; Oct. 22, 1970, 50096/70
Int. Cl. F16d 55/224
U.S. Cl. 188—73.3 18 Claims



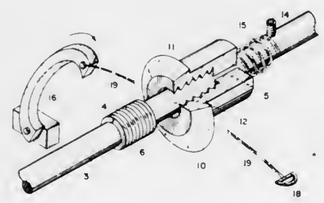
In a disc brake of the sliding caliper reaction type friction pad assemblies for engagement with opposite faces of a rotatable disc are located in the caliper which slides in a direction parallel with the axis of the disc between a pair of circumferentially spaced guiding members forming part of a stationary drag-taking member. The oppositely facing innermost faces of the guiding members are each formed with at least three axially and radially spaced co-planar surfaces upon which the caliper is directly slidably guided.

3,782,511
SELF-ADJUSTING BRAKES
Norman Leslie Cyril Parfitt, Ashby-de-la-Zouch, England, assignor to Coal Industry (Patents) Limited, London, England
Filed June 22, 1972, Ser. No. 265,326
Claims priority, application Great Britain, June 29, 1971, 30,390/71; Nov. 5, 1971, 51,591/71
Int. Cl. F16d 49/20
U.S. Cl. 188—75 4 Claims



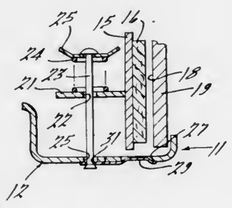
Each wheel of the vehicle is provided with a self-adjusting brake unit having two interconnected shoes which are spring-loaded into the applied position. Each brake unit has a hydraulic ram actuatable by pressure fluid to release the brake, means being provided for limiting the amount of shoe movement in the direction of brake release to a pre-selected amount. The shoes are interconnected by a threaded member along which one of the shoes is slidable and on which the said shoes is retained by nut which is urged along the threaded member to take up excess movement of the threaded member after movement of the shoes has reached the preselected amount.

3,782,512
SHAFT LOCK ARRANGEMENT
Samuel Gordon, 323 Park Ave., Elberon, N.J.
Filed July 20, 1972, Ser. No. 273,382
Int. Cl. B60t 7/12
U.S. Cl. 188—134 4 Claims



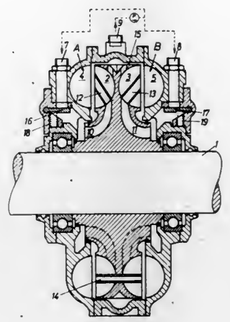
The specification describes a shaft lock employing a brake shoe mounted on a slidable sleeve which is, in turn, loosely mounted on the shaft. Counterrotation of the shaft causes a screw threaded portion thereof to engage a threaded portion of the sleeve thereby driving the sleeve along the shift into a fixed brake shoe mounted in proximity to said shaft.

3,782,513
INSPECTION HOLE COVER
William T. Birge, Plymouth, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Nov. 4, 1971, Ser. No. 195,656
Int. Cl. F16d 66/02
U.S. Cl. 188—206 R 2 Claims



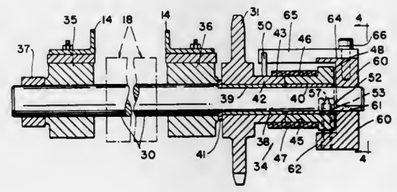
A drum brake assembly in which one of the brake members, such as the backing plate is formed with an inspection hole adjacent the lining of the brake shoe for visual inspection of the degree of lining wear without necessitating removal of the drum. A cover is provided for the inspection hole which cover is pivotally supported by the holddown pin of the brake shoe assembly to simplify and reduce the cost of the assembly.

3,782,514
HYDROKINETIC DEVICE
Helmut Mueller, Heidenheim/Brenz, Germany, assignor to Voith Getriebe KG, Heidenheim, Germany
Filed Feb. 23, 1973, Ser. No. 335,122
Claims priority, application Germany, Feb. 25, 1972, P 22 08 857.9
Int. Cl. F16d 57/02
U.S. Cl. 188—296 8 Claims



A housing is provided with two coaxial toroidal chambers which are axially adjacent one another. A stator wheel is accommodated in each of the chambers, and a rotor wheel is also accommodated in each chamber. The wheels, which are respectively symmetrically arranged, are provided with blades extending circumferentially and all inclined in the same direction. A working-fluid passage communicates with each chamber and each such passage has a one-way valve interposed in it. A common outlet duct for the working fluid communicates with both of the chambers. A connecting passage communicates the cores of the chambers with one another.

3,782,515
SHAFT DRIVER DEVICE AND CONVEYOR SYSTEM EMBODYING THE SAME
William E. Cowen, Jr., Westland, Mich., assignor to United Industrial Engineering Corporation, Madison Heights, Mich.
Division of Ser. No. 698,533, Jan. 17, 1968, Pat. No. 3,605,990. This application Sept. 30, 1970, Ser. No. 72,884
Int. Cl. F16d 43/20
U.S. Cl. 192—56 C 4 Claims

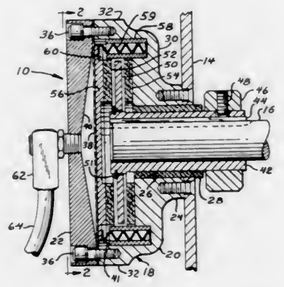


A shaft driver device is disclosed for use, illustratively, in a roller-type load conveyor or like system in which load units are halted for the performance of an operation thereon, with a consequent increased drag on a normally powered roller of the conveyor which is driven by the device. The system and drive device incorporate means which acts quite independently of any control factor, other than the drag effect, to interrupt the drive of the conveyor roller, or equivalent element in a different installation, immediately upon the arising of drag

in excess of a critical value, restoring the drive when that value diminishes or the drag ceases. The drive control means referred to is built in its entirety into the structure of a driven roller or other shaft-driven component comparable thereto.

More specifically, the system comprises a first hub member normally rotating with the driver shaft and powered from an appropriate source, a second hub member coaxial with the first member, and means in the form of a torsion spring clutch device normally coupling said members for rotation as a unit under a drag load less than the critical value. The first member is shown as having a resilient driving connection to the second member which, on excess load, yields and causes the torsion spring coupling means to be de-clutched, the shaft drive then coming to a halt. This drive connection is adjustable as to its resilient bias to determine the critical value.

3,782,516
FLUID CLUTCH
Paul W. Frisby, and Edward P. Stanny, both of Salt Lake City, Utah, assignors to McGraw-Edison Company, Elgin, Ill.
Filed Oct. 27, 1972, Ser. No. 301,487
Int. Cl. F16d *13/48, 25/04*
U.S. Cl. 192—88 A **8 Claims**

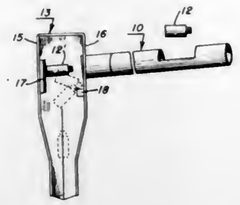


A fluid clutch having a diaphragm defining within a housing a fluid tight chamber, a clutch shaft having a disc keyed thereto for rotation in the housing adjacent the diaphragm but on the exceed thereof opposite from the chamber, a pair of friction elements adjacent and sandwiching the disc and means precluding rotation of the friction elements while allowing axial movement thereof, a thrust plate between the diaphragm and adjacent friction element, and means for communicating fluid pressure to the chamber to flex the diaphragm sufficiently to bind the disc between the friction elements and against rotation relative to the housing.

In the transmission of rotary shaft power, a clutch is frequently used for selectively connecting together or releasing a driving member and a driven member. The output requirement of such a clutch can exceed 1000 inch pounds of torque at over 1,000 revolutions per minute Moreover, many such clutches are needed since some industrial type machines might require that many pairs of driving and driven members be selectively connected together, and two or even three clutches might be connected in parallel between each pair for controlled drive of the driven member in either direction or total braking of the same.

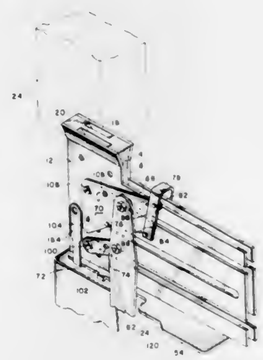
3,782,517
BOTTLE ORIENTING DEVICE
Sidney M. Newcomb, R.D. No. 1, E. Stroudsburg, Pa.
Filed Oct. 12, 1971, Ser. No. 188,369
Int. Cl. B65g *1/20*
U.S. Cl. 193—43 R **1 Claim**

A bottle orienting device in which axially-spaced bottles of random orientation are propelled against a resilient surface such as, for example, the bristles of a brush mounted in a delivery chute. The recoil of the bottles from the brush depends upon their initial orientation. If the mouth or open end of a bottle is foremost it recoils less sharply from the recoil point than if the closed bottom is foremost. The dwell of the mouth end of the bottle at the recoil point permits gravity, or other forces, to act upon the bottle so that it rotates in one



direction and moves along the delivery chute in the bottom-first position. If the closed end of the bottle is foremost the bottle rebounds from the recoil point causing the mouth end to encounter an impedance, whereby gravity rotates the bottle in the other direction so that it also moves along the delivery chute in the bottom-first position.

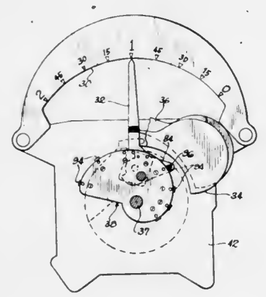
3,782,518
COIN CONTROLLED VENDING APPARATUS
John D. Smith, Medford, N.J., assignor to Wellman Industries, Longview, Tex.
Filed June 23, 1972, Ser. No. 265,613
Int. Cl. G07f *5/08*
U.S. Cl. 194—54 **4 Claims**



Disclosed is coin controlled vending apparatus for use with a product dispensing machine. The apparatus includes structure defining first and second generally vertical slots for receiving coins of a first and second denomination respectively. A platform is located beneath the slots to support the coins inserted in the slots such that if two or more coins are inserted in the slot they will stack edge to edge one on top of another. The apparatus further includes structure defining a first guide extending generally horizontally from a point adjacent the first slot and structure defining second and third spaced guides extending generally horizontally from points adjacent the second slot. The end of each guide adjacent a slot is formed into a foot having a heel which coincides with the termination of the corresponding guide and a toe extending from the heel downward to a point beneath the corresponding guide. A coin feeler assembly is mounted to move in a plane parallel with the guides between a rest position and an operate position. The assembly includes first, second and third members positioned to move

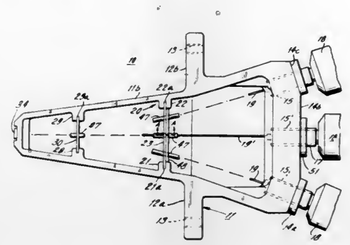
along paths contiguous with the first, second and third guides respectively as the assembly is moved. Each such member includes a hole into which a camming pin may be inserted with the hole positioned so that when a pin is inserted therein and the assembly is in the rest position, the pin extends within the heel of the foot of the corresponding guide. The first and second members are coupled together to move in unison when either is moved. The coin feeler assembly is placed in a first configuration when camming pins are inserted in the holes of the first and second members. When in this configuration, the coin feeler assembly is movable from the rest position to the operate position only if (a) a coin is inserted in the first slot so that the camming pin inserted in the hole of the first member slides over the top of the coin and along the first guide as the coin feeler assembly is moved, or (b) two coins are inserted in the second slot so that the camming pin inserted in the hole of the second member slides over the top of the topmost coin and along the second guide as the coin feeler assembly is moved. Otherwise, the camming pins are caused to move from the heel of the foot of a corresponding guide downwardly into the toe of the foot to prevent further movement of the coin feeler assembly. The dispensing mechanism is coupled to the coin feeler mechanism and is allowed to operate to dispense a product only when the coin feeler assembly is allowed to move to the operate position. The coin feeler assembly may be placed in other configurations by simply rearranging the camming pins in the holes to enable operation of the dispensing mechanism when various other coin combinations are inserted in the slots.

3,782,519
COIN CONTROLLED METER CONSTRUCTION
Bruno G. Zajac, Harwood Hts., Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.
Filed Sept. 11, 1972, Ser. No. 287,514
Int. Cl. G07c *1/30*
U.S. Cl. 194—83 **8 Claims**



A coin controlled meter construction such as a parking meter wherein time is purchased upon insertion of a coin in the meter. A time indicator means is movable over a dial face for displaying the amount of time purchased. Means are connected to the indicator means so that the indicator means is moved out of displaying position after elapse of a fraction of the time purchased. Accordingly, if a new purchaser arrives at the meter, it will not be possible for the new purchaser to determine the amount of previously purchased time remaining on the meter so that the new purchaser will be required to insert at least one coin in order to insure adequate purchased time.

3,782,520
RESILIENT HEAD ASSEMBLY HAVING RESILIENT MOUNT
Robert Howard, Roslyn, N.Y., assignor to Centronics Data Computer Corp., Hudson, N.H.
Filed Nov. 4, 1971, Ser. No. 195,558
Int. Cl. B41j *1/18, 3/10*
U.S. Cl. 197—1 R **3 Claims**

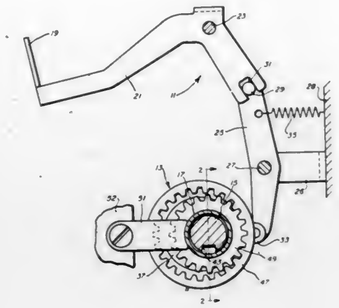


A printer head assembly for use in high speed printers of the dot-matrix type. The assembly is comprised of a one-piece hollow die cast member having a rear wall for mounting a plurality of driving solenoids. Reciprocally mounted print wires extend from each of their associated solenoids mounted at the rear wall through the hollow interior of the die cast member with their free ends mounted so as to be substantially flush with the front wall of the die cast member. Hollow tubular guide means are provided within the interior of the die cast housing to maintain an appropriate curvature for each of their associated print wires which extend therethrough. A jewel bearing is provided at the forward end of each of the guide wires to provide a low friction jewel bearing for each of the print wires to prevent abrasive wear of the print wires. A jewel bearing is provided at the front end of the die cast housing for arranging the forward end of each of the print wires substantially along an imaginary straight line in very closely spaced fashion. At least one retaining plate is mounted within the die cast housing at a point intermediate the forward and rearward ends. A plurality of apertures are provided in the mounting plate, each of which is adapted to receive one of said tubular guide means. The diameter of each of the openings in the mounting plate is substantially greater than the outer diameter of each of the tubular guides. A suitable resilient material such as, for example, silicone rubber is affixed to one surface of the mounting plate so as to surround each of the guide tubes and to resiliently secure the guide wires to the mounting plate. The resilient mounting affords a cushioning effect to attenuate and absorb any transverse motion imparted thereto during either the impact or return movement of the print wires so as to significantly increase the useful operating life. If desired, a pair of such mounting plates having the aforesaid resilient mounting means for the guide tubes may be employed.

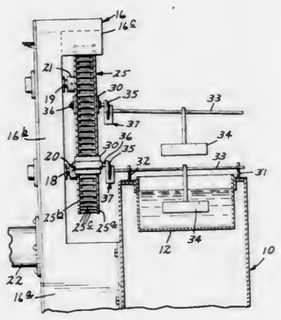
3,782,521
RIBBON LIFTING MECHANISM FOR A POWER-DRIVEN TYPEWRITER
Hans-Georg Hengelhaupt, Nurnberg, Germany, assignor to Triumph Werke Nuernberg A.G., Nuernberg, Germany
Filed July 19, 1972, Ser. No. 273,104
Claims priority, application Germany, July 29, 1971, P 21 37 972.6
Int. Cl. B41j *33/58*
U.S. Cl. 197—158 **7 Claims**

A ribbon lifting mechanism in a power-driven typewriter moves a ribbon from an inoperative location to a printing location in response to the operation of an oscillating drive arrangement. The oscillating drive arrangement undergoes a cyclical operation with each actuation of a type key action and includes an eccentric cam for effecting movement of the rib-

bon to the printing location and another cam having a plurality of different camming lobes for effecting further incremental movements of the ribbon to slightly different positions at the printing location. Means are provided for effecting relative movement between the eccentric cam and the other cam to bring a different camming lobe into operation with each successive cyclical operation of the oscillating drive arrangement to effect movement of the ribbon to successively different positions at the printing location. To enable the ribbon lifting mechanism to be utilized in conjunction with a single element printer, the drive arrangement is carried on a bushing which is moveable along a drive shaft.

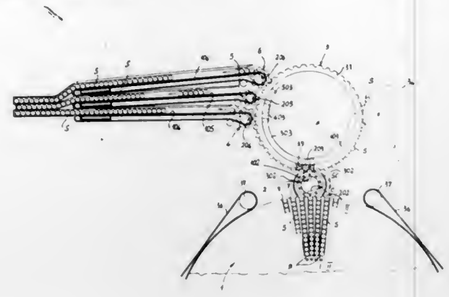


3,782,522
TRANSFER MECHANISM
Joseph H. Wyers, Excelsior, Minn., assignor to Fluoroware, Inc., Chaska, Minn.
Filed Sept. 18, 1972, Ser. No. 290,171
Int. Cl. B65g *47/36*
U.S. Cl. 198—20 R **11 Claims**



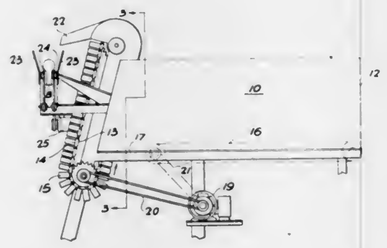
A transfer mechanism is shown, including an endless track positioned in a vertical plane, and a follower member secured to the track. The follower member includes a pick-up member mounted for rotation about a horizontal axis, which has spaced front and back walls. A circular disk is attached at its center perpendicular to an elongated rod adapted to support articles to be transferred. The disk is sized to fit loosely between and generally parallel to the front and rear walls. A V-shaped depression in the front wall supports and centers the rod which extends thereover.

3,782,523
STORING AND FEEDING DEVICE FOR CIGARETTES
Filippo Giatti, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.
Filed Sept. 1, 1972, Ser. No. 285,738
Claims priority, application Italy, Sept. 7, 1971, 12907 A/71
Int. Cl. B65g *47/61*
U.S. Cl. 198—22 R **19 Claims**



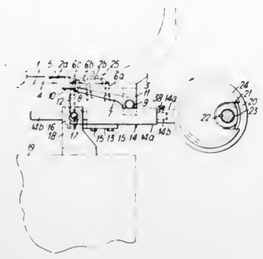
Apparatus for storing and feeding cigarettes, which comprises a conveyor for advancing cigarettes from the output of a cigarette manufacturing unit, means for receiving cigarettes from the conveyor and transporting them to the input of a cigarette packer, a cylindrical storage unit having a plurality of cigarette receiving slots open to the periphery thereof mounted adjacent the conveyor between the output of the cigarette manufacturing unit and the input of the cigarette packer, and means responsive to operating conditions in the packer for transferring cigarettes between the conveyor and the slots in the storage unit.

3,782,524
LIGHT BULB SORTER AND CONVEYOR
Thomas R. Fabian, Hubbard, and James R. Hanek, Youngstown, both of Ohio, assignors to Dynamic Systems Inc., Youngstown, Ohio
Filed May 24, 1972, Ser. No. 256,474
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AA **3 Claims**



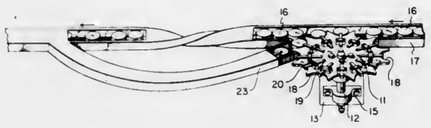
A sorting and conveying machine for moving glass light bulb shapes upwardly out of a bin and away therefrom to a work station or the like utilizes a continuous conveyor belt positioned at a slight angle from vertical and having a plurality of spaced fingers projecting therefrom arranged to move upwardly through the light bulb shapes in the bin and engage individual light bulb shapes and move them upwardly and out of the bin where they are positioned on a Y-shaped trough defined by a pair of spaced cross sectionally round conveyor belts moving transversely with respect to said machine.

3,782,525
FEED MECHANISM
Edwin Flury, 15 Heatherley Dr., Clayhall, England
Filed Dec. 22, 1971, Ser. No. 211,013
Int. Cl. B65g *47/00*
U.S. Cl. 198—24 **5 Claims**



The invention disclosed relates to a feed mechanism for bottle closure lining machines and employs a positive feed member resiliently supported by an oscillating carrier to effect advance of a closure towards the lining chuck. The invention enables much higher throughput rates to be achieved when lining closures with, for example, centrifugally distributed plastisol compositions. Preferably the feed member consists of a pair of laterally spaced closure striking pins.

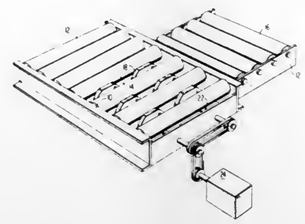
3,782,526
CONTAINER ORIENTER
Henry M. Simons, Wilmington, Calif., assignor to The Quaker Oats Company, Chicago, Ill.
Filed July 21, 1971, Ser. No. 164,602
Int. Cl. B65g *47/26*
U.S. Cl. 198—31 AA **1 Claim**



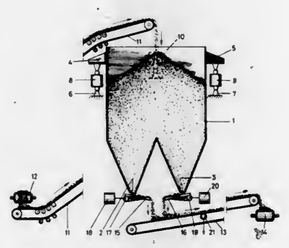
A container orienter is disclosed. The orienter is for use with round containers having upper and lower chimes of different radii and is for orienting the containers with the upper chimes in the upright position. The container orienter has an inclined rotatable indented wheel with downwardly extending fingers in the indentations. As containers move along a conveyor system adjacent to the rotatable wheel, the fingers engage the containers having the larger chime in the upper position and separate them from the other containers in order that all of the containers may be oriented in the same position.

3,782,527
CLIPPED-DISC DEVICE FOR RIGHT-ANGLE TRANSFER
Victor D. Petershack, Ellwood City, Pa., assignor to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Jan. 17, 1973, Ser. No. 324,268
Int. Cl. B65g *47/00*
U.S. Cl. 198—25 **3 Claims**

A device for selectively transfering items on one roller conveyer to another conveyer set at a right-angle to the first conveyer. The device comprises a plurality of clippped discs and associated pie-shaped slave segments set between the rollers of the first conveyer and mounted for rotation at a right angle thereto. The discs and slave segments are mounted at a height such that when they are at rest, with the clipped surfaces of the discs up, they are below the surface of the rollers. When the discs are rotated, however, the circular portions of the discs protrude above the surface of the rollers, and a pin mounted on each disc causes the slave segments to rotate with the discs in angular relation such that the periphery of the pie-shaped slave segments completes the circular surface of the clipped discs, allowing the items to be moved at a right angle to the first conveyer without contacting the rollers thereof.



3,782,528
METHOD AND A DEVICE FOR MIXING AND HOMOGENIZING OF BULK MATERIAL
Jacobus J. Burger, Driehuis; Gerrit De Jong, Velsen, and Gradus J. J. Den Boer, Driehuis, all of Netherlands, assignors to Koninklijke Nederlandsche Hoogovens En Staalfabrieken N. V., Ijmuiden, Netherlands
Filed Sept. 10, 1971, Ser. No. 179,499
Claims priority, application Netherlands, Sept. 10, 1970, 7013571
Int. Cl. B65g *57/02*
U.S. Cl. 198—36 **6 Claims**

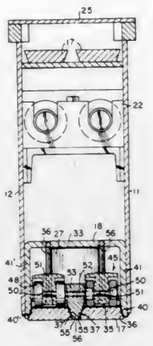


In a method and means for mixing and homogenizing bulk material such as lump ore and ore concentrates, in which a mixing heap is formed by dumping the material as a large number of layers one on top of the other, said mixing heap thereupon being dug off over the entire height, in which for forming said mixing heap the material to be dumped in layers is fed by a digging machine onto a belt conveyor system and is dumped from this system by a longitudinally moving dumping machine onto the said mixing heap, the material during transport to the dumping machine passes through a throughflow hopper, from which it is discharged in a constant flow, and the speed of the digging machine is controlled in dependency upon the filling of this hopper by special mechanisms, preferably comprising a metering device below the hopper, weight signalling means, weight-to-volume converting means, and special supports and controls.

3,782,529
MAGNETIC RAIL CONVEYOR

Dario Buccicone, Gary, Ind., assignor to Bucciconi Engineering Co., Inc., Gary, Ind.

Filed July 12, 1972, Ser. No. 270,963
Int. Cl. B65g 17/46
U.S. Cl. 198—41 4 Claims

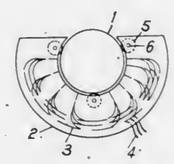


An overhead rail-type metal sheet conveyor which comprises an elongate frame with a pair of endless sheet carrying belts carried on spaced end pulleys and a plurality of spaced electromagnets mounted in a downwardly opening housing having therein adjustable plate-like elements with downwardly opening guide recesses in which the belts travel while the sheets are held thereon by magnetic force and advanced along the lower run of the conveyor.

3,782,530
MATERIAL HANDLING ROLLER

Oliver Breting, 16, Residence la Pinsonne, Garges-les-Gonesse (Val d'Oise), France

Filed Oct. 2, 1972, Ser. No. 294,228
Int. Cl. B65g 13/02
U.S. Cl. 198—127 E 12 Claims



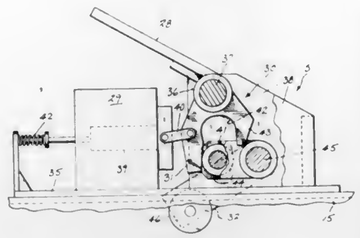
A material handling roller which form the armature of an electric motor whose field winding is supported by the roller and is held against rotation by means coupled to a fixed element.

3,782,531
TRIP MECHANISM FOR CONVEYING APPARATUS

David W. Wolbrink, Hartford, Wis., assignor to Speaker Motion Systems Inc., Milwaukee, Wis.

Filed Apr. 10, 1972, Ser. No. 242,460
Int. Cl. B65g 17/16
U.S. Cl. 198—155 10 Claims

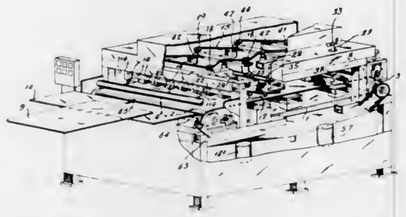
A tilting tray trip mechanism for controlling a series of tray units includes a tripping plate pivotally mounted for positioning between a horizontal reset and an inclined set or trip position with a depending leg as a part of the latch means. A momentarily pulsed solenoid is connected to this leg and positively moves the elements to the trip position. A pivotally mounted latch arm is coupled to an opening in the leg and pivoted to abut the leg to mechanically hold the leg and plate in the set position. A reset arm is connected to the pivot support for the latch arm and is mechanically moved into the path of an inclined reset plate on the trailing end of the tray unit. The reset plate returns the reset arm and attached latch arm from latching alignment and positively pivots the leg and cam member to the horizontal reset position.



3,782,532
APPARATUS FOR DEVELOPING LITHOGRAPHIC PLATES

Robert E. Harrell; Arthur E. Essmueller, and Roy C. Bax, all of St. Louis, Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Division of Ser. No. 729,040, May 14, 1968, Pat. No. 3,608,464. This application Feb. 4, 1971, Ser. No. 112,619
Int. Cl. B65g 15/00
U.S. Cl. 198—184 4 Claims



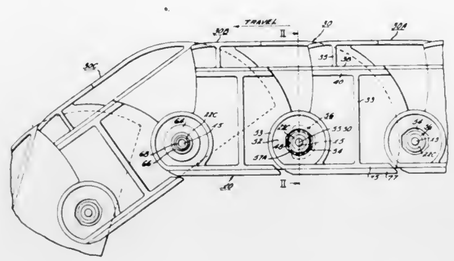
Apparatus for post-exposure treatment of lithographic plates having an endless belt on which such a plate is transported to, through, and beyond, at least one operating station, and in which the belt is wetted and the plate undergoing treatment is held fast on the wetted belt by interfacial tension.

3,782,533
STABILIZED SIDE PLATE CONSTRUCTION FOR GRATE CONVEYOR

Walter J. Hartwig, Oconomowoc, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sept. 20, 1972, Ser. No. 290,634
Int. Cl. B65g 15/30
U.S. Cl. 198—196 19 Claims

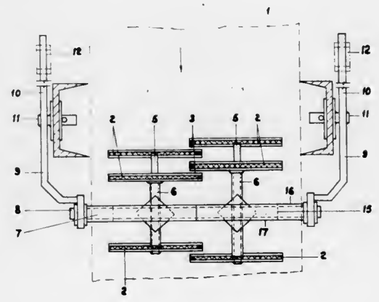
A stabilized side plate construction for a grate conveyor or the like in which one side plate of each pair of pivotally connected side plates has loosely keyed thereto a flanged spool which is journalled for pivotal movement on the reduced diameter extension of a chain pin or, alternatively, on the reduced diameter extension of the thru rod of the conveyor, with the flange of the spool abutting a radial shoulder of the larger diameter portion of the chain pin or of the thru rod, as the case may be, for proper orientation of the spool at a fixed reference location on the chain pin or on the thru rod. The other side plate of the pair of pivotally connected side plates is pivotally movable relative to the spool shoulder although the spool shoulder does not necessarily serve as a bearing for the other side plate. A washer which, in effect, is the opposite flange of the spool, is retained on the chain pin reduced diameter extension, or alternatively, on the reduced diameter extension of the thru rod, at a fixed lateral spacing from the spool flange, whereby to restrict the two pivotally connected side plates to a dimensionally predetermined limited relative lateral movement therebetween, thus minimizing the "wobble" between pivotally connected side plates.



3,782,534
CONVEYOR BELT CLEANING DEVICE

Wouter Holleman, 15 Wren St., Vanderbijlpark, Transvaal, South Africa

Filed Jan. 18, 1972, Ser. No. 218,715
Claims priority, application South Africa, Jan. 22, 1971, 0412
Int. Cl. B65g 45/00
U.S. Cl. 198—230 7 Claims

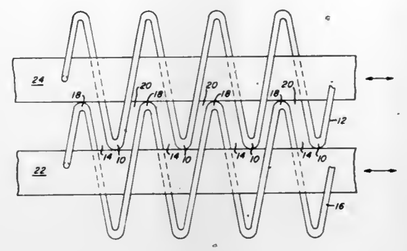


The invention is concerned with cleaning of material from conveyor belts and consists of at least one pair of blades each extending partway across a belt to be cleaned. The contiguous ends of the blades are made to overlap each other in the vicinity of the center line of the belt. The blades are mounted so that they can pivot about axes located parallel to and within the width of the belts while carried in mountings which can pivot about axes transverse to the belt. There may be a plurality of pairs of blades and the mountings will be supported in hangers which are also pivoted about axes extending across the belt.

3,782,535
SCREW CONVEYOR COIL WIPER

Thomas Yousch, 16258 Vintage, Sepulveda, Calif.

Filed June 15, 1972, Ser. No. 263,343
Int. Cl. B65g 33/18, 45/00
U.S. Cl. 198—229 10 Claims

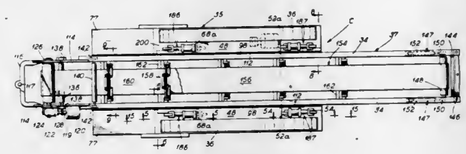


A wiping device for cleaning the flights of a screw conveyor by having a helical wiping coil that rotates with the rotating screw and simultaneously is moved along the axis of the screw in a reciprocating motion such that the wiping coil lightly engages the entire trough of the screw between the ridges or lands of the screw flights in a reciprocating manner.

3,782,536
MOBILE TRANSFER CARRIER

David Toney, Bluefield, W. Va., assignor to West Virginia Armature Company, Bluefield, W. Va.

Filed May 19, 1972, Ser. No. 254,935
Int. Cl. B65g 25/08
U.S. Cl. 198—233 5 Claims



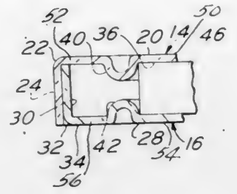
Mobile transfer carrier for use in a mining conveyor system to carry coal or ore away from a mine face. It provides an essential link in a train of conveyors where it is positioned to receive the discharge from a first bridge conveyor connected to a mining machine, and to discharge onto a second bridge conveyor which delivers to a portable conveyor moving up with the advancing mine face. The mobile transfer carrier has a conveyor frame supported on a tramming frame for mobility. The conveyor frame has a pair of elongated, parallel, horizontally spaced, unitary side rails rigidly interconnected into a single adjustable unit and has continuous track surfaces to support the discharge carriage of a bridge conveyor. The tramming frame has a pair of spaced, vertical, longitudinally extending gib plates in close, slidable engagement with the side rails to limit side movement while enabling vertical and some longitudinal movement of the conveyor frame. The conveyor frame is supported on opposite ends of the tramming frame by fore and aft pairs of transversely spaced, pivoted elevating levers. One pair of elevating levers is connected between the two frames by pivot pins to raise and lower one end of the conveyor frame while limiting fore and aft movement. The other pair of elevating levers is pivotably and slidably connected between the two frames to raise and lower the other end of the conveyor frame while enabling relative

longitudinal movement between the frames to compensate for differences between the longitudinal components of movement of the two pairs of elevating levers.

3,782,537
COIN HOLDER

Joseph M. Segel, Merion, Pa., assignor to The Franklin Mint, Inc., Franklin Center, Pa.

Filed Jan. 5, 1972, Ser. No. 215,597
Int. Cl. A45c 11/00; B65d 85/02, 85/54
U.S. Cl. 206—.82 3 Claims

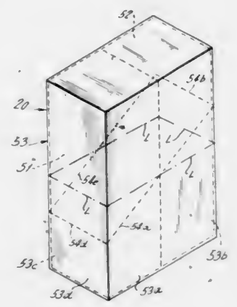


A coin holder comprised of two halves which are assembled to define an enclosure for the coin. Each of the halves has mutually facing means for engaging the perimeter of a coin and positioning the coin within the coin holder.

3,782,538
APPARATUS FOR PROTECTING AND DISPLAYING TINSEL GARLAND AND THE LIKE

Abraham S. Kinderman, Hopkinson House Washington Square - Sixth and Spruce Sts., Philadelphia, Pa.

Filed Mar. 10, 1972, Ser. No. 233,542
Int. Cl. B65d 81/36, 25/04
U.S. Cl. 206—45.12 6 Claims



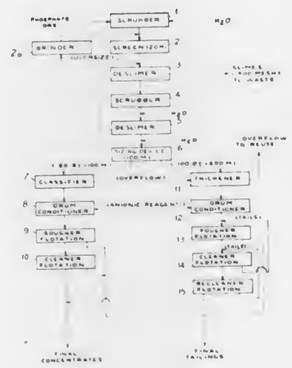
A package having tiers of tinsel garland and the like comprising a substantially rectangular parallelepiped shaped carton having a plurality of support members contained therein each adapted to carry a plurality of such tinsel garland in a neatly spaced manner. The supporting tray members are bent or otherwise formed so as to provide separating members for maintaining spacing between adjacent garlands supported by a tray and further providing rigid support for a tray positioned thereupon to prevent crushing of the garland. Means may also be provided for visually observing the contents of lower tiers and for facilitating removal of each tray. The neat compact manner in which garland is stacked facilitates use of the package for display means.

Alternative display means comprising open ended carton sub-assemblies housed within an enclosing carton are adaptable for display use. The enclosing carton may be slit in such a manner as to form a pair of display stands each adapted to support a display carton in a tilted fashion. Each display carton sub-assembly is provided with a shelf type assembly cut from a single blank of stiff cardboard or other like material to position and support a plurality of garlands.

3,782,539
BENEFICIATION OF PHOSPHATE ORES

William Howard Painter, Hibbing, Minn., assignor to PM Holding Co., Cleveland, Ohio

Filed Nov. 1, 1971, Ser. No. 194,456
Int. Cl. B03b 9/00
U.S. Cl. 209—2 8 Claims

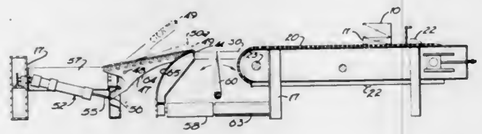


A process for beneficiating phosphate ores in which the ore is scrubbed and deslimed prior to separation into a coarse fraction and a fine fraction, each of which is subjected to a plurality of anionic flotation steps and screening steps to obtain high recovery and high grade phosphate product whereby the acid cleaning and cationic flotation steps previously used are eliminated.

3,782,540
LUMBER SEPARATOR

Donald E. Mosely, Spokane, Wash., assignor to Bitco, Inc., Spokane, Wash.

Filed Sept. 28, 1972, Ser. No. 293,447
Int. Cl. B07c 1/10
U.S. Cl. 209—73 5 Claims

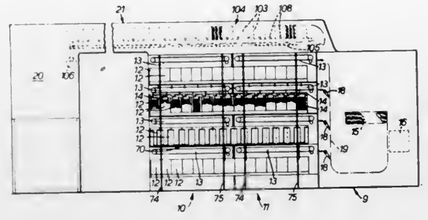


A lumber separator is described for receiving, separating and re-routing a vertical stack of boards, particularly such stacks formed by horizontal resawing operations of a lumber mill. The separator receives an individual stack from a longitudinal input conveyor on a relatively horizontal table. A plurality of transverse conveyor chains move the stack laterally over the table, onto the arms of a removable support means, and against an abutment with sufficient velocity to dislodge the top stack member. The bottom board is dropped as the arms are retracted, onto a bottom board conveyor.

3,782,541
APPARATUS FOR TRANSFERRING STACKS OF MAIL OR LIKE ARTICLES

David Wood, Clevedon, England, assignor to Masson Scott Thrissell Engineering Limited, Bristol, England

Filed Dec. 11, 1972, Ser. No. 314,241
Claims priority, application Great Britain, Dec. 15, 1971, 58,262/71
Int. Cl. B65g 59/00
U.S. Cl. 209—74 R 8 Claims

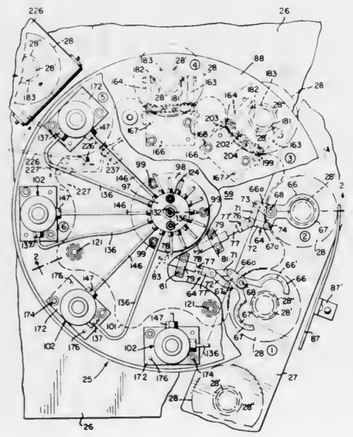


An automatic letter sorting machine including a large number of individual sorter boxes arranged in horizontal rows, a number of horizontal conveyors for delivering mail via deflector gates to the individual boxes, individual ejectors for ejecting stacks of mail from the boxes, a power operated receiver shelf moving vertically on guides at the front of the machine with compartments to receive the ejected mail, an overhead discharge conveyor at the top of the machine, a further ejector for shifting stacks of mail from the receiver shelf into compartments of the discharge conveyor, and an automatic mail bundling machine at the output of the discharge conveyor.

3,782,542
AUTOMATIC BOTTLE THREAD INSPECTION APPARATUS

Harry E. Scribner, 9036 N. 75th St., Milwaukee, Wis.

Filed Apr. 23, 1973, Ser. No. 353,709
Int. Cl. B07c 5/00
U.S. Cl. 209—74 10 Claims

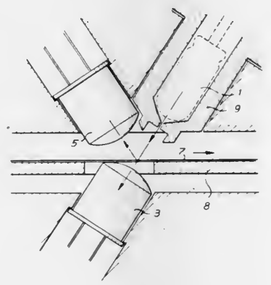


An apparatus is hereby provided which will automatically sense the defective oversized or chipped threads on the top of glass container or bottle and eject the so impaired bottle from a line of such container or bottles being conveyed to the apparatus by a belt conveyor and let the unimpaired bottles pass from the apparatus ready for immediate use, filling and the safe application of closure caps. The line conveyor runs along one side of the apparatus and locates the bottles into star-wheel openings of the apparatus and through the engagement of these bottles with the turret of the apparatus; the turret is dragged and turned by the continuation of movement of the bottles upon the belt until the next bottle has been gathered by a succeeding star opening in the star-wheel turrent. This next bottle picks up the drive from the conveyor to allow the preceding bottle to be initially centered by a similarly internally threaded two-part clamp device and the turning of the bottle therein by a side friction engaging wall to orientate bottle so that the lead edge of the bottle thread enters the jaws first. Fractures are broken away from a fractured bottle thread preparatory to the thread inspection cycle. After the neck of the bottle is clamped, it is taken to the next station to receive a lift inflatable plunger bulb that is turned and lowered into the bottle neck, the bulb inflated, the bottle neck internally gripped, the clamp opened, the bottle lifted from the conveyor by the bulb rotated for the inspection of the thread by opposing sensing fingers of a microswitch sensing device and biased by a spring to close upon one another. The bottle is lifted and at the same time turned by the device between its opposing sensing fingers by a reversible air motor that drives a worm gear in an internally-threaded depending sleeve, both with threads of the same pitch and size of the bottle threads being inspected. Operating with the sensing fingers are adjustable operating members aligned with microswitches that will be activated upon the thread being oversize or undersize or upon a sensing finger dropping into a notch or a nick to signal and set up the apparatus for the release and ejection of that bottle at a selected station. The unimpaired bottle will be continued to another station where it can be ejected by any suitable means. An adjustable electric timer controls the lowering and lifting of the bottle inflatable lifting bulb and the extent of travel of bottle threads within the sensing fingers and the ejecting of the impaired bottle from the apparatus.

3,782,543
DOCUMENT RECOGNITION SYSTEMS

Mario Martelli, Via della Selva 1, Compiobbi, and Mario Martelli, Viale Talenti 63, Firenze, both of Italy

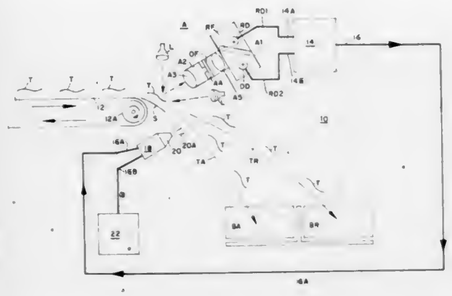
Filed Oct. 12, 1972, Ser. No. 296,853
Claims priority, application Italy, Oct. 15, 1971, 9724 A/71
Int. Cl. B07c 5/342
U.S. Cl. 209—75 13 Claims



A bank note recognition system includes an optical analyser for scrutinising the watermark, selected areas of print on the surface of the bank note, the wire band in the bank note and the density of the paper of the bank note. The analyser in its simplest form includes a lamp for illuminating a discrete area of the bank note and two photo electric elements on opposite side of the bank note for respectively sensing the transparency

and reflectivity of the discrete area of the bank note. The analysis will provide indication whether the bank note is genuine and will accept the bank note only if considered to be genuine.

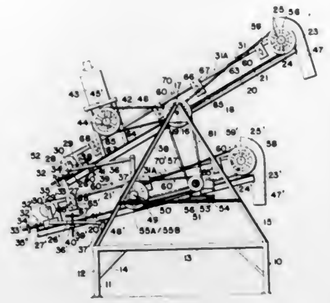
3,782,544
AUTOMATIC GRADER
Joseph R. Perkins, III, Burke, Va., assignor to AMF Incorporated, White Plains, N.Y.
Continuation of Ser. No. 145,444, May 20, 1971. This application Aug. 3, 1972, Ser. No. 277,499
Int. Cl. B07c *5/342*
U.S. Cl. 209—111.6 **38 Claims**



A system and apparatus for grading and sorting tobacco leaves and the like according to color and brightness are provided. The color of each tobacco leaf is compared photoelectrically with the color of a replaceable background color standard over which each leaf is conveyed. The system can be operated in either a normal mode, i.e., detecting and separating all those leaves darker than the background standard, or a reverse mode, i.e., detecting and separating all those leaves that are lighter than the background standard. A plurality of such systems are set to perform a series of sequential detections and separations, against a selected plurality of background color standards to effect separation of a plurality of tobacco leaves into a preselected number of grades or classifications. The system and apparatus can be embodied in a transducer unit for converting existing tobacco sorting machinery from a manual to an automatic sorting mode of operation. Two color detection of reflected light is used to determine brightness as well as greenness. A separate detector for each color is positioned behind a broad band color filter to sense reflected light from the tobacco leaves and the background standard. Either one or the sum of the resulting signals for each detected color is indicative of the brightness of the leaves while the difference between the signals is indicative of the greenness. A pneumatic reject mechanism is actuated in response to given leaf grade conditions, or a lack thereof, to separate undesired grades of leaves from the plurality of leaves being graded.

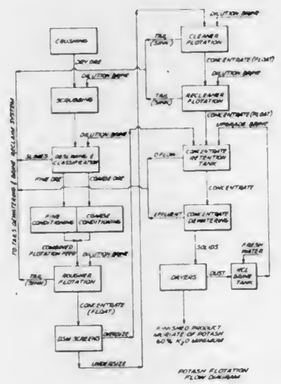
3,782,545
SEED RECLAIMING DEVICE
Roy Allen Rayner, 492 Rita St., and Harold Waldemar Sandberg, 421 N. Algoma St., both of Thunder Bay, Ontario, Canada
Filed May 15, 1972, Ser. No. 253,619
Int. Cl. B07c *9/00*
U.S. Cl. 209—114 **1 Claim**

An inclined belt is shaped on the upper run by side rollers to form a slight trough. By-products resulting from initial seed cleaning are dropped from a hopper onto the belt just above the lower end. Heavy round seeds such as rape-seeds bounce and pass over the lower end while light seeds and flat seeds and other contaminants pass over the upper or head end. The fraction that passes over the lower or tail end drops onto a further inclined belt underneath the first belt and at a slightly flatter angle and the process is repeated but giving a basic



separation of heavy rape-seed over the lower end and light rape-seed and mustard seed over the upper end both of which fractions can be used commercially.

3,782,546
CATIONIC CONDITIONING AGENTS FOR POTASH FLOTATION
Roscoe Conklin Kirwin, Midland, Tex.; William Lewis Hart, Pittsburgh, and Joseph Michael Antonetti, Burgettstown, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.
Filed Dec. 3, 1971, Ser. No. 204,647
Int. Cl. B03d *1/02*
U.S. Cl. 209—166 **3 Claims**

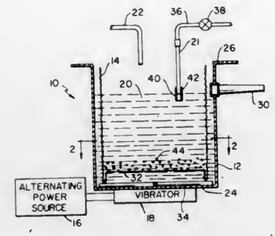


An improved froth flotation process for separating sylvite from a pulp containing sylvite using a water-soluble, high molecular weight, diallyl dialkyl quaternary ammonium polymer as a slime conditioning agent is disclosed.

3,782,547
STRUCTURE FOR ULTRASONIC SCREENING
Harry W. Dietert, Kerrville, Tex., assignor to Harry W. Dietert Co., Detroit, Mich.
Filed Oct. 12, 1971, Ser. No. 188,251
Int. Cl. B03b *3/00*; **B07b** *1/00*
U.S. Cl. 209—268 **2 Claims**

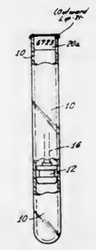
Microparticle separation by ultrasonic screening in both batch and continuous operations and structure for accom-

plishing such operations. In the batch operation, particles to be cleaned and separated in accordance with their size are placed in a filter screen container, and the filter screen container is immersed in a water bath which is vibrated at an ultrasonic frequency so that the filter screen is maintained in a clean condition and the particles are scrubbed clean so as to pass readily through the filter screen under pressure. In the continuous microparticle separation operation, material is fed



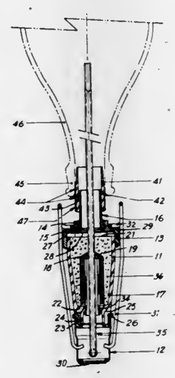
into a first chamber in which a vibrated water bath is maintained by water jets directed toward a vibrated filter screen separating a container into a first and second chamber. Filtered material and a portion of the water bath are withdrawn from the second chamber, and the rest of the water along with the residue of the material to be filtered are withdrawn from the first chamber. In both the batch and continuous methods, the water bath and/or filter medium are vibrated at between fifteen and sixty thousand hertz.

3,782,548
SERUM SKIMMER
John G. Bowen, 1150 Oak St., South Pasadena, Calif.
Continuation-in-part of Ser. No. 161,696, July 12, 1971, abandoned. This application Dec. 7, 1972, Ser. No. 312,817
Int. Cl. B01d *21/24*
U.S. Cl. 210—94 **3 Claims**



An instrument is provided for skimming serum from the cellular material, such as the red blood cells, of a blood sample; the cells having been dispersed, for example, by centrifugal action, to the bottom of the tubular receptacle containing the sample. The instrument of the invention includes a resilient plug member which is inserted down into the receptacle, and which has an opening therein that permits the serum to pass through the plug member as it is moved down through the serum in the receptacle. The plug preferably has a filter across the opening which permits the serum, but not the cellular material, to pass through the opening as the plug is pushed down into the tubular receptacle. A hollow rigid rod extends upwardly from the plug, and the rod is removably attached to the plug to serve as a conduit for the serum flowing through the opening in the plug. The rod also serves as a handle to permit the plug to be pushed down into the serum in the tubular receptacle and subsequently to be pulled up towards the mouth of the receptacle. A label may be attached to the instrument which remains in the tubular receptacle for labeling purposes after the instrument has been removed. The label may be coded for machine reading.

3,782,549
FILTER AND AERATOR DEVICE
Jacques Muller, 112 Avenue du Genl. de Gaulle, La Garenne-Colombes, France
Filed Oct. 24, 1972, Ser. No. 300,195
Claims priority, application France, Nov. 4, 1971, 7139476
Int. Cl. C02c *1/14*
U.S. Cl. 210—95 **8 Claims**

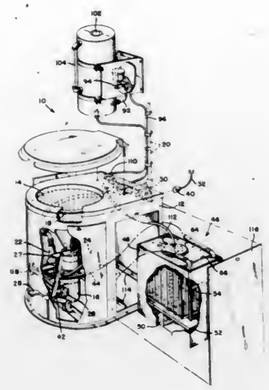


The invention relates to a filtering and aerating device comprising a filter cartridge formed by a stack of grooved washers positioned in a chamber for flow of water through the stack of washers and out of the outlet of the device. The outlet has an associated port for entry of air into the filtered jet of water to aerate the latter. The chamber in which the stack is positioned is designed to contain a deodorizing and purifying substance to remove odors from the water and the inlet of the device is adapted to be removably connected to a source of water, such as to the neck of a bottle, for example, an air entry tube extending axially through the unit having one end positioned in the bottle and its other end in connection with the exterior to permit free flow of water through the unit when the bottle is inverted.

3,782,550
WASTE TREATMENT SYSTEM
Vincent Materese, Dayton, Ohio, assignor to Dayton Manufacturing Company, Dayton, Ohio
Filed Nov. 5, 1971, Ser. No. 196,092
Int. Cl. C02c *1/40*
U.S. Cl. 210—134 **14 Claims**

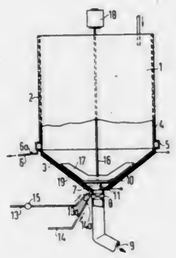
A waste treatment system which receives liquid and solid waste, macerates the solids to form a slurry and pumps the

slurry to a treatment tank. In the treatment tank the solids are separated from the liquids and retained in the tank, while the



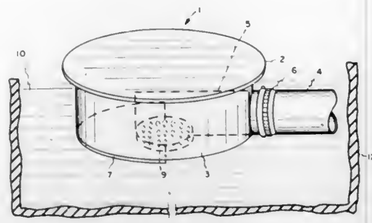
liquid effluent is treated chemically to render it pathogenically harmless and discharged from the system.

3,782,551
LAUTER TUB AND METHOD
Gerd Soldan, 8121 Aidling, Habach, Germany
Filed Dec. 17, 1970, Ser. No. 99,116
Claims priority, application Germany, Dec. 23, 1969, P 19 64 416.7
Int. Cl. B01d *39/12*
U.S. Cl. 210—179 **7 Claims**



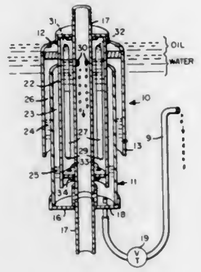
The mash in the brewing of beer is purified to provide desired concentrations of wort by filtering the mash in a vessel provided with a filtering sleeve vertically and fixedly mounted at an intermediate section of the vessel, a first outlet below the sleeve for first wort, at least one additional outlet below the first outlet to remove second wort, an outlet for draff sediments at the lower terminus of a conical lower section of the tub, the lower section being open to the upper intermediate section, an agitator within the conical lower section, and a second filtering element at the outlet for draff sediments.

3,782,552
FLOATING SUCTION NOZZLE
Stephen T. Wendell, 54 Central Ave., Demarest, N.J.
Filed Mar. 22, 1972, Ser. No. 237,049
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **1 Claim**



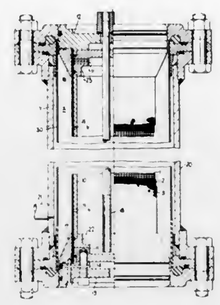
A floating suction head for preventing the intake of matter such as debris from a liquid is described.

3,782,553
LIGHT LIQUID SKIMMER
Carroll E. Brekke, 2229 Parkland Way, Petaluma, Calif.
Filed May 3, 1972, Ser. No. 249,863
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **7 Claims**



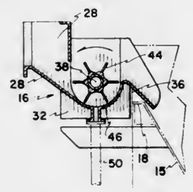
A light liquid skimmer employs an air seal piston having skim slots on the upper end thereof and a flow through vessel, said piston being moveable with respect to said vessel, to skim a light liquid from a heavy liquid. The position of the skim slots moves upwardly or downwardly as the proportion of light liquid decreases or increases, respectively. The adjustment is accomplished by the movement of the air seal piston with respect to the flow through vessel due to the adjustment in buoyancy of the air seal piston as the weight of the liquid in the flow through vessel varies and thereby changes the configuration of the air seal between the air seal piston and flow through vessel. Skimmed liquid flows downwardly through intake conduits within the air seal piston and flow through vessel and is introduced to the mixture of liquid within the flow through vessel in the lower region thereof. The light liquid rises within said flow through vessel and is recovered through light liquid recovery slots configured in a light liquid recovery tube positioned within the vessel. The heavy liquid continues to flow downwardly and is discharged through a heavy liquid discharge orifice at the bottom of the flow through vessel.

3,782,554
PRESSURES FILTERS AND FILTER ELEMENTS THEREFOR
Ralph Derek Gwilliam, St. Austell, England, assignor to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwell, England
Continuation-in-part of Ser. No. 46,342, June 15, 1970, abandoned. This application Sept. 18, 1972, Ser. No. 289,840
Int. Cl. B01d *29/10*
U.S. Cl. 210—350 **9 Claims**



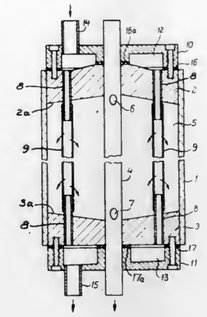
A tube pressure filter is provided with a filtering means which comprises (a) filtrate receiving and drainage member including a wire mesh sleeve which is of a size such that it fits closely over an inner tubular body of the tube pressure filter and which in no direction has more than 200 wires to the inch nor a spacing between the wires smaller than about 0.003 inches but which has in at least one direction at least 60 wires to the inch and a spacing between the wires in said one direction not greater than about 0.012 inches, (b) a backing cloth of coarse-textured material and (c) a filter element comprising a seamless filter cloth sleeve which fits closely over the backing cloth and which has a pore size sufficiently small to prevent the passage therethrough of material to be pressure filtered.

3,782,555
FEED DISTRIBUTION MEANS FOR VACUUM FILTERS
Dallas H. Solum, Salt Lake City, Utah, assignor to Envirotech Corporation, Salt Lake City, Utah
Filed Apr. 3, 1972, Ser. No. 240,438
Int. Cl. B01d *33/06*
U.S. Cl. 210—404 **1 Claim**



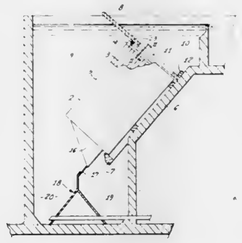
A liquid feed distribution trough having an arcuate bottom is mounted horizontally along the upper edge of a rotary drum filter tank. Within the feed distribution trough, an elongated paddle wheel is rotatably mounted for distributing a liquid containing particulates evenly throughout the trough. The edge of the trough is provided with a curved overflow lip to permit the uniformly distributed feed to gravitationally flow from the trough into the tank. The particulates are subsequently separated from the liquid by the rotary drum filter.

3,782,556
FILTER FOR LIQUIDS
Jakob Murkes, Bandhagen, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Apr. 12, 1972, Ser. No. 243,394
Claims priority, application Sweden, May 18, 1971, 6424/71
Int. Cl. B01d *29/04*
U.S. Cl. 210—409 **2 Claims**



A closed chamber of a casing contains means forming substantially vertical channels extending completely through the chamber, each channel having a wall of filter material and also having an inlet and an outlet disposed outside the casing. The bottom wall of the chamber slopes downward to a separate outlet for the filtrate which passes through the filter material; and the top wall of the chamber slopes upward toward a separate outlet for a flushing liquid, which is supplied through the outlet for the filtrate.

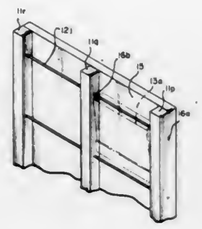
3,782,557
SEPARATION DEVICE
Jacob Pielkenrood, Krommenie, Netherlands, assignor to Pielkenrood-Vinitex N.V., Assendelft, Netherlands
Filed July 26, 1971, Ser. No. 166,015
Claims priority, application Netherlands, July 26, 1970, 7011053
Int. Cl. B01d *21/02*
U.S. Cl. 210—521 **10 Claims**



A device for separating precipitation and/or floatation components from a liquid by means of a separation assembly positioned in a basin at an angle in respect of the horizontal plane, and having a number of inclined separation passages, which basis is divided into a supply and a discharge chamber by means of a separate baffle which is sealed to the wall of the basin and to the upper end portion of the separation assembly, this baffle thus providing a complete isolation between said

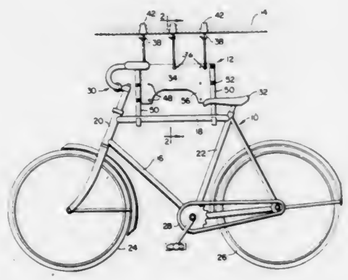
chamber, said baffle being positioned in such a manner that a pivoting movement or removal of said assembly for cleaning is not impeded, and unwanted accumulation of sediment on portions of this assembly is prevented.

3,782,558
MATCH-BOOK DISPLAY PLAQUE
George W. Schael, Jr., 3 Chiplon Ln., Scotch Plains, N.J.
Filed Apr. 17, 1972, Ser. No. 244,641
Int. Cl. A47f *7/00*
U.S. Cl. 211—13 **2 Claims**



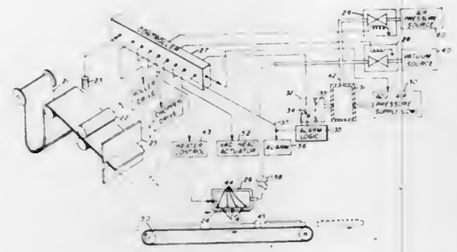
In a preferred embodiment, a plaque including an aperture in an upper portion of the structure for hanging on a peg or nail or the like, flatly against a wall, the front being substantially flat and having on at least opposite edges of the plaque, forwardly extending structures receivable of a crossbar which when opposite ends of the crossbar are mounted in the opposing side supports, the crossbar extending substantially parallel to plaque front flat face and along a substantially horizontal axis such that one or more matchbook covers are suspendable on the bar when the matchbook covers are closed and the bar inserted through the passages defined by the closed matchcovers, typically there being a series of mounted bars spaced along the face of the plaque ranging from the bottom to the top thereof and all being about parallel to the horizontal axis.

3,782,559
CEILING CYCLE RACK
Philip C. Wright, 191 E. 76th St., Apt. 6A, New York, N.Y.
Filed May 30, 1972, Ser. No. 257,901
Int. Cl. B62h *3/12*
U.S. Cl. 211—17 **3 Claims**



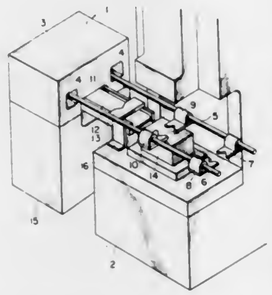
A ceiling cycle rack of an easily portable construction for suspending cycles from ceilings including a plate removably extended from the ceiling by a plurality of hooks or the like, and a pair of J-shaped hangers attached to the plate and laterally adjustable thereon to engage a cycle frame. Fittings are provided to adapt the hanger for suspending girls' cycle frames. Extension means permit adjustment of the vertical height of the cycle. A scale is used to test the weight supporting the capacity of the plate suspension means.

3,782,560
LABELLING MACHINE WITH PNEUMATIC MONITOR
Ghassan N. Kahwati, Rochester, and Allen C. Mercer, Brockport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 19, 1971, Ser. No. 200,301
Int. Cl. B66c *1/02*
U.S. Cl. 214—1 BS **4 Claims**



A high speed labelling machine which picks up and lays down labels by means of an "apertured" pressure-and-vacuum head includes a monitoring system for assuring against faulty labelling. The monitoring system employs a pressure switch — rather than a vacuum switch — to check for vacuum during the monitoring operation. Use of a pressure switch as a vacuum detector is made possible by means of a chamber connected to the head, and to which an auxiliary internal pressure is applied ... the pressure switch being also connected to the chamber.

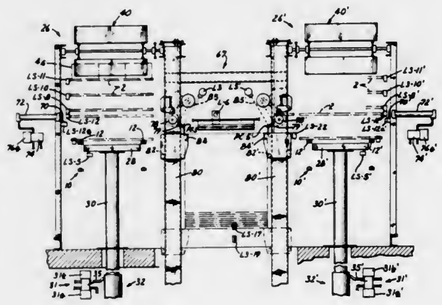
3,782,561
WORKPIECE TRANSFER MEANS
Masaru Orii, 2102-1, Oaza Hegashi-Hango, Kawaguchi, Japan
Filed Sept. 11, 1972, Ser. No. 288,164
Int. Cl. B65g *25/04*
U.S. Cl. 214—1 BB **10 Claims**



A workpiece transfer means having two parallel rods carrying clamping means secured thereto in pairs at positions such that the clamping means in each pair face each other, and means to cause swining motion of the rods towards and away from each other in symmetrical relation to each other. The transfer means may also include means to cause symmetrical vertical movement of the rods. The rods are also coupled

together so that they can be moved reciprocally in horizontal axial direction. Hence the rods can undergo movement towards each other, advancement, movement away from each other and retraction for transferring a workpiece from one place to another. If vertical movement of the rods is additionally provided through operation of a vertical drive source, the rods can then be moved towards each other, raised, advanced, lowered, moved away from each other and then retracted for transferring a workpiece from one place to another.

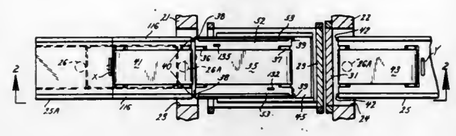
3,782,562
APPARATUS FOR STACKING EMPTY PALLETS
Harold S. Burt, Mendota, and Vasco O. Carvalho, Skokie, both of Ill., assignors to Conveyor Systems, Inc., Morton Grove, Ill.
Division of Ser. No. 171,554, Aug. 12, 1971. This application July 28, 1972, Ser. No. 275,913
Int. Cl. B65g *57/10, 59/02*
U.S. Cl. 214—6 M **4 Claims**



"Two depalletizing stations, preferably sharing a common empty pallet stacking station and a common inlet conveyor to be rendered operable by the automatic sequential feeding of loaded pallets to the inlets thereof from the common inlet conveyor. Alternatively, one of the depalletizing stations can be shut down when desired. When the depalletizing stations are both operated, article position and/or apparatus condition sensing means and associated control means responsive thereto control the movement of palletized articles from the common inlet conveyor to the conveyors extending from the common inlet conveyor to the depalletizing stations so palletized articles are automatically fed to a depalletizing station free to receive a new loaded pallet. The depalletizing stations most advantageously discharge articles upon respective article-receiving conveyors each of which is capable of discharging articles at either one of the same two discharge points when operating separately. Empty pallets from the depalletizing stations are fed to different sides of a common pallet stacking station which can receive pallets only one at a time from the depalletizing stations.

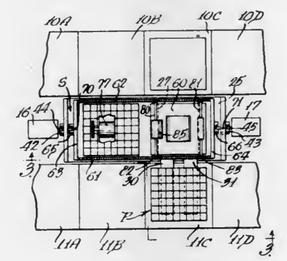
3,782,563
DUMBWAITER LOADING AND UNLOADING APPARATUS
Bernard J. Brockmeyer, Normandy; Edward R. Goedeke, Belnor; Malvern A. Schweig, Clayton, and William R. Tracy, Kirkwood, all of Mo., assignors to Security Fire Door Company, St. Louis, Mo.
Continuation of Ser. No. 856,389, Sept. 9, 1969, abandoned. This application Sept. 13, 1971, Ser. No. 180,204
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 R **6 Claims**

A dumbwaiter loading and unloading apparatus employing a motor driven belt unit is mounted on the dumbwaiter platform and arranged to project a carriage outwardly of the platform at a selected landing level. The carriage is provided with a moving belt reversibly driven to cooperate with a worktable stationed at a selected landing level. The worktable is pro-



vided with a slave belt that is driven by the belt drive in the dumbwaiter apparatus in a direction to move a load out of the unit onto the worktable or to move the load from the table onto the dumbwaiter apparatus.

3,782,564
PRODUCT PICKING STACKER CRANE SYSTEM
Harold S. Burt, Mendota, Ill., assignor to Conco Inc., Mendota, Ill.
Filed Sept. 27, 1971, Ser. No. 183,962
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 A **2 Claims**

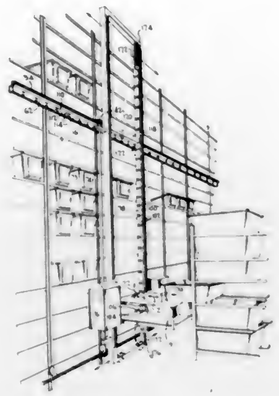


A method of building up an order of selected different product layers on a shipment pallet from a plurality of stored pallets each having a single product and with the stored pallets warehoused in storage bins and a stacker crane system for performing this function. A stacker crane has a platform movable to a position adjacent to a storage bin and a pallet handling structure then extracts a loaded pallet to a position on a platform of the stacker crane where product transfer structure can move products from the extracted pallet to a second pallet carried on the platform of the stacker crane. After the desired number of products are removed from the extracted pallet it is returned to the storage bin. The stacker crane and platform move to a desired number of locations to complete the loading of products on a shipment pallet. The shipment pallet when completed can be shipped or temporarily stored in a storage bin and an extracted pallet when empty can be delivered to a storage location.

3,782,565
AUTOMATED HANDLING SYSTEM FOR CONTAINER HELD MATERIAL
John T. Doran, 3707 Bradley Ln., Chevy Chase, Md., and John C. Maddock, 1404 Kersey Ln., Rockville, Md.
Filed Dec. 23, 1971, Ser. No. 211,337
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 A **2 Claims**

A load bed is moved relative to a rack that stores material placed in containers or pallets. A control unit is provided to

guide the bed to a preselected container position and electromagnetic means attached to the bed attracts the container onto the bed. The bed is then returned to an initial station



where the container can be retrieved. The reverse process is employed to return the container in the rack. Similarly, fork members can be employed, in lieu of the electromagnetic means, to handle pallets.

3,782,566

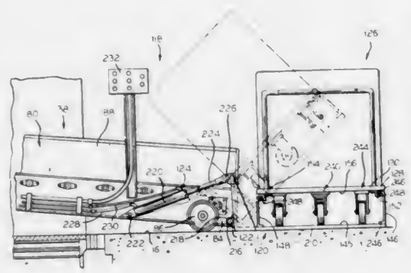
NUTTING TRUCK UNLOADING ARRANGEMENT FOR MAIL BAG LOADING APPARATUS

Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill.

Filed Nov. 10, 1972, Ser. No. 305,564

Int. Cl. B65g *67/08*

U.S. Cl. 214—41 **6 Claims**



A nutting truck unloading arrangement for mail bag handling apparatus of the type comprising an elongated wheeled conveyor assembly adapted to be moved between the loading dock and the vehicle being loaded to load bagged mail into the vehicle, in which the nutting truck unloading arrangement comprises a platform secured to the rearward end of said assembly for swinging movement about a horizontal axis from a nutting truck receiving position, adjacent the level of wheel support of the conveyor assembly, and an upwardly directed position, a load discharging arrangement operably associated with the platform for discharging the truck load onto the rearward end of the conveyor assembly, and means for releasably securing the nutting truck against tilting movement relative to the platform during discharge of its load.

3,782,567

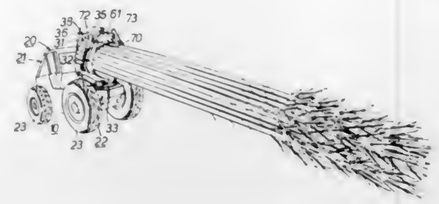
COMBINED BOOM, GRAPPLE AND BUNK ASSEMBLY

Algerd C. Likas, 835-56th Ave., Lachine, and Douglas D. Hamilton, 139 Lazard Ave., Mount Royal, Quebec, both of Canada

Continuation-in-part of Ser. No. 814,913, April 10, 1969, abandoned. This application May 21, 1971, Ser. No. 145,864

Int. Cl. B60p *1/48*

U.S. Cl. 214—77 **26 Claims**



A tree-handling apparatus including components therefor adapting a vehicle for skidding trees by grasping a group of such trees on the ground and lifting the grasped end to facilitate dragging the trees endwise. The vehicle is a mobile self-propelled articulated type having a boom, grapple and bunk assembly pivotally mounted thereon adjacent the trailing end thereof for movement about a substantially vertical axis. The boom, grapple and bunk assembly includes a C-shaped boom pivotally mounted on a base for movement about a horizontal axis, such base in turn being pivotally attached to the vehicle for movement about a vertical axis. The boom includes a primary boom member and a secondary boom member pivotally interconnected with power means for moving one relative to the other and for pivoting the main boom member about its pivotal mounting. A pair of bunks are attached to the boom, one of which engages the underside of a group of trees grasped by a grapple suspended from the secondary boom and which provides a counteracting couple tending to prevent pivoting of the primary boom member during skidding of the trees resulting from forces applied to the tree to drag the same, the trees being tightly grasped by the grapple. The other bunk engages the grapple adjacent the tip thereof to provide reactionary forces on the grapple counteracting forces applied to the grapple by the trees during dragging thereof, the dragging forces being transmitted to the vehicle through the attachment of the grapple to the boom and engagement of the grapple with the abutment on the vehicle. The grapple is constructed such that the bite of the jaw may be selectively varied in a grapple jaw-closed position thereby facilitating tightly grasping a wide variation in the size of the bundle of trees.

3,782,568

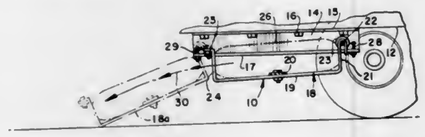
SPARE TIRE CARRIER

George L. Alexander, Rt. No. 3, Box 16, Stephenville, Tex.

Filed Sept. 14, 1972, Ser. No. 289,056

Int. Cl. B62d *43/00*

U.S. Cl. 214—454 **6 Claims**



A pair of spaced parallel channel beams are mounted longitudinally at the underside of a truck body with their channels

opposing each other. A tire rack is positioned between and supported by the channel beams and is provided at the front thereof with rollers which ride on lower flanges of the beams so that the rack may be moved between a forwardly slid elevated position and a rearwardly slid lowered position. A transverse bar is provided at the rear end of the rack and the end portions of the bar rest on the lower flanges of the beams to hold the rack in its elevated, forwardly slid position. Removable stops at the rear ends of the flanges are engageable with the end portions of the bar to prevent rearward movement of the rack.

3,782,569

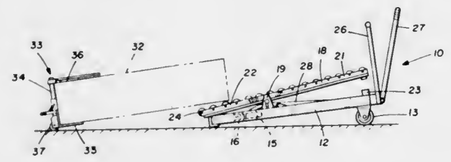
SELF UNLOADING CARRYING DOLLY

Thruman R. Montgomery, 2017 Hurstview Dr., Hurst, Tex.

Filed Mar. 20, 1972, Ser. No. 235,952

Int. Cl. B60p *1/28*

U.S. Cl. 214—506 **2 Claims**



A load of sections of wallboard are positioned flat upon the upper frame of the apparatus. A series of rollers mounted on the upper frame allow the load to be easily moved relative to the upper frame. The upper frame is connected to the base frame of the apparatus by a pair of hinges that are positioned offset from the central axis of the upper frame with the upper frame being supported by the hinges and a portion of the base frame that contacts the upper frame on the opposite side of the central axis from the pivots. Wheels connected to the base frame give the apparatus mobility. To unload the apparatus the wheels on one side of the apparatus are folded under and the load is moved relative to the upper frame until its center of gravity is on the unsupported portion of the upper frame. The upper frame pivots relative to the base frame and the load moves off of the apparatus onto the floor.

3,782,570

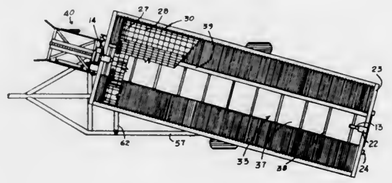
AUTOMATIC LOADING AND UNLOADING BALE WAGON

Lavern C. Sunderman, R.R. No. 3, Box 207, Clarinda, Iowa

Filed Nov. 1, 1971, Ser. No. 194,672

Int. Cl. B60p *1/36*

U.S. Cl. 214—519 **8 Claims**



A wagon has rotatable storage compartments for receiving rows of bales, an endless loading conveyor below the lowest position to which the compartments are successively rotated, and a pick-up endless conveyor pivotally mounted in front of the loading conveyor. The chassis of the wagon supporting the storage compartments is pivoted on a wheeled chassis. The two chasses are aligned for transportation or are positioned at an angle for field operation; in the latter position, the pick-up conveyor lifts bales that are along one side of the path traveled by a tractor connected to the draw bar of the wagon. The rotatable storage compartments comprise a rotor resembling an elongated paddle and a fixed support that is semi-circular in cross section; the fixed support is mounted slightly below the positions of the compartments while their open sides are facing downwardly and support the bales until the compartments are rotated until the bales are supported only by the rotor.

3,782,571

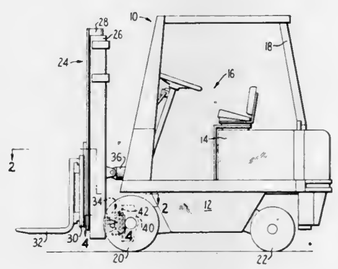
LIFT TRUCK MAST-MOUNTING ARRANGEMENT

James W. Murphy, Wickliffe; Robert J. Frantz, Brooklyn, and Harold V. Hildebrecht, Cleveland, all of Ohio, assignors to Towmotor Corporation, Cleveland, Ohio

Filed Apr. 24, 1972, Ser. No. 246,782

Int. Cl. B66f *9/20*

U.S. Cl. 214—674 **12 Claims**



A mounting device for a tiltable lift truck mast in the form of a pair of bearing-supported pivot pins which are engaged in upwardly-opening, concave bearing surfaces of corresponding hanger brackets is provided. Each hanger bracket further includes a retainer in the form of a bolt and sleeve having a tapered end portion. Each retainer is cooperable with an annular groove in a respective pivot pin to prevent both rotational as well as axial movement of the pin with respect to its hanger bracket. Alternatively, pin movement is prevented by a bolt extending through a transverse bore in the pin.

3,782,572

PUBLIC WORKS MACHINE

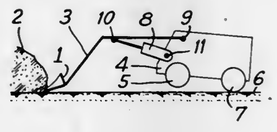
Joel P. Gautier, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Oise, France

Filed Mar. 16, 1972, Ser. No. 235,442

Claims priority, application France, Mar. 22, 1971, 7110033

Int. Cl. E02f *3/86*

U.S. Cl. 214—762 **11 Claims**



This invention relates to a method for adjusting the position of the working equipment with which a public works machine is provided, which is constituted by a group of front drive wheels and a group of rear drive wheels, by said working

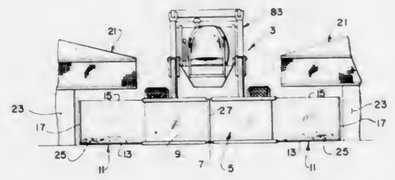
equipment which is articulated to the frame of the machine, whilst a double-effect drive member is coupled between the working equipment and the frame and comprises two chambers connected selectively to a source of pressurised fluid and to a discharge tank or isolated from said fluid sources and discharge tank, according to which method the working equipment is disposed in a predetermined position, isolating said two chambers, and the displacement of the machine is controlled, wherein the position of the working equipment subsequent to the predetermined position is a function of the values of the resistant torques of the groups of front and rear wheels. It also relates to a public works machine applying the method as mentioned hereinabove.

3,782,573

BUCKET FOR USE ON A LOADER, TRACTOR OR THE LIKE

James R. Garwood, Troy, Ill., assignor to National Oats Company, Inc., East St. Louis, Ill.

Filed May 28, 1971, Ser. No. 147,872
Int. Cl. B66f *9/00*
U.S. Cl. 214—768 **12 Claims**



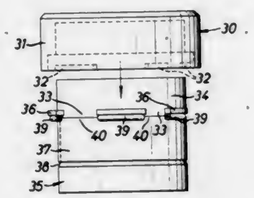
A bucket for use on a loader, tractor or the like, having laterally extensible and retractible side sections, each of which is movable laterally in and out by means of a hydraulic cylinder on the back of the bucket, each cylinder being operable independently of the other for operating either side section independently of the other.

3,782,574

TAMPERPROOF CLOSURE FOR CONTAINERS

Roy William Rumble, deceased, late of London, England (by Zilla Kathleen Rumble, legal representative), assignor to Zilla Kathleen Rumble, London, England

Filed Aug. 17, 1971, Ser. No. 172,436
Claims priority, application Great Britain, Aug. 20, 1970, 40,079/70; Nov. 10, 1970, 53,460/70; Feb. 1, 1971, 3,634/71
Int. Cl. A61j *1/00*; **B65d** *55/02*.
U.S. Cl. 215—9 **4 Claims**



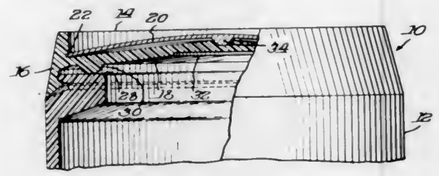
In order to prevent ready access or accidental opening of containers, the closure cap is formed with a plurality of projections or ridges which are of unequal circumferential length and are spaced apart by unequal circumferential distances. As the cap is fitted to the containers the projections pass through corresponding slots formed on the wall of the container. Thereafter the cap is rotated to a random position to prevent ready access. An independently rotatable locking ring having similar slots may be provided for greater security.

3,782,575

SAFETY CLOSURE

Thomas A. Braun, 916 Whitegate Dr., Mt. Prospect, Ill.

Filed Mar. 6, 1972, Ser. No. 232,002
Int. Cl. B65d *55/02*
U.S. Cl. 215—9 **10 Claims**



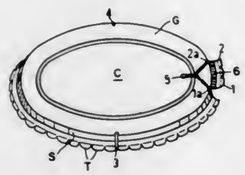
A safety closure for a container having an annular lip and a shoulder adjacent the lip. The closure includes a unitary cap, having a rim and a dome, and a snap-action disc which is coupled to the cap. The rim of the unitary cap includes a locking projection which engages the lip on the container. The closure is placed in an unlocked position by applying a downward force to the snap-action disc to change the disc from a convex position to a concave position.

3,782,576

VACUUM CLOSURE FOR A JAR OR CONTAINER, ESPECIALLY A GLASS PRESERVING JAR

Izaak Johannes Jacquemijns, Epse, Netherlands, assignor to Thomassen & Drijver-Verblifa N.V., Deventer, Zutphenseweg, Netherlands

Filed Apr. 13, 1971, Ser. No. 133,680
Int. Cl. B65d *41/20*
U.S. Cl. 215—42 **4 Claims**



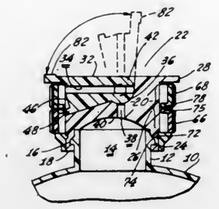
Vacuum closure for a jar or container, especially for a glass preserving jar, said closure consisting of easily deformable metal, the skirt of said closure being provided along the lower edge with inwardly directed teeth projections engaging the mouth of the jar to be closed, said skirt being provided from the lower edge of four vertical score lines, cuts or slits in or between the teeth two of these score lines, cuts or slits being arranged diametrically with respect to each other, and the two other score lines, cuts or slits arranged at a comparatively small distance, defining a tab.

3,782,577

COMBINATION LOCKABLE CLOSURE SPOUT

John Levey, Westlake Village, Calif., assignor to Sandra Levey Miller, Los Angeles and Robert Levey, Encino, Calif., part interest to each

Filed Mar. 27, 1972, Ser. No. 238,112
Int. Cl. B65d *55/14*
U.S. Cl. 215—98 **8 Claims**



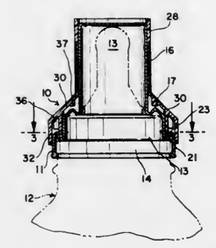
A container closure having a pouring spout with a passageway leading from the inside of the container to permit pouring when a portion of the closure, which portion is pivotable relative to the remainder of the closure, is in a first position; but which passageway is blocked when said portion of the closure is in a second position. A plurality of annular coaxially disposed rotatable locking elements are provided to retain said portion of the closure in its second position unless said annular elements are themselves disposed in indexed registering positions.

3,782,578

OPENER FOR DISPOSABLE CLOSURE

Gene Ballin, 159 Main St., Hempstead, N.Y.

Filed Apr. 28, 1972, Ser. No. 248,635
Int. Cl. B65d *41/32*
U.S. Cl. 215—46 A **11 Claims**



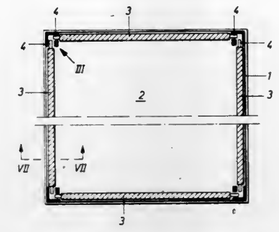
A device for opening a closure cap along a score line around the base of an annular channel without piercing the cap includes a collar which rotatably and slidably engages the cap and includes a peripheral wall provided with circumferentially spaced depending arcuate teeth of greater thickness than the channel and stop elements which limit the downward movement of the device on the cap. The device is pressed downwardly and rotated so that the teeth wedge between and spread the channel walls to sever the closure along the full length of the score line, the piercing of the channel by the teeth being prevented by the stop elements.

3,782,579

COLLAPSIBLE RECEPTACLE

Walther Zarges, Maria-Antonien-Weg 6, Murnau/Obb., Germany

Filed Sept. 28, 1971, Ser. No. 184,502
Claims priority, application Germany, Oct. 1, 1970, P 20 48 382.3
Int. Cl. B65d *7/26*
U.S. Cl. 220—4 F **22 Claims**



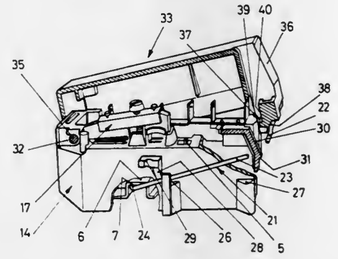
A collapsible receptacle having the lower end of the walls hingedly connected with the base frame by hinge bolts inserted into slot-like oblong holes which are open at the upper end and having a length greater than the cross-sectional size of the hinge bolt. A device is associated with the upper end opening for blocking or permitting removal of the hinge bolt from the oblong hole.

3,782,580

ELECTRICAL CONNECTING ARRANGEMENT FOR AN ENCASED REFRIGERATING MACHINE

Hans Christian Pedersen, and Erik Nielsen, both of Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Filed Nov. 12, 1971, Ser. No. 198,326
Claims priority, application Germany, Nov. 10, 1970, P 20 55 183.1
Int. Cl. B65d *7/24*, *45/06*
U.S. Cl. 220—4 B **2 Claims**



The invention relates to an electrical junction box having a base, a frame and a cover as the three basic parts thereof. A U-shaped wire stirrup engages and cooperates with camming surfaces on the frame and cover in a manner so as to permit the easy and convenient locking together of the three basic members of the junction box.

3,782,581

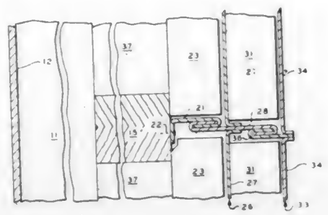
FLUID CONTAINMENT SYSTEM

Charles W. Beazer, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 27, 1971, Ser. No. 211,860
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 A **4 Claims**

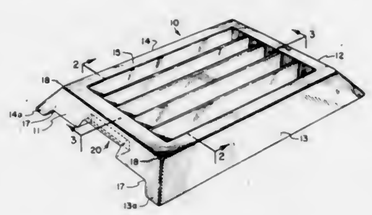
In a fluid container comprising inner and outer metal mem-

branes facing walls of a plurality of rigid wall members, vapor passageways are formed in the wall members. The members



can be supported by metal straps which support the membranes.

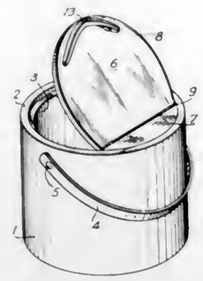
3,782,582
CORE TRAY
Lyle Dean Lybbert, and Daniel H. Atwood, both of Magrath, Alberta, Canada, assignors to Daniel H. Atwood, Magrath, Alberta, Canada
Filed Apr. 26, 1971, Ser. No. 137,170
Int. Cl. A47g *19/00*
U.S. Cl. 220—23.6 **4 Claims**



A core tray constructed of a lightweight material with individual flutes each having an arc shaped bottom, to accommodate a cylindrical core sample, and upstanding side and divider walls, to separate one sample from another. The core tray has sloping side walls terminating at their upper ends in rounded shoulders and legs are formed on the bottoms of the side walls. Rounded junctions are formed between the legs and tray bottom, which are arranged such that the top of one core tray will slide easily into the bottom of another tray stacked thereon between the legs of the upper tray. The rounded shoulder at the top of one tray fits closely into the rounded junction of another tray, and handles inset into the ends of each tray are constructed to have a finger ridge therein by which a person may securely grasp the trays during handling.

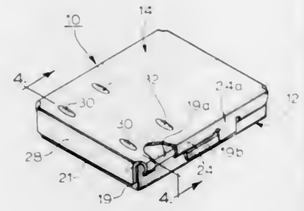
3,782,583
COVERED ICE BUCKET
Henry Abbey, 711 Shore Rd., Long Beach, N.Y.
Filed Dec. 2, 1971, Ser. No. 204,178
Int. Cl. B65d *43/16, 51/10*
U.S. Cl. 220—31 S **10 Claims**

A cover has two segments one of which is affixed to a container in the area of its rim. A hinge hingedly affixes the segments to each other in a manner whereby the other of the segments is freely pivotable about the one of the segments from a



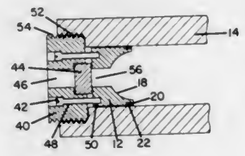
position in which the container is closed by the cover to a position at an obtuse angle with the one of the segments in which the container is open to a maximum.

3,782,584
PILL BOX HAVING SAFETY SLIDING CLOSURE
Donald R. Swenson, 408 Chelsea Ave., Rockford, Ill., and Philip J. Rich, 10351 N. Second St., Roscoe, Ill.
Filed June 9, 1972, Ser. No. 261,403
Int. Cl. B65d *43/12*
U.S. Cl. 220—41 **17 Claims**



A pill box or similar article includes a body in the form of an open topped rectangular enclosure and a top cover slidably fitted to the body. Wing portions disposed on opposite side walls of the body are resiliently biased outwardly from the side walls to intercept abutments on the cover and normally block movement of the cover from its closed position. The box is opened only by depressing the wing portions into engagement with the side walls of the body simultaneously with a sliding motion of the cover. Other features are disclosed.

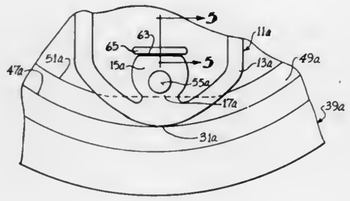
3,782,585
CONCAVE CLOSURE SEAL
Gary W. Rosenwald, and Samuel C. Swift, both of Tulsa, Okla., assignors to Cities Service Oil Company, Tulsa, Okla.
Filed Dec. 10, 1971, Ser. No. 206,846
Int. Cl. B65d *53/00*
U.S. Cl. 220—46 P **2 Claims**



An apparatus forming a closure seal especially adapted for utilization wherein high internal pressures are to be contained

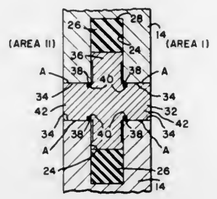
within a cylindrical high pressure cell. The closure seal is formed of a concave inner cylinder which readily transforms the pressures exerted within the cell to lateral forces which are exerted between the concave closure seal and the cylinder walls of the cell.

3,782,586
EASY OPENING CONTAINER WALL
Omar L. Brown, Kettering, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio
Continuation-in-part of Ser. No. 64,291, Aug. 17, 1970. This application Oct. 28, 1971, Ser. No. 193,437
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **2 Claims**



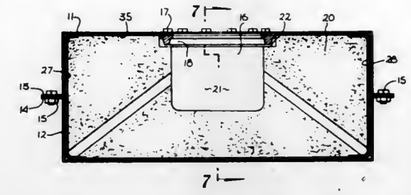
An easy opening container wall comprising a container wall of sheet material, a line of weakness in the container wall defining a tear portion, and a tab including an attachment portion and a tab body joined to the attachment portion. The attachment portion is attached to the tear portion so that the tab can be manipulated to initiate rupture of the sheet material along the line of weakness. A zone of the container is formed in close proximity to a segment of the peripheral edge of the attachment portion and cooperates therewith to retain the tab against pivotal movement about its point of attachment to the tear portion.

3,782,587
SEALING MEANS
Jack Brothers, Panama City, Fla., assignor to Jerry Pentel, Roxbury Township, R.D. Flanders, N.J., a part interest
Filed Dec. 6, 1972, Ser. No. 312,619
Int. Cl. B65d *53/00*
U.S. Cl. 220—46 R **8 Claims**



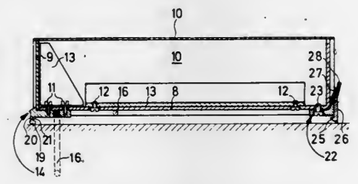
The means seal a fluid joint, formed of interfacing elements of indeterminate configuration along the joint, where the elements have recesses formed in the interfacing surfaces, by defining a sealing element of ductile material to conform to the indeterminate configuration by die-cutting the material to separate out a sealing sub-element which cooperates with the interfacing surfaces, and collateral resilient seals, the latter under a constant, high pressure constraint, to define a plurality of compliant and resilient sealing surfaces.

3,782,588
FUEL STORAGE CELL
Donn W. Allen, 5730 Bankfield Ave., Culver City, Calif.
Filed Feb. 8, 1971, Ser. No. 113,408. The portion of the term of this patent subsequent to Feb. 9, 1988, has been disclaimed.
Int. Cl. B65d *25/14, 25/34*
U.S. Cl. 220—88 R **11 Claims**



The fuel cell disclosed herein includes a shaped, porous core having an approximate 97 percent void which is covered by an impregnated fabric material so as to adhere to the periphery of the core and to seal the fabric material. The covered core or bladder has mounting fixtures adapted to detachably connect the fuel cell to supporting structure.

3,782,589
STACKABLE HOUSINGS FOR ELECTRONIC EQUIPMENT
Karl Lang, Uerikon, and Hans Steiner, Greifensee, both of Switzerland, assignors to Mettler Instrumente AG, Zurich, Switzerland
Filed May 21, 1971, Ser. No. 145,723
Claims priority, application Switzerland, June 18, 1970, 8884/70
Int. Cl. B65d *21/02*
U.S. Cl. 220—97 R **3 Claims**



A stackable housing for electronic equipment and the like, characterised in that a first housing is provided at its bottom with shoulder means adapted for pivotal connection with corresponding means on the upper forward edge portion of a second housing arranged therebeneath. Snap-lock means are provided for removably connecting another lower portion of the first housing with another upper portion of the second housing, thereby locking said housings against sliding movement relative to each other.

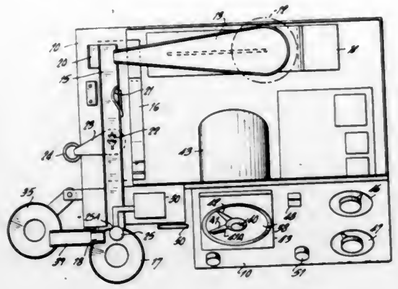
ERRATUM

For Class 220—31 R see:
Patent No. 3,782,592

3,782,590
PILL COUNTING MACHINE
George J. Apfel, 105 Rivervale Rd., Park Ridge, N.J.
Filed May 18, 1972, Ser. No. 254,619
Int. Cl. B65d *57/20*
U.S. Cl. 221—13 **6 Claims**

A pill counting machine in which a plurality of pills are moved by elongated vibrating troughs which first form a single

line of pills, then remove the dust, and finally pass the pills through a sensing station where they are counted. A diverting



vane adjacent the sensing station switches the direction of the stream of pills into a storage means after the desired number of pills has passed the sensing station.

3,782,591

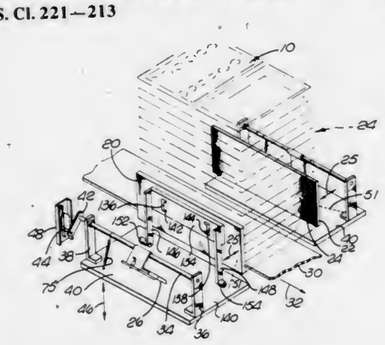
CARTON DISPENSER CAMMING SYSTEM

Harry L. Fries, Yucaiba, Calif., assignor to Dolco Packaging Corporation, Burbank, Calif.

Filed July 17, 1972, Ser. No. 272,600

Int. Cl. B23q *7/04*; **B65h** *1/06*

U.S. Cl. 221—213 **5 Claims**



A dispenser camming system for carton members which engages and lowers a member from a first point to a second point. A toothed pick is raised to first engage the member at the first point, and releases the member when lowered to the second point. The toothed pick is rotated via linkage to a cam follower which tracks a cam surface to reciprocate the pick out of and into an engaging configuration as the pick is raised and lowered. The cam surface is formed to delay movement of the pick from a non-engaging position to the engaging position. Reverse-directional movement of the cam follower in the path of the cam is prevented by means of a spring member. The disposition of the toothed pick is adjustable so as to adjust the pressure applied by it to the member. A pair of gripping surfaces are arranged to secure a plurality of members therebetween, releasing the member for engagement and separation of one of the members by the toothed pick. Means are provided for predeterminedly adjusting the spacing between the toothed pick and the bottom of the gripping surfaces so as to accommodate the camming system to different depth members.

3,782,592

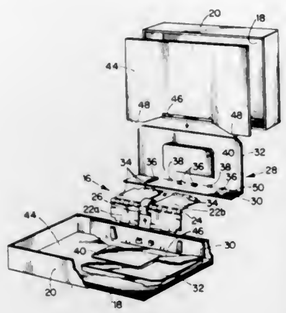
HINGE MOUNTING MEANS

George G. Bergh, Plainsville, and Robert G. Bergh, North Attleboro, both of Mass., assignors to Bergh Bros. Co., Inc., Attleboro Falls, Mass.

Continuation-in-part of Ser. No. 25,662, April 6, 1970, abandoned. This application Mar. 18, 1971, Ser. No. 125,760

Int. Cl. B65d *43/18, 5/66*

U.S. Cl. 220—31 R **7 Claims**



Means for mounting a hinge leaf on a container component, for example, the base or lid section of a box. The means includes a hinge receiving element, one end or section of which is adapted for direct attachment to the hinge. The other end or section of the hinge receiving element includes a tongue member which cooperates with the said other end or section to slidably receive and hold therebetween a mounting member which is included as a part of the container component.

3,782,593

BAR HOLDER ARRANGEMENT FOR AN AUTOMATIC MACHINE TOOL

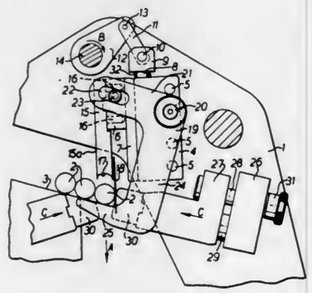
Ewart H. Doe, Houghton, near Stockbridge, England, assignor to Twyford Moors (Aircraft & Engineering) Limited, Eastleigh, Hampshire, England

Filed July 20, 1971, Ser. No. 164,403

Claims priority, application Great Britain, July 30, 1970, 36,953/70; Oct. 22, 1970, 50,306/70

Int. Cl. B65h *3/50*

U.S. Cl. 221—248 **15 Claims**



A bar holder arrangement for holding bar stock material to be fed to an automatic machine tool. A slide presses a length of bar stock material from a magazine into a bar holder. A retaining member cooperates with the slide in a manner such that the retaining member does not move from a position in which it prevents movement of the length of bar stock material into the bar holder until the slide member has moved to a position in which movement of the next length of bar stock material in the magazine is prevented by the slide member thereby preventing double loading. The bar holder arrangement may include more than one bar holder in an indexable reel, means permitting the arrangement to be quickly reset to accommodate a change in diameter of the bar stock material being used, means for preventing indexing of the reel if a bar holder has not been closed and means for sensing whether or not bar stock material in a bar holder has been completely used up.

3,782,594

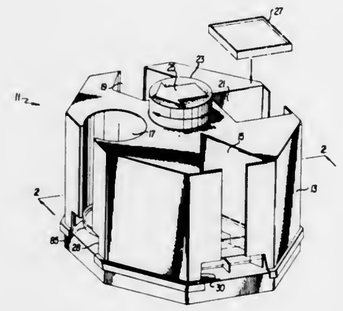
CHIP HOLDER AND DISPENSER

Michael Langieri, Jr., Butler, N.J., and Michael Meyers, Munsey, N.Y., assignors to Questor Corporation, Toledo, Ohio

Filed Feb. 16, 1972, Ser. No. 226,678

Int. Cl. B65q *59/00*

U.S. Cl. 221—274 **1 Claim**



A rack having vertical chutes therein for accepting a column of rigid chips. A slot is provided at the lower end of each chute which is of a dimension such that the chip may pass through the rack. An internal compartment within the rack contains an ejecting mechanism which mates with slot in the compartment opposite the slot in the chute. A button extends outwardly from the compartment and is spring biased in an extended position. Manual depression of the button overcomes the spring bias and moves the ejector into contact with the chip so as to force it from the rack. The button has indicia thereon and is rotatable with the compartment. The indicia clearly shows with which chute the ejector mechanism is aligned.

3,782,595

DISPENSING OF VISCOUS MATERIAL

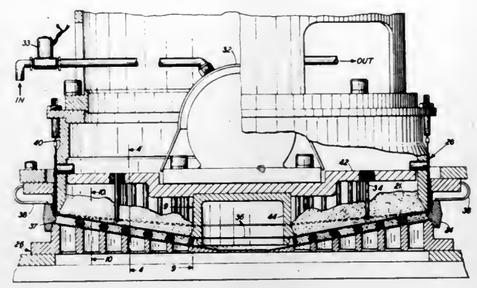
Albert H. Haller, Clark, N.J.; John J. Larkin, Little Neck, N.Y., and Richard P. Walters, Watchung, N.J., assignors to Western Electric Corporation, New York, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,133

Int. Cl. H01m *35/26*

U.S. Cl. 222—1 **7 Claims**

A dispensing mechanism places a predetermined quantity of a highly viscous paste into successive articles, such as battery grids. A constant level of the paste is maintained in a cylindrical dispensing cup of the mechanism, which has a grid-like bottom formed of radially disposed wires. The paste flows out of the grid-like bottom of the cup during vibration of the cup.



When the vibration stops, the flow of the paste through the wires also stops. Thus, a convenient mechanism is provided for controlling the amount of paste dispensed.

3,782,596

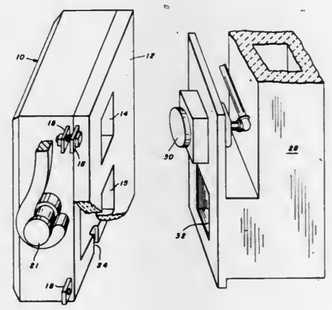
METHOD OF PREHEATING A TUNDISH

David K. Griffiths, Penn Hills, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 48,353, June 22, 1970. This application May 2, 1972, Ser. No. 249,645

Int. Cl. B22d *37/00*

U.S. Cl. 222—1 **2 Claims**



A tundish which is capable of draining molten oxide and skull material therefrom while being preheated, and a method of preheating the tundish which prevents plugging of the teeming nozzle.

3,782,597

GASOLINE DISPENSING SYSTEM HAVING CENTRAL CONTROL STATION AND A PLURALITY OF MULTI-GRADE GASOLINE PUMPS

Bonde Knut Hansen, and Leif Gunnar Persson, both of Malmo, Sweden, assignors to AB Ljungmans Verkstader, Malmo, Sweden

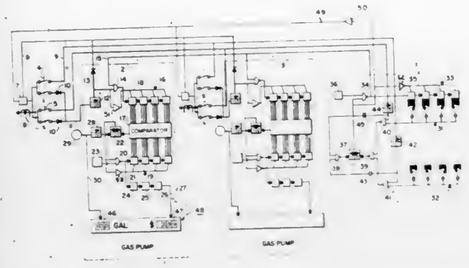
Filed June 22, 1972, Ser. No. 265,406

Int. Cl. B67d *5/30*

U.S. Cl. 222—28 **13 Claims**

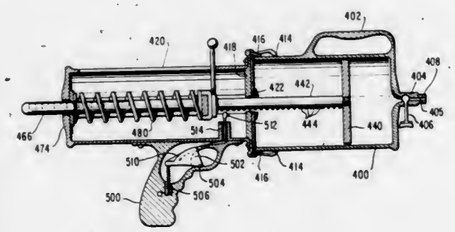
A central control station is used to provide multi-level remote price information to a plurality of multi-grade gasoline dispensing pumps. The control station is reset to zero in coincidence with the completion of transmission of data to the individual pumps. The pumps are interconnected to prevent one

pump interfering with the other pump during the transmission of information from the control station to a given pump. Each pump has a first group of decade counters to store the received price information in digital form. A multiplier circuit is provided within each pump including a fuel flowmeter which generates electrical pulses in response to the volume of dispensed fuel and a high frequency pulse generator which pulses a second group of decade counters. The information in the first group of counters is compared in a comparator circuit



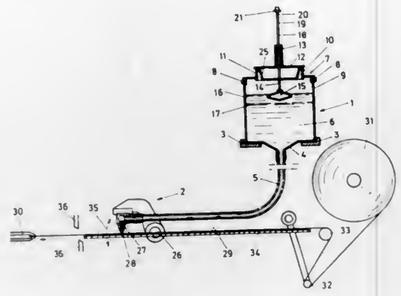
to the information in the second group of counters. Each time the information in the two groups of counters is identical, the comparator disables the output of the high frequency generator. No additional pulses are transmitted to the second group of counters until another pulse is received from the fuel flowmeter. The same number of pulses which are coupled to the second group of counters is coupled through a decade counter division circuit to an accumulator and read-out device, the final number in the accumulator device being the product of the fuel flow and the price per unit of fuel dispensed.

3,782,598
DISPENSER DEVICE
Napoleon A. Basa, 46 Cordillera St., Quezon City, Philippines
Division of Ser. No. 37,685, May 15, 1970, Pat. No. 3,649,471. This application Aug. 13, 1971, Ser. No. 171,683
Int. Cl. B67d *5/42*
U.S. Cl. 222—49 **10 Claims**



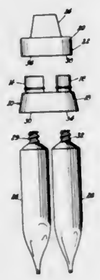
A dispenser device includes a hollow container portion for flowable material and has an outlet means. Plunger means is slidably mounted within the container portion and spring means normally urges the plunger means toward the outlet means. A cock arm is connected to the plunger means and extends through slot means formed in a housing means. The slot means has a part extending longitudinally of the housing and a part extending laterally of the housing. A manually operated control means is provided for controlling movement of the plunger.

3,782,599
DEVICE FOR FEEDING GLUE FROM A GLUE CONTAINER TO A GLUE APPLYING HEAD
Pierre Luginbuhl, Nauhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Jan. 19, 1972, Ser. No. 219,042
Claims priority, application Switzerland, Feb. 10, 1971, 1982/71
Int. Cl. B67d *5/22*; **G01f** *23/06*
U.S. Cl. 222—51 **5 Claims**



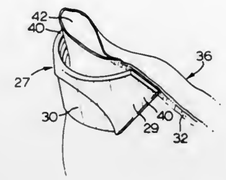
In a device for feeding glue by means of a hose from a glue container to a glue applying head, the glue in the glue container is provided with a cover layer comprising a fluid, such as a mineral oil, which is inert with relation to the glue, has a specific gravity which is less than that of the glue and repulses said glue, so that no air can touch the glue and form a glue skin thereon.

3,782,600
CO-DISPENSER APPLICATOR AND SPATULA CAP
Peter Spiros Columbus, Whitestone, N.Y., assignor to Borden, Inc., Columbus, Ohio
Filed June 13, 1972, Ser. No. 262,346
Int. Cl. B65d *35/22*
U.S. Cl. 222—94 **9 Claims**



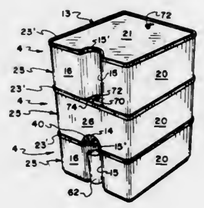
A co-dispenser applicator is common to both a tube of epoxy cement and a tube of hardener. The two materials are discharged through two separate spaced spouts in the co-dispenser applicator. The cap which seals the two outlet spouts of the co-dispenser applicator has attached thereto a spatula. The spatula is useful for mixing and applying the epoxy cement and the hardener which has previously been dispensed. By means of the present device, many of the advantages inherent in one package adhesives can now be imparted to two package adhesives.

3,782,601
BI-STABLE CLOSURE FOR FLEXIBLE BAGS
Alois A. Krawagna, 70 Delisle Ave., Apt. 410, Toronto, Ontario, Canada
Filed Apr. 13, 1972, Ser. No. 243,761
Claims priority, application Great Britain, Apr. 16, 1971, 9,620/71
Int. Cl. B65d *35/08*
U.S. Cl. 222—107 **12 Claims**



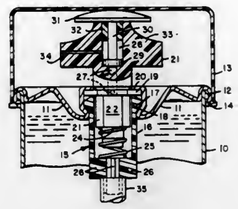
This invention provides a snap-closure for flexible bags, including two curved portions linked through a flexible, integral web. The respective curvatures of the portions and of the web are such that one of the portions can be flexed through a dead-center position to a position of inverted curvature, being held in either position by the resilience of the other portion.

3,782,602
FROZEN WATER CONTAINERS WITH LIQUID DISPENSER FOR CAMPING
Michael E. Page, 4243 W. 3250 South, Granger, Utah
Filed Mar. 14, 1973, Ser. No. 340,999
Int. Cl. B67d *5/60*
U.S. Cl. 222—143 **2 Claims**



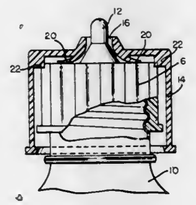
A thin wall open top container comprised of a rectangular receptacle formed of a shaped retaining plastic material, a thin wall lid formed of plastic material having a downwardly directed female force fit fastener around the entire periphery of the lid, the receptacle having an upwardly extending male head edge over which the female fastener is forced to create an air-tight releasable union. Thus, each such container may be easily filled with water and the water readily frozen at home. Each frozen container is then used to cool food in a camper or the like and, when the water melts, it is a source of potable liquid. The bottom of the container is of reduced dimensions to enable stacking of one said container above another in stable fashion. A cavity area located at the edge intersection where the front wall joins the bottom conceals a dispensing spout with valve for dispensing the water once it has melted and a vertical recess in the rear wall of the container allows placement of a glass or the like therein directly below the spout of a second, top container whereby the glass may be filled with melted water and used for human consumption.

3,782,603
VALVE MECHANISM
John A. McConnell, 5860 Robertson Ave., and Everett W. Williamson, 36338 Concord Pl., both of Newark, Calif.
Filed Jan. 28, 1972, Ser. No. 221,586
Int. Cl. B67d *5/32*
U.S. Cl. 222—153 **4 Claims**



An auxiliary valve for aerosol dispenser cans provided thereto so that small children cannot dispense material from the can simply by applying pressure to the top of the valve mechanism. The auxiliary valve is positioned above the aerosol dispensing valve and it can be opened only by prying the actuating mechanism thereof upward with respect to the dispensing valve. Thereafter the dispensing valve is operated by pressing on its actuating mechanism.

3,782,604
SCREW CAP WITH SAFETY COVER
Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio
Filed Jan. 20, 1972, Ser. No. 219,298
Int. Cl. B67b *5/00*; **B67d** *5/32*
U.S. Cl. 222—153 **1 Claim**

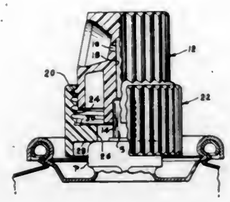


To render screw-capped bottles containing dangerous substances safe from children, a unitary plastic cover is provided which fits loosely rotatably over the normal screw cap and prevents unscrewing of the cap unless a considerable downward pressure is exerted against the resilient element of the cover to force a portion of the cover into engagement with a portion of the screw cap so that the cap can be unscrewed.

3,782,605
CHILDPROOF AEROSOL ACTUATOR CONSISTING OF TWO MEMBERS, OPERATIVE BY RELATIVELY ROTATING THE TWO MEMBERS
William E. Messenger, Fremont, N.H., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Dec. 18, 1972, Ser. No. 316,355
Int. Cl. B67b *5/00*
U.S. Cl. 222—153 **4 Claims**

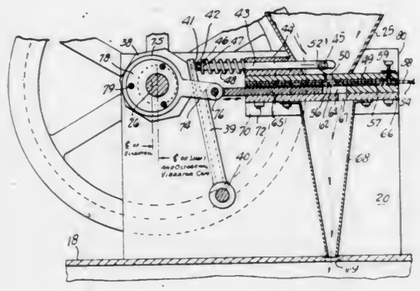
A childproof aerosol actuator comprises an actuating button having external threads and a locking collar having

cooperating internal threads. In use, the collar is screwed downwardly to abut the aerosol container and block operation



of the valve, Two-handed operation is necessary because friction between the threads of the button and collar exceeds friction between the button and stem.

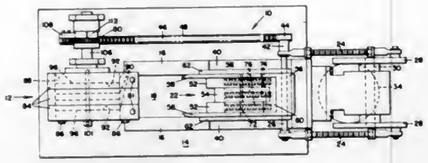
3,782,606
ANT POISON DISTRIBUTING APPARATUS
Lee Maxie, R.F.D. Box 200, Rayville, La.
Filed Oct. 27, 1972, Ser. No. 301,312
Int. Cl. G01f *11/14*
U.S. Cl. 222—244 **6 Claims**



An ant poison distributer adapted to be mounted on a grass clipping machine over the rotating blade of the machine so as to drop ant poison granules onto the blade for distribution. The distributor has a hopper with an agitator therein and a series of apertured plates defining a metering passage, with the discharge aperture of the lowermost plate offset relative to the registering apertures of the other plates. A reciprocating push bar moves the granules forwardly in the metering passage toward the offset aperture in the lowermost plate while closing off the supply, allowing the granules to drop through onto the rotating clipper blade. One of the metering plates has apertures of different sizes and this plate can be adjusted to move a selected aperture into registry with the other apertures so as to provide a desired discharge volume of granules.

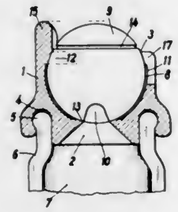
3,782,607
DISPENSING MACHINE FOR FOOD PRODUCTS
Arnold Soodalter, 134 Tanglewood Dr., Longmeadow, Mass.
Continuation-in-part of Ser. No. 126,850, March 22, 1971, abandoned. This application Feb. 1, 1972, Ser. No. 222,559
Int. Cl. G01f *11/04*
U.S. Cl. 222—249 **2 Claims**

Apparatus for dispensing a portioned food product comprising a product supply and pressure means including a chamber for the food product, primary and secondary rams for exerting pressure upon the food product, product metering means communicating with the chamber and aligned with at least one of the primary and secondary rams for accepting a measured



amount of the food product expressed from the chamber, and means for ejecting the measured amount of food product from the metering means.

3,782,608
SAFETY CLOSURE FOR A CONTAINER
Urs Schneider, Seedorffeld 6, Munchenbuchsee, Switzerland
Filed Feb. 29, 1972, Ser. No. 230,244
Claims priority, application Switzerland, Mar. 19, 1971, 11960/71
Int. Cl. G01f *11/10*
U.S. Cl. 222—368 **6 Claims**

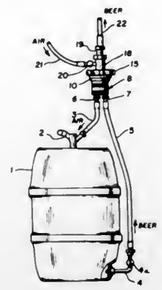


A closure having a cap for the neck of a container, for medicines, such as pills or the like, having a central socket and an entry aperture connecting the socket in communication with the interior of the container and having a removal aperture connecting the socket in communication with the exterior air space. A spherical closure ball rotatably retained in the socket so it is universally rotatable in all directions and having a depression in one surface portion thereof of a size to receive a single dose of the contents of the container and being successively rotatable into registration with the entry aperture to receive a single dose from the container, and into registration with the removal aperture for removal of the single dose from the container, the depression in the ball also being rotatable to a multiplicity of other positions in the socket where it is covered by the housing and prevents removal of the container contents.

3,782,609
KEG TAPPING ASSEMBLY
Homer R. Zucconi, 419 Speer St., N. Belle Vernon, Pa.
Filed Oct. 20, 1971, Ser. No. 190,796
Int. Cl. B65d *83/00*
U.S. Cl. 222—394 **1 Claim**

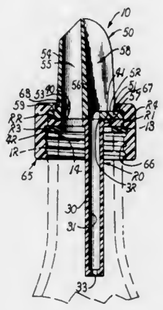
A keg tapping assembly comprising a tavern unit having two prongs which are sleeve-like with tapered ends to unseat the two spring closed valves of a permanently attached keg unit detachably connected to the top central hole of a keg, upon insertion into the keg unit. The invention embodies an at-

tachment having two bores through which said prongs are detachably fitted and having serrated terminal connections onto which hoses may be slip-fitted for attachment, respectively, to a tap rod insertable in the top center opening and to



a valved outlet connection at the bottom of the keg. By simply unplugging the tavern unit from the keg unit and plugging it into said attachment it is selectively usable on either a conventional single connection tap or on the older double connection tap.

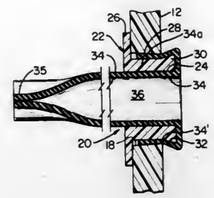
3,782,610
BOTTLE VALVE
Lloyd H. Gilbert, 1802 Tulare, Fresno, Calif.
Filed July 6, 1972, Ser. No. 269,474
Int. Cl. B65d *25/42*
U.S. Cl. 222—484 **2 Claims**



A valve for a bottle having a port, the valve having a body adapted to be received in sealing relation on the port, the body having a passage extending therethrough in communication with the port; a closure rotationally mounted in sealing relation on the body, the closure having a passage registrable with the passage of the body; and a follower and cam way individually mounted on and interconnecting the closure and the body to limit rotation of the closure between an opened position in which the passages are in registration and a closed position in which the passage of the body is sealed by the closure.

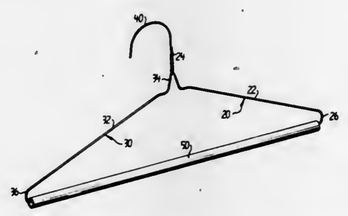
3,782,611
DISPENSING CLOSURE ASSEMBLY FOR CONTAINERS
Herbert J. Wanderer, Denver, Colo., assignor to Denver Plastics, Inc., Lakewood, Colo.
Filed Nov. 15, 1971, Ser. No. 198,684
Int. Cl. B65d *5/74*
U.S. Cl. 222—569 **15 Claims**

A removable dispensing closure assembly for an opening in the wall of a container includes an integral plug with a longitudinal passage having an annular flange portion at the outer end adapted to abut against the outer surface of the container wall together with an intermediate portion and an annular lip portion at the inner end sized to insert into the container opening. A flexible tubular member passes through the plug passage and has a normally closed outer end and an open inner end everted over the annular lip portion and back along



the periphery of the intermediate portion to form an enlarged flexible end portion having an outer dimension larger than the internal dimension of the container opening whereby the closure assembly can be forcefully inserted into the container opening to effect a fluid-tight seal. Dispensing through the tubular member is effected by selectively opening and closing the passage of the tubular member externally of the container.

3,782,612
GARMENT HANGER
Dayton W. Barnes, and Robert D. Chiles, both of Greeneville, Tenn., assignors to Ja-San, Inc., Greeneville, Tenn.
Filed July 11, 1972, Ser. No. 270,672
Int. Cl. A41d *27/22*
U.S. Cl. 223—85 **8 Claims**



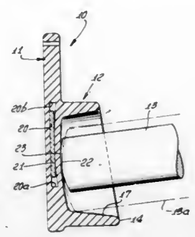
A strut-type garment hanger is disclosed comprising two different length strands of wire or similar material, the strands being entwined and biased to create a longitudinal flexure within a strand holding tube and the overall hanger to give rigidity.

3,782,613
FISHING ROD HOLDER
Marvin A. Davis, 66 Ocean View, Apt. 33, Santa Barbara, Calif.
Filed Apr. 19, 1972, Ser. No. 245,544
Int. Cl. A45f *5/00*
U.S. Cl. 224—5 E **1 Claim**

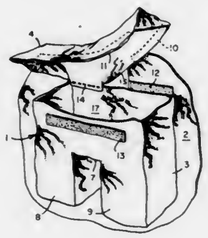
A fishing rod holder comprises:

a. an integral base pad and cup consisting of molded elastomeric material, the cup projecting at one side of the base pad and sized to receive the handle end of a fishing rod,

b. the base pad containing an internal slot located inwardly of the cup and spaced therefrom, the slot extending transversely of the cup to receive a fisherman's belt for securing the base pad to the fisherman.



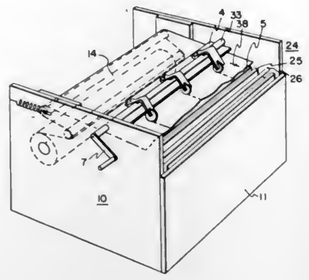
3,782,614
BINOCULAR POCKET
Jimmy T. Campisi, 1027 Parkinson Ct., San Jose, Calif.
Filed May 1, 1972, Ser. No. 248,963
Int. Cl. A45f *5/00*
U.S. Cl. 224—5 V **4 Claims**



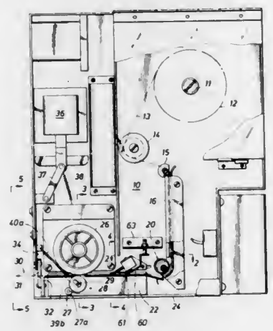
A pocket adapted to be attached to an upper torso garment to hold a pair of binoculars. The pocket comprises a body member and a flap member detachably attached thereto, the flap member having an opening intermediate the sides thereof to permit the straps of the binoculars to pass through and rest around the neck of the wearer of the upper torso garment. When ready access to the binoculars is required the wearer of the upper torso garment detaches the flap member from the body member and detaches one side of the flap member from the upper torso garment to permit the straps to be removed exteriorly from the pocket without removing them from the neck of the wearer.

3,782,615
ROLL CUTTING AND SLICING DISPENSER
David P. Webster, Box 143, Crownsville, Md., and John A. Seward, 128 Archwood Ave., Annapolis, Md.
Filed Dec. 20, 1971, Ser. No. 209,581
Int. Cl. B26d *9/00*; **B26f** *3/02*, *3/12*
U.S. Cl. 225—94 **2 Claims**

An apparatus and system for dispensing thermoplastic and other heat sensitive sheets supplied from rolls. The apparatus is characterized by multiple, adjustable cutting or perforating elements which can vary the width of the sheets as it is being dispensed. The apparatus contains a heat cutting element characterized by its non-contacting relationship with the sheet being severed.

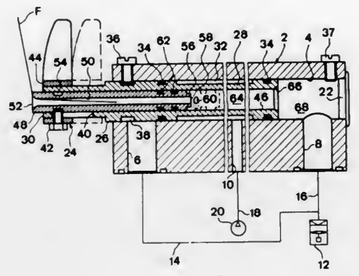


3,782,616
STAMP DISPENSING APPARATUS
John L. Surber, Jr., San Antonio, Tex., assignor to U.S. Postage Box Company, San Antonio, Tex.
Filed Feb. 18, 1972, Ser. No. 226,733
Int. Cl. B65h *25/32*
U.S. Cl. 226—43 **4 Claims**



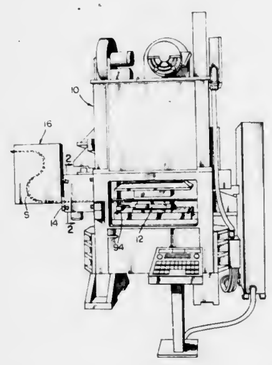
An elongated web of stamps having a longitudinally spaced transverse row of perforations between each stamp is stored as a roll in the apparatus. The apparatus unwinds the stamp web from the roll and dispenses the desired number of stamps in response to the depositing of a preselected amount of money in the apparatus. The stamp web is engaged on opposite sides by a drive wheel and an idler wheel, respectively, during the dispensing operation. When the drive wheel is rotated, it moves the stamp web between two knife blades and into the opening through which the stamps are dispensed. Electrical contacts, located on opposite sides of the stamp web, make contact with each other and actuate a circuit as each row of perforations passes between the contacts. This circuit counts the number of stamps being dispensed and stops the drive wheel when the desired number of stamps are positioned to be cut from the web by the knives. After each dispensing operation, the idler wheel moves out of engagement with the stamp web.

3,782,617
APPARATUS FOR WITHDRAWING RAPIDLY MOVING YARN MATERIAL
Hermann Gasser, Zurich, and Imre Plezer, Greifensee, both of Switzerland, assignors to Luwa AG, Zurich, Switzerland
Filed June 12, 1972, Ser. No. 261,737
Claims priority, application Switzerland, June 18, 1971, 8909/71
Int. Cl. B65h *17/32*
U.S. Cl. 226—97 **5 Claims**



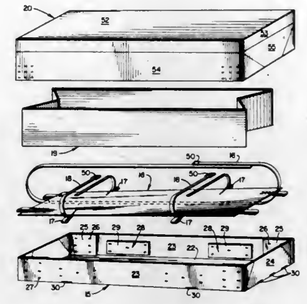
An apparatus for withdrawing or sucking off rapidly moving yarn material comprising a suction bore, an approximately cylindrical compartment into which the suction bore opens approximately coaxially and which possesses a larger diameter relative thereto. A compressed air channel opens into the cylindrical compartment. The compressed air channel enters approximately tangentially into such cylindrical compartment.

3,782,618
STOCK FEEDING DEVICE
John E. Voorhees, Sidney, Ohio, assignor to The Minster Machine Company, Minster, Ohio
Filed Sept. 5, 1972, Ser. No. 286,121
Int. Cl. B65h *17/22*
U.S. Cl. 226—155 **18 Claims**



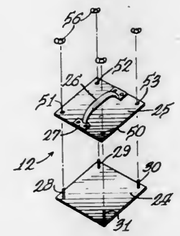
A stock feeding device in which a pair of rollers frictionally engage the stock therebetween, with one of the rollers being intermittently driven and the other roller being pressed toward the driven roller. The rollers are contained within a housing which includes adjusting screws for eliminating lost motion between the elements of the intermittent drive which are also mounted in the housing. An arrangement is provided for momentarily retracting the idler roller away from the driven roller between feed intervals of the rollers.

3,782,619
SHIPPING CONTAINER
Clyde A. Dittbenner, 15 North St., Andrew Dr., Ormond Beach, Fla.
Filed June 29, 1972, Ser. No. 267,706
Int. Cl. B65d *5/46*, *5/50*, *25/22*
U.S. Cl. 229—14 R **3 Claims**



A shipping container for air transport of a casket or the like is provided, which can be shipped to the user in a compact condition, erected at the place of use, and discarded after use. The elements of the shipping container involve in combination a casket protecting enclosure and a lifting flat plate positioned beneath the casket. A shipping container is provided as well as a package made up of the parts of the shipping container.

3,782,620
CARRYING HANDLE ASSEMBLY FOR CARTONS
Arthur H. Eichholz, Polo, Ill., assignor to Central Quality Industries, Inc., Polo, Ill.
Filed May 11, 1972, Ser. No. 252,476
Int. Cl. B65d *5/46*
U.S. Cl. 229—52 AM **9 Claims**

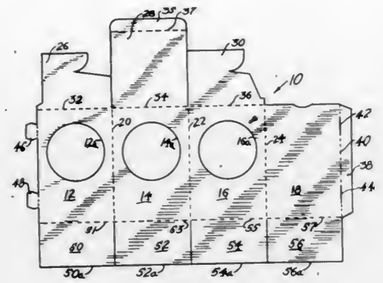


A carrying handle for cardboard cartons having two sets of opposed overlapping top flaps, including a base plate with four threaded studs equiangularly positioned on the base plate so that with the base plate appropriately positioned beneath the closed flaps each threaded fastener extends through aligned openings in two of the flaps, there being provided a top plate over the closed flaps with four apertures for receiving the threaded studs, with wing nuts on the studs for holding the plates together, and a carrying handle fixed to the top plate.

3,782,621
CARTON STRUCTURE

James N. Edgeington, Jr.; Edgar G. Lowrance, II, and Richard G. Odell, all of Albuquerque, N. Mex., assignors to IMS Corporation, Albuquerque, N. Mex.

Filed Dec. 27, 1971, Ser. No. 212,557
Int. Cl. B65d *13/04*
U.S. Cl. 229—23 A 4 Claims

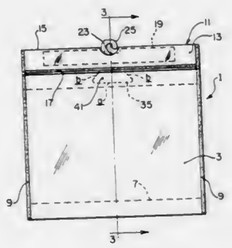


A carton structure particularly intended for use with a lamp bulb is formed of a carton blank of cardboard or other material to be folded along bend lines articulating first, second, third and fourth side wall panels as well as top and bottom flaps. Openings are formed in one or more of the side wall panels to allow visual display of the article contained therein. Bottom holding flaps are contiguous with the side wall panels and are turned upwardly into the carton and terminate at a common level in the carton to provide support edges therein. A bottom panel is inserted into the carton and rests upon the support edges formed by the bottom holding flaps and is held in place thereby. The bottom wall panel has peripheral portions thereof turned downwardly and inserted between the respective wall and upturned bottom holding flap. The transverse dimension of each flap is slightly larger than the transverse dimension of the space within the folded carton so that the flaps are firmly held in position by frictional force and the carton will provide a protective cushion housing around the article contained therein.

3,782,622
PLASTIC BAGS

Ray E. Montgomery, Terre Haute, Ind., assignor to Bemis Company, Inc., Minneapolis, Minn.

Filed Oct. 12, 1971, Ser. No. 187,943
Int. Cl. B65d *33/08*
U.S. Cl. 229—54 R 3 Claims

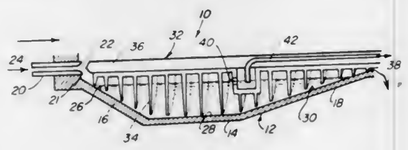


A plastic bag having a front wall and a back wall joined at the bottom, heat-sealed together at the sides, and open at the mouth, having a closure flap folded down at the bag mouth and heat-sealed at its ends together with the bag side seals. Finger hole means is provided in each of the front wall, the back wall and the closure flap whereby the bag may be carried by the hand with the fingers of the hand extending through all three of said front wall, back wall and closure flap. Also disclosed is a hem at the mouth of the bag receiving a stiffener extending transversely of the bag. The stiffener may have a hook for hanging the bag, or holes may be provided in the bag walls and closure flap for hanging the bag.

3,782,623
DECANTING CENTRIFUGE FOR DRAINING OFF WATER FROM SEWAGE SLUDGE

Jorgen Bye-Jorgensen, Humlebaek, and Gunnar Hartvig Larsen, Rungsted Kyst, both of Denmark, assignors to I. Kruger A/S, Copenhagen, Denmark

Filed June 3, 1971, Ser. No. 149,670
Claims priority, application Denmark, July 11, 1970, 703019
Int. Cl. B04b *1/20*
U.S. Cl. 233—7 8 Claims

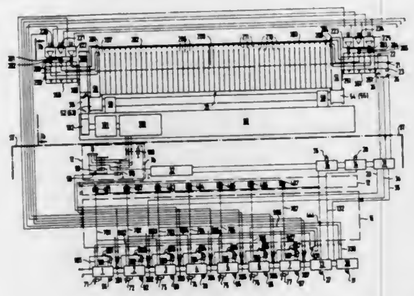


Decanting centrifuge for draining off water from sewage sludge, which centrifuge has a rotating bowl and helical walls rotating therein to scrape the sludge towards the end of the bowl to discard it. The rotating bowl has a conical entrance section in which the helical walls are provided, where the progression of the sludge through the conical section is retarded, the conical shape of the section being important to secure a gradual increase of velocity and to reduce any tendency to create turbulence.

3,782,624
SEPARATION OR EXTRACTION APPARATUS UTILIZING DISTRIBUTION OF SOLUTES BETWEEN IMMISCIBLE PHASES

Felix Gottfried Mueller, Basel, Switzerland, assignor to Ciby-Geigy AG, Basel, Switzerland

Filed Nov. 5, 1971, Ser. No. 195,916
Claims priority, application Switzerland, Nov. 9, 1970, 16533/70
Int. Cl. B04b *11/00*
U.S. Cl. 233—20 R 18 Claims

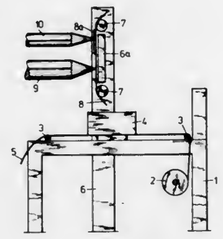


An apparatus is provided which makes use of the distribution of one or more solutes between two substantially immiscible liquid solvent phases to perform a separation or extraction. A cylindrical vessel, whose interior is subdivided by transverse partitions into a plurality of chambers each of which is in communication with its neighbours through a flow passage, is mounted for rotation with its axis horizontal. All the flow passages are located on the same side of a plane including the axis of the cylinder. Both the rotation of the vessel, and the operation of valves at the axially endmost chambers controlling supply of liquid to the vessel and withdrawal of liquid therefrom, are arranged to operate in response to a programmed control system. Supply and withdrawal of one phase at a time through the vessel can be made if the appropriate valves are opened at a time when that phase alone is presented to the flow passages in each chamber of the vessel.

3,782,625
METHOD FOR AUTOMATICALLY CONTROLLING THE PUNCHING OF CONTROL CARDS FOR MAKING PATTERNED TEXTILES IN CONFORMITY WITH A SAMPLE DESIGN

Johannes Bitterlich, Schlosstrasse 11, Erbach, Wurttemberg, Germany

Filed May 13, 1971, Ser. No. 143,094
Claims priority, application Germany, May 14, 1970, P 20 23 607.1
Int. Cl. G06k *1/02*
U.S. Cl. 234—2 3 Claims



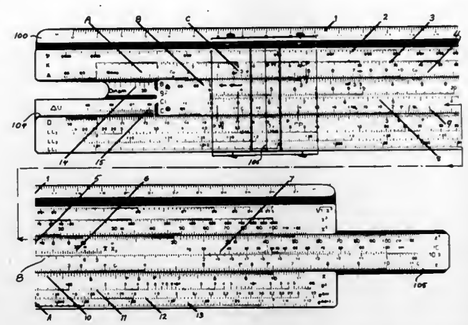
A method and apparatus for controlling the punching of control cards which are, in turn, employed for controlling weaving devices for the manufacture of colored patterned textiles. The pattern to be punched into the control card is set up on a design member in the form of adjacent transverse rows of areas which are individually colored in conformity with the desired pattern. A control member is also provided having at least vertical lines thereon spaced apart the same distance as a width of a respective area on the design member. The control and design members are fixed in position relative to each other and an optical scanning device is opposed to each with the devices mounted on a carriage moveable in the transverse direction of the control and design members. The optical device scanning the design member is only effective when the optical device scanning the control member passes over a line thereof and a punching device for the control card is punched in conformity with the detected color. The control member and the design member can be in the form of a unitary article, or they can be separate articles. After one transverse row of areas of the design member is scanned, the carriage returns to a starting position and at least the design member advances and the next row of areas is then scanned.

3,782,626
SLIDE RULE WITH IMPROVED CALCULATING CAPACITY

Iosif Hondrea, Rimisoara, Romania, assignor to Iprofil "-Technolemn"-Industria Produselor Finite Din Lemn Timisoara, Noembrie, Romania

Filed June 21, 1971, Ser. No. 154,745
Int. Cl. G06g *1/02*
U.S. Cl. 235—70 R 8 Claims

A slide rule with improved calculating capacity has, in addition to the A, B, C, D and related scales, a folded square scale BF whose origin π coincides with the left-hand indices 1 of the previously mentioned scales and which runs to the value 36 on

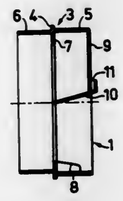


the slider. The balance of the length of the slider is provided with a centesimal trigonometric scale.

3,782,627
VALVE MEANS, PARTICULARLY AUTOMATIC WASTE GAS VALVE MEANS

Stellan Akesson, Narvagen 28, Jonkoping, Sweden

Filed Apr. 6, 1972, Ser. No. 241,626
Int. Cl. 110 *163*; 236 *101*; G05d *23/10*
U.S. Cl. 236—93 13 Claims



A temperature-responsive valve operated by bimetallic means for exhausting waste gases from a burner. To reduce the noise level of the valve, the inner surface of the valve casing is tapered in the direction of flow and the flow is regulated by a plate which intersects the center axis of the casing and has its free edge disposed at substantially the same angle as the tapered surface. The plane free edge, cooperating with the tapered surface in the form of a circular segment, provides a highly advantageous relationship with respect to the production of sound. As the temperature of the flow increases, the flow area is increased, the arrangement being such that a small deflection of the plate effects a great increase in the flow area. In the preferred embodiment, the plate itself is bimetallic whereas in an alternate embodiment, the plate is displaced angularly by a bimetallic element. Where the clearance space between the plate and the casing is problematical with respect to noise generation, the plate may be made rectangular and the sides of the casing where the plate engages may be parallel to one another.

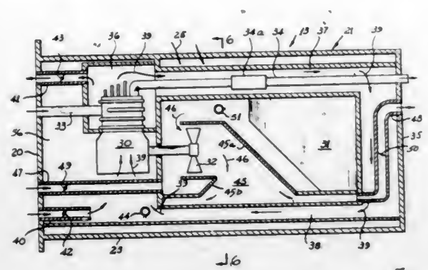
3,782,628
PORTABLE HEATING UNIT

Maurice Beaudet, St. Philippe de LaPrairie, Quebec, Canada, assignor to Galt Equipment Ltd., Candiac, Quebec, Canada

Filed Mar. 19, 1971, Ser. No. 126,114
Claims priority, application Great Britain, Mar. 20, 1970, 13,558/70
Int. Cl. B60h *1/22*
U.S. Cl. 237—12.3 C 5 Claims

A portable self-contained temperature controlling unit is removably inserted in a shipping container so that the con-

tents may be heated or cooled during shipment. In the instance of heating, the portable unit derives its heat output from the operation of an internal combustion engine which is embodied in the unit along with its fuel supply. The heating



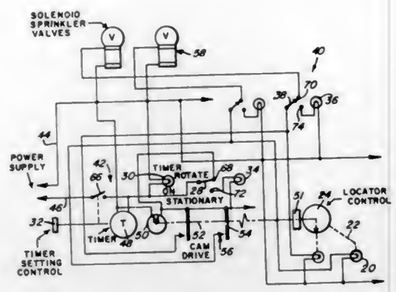
unit includes primary and secondary air circuits in heat exchange relation with each other, and connections of these circuits to outside air have thermostatically controlled valves arranged so that the heat output of the unit is regulated while the operating speed of the engine remains constant.

3,782,629
FLOW CONTROL IN ORNAMENTAL FOUNTAINS
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.
Division of Ser. No. 87,886, Nov. 9, 1970, Pat. No. 3,705,686.
This application Apr. 3, 1972, Ser. No. 240,675
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **6 Claims**

An ornamental fountain is comprised of a discharge nozzle and a mounting base through which water is supplied to the nozzle. Two pairs of water supply ducts communicate to a chamber within the base. One pair of ducts is coaxially aligned opposite each other diametrically of the chamber, and the other pair of ducts communicates tangentially of the chamber. Water for the fountain is supplied to the nozzle via either pair of ducts so that, depending upon the pair of ducts used, the fountain pattern has one or the other of two distinctly different aesthetic characteristics.

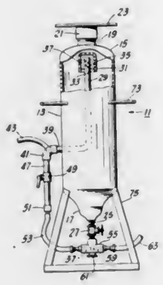
3,782,630
SPRINKLER CONTROL SYSTEM
William V. Sabo, 144 N. Sylvan Ave., Columbus, Ohio
Filed May 30, 1972, Ser. No. 257,526
Int. Cl. B05b *3/06*
U.S. Cl. 239—70 **8 Claims**

A plurality of irrigation sprinklers are sequentially operated for timed intervals by an electrical control system having a timing mechanism through which valve solenoids are energized. Selected solenoid circuits are opened by eliminator switches to bypass desired sprinkler locations during timed ir-



rigation cycles. Through a locator panel portion, the sprinklers in operation are identified and the operating period of desired sprinklers extended beyond the time interval.

3,782,631
SILICA WELDING APPARATUS
Albert T. Brockly, Lansing, Ill., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Filed June 21, 1972, Ser. No. 264,836
Int. Cl. B05b *7/16*
U.S. Cl. 239—85 **2 Claims**

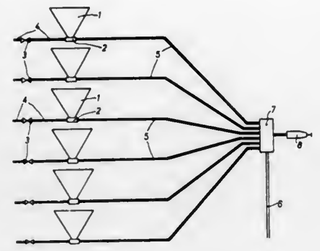


A novel apparatus includes a cylindrical canister in which internal piping carries a gas that pressurizes a quantity of silica, preferably sand, therein. A nozzle at the bottom of the canister receives the silica under control of a valve, and the oxygen flowing into the canister and through the nozzle carries the silica to a torch tip where the silica melts in an oxy-fuel flame burning thereat. The oxygen propels the molten silica into cracks and openings in need of filling for repairs.

3,782,632
POWDER SPRAY GUN FOR SPRAYING DIFFERENT COLOR POWDERS FROM A POWDER CHANNEL OF A SPRAY GUN
Franz Braun, Staad; Peter Ribnitz, and Willi Huber, both of St. Gallen, all of Switzerland, assignors to Gema AG Apparatebau, St. Gallen, Switzerland
Continuation-in-part of Ser. No. 198,816, Nov. 15, 1971, abandoned. This application Aug. 1, 1972, Ser. No. 277,082
Claims priority, application Switzerland, Aug. 2, 1971, 11345/71; Mar. 24, 1972, 4417/72
Int. Cl. B05b *7/02*
U.S. Cl. 239—112 **6 Claims**

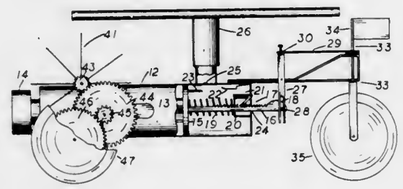
A powder spray gun for spraying different color powders from a powder dispensing channel of the spray gun, with a

connection mechanism possessing a number of connections at which there can be connected infeed conduits for different powder-conveying air-mixtures and flushing air and through the agency of which there can be delivered to the spray gun-powder dispensing channel a selected powder-conveying air-mixture for spray coating thereof and flushing air for cleaning of such spray gun. The connection mechanism comprises a connection element carrying the connections, this connection element containing for each connection a continuous substantially straight connection channel. The connection element



and the pistol body member containing the powder dispensing channel can be adjusted relative to one another in such a manner that the connection channels of the connection element can be connected by means of their outlet openings with the inlet opening of the powder dispensing channel in a certain sequence and with a given distribution of the infeed conduits for the powder-conveying air-mixture and the flushing air at the connections of the connection element the spray gun powder dispensing channel is flushed with flushing air during each color change.

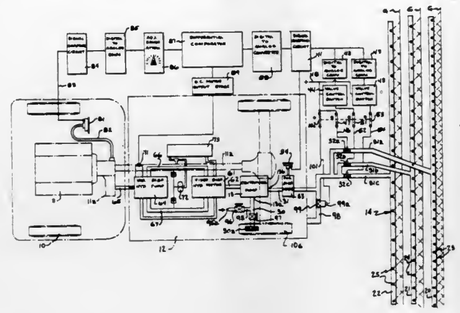
3,782,633
REMOTE CONTROLLED, SELF-PROPELLED LAWN SPRINKLER
Wladimir Nyc, 4411 San Jose Blvd., Jacksonville, Fla.
Filed May 13, 1971, Ser. No. 143,047
Int. Cl. B05b *3/18*
U.S. Cl. 239—191 **1 Claim**



A remote controlled, self-propelled lawn sprinkling device for attachment to a water hose, comprising drive means powered by a water vane and a hydraulic piston arrangement for changing the direction of said lawn sprinkler, which is controlled by opening and closing the water supply spigot at the other end of said water hose.

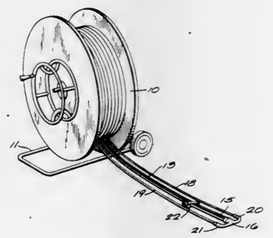
3,782,634
VEHICLE MOUNTED LIQUID DISTRIBUTOR APPARATUS
John R. Herman, Monroe Center, Ill., assignor to Swenson Spreader & Mfg. Co., Lindenwood, Ill.
Filed Dec. 15, 1972, Ser. No. 315,664
Int. Cl. B05b *9/06*
U.S. Cl. 239—156 **12 Claims**

A liquid distributor apparatus for use on a vehicle including a liquid product supply tank and a pump for pumping liquid from the tank to a spray bar system for spreading liquid product in a preselected width of spread along a path traversed by the vehicle. The rate of flow of liquid product from the spray bar system is varied with vehicle speed under the control of a vehicle speed sensor and a product flow meter which senses rate of flow of product to the spray bar system to



maintain a preset spread density independent of the speed of the vehicle. The spray bar system includes a plurality of spray bars each arranged to spread liquid over the same width of spread but at relatively different flow rates and the flow of liquid product to the several spray bars is controlled by the product flow meter to maintain the spray bar pressure within a preselected pressure range.

3,782,635
REVERSE FLOW LAWN SPRINKLER HOSE ASSEMBLY
Miecislaus Krawczyk, 3859 E. Whittaker, Cudahy, Wis.
Filed Oct. 11, 1972, Ser. No. 291,961
Int. Cl. A01q *25/00*
U.S. Cl. 239—199 **6 Claims**

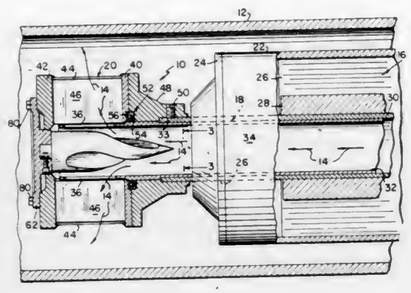


A flat lawn hose of the fine sprinkling type is normally attached with its inlet end to a length of conventional lawn hose. The present fine sprinkling hose is normally on a reel and has the inlet end thereof at the free end thereof and is flanked by a pair of hose elements terminating in a union which is centrally united with the free end of the fine sprinkling hose. The pair of hose elements are also wound on the reel and are coupled with the source of water. The user pulls out a selected length of fine sprinkler, affixes a hose clamp and only the selected length of fine sprinkling hose need be used and in its most convenient accessibility.

3,782,636
PIPELINING APPARATUS

Frank R. Donnelly, Rockaway, N.J., assignor to Spin Company, Newfoundland, N.J.

Filed Oct. 2, 1972, Ser. No. 294,014
Int. Cl. B05b 3/10
U.S. Cl. 239—216 5 Claims

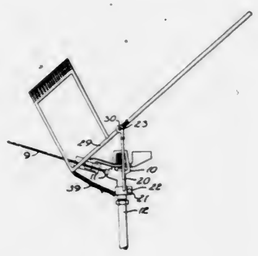


An apparatus is provided for coating the interior walls of a pipeline with a lining of cement mortar in which an annular rotating dispersion head is used for spraying the mortar against the pipe walls. A shaft formed with fluted slots is coaxially positioned with respect to the annular dispersion head in order to obtain a uniform dispersion of the mortar.

3,782,637
WIND-RESPONSIVE SPRINKLER REGULATOR

William H. Crumpacker, 1538 School Ave., Walla Walla, Wash.

Filed Jan. 22, 1973, Ser. No. 325,879
Int. Cl. B05b 3/08
U.S. Cl. 239—232 7 Claims

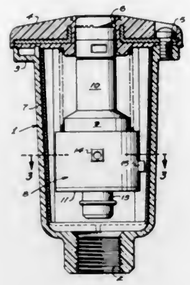


A screen is operatively connected to a transverse wind vane and pivoted with the vane about a horizontal axis relative to the vertical rotational axis of a rotatable sprinkler head having a nozzle forming a spray jet. The screen is pivotable across the nozzle in response to wind velocity, so that as the water jet faces into or against the wind, the screen is held clear of the spray allowing maximum trajectory of the spray jet against the wind. When the spray moves downwind, or in the same direction as the wind, the screen pivots into the spray jet to shorten its trajectory by dissipating the jet into small droplets. A substantially circular sprinkling pattern and thereby, even water dispersal may thus be maintained regardless of wind velocity or direction.

3,782,638
PART CIRCLE SPRINKLER

John Bumpstead, Glendora, Calif., assignor to Anthony Manufacturing Corp., Azusa, Calif.

Filed July 31, 1972, Ser. No. 276,695
Int. Cl. B05b 3/16
U.S. Cl. 239—242 12 Claims

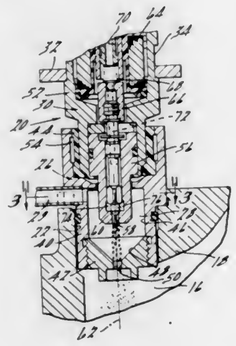


A part circle sprinkler having an internal reversible water motor which includes a water deflector movable between two positions and a reversing blade engaged by triggering fingers which are circumferentially adjustable from the exterior of the sprinkler.

3,782,639
FUEL INJECTION APPARATUS

Ronald R. Boltz, Oak Park, and William K. Ojala, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 17, 1972, Ser. No. 244,441
Int. Cl. B05b 1/34
U.S. Cl. 239—405 1 Claim

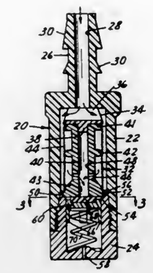


Apparatus for the injection of fuel into the intake manifold of an internal combustion engine is described. The apparatus includes an air-assist nozzle that has a chamber formed in it that includes an orifice for the discharge of air-atomized fuel. A fuel injector has a fuel discharge port positioned within the chamber of the air-assist nozzle. The air-assist nozzle has an air inlet to the chamber, and air which enters the chamber through the inlet mixes with the fuel discharged from the fuel injector producing an air-fuel atomized mixture which is discharged from the orifice of the air-assist nozzle.

3,782,640
VALVE MECHANISM FOR LIQUID APPLICATOR

John D. Kirschmann, 933 Anderson St., Bismarck, N. Dak.

Filed Mar. 1, 1972, Ser. No. 230,917
Int. Cl. B05b 9/06
U.S. Cl. 239—571 6 Claims

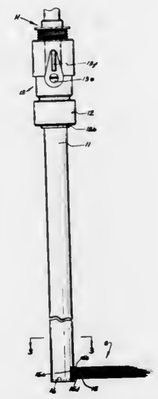


A flow control valve for a liquid applicator having and outlet port formed in a filter assembly in the valve housing and a valve element urged towards a normally closed position against the outlet port by a compression spring guided by a shiftable carrier which also serves as a retainer and carrier for the valve element. The filter assembly is attached by a quick-disconnect joint to a removable bottom plug having a base wall for the valve housing through which a discharge orifice of predetermined size extends.

3,782,641
APPARATUS FOR PRODUCING A LATERALLY DIRECTED SPRAY OF FLUID

Charles H. Springer, Rt. 1, Box 325, Alta Loma, Tex.

Filed May 30, 1972, Ser. No. 258,086
Int. Cl. B05b 1/04
U.S. Cl. 239—598 1 Claim

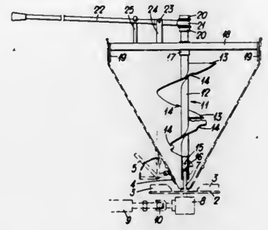


An elongate, rigid or semi-rigid tubular fluid conductor equipped with a fluid discharge opening at one end and a fluid inlet opening at the other end. A valve at the inlet end permits control of fluid flowing through the conduit and a removed wall section at the outlet end directs the fluid leaving the conduit laterally away from the conduit body. The outlet opening is positioned adjacent a planar end surface of the body and has lateral and longitudinal dimensions which bear a predetermined relationship to each other and to the dimensions of the flow passage extending through the conduit to provide the desired spray direction and configuration. The primary intended purpose of the apparatus is to provide a high velocity, laterally directed spray which may be directed countercurrent to the downwind direction of a heat exchange body or radiator to wash away insects and other debris clogging air flow through the radiating elements of the body.

3,782,642
BROADCASTING DEVICES

Alan Hall Trafford, 44 Wood St., Chatteris, England

Filed Dec. 20, 1971, Ser. No. 210,053
Claims priority, application Great Britain, Dec. 21, 1970, 60,607/70; Oct. 11, 1971, 47,271/71
Int. Cl. A01c 17/00
U.S. Cl. 239—683 13 Claims



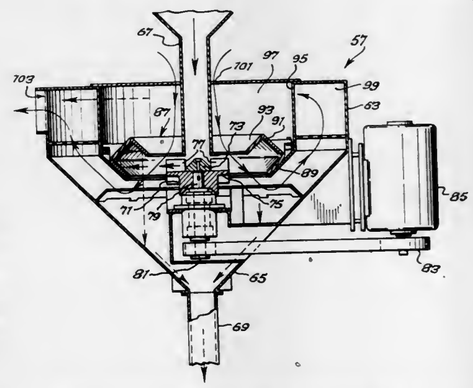
Broadcasting devices as used in agriculture and horticulture having a container and a rotary or oscillating distributor are fitted with a charge blender in the form of an upright modified Archimedean Screw driven by the distributor to lift, mix and blend charge material in the container so as to enable a charge of different particulate or powdered materials placed individually in the container to be blended into a homogeneous mix immediately prior to broadcasting.

The charge blender conveniently consists of a single-flight Archimedean Screw of upwardly increasing diameter and shaped, e.g. inclined or notched, so as to act as a low-efficiency auger when rotated in a mass of particulate material.

3,782,643
APPARATUS FOR CONDITIONING A GRANULAR MATERIAL

James H. Carpenter, Jr., Hagerstown, Md., assignor to The Carborundum Company, Niagara Falls, N.Y.

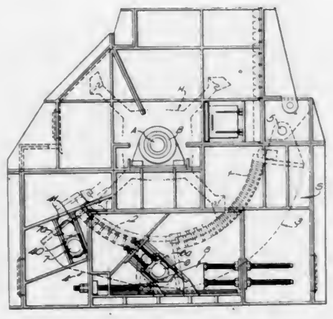
Continuation-in-part of Ser. No. 108,417, Jan. 21, 1971, Pat. No. 3,716,947. This application May 17, 1972, Ser. No. 253,945
Int. Cl. B02c 23/00
U.S. Cl. 241—60 12 Claims



In an apparatus for conditioning a granular matrial, a centrifugal throwing wheel projects the material radially against

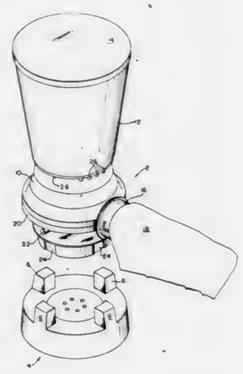
an impact surface which completely surrounds and is spaced from the periphery of the wheel. An air stream is moved between the impact surface and the periphery of the wheel so as to remove contaminants from the projected particles.

3,782,644
SLEDGER CRUSHER
Malcolm John MacMaster, and Kenneth John George MacMaster, both of Stourbridge, England, assignors to Frances & John S. Lane Limited, Brierley, England
Filed Dec. 17, 1971, Ser. No. 209,207
Claims priority, application Great Britain, Nov. 5, 1971, 51,553/71
Int. Cl. B02c *13/02*
U.S. Cl. 241—69 **11 Claims**



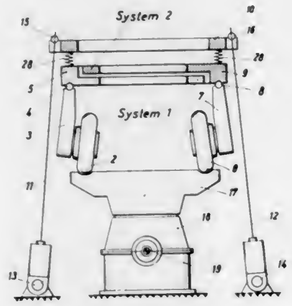
A crushing mill comprising a casing having a plurality of hammers mounted to revolve about a horizontal axis and within which casing cradles provided with grid bars whose position is adjustable in relation to the rotation path of the hammers, the cradles at their adjacent ends having a common fulcrum, the improvement in which means is provided for effecting adjustment of both cradles in unison by shifting the axis of the fulcrum inwardly or outwardly relative to the path of the hammers.

3,782,645
FLOUR MILL
Leroy V. Marteuson, 8141-7th Ave. S.W., Seattle, Wash.
Filed Nov. 17, 1971, Ser. No. 199,640
Int. Cl. B02c *7/14*
U.S. Cl. 241—100 **7 Claims**



A flour mill adapted to be used in conjunction with and capitalize upon the self contained motor of a household type blender or other removable motor base. The mill is designed to receive whole grain cereal in the upper portion of a hollow grinding chamber which has an abrasive coating upon its inner surface whereat the cereal is subjected to a combination of attrition and contact grinding before being expelled from the side of the housing into a proper receptacle. The mill further includes an adjusting mechanism whereby the consistency of the flour may be controlled.

3,782,646
ROLLER MILL OF THE EDGE RUNNER TYPE
Horst Brundiek, Rubenstrasse 26, Kaarst, Germany
Filed Apr. 28, 1972, Ser. No. 248,643
Claims priority, application Germany, May 18, 1971, P 21 24 521.6
Int. Cl. B02c *15/04, 15/14*
U.S. Cl. 241—117 **4 Claims**

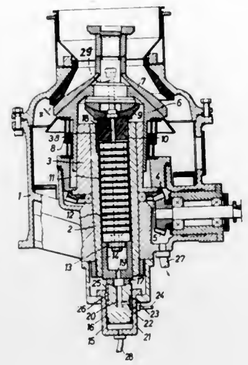


An edge runner type roller mill in which three rolls are adapted to cooperate with a grinding table, and spring or hydraulic loading means are provided for the rolls. A ring is arranged above the rolls for applying force to the rolls in accordance with a three point system, and a yoke serves for holding down the ring, with a second ring being arranged above or below the first-mentioned ring for loading three further rolls alternating with the first-mentioned rolls and adapted with them to cooperate with the grinding table.

3,782,647
GYRATORY CRUSHER WITH HYDRAULIC ADJUSTMENT OF THE CRUSHER
Hanns Decker, Cologne; Helmut Stockmann, Wesseling, and Heinz Hurtmanns, Cologne, all of Germany, assignors to Klockner-Humboldt Deutz Aktiengesellschaft, Cologne, Germany
Filed Feb. 29, 1972, Ser. No. 230,261
Claims priority, application Germany, Mar. 5, 1971, P 21 10 476.7; Apr. 21, 1971, P 21 19 223.4; June 26, 1971, P 21 31 901.7
Int. Cl. B02c *2/04*
U.S. Cl. 241—215 **5 Claims**

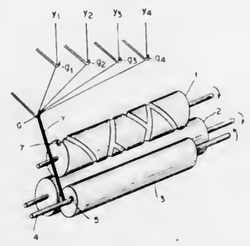
A gyratory crusher provided with hydraulic adjustment of the crusher gap is provided with a vertical stationary tubular shaft in which is slidably adjustably mounted a supporting shaft carrying at its upper end a segmental spherical bearing for rotatably supporting the crusher cone. The lower end of the supporting shaft carries a spring acting as overload safety device and the lower end of this spring engages a hollow cylindrical cup which is supplied from the exterior of the crusher with a lubricant which is conducted from the cup by a central longitudinal passage in the supporting shaft to said spherical bearing. A piston-cylinder unit engaging the lower end of the cup, preferably by use of a pressure member having one face

formed as a spherical bearing is supplied from the exterior with a hydraulic fluid so as to axially adjust the piston, the cylindri-



cal cup, the supporting shaft and the spherical bearing when the crusher cone and therewith the crusher gap is to be adjusted.

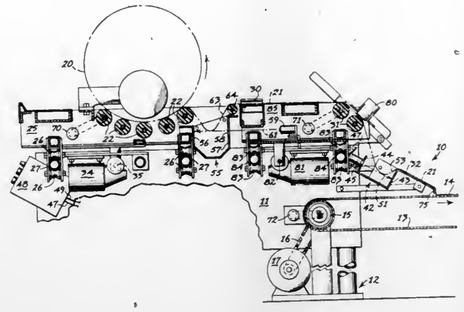
3,782,648
METHOD FOR WINDING A PLURAL NUMBER OF YARNS AND AN APPARATUS THEREFOR
Shoji Ito, Inazawa; Mitsuhiro Okamoto, Nagoya, and Katsumi Hasegawa, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Filed May 3, 1971, Ser. No. 139,510
Int. Cl. B65h *54/20*
U.S. Cl. 242—35.5 R **6 Claims**



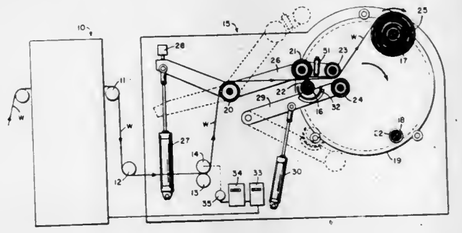
A method and an apparatus for feeding a plural number of yarns simultaneously to a single take-up drum without a time lag due to supplying the respective yarns one by one. A grooved drum having lateral helical traverse grooves with precisely angled intersection points receives a plural number of yarns from overhead fulcrum guides and winds them on respective laterally spaced portions of a take-up roll positioned beneath the drum.

3,782,649
TENSIONLESS CLOTH FEEDING APPARATUS FOR CLOTH SPREADING MACHINE
Cecil S. Frederick, Murfreesboro, and Hoyt L. Smith, Nashville, both of Tenn., assignors to Cutters Machine Company, Inc., Nashville, Tenn.
Filed Jan. 22, 1973, Ser. No. 325,446
Int. Cl. B65h *17/02*
U.S. Cl. 242—67.2 **12 Claims**

In a stationary cloth spreading machine adapted to spread cloth upon a laying surface movable away from the spreading machine, cloth feed control apparatus including radiant energy sensing means for sensing excessive tension in the cloth, without frictionally engaging the cloth, to produce a relatively tensionless cloth feed.



3,782,650
WEB WINDER CONTROL
Emerson B. Donnell, Jr., Neshanic, N.J., assignor to Egan Machinery Company, Somerville, N.J.
Filed Apr. 28, 1972, Ser. No. 248,713
Int. Cl. B65h *35/04, 19/26*
U.S. Cl. 242—56.8 **4 Claims**

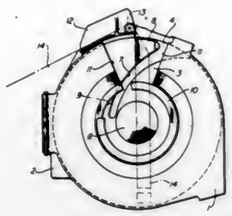


Apparatus and method for controlling the operation of continuous web perforating and winding machines, especially of the type used to manufacture plastic bags and automatically wind the bags into small rolls for consumer use. The invention provides means of winding a specified number of bags into each roll and severing the perforated plastic web at a line of perforations at a position suitable for automatically transferring the leading end of the web to a winding spindle.

3,782,651
FACILITY FOR ANCHORING RIBBON TO A SPOOL IN A HOLDER
Hans-Georg Hengelhaupt, Nuremberg, and Friedrich Teichmann, Feucht, both of Germany, assignors to Triumph Werke Nuernberg A.G., Nuernberg, Germany
Filed Jan. 21, 1971, Ser. No. 108,419
Claims priority, application Germany, Jan. 22, 1970, P 20 02 703.6
Int. Cl. B65h *75/28*
U.S. Cl. 242—74 **6 Claims**

A normally frictionally driven carbon ribbon take up spool rotatively supported within a machine mounted holder is provided with a curved slot in an outer flange which extends from the spool core to its periphery in the direction of rotation of the spool. The flange adjacent to the peripheral portion of the

slot is off-set outwardly to catch and draw a guided ribbon held in its path down to and to wind it on the core. The torque of the frictional drive effective on the spool and the turning moment prevalent at the root of the spool slot, are such that several ribbon winding turns on the spool core can be accomplished before the frictional drive slips.



3,782,652

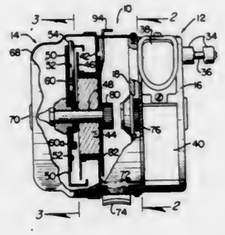
COMBINATION SPINNING AND FLY CASTING REEL

Charles T. Funayama, 2519 S. Brentwood, Denver, Colo.

Filed Mar. 9, 1972, Ser. No. 233,222

Int. Cl. A01k *89/00*

U.S. Cl. 242—84.1 R **4 Claims**



Combination spinning and fly casting reel characterized by a single action rotatable fly line spool, a stationary spinning line spool, a rotatable bail adjacent the stationary spool, disconnectible gearing disposed between the fly line spool and bail, a member carried by the bail adapted to engage or disengage the spinning line in response to relative rotation between the gearing and the bail, and an adjustable friction drag disposed between the fly line spool and the stationary reel body. In the fly casting mode with the gearing disconnected, the fly line reel rotates independently. In the spin reeling mode, with the gearing connected, rotation of the fly line spool rotates the bail.

3,782,653

WEB TENSION CONTROL APPARATUS

Graham Robin Scott Jones, Thornbury, near Bristol, England, assignor to Masson Scott Thrissell Engineering Limited, Bristol, Great Britain

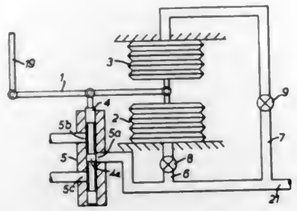
Filed Mar. 20, 1972, Ser. No. 235,958

Claims priority, application Great Britain, Mar. 20, 1971, 7,900/71

Int. Cl. B65h *25/18, 25/04, 25/22*

U.S. Cl. 242—75.43 **16 Claims**

A travelling web being wound onto or unwound from a reel has its tension sensed by a dancer roll in a web loop, and the position of the dancer roll is used to control the drive or brake system of the reel to maintain the tension uniform. With pneumatic control, a valve in the air line is actuated by the dancer roll to increase or decrease the supply, and in addition there is feedback from the air line to operate devices which restore the valve to its median position. These devices act in opposition, one acting faster than the other to cause the initial restoration movement. There is a resultant phase difference between dancer roll movement and valve actuation, which can be further modified by interposition of a mechanical phase shifting device between the dancer roll and valve.



3,782,654

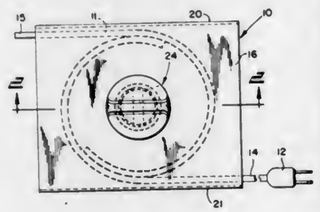
POWER CORD SLACK TAKEUP REEL

Joseph Kasa, 3615 Rocky River Dr., Cleveland, Ohio

Filed Sept. 13, 1971, Ser. No. 179,855

Int. Cl. B65h *75/34*

U.S. Cl. 242—100.1 **7 Claims**



An article of manufacture for storage of electric power cords and the like and for removal of excess slack therein for safety and aesthetic purposes consisting of a semi-rigid plastic housing having a winding shaft releasably secured therein with a plate retained by the shaft, dividing the housing into upper and lower sections, the electric cord adapted to be passed through the housing and to be wound about the shaft in adjacent coils of concentric turns. Another embodiment of the invention is in a single coil layer form with slightly greater dimensions to accommodate substantially the same length of wire slack.

3,782,655

WARP BEAM FLANGE

Werner Moser, Menziken; Paul Buchi, Gontenschwil, and Peter Weber, Menziken, all of Switzerland, assignors to Aluminium AG Menziken, Menziken, Switzerland

Filed Nov. 29, 1971, Ser. No. 202,878

Claims priority, application Switzerland, Dec. 3, 1970, 17870/70

Int. Cl. B65h *75/14*

U.S. Cl. 242—118.5 **10 Claims**

A warp beam flange having a hub and a supporting ring rigidly connected to the bore of the hub. A clamp ring is mounted in a cavity of the hub and movable in axial direction by screws extending in axial direction. The supporting ring and the clamping ring are screw threaded and arranged to mate with a corresponding screw thread on a warp beam, so as a relative axial movement between the clamp ring and the supporting ring causes a clamping action on the warp beam.



3,782,656

DRIVING DEVICE FOR OPPOSITELY ROTATING TONE SHAFTS OF A SOUND RECORDING DEVICE

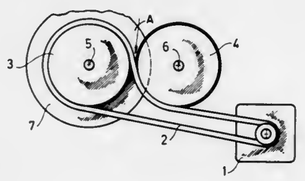
Werner Broghammer, Tennenbronn, Germany, assignor to Firma Dual Gebruder Steidinger, Georgen/Black Forest, Germany

Filed June 21, 1972, Ser. No. 264,837

Claims priority, application Germany, June 22, 1971, P 21 30 751.7

Int. Cl. B11b *15/32*; **G03b** *1/04*

U.S. Cl. 242—201 **2 Claims**



A driving device for the tone shafts of a sound recording device which comprises a motor, a first tone shaft, and a flywheel-mass disposed coaxially to the first tone shaft and operatively connected therewith. A first belt pulley is disposed coaxially to the first tone shaft and likewise operatively connected therewith. A second tone shaft has an axis substantially parallel to the axis of the first tone shaft. A second belt pulley is disposed coaxially to the second tone shaft and operatively connected therewith, as well as having its periphery close to the periphery of the first belt pulley. An elastic belt driving the first belt pulley and the second belt pulley by means of the motor in opposite directions, and the elastic belt has such height, that the portion of the belt disposed between both belt pulleys is not pressed together by the belt pulleys, yet runs freely for such short path, that the longitudinal elasticity being so small, not to exert a disturbing influence on the uniformity of the rotary speed of the second tone shaft during the operatively occurring load fluctuations of the second tone shaft.

3,782,657

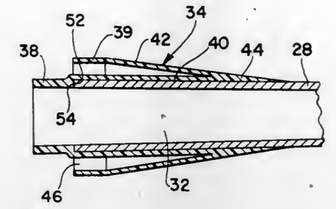
BOBBIN

John Nelson, North Kingston, R.I., assignor to Leesona Corporation, Warwick, R.I.

Filed May 21, 1971, Ser. No. 145,753

Int. Cl. B65h *75/28, 75/10*

U.S. Cl. 242—125.1 **8 Claims**



A yarn collecting bobbin comprising an elongated, tapered tube having a frusto-conical skirt affixed thereto is disclosed. The skirt encircles generally the base section of the bobbin, with a relatively short extension from the tube projecting beyond the lower end of the skirt. The skirt is firmly secured to the tube by any of several different techniques and is notched so as to entrain a yarn end adjacent thereto and commence winding of yarn on the bobbin.

3,782,658

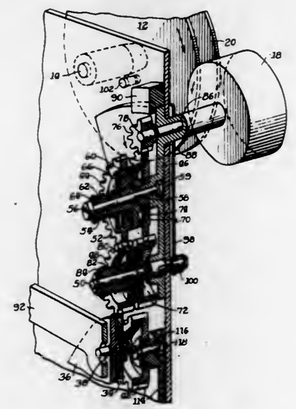
REEL DRIVE

Nicholas Mischenko, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed May 12, 1972, Ser. No. 252,893

Int. Cl. G03b *1/04*; **G11b** *15/32*

U.S. Cl. 242—192 **14 Claims**

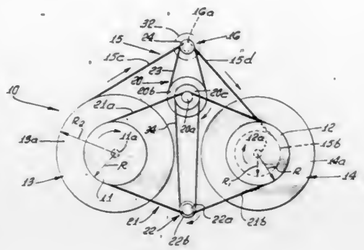


A reel drive for a movie projector having a roller supported for movement from an ineffective position to a reel flange driving position, a first rotatable drive including a gear and a friction member resisting rotation of the gear for moving the roller into engagement and holding the engagement with the reel flange and a second rotatable drive for rotating the roller while in engagement with the reel flange for winding film on the reel.

3,782,659
TAPE TRANSPORT DUAL REEL DRIVE FROM SINGLE CAPSTAN

Frank C. Bumb, Jr., San Gabriel, Calif., assignor to California Data Machines, Van Nuys, Calif.

Filed Mar. 6, 1972, Ser. No. 232,139
Int. Cl. B11b 15/32; G03b 1/04
U.S. Cl. 242—201 9 Claims

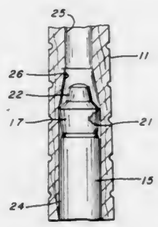


A tape transport comprises first and second rotary elements for respectively rotating carriers for tape rolls between which the tape is to be transported; a rotary capstan unit engageable by the transported tape; and means including belting operatively connected in driven relation with the capstan unit and driving relation with the rotary elements for effecting driving of the carriers at speeds characterized in that the tape being transported onto one of the rolls, and also the tape transported off the other roll, is maintained in tension.

3,782,660
TEXTILE SPINDLE

Donald L. Blake, Campton, N.H., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sept. 29, 1971, Ser. No. 184,705
Int. Cl. B65h 54/44, 75/30
U.S. Cl. 242—46.21 3 Claims



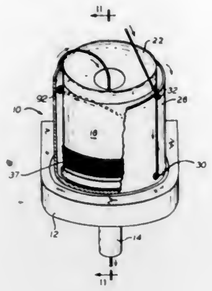
A textile spindle adapted to support a bobbin for rotation while building a yarn package thereon having a replaceable driving bushing on the spindle blade for maintaining the bobbin in driving relation with the spindle.

3,782,661
FILAMENT FEEDING AND STORAGE DEVICE

Jose Castillo Deniega, Elmhurst, and Edward M. Tellerman, Woodmere, both of N.Y., assignors to Wesco Industries Corporation, Plainview, N.Y.

Continuation-in-part of Ser. No. 184,527, Sept. 28, 1971. This application Dec. 21, 1971, Ser. No. 210,492
Int. Cl. B65h 51/20
U.S. Cl. 242—47.12 2 Claims

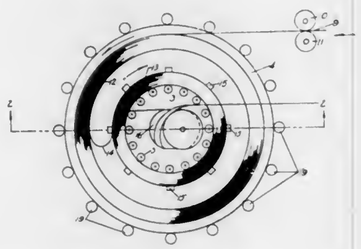
There is disclosed a device for feeding a filament from a supply thereof to a machine wherein said filament may be used for knitting, weaving or spooling. A storage drum is fixedly mounted at one end thereof to a frame member. The filament is guided in a first direction, from a supply thereof to a position adjacent said one end of the drum, where it is wound about the drum to form a plurality of windings which advance in a second direction, opposite to said first direction, toward the other end of the drum. The filament is drawn off the drum in said second direction to the other end of the drum, where it reverses direction and travels through an internal passage in the drum, in said first direction, and through an aperture in the frame member, toward the machine requiring said filament, whereby the device operates as a storage feeder. Alternately, the filament may be unwound from the drum at the same rate as it is wound in which case the device operates as a positive feeder.



3,782,662
SIMPLIFIED STRIP ACCUMULATION

George D. Miller, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Feb. 24, 1971, Ser. No. 118,322
Int. Cl. B65h 17/42, 17/48
U.S. Cl. 242—55 13 Claims

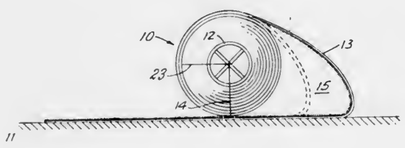


A simplified strip accumulating system of the type wherein a length of strip is formed into a storage coil composed of an inner set of convolutions and an outer set of convolutions interconnected by a free reverse loop extending between and joining the outermost convolution in the inner set and the innermost convolution in the outer set, whereby the reverse loop will orbit freely in opposite directions between the said sets of convolutions as they are rotated, strip being withdrawn from the inside of the innermost set of convolutions upon rotation of said inner set in one direction, and additional strip being added to the outside of the outer set of convolutions upon rotation of said outer set in the opposite direction, the strip being supported on one edge on a horizontally disposed supporting surface with the inner set of convolutions built-up around an inner roll cage, the outer set of convolutions being formed on a moving supporting surface adapted to impart rotary motion to the strip being coiled, the moving support for the outer set of convolutions being driven in timed relation to the feeding speed of the strip being accumulated, the diameter of the innermost convolution in the outer set being established by the relationship between strip feeding speed and rotational speed of the moving support, thereby providing a free-formed outer set of convolutions to the elimination of an outer roll basket and roll adjusting mechanism heretofore employed to form and support the outer set of convolutions in the storage coil.

3,782,663
ARTIFICIAL ROLL-UP FIELD

William W. Stevenson, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 22, 1972, Ser. No. 237,144
Int. Cl. B65h 19/02
U.S. Cl. 242—55 6 Claims

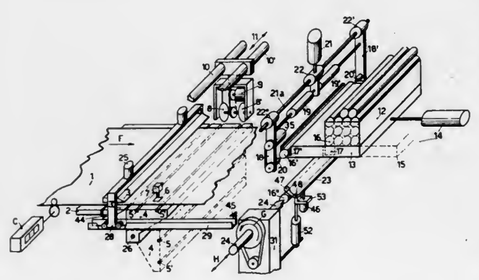


An artificial surface capable of being rolled and unrolled is formed with flexible strips which prevent damage to the surface when said surface is unrolled over a supporting substrate.

3,782,664
AUTOMATIC MACHINE FOR FORMING ROLLS OF PIECE-FABRICS HAVING A PRE-ESTABLISHED LENGTH AND DISCARDING OF DEFECTIVE FABRIC

Pietro Alberto, Via Lamarmora, 16, Biella, Italy

Filed Feb. 25, 1972, Ser. No. 229,427
Claims priority, application Italy, Feb. 27, 1971, 21138 A/71; Feb. 9, 1972, 20368 A/72
Int. Cl. B65h 19/26
U.S. Cl. 242—56 R 18 Claims

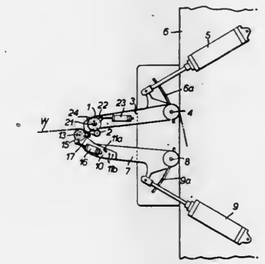


A machine for the automatic formation of rolls of piece-fabrics having a pre-established length is provided with a winding up device, a plane on which the fabric is fed, a cutting device actuated by sensor means responsive to signals applied to the fabric or to a counting device, gripper means adapted to seize therebetween the fabric after the cutting operation and carry it to the winding up device, a feeder of cardboard tubes which are the core of the rolls, said feeder comprising means adapted to unwind a sheet of paper from each tube and means for positioning thereafter the tube on the winding up device so that the end of fabric drawn by said gripper means, held between the tube and the unwound sheet of paper, is the origin of a new roll of fabric. An automatic device for discarding the defective fabric is also provided, when the beginning and the end of each defective length of fabric is indicated by previously applied signals. The above mentioned cutting device carries out two cutting operations and the two fabric edges are then joined together by overlapping and the winding up of the roll continued. A device for counting the length of defective fabric is also preferably provided.

3,782,665
WINDING OF CONTINUOUS WEBS OF SHEET MATERIAL

Graham Archie Bruce Byrt; Adrian Tuckwell Rosevear, and William Frank Clarke, all of Bristol, England, assignors to Masson Scott Thrissell Engineering Limited, Bristol, England

Filed Feb. 7, 1972, Ser. No. 224,070
Claims priority, application Great Britain, Feb. 5, 1971, 4,045/71
Int. Cl. B65h 19/26
U.S. Cl. 242—56 R 7 Claims



Apparatus for transferring a continuous web of sheet material being wound onto a fresh core employs a rider roll to press the web as it runs onto the new core and a guide roll to retain the web against the core circumferentially well downstream of the rider roll so that the web is wrapped around a major portion of the circumference. A cutter and transfer device are operable to cut the web between the core and the guide roll and urge the new leading end of the web onto the core.

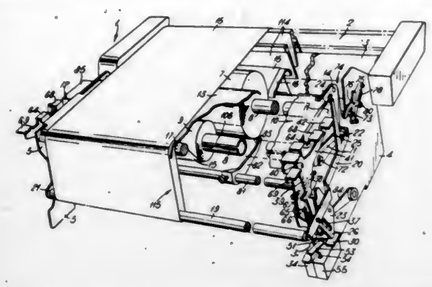
3,782,666
RE-WINDING DEVICE FOR THE PAPER FOR TELEPRINTER MACHINES AND PRINTING MACHINES IN GENERAL

Bruno Sandrone, and Antonio Toniolo, both of Ivrea, Italy, assignors to Ing. C. Olivetti & Co. S. p. A., Ivrea (Torino), Italy

Filed July 2, 1971, Ser. No. 159,273
Claims priority, application Italy, July 3, 1970, 69300 A/70
Int. Cl. B65h 25/04, 25/14
U.S. Cl. 242—67.2 16 Claims

A device for rewinding the paper strip on a teleprinter machine is disclosed, including a motor driven rewinding roller and motor control means sensitive to the length of a portion of the paper strip comprised between the rewinding roller and the teletype's printing roller to intermittently rotate the rewinding roller and so wind up the paper. The changing

length of the paper strip portion causes oscillation of a lever coupled to a switch which turns the motor on or off depending



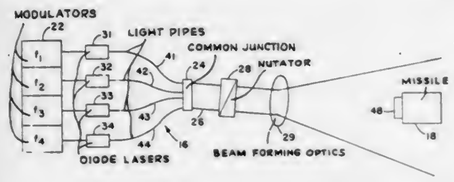
on the length of the strip portion. Means are also provided to monitor the diameter of the feed strip roll.

3,782,667

BEAMRIDER MISSILE GUIDANCE METHOD

Walter E. Miller, Jr.; Teddy J. Peacher; Jimmy R. Duke, and Robert L. Sitton, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 25, 1972, Ser. No. 275,014
Int. Cl. F41g 7/00; F42b 15/02
U.S. Cl. 244—3.13 9 Claims
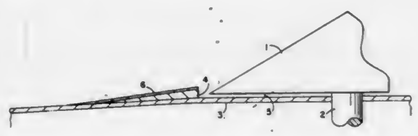


In the improved beamrider guidance an optical beam is electronically modulated and transmitted toward a target. A missile is launched into the beam path and is caused to automatically seek the center of the beam as it flies toward the target. The transmitted beam is spatially encoded to provide guidance signals which the missile automatically responds to in seeking the center of the beam. The beamrider missile does not require tracking or correctional guidance from an external source as it generates its correctional commands internally from the beams's spatial encoding. The missile is immune to optical countermeasures, being within the narrow corridor of the beam and responsive only to the encoded intelligence in the beam for seeking or maintaining flight along the beam center.

3,782,668

RAMP FORWARD OF CONTROL FIN

Robert R. Womack, and Franklin D. Stooksberry, both of Los Angeles, Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 25, 1970, Ser. No. 75,661
Int. Cl. F42b 15/16, 13/32
U.S. Cl. 244—3.24 3 Claims



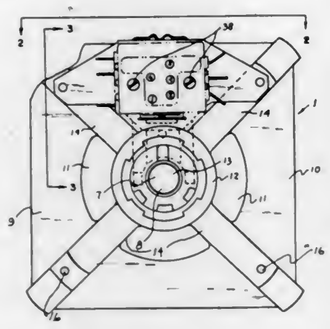
In a missile, a small ramp structure is installed forward of each aerodynamic control fin to deflect reduce air and particle flow away from the gap between the missile body and a control fin therefor.

3,782,669

CENTRIFUGAL ACTUATED MECHANISM WITH SEPARABLE MOUNTING BRACKET

John G. Lewis, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis County, Mo.

Filed Mar. 10, 1972, Ser. No. 233,580
Int. Cl. H01h 3/16, 15/14, 17/12
U.S. Cl. 248—14 14 Claims



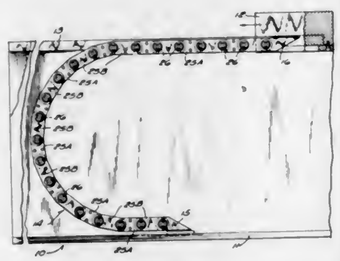
A mounting bracket assembly is provided for mounting peripheral equipment to an electric motor. The bracket is suited particularly for use with various motor types where a stator assembly and rotating member are supported by bearings fitted along end shield structures. More specifically, the bracket is advantageous where an electrical switch and motor protector are preassembled to it. The bracket thereafter is attached to the electric motor, and may be removed easily if the motor fails for any reason.

3,782,670

CARRIER LINK MECHANISM FOR FLEXIBLE SUPPLY LINES

Ervin J. Kielma, Milwaukee, Wis., assignor to A & A Manufacturing Company, Inc., New Berlin, Wis.

Filed Feb. 10, 1972, Ser. No. 225,240
Int. Cl. F16l 3/00
U.S. Cl. 248—51 7 Claims



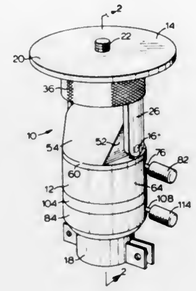
A series of links designed to provide limited articulated movement while supporting flexible supply lines, with each link having a cam portion adjacent its pivot point which engages the cam surface of a pivot pin to limit pivotable movement therebetween and maximum pivotable movement with the adjacent link mounted on the same pivot pin.

3,782,671

CAMERA MOUNT

Godwill M. Igwe, 180 Queen Mary Rd., Apt. 708, Kingston, Ontario, Canada

Filed June 16, 1972, Ser. No. 263,550
Int. Cl. F16m 11/12
U.S. Cl. 248—183 8 Claims



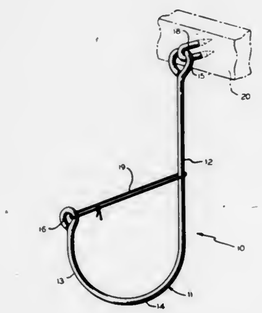
A camera mount includes a camera mounting surface onto which the mounting fitting of the camera may be locked or from which it may be released by projection and retraction of a threaded spindle by use of a novel gearing arrangement.

3,782,672

STORAGE HOOK

Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson, Co., Sterling, Ill.

Filed Apr. 5, 1971, Ser. No. 131,057
Int. Cl. F16m 13/00
U.S. Cl. 248—302 1 Claim



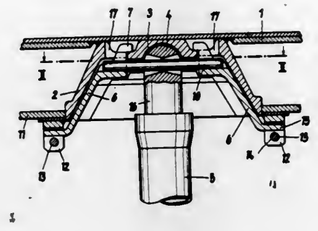
A storage hook is J-shaped and has two rings respectively on the outer ends thereof. A staple or an eye is mounted on a support such as a rafter or the like, and is interconnected with the ring on the longer leg of the hook, to enable an article to be carried by the hook. The other ring may have a string or wire extending therethrough and around the longer leg of the hook to retain the article in place thereon.

3,782,673

CONNECTING MEANS BETWEEN A SUPPORT CAP AND A PROP HEAD

Diethard Wehrens, Sythen, Germany, assignor to Klockner-Werke Aktiengesellschaft, Duisburg, Germany

Filed Mar. 1, 1972, Ser. No. 230,604
Claims priority, application Germany, Mar. 5, 1971, P 21 10 497.2
Int. Cl. E21d 15/00
U.S. Cl. 248—357 2 Claims



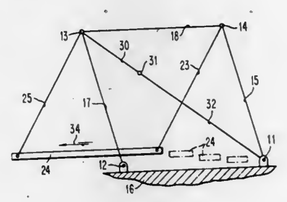
Means for establishing a connection between a support cap and a prop head for pit props of the type used in the mining industry, the support cap comprising a bar or the like supporting an upper bed such as a hanging wall or roof of the mine, and the pit prop constituting a hydraulic cylinder with its ram, or prop head, bracing against the support cap, the connecting means comprising a pair of securing elements releasably fixed to the outer free end of the ram and releasably fixed to the support cap.

3,782,674

KINEMATIC EXTENSIBLE TRUSS MECHANISM

Roy Richard Smith, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,319
Int. Cl. F16m 13/00; E01d 15/00
U.S. Cl. 248—370 11 Claims

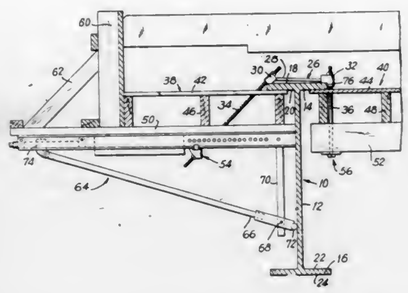


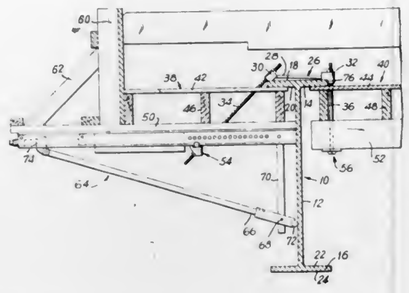
A kinematic extensible truss mechanism comprising a first set of truss members arranged in a parallelogram with pivots at each of the junctures of the truss members, and a second set of truss members arranged in a parallelogram with pivots at each of the junctures of the second set of truss members. Two of the pivots of the first set coincide with two of the pivots of the second set, and at least one rigid extension projects from one of the truss members of the second set substantially at right angles thereto. An arm is pivotally connected to the rigid extension and connected for rotation to a pivot of the first set of truss members which is not common to the first and second set of truss members. In this manner movement of one of the truss members of one of the sets relative to another member of the other of the sets maintains parallelism of the one truss member to the other when relative motion occurs in a first direction, and results in an elevation of the one relative to the other when relative motion occurs in the opposite direction.

3,782,675
CONCRETE SUPPORTING FORM AND A HANGER THEREFOR

Martin William Boll, and Robert Murray MacRobbie, both of New York, N.Y., assignors to Richmond Screw Anchor Co., New York, N.Y.

Division of Ser. No. 23,844, March 30, 1970, abandoned. This application Dec. 17, 1971, Ser. No. 209,271
Int. Cl. E04g 17/16
U.S. Cl. 249—23 6 Claims





Concrete forms are provided comprising an I-beam including a web and upper and lower flanges on the web. The flanges each have side edges and upper and lower surfaces between the edges. A hanger is supported on the upper surface of the upper flange. This hanger includes a strut which traverses the upper flange and also includes first and second U-shaped brackets straddling and connected to the strut at the ends thereof. The brackets have lower surfaces resting on the upper surface of the upper flange. One bracket is internally provided with a rectilinear receptacle extending at an acute angle to the upper surface of the upper flange and in a direction which is down and outward of the corresponding flange edge. This acutely disposed receptacle may also be perpendicular to the flange. The second bracket includes a portion extending below the upper surface of the upper flange and being engaged against the corresponding edge of the upper flange. This portion is provided with a rectilinear receptacle perpendicular to the upper flange and offset from the corresponding edge thereof. Concrete supporting members extend outwardly from the web and engage against the lower surface of the upper flange. Bolts extend through the aforesaid receptacles and concrete supporting members and locking means are provided on the bolts to hold the concrete supporting members in position. The hanger can be provided, in accordance with one embodiment, with a further U-shaped receptacle supported on an L-shaped arm connected to the aforesaid strut. The strut is preferably arranged at an angle to the supporting flange.

3,782,676
CONCRETE SUPPORTING FORM AND A HANGER THEREFOR

Martin William Boll, East Rockaway, and Robert Murray MacRobbie, Seaford, both of N.Y., assignors to Richmond Screw Anchor Co., Bronx, N.Y.

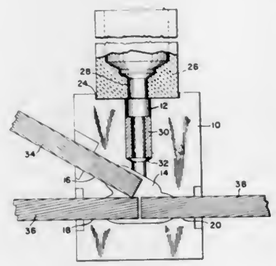
Continuation of Ser. No. 23,844, March 30, 1970, abandoned. This application May 15, 1972, Ser. No. 253,596
Int. Cl. E04g 17/16
U.S. Cl. 249—23 10 Claims

Concrete forms are provided comprising an I-beam including a web and upper and lower flanges on the web. The flanges each have side edges and upper and lower surfaces between the edges. A hanger is supported on the upper surface of the upper flange. This hanger includes a strut which traverses the upper flange and also includes first and second U-shaped brackets straddling and connected to the strut at the ends thereof. The brackets have lower surfaces resting on the upper surface of the upper flange. One bracket is internally provided with a rectilinear receptacle extending at an acute angle to the upper surface of the upper flange and in a direction which is down and outward of the corresponding flange edge. This acutely disposed receptacle may also be perpendicular to the flange. The second bracket includes a portion extending below the upper surface of the upper flange and being engaged against the corresponding edge of the upper flange. This portion is provided with a rectilinear receptacle perpendicular to the upper flange and offset from the corresponding edge thereof. Concrete supporting members extend outwardly from the web and engage against the lower surface of the upper flange. Bolts extend through the aforesaid receptacles and concrete supporting members and locking means are provided on the bolts to hold the concrete supporting members in position. The hanger can be provided, in accordance with one embodiment, with a further U-shaped receptacle supported on an L-shaped arm connected to the aforesaid strut. The strut is preferably arranged at an angle to the supporting flange.

3,782,677
CABLE AND LIKE SPLICING APPARATUS

Leonard Gelfand, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio

Filed Apr. 5, 1971, Ser. No. 131,069
Int. Cl. B22d 19/04
U.S. Cl. 249—97 2 Claims

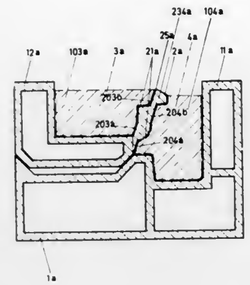


A graphite mold for use in joining cable parts having a weld cavity in which the component parts are received, a sprue opening for induction of molten metal into the cavity to join the parts, and a thermal insulation sleeve within the sprue opening for minimizing heat transfer between the molten metal and the graphite mold.

3,782,678
APPARATUS FOR MAKING PAIRS OF PROFILED INTERFITTING FRAMES OF PLASTIC

Hans Thams, Ellernreihe 64/5, Hamburg, Germany

Filed Apr. 29, 1971, Ser. No. 138,726
Claims priority, application Germany, May 4, 1970, P 20 21 740.7
Int. Cl. B28h 7/24
U.S. Cl. 249—129 3 Claims

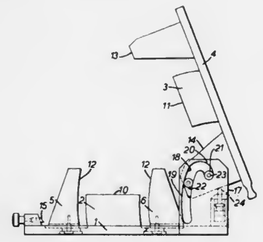


Profiled interfitting pairs of frames of plastic material, such as sash frames and window wings, door frames and doors, or the like, which are provided with interengaging sealing surfaces separating the pair of frames from each other, are cast in a single working step in a common mold which is subdivided into two mold cavities for the pair of frames by mounting a separating member within the mold having complementarily shaped side surfaces defining snugly interengaging sealing surfaces of the completed pair of frames.

3,782,679
SPLIT MOULD WITH HINGED UPPER PART

John David Ward, Worcester, England, assignor to Precision Engineering (Worcester) Limited, Worcester, England

Filed July 15, 1971, Ser. No. 162,848
Int. Cl. B22d 33/04
U.S. Cl. 249—170 3 Claims



A carrier for a split mould comprises separable parts brought together in accurate alignment by a coupling linkage providing relative movement along a path of radius of curvature large compared to the dimensions of the mould parts and the linkage, thereby avoiding long radius arms.

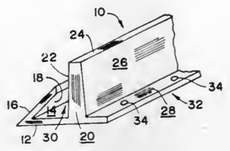
The linkage may comprise a pin-and-slot connection, with spaced pins or rollers running in an arcuate slot. The slot may be extended in a hook shape to hold the parts open. The opening movement may be cushioned to reduce shock on the pin-and-slot connection.

The mould carrier is applicable, for example, to moulding the root and peripheral profiles of compressor, turbine and fan blades.

3,782,680
CHAMFER STRIP

David L. Hopkins, 506 McLeod Rd., Hartsville, S.C.

Filed Oct. 8, 1971, Ser. No. 187,708
Int. Cl. B28b 7/28
U.S. Cl. 249—188 3 Claims

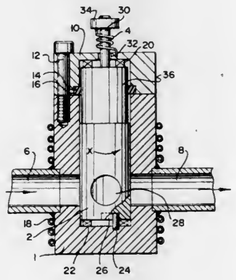


A strip of plastic, or the like material, used for locating a concrete form in the construction of a monolithic slab and beam construction.

3,782,681
THERMALLY ACTUATED AND THERMALLY SEALED VALVE

Frederick Paul Blackstein, Chalk River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed May 8, 1972, Ser. No. 250,873
Claims priority, application Canada, Aug. 11, 1971, 120299
Int. Cl. F16k 31/02
U.S. Cl. 251—11 5 Claims



A thermally actuated and thermally sealed valve wherein a plug cock is a shrink fit within a casing, and the plug cock is urged in the operative direction by, say, a torsion spring or two electromagnets. Thermally expanding the casing and/or contracting the plug cock causes the casing to release the plug cock so that it is moved to either open or close the valve.

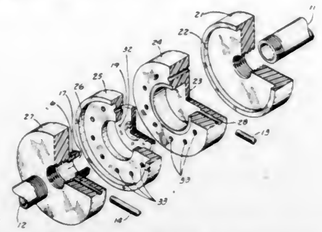
3,782,682
FLUID FLOW CONTROLLER

Walter G. Lale, 10215 Cord Ave., Downey, Calif.

Filed Nov. 1, 1971, Ser. No. 194,120
Int. Cl. F16r 31/165
U.S. Cl. 251—61.1 2 Claims

Fluid control apparatus for selective flow switching of a pressurized fluid source. A manifold chamber having a fluid inlet port, also has a fluid outlet port defined by an annular wall with mouth extending into the manifold chamber. A control chamber, adjacent to the manifold chamber, has a control pressure port adapted to be connected to a control pressure source. A differentially pressure responsive elastomeric diaphram member sealingly separates and constitutes a common wall of the manifold chamber and control chamber, and

is adapted to seat against the mouth of the annular wall, as to prevent fluid flow through the apparatus to the outlet port from the inlet port. There may also be included apparatus for



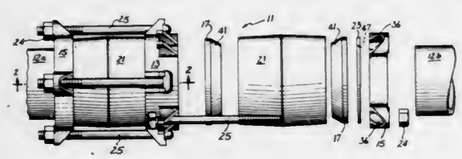
selectively connecting the control pressure port of the fluid control apparatus in fluid circuit with the outlet port thereof, whereby a differential seating pressure upon the diaphram member is removed.

3,782,683

PIPE COUPLINGS

Dennis D. Lee, Oskaloosa, Iowa, and Robert F. Gilchrist, Wichita Falls, Tex., assignors to Clow Corporation, Oak Brook, Ill.

Filed Jan. 23, 1973, Ser. No. 326,050
Int. Cl. F16l *17/00*
U.S. Cl. 251—148 **10 Claims**



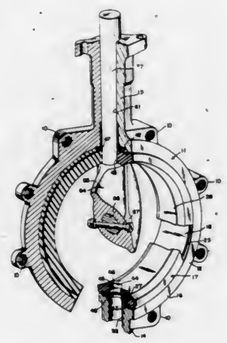
A highly versatile pipe coupling which is especially useful in connecting or repairing two ends of pipe that are not coaxially aligned. Bushings allow the same coupling components to connect pipe of different material and wall thickness.

3,782,684

SEAT INSERT FOR BUTTERFLY-TYPE VALVES

Leonard J. Stephens, Pittsburgh, Pa.; Derril D. Granger; John S. McCullagh, both of Canal Fulton, Ohio, and Donald K. Hagar, Macungie, Pa., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sept. 20, 1971, Ser. No. 181,986
Int. Cl. F16k *1/226*
U.S. Cl. 251—306 **14 Claims**



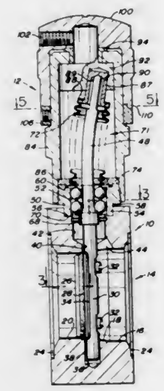
A butterfly valve comprising an annular body rotatably mounts a closure disc that has peripheral engagement with a resilient seat in the form of a liner unit having an axial snap-in fit within an annular recess around the inner periphery of said body. Bonding between the liner and body may be effected by a layer of epoxy cement.

3,782,685

BELLOWS SEALED BUTTERFLY VALVE

Bernard J. Gallagher; Earl D. Shufflebarger, both of Mentor; David M. Simko, Parma Heights; Richard J. Medvick, Brooklyn Heights; John R. Boylan, Cleveland Heights, and Oliver L. Danko, Chesterland, all of Ohio, assignors to Nupro Company, Cleveland, Ohio

Filed July 17, 1972, Ser. No. 272,561
Int. Cl. F16k *1/22*
U.S. Cl. 251—306 **10 Claims**



The specification and drawings disclose a valve particularly suited for use in critical vacuum systems. The valve shown comprises a body having a through flow passage of generally circular cross-section. A butterfly valve disc is positioned in the passage and has an outer periphery adapted to close the passage when rotated to a position transverse to the axis of the passage. A rotatable operating stem is connected to the valve disc and extends outwardly through the body. Joined with the operating stem is an actuating stem which has an outer end portion inclined at an angle relative to the axis of the operating stem. A bellows assembly encloses the actuating stem with a lower portion of the assembly joined to the body. The bellows assembly includes a flexible, gas impervious bellows member which encloses the actuating stem and is inclined throughout a portion of its length at an angle corresponding to the angle of the inclination of the outer end portion of the actuating stem. Additionally, the outer end of the bellows is rotatably engaged with the outer end of the actuating stem. Means are provided in the form of a rotatable housing member for applying a generally radially acting force to the outer end of the bellows assembly to produce rotation of the operating stem and deflection of the bellows without torsional loading of the bellows.

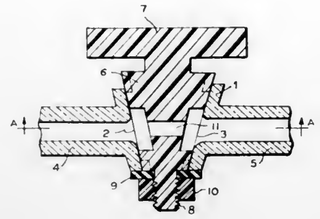
3,782,686

TAPS

George Raymond Cowie, Middlesborough, England, assignor to Cowie Scientific Limited, Yorkshire, England

Filed June 19, 1972, Ser. No. 264,066
Claims priority, application Great Britain, June 18, 1971, 28,628/71
Int. Cl. F16k *5/02*
U.S. Cl. 251—309 **9 Claims**

This invention relates to a plug and socket type stopcock, notably for use in high vacuum apparatus, in which erosion of the fluorinated hydrocarbon polymer plug is reduced by indenting the plug face around the orifices of the bore through the plug.

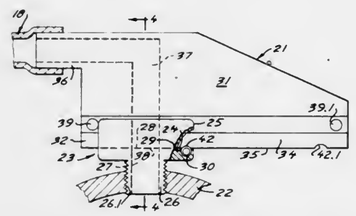


3,782,687

MILKING MACHINE VALVE

Erling Anderson, R. R. 1, Matsqui, British Columbia, Canada

Filed Sept. 13, 1971, Ser. No. 179,636
Int. Cl. F16k *31/44*
U.S. Cl. 251—347 **3 Claims**



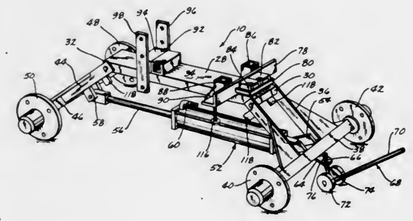
A valve for connecting a teat cup hose of a milking machine to a milk pipe line under vacuum, the valve having a base member connectable to the milk pipe line and a slider member having a projecting nipple and mounted for sliding movement on the base member, the members having milk passages which are moved into register when the teat cup hose is pushed on the nipple and moved out of register when the hose is pulled off the nipple.

3,782,688

JACK DEVICE FOR TRACTORS AND THE LIKE

Dellie J. Scott, Missouri Valley, Iowa, assignor to J. L. Peterson, Missouri Valley, Iowa, a part interest

Filed Feb. 24, 1972, Ser. No. 228,927
Int. Cl. B60p *1/48*; **B66f** *3/00*
U.S. Cl. 254—2 R **3 Claims**



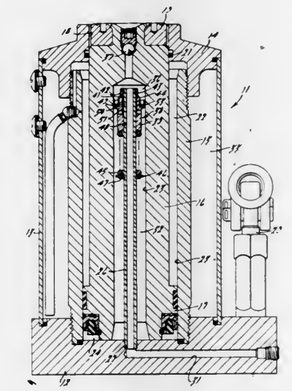
A jack device is disclosed herein for raising a tractor or the like. The jack device comprises a horizontally disposed frame means having a pair of supports pivotally connected at their upper ends to the opposite ends thereof. Spaced apart wheels are provided on the lower ends of the supports. A hydraulic cylinder means extends between the supports and is adapted to pivotally move the supports with respect to the frame means. Means is provided on the upper end of the frame means for engagement with the tractor to support the same thereon. The hydraulic cylinder is extended so that the frame means is lowered to permit the jack to be positioned beneath the tractor. The hydraulic cylinder is then operated to retract the cylinder rod therein which causes the supports to pivotally move towards each other whereby the frame means is raised upwardly into engagement with the tractor which causes the tractor to be raised from its supporting surface.

3,782,689

CONTROL MEANS FOR HYDRAULIC JACK

John M. Barosko, Kenosha, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed Jan. 31, 1972, Ser. No. 222,090
Int. Cl. B66f *3/24*; **F15b** *15/18*
U.S. Cl. 254—93 R **6 Claims**



A sliding member between the high and low speed chambers of a two-speed hydraulic jack acts as a combined valve and seal. The member serves to separate these chambers during the quick-raise movement, but automatically connects them when a load is encountered so that the pump will feed both chambers.

3,782,690

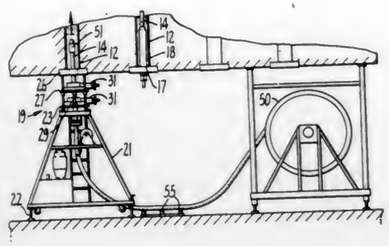
APPARATUS FOR THREADING A TENDON THROUGH A SHEATH

Ian Tindal, San Francisco, Calif., assignor to Bechtel International Corporation, San Francisco, Calif.

Division of Ser. No. 11,100, Feb. 13, 1970, Pat. No. 3,719,982.
This application Dec. 8, 1971, Ser. No. 206,027
Int. Cl. B66f *1/00*
U.S. Cl. 254—105 **3 Claims**

A novel jacking system and method are provided for moving a cable through a sheath which includes opposite vertical portions connected by an intermediate arcuate portion. The cable

is relatively heavy, being made up of the order of some 170 to 200 strands of high carbon steel wire, each approximately of



the order of one-quarter inch in diameter. The total length of the cable is of the order of 500 feet while its weight is some 7-1/2 to 10 tons.

3,782,691

HYDRAULIC LIFTING DEVICE FOR LIFTING HEAVY LOADS

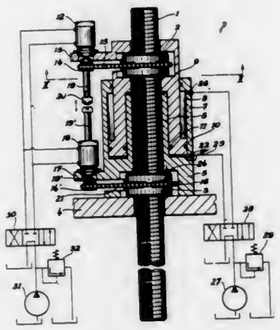
Heinz Lietzke, Neuss, Germany, assignor to Schiess Aktiengesellschaft, Dusseldorf-Oberkassel, Germany

Filed Mar. 1, 1972, Ser. No. 230,779

Claims priority, application Germany, Mar. 9, 1971, P 21 11 244.7

Int. Cl. B66f *1/00*; **E02d** *21/00*

U.S. Cl. 254—106 **7 Claims**



A hydraulic lifting device for lifting heavy loads, especially by steps, in which two vertically spaced adjusting nuts are arranged on and in meshing engagement with a vertical spindle which is surrounded by an annular cylinder-piston system, the elements of which are relatively movable to each other to perform a major stroke only when at least one of said nuts is being rotated, rotation of either one of the nuts resulting in an axial movement of the spindle.

3,782,692

FIXED SPOOL WINCH MECHANISM

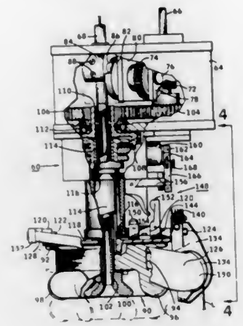
Ernest L. Casco, and Ralph F. Kosic, both of San Diego, Calif., assignors to General Dynamics Corporation, San Diego, Calif.

Filed Feb. 7, 1973, Ser. No. 330,372

Int. Cl. B66c *23/60*

U.S. Cl. 254—139 **16 Claims**

A winch having a spool on which a line or cable is wound for subsequent free-fall deployment of a payload such as a profiling oceanographic sensor. The line secures at one end to the sensor, passing through the hollow center of the spool shaft, level winding onto the spool, and attaches at its opposite end to surface electronics aboard a data station buoy. Upon activation, a motor rotates a bail platform about the spool shaft axis. A bail carried on the rotating platform engages a striker, pivoting the bail to to one side of the line whereby the weight of the sensor tensions the line to unwind it from the spool in a free-fall manner. When deployed, the sensor is supported by



structure above the winch with the line passing freely through the spool shaft.

Retrieval of the sensor is effected by reversing the direction of rotation of the bail platform and shifting the striker linkage to pivot the bail for rewind of the line onto the spool. The bail is thus pivoted through an arc intersecting the vertical axis of the spool shaft, to pick up the deployed line for winding onto the spool as the bail rotates. Level wind of the line is accomplished by reciprocal up and down movement of the spool as the line traverses the sheave of the rotating bail.

3,782,693

VIBRATORY COMPACTOR

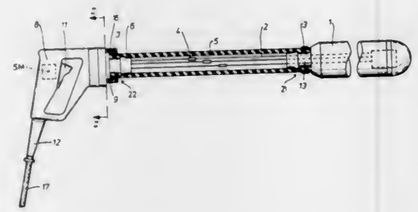
Gotthilf Strohbeck, Le nberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 23, 1972, Ser. No. 237,444

Claims priority, application Germany, Mar. 27, 1971, P 21 14 899.2

Int. Cl. B01f *11/00*

U.S. Cl. 259—1 **13 Claims**



A vibratory compactor for compacting unhardened concrete, and the like, comprises an electrically operated vibration-generating unit having a first mount and a hand-grip unit having a second mount. A rod-shaped vibration-damping connector connects the units and has first and second end portions respectively joined with the first and second mounts. An electric cable supplies energy to the vibration-generating unit, and a switch arrangement selectively permits and interrupts the flow of energy through the cable. The switch arrangement

comprises an actuator member mounted on the handgrip unit. The actuator member is movable to a first position permitting the flow of energy, and is permanently biased to a second position interrupting the flow of energy. The possibility of damage to the vibration-generating unit resulting from inadvertent extended operation of the same is prevented, and the compactor may be conveniently employed as a handtool.

3,782,694

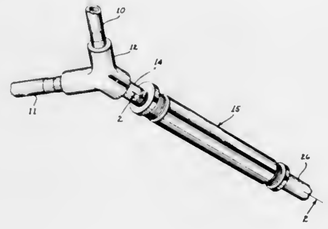
APPARATUS AND METHOD FOR MIXING MATERIALS

Charles L. Shano, Phoenix, Ariz., assignor to Western Controls Inc., Pheonix, Ariz.

Filed Sept. 18, 1972, Ser. No. 289,821

Int. Cl. B01f *15/02*

U.S. Cl. 259—4 **6 Claims**



A method and apparatus is disclosed wherein a material or fluid stream is directed along a longitudinal axis of an elongated segmented tubular member. The stream is divided into halves, and each half is directed against a transverse wall of one of the segments wherein the half streams are again divided into quarter streams while simultaneously directed transversely of the tubular member. The quarter streams are directed through passageways in the segment and are subsequently recombined with each quarter stream being combined with a quarter stream from a different half stream. Simultaneous with the recombination, the newly formed half streams are again directed longitudinally of the tubular member.

3,782,695

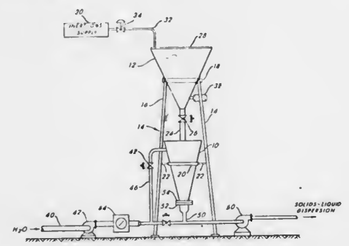
APPARATUS AND METHOD FOR DISPERSING SOLID PARTICLES IN A LIQUID

Burton B. Sandiford, Placentia, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed July 10, 1972, Ser. No. 270,495

Int. Cl. B01f *15/02*

U.S. Cl. 259—4 **15 Claims**



An apparatus and method for dispersing a particulate solid material in a liquid. The apparatus includes a vertically mounted wetted wall funnel having a throat of reduced cross-section at the bottom, a solids feeder hopper mounted above the wetted wall funnel, solids conduit means communicating the solids feeder hopper and the wetted wall funnel, means for flowing liquid over the interior surface of the wetted wall funnel, liquid conduit means attached to and communicating with the throat of the wetted wall funnel for flowing liquid past the throat of the funnel, and a pump for inducing a vacuum in the liquid conduit means at the throat of the funnel. The particulate solid material is distributed onto the interior surface of the wetted wall funnel and the soiids-liquid mixture withdrawn from the funnel and admixed into the liquid flowing past the throat of the funnel.

3,782,696

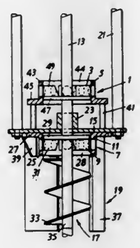
MIXING DEVICES

Gordon David Love, Waterside, England, assignor to Silverson Machines Limited, Waterside, England

Filed Dec. 28, 1971, Ser. No. 213,147

Int. Cl. B01f *3/12, 5/16*

U.S. Cl. 259—6 **8 Claims**



A mixing device comprising rotor and stator elements wherein a screw conveyor is mounted on the rotor shaft and, upon rotation of the shaft, conveys material towards the inlet to the stator element. Associated with the conveyor are stationary guide plates which assist in providing an increased flow of material to the stator element.

3,782,697

APPARATUS FOR DISSOLVING AND ADMIXING COMPONENTS HAVING A HIGHLY DIFFERENT SPECIFIC GRAVITY IN LIQUID TO HIGHLY VISCOUS MEDIA

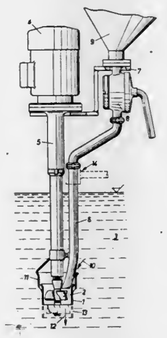
Roland Karg, Stuttgart, Germany, assignor to Dr. Karg GmbH, Stuttgart, Germany

Filed July 14, 1971, Ser. No. 162,452

Claims priority, application Germany, July 17, 1970, P 20 35 485.2

Int. Cl. B01f *7/16*

U.S. Cl. 259—24 **3 Claims**



In apparatus for dissolving and admixing components having a highly different specific gravity in liquid to highly viscous media, a blade wheel surrounded by a guide ring is used as a

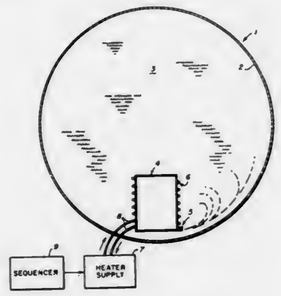
pumping member to create in the liquid medium a suction zone, which contains a discharge opening of a conduit for supplying the substances having a relatively low specific gravity. The supply conduit is provided at its end remote from the blade wheel with a feeder or the like for the powders, and its discharge opening is disposed within the guide ring and as close as possible to the revolving elements of the blade wheel.

3,782,698

HEATER-MIXER FOR STORED FLUIDS

Thomas N. Canning, Sunnyvale, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1972, Ser. No. 280,032
Int. Cl. F17c *5/04*
U.S. Cl. 259—60 **8 Claims**



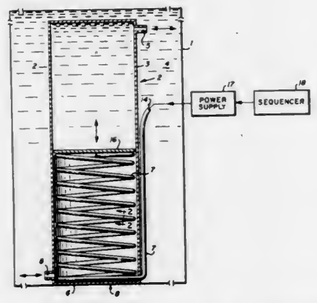
A fluid storage vessel for containing cryogenic fluids including an auxiliary chamber within the storage vessel. The auxiliary chamber is connected in fluid communication with the main storage vessel by means of a jet nozzel. The wall of the auxiliary chamber is heat cycled to produce a corresponding expansion and contraction of the fluid within the auxiliary chamber to produce heating and mixing of the stored fluid by means of jetting the expanded fluid to and fro relative to the stored fluid contents of the vessel.

3,782,699

BIMETALLIC FLUID DISPLACEMENT APPARATUS

Thomas N. Canning, Sunnyvale, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1972, Ser. No. 280,029
Int. Cl. B01f *5/12*
U.S. Cl. 259—98 **10 Claims**



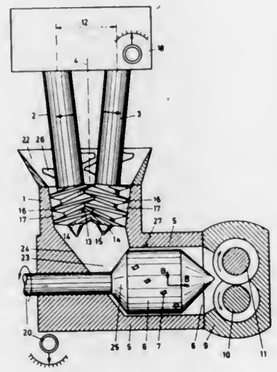
Stirring and heating of stored gases and liquids is accomplished by using the deformation of a bimetallic structure which deforms significantly when heated. The deformation is used to effect gradual or impulsive motion of a piston, vane, wire, or diaphram for displacement of the fluid. The heated bimetallic is also employed for heating the stored fluid.

3,782,700

PLASTIC MIXERS

Ludwig Wittrock, Breddenkampstrasse 121, 4370 Marl, Germany

Filed Sept. 5, 1972, Ser. No. 286,048
Claims priority, application Germany, Sept. 2, 1971, P 21 43 923.6
Int. Cl. B29f *3/02*
U.S. Cl. 259—192 **9 Claims**



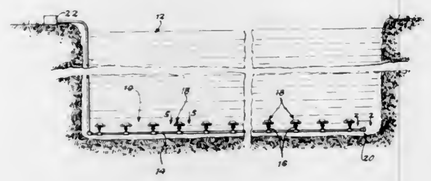
Apparatus for treating thermoplastic raw material, comprising means feeding material to be processed to a plasticizing means wherein the material is plasticized using frictional heat evolved by kneading the material, and means withdrawing and compressing the plasticized material. The temperature of the material being plasticized is controlled by regulating the pressure in the material by varying the rate at which material is fed to or withdrawn from the plasticizing means. The feeding and compressing is effected with minimum friction.

3,782,701

DESTRATIFICATION SYSTEM AND AIR DIFFUSER UNIT FOR USER THEREIN

Harold G. Hunt, 389 Fillmore Ave., East Aurora, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,689
Int. Cl. B01f *3/04*
U.S. Cl. 261—65 **10 Claims**



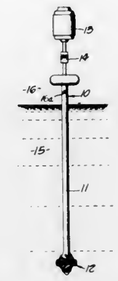
The system employs a plurality of submerged diffuser units spaced along a supply air feed line and an air-water discharge valve device disposed at the downstream end of the feed line to permit expulsion of substantially all water present in the feed line at the commencement of an operating period. The diffuser units are in the form of air jet reaction propellers, which effect vertical circulation by both mechanical and diffused air pumping.

3,782,702

APPARATUS FOR MIXING AND TREATING FLUIDS

Robert S. King, 7100 Pampa Pl., Tucson, Ariz.

Filed Dec. 29, 1969, Ser. No. 888,787
Int. Cl. B01f *3/04*
U.S. Cl. 261—87 **12 Claims**



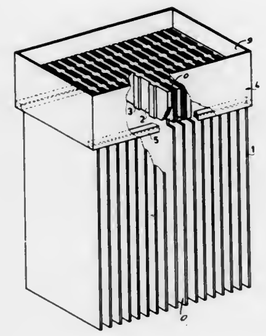
An apparatus for mixing and treating fluids includes a rotatable hollow shaft having an impeller section which is extended into a first fluid. The impeller section includes a plurality of spiral blades which move and agitate the first fluid and an opening adjacent the blades through which a second fluid in the shaft communicates with the first fluid. The movement of the first fluid creates a suction zone which causes the second fluid to be drawn through the shaft and out the opening.

3,782,703

DEVICE FOR MASS AND HEAT TRANSFER

Vaclav Kolar, Prague, Czechoslovakia, assignor to Ceskoslovenska Akademie ved, Prague, Czechoslovakia

Continuation-in-part of Ser. No. 149,244, June 2, 1971, abandoned. This application Nov. 23, 1971, Ser. No. 201,307
Claims priority, application Czechoslovakia, June 8, 1970, 4006/70
Int. Cl. B01f *3/04*
U.S. Cl. 261—112 **9 Claims**



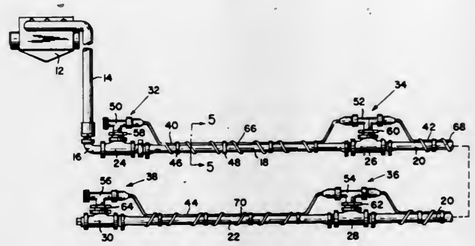
Apparatus for transferring heat and/or mass in fluid to fluid contact apparatus wherein at least one fluid is liquid, comprising a housing in which a plurality of transfer sections are tandemly arranged. Each transfer section comprising a plurality of vertically disposed planar structures spaced from each other by spacers having projections forming gaps for flow of one fluid. The housing being spaced to provide for movement of the other fluid from between the planar structure of one to those of another.

3,782,704

APPARATUS AND METHOD FOR PRODUCING AIR BUBBLES IN A BODY OF LIQUID

Harold J. Schramm, and John R. McCullough, both of West Chester, Pa., assignors to Schramm, Inc., Westchester, Pa.

Continuation of Ser. No. 83,026, Oct. 22, 1970, abandoned. This application Jan. 15, 1973, Ser. No. 323,623
Int. Cl. B01f *3/04*
U.S. Cl. 261—124 **9 Claims**



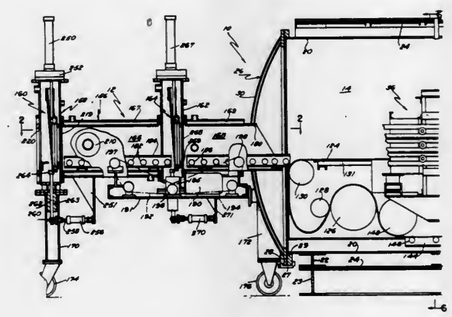
Uniformity, and therefore the effectiveness, of air barriers for confining surface water pollutants is accomplished by improving the uniformity of the air pressure in a perforated bubbling hose. This is achieved by the use of an auxiliary distributing conductor carrying air under high pressure, with a number of spaced interconnections with the bubbling hose having restrictions for dropping the pressure from the high level in the distributing conductor to a relatively low level in the bubbling hose.

3,782,705

CONTINUOUSLY OPERATED VACUUM FURNACE HAVING WORK PART TRANSFER CONVEYOR AND LOAD AND UNLOAD MECHANISM

Herbert W. Westeren, Barrington; Wallace S. Vanderford, Jr., Coventry; William C. Diman, and Vincent Scotto, both of Warwick, all of R.I., assignors to C.I. Hayes Inc., Cranston, R.I.

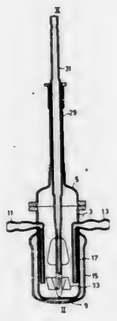
Filed Dec. 14, 1971, Ser. No. 207,738
Int. Cl. C21d
U.S. Cl. 266—5 R **15 Claims**



A conveyor vacuum furnace in which work parts are periodically introduced and processed without breaking the

vacuum within the furnace, and including a front loading station and a rear discharge station that are provided with spaced door assemblies between which confined chambers are defined for isolating the work parts, so that the work parts may be introduced into the furnace and discharged therefrom during continuous operation of the furnace.

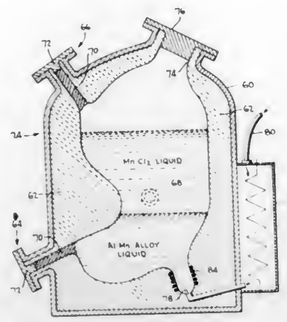
3,782,706
REACTOR FOR PREPARING METAL POWDERS
Werner Muhlpfordt, Ludwigshafen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 24, 1972, Ser. No. 237,756
Claims priority, application Germany, Apr. 1, 1971, P 21 15 928.4
Int. Cl. C22b *5/00*
U.S. Cl. 266—22 **3 Claims**



A reactor for preparing metal powders by reduction of aqueous solutions with a sodium borohydride solution, which reactor comprises a reaction vessel closed by a cover and having two inlet members, a stirring device, an overflow and a cooling jacket. A gas outlet is connected to the cover on the side of the overflow said gas outlet enclosing an acute angle with the shaft of the stirring device. In the operating position of the reactor, the center line of the gas outlet extends vertically so that the hydrogen formed during the reaction and the poisonous diborane formed in a subreaction are removed without hindrance. Due to the inclined position of the stirring device, the precipitated metal powder and the mother liquor are swung into the overflow.

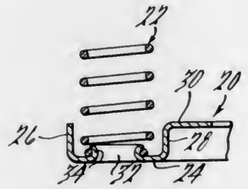
3,782,707
APPARATUS FOR PRODUCING ALUMINUM
Charles Toth, Westwego, and Harry Gordon Harris, Jr., Metairie, both of La., assignors to Applied Aluminum Research Corporation, Westwego, La.
Continuation of Ser. No. 138,663, April 29, 1971. This application Jan. 24, 1973, Ser. No. 326,337
Int. Cl. C22b *21/02*
U.S. Cl. 266—35 **5 Claims**

In the production of aluminum from the reaction of aluminum trichloride and molten manganese wherein the reaction is carried out under conditions such that manganese dichloride, which is one of the principal by-products of the reaction, is formed as a separate substantially pure liquid phase. This reaction is carried out in a special reactor which is



pressure tight, has two pour spouts, and heating means for the aluminum trichloride which is introduced under pressure into the reactor at the bottom.

3,782,708
SPRING ASSEMBLY AND METHODS AND MACHINES FOR THE MANUFACTURE THEREOF
Donald O. Dulude, and Paul H. Winbigler, both of Coldwater, Mich., assignors to Kuhlman Corporation, Troy, Mich.
Filed Dec. 1, 1971, Ser. No. 203,534
Int. Cl. F16f *3/04*
U.S. Cl. 267—91 **12 Claims**

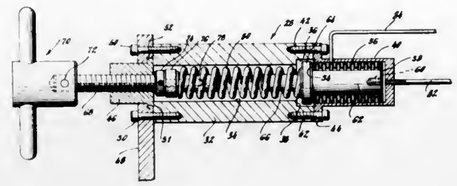


Springs secured to a stamped plate by staking, and stress-relieved in place, and methods and machines for performing those operations.

3,782,709
PULSE DAMPENER
Kenneth J. Gildner, North Palm Beach, Fla., assignor to Milton Roy Company, St. Petersburg, Fla.
Filed Mar. 30, 1972, Ser. No. 239,749
Int. Cl. F16f *5/00*
U.S. Cl. 267—114 **10 Claims**

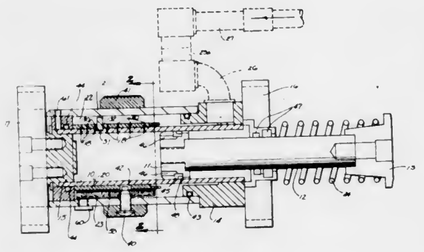
A pulse dampener particularly advantageous for removing cyclical pressure gradients produced by the positive displacement pump in a liquid chromatographic system. It comprises a bellows which substantially fills a cylindrical chamber. The chamber is connected to the pump outlet and column inlet. A compression spring expands the bellows against the force of the liquid. Compression of the spring is adjusted by a screw thread and two stops limit the permissible travel of the bellow face.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the



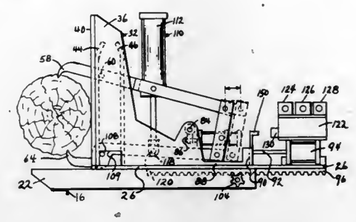
technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,782,710
ADJUSTABLE HYDRAULIC LINEAR DECELERATOR
Donald A. Selke; Layne F. Tekulve, and Richard R. Schmid, all of Cincinnati, Ohio, assignors to The Sheffer Corporation, Cincinnati, Ohio
Filed Nov. 8, 1972, Ser. No. 304,611
Int. Cl. F16f *5/00*
U.S. Cl. 267—118 **6 Claims**



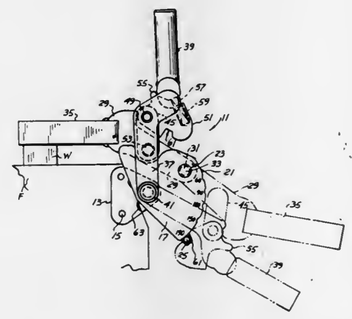
The application discloses an adjustable hydraulic linear decelerator, which may be either of the spring return type having an internal accumulator, or of the air return type having an external accumulator. The device comprises a cylinder having a piston which operates, upon an impact, against hydraulic fluid charged into the cylinder. The cylinder has, along a generatrix, a series of exponentially spaced apertures, and is embraced by a sleeve having along a generatrix, a series of obturating slots of the same minimum axial width as said apertures, and cooperating with said apertures respectively. The sleeve is surrounded by a reservoir tube, annularly spaced therefrom, and is coupled to said tube so that it may be rotated by rotating said tube. The sleeve also has a guide slot cooperating with a pin fixed to said cylinder to limit the extent of rotation of said sleeve to the circumferential extent of said obturating slots. The obturating slots may be angularly disposed with respect to the circumference while the guide slot is circumferential, so that, upon rotation of the sleeve between limits, the slots in effect go from an obturating position to an open position without axial movement of the sleeve. Alternatively, the obturating slots may be circumferential while the guide slot is angularly disposed, so that rotation of the sleeve is accompanied by an axial displacement thereof by substantially the width of the obturating slots. In this case the coupling is by means of a pin and slot connection to provide for the necessary axial movement.

3,782,711
SAWMILL DOG ASSEMBLY
Hubert T. Montgomery, Chestnut St., Delta, Pa.
Filed June 15, 1972, Ser. No. 263,282
Int. Cl. B27b *29/02*
U.S. Cl. 269—31 **7 Claims**



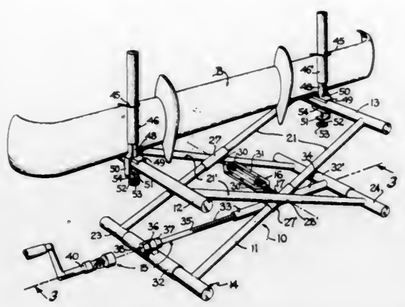
A sawmill dog assembly having a headblock supported for longitudinal slidable movement upon a base plate carried by a supporting channel member to be fixed to a sawmill carriage. Upper and lower dog members are arranged for limited floating movement in vertical and horizontal directions relative to the front face of the headblock. A plurality of fluid operated cylinder units respectively operate the outer ends of the dog members vertically to engage a log or plank to be sawed, move the headblock and dog members as a unit relative to the base plate, and move the outer ends of the dog members horizontally relative to the front face of the headblock.

3,782,712
TOGGLE CLAMP WITH DETENT OPEN GUIDED ARM
Leland F. Blatt, 821 Lakeshore Dr., Grosse Pointe Woods, Mich.
Filed Sept. 28, 1972, Ser. No. 292,877
Int. Cl. B25b *5/12*
U.S. Cl. 269—228 **5 Claims**



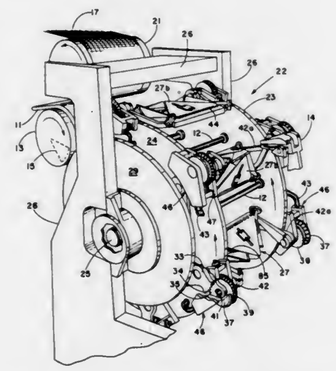
A toggle clamp comprises a pivot base mountable upon a support with a pair of side plates adjustably mounted upon said pivot base in a pre-selected angular position and guidably receiving therebetween a pivot arm pivotally mounted upon said plates and terminating in a work piece engaging clamp arm. A U-shaped handle link with a laterally extending handle is pivotally mounted over and upon the guide plates and pivotally mounts interiorly a pair of arm links at their one ends, with the other ends of said arm links pivotally connected to the handle link. A yieldable latch is positioned between the arm links and pivotally connected thereto and adapted to interlock with a latch pin spanning said guide plates when the handle has been moved to a release position.

3,782,713
ONE MAN HOLDER FOR VEHICLES DOORS, BUMPERS AND THE LIKE DURING REPAIR THEREOF
Robert H. Yount, 1304 Hillcrest Rd., Hollister, Calif.
Filed Sept. 7, 1971, Ser. No. 178,065
Int. Cl. B25h *1/10, 5/00*
U.S. Cl. 269—297 4 Claims



A holder for holding vehicle parts during repairs in the nature of a pair of scissor-frames pivoted to open and close by a jack screw between the base ends of the frame and adjustable for tilting to support a vehicle door or bent bumper at an angle relative to base and means for locking the scissors frames in set positions.

3,782,714
FOLDING APPARATUS
Harvey J. Spencer, Green Bay, and Eugene W. Wittkopf, Little Suamico, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Sept. 2, 1971, Ser. No. 177,301
Int. Cl. B65h *45/00*
U.S. Cl. 270—69 8 Claims



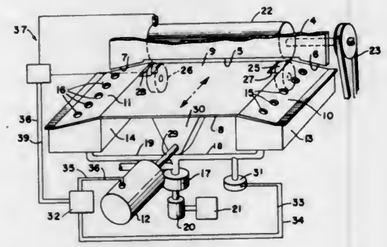
Apparatus for folding sheet material in which apparatus panels disposed in opposed relation form a receiving surface for the receipt of sheet material to be folded. The panels are provided with vacuum ports which the sheet material overlies and the production of suction pressure retains the sheet material securely on the forming board. The panels are pivotally mounted such that they are movable between a position in which the oppositely disposed panels lie in substantially planar relation and a position in which the panels are in substantially parallel relation. Tucking of sheet material transversely to provide fold lines in the material is accomplished by shaping the panels to appropriate configurations. A preferred form of the apparatus includes a plurality of the folding boards supported on a carrier permitting continuous operation. Additionally, mechanism mounted on the carrier provides for assisting tucking or folding operations.

3,782,715
FEELER DEVICE, ESPECIALLY FOR PHOTOCOPYING APPARATUS
Richard Arlund Norgaard, Ballerup, and Rex Stemann Larsen, Rodovre, both of Denmark, assignors to Eskofot A/S, Copenhagen, Denmark
Filed Sept. 28, 1972, Ser. No. 292,912
Int. Cl. B65h *7/00*
U.S. Cl. 271—57 3 Claims



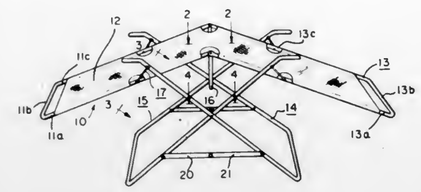
A feeler device comprising a freely rotatable feeler wheel member having three active surfaces lying on an imaginary cylinder. The feeler member is mounted on an arm and rests by its own weight against a supporting surface. The leading edge of a movable sheet formed blank strikes one of the the active surfaces and turns the feeler wheel so that it is lifted from the supporting surface and thereby moves the arm which activates a switch that causes the sheet-formed blank to stop its movement on the supporting surface. After a certain degree of rotation, another active surface of the feeler wheel rests upon the supporting surface and is thereafter engaged by the leading-edge of the next movable sheet-formed blank.

3,782,716
DEVICE FOR SELECTING DATA CARDS
Thomas R. Long, Melbourne; Warren H. Miller, Jr., Palm Bay, and Scott V. Campbell, Melbourne, all of Fla., assignors to Digi-Data Corporation, Bladensburg, Md.
Filed June 29, 1972, Ser. No. 267,688
Int. Cl. B65h *3/12*
U.S. Cl. 271—99 7 Claims



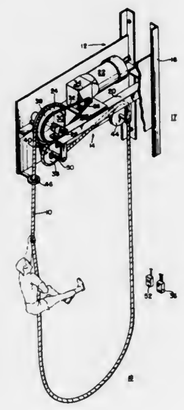
A device for selecting data cards comprising a table means movably mounted beneath a hopper means containing a stack of cards, means operatively associated with said table means for moving at least a portion of the bottom card in said stack of cards downwardly onto said table means and holding said card on said table means as said table means is moved into operative association with means for engaging said card and withdrawing the card from said table means, said means for moving said card being controlled in cooperation with movement of said table means.

3,782,717
PIVOTAL BODY-SUPPORTING EXERCISING APPARATUS
Daniel Berlin, Rydal, Pa., assignor to General Home Products Corp., Burlington, N.J.
Filed Mar. 27, 1972, Ser. No. 238,044
Int. Cl. A63b *21/00*
U.S. Cl. 272—58 1 Claim



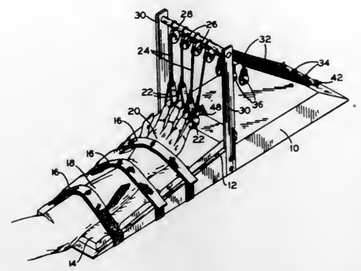
An exercising apparatus adapted to support a person and movable to a plurality of body supporting contours. The exercising apparatus includes a cloth covered support frame having at least two support frame elements which are movable with respect to each other. They are also rotationally connected to a base frame which acts as a support or stabilizing platform for the exercising apparatus. The support frame is mounted to the base frame through a plurality of generally Z-shaped linkage mechanisms which are pivotally mounted to both the support frame elements and the base frame.

3,782,718
ROPE CLIMBING MACHINE
Clarence E. Saylor, 904 Second Ave. North, Kent, Wash.
Filed Apr. 28, 1972, Ser. No. 248,679
Int. Cl. A63b *7/04*
U.S. Cl. 273—60 4 Claims



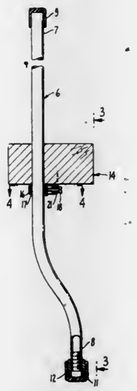
A power operated endless rope is moved a selected predetermined speed either up or down to allow a climber to climb up or down on the rope while remaining safely close to the floor.

3,782,719
FINGER EXERCISING DEVICE
Norma Jean Kuhlman, R.F.D. No. 1, Mendon, Ohio
Filed Apr. 21, 1972, Ser. No. 245,837
Int. Cl. A63b *21/00, 23/00*
U.S. Cl. 272—67 11 Claims



An exercising device, especially for exercising the fingers, on which a base member is provided, on which the forearm is adapted to rest with the hand in a predetermined position, while finger loops carried by the device are disposed near the said position and are adapted for receiving the fingers of the hand. Biasing springs connected to the finger loops resist movement thereof so that the fingers can be exercised by flexing thereof. The finger loops are arranged so as to be in two differently suspended sets so that the hand can be disposed with the palm up when using one loop set or the palm down when using the other loop set whereby the fingers can be exercised in different manners.

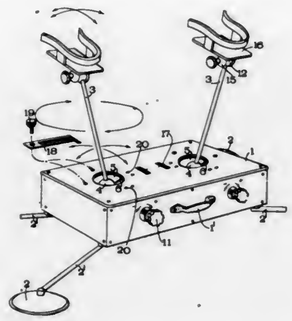
3,782,720
OFFSET TUBULAR STILTS WITH UNDERLYING HEIGHT ADJUSTABLE FOOTREST SUPPORTS
Sheldon E. Thorson, 5442 Greenfield Way, Pleasanton, Calif.
Filed Jan. 4, 1973, Ser. No. 320,902
Int. Cl. A63b *25/00*
U.S. Cl. 272—70.1 7 Claims



An improved stilt structure is provided having improved stability. The foot end of each stilt is offset slightly providing better balance and making walking easier. Structurally, the stilt comprises an elongate tubular member having parallel but offset upper and lower sections with a foot rest movably supported on the upper section adjacent to a generally S-shaped

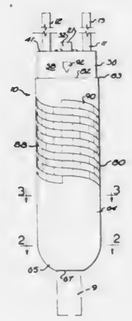
curved portion joining the upper and lower sections. A separate clamp member is movably secured to the upper section beneath the foot rest to support the foot rest in different adjusted positions on the upper section.

3,782,721
PHYSICAL TRAINING DEVICE
Franco Ugo Passera, via Idomeneo 72, Lecce, Italy
Filed June 10, 1971, Ser. No. 151,693
Int. Cl. A63b *21/00*; **G01l** *5/02*
U.S. Cl. 272—79 D **8 Claims**



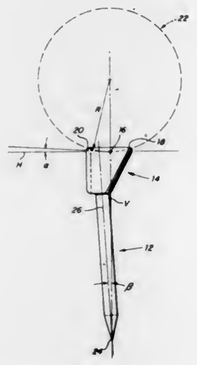
A physical training device comprising a casing from which two movable rods are extending and have a pedal or handgrip at their free ends, the lower ends being mounted in ball joints for movement in all directions within a certain angle or only in a substantially vertical angular direction, the movement of the ball of the ball joints within the casing being restrained by appropriate adjustable means.

3,782,722
VARIABLE FRICTION-RESISTANCE ROPE EXERCISING DEVICE
Ronald W. Webb, N. 7106 Winston Dr., Spokane, Wash.
Filed June 12, 1972, Ser. No. 262,147
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 A **6 Claims**



A variable friction-resistance rope exercising device having a shaft with an eyelet at one end and a turn knob mounted at the other end. The knob has apertures therethrough to enable free ends of a rope to be threaded through the apertures, a rope is spiralled around the shaft and through the eyelet so that a user can pull alternately on the ends against the friction developed between the rope and the shaft. The knob is spring biased outwardly away from the eyelet to connect with the shaft so that no rotation of the knob with respect to the shaft will be permitted during the pulling on the free ends of the rope. To increase the number of turns of the rope on the shaft the knob is pushed inwardly against the bias of a spring to disconnect the knob from the shaft and then the knob is rotated. When it is desired to release the frictional resistance, the user holds onto the knob and pulls on both free ends of the rope to pull the shaft toward the knob compressing the spring to disconnect the shaft from the knob.

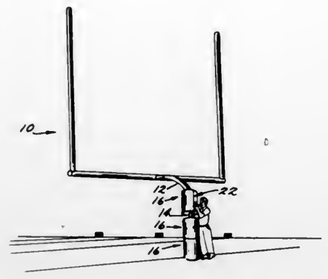
3,782,723
NON-INTERFERING GOLF TEE
Ronald P. Morris, 8½ Second St., Woburn, Mass.
Filed May 1, 1972, Ser. No. 249,164
Int. Cl. A63b *57/00*
U.S. Cl. 273—33 **8 Claims**



A golf tee designed in such a manner that a golf ball driven off the tee does not encounter a section of the tee which obstructs the trajectory of the golf ball. The golf tee includes a specially designed head section having a top with an upward opening curved rear surface. A ramped surface extends forward from the curved rear surface to the front of the tee and is inclined slightly above the horizon. The ramped surface has an upward opening curvature extending from side to side across the head which, in combination with the rear curved surface, supports a golf ball placed on the tee. The front of the head section has a forward opening curvature extending from side to side across the head which also assists in preventing an obstruction to the trajectory of a golf ball driven off the tee.

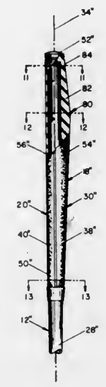
3,782,724
GOAL POST PADDING
Joel I. Rottman; Howard L. Freedman, and Melvin Freedman, all of Hollywood, Fla., assignors to Joel Rottman Enterprises, Inc., Hollywood, Fla.
Filed Jan. 24, 1972, Ser. No. 220,134
Int. Cl. A63b *67/00*
U.S. Cl. 273—55 R **4 Claims**

There is provided in accordance with the most preferred described embodiment of the invention a stack of tubular right circular cylindrical bodies of resilient foamed plastic material, each having an adherent coating of flexible plastic-based paint. Each body is split along a radiating, longitudinal axis-containing plane and provided with cooperating fasteners within the split to permit easy assembly of the padding about a goal post standard. The color of the flexible coating on adjacent bodies may be different, e.g., to match school colors. A preferred composition is polyurethane plastic foam used in



conjunction with a polyurethane-based paint. The exterior of the bodies may be an appropriately colored integral skin on the foamed bodies.

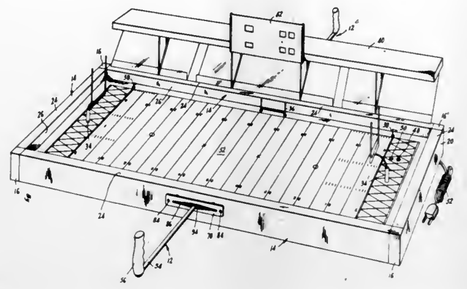
3,782,725
GOLF CLUB WITH ECCENTRIC GRIP THEREFOR
James D. Giambazi, 12 Abbott St., Cumberland Hill, R.I.
Filed May 1, 1972, Ser. No. 249,045
Int. Cl. A63b *53/14*
U.S. Cl. 273—81.3 **1 Claim**



An improved grip for a golf club having a head, hosel, shaft and a grip including an eccentric grip having generally normal external dimensions, the grip including a thick portion extending longitudinally along the grip on the inner side of the shaft corresponding to the face of the club and a thin portion extending along the grip on the other, outer, side of the shaft.

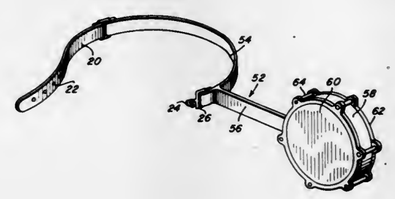
3,782,726
FOOTBALL GAME WITH MAGNETIC CONTROL RODS
Donald Huffman, and Richard M. Majewski, both of Westmount, Montreal, Canada, assignors to Coleco Industries, Inc., Hartford, Conn.
Filed July 26, 1971, Ser. No. 166,188
Int. Cl. A63f *7/06*
U.S. Cl. 273—94 R **17 Claims**

Game apparatus includes a game board having a plurality of channel-defining guide members pivotally mounted at spaced locations adjacent its periphery. Each of the guide members slidably mounts a control member, and each of the control members in turn supports a permanent magnet beneath the playing portion of the game board. The control members can



be oriented in their respective guide members to slide magnetically susceptible player pieces upon the upper surface playing portion, and the apparatus may in addition include a vibrating mechanism to provide a basic mode of propulsion for teams of player pieces.

3,782,727
WAIST MOUNTED SOUNDING TARGET AND TETHERED BALL
Scheina E. M. Chirnomas, 406 Washington St., Boonton, N.J.
Filed July 29, 1971, Ser. No. 167,290
Int. Cl. A63b *71/00*
U.S. Cl. 273—97 R **5 Claims**

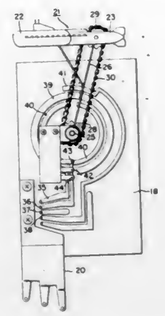


A waist clamp in the form of a generally semi-circular member constructed of resilient material such as plastic which clampingly engages the waist area of a child using the device with a paddle or similar device mounted thereon and projecting therefrom. The user's body is alternately twisted from side to side to strike opposite sides of the paddle. In the preferred embodiment the paddle is a hollow drum and produces a distinctly higher pitched sound when struck by the ball near the peripheral edge of the drum heads.

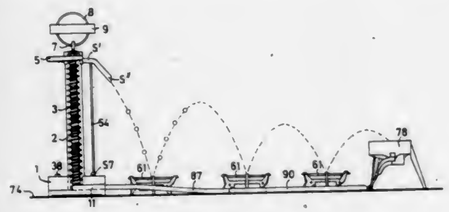
3,782,728
SINKING VESSEL SIMULATION APPARATUS
Norio Yasuda, Soka, Japan, assignor to Sega Enterprises Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 12, 1972, Ser. No. 288,344
Int. Cl. F41j *7/01*
U.S. Cl. 273—101.2 **6 Claims**

A sinking vessel display apparatus which comprises a model of a vessel comprising two or more sections, arms for supporting the vessel sections in an assembled state to form a complete vessel in a normal phase of the display apparatus and

for supporting the vessel sections in a separated state to form a destroyed vessel in a sinking phase of the display apparatus. A mechanism is supplied for driving the support arms into the sinking phase from the uppermost support position of the vessel sections in the normal phase where the assembled complete vessel is held substantially along a horizontal line. The respective vessel sections are moved downwardly as they are separated from each other and at least one of the sections is inclined with respect to the horizontal line.



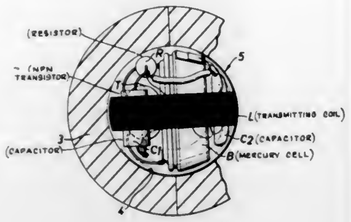
3,782,729
BALL GAME
Max Ernst, Lohengrinstrasse 14, Nurnberg, Germany
Filed Feb. 2, 1972, Ser. No. 222,913
Claims priority, application Germany, Nov. 5, 1971, P 21 55 009.4; Feb. 4, 1971, P 21 05 104.7; Dec. 8, 1971, P 21 60 769.2
Int. Cl. A63f *7/02, 7/10*
U.S. Cl. 273—138 A **29 Claims**



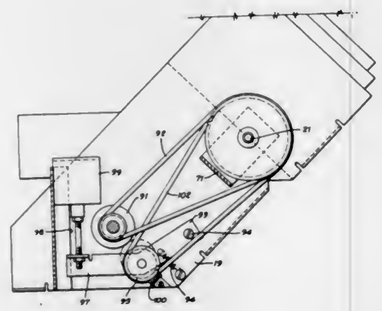
A game device using heavy balls in which balls are discharged in a certain direction from an elevated point of a supply station and progress in free jumps along jumping stations to a catching station. The balls return along a trough from the catching station to the bottom of the supply station and are elevated therein to the point of discharge of the balls from the supply station. The catching station can be arranged to trap the caught balls in identified pockets, or channels, to provide for game possibilities.

3,782,730
GOLF BALL
Stephen Alexander Horchler, Eskbank, Scotland, assignor to Euronics Limited, Edinburgh, Scotland
Filed Dec. 2, 1971, Ser. No. 204,109
Int. Cl. A63b *43/00, 43/06*
U.S. Cl. 273—213 **9 Claims**

This invention relates to an electronic golf ball comprising a central resilient sphere, a mass of elastic material surrounding the sphere and an outer casing, the central sphere including an electric squegging oscillator circuit, a battery therefor and a transmitting coil, all enclosed in a spherical mass of a set resin which forms a solid core, the spherical mass being located with close fit in a hollow spherical cavity formed in the central resilient sphere. The battery is a mercury cell located within the transmitting coil, as are the other components of the squegging oscillator circuit. The electrical circuit may include components which permit the oscillator to be turned on and off when the golf ball is brought into and then moved out of an A.C. magnetic field having a predetermined frequency.

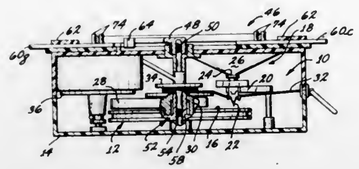


3,782,731
APPARATUS FOR OPERATING ON TAPE IN TAPE CARTRIDGES
William C. Bennett, Menlo Park, Calif., assignor to Novar Corporation, Mountain View, Calif.
Division of Ser. No. 22,619, March 25, 1970. This application May 1, 1972, Ser. No. 248,897
Int. Cl. G11b *15/18*
U.S. Cl. 274—4 D **2 Claims**



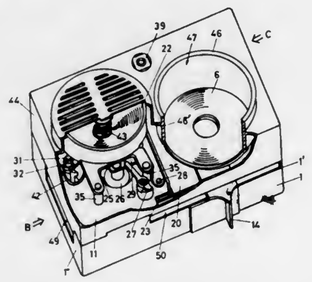
An apparatus including a transducer and a capstan for operating on tape in a tape cartridge having means for receiving the cartridge and positioning the transducer with respect to the cartridge, guide means for guiding the tape past the transducer, drive means for reversibly driving the capstan whereby to move the tape past the transducer selectively in either direction, and sensing means for sensing the beginning and end of tape. The drive means features a pair of pulleys mounted in axially spaced relation on the capstan shaft and driven in opposite directions by a single motor, and electromechanically actuated clutch means selectively engageable with either pulley for coupling that pulley to the shaft.

3,782,732
SELECTABLE MESSAGE VOICE UNIT
William F. Summerfield, Huntington Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed July 10, 1972, Ser. No. 270,113
Int. Cl. G11b *3/00*; **A63h** *3/33*
U.S. Cl. 274—9 RA **7 Claims**



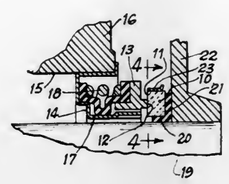
A toy phonograph of the type wherein one of several record tracks to be played is determined by the initial rotational position of the turntable when it begins rotating in a forward direction, in which the mechanism for determining the initial turntable position includes a pawl arm fixed to the turntable and several detents spaced around the turntable that can prevent reverse rotation of the pawl arm past a selected position. A mechanism for assuring that only one of the several detents are at an inward position to engage the pawl at any time, includes a steel band encircling the pawl arm and engaged with the detents, and positioners that hold the band so the band is "puckered in" at one location to hold a detent inwardly at that location. When another detent is pushed in so it "puckers in" another band location, any detent which was inward is automatically moved out.

3,782,733
MINIATURE PHONOGRAPH HAVING RESTARTER MECHANISM
Katsumi Watanabe, No. 371, Ozenzi, Kawaski, Japan
Filed Oct. 26, 1971, Ser. No. 192,436
Int. Cl. G11b *25/04, 17/08*
U.S. Cl. 274—9 B **2 Claims**



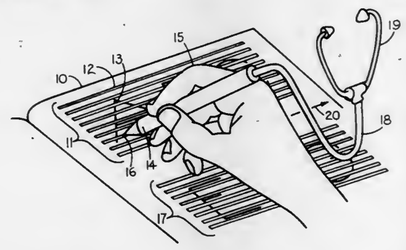
A miniature phonograph having a restarter device, comprising a receiving plate adapted to receive thereon a plurality of reserve discs contained in a vertically stacked-up manner in a top- and bottom- opened cylinder, a turntable carrying a disc thereon, and a disc outlet port, said receiving plate, turntable and outlet port being at the same horizontal elevation and arranged contiguous to each other in succession, means for transferring said reserve discs on said receiving plate onto said turntable successively from the lowermost one and setting the transferred disc on said turntable, means for controlling operation of said turntable, and means for releasing the set condition of the disc on the turntable and discharging that disc to the outside of the phonograph from said outlet port.

3,782,734
TALKING BOOK, AN EDUCATIONAL TOY WITH MULTI-POSITION SOUND TRACK AND IMPROVED STYLUS TRANSDUCER
Stanley Krainin, 401 Rutland Ave., Teaneck, N.J.
Filed Mar. 15, 1971, Ser. No. 123,988
Int. Cl. G11b *3/10, 3/72, 3/78*
U.S. Cl. 274—9 R **2 Claims**



For use in a talking book consisting of one or more pages containing visual material superimposed on or in juxtaposition with the sound grooves on each page, sets of undulated lateral or hill and dale sound grooves made an integral part of each page, each groove in a set recorded identically with every other groove in that set; a hand held stylus transducer capable of being held in a variety of positions as it is manually moved, its stylus tip engaging and reproducing sound from either wall of a sound groove in any set of grooves, and containing an integral tapered shield to protect the page and user from the substantially sharp point of the stylus should the transducer be mishandled on or off the page.

3,782,735
BANDED SEALING WASHER
Eugene Novosad, Arlington Heights, Ill., assignor to Crane Packing Company, Morton Grove, Ill.
Filed July 6, 1971, Ser. No. 159,752
Int. Cl. F16j *15/16*
U.S. Cl. 277—22 **5 Claims**

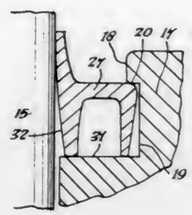


A sealing washer for rotary mechanical seals, said washer being made of a hard brittle material such as ceramic and subject to cracking and disintegration under thermal shock, the washer being protected against unequal expansion due to such thermal shock by a metal band formed as a stamping and tapered so that at one end it is expanded over the washer and at its other end it has a slight clearance with respect to the washer. The band is made rigid to retain its shape by forming a radial flange at its larger end and a radius at the base of the flange serves to locate the washer in the band during assembly. The band is made to have a coefficient of expansion which is substantially the same as that of the washer.

3,782,736
SCRAPER RINGS

Peter Reginald Valente, Ealing, England, assignor to Hallite Holdings Limited, Hampton, Middlesex, England

Filed Dec. 7, 1971, Ser. No. 205,646
Claims priority, application Great Britain, Dec. 10, 1970, 58,778/70
Int. Cl. F16j 15/32
U.S. Cl. 277—24 9 Claims

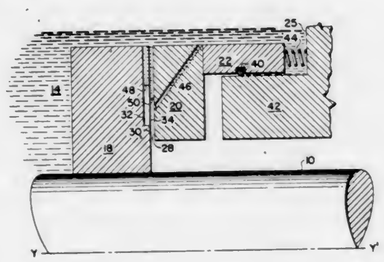


A scraper ring has a scraping edge on a frusto-conical scraper member extending in one axial direction and an annular channel body, the mouth of the channel opening in the opposite axial direction. The material is a hard but firmly resilient plastics material such as nylon. The scraper member joins the channel at its essentially planar base so that the scraper member and radially inner side wall of the channel are continuous. The scraper ring is preferably received in the chamber of a one-piece housing which is radially oversize so that the ring may float radially, being axially retained by an overhang in the wall of the housing. It is fitted by being forced through a restricted mouth opening of the housing.

3,782,737
SPIRAL GROOVE SEAL

Lawrence P. Ludwig, Fairview Park, and Thomas N. Strom, North Olmsted, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 54,540, July 13, 1970, Pat. No. 3,675,935, which is a continuation-in-part of Ser. No. 723,465, April 23, 1968, abandoned. This application Jan. 24, 1972, Ser. No. 220,251
Int. Cl. F16j 15/34
U.S. Cl. 277—27 7 Claims

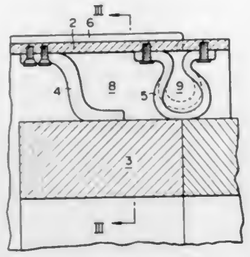


Mating flat surfaces inhibit leakage of a fluid around a stationary shaft. A spiral groove pattern produces a pumping action toward the fluid when the shaft rotates which prevents leakage while a generated hydraulic lifting force separates the mating surfaces to minimize wear. Provision is made for placing these spiral grooves in communication with the fluid to accelerate the generation of the hydraulic lifting force.

3,782,738
TAIL SEAL FOR A SHIELD TYPE TUNNELING MACHINE

Takuya Ohira; Shunta Shiraishi; Hiroshi Matsushima; Yukiya Kato; Kiyomitsu Shimokawa, all of Tokyo, and Hiroshi Yoshida, Chiba, all of Japan, assignors to Nishimatsu Construction Company Limited, Tokyo, Japan

Filed Sept. 5, 1972, Ser. No. 286,303
Int. Cl. F16j 15/40, 15/14
U.S. Cl. 277—58 1 Claim

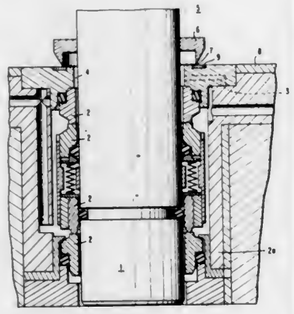


A tail seal mechanism in a shield type tunneling machine, said tail seal mechanism comprising an L-type annular seal of an elastic material installed to the inner periphery of the tail such that the tongue portion of the seal faces rearwardly and a U-type annular seal of an elastic material installed to the inner periphery of said tail rearwardly of and parallel to said L-type annular seal, said U-type seal being adapted such that it can be inflated by an internal fluid, as required.

3,782,739
METHOD AND APPARATUS FOR KEEPING FREE THE AGITATOR SHAFT SEALS FROM POLYMERIDE IN POLYMERIZATION VESSELS WITH BOTTOM DRIVE

Herbert Kahanek; Karl-Heinz Bohmer; Willi Schiemann, and Gunter Beckmann, all of Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

Filed Apr. 21, 1971, Ser. No. 135,865
Claims priority, application Germany, Apr. 21, 1970, P 20 19 017.4
Int. Cl. F16j 9/00, 15/16
U.S. Cl. 277—62 8 Claims

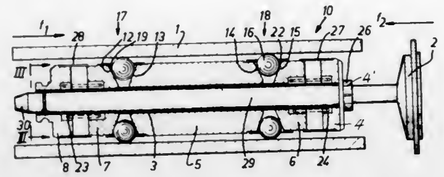


A method and apparatus for keeping an agitator shaft seal free from polymeride in polymerization vessels with bottom drive and contents in excess of 20 m³, in which a flushing liquid is supplied from the outside into the channel connecting the mechanical seal of the agitator shaft with the vessel interior space, whereby the liquid reaches the vessel interior space from the connecting channel with an average minimum velocity of about 20 cm/sec.

3,782,740
CENTERING CHUCK

Jean-Pierre Peyrot, 1, avenue de la Division du general Leclerc, Villejuif, France

Filed Aug. 16, 1971, Ser. No. 171,875
Claims priority, application France, Aug. 21, 1970, 7030820
Int. Cl. B23b 31/40
U.S. Cl. 279—2 5 Claims

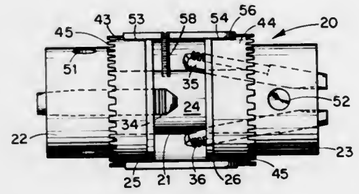


Tool-carrying centering chuck in which two mobile sleeves along a tube are urged towards one another against a central sleeve by antagonistic or counter springs, the facing conical lateral surfaces of said sleeves being designed to receive bearing balls and to push them outwardly against the inner surface of a tube to be treated during a welding or circular machining operation without mounting on a lathe being necessary.

3,782,741
UNITARY, DOUBLE ENDED CHUCK OR COUPLING

Alfred Laurenti, 35 Essex St., Lawrence, Mass.

Filed Oct. 20, 1972, Ser. No. 299,626
Int. Cl. B23b 31/04
U.S. Cl. 279—62 5 Claims



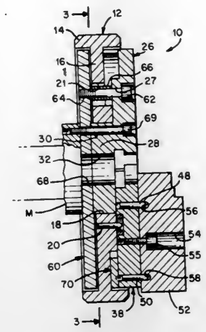
A double ended chuck, connector or shaft coupling includes a pair of back-to-back key operated chucks having a common main body upon which one set of oppositely disposed inclined jaws extends beyond and moves in the spaces between the jaws of the opposite set. The ring gears at each end are split for radial insertion behind the respective end heads and are held in place by split covers in turn held in place by a cylindrical shell sleeved thereover.

3,782,742
THREE JAW CHUCK APPLICATION

Anton Fink, Albertson, and Harold Wentworth, Lake Grove, both of N.Y., assignors to Metrology Systems Corp., Plainview, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,483
Int. Cl. B23b 31/16
U.S. Cl. 279—110 25 Claims

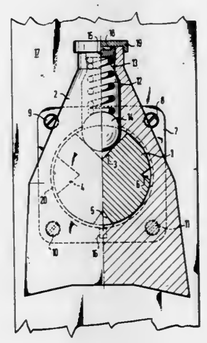
A chuck adapted to be mounted on a machine tool such as a lathe or the like is provided with three radially movable jaws. The jaws are displaced by cam means that engage each of the jaws and move transversely thereto. A rotatable housing is coupled to the cam means in order to move the cam means in a chord-wise direction and thereby displace the jaws in a radial direction.



3,782,743
SKI SAFETY BINDING ELEMENT
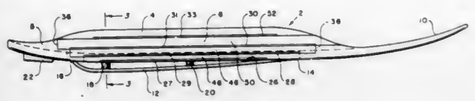
Brigette Sittmann, Stuttgart, Germany, assignor to Vereinigte Baubeschlagfabriken Gretsch & Co. GmbH, Leonberg, Germany

Filed Nov. 2, 1972, Ser. No. 303,032
Claims priority, application Germany, Nov. 3, 1971, P 21 54 639.4
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 7 Claims



The toe or heel holder of a safety binding is pivotally mounted on a stub shaft, and held in its angular operating position by a spring-loaded, spherical detent guided in a bore of the holder radially relative to the shaft axis toward one of four equiangularly offset notches in the shaft which differ in their depth. The shaft is attached to the top surface of the ski by a square mounting plate and four screws at the corners of the plate so that the detent engages different notches in the shaft, and therefore resists deflection of the holder from its operating position with different force depending on the orientation of the mounting plate on the ski surface.

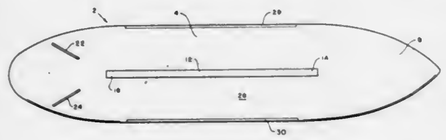
3,782,744
SNOW SURFBOARD WITH STEPPED STABILIZING SIDES
Dimitrije Milovich, 3 Prospect St., White Plains, N.Y., and Wayne E. Stoveken, 20 E. 46th St., Bayonne, N.J., assignors to said Milovich and Stoveken, part interest to each
Filed Sept. 29, 1972, Ser. No. 293,490
Int. Cl. B62b *13/00*
U.S. Cl. 280—18 5 Claims



A snow surfboard particularly for use on hard packed snow comprising a central body section, a nose section having a gradual nose kick, a tail section having a gradual tail kick which is less than said nose kick, said central body, nose, and tail sections being integrally formed, the lateral sides of said board curving upward and outward from the bottom of said board, a plurality of inverted longitudinal stabilizing steps formed in said lateral sides of said board, said steps being defined by risers and horizontal step surfaces and extending substantially the full length of said central body section to said nose and tail sections, said steps forming a plurality of longitudinal biting edges.

The snow surfboard includes a longitudinal stabilizing skeg on the bottom surface of the body and a pair of turning skegs extending from the bottom surface of the tail section.

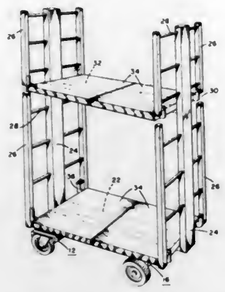
3,782,745
SNOW SURFBOARD
Wayne E. Stoveken, Bayonne, N.J., assignor to Dimitrije Miloch, White Plains, N.Y., a part interest
Filed Sept. 29, 1972, Ser. No. 293,491
Int. Cl. B62b *13/00*
U.S. Cl. 280—18 4 Claims



A snow surfboard comprising a central body section, a nose section having a gradual nose kick, a tail section having a gradual tail kick which is less than said nose kick, said central body, nose and tail sections being integrally formed, and a pair of turning skegs fixed to the lower surface of said tail section, said turning skegs being laterally spaced from the longitudinal axis of the surfboard and oriented rearwardly at an angle of from 10° to 50° to said longitudinal axis, said turning skegs extending rrom the bottom surface of said tail section a depth such that the bottom edges thereof are tangent to or just above an extension of the horizontal plane of the lower surface of the central body section.

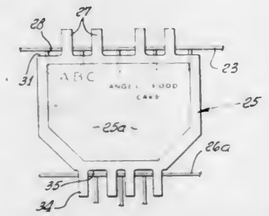
The snow surfboard includes a shock absorbing flexible stabilizing skeg running along the longitudinal axis of the surfboard. The snow surfboard is stable and may be controlled by weight shift techniques similar to those used with water surfboards.

3,782,746
SELF-SUPPORTING NESTING CART
Harold Isaacs, 2583 Fenwick Rd:, University Heights, Ohio
Filed Dec. 30, 1971, Ser. No. 214,263
Int. Cl. B60r *27/00*
U.S. Cl. 280—33.99 H 42 Claims



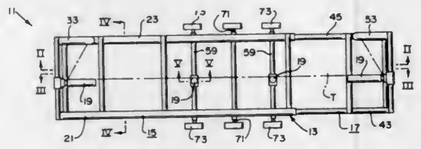
A four wheel cart with a narrow horizontally extending frame connecting the running gear and serving as a support for split shelves hinged to the end frame. A vertical spacer is disposed between the running gear and the horizontal frame to permit nesting of two or more carts when the shelves are in an upright position.

3,782,747
CONNECTION OF ADVERTISING CARDS TO CARTS
Otis T. Hamilton, Jr., 7158 Macapa Dr., Hollywood, Calif.
Filed Mar. 29, 1972, Ser. No. 239,258
Int. Cl. B62b *11/00*
U.S. Cl. 280—33.99 A 4 Claims



An advertising card, for use on a shopping cart, has integral tabs projecting at the card periphery; the tabs are spaced and sized to be received in the spaces between the rods when folded over cart receptacle horizontal rod structure; and adhesive means is located on the card to adhesively join portions of the folded-over tabs to the card when those portions are pressed toward the main body of the card.

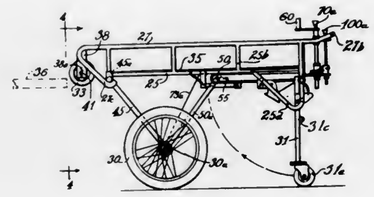
3,782,748
POOL TABLE HANDLING DEVICE
William J. Poland, P.O. Box 1168, Forrest City, Ark.
Filed Mar. 13, 1972, Ser. No. 234,063
Int. Cl. B62d *21/14*
U.S. Cl. 280—35 10 Claims



An adjustable frame for handling and transporting various sizes of pool tables. The adjustable frame includes structure

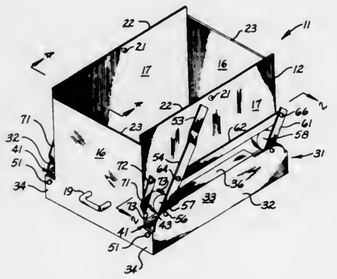
that is telescopically adjustable and securably clampable to a pool table.

3,782,749
JOINT SIDE WHEEL AND REAR LEG CONTROL MEANS FOR HAND-PROPELLED CARTS
Max Wiczer, 6400 W. Gross Pointe, Niles, Ill.
Continuation-in-part of Ser. No. 68,721, Sept. 1, 1970, Pat. No. 3,687,425. This application Dec. 17, 1971, Ser. No. 209,155
Int. Cl. B62b *11/00*
U.S. Cl. 280—36 C 7 Claims



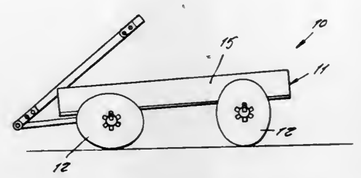
A hand-propelled cart with side wheels and a rear caster leg both foldable under the frame of the cart. The side wheels are foldable by means of a winch crank, and the caster leg by means of a hand lever, these controls both positioned in the rear of the cart. A hand knob in that region is depressible to allow the wheels to drop back to normal position; and a mechanism is provided to automatically release the caster leg in such event to drop back to standing position. The cart also carries a frontal control which, by engaging a vehicular support in front of the cart, causes the caster leg to fold.

3,782,750
BATTERY TRUCK
Dudley C. Peters, 6550 Vicksburg Way, Stockton, Calif.
Filed Sept. 27, 1972, Ser. No. 292,560
Int. Cl. B62d *33/8*
U.S. Cl. 280—43.17 3 Claims



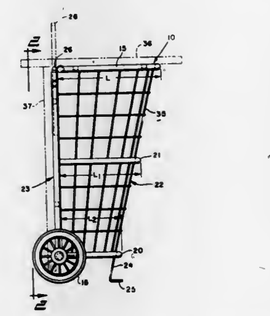
A sturdy box capable of supporting a heavy industrial battery, weighing several hundred pounds, carries on each lateral side an elongated fore and aft housing defining a channel within which is vertically movable an elongated fore and aft carriage. The carriage includes a plurality of rollers engageable with a supporting surface. The rollers are capable of lifting the box by reactive force when the carriage is urged downwardly by a pair of eccentric cams journaled in the housing and engaging the top of the carriage. A hand operated lever actuates the cams and a pawl and ratchet tooth selectively locks the lowered carriage in box-supporting position so that the battery can be moved to the desired location. The battery box is immobilized as the carriage is retracted upwardly and the bottom of the box engages the supporting surface.

3,782,751
OVAL SHAPED WHEELS
Victor E. Williams, 3662 77th Pl., Merrillville, Ind.
Filed Aug. 21, 1972, Ser. No. 282,364
Int. Cl. B62b *11/00*
U.S. Cl. 280—87.01 2 Claims



Oval shaped wheels on a vehicle, so that if the vehicle is a wagon or other multi-shaped vehicle, the wheels can be misaligned in rise and fall, either between front and rear wheels or between opposite side wheels so that the vehicle in the former case will pitch as it travels while in the former the vehicle will roll, and wherein if the rise and fall of all wheels are aligned the vehicle body will rise and lower in a constant horizontal plane.

3,782,752
MULTI-PURPOSE CART
Giles Edward Gobetz, 29227 Eddy Rd., Wickliffe, Ohio
Filed Apr. 3, 1972, Ser. No. 240,679
Int. Cl. B62b *1/10*
U.S. Cl. 280—47.19 13 Claims

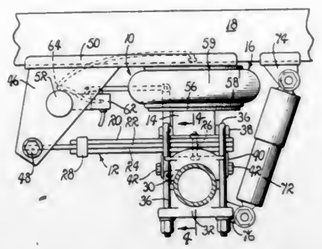


A cart mounted on wheels and having a basic frame on which a variety of attachments may be detachably mounted.

3,782,753
PNEUMATIC SUSPENSION UNIT
Phillip J. Sweet; Buck C. Hamlet, and David L. Sweet, all of Fresno, Calif., assignors to American Carrier Equipment, Fresno, Calif.
Filed June 19, 1972, Ser. No. 263,965
Int. Cl. B60g *11/46*
U.S. Cl. 280—124 F 3 Claims

A pneumatic suspenion unit adapted to be interposed as a fabricated unit between a load-bearing frame and wheel-supported axle of a highway vehicle. The unit is characterized by

an integrated pair of laterally spaced single convolute air springs to be supported in vertical alignment between a vehicle's axle and its load-bearing frame, and a pair of laterally



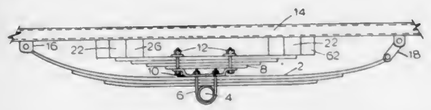
cantilevered springs, the bases of which are to be fixed to the axle while the distal ends thereof are supported through a hanger in a fixed relationship with the frame, whereby brake-induced rotation of the axle, relative to the frame, is impeded.

3,782,754

VEHICLE OVERLOAD SPRING APPARATUS

Kenneth W. Sleichter, 1108 E. 17th St., Ottawa, Kans.

Filed Mar. 9, 1972, Ser. No. 229,209
Int. Cl. B60g *11/02*
U.S. Cl. 280—124 R **9 Claims**



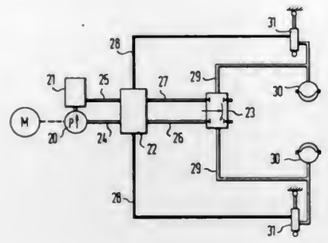
A vehicle overload spring apparatus for a vehicle having the usual spring is provided. An overload spring is mounted to the vehicle unsprung member. A first first support means and second first support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. Or, a first second support means and second second support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. Or, further, a first first support means and first second support means are provided for mounting to the vehicle frame adjacent opposite ends of the overload spring for selectively and individually or simultaneously engaging or not engaging the overload spring. The first support means has a bracket means mounted to the vehicle frame. A first support is pivotally and laterally slidably mounted to the bracket means for engaging the overload spring when in the spring engaging down position. A first stop, second stop, first holding member, and retaining hook are provided for snugly holding the first support in the spring engaging down or up position. The second support means has a second rod mounted to the frame. A second support is pivotally and laterally slidably mounted on the rod for engaging the overload spring when in the spring engaging down position. A biasing means is provided for urging the second support against the frame. A third stop, fourth stop, and second holding member are mounted to the frame for holding the second support means in the spring engaging down or up position.

3,782,755

HYDRAULIC LEVELLING APPARATUS FOR AUTOMOTIVE VEHICLES AND SHUT-OFF VALVE FOR THE SAME

Paul Spichala, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

Filed Mar. 7, 1972, Ser. No. 232,570
Claims priority, application Germany, Mar. 20, 1971, P 21 13 596.6
Int. Cl. B60g *13/06*
U.S. Cl. 280—124 F **3 Claims**



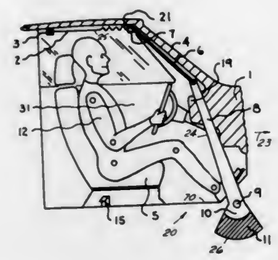
An automotive shut-off valve arranged between the control valve for hydraulic suspension elements of a vehicle and an engine-driven hydraulic pump prevents leakage of oil from the suspension elements to the sump when the engine is not operated although oil may leak through the valve controlling oil flow toward and away from the suspension elements in response to the relative vertical position of the sprung and unsprung vehicle masses, as is necessary for sensitive response of the control valve to changes in vehicle level. The shut-off valve has two spring-biased valve members of which one opens a passage between the hydraulic pump and the control valve when the pump is operated, and the other one is moved by a mechanical connection to an additional valve member to open a passage between the sump and the control valve. The additional valve member closes a throttled passage connecting the pump discharge to the sump and moves the other valve member against its biasing spring as the pressure of pumped liquid builds up in the shut-off valve, and the additional valve member is shifted back to its starting position by the other spring-biased valve member when the pump is shut down.

3,782,756

VEHICULAR SAFETY SYSTEM

Alexander M. Brown, 715 S. Bend St., Apt. 309D, Daytona Beach, Fla.

Filed Sept. 2, 1971, Ser. No. 177,331
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 B **7 Claims**



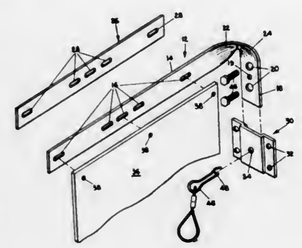
A power source actuating the protective mechanism shielding the occupants of a vehicle involved in collision which is activated, without the need for sensors or switching devices, by the inertial forces released due to the sudden deceleration of the vehicle. The protective mechanism includes a flexible cage restraining means positioned by a pivoted lever driven by the power source. Means are included for increasing the speed of the power source so that the protective mechanism is always driven at a proportionately higher speed than that of the occupant in relation to the speed of the decelerating vehicle.

3,782,757

MUD FLAP ASSEMBLY AND BRACKET THEREFOR

Alfred J. Juergens, Muskegon, Mich., assignor to Fleet Engineers, Inc., Muskegon Heights, Mich.

Filed Sept. 19, 1972, Ser. No. 290,400
Int. Cl. B62b *9/16*
U.S. Cl. 280—154.5 **10 Claims**



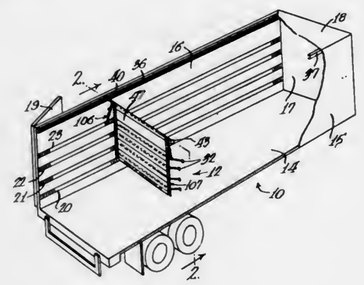
A mud flap mounting assembly and a mounting bracket therefor wherein the mounting bracket is formed of a narrow elongated plate of elongated cross-section, one end of the plate being twisted through an angle of approximately 90° with respect to the other end about the longitudinal axis of the plate, and also being bent through an angle of approximately 90° with respect to the other end about an axis transverse to the longitudinal axis of the plate. The mud flap can then be mounted directly to one end of the plate and the other end can be mounted directly to a vehicle or can be removably mounted in a socket on the vehicle for ease of removal of the bracket.

3,782,758

LOAD RESTRAINER

George R. Williamson, III, Richton Park, Ill., assignor to Transport Basics International, Inc., Richton Park, Ill.

Filed Sept. 18, 1972, Ser. No. 289,955
Int. Cl. B60p *7/00*
U.S. Cl. 280—179 R **15 Claims**



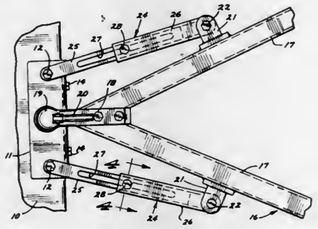
A unitary load retainer or restrainer system for a vehicular load carrying container or the like, including a supporting sheet of material suspended from a horizontal rod that rides in tracks so that the restraining system may be moved fore and aft within the container as desired, the supporting sheet material being provided with a plurality of horizontally extending slots that receive load restraining belts having fasteners at either end that are connectable to openings in logistic rails that extend along the interior of the container, the slots in the supporting sheet of material permitting vertical adjustment of the horizontal belts to accommodate for different locations of the logistic rails within different vehicular containers, there being also provided means for loosely holding the belts within the slots so that the belts may not be inadvertently removed from the supporting sheet of material and lost, there being also provided a draw strap having a plurality of slots that receive the belts and a portion which extends up over the horizontal sliding rod at the top of the container with a fastener at the end thereof that may be fixed in any one of the logistic rails as desired to draw the entire supporting sheet and belts to the top of the vehicular container during non-use or loading of the container.

3,782,759

SAFETY ARMS FOR TRAILER HITCH

Gerald E. Thune, Rt. 2, Sacred Heart, Minn.

Filed Oct. 13, 1972, Ser. No. 297,401
Int. Cl. B60d *1/12*
U.S. Cl. 280—457 **2 Claims**



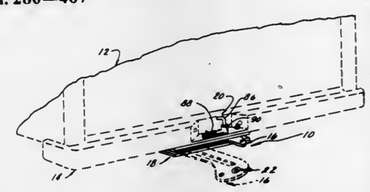
For use with a conventional trailer hitch wherein a forwardly extending tongue on a trailer is pivotally connected on a vertical main hitch axis to a support on the rear of a towing vehicle. A pair of safety links or arms extend fore and aft from each side of the tongue to the support where they are pivoted on each side of the hitch axis. The arms are longitudinally telescopic to extend and retract as the trailer moves about the hitch axis and the arm ends are connected on rigid vertical axes to the tongue and support to provide an effective traveling hitch connection should the main hitch connection be severed.

3,782,760

CUSHIONED ADJUSTABLE SWING HITCH FOR VEHICLE

Frederick W. Mann, Waterville, Kans.

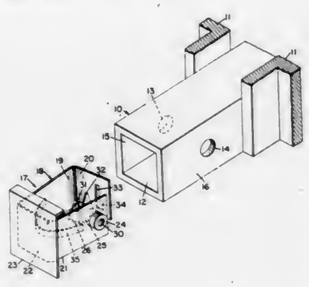
Continuation-in-part of Ser. No. 89,858, Nov. 16, 1970, Pat. No. 3,718,347. This application Dec. 6, 1972, Ser. No. 312,566
Int. Cl. B60d *1/00*
U.S. Cl. 280—467 **7 Claims**



A hitch for vehicles includes a mounting and a hitch pivotal, extendable and translatable relative the mounting with a

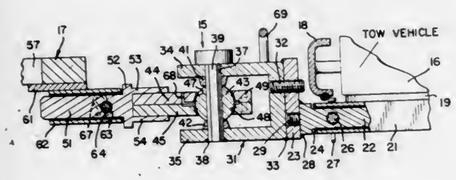
cushion connectable between the hitch and the mounting. A resilient lock secures the cushion of the hitch with the mounting. The hitch mounts on the rear of a vehicle with a hitch that is translatably positionable on the mounting, and is rotatably and extendably positionable therefrom to be coupled with a trailer vehicle, or the like, then retracted to a locked position with the cushion absorbing impact forces.

3,782,761
LOCKING HITCH BOX COVER
Carl J. Cardin, Sr., 425 W. Grace St., Punta Gorda, Fla.
Filed July 23, 1971, Ser. No. 165,634
Int. Cl. B60d *7/00*
U.S. Cl. 280—507 **3 Claims**



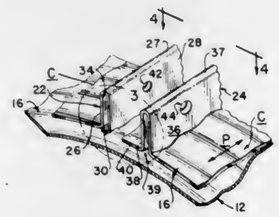
A locking hitch box cover, for a hitch box having an open end and an opening in a side thereof, comprising a body shaped for insertion in the open end of the hitch box, a key operated locking mechanism attached to said body and having a part biased to enter the opening in the hitch box upon insertion of the body into the hitch box to restrain the body from withdrawal from the hitch box, and key actuated means comprising a part of the locking mechanism to restrain retraction of the part from the opening. The body includes first, second, third and fourth walls with the locking mechanism mounted on the fourth wall. The fourth wall is free at one end and biased away from the first wall to hold two walls against opposed faces of the hitch box.

3,782,762
THEFT PROOF VEHICLE TRAILER HITCH CONNECTION
Charles E. Nagy, 3221 Benda Pl., Hollywood, Calif.; John F. Nagy, 785 W. End Ave., New York, N.Y., and Bernard Miller, 11 Fig Tree Rd., Portugese Bend, Calif.
Filed Feb. 29, 1972, Ser. No. 230,333
Int. Cl. B60d *1/06*
U.S. Cl. 280—507 **9 Claims**



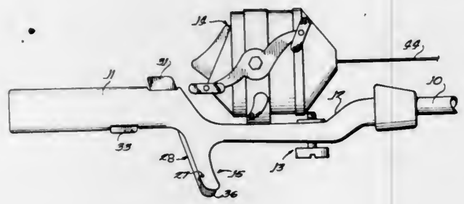
A hitch connection has been provided for vehicle trailers in which the parts can be disconnected from one another by a special shaped hitch pin or the parts can be left connected with one another and detachably removed as a unit from between the trailer and the vehicle and transferred to a location where the unit is inaccessible to unauthorized persons. A universal ball and socket connection is afforded between a bracket and plate socket parts in which a ball is carried upon a hexagonal shank carried on a bracket part and plates have openings adapted to fit over the upper and lower halves of the ball. The ball being held against rotation upon the hexagonal section pin by a complementary opening in the ball and the hexagonal pin being held against rotation between supporting arms on a bracket by hexagonal shaped openings so that all movement between the vehicle and trailer hitch parts is effected upon the ball fixedly carried upon the vehicle and so that the trailer hitch part can tilt up and down and swing free laterally. The vehicle bracket and trailer hitch parts are provided with prongs adapted to be inserted in hollow tubes carried on the vehicle and on the trailer tongue allowing thereby the hitch connection to be releasably removed from the vehicle and trailer as a unit, the same being held in place thereon by removable pins extendable through the tubes and the prongs. The bracket and the trailer parts are designed according to certain forms of the invention to be formed from metal plate stampings or forgings.

3,782,763
COUPLER BAND DEVICE
Henry G. Henrickson, Coeur D'Alene, Idaho, assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Oct. 6, 1971, Ser. No. 187,020
Int. Cl. F16l *21/00*
U.S. Cl. 285—419 **5 Claims**



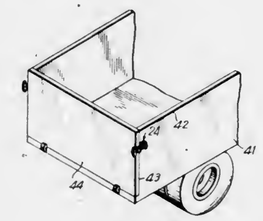
Coupling band device or collar for various types of culvert pipe sections and the like provided with improved flange elements for effecting and maintaining a sealed clamping engagement with the ends of adjoining pipe sections.

3,782,764
KNOT TYING DEVICE
Charles W. Browning, 4645 E. 57th St., Tulsa, Okla.
Filed Oct. 18, 1971, Ser. No. 190,220
Int. Cl. D03j *3/00*
U.S. Cl. 289—17 **23 Claims**



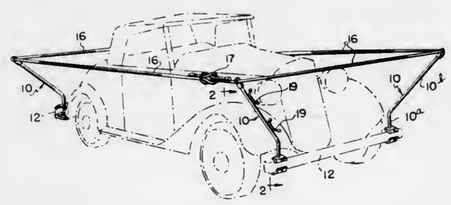
A knot tying device and method, especially for use in the knotting of monofilament line to fish hooks or lures where the device is generally attached to or is a part of the handle of a fishing rod and includes a pair of jaws, one of which is movable to provide a pair of winding surfaces that may alternately be diverging or converging at their free ends. The jaws are initially held in a diverging relationship so the fishing line threaded through the eye of the hook can be wound onto the jaws without inadvertently slipping off; the hook being held adjacent the jaws. The free end of the line is positioned between the jaws and held there when the jaws are released, the line is held and the hook is pulled to pull the loops of line off of the jaws and onto the line, and the resulting knot is tightened.

3,782,765
LATCH ASSEMBLY
Rene Wallyn, Claye-Souilly, France, assignor to Societe du Caoutchouc Technique, Claye-Souilly, France
Filed June 13, 1972, Ser. No. 262,305
Int. Cl. E05c *19/10*
U.S. Cl. 292—103 **3 Claims**



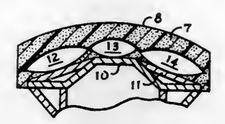
This invention relates to a locking device comprising a latch arm of resilient stretchable material adapted to be pivotally mounted at one end to one element. The latch arm has a handle at its free end and has an enlarged portion positioned inwardly of such handle and formed integrally therewith, the enlarged portion being adapted releasably to engage a retaining portion formed integrally with a retainer bracket secured to another element adjacent the first element, a secure substantially vibration free connection of the two elements being formed when the resilient latch arm is stretched to enable the enlarged portion to engage the retaining portion.

3,782,766
DEMOUNTABLE VEHICLE ROPE BARRIER
William A. Teel, 901 Fifth St., Sandusky, Ohio
Filed Feb. 2, 1972, Ser. No. 222,911
Int. Cl. B60r *19/00, 27/00*; **E04h** *17/00*
U.S. Cl. 293—1 **1 Claim**



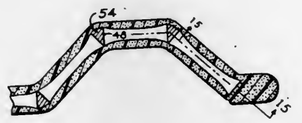
A set of four supports is disclosed for holding a demountable flexible rope barrier in position clamped to the front and rear bumpers of an automobile on display so as to provide a barrier therearound between spectators and the automobile.

3,782,767
RESILIENT, TUBULAR BUMPERS
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Filed Apr. 5, 1971, Ser. No. 131,024
Int. Cl. B60r *19/08*
U.S. Cl. 293—71 R **30 Claims**



A shock-absorbing bumper means (cushioning device for protecting cars, boats or other vehicles), comprising resilient tubular members of optional variation in cross-sectional shape, having tube-flattened portions, and containing gaseous material that may consist of: air, helium or other gas, preferably under pressure well above that of the atmosphere; cellular foam plastic; or, mixed with gas: a mass of mingled fibers, globules, or other small-diameter elements of small cross-sectional area (e.g., small, flexible; axially curved or straight tubes or rods of resilient rubber or other flexible or crushable material). The cushioning means may comprise separate bumpers at the front and rear of a vehicle, optionally also at the sides or it may extend all around a vehicle with or without integral, tube-flattened junctions between the tubular links. Each bumper element may comprise: only one flat-ended tube; a plurality of separate flat-ended tubes that are not strongly connected or a plurality of band-connected flat-ended tubes (tubular elements or links). The tubular elements are flexible, and because of their wider flattened ends may be long-repeatedly bent without damaging wrinkling, fracture of their material or change in length. Although this material may comprise gas-permeable resilient plastic (preferably enveloped in mesh or other fabric), it preferably is of ductile or resilient metal or of resilient, substantially impermeable, dense plastic. When of metal it may comprise thin copper, lead, aluminum, mild steel, or resilient steel, optionally sheathed in fabric.

3,782,768
TUBULAR, SHOCK-ABSORBING BUMPERS
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.
Continuation-in-part of Ser. No. 796,482, Feb. 4, 1969, Pat. No. 3,575,251. This application Apr. 5, 1971, Ser. No. 131,025
Int. Cl. B60r *19/10*
U.S. Cl. 293—71 R **39 Claims**



Shock-absorbing bumper means for cars, boats or other vehicles, comprising resilient, tubular cushioning members of optional variation in cross-sectional shape, containing gaseous material that may be: pressurized air or other gas; gas-cell-containing foam plastic; or a gas-containing mass (optionally pressurized) of separate fibers, globules, or small-diameter elements (very small flexible tubes containing gaseous material or elongated rods of resilient rubber or other flexible or crushable material). The cushioning means may be only at the front and/or rear of the vehicle or may extend around it, with or without integral junctions between the tubular elements.

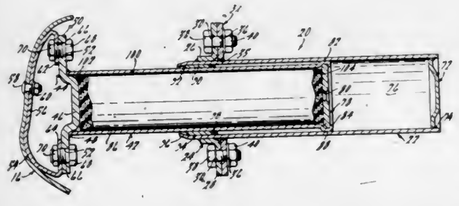
The tubular members may have axes that are: horizontal; vertical or upright; optionally either upright or horizontal; or they may comprise outer horizontal tubular sheaths and inner vertical tubular elements. The tubular-member material may comprise: ductile or resilient metal — e.g., copper, lead, soft iron, resilient steel, with or without mesh or other reinforcing material; or flexible plastic (preferably fabric-reinforced rubber). The tubular members may comprise flat-ended tubular elements that are either separate tubes or tubular links in a bumper band around a portion or all of the vehicle, some of these links optionally comprising a fender above a wheel and a running-board-like side bumper-step. The tubular elements may comprise relatively wide, spring-like bands of resilient steel or the like, acting when flexed to compress fibers or other small filler elements.

3,782,769

ENERGY ABSORBER FOR VEHICLE BUMPERS AND THE LIKE

John H. Fader; Robert W. Hegel, and Burke A. West, all of Monroe, Mich., assignors to Monroe Auto Equipment Company, Monroe, Mich.

Filed June 1, 1971, Ser. No. 148,642
Int. Cl. B60r *19/06*; **F16f** *3/00*
U.S. Cl. 293—88 **30 Claims**



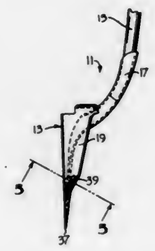
An energy absorber for vehicle bumpers and the like comprising a pair of telescopic tubular housings, with one of the housings containing a high energy spring and the other of the housings containing a fluid reservoir, whereupon impact of the vehicle bumper with an object, fluid within the reservoir is forced through a control device to effect rapid deceleration of the vehicle and compress the high energy spring.

3,782,770

TRENCHING TOOL

Mark W. Lee, 2364 Santa Ana Ave., Costa Mesa, Calif.

Filed Aug. 31, 1972, Ser. No. 285,535
Int. Cl. A01b *1/02*
U.S. Cl. 294—49 **9 Claims**



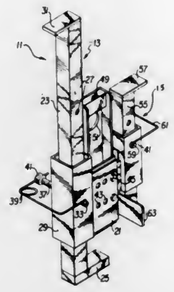
A trenching tool including a blade defining a recess opening in a first direction and a handle attached to the blade. First and second cutting elements are mounted on the blade and extend in a second direction which is opposite to the first direction.

3,782,771

PANEL POSITIONING APPARATUS AND METHOD

Charles H. Moore, 245 Merced St., Salinas, Calif.

Filed Aug. 6, 1971, Ser. No. 169,772
Int. Cl. B66c *1/00*
U.S. Cl. 294—67 R **16 Claims**



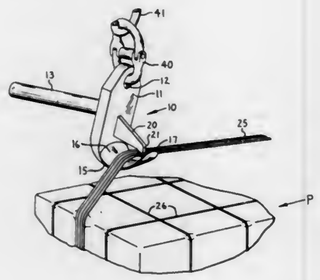
A prefabricated panel positioning device for placing the panel in its proper location on a foundation. A hooking assembly is secured to the edge of the panel and lifting forces are applied thereto to lift the panel from a generally horizontal position to a generally vertical position. The hooking assembly supports the upper frame of the panel and includes a capturing member which selectively prevents disengagement of the panel. An independent dolly is provided which includes a wheeled frame. The dolly supports the lower edge of the panel and horizontally moves it by means of the wheels. The dolly is provided with a jacking device which is utilized to gently lower the panel onto the foundation. The hook and dolly cooperate to position the panel.

3,782,772

LIFTING HOOK FOR BOUND PACKAGES

Albert E. Cranston, III, Gladstone, and Charles B. Lewis, Milwaukie, both of Oreg., assignors to Cranston Machinery Company, Inc., Oak Grove, Oreg.

Filed Apr. 12, 1972, Ser. No. 243,289
Int. Cl. B66c *1/14*
U.S. Cl. 294—82 R **9 Claims**



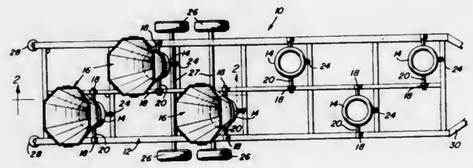
This is an eye hook having a handle on the back side of the shank for the manual engagement and disengagement of the point of the hook under a tensioned binding extending across the top of a bound package. The lifting portion of the hook presents a broad and curved lifting surface to support the binding without producing a sharp bend in the binding. The lifting surface is hardened and polished to avoid damage to the binding. A nose projects from the shank into close proximity with the point of the hook overhanging the binding and preventing accidental disengagement of the binding from the hook when lifting tension is relaxed.

3,782,773

REUSABLE TREE CARRIER

Jack D. Mason, 2170 Rosier Rd., Augusta, Ga.

Filed Apr. 21, 1972, Ser. No. 246,249
Int. Cl. B60p *3/00*
U.S. Cl. 296—3 **17 Claims**



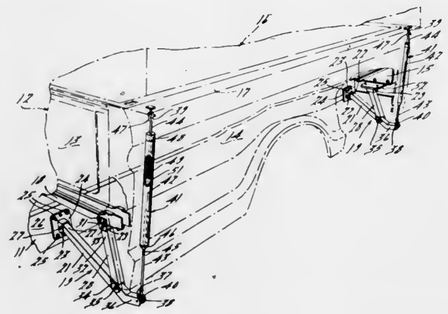
An apparatus for moving trees and the like has a frame provided with wheels and a plurality of annular members of collars pivotally mounted thereon. The collars are mounted on the frame in adjacent parallel rows, the members of one row alternatingly spaced with the members of the other row. A carrier device in the form of a right octagonal cone holds the root-ball of a tree and the like, and is selectively arrangeable in a collar. The carrier device is formed from a plurality of sections selectively connected together as by pins received in holes provided on the sections. Each section has a surface in the shape of an isosceles triangle, with each equal leg thereof having a portion extending therefrom at an acute angle to the plane of the isosceles triangle and shaped as a right triangle.

3,782,774

CAMPER TIE-DOWN SYSTEM

James S. Sturek, 741 E. Grand River, Fowlerville, Mich.

Filed Dec. 14, 1972, Ser. No. 315,255
Int. Cl. B60p *7/16*
U.S. Cl. 296—23 MC **5 Claims**



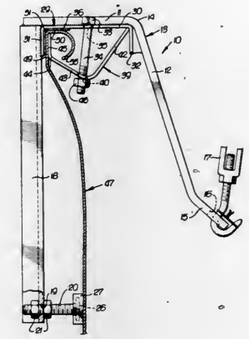
A camper tie-down system utilizing a two strut support system with pinned joints designed to withstand the loads created by pick-up campers. The system does not rely on the outer panel or stake pocket of the pick-up body for attachment or support, but rather attaches to the chassis frame and pick-up box underbody forming a rigid attachment at the vehicle. The system offers compliance and pre-load adjustment by way of a rod assembly.

3,782,775

CAMPER TIE-DOWN

Raywood C. Weiler, and Gene H. Albers, both of 18738 5th St., Fontana, Calif.

Filed July 17, 1972, Ser. No. 272,117
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 MC **7 Claims**



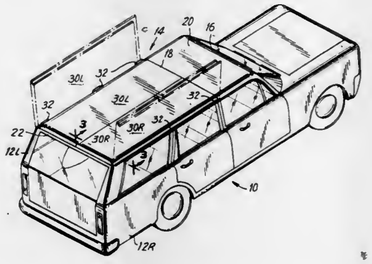
A tie-down device for campers carried in pick-up trucks in which the top edge portions of the side walls of the truck bed are bent outwardly from said walls and then downwardly in various configurations, the tie-down device having a lip clamp disposed outside said truck side wall and being adaptable to the various conformations of the out-turned lips formed on said walls. An inner leg is provided on the device which provides a relatively long-radius bearing against the inner face of the truck side wall while an outer leg on the device provides an anchor boom for attaching a turnbuckle for tieing the camper down to the truck.

3,782,776

CONVERTIBLE ROOF FOR A STATION WAGON

Louis Ormont, 115 Central Park West, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,287
Int. Cl. B60j *7/10*
U.S. Cl. 296—137 B **7 Claims**



A convertible roof for a station wagon having a pair of roof members oriented along the length of the wagon. Each of said members is pivotally mounted along one of their sides to opposite side walls of the wagon. Seal means are provided along the mating edges of each of said members for holding them together in a water-tight fit. The seal means in one embodi-

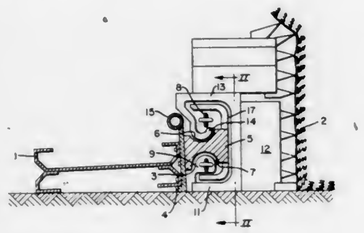
ment include tongues along their common edge which fit together in overlaping relationship. Brace means are provided for supporting the roof members when they are pivoted to an open position.

3,782,777

APPARATUS SUPPORTED BY A LONGWALL CONVEYOR FRAME FOR HAULING COAL MINING EQUIPMENT

Karl-Heinz Hafer, Bochum; Walter Pelka, Gelsenkirchen; Reimund Karkutt, and Pal Frenyo, both of Bochum, all of Germany, assignors to Gebr. Eickhoff, Maschinenfabrik Und Eisengiesserei m.b.H., Bochum, Germany

Filed Apr. 24, 1972, Ser. No. 246,632
Int. Cl. E21c 27/35
U.S. Cl. 299—34 6 Claims



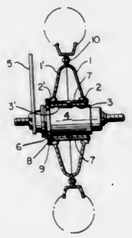
Connected to a side of a longwall conveyor in a coal mine is one side of an I-beam type guide bar that extends lengthwise of the conveyor and is provided with upper and lower longitudinal guide channels containing the upper and lower lengths of an endless drag chain. Retaining plate means connected to the opposite side of the bar extend above and below it and also at least part way across the top of the bar but only part way across its bottom, whereby to leave space for passage of an arm connecting a guide block attached to the chain in the lower guide channel to mining equipment between the conveyor and a coal mine longwall.

3,782,778

BICYCLE WHEEL

Yoshiaki Tomozawa, Osaka, Japan, assignor to Nankai Tekko Co., Ltd., Osaka, Japan

Filed Mar. 10, 1972, Ser. No. 233,498
Claims priority, application Japan, Mar. 11, 1971, 46/16344
Int. Cl. B60b 19/00
U.S. Cl. 301—9 DN 5 Claims



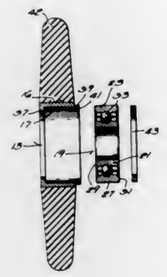
An improved bicycle wheel with isometrical disc wheels linked together with bosses at the bases fitted to a coaster hub shell with cylindrical bodies adjacent to the waster hub shell, a flange on the shell jointed to one boss with bolts extending through the jointed shell flange and boss and an opposite boss.

3,782,779

WHEEL ASSEMBLY AND METHOD OF MANUFACTURE

Douglas A. Britnell, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Apr. 6, 1972, Ser. No. 241,589
Int. Cl. B60b 5/02
U.S. Cl. 301—63 PW 5 Claims



Disclosed herein is a wheel assembly including a flange portion extending integrally from one end of a sleeve and radially inwardly of the outer periphery of a bearing in the sleeve so as to prevent axial movement of the bearing outwardly of the sleeve from the one end thereof, together with a deformed portion extending integrally from the other end of the sleeve and radially inwardly of the outer periphery of a washer or spacer located in the sleeve in adjacent relation to the bearing so as to prevent axial movement of the washer and of the bearing outwardly of the sleeve from the other end thereof.

Also disclosed herein is a method of manufacturing a wheel assembly comprising the steps of forming a bearing sleeve with an outer surface, with a radially inwardly extending flange portion at one end, and with a projecting deformable portion at the other end, bonding to the outer surface of the sleeve a rubber-like wheel, inserting a bearing into the sleeve through the projecting portion and into adjacent relation to the flange portion, subsequently inserting an annular spacer into the sleeve through the projecting portion and into adjacent relation to the bearing, and then deforming the projecting portion inwardly into at least partially overlying relation to the adjacent side of the spacer to permanently retain the bearing and spacer within the sleeve.

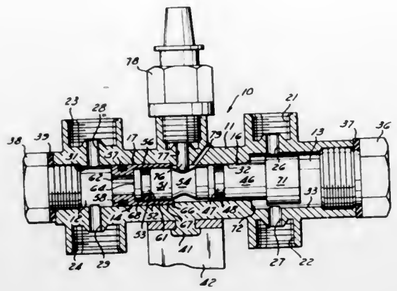
3,782,780

BRAKE WARNING SWITCH REQUIRING RECENTERING PRESSURE

Edward S. Orzel, Cleveland, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

Filed July 26, 1971, Ser. No. 166,082
Int. Cl. B60t 15/46, 17/22
U.S. Cl. 303—6 C 7 Claims

A brake warning switch or other differential pressure sensing device has opposed pressure chambers in a housing to be connected to the fluid circuits of a dual brake system and includes a pressure responsive piston assembly shiftable from a centered position in the housing to generate a warning signal upon an abnormal pressure imbalance in the chambers. The piston assembly is arranged to automatically recenter itself when pressures are reestablished in the chambers and includes a pair of coaxial pistons of differing areas and associated ring seals at one chamber, at least, arranged to permit the differential area of the pistons, which determines the relative



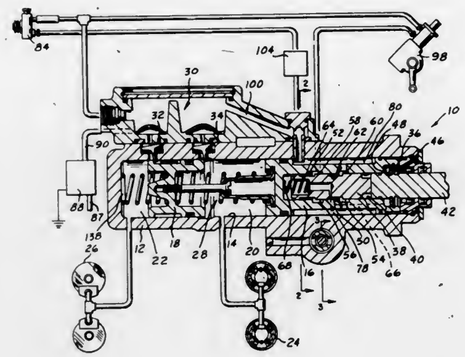
magnitude of the pressures necessary to recenter the pistons, to be selected so that the recentering pressure required is high enough to test the integrity of the fluid circuits.

3,782,781

SINGLE FLUID BOOSTER AND SYSTEM

Richard L. Lewis, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed June 29, 1972, Ser. No. 267,296
Int. Cl. B60t 13/16, 13/00; B62d 5/06
U.S. Cl. 303—9 9 Claims



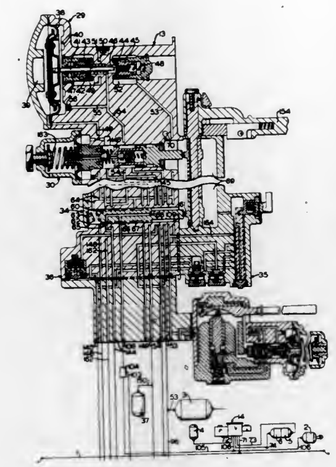
A vehicle hydraulic braking system is disclosed which includes a primary pressure source, a secondary pressure source which is actuated upon failure of the primary pressure source and which is operated by an electric motor, and a hydraulic brake booster which utilizes pressurized fluid from either of the pressure sources to provide a power assist to the vehicle operator when a brake application is effected. Normally, fluid is communicated from the primary pressure source to the booster, and from the booster to the vehicle's power steering gear to operate the latter. However, upon failure of the primary pressure source and subsequent actuation of the secondary pressure source, a valve which is responsive to actuation of the secondary pressure source diverts fluid from the power steering gear to the system reservoir, thereby conserving the entire fluid output of the secondary pressure source for operation of the brake booster alone.

3,782,782

COMBINED OVERSPEED AND SAFETY INTERLOCK FOR VEHICLE CONTROL

Donald Brown, Monroeville, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 11, 1972, Ser. No. 270,575
Int. Cl. B60t 7/12
U.S. Cl. 303—19 13 Claims



This invention relates to fluidically operable vehicle overspeed and safety control apparatus which requires periodic acknowledging operations by the vehicle operator to forestall a penalty brake application which would be automatically effected should the operator fail to reduce the speed of the vehicle to the maximum allowable speed or perform the required acknowledging operation within a certain time subsequent to the sounding of an alarm signal or whistle. This apparatus requires that the operator successively, within a chosen time interval following one and then the other of two successive alarms, manually close and thereafter open a sensing or vent port from a back pressure switch abutment-operated logic valve device to prevent the occurrence of a brake application which would automatically occur should he fail to close and thereafter open the vent port in the prescribed timed sequence, or should he become incapacitated.

3,782,783

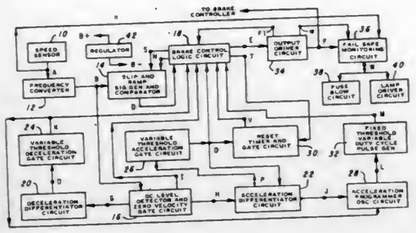
PROGRAMMED OSCILLATOR CIRCUIT AND FIXED THRESHOLD VARIABLE DUTY CYCLE PULSE GENERATOR

James J. Jones, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 27, 1972, Ser. No. 275,663
Int. Cl. B60t 8/12
U.S. Cl. 303—21 P 10 Claims

Disclosed is a signal generator in a vehicle skid control braking system for selectively actuating a brake control means in a repetitious or pulsing mode which selectively controls the engagement and disengagement of the braking system of a vehicle in accordance with selected braking conditions and velocity conditions of the wheels of the vehicle. The signal generator comprises a programmable oscillator circuit having a programmable rate of oscillation responsive to a first input signal representing acceleration conditions of the wheels, and a pulse generator responsive to the programmable oscillator

circuit for selectively generating an oscillatory output signal comprising a series of pulses. The oscillatory output signal exhibits a programmable duty cycle responsive to the accelera-

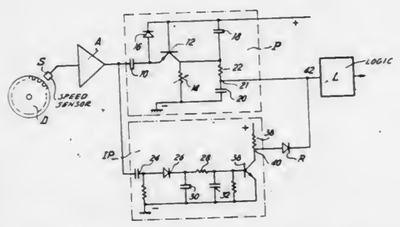


tion condition and is effective to selectively actuate the brake control means in a repetitive pulsing manner to thereby decrease vehicle velocity.

3,782,784
VOLTAGE CONVERTER APPLYING AN ANTISKID LOGIC ELEMENT

Guy Marouby, Neuilly, France, assignor to Societe Anonyme D.B.A., Clichy, France

Filed Apr. 19, 1972, Ser. No. 245,333
Claims priority, application France, May 4, 1971, 7115961
Int. Cl. B60t *8/00*
U.S. Cl. 303—21 R **4 Claims**



A voltage converter set designed to feed an antiskid logic element and to modify the wheel speed sensor signals.

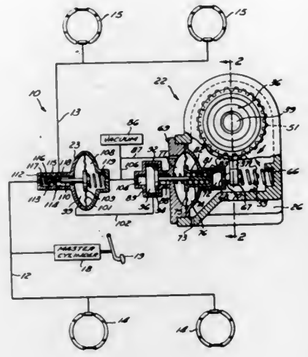
The converter set includes a proportional converter and an inversely proportional converter, connected through a diode, so that the output voltage of the converter set is higher for the low wheel speeds. The invention also provides the combination of several converter sets with a single antiskid logic element in a circuit of the exclusive "OR" or "SELECT LOW" type.

3,782,785
BRAKE ANTI-SKID SYSTEM

Tadeusz Budzich, Moreland Hills, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

Filed June 5, 1972, Ser. No. 259,434
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 F **6 Claims**

An anti-skid device for mechanically sensing a skid condition of a wheeled vehicle and for automatically regulating braking force to optimize braking effect. The device comprises an enclosed housing in which is mounted linear and rotational inertia bodies arranged to produce balanced forces in a normal braking situation and unbalanced forces in a skid condition. During a skid, a vacuum control circuit having a control port in the housing is operated by the unbalanced force to relieve braking pressure at the controlled wheels to prevent wheel lock-up and consequent loss of braking efficiency. Illustrated modifications include slip clutch means to

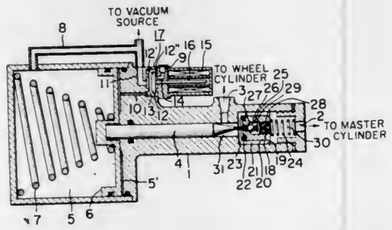


protect the sensing apparatus from excessive forces under extreme wheel acceleration or deceleration and means to maintain a brake pressure retarding signal beyond a point at which wheel deceleration is returned to proportionality with linear deceleration to allow the controlled wheels to reach synchronous speed to maximize braking effect.

3,782,786
MODULATOR IN ANTI-SKID SYSTEM

Yoshihiro Matsumura, Yokosuka, Japan, assignor to Nippon Air Brake Company Ltd., Kobe, Japan

Filed July 18, 1972, Ser. No. 272,964
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 F **2 Claims**

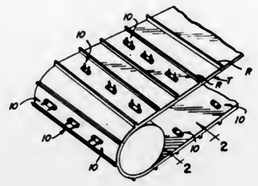


A modulator in an anti-skid system for vehicles in which two valves are disposed in the path of fluid under pressure from a master cylinder to wheel cylinders. In the initial stage of fluid pressure application to the wheel cylinders, the first and second valves are opened and closed respectively, while in the stage of pressure control following the initial stage, the first and second valves are closed and opened respectively, and the second valve member is cyclically closed and opened so that the fluid under pressure can be supplied at controlled rate through an orifice and the second valve.

3,782,787
TRACTION STUD ASSEMBLY FOR SNOWMOBILES

Edward R. Rubel, 68 Landing Rd. South, Rochester, N.Y.; Frank L. Martin, Jr., 2 S. Pittsford Hills Cir., and Robert B. Rubel, 1085 Pittsford Victor Rd., both of Pittsford, N.Y.

Filed Jan. 10, 1972, Ser. No. 216,582
Int. Cl. B62d *55/24*
U.S. Cl. 305—35 EB **6 Claims**



Traction stud assemblies for snowmobile belt include a pair of spaced parallel studs rigidly connected at one end to a common flat support plate. The studs are threaded to serve both as mounting as well as traction elements.

3,782,788
MOVABLE AND TILTABLE BEARING, ESPECIALLY FOR BRIDGES

Waldemar Koester, Forsbach, Germany, and Reinhold Huber, Rorbas, Switzerland, assignors to Kober AG, Glarus, Switzerland

Filed Dec. 21, 1971, Ser. No. 210,439
Claims priority, application Germany, Dec. 24, 1970, P 20 63 745.0; Mar. 26, 1971, P 21 14 662.3
Int. Cl. F16c *27/06*
U.S. Cl. 308—3 R **16 Claims**



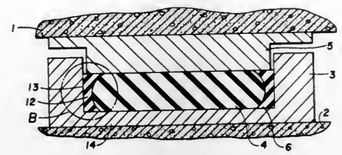
The present movable and tiltable bearing is suitable for supporting heavy loads, such as bridges, by means of an elastically yielding pressure cushion, for example, made of rubber, which is surrounded by retaining ring means. In one embodiment one ring encircles the cushion middle portion to leave gaps above and below the ring. In another embodiment two rings are provided, one inside an annular cushion, the other outside of the annular cushion. Two rings are also used to surround a top and bottom region of a cushion whereby to leave a gap between these rings to permit the tilting movement.

3,782,789
TILTABLE BEARING, ESPECIALLY FOR BRIDGES

Waldemar Koester, Forsbach, Germany, and Reinhold Huber, Rorbas, Switzerland, assignors to Kober AG, Glarus, Switzerland

Filed Dec. 21, 1971, Ser. No. 210,493
Claims priority, application Germany, Dec. 24, 1970, P 20 63 746.1; Mar. 25, 1971, P 21 14 391.9
Int. Cl. F16c *27/06*
U.S. Cl. 308—3 R **7 Claims**

The present tiltable bearing for heavy structures such as bridges has a load supporting piston which extends into a space confining pot into which is inserted a yielding pressure material, such as a rubber cushion, on which the piston rests. For preventing the escape of the cushion material through the gap between the outer piston walls and the inner walls of the

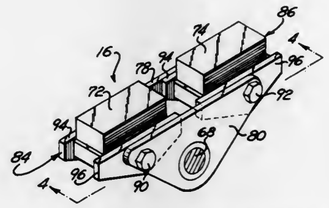


pot, there is provided a sealing body of material which is more rigid than the cushion material. The sealing body faces said gap and forms an integral structure with the gap.

3,782,790
BOOM SLIDER ASSEMBLY

Frank J. Benkowski, Bedford, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Continuation of Ser. No. 29,408, April 17, 1970, abandoned. This application Apr. 3, 1972, Ser. No. 240,759
Int. Cl. F16c *17/00*
U.S. Cl. 308—3 R **11 Claims**



An improved boom includes a slider assembly for use in supporting telescoping sections of the boom for movement relative to each other. An articulated slider assembly embodying the invention includes a rocker member which is pivotally mounted on one section of the boom. A pair of slider block assemblies are pivotally mounted on the rocker member and slidably engage a supported section of the boom at spaced apart locations. Deflection of the supported boom section is compensated for by pivotal movement of the slider block assemblies relative to each other. A spring type slider assembly forms another embodiment of the invention and has a flexural rigidity such that the deflection of the spring type slider assembly matches the deflection of a supported section of the boom under the influence of an operating load to provide for the transmittal of a uniform bearing load between the supported boom section and slider assembly.

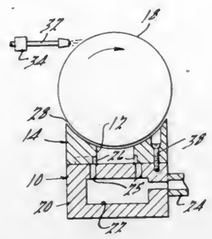
3,782,791
VORTEX DIFFUSER FLUID BEARING DEVICE

John W. Neumann, Birmingham, Mich., and Harry A. Mackie, Raleigh, N.C., assignors to The Udylite Corporation

Filed Mar. 17, 1971, Ser. No. 125,251
Int. Cl. F16c *17/00*
U.S. Cl. 308—9 **16 Claims**

A fluid bearing load supporting system having unidirectional and omnidirectional capabilities which embodies means for forming one or a plurality of fluid vortices

for separating a body from a supporting surface by an intervening cushion of fluid, providing therewith an extremely low



coefficient of friction that facilitates a conveyance of the body for the purposes of transportation, processing, treatment and the like.

3,782,792

CYLINDER-PISTON INTERNAL COMBUSTION ENGINE AND BEARING CONSTRUCTION THEREFOR

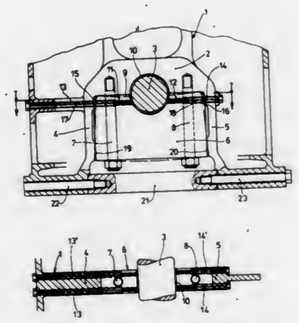
Ernst Pfleiderer, Konigsbrunn, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.), Augsburg, Germany

Filed June 15, 1972, Ser. No. 263,018

Claims priority, application Germany, July 22, 1971, P 21 36 631.4

Int. Cl. F16c *9/02*

U.S. Cl. 308—23 **9 Claims**



To provide a hanging, separable bearing on a vertically installed internal combustion engine, a bearing cover is secured from the bottom to the machine part, and carrying a half-cylindrical bearing portion. To prevent distortion of the bearing lining upon longitudinally twisting loading, transverse screws clamp the lower bearing half shell to the machine frame, located close to the separating gap between the lower bearing half shell and the machine portion, to additionally clamp the lower half bearing shell to the machine.

3,782,793

BEARING CONSTRUCTION

Karl-Helmut Sinner, Dortmund-Hochsten, Germany, assignor to Hoesch Werke Aktiengesellschaft, Dortmund, Germany

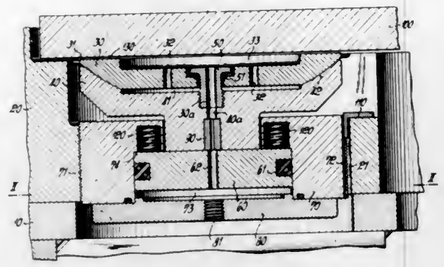
Filed Jan. 24, 1973, Ser. No. 326,297

Claims priority, application France, Jan. 25, 1972, 7222033814

Int. Cl. F16c *17/06*

U.S. Cl. 308—160 **7 Claims**

A support ring is located beneath a bearing ring a major surface of which faces the support ring. The support ring is provided with one or more circumferentially spaced holes each accommodating a hydrostatic support unit for the bearing. Each support unit has a cupped element an open side of which faces the major surface and a closed side of which faces away from the major surface and is bounded by a part-spherical circular face. Beneath the cupped element is a support element a contact face of which is in mating engagement with the circular face. A cylinder is threaded into one of the holes which is



tapped and has a first and a second open end which respectively face towards and away from the support element. The second open end has a flange extending thereacross. A piston is slidable in the cylinder and contacts the support element through the first open end, and communicating oil passages are formed in the flange, the piston, the support element and the cupped element in communication with the open side of the latter.

3,782,794

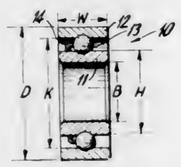
ANTIFRICTION BEARING

William J. Chmura, Southington, and Kenneth A. Catlin, Berlin, both of Conn., assignors to Textron Inc., Providence, R.I.

Filed Dec. 8, 1972, Ser. No. 313,561

Int. Cl. F16c *33/64, 33/66*

U.S. Cl. 308—193 **19 Claims**



Low-cost antifriction bearing rings are disclosed made by the powder metal compaction and sintering of ring blanks followed by densification of the raceway by mechanical working, such as by roll-forming, the bearing rings so produced being characterized by increased rolling contact fatigue life, increased static load capacity and decreased bearing noise as compared to powder metal rings made by compaction and sintering but in which the raceways are produced by machining. By preferably maintaining a region of porosity outside the densified area adjacent the raceway, the rings can be made to exhibit compliancy and thus further increase the fatigue life thereof.

3,782,795

TAPERED ROLLER BEARING

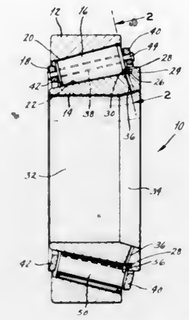
John Cecil Richey, Canton; Ralph E. McKelvey, Louisville; Robert F. Cornish, North Canton, and Harry L. Noll, Canton, all of Ohio, assignors to The Timken Company, Canton, Ohio

Filed Apr. 6, 1972, Ser. No. 241,534

Int. Cl. F16c *33/00*

U.S. Cl. 308—214 **11 Claims**

A tapered roller bearing has a pin-type cage for maintaining the proper circumferential spacing between the tapered rollers and in the spaces between the rollers it has cage inserts formed from a composite material containing a dry lubricant. In addition, the cone of the bearing has an insert on the thrust rib thereof, and that insert is likewise formed from a composite material containing a dry lubricant. Should the bearings normal supply of lubricant be depleted, the composite material will give up its dry lubricant and for a limited period of time will provide adequate lubrication for critical bearing surfaces. The cone further has outwardly directed oil holes leading to the juncture of the cone raceway and the adjoining abutment face of the thrust rib, and those holes direct lubricating oil to the abutment face as the cone rotates, particularly during high speed operation when the centrifugal force is large.



3,782,796

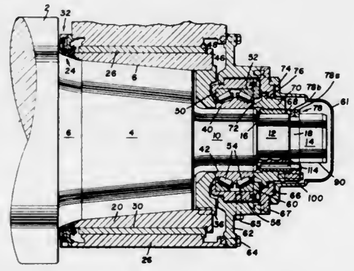
RETAINING MEANS FOR A BEARING ASSEMBLY

Samuel S. Rickley, West Boylston, and Harry Boghosian, Worcester, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Dec. 18, 1972, Ser. No. 315,839

Int. Cl. F16c *19/14*

U.S. Cl. 308—234 **7 Claims**



For use with a rotatable element having one section journalled for rotation in a bearing assembly and having another section protruding axially beyond the said one section, an arrangement for retaining the bearing assembly on the said one section including a threaded ring axially movable on and held by means of a key against rotation relative to the said other section, a stop member removably mounted on the said other section for limiting movement of the threaded ring away from the bearing assembly; a nut member threaded on the ring and rotatable to a position contacting the bearing assembly to thus seat the bearing assembly and thereafter exert a retaining force thereon and a locking member removably attached to the nut member and cooperatively engaged with the key for preventing rotation of the nut relative to the threaded ring once the bearing assembly is properly seated.

3,782,797

SLIDING BEARING PARTICULARLY FOR UNIVERSAL JOINTS IN SHIFTING AND STEERING MECHANISMS OF MOTOR VEHICLES

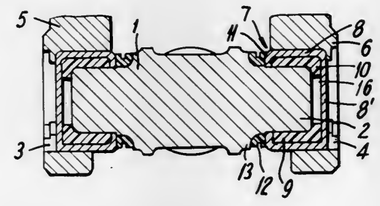
Gunther Lange; Siedlung Gluckauf, and Jurgen Ulderup, all of Haldem, Germany, assignors to Leniforder Metallwaren AG, Lemforde/Hann., Germany

Filed June 11, 1971, Ser. No. 152,082

Claims priority, application Germany, June 9, 1970, P 20 28 176.9; June 24, 1970, P 20 31 183.5

Int. Cl. F16c *33/20, 33/74*

U.S. Cl. 308—238 **6 Claims**



The sliding bearing includes an outer cup-shaped thin metal bearing bush seated in the ends of a fork of the universal joint, and an inner sliding bush, of abrasion and oil resistant plastic composition material, embracing each pin of the universal joint, there being a predetermined clearance between the inner and outer bushes. The inner bush is retained against axial displacement relative to the pin, and is also retained against rotation relative to the pin. In one embodiment of the invention, the outer bearing bush has an in-turned flange engaging an end of the inner bush, and the inner bush has an in-turned end extending over the end of the pin. A packing ring is interposed between the in-turned flange on the outer bush and a collar on the pin. In another embodiment of the invention, the in-turned flange on the outer bush penetrates into the plastic inner bush which, in this embodiment, extends up to engage the collar on the pin. In a third embodiment, the plastic inner bush is formed by pouring around a cylindrical core inserted into the outer bush. The plastic bush, when it sets, shrinks to disengage its outer surface from the inner surface of the outer bush, and has a gripping fit with the pin of the joint. In this embodiment also the outer bush has an in-turned flange at its open end.

3,782,798

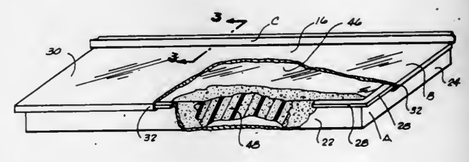
CLOSURE CONSTRUCTION

Robert B. Whorton, III, Spartanburg, S.C., assignor to Beverage-Air Sales Company, Spartanburgh, S.C.

Filed Aug. 1, 1972, Ser. No. 276,952

Int. Cl. A47f *3/00*

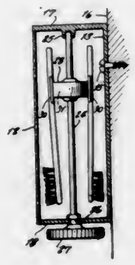
U.S. Cl. 312—138 R **2 Claims**



A slidable planar door for a refrigerated housing and the like having a rectangular opening in an upper wall thereof.

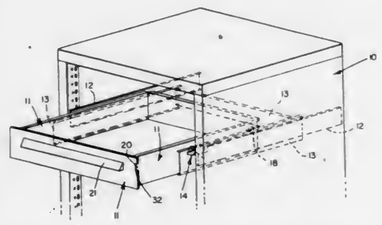
The planar door includes a lower member and an upper member with insulation carried therebetween. The upper member is attached to the lower member adjacent the rear thereof by a U-shaped member so that the upper member can expand to a different degree from the lower member without the door buckling. A thin plastic sheet is carried between the upper member and insulation carried in the door so as to permit the upper member to substantially float when expanding relative to the lower member.

3,782,799
MAGNETIC TOOTHBRUSH-HOLDER
Henning H. Hansen, 1000 Hayes Ave., Racine, Wis.
Filed Aug. 10, 1972, Ser. No. 279,722
Int. Cl. A46b *17/00*; **F16b** *47/00*
U.S. Cl. 312—206 **1 Claim**



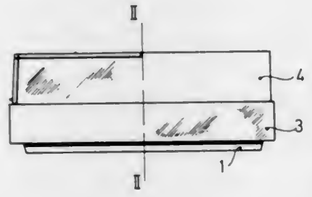
A holder for storage of toothbrushes so to be conveniently handy for use, the device consisting of a case that can be mounted on a wall of a bathroom, the case having a pivotable front door for access to the toothbrushes, a rotatable vertical spindle inside the case supporting a permanent magnet wheel, each of the brushes having a steel block permanently imbedded in a side of the handle so that the magnet wheel will hold to the steel blocks for supporting the toothbrushes, and a lower end of the spindle protruding from the lower end of the device so that it can be manually rotated so to bring a selected one of the toothbrushes to a front side where it can be easily removed for use.

3,782,800
LATCH MECHANISM
John L. Remington, Coplay, and Willard J. Benner, Quakertown, both of Pa., assignors to The Stanley Works, New Britain, Conn.
Filed June 22, 1972, Ser. No. 265,337
Int. Cl. A47b *88/16*
U.S. Cl. 312—333 **11 Claims**



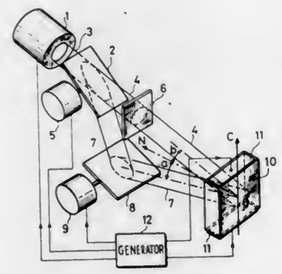
A latching arrangement for a reciprocable drawer or chassis assembly operable to securely hold the individual drawers in the fully open position once opened and in the fully closed position, when closed, until released manually. Latch stops are secured on the front and rear of one side of each drawer itself, each of which cooperates with a single latch member having a locking arm which is pivotally secured to the side of the stationary frame member. Alternate embodiments of the invention are disclosed showing camming surfaces, which cause the latch member locking arm to engage the stops, as being either on the latch stop or on a portion of the latch member itself. A release lever which is used to release the latch arm from either of the stops may be easily reached when the drawer is in either the open or closed position. When in the closed position, the release lever protrudes through a notch in the front of the drawer and is thus readily accessible.

3,782,801
CONSOLE FOR RECORD PLAYERS
Heinrich Zimmermann, Georgen/Schwarzwald, Germany, assignor to Firma Dual Gebruder Steidinger, St. Georgen/Schwarzwald, Germany
Filed Sept. 11, 1972, Ser. No. 288,082
Int. Cl. A47b *8/06*
U.S. Cl. 312—284 **2 Claims**



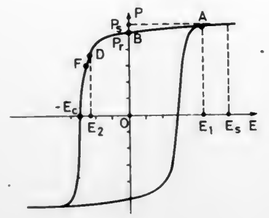
A console for record players, comprising a bottom part and a frame including side walls, a front wall and a rear wall. A cover cap is received by the frame and accessible from the front side. Adjustable means are provided for holding the frame on the bottom part in two selectable positions of different heights relative to the bottom part.

3,782,802
FERRO-ELECTRIC SYSTEM FOR BULK STORAGE OF PHASE HOLOGRAMS
Francois Micheron, and Guy Bismuth, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Sept. 13, 1972, Ser. No. 288,670
Claims priority, application France, Sept. 20, 1971, 7133727
Int. Cl. G02b *27/38*; **G11b** *9/02*
U.S. Cl. 350—3.5 **12 Claims**



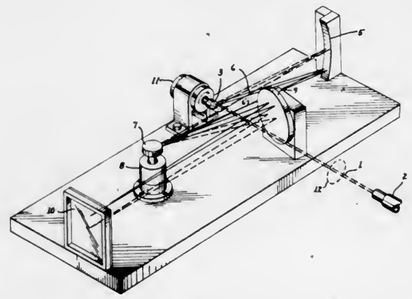
The present invention relates to phase holography and more particularly to ferro-electric systems for bulk storage of phase

holograms. The system in accordance with the invention comprises a photo excitable ferro-electric material having a hysteresis cycle at ambient temperature, wherein a electric field is created for at least partially reversing the remanent



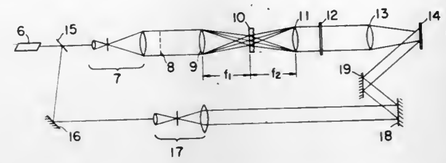
polarisation thereby fixing a fringe pattern photo induced within said ferro-electric material. The system can be used in optical bulk stores and for building up thick holographic lenses.

3,782,803
SIMPLIFIED FLAT MIRROR SCANNER
Willard E. Buck, P.O. Box 671, Lake Havasu City, Ariz.
Filed Oct. 12, 1971, Ser. No. 188,115
Int. Cl. G02b *17/00*
U.S. Cl. 350—7 **5 Claims**



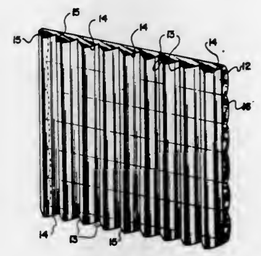
A system is disclosed for translating a collimated beam of light, such as that generated by a laser, into a raster scan on a planar target. The laser beam is directed at a first rotating mirror provided with a plurality of faces from which it is redirected toward a first stationary mirror with the first rotating mirror causing a linear sweep across the concave face of the first stationary mirror. From the first stationary mirror, the laser beam is directed toward a second multiface rotating mirror disposed beyond the focal point of the first stationary mirror. The second rotating mirror imparts a second scan direction to the laser beam which is substantially normal to the first scan direction. From the second rotating mirror, the laser beam is redirected toward a second stationary concave mirror from which it is redirected in a raster scan to a planar target disposed at a distance from the secondary stationary mirror at which the beam is substantially in focus. A line scan embodiment of the invention is achieved by directing the beam from the laser directly onto the second rotating mirror.

3,782,804
HOLOGRAPHY USING MULTIPLE DIFFUSED OBJECT ILLUMINATION BEAMS
Yasunori Kanazawa, and Yoshizumi Eto, both of Hachioji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 18, 1972, Ser. No. 298,568
Claims priority, application Japan, Oct. 18, 1971, 46/81689
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **6 Claims**



A hologram recording apparatus comprises a diffraction grating which serves to convert an object light beam obtained from a single light source into a plurality of beams, and a diffuser which is arranged in the path of the multiple light, whereby an object is illuminated by light from said diffuser.

3,782,805
FRONT PROJECTION SCREEN MADE FROM A TRANSPARENT MATERIAL
John Brown, New Hope, Pa., assignor to Qantix Corporation, Flemington, N.J.
Filed Nov. 30, 1972, Ser. No. 310,882
Int. Cl. G03b *21/60*
U.S. Cl. 350—129 **5 Claims**

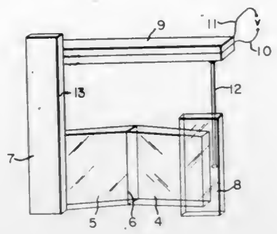


A front projection screen is disclosed which is made from a transparent material. Prism like elements are formed on the back side thereof so that light incident upon the screen from a preferred direction will be totally reflected by the screen while light incident upon the screen from other directions will pass therethrough. Sides of the prism like elements are curved to provide dispersion in the horizontal plane while the front surface of the projection screen has segments of cylindrical columns formed thereon perpendicular to the prism like elements to provide an angular spread in the vertical plane.

3,782,806
BISTABLE OPTICAL SWITCH UTILIZING LEAD PHOSPHATE OR LEAD STRONTIUM PHOSPHATE CRYSTALS
John R. Barkley, Wilmington, Del., and Lothar H. Brixner, West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 27, 1972, Ser. No. 301,539
Int. Cl. G02f *1/24*
U.S. Cl. 350—149 **14 Claims**

Lead phosphate and certain mixed phosphates of lead and strontium are pure ferroelastic materials which can be

switched from one strain state to another by mechanical stress. The crystals are transparent to visible radiation and the strain states are biaxially birefringent, the optic axes of adjacent domains separated by a domain wall lying in different spatial directions. Accordingly, if a suitable polarizer and analyzer is employed to extinguish light passing through one



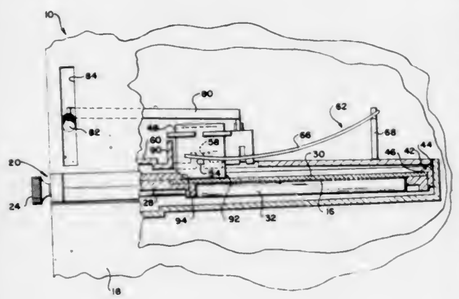
strain state, the strain state to which it can be switched will transmit light. Thus is there provided mechanically actuated optical switch. The optical properties of the domain wall likewise differ from either adjacent domain and in conjunction with spatial filtering (and/or optionally polarization filtering) can be used to provide mechanically actuated line scanners.

3,782,807

LENS GIMBALING AND CARRIAGE RELEASE APPARATUS

Richard H. Bolton, Holcomb, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 7, 1972, Ser. No. 232,465
Int. Cl. G02b *7/02*
U.S. Cl. 350—255 **5 Claims**



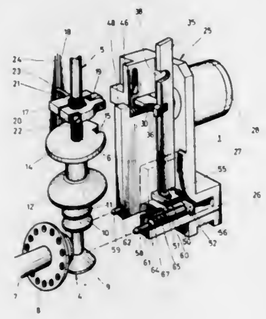
In image projection apparatus for projecting enlarged images from a sheet of microfilm along a projection axis, a carriage mounted for movement in at least one of mutually othogonal directions relative to the projection axis is provided with a transparent reference plate against which a projection lens assembly is spring biased. The lens assembly includes a lens barrel which is gimbally mounted and a projection lens slidably mounted in the barrel. The carriage is provided with a stop at one end which is adapted to engage the lower end of the lens barrel to prevent the carriage from being removed from the image projection apparatus when the carriage is withdrawn a predetermined distance. The apparatus is provided with a lever connected to the lens for focusing the lens by sliding it in the lens barrel. The focusing lever also engages the lens barrel and when it is moved to an extreme position causes the lens barrel to gimbal and disengage from the carriage stop thus releasing the carriage for complete withdrawal from the projection apparatus.

3,782,808

DEVICE FOR ARRESTING THE ELEVATION AIMING MOTION OF A PERISCOPE

Jean-Marie Hohl, Luitpoldring; Anton Schipf, Neukeferloh, and Werner Schmid, Loiderding, all of Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter, Haftung, Munich, Germany

Continuation of Ser. No. 140,126, May 4, 1971, abandoned.
This application Feb. 12, 1973, Ser. No. 333,363
Int. Cl. G02b *5/08*
U.S. Cl. 350—301 **10 Claims**



The device is used with a periscope, associated with a remote control arrangement, for determining the line of sight. The periscope elevation aiming motion is effected by a shaft, driven by an angle drive, which is preferably a friction drive, with the shaft effecting angular adjustment of a totally reflecting component, such as a mirror, of the periscope. First and second control units are mounted on the shaft, with the first unit being a clamping nut threadedly engaged with the shaft and fixed against rotation so as to move axially of the shaft when the shaft is rotated. The second control unit is a disk fixed to the shaft to rotate therewith and having a notch in its periphery. The first control unit carries a roller. Respective detent means are cooperable with each control unit to arrest motion of the shaft in a predetermined null angular position of the mirror, and the detent means comprise elements cooperable with the roller and with the notch in the disk. The detent means are operated by an electromagnet. Upon operation of the detent means, pins engage in diametrically opposite apertures of a disk carried by a drive shaft of the angle drive so that the angle drive can no longer be operated. Alternatively, the operation of the detent means may be effected manually by a cam and cam follower arrangement having an operating knob which is releasably latched, by a detent, in the null angular position of the mirror.

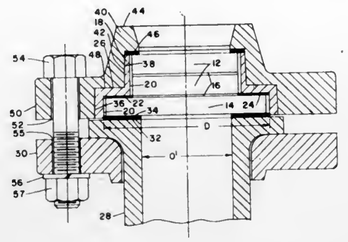
3,782,809

SIGHT GLASS ASSEMBLY

Lester F. Shropshire, South Charleston, W. Va., assignor to Cyclops Industries, Inc., South Charleston, W. Va.

Filed Feb. 23, 1972, Ser. No. 228,496
Int. Cl. G02b *7/00*
U.S. Cl. 350—319 **8 Claims**

An improved sight glass has been devised for an annular lens container featuring a shelf between its two ends. The sight glass is constructed in such a manner that metal corroding contents of reaction vessels do not contact any metal elements



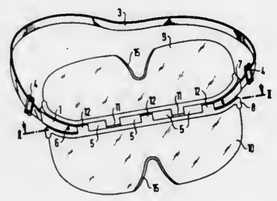
of the sight glass. The shelf feature of the sight glass construction also enhances the strength and safety of the entire apparatus.

3,782,810

INDIVIDUALLY SELECTIVELY USEABLE ANTI-GLARE GOGGLE GLASSES

Hannes Marker, Hauptstrasse 51-53, Garmisch-Partenkirchen, Germany

Filed Dec. 15, 1971, Ser. No. 208,204
Claims priority, application Germany, Dec. 18, 1970, G 70 46 891.6
Int. Cl. G02c *9/02*; **A61f** *9/02*
U.S. Cl. 351—47 **5 Claims**



The goggles are particularly intended for use by skiers and comprise a goggle glass holder, which is adapted to bear on the head of the skier. The goggle glass holder carried two selectively usable goggle glasses or goggle glass units, which are so related to each other that one goggle glass or goggle glass unit is disposed in front of the eyes of the wearer and the other is disposed in front of his forehead when the goggles are in position of use.

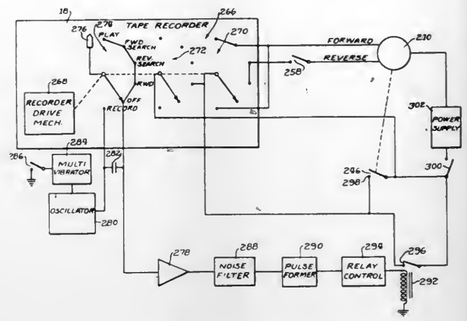
3,782,811

FILMSTRIP PROJECTOR WITH SYNCHRONIZED SOUND

Frank C. Badalich, Chicago, and Roy H. Watterlohn, Morton Grove, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 97,859, Dec. 14, 1970, Pat. No. 3,675,994.
This application Jan. 13, 1972, Ser. No. 221,464
Int. Cl. G03b *31/04*
U.S. Cl. 352—17 **7 Claims**

A control apparatus for a film strip projector provided with synchronized audio accompaniment. A recorder having a control track provides actuation signals for control of the projector motor. In response to a control signal from the recorder control track the projector motor is actuated and maintained



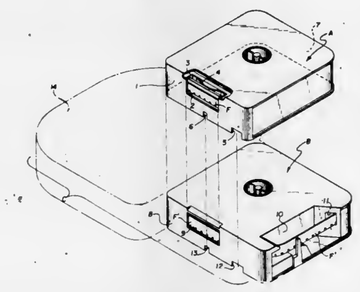
energized through an operational movement corresponding to the advance of one film frame after which it is deactivated in anticipation of a subsequent control signal.

3,782,812

CARTRIDGE POSITIONING APPARATUS

Thomas W. Roller, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

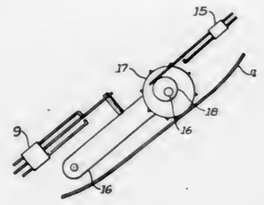
Filed Feb. 22, 1973, Ser. No. 334,534
Int. Cl. G03b *23/02*
U.S. Cl. 352—72 **11 Claims**



A cartridge positioning apparatus is adapted for use with several web cartridges of the kind wherein cartridge locating structures and web passage openings on respective ones of the cartridges are differently situated with regard to each other. The cartridge positioning apparatus includes a nest for separately receiving these cartridges in a manner such that respective ones of the openings on the cartridges can occupy generally the same web feeding position in the nest, causing respective ones of the locating structures on the cartridges to occupy different positions in the nest. A cartridge retaining member on the apparatus operates to secure a cartridge in the nest. To insure proper placement of a cartridge in the nest, the apparatus includes a locator which cooperates with the locating structure on a cartridge in the nest for verifying that the opening on such cartridge occupies the web feeding position and, in the event that the opening on such cartridge does not occupy the web feeding position, the locator prevents the cartridge retaining member from securing the cartridge in the nest. Optionally, if the several web cartridges are further of the kind provided respectively with web identifying structures, then the cartridge positioning apparatus can further include

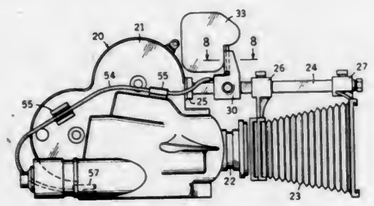
an identifier for verifying the presence of the identifying structure on a cartridge properly placed in the nest and, in the absence of that structure on such cartridge, the identifier prevents the cartridge retaining member from securing the cartridge in the nest.

3,782,813
CINE CAMERA FILM END SENSING DEVICE
Tadao Isono, Tokyo, Japan, assignor to Bell & Howell Company, Chicago, Ill.
Filed May 11, 1972, Ser. No. 252,494
Claims priority, application Japan, May 11, 1971, 46/37490
Int. Cl. G03b 1/60
U.S. Cl. 352—171 **2 Claims**



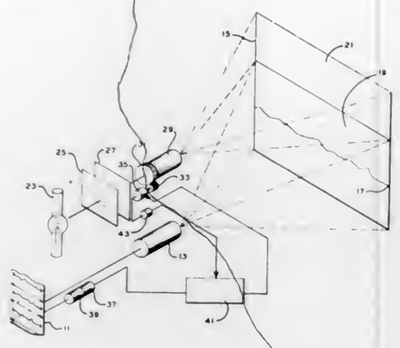
An end of film sensor and indicator device is provided for a motion picture camera having a reversibly drivable film transport mechanism, and accepting film cartridges without a driven take-up and without a film anti-backwind device, the cartridge having film access openings through which film might be passed into a film guide path of the camera upon movement by the transport mechanism and returned to the cartridge, the film guide path having a film condition sensor including circuitry responsive to the presence or absence of film in the guide path for actuating an indicator which may be arranged to be visible within the viewfinder and may be energized intermittently.

3,782,814
RECHARGEABLE BATTERY PACK FOR PORTABLE CAMERA
Louis W. Greenblatt, 12 Ladue Manor, Ladue, Mo.
Filed May 8, 1972, Ser. No. 250,977
Int. Cl. G03b 17/02
U.S. Cl. 352—242 **5 Claims**



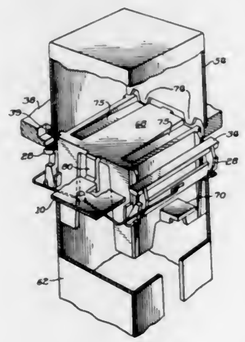
Rechargeable battery pack and mounting arrangement for motion picture cameras comprising a battery pack with an integrally molded plastic casing and slide track with battery terminals molded into the slide track, that track being slideably engageable into a second plastic track element secured to the camera, having plugs connected with wires leading to an external connector for engagement into the camera, the plugs automatically engaging the sockets in the battery pack slide when the battery pack slide is engaged in the second one. The second track may be an intermediate slide constituting a spacer member, and in turn it may have another slide portion that is engageable with a complementary slide member fixed on the camera. A recharger is provided for recharging one or more battery packs at once.

3,782,815
SKY FILL-IN PROJECTOR
Raymond E. Kittredge, Chenango Bridge, N.Y., assignor to The Singer Company, Binghamton, N.Y.
Filed Aug. 23, 1971, Ser. No. 173,842
Int. Cl. G03b 21/26
U.S. Cl. 353—29 **5 Claims**



A sky fill-in projector for use with a projected real world scene, such as a motion picture, which has only a small amount of sky recorded on it, in which the sky intensity of the real world scene is sensed and a blue fill-in color of matching intensity obtained by controlling the amount of blue light permitted to pass through a projection lens arranged to project the light on a screen above the real world scene is shown. In a second embodiment color is also sensed by sensing blue and magenta and a filter which varies linearly from blue to magenta and which is in the projection path is controlled in response to the blue and magenta signals.

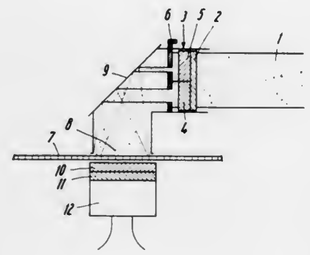
3,782,816
SLIDE RETURN MECHANISM
Carl Costanza, Chicago; Walter W. Weber, Des Plaines; Frank W. Betlejewski, Chicago, and Richard Frystak, Park Ridge, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.
Division of Ser. No. 860,384, Sept. 23, 1969, Pat. No. 3,659,934. This application July 6, 1971, Ser. No. 160,071
Int. Cl. G03b 23/02
U.S. Cl. 353—112 **3 Claims**



A slide return mechanism including a reloading platform that returns projected slides to a supply cartridge. A detent is

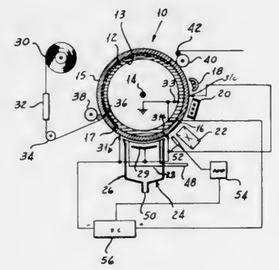
provided to releasably hold the platform at a position where the slides are in the cartridge. A tab on the cartridge releases the platform when the cartridge is removed from the projector.

3,782,817
PHOTO PRINTING MACHINE
Heinrich Isermann, Siegen, Germany, assignor to Meteor-Siegen Apparatebau Paul Schmeck GmbH, Siegen, Germany
Filed Apr. 6, 1972, Ser. No. 241,565
Claims priority, application Germany, Apr. 23, 1971, P 21 19 871.0
Int. Cl. G03b 21/14
U.S. Cl. 355—83 **3 Claims**



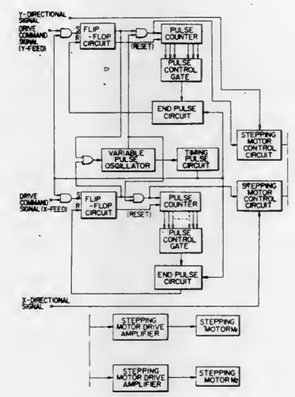
A photo-printing machine for printing from transparencies onto paper has a photo-sensitive means to measure the light transmitted by a transparency. A plurality of filter elements each with a different spectral transmission characteristic is positioned between the light source and the transparency. Each filter is provided with a diaphragm to control the amount of light transmitted thereby.

3,782,818
SYSTEM FOR REDUCING BACKGROUND DEVELOPER DEPOSITION IN AN ELECTROSTATIC COPIER
Ian E. Smith, Lockleys, Australia, assignor to Savin Business Machines Corporation, Valhalla, N.Y.
Filed Nov. 17, 1972, Ser. No. 307,572
Int. Cl. G03g 15/10
U.S. Cl. 355—10 **10 Claims**



In an electrostatic copier, a direct-current-voltage source and associated circuitry for applying to a biasing electrode in a liquid developer tank and to a ground-insulated conductive mirror-return sector of the surface of a rotating photoconductive drum the same potential as exists on background, non-imaged, regions of the charged and exposed photoconductive surface to reduce background deposition of developer. Means are provided for measuring this background potential and for adjusting the voltage on the biasing electrode and mirror-return sector of the drum to match this measured value.

3,782,819
MICROFILM DRIVING DEVICE FOR MICROFICHE CAMERA
Mitsutoshi Kanayama, and Takako Toda, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 7, 1973, Ser. No. 338,856
Claims priority, application Japan, Mar. 10, 1972, 47/24499
Int. Cl. G03b 27/44
U.S. Cl. 355—54 **3 Claims**

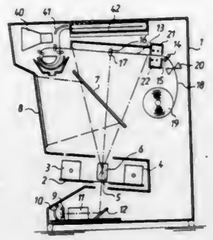


A film driving device for microfiche camera employs stepping motors for driving a microfilm and a microfilm carrier. Each of the stepping motors is numerically controlled by a variable pulse oscillator. The variable pulse oscillator comprises an oscillator circuit and a time constant circuit for changing a oscillation frequency of the oscillator circuit. The oscillator circuit adapts to rapidly increase the frequency of the clock pulses to be applied to the stepping motors in response to the variation in the time constant of the time constant circuit to vary the feeding speeds of the microfilm and the microfilm carrier.

3,782,820
COMBINED READING AND ENLARGING APPARATUS FOR MICROFILM
Erwin Kohn, Anzing; Horst Bickl, Pullach; Josef Pfeifer, Unterhaching, and Hans-Joachim Schrecke, Pucheim, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Jan. 10, 1972, Ser. No. 216,435
Claims priority, application Germany, Jan. 9, 1971, P 21 00 903.0
Int. Cl. G03b 13/28
U.S. Cl. 355—45 **12 Claims**

A combined reading and enlarging apparatus for microfilm wherein the screen of the reader is located in the front wall and the enlarger is mounted in the upper portion of the housing. The enlarger employs guide rolls which transport freshly cut sheets of ZnO paper in a horizontal plane wherein the sheets are exposed to light passing through that frame of microfilm whose image is projected onto the screen, and there-upon along a looped path spaced sections of which intersect each other and wherein the freshly exposed sheets travel through a developing liquid confined in a tank and filling a gradually widening passage between the concave in-

ternal surface of the tank and the convex surface of a developing electrode. The length of that portion of the path which extends from and back to the point of intersection between the spaced sections of the path exceeds the length of a sheet, and the sheets which leave the tank to travel toward the point of intersection move upwardly to facilitate the removal of developing liquid. Each freshly exposed, developed and dried

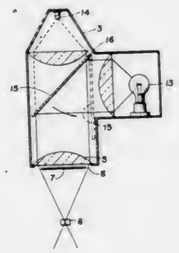


sheet is caused to slide along an inclined discharging surface to emerge through an outlet in a side wall of the housing. An intermediate section of the path wherein the sheets advance during travel through the developing liquid is configurated in such a way that the image-bearing sides of the sheets face the convex surface of the electrode and, a nozzle of the enlarger discharges developing liquid onto such sides of the sheets to keep them out of contact with the electrode.

3,782,821
PHOTOGRAPHIC ENLARGER

Alfred E. F. Bosman, Heidelberg, T.V.L., South Africa, assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Nov. 10, 1972, Ser. No. 305,526
Int. Cl. G03b *27/54*
U.S. Cl. 355—70 **5 Claims**

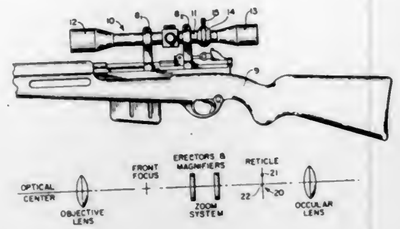


A photographic enlarger comprises a housing having a light outlet opening and a condenser at such opening adapted to illuminate a negative to be enlarged. A first light source mounted in the housing is a full-sized lamp. A second light source mounted in the housing is a flash-light. A shutter is pivotally mounted in the housing and has one position in which it blocks light from the second light source and directs light from the first light source through the condenser, and another position in which it blocks light from the first light source and directs light from the second light source through the condenser.

3,782,822
METHOD AND APPARATUS FOR AUTOMATIC RANGING WITH VARIABLE POWER TELESCOPIC GUN SIGHT

Mack L. Spence, 716 Dawes Dr., Denham Springs, La.

Filed Nov. 8, 1971, Ser. No. 196,698
Int. Cl. G01c *3/20*
U.S. Cl. 356—21 **7 Claims**

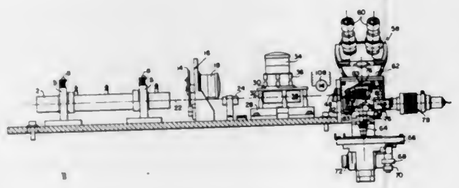


In a variable power telescope gun sight, provided with stadia and aim point at the rear focus between the ocular lens and zoom system, an aim point is located above the optic center and correlated with bullet trajectory. The distance of off set of the aim point is such that, at minimum power, the aim point is zeroed relative to the stadia for impact at minimum range, this usually being the point blank range of the projectile, and at some higher power relative to an increase in range the projectile is again zeroed, in that the projectile impact and the aim point coincide. The novel telescopic sight and method of its use are based on the observations that (1) between approximately ⅓ and ⅔ maximum range and maximum range the trajectory of a high velocity bullet is substantially linear, (2) that as magnification is increased the aim point will appear to move downwardly toward optic center and (3) that the low power and some higher power of the telescope, respectively, can be correlated with a zero at the minimum and maximum range, respectively, with reference to the stadia. Correlated in such manner, changes in magnification, in the optic sense automatically set the aim point for firing without any necessity of the observer knowing the actual distance to the target.

3,782,823
LASER MICROPROBE

Joseph W. Kantorski, Southbridge, Mass.; Donald A. Smith; David A. La Marre, both of Woodstock, Conn.; Donald H. Hansen, Williamsville, N.Y., and Milton R. Thorburn, Southbridge, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Mar. 23, 1972, Ser. No. 237,421
Int. Cl. G01j *3/02*
U.S. Cl. 356—85 **5 Claims**



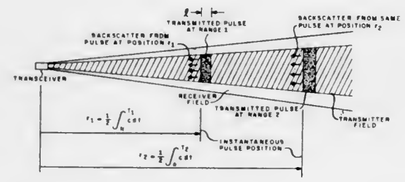
A laser microprobe including a laser and microscope in combination with variable attenuators and pinholes to direct radiation at a microscope object and to spectroscopically

analyze the effects thereof. A combined shutter and occluder permit observation through the eyepiece for alignment and subsequent discharge of the laser without danger to the operator.

3,782,824
APPARATUS AND METHOD FOR MEASURING EXTINCTION COEFFICIENT OF AN ATMOSPHERIC SCATTERING MEDIUM

Arthur P. Stoliar, New York, N.Y., and Richard T. Brown, Jr., Bolton, Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed June 1, 1972, Ser. No. 258,688
Int. Cl. G01n *21/00*
U.S. Cl. 356—103 **15 Claims**

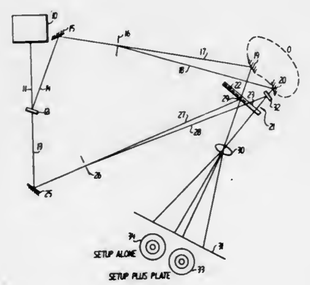


An apparatus and method of determining the extinction coefficient of an atmospheric scattering medium utilizing a transceiver having concentric transmitter and receiver fields, wherein backscattered energy from each of a series of transmitted optical pulses is sampled at two discrete intervals (corresponding to discrete ranges) between successively transmitted pulses and integrated as a function of the ratio of the ranges to provide compensation for differential range attenuation losses. The ratio of the integrator outputs is then obtained and the natural logarithm of the ratio calculated to obtain the extinction coefficient from which a determination of atmospheric visibility may be made.

3,782,825
METHOD AND APPARATUS FOR CHECKING THE STABILITY OF A SETUP FOR MAKING REFLECTION TYPE HOLOGRAMS

Helmut G. Lackner, Salzberg, Austria, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 18, 1972, Ser. No. 281,877
Int. Cl. G01b *9/02*
U.S. Cl. 356—106 **10 Claims**

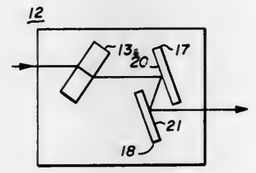


A method and apparatus for checking the stability of a setup for recording reflection-type (white light) holograms. Two sets of interference fringes are simultaneously obtained, one giving information about coherence and stability of the setup alone and the other demonstrating coherence of the entire system, including the holographic recording plate. Thus special emphasis is given to the stability of the plate, any minute vibrations of which may severely degrade or completely destroy the recording.

3,782,826
METHOD AND APPARATUS FOR MEASURING ROTATIONAL ANGLES BY MEASURING CHANGES IN OPTICAL BEAM PATH LENGTH

Warren B. Offutt, Geneva, Ill., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Aug. 21, 1972, Ser. No. 282,506
Int. Cl. G01b *9/02*
U.S. Cl. 356—110 **3 Claims**

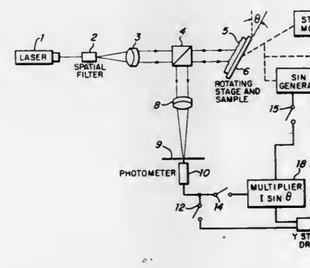


Method and apparatus for converting an angle of rotation of a rotatable device into related measureable changes in the length of the path of an optical beam, said changes in beam path length being measured by a suitable means such as an interferometer. In one embodiment a refractive element positioned on the rotatable device in the path of the optical beam produces the measurable change in optical beam path. In another embodiment a pair of reflective surfaces positioned on the rotatable device in the beam path produce the change in path length. In still another embodiment both the reflective surfaces and the refractive element are positioned in the beam path, nonlinearity in the path length change produced by the reflective surfaces being balanced out by nonlinearity in the path length change produced by the reflective element, resulting in a substantially linear optical path length change with rotational angle.

3,782,827
OPTICAL DEVICE FOR CHARACTERIZING THE SURFACE OR OTHER PROPERTIES OF A SAMPLE

Peter Nisenson, Burlington, and Elliot S. Blackman, Chelmsford, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed Aug. 4, 1971, Ser. No. 168,938
Int. Cl. G01b *11/30*
U.S. Cl. 356—120 **15 Claims**



An optical device is disclosed which is useful for characterizing the surface topography of an opaque sample and for

characterizing other properties of transparent samples. In the reflecting mode, a laser is used to illuminate the surface of a rotating sample. Reflected laser light is focused at a pinhole aperture where its intensity is detected. Useful plots of the power spectrum of the reflected coherent light as a function of frequency are obtained which characterize the surface topography of the sample.

A transmitting embodiment of the device is also described wherein the transparent sample is mounted on the back side of a right-angle prism which has its hypotenuse side silvered. A laser beam enters the front side of the prism while the prism is rotated about the center of its hypotenuse. As in the reflecting mode, useful plots of the power spectrum of the transmitted, diffracted coherent light as a function of frequency are obtained which characterize properties of the sample.

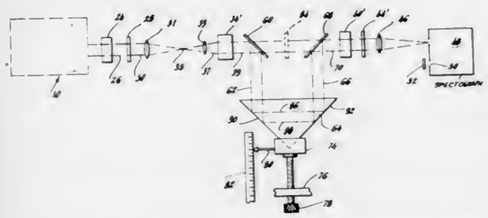
Processes for characterizing surface properties of opaque samples or other properties of transparent samples are also described.

3,782,828

PICOSECOND SPECTROMETER USING PICOSECOND CONTINUUM

Robert R. Alfano, Bronx, and Stanley L. Shapiro, Forest Hills, both of N.Y., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 9, 1972, Ser. No. 233,086
Int. Cl. G01j *3/30, 3/42*
U.S. Cl. 356—85 **15 Claims**



Spectroscopic investigation of samples by a relatively large interval spectral continuum (e.g., 4000–8000 A) pulses as short as a few picoseconds are described. The continuum is generated by non-linear interaction effects (such as self-phase modulation) in a material subject to extremely high power monochromatic radiation as may be obtained from a mode-locked solid (glass rod) laser, the flux density being further increased by optically concentrating the laser beam. The effective flux density is further increased by self-focussing within the material. A mode-locked laser generating 1.06 micron (10,600 A) pulses of about 4 picosecond duration, which may be converted to 5,300 A pulses of similar duration by a KDP crystal has been successfully used as the source. By exposing the sample to both the continuum and intense monochromatic pulse, inverse Raman (absorption) effects have been observed at both known and previously unknown Raman lines. Other spectroscopic observations may be made at picosecond time scales, including observation of phenomenon in which the sample is exposed to a spectral continuum pulse and a monochromatic pulse (each of a few picoseconds duration) with any desired time lag in either pulse relative to the other.

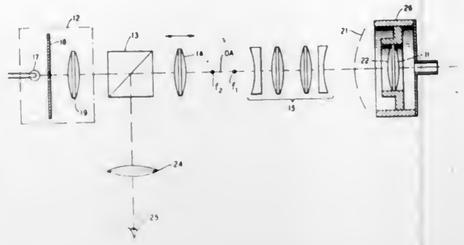
3,782,829

LENS ALIGNMENT APPARATUS AND METHOD

Donald Richard Herriott, Morris Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 28, 1972, Ser. No. 266,987
Int. Cl. G01b *9/00, 11/26*
U.S. Cl. 356—127 **7 Claims**

Apparatus for aligning a lens along an optic axis comprises a source of collimated light, a movable converging lens and a fixed, multi-element, substantially symmetrical lens. The output wavefront projected from the multi-element lens can be varied from convex to planar to concave to match the curvature of the lens being aligned by axially moving the converging lens. By correcting the multi-element lens for aberrations at a



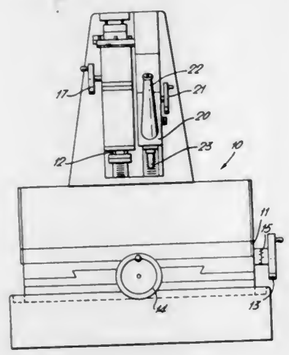
magnification n (where n is a number), abberation correction also occurs at magnifications $1/n$ and -1. Magnification n is preferably selected to be in the range of about 1.8 to 8 to achieve aberration correction over a wide band of magnifications corresponding to a number of different lens surface curvatures to be aligned with the apparatus.

3,782,830

OPTICAL ALIGNING DEVICE FOR POSITIONING THE ELECTRODE OF A SPARK DISCHARGE MACHINING APPARATUS

Shoji Futamura, Kawasaki, Japan, assignor to Institute of Technology Precision Electrical Discharge Works, Kawasaki, Kanagawa, Japan

Filed Aug. 25, 1971, Ser. No. 174,760
Claims priority, application Japan, Sept. 7, 1970, 45/78280
Int. Cl. G01b *11/26*
U.S. Cl. 356—138 **14 Claims**



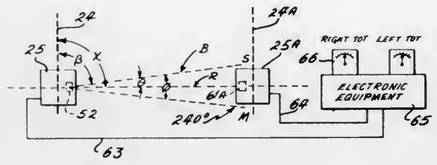
Disclosed is a spark discharge machining apparatus including a machining electrode, a worktable for supporting a workpiece to be machined and optical means for accurately establishing the location of the electrode relative to the worktable. The worktable is translatable for measured distances into mutually perpendicular directions such that a work-piece positioned thereon can be selectively aligned relative to the electrode. The optical device is positionable at a precisely determinable location on the worktable and includes a tool microscope and one or more prisms for reflecting an image of a reference point on the bottom surface of the electrode into the field of view of the microscope. By moving the worktable such that a reflected image of a reference point on the electrode is brought into coincidence with a reference point in the optical device, the location of the electrode relative to the worktable is precisely determined.

3,782,831

ANGULAR POSITION TRANSDUCER APPARATUS

David A. Senften, Florissant, Mo., assignor to Hunter Engineering Company, Bridgeton, Mo.

Filed Nov. 5, 1971, Ser. No. 196,034
Int. Cl. G01b *11/26*
U.S. Cl. 356—152 **7 Claims**



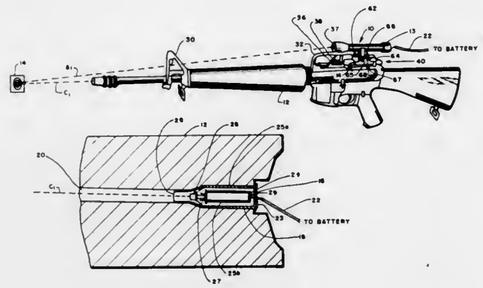
Apparatus for use in measuring any angular relationship between a movable body and a fixed reference axis or point, wherein the measuring is achieved by an angular position transducer. The transducer adapts itself to improved method of measuring angular relationship, particularly where the angles are small, so that small angles can be expanded for easier examination. An example is the determination of vehicle wheel toe angles which are small but important to the proper operation of any vehicle.

3,782,832

METHOD OF BORESIGHT ALIGNMENT OF A WEAPON

Michael Hacskaylo, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 12, 1973, Ser. No. 350,659
Int. Cl. G01b *11/26*
U.S. Cl. 356—153 **10 Claims**



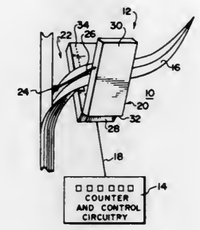
A method of aligning the boresight of a weapon in which the method comprises mounting an aiming light on a boresight mechanism that is attached to the weapon. A canister, which has the same diameter and general shape of a cartridge that the weapon fires and has a light emitting source and beam width narrowing projecting lens therein, is inserted in the breech of the weapon to provide a narrow beam boresight light along the true boresight of the weapon. Battery leads are connected to the light emitting source with the ground lead secured to an end cap of the canister and the hot lead connected to the light emitting source. The battery is located in the aiming light housing. The operator aligns the aiming light with the boresight of the weapon appropriately adjusting the aiming light beam with respect to the boresight light beam, and observing the position of the reflected lights from a target through a viewing scope. The canister may be pulled out of the breech by pulling on the battery leads.

3,782,833

METHOD AND APPARATUS FOR MEASURING AREA

William W. Biggs, and Max D. Clegg, both of Lincoln, Nebr., assignors to Lambda Instruments Co., Lincoln, Nebr.

Filed May 25, 1972, Ser. No. 256,921
Int. Cl. G01b *11/28*
U.S. Cl. 356—158 **16 Claims**



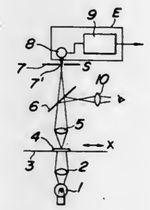
To nondestructively measure the area of a relatively flat object, a length increment encoder controls the signals generated by a width sensing array as a scanning section containing the width sensing array is moved relative to a fixed reference over the object to be measured in a manner dependent on increments of length moved by the scanner and independent of the velocity of the scanner so that the signals from the width sensing array are integrated with respect to length, with the signals being accumulated in a counter to represent the area of the object. In one embodiment, an optical system provides an image of a line of width on the object being scanned, which image is reduced and projected onto a sensing array to improve the resolution of the area measuring instrument and to reduce its bulk.

3,782,834

METHOD OF CORRECTING PHOTOELECTRIC MICROSCOPES

Ryo Fujimori, and Shinichi Kamachi, both of Tokyo, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

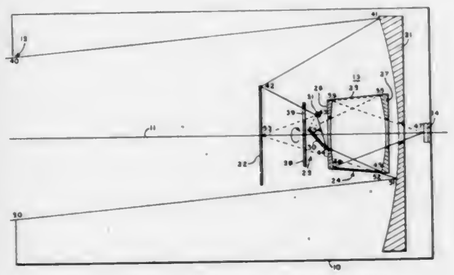
Filed May 12, 1972, Ser. No. 252,819
Claims priority, application Japan, May 17, 1971, 46/32376
Int. Cl. G01b *11/00*
U.S. Cl. 356—167 **2 Claims**



A method of correcting a photoelectric microscope adapted to generate a photoelectric signal for detecting the end face position of a specimen in which the photoelectric signal is supplied to a pilot meter such, for example, as a conventional

voltmeter or ammeter. The pilot meter has a scale with a level for generating the detecting pulse from a wave form shaping circuit marked thereon. The gain of the photoelectric signal is adjusted such that the ratio of the amplitude from the dark level to the level for generating the detecting pulse to the amplitude from the level for generating the detecting pulse to the bright level is made equal to a value defined by the change in the distribution of the quantity of light rays near the end face of the specimen. The level of the photoelectric signal may also be adjusted to obtain the same result. It is preferable to effect the adjustment of both the level and the gain of the photoelectric signal to obtain the ratio equal to the defined value. The desired ratio can be obtained by observing the deflection of an indication needle of the pilot meter. The specimen is moved to be scanned by a slit and a correct detecting pulse is generated at each instant when each edge of the end face of the specimen passes the center of the slit irrespective of possible change of the quantity of light near the end face of the specimen resulting from changes in configuration of and reflecting power at the specimen and in contrast, illumination, etc.

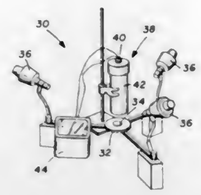
3,782,835
OPTICAL INSTRUMENTS
Irving Raymond Abel, Lexington, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Apr. 10, 1972, Ser. No. 242,662
Int. Cl. G01j *1/56, 5/48*
U.S. Cl. 356—216 **13 Claims**



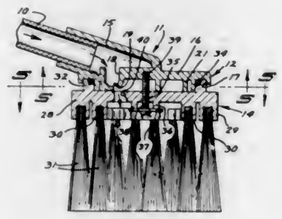
A wide angle, low focal ratio, high resolution, catoptric, image plane line scanner which embodies three interrelated main features, a reflective improvement on the Schmidt principle, a polar line scanner in which all field elements are brought to and corrected on axis, and a scanner arrangement in which the aperture stop of the system, located in a relay unit, is effectively imaged at the center of curvature of a spherical primary mirror in place of the physical stop unit in the classical Schmidt configuration, making the system consequently much more compact. The system scans at a large radial angle and an extremely high rate of speed with relatively small scanning mirrors, and since it is symmetrical about the optical axis, the obscuration is independent of scan angle.

3,782,836
SURFACE IRREGULARITY ANALYZING METHOD
Curt F. Fey, Richardson, and Stacy Bennet Watelski, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 889,407, Dec. 31, 1969, abandoned. This application Nov. 11, 1971, Ser. No. 244,302
Int. Cl. G01n *21/32*
U.S. Cl. 356—209 **6 Claims**

A surface irregularity analyzing system includes structure for directing light toward a surface in a direction having a certain angular relationship to the surface. If the light strikes irregularities in the surface, it is reflected in a direction having an angular relationship to the surface other than equal and opposite the incident direction. The amount of light reflected from irregularities in the surface is determined, either photographically or photoelectrically, to provide an analysis of irregularities in the surface.



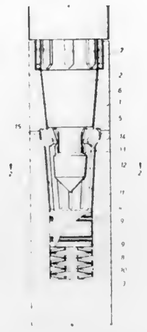
3,782,837
FOUNTAIN BRUSH
Robert G. Feldmann, Eden Prairie, Minn., assignor to Pyroil Company, Inc., La Crosse, Wis.
Filed July 7, 1972, Ser. No. 269,827
Int. Cl. A46b *11/04*
U.S. Cl. 401—281 **3 Claims**



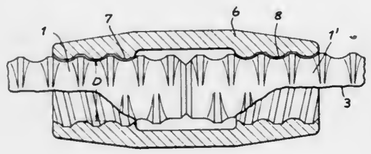
A fountain brush unit wherein an oblong brush is mounted at one end of an elongated tubular handle, the other end of which is adapted to be connected to a source of water, the brush being mounted for selective adjustment between positions aligned with or perpendicular to the handle and wherein the brush is provided with various openings in the back thereof whereby, in at least one position of the brush, water may flow through the brush in a jet stream and in at least one other position water is dispersed as a spray.

3,782,838
SHAFT ASSEMBLY
Wladimir Tiraspolsky, Issy-les-Moulineaux, and Roger Francois Rouviere, Aix-en-Provence, both of France, assignors to Turboservice, S.A., Paris, France
Filed Oct. 30, 1970, Ser. No. 85,684
Claims priority, application France, Nov. 28, 1969, 6941085
Int. Cl. F16b *7/00*
U.S. Cl. 403—32 **4 Claims**

A latch for connecting two axially aligned shafts is movable between a position connecting the shafts to a position where the shafts are disconnected. A piston is positioned in a cylinder so changes in ambient pressure will move the piston and move the latch between the two positions.



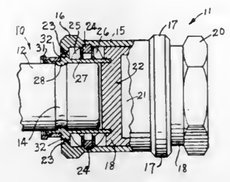
3,782,839
REINFORCING BAR, BOLT OR THE LIKE
Martin Majewski, Schwicheldt, Germany, assignor to Stahlwerke Peine-Salzgitter AG, Peine, Germany
Filed Aug. 30, 1971, Ser. No. 176,181
Claims priority, application Germany, Sept. 1, 1970, P 20 43 274.0
Int. Cl. F16b *7/06*
U.S. Cl. 403—43 **5 Claims**



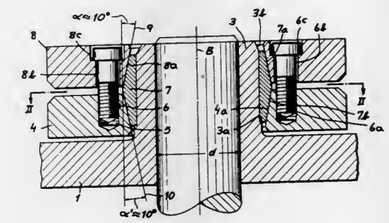
A rod of circular cross-section is provided on opposite sides with two sets of equispaced ribs, each extending over substantially 180°, which are tangentially faired at their ends into the rod surface at a median plane separating the two sets. The ribs of these sets are relatively offset by half their spacing whereby they can mate with a female helical thread of corresponding pitch in a coupling nut or anchor sleeve.

3,782,840
MECHANICAL COUPLING
Alexander R. Brishka, Mamaroneck, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.
Filed Oct. 5, 1971, Ser. No. 186,667
Int. Cl. F16b *7/00*
U.S. Cl. 403—361 **8 Claims**

A mechanical coupling which locks into place without relative rotation of the male and female components. The device may include hydraulic conduits, electrical multi-connectors or a high frequency coaxial line. An annular groove in the male component or plug is engaged by an annular bead formed on the inside surface of a set of fingers secured to the female component or socket. The fingers are locked in place by locking ring formed integral with an outer sleeve. The outer sleeve is moved in an axial direction when the components are attached or separated.



3,782,841
SYSTEM FOR SECURING AN ANNULAR MEMBER TO A SHAFT FOR TORQUE TRANSMISSION THEREBETWEEN
Werner Winckelhaus, Manteuffelstrasse 18, Duisburg, Germany
Filed Feb. 18, 1972, Ser. No. 227,505
Int. Cl. B60b *27/06*
U.S. Cl. 403—373 **8 Claims**

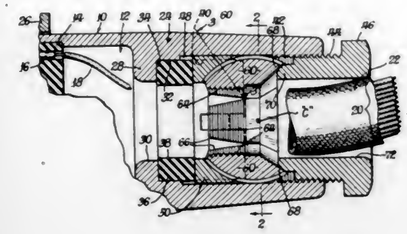


An annular member, such as a flywheel, pulley, sprocket wheel or disk, is secured to a shaft for torque transmission therebetween by a hub sleeve having an internally smooth, circumferentially continuous nonsplit configuration adapted to smoothly fit over the shaft. A doubly-conical compression ring is seated on the sleeve which is composed of steel and is elastically compressible. The compression ring is clamped between a pair of annular thrust rings having similar conicities and provided with equispaced bores through which bolts are threaded to draw the thrust rings together and urge the sleeve under radial compression against the shaft. When the torque capacity of the system is M, the axial compression force S is established such that the relationships $S = 2.3\ M/(d-20)$ or $S = 3\ M/(d-20)$ result, where d is the diameter of the shaft. Under these conditions, the sleeve is elastically deformed in a circumferentially undulating pattern and elastically deforms the shaft in a corresponding manner to bring about a mating noncircular fit between the sleeve and shaft to prevent slippage.

3,782,842
ADJUSTABLE SELF-LOCKING CLAMP FOR WIRES, PIPES AND OTHER STRUCTURAL SHAPES
Horst Wilhelm Benker, Heilbronn, Germany, assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed July 28, 1971, Ser. No. 166,790
Int. Cl. F16b *9/00*
U.S. Cl. 403—374 **6 Claims**

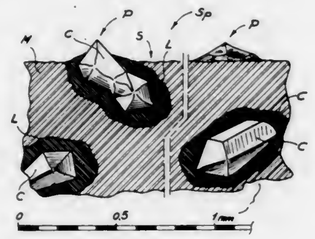
A cable clamp capable of firmly gripping the exterior sur-

faces of an electrical cable, pipe, conduit or other shape by an adjustable compressive force while simultaneously effecting



an airtight seal between the cable and the housing in which the clamping mechanism is mounted.

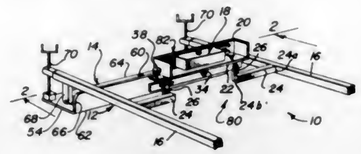
3,782,843
ROAD SURFACE MARKING MATERIAL AND MARKED ROAD
Ludwig Eigenmann, Vacallo, Ticino, Switzerland
Filed June 15, 1971, Ser. No. 153,218
Claims priority, application Italy, June 16, 1970, 26063 A/70
Int. Cl. E01f *9/00*
U.S. Cl. 404—9 **16 Claims**



The disclosure describes the provision on the pavement of streets and highways, of traffic regulating lines and signs having an upper surface exposed to traffic and consisting of the upper face of a layer secured on and to said pavement, said surface being essentially planar, smooth, neither receptive nor retentive of dirt and having high light reflectivity. A plurality of protuberances jointly covering not more than 10, and preferably not more than 5, percent of the area of said surface are spacedly arranged thereon, each protuberance having a sharp tip formed by the upwardly projecting portion of crystal particles, such as corundum of hardness greater than value 7 of the Mohs' Scale and firmly secured to said layer, thereby providing non-skid properties to said upper surface.

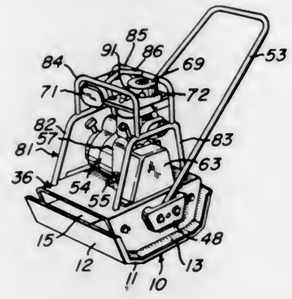
3,782,844
SLOPE CONTROL FOR PAVING MACHINES
Luther B. Burgin, Poplar Bluff, Mo., assignor to Burgin Electronic Grade Control, Inc., Poplar Bluff, Mo.
Continuation-in-part of Ser. No. 82,983, Oct. 22, 1970, abandoned. This application June 15, 1972, Ser. No. 262,949
Int. Cl. E01c *19/00*
U.S. Cl. 404—84 **13 Claims**

Apparatus for sensing twisting of the screed of a paver including a pair of arms having their outer ends rigidly supported from the screed extending toward one another with their inner ends free. A gravity-type slope sensor is mounted



on the inner ends of the arms to increase the sensitivity of the sensor to twisting of the screed.

3,782,845
COMPACTOR
Eugene C. Briggs, and Lee E. Reichel, both of Dayton, Ohio, assignors to Koehring Company, Milwaukee, Wis.
Filed Aug. 27, 1971, Ser. No. 175,444
Int. Cl. E01c *19/40*
U.S. Cl. 404—133 **21 Claims**

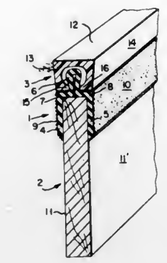


An engine driven vibratory plate compactor fully self-contained and easily maneuverable by the operator. A vibratory plate assembly and an engine assembly are separable units interconnected by shock absorbing means isolating the superstructure of the compactor from vibration effects at the plate, with the maneuvering handle being doubly isolated substantially to reduce operator fatigue. An exciter compartment on the vibratory plate is sealed to exclude dirt and the plate on its upper surface is inherently self-cleaning. Engine components overlie the vibratory plate in a close coupled compact arrangement and include a multi-functional roll-bar type frame. An adjustable throttle control enables variable compaction rates to suit varying work requirements.

3,782,846
JOINT FORMING AND SEALING DEVICE
Robert J. Johnson, 604 Woodbine Ave., Towson, Md.
Continuation-in-part of Ser. No. 35,315, May 7, 1970. This application Feb. 28, 1972, Ser. No. 229,828
Int. Cl. E01c *11/04*
U.S. Cl. 404—48 **8 Claims**

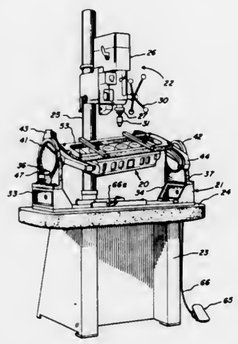
A joint forming and sealing device is provided comprising essentially three parts, a flexible seal member including an expandable loop and end portions, a top cap having a portion engageable with the expandable loop and a slot forming carrying means engaged with the end portions of the flexible seal member. The device is adapted to be inserted into the upper surface of freshly poured concrete with the slot forming carrying means forming a slot and transporting the seal member

and top cap into position with the upper surface of the top cap flush with the upper surface of the concrete and with the seal member substantially below the surface. Particles of aggregate are adhered to the end portions of the flexible seal member



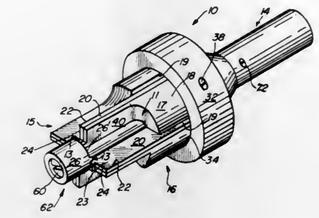
and grip the concrete as the concrete contracts to form the joint. The top cap may be removed at any time after the concrete has cured leaving the flexible seal in position beneath the concrete surface.

3,782,847
METHOD AND APPARATUS FOR RECONDITIONING CYLINDER HEADS
Leonard J. Kulzer, 1909 W. 5th St., Winona, Minn.
Filed Dec. 29, 1971, Ser. No. 213,445
Int. Cl. B23b *35/00*
U.S. Cl. 408—1 **6 Claims**



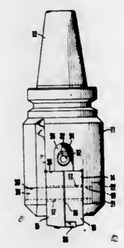
Apparatus for supporting a cylinder head, for reconditioning of the valve guides and seats, in a simple machine of the drill press type, without requiring complex means for positioning the reconditioning cutters and reamers at many different angles, including a first structure supporting a cylinder head for rotation about two mutually orthogonal axes to bring openings to be reconditioned into proper axial alignment with a reconditioning tool, and a second structure forming a support for the first structure and enabling translation of the latter with respect to the bed of the machine, as well as a novel method of reconditioning cylinder heads made possible by use of the apparatus.

3,782,848
COMBINATION EXPANDABLE CUTTING AND SEATING TOOL
John Pfeifer, 1807 Oak Ave., Northbrook, Ill.
Filed Nov. 20, 1972, Ser. No. 308,127
Int. Cl. B23b *29/034*
U.S. Cl. 408—156 **5 Claims**



An expandable tool for a combined seating and cylindrical cutting operation to be performed in a lathe, drill press or jig boring machine having a plurality of radially disposed formed cutters inserted in a slotted tool holder which is expandable by using an ordinary screw driver for screwing a male U.S. Standard thread of a given pitch diameter and number of threads per inch into a female U.S. Standard through-tapped hole having some imperfect lead threads of the same pitch diameter and number of threads per inch centrally disposed in the slotted tool holder for spreading the elements between the slots and the reaming cutting edges therein apart by the screwing of the male thread therein.

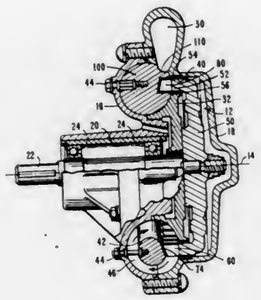
3,782,849
BORING HEAD
Sutemaru Mizoguchi, No. 1738, Kita-tawara-cho, Ikoma City, Japan
Division of Ser. No. 93,932, Dec. 1, 1970, Pat. No. 3,730,636. This application Mar. 30, 1972, Ser. No. 239,647
Int. Cl. B23q *3/12*; **B23b** *29/02, 3/24*
U.S. Cl. 408—197 **1 Claim**



A boring head with bit adjusting means. The head has a body having a shank portion and a transverse channel in the lower part thereof and a transverse hole therein intersecting the channel and at right angles thereto. A pair of bit mounting bases is slidably positioned in the channel and a transverse hole extends through the bases generally aligned with the transverse hole in said body. A bolt is rotatably mounted in one end of the transverse hole in the body, extending through the transverse hole in the bases and threaded into the other end of the transverse hole in the body, the hole in the bases is larger than the bolt for permitting some relative movement

between the bases and the bolt. A bit is secured to each of the bases, one being at one end of one base and the other being at the other end of the other base. Wedge means is provided for adjusting the positions of the bases downwardly in the channel when the bolt is only gently tightened.

3,782,850
ENERGY TRANSFER MACHINE
Hans Egli, Santa Monica; Fredrick E. Burdette, and James H. Nancarrow, both of Torrance, all of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Aug. 9, 1971, Ser. No. 169,997
Int. Cl. F04d *5/00*
U.S. Cl. 415—53 T **19 Claims**

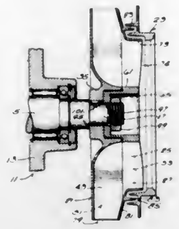


An energy transfer machine is disclosed including a casing enclosing a stator ring, the casing and ring conjointly defining a smooth wall, annular fluid passage extending about the axis of rotation between inlet and outlet passages formed in the casing. A rotor within the casing includes a blade cascade projecting in cantilever fashion into the annular fluid passage, each blade having leading and trailing edges extending generally parallel with the axis of rotation of the machine, the edge nearer the axis of rotation being longer than the edge further from the axis. The geometries and relative positions of the blades and annular fluid passage are such that the radial distance from the axis of rotation of the centroid of the meridional cross-section of the annular fluid passage is larger than the radial distance of at least the major portion of the edge nearer the rotational axis and smaller than the radial distance from the axis of rotation of at least the major portion of the edge further from the rotational axis.

Machines according to the invention are also characterized by constructional features which minimize the number of castings required and thereby greatly simplify the fabrication and structure to minimize cost.

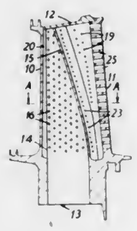
3,782,851
DIE CASTABLE CENTRIFUGAL FAN
Eugene R. Hackbarth, Kenosha, Wis., and Harry M. Ward, III, Waukegan, Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.
Filed Jan. 2, 1973, Ser. No. 320,073
Int. Cl. F04d *17/08, 29/28*
U.S. Cl. 415—213 **4 Claims**

Disclosed herein is a fan assembly comprising a first fan member including a plurality of angularly spaced vane portions extending perpendicularly of the axis of intended fan rotation and perpendicularly to a plane perpendicular to the axis of intended fan rotation and having axially outer edges, a second fan member including a second plurality of vane portions corresponding in number and angular spacing to the vane portions of the first member, each of the second member vane portions having an axially inner edge and an axially outer part extending arcuately in a plane extending parallel to the intended axis of fan rotation and perpendicularly to a plane extending radially from and containing the intended axis of fan rotation, and separable interfitting means on the first and second fan members for aligning the outer edges of the vane



portions of the first fan member with the inner edges of the vane portions of the second fan member and for rotatably driving one of the first and second fan members in response to rotation of the other of the first and second fan members.

3,782,852
GAS TURBINE ENGINE BLADES
Alan Moore, Bristol, England, assignor to Rolls-Royce (1971) Limited, London, England
Filed Aug. 22, 1972, Ser. No. 282,779
Int. Cl. F01d *5/18*
U.S. Cl. 416—97 **10 Claims**

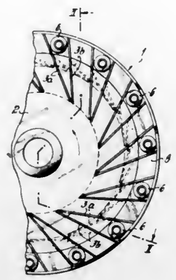


A gas turbine blade has a hollow interior space in which is disposed a double-walled insert. The insert forms chambers with the blade walls, and together with the interior of the insert these chambers form part of a path for the flow of cooling fluid through the blade. The chambers provide separated in-flow and out-flow chamber(s), arranged so that cooling fluid supplied from one end of the blade passes through the in-flow chambers to the interior of the insert at the leading edge of the blade, and from there passes to the trailing edge of the blade where it leaves the blade by way of the out-flow chamber(s).

3,782,853
FAN BLADE ASSEMBLY
Manfred Frister, Schwieberdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Oct. 8, 1971, Ser. No. 187,748
Claims priority, application Germany, Oct. 9, 1970, P 20 49 679.1
Int. Cl. F04d *17/08*
U.S. Cl. 416—132 **15 Claims**

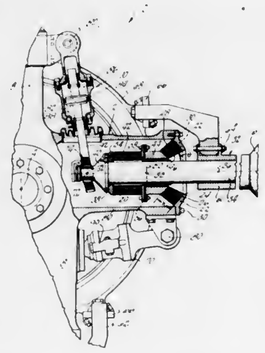
A fan blade assembly comprises a circular mounting plate which is rotatable about an axis. A plurality of blades are arranged spaced from each other about the axis of rotation and define between each pair of adjacent blades a passage for air passing therethrough. The blades have free moving ends

which are deflected in response to the rotation of the mounting plate. During rotation of the mounting plate, the free ends of the blades are deflected towards an adjacent blade to thereby decrease the cross-sectional area of the passage for



the air. With increasing rotational speed of the mounting plate, the cross-sectional area of the passage decreases to thereby reduce the drag on the blades while maintaining the amount of air moved by the fan blade assembly.

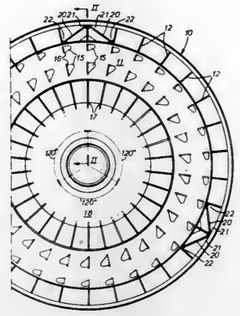
3,782,854
ELASTOMERIC BEARING FOR A HELICOPTER ROTOR
Robert C. Rybicki, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed July 5, 1972, Ser. No. 268,963
Int. Cl. B64c *27/38*
U.S. Cl. 416—134 **20 Claims**



An elastomeric bearing comprising two elastomeric bearings in series connecting a helicopter blade to a helicopter rotor hub so as to be articulated and have at least three degrees of freedom, namely, flapping motion, lead-lag motion and pitch motion, and wherein said bearing occupies minimal space envelope and the two elastomeric bearings thereof share the motion in at least one of the degrees of freedom.

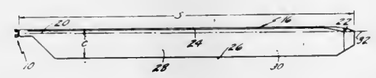
3,782,855
VANE WHEELS
Armand Batteux, Paris, France, assignor to Societe Anonyme Francaise Du Ferodo, Paris, France
Filed Apr. 3, 1972, Ser. No. 240,517
Claims priority, application France, Apr. 9, 1971, 7112664
Int. Cl. F01d *5/04*
U.S. Cl. 416—180 **18 Claims**

A vane wheel for fluid couplings or torque converters especially for motor vehicles. The vane wheel comprises inner and outer toroidal surfaces and vanes disposed therebetween, in addition anti-rotational bracing members are disposed



therebetween Pairs of bracing members may be symmetrically arranged about vanes obliquely between the toroidal surfaces and the intermediate vane.

3,782,856
COMPOSITE AERODYNAMIC BLADE WITH TWIN-BEAM SPAR
Michael J. Salkind, Newtown, and William C. Reinfelder, Woodbridge, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed May 31, 1972, Ser. No. 258,333
Int. Cl. B64c *27/46*
U.S. Cl. 416—226 **108 Claims**



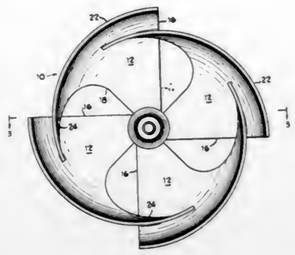
A composite aerodynamic blade having twin-beam spars, which blade is fabricated in two halves which are eventually joined.

Each spar assembly includes a spar comprising a plurality of high tensile strength fiber members bonded together to form a fiber composite extending from substantially the blade tip to the blade root and a connecting loop inboard of the blade root end of the core. A blade cuff member, including a selectively shaped wedge member extending through the loop and bonded to the fibers thereof, includes redundant provisions for connecting the blade cuff to the rotor hub. Two such spar assemblies are bonded to opposite sides of the blade cover so that the cover carries blade torsional loads. This forms a twin-beam blade in which triple, redundant centrifugal and bending load paths are present between each of the spar assemblies and the hub. For purposes of shape stability, a central low-density core member may be bonded to the spar assembly and cover. In a modified blade, a torque-tube may envelop and be bonded to the spar assemblies and blade trailing edge pockets may be bonded thereto to form the blade cross section.

3,782,857
DEVICE FOR AIR AND FLUID ACCELERATION AND METHOD OF MAKING SAME
Olgerts Janis Svilans, 4508 W. Schubert Ave., Chicago, Ill.
Filed Aug. 26, 1970, Ser. No. 67,160
Int. Cl. F04d *29/38*
U.S. Cl. 416—236 **4 Claims**

A rotational device adapted to act in a fluid medium and provide a reaction therewith including a plurality of wing-like

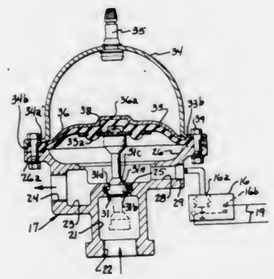
blades, said blades being generally disposed in a plane perpendicular to the axis of rotation and having outer radial portions generally disposed in a direction parallel to said axis to prevent any fluid medium from escaping radially rather than travelling axially along the axis of rotation of said device. The invention further comprises a method for making a wing shape for a rotational device of this character.



3,782,858
CONTROL APPARATUS FOR A WATER SUPPLY SYSTEM

Elmer M. Deters, Muscatine, Iowa, assignor to Red Jacket Manufacturing Company, Davenport, Iowa

Filed Oct. 24, 1972, Ser. No. 300,211
Int. Cl. F04b *49/02, 49/08*
U.S. Cl. 417—26 **6 Claims**

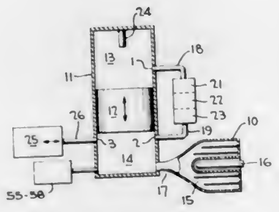


A control apparatus for a water supply system having a motor operated pump for pumping water through a delivery line to one or more valved outlets. The control apparatus includes a pressure switch responsive to the pressure in the delivery line and operable at preselected upper and lower pressure limits to respectively stop and start the pump motor, and a valve which regulates flow from the pump to the delivery line and is operated by a pneumatically loaded diaphragm responsive to the pressure in the delivery line to maintain the pressure in the line substantially constant at a value intermediate the upper and lower pressure limits during normal flow from the delivery line, with a bypass for passing a restricted flow of fluid into the delivery line, when the flow from the delivery line is shut off and the valve is closed, to increase the pressure in the delivery line and operate the switch to shut off the pump motor. The diaphragm also functions as a small expansion chamber to limit the frequency at which the control apparatus will cycle the pump motor, when water is drawn from the delivery line at a rate below the bypass rate, and provision is made for controlling the expansion and contraction of the diaphragm in a manner to effect a rapid increase in pressure into the delivery line to shut off the pump motor, when flow from the delivery line is terminated.

3,782,859
FREE PISTON APPARATUS

Mark Schuman, 101 G St., S.W., Washington, D.C.

Continuation-in-part of Ser. No. 169,003, Aug. 4, 1971, abandoned. This application Dec. 7, 1971, Ser. No. 205,651
Int. Cl. F04b *19/24*
U.S. Cl. 417—207 **119 Claims**

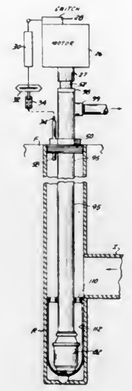


A by-pass including a heat regenerator is provided for a cylinder in which an oscillating free piston of a gas pump is driven. Shunting of gas back and forth through the by-pass between disparate hot and cold regions of the cylinder while the piston coasts in the by-pass region produces a periodic temperature and pressure variation which may be applied to a load. In one embodiment the by-pass includes in seriatim cold, regenerator, and hot chambers. In another embodiment the heating and/or cooling means are located within the cylinder. In still another embodiment preheated gas is drawn through an inlet into the hot end portion of the cylinder, and cool gas is drawn into the cool end portion of the cylinder. In one embodiment piston oscillation is sustained by means of a thermal leg chamber included in the piston. In another embodiment pressure pulses are fed back to the cylinder to sustain oscillation. In one embodiment the amplitude and frequency of pump pressure variations are controlled by varying the coasting portion of the cycle. In another embodiment the pump output is controlled by shunting a variable amount of gas around the heater and/or around the cooler, or to a second by-pass containing only a regenerator. In a further embodiment, the pressure variations are controlled by varying the feedback of pressure pulses. In still another embodiment pumping is controlled by varying the geometry of a thermal leg chamber or the portion of the cycle during which it is operative. Variations in temperature or geometry of pump components are also used as pump control means in certain embodiments. In one embodiment the pump produces electrical power by driving a free piston linear alternator wherein pumping controls such as the above can be used to maintain relatively constant voltage and frequency under conditions of variable load. In another embodiment the pump may be used to pump gases from one region to another, or from one pressure to another. In a further embodiment the pump may be used as a cooling device. In certain embodiments the pump may be used to produce pressure variations in a medium. In embodiments utilizing a thermal lag chamber for sustaining oscillation of the free piston, the relatively little coupling between the load and the free piston results in a pump which is essentially stall-free.

3,782,860
SUMPLESS PUMP

Warren H. DeLancey, Elyria, Ohio, and Donald Weisman, Southfield, Mich., assignors to Flood Control Valve Company, Detroit, Mich.

Filed Mar. 10, 1972, Ser. No. 233,476
Int. Cl. F04b *49/02, 17/00, 35/04*
U.S. Cl. 417—41 **1 Claim**

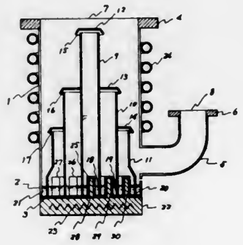


A pump assembly adapted to be installed as a complete assembly in a conventional pipe riser with the pump assembly being so dimensioned that all its parts may be inserted in the upper end opening of a conventional riser of about 4 inch diameter.

3,782,861
OIL DIFFUSION VACUUM PUMP

Taizo Abe, Himeji, Japan, assignor to Ayumi Industries Company, Limited, Kobe, Japan

Filed Nov. 13, 1972, Ser. No. 305,938
Claims priority, application Japan, May 10, 1972, 47-46698
Int. Cl. F04f *9/00*
U.S. Cl. 417—153 **1 Claim**

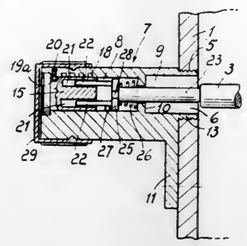


An oil diffusion pump which has a plurality of coaxially arranged cylindrical chimneys extending from the bottom of a cylindrical envelope. The bottom of said envelope has hollow projections extending upwardly between the chimneys and a heating element has portions thereof extending into said hollow projections.

3,782,862
ANTI-THEFT DEVICE

Ferdinando Cammi, Via Cipelli 20, Piacenza, Italy

Filed Jan. 28, 1972, Ser. No. 221,720
Claims priority, application Italy, Feb. 4, 1971, 20173 A/71
Int. Cl. B60r *25/00*; **F02m** *63/02*
U.S. Cl. 417—313 **2 Claims**

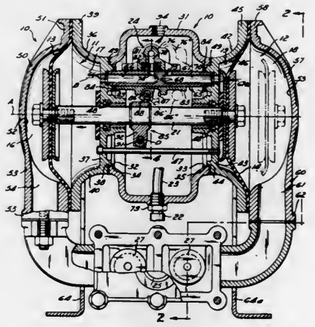


An anti-theft device particularly for vehicles with injection engines utilising a rack rod for adjusting the fuel feed thereof comprising a key-operated lock member for the rack rod adapted to lock it on command in a position which blocks the fuel feed.

3,782,863
SLIDE VALVE APPARATUS

Warren E. Rupp, Mansfield, Ohio, assignor to The Warren Rupp Company, Mansfield, Ohio

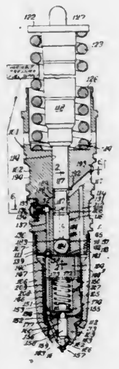
Filed Nov. 16, 1971, Ser. No. 199,250
Int. Cl. F04b *43/06*; **F01l** *31/02*
U.S. Cl. 417—393 **5 Claims**



An air-operated double diaphragm pump having a pair of power fluid chambers and a control valve for directing air alternately to each chamber while permitting air to exhaust from the other chamber. The valve includes an elongated member and a second member slidably mounted in fluid tight sealing contact on an elongated member. A flexible conduit is connected at one end to a port in the slidable member and at its other end to a source of fluid under pressure. In one valve position the slidable member establishes a fluid supply path from the flexible conduit through the port in the slidable member in alignment with a port in the elongated member communicating only with one power fluid chamber, and a fluid exhaust path through another port in the elongated member communicating only with the second power fluid chamber of the pump and the atmosphere. In a second posi-

tion a fluid supply path is established to the second power fluid chamber through the port in the slidable member and the other port in the elongated member, and a fluid exhaust path from the first power fluid chamber through the first port in the elongated member to the atmosphere. In intermediate position of the slidable member no fluid paths are provided. A link arrangement operated by reciprocations of the pump rapidly moves the slidable member to and between these positions.

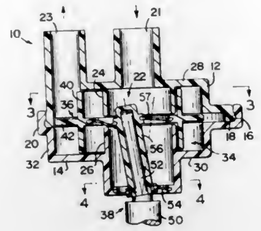
3,782,864
FUEL INJECTOR
Julius P. Perr, Columbus, Ind., assignor to Cummins Engine Company, Columbus, Ind.
Filed Dec. 30, 1970, Ser. No. 102,799
Int. Cl. F04b *7/04*
U.S. Cl. 417—493 **22 Claims**



A fuel injector for injecting fuel into a cylinder of an internal combustion engine is disclosed, wherein fuel is received from a variable pressure fuel supply and is supplied to a chamber in the injector, the injector also having spray holes for discharging fuel from said chamber to the cylinder. A reciprocable plunger in the injector is utilized to decrease the volume of the chamber and thus increase the pressure of the fuel therein. A pressure actuated valve in the chamber serves to permit fuel injection through the spray holes only when the pressure in the chamber, due to movement of the plunger, reaches a predetermined value sufficient to open the valve. The injector also includes a connection between the chamber and a low pressure zone or drain during part of the cycle of movement of the plunger. This connection permits fuel to be sucked into the chamber during said part of the cycle from the drain rather than from the supply. Since the plunger does not suck fuel from the supply, the quantity of fuel entering the chambe from the supply will be a function of the pressure of the fuel delivered by the supply.

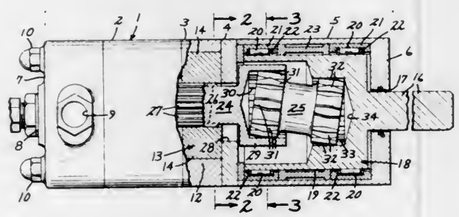
3,782,865
SEALING SLEEVE
Arthur R. Braun, 15 S. Jandus Rd., Cary, Ill.
Filed Mar. 5, 1971, Ser. No. 121,286
Int. Cl. F01c *1/02*; **F03c** *3/00*; **F04c** *1/02*
U.S. Cl. 418—56 **8 Claims**

A rotary pump comprising a housing having upper and lower portions removably connected to one another, each of which includes cooperatively arranged walls extending from the bases thereof to form an inner chamber. A piston also having an annular wall is arranged to move in an eccentric fashion such that the annular wall of the piston moves between the outer sidewall of the housing and the inner annular cooperatively positioned walls on the interior of the housing. Drive means comprising a drive shaft is interconnected to the piston by means of a drive shaft extension means mounted on the drive shaft so as to produce an eccentric motion of the piston



upon rotation of the shaft. A sealing diaphram is mounted relative to both the housing and the piston so as to completely separate the drive means from any fluid passing through the pump housing.

3,782,866
ROTARY FLUID PRESSURE DEVICE
Hugh L. McDermott, 6101 Ashcraft Ave., Minneapolis, Minn.
Filed May 30, 1972, Ser. No. 257,915
Int. Cl. F16d *3/04*; **F01c** *1/02*; **F03c** *3/00*
U.S. Cl. 418—61 **4 Claims**

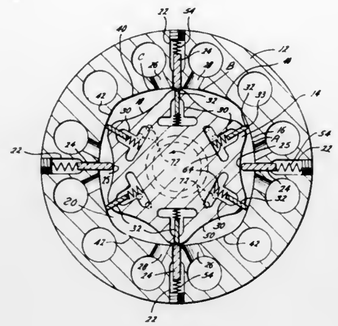


A rotary fluid pressure positive displacement mechanism operative selectively as a fluid pump or motor and including a relatively stationary internally toothed member and a relatively rotary externally toothed rotor having one tooth less than the internally toothed member and in meshing engagement therewith. The rotor partakes of rotary and orbital movement within the internally toothed member with the axis of the rotor describing an orbit around the axis of the internally toothed member. A drive shaft is journalled for rotation on the axis of the internally toothed member and is operatively connected to the rotor.

3,782,867
FLUID POWER CONVERTER
Charles R. Gerlach, and Edgar C. Schroeder, both of San Antonio, Tex., assignors to Rineer Hydraulics, Inc., Corpus Christi, Tex.
Filed Apr. 3, 1972, Ser. No. 240,387
Int. Cl. F01c *1/00*; **F03c** *3/00*; **F04c** *1/00*
U.S. Cl. 418—82 **8 Claims**

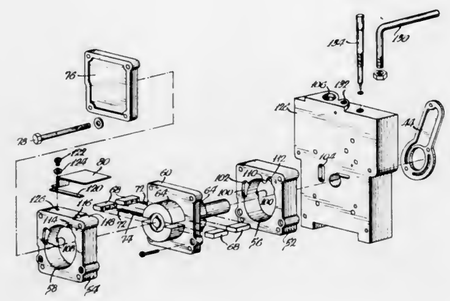
A fluid power converter, such as a hydraulic fluid pump or motor, having a rotor and stator each having sealing vanes and in which the stator includes a contoured periphery consisting of harmonic curves which reduces rotor vane acceleration and provides a constant output source independent of rotational angle. The rotor periphery consisting of contoured curves

shaped to impart harmonic motion to the stator vanes for reducing stator vane accelerations. The rotor and stator vanes having different thicknesses and provided with hydraulic and spring loading with the thicker vanes having a higher loading



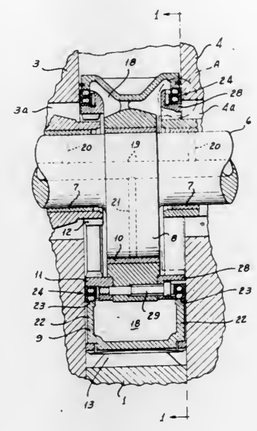
force thereby preventing destructive detenting of the vanes with respect to each other. Fluid timing plates for the rotor vanes sealing the hydraulic loading fluid in the rotor vane pockets during vane interaction periods for reducing wear and noise of the vane.

3,782,868
ROTARY VANE PUMP
Joseph A. LeBlanc, Jr., Glen Ellyn, Ill., assignor to Componetrol, Inc., Chicago, Ill.
Filed Nov. 26, 1971, Ser. No. 202,292
Int. Cl. F01c *21/00*
U.S. Cl. 418—83 **4 Claims**



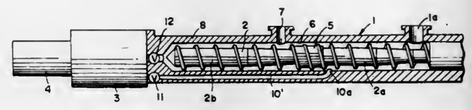
A rotary vane vacuum pump having a direct connection between a rotary motor and the vanes. The pump rotors are adapted to be submerged in oil and a unique noise suppressing device that permits oiling is employed on the outlet port. The same includes a flexible reed slightly spaced from the outlet port so that oil may be drawn in through the outlet port for lubrication purposes while suppressing the noise attendant the exit of gas therefrom at other points of the operating cycle.

3,782,869
OIL SEAL CONSTRUCTION FOR ROTARY ENGINES
Johannes Steinwart, Bad Friedrichshall, and Armin Bauder, Neckarsulm, both of Germany, assignors to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm and Wankel G.m.b.H., Lindau, Bodensee, Germany
Filed Aug. 18, 1972, Ser. No. 281,765
Claims priority, application Germany, Sept. 6, 1971, P 21 44 497.3
Int. Cl. F01c *19/12*
U.S. Cl. 418—142 **7 Claims**



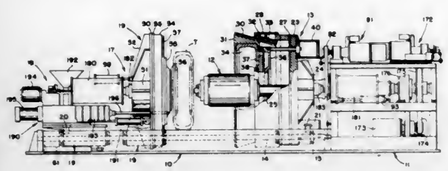
A double annular oil seal disposed between the rotor and the side wall of a trochoidal rotary engine, with provision for cooling the oil seal assembly.

3,782,870
APPARATUS FOR EXTRUDING A PARTIALLY FOAMED THERMOPLASTIC PRODUCT
Heinz Schippers, Remscheid, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
Filed Feb. 24, 1972, Ser. No. 229,074
Claims priority, application Germany, Feb. 25, 1971, 2108936
Int. Cl. B29d *27/00*
U.S. Cl. 425—4 C **19 Claims**



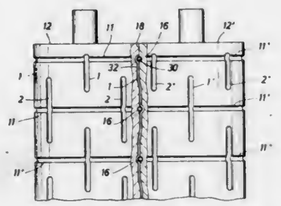
Process and apparatus for producing a partially foamed thermoplastic polymer product in a single screw extruder by dividing an initial melt stream of the polymer into separate partial melt streams conveyed individually by the extruder to a shaping or forming die, uniformly mixing a foaming agent with at least one but not all of the separate and individually conveyed partial melt streams, and then rejoining all of said melt streams in the die in abutting core and shell layers with foaming of at least one but not all of said layers.

3,782,871
CARE FOR TIRE MOLDING MACHINE
Leonard G. Turk, Akron, Ohio, assignor to NRM Corporation, Akron, Ohio
Filed May 17, 1971, Ser. No. 143,847
Int. Cl. B29h *5/06*
U.S. Cl. 425—54 **11 Claims**



A tire molding machine comprising a core or center mechanism adapted to be expanded radially and converted from a generally cylindrical to a toroidal or tire shape, side wall mold sections and a tread mold section movable into position vis-a-vis such core when in tire shape to form a tire mold cavity, injection means to fill such cavity with an elastomer to be heat cured to form a tire, such core being collapsed to cylindrical shape and radially contracted while the side wall and tread mold sections are withdrawn to permit removal of the tire.

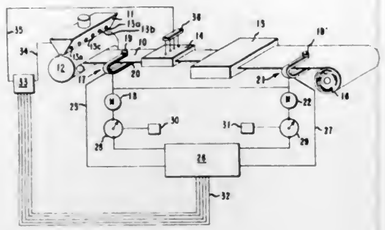
3,782,872
APPARATUS FOR EXTRUDING WOVEN PLASTIC MESH
George S. Nalle, Jr., 108 W. 2nd St., Austin, Tex.
Filed Mar. 15, 1972, Ser. No. 234,815
Int. Cl. B29f *3/12*
U.S. Cl. 425—131 **13 Claims**



Apparatus for producing a woven plastic mesh product extrudes plastic mesh from molten thermoplastic by continuously extruding first and second sets of parallel filaments through extrusion orifices between a pair of abutting rotatable cylindrical die members. The cylindrical die members are grooved to extrude two sets of filaments perpendicular to and passing on opposite sides of one another when the die members are counterrotated in register.

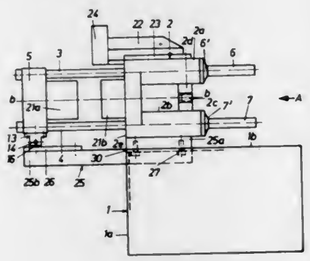
3,782,873
THICKNESS CONTROL APPARATUS FOR POLYMERIC FILM STRUCTURES
Frederick Lynnknowles, Florence, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 761,241, Sept. 20, 1968, Pat. No. 3,649,726. This application Dec. 8, 1970, Ser. No. 96,284
Int. Cl. B29d *7/22*
U.S. Cl. 425—141 **11 Claims**

An apparatus is provided for manufacturing film structures of organic thermoplastic polymeric materials of improved thickness uniformity across the width thereof. Briefly, the method comprises measuring the thickness of a film structure at any location across the width thereof before stretching, measuring the thickness of said film structure at any location across the width thereof after stretching, computing the cumulative mass values of said film structure across the width



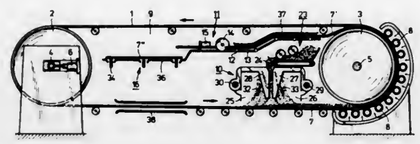
thereof before and after stretching, and adjusting the thickness of said film structure at any point across the width thereof before stretching responsive to deviation from a preselected value in thickness of said film structure after stretching corresponding to the cumulative mass value of said film struture before and after stretching.

3,782,874
INJECTION MOLDING MACHINE
Karl Hehl, Siedlung 183, Lossburg/Wurtt, Germany
Filed Mar. 10, 1972, Ser. No. 233,472
Claims priority, application Germany, Mar. 15, 1971, P 21 12 311.5
Int. Cl. B29f *1/00*
U.S. Cl. 425—190 **5 Claims**



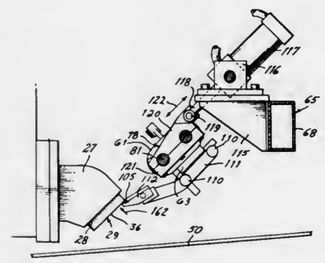
An injection molding machine including a horizontal mold clamping unit, a mold and a machine base. The mold clamping unit includes a cylinder carrying mold assembly, a movable mold carrier member and structure for connecting the cylinder carrying mold assembly and the carrier member. The machine base is provided with detachable fasteners and the cylinder carrying mold assembly is provided with detachable fasteners so that it can be selectively connected to the machine base either directly or in operative association with a mold mounting unit. The mold mounting unit also includes detachable fasteners and is arranged to be able to simultaneously constitute a support for the movable mold carrier member and a connecting unit for connecting the cylinder carrying mold assembly to the machine base by the mutual engagement of the detachable fasteners on the various members.

3,782,875
APPARATUS FOR THE CONTINUOUS MANUFACTURE OF CHIP BOARDS
Paul Olschewski, Springe/Deister, Germany, assignor to bisonwerke Bahre and Greten GmbH and CoKG
Filed Jan. 4, 1972, Ser. No. 215,369
Claims priority, application Germany, Jan. 4, 1971, P 21 00 132.1
Int. Cl. B29j *5/02, 5/04*
U.S. Cl. 425—223 **17 Claims**



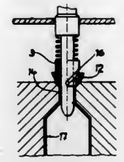
An apparatus for continuously manufacturing chip boards and the like by pressing particles mixed with binders between a pressing roller and an endless steel or steel mesh belt by calibrating rollers. Two spaced rollers are provided for the belt to travel around, one of these rollers serving as the pressing roller. These two rollers are relatively large in diameter and are relatively widely spaced so that a large manufacturing space is obtained inside of the belt path between the rollers. A forming station for supplying particles and binders to the belt, as well as a cutting station for cutting the pressed boards, and a transporting station for transporting the finished and cut boards from the belt area, are situated within the manufacturing space between the rollers. Alternatively, a coiling station for coiling very thin finished lengths of board could be provided in the manufacturing space.

3,782,876
EXTRUSION MACHINE FOR PRETZELS AND THE LIKE
Edwin I. Groff, West Reading, Pa., assignor to Reading Pretzel Machinery Co., West Reading, Pa.
Filed Dec. 30, 1971, Ser. No. 213,872
Int. Cl. A23g *5/02*
U.S. Cl. 425—232 **8 Claims**



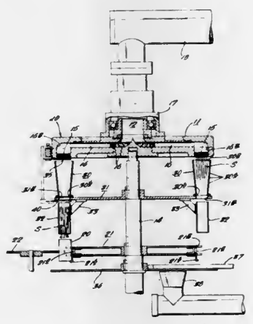
A machine for extruding dough including an extrusion head having a specifically configured outlet die, a cut-off mechanism mounted for back and forth movement across the die to sever extruded material into shorter lengths or slices, cleaning means for the cut-off mechanism, and a removal conveyor for receiving and removing the severed pieces.

3,782,877
APPARATUS FOR SEPARATING THE SURPLUS OF THERMOPLASTIC MATERIAL FROM THE NECK PORTIONS OF BLOW-MOLDED CONTAINERS
Gottfried Mehnert, Berlin, Germany, assignor to Bekum Maschinenfabriken GmbH, Berlin, Germany
Filed Apr. 13, 1971, Ser. No. 133,513
Claims priority, application Germany, Apr. 28, 1970, P 70 15 972.7; Dec. 9, 1970, P 20 60 586.1
Int. Cl. B29c *17/14*
U.S. Cl. 425—292 **17 Claims**



The funnel-shaped surplus of thermoplastic material which is partially separated from the neck portion of a container formed in the mold of a blow molding machine is held by a sleeve which is movable axially of and surrounds the blowing mandrel. Prior to separation of the neck portion of a freshly formed container from the calibrating end of the mandrel, the neck portion and the surplus material are subjected to an intensive cooling action and the sleeve is then moved angularly and/or axially of the mandrel, or vice versa, to effect full separation of the surplus material from the neck portion. The container is thereupon separated from the mandrel prior to separation of surplus material from the sleeve, and the surplus material is deflected laterally to be collected independently of the containers.

3,782,878
ROTARY EXTRUDER AND LOADER
James A. Hudson, Brooklawn, N.J., assignor to Campbell Soup Company, Camden, N.J.
Filed Mar. 14, 1972, Ser. No. 234,547
Int. Cl. A23l *1/16; A21c 9/02*
U.S. Cl. 425—314 **13 Claims**



Apparatus is provided for continuously extruding elongated products through a rotary extruder head. For this purpose, a series of dies are mounted in the bottom of a rotary extruder head and there is provided means to continuously force the product through the dies. The product is cut from the dies and permitted to drop into a series of suitable receptacles advancing in spaced relation on a conveyor located below the extru-

sion dies. There is provided funnel means which rotates with the dies to guide the products into the receptacles. In one embodiment in which spaghetti is extruded, there is provided means to trim the extruded products to a predetermined length before they are cut and permitted to drop into the cans. In another embodiment in which noodles are extruded, a series of blades are provided at spaced intervals along the path of movement of the dies to sever the products sequentially during extrusion thereby to yield products of relatively short lengths. In each embodiment, a member underlies the dies and rotates therewith to accept extruded products in the absence of one or more cans, and a scraper removes the extruded products from the member.

3,782,879

MOLDING APPARATUS

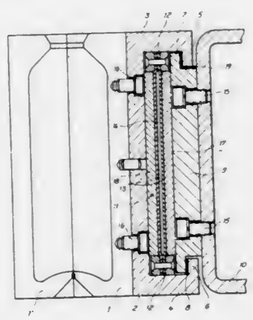
Reinhold Mnilk, Dortmund-Wickede; Manfred Kurreck, Bochum-Weitmar, and Ulrich Geltenpoth, Dortmund-Wickede, all of Germany, assignors to Holstein & Kappert Maschinenfabrik Phonix GmbH, Dortmund, Germany

Filed Sept. 13, 1971, Ser. No. 176,403

Claims priority, application Germany, June 9, 1971, P 21 28 561.0

Int. Cl. B29c *1/16*

U.S. Cl. 425—450 **3 Claims**



A molding apparatus for thermoplastic material has a mold including two relatively movable mold sections. One or both of the mold sections are mounted on carriers for movement relative to the other, and adjusting means in form of springs or in form of superimposed fluid-tightly connected plates defining with one another a compartment which is extensible by pressure fluid, is interposed between at least one of the mold sections and its associated carrier so that the mold sections can be adjusted relative to one another and aligned in parallelism.

3,782,880

CONTROL SYSTEM TO AUTOMATICALLY MAINTAIN A SMOKELESS FLARE

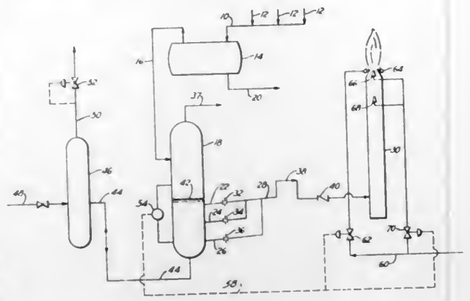
Elton C. Eubanks, Port Arthur, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Sept. 20, 1972, Ser. No. 290,706

Int. Cl. F23j *15/00*

U.S. Cl. 431—4 **10 Claims**

Waste gases from refinery units are delivered into a vessel having a plurality of outlet lines connected into the vessel at different elevations. The outlet lines are connected into a waste gas flare line for delivery of waste gas to a smokeless flare. A sealing liquid in the vessel can be displaced from the vessel through a line opening from the bottom of the vessel to a sealing liquid reservoir. The level of sealing liquid in the vessel, which is dependent upon the rate waste gases are discharged through the outlet lines, produces a signal to control the rate of steam delivery to the flare to maintain a smokeless flare. As the rate of waste gas flow into the vessel increases, the sealing liquid level in the vessel is lowered to uncover successively lower outlet lines and allow increased rate of flow of waste gas to the flare.



3,782,881

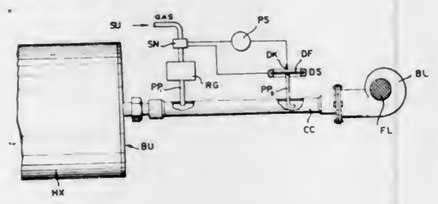
GAS BURNER PROTECTIVE APPARATUS

Hugh Aloysius Feeney, Gillette, N.J., assignor to American Standard Inc., New York, N.Y.

Continuation of Ser. No. 15,535, March 2, 1970, abandoned. This application Nov. 9, 1971, Ser. No. 197,189

Int. Cl. F23n *1/02*

U.S. Cl. 431—90 **16 Claims**



Covers a power gas burner supply system embodying apparatus for detecting and responding to any predetermined reduction in the volume of air supplied with the gas to the burner system. The detecting apparatus may include a hollow pipe one end of which senses the air flow which is transmitted to the burner system, and a pressure-actuated diaphragm switch is coupled to the other end of the hollow pipe. The diaphragm, which is normally deflected when the air supply is adequate, is subjected to a change in deflection as the volume of air falls off. The switch may be used to trigger the removal of the gas furnish to the burner system as the deflection changes sufficiently. By maintaining the supply of air above a predetermined level, the burner system is continuously maintained in a satisfactory operating condition and the production of carbon monoxide by the burner system is virtually eliminated.

3,782,882

GAS LIGHTER

Kenjiro Goto, Tokyo, Japan, assignor to Mansei Kogyo Kabushiki Kaishya, Kawaguchi-shi, Saitama, Japan

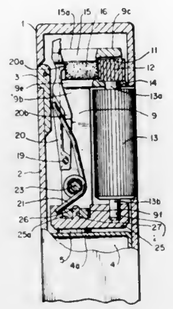
Filed Mar. 10, 1972, Ser. No. 233,589

Claims priority, application Japan, Mar. 18, 1971, 46/18612; Mar. 16, 1971, 46/17777

Int. Cl. F23q *25/00*

U.S. Cl. 431—150 **14 Claims**

Head mechanism for a gas lighter including two devices secured by a single screw means and one of which includes a knurled wheel, a rotor rotatably mounted thereon and adapted to rotate the knurled wheel, a flint stone, a flint housing passage for guiding the flint stone into engagement with the knurled wheel and a flint urging means for driving the flint stone toward the knurled wheel, the flint urging means rotating within the flint housing passage around a predetermined axle. The other device includes a valve operating means adapted to control a conventional burner valve and a spring positioned on the screw means to apply a pressure upon the valve operating means. Also disclosed is a valve actuating means controlled by the valve operating means and including a pair of upper and lower members surrounding the burner valve and separated by a stopper associated with the upper member and a spring.



3,782,883

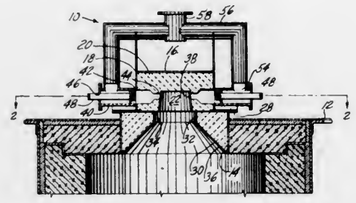
FLAT FLAME BURNER HAVING A LOW AIR TO GAS RATIO

John D. Nesbitt, Chicago, Ill.; Klaus H. Hemsath, Sylvania, Ohio, and Frank J. Vereecke, Palmyra, Mich., assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed Apr. 20, 1972, Ser. No. 245,932

Int. Cl. F23m *9/00*

U.S. Cl. 431—185 **12 Claims**



A flat flame burner capable of sustaining combustion at a low air to gas ratio. The burner has a cup shaped combustion chamber with outwardly extending tapered walls leading from the combustion chamber. At the upstream end of the combustion chamber, generally tangential means is provided for introducing a mixture of gas into the combustion chamber. The geometry of the burner is such that virtually total reaction takes place within the combustion chamber and along the tapered walls.

3,782,884

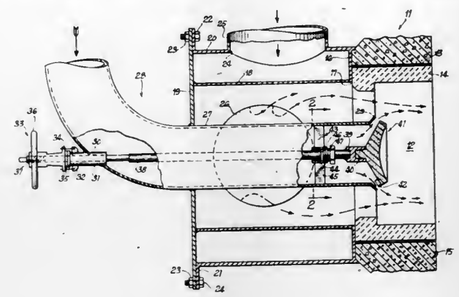
ACID GAS BURNER

Willis L. Shumaker, Independence, Mo., assignor to Standard Oil Company, Chicago, Ill.

Filed May 9, 1972, Ser. No. 251,660

Int. Cl. F23c *5/06*

U.S. Cl. 431—186 **9 Claims**



A burner for feeding acid (H_2S) gas to a combustion chamber of a thermal reactor contains a gas-feeding tube having a forward flared open end, that extends horizontally through a wall of the reactor into the chamber, and a gas diverter concentrically disposed in that open end to provide an annular space between the diverter and the flared open end of the tube. The diverter has a rearward portion with a frustoconical surface facing the inner surface of that flared end of the tube. The diverter is connected at its rear end, inside the tube, to one end of a shaft that extends rearwardly through the tube to an external location for its other end. The shaft adjacent that other end is connected to means to move the shaft longitudinally for adjustment of the dimension of the annular space between the diverter and the flared end of the tube. The burner further includes an intermediate support for the movable shaft. The intermediate support is mounted on the tube adjacent its flared end. The shaft is also supported adjacent its other end.

3,782,885

PIEZO ELECTRICALLY IGNITED LIGHTER

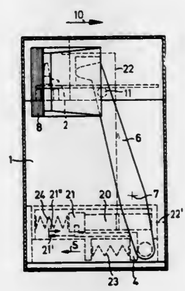
Peter Weissmann, Burg Farrnbach, Germany, assignor to Consul GmbH, Nurnberg, Germany

Filed Aug. 22, 1972, Ser. No. 282,771

Claims priority, application Switzerland, Aug. 27, 1971, 12623/71

Int. Cl. F23q *3/01*

U.S. Cl. 431—255 **5 Claims**



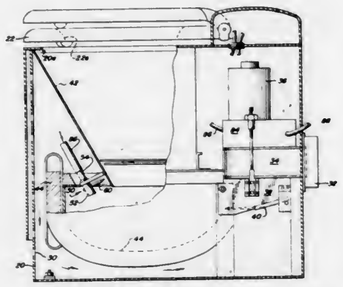
The lighter housing encloses therein a piezo electric crystal and an impact hammer which, when the crystal is struck,

causes the crystal to generate an electrical pulse which provides the spark to ignite the lighter. The impact hammer is operated by a pivoted lever, engaged on one side by a manually operable slider, the other side engaging a striker mechanism which compresses a spring which, when suitably compressed, then releases the impact hammer to strike the crystal. The pivoted two-arm lever has a longer arm engaged by the operating slider, to provide for high compressive force of the spring; the operating mechanism includes a camming arrangement to open a gas valve for a gas operated lighter.

3,782,886
INCINERATING TOILET AND BURNER WITH CERAMIC HEAD

Robert C. Helke, Fontana, Wis., assignor to La Mere Industries, Inc., Walworth, Wis.

Filed Aug. 17, 1972, Ser. No. 281,321
Int. Cl. F23q *3/00*
U.S. Cl. 431—264 **4 Claims**



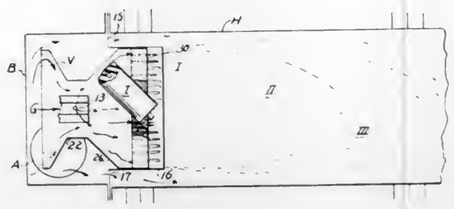
A fuel burner in which the flame supporting portion is a ceramic nozzle tube attached to an electrically conductive supply tube which supplies fuel through one end of the ceramic tube to support a flame emitting from the other end of the ceramic tube. The ceramic tube has first and second transverse electrodes projecting generally along diameters of the ceramic tube with the electrodes at approximately right angles to each other and spaced axially in the tube from each other to provide a spark gap therebetween. One of the electrodes extends axially on the outer surface of the ceramic tube to a hook end which projects inwardly through a bore in the fuel supply tube for securing the ceramic tube to the fuel supply tube. The fuel supply tube is grounded to ground the electrode. The other electrode is connected to a high voltage source to produce a spark across the gap for igniting a fuel-air mixture entering the ceramic tube from the fuel supply tube. An incinerating toilet utilizing the ceramic head burner is also provided.

3,782,887
GASEOUS FUEL BURNER

Richard J. Brown, Mentor, Ohio, assignor to Tri-Men Manufacturing, Inc., Painesville, Ohio

Filed Sept. 28, 1972, Ser. No. 293,050
Int. Cl. F23d *15/02*
U.S. Cl. 431—353 **9 Claims**

A high capacity gaseous fuel burner of relatively short longitudinal dimension in which the fuel and combustion air are supplied at superatmospheric pressure and mixed in a widely flaring venturi section with the fuel admitted to the venturi throat in cross current fashion to the air flow and the mixture burned with a noiseless flame over a large area from a plate having numerous deep ports and located proximate the downstream mouth of the venturi. Means are also provided for adjusting the primary air-gas ratio entering the venturi and

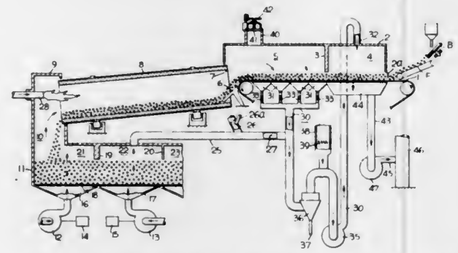


further means are provided for distributing secondary air to the base of the flame approximately in the plane of the downstream mouth of the venturi.

3,782,888
METHOD AND APPARATUS FOR HEAT TREATING WITH HEAT RECUPERATION FROM MATERIAL COOLING AND AUXILIARY HEAT DURING STARTUP

Robert F. Cnare, Pewaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 4, 1972, Ser. No. 294,879
Int. Cl. F27b *7/02*
U.S. Cl. 432—14 **12 Claims**

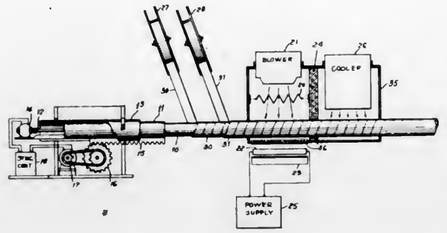


A method and apparatus is disclosed for heat treating mineral ore materials. The apparatus includes, in material series flow arrangement, a traveling grate preheater having at least one material drying zone and a preburn zone, a rotary kiln, and a cooler. The cooler has a first stage in which air becomes heated as the ore is cooled and this heated air is conducted through the kiln and preburning zones counter to material flow. The cooler has a second stage in which air is heated and thermal energy recuperated as the ore is further cooled and this second cooler stage air after being heated is conducted by a bypass conduit around the kiln and preburn zone to supply heat for drying the materials. An auxiliary air heater is associated with this bypass and according to the method disclosed, during start-up operation and before hot material arrives in the second stage of the cooler, the air heater is operated to heat the air conducted from the second stage of the cooler, for drying the material until hot material does arrive in the second stage of the cooler and thereafter heat transferred from the hot material to the air passing through the material in the second stage of the cooler, is utilized for drying the material. The disclosed apparatus operated according to the disclosed method, achieves improved fuel economy, more effective control of the drying or dehydrating operation, and such operation is achieved with a smaller kiln than heretofore required according to teachings of the prior art.

3,782,889
APPARATUS FOR RAPID CURING OF RESINOUS MATERIALS

C. Richard Panico, Medford, Mass., assignor to Xenon Corporation, Medford, Mass.

Filed Sept. 9, 1971, Ser. No. 178,936
Int. Cl. F27b *9/28*
U.S. Cl. 432—59 **9 Claims**

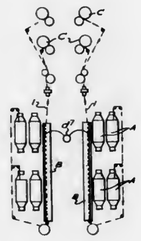


Apparatus providing in sequence a heat source for directing a flow of air under pressure at a temperature in the range of 250° to 800°C, a blower to direct a flow of cool air and a drive mechanism to produce motion between the heat source and blower relative to a resinous material to be cured at a speed whereby the material reaches a temperature of at least 170°C within a time interval of less than one minute and is then cooled.

3,782,890
FUME EXTRACTORS FOR THE HEATERS OF TEXTILE PROCESSING MACHINES

Frederick Hugh Howorth, Chorley, England, assignor to Howorth Air Conditioning Limited, Farnworth, Bolton Lancaster County, England

Filed June 7, 1972, Ser. No. 260,434
Claims priority, application Great Britain, June 8, 1971, 19,343/71
Int. Cl. F27b *9/28*
U.S. Cl. 432—59 **6 Claims**



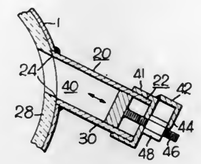
A fume extractor unit for the heaters of textile yarn or filament processing machines comprising a sealed hood or door for closing a recess in a heater container, the door being formed with a longitudinal chamber connected through ports or holes to a compartment in the heater container through which the yarn or filament passes and to exhaust ports in communication with an exhaust suction pipe or duct into which the fumes from the yarns or filaments are withdrawn.

3,782,891
EXTERNAL MATERIAL LIFTERS FOR ROTARY KILNS AND THE LIKE

Charles E. Dandois, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 28, 1972, Ser. No. 310,161
Int. Cl. F27b *7/14*
U.S. Cl. 432—118 **2 Claims**

An apparatus is disclosed for heating, drying or otherwise treating a raw material or a slury of raw material that is lifted and showered back down to a bed of the material while a treating gas passes through the showering material. The apparatus includes a tubular shell mounted for rotation about a slightly inclined central axis. A plurality of material lifting buckets are spaced around and attached to the outer circumference of the rotary shell to rotate with the shell. Each bucket has side wall means with a terminal lip attached to the shell in alignment with a radial opening through the shell, and an end wall opposite the lip. Reference is made to a first portion of the bucket wall means and lip. The first portion of each bucket is defined as the portion which is lowermost on the upturning

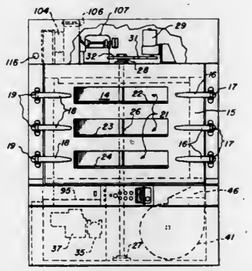


side of the shell and uppermost on the downturning side of the shell. Each bucket is attached to the shell with the defined first portion of the bucket defining an acute angle with the shell and providing a material retaining pocket between the first portion and the end wall which when the bucket is on the upturning side of the shell, locates the pocket below the lip until the bucket is carried a substantial distance above a horizontal plane through the central axis of the shell. The smaller the defined acute angle the higher the bucket will travel before spilling and dumping the last of the material in the pocket to shower back into the shell.

3,782,892
OVENS

David E. Johnson, Minneapolis, and Terrance E. Polsfuss, Clear Lake, both of Minn., assignors to Despatch Industries, Inc., Minneapolis, Minn.

Filed May 19, 1972, Ser. No. 255,226
Int. Cl. F26b *9/24*
U.S. Cl. 432—132 **21 Claims**



An improved oven includes an oven chamber, at least one baking shelf in the oven chamber for supporting products to be baked, and at least one wall member defining a shelf-heating compartment or duct extending through the oven chamber below the baking shelf. A supply conduit from a heater chamber outside the oven chamber delivers heated gaseous fluid to each shelf-heating compartment, and a return conduit connects each shelf-heating compartment to the heater chamber for recirculation of fluids with the aid of a heating blower to maintain the desired surface temperature for each baking shelf.

A preferred oven includes a plurality of rotary baking shelves supported in an oven chamber for rotation on a vertical axis. A transverse horizontal shelf wall extends across the oven chamber circumferentially around each baking shelf, and the shelf wall and rotary baking shelf cooperate to provide

a substantially imperforate partition between a baking compartment above each rotary baking shelf and a shelf-heating compartment below each baking shelf.

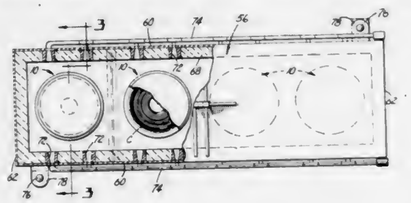
The oven further includes an unobstructed delivery opening for each baking compartment for loading and removal of products at any time during continuous operation of the oven. Additional supply connections, conduits, adjustable valve members and an auxiliary blower are disclosed for selective delivery of some heated gaseous fluids from the heater chamber to each baking compartment, for selective adjustment of the relative rates of delivery of the heated fluid to the respective baking and shelf-heating compartments, for adjustably venting each baking compartment to the outside air, for removal of air from an edge of the delivery opening, and for adjustably venting the heater chamber to the outside air. The delivery openings are located in a removable vertical section of the side wall, e.g. a front wall section, and the supply and return conduits between the heater chamber and oven chamber are located at opposite sides of the oven chamber for circulation of heated fluids across the oven generally parallel to the delivery openings.

3,782,893

MULTIPLE PEDESTAL FURNACE INSTALLATION

Calvin C. Blackman, 5419 Park Dr., Vermilion, Ohio

Filed May 22, 1972, Ser. No. 255,785
Int. Cl. F27b *11/00*
U.S. Cl. 432—206 **9 Claims**



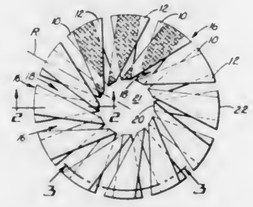
A furnace structure and multiple pedestal base installation for heat treating stacked coils of strip material. The pedestals are insulation lined to support the coils, and are supported above the working floor. An elastimeric seal is provided around each pedestal for the reception of a bell inner cover. The furnace structure has support means defining a furnace which has insulation lining substantially totally enclosing the top and sides thereof and defining the bottom with openings therein for reception of the bell covers therethrough. Heating means are carried by the interior of the furnace, but the bottom insulation protects the seals and bottom of the bell covers cooperating with the seals from direct radiation therefrom.

3,782,894

COIL SEPARATOR

Calvin C. Blackman, 5419 Park Dr., Vermilion, Ohio

Filed Mar. 16, 1972, Ser. No. 235,128
Int. Cl. F27b *21/04*
U.S. Cl. 432—260 **10 Claims**



A coil spacer adapted to be interposed between a pair of stacked coils in an annealing furnace. The spacer has two superimposed contiguous layers of wedge shaped plates arranged to define an annulus with a central opening. In one form the plates of one layer are radially extending defining radially extending channels and the plates of the other layer are skewed with respect to the radius to defining skewed channels intersecting the channels defined by the other layer. In another form the plates in each layer are skewed radially in opposite senses. In this form the plates are arranged so that their outer edges are rotatably offset to form a continuous outer surface and preferably the inner ends also are offset to form a continuous inner peripheral surface.

CHEMICAL

3,782,895

ELECTROSTATIC DYEING WITH MICROCAPSULES CONTAINING DYES IN LIQUIDS OF HIGH DIELECTRIC CONSTANT

Hendrik Goorhuis, Binningen, Basel-Land, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Nov. 16, 1971, Ser. No. 199,376
Claims priority, application Switzerland, Dec. 15, 1970, 18,558/70
Int. Cl. G03g *3/00*
U.S. Cl. 8—2 **11 Claims**

A process for the dyeing and printing of textiles which is characterized by the use of dyeing preparations in the form of particles consisting of a highly resistive, high molecular weight polymer (A) as carrier, in which are encapsulated a dye (B) and a liquid (C) with a high dielectric constant in which the polymer (A) is virtually free from swelling, and optionally known assistants, dispersing agents and solvents, said dyeing preparations being applied to the textile substrate with the aid of an electrostatic field and then fixed.

3,782,896

SUBLIMATION TRANSFERRING HYDROXY OR AMINO-DIALKYLAMINO-DICYANOSTYRYL DYE AND DIISOCYANATE FIXATION OF DYED TEXTILE AND TRANSFER SHEETS THEREFOR

Raymond Defago, Riehen, Hans-Joerg Angliker, Basel, Herbert Holzrichter, Muri, Werner Kneubuehler, Binningen, and Richard Peter, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,648
Claims priority, application Switzerland, Apr. 26, 1971, 6,069/71
Int. Cl. D06p *5/04*
U.S. Cl. 8—2.5 **26 Claims**

The invention relates to a process for the manufacture of prints which are fast to wet processings and sublimation on textile or non-textile sheets by means of the transfer printing process, wherein dyestuffs containing mercapto, hydroxyl and/or amino groups and applied to sheets by means of the transfer printing process are fixed by the action of isocyanates or masked isocyanates, which are applied to the sheets before, during, or after the dyestuff transfer.

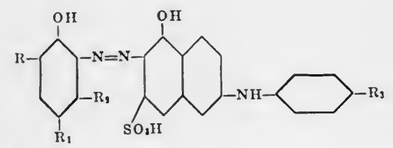
3,782,897

DYEING POLYAMIDE FIBERS WITH CHROMIUM-DONATING MONOAZO DYESTUFFS

Jacky Dore, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed May 18, 1971, Ser. No. 144,620
Claims priority, application Switzerland, June 2, 1970, 8,228/70; Jan. 22, 1971, 985/71
Int. Cl. D06p *3/14*
U.S. Cl. 8—43 **9 Claims**

Process for the dyeing of natural and synthetic polyamide fibres with a complex (obtained or the fibre) of 2 moles of a monoazo compound of formula



(I)

where

R and R_1 each stands for halogen,
R_2 is hydrogen or halogen,
R_3 is halogen or $—OR_4$, and
R_4 is an alkyl radical which may be substituted,

and treated with 1 and 2 moles of a compound donating chromium.

3,782,898

TEMPORARY SOIL RELEASE RESINS APPLIED TO FABRICS IN LAUNDERING

Harry Creston Mandell, Jr., Wayne, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,362
Int. Cl. B08b *3/00*
U.S. Cl. 8—137 **12 Claims**

A laundering process and novel laundering composition used to impart temporary soil release properties to textile fabrics by impregnating the fabrics with an acrylic resin in the final step of a laundering operation, usually in the sour operation. The fabrics are then dried leaving a residue of the resin on the fabrics which helps remove after acquired stains. The resin impregnation can be combined with fabric finishing treatments such as blueing, sizing, brightening and softening. The process is repeated with each subsequent laundering of the fabrics to obtain optimum soil release and stain removal.

The laundering compositions comprise water, acrylic resin, and laundry sour or other fabric finishing agent.

3,782,899

TREATMENT OF SHEET MATERIALS

David Winston Crosby, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 31, 1970, Ser. No. 68,482
Claims priority, application Great Britain, Sept. 2, 1969, 43,328/69
Int. Cl. D06c *1/00*
U.S. Cl. 8—149.2 **4 Claims**

A process and apparatus for the uniform physical treatment of a sheet material with a gaseous fluid, which under conventional treatment conditions causes the sheet material to undergo undesired chemical changes, the apparatus comprising means of supply of said gaseous fluid at a pressure of at least 0.35 kg. cm.$^{-2}$ gauge, means for reducing said pressure to or about atmospheric pressure to an outlet slit orifice of the said pressure reducing means, said slit orifice having a width of not greater than 8 cm., said pressure reducing means provided with means to distribute uniformly said gaseous fluid to the said slit orifice, and means for forwarding said sheet material at a constant rate across said slit orifice.

3,782,900

GAS-LIQUID CHROMATOGRAPHIC DETERMINATION OF NITRATE ESTERS, STABILIZERS AND PLASTICIZERS IN NITROCELLULOSE-BASE PROPELLANTS AND NITROGLYCERINE IN PHARMACEUTICALS

Hiram W. H. Dykes and Bernard J. Alley, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed May 4, 1972, Ser. No. 250,253
Int. Cl. G01m *31/08*
U.S. Cl. 23—230 R **30 Claims**

A gas-liquid chromatographic method for determining nitrate esters as well as stabilizers and plasticizers in a wide variety of nitrocellulose-base propellants. The method is also applicable to the determination of nitroglycerine in pharmaceutical preparations. The method employs chromatographic columns having a silicone stationary phase selected from nonpolar dimethylsilicone, polar trifluoropropyl silicone, and highly polar cyanopropyl phenyl silicone. The solid support of the columns is comprised of a

flux-calcined, diatomaceous earth treated with a silane. The method of this invention utilizes columns that preclude on-column decomposition which is essential for determination of nitrate esters, as well as the plasticizers and stabilizers, in all types of nitrocellulose-base propellants. The method employs an electronic digital integrator which provides for sensitive detection of the nitrate ester with a precise measurement of its peak area. The method employs semimicro calibration and extraction procedures which substantially reduce analysis time. The extraction procedure utilizes an ultrasonic cleaner which effectively reduces the extraction time as compared to prior art extraction procedures.



3,782,901

APPARATUS FOR THE SEMICONTINUOUS MANUFACTURE OF A PHOSPHORIC ACID ESTER OF A POLYHYDRIC ALCOHOL

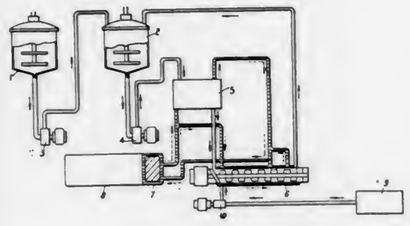
John Whetstone, Woodlea, Scotland, assignor to Imperial Chemical Industries Limited, London, England

Filed Sept. 7, 1971, Ser. No. 177,980

Claims priority, application Great Britain, Sept. 7, 1970, 42,763/70

Int. Cl. B01j *1/00;* **C07c** *69/20;* **C07f** *9/02*

U.S. Cl. 23—260 **2 Claims**



Calcium sucrose phosphate is manufactured in a unit operating on a semi-continuous principle by circulating a lime-sugar slurry continuously at a high rate from a holding vessel through a heat exchanger as precooler, a cooled scraped-wall reactor into which phosphorus oxychloride is injected and then back to the holding vessel. The serious problem of gel formation of the reaction mixture on cooling surfaces is obviated by this circulation technique.

3,782,902

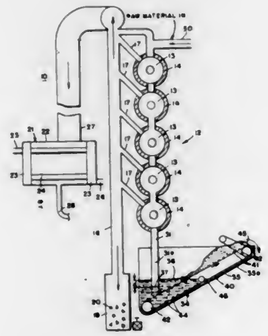
APPARATUS FOR RENDERING

Ditlev P. Madsen, 27 N. Woodland Trail, Palos Park, Ill. 60464, and John H. Pikel, 5013 W. 101st St., Oaklawn, Ill. 60453

Original application Dec. 16, 1968, Ser. No. 784,100, now Patent No. 3,655,702. Divided and this application Oct. 7, 1971, Ser. No. 192,724

Int. Cl. C11b *1/12;* **B01d** *43/00*

U.S. Cl. 23—280 **11 Claims**



There is provided an improved method and apparatus for the continuous rendering of fatty material, wherein the material to be rendered is first passed through a known type of rendering evaporator for separating fat and cracklings from the raw material. The material is fed into a substantially airfree state. A controlled pressure is maintained in the rendering evaporator to aid in the removal of moisture. The treated material is discharged in a continuous process from the rendering evaporator through a suitable discharge outlet which extends below the liquid level in a holding tank to provide an airlock. The airlock is provided with the discharge outlet for preventing the entry of air into the rendering evaporator through the discharge outlet.

3,782,903

SUPPORT PILLAR FOR FLUID BED GRID

Walter W. Kramer, Allentown, Pa., assignor to Fuller Company, Catasauqua, Pa.

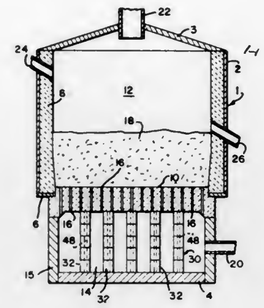
Filed Aug. 16, 1971, Ser. No. 172,177

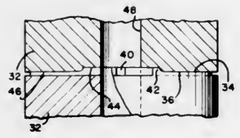
Int. Cl. B01j *9/18*

U.S. Cl. 23—284 **1 Claim**

A support pillar adapted to be positioned in the plenum chamber of a fluidized solids reactor which is of large size and used for carrying out high temperature reactions. The pillar is made up of a plurality of stackable blocks each of which is provided with a longitudinal bore. Each block has a plurality of recesses on its top surface extending from the longitudinal bore to the outer periphery of the block. The top surface of the block is provided with a raised portion and the bottom surface is provided with

a recess adapted to receive the raised portion on the top surface of an adjacent block when the blocks are stacked. When the blocks are stacked, they provide flow passages which provide communication between the plenum chamber and the inside of the column to thereby equalize the temperature throughout the column. The longitudinal bore through the column communicates with passages in the grid of the reactor.





3,782,904

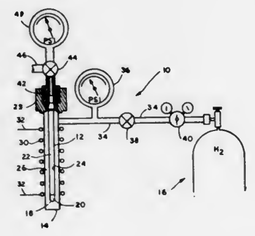
COMPACT HYDROGENATOR

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Peter G. Simmonds, 5200 Palm Drive, La Canada, Calif. 91011

Filed Oct. 7, 1971, Ser. No. 187,365

Int. Cl. B01j *9/04;* **C07f** *1/00*

U.S. Cl. 23—284 **2 Claims**



A hydrogenating apparatus which includes a reaction chamber of a material such as a palladium alloy that is selectively permeable to atomic hydrogen and catalytically active to hydrogenating reaction and which contains a reactant that is to be hydrogenated, a shell surrounding the chamber and supplied with hydrogen, and a heating coil for heating the shell to thereby heat the hydrogen therein before it passes through the chamber while the reactant remains therein before it passes through the chamber wall. In one device, hydrogen is pumped out of the reaction chamber while the reactant remains therein to remove molecular hydrogen so that more atomic hydrogen can pass through the chamber walls. In another device, the reactant is pumped through the reaction chamber, and hydrogen is removed from the material leaving the chamber, and the reactant is again cycled through the chamber.

3,782,905

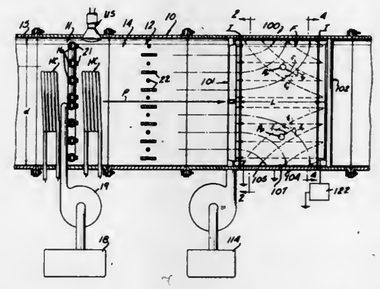
ELECTROSTATIC PRECIPITATING APPARATUS AND METHOD

A. Ben Huang, 3134 Woodrow Way NE. 30319, and Arnold L. Ducoffe, 3544 Paces Ferry Road NW. 30327, both of Atlanta, Ga.

Filed May 1, 1972, Ser. No. 249,167

Int. Cl. B03c *3/74, 3/88*

U.S. Cl. 23—284 **26 Claims**



Electrostatic precipitating apparatus and method wherein the apparatus includes a tubular duct through which a gas stream is passed, a converter within the duct for converting gaseous pollutants into entrained particles, a charging means within the duct downstream of the converter for imposing an electrical charge of predetermined polarity on the entrained particles, and a separating section within the duct downstream of the charging means for separating the entrained electrically charged particles from the gas stream. One embodiment of the separating section includes an entry grid intersecting the path of gas flow with a charge thereon of opposite polarity with respect to the charge on the particles, an exit grid downstream of the entry grid with a charge thereon of the same polarity as the charge on the particles, and that portion of the duct wall between the grids having a charge thereon of opposite polarity to the charge on the particles. Another embodiment of the separating section adds additional exit grids to the above embodiment spaced downstream from the first exit grid and from each other with each of the additional exit grids having a charge thereon of the same polarity as that on the particles but with a greater potential than the next adjacent upstream exit grid, and with the duct wall between each adjacent pair of exit grids having a charge thereon of opposite polarity to the charge on the particles.

The method is that carried out by the above apparatus.

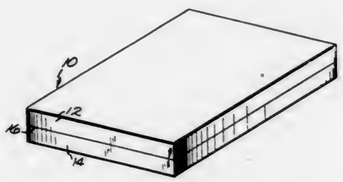
3,782,906
PROCESS FOR PREPARATION OF AGGLOMERATED HYDRATED ALKALI METAL SILICATE GLASS PARTICLES
Richard H. Pierce, Broomall, Pa., assignor to Philadelphia Quartz Company, Philadelphia, Pa.
No Drawing. Filed Nov. 16, 1971, Ser. No. 199,373
Int. Cl. B01f *3/06*; C01b *33/32*; C01d *11/00*
U.S. Cl. 23—313 5 Claims

Readily soluble, free-flowing hydrated alkali metal silicate glass particles are prepared by feeding fine particles of anhydrous glass into a fluid bed and using steam to expand the bed. The steam hydrates the glass particles and agglomeration takes place.

3,782,907
IRIDESCENT CHROMIUM PLATED ARTICLE
Hyman Chessin, 7146 Heather Heath Lane, Birmingham, Mich. 48010, and Robert Francis Gempel, 71 W. Hancock, Apt. 3, Detroit, Mich. 48201
No Drawing. Original application Feb. 6, 1969, Ser. No. 797,258, now Patent No. 3,657,079. Divided and this application May 6, 1971, Ser. No. 141,044
Int. Cl. B32b *15/00*
U.S. Cl. 29—194 3 Claims

This invention relates tc novel compositions and to a process of preparing an iridescent chromium plated article which comprises passing current from an anode to a cathode through an aqueous chromium plating solution which contains at least one chromium compound providing chromium metal ions for electroplating chromium and a hexavalent molybdenum compound to produce an iridescent chromium surface on said cathodic article.

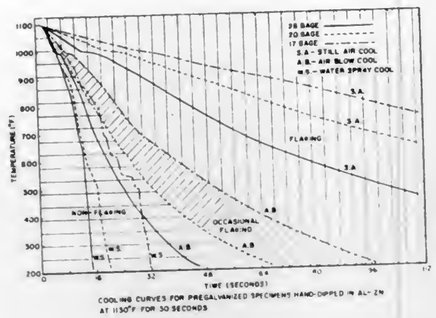
3,782,908
THERMOSTAT METAL
Sheldon S. White, Brookline, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Nov. 30, 1971, Ser. No. 203,266
Int. Cl. B32b *15/00*
U.S. Cl. 29—195.5 1 Claim



A composite thermostat metal is shown to comprise a layer of a selected aluminum alloy of relatively high coefficient of thermal expansion which is in a condition of temper providing the alloy with a yield strength of at least about 30,000 pounds per square inch at temperatures up to about 350° F., the layer of aluminum alloy being metallurgically bonded to a layer of metal of relatively low coefficient of thermal expansion.

3,782,909
CORROSION RESISTANT ALUMINUM-ZINC COATING AND METHOD OF MAKING
Harold J. Cleary, Coopersburg, and James B. Horton and George F. Melloy, Bethlehem, Pa., assignors to Bethlehem Steel Corporation
Filed Feb. 11, 1972, Ser. No. 225,407
Int. Cl. B32b *15/00*
U.S. Cl. 29—196.2 4 Claims

Aluminum-zinc coated ferrous products which are particularly resistant to corrosive flaking such as may occur in extremely corrosive environments are provided by accelerated cooling of the coating on the product as it emerges from a coating bath containing molten zinc and



COOLING CURVES FOR PREGALVANIZED SPECIMENS HAND-DIPPED IN AL-ZN AT 1150°F FOR 30 SECONDS

aluminum. The cooling is accomplished at a minimum rate of cooling which will prevent later corrosion flaking of the coating.

3,782,910
PRODUCTION OF WAX HEATERS
Edward Barnes, Speldhurst, England, assignor to BP Chemicals Limited, London, England
No Drawing. Filed July 9, 1970, Ser. No. 53,647
Claims priority, application Great Britain, May 29, 1970, 37,446/70
Int. Cl. C10l *11/00*; A01g *13/06*
U.S. Cl. 44—40 5 Claims

Wax filled heaters are produced by homogenizing solid slack wax and filling a container with homogenized slack wax.

3,782,911
HIGH OCTANE GASOLINE COMPONENTS
David M. Hoffman, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed Oct. 26, 1971, Ser. No. 192,328
Int. Cl. C10l *1/22*
U.S. Cl. 44—63 3 Claims

Additives for increasing the octane rating of gasoline may be obtained from C_{1-6} aldehydes or C_{3-6} ketones by converting them into higher molecular weight unsaturated carbonyl compounds followed by partial isomerization of the double bond and/or partial dehydrocyclization to form a furan ring. These steps provide a mixture of compounds which need not be separated into their pure components and which possess a higher BVON than the starting material.

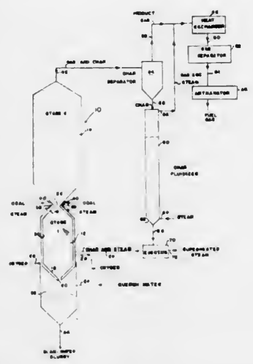
3,782,912
DETERGENT MOTOR FUEL
Warren H. Machleder, Elkins Park, and Robert R. Kuhn, Lansdale, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Filed Aug. 11, 1972, Ser. No. 279,891
Int. Cl. C10l *1/18*
U.S. Cl. 44—66 17 Claims

Detergent motor fuel compositions are disclosed and claimed which are particularly useful in spark-ignition, internal combustion engines. The detergent compositions of the present invention contain certain additives which either substantially eliminate or maintain at a low level deposits which would otherwise form in the carburetor and in the intake valves and ports. Such carburetor and intake system deposits are to be avoided since they tend to restrict the flow of air through the carburetor especially at idle and at low speeds and/or cause improper valve

closing and sluggish valve action. These conditions produce rough engine idling, stalling and can also result in excessive hydrocarbon and carbon monoxide exhaust emissions.

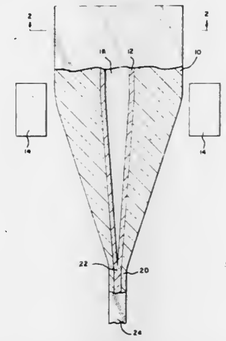
A suitable detergent composition comprises the combination of (1) a tertiary alkyl branched chain primary amine having a total of about 6 to 24 carbon atoms, (2) a surface active ammonium carboxylate salt-ethoxylated alkyl phenol ester of a trimer or dimer hydrocarbon acid; and (3) a hydrocarbon-soluble polybutene having a number average molecular weight of about 700 to 3000.

3,782,913
TWO-STAGE GASIFICATION OF COAL WITH FORCED REACTANT MIXING AND STEAM TREATMENT OF RECYCLED CHAR
Ernest E. Donath, St. Croix, Virgin Islands, assignor to the United States of America as represented by the Secretary of the Interior
Filed Mar. 23, 1972, Ser. No. 237,360
Int. Cl. C10j *3/00*
U.S. Cl. 48—202 13 Claims



A process for the two-stage gasification of coal to produce methane-rich fuel gas. In the first stage, recycled processed char passes upwardly while reacting with steam and oxygen to yield a first stage synthesis gas containing hydrogen and oxides of carbon. In the second stage, the synthesis gas passes upwardly with coal and steam which react to yield partially gasified char entrained in a second stage product gas containing methane, hydrogen and oxides of carbon. The product gas from the second stage is separated from the char and is purified by conversion and removal of carbon oxides, hydrogen sulfide and other impurities, and the purified second stage product gas is methanated to produce the desired fuel gas. Char separated from the second stage product gas is passed through a fluidized bed and scrubbed with steam to remove product gas and other volatile materials which are carried by the scrubbing steam to the second stage product gas carried to purification. The scrubbed recycle char is carried by steam at high pressure and returned to the first stage. Agglomeration of coal in the second stage is prevented by the rapid heating of the coal to a temperature above its range of plasticity by mixing it with the hot products from the first stage. In the first stage the ratio of char and steam to oxygen is selected to obtain a reaction temperature above the ash melting point. The pressure in each stage exceeds 500 p.s.i.g. The second stage temperature exceeds 1500° F. and the first stage temperature exceeds 2200° F. Gas velocities in both stages are maintained between 2 and 12 feet per second while the residence time of solids in the first stage is from one-half to five seconds and, in the second stage, from five to fifteen seconds. A mixing stage between the first and second stages provides a restricted area for the injection of coal and steam into the upwardly flowing synthesis gas to separate solids and gases entering the second stage from the first stage and to assure rapid mixing and reaction of the reactants of both stages. Slag is removed from the lower end of the first stage for quenching and disposal through a slag removal port of small cross sectional area compared to the cross sectional area of the first stage. This assures residence and reaction time of the char in the first stage sufficient for its gasification with steam and oxygen at temperatures above the ash melting point. The relatively small area of the slag removal port permits controlled removal of molten slag while restricting the gravitation of char to the slag quenching stage.

3,782,914
HEAT TREATING OPTICAL WAVEGUIDES FOR OH ION REMOVAL
Robert David De Luca, Big Flats, Donald Bruce Keck, Corning, and Robert Distler Maurer, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Mar. 30, 1972, Ser. No. 239,747
Int. Cl. C03c *15/00*, *25/02*
U.S. Cl. 65—3 9 Claims



Optical waveguides include a core of doped SiO_2 and a cladding of pure SiO_2 or doped SiO_2. The dopant, which is an oxide of a multivalent element, becomes chemically reduced during fabrication which usually includes heating the waveguide so that it can be drawn. For example, titanium dioxide, a commonly used dopant, has Ti^{+4} ions which are reduced to Ti^{+3} ions during the fabrication of the waveguides. These reduced ions increase the attenuation of the waveguide. For example, reduced titanium dioxide is brown. It absorbs light in the blue region and the amount of Ti^{+3} ions in the glass must be quite low in order to get the desired waveguide transmission properties. The reduced multivalent element ion attenuation is minimized by heat treating the waveguide fiber at temperatures in the range of approximately 800 to 1,000° C. for times of approximately six hours or less. The reduced multivalent ion is oxidized with hydroxyl ions deliberately retained in the glass and which serve as the oxidizing agent.

3,782,915
SURFACE-DEACTIVATED POROUS GLASS
Augustus M. Filbert, Corning, and Michael L. Hair, Webster, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,009
Int. Cl. C03c *15/00*
U.S. Cl. 65—30 7 Claims

Porous glass bodies essentially free of surface Lewis acid sites are prepared by exposing the bodies to NH_3 or

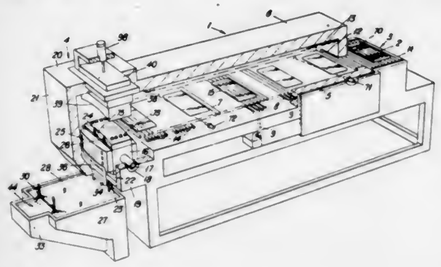
steam at glass body temperatures of 800°–1000° C. The treated glass bodies are especially useful for applications in which the surface activity attributable to Lewis acid sites is desirably avoided (e.g., as chromatographic support or separation media).

3,782,916

PRODUCTION OF TOUGHENED AND BENT GLASS SHEETS

John Ernest Powell, Hopwood, Birmingham, and Peter Henry Richards, Kenilworth, England, assignors to Triplex Safety Glass Company Limited, London, England

Filed Sept. 11, 1972, Ser. No. 288,178
Claims priority, application Great Britain, Sept. 13, 1971, 42,561/71
Int. Cl. C03b *27/00*
U.S. Cl. 65—104 **19 Claims**



A toughened glass sheet is produced by a method in which the glass is advanced in a horizontal disposition and is heated as it is advanced on to a horizontal support surface on which the hot sheet is held. The support surface is rotated to a vertical disposition and the sheet is then released from that surface and lowered into a chilling liquid. The support surface may be the surface of a bending die on which the sheet is bent prior to toughening by quenching in the chilling liquid.

3,782,917

CYCLOPENTADIENYL(GROUP IV–B METAL)HYDROCARBON-SULFINATES AND -SULFONATES AS AGENTS FOR INCREASING CROP YIELDS

Joseph J. Mrowca, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 75,694, Sept. 25, 1970, now Patent No. 3,728,365. This application Apr. 16, 1973, Ser. No. 351,624
Int. Cl. A01n *9/00*
U.S. Cl. 71—97 **11 Claims**

Novel sulfinato and sulfonato derivatives of cyclopentadienyl-titanium and -zirconium compounds are useful to increase crop yields.

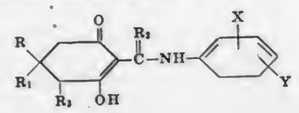
3,782,918

CARBOXANILIDES AS HERBICIDES

Bryant Leonidas Walworth, Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 29, 1972, Ser. No. 239,365
Int. Cl. A01n *9/12*
U.S. Cl. 71—98 **15 Claims**

Carboxanilides of the formula:



where R, R_1, and R_3 are hydrogen or alkyl C_1–C_4; R_2 is sulfur or oxygen; and X and Y are hydrogen, halogen, alkyl C_1–C_4, alkylthio C_1–C_4, alkoxy C_1–C_4, nitro or trihaloalkyl C_1–C_4, are useful for controlling undesirable plant species.

3,782,919

METHOD OF MIXING WITH INCLINED ROTARY KILN TO PROVIDE METAL FOAM

Edward J. Rock, Blue Mounds, Wis., assignor to Johan Bjorksten, Madison, Wis.

Filed Jan. 17, 1972, Ser. No. 218,312
Int. Cl. C21c *1/08*
U.S. Cl. 75—20 F **4 Claims**

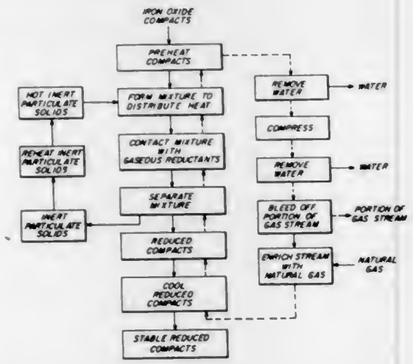
Molten metal, high melting fibers and foaming agent are mixed in a rotating inclined tube to provide foamable and foaming material to provide metal foam bodies.

3,782,920

PROCESS FOR DIRECT REDUCTION OF IRON OXIDE COMPACTS

John A. Anthes, Carnegie, and Joseph Vlnaty, Aliquippa, Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Original application Apr. 29, 1970, Ser. No. 33,002, now Patent No. 3,635,456. Divided and this application Aug. 5, 1971, Ser. No. 169,508
Int. Cl. C21b *13/14*
U.S. Cl. 75—37 **12 Claims**



Process and apparatus for the direct reduction of iron oxides in compact form by preheating iron oxide compacts and enveloping them in hot inert particulate solids at the top of a columnar reactor then passing the mixture downwardly through the reactor countercurrent to an upward flow of natural gas that is introduced into the reactor bottom. Contact of the natural gas and the compacts with the hot solids results in reformation of the natural gas by reaction with carbon dioxide and the production of hydrogen and carbon monoxide, which hydrogen and carbon monoxide reduce the iron oxide of the compacts. Hot gases from the reactor are passed upwardly through a preheater for incoming iron oxide pellets and are then cooled, cleaned, and a portion returned to the bottom of the reactor. The reduced heated compacts are separated from the inert solids at the bottom of the reactor and are passed countercurrent to the natural gas that is being conducted to the reactor to heat it prior to introduction of the gas into the reactor bottom.

3,782,921

PRODUCTION OF STEEL WITH A CONTROLLED PHOSPHORUS CONTENT

Ernest Glaesener, Francois Schleimer, Fernand Wagner, Ferdinand Goedert, Alex Bauer, and Robert Mousel, Dudelange, Luxembourg, assignors to Arbed Acieries Reunies de Burbach-Eich-Dudelange, Luxembourg

No Drawing. Filed May 18, 1972, Ser. No. 254,680
Claims priority, application Luxembourg, May 21, 1971, 63,209
Int. Cl. C21c *7/02*
U.S. Cl. 75—51 **18 Claims**

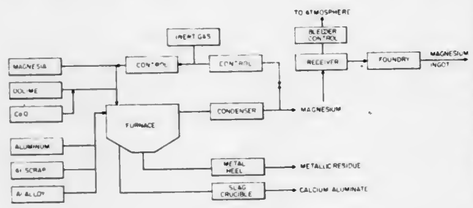
To prevent rephosphorizing reaction during tapping of the refining furnace into a metallurgical vessel, any premature decrease in the activity of the oxygen in the steel and in the slag entrained with the steel (which the addition of deoxidizing or alloying agents would bring about) is avoided while the steel in the vessel is still intimately mixed with the slag which is inevitably entrained. No deoxidizing and alloying agents are added until the slag has thickened on the surface of the steel in the vessel. A dephosphorizing process can be carried out in the vessel.

3,782,922

ALUMINOTHERMIC PRODUCTION OF MAGNESIUM AND AN OXIDIC SLAG CONTAINING RECOVERABLE ALUMINA

Julian Miles Avery, 47 Old Orchard Road, Chestnut Hill, Mass. 02167

Continuation-in-part of applications Ser. No. 796,214, Feb. 3, 1969, now Patent No. 3,658,509, dated Apr. 25, 1972, Ser. No. 26,118, Apr. 6, 1970, Ser. No. 143,886 and Ser. No. 144,321, both May 17, 1971, all of which in turn are continuation-in-parts of application Ser. No. 648,856, June 26, 1967, now Patent No. 3,579,326, dated May 18, 1971. This application Apr. 18, 1972, Ser. No. 245,142
Int. Cl. C22b *45/00*
U.S. Cl. 75—67 **14 Claims**



An aluminothermic process for the production of magnesium by the reduction of magnesium oxide from a mixture of magnesium oxide and calcium oxide, by means of a metallic reducing agent comprising at least 85 percent aluminum, in the presence of a molten calcium-aluminate slag bath at a temperature of about 1300–1700° C. Magnesium evolves from the molten slag as a vapor. The process may be operated continuously and at atmospheric pressure. The molten slag residue is tapped periodically, when the MgO level is below 5 percent, and has a composition of 35–65 percent Al_2O_3, 35–55 percent CaO and 0–10 percent SiO_2 (by weight). The disclosure demonstrates how the ratio of magnesium oxide to calcium oxide in the charge and the quantity and composition of the metallic reducing agent are interrelated in such a way that (1) virtually all of both the reducing agent and magnesium oxide are consumed in the reducing reaction, and (2) the calcium-aluminate slag produced is of such a composition that pure alumina can be recovered from it with a very high yield.

3,782,923

CORROSION RESISTANT, NON-AUSTENITIC Fe-Ni-Mo-Co-Si ALLOY

Ralph A. Mendelson, Westminster, Karl P. Staudhammer, Gardena, and Roberto Valencia, Jr., Long Beach, Calif., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Apr. 26, 1971, Ser. No. 137,686
Int. Cl. C21c *31/00, 39/10*
U.S. Cl. 75—122 **1 Claim**

An alloy containing principally cobalt, silicon, nickel and molybdenum, with the balance iron has excellent corrosion-resistant properties which render it particularly suitable in a sea water environment.

3,782,924

FINE-GRAINED ZIRCONIUM-BASE MATERIAL

George Robert Van Houten, Cincinnati, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Nov. 26, 1962, Ser. No. 240,187
Int. Cl. C22c *15/00*
U.S. Cl. 75—122.5 **19 Claims**

A method of making zirconium with inhibited grain growth characteristics, by the process of vacuum melting the zirconium, adding 0.3 to 0.5% carbon, stirring, homogenizing and cooling.

3,782,925

FERRITIC HEAT-RESISTANT STEEL

Helmut Brandis and Rudolf Oppenheim, Krefeld, Germany, assignors to Deutsche Edelstahlwerke GmbH, Krefeld, Germany

No Drawing. Filed Dec. 13, 1972, Ser. No. 314,559
Claims priority, application Germany, Dec. 14, 1971, P 21 61 954.5
Int. Cl. C22c *39/14*
U.S. Cl. 75—124 **12 Claims**

A heat-resistant ferritic steel contains from 10% to 15% chromium, the latter's effect in making the steel resistant to oxidation being helped by small amounts of aluminum, silicon, and to some extent by titanium, the latter, possibly assisted by other strong carbide-formers, also preventing chromium loss at the steel's grain boundaries, the steel additionally containing small but effective amounts of calcium, cerium or other rare earth metals used singly or together and causing any scale that forms to be adherent and free from flaking. The steel is particularly adaped for elevated temperature use under oxidizing conditions, particularly when the service involves thermal shock conditions, exemplified by the operation of internal combustion exhaust after-burners or catalytic reactors required for pollution control.

3,782,926

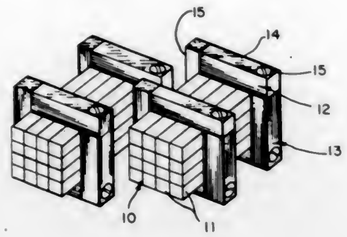
METHOD FOR PRODUCING AND EVALUATING ALLOYS

Milton E. Kirkpatrick, Palos Verdes Peninsula, and Ralph A. Mendelson, Westminster, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation-in-part of abandoned application Ser. No. 5,042, Jan. 22, 1970. This application Feb. 3, 1971, Ser. No. 112,151
Int. Cl. C22c *1/00, 33/00*
U.S. Cl. 75—129 **4 Claims**

Corrosion resistant alloys are produced by forming blocks of the individual metals, clamping the blocks together and heating them in a furnace, thereby causing the metals at the surface of the blocks to slowly diffuse into each other. This diffusion will take place along an interface and will produce binary or multiple component alloys in all possible concentrations. The metal block is allowed to cool and then subjected to treatment in a test corrosion medium. The block is then viewed under an electron microscope and corrosion resistant areas are analyzed by X-ray or electron microprobe to determine the concentration of the metal components

in the corrosion resistant area. Compositions corresponding to the analysis will have about the same corrosion resistance in the test environment to which the block was subjected.



3,782,927

MATERIAL FOR DIRECT THERMOELECTRIC ENERGY CONVERSION WITH A HIGH FIGURE OF MERIT

Michael C. Nicolaou, Toronto, Ontario, Canada (Universidad Industrial de Santander, Bucaramanga, Colombia)

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,531

Int. Cl. C22c *23/00, 31/00*; H01v *1/16*

U.S. Cl. 75—134 B 25 Claims

In devices used hitherto for the direct conversion of heat into electricity, commonly known as "thermoelectric energy converters," the efficiency of conversion is appreciably lower than that of conventional reciprocating or rotary heat engines. The basic reason for this low efficiency is inherent in the physical properties of the materials selected for the manufacture of these devices. The materials that have been and are currently being used for this purpose are intermetallic compounds and alloys of silicon and germanium. In this invention an entirely new material is developed. It is composed of an alloy or solid solution of the three intermetallic compounds: magnesium stannide, magnesium germanide and magnesium silicide, and defined by the chemical formula: $Mg_2Si_xGe_ySn_{1-x-y}$. This material, when properly doped, possesses a figure of merit and, consequently, an efficiency of direct conversion of thermal energy into electrical energy far exceeding that of any other material previously known or used.

3,782,928

COMPOSITE ALLOY FOR HIGH TEMPERATURE APPLICATIONS

John L. Walter, Scotia, and Harvey E. Cline, Schenectady, N.Y., assignors to General Electric Company

Continuation-in-part of abandoned application Ser. No. 97,917, Dec. 14, 1970. This application Nov. 8, 1972, Ser. No. 304,614

Int. Cl. C22c *19/00*

U.S. Cl. 75—134 F 5 Claims

An anisotropic polyphase composite alloy structure having good high temperature tensile strength and resistance to corrosion is provided. The composite alloy consists essentially in atomic percent of 30–35% nickel, 30–35% aluminum, 27–32% chromium and 2.0–7.0% molybdenum and has been subjected to unidirectional solidification to form bodies having a morphology of high strength



aligned plates of Cr(Mo) embedded in a NiAl matrix phase.

3,782,929

FLUXLESS ALUMINUM BRAZING

William J. Werner, Clinton, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Original application Oct. 2, 1970, Ser. No. 77,762, now Patent No. 3,697,259. Divided and this application June 23, 1972, Ser. No. 266,931

Int. Cl. C22c *21/04*

U.S. Cl. 75—143 3 Claims

This invention relates to a fluxless brazing alloy for use in forming brazed composites made from members of aluminum and its alloys, said brazing alloy consisting of, in weight percent, 35–55 percent aluminum, 10–20 percent silicon, 25–60 percent germanium; 65–88 percent aluminum, 2–20 percent silicon, 2–18 percent indium; 65–80 percent aluminum, 15–25 percent silicon, 5–15 percent yttrium.

3,782,930

GRAPHITE-CONTAINING FERROUS-TITANIUM CARBIDE COMPOSITION

Akira Shibata, Yokohama, Japan, assignor to Chugai Electric Industrial Co., Ltd., Tokyo, Japan

Filed June 13, 1972, Ser. No. 262,281

Claims priority, application Japan, Aug. 28, 1971, 46/65,968

Int. Cl. B22f *3/16*; C22c *29/00*

U.S. Cl. 75—204 7 Claims

A sintered graphite-containing ferrous-titanium carbide composition is provided which is produced by a liquid phase sintering process, wherein a powder composition comprising a mixture of iron, titanium (e.g. ferro-titanium), cast iron and carbon is pressed into a compact and the compact then heated to above the melting point of the cast iron such that the carbon in the melt reacts with the titanium to form titanium carbide, the amount of carbon being also sufficient to form graphite, such that on cooling, a metallographic structure is obtained comprised of fine grains of precipitated titanium carbide dispersed in a ferrous matrix which also contains precipitated particles of graphite.

3,782,931

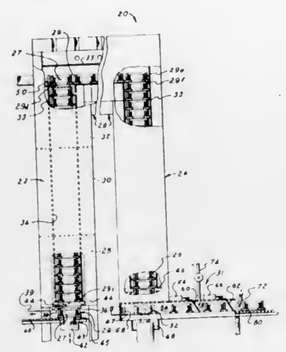
METHOD AND APPARATUS FOR SINTERING ANNULAR COMPACTS

Alexander Brede III, Lansing, Mich., Charles Robert Talmage, New Canaan, Conn., and Elvin E. Tuttle, Lansing, Mich., assignors to Motor Wheel Corporation, Lansing, Mich.

Filed Jan. 11, 1971, Ser. No. 105,167

Int. Cl. B22f *5/00, 3/12, 7/06*

U.S. Cl. 75—224 2 Claims



A method and apparatus for sintering annular compacts without any substantial temperature gradients through the compacts. The method involves axial movement of the compact through vertical heating and cooling towers of a controlled atmosphere furnace with lateral movement of the compact through a crossover conduit interconnecting the upper ends of the towers. The lower end of the heating tower is provided with an inlet opening in constant communication with the exterior of the furnace and the lower end of the cooling tower has an outlet connected via a sealable exit chamber with the exterior of the furnace.

3,782,932

ELECTROPHORETIC IMAGING PROCESS USING TRANSPARENT PARTICLES

Vsevolod Tulagin, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of abandoned application Ser. No. 764,717, Oct. 3, 1968. This application Sept. 20, 1972, Ser. No. 290,619

Int. Cl. G03g *13/22*

U.S. Cl. 96—1.3 4 Claims

An image is formed photoelectrophoretically by exposing an imaging suspension to a light image in the presence of an electric field. The resulting image formed is contacted with a secondary suspension containing an abrasive ingredient in the presence of said electric field and exposure.

3,782,933

SENSITIZED ELECTROPHOTOGRAPHIC LAYERS

Hans Ohlschlager, Cologne, and Oskar Riester, Leverkusen, Germany, and Theofiel Hubert Ghys, Kontich, Karel Eugeen Verhille, Mortsel, and Ir Johannes Vanheertum, Halle-Zandhoven, Belgium, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 26, 1972, Ser. No. 247,813

Claims priority, application Germany, Apr. 29, 1971, P 21 21 014.0

Int. Cl. G03g *5/08, 5/06*

U.S. Cl. 96—1.7 2 Claims

Spectrally sensitized electrophotographic material the photoconductive layer thereof contains as sensitizer a dye which contains at least one 2-oxo- or 2-thio-pyrimidine ring in the molecule.

3,782,934

SPECTRALLY SENSITIZED ELECTROPHOTOGRAPHIC MATERIAL

Hans Ohlschläger, Cologne, Germany, Theofiel Hubert Ghys, Kontich, and Karel Eugeen Verhille, Hoboken, Belgium, and Helmut Kampfer, Cologne, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,541

Claims priority, application Germany, Jan. 18, 1971, P 21 02 175.0

Int. Cl. G03c *5/00*

U.S. Cl. 96—1.7 1 Claim

Spectrally sensitized electrophotographic layers on the basis of zinc oxide as photoconductive agent which are nearly colorless and stable in storage contain reaction products of 2-methyl- or 4-methyl-quaternary salts of heterocyclic bases with 4-hydroxybenzaldehydes.

3,782,935

NOVEL TETRANUCLEAR METHINE DYES, PROCESSES FOR PREPARING THE SAME, AND ELECTROPHOTOGRAPHIC SYSTEMS AND SILVER HALIDE EMULSIONS CONTAINING THE SAME

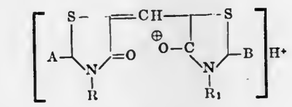
Shi-Kuang Yao, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

No Drawing. Original application May 13, 1968, Ser. No. 728,837, now Patent No. 3,687,946. Divided and this application May 12, 1972, Ser. No. 252,912

Int. Cl. G03g *5/06, 5/08*

U.S. Cl. 96—1.7 6 Claims

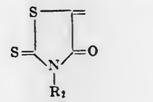
Novel tetranuclear dyes useful as sensitizers in electrophotographic systems as well as silver halide emulsions comprise compounds of the formula:



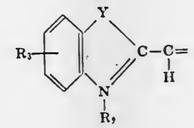
wherein

A is selected from the group consisting of

(1)



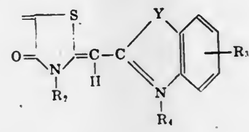
(2)



and

(3) O=

B is selected from the group consisting of (1), (2) and (4)



R is alkyl;

R_1, R_2 and R_4 are selected from the group consisting of alkyl and carboxyalkyl;

R_3 is selected from the group consisting of hydrogen, alkyl and alkoxy; and

Y is selected from the group consisting of Se and S;

such compounds being characterized that when A is (1),

B is (1); when A is (2), B is (2) and when A is (3), B is (4).

Processes of producing such dyes as well as electrophotographic processes and materials containing the same are provided.

3,782,936

DIFFUSION TRANSFER RECEPTION ELEMENTS, FILM UNITS AND PROCESSES THEREFOR

Thomas I. Abbott, Rochester, Glen M. Dappen, Webster, and Nayyir F. Irani, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,443
Int. Cl. G03c *1/84, 5/54, 7/32*
U.S. Cl. 96—3 **22 Claims**

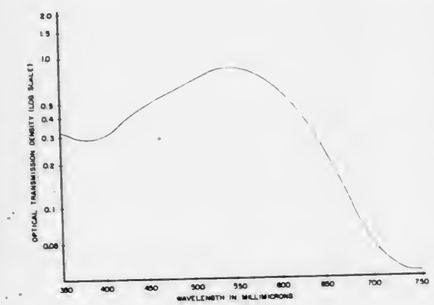
Zinc oxide is employed in association with a light-reflecting layer comprising titanium dioxide dispersed in a binder which is associated with a dye image-receiving layer employed in color diffusion transfer systems.

3,782,937

PHOTOGRAPHIC PRODUCTS AND PROCESSES WITH pH SENSITIVE OPTICAL FILTER DYES

Ernest W. Ellis, North Reading, Paul T. MacGregor, Lexington, and Myron S. Simon, West Newton, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 1, 1971, Ser. No. 203,544
Int. Cl. G03c *7/00*
U.S. Cl. 96—3 **46 Claims**



This invention relates to photography, and more particularly, it relates to the use of mixed phenol and mixed naphthol phthaleins as optical filter agents to protect a selectively exposed photosensitive material from post-exposure fogging in photographic processes where development of the photosensitive material is conducted in the presence of extraneous incident light. This class of indicator dyes comprises 3,3-disubstituted phthalides and 3,3-disubstituted naphthalides wherein one of the 3,3 substituents is a p-hydroxyphenyl or a p-hydroxynaphthyl radical and the other is a phenyl radical other than p-hydroxyphenyl. At a first pH in alkaline solution the above-noted dyes have a highly colored, light-absorbing form capable of absorbing radiation within a predetermined wavelength range in the shorter wavelength region of the visible spectrum and at a second less alkaline pH have a colorless form that is substantially non-light-absorbing in the visible spectrum. By selecting a dye from this class which is in its light-absorbing form at the pH at which development is performed, protection of the exposed photosensitive material from radiation actinic thereto is afforded within the wavelength range absorbed by the dye and subsequent to at least the initial stages of develepoment, the dye may be rendered substantially colorless by adjusting the pH to permit viewing of the final image.

3,782,938

PHOTOSENSITIVE ELEMENT COMPRISING POLYMERS WITH CYCLOPROPENYL GROUPS AND PROCESS

Charles D. De Boer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 831,242, June 6, 1969, and Ser. No. 168,342, Aug. 2, 1971. This application Nov. 30, 1971, Ser. No. 203,427
Int. Cl. G03c *1/68, 1/70*
U.S. Cl. 96—35.1 **12 Claims**

There is described a novel class of light-sensitive polymers and the use of these polymers in photosensitive composition elements and processes. The polymers have appended to a polymer backbone a light-sensitive unsaturated cyclic group which is a three to six membered carbocyclic or monocyclic heterocyclic ring containing an ethylenic double bond or a five to six membered ethylenically unsaturated carbocyclic or heterocyclic ring free of exocyclic double bonds and fused to an aromatic ring of the benzene series.

3,782,939

DRY POSITIVE-ACTING PHOTORESIST

James A. Bonham, Pine Springs, and Panayotis C. Petrellis, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Feb. 9, 1972, Ser. No. 224,949
Int. Cl. G03c *5/00*
U.S. Cl. 96—35.1 **7 Claims**

A process for forming an imagewise pattern of a positive-acting photoresist material on a receptor surface is provide, wherein a dry film of photosolubilizable material, supported by a carrier sheet, is bonded to the receptor followed by exposure and development thereof to leave an image pattern on the receptor.

Conventional processes can then be used to treat the exposed receptor surface, e.g. etching, plating, etc.

3,782,940

ION-ETCHING METHOD

Michihiro Ohto, Tokyo, Atsumi Noshiro, Yokohama, and Tetsuya Mayuzumi, Annaka, Japan, assignors to Dai Nippon Printing Co., Ltd., and Shinetsu Chemical Company, both of Tokyo, Japan

Filed Sept. 18, 1972, Ser. No. 289,957
Claims priority, application Japan, Sept. 20, 1971, 46/73,148
Int. Cl. G03c *5/00*
U.S. Cl. 96—36 **4 Claims**

A photopolymerizable composition comprising 100 parts by weight of photopolymerizable organopolysiloxane made from γ-acryloxypropyltrichlorsilane and dihydroxydimethylpolysiloxane, 4 parts by weight of 4,4'-bis(dimethylamino)benzophenon, and 1,000 parts by weight of a solvent is applied over a base plate, and thereon a positive pattern is laid. From above the positive pattern a light is supplied to carry out developing and fixing treatments and subsequently ion-etching to finally obtain etched products having fine patterns with little side-etching phenomenon.

3,782,941

PHOTOTHERMOGRAPHIC ELEMENT, COMPOSITION AND PROCESS

Paul Hartman and Gale E. Smith, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 18, 1972, Ser. No. 272,833
Int. Cl. G03c *5/24, 1/02, 1/72*
U.S. Cl. 96—48 HD **18 Claims**

An N-hydroxynaphthalimide accelerator-toning agent in photothermographic elements, compositions and processes provides improved results in shorter processing time and at lower concentrations. The N-hydroxynaphthalimide compounds can be employed in photothermographic materials and/or thermographic materials in combination with reducing agents. Other addenda commonly employed in photothermographic materials such as sensitizing dyes, image stabilizers and stabilizer precursors and various photosensitive compounds can be employed in the photothermographic materials also.

3,782,942

METHOD FOR PREPARING ARTWORK TO BE USED IN MANUFACTURING OF PRINTED CIRCUITS

Giampiero Compare, Milan, Italy, assignor to General Electric Information Systems S.p.A., Caluso, Turin, Italy

Filed June 7, 1968, Ser. No. 735,462
Claims priority, application Italy, June 8, 1967, 16,967/67, Patent 816,880
Int. Cl. G03c *5/04*
U.S. Cl. 96—41 **2 Claims**

This invention relates to a method for preparing artwork to be used in manufacturing of printed circuits. The novelty resides in the provision of optical reference means on a plurality of masks and a photosensitive member which permits precision alignment of the masks relative to a photosensitive member.

3,782,943

PROCESS FOR THE FORMATION OF IMAGE POLYMERS

Yoshihida Hayakawa and Masato Satomura, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Continuation of abandoned application Ser. No. 790,457, Jan. 10, 1969. This application Aug. 3, 1971, Ser. No. 168,742
Claims priority, application Japan, Jan. 10, 1968, 43/1,215
Int. Cl. G03c *1/68, 1/70, 5/26*
U.S. Cl. 96—48 R **25 Claims**

A process for forming images involving polymerizing at least one addition polymerizable vinyl compound in a photographic silver halide emulsion layer containing a phenol.

3,782,944

PROCESS FOR THE POLYMERIZATION OF VINYL COMPOUND

Yoshihide Hayakawa and Masato Satomura, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Continuation of application Ser. No. 137,982, Apr. 27, 1971, which is a continuation of application Ser. No. 701,873, Jan. 31, 1968, both now abandoned. This application Oct. 10, 1972, Ser. No. 296,503
Claims priority, application Japan, Jan. 31, 1967, 42/6,213
Int. Cl. G03c *1/68, 1/70*
U.S. Cl. 96—48 R **21 Claims**

A process for the selective polymerization of a polymerizable vinyl compound which comprises exposing a gelatino silver halide photographic emulsion layer containing silver halide particles to electromagnetic waves or particle rays to give centers of development to said silver halide particles causing the silver halide photographic emulsion layer to react, in the presence of at least one vinyl compound, with a naphthol derivative having two hydroxyl groups, or one hydroxyl group and one amino group at the 1,6-positions, 1,8-positions, 2,5-positions or 2,7-positions on the naphthalene nuclei.

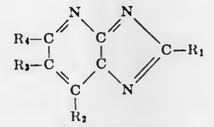
3,782,945

MERCAPTOTETRAZAINDENE IN PHOTOGRAPHIC PRINTING PLATE DEVELOPMENT

Isao Shimamura, Yoo Iijima, Eiichi Okutsu, Haruhiko Iwano, Tadao Shishido, and Reiichi Ohi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed June 11, 1971, Ser. No. 152,397
Claims priority, application Japan, June 11, 1970, 45/50,564
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.3 **19 Claims**

A process for developing a silver halide photographic element which comprises developing a lithographic light-sensitive material in the presence of the compound represented by the following general formula,



wherein R_1 and R_2, which may be the same or different, represent a hydrogen atom, a hydroxyl group, a hydrocarbon group or $—SR_5$; at least one of said R_1 and R_2 being $—SR_5$; R_5 represents a hydrogen atom or an alkyl radical; and R_3 and R_4, which may be the same or different, represent a hydrogen atom, a hydroxyl group, a halogen atom, or a hydrocarbon group; said R_3 and R_4 may be ring-closed to form a 5- or 6-membered ring.

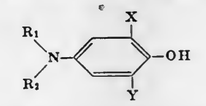
3,782,946

PHOTOGRAPHIC DEVELOPMENT

Atsuaki Arai, Kinji Ohkubo, Tatsuya Tajima, Mitsugu Tanaka, and Yosinori Tutiya, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

Continuation of abandoned application Ser. No. 851,854, Aug. 21, 1969. This application Mar. 9, 1972, Ser. No. 233,309
Claims priority, application Japan, Aug. 21, 1968, 43/59,672
Int. Cl. G03c *1/06, 5/26, 5/30*
U.S. Cl. 96—66.3 **12 Claims**

A photographic developing method providing increased image density and sensitivity comprising developing an exposed light-sensitive silver halide photographic emulsion with an alkaline solution containing a combination of hydroquinone in a compound of the formula



wherein R_1, R_2, X and Y are each alkyl radicals having up to 4 carbon atoms.

3,782,947

PHOTOGRAPHIC PRODUCT WITH PHOTOGRAPHICALLY TRANSPARENT MAGNETIC RECORDING MEDIUM

Harry J. Krall, Los Gatos, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 122,147, Mar. 8, 1971. This application Jan. 28, 1972, Ser. No. 221,502
Int. Cl. G03c *1/76*
U.S. Cl. 96—67 **33 Claims**

A photographic product carries magnetically susceptible particles which are uniformly distributed across (at least part of) the image area of the product. The particle distribution and size(s) are so designed that the composite

granularities of the photographic and magnetic media is such that the magnetic distribution is essentially transparent in a photographic sense. Thus, the photographic

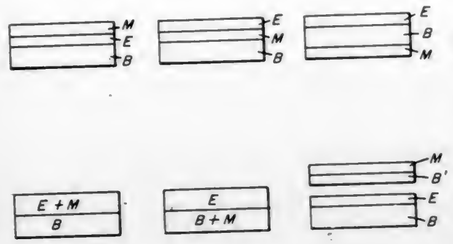


image may be viewed via the magnetic distribution, and the magnetic distribution may be employed for recording and playback of information.

3,782,948

PHOTOGRAPHIC MATERIAL CONTAINING NITRO COMPOUNDS FOR THE SILVER DYESTUFF BLEACHING PROCESS

Alfred Froehlich, Marly-le-Grand, and Alfred Oetiker and Heinrich Schaller, Fribourg, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 812,860, Apr. 2, 1969. This application Jan. 13, 1972, Ser. No. 217,654

Claims priority, application Switzerland, Apr. 9, 1968, 5,236/68

Int. Cl. G03c *1/76*

U.S. Cl. 96—73 **11 Claims**

Aromatic or heterocyclic nitro compounds as oxidizing agents for the reduced dyestuff bleaching catalyst in photographic material for the silver dyestuff bleaching process.

3,782,949

PHOTOGRAPHIC ELEMENT COMPRISING A HYDROXY SUBSTITUTED ALIPHATIC CARBOXYLIC ACID ARYL HYDRAZIDE

Ismael Adolfo Olivares, Frederic Roland Bean, and Grant Milford Haist, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 11, 1971, Ser. No. 123,450

Int. Cl. G03c *1/48, 1/06*

U.S. Cl. 96—76 R **8 Claims**

Hydroxy substituted aliphatic carboxylic acid aryl hydrazides are employed as developing agents for exposed electromagnetic energy sensitive silver salts. The developing agents can be employed in developer solutions, in silver salt processing solutions, as incorporated developing agents, as a developing agent in diffusion transfer processes, and as the reducing agent in heat processing techniques.

3,782,950

PHOTOGRAPHIC MATERIAL

Erwin Ranz, Leverkusen, Wolfgang Himmelmann, Opladen-Lutzenkirchen, and Peter Bergthaller and Jurgen Hocker, Cologne, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 10, 1972, Ser. No. 233,753

Claims priority, application Germany, Mar. 13, 1971, P 21 12 141.5

Int. Cl. G03c *1/70*

U.S. Cl. 96—85 **9 Claims**

Photographic layers containing a light-sensitive cyclic aryl polycarboxylic acid imide and a compound having at least one olefinic double bond or having groups capable of forming olefinic double bonds upon exposure become less soluble or less swellable upon exposure at the light-struck areas. A relief image is obtained after removal of the unexposed areas.

3,782,951

PHOTOPOLYMERIZABLE COMPOSITIONS CAPABLE OF YIELDING REVERSE IMAGES

Shung-Yan Lee, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 31, 1972, Ser. No. 276,381

Int. Cl. G03c *1/94*

U.S. Cl. 96—86 P **6 Claims**

Photopolymerizable compositions are described containing an ethylenically unsaturated monomer, an organic polymeric binder and, as the initiator system, a hexaarylbiimidazole and a hydrogen-donor compound. These inventive compositions are capable of yielding reverse photopolymer images since relatively intense radiation prevents polymerization, while less intense radiation yields photopolymerization. The first (intense) exposure is imagewise and the second (less intense) exposure is non-imagewise. The compositions are useful in the graphic arts where a positive-working system is required, e.g., for relief or planographic printing plates, direct positive copying films, and the like.

3,782,952

LIGHT-SENSITIVE COMPOSITION OF A TETRA (EPOXY-PROPOXYPHENYL)-LOWER ALKANE AND AN INITIATOR

Eugene Golda, Monsey, and Delos E. Bown, White Plains, N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

No Drawing. Filed Apr. 1, 1971, Ser. No. 130,534

Int. Cl. G03c *1/66*

U.S. Cl. 96—93 **7 Claims**

A light-sensitive composition comprising a tetra(epoxypropoxyphenyl)-lower alkane and a light-activated polymerization initiator.

3,782,953

PURIFICATION OF SILVER HALIDE PRECIPITATES

Stephen Barry Maley, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,179

Int. Cl. G03c *1/02, 1/04*

U.S. Cl. 96—94 R **10 Claims**

An improved method for washing silver halide precipitates by employing ion-exchange resins which are capable of substituting hydroxyl ions and hydrogen ions for extraneous soluble salts.

3,782,954

METHOD FOR THE UNIFORM PREPARATION OF SILVER HALIDE GRAINS

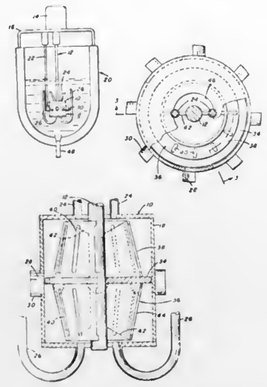
Henry D. Porter and Benjamin A. Johnson, both % Eastman Kodak Company, Rochester, N.Y. 14650

Continuation of abandoned application Ser. No. 876,893, Nov. 14, 1969. This application Nov. 1, 1971, Ser. No. 194,451

Int. Cl. G03c *1/02*

U.S. Cl. 96—94 **2 Claims**

A method and apparatus for its practice are disclosed where, uniformly sized silver halide grains are precipitated in an aqueous peptizer solution by the reaction of a silver salt solution with a halide salt solution, where at least one of the solutions has been mixed with a portion of the peptizer solution prior to its reaction with the other solution within the remainder of the peptizer solution. Apparatus is disclosed for practicing the method of this invention including at least one separate mixing chamber for



dilution of a salt solution with a portion of the peptizer solution prior to the precipitation reaction.

3,782,955

PHOTOGRAPHIC MATERIAL

Bruno Mucke, Cologne, Karl Lohmer, Leverkusen, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 23, 1971, Ser. No. 127,363

Claims priority, application Germany, Apr. 17, 1970, P 20 18 552.8; July 4, 1970, P 20 33 264.3

Int. Cl. C09h *7/00;* **G03c** *1/72*

U.S. Cl. 96—114.8 **5 Claims**

Improved heated drum drying properties are obtained for photographic silver halide-gelatin emulsions wherein some of the gelatin is modified to keep it from being hardened by organic hardeners.

3,782,956

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL WITH INDAZOLONE COLOR COUPLERS

Immo Boie, Cologne, Walter Schulte, Opladen, Willibald Pelz and Fritz Nittel, Cologne, and Friedrich-Wilhelm Kunitz, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 15, 1971, Ser. No. 163,044

Claims priority, application Germany, July 18, 1970, P 20 35 725.9

Int. Cl. G03c *1/40*

U.S. Cl. 96—100 **4 Claims**

Indazolones having a carbamyl substitution in the benzene ring make particularly desirable magenta-forming color couplers for color photography.

3,782,957

FOGGED, DIRECT-POSITIVE SILVER HALIDE EMULSION LAYER CONTAINING A CYANINE DYE AND A COMPOUND CONTAINING A METAL OF GROUP VIII OF THE PERIODIC TABLE

Kinji Ohkubo, Takao Masuda, Keisuke Shiba, Masanao Hinata, Akira Sato, and Akira Ogawa, Minami Ashigara-machi, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,809

Claims priority, application Japan, Dec. 29, 1970, 46/121,455

Int. Cl. G03c *1/36*

U.S. Cl. 96—101 **20 Claims**

A direct reversal silver halide photographic material suitable for use in a copying process utilizing a mercury or fluorescent lamp is provided by including a compound of a metal of Group VIII of the Periodic Table and a specific cyanine dye in a silver halide emulsion layer. The fog nuclei formed in the silver halide emulsion layer beforehand have resistance to indoor illumination, and the resultant photographic material can be handled under indoor illumination without causing the breakage of the fog nuclei, and gives images of good contrast.

3,782,958

GLASS SHOWING ELECTRICAL SWITCHING PHENOMENA

Adli Bishay and Mahmoud Aly El Hamamsy, Cairo, and Mohammed Hosny Omar, Heliopolis, Egypt, assignors to the United States of America as represented by the Secretary of the Air Force

Filed Feb. 7, 1972, Ser. No. 223,831

Int. Cl. C03c *3/14, 3/30;* **H01b** *1/06*

U.S. Cl. 106—47 R **4 Claims**

A glass composition is provided that consists essentially of an alkali or alkaline earth metal borate containing iron. The glass is useful in fabricating memory switching devices that can be used, for example, in digital equipment and display units, and thermistors.

3,782,959

POLYHEDRAL BORANE FOGGED DIRECT-POSITIVE SILVER HALIDE EMULSION CONTAINING AN ORGANIC SULFOXIDE

John H. Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 15, 1972, Ser. No. 226,513

Int. Cl. G03c *1/28*

U.S. Cl. 96—107 **15 Claims**

Direct positive photographic silver halide emulsion elements having improved developed silver covering power resulting in increased maximum density are prepared by adding to a chemically fogged silver halide emulsion at the start or during the digestion step from 50 to 400 milliliters of a dialkyl sulfoxide per 1.5 moles of silver nitrate. The alkyl groups of the sulfoxide may contain from 1 to 4 carbon atoms. The silver halide emulsions are preferably fogged with amine boranes or boron hydrides in which the skeletal framework forms a polyhedron borane cage containing 6 to 12 boron atoms or a fragment thereof, and which may contain heteroskeletal atoms selected from the group consisting of carbon, sulfur and nitrogen atoms.

3,782,960

DIRECT-PRINT LIGHT-DEVELOPABLE EMULSION CONTAINING SILVER HALIDE GRAINS SENSITIZED ON THE SURFACE WITH SILVER THIOCYANATE, IODIDE AND GOLD COMPOUND

David W. Walters, Williamson, Robert E. Heeks, Penfield, and Donald P. Sullivan, Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,816

Int. Cl. G03c *1/28*

U.S. Cl. 96—108 **3 Claims**

A photographic emulsion of the silver halide direct-print light-developable type containing silver thiocyanate. Optimum results may be obtained by addition of iodide and gold sensitizers.

3,782,961

PHOTOSENSITIVE COMPOSITION COMPRISING POLYURETHANE PREPOLYMER

Katsutoshi Takahashi and Masanori Takase, Urawa, Japan, assignors to Dainippon Ink and Chemicals, Incorporated, Tokyo, Japan

No Drawing. Filed Mar. 30, 1971, Ser. No. 129,620

Claims priority, application Japan, Mar. 30, 1970, 45/25,894

Int. Cl. G03c *1/70*

U.S. Cl. 96—115 R **8 Claims**

A photosensitive composition comprising a polyurethane prepolymer and a photosensitizer, the prepolymer being prepared by the reaction of a hydroxyl component

having at least 5 ether linkages and an ethylenically unsaturated double bond positioned at the terminals with a polyisocyanate component.

3,782,962
TEXTURED BASE MATERIALS OR PRODUCTS FROM CERTAIN CARBOXYALKYL ETHERS OF POLYGALACTOMANNANS AND PROCESS OF PREPARING SAME
Joseph D. Mullen, Golden Valley, and Mary P. Nivens, New Hope, Minn., assignors to General Mills, Inc.
No Drawing. Filed Mar. 7, 1972, Ser. No. 232,604
Int. Cl. A23l *1/00*
U.S. Cl. 426—70 **11 Claims**

A fibrous product is prepared by mixing a fluid, aqueous solution of certain carboxyalkyl ethers of polygalactomannans with a second aqueous solution containing calcium ions, said mixing being sufficient to rupture the forming sac-like precipitates to yield the fibrous product. The said product is useful as a structuring agent for various foods, supplying such structure without calorie contribution.

3,782,963
METHOD OF VITAMIN COATING CEREAL PRODUCTS
Leroy F. Duvall and Charles D. Stone, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.
No Drawing. Filed May 17, 1971, Ser. No. 144,347
Int. Cl. A23l *1/10, 1/30*
U.S. Cl. 426—303 **5 Claims**

This invention relates to a process of vitamin coating cereal products and particularly to a new vitamin coating procedure for ready-to-eat breakfast cereals.

3,782,964
METHOD OF UPGRADING STARCH-CONTAINING CRUDE GLUTEN
James W. Knight, Wilmslow, England, assignor to CPC International Inc.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,771
Int. Cl. A23j *3/00*
U.S. Cl. 426—364 **1 Claim**

The present invention provides a process for rendering crude starch-containing gluten edible by subjecting the crude gluten to the hydrolytic action of alpha amylase to substantially hydrolyze the starch and introducing steam into the amylase treated gluten to heat the gluten to a temperature of at least 95° C. for several minutes. The hydrolyzed starch optionally may be removed in the aqueous fraction by filtration or like separation steps yielding an upgraded edible protein, or the mixture may be dried in its entirety by spray drying, roll-drum drying or the like.

3,782,965
PROCESS FOR PRODUCING COFFEE EXTRACT
Martin S. Colton, Tarrytown, and Marvin Schulman, Monroe, N.Y., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed May 15, 1972, Ser. No. 253,067
Int. Cl. A23f *1/08*
U.S. Cl. 426—432 **3 Claims**

A process for producing coffee extract by contacting an aqueous extraction liquid with progressively fresher roasted and ground coffee in the extraction columns of a percolator set wherein the aqueous extraction liquid is defoamed using nonchemical means prior to passing it through the extraction column containing the freshest roasted and ground coffee. The coffee extract drawn-off from the extraction column containing the freshest coffee remains substantially defoamed and the process also results in higher coffee solids yields for the overall extraction process.

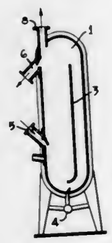
3,782,966
METHOD OF MAKING A BAKERY PRODUCT HAVING AN EXPANDED FILLING
John H. Forkner, 2116 Mayfair Drive W., Fresno, Calif. 93703
Continuation of abandoned application Ser. No. 873,581, Nov. 3, 1969. This application Sept. 7, 1971, Ser. No. 178,381
Int. Cl. A21d *13/00*
U.S. Cl. 426—275 **8 Claims**

A bakery product comprising a cooked (e.g., by baking or deep-fat frying) dough physically associated with an expanded confection filling. Also a method of manufacture in which the dough and filling are first subjected to a cooking operation to cook the dough and thereafter the dough and filling subjected to a partial vacuum to expand the filling. In some instances the expanded filling can be further processed to effect partial collapsing of the filling.

3,782,967
PREPARATION OF AN EATABLE YEAST PRODUCT
Bjorn Westphal Eriksen, Soborg, and Svend Danielsen, Copenhagen, Denmark, assignors to Aktieselskabet Dansk Gaerings-Industri, Cophenhagen, Denmark
Continuation of abandoned application Ser. No. 824,185, May 13, 1969. This application Apr. 17, 1972, Ser. No. 244,943
Int. Cl. A23j *1/18*
U.S. Cl. 426—62 **12 Claims**

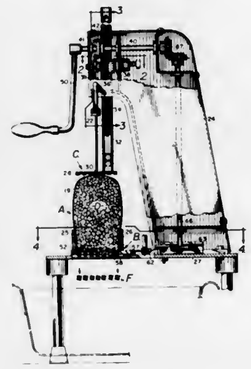
A process for preparing an eatable yeast product wherein a yeast material, preferably a yeast cream, is contacted, under conditions of vigorous agitation, with a hot oil or fat having a temperature above the boiling point of water at the actual pressure, preferably 150–210° C. Thereby, the yeast material is inactivated and dried, preferably to a water content of less than 5 percent by weight, and its taste is improved, becoming more or less silimlar to the taste of fried meat. The process is preferably carried out in a continuous manner in an elongated tubular reactor, the yeast material being introduced into a current of hot fat or oil in said tubular reactor.

3,782,968
METHOD OF DEHULLING LEGUMES
Claus Herzberg, Krefeld, and Wilhelm Dollbaum, Kaldenhausen, Germany, assignors to Holtz & Willemsen, Krefeld-Uerdingen, Germany
Filed Feb. 17, 1971, Ser. No. 116,142
Claims priority, application Germany, Feb. 19, 1970, P 20 07 588.1
Int. Cl. A23l *1/20*
U.S. Cl. 426—511 **6 Claims**



A method of treatment of soya beans for the production of debittered soya bean flour, where raw soya beans are crushed into fractions, whirled for a short period of time by a jet of overheated water steam in a whirl chamber, exposed to mechanical impacts to separate hull particles from the bean body particles, and the upper portion of the whirling steam together with the separated light hull particles is discharged from the whirl chamber.

3,782,969
FRENCH FRY CUT POTATO DOUGH PIECE
Roderick G. Beck, James F. Harmon, and Mounir A. Shatila, Blackfoot, Idaho, David A. Richins, Bountiful, Utah, and John H. Lach, Blackfoot, Idaho, assignors to American Potato Company, San Francisco, Calif.
Original application Apr. 16, 1969, Ser. No. 816,675, now Patent No. 3,605,647. Divided and this application Sept. 4, 1970, Ser. No. 69,885
Int. Cl. A23l *1/12*
U.S. Cl. 426—145 **3 Claims**



A machine for forming from potato dough elongate bodies that resemble potato pieces suitable for french frying. The machine is arranged to move the dough through spaces between a set of parallel wires, which wires are spaced from one another by amount corresponding to the width of the piece. The length of the spaces determines the length of the potato piece. A second set of parallel wires is supported in registry with the first mentioned set during dough movement; after the dough is moved by an amount corresponding to the thickness of a french fry body, the wires of the second set are moved across the dough to separate potato pieces suitable for french frying. A machine for automatically synchronizing the movement of the dough and the movement of the second set of wires. A french fry potato piece formed by the apparatus which piece is characterized by an uncompressed surface.

3,782,970
PROCESS FOR PRODUCING EMULSIFIED FATS
Tsutomu Tomita, Yachiyo, and Masahiko Mizukoshi, Funabashi, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
No Drawing. Filed Aug. 27, 1971, Ser. No. 175,769
Claims priority, application Japan, Sept. 2, 1970, 45/76,959
Int. Cl. A23d *5/00*
U.S. Cl. 426—363 **7 Claims**

An emulsified fat composition, useful for baking, is prepared from (1) a first homogeneous solution containing edible oil or fat, (2) a second homogeneous solution containing sucrose fatty acid ester, polyglycerol fatty acid ester or polyoxyethylene sorbitan fatty acid ester, and (3) aqueous sorbitol solution, aqueous invert sugar solution, corn syrup or honey. The composition is prepared by either (A) dissolving (1) into (2) and then mixing with (3), or (B) dissolving (2) into (3) and then mixing with (1), and then quickly cooling and kneading the emulsion.

3,782,971
FOOD EMULSIONS CONTAINING MODIFIED PROTEINS
Johannes Hendrik van Roon, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 887,659, Dec. 23, 1969. This application Oct. 19, 1971, Ser. No. 190,510
Claims priority, application Great Britain, Dec. 31, 1968, 61,977/68
Int. Cl. A23d *3/00*
U.S. Cl. 426—185 **3 Claims**

Aqueous solutions having a pH of about 4.5–6 and containing particular modified proteins are used in the preparation of edible fat emulsions comprising 80–84% of an edible glyceride and having a continuous water phase. The modified protein is a N-acetyl milk protein containing about 20–40% N-acetylamino groups (CH_3—CO—NH—), calculated on the basis of total acetylatable amino groups (NH_2—), which total acetylatable amino groups are the lysine ϵ-amino groups and the α-amino groups of N-terminal amino acids in the milk protein. The modified protein improves the heat-stability of acidic oil-in-water emulsions so that emulsions with a good keepability can be prepared by pasteurization without the use of preservatives.

3,782,972
ESSENCE FOR ENHANCING THE FLAVOR OF CITRUS JUICES
Cederic D. Atkins and John A. Attaway, Winter Haven, Fla., assignors to State of Florida, Department of Citrus
Filed Jan. 26, 1971, Ser. No. 109,922
Int. Cl. A23l *1/02, 1/26*
U.S. Cl. 426—192 **16 Claims**

An aqueous citrus essence is prepared having an enhanced content of components which contribute to the natural flavor of the citrus juice, particularly certain aldehyde type compounds and a decreased content of components, such as easily oxidized fatty substances, which detract from the flavor of the juice. Preparation of the enhanced citrus essence is accomplished by increasing the alcoholic content of the aqueous phase of the essence so that its capacity for desirable aldehyde type components is increased. The increase in alcoholic content is effected by recirculation under appropriate conditions of temperature and pressure of the aqueous phase of the essence in contact with fresh essence. An apparatus is specifically disclosed for effecting the process of the invention. Enhanced essence produced by the present invention is particularly useful for reconstituting the flavor of citrus juice concentrates such as orange juice.

3,782,973
FLAVORING COMPOSITIONS AND PROCESSES
Alan O. Pittet, Atlantic Highlands, and Eugene W. Seitz, Middletown, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 69,505, Sept. 3, 1970. This application July 28, 1971, Ser. No. 166,971
The portion of the term of the patent subsequent to Aug. 29, 1989, has been disclaimed
Int. Cl. A23l *1/26*
U.S. Cl. 426—175 **18 Claims**

Processes for the preparation of reaction products of cyclic ketones and sulfur-free amino acids; the reaction products so produced; use of the reaction products to alter the flavor and/or aroma of consumable materials; and compositions containing such reaction products adapted to alter the flavor and/or aroma of consumable materials.

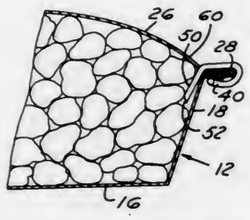
3,782,974
DIETETIC SALT SUBSTITUTE COMPOSITION
John Frank Lontz, 515 Eskridge Drive, Wilmington, Del. 19809, and Constance Anthony D'Alonzo, late of Wilmington, Del., by Shirley Bryant D'Alonzo, executrix of said Constance Anthony D'Alonzo, deceased
No Drawing. Filed Aug. 2, 1971, Ser. No. 168,454
Int. Cl. A23l *1/22*
U.S. Cl. 426—229 3 Claims

A specific dietetic salt substitute formulation is provided from a proportionately defined combination of mono-, di- and tri-carboxylic acids comprising respectively ascorbic acid, fumaric acid, and citric acid to furnish a salty taste approximating that of natural sodium chloride and serving to satisfy the gustatory desire and thereby to provide for the therapeutic and preventive diminution of sodium intoxication and excess in hypertension and related health risks.

3,782,975
METHOD OF PRODUCING CURED LOW SODIUM MEAT PRODUCTS
Thadeus B. Zyss, Highland, Calif., assignor of a fractional part interest to Milo Don Appleman, Jr., Los Angeles, Calif.
No Drawing. Continuation-in-part of abandoned application Ser. No. 869,370, Oct. 24, 1969. This application Oct. 1, 1971, Ser. No. 185,896
Int. Cl. A22c *18/00*; A23b *1/02*; A23l *3/34*
U.S. Cl. 426—281 14 Claims

A method is provided for curing fresh primal cuts of meat intended for consumption by those on a low sodium diet which includes the step of subjecting a fresh primal cut to an aqueous curing solution substantially free of sodium and chloride ions and containing about 1.0 to 20% by weight of a water soluble, non-toxic phosphate composition selected from the group consisting of orthophosphate, polyphosphate and pyrophosphate salts of potassium and mixtures thereof.

3,782,976
POPCORN PACKAGE AND HANDLE ASSEMBLY
Gary W. Maier, Mount Clemens, and David H. Jehn, Richmond, Mich., assignors to Dun-Hot, Inc., Mount Clemens, Mich.
Filed Dec. 14, 1971, Ser. No. 207,913
Int. Cl. B65b *25/22*
U.S. Cl. 426—110 4 Claims



The pan and handle assembly includes an open-topped relatively shallow pan which has an annular flange or rim and a wire form handle secured to the rim of the pan. A transparent expandable plastic cover having substantially the same shallow outline as the pan extends across and into the pan, with the peripheral edge of the cover disposed between portions of the rim. A food product is confined between the pan and the cover. The wire handle has a generally arcuate portion engaging different areas of the rim and a handle portion integrally connected to the arcuate portion intermediate the ends thereof. The handle portion extends laterally outwardly from the pan and the ends of the arcuate portion terminate in a pair of generally U-shaped clinch means which receive the rim of the pan and are secured thereto to affix the handle to the pan. One of the U-shaped clinch means is provided with an integral end portion or piercing element which is adapted to engage the outer surface of the cover and puncture the cover when the cover expands in order to permit vapors to escape from the interior of the pan.

3,782,977
METHOD FOR PREPARING COLLAGEN COMPOSITIONS
William E. Henderson and Camilla B. Ross, Hinsdale, Ill., assignors to Union Carbide Corporation, New York, N.Y.
Filed Sept. 1, 1971, Ser. No. 176,863
Int. Cl. A22c *13/00*
U.S. Cl. 426—140 15 Claims



A method for preparing homogeneous formable collagen compositions having non-collagenous fibers uniformly dispersed therein, particularly compositions having a collagen solids content of at least about 6% by weight which includes the steps of (a) preparing a viscous aqueous dispersion of non-collagenous fibers containing a viscosity control agent, (b) preparing a comminuted preswollen collagen mass, and (c) thoroughly mixing said viscous non-collagenous fiber dispersion and said preswollen collagen mass while maintaining the temperature of the admixture below about 35° C.

ERRATUM

For Class 106—47 R see:
Patent No. 3,782,958

3,782,978
ELECTROLESS NICKEL PLATING
Joseph Francis Souza, Everett, Mass., assignor to Shipley Company, Inc., Newton, Mass.
No Drawing. Filed July 6, 1971, Ser. No. 160,087
Int. Cl. C23c *3/02*
U.S. Cl. 106—1 24 Claims

The subject matter of this invention is an electroless nickel plating solution especially formulated for nickel plating aluminum alloys. Aluminum is a difficult metal to plate from an electroless bath because aluminum is active and deposition over aluminum takes place at a rapid rate. As a result, there is excessive gassing at the aluminum interface resulting in migration of smut particles from the aluminum surface into the plating bath. These particles act as nuclei for deposition of nickel resulting

in spontaneous decomposition (triggering) of the bath and loss thereof, as well as plate-out on walls of the plating tank, racks and the like. The invention overcomes these difficulties by addition of an unsaturated carboxylic acid to the solution alone or preferably in combination with a second stabilizer. The acid acts to suppress the rate of deposition over aluminum decreasing gas evolution and migration of smut into the solution. As a result, triggering of the solution is retarded.

3,782,979
SPRAY SHOE POLISH
Milton Nevitt, 51 Royal Way, Manhasset Hills, New Hyde Park, N.Y. 11040
No Drawing. Continuation-in-part of application Ser. No. 189,398, Oct. 14, 1971, now Patent No. 3,704,143. This application Sept. 5, 1972, Ser. No. 286,247
The portion of the term of the patent subsequent to Nov. 28, 1989, has been disclaimed
Int. Cl. C09g *1/10*
U.S. Cl. 106—5 6 Claims

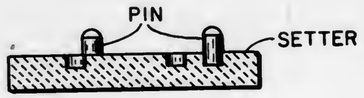
A spray shoe polish that is wax and silicone free. Ethyl cellulose is used as a base. A plasticizer and an inhibiter are employed as are three solvents having different boiling points for providing high gloss, no wax build-up, solubility of previous coatings, crack inhibition and dispersal of previously applied wax.

3,782,980
REFRACTORY POURING TUBE
Terrance M. Smith, Augusta, Ga., assignor to The Babcock & Wilcox Company, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 22,461, Mar. 25, 1970. This application Feb. 16, 1972, Ser. No. 226,994
Int. Cl. C04b *35/18, 35/48*
U.S. Cl. 106—57 4 Claims

There is provided a fired refractory article composed of a fused refractory aggregate and a refractory binder material for bonding the aggregate together. The aggregate consists essentially of (by weight) about 42–48 percent alumina (Al_2O_3) and about 17–23 percent silica (SiO_2) generally in the form of mullite crystals ($3Al_2O_3$—$2SiO_2$), and about 33–39 percent unstabilized zirconia (ZrO_2) dispersed throughout the mullite structure.

The aggregate forms 50 to 80% while the binder forms 50 to 20% of the refractory article. The binder originally contains 10 to 90% of 100 mesh zircon sand, 10 to 90% 325 mesh alumina and 0 to 50% raw clay. In addition suitable plasticizers and organic materials are added for forming purpose and are eliminated during heat treatment of the article.

3,782,981
ALPHA-WOLLASTONITE PINS AND SETTERS
David Rostoker, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed May 1, 1972, Ser. No. 248,862
Int. Cl. C04b *35/22, 35/20*
U.S. Cl. 106—73.5 1 Claim



This invention relates to the glaze firing of ceramic and glass-ceramic articles wherein such articles are supported on setter pins within the firing chamber. More particularly, this invention is concerned with the production of such pins with accompanying setters from alpha-wollastonite.

3,782,982
PRODUCTS PREPARED FROM SOLUBLE SILICATE SOLUTIONS
Joseph E. Pierson, Painted Post, and Stanley D. Stookey, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed June 12, 1970, Ser. No. 45,806
Int. Cl. C04b *35/14*
U.S. Cl. 106—75 6 Claims

This invention relates to the discovery of a method for producing monolithic porous materials, water insoluble thermoplastic materials, and water soluble resinous materials containing silica (SiO_2) from reaction mixtures of soluble silicates and certain organic compounds by treating said reaction mixtures at moderate temperatures to react the various species therein.

3,782,983
AIR ENTRAINMENT COMPOSITIONS FOR CEMENT MORTARS
Joseph A. Komor, Allentown, Pa., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed May 18, 1970, Ser. No. 38,539
Int. Cl. C04b *7/02*
U.S. Cl. 106—88 1 Claim

A composition for imparting air entrainment to cement mortars comprising salts of sulfate esters derived from: (a) straight or branched chain alcohols containing 0–65% by weight of ethylene oxide, wherein the alcohol portion has 8–10 carbon atoms, and (b) alkyl aryl alcohols containing 0–65% by weight of ethylene oxide, wherein the alkyl group has 2–7 carbon atoms.

3,782,984
ADJUVANTS FOR CEMENTS, MORTARS AND CONCRETES
Pierre Allemand, Lyon, and Christian Hovasse, Decines, France, assignors to Rhone-Progil, Paris, France
No Drawing. Filed June 28, 1972, Ser. No. 267,230
Claims priority, application France, July 2, 1971, 7125116
Int. Cl. C04b *7/02*
U.S. Cl. 106—90 8 Claims

Incorporation of a composition comprised of alkali metal acid carbonates, alkali metal salts of hydroxylated organic acids, and alkali metal silicates into portland type cement, and mortars and concretes, etc., containing such cements affords products having an accelerated setting time and which evidence significantly improved mechanical performance and handling characteristics.

3,782,985
LIGHTWEIGHT, HIGH STRENGTH CONCRETE AND METHOD FOR MANUFACTURING THE SAME
John C. Gebhardt, Annapolis, Md., assignor to Cadcom, Incorporated, Annapolis, Md.
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,601
Int. Cl. C04b *7/02, 7/32*; C08h *17/04*
U.S. Cl. 106—97 10 Claims

A lightweight, high strength concrete is formed by mixing with water, an admixture of fine aggregate consisting solely of coal fly ash cenospheres and dry hydraulic cement, then solidifying the mixture.

3,782,986
PROCESS FOR PRODUCING PLASTER FROM BYPRODUCT GYPSUM
Gerald H. Vincent, Fort Lauderdale, Fla., assignor to Combustion Engineering, Inc., Windsor, Conn.
No Drawing. Filed Nov. 12, 1970, Ser. No. 89,121
Int. Cl. C04b *11/10*
U.S. Cl. 106—110 7 Claims

A method of producing plaster from byproduct or synthetic gypsum is disclosed including milling the gypsum, adding boric acid as a calcination modifier, calcining the

modified gypsum to yield plaster, adding magnesium hydroxide and again milling the plaster to a fine particle size to yield a product with improved properties.

3,782,987
VICINAL HALOHYDRINS PREPARED FROM OLEFINS CONTAINING 25–50 CARBON ATOMS

William A. Bomball, Raymond L. Drury, Jr., Charles S. Nevin, and Ralph C. Witmer II, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,292
Int. Cl. C08h 9/06
U.S. Cl. 106—271 13 Claims

A preparation of salt-free long-chain vicinal halohydrins by reacting olefin containing 20 to 50 carbon atoms with hypohalite in aqueous emulsion comprising surface active agent at a temperature above the melting point of olefin; compositions comprising long-chain vicinal halohydrins and surface active agents; aqueous emulsions of long-chain vicinal halohydrins and surface active agents; and their use in treating fibrous products.

3,782,988
ASPHALTIC COATINGS

Stephen H. Alexander, St. Louis, Mo., and Arnold J. Hoiberg, Montville, N.J., assignors to The Bank of New York, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 616,489, Feb. 16, 1967, which is a continuation-in-part of abandoned application Ser. No. 223,819, Sept. 14, 1962. This application Nov. 6, 1969, Ser. No. 874,669
Int. Cl. C08h 13/00, 17/02; C09d 3/24
U.S. Cl. 106—282 6 Claims

An asphalt coating composition comprising 50 to 75% by weight of a catalytically air-blown asphalt with a penetration of 40 to 60 mm./10 and a softening point of 135 to 170° F., 15 to 50% by weight of an asphalt solvent, 5 to 20% by weight of short asbestos fibre and 5 to 15% by weight of expanded vermiculite.

3,782,989
POLYMERIC BASED COMPOSITION

Fred E. Mansur, Toledo, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Original application May 16, 1969, Ser. No. 825,410, now Patent No. 3,625,733, dated Dec. 7, 1971. Divided and this application Dec. 31, 1970, Ser. No. 103,300
Int. Cl. C08h 17/28; C09d 3/60
U.S. Cl. 106—285 11 Claims

There is disclosed the preparation of a polymeric based composition comprising a finely divided, particulate inorganic material dispersed in a cyclic isoprenoid solvent and a low molecular weight, low vapor pressure, liquid polymer, said polymer having a relatively constant viscosity and thixotropic character and capable of being decomposed or pyrolyzed completely to gaseous products at a relatively low temperature without forming a carbonaceous or like residue having a deleterious effect(s) in the application of the composition to a substrate.

3,782,990
PROCESS FOR GELLING TRIARYL PHOSPHATES AND RESULTANT PRODUCTS

Jacob Rosin, Maplewood, N.J., assignor to Chris-Craft Industries, Inc.

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,207
Int. Cl. C09k 3/22
U.S. Cl. 106—287 S 11 Claims

This invention relates to the process of making gelled triaryl phosphate esters which comprises forming an acidic composition comprising a colloidal solution of silica substantially uniformly distributed in a triaryl phosphate ester and transforming the colloidal solution to a gel by neutralizing the acidity, and to certain of the products made by the process.

3,782,991
ALUMINUM SULFATE AND CALCIUM SULFATE ADDITIVES FOR IMPROVING THE QUALITY OF CEMENT, MORTAR AND CONCRETE AND METHOD FOR THE PRODUCTION OF SUCH IMPROVED PRODUCTS

Theodor Burge, Zurich, Switzerland, assignor to Sika AG, Zurich, Switzerland

No Drawing. Filed May 11, 1971, Ser. No. 142,349
Claims priority, application Austria, May 12, 1970, A 4,250/70
Int. Cl. C04b 13/22, 13/24, 31/02
U.S. Cl. 106—315 17 Claims

An additive for improving the properties of building materials, such as cement, concrete and mortar, especially for increasing the early strength, the ability to carry out concreting at low temperatures and for volume control, without impairing the other qualitative properties of the building material, wherein the additive, apart from extenders and/or other additive substances consists of calcinated, anhydrous or water free aluminum sulfate. Techniques are also disclosed for producing the novel additive as well as for producing such building materials with improved properties.

3,782,992
CEMENT SET RETARDING COMPOSITION AND METHOD

Hiroshi Uchikawa, Funabashi, and Shunichiro Uchida, Tokyo, Japan, assignors to Onoda Cement Co., Ltd., Onoda-shi, Yamaguchi-ken, Japan

Filed Dec. 23, 1971, Ser. No. 211,307
Claims priority, application Japan, Dec. 29, 1970, 46/121,500
Int. Cl. C04b 3/22, 7/00, 13/00
U.S. Cl. 106—315 4 Claims

A hydraulic cement composition comprises (a) the clinker containing 5–60% by weight of

$$11CaO \cdot 7Al_2O_3 \cdot CaX_2$$

(X represents halogen atom), more than 5% by weight of $3CaO \cdot SiO_2$ solid solution, and further $2CaO \cdot SiO_2$ solid solution and $4CaO \cdot Al_2O_3 \cdot Fe_2O_3$

$$(4CaO \cdot Al_2O_3 \cdot Fe_2O_3$$

represents

$$2CaO \cdot Fe_2O_3 \cdot 6CaO \cdot 2Al_2O_3 \cdot Fe_2O_3$$

system solid solution); (b) anhydrite with or without hemihydrate and (c) at least one of sulfates, nitrates and chlorides of potassium, sodium, magnesium, calcium, aluminum or ammonium (excepting $CaSO_4 \cdot 2H_2O$, $CaSO_4$ and $CaSO_4 \cdot \frac{1}{2}H_2O$), whereby the anhydrite is contained in an amount that Al_2O_3/SO_3 weight ratio of Al_2O_3 in the clinker and SO_3 in the anhydrite is 0.7–1.8 and hemihydrate gypsum is contained less than 5% by weight as SO_3.

3,782,993
METHOD FOR THE PREPARATION OF SMALL MEDICAMENT PARTICLES

Gerhart Rothgang, Traisa Uber Darmstadt, and Gerhard Simon, Darmstadt, Germany, assignors to Rohm GmbH, Darmstadt, Germany

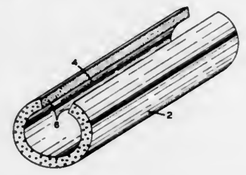
No Drawing. Filed Nov. 19, 1971, Ser. No. 200,585
Claims priority, application Germany, Nov. 25, 1970, P 20 57 853.4
Int. Cl. B44d 1/16
U.S. Cl. 117—100 A 5 Claims

A method for forming medicated particles by alternately applying portions of a liquid and of a solid powdered medicament, insoluble in said liquid, to an agitated seed material, and drying said particles only after all said portions have been applied. If required, a liquid-soluble binder for said medicament may be present, either dissolved in the liquid or admixed as a powder with the medicament. Each portion of liquid is within the "critical liquid uptake" region of the powder portion next applied, said region being empirically determined for each system of liquid and medicament (and, if necessary, binder). Said region encompasses those mixtures of liquid and solid system components which have a consistency between stickiness, on the one hand, and a tendency to crumble, on the other.

3,782,994
METHOD FOR APPLYING ADHESIVE TO THE EDGES OF A SLIT TUBE

John J. Doherty, Braintree, Mass., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed May 13, 1971, Ser. No. 143,119
Int. Cl. B41k 3/68
U.S. Cl. 117—4 1 Claim

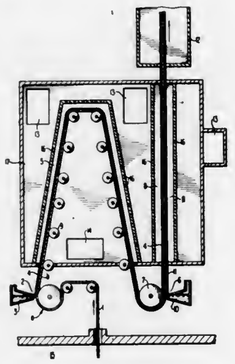


Foamed tubular insulation is provided with a slit down its longitudinal length so that it may be slid over a pipe. The apparatus herein opens up the tubing so that an adhesive coater may apply an adhesive to both edges of the slit in the tubing. A flattening structures opens up the tube so that the two surfaces to be coated are in the same horizontal plane and a roll coating structure then applies adhesive to the two edges in the same plane. The adhesive is permitted to dry and is then later solvent actuated when it is to be utilized to fasten the two edges together.

3,782,995
METHOD OF COATING BOTH SURFACES OF A WEB

Hisashi Takimoto, Minoru Minoda, and Akira Takagi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed July 6, 1970, Ser. No. 52,496
Claims priority, application Japan, July 3, 1969, 44/52,719
Int. Cl. B44d 1/02
U.S. Cl. 117—34 6 Claims

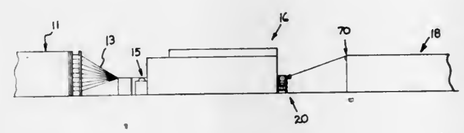


A method of coating both surfaces of a flexible web comprising coating a colloidal solution on a first surface of said flexible web, cooling and gelling said colloidal solution coated on said first surface of said web, supporting said web with a stationary roller which is in contact with said colloidal solution on said first surface of said web, and coating a colloidal solution on the second surface of said flexible web where said web is supported by said stationary roller.

3,782,996
METHOD OF TREATING TACKY STRAND MATERIAL

James C. Belue, Sylvania, Ohio, and Robert S. Schaefer, Huntingdon, Pa., assignors to Owens-Corning Fiberglas Corporation

Filed Apr. 16, 1968, Ser. No. 721,777
Int. Cl. B44d 1/092, 1/14, 5/08
U.S. Cl. 117—45 6 Claims



Strand material of tacky disposition is treated by application of a room temperature solidified lubricant material under conditions as to yield a solid, film-like layer of the material deposited on the strand sufficiently coextensive as to avoid surface-to-surface contact whereby the continuous length of material wound on spools or the like may be withdrawn therefrom rapidly.

3,782,997
METHOD FOR SEALING ANODIZED BERYLLIUM COMPONENTS TO IMPROVE DIELECTRIC AND CORROSION RESISTANT PROPERTIES

Daniel G. Daly, New York, N.Y., and Gerardo A. Ritacco, Belleville, N.J., assignors to The Bendix Corporation

No Drawing. Filed Dec. 14, 1970, Ser. No. 98,084
Int. Cl. B44d 1/34
U.S. Cl. 117—49 7 Claims

Anodized beryllium components are cleaned and baked and then impregnated with a suitable dielectric material after which the components are cured for sealing existing porosity and for thereby improving dielectric and corrosion resistant properties of the components.

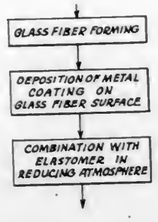
3,782,998
METHOD OF INSULATING COLD SUBSTRATES AND THE INSULATED SUBSTRATES

Albert C. Condo, Newtown Square, Pa., and Clinton A. Reph, Amherst, Ohio, assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,424
Int. Cl. B29d 27/00; B32b 27/40
U.S. Cl. 117—66 19 Claims

Method of insulating cold substrates by providing a first high density foam layer on the substrate which in turn provides a warm surface for depositing a second insulating layer of polyurethane foam on the substrate. In a further embodiment, the opposite surface of the substrate to that being insulated is temporarily insulated with a non-foam insulating material prior to applying the first layer to the substrate to slow dissipation of heat through the substrate.

3,782,999
GLASS FIBER REINFORCED ELASTOMERS
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation
Filed July 7, 1971, Ser. No. 160,388
Int. Cl. B32b *15/14, 17/06;* C23c *13/00*
U.S. Cl. 117—71 10 Claims

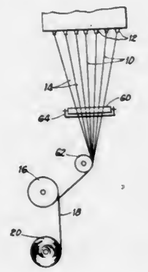


This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials wherein glass fibers are provided with a coating of a nascent metal and then combined directly with elastomeric materials, or further coated with an elastomeric material for use in the manufacture of glass fiber reinforced elastomeric products. The coating steps take place in a non-oxidizing atmosphere, and preferably a reducing atmosphere.

3,783,000
METHOD FOR PREPARING WATER-PROOF ASPHALT MATERIALS
Takashi Takase, Narashino, Tsunekazu Hayashi, Tokyo, and Hirokazu Saitoh, Ohmiya, Japan, assignors to Mitsuboshi-Sangyo Co., Ltd., Tokyo, Japan
No Drawing. Filed June 9, 1971, Ser. No. 151,571
Claims priority, application Japan, June 11, 1970, 45/49,845, 45/49,846, 45/49,847
Int. Cl. C08h *13/00*
U.S. Cl. 117—21 5 Claims

Granular, powdery and flaky asphalts are used for paving road surfaces, preparing water-proof roofing materials and filling joints between blocks, as well as other uses. This asphalt may be mixed with aggregates at the work site rather than at an asphalt mixing plant.

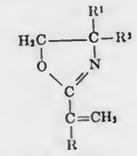
3,783,001
TREATED GLASS FIBERS FOR GLASS FIBER-ELASTOMERIC PRODUCTS AND METHOD
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation
Filed Jan. 11, 1971, Ser. No. 105,199
Int. Cl. B32b *25/02, 25/14, 17/10*
U.S. Cl. 117—72 21 Claims



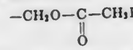
This invention is addressed to the treatment of glass fibers to improve the bonding relationship between the glass fibers and elastomeric materials when the glass fibers are combined with elastomeric materials in the manufacture of glass fiber-reinforced elastomeric products wherein glass fibers are first treated with a hot melt of an elastomer, a resin or mixtures thereof, preferably while the glass fibers are in a nascent state, to provide a thin coating on the individual glass fibers, and a bundle formed of the thus treated glass fibers is thereafter impregnated with an elastomer compatible material to provide a glass fiber bundle in which the individual fibers have a thin coating on the surfaces thereof formed from the hot melt, and an impregnant contained in the glass fiber bundle.

3,783,002
METHOD FOR COATING STEEL
Robert F. Purcell and David K. Sausaman, Terre Haute, Ind., assignors to Commercial Solvents Corporation
No Drawing. Filed Jan. 14, 1972, Ser. No. 218,018
Int. Cl. B32b *15/08;* B44d *1/36*
U.S. Cl. 117—75 12 Claims

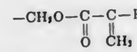
A process for coating steel by applying thereto a monomer or partial polymer of a vinyl oxazoline, represented by the formula



where R is an alkyl or alkenyl group of 1 to 20 carbon atoms and R^1 and R^2 are selected from the group consisting of methyl, ethyl, hydroxymethyl, or the acyloxymethyl group represented by the formula



or the vinyl acyloxymethyl group represented by the formula



heating to effect further polymerization, applying thereto a solution or dispersion of a vinyl halide polymer, copolymer, or terpolymer and heating to effect evaporation of the solvent or coalescence of the dispersion.

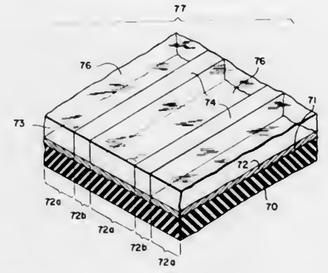
3,783,003
PROCESS FOR PRODUCING A RESIN-COATED PAPER AS A SUPPORT FOR A PHOTOGRAPHIC PAPER
Tsuneyasu Matsuhisa and Yoshiaki Nagai, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed June 17, 1971, Ser. No. 154,161
Claims priority, application Japan, June 17, 1970, 45/52,607
Int. Cl. B44d *1/16*
U.S. Cl. 117—76 P 3 Claims

A resin-coated paper as a support for a photographic paper, which has good adhesion between the paper and the resin layers and gives photographic paper free from fogging, is prepared by the extrusion coating in which the first resin is coated at an extrusion temperature over 320° C. on the side of the paper to be coated with the photographic emulsions and then the second resin is coated at a temperature under 300° C. on the first resin layer.

3,783,004
METHOD OF FORMING A FLAT COATED SURFACE
Gordon M. Parker, Apollo, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Sept. 21, 1971, Ser. No. 182,559
Int. Cl. B44d *1/50*
U.S. Cl. 117—93.31 18 Claims

A film or coating having a wrinkled surface is prepared by subjecting a substantially solventless, actinic light-sensitive, ionizing irradiation-sensitive material to actinic light in an inert atmosphere and subsequently subjecting the material to ionizing irradiation. The preferred films or coatings are prepared from polyacrylates or unsaturated polyester resins.

3,783,005
METHOD OF DEPOSITING A METAL ON A SURFACE OF A NONCONDUCTIVE SUBSTRATE
John Thomas Kenney, Lawrence Township, Mercer County, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Feb. 4, 1972, Ser. No. 223,522
Int. Cl. C23c *3/02*
U.S. Cl. 117—212 36 Claims

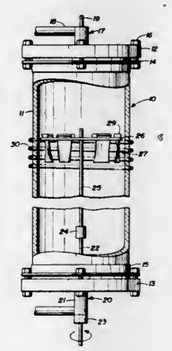


A method of depositing a metal on a surface of a nonconductive substrate is disclosed. A surface of the substrate is first sensitized with a wetting-sensitizer comprising a sensitizing species, e.g., Sn^{+2}, combined with an aqueous colloidal wetting solution, selected from among solutions revealed in application Ser. No. 8,022, filed Feb. 2, 1970. Alternatively, the surface may be first rendered hydrophilic by treating the surface with the colloidal wetting solution, followed by sensitization with a non-wetting sensitizer. The sensitized surface is activated and then exposed to an electroless plating bath. In a second embodiment, the substrate surface is first coated with a wetting-photopromoter comprising a positive photopromoter species, including one selected from among those revealed in U.S. Pat. 3,562,005, combined with the aqueous colloidal wetting solution. Again, alternatively, the substrate may be first rendered wettable by treatment with the colloidal wetting solution whereafter a conventional (non-wetting) photopromoter solution (positive or negative) is applied thereto. The photopromoter-coated surface is selectively exposed to a source of ultraviolet radiation to produce a pattern comprising at least one area of the surface capable of reducing a precious metal from a precious metal salt. The exposed substrate is then immersed in a solution comprising a salt of the precious metal to obtain a precious metal pattern. The precious metal pattern may then be exposed to an electroless plating bath to deposit electroless metal thereon.

3,783,006
COATED CONTAINER AND METHOD OF COATING
Ernest A. Hahn, Plainfield, Ill., Rowland S. Hartzell, Gibsonia, Pa., and Gene Gerek, Oswego, Ill., assignors to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 18,333, Mar. 10, 1970. This application Dec. 29, 1971, Ser. No. 213,834
Int. Cl. B44d *1/50, 1/36*
U.S. Cl. 117—93.31 18 Claims

Metal containers for food and beverages have their interior surfaces coated with a composition comprising an acrylic syrup comprising one or more thermoplastic acrylic polymers and one or more acrylic monomers wherein the composition is cured by ionizing irradiation or actinic light. The coatings have a unique combination of properties including excellent taste properties and superior adhesion to the metal container.

3,783,007
METAL CARBONITRILE COATINGS
John A. Bloom, Dallas, and Gene F. Wakefield, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of abandoned application Ser. No. 850,351, Aug. 15, 1969. This application Oct. 1, 1971, Ser. No. 185,872
Int. Cl. C23c *11/18*
U.S. Cl. 117—95 9 Claims

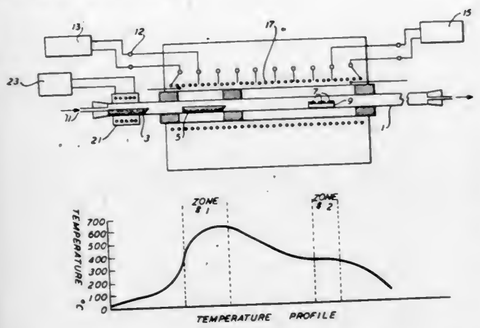


Metal carbonitride coatings such as titanium carbonitride, are produced upon the surface of an object by a vapor phase deposition process utilizing reactant compounds containing carbon, nitrogen, and the metal. The reactant compounds are contacted upon the surface of the heated substrate under conditions wherein the atmosphere of the reaction zone around the substrate is maintained at a temperature below the decomposition temperature of the reactant compounds so that substantially no vapor phase reaction therebetween will occur before contact is made with the heated substrate.

3,783,008
PROCESS FOR PREPARING COATED DETERGENT PARTICLES
Helmut H. Weldes, Havertown, and Eric W. Vessey, Springfield, Pa., assignors to Philadelphia Quartz Company, Philadelphia, Pa.
No Drawing. Filed May 4, 1971, Ser. No. 140,305
Int. Cl. B44d *1/02*
U.S. Cl. 117—100 A 2 Claims

This invention involves a process for making an improved detergent composition. It consists of spraying a slurry of some ingredients of the composition onto other ingredients. Specifically, a composite of an inorganic salt with an alkali metal silicate with or without a sequestering agent is coated with a slurry of the remaining detergent ingredients and then the coated material is dried to give a free-flowing detergent. The resulting composition is very stable, containing a very low concentration of insoluble material and the concentration of insolubles does not increase on storage.

3,783,009
METHOD FOR IMPROVING PERFECTION OF EPITAXIALLY GROWN GERMANIUM FILMS
Ralph F. Tramposch, Amherst, N.Y., assignor to Air Reduction Company, Incorporated, New York, N.Y.
Continuation of abandoned application Ser. No. 726,952, May 6, 1968. This application Feb. 22, 1971, Ser. No. 117,668
Int. Cl. B44d 1/02
U.S. Cl. 117—106 A 4 Claims



A method for improving the crystalline perfection of epitaxial films of germanium is set forth, which is particularly applicable to forming a device-quality layer on a foreign substrate. In this latter environment, the process is carried out by vapor depositing on the foreign substrate a germanium single crystal base film at temperatures in the range of 800° C. to 825° C., epitaxially vapor depositing a buffer germanium layer on said base film at temperatures in the range 340° C to 360° C., and thereafter epitaxially depositing a layer of germanium at a higher temperature range of 700° C. and above.

3,783,010
REFRACTING, LIGHT PERMEABLE OXIDE LAYER AND METHOD FOR ITS MANUFACTURE
Baptist Wille, Balzers, Liechtenstein, assignor to Balzers Patent- und Beteiligungs Aktiengesellschaft, Balzers, Liechtenstein
Filed Apr. 7, 1971, Ser. No. 132,041
Claims priority, application Switzerland, Apr. 13, 1970, 5,491/70
Int. Cl. C23c 11/00, 13/00
U.S. Cl. 117—106 R 2 Claims



A highly refracting, light permeable oxide layer on a support, such as a glass plate, comprises oxygen, zirconium and tantalum, the ratio of the number of tantalum atoms to zirconium atoms being in the range of about 1:1 to 1:2.

3,783,011
PROTECTING PLASTICS FROM PHOTODEGRADATION
Jean Chauffoureaux, Brussels, Belgium, assignor to Solvay & Cie, Brussels, Belgium
No Drawing. Filed Dec. 27, 1971, Ser. No. 212,671
Claims priority, application France, Jan. 6, 1971, 7100274
Int. Cl. B01j 1/10
U.S. Cl. 117—106 R 9 Claims

Protection from photodegradation by solar radiation is imparted to plastics normally subjected to such photodegradation by exposing the plastics to an atmosphere of anti-UV agent in vapor state prior to exposure to solar radiation.

3,783,012
VACUUM METALLIZED POLYOLEFINS
Koh Morita and Teiji Ishii, Yokohama-shi, Kanagawa-ken, Japan, assignors to Chisso Corporation, Osaka-shi, Japan
No Drawing. Filed June 11, 1969, Ser. No. 832,507
Int. Cl. C23c 13/02
U.S. Cl. 117—107 7 Claims

Vacuum metallizable polyolefin compositions are provided from a blend of a polyolefin and from about 2% to about 60% by weight of a compatible high molecular weight unsaturated material such as a natural rubber or a synthetic elastomer. Prior to vacuum metallizing, shaped articles of the composition are immersed in an acid bath. Thereafter the acid treated articles may be vacuum metallized and a protective topcoat applied. As an optional procedure, the shaped articles may be coated with a primer or undercoat after treatment in the acid bath and before vacuum metallizing.

3,783,013
COATING FOR SURFACES WHICH CONTACT HOT GLASS
Thomas A. Seeman, Oregon, Ohio, assignor to Thomas Industrial Gases, Inc., Toledo, Ohio
No Drawing. Continuation-in-part of abandoned application Ser. No. 169,862, Aug. 6, 1971. This application Mar. 27, 1972, Ser. No. 238,467
Int. Cl. B28b 7/38
U.S. Cl. 117—127 12 Claims

A composition and method is disclosed for coating metal surfaces which come in contact with hot glass in manufacturing and handling glassware. A dispersion of boron nitride (BN) and monoaluminum phosphate is applied to heated metal surfaces to form a coating which prevents corrosion and glass seizure. The dispersion is applied in an inert volatile liquid, preferably ethylene glycol or water or a combination thereof.

3,783,014
ELECTROLESS COATING OF MOLYBDENUM ON STAINLESS STEELS
John W. Koger, Knoxville, and Eugene J. Lawrence, Alcoa, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Jan. 18, 1972, Ser. No. 218,817
Int. Cl. C23c 9/10, 17/02
U.S. Cl. 117—130 R 2 Claims

An adherent coating of molybdenum on stainless steel is obtained by contacting the stainless steel with a molten fluoride salt containing from 1 to 5 weight percent MoF_6.

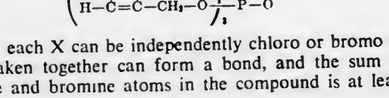
3,783,015
PROCESS FOR PROTECTING A SUBSTRATE WITH AN ARYLSULFONAMIDE DERIVATIVE INTUMESCENT AGENT
Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.
No Drawing. Filed Feb. 22, 1972, Ser. No. 228,382
Int. Cl. C09d 5/18; C09k 3/28
U.S. Cl. 117—136 8 Claims

Intumescent compositions of the invention comprise certain arylsulfonamidothiazoles, isothiazoles, oxazoles, and isoxazoles, such as 2-sulfanilamidothiazole, 5-sulfanilamidoisothiazole, 2-sulfanilamidooxazole, 5-sulfanilamidoisoxazole, and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied to the substrates in any suitable manner, such as by electrodeposition, spraying

onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

3,783,016
METHOD FOR IMPARTING FLAME RESISTANCE TO FIBROUS MATERIALS
David I. Randall, 417 Dogwood Terrace, and Calvin Vogel, 104 Forks Ave., both of Easton, Pa. 18042
No Drawing. Filed June 1, 1971, Ser. No. 148,881
Int. Cl. C09k 3/28; C09d 5/18
U.S. Cl. 117—136 8 Claims

Method for imparting flame resistance to fibrous materials is provided comprising applying to said materials a compound having the structural formula:



wherein each X can be independently chloro or bromo or when taken together can form a bond, and the sum of chlorine and bromine atoms in the compound is at least two.

3,783,017
PROCESS FOR PROTECTING A SUBSTRATE WITH AN ARYLSULFONAMIDOTRIAZOLE INTUMESCENT AGENT
Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.
No Drawing. Filed Feb. 22, 1972, Ser. No. 228,383
Int. Cl. C09d 5/18; C09k 3/28
U.S. Cl. 117—136 6 Claims

Intumescent compositions of the invention comprise certain arylsulfonamidotriazoles, such as the sulfanilamidotriazoles and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied to the substrates in any suitable manner, such as by electrodeposition, spraying onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

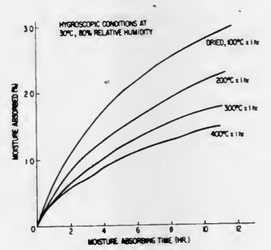
3,783,018
PROCESS FOR PROTECTING A SUBSTRATE WITH AN N^4-TRIAZOLYLAMINOARYLSULFONAMIDE INTUMESCENT AGENT
Shirley H. Roth, Highland Park, N.J., assignor to Cities Service Company, New York, N.Y.
No Drawing. Filed Feb. 28, 1972, Ser. No. 230,101
Int. Cl. C09d 5/18; C09k 3/28
U.S. Cl. 117—136 5 Claims

Intumescent compositions of the invention comprise certain N^4-triazolylaminoarylsulfonamides, such as the N^4-triazolylsulfanilamides and derivatives thereof. The intumescent agents may be employed in conjunction with additives conventionally used in intumescent compositions. For use in protecting substrates from heat and fire, the intumescent compositions may be applied in any suitable manner, such as by electrodeposition, spraying onto an adhesive substrate, or application of a coating composition comprising the intumescent agent.

3,783,019
METHOD FOR PRODUCING ELECTROPHOTOGRAPHIC RECORDING ELEMENTS
Yoshitaka Hashiguchi, Amagasaki-shi, and Shozo Watayama, Fuji-shi, Japan, assignors to Kabushiki Kaisha Kohjin, Tokyo, and Teikoku Kagaku Sangyo Kabushiki Kaisha, Osaka, Japan
No Drawing. Filed June 9, 1971, Ser. No. 151,595
Claims priority, application Japan, June 11, 1970, 45/49,821
Int. Cl. G01d 15/06; G03c 1/74
U.S. Cl. 117—201 6 Claims

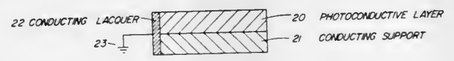
Electrophotographic recording elements which have an excellent light sensitivity and do not receive any influence from the variation in the moisture of the ambient atmosphere, are prepared by dissolving a vinyl compound copolymer (e.g. vinyl acetate-crotonic acid copolymer) which is soluble in an organic solvent (e.g. methanol) and also soluble in water in the presence of a volatile base (e.g. ammonia), in an organic solvent, an organic solvent containing a volatile base or a mixture of less than 5 parts by weight of water, 1 part by weight of an organic solvent and a volatile base; mixing the resultant solution with a diluent mainly of water; and coating a support, e.g. sized paper, with the resultant aqueous dispersion (coating color) containing zinc oxide, the volatile base, the organic solvent and the vinyl compound copolymer.

3,783,020
ANTI-HYGROSCOPIC ARC WELDING COATED ELECTRODE AND THE PROCESS FOR PRODUCING THE SAME
Shinji Kimura, Fujisawa, and Izumi Ichihara and Tsuyoshi Kawase, Kamakura, Japan, assignors to Kobe Steel, Ltd., Kobe, Japan
Filed Dec. 10, 1971, Ser. No. 206,823
Claims priority, application Japan, Dec. 28, 1970, 46/128,610
Int. Cl. B23k 35/00; C23g 1/00
U.S. Cl. 117—206 6 Claims



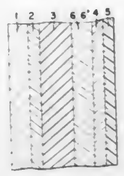
An anti-hygroscopic arc welding coated electrode contains, as a binder for the coating material of the electrode, a glass powder having a softening point of from 350° to 550° C., which melts and covers the grains of the coating material, when heated to a temperature above the said softening point, so as to form vitreous films therearound.

3,783,021
CONDUCTING LACQUERS FOR ELECTROPHOTOGRAPHIC ELEMENTS
William C. York, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Original application Mar. 3, 1969, Ser. No. 803,708, now Patent No. 3,639,121, dated Feb. 1, 1972. Divided and this application Mar. 15, 1971, Ser. No. 124,593
Int. Cl. B44d 1/18
U.S. Cl. 117—212 16 Claims



Novel electrically conducting lacquers are coated on the edge of electrophotographic elements to maintain conducting layers at ground potential during charging by providing an electrical path from the conducting layer to a grounding means. Typical conducting lacquers include mixtures of electrically conducting carbon black and graphite in a polymeric resin binder.

3,783,022
ELECTROLUMINESCENT PANEL
Fumio Ueda, Amagasaki-shi, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Marunouchi Chiyoda-ku, Tokyo, Japan
Filed Apr. 22, 1971, Ser. No. 136,310
Claims priority, application Japan, Apr. 28, 1970, 45/36,563
Int. Cl. C09k *1/00;* **C23c** *11/00;* **H01j** *1/62*
U.S. Cl. 117—215 **2 Claims**



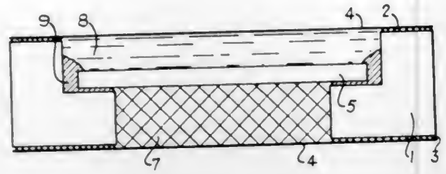
An electroluminescent panel having a luminescent layer, a high dielectric layer and a back electrode is disclosed. The luminescent layer is composed of an electroluminescent phosphor containing ZnS as an active ingredient and a binder. The high dielectric layer is composed of high dielectric barium titanate and a binder. After coating by vacuum evaporation of aluminum to form a back electrode, a resin such as cyanoethyl sucrose is vacuum impregnated to the luminescent layer and the high dielectric layer by heating.

3,783,023
METHOD OF MAKING A COATED TAPE, AND PARTICULARLY SMOOTH SURFACE MAGNETIC RECORDING TAPE
Gordon P. Hungerford, Palmyra, N.Y., assignor to Mobil Oil Corporation
No Drawing. Continuation-in-part of abandoned application Ser. No. 30,575, Apr. 21, 1970. This application June 8, 1972, Ser. No. 260,874
Int. Cl. H01f *10/00*
U.S. Cl. 117—237 **17 Claims**

To improve the smoothness of the surface of coated tape, particularly coated magnetic recording tape, a thin film (e.g., 0.02 mm. thick) of polyethylene is applied on top of the wet coating of magnetic particles (e.g., iron oxide particles), in a binder, and solvent, the solvent evaporating through the polyethylene film. When the solvent has evaporated, or almost so, the polyethylene film is stripped off the coating, leaving a smooth glossy surface having improved abrasion resistance and reproduction characteristics. Typical drying conditions are about 21° C., and 45 minutes; the coating may be briefly predried but only for so long that the polyethylene film can still mold the surface of the coating to be flat during the drying process.

3,783,024
ELECTRIC CELLS AND BATTERIES
John G. Gibson, Derby, and Ronald Holland, Dorset, England, assignors to British Railways Board, London, England
Filed Nov. 23, 1971, Ser. No. 201,273
Claims priority, application Great Britain, Nov. 24, 1970, 55,835/70
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 A **3 Claims**

An electric cell of the kind which, at its operating temperature, has liquid alkali metal as negative active material (anode), liquid sulphur material as positive active material (cathode), and a solid electrolyte separating anode and cathode compartments. Electrodes of the cell constitute wall portions, for example end plates, of the anode and cathode compartments respectively and are flexible to accommodate changes in volume of the materials in said compartments during discharge of the cell. An electric battery is formed by a plurality of the



cells stacked together end to end with the cells electrically in series in which case a single electrode may be disposed between adjacent cells to constitute an end plate for both said adjacent cells.

3,783,025
METHOD OF MAKING A THIN CADMIUM OXIDE ELECTRODE WITH AN IONIC POLYMER AND SUBSEQUENT REMOVAL OF THE POLYMER
Randall N. King, Johnstown, and David W. Skelly, Ballston Lake, N.Y., assignors to General Electric Company
Original application Nov. 12, 1969, Ser. No. 875,918, now abandoned. Divided and this application Oct. 21, 1970, Ser. No. 82,845
Int. Cl. H01m *35/30*
U.S. Cl. 136—76 **1 Claim**

A thin electrode is disclosed which has an electrically conductive sheet, and a thin layer of an active material of a metallic oxide, a metallic hydroxide, or a metal adhering to each major face of the sheet. A method is also described for making such electrodes. These electrodes are useful for small volume, small weight applications such as anodes in batteries for squibs and space vehicles.

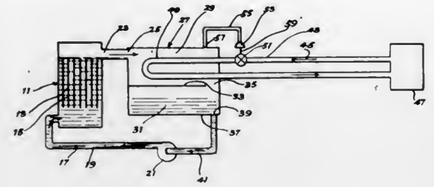
3,783,026
AIR-DEPOLARIZED CELLS UTILIZING A CYANATE OR THIOCYANATE-CONTAINING ELECTROLYTE
Karl V. Kordesch, Lakewood, Ohio, assignor to Union Carbide Corporation, New York, N.Y.
Filed Mar. 9, 1971, Ser. No. 122,465
Int. Cl. H01m *29/04*
U.S. Cl. 136—86 A **14 Claims**

Air-depolarized cells are disclosed which have an improved aqueous electrolyte. The electrolyte, which is neutral, slightly acid, or slightly alkaline, contains: (a) a salt such as a halide of an alkali metal, alkaline earth metal, aluminum, zinc, or ammonia; and (b) a cyanate or thiocyanate salt. The air-depolarized cells of the invention alleviate the problem of carbonation with attendant plugging of the pores in the cathode that is often encountered with air-depolarized cells utilizing strong alkaline electrolytes.

3,783,027
APPARATUS AND METHOD FOR MAKING CHLORINE HYDRATE FROM HIGH ENERGY DENSITY BATTERY ELECTROLYTE AND CHLORINE
Harry K. Bjorkman, Birmingham, Mich., assignor to Udylite Corporation, Warren, Mich.
Filed Nov. 18, 1971, Ser. No. 200,046
Int. Cl. H01m *27/14*
U.S. Cl. 136—86 C **11 Claims**

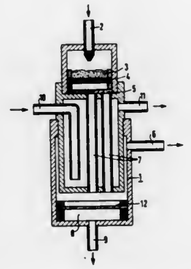
An apparatus for making chlorine hydrate from an aqueous medium such as a solution of zinc chloride, and chlorine, despite varying feed rates, concentrations, proportions and temperatures of the solution and the chlorine, includes a vessel having an inlet for addition of the

solution and chlorine and an outlet for removal of the medium, upper and lower zones in the vessel, the upper one of which is for gaseous chlorine and the lower one of which holds the aqueous medium before discharge, and a cooling coil, pipe or other heat transfer means in the upper zone adapted to cool the chlorine and moisture in contact with it so as to form chlorine hydrate. A pressure sensor is present in the upper zone and in response to an excess of chlorine, which causes an increase in pressure in



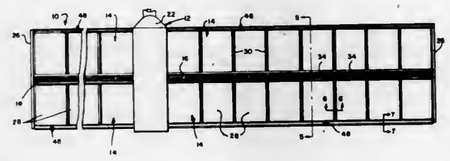
the zone, the sensor actuates a coolant-controlling valve to increase the feed of coolant to the heat transfer means, thereby removing more chlorine from the zone, as chlorine hydrate, and reducing the pressure. The reverse action takes place when the chlorine content and related pressure are too low. The chlorine-solution feed to the vessel is usually of chlorine and electrolyte from a high energy density secondary battery during a charge cycle and the solution removed from the lower zone of the present vessel is returned to such cell.

3,783,028
FUEL CELL AND APPARATUS FOR WATER REMOVAL BY EVAPORATING THE WATER FROM THE ELECTROLYTE OF FUEL ELEMENTS
Herbert Cnobloch, Hans Kohlmuller, and Manfredo Marchetto, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Berlin and Munich, Germany
Continuation of abandoned application Ser. No. 88,553, Nov. 12, 1970. This application Apr. 26, 1972, Ser. No. 247,902
Claims priority, application Germany, Nov. 12, 1969, P 19 56 726.1
Int. Cl. H01m *27/14*
U.S. Cl. 136—86 C **2 Claims**



A process for the removal of water by vaporizing the water from the electrolyte of fuel cell elements, wherein the hydrogen containing fuels are reacted and at least one reactant is produced through a preceding exothermal reaction. The heat energy which occurs during the exothermal reaction is used for the vaporization of the water. Apparatus for carrying out the process is also described.

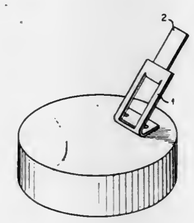
3,783,029
SELF-ERECTING AND RIGIDIZING DEPLOYABLE PANEL AND PANEL ASSEMBLY
Paul A. Dillard, Littleton, Colo., and Clyde E. Williamson, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Sept. 21, 1970, Ser. No. 73,732
Int. Cl. H01l *15/02*
U.S. Cl. 136—89 **14 Claims**



A deployable panel for deployable solar arrays and other deployable structures. The panel has a number of panel sections hinged edge-to-edge along hinge lines normal to the longitudinal panel edges and thin walled resilient tubular beams secured to the panels along edges of the panel sections. The panel is foldable to a compact stowage configuration wherein the panel sections are disposed in confronting face-to-face relation with the beams folded and flattened, such that the beams store elastic strain energy for aiding extension of the panel to a generally flat unfolded configuration wherein the beams rigidize the panel. The beams may provide electrical bus conductors for electrical elements, such as solar cells, on the panel.

A deployable panel structure embodying a pair of the panels and an intervening deployment boom for extending the panels from folded to unfolded configuration.

3,783,030
GALVANIC ELEMENT
Werner Tietze, Hagen, Germany, assignor to Varta AG, Frankfurt am Main, Germany
Filed Mar. 13, 1972, Ser. No. 234,019
Claims priority, application Germany, Mar. 16, 1971, G 71 09 863.0
Int. Cl. H01m *5/00*
U.S. Cl. 136—134 P **3 Claims**



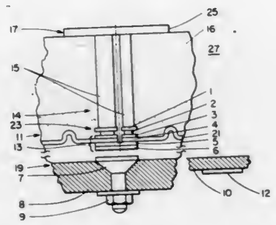
Galvanic element includes an electrical conductor formed of an electrically conductive base material having an incision therein defining a tongue-shaped member bendable out of the incision.

3,783,031

METHOD FOR PRODUCING EVAPORATION INHIBITING COATING FOR PROTECTION OF SILICON-GERMANIUM AND SILICON-MOLYBDENUM ALLOYS AT HIGH TEMPERATURES IN VACUUM

Pao J. Chao, Allendale, N.J., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed June 4, 1971. Ser. No. 150,942
Int. Cl. H01v 1/02
U.S. Cl. 136—237 5 Claims



Method for protecting Si—Ge and Si—Mo alloys for use in thermocouples by coating the alloys with silicon to inhibit the evaporation of the alloys at high temperatures in a vacuum. Specific means and methods are provided.

3,783,032

METHOD FOR PRODUCING DIRECTIONALLY SOLIDIFIED NICKEL BASE ALLOY

James L. Walker, Schenectady, and Thomas F. Sawyer, Ballston Lake, N.Y., assignors to General Electric Company

Filed July 31, 1972, Ser. No. 276,752
Int. Cl. C22f 1/10
U.S. Cl. 148—3 4 Claims



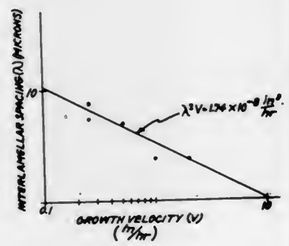
A method of making a cast body from a nickel base alloy having improved stress rupture strength is provided. The method involves forming a nickel base alloy containing a carefully controlled combination of gamma prime forming elements Al, Ti and Ta along with a critical amount of Cr, pouring the molten alloy into a mold and directionally solidifying it into a cast body, removing the low melting segregated phases from the directionally solidified cast body by a dissolution heat treatment to permit the segregated phases to dissolve in solid solution without incipient melting, and cooling the cast body to room temperature.

3,783,033

RAPID SOLIDIFICATION TO IMPROVE THE OXIDATION RESISTANCE OF DIRECTIONALLY SOLIDIFIED EUTECTIC ALLOYS

Lemuel A. Tarshis, Latham, N.Y., assignor to General Electric Company

Continuation of abandoned application Ser. No. 119,587, Mar. 1, 1971. This application Jan. 17, 1973, Ser. No. 324,365
Int. Cl. C22c 19/00
U.S. Cl. 148—32 5 Claims



In a directionally solidified multi-phase eutectic system, high-temperature oxidation resistance of a directionally-solidified alloy is improved by controlling the solidification rate (V) within a defined range, greater than about 2 inches per hour, but less than the rate (V_{max}) which produces cellular breakdown in the microstructure of the alloy. This maximum velocity to avoid cellular breakdown is defined generally by the equation: $V_{max}=KG$, wherein G is the temperature gradient in the solidifying liquid ahead of the solidifying interface thereof; and K is a constant. For the particular system $Ni_3Al—Ni_3Cb$ eutectic composition disclosed, K is about 0.02 (in.²/hr.° C.). The maximum inter-lamellar spacing (λ_{max}) of the microstructure to achieve the improved high temperature oxidation resistance is controlled to be not greater than about 9.33×10^{-5} inches.

3,783,034

METHOD FOR FORMING AN INSULATING FILM OF GOOD PUNCHING CHARACTERISTICS ON ELECTRICAL STEEL SHEETS AND STRIPS

Minoru Kitayama and Motoharu Nakamura, Himeji, Masanobu Inaoka, Takasago, and Hiroshi Okada, Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Aug. 25, 1971, Ser. No. 174,719
Claims priority, application Japan, Aug. 28, 1970, 45/75,361
Int. Cl. C23f 7/26
U.S. Cl. 148—6.2 6 Claims

A process for producing a stable insulating film of good punching characteristics on an electrical steel sheet and strip, which comprises dissolving at least one compound selected from the group consisting of oxides, hydroxides and carbonates of divalent metals to at least about their dissolving limit in a solution containing at least one compound selected from the group consisting of chromic acid

and bichromates, adding an emulsion type resin to the solution, and coating the thus obtained treating solution onto a steel sheet and then baking the coated sheet.

3,783,035

COATING FERROUS METALS

Douglas H. Eisenlohr, Guilford, and Henry W. Schiessl, Northford, Conn., assignors to Olin Corporation

No Drawing. Filed May 15, 1972, Ser. No. 253,474
Int. Cl. C23f 7/04
U.S. Cl. 148—6.14 R 10 Claims

Protective coatings are applied to ferrous metals by:

(A) Etching the metal first in nitric, then in hydrofluoric acid;

(B) Forming a magnetite coating on the etched metal by heating in contact with aqueous hydrazine, and

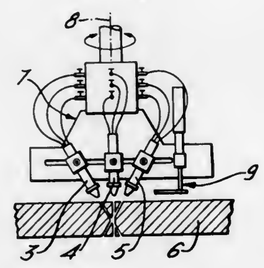
(C) Applying an organic coating to the magnetite-coated ferrous metal.

3,783,036

METHOD OF CUTTING THE EDGE OF STRUCTURAL SHEET OR PLATE MEMBERS ON AUTOMATICALLY CONTROLLED CUTTERS

Borre Bengt Ulrichsen, Kongsberg, Norway, assignor to A/S Kongsberg Vapenfabrikk, Kongsberg, Norway

Filed Oct. 21, 1971, Ser. No. 191,484
Claims priority, application Norway, Oct. 21, 1970, 3,983/70
Int. Cl. B23k 7/10
U.S. Cl. 148—9 R 6 Claims



A varying bevel angle of an inclined edge of a steel plate is provided in the same operation as that of cutting the contour of the plate on a numerically controlled blowpipe cutter. A cutter with a rotatable cutter head is used. A blowpipe nozzle is positioned at an angle with the rotational axis of the cutter head and the movement of the head about the axis is controlled both in accordance with information relating to the desired bevel angle and in accordance with the direction of the tangent to the edge in the plane of the plate to be cut.

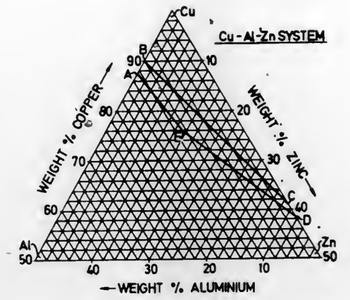
3,783,037

TREATMENT OF ALLOYS

Greville B. Brook, Beaconsfield, and Roger F. Iles, Ickenham, England, assignors to Fulmer Research Institute Limited, Stoke Poges, Buckinghamshire, England

Filed Nov. 12, 1970, Ser. No. 88,596
Claims priority, application Great Britain, Nov. 12, 1969, 55,482/69; Nov. 14, 1969, 55,969/69
Int. Cl. C22f 1/08, 1/14
U.S. Cl. 148—11.5 R 29 Claims

A method of making a heat-recoverable article in which an alloy comprising an intermetallic compound, which on cooling transforms into a banded martensite by shear with or without working, deformed after appropriate heat treatment so that on reheating it at least partly



resumes its original shape. It is preferred to use a copper-base alloy which transforms into a martensite of pseudo-cubic symmetry.

3,783,038

NITRIDED-OXIDIZED BORONIZED ARTICLES

Ray J. Van Thyne, Oak Lawn, and John J. Rausch, Antioch, Ill., assignors to Surface Technology Corporation, Stone Park, Ill.

No Drawing. Application Mar. 4, 1970, Ser. No. 15,594, now Patent No. 3,674,573, which is a continuation-in-part of application Ser. No. 755,662, Aug. 27, 1968, now Patent No. 3,549,429. Divided and this application Mar. 20, 1972, Ser. No. 236,060
Int. Cl. C22c 29/00; C23c 11/14
U.S. Cl. 148—31.5 1 Claim

Graded nitrided articles, surface modified in alloy composition wherein the surface zone consists of nitrided alloys consisting essentially of (a) one or more metals of the group columbium, tantalum, and vanadium; (b) zirconium and zirconium-titanium mixtures, and (c) one or both metals of the group molybdenum and tungsten. A minor portion of the nitrogen may be replaced by oxygen or boron. Nitrided materials prepared from homogeneous alloys are also included. The materials are characterized by excellent wear and abrasion resistance.

3,783,039

SURFACE DEPLETED NITRIDED MATERIALS

John J. Rausch, Antioch, and Ray J. Van Thyne, Oak Lawn, Ill., assignors to Surface Technology Corporation, Stone Park, Ill.

No Drawing. Application Mar. 4, 1970, Ser. No. 16,595, now Patent No. 3,674,574, which is a continuation-in-part of application Ser. No. 755,658, Aug. 27, 1968, now Patent No. 3,549,427. Divided and this application Mar. 20, 1972, Ser. No. 236,214
Int. Cl. C22c 29/00; C23c 11/14
U.S. Cl. 148—31.5 2 Claims

Graded nitrided articles, surface modified in alloy compositions wherein the surface zone consists of nitrided alloys consisting essentially of (A) one or more metals of the group columbium, tantalum, and vanadium; (B) titanium; and (C) one or both metals of the group molybdenum and tungsten. A minor portion of the nitrogen may be replaced by oxygen or boron. Nitrided materials prepared from homogeneous alloys are also included. The materials are characterized by excellent wear and abrasion resistance.

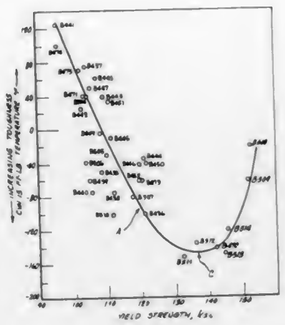
3,783,040
LOW CARBON HIGH STRENGTH STEEL

John B. Ballance, Bedford Heights, and Stephen J. Matas, Independence, Ohio, and Konrad J. A. Kundig, Ridgefield, N.J., assignors to Republic Steel Corporation, Cleveland, Ohio

Continuation of abandoned application Ser. No. 40,483, May 26, 1970. This application Aug. 16, 1972, Ser. No. 281,156

Int. Cl. C22c *39/20, 39/54*

U.S. Cl. 148—36 20 Claims



Low carbon steels having high strength, e.g. for structural plate, comprise molybdenum and/or boron as an ingredient coacting to avoid ferrite-pearlite transformation and a second ingredient, in economical amount, of elements from the class of manganese, nickel, chromium and copper coacting to raise the levels of both strength and toughness simultaneously while affording transformation in the bainite region, such transformation being thereby preferably initiated at a low temperature, so that upon cooling the product directly from a hot rolling operation, e.g. by air cooling, the steel transforms to a microstructure exhibiting a plate-like morphology and having yield strength of at least about 95 k.s.i. and good impact toughness. Need for heat treatment, such as in tempering after quenching, is obviated. Properties can be further enhanced by a minor amount of a third ingredient, for example columbium, which cooperates in attaining desired results.

3,783,041
METHOD OF PRODUCING SEMI-HARD MAGNETIC MATERIALS WITH A PLURALITY OF HEATING AND COOLING STEPS

Tadao Tokushima, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Continuation of abandoned application Ser. No. 845,140, July 28, 1969. This application Mar. 7, 1972, Ser. No. 232,453

Claims priority, application Japan, July 31, 1968, 43/53,644; Aug. 27, 1968, 43/61,347, 43/61,348

Int. Cl. C22b *19/00*

U.S. Cl. 148—121 12 Claims

A method of producing cheap, mass-producible, and machine workable semi-hard magnetic materials having good magnetic properties merely by casting and heat-treating without cold working, which comprises, after a solution treatment, a plurality of repetitive steps of heating and cooling an alloy containing a plurality of kinds of and required quantities of inexpensive components at temperatures below the Curie temperature, each of the heating temperatures in said steps being higher than the heating temperature of the preceding step. The main contents of the alloy are Fe, Mn, Cu and Ti.

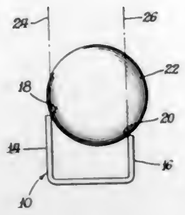
3,783,042
METHOD OF COOLING A SPHERICAL OBJECT

Walter Charles Troy, National City, Calif., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed July 31, 1972, Ser. No. 276,885

Int. Cl. C21d *9/36*

U.S. Cl. 148—153 4 Claims



A method of uniformly cooling a spherical object, such as a cast metal ball, by rolling it along a pair of spaced tracks having different heights, so that the axis of rotation constantly changes and heat is extracted uniformly from the outer surface.

3,783,043
TREATMENT OF HOT-ROLLED STEEL ROD

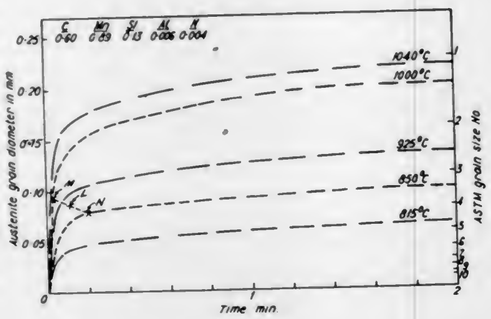
Francis Martin Almond, Rotherham, Edward Albert Shipley, Sprotborough, and Brian Wilfrid Cordon, Retford, England, assignors to The Templeborough Rolling Mills, Limited, Rotherham, Yorkshire, and British Ropes Limited, Doncaster, Yorkshire, England

Continuation-in-part of abandoned application Ser. No. 745,643, July 17, 1968. This application June 24, 1971, Ser. No. 156,223

Claims priority, application Great Britain, July 21, 1967, 33,712/67

Int. Cl. C21d *9/64, 9/52*

U.S. Cl. 148—156 11 Claims



In the treatment of rod travelling at highspeed from a rolling mill and formed into non-concentric overlapping loops on a conveyor, the rod is not positively cooled before it is formed into the overlapping rings, and is allowed to cool naturally on the conveyor until it is only a little above the austenite transformation temperature, so that the austenite grains can grow to maximum size. When it is on the conveyor the rod is cooled by air at a rate of at least 700° C. per minute through the temperature range of 750 to 500° C., with the overall result that the precipitation of grain-boundary ferrite is minimized and finer and more uniform pearlite is produced.

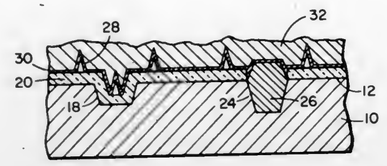
3,783,044
PHOTORESIST KEYS AND DEPTH INDICATOR

Eugene M. Cheskis, Scottsdale, and James B. Price, Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 9, 1971, Ser. No. 132,798

Int. Cl. H01l *7/50, 7/00, 5/00*

U.S. Cl. 148—175 3 Claims



A method is disclosed for providing means for orienting and positioning a photoresist mask on a semiconductor wafer and for indicating the depth of an epitaxial deposit. This means comprises filled holes called keys which are easily noted even though the surface of the wafer is carefully polished. Since the depth of the keys is less by a predetermined amount than the depth of the epitaxial deposit, presence of the keys after the polishing step indicates that the remaining depth of the deposit is great enough to make application of other process steps to the wafer advisable and the keys themselves are used for positioning and orienting such fixtures as masking devices on the surface of the wafer.

3,783,045
PROCESS FOR PRODUCING DISCRETE SEMICONDUCTOR DEVICES OR INTEGRATED CIRCUITS

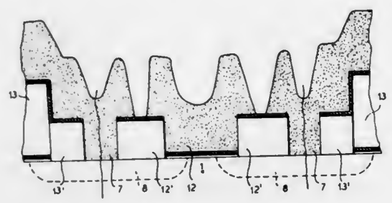
Giancarlo Ronzi, P.S. Eusebio 7, Agrate Brianza, Italy

Filed Nov. 9, 1970, Ser. No. 87,922

Claims priority, application Italy, Nov. 7, 1969, 53,937/69

Int. Cl. H01l *3/14, 7/32, 11/14*

U.S. Cl. 148—187 15 Claims



In a process for preparing semiconductor devices of the MOS type, the improvement wherein the number of maskings, as well as the number of operations to be carried out at high temperatures, is reduced with respect to the known processes, and wherein the oxidizing operations are alternated with depositions of silicon nitride in order to control the thickness of the gate oxidization and to protect the device against external agents. The devices obtained by the improved process are characterized in that they have a layer of silicon nitride over the thick oxide, at the same level of the layer of nitride over the gate.

3,783,046
METHOD OF MAKING A HIGH-SPEED SHALLOW JUNCTION SEMICONDUCTOR DEVICE

Charles Frank Myers, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation of abandoned application Ser. No. 813,105, Apr. 3, 1969. This application Apr. 22, 1971, Ser. No. 136,559

Int. Cl. H01l *7/34*

U.S. Cl. 148—187 11 Claims

A shallow junction, high-speed semiconductor structure and method for making same wherein a first or base region of one conductivity type is formed in a semiconductor body using photolithographic processes. Next, one or more oxide layers are vapor deposited at a relatively low temperature on the surface of the structure. An opening is then made in the vapor deposited oxide layers to permit the passage of an impurity therethrough and forms a second, opposite conductivity type emitter region within the first region. Next, a thin layer of oxide is thermally grown over the exposed portion of the base region and over the exposed surface of the vapor deposited oxide layers. Thereafter, one or more openings in the surface oxide are selectively made to permit the formation of electrical contacts to the transistor base region and to other like conductivity type regions in the semiconductor structure. Then, by controllably etching the thin thermally grown oxide layer covering the second or emitter region, the emitter region can be exposed for the purpose of making ohmic contact thereto. According to the present process, the thin layer of thermally grown oxide is "washed out" of the emitter region by controlled etching. Such controlled etching eliminates a critical masking step which otherwise would have been required to make a contact opening for the emitter region. Ohmic contacts can now be made to the base and emitter regions of the structure using conventional techniques such as the evaporation of aluminum. Since all oxide masking is removed after the formation of the base region, the final oxide masking on the surface of the structure is of one uniform thickness.

3,783,047
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE MANUFACTURED BY USING SUCH A METHOD

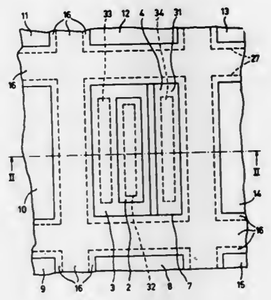
Maria Magdalena Mathilda Paffen, Johannes Arnoldus Appels, Wilhelmus Henricus Cornelis Gerardus Verkuijlen, and Else Kooi, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 1, 1972, Ser. No. 230,614

Claims priority, application Netherlands, Mar. 17, 1971, 7103548

Int. Cl. H01l *7/34*

U.S. Cl. 148—187 24 Claims



A method of manufacturing a semiconductor device. By using a double layer as a masking layer, the electric properties of two regions which are situated in the semi-

conductor body accurately relative to each other can be varied without an interim precision photomasking step.

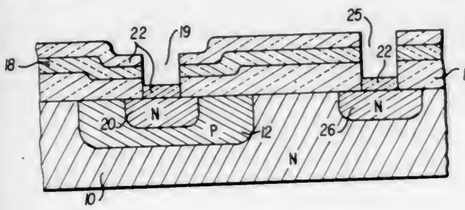
The invention provides very wide possibilities of application. For example, the first region can be doped with an impurity via an aperture in the masking layer, after which the lower component layer of the masking layer is underetched and an impurity is then introduced into the second region. It is also possible, after underetching the lower component layer, to oxidise the second region of the semiconductor body, as a result of which many important structures are obtained in a simple manner.

3,783,048

HIGH FREQUENCY TRANSISTOR FABRICATION

Thomas J. Sanders, Indialantic, Fla., assignor to Harris-Intertype Corporation

Filed Mar. 22, 1972, Ser. No. 236,809
Int. Cl. H01l 7/44
U.S. Cl. 148—187 **2 Claims**



In the fabrication of high frequency NPN transistors in integrated circuits, a doped oxide layer is formed on the surface of the wafer after diffusion of the base region and prior to opening the emitter diffusion window. Thereafter, removal of oxide regrown in the emitter diffusion window to form an emitter contact window, and simultaneous removal of other surface oxide concurrently grown therewith, leaves intact the doped oxide layer to prevent surface inversion.

3,783,049

METHOD OF PLATINUM DIFFUSION

Jiri Sandera, Manhattan Beach, Calif., assignor to TRW Inc., Lawndale, Calif.

Filed Mar. 31, 1971, Ser. No. 129,859
Int. Cl. H01l 7/34
U.S. Cl. 148—188 **15 Claims**

A method for providing a controlled degradation of minority carrier lifetime in a silicon semiconductor crystal body employing $H_2P_t\,[OH]_6$ as a source of platinum. One gram of $H_2P_t\,[OH]_6$ is dissolved in 130 cc. of anhydrous acetone. Approximately 0.05 cc. of this solution is placed on the surface of a silicon semiconductor crystal body. The solution is dried and the body is then heated to the platinum diffusion temperature for a time sufficient to have platinum atoms uniformly distributed throughout the active portion of the silicon crystal.

3,783,050

METHOD OF MAKING SEMICONDUCTOR DEVICE USING POLYCRYSTAL THIN FILM FOR IMPURITY DIFFUSION

Mitsuo Nanba, Kokubunji, Yukio Takano, Hoya, Hisayuki Higuchi, Kodairagakuen, and Michiyoshi Maki, Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 13, 1972, Ser. No. 234,011
Claims priority, application Japan, Mar. 12, 1971, 46/13,105
Int. Cl. H01l 7/34
U.S. Cl. 148—188 **20 Clams**

In a method of making semiconductor device there is formed an approximately 1μ thick P-conductivity type silicon polycrystal thin film layer having impurities P-conductivity type boron and electrically neutral IV group germanium in a specific region on an N-conductivity type silicon single crystal substrate, the specific resistance of which is 5 to 10Ω cm. A heat treatment is applied to the substrate at a high temperature, to thereby simultaneously diffuse the boron and germanium impurities contained in the thin film layer into the substrate, thus forming a P-conductivity type impurity diffusion region which causes little lattice strain. Then phosphorus and germanium are simultaneously diffused into the P-conductivity type impurity diffusion region, forming an N-conductivity type impurity diffusion region causing little lattice strain.

3,783,051

METHOD OF MAKING LIGHT EMITTING DIODE WITH GOOD BRIGHTNESS CHARACTERISTIC

Takao Shitaya, Nara, Toru Ishida, Katano, Osaka, and Hisanao Sato, Ibaraki, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 25, 1972, Ser. No. 247,270
Int. Cl. H01l 7/44
U.S. Cl. 148—189 **2 Claims**

A method of making a light emitting diode having good brightness of emitted light. A wafer of a single crystal of n-type solid solution of CdTe and MgTe including, as a dopant, 0.001 to 0.01 atomic percent of Al is heated in a vapor phase of P and Cd at a temperature of 670° to 850° C., for instance 670° to 790° C., for a time period of 15 minutes to 72 hours, for instance 15 minutes to 10 hours, for diffusing p into said n-type wafer so as to form a thin p-type layer.

3,783,052

PROCESS FOR MANUFACTURING INTEGRATED CIRCUITS ON AN ALUMINA SUBSTRATE

John A. Fisher, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 10, 1972, Ser. No. 305,401
Int. Cl. H01l 7/34
U.S. Cl. 148—191 **3 Claims**

There is disclosed a process for manufacturing integrated circuits, particularly complementary integrated circuits, in a semiconductor material which is deposited upon an insulating aluminum oxide substrate. The process includes the steps of covering the semiconductor material with a masking layer having windows therein and then heating the substrate in a hydrogen atmosphere. The heating step causes an up-diffusion of aluminum into the semiconductor body to form P-type regions underlying the areas exposed to the hydrogen atmosphere through the windows.

3,783,053

PROCESS FOR MANUFACTURING GAS-ENTRAINED AQUEOUS GEL EXPLOSIVE

Bert W. Oettmeier, Miami, Fla., and Samuel J. Porter, Arlington, Va., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

No Drawing. Filed Jan. 19, 1972, Ser. No. 219,115
Int. Cl. C06b 1/04
U.S. Cl. 149—41 **4 Claims**

A sensitive gas-entrained water gel explosive is made by mixing at a location convenient to the blasting site a concentrated aqueous solution of ammonium nitrate, nitric acid, sodium nitrate and hexamethylenetetramine and a minor amount of a thickening agent such as guar gum, allowing sufficient time for the gum to become hydrated and give the maximum thickening effect, then, mixing the resulting thickened solution with solid ammonium nitrate and a minor amount of a fuel to yield a thickened slurry, pumping the thickened slurry and injecting into

the exit stream from the pump both a substantial quantity of a gas and a solution which has the effect of cross-linking the thickening agent and conducting the resulting thickened slurry through a static mixer.

3,783,054

HIGH ENERGY BERYLLIUM ROCKET FUEL COMPOSITIONS AND PROCESSES THEREFOR

Everett M. Marlett and Robert N. Sanders, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Original application Oct. 24, 1967, Ser. No. 678,489. Divided and this application Apr. 10, 1969, Ser. No. 822,836
Int. Cl. C06d 5/08
U.S. Cl. 149—109 **5 Claims**

A composition useful as a high energy liquid rocket fuel or a chemical intermediate prepared by reacting beryllium hydride in dicyclopentadienyl beryllium.

3,783,055

PROPELLANT CONTAINING CONJUGATED DIENE POLYMERS REACTED WITH AT LEAST 10% OF ALIPHATIC MERCAPTAN

William B. Reynolds, Excelsior, Minn., and John E. Mahan, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed June 20, 1960, Ser. No. 37,516
Int. Cl. C06d 5/06
U.S. Cl. 149—19.9 **17 Claims**

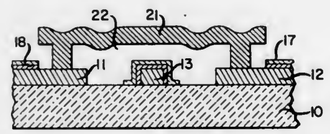
1. An improved solid propellant comprising inorganic oxidizing salt and binder which is predominantly a cured rubbery polymer containing a major amount of combined conjugated diene having 4 to 12 carbon atoms, said polymer before curing having at least 10 percent of its double bonds reacted with aliphatic mercaptan of from 1 to 16 carbon atoms.

3,783,056

TECHNIQUE FOR THE FABRICATION OF AN AIR ISOLATED CROSSOVER

Harry Nevin Keller, Center Valley, and Arnold Pfahnl, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 20, 1972, Ser. No. 264,618
Int. Cl. C23f 1/02
U.S. Cl. 156—3 **3 Claims**



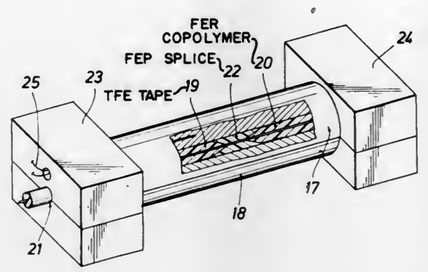
A technique is described for the fabrication of an air isolated crossover including a supplementary insulating layer which is compatible with the crossover process and the thin film conductor system utilized in its fabrication. The supplementary insulating layer comprises silicon dioxide and is deposited during the processing sequence by conventional evaporation or other deposition techniques. The resultant double dielectric permits free movement of beams during temperature cycling, avoids edge deposition problems due to shadowing on sharp edges of the dielectric and makes pinholes in the dielectric innocuous.

3,783,057

WIRE INSULATION SPLICING TECHNIQUE FOR HIGH TEMPERATURE WELL LOGGING CABLE

Richard P. McNerney, Houston, Tex., assignor to Schlumber Technology Corporation, New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,233
Int. Cl. H02g 15/08
U.S. Cl. 156—49 **4 Claims**



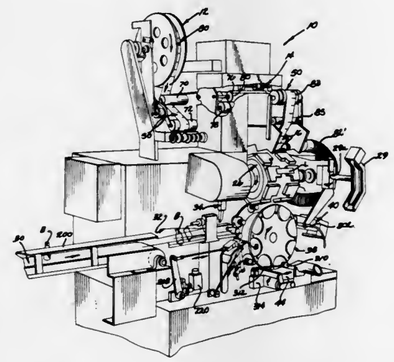
Well logging cables substantially longer than 10,000 feet and operable in logging wells with bottom hole temperatures up to 600° F. are made feasible through a technique of splicing TFE fluorocarbon insulating material to FEP fluorocarbon insulating material using heat and pressure.

3,783,058

METHOD OF APPLYING LABELS AND CHECKING THE SAME

William H. Solomon, John R. Davies, and Carrel M. Forward, Grand Rapids, Mich., assignors to Oliver Machinery Company, Grand Rapids, Mich.

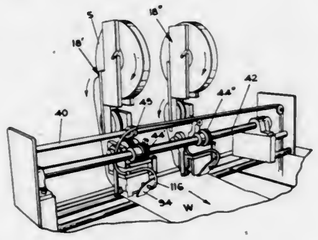
Original application Dec. 20, 1967, Ser. No. 692,194, now Patent No. 3,586,570. Divided and this application Aug. 12, 1970, Ser. No. 63,201
Int. Cl. B65c 9/42
U.S. Cl. 156—64 **4 Claims**



A labeling machine, system, and method capable of accommodating offset printed label tapes or other label tapes having discontinuities between the individual labels of a repeat print pattern, with feeding and severing such in controlled fashion utilizing a printed indicia code and a two stage feeding and cutting cycle, while uniquely

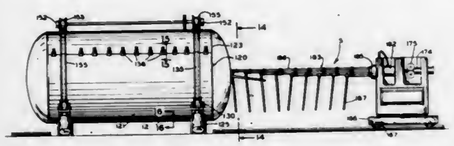
securing and advancing articles or containers to be labeled with novel equipment, both in a manner to allow extremely accurate and dependable label application and subsequent label verification on the article as well as label position checking, and with discharge means positively governing discharge of the labeled articles according to acceptability or non-acceptability.

3,783,059
PRINTING PRESS AND WEB REGISTRY SYSTEM
James A. Black, 13700 Sparta NW., Kent City, Mich. 49330, and Harry Russell Farwell, 129 Ann St., Cedar Springs, Mich. 49319
Original application July 2, 1970, Ser. No. 51,852. Divided and this application Mar. 20, 1972, Ser. No. 235,938
Int. Cl. B65c *9/08*
U.S. Cl. 156—64 **10 Claims**



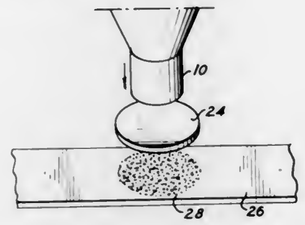
A method of advancing web stock through positions of registry in a continuous web printing press. A series of tabs applied to the continuous web at spaced intervals each have a rearwardly oriented edge portion to which an advancing force is applied to move the web into a registry position at a printing station.

3,783,060
METHOD AND APPARATUS FOR MAKING FILAMENT REINFORCED STORAGE VESSELS
William B. Goldsworthy, Palos Verdes Estates, and Ethridge E. Hardesty, Pine Valley, Calif., assignors to Goldsworthy Engineering, Inc., Torrance, Calif.
Original application July 27, 1970, Ser. No. 58,482, now Patent No. 3,692,601. Divided and this application Sept. 14, 1971, Ser. No. 180,369
Int. Cl. B32b *5/26, 31/16*
U.S. Cl. 156—69 **25 Claims**



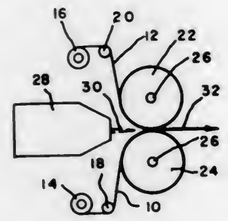
A fiberglass reinforced storage tank formed by constructing a filament reinforced cylindrical side wall and enclosing the transverse ends with a pair of end domes. The end domes are prefabricated in a circular mold of proper contour and size. A solvent dispersed mold release agent is sprayed into the mold over the entire mold surface. Glass filaments are then laid along with a spray of catalyzed binder resin in the rotating heated mold, beginning at the center and extending to the outer periphery thereof to form the resin cured rigid end domes. The annular cylindrical side wall is formed by applying fiberglass resin to the interior surface of a rotating cylindrical mold in the presence of a catalyzed binder resin with the formed end domes secured to the transverse ends of the mold during side wall formation. A particulate matter such as sand may be added to the composition. The mold is divided into longitudinal arcuate sections which are capable of separating for removal of a finally formed storage tank.

3,783,061
METHOD OF SONIC WELDING OF PLASTICS
Granville J. Hahn, Big Spring, Tex., assignor to Cosden Oil & Chemical Company, Big Spring, Tex.
Filed Mar. 24, 1970, Ser. No. 22,209
Int. Cl. B32b *31/20*
U.S. Cl. 156—73 **10 Claims**



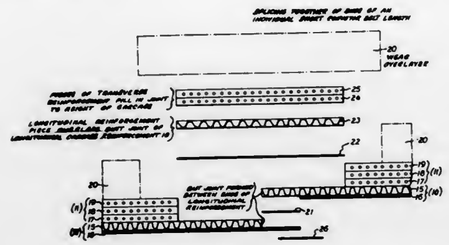
Plastic bodies are welded by using particles of thermoplastic material, melting at or about the plastic parts to be welded, distributed between the plastic surfaces to be welded, and then welding by applying ultrasonic vibrations impressed on one of the plastic bodies near the joint to be welded through a sound transferring resonating metal section termed a horn, which transfers intense ultrasonic vibrations to the plastic workpiece near the joint to be welded, the sound energy causing the particles to melt in the joint, bonding the surfaces together upon setting to form a firm weld.

3,783,062
METHOD FOR FLAME BONDING BY USE OF HIGH VELOCITY, HIGH TEMPERATURE DIRECT FLAME
Wilhelm N. Martin, Grand'Mère, Quebec, Canada, assignor to Consolidated-Bathurst Limited, Montreal, Quebec, Canada
Filed Jan. 27, 1972, Ser. No. 221,167
Int. Cl. B32b *31/26, 31/12*
U.S. Cl. 156—82 **9 Claims**



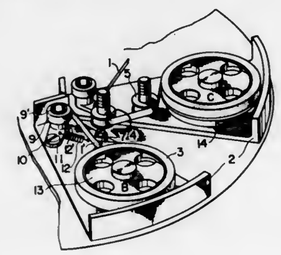
A method and apparatus for obtaining rapid bonding of thermoplastic materials to themselves or other similar or different materials by the use of a high velocity, high temperature direct flame in combination with pressure. The method is sufficiently rapid so that the properties of the materials are not substantially detrimentally affected. Thin laminates of highly oriented materials can be bonded without loss of strength characteristics.

3,783,063
METHODS OF MANUFACTURING ENDLESS CONVEYOR BELTS
Sven-Olle Paul Olsson, Trelleborg, Sweden, assignor to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden
Filed Apr. 15, 1971, Ser. No. 134,293
Claims priority, application Sweden, Apr. 16, 1970, 5,204/70
Int. Cl. B29h *7/22;* **F16g** *1/26*
U.S. Cl. 156—137 **3 Claims**



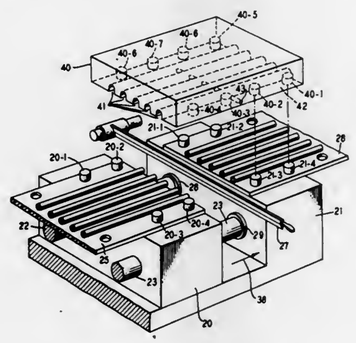
Thick endless conveyor belts having a carcass with at least one longitudinally and several transversely tension-reinforcing plies are manufactured in long lengths and cut and spliced to short endless belts. A special carcass-building and splicing method is described. The longitudinal tension-reinforcement is made as a continuous length and the transverse tension-reinforcement is made as discontinuous lengths spaced apart along the longitudinal tension-reinforcement. Removable spacers are placed in the spaces during vulcanization. The carcass is cut off in the space between consecutive transverse tension-reinforcement lengths. In splicing a piece of longitudinally tension-reinforcing ply is placed in the space in overlapping relationship on the ends of the longitudinal tension-reinforcement forming a butt joint with each other. While omitting at least one transversely tension-reinforcing ply the remaining height portion of the space is filled out with transversely tension-reinforcing plies.

3,783,064
METHOD AND APPARATUS FOR AUTOMATICALLY CONNECTING TAPES
Kei Okubo, Neyagawa, Katuyuki Yamamoto, Osaka, and Osamu Murayama, Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 7, 1971, Ser. No. 205,551
Claims priority, application Japan, Dec. 9, 1970, 45/109,824, 45/109,825; Dec. 25, 1970, 45/130,071
Int. Cl. G03d *15/04*
U.S. Cl. 156—159 **3 Claims**
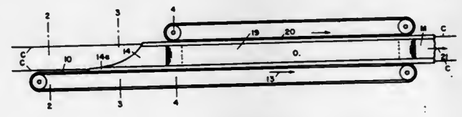


In supplying an adhesive tape from one after another of a plurality of tape reels, a method of and an apparatus for automatically connecting the trailing end of the tape of a preceding tape reel with the leading end of the tape of a successive tape reel in a positive manner with no slackness, and particularly a continuous tape supplying apparatus comprising a stack of tape magazines each having the leading end portion of the tape drawn out from the tape reel, and a turntable for successively individually positioning said tape magazines in a tape supplying position.

3,783,065
METHOD FOR SPLICING LIQUID-CORE OPTICAL FIBERS
Julian Stone, Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 12, 1972, Ser. No. 262,088
Int. Cl. B65h *69/02, 69/06*
U.S. Cl. 156—158 **4 Claims**



Groups of liquid-core optical fibers are spliced together by means including a grooved cover plate wherein the grooves are connected together by means of a common manifold. Pairs of fibers on the two fiber group segments to be spliced are mounted on the splacing apparatus in approximate longitudinal alignment and spaced apart a distance preferably less than a core diameter. The grooved cover plate is then positioned over the adjacent fiber ends and bonded thereto. This serves to align the fibers more accurately and to seal the space between them. Some of the gas trapped between the fibers is then withdrawn through the manifold and replaced by additional core fluid. The manifold is then sealed, completing the splice.

3,783,066
REINFORCED STRUCTURAL MEMBER OF FIBER GLASS AND METHOD OF MAKING THE SAME
Robert E. Myers, 18506 Prince William Lane, Houston, Tex. 77058
Filed Sept. 29, 1971, Ser. No. 184,802
Int. Cl. B32b *1/00*
U.S. Cl. 156—161 **2 Claims**



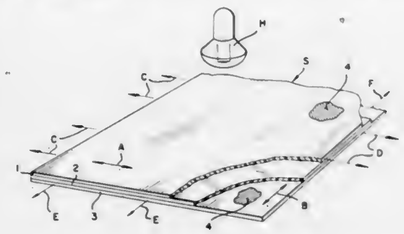
Multiple layers of fiber glass cloth wetted with plastic resin are moved by a conveyor belt along shaping planes so that the cloth layers are shaped into a desired cross-section of the structural member being formed. Simultaneously, pre-tensioned reinforcing cords are passed lon-

gitudinally above the conveyor belt so that they become embedded between the cloth layers and are bonded within the structural member when the resin is cured.

3,783,067
COMPOSITE SYNTHETIC-RESIN SHEET MATERIAL

Aristovoulos G. Petzetakis, Thessaloniki and Chandri Sts., Moschaton, Piraeus, Greece

Filed July 1, 1970, Ser. No. 51,554
Claims priority, application Greece, July 3, 1969, 40,473
Int. Cl. B32b *31/06, 31/08, 31/16*
U.S. Cl. 156—163 **2 Claims**

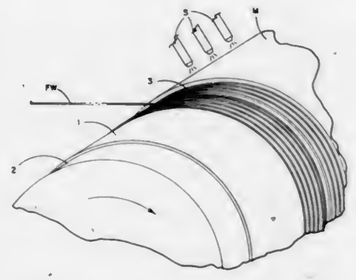


A method of making a sheet material which comprises sandwiching a molecularly unoriented synthetic-resin sheet having a relatively low molecular-disorientation temperature between a pair of uniaxially oriented synthetic-resin sheets having relatively high molecular-disorientation temperatures, arranging the orientation direction of one of the uniaxially-oriented sheets to lie at an angle (generally transversely) to the orientation direction of the other uniaxially-oriented sheet, and heating the laminated assembly to a temperature sufficient to fuse the nonoriented sheet to the molecularly oriented sheets, but below the molecular-disorientation temperature of the oriented sheets.

3,783,068
METHOD OF FORMING FUSIBLE REINFORCED POLYMER FILMS AND RESULTING COMPOSITE STRUCTURE

Gary G. Brown, Diamond Bar, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.

Filed Mar. 12, 1970, Ser. No. 19,081
Int. Cl. B65h *81/00*
U.S. Cl. 156—173 **16 Claims**

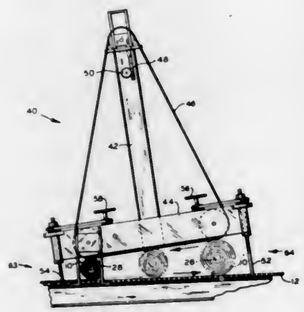


A method of forming polyamide films reinforced with reinforcing filaments, comprising providing a thin fusible, non-porous film of the polyamide on a filament winding drum, wrapping reinforcing filaments thereon, coating the filaments with additional polyamide resin, staging the material to a tack-free condition, then removing it from the winding drum and applying heat to remove the volatiles from the film. Stacked layers of the film can then be subjected to temperatures and pressures sufficient to fuse and cure the layers into an integrated structure.

3,783,069
METHOD AND APPARATUS FOR PRODUCING FIBROUS TUBULAR ARTICLES

Rupert Douglas Terry, Toledo, Ohio, assignor to Johns-Manville Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 41,018, May 27, 1970. This application Mar. 3, 1972, Ser. No. 231,759
Int. Cl. B65h *81/02*
U.S. Cl. 156—184 **24 Claims**

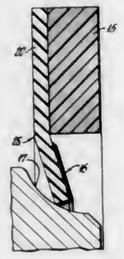


Method and apparatus for producing tubular articles formed of fibrous material wherein a moving mat of fibrous material is wrapped about a mandrel rotating about an axis moving along the path of the mat. The mat is then wrapped around the mandrel until a desired quantity of fibrous material is achieved. Thereafter, the mat and mandrel are conveyed to a sizing station where the outer diameter and configuration of the tubular article are finally set.

3,783,070
METHOD OF MAKING A BEARING SEAL

John F. Zotter, Southington, Conn., assignor to Textron Inc., Providence, R.I.

Original application Nov. 7, 1969, Ser. No. 874,927, now Patent No. 3,580,590. Divided and this application Nov. 25, 1970, Ser. No. 92,704
Int. Cl. B31f *3/00;* **B32b** *31/00*
U.S. Cl. 156—211 **4 Claims**



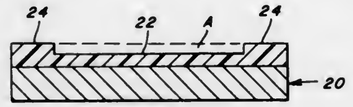
The invention contemplates a laminated seal construction and method utilizing a flat annular sheet of flexible material, such as elastomeric material, laminated to a backing material, which at an axially thick portion defines

a body, and which at an axially thin portion defines a seal member to be axially resiliently deflected with respect to the body. The method of the invention calls for removing backing material after the laminating step, the removed material affording a remainder which meets all requirements as to concentricity, circumferential uniformity of action, and the like. The material-removing step may be so characterized as to provide a local region for axial flexure, radially spaced from the region of wiping contact with the bearing ring to which it is sealingly engaged.

3,783,071
HEAT-SEALABLE COATED METAL PACKAGE AND METHOD OF MAKING SAME

Frank E. Monks, Bettendorf, Iowa, assignor to Aluminum Company of America, Pittsburgh, Pa.

Continuation of abandoned application Ser. No. 863,431, Oct. 3, 1969. This application Jan. 7, 1972, Ser. No. 216,232
Int. Cl. B05c *1/16;* **B29d** *23/10*
U.S. Cl. 156—217 **17 Claims**



A method of manufacturing a package which comprises: coating substantially all of one surface of a metal web of foil or sheet thickness with a homogeneous coating of a heat sealable thermoplastic material having a lubricant constituent; applying said coating material in uniform thickness to at least one first elongated zone of the metal web; simultaneously applying the coating material in a uniform thickness greater than the coating thickness in the first elongated zone to at least one elongated zone disposed adjacent opposed transverse sides of the first zone; applying the coating by means of a gravure roll; providing a coating thickness in the second zone of about 0.75 to 4.0 lb./ream and providing a coating thickness in the first zone of about 0.30 to 2.0 lb./ream; and forming a package employing said coated metal web as a body component by heat sealing at least a portion of said second zone to a portion of said metal web or to another package component.

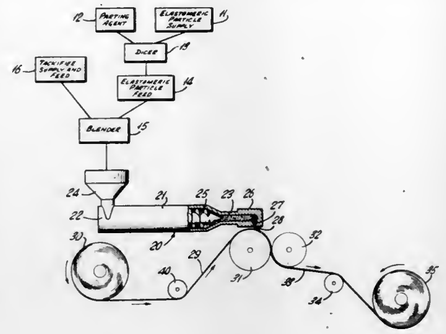
A coated container body comprising a metal web provided with such a two level coating; a first elongated zone of uniform coating thickness spaced inwardly from opposed transverse edges of the metal web; a second elongated zone of uniform coating thickness positioned intermediate each transverse edge of the metal web and the first elongated zone; the first zone having a width substantially greater than the second zone; and said metal web having at least one said second zone heat sealed to another portion of said metal web or to a separate package component to form said container body.

3,783,072
EXTRUSION PROCESS FOR PRESSURE-SENSITIVE ADHESIVE SHEETS AND TAPES

Ralf Korpman, Somerville, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Nov. 2, 1971, Ser. No. 195,016
Int. Cl. B29b *3/00*
U.S. Cl. 156—244 **10 Claims**

The process for producing normally tacky and pressure-sensitive adhesive sheets and tapes by extruding an adhesive based upon a particular type of A-B-A block copolymer wherein the adhesive is extruded at a moderate temperature and at a controlled viscosity and then hot drawn to reduce its thickness substantially, i.e., as much as 20 or more times prior to laminating it with a backing sheet. In the block copoymer, A is a thermoplastic polymer block derived from styrene and B is an elastomeric polymer block derived from isoprene. Preferably,

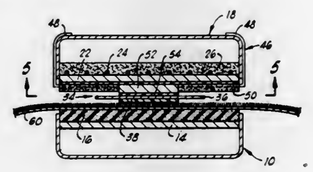


the block copolymer is particulate, and is blended with a tackifier resin in particle form prior to extrusion under conditions which allow the particle size of the respective components to be controlled.

3,783,073
METHOD FOR TRANSFERRING INDICIA TO FABRICS

Archie E. Warnberg, 3600 NW. 43rd St., Oklahoma City, Okla. 73112

Filed May 19, 1971, Ser. No. 144,856
Int. Cl. B44c *1/16*
U.S. Cl. 156—230 **5 Claims**



A method of decalcomania or indicia transfer to fabrics comprising the steps of placing the fabric to which the indicium is to be transferred upon a supporting surface, placing a transfer sheet carrying the indicium to be transferred on said fabric at the location where the indicium is to be transferred to the fabric, surrounding the edges of the indicium with a coplanar located thermal insulating material and applying heat and pressure to the indicium and to the coplanar thermal insulating material to transfer the indicium to the fabric at the point desired, while protecting the remainder of the fabric from heat degradation.

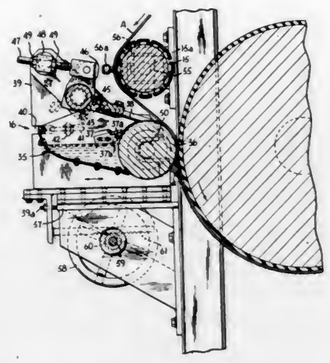
3,783,074
METHOD OF BONDING USING STRINGS OF ADHESIVE

John Reginald Normanton, Hale, England, assignor to The Duplan Corporation, Winston-Salem, N.C.

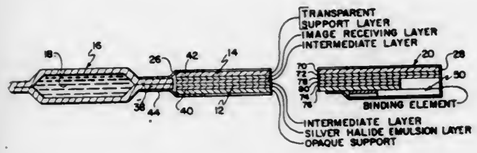
Continuation of abandoned application Ser. No. 700,147, Jan. 24, 1968. This application Feb. 16, 1971, Ser. No. 115,821
Claims priority, application Great Britain, Nov. 2, 1967, 49,760/67
Int. Cl. B32b *5/00, 7/12;* **C09j** *5/00*
U.S. Cl. 156—291 **5 Claims**

A method of producing a laminated product, for example, a fabric, in which one web of a fabric in properly

stretched and wrinkle-free condition is brought into engagement with an adhesive roll carrying a small metered amount of adhesive, a stringing effect is produced as the fabric leaves the surface of the adhesive roll, creating a definable adhesive structure on the fabric, the fabric is transferred to a rotating roll which maintains the fabric in properly stretched, wrinkle-free condition, leaving exposed a substantial area of the adhesive for removal of solvent and release of vapors, the web is brought into pressure contact with another fabric web to which it is to be laminated, and then the laminate is carried around and held against a drum for further removal of the solvent and to keep the fabric webs pressed together for a period of time after lamination.

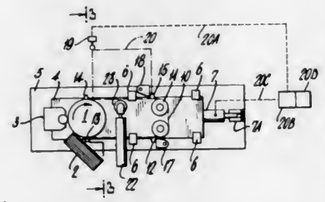


3,783,075
METHOD OF MANUFACTURING PHOTOGRAPHIC FILM UNIT
Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Application Mar. 6, 1969, Ser. No. 804,942, now Patent No. 3,652,282, which is a continuation-in-part of application Ser. No. 782,056, Dec. 9, 1968, now Patent No. 3,573,043, dated Mar. 30, 1971, which in turn is a continuation-in-part of application Ser. No. 622,283, Mar. 10, 1967, now Patent No. 3,415,644, dated Dec. 10, 1968. Divided and this application Dec. 23, 1971, Ser. No. 211,176
Int. Cl. B32b *7/00;* **C09j** *5/00;* **G03c** *1/48*
U.S. Cl. 156—309 **8 Claims**



Method of producing a photographic film unit adapted to be exposed and processed to produce a color image, comprising laminating first and second sheets in face-to-face relation and attaching a rupturable container of a processing liquid to the exterior of the sheets for dispensing its liquid contents between the sheets. The film unit is adapted to be processed by progressively applying compressive pressure to the container and sheets to spread the processing liquid between the sheets with delamination and lamination occurring during and by virtue of spreading of the processing liquid. The sheets are formed by coating at least one of a pair of layers with at least a plurality of layers including a water-soluble, polymeric layer containing a plurality of photosensitive, image-recording strata, e.g., differently sensitized gelatino silver halide emulsions. The other sheet includes a dimensionally stable layer which may be coated with one or more processing solution soluble or permeable, polymeric layers such as a dyeable polymer. Each of the layers of the film unit is preferably coated on its respective dimensionally stable layer or support as an aqueous system and dried prior to lamination of the two sheets with the polymeric layers sandwiched therebetween. The two sheets are laminated to one another by progressively pressing the sheets into superposition while distributing an aqueous solution of a water-soluble polymeric material between the sheets to form a bond that is adapted to rupture readily and cleanly by and in response to spreading of the processing liquid and is weaker than the bond between any other layers or strata of the film unit.

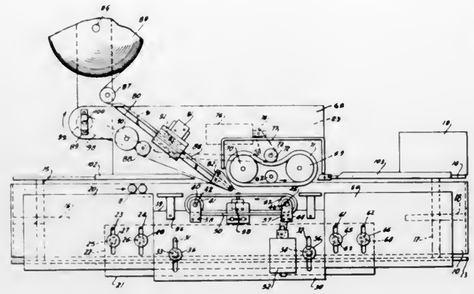
3,783,076
DEVICE FOR APPLYING LABELS ON PLANE SURFACES
Rudolf Wetzig, Leipzig, Germany, assignor to Ingenieurburo fur Rationalisierung der Suss- und Dauerbackwarenindustrie, Leipzig, Germany
Filed Jan. 10, 1972, Ser. No. 216,577
Claims priority, application Germany, July 16, 1971, P 21 35 603.6
Int. Cl. B65h *29/00;* **B65c** *9/12*
U.S. Cl. 156—364 **7 Claims**



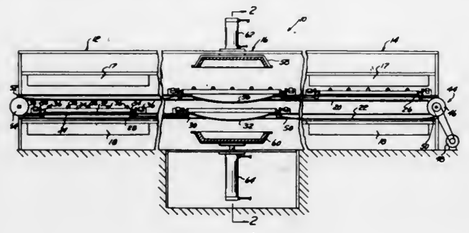
A unit of label supplying, label gluing and glued label applying devices is mounted on a base plate which is slidable along the path of the cartons or other units to be labelled. The label applying device is a drum having coaxially therewith, a sprocket which engages a chain displaceable along the slidable base plate. A fixed base plate, parallel to the slidable one, has stationary stop means mounted thereon and inter-engageable with movable stop means, secured to the chain. Upon the arrival of a carton, a signal first causes the slidable base plate, with the equipment thereon, to move along the carton; after completion of this motion it causes the slidable base plate to return to a prior position. During the first motion a label is supplied by the label supplying part of the unit; during the return motion the label is applied to the carton, on a plane surface thereof.

3,783,077
LABEL APPLICATOR
Edwin E. Messmer, 203 Leonard Young St., Oradell, N.J. 07649
Filed Dec. 27, 1971, Ser. No. 211,927
Int. Cl. B65c *3/12*
U.S. Cl. 156—446 **14 Claims**

Apparatus for applying pressure-sensitive labels to containers wherein each container is moved by a conveyor belt into engagement with a pair of timing belts and a microswitch. The microswitch actuates label feeding means and as a result, a label is advanced into the path of the moving container. While the label is being advanced, the timing belts slide the container and the label against a labeling belt which moves at the same speed as the label. The section of the labeling belt into which the container is urged is substantially parallel to a section of the timing belts. In addition, the space between the labeling belt and the timing belts is slightly less than the diameter of the container and the belts move in opposite directions. Thus, the belts engage and frictionally rotate the container while the normal component of the frictional force fixes the label to the container. The speeds of the conveyor belt, timing belts, and labeling belt are all independently adjustable.

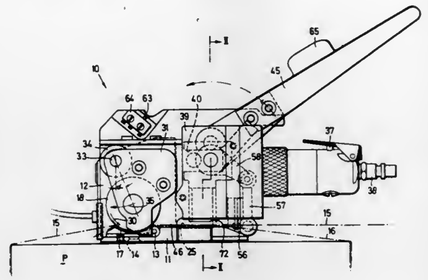


3,783,078
METHOD AND APPARATUS FOR FORMING HOLLOW PLASTIC ARTICLES
Albert S. Brodhead, Ann Arbor, Mich., assignor to Thetford Corporation, Ann Arbor, Mich.
Filed Oct. 20, 1971, Ser. No. 190,971
Int. Cl. B32b *31/20*
U.S. Cl. 156—499 **7 Claims**



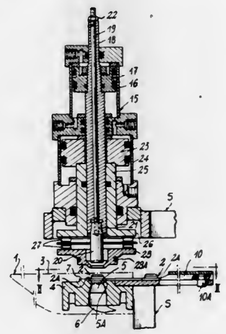
A method and apparatus for vacuum forming hollow plastic articles from heat-fusible sheets of organic plastic materials. A pair of open frames are mounted on rails for transfer in close parallel relationship, each frame having clamps for holding at each end thereof a sheet of plastic material. Ovens into which the rails extend are located in spaced relation, and midway between the ovens is a forming station through which the rails pass and wherein sectional molds are provided which can close on two parallel sheets supported by the open frames. The frames are arranged so that two sheets, one in each oven, can be heated simultaneously while two other sheets are being formed at the same time in the sectional molds. Transfer means shuttle the frames between the ovens and the forming station.

3,783,079
APPARATUS FOR SECURING TOGETHER STRAPS MADE OF THERMOPLASTIC MATERIAL
Hubert Wehr, Surth, in der Aue, Germany, assignor to Cyklop Gesellschaft Emil Hoffmann, Cyklopstrabe, Germany
Filed Dec. 9, 1971, Ser. No. 206,327
Claims priority, application West Germany, Jan. 19, 1971, P 21 02 344.9
Int. Cl. G03d *15/04*
U.S. Cl. 156—502 **10 Claims**



Apparatus for binding together thermoplastic strap portions by rotating a lever which actuates means for interposing the end of a continuous strip of wire screening between the strap portions. The end is severed from the strip when the press means, also actuated by the lever, forces the strap portions together. When severed, the screening is wedged between two electrodes in the press means and completes an electrical circuit which is activated by the lever contacting a timing device at the end of its stroke. The electrical current heats the screening which fuses the thermoplastic strap portions together.

3,783,080
APPARATUS FOR SECURING VALVES ON FLEXIBLE BAGS AND FLAT SHEETS CONVERTIBLE INTO BAGS
Luigi Goglio, Via Solari 10, Milan, Italy
Filed Dec. 1, 1971, Ser. No. 203,759
Int. Cl. B32b *31/00*
U.S. Cl. 156—514 **5 Claims**



An apparatus for securing valves on bags or thermoweldable flat sheets convertible into hermetically sealable flexible bags, comprising, as substantially concentrically arranged and controlled by independent driving means, a punch to provide a hole in the bag or sheet for valve positioning, and a welding member which, after

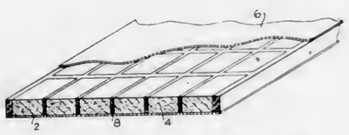
a hole has been provided in the bag or sheet and a valve has been fed at said hole, causes a thermowelding of the valve about the periphery of said hole.

3,783,081
ORNAMENTAL ELEMENT
Eliezer Levy, Bay Shore, N.Y., assignor to Filigree Arts Inc., New York, N.Y.
Original application July 24, 1969, Ser. No. 844,518, now Patent No. 3,667,098. Divided and this application June 2, 1971, Ser. No. 149,329
Int. Cl. A44c *11/00, 25/00;* **B21f** *43/00*
U.S. Cl. 161—7 **4 Claims**



An ornamental element for use as a decorative addition to jewelry comprises a strip of material having a plurality of parts integrally formed from the material, each of the parts having a surface exposed at the periphery of the strip. The surface of each part is characterized by a first portion of a given configuration and a second portion of different configuration. The second portions of the parts are randomly positioned about the axis of the integral strip to effect an irregular but attractive profile.

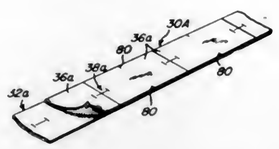
3,783,082
PANELS AND METHOD OF MAKING SAME
Ehud Almog, 13 Yegia Kapaim St., Ramat Hasharon, Israel
Filed Mar. 31, 1971, Ser. No. 129,682
Int. Cl. B32b *3/12, 5/18, 7/00*
U.S. Cl. 161—37 **5 Claims**



A panel comprises a pair of facing layers of sheet material forming the opposite outer faces of the panel, spaced blocks of insulating material between the facing layers, and ribs of rigid polyurethane foam in the spaces between the blocks of insulating material and bonding the facing layers together. The panel is produced by placing the insulating blocks on one facing layer with the blocks spaced from each other, placing the second facing layer thereover, and then injecting the rigid plastic foam into the spaces between the blocks (the blocks serving as molds) to form the ribs bonding the facing layers together.

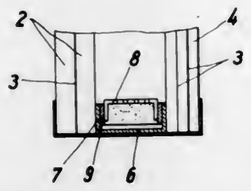
3,783,083
COMPOSITE WEB OF PRESSURE SENSITIVE LABELS
William A. Jenkins, Englewood, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Continuation-in-part of abandoned application Ser. No. 155,740, June 23, 1971. This application Dec. 8, 1971, Ser. No. 206,061
Int. Cl. B32b *3/10, 31/18, 3/16*
U.S. Cl. 161—38 **40 Claims**

There are disclosed various embodiments of a composite web of pressure sensitive labels, method and apparatus for making such embodiments of the composite web, and method and apparatus by which a composite web of



labels is advanced and by which labels are successively printed and applied to merchandise.

3,783,084
SOUND SUPPRESSING DOUBLE-GLAZED PANE
Rudolf Quenett, Cadolzburg, Germany, assignor to Flachglas Aktiengesellschaft Delog-Detag, Furth, Bavaria, Germany
Filed July 26, 1971, Ser. No. 165,474
Claims priority, application Germany, July 15, 1970, P 20 34 998.8
Int. Cl. B32b *1/04, 3/02*
U.S. Cl. 161—45 **7 Claims**



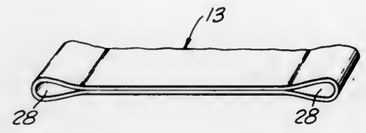
A sound suppressing double-glazed pane comprises two glazing sheets which are spaced apart and connected to each other at their edge by a sealing section. At least one of the glazing sheets is of laminated construction and comprises a plurality of individual glass sheets each joined to the adjacent individual sheet or sheets by an intermediate lamina of visco-elastic material, the total thickness or structure of the visco-elastic laminae being sufficient to provide a high degree of internal damping in the laminated glazing sheet. The laminated glazing sheet may comprise two individual sheets joined by a single lamina of polyvinyl butyral or three or more individual sheets joined together by two or more laminae of polyvinyl butyral. In each case the two or more polyvinyl butyral films of the usual thickness of 0.38 mm. are used to provide the desired thickness of polyvinyl butyral in the laminated glazing sheet.

3,783,085
PROTECTIVE MATERIALS
William Michael Pearson, Halifax, and Anthony Pearson, Bradford, England, assignors to Bondina Limited, Halifax, England
No Drawing. Original application Jan. 6, 1969, Ser. No. 789,406, now Patent No. 3,674,593. Divided and this application July 9, 1971, Ser. No. 161,313
Claims priority, application Great Britain, Jan. 19, 1968, 3,099/68
Int. Cl. A62b *17/00;* **A41d** *13/00;* **B32b** *5/16*
U.S. Cl. 161—87 **1 Claim**

A protective material, suitable for making up into protective garments, is formed by interposing powdered activated charcoal and powdered thermoplastic adhesive between two substrates and heat-sealing the assembly together. A microfine thermoplastic powder may be

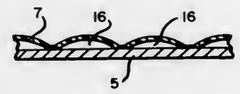
interposed, and this has the effect of counteracting undesirable effects due to any dust which may be present in the charcoal.

3,783,086
FLATTENED HEAT REACTIVE TUBING WITH EXPANDED PASSAGE
Walter A. Plummer, 3546 Crownridge Drive, Sherman Oaks, Calif. 91403
Original application May 13, 1969, Ser. No. 824,102, now abandoned. Divided and this application Sept. 1, 1971, Ser. No. 176,950
Int. Cl. B32b *1/00, 3/02, 3/20*
U.S. Cl. 161—126 **6 Claims**



A heat reactive length of plastic tubing having a bulged opening through the end thereof to facilitate entry of an object into the tube to expand the tubing and facilitate the assembly thereof over an object.

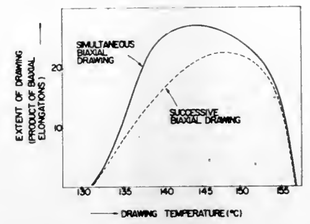
3,783,087
FINISHED METAL SHEET WITH REMOVABLE PROTECTIVE COVERING
Frank Vecchiarelli, Riveredge, N.J., assignor to Revere Copper and Brass, Incorporated, New York, N.Y.
Filed June 30, 1971, Ser. No. 158,153
Int. Cl. B32b *3/00*
U.S. Cl. 161—127 **1 Claim**



The finished surface of a metal sheet is protected with a removable film of thermoplastic material bonded to the finished surface along a grid-like pattern of lines that form hermetic seals for a plurality of discreate gas pockets between the finished metal surface and the film. The product is formed by preheating the metal to bonding temperature, by then bringing a discreate film of thermoplastic material into contact with the finished surface, and by pressing the film against the heated metal surface with a resilient pattern of ridges to form the aforesaid pattern of seal lines.

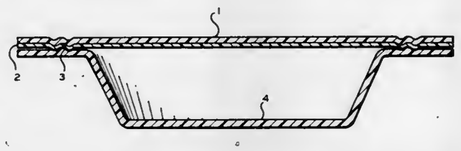
3,783,088
SYNTHETIC PAPER
Mitsuo Yoshiyasu and Takashi Toyoda, Yokkaichi, Japan, assignors to Kabushiki Kaisha Oji Goseishi Kenkyujo, Tokyo-to, Japan
Filed May 28, 1971, Ser. No. 147,910
Claims priority, application Japan, June 2, 1970, 45/46,933; Aug. 21, 1970, 45/73,216
Int. Cl. B32b *3/26, 19/02*
U.S. Cl. 161—160 **3 Claims**

A synthetic-resin film containing from 0.3 to 30 percent by volume of a fine filler is biaxially drawn substantially simultaneously in longitudinal and transverse directions to be expanded at least 5 times in area with a ratio of elongations in the two biaxial directions of from 1:0.25 to 1:4 thereby to form within the film numerous microvoids of a percentage of voids or porosity of at least 10



percent, the ratio of the dimensions of each microvoid in the two biaxial directions being the same as the ratio of elongations therein.

3,783,089
HEAT SEALED, READILY PEELABLE OR TEARABLE STRUCTURE SUITABLE FOR CLOSURES, LABELS, PACKAGING, ETC.
Alan R. Hurst, Hinsdale, Ill., and Salustiano S. Mirasol, Kansas City, Mo., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Continuation of abandoned application Ser. No. 816,506, Apr. 16, 1969. This application July 28, 1971, Ser. No. 166,981
Int. Cl. B32b *27/08, 27/32;* **B65d** *65/40*
U.S. Cl. 161—166 **16 Claims**



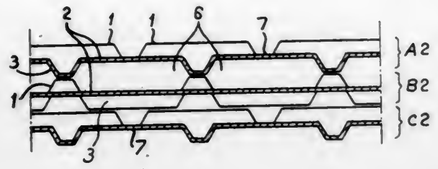
A container or tray, preferably flanged, is closed with a composite peelable closure sheet heat sealed thereto. The embodiment described will remain sealed when subjected to ranges of temperatures of from about —40° to about 212° F. Yet, the closure remains readily removable.

The container can be made and is now preferred to be made of a high density polyethylene or a material of which at least the surface, which is heat sealed, is made of such a polyethylene. The closure sheet or composite can be made and is now preferred to be of a polyamide or other relatively high melting material, e.g., a polyester. Presently a nylon, e.g., nylon-6 resin onto which is coated, for the heat sealing thereof to the tray or container, a film of a low density polyethylene, is preferred. The adhesion is obtained or a container is closed hermetically by placing the composite sheet upon the portion, e.g., flange of the container at which it is to sealingly engage the same. The low density polyethylene side of the composite sheet is in contact with the container and the heat seal then engendered. A particular type of combination of materials used permits the film to pull cleanly from the container, leaving the flange or other sealed surface thereof neat and in a particular case, retaining the low density polyethylene which produced the seal as a just noticeably bead-like line on the flange when a line-seal has been employed.

The container can be a high density coated paperboard container such as a milk container or a blister package, etc. Also the combination of materials can be used to label goods.

The useful combination of materials to fashion tear strips, labels, etc. is also disclosed.

3,783,090
HEAT EXCHANGER PLATES
Jarl Anders Andersson and Nils Hagert Gote Stadmark, Lund, Sweden, assignors to Alfa-Laval AB, Tumba, Sweden
Filed Feb. 16, 1972, Ser. No. 226,693
Claims priority, application Sweden, Feb. 19, 1971, 2,132/71
Int. Cl. F28f *3/00*
U.S. Cl. 161—166 **12 Claims**



The heat exchanger plates include at least one plate having on one face of its heat transferring part a first group of ridges extending in parallel spaced relation to each other and pressed upward from the plane of the plate, this face also having a first group of grooves extending in parallel spaced relation to each other at an angle to the ridges and depressed from said plane; and the other face has second groups of ridges and grooves formed by the grooves and ridges, respectively, of the first groups. Each of these faces has its ridges substantially abutting an opposing plate so as to define therewith a set of channels between its ridges, each channel extending across a plurality of the grooves in such face. The two sets of channels provide a low resistance to flow of the respective heat exchanging media, while the ridges provide effective spacing means for preventing deformation of opposing plates under the pressure difference between such media.

3,783,091
POLYSULPHONE REINFORCED SILICON ELASTOMER SEAL
Victor Jeffrey Leslie, Potters Bar, and Maurice Bernard Leggett, Claverdon, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed May 8, 1972, Ser. No. 251,465
Claims priority, application Great Britain, May 14, 1971, 14,874/71
Int. Cl. B32b *9/04*
U.S. Cl. 161—168 **3 Claims**

A reinforced seal is provided in which a silicone elastomer as hereinafter defined is formed on a rigid reinforcement containing at least one aromatic polysulphone.

3,783,092
CEMENT COMPOSITIONS CONTAINING GLASS FIBRES
Amalendu Jyoti Majumdar, Watford, England, assignor to National Research Development Corporation, London, England
No Drawing. Continuation-in-part of applications Ser. No. 649,463, June 28, 1967, Ser. No. 748,645, July 30, 1968, and Ser. No. 31,184, Mar. 26, 1970, all now abandoned. This application Mar. 23, 1971, Ser. No. 127,361
Claims priority, application Great Britain, Apr. 3, 1969, 17,448/69
Int. Cl. B32b *5/02*; **C04b** *31/06*
U.S. Cl. 161—170 **17 Claims**

Fibre reinforced cementitious products are described comprising glass fibrous material distributed throughout a cement matrix, in which the glass is one having per se a degree of alkali resistance such that when tested in the form of an abraded fibre of length 2½ inches and diameter of from 0.4 to 1.0×10^{-3} inches said fibre has a tensile strength of at least 100,000 p.s.i. after treatment with saturated aqueous $Ca(OH)_2$ solution at 100° C. for 4 hours followed by successive washings at ambient temperature with water, then with aqueous hydrochloric acid (1%) for 1 minute, water, acetone, following by drying, said fibre experiencing not more than 10% reduction in diameter during said test.

The reinforcement of portland cement structures by fibres of diameter 0.4 to 1.0×10^{-3} and lengths of up to 4 inches is described.

Alkali resistant glasses useful for production of these products comprise the $CaO\text{-}MgO\text{-}Al_2O_3\text{-}SiO_2$ glasses including those in the anorthite field, silica zirconia glasses, and silica stannic oxide glasses.

The products have outstanding durability and impact resistance.

3,783,093
FIBROUS POLYETHYLENE MATERIALS
Lawrence Vincent Gallacher, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Continuation-in-part of abandoned application Ser. No. 820,761, May 1, 1969. This application May 17, 1971, Ser. No. 144,410
Int. Cl. B32b *3/26, 5/08*
U.S. Cl. 161—170 **6 Claims**

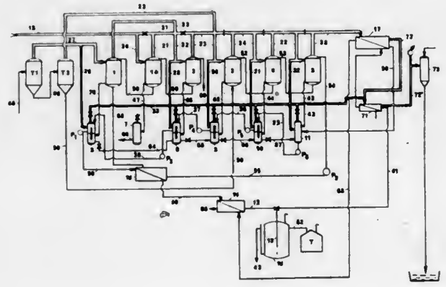


An extensively fibrillated thermoplastic resin material and method for preparing the same is given whereby a solid particulate thermoplastic resin which is insoluble in a selected leaching solvent is mixed and fibrillated under heat and pressure with another thermoplastic resin which is soluble in the selected leaching solvent. Following fibrillation, the resin mixture is subsequently contacted with the selected leaching solvent to remove the soluble resin thereby leaving an extensively fibrillated thermoplastic resin product which may be used as a synthetic fabric, and in other industrial applications.

3,783,094
ARTICLES PRODUCED BY CENTRIFUGAL CASTING
Wilhelm Baum, Mainz-Mombach, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Original application Sept. 16, 1969, Ser. No. 858,267, now Patent No. 3,650,782, dated Mar. 21, 1972. Divided and this application Nov. 2, 1971, Ser. No. 196,816
Int. Cl. B32b *17/06*
U.S. Cl. 161—196 **3 Claims**

Glass for producing articles by centrifugal casting composed essentially of 60% SiO_2, 18% B_2O_3, 7% MgO, 6% Li_2O, 4% Al_2O_3, 3% BaO, 1% CaO and 1% K_2O, within tolerances of about ±2%, all of the percentages being by weight; and article formed by helium-tight, stress-free fusion of the glass with an Fe-Ni-Cd alloy.

3,783,095
PROCESS FOR RECOVERING TURPENTINE AND HEAT IN CONNECTION WITH THE EVAPORATION OF BLACK LYE
Daniel Jafs, Helsinki, and Tapani Marttala, Varkaus, Finland, Kai Christiansen, Karlstad, Sweden, and Bertel Hakulin, Lahderanta, Finland, assignors to A. Osakeyhtio Ahlstrom, Noormarkku, Finland
Filed Feb. 18, 1972, Ser. No. 227,435
Claims priority, application Finland, Feb. 19, 1971, 474/71
Int. Cl. D21c *11/10*
U.S. Cl. 162—16 **6 Claims**

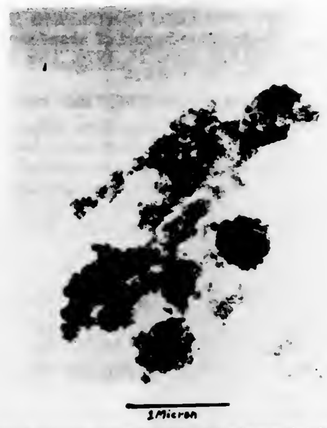


Turpentine and heat is recovered in connection with the evaporation of black lye emerging from a continuously working cellulose digester under high pressure and at high temperature. In a first step the black lye is concentrated in two successive expansion tanks and is thereupon fed into a multiphase evaporation apparatus operated by indirect heat exchange and fed with additional heat. The lye vapors from the first expansion tank are conducted to the first evaporation phase and the lye vapors from the second expansion tank to an evaporation phase succeeding the second evaporation phase, whereupon the condensate is collected at least from those evaporation phases to which the lye vapors from the expansion tanks have been fed and finally turpentine is recovered from these condensates in known manner. The lye condensates coming from the first and third evaporation phases may advantageously be combined before recovering turpentine therefrom.

3,783,096
METHOD OF MAKING PAPER USING A PIGMENT COMPRISING CALCIUM SULFATE PARTICLES EMBEDDED IN SILICA GEL PARTICLES
Roy D. Perdue, Andover, Mass., and Morris I. Cohn, deceased, late of Brookline, Mass., by Elliot E. Rosenberg, executor, Newtonville, Mass.; said Perdue assignor to Mica Trust, Boston, Mass.
Continuation of application Ser. No. 18,366, Mar. 12, 1970, now Patent No. 3,642,511, which is a continuation of abandoned application Ser. No. 766,453, Oct. 10, 1968. This application Jan. 14, 1971, Ser. No. 106,359
Int. Cl. D21h *3/66*
U.S. Cl. 162—181 A **6 Claims**

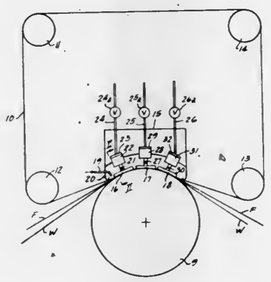
The use, as a filler or extender in paper making stock, of a pigment consisting essentially of particulate, water insoluble agglomerates of fine calcium sulfate particles embedded in finely divided silica gel particles, combined with recirculating to the process substantially all (approximately 95%) of the white water to provide a closed

Electron photomicrograph of product of example



circuit white water system without substantial loss in sizing or deterioration of sheet strength and with excellent retention and opacity.

3,783,097
HYDRODYNAMICALLY LOADED WEB PRESS WITH SLIPPER BEARING SHOES
Edgar J. Justus, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed May 30, 1972, Ser. No. 258,103
Int. Cl. D21f *3/06*
U.S. Cl. 162—358 **10 Claims**



A press mechanism for removing liquid from a traveling fibrous web such as a web of paper received from the fourdrinier section of a paper machine including a backing roll and a looped traveling belt forming a press nip with the roll with a plurality of shaped shoes extending the length of the roll and pressing the belt toward the nip with said shoes having a concave curved surface facing the belt and being pivotally supported so that a wedge of lubricating fluid builds up between each of the shoes and the belt to lubricate the shoes and to press the belt toward the nip. Means are provided for individually controlling the force with which the shoes are pressed toward the belt.

3,783,098

HIGHLY POTENT, VIABLE AND STABLE CELL-FREE VIRUS PREPARATIONS FROM CELLS INFECTED WITH CELL-ASSOCIATED VIRUSES AND METHOD FOR OBTAINING THE SAME

Bruce W. Calnek and Stephen B. Hitchner, Ithaca, N.Y., assignors to Cornell Research Foundation Inc., Ithaca, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 92,920, Nov. 25, 1970. This application Aug. 10, 1971, Ser. No. 170,616

Int. Cl. C12k *1/08, 7/00*

U.S. Cl. 195—1.1 29 Claims

Viable, stable, cell-free virus suspensions having a high titer are obtained from cells infected with cell-associated virus by extracting the virus in the presence of a stabilizing agent. The viruses so produced may be lyophilized to form a viable storage-stable virus useful as a vaccine.

3,783,099

XANTHOPHYLLIC EXTRACTION PROCESS

Ralph F. Matoushek, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Nov. 8, 1971, Ser. No. 196,766

Int. Cl. C12b *1/00*

U.S. Cl. 195—2 4 Claims

A process for the extraction of xanthophyllic pigments from plants is provided which includes the hydrolysis of the plant cellulosic material with a cellulase enzyme.

3,783,100

NON-RETROGRADED THINNED HYDROLYZATES

Roy F. Larson, Decatur, and Almerin W. Turner, Hampshire, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

Filed June 30, 1971, Ser. No. 158,475

Int. Cl. C12b *1/00*

U.S. Cl. 195—31 R 29 Claims

Thinned hydrolyzates are prepared by initially hydrolyzing a partial hydrolyzate of a D.E. less than 2.0 with alpha-amylase at 200° C.–212° F. and continuing the hydrolysis thereof at 185°–200° F. under non-retrograding process conditions. The alpha amylase requirements necessary to provide the thinned hydrolyzates are significantly reduced by the process. The resultant thinned hydrolyzates exhibit improved saccharification properties and rapid filtration characteristics.

3,783,101

ENZYMES BOUND TO CARRIERS HAVING A METAL OXIDE SURFACE LAYER

William H. Tomb, Corning, and Howard H. Weetall, Elmira, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Feb. 17, 1972, Ser. No. 227,205

Int. Cl. C07g *7/02*

U.S. Cl. 195—63 10 Claims

The half-life of enzymes which have been immobilized by chemical coupling via silane coupling agents to inorganic carriers is increased significantly by using a carrier which has been treated to increase its water-durability. Treatment of the carrier comprises the steps of first coating the carrier with a solution containing a metal, the oxide of which is more water-durable than the carrier, and then firing the coated carrier to form a continuous metal oxide layer on the carrier surface. The treated carriers are then silanized for chemical coupling with enzymes.

3,783,102

PRODUCTION OF L-ASPARAGINASE

Donald Sidney Callow, Brian John Capel, and Charles Gervase Thorngate Evans, Salisbury, England, assignors to Secretary of State for Social Services in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,924

Claims priority, application Great Britain, Nov. 13, 1970, 54,277/70

Int. Cl. C12d *13/10*

U.S. Cl. 195—66 A 14 Claims

The enzyme L-asparaginase, which is therapeutically active against certain types of leukemia and disseminated cancers, may be produced in high yield by growing bacteria of the genus Erwinia in continuous culture in a limited steady state concentration of certain Krebs cycle intermediates and their precursors.

3,783,103

THROMBIN ASSAY SYSTEM

Robert C. Bishop, San Gabriel, and Edward Shanbrom, Santa Ana, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Continuation of abandoned application Ser. No. 764,627, Oct. 2, 1968. This application Feb. 23, 1973, Ser. No. 335,382

Int. Cl. G01n *13/00, 31/14, 33/16*

U.S. Cl. 195—99 5 Claims

Thrombin activity in blood plasma is quantitatively determined by measuring the diameter of the opaque radial diffusion zone produced by the reaction of the blood plasma with unclotted fibrinogen suspended in a stable gel medium.

3,783,104

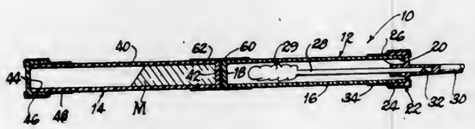
TESTING AND CULTURING TRANSPORT SYSTEM AND METHOD OF MAKING SAME

Jack R. Henshilwood, Highland, Ind., and Francois J. Soiret, Madison, Ill., assignors to Wilson Pharmaceutical & Chemical Corporation

Filed Nov. 12, 1971, Ser. No. 198,155

Int. Cl. C12b *1/00*

U.S. Cl. 195—104 10 Claims



A swabbing and culturing assembly having a pair of coaxial, releasably connected tubes connected to each other at their closed ends, as by adhesive or a shrink band or the like. One tube is closed by a cap mounting a swab. The other tube contains a culturing substance and is closed by a cap. The swab mounting cap is adapted to sealingly close each open end so that after the swab has collected a specimen, the swab may be sealed into the culture tube. The adhesive bond and shrink band are easily severable so that the tubes may be separated, to make the culture tube more compact for shipment to a laboratory. The tubes may be individually made and sterilized appropriately, as by gas or heat, after which the tubes are assembled in a closely adjacent end-to-end relation.

3,783,105

APPARATUS FOR ASSAYING ENZYME ACTIVITY

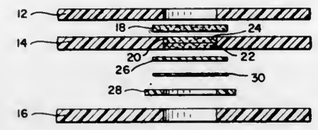
Rudolph H. Moyer, West Covina, and Donald J. Sibbett, Cucamonga, Calif., assignor to Geomet, Incorporated, Rockville, Md.

Filed Jan. 27, 1971, Ser. No. 110,185

The portion of the term of the patent subsequent to May 16, 1989, has been disclaimed

Int. Cl. G01n *31/14*

U.S. Cl. 195—127 11 Claims



Improved method and apparatus for quantitating the activities of a wide selection of enzymes present in biological fluids, using a spot test technique. The test ultilizes enzyme standards freeze-dryed on transparent membranes assembled together with but separated from reagents, including substrates, dyes, and cofactors, which are freeze-dryed in absorbent pads. The assembly may utilize microporous membranes as filters to assist in processing whole blood samples. As assembled, the spot test plates or slides are completely self-sufficient, require no added controls, instrumentation, or liquid volume measurement. The tests may be utilized under any environmental conditions such as those requiring rapid diagnostic support under emergency conditions, or routinely by medical practitioners in offices, hospitals or clinics. Test plates may assist in the diagnosis of a wide spectrum of pathological conditions relating to malfunctions of the liver, spleen, heart, neurological system, lungs, kidneys, muscle tissue, bones, etc.

3,783,106

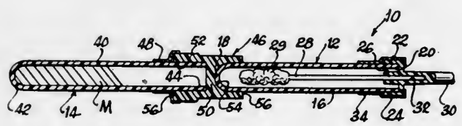
TESTING AND CULTURING TRANSPORT SYSTEM

Jack R. Henshilwood, Highland, Ind., assignor to Wilson Pharmaceutical & Chemical Corporation

Filed May 15, 1972, Ser. No. 253,353

Int. Cl. C12k *1/10*

U.S. Cl. 195—139 4 Claims



A testing and culturing transport system having coaxial first and second elongate tubes each defining a closed end and an open end, the closed end of the first tube and the open end of said second tube being in a closely adjacent end-to-end relation. The first tube mounts a cap bearing a swab and sealingly closes the first open end and the second tube contains a culture medium. Releasable securing means secures the tubes together and comprises a molded elongate plastic member defining a pair of coaxial bores each of which terminates inwardly of the plastic member in a solid wall. One of the bores is proportioned to receive and retain the closed end of said first tube and the second of the bores is proportioned sealingly to close the open end of the said second tube.

3,783,107

WATER DEPLETION UNIT FOR FUEL CELLS

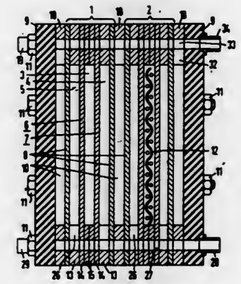
Hans Kohlmuller, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 27, 1971, Ser. No. 147,316

Claims priority, application Germany, May 29, 1970, P 20 26 219.5

Int. Cl. B01d *3/42, 13/00;* H01m *27/00*

U.S. Cl. 202—160 9 Claims



A filter-press type water depletion unit for removing reaction water from the electrolyte cycle of a fuel cell battery forms a depletion cell having at least one gas space and an electrolyte space. The depletion unit has a coolable structure bordering the gas space and a diaphragm member separates the gas space from the electrolyte space, the diaphragm member having a rim portion that is gas-tight and impervious to electrolyte. The rim portion has a thickness greater than the remaining portion of the diaphragm. A holding arrangement presses the rim portion at its lateral surfaces for sealing the gas space and the electrolyte space and the rim portion is provided with respective passages communicating with the gas space and the electrolyte space.

3,783,108

METHOD AND APPARATUS FOR DISTILLING FRESHWATER FROM SEAWATER

Esko Ensio Huhta Koivisto, Lumikintie 6A77, Helsinki 82, Finland, and Risto Väino Juhani Saari, Luomo, Harjula, Finland

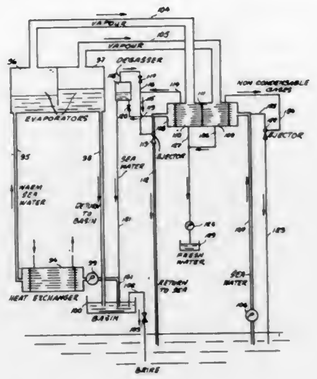
Continuation-in-part of application Ser. No. 873,174, Nov. 3, 1969. This application Jan. 18, 1971, Ser. No. 107,060

Int. Cl. B01d *3/06*

U.S. Cl. 203—11 11 Claims

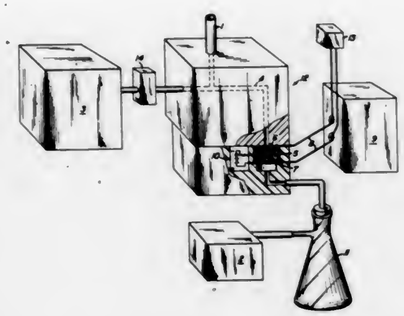
A continuous flow of warm seawater—for instance, water from the surface—is fed upwards from a supply of the warm water through a column to degassers positioned at different levels. The warm water is fed from the lowest to the highest degasser, in which gradually decreasing partial pressures, that are higher than the partial pressures of the warm water are established. The non-condensable gasses released in the degassers are removed and the warm water is raised further through the

column to evaporators through which the warm water is passed in turn. In the evaporators, gradually decreasing pressures corresponding to the gradually decreasing partial pressure of the water vapor in them are maintained. The waste water from the last evaporator is returned to the sea downwards through another column and the



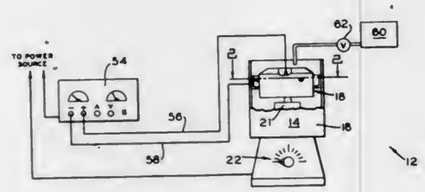
vapors from each evaporator are conducted separately to a corresponding condenser operated by indirect heat exchange, using a continuous stream of cold seawater obtained from the sea. Residual non-condensable gasses released on the vaporization of the warm water are removed from the condensers and the freshwater is collected from the condensers.

3,783,109
AIR POLLUTION MONITORING METHOD
Louis H. Goodson, Kansas City, and William B. Jacobs, Independence, Mo., and Andrew W. Davis, Baltimore, Md., assignors to the United States of America as represented by the Secretary of the Army
Original application Dec. 22, 1970, Ser. No. 100,741, now Patent No. 3,715,298, dated Feb. 6, 1973. Divided and this application Mar. 24, 1972, Ser. No. 237,665
Int. Cl. G01n *27/46*
U.S. Cl. 204—1 T **3 Claims**



A method for continuous monitoring of an airstream for the presence of pollutants therein by effective absorption of the pollutants in an absorbing solution by creating turbulent flow of the airstream and the absorbing solution prior to passing the absorbing solution containing the pollutants to an electrochemical cell whereby any electrical change produced in the electrodes of the electrochemical cell denotes the presence of pollutants; any electrical change being monitored by conventional means.

3,783,110
PROCESS FOR ELECTRODEPOSITION OF METALS UNDER THE INFLUENCE OF A CENTRIFUGAL FORCE FIELD
Iqbal Ahmad, Elnora, N.Y., assignor to the United States of America as represented by the Secretary of the Army
Continuation-in-part of application Ser. No. 149,366, June 2, 1971, which is a continuation of application Ser. No. 792,683, Jan. 21, 1969, both now abandoned. This application Dec. 20, 1972, Ser. No. 316,950
Int. Cl. C23b *7/02, 7/04*
U.S. Cl. 204—12 **4 Claims**



This invention relates to the electrodeposition of metals and alloys and provides process and apparatus for depositing metals under the influence of a centrifugal force field to increase the efficiency of the operation and produce metal deposits having a high density and modulus of elasticity.

3,783,111
GOLD PLATING BATH FOR BARREL PLATING OPERATIONS
Maurice Bick, South Orange, and Jean A. Lochet, Metuchen, N.J., assignors to Auric Corporation, Newark, N.J.
No Drawing. Continuation-in-part of application Ser. No. 273,860, July 21, 1972. This application Sept. 11, 1972, Ser. No. 288,020
The portion of the term of the patent subsequent to Dec. 26, 1989, has been disclaimed
Int. Cl. C23b *5/28*
U.S. Cl. 204—46 **14 Claims**

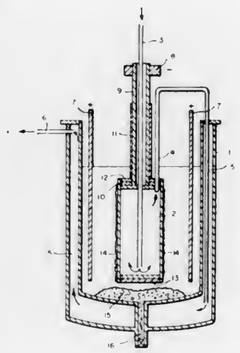
An electroplating bath particularly suited for barrel plating operations. The bath includes in addition to an alkali-gold cyanide, a soluble salt of one or more chelating aminopolycarboxylic acids, with quantities of hydrazine, and small amounts of arsenic and/or lead ion.

3,783,112
MANUFACTURE OF SEBACIC ACID DIESTERS
Fritz Beck, Ludwigshafen, Juergen Haufe, Lambsheim, and Heinz Nohe, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed May 10, 1971, Ser. No. 142,043
Claims priority, application Germany, May 12, 1970, P 20 23 080.2
Int. Cl. C07b *29/06;* **C07c** *67/00, 69/50*
U.S. Cl. 204—59 R **7 Claims**

Process for the production of sebacic acid diesters from adipic acid monoesters of higher alcohols by electrochemical condensation in methanolic solution using continuous

or intermittent flow of current, in which a saturated mono- or polyvalent ether or a lower alkanoic acid is added to the reaction mixture.

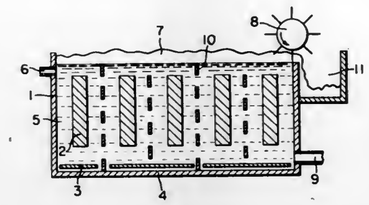
3,783,113
ELECTROLYTIC REGENERATION OF SPENT ETCHANT
Emerson H. Newton, Arlington, John M. Ketteringham, Lincoln, John L. Sienczyk, Arlington, and Calvin M. Isaacson, Beverly, Mass., assignors to The Shipley Company, Inc., Newton, Mass.
Filed Oct. 12, 1971, Ser. No. 188,189
Int. Cl. C22d *1/16;* **C23b** *3/02*
U.S. Cl. 204—106 **29 Claims**



The invention relates to a process for extracting copper as metal from a used etchant solution containing complexed cupric ions as an oxidant while simultaneously regenerating the etchant for further use. The etchant treated may have a pH from below 0 to 13, but preferably has a pH of at least 3 and more preferably has a pH between about 4 and 10. The process comprises electrowinning a portion of the copper from solution under conditions effective for electrowinning but not etching. These conditions include a substantial freedom from oxygen in the vicinity of the cathode, high current density, a substantial freedom from solution agitation during the winning operation and preferably for good efficiency, low solution temperature at the interface of the solution and the cathode, typically below 140 F. The process is economical because in the preferred embodiment, a portion only of the copper in solution is removed, the remaining copper being left in solution and available as a source of cupric ion for reuse of the etchant. The process is an important contribution to pollution abatement efforts as it eliminates the need for dumping copper and other wastes resulting from an etching operation.

3,783,114
METHOD OF ELECTROLYTIC TREATMENT OF WASTE WATER
Masahito Ishii and Minoru Ichiki, Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Chuo-ku, Tokyo, Japan
Filed Feb. 18, 1972, Ser. No. 227,594
Claims priority, application Japan, Feb. 23, 1971, 46/8,856
Int. Cl. C02c *5/12*
U.S. Cl. 204—149 **7 Claims**

A method of electrolytic treatment of industrial waste water, which comprises the steps: electrolysis is conducted by introducing said industrial waste water as the electrolyte into an electrolytic cell equipped with vertically suspended anodes and horizontal cathodes disposed close to the bottom of the cell; the scum arising from the electrolysis of the heavy metal ions, fats and oils including animal, vegetable and mineral oils, various fine, solid

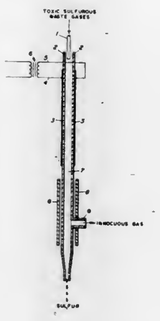


floating matters, etc. is taken out from the upper part of the electrolytic cell; and the electrolytically purified waste water is taken out from the lower part of the electrolytic cell.

3,783,115
PROCESS FOR THE RADIATION TREATMENT OF POLYETHYLENE
Gisela Zeppenfeld, Dresden, Germany, assignor to Ve Textilkombinat Cottbus, Cottbus, Germany
No Drawing. Filed July 23, 1971, Ser. No. 165,738
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.2 **4 Claims**

Process for preparing cross-linked polyethylene fiber materials by means of high energy radiation comprising irradiating a polyethylene sheet material with a high dose rate, preferably $\geq 10^4$ rad/s. under an inert gas cushion or in vacuum, with a radiation dose of between 5 and 20 mrad, preferably between 6 and 10 mrad and thereafter tempering the irradiated sheet material in a heating zone under an inert gas cushion or in vacuum at a temperature under the crystallite melting point and preferably at a temperature of between 80 and 120° C.

3,783,116
DECOMPOSITION OF CARBONYL SULFIDE (COS) IN ELECTRIC CHARGE
Larry A. Haas, Burnsville, and Sanaa E. Khalafalla, Minneapolis, Minn., assignors to the United States of America as represented by the Secretary of the Interior
Filed Jan. 26, 1973, Ser. No. 326,646
Int. Cl. B01d *53/34;* **C01b** *17/04, 31/18*
U.S. Cl. 204—164 **7 Claims**

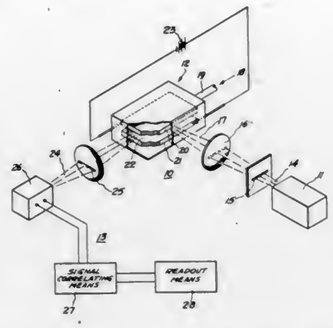


COS is passed through an electrical discharge gap to decompose into CO and S.

3,783,117
MEASUREMENTS OF PARTICLES AND MOLECULES

Charles P. Bean, Schenectady, N.Y., assignor to General Electric Company

Original application Oct. 19, 1970, Ser. No. 81,824, now Patent No. 3,708,402. Divided and this application Oct. 20, 1972, Ser. No. 299,368
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 R 3 Claims



Particles to be measured and analyzed are placed in solution in a light transmissive cell. A shaped, flat beam is passed into the cell. Particles are urged through the beam and their passage causes time variations in the intensity of light scattered thereby. The scattered light is collected and transformed into an electrical signal. Signal is correlated with itself as a time varying function and the electrophoretic mobility of the particles is determined.

3,783,118
METHOD FOR THE ELECTROPHORETIC SEPARATION OF SUBSTANCE MIXTURES

Vilhelm Einar Stellan Hjertén, Uppsala, Sweden, assignor to Pharmacia Fine Chemicals AB, Uppsala, Sweden

No Drawing. Filed Dec. 4, 1972, Ser. No. 312,243
Claims priority, application Sweden, Dec. 13, 1971, 15,933/71
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 G 1 Claim

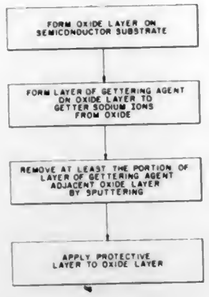
The present invention relates to a method for the separation of substances in a mixture and more particularly, it is concerned with a method for the separation of substances in a mixture, in which the mixture is caused to pass through a gel body under the influence of an electric force field to divide the constituents of the mixture into different zones within the gel body, whereafter the gel body is divided into pieces, each containing one of said zones, and the piece or pieces of gel are solubilized by decomposition and caused to form a solution together with one or more separated constituents.

3,783,119
METHOD FOR PASSIVATING SEMICONDUCTOR MATERIAL AND FIELD EFFECT TRANSISTOR FORMED THEREBY

Lawrence V. Gregor, Hopewell Junction, and Leon I. Maissel, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 18, 1969, Ser. No. 834,412
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 9 Claims

A gettering layer of phosphorus pentoxide (P_2O) or lead oxide (PbO) is deposited on a thermally grown or pyrolytically deposited layer of silicon dioxide to form a glass to getter the sodium ions from the silicon dioxide layer. The gettering agent is then removed by sputter etching and a protective material such as silicon nitride,

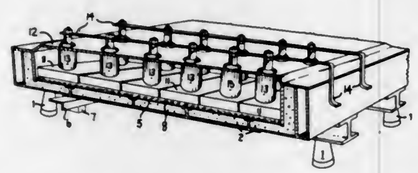


for example, is then deposited on the silicon dioxide by sputtering in a manner to avoid any contamination of the silicon dioxide after the gettering agent has been removed.

3,783,120
MERCURY CATHODE ELECTROLYTIC CELLS

James G. Peck, Jr., Lake Charles, La., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Original application Mar. 9, 1970, Ser. No. 17,505, now Patent No. 3,691,036. Divided and this application Oct. 21, 1971, Ser. No. 191,265
Int. Cl. C22d *1/04*
U.S. Cl. 204—219 3 Claims

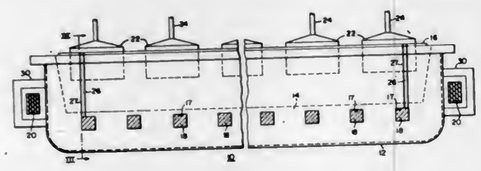


A mercury amalgam cathode electrolytic cell useful for the electrolysis of aqueous alkali metal chloride solutions is disclosed. The electrolytic cell includes means for reducing or eliminating the effects of electromagnetic fields induced in the mercury amalgam cathode by the various electrical currents in the vicinity of the cell.

3,783,121
MAGNETIC FIELD CONTROL IN ELECTROLYSIS CELLS

Robert F. Robl, Monroeville, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 24, 1972, Ser. No. 237,728
Int. Cl. C22d *3/02*
U.S. Cl. 204—243 M 7 Claims



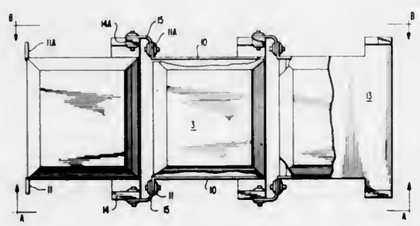
An elongated, magnetic flux impeding means is provided in the magnetically conductive shell of an electrolysis cell, and extends in a direction substantially perpendicular to the direction of a magnetic field component

that is induced in the shell by electrolysis current flow in the cell. The flux impeding means is effective to concentrate the force of the magnetic field component at the location of the flux impeding means, and to generally prevent the saturation of the shell. With the force of the magnetic component concentrated at the location of the flux impeding means, the magnetic field component in the remaining areas of the shell is correspondingly and substantially reduced, and thereby reduced in the adjacent areas of the cell. In addition, a magnetically conductive structure is included to saturate the magnetically conductive shell at critical locations to allow penetration of the shell of a magnetic field component produced externally of the cell.

3,783,122
INTERCELL BUS BAR CONNECTION MEANS

Chosei Sato, Takeshi Adachi, and Hiroyuki Inoy, Kanagawa, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 8, 1972, Ser. No. 232,768
Claims priority, application Japan, Mar. 9, 1971, 46/12,200
Int. Cl. B01k *3/00*
U.S. Cl. 204—279 3 Claims



A bus bar assembly for a diaphragm-type electrolytic cell for electrically connecting a side portion of a cathode structure to an end portion of an anode base comprising

cathode bus bars connected to a side portion of said cathode structure, said cathode bus bars having an end portion thereof at an outward angle transverse to the plane of said cathode bus bar and

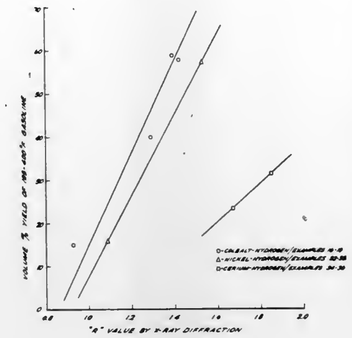
anode bus bars connected to an end portion of said anode base, said anode bus bars having a portion thereof at an upward angle transverse to the plane of said anode bus bar is disclosed.

3,783,123
HYDROCARBON CONVERSION PROCESS

Dean Arthur Young, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 17,974, Mar. 9, 1970, now Patent No. 3,706,694, which is a continuation-in-part of applications Ser. No. 761,321, Sept. 20, 1968, and Ser. No. 681,561, Nov. 11, 1967, both now abandoned. This application Sept. 15, 1970, Ser. No. 72,377
Int. Cl. C01g *13/02;* C01b *33/28*
U.S. Cl. 208—111 22 Claims

Hydrocarbons are converted in the presence of catalysts comprising at least a catalytic amount of a crystalline aluminosilicate zeolite thermally activated by heating to a temperature in excess of about 900° F. in a period not substantially in excess of about 30 minutes. Such catalysts can comprise other active hydrocarbon conversion components such as the metals, oxides and sulfides of Groups II–B, IV–B, V–B, VI–B and VIII. These compositions are particularly effective for catalytic cracking, hydrofining, hydrogenation, hydrocracking, isomerization and the like.



3,783,124
HYDROCARBON CONVERSION WITH NOVEL ZEOLITE

Mae K. Rubin, Bala Cynwyd, Pa., and Edward J. Rosinski, Deptford, N.J., assignors to Mobil Oil Corporation

No Drawing. Original application Oct. 16, 1969, Ser. No. 867,063, now Patent No. 3,699,139. Divided and this application Feb. 4, 1972, Ser. No. 223,787
Int. Cl. B01j *9/20;* C01b *33/28;* C10g *13/02*
U.S. Cl. 208—111 10 Claims

A method is provided for hydrocarbon conversion using a catalytically-active form of the novel synthetic crystalline alumino-silicate zeolite having a rigid three-dimensional structure originally characterized by having benzyltrimethylammonium ions in the structure, said zeolite having an original composition, expressed in terms of mole ratios of oxides as follows:

$$x\mathrm{R_2O}:y\mathrm{K_2O}:(1\pm0.2)-(x+y)\mathrm{Na_2O}:\mathrm{Al_2O_3}:5\text{–}20\mathrm{SiO_2}:0\text{–}10\mathrm{H_2O}$$

wherein x is a value between greater than 0 and less than 0.4, y is a value between about 0.3 and about 0.6 and R is benzyltrimethylammonium.

3,783,125
SWEETENING LIQUID HYDROCARBONS WITH A CALCINED HEAVY METAL EXCHANGED ZEOLITE

John A. Ondrey, Tyler, Tex., and Michael R. Basila, Munster, Ind., assignors to Howe-Baker Engineers, Inc., Tyler, Tex.

No Drawing. Filed Sept. 21, 1972, Ser. No. 291,152
Int. Cl. C10g *27/00*
U.S. Cl. 208—191 6 Claims

A liquid hydrocarbon containing organic mercaptans is contacted with a heavy metal exchanged aluminosilicate

zeolite containing from 5 to 20% by weight of copper, chromium, tin or mixtures thereof to convert the mercaptans to disulfides. The metal exchanged zeolite is prepared from a dilute solution of the metal salt, rinsed, dried at 80–150° C. for 2–6 hours, heated to 500° C. for 4–8 hours, calcined at 500–700° C. for 6–12 hours and then cooled over a period of 3–6 hours.

3,783,126

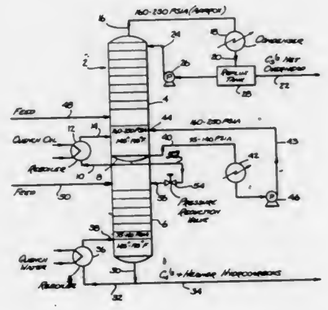
FRACTIONATING HYDROCARBONS IN A DUAL PRESSURE FRACTIONATION TOWER

Gardner L. Hayward, Belmont, and Edwin C. Meilun, South Weymouth, Mass., assignors to Stone & Webster Engineering Corporation, Boston, Mass.

Filed Sept. 22, 1971, Ser. No. 182,714

Int. Cl. C10g 7/00

U.S. Cl. 208—351 **4 Claims**



A dual pressure fractionation tower having a high-pressure section and a low-pressure section and the fractionation process using a high-pressure section and a low-pressure section. Communication is provided between the high-pressure and low-pressure sections of the passage of the light ends from the low-pressure fractionation section to the high-pressure fractionation section and for passage of heavy ends from the high-pressure section to the low-pressure section. Both fractionation tower sections are provided with reboilers through which section bottoms are passed for recirculation to heat the fractionation tower sections. Condensers are also provided to condense the vapors from both fractionation tower sections.

3,783,127

COMBINATION CONCENTRATOR-DIALYZER DEVICE

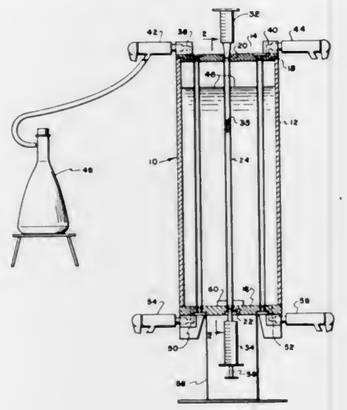
Melvin W. Cook, 5118 SW. Scholls Ferry Road, Portland, Oreg. 97225, and Donald E. Begley, Hillsboro, Oreg.; said Begley assignor to said Cook

Filed July 2. 1971, Ser. No. 159,292

Int. Cl. B01d 13/00, 31/00

U.S. Cl. 210—22 **10 Claims**

A laboratory method and device for simultaneously concentrating and dialyzing, through the same semipermeable membrane, a sample of macromolecules such as a protein solution. The device comprises an air-tight vertical cylindrical housing having a plurality of semipermeable membrane tubes stretched vertically inside the housing between its top and bottom end walls. The open ends of each tube are sealingly fastened to the end walls of the housing and communicate with the exterior thereof through apertures, so as to expose the interior of each tube to the atmosphere while sealing it from the remainder of the cylindrical housing. The aperture at the bottom of each tube is adaptable to receive a syringe for automatically predetermining the minimum volume to which the sample will be concentrated. The interior of the cylindrical housing comprises a dialysate compartment filled with a suitable liquid which



engulfs the exterior of the membrane tubes. The liquid is initially subjected to subatmospheric pressure by the application of suction from a primary source of vacuum such as a vacuum pump or water aspirator communicating with the interior of the housing. After the initial application of suction, the liquid can be maintained at subatmospheric pressure by coupling the housing with a vacuum reservoir, and the primary source of vacuum can be disconnected from the housing. Upon the insertion of a sample into a membrane tube, both dialysis and concentration of the sample occur simultaneously through the semipermeable membrane tube.

3,783,128

PROCESS FOR RECOVERING FOREST PRODUCT PLANT WASTES

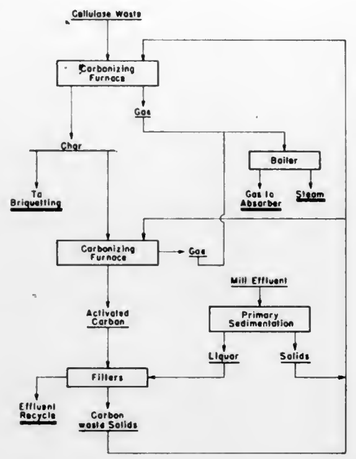
Robert E. S. Thompson, R.D. 3, Sachems Head, Guilford, Conn. 06437

Filed Apr. 26, 1972, Ser. No. 247,582

Int. Cl. B01d 15/06

U.S. Cl. 210—27 **7 Claims**

A process for the closed-circuit processing of all waste products from forest product plants, without air or water pollution. Solid wastes, typically bark, wood chips, sawdust or the like, are carbonized to a char. The char is at least in part treated in a second furnace to produce activated carbon, char not so treated being briquetted and sold. The activated carbon is used as a filter medium for plant effluent liquors, which can be recycled after solids removal. The carbon and entrained solids are returned to one of the furnaces. Off-gas from all furnaces is passed to a boiler for steam generation, the spent gas



being passed through an absorber, if necessary, before release.

3,783,129

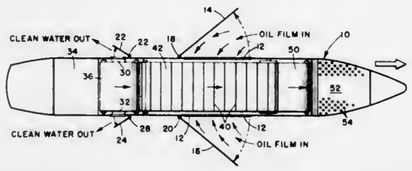
METHOD OF AND APPARATUS FOR THE RECOVERY OF OIL FROM WATER

Clinton O. Bunn, Denver, Colo., assignor to Col-Mont Corporation, Butte, Mont.

Filed Mar. 4, 1971, Ser. No. 121,000

Int. Cl. E02b 15/04

U.S. Cl. 210—30 **17 Claims**



A matrix material is provided for recovering oil from water comprised of finely divided coal particles bonded in spaced relation by polyethylene. The oil sorption capability of the matrix is exceptionally high and the matrix is highly selective to oil in the presence of oil and water. A closed system is provided for forming the matrix material and for separating the sorbed oil from the matrix material for reuse of the latter. The matrix material can be in the form of a fixed or movable bed through which the oil and water pass for selective sorption of the oil, or the material can be dispersed on the water surface and collected following oil sorption.

3,783,130

SOLID LUBRICANTS

Marcel Torre, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,048

Claims priority, application Switzerland, Feb. 27, 1970, 2,884/70

Int. Cl. C10m 7/02, 7/06

U.S. Cl. 252—12 **4 Claims**

A solid lubricant is formed of a mixture comprising one part by weight of hexagonal boron nitride to three parts by weight of sulfur. A finely divided powder of the boron nitride is dispersed in liquid sulfur between the melting point and 160° C., or between 360° C. and the boiling point of sulfur. The mixture, in the liquid or pasty state, can be applied to a material with a surface having retentive properties, and allowed to cool to form a lubricating layer.

3,783,131

CALCIUM-CONTAINING DISPERSIONS AND PROCESS

William M. Le Suer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 118,490, Feb. 24, 1971, which is a continuation of application Ser. No. 864,894, Oct. 8, 1969, both now abandoned, which in turn is a continuation-in-part of application Ser. No. 681,028, Nov. 6, 1967, now Patent No. 3,515,669. This application June 29, 1972, Ser. No. 267,284

Int. Cl. C10m 1/32, 3/26

U.S. Cl. 252—34.7 **14 Claims**

Process for preparing calcium dispersions in essentially inert diluents by contacting a basically reacting calcium compound with an inorganic acidic material in the presence of a stabilizing agent and promoter. A typical process comprises carbonating a mixture of calcium hydroxide, lower nitroalkane, alkanol, and the reaction product of polyisobutenyl-substituted-succinic anhydride and an alkylene polyamine. The calcium-containing dispersions thus produced are useful as additives for fuels and lubricants.

3,783,132

COMPOSITIONS COMPRISING PHOSPHATE ESTERS AND 2,6-DIAMINO-PYRIDINE AS AN ANTIOXIDANT

John F. Herbert, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 24, 1972, Ser. No. 237,903

Int. Cl. C09k 3/00; C10m 3/40

U.S. Cl. 252—78 **10 Claims**

Compositions comprising a major amount of a phosphate ester base stock and an oxidation inhibiting amount of 2,6-diaminopyridine are useful as oxidation resistant functional fluids, particularly as aircraft hydraulic fluids.

3,783,133

RIGID FIRE RETARDANT POLYURETHANE FOAM

George Phillip Speranza, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Continuation-in-part of abandoned application Ser. No. 843,743, July 22, 1969. This application Oct. 15, 1971, Ser. No. 189,724

Int. Cl. C08g 22/48

U.S. Cl. 260—2.5 AR **18 Claims**

A rigid fire retardant polyurethane foam having good dimensional stability, more than 90% closed cells and

a *k* factor less than 0.13 is produced by reacting with a polyol blend containing a sucrose polyol which is the reaction product of 8 to 12 mols of propylene oxide per mol of sucrose or a sucrose polyol which is the reaction product of 9 to 12 mols of propylene oxide per mol of sucrose an isocyanato terminated prepolymer formed by reacting an excess of a polymethylene polyphenyl isocyanate with a phosphorus-containing polyol in the presence of a blowing agent, surfactant and a catalyst of urethane formation.

The rigid fire retardant polyurethane foams thus formed are particularly useful for insulation purposes.

3,783,134

PROCESS FOR THE PREPARATION OF A BITUMINOUS COMPOSITION

Lowhardt A. A. Schoen, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Apr. 14, 1972, Ser. No. 244,002

Claims priority, application Netherlands, Apr. 17, 1971, 7105197

Int. Cl. C08f *45/52;* **C08g** *51/52*

U.S. Cl. 260—28 **9 Claims**

Polylactone-modified bitumen-ethylene based copolymer compositions and methods for their preparation are disclosed. The bitumen is a distillate of mineral oil products, the ethylene copolymer is preferably derived from ethylene and vinyl acetate and the polylactone has from 3 to 8 carbon atoms. The compositions have excellent bond strength, improved heat stability and reduced tendency to separate into two or more phases and are useful for forming molded articles, wire coatings and insulation and as adhesives in the building industry.

3,783,135

SYNTHESIS OF CODLING MOTH ATTRACTANT

Clive A. Henrick and John B. Siddall, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Filed Aug. 20, 1971, Ser. No. 173,662

Int. Cl. C07d *5/04, 7/04, 49/76*

U.S. Cl. 260—345.9 **5 Claims**

Stereospecific synthesis of an attractant for the codling moth by reacting a lithium salt of sorbic acid with 6-lithium hexan-1-ether to yield a trans-8-trans-10-dodecadien-7-one-1-ether which is reduced to yield a trans-8-trans-10-dodecadien-7-ol-1-ether which in turn is reduced via a 7-sulfonic acid ester to yield a trans-8-trans-10-dodecadien-1-ether and hydrolyzed to trans-8-trans-10-dodecadien-1-ol.

3,783,136

METHOD FOR PRODUCING UNSATURATED CARBOXYLIC ACID ESTERS

Takashi Inukai, Yokohama-shi, and Takao Nakamura, Yokosuka-shi, Japan, assignors to Chisso Corporation, Osaka, Japan

No Drawing. Filed Dec. 16, 1970, Ser. No. 98,945

Claims priority, application Japan, Dec. 24, 1969, 44/104,135

Int. Cl. C07c *67/00*

U.S. Cl. 260—410.9 R **11 Claims**

Unsaturated monocarboxylic acid esters which are addition compounds of an olefin to a (meth)acrylic acid ester, or unsaturated dicarboxylic acid diesters which are addition compounds of an olefin or an unsaturated monocarboxylic acid ester to a (meth)acrylic acid ester, can be produced with a high yield and without forming isomer, by reacting said olefin or said unsaturated monocarboxylic acid ester with said (meth)acrylic acid ester, at a temperature ranging from room temperature to 250° C., in the presence of AlX_3 (wherein X is Cl or Br).

3,783,137

PROCESS FOR THE PREPARATION OF HETEROCYCLIC POLYMERS FROM AROMATIC TETRAMINES AND DERIVATIVES OF POLYCARBOXYLIC ACIDS

Arthur H. Gerber, University Heights, Ohio, assignor to Horizons Incorporated, a division of Horizons Research Incorporated

No Drawing. Filed June 9, 1971, Ser. No. 151,603

Int. Cl. C08g *33/02*

U.S. Cl. 260—47 CP **15 Claims**

A process for the preparation of soluble heterocyclic polymers which comprises the reaction of an acid derivative of a di-, tri-, or tetra-basic acid with an aromatic tetramine acid salt in an aprotic polar solvent under mild reaction conditions, the acid derivative being added to the tetramine salt.

3,783,138

ARYLENE SULFIDE POLYMERIZATION PROCESS

John M. Miles and Fred T. Sherk, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 13, 1972, Ser. No. 314,580

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 **11 Claims**

An acid gas stream comprising hydrogen sulfide and impurities is passed into an absorption zone containing a polar organic solvent. A first overhead stream rich in impurities and a first bottoms stream comprising a hydrogen sulfide enriched polar organic solvent stream are withdrawn from the absorption zone. The first bottoms stream and an alkali metal hydroxide stream are passed into an arylene sulfide reactor in quantities sufficient to substantially convert all of the hydrogen sulfide to an alkali metal sulfide reactant. Subsequently a polyhalo-substituted aromatic compound is introduced into the reactor under reaction conditions suited to the preparation of arylene sulfide polymers. In a preferred embodiment an arylene sulfide polymer is withdrawn from the reactor in the presence of by-product salt and polar organic solvent, the organic solvent is separated from the arylene sulfide polymer, and the separated polar organic solvent is then passed to the absorption zone for further absorption of hydrogen sulfide.

3,783,139

PROCESS FOR SEPARATING CONSTITUENTS OF GRAIN FLOUR AND PRODUCTS PRODUCED THEREBY

John R. Moneymaker, Overland Park, Kans., and Curtis J. Forsythe, Raytown, Mo., assignors to Top-Scor Products, Inc., Kansas City, Kans.

No Drawing. Filed July 29, 1971, Ser. No. 167,474

Int. Cl. A23j *1/12;* **C08h** *1/00;* **C13l** *1/00*

U.S. Cl. 260—112 G **31 Claims**

Process for separating grain flour into starch and protein fractions involving preparing a dough from the flour and water in the presence of certain nonionic surfactants and washing the dough with additional water under manipulation.

3,783,140

INTRODUCTION OF ORGANIC GROUPS INTO ETHYLENICALLY UNSATURATED CARBOXYLIC ACIDS USING A GROUP VIII METAL SALT

Richard F. Heck, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Application Dec. 8, 1969, Ser. No. 883,288, now Patent No. 3,700,727, dated Oct. 24, 1971, which is a division of application Ser. No. 479,665, Aug. 13, 1965, now Patent No. 3,527,794, dated Sept. 8, 1970. Divided and this application Nov. 10, 1971, Ser. No. 197,542

Int. Cl. C07c *63/00*

U.S. Cl. 260—330.5 **5 Claims**

The process involves the introduction of an organic group into an ethylenically unsaturated carboxylic acid. As an example, a mixture of phenylmercuric chloride, lithium palladium chloride and acrylic acid is formed in acetonitrile as solvent. This results in the formation of an unstable adduct between the acrylic acid and phenylpalladium chloride. Decomposition of the adduct by maintaining it above its decomposition temperature provides cinnamic acid as the product.

3,783,141

3,7,9,11-TETRAMETHYL-10-ALKOXY OR BENZYLOXYTRIDECA - 2,7,11 - TRIENOIC ACIDS AND ESTERS CONTAINING A 4 POSITION TRIPLE OR DOUBLE BOND

Beverly Ann Pawson, Montclair, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 17, 1971, Ser. No. 209,386

Int. Cl. C07c *59/18, 69/66;* **A01n** *9/24*

U.S. Cl. 260—410.9 R **16 Claims**

Novel 3,7,9,11-tetramethyl-10-methoxy-trideca-2,7,11-trienoic acid esters containing a triple or double bond at the 4-position which are useful as insect hormonal agents prepared from the condensation product of tiglic aldehyde with methyl propenyl ether.

3,783,142

PROCESS FOR THE PREPARATION OF O-AMINOBENZONITRILE

Jan Magnus Bakke, Trondheim, Norway, and Harald Erik Heikmann, Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

No Drawing. Filed May 19, 1971, Ser. No. 145,059

Claims priority, application Sweden, June 1, 1970, 7,549/70

Int. Cl. C07c *121/02*

U.S. Cl. 260—465 E **2 Claims**

o-Aminobenzonitrile is obtained from o-nitrotoluene by heating the latter with ammonia at about 350–550° C. in the presence of a dehydration catalyst.

3,783,143

N-CYCLOPROPYLMETHYL-PHENYLUREAS

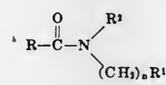
Lester L. Maravetz, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Original application July 27, 1970, Ser. No. 58,672, now Patent No. 3,728,836. Divided and this application Feb. 12, 1973, Ser. No. 331,723

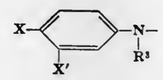
Int. Cl. C07c *127/20*

U.S. Cl. 260—553 A **3 Claims**

Compounds characterized by the following structural formula:



wherein R is one selected from the group consisting of $Y—CH_2$ and



Y is one selected from the group consisting of chlorine, bromine and fluorine, X is one selected from the group consisting of hydrogen, chlorine, CF_3, C_1 to C_4 alkyl, bromine, C_1 to C_4 alkoxy, and C_1 to C_4 alkylthio, and X′ is one selected from the group consisting of chlorine, hydrogen, CF_3, and bromine: R^1 is C_3 to C_4 cycloalkyl optionally substituted with C_1–C_3 alkyl, chlorine, bromine, R^2 is one selected from the group consisting of hydrogen, and C_1 to C_4 alkyl, cyclopropyl, cyclopropylmethyl and C_1 to C_3 alkoxy, and R^3 is one selected from the group consisting of hydrogen, C_1–C_3 alkyl, cyclopropyl, cyclobutyl, cyclopropylmethyl or cyclobutylmethyl, optionally substituted with C_1 to C_3 alkyl, chlorine, and bromine; *n* is either 0 or 1.

These compounds have been found to possess biological activity and have been found to be useful as herbicides.

3,783,144

PROCESS FOR PRODUCING FLUORONITRO ALCOHOL COMPOUNDS

Marion E. Hill, Palo Alto, and Leonard O. Ross, Sunnyvale, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Original application Aug. 13, 1968, Ser. No. 752,181. Divided and this application Oct. 16, 1970, Ser. No. 81,613

Int. Cl. C07c *31/34*

U.S. Cl. 260—633 **1 Claim**

Process wherein a selected α-fluoronitrocarboxylic acid ester is reduced by reaction with sodium borohydride in a selected solvent system containing from about 25 to about 75% by volume of water to preferentially yield α-fluoronitro-alcohol compound.

3,783,145

THERMOPLASTIC MOLDING COMPOSITIONS ON THE BASIS OF POLYOXYMETHYLENES

Hans-Hermann Grossmann, Oberems; Karlheinz Burg, Langenhain/Taunus, and Ernst Wolters, Frankfurt/Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Nov. 24, 1971, Ser. No. 202,020

Claims priority, application Germany, Nov. 26, 1970, P 20 58 128.6

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 AL 4 Claims

The invention relates to thermoplastic molding compositions on the basis of polyoxymethylenes containing antimony trioxide as a nucleating agent. The compositions may be used to produce shaped articles with improved properties.

3,783,146

AMMONIUM POLYPHOSPHATE-PHOSPHONIUM BROMIDE-ALKOXYALKANOLAMINE AS FLAME-RETARDANTS FOR POLYOLEFINS

Christos Savides, and Joseph Fredrick Cannelongo, both of Piscataway, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 3, 1972, Ser. No. 240,815

Int. Cl. C09k *3/28*

U.S. Cl. 260—45.9 R 12 Claims

Flame-retardant compositions which do not "plate-out" on metal surfaces comprising (A) monophosphonium halides, diphosphonium halides or various diphosphoniacyclohexane dibromides and diiodides, (B) ammonium polyphosphate, and (C) an alkoxyalkanolamine and polyolefins containing said compositions, are disclosed.

3,783,147

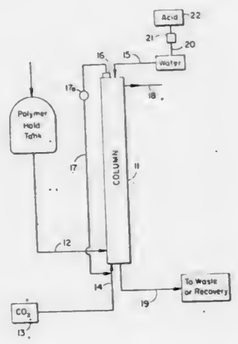
REMOVAL OF CATALYST RESIDUE FROM POLYPHENYLENE ETHERS

David J. Calicchia, Stillwater, and Michael M. Modan, Albany, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Sept. 24, 1971, Ser. No. 183,321

Int. Cl. C08g *23/18*

U.S. Cl. 260—47 ET 14 Claims



A method is provided for the separation and recovery of metal-amine complex catalyst residues in a process for the formation of polyphenylene ethers by an oxidative coupling polymerization reaction. The method comprises extracting the catalyst residues by contact of the reaction solution with carbonic acid solution, batchwise, or continuously in a cascade of mixers-settlers or a liquid-liquid extraction column.

3,783,148

PROCESS FOR THE PREPARATION OF SYMMETRICAL AZO COMPOUNDS

Julius J. Fuchs, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 16,950, March 5, 1970, abandoned, which is a continuation-in-part of Ser. No. 644,097, June 7, 1967, abandoned, which is a continuation-in-part of Ser. No. 393,766, Sept. 1, 1964, abandoned. This application Aug. 31, 1971, Ser. No. 176,701

Int. Cl. C07c *107/00*

U.S. Cl. 260—192 8 Claims

An improved process for the preparation of symmetrical azo compounds comprising coupling the corresponding amino compound, such as 1-aminocyclohexanecarbonitrile in the presence of a hypochlorite, such as sodium hypochlorite, in a solvent containing at the beginning of the reaction at least 95 percent by volume and at the end of the reaction at least 70 percent by volume of a C_1-C_2 alcohol at a temperature between the freezing point of the reaction mixture and 50°C.

3,783,149

α-L TALOMETHYLOSIDES OF CERTAIN GENINS OF THE CARDENOLIDE AND BUFADIENOLIDE SERIES

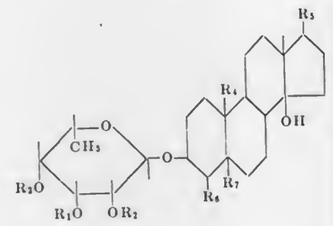
Joachim Heider, Warthausen-Oberhofen; Wolfgang Eberlein, Biberach, Riss, both of Germany, and Walter Kobinger, Vienna, Austria, assignors to Boehringer Ingelheim GmbH, Ingelheim/Rhine, Germany

Filed Oct. 27, 1971, Ser. No. 192,992

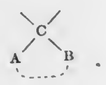
Int. Cl. C07c *173/00*

U.S. Cl. 260—210.5 7 Claims

Compounds of the formula



wherein R_1 and R_2 are each hydrogen or lower alkanoyl or, together with each other,



where

A is hydrogen or lower alkyl,

B is lower alkyl or phenyl, or

A and B, together with each other and the carbon atom to which they are attached, form a 6- to 7-membered saturated carbocyclic ring,

R_3 is hydrogen, lower alkanoyl or heterocyclic carboxylic acid acyl, such as isonicotinoyl or benzofuran-2-carbonyl,

R_4 is methyl, formyl or hydroxymethyl,

R_5 is the bufadienolide radical; or when R_4 is the methyl group or at least one of the radicals R_1 to R_3 is other than hydrogen, also the cardenolide radical,

R_6 is hydrogen or, together with R_7, a double bond, and

R_7 is hydroxyl or, when R_5 is the cardenolide radical, also hydrogen;

the compounds are useful as cardiotonics.

3,783,150

MONOFUNCTIONALLY-BLOCKED TRIS (2-HYDROXYALKYL) ISOCYANURATES AND POLYESTES THEREOF

John M. Kolyer, Convent, and Albert A. Kveglis, Pine Brook, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Division of Ser. No. 89,532, Nov. 13, 1970, Pat. No. 3,683,048, which is a continuation-in-part of Ser. No. 725,163, April 29, 1968, abandoned. This application Dec. 13, 1971, Ser. No. 207,640

Int. Cl. C07d *55/38*

U.S. Cl. 260—248 NS 6 Claims

Monofunctionally-blocked tris(2-hydroxyalkyl)isocyanurates, made by reaction with equimolar amount of a monocarboxylic acid, are statistically difunctional alcohols useful for making polyesters. Use of an α-ethylenically unsaturated polycarboxylic acid or an α-ethylenically unsaturated monocarboxylic acid blocking agent in conjunction with a cross-linking monomer gives casting resins which are heat resistant, self-extinguishing, weather resistant, and color stable.

3,783,151

ISOCYANATE-MODIFIED ESTERS

Daniel J. Carlick, Berkeley Heights; Frank Marra, Wayne, both of N.J., and Gerhard E. Sprenger, North Stonington, Conn., assignors to Sun Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 850,633, Aug. 15, 1969, abandoned. This application Mar. 23, 1971, Ser. No. 127,357

Int. Cl. C07c *125/06*

U.S. Cl. 260—471 C 4 Claims

Isocyanate-modified polyethylenically unsaturated esters in combination with photoinitiators are radiation-curable compositions useful as printing inks, printing plates, coating compositions, adhesives, and the like.

3,783,152

N-ARYLENE POLYCARBAMATE

Donald W. Larsen, Ashton, Md., assignor to W. R. Grace & Co., New York, N.Y.

Division of Ser. No. 81,601, Oct. 16, 1970, abandoned. This application Apr. 27, 1972, Ser. No. 248,297

Int. Cl. C07c *101/26*, *101/44*

U.S. Cl. 260—471 C 1 Claim

The invention disclosed is for a method of preparing polythioether-polyurethane products from a new and novel class of polyene compositions which are formed as the reaction product of a monomeric polyisocyanate with an unsaturated monohydroxy or monoamino compound. The new polyenes may be compounded with a polythiol component having molecules containing at least two thiol groups per molecule. The curable polymer composition may be cured by a free radical generator such as actinic light to form a solid polythioether-polyurethane elastomeric or resinous product.

3,783,153

CATALYTIC PROCESS FOR UNSATURATED ACIDS

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 27, 1969, Ser. No. 837,356The portion of the term of this patent subsequent to Sept. 10, 1985, has been disclaimed.

Int. Cl. C07c *51/32*, *57/04*

U.S. Cl. 260—533 N 5 Claims

Unsaturated acids in high yields along with smaller yields of aldehydes, as acrylic acid and acrolein or methacrylic acid and methacrolein, are prepared in excellent yields by the oxidation of an olefin as propylene or isobutylene in the presence of a catalyst containing cobalt molybdate, tellurium oxide and phosphorus oxide.

3,783,154

PRODUCTION OF CITRIC ACID

Richard H. Wiley, New York, N.Y., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed June 28, 1971, Ser. No. 157,650

Int. Cl. C07c *59/16*

U.S. Cl. 260—535 P 3 Claims

Citric acid can be produced by reacting maleic acid, fumaric acid, maleic anhydride or esters of maleic acid with a peroxide compound and then heating the resulting reaction mixture. Citric acid can then be recovered from the resulting products.

3,783,155

SINTERED CUPRIC OXIDE MASSES

Brian G. Frock, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Dec. 3, 1971, Ser. No. 204,706

Int. Cl. B29c *6/00*

U.S. Cl. 265—65 6 Claims

Compacted, sintered cupric oxide masses are disclosed. The masses are prepared from copper oxide powder under high pressure followed by heating at high temperatures. Various regions of the mass can be switched to an electrically conductive copper state. This invention could easily be used for the storage of electrical information as well as for optical memory.

3,783,156

METHOD OF MAKING BEADED ARTICLE

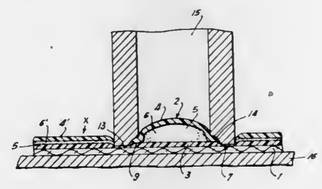
Minoru Kuroda, Amagasaki, Japan, assignor to Nishizawa Shoji Co. Ltd., Osaka, Japan and The Dimension Weld International Corporation, New York, N.Y.

Continuation of Ser. No. 808,128, March 18, 1969, abandoned. This application Jan. 24, 1972, Ser. No. 220,300

Claims priority, application Japan, Dec. 19, 1966, 41/83085

Int. Cl. B29c *17/10*, *21/00*, *27/02*; B32b *31/18*, *31/20*

U.S. Cl. 264—94 8 Claims

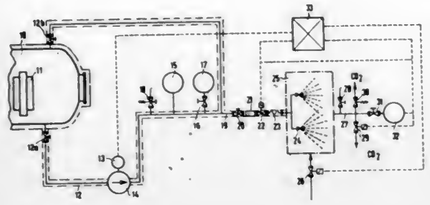


A beaded article having a support layer on which a bottom layer and a top layer of sheet material are superimposed. The top layer is heat bonded to the bottom layer and both are heat bonded to the support layer along a circumferentially complete narrow annular zone. In the area circumscribed by the annular zone the top layer is provided with a raised self-supporting bead-like prominence which contains ornamental particles visible to a viewer because the top layer is of transparent material.

3,783,157
BLOW MOLDING PROCESS

Karl Frank, 8, Lohhohl, Linz, Rhineland, Germany

Continuation of Ser. No. 868,672, Oct. 21, 1969, abandoned.
This application Jan. 28, 1972, Ser. No. 221,793
Int. Cl. B29c *17/07, 25/00*
U.S. Cl. 264—97 2 Claims

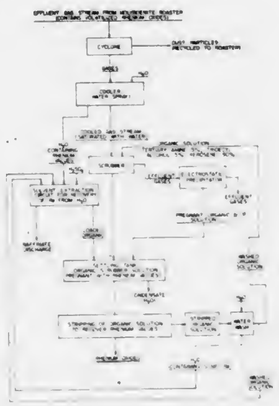


An improved process and apparatus for the production of blow molded shaped articles from a synthetic thermoplastic polymeric material are provided. The hollow shaped article following blowing is cooled through the introduction of a liquified coolant (e.g., carbon dioxide) in the form of liquid droplets in the absence of coolant expansion which contacts the internal surface of the hollow article while in liquified form. Contrary to the prior art the pressure within the hollow shaped article is maintained above that of the triple point of the coolant throughout the entire cooling operation. Disadvantages of the prior art, such as uneven cooling resulting from a phase change in the coolant, are effectively eliminated.

3,783,158
PROCESS FOR RECOVERING VOLATILIZED METAL OXIDES FROM GAS STREAMS

Ronald N. Platzke, and Henry Rush Spedden, both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,462
Int. Cl. C01g *47/00*
U.S. Cl. 423—49 10 Claims



Certain organic compounds in solution other than aqueous are used to directly recover oxides of metals that form anionic species therewith, from gas streams carrying such metal oxides in volatilized form. The organic compounds are selected from the group consisting of organic phosphates and those alcohols and water-insoluble amines which have carbon chains made up of a minimum of four carbon stoms. The tertiary amines and tributyl phosphate are especially effective. Although the process is particularly applicable to rhenium, other typical metals are selenium, lead, zinc, and gallium. One or more of such organic compounds is dissolved in a suitable organic vehicle, such as kerosene, and the resulting organic solution is brought into intimate contact with the gas stream. The resulting solution pregnant with the metal oxide values is treated, as by solvent extraction procedures, for the recovery of such metal values.

3,783,159
PHARMACEUTICAL COMPOSITIONS CONTAINING KANAMYCIN EMBONATE

Giuseppe Guadagnini, Sannazzaro dei Burgondi, and Franco Fabi, Milan, both of Italy, assignors to Pierrel S.p.A., Milano, Italy

Division of Ser. No. 62,147, Aug. 7, 1970, Pat. No. 3,691,151.
This application Mar. 23, 1972, Ser. No. 237,575
Int. Cl. A61k *21/00*
U.S. Cl. 424—181 4 Claims

The present invention relates to an a bacteriostatic pharmaceutical composition containing kanamycin embonate.

3,783,160
DIETHYL ALLYL PHOSPHONATE AS AN ANTI-MICROBIAL AGENT

Al F. Kerst, and John D. Douros, Jr., both of Littleton, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Oct. 28, 1970, Ser. No. 84,903
Int. Cl. A01n *9/36*
U.S. Cl. 424—219 52 Claims

Diethyl alpha allyl phosphonate can be used to inhibit and/or prevent growth of undesirable algae, bacteria, fungi, yeast, and other microorganisms. This invention is particularly concerned with the bacteriostatic and bactericidal properties of diethyl alpha allyl phosphonate compounds against species of *Proteus, Salmonella, Shigella, Staphylococcus* and *Xanthomonas.*

3,783,161
DERIVATIVES OF DIBENZO(B,F) PYRROLO (3,4-D)AZEPINE AS CNS - DEPRESSANTS

Walter Schindler, deceased, late of Basel, Switzerland; Hans Blattner, and Leonhard Gysin, both of Basel, Switzerland (executors), assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 142,390, May 11, 1971. This application Aug. 23, 1972, Ser. No. 283,011
Claims priority, application Switzerland, May 13, 1970, 7069/70The portion of the term of this patent subsequent to Jan. 18, 1989, has been disclaimed.
Int. Cl. A61k *27/00*
U.S. Cl. 424—274 2 Claims

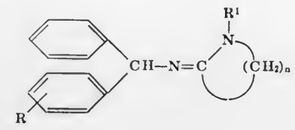
Compounds of the class of 1,2,3,8-tetrahydrodibenzo[b,f]pyrrolo[3,4-d]azepines which may be substituted in the 5-/ or 6-/ and/or 8-position by chlorine, the trifluoromethyl group or alkyl groups respectively or the allyl group respectively and pharmaceutically acceptable addition salts thereof have a depressant effect on the central nervous system; they can be prepared from the corresponding N-substituted 10,11-bis-bromomethyl-5H-dibenz[b,f]azepines and a primary amine; the compounds are active ingredients of pharmaceutical compositions.

3,783,162
HYPOGLYCEMIC COMPOSITIONS CONTAINING BENZHYDRYL-LACTAMIMIDE DERIVATIVES

Johann Martin Grisar, and Thomas R. Blohm, both of Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

Filed Sept. 13, 1971, Ser. No. 180,118
Int. Cl. A61k *27/00*
U.S. Cl. 424—267 7 Claims

Pharmaceutical compositions with hypoglycemic and diuretic properties and methods for their use are disclosed herein. The active ingredients of the compositions are compounds of the formula



wherein R is hydrogen or lower alkoxy of from one to six carbon atoms, and when R represents lower alkoxy the substituent alkoxy radical may be attached at the ortho-, meta- or para-position of the phenyl radical; R^1 is hydrogen or lower alkyl of from one to four carbon atoms; *n* is a whole integer of from 3 to 11; or pharmaceutically acceptable acid addition salts of said compounds and individual optical isomers where applicable.

3,783,163
AROMATIZING EDIBLE OILS

Jayantilal M. Patel, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 28, 1972, Ser. No. 248,558
Int. Cl. A23f *1/04*
U.S. Cl. 426—221 11 Claims

Edible oils are aromatized by adding the oil to a cryogenic fluid to form a slurry, adding an aroma-bearing frost to the slurry, and allowing the mixture to equilibriate at temperatures above the boiling point of the cryogenic fluid for a period of time sufficient to evaporate the cryogenic fluid leaving a residue of aroma-enhanced oil.

3,783,164
PROCESS FOR PRODUCING MILLED STABILIZED WHEAT GERM

Edward L. Galle, St. Paul, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Sept. 12, 1968, Ser. No. 760,745
Int. Cl. A23l *1/10*
U.S. Cl. 426—312 5 Claims

Wheat germ is recovered from conventionally milled wheat. The germ is ground in an impact mill such as the Hurricane Pulverizer, Raymond Mill or Pulvocron. The ground germ is heated to about 200° F. while suspended in air either by introducing hot air into the grinder inlet or by expelling the ground germ into a stream of hot air (about 600 cubic feet of 300° F. air per pound of germ). The ground germ dried to less than 6 percent moisture content is then collected in a cyclone and preferably sifted to remove bran particles from the powdered product.

3,783,165
SOLUBLE COFFEE ANTIFOAM AND SLUDGE SUSPENDING AGENTS

Alexander Cascione, Yonkers, N.Y., assignor to General Foods Corporation, White Plaines, N.Y.

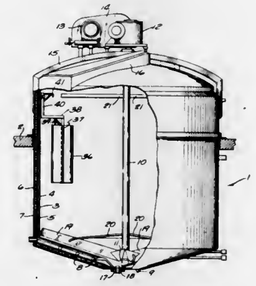
Filed June 1, 1972, Ser. No. 258,715
Int. Cl. A23f *1/04*
U.S. Cl. 426—329 10 Claims

Antifoam and sludge-suspending compositions comprising substituted lactylates are incorporated into instant coffee products.

3,783,166
METHOD FOR MAKING CHEESE

Norman J. Peters, Fond Du Lac, Wis., assignor to DEC International, Inc., Madison, Wis.

Division of Ser. No. 819,148, April 25, 1969. This application Aug. 18, 1971, Ser. No. 172,932
Int. Cl. A01j *25/00, 25/10*
U.S. Cl. 426—491 3 Claims



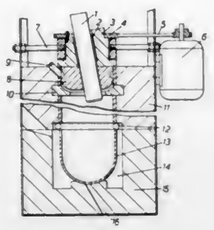
A method of making cheese utilizing a closed vessel having a central vertical shaft and agitator paddles are attached to the lower end of the shaft. During the cheese making process, a portion of the whey is withdrawn from the upper end of the vat while the agitators are operating. To withdraw the whey, a tube is inserted into the upper end of the vat and the lower end of the tube carries a perforated cylindrical strainer which may be covered by a fabric filter bag. Whey is drawn through the strainer and into the tube.

A generally S-shaped baffle is located ahead of the cylinder in the direction of agitator rotation and serves to protect the strainer from direct impingement by the circulating whey.

ERRATA

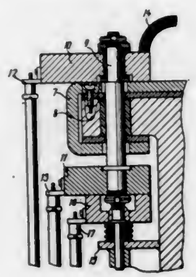
For Classes 426—70 thru 426—140 see: Patents Nos. 3,782,962 thru 3,782,977

3,783,167
HIGH TEMPERATURE TREATMENT OF MATERIALS
Jozef Kazimierz Tylko, Faringdon, England, assignor to Tetronics Research and Development Company Limited, Faringdon, England
Filed Feb. 14, 1972, Ser. No. 225,892
Claims priority, application Great Britain, Feb. 16, 1971, 4,789/71; Feb. 16, 1971, 4,790/71; Aug. 18, 1971, 38,855/71
Int. Cl. H05b 7/00
U.S. Cl. 13—1 27 Claims



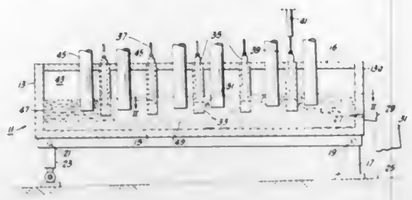
Apparatus for establishing a substantially expanded electric arc discharge between a circulating electrode which includes the use of plasma guns, and a coacting stationary annular electrode through which the discharge effluents emerge. Means for introducing particulate material into the expanded arc discharge and operating the latter as an expanded arc furnace for various chemical reactions including the reduction and separation of ores, melting, refining, comminuting, spheroidizing and coating.

3,783,168
ELECTROSLAG REMELTING PLANT
Boris Izrailevich Medovar, bulvar Lesi Ukrainki, 2, kv. 8; Viktor Andreevich Popov, ulitsa Andreevskaya, 11, kv. 2; Jury Fedorovich Alferov, bulvar Lepse, 29, kv. 64; Alexei Georgievich Bogachenko, ulitsa Leskova, 9, kv. 1, and Jury Vadimovich Latash, ulitsa Artema, 55, kv. 23, all of Kiev, U.S.S.R.
Filed July 7, 1972, Ser. No. 269,816
Int. Cl. H05b 3/60
U.S. Cl. 13—9 1 Claim



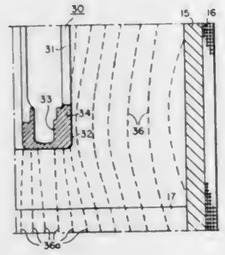
An electroslag remelting plant comprising two shoes insulated from each other and interconnected by means of a rigid joint, one of them being connected by a flexible coupling to current-collecting means of the first electrode and, on being traversed, being allowed to establish a contact with the other current-collecting means of second electrode, whereas the second shoe, on being traversed, establishes a contact with a current-collecting means of the second electrode or with the third spring-biased shoe associated electrically with a base plate.

3,783,169
METHOD AND APPARATUS FOR THE CONTINUOUS FLUIDIZING OF STEEL
Henry S. Newhall, Allison Park, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Filed Sept. 5, 1972, Ser. No. 286,751
Int. Cl. F27b 3/06
U.S. Cl. 13—10 8 Claims



An electric arc furnace having a plurality of in-line electrodes are separated by baffle plates. Scrap metal or prereduced iron ore is placed in the furnace and a thick high-temperature slag covers the molten scrap or reduced ore which is melted by heat generated at the electrodes. The current passing from one electrode to another through the molton metal and slag, inasmuch as the baffles prevent short circuit taking place through the scrap metal.

3,783,170
ELECTRIC ARC FURNACE APPARATUS HAVING A SHAPED MAGNETIC FIELD FOR INCREASING THE UTILIZED AREA OF THE ARCING SURFACE OF AN ELECTRODE AND IMPROVING THE HEATING EFFICIENCY
Frank J. Kolano, North Braddock, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 22, 1972, Ser. No. 291,470
Int. Cl. H05b 7/08
U.S. Cl. 13—18 10 Claims

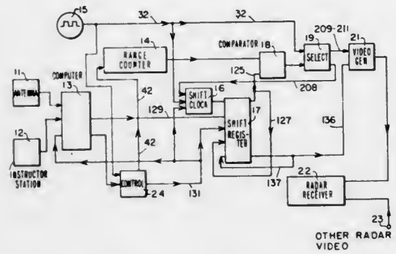


The unit heat flux to a fluid-cooled electrode and the heat flux to the material being heated by a diffused arc column operating at a given electric current level are controlled by a magnetic field coaxial with the electrode, part of the flux lines of which pass through both the arcing surface of the electrode and the molten bath. The magnetic field pattern at the electrode and near the electrode is shaped into desired configurations to accomplish the purposes of the invention by the use of high permeability material in the electrode in some embodiments, and permanent magnets in the electrode in other embodiments. Where high permeability material is employed; the material may form part of the electrode tip and be substantially symmetrical around the inside and outside diameter of the tip, or may be so proportioned as to provide an outside diameter biased electrode tip. The tip may be constructed of copper and high permeability material disposed within the tip either in the form of a short ring, or axially and radially extending material occupying a substantial portion of the volume of the tip and the supporting column. Where a permanent magnet is employed, it is disposed in the tip, and the north and south poles of the permanent magnet may be axially disposed with respect to each other with their axis parallel to the axis of the electrode. The poles of the permanent magnet are selectively in opposition to a field set up in the furnace by a solenoid, or selectively in polarity adding to the field set up in the furnace by the solenoid. Additionally, the permanent magnet may have its north and south poles lying perpendicular to the axis of the electrode. Selectively, the north pole of the permanent magnet may be on the side thereof adjacent the axis of the electrode, or may be on the side thereof farthest from the axis of the electrode, nearer to the wall of the furnace and nearer to the solenoid setting up a magnetic field within the furnace.

3,783,171
SILICA BRICKS
Walter Klein, Duisburg-Rahm, Germany, assignor to Didier-Werke A.G., Wiesbaden, Germany
Filed Nov. 15, 1971, Ser. No. 198,980
Claims priority, application Germany, Nov. 14, 1970, P 20 56 120.0
Int. Cl. F27d 1/06
U.S. Cl. 13—35 1 Claim

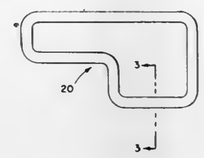
An electric furnace in which at least the cover is lined with silica bricks impregnated with a material containing carbon which releases hydrocarbons when heated.

3,783,172
RADAR SIMULATOR
Frank H. Bernstein, Baltimore, Md., assignor to The Singer Company, Binghamton, N.Y.
Filed July 21, 1971, Ser. No. 164,749
Int. Cl. G09b 9/00
U.S. Cl. 35—10.4 8 Claims



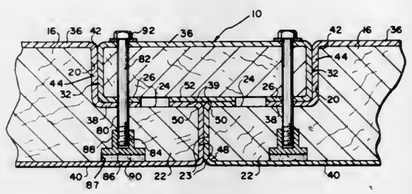
A device for simulating radar targets comprises a general-purpose digital computer and a special interface which generates suitable video signals in response to the computer outputs to drive a radar set. In a radar simulator in which several different types of radar targets are simulated, the apparatus of this invention is used to generate the video signals which will display a plurality of mobile targets on the radar set. A limited number of such targets are displayed, and the characteristics of these targets are entered into the computer. Information representing the initial locations of the selected targets and their directions and speeds of movement is inserted into the computer from a remote station, and the computer performs the necessary navigational computations to continually determine the location of the radar set in the gaming area, the bearing of each of the targets from the radar set, and the bearing of the radar antenna at any time. The ranges of all of the targets on a particular bearing are entered by the computer into a register in the order of increasing range from the radar set. When the simulated radar antenna bearing agrees with the target bearing, the stored target ranges are read from the registor and are converted into video signals to drive the radar set.

3,783,173
GASKET-ELECTRICALLY CONDUCTIVE
Robert C. Twomey, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed May 19, 1972, Ser. No. 255,123
Int. Cl. H05k 9/00
U.S. Cl. 174—35 GC 2 Claims



An electrically conductive elastomer gasket that is reinforced to lend strength to the gasket and enable the gasket to have the ability to hold a pre-set shape. This is accomplished by either sandwiching an electrically conductive reinforcement metal layer between two electrically conductive elastomer outer layers or by providing an electrical conductor about which an electrically conductive elastomer is formed or extruded.

3,783,174
DOUBLE ISOLATED SHIELDING ENCLOSURE
Erik A. Lindgren, 728 Milford St., Evanston, Ill.
Filed Nov. 15, 1972, Ser. No. 306,607
Int. Cl. H05k 9/00
U.S. Cl. 174—35 MS 10 Claims

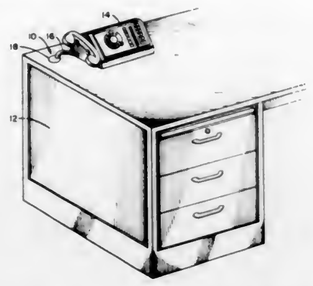


A double isolated electrically shielded screen room in which all panels are identical and interchangeable for assembly with all overlapping shielding contacts between contiguous shielding members disposed in planes parallel to the respective panels and secured under compression in a direction perpendicular to each panel with great isolation efficiency by outwardly concealed clamping means applied from inside the room assembly so that the floor and space around the room is also economically conserved.

3,783,175
ELECTRICAL CORD GUIDE ASSEMBLY
Jay Timmons, Palos Verdes Estates, Calif., assignor to Hiebert, Inc., Torrance, Calif.
Filed Apr. 28, 1972, Ser. No. 248,640
Int. Cl. A47b 19/04
U.S. Cl. 174—48 10 Claims

An assembly is disclosed for guiding an electrical cord such as a multiwire telephone cord through a generally planar ele-

ment such as the top of a desk or other piece of office furniture. The assembly includes a generally cylindrical sleeve adapted to be disposed within a circular aperture in the desk top so as to define a seating member and having a hollow interior of sufficient size to accommodate any portion of the electrical cord such as a relatively large plug at the leading end thereof as the cord is passed therethrough. The assembly also



includes a generally disk-shaped cap which functions as a securing member by securing the electrical cord within a recess in the edge thereof and against the inside of the sleeve as the cap is mounted over one end of the sleeve and secured in place via a spring which is mounted on one side of the cap and which engages opposite sides of the sleeve interior when expanded.

3,783,176

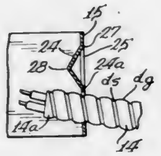
CONNECTION BETWEEN ELECTRICAL CONDUIT AND ENCLOSURE, AND METHOD

Alvin R. Lund, and Jack Kaufman, both of Chicago, Ill., assignors to Markstone Manufacturing Company

Filed Dec. 4, 1972, Ser. No. 311,848

Int. Cl. H02g *3/18*

U.S. Cl. 174—65 R **14 Claims**



A connection between a metal electric conduit and a metal enclosure wall is made by punching a hole in the wall which is circular except for the end portion of a tongue that extends into one side of the circle, shearing two slits in the wall which intersect the hole and define the sides of the tongue, bending the tongue out of the plane of the wall sufficiently to withdraw its end portion from the hole so the latter is effectively round, inserting the end of the conduit, and pressing the tongue back substantially into the plane of the wall to clamp the conduit in the hole.

3,783,177

INSULATING CAP

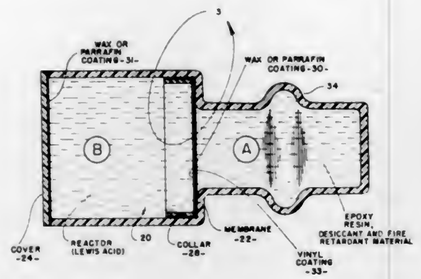
James W. Kelso, Los Angeles, Calif., assignor to Cintex Products, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 286,027, Sept. 5, 1972, abandoned. This application Feb. 26, 1973, Ser. No. 335,649

Int. Cl. H02g *15/08*

U.S. Cl. 174—87 **8 Claims**

An improved insulating cap is provided for the spliced exposed ends of a pair of insulated electric wires. The cap may be readily fitted over the spliced ends, and it is firmly and permanently held in place to provide a complete insulating cover for the exposed ends. The cap of the invention is provided with two internal chambers separated by a membrane. An insulating adhesive material, such as an epoxy resin, is held in a liquid condition in one of the chambers; and a hardener activator for the epoxy resin is held in the other chamber. The membrane provides an air tight and moisture tight seal for the activator. When the cap is fitted over the exposed spliced ends of the wires, the ends pierce the membrane and cause the activator and resin to run together so that the resin may be activated and cured rapidly to a hard insulating condition. The membrane closing the reactor chamber is treated with a coating, such as paraffin, to render the membrane impervious to corrosive attack from the activator. The activator is selected to set up an exothermic reaction when mixed with the resin, so as to provide for the rapid and thorough intermixing of the two ingredients for a complete bonding of the resin. In addition, the reaction is such that the resin forms into a firm bond within a matter of seconds, so as to facilitate the use of the cap.



3,783,178

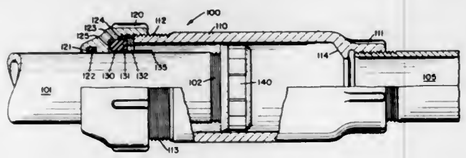
EXPANSION JOINT FOR CONNECTING RIGID CONDUIT WITH GROUNDING CONTINUITY

Robert A. Philibert, Rockville Centre; Robert Polimine, and Eversly V. Parkins, both of Brooklyn, all of N.Y., assignors to General Signal Corporation, Rochester, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,828

Int. Cl. H02g *15/08*

U.S. Cl. 174—86 **9 Claims**



In order to protect personnel, promote safety and prevent equipment damage it is conventional for electrical conduits to be grounded with a high integrity ground. Because of the expansion and contraction which may take place in electrical conduits it is sometimes necessary to provide telescoping or expansion joints. The present invention relates to a rain-tight expansion joint which provides a high integrity ground without the use of an external bonding jumper. A grounding ring is included in a head assembly and a controlled pressure is applied so that the grounding ring makes firm electrical contact with the head portion of the expansion joint and with the conduit. Grounding rings fabricated from sheet metal and tubular stock are disclosed. An O-ring is used in the head assembly to contact the conduit and protect the interior of the expansion joint from the weather and atmospheric conditions. Means are provided for limiting the travel of the conduit so that the tapered

and threaded end thereof cannot enter the sliding contact region and jeopardize the integrity of the ground.

3,783,179

LITZ WIRE FOR HIGH-FREQUENCY COILS WOUND WITH WATER-REPELLENT TEXTILE FIBRES IMPREGNATED WITH A WATER-REPELLENT AGENT

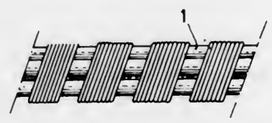
Wilhelm Ferber, Aszlar; Johannes Kahnt, and Gunter Jost, both of Wetzlar, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 18, 1972, Ser. No. 281,721

Claims priority, application Germany, Sept. 25, 1971, P 21 48 057.9

Int. Cl. H01b *7/28*

U.S. Cl. 174—121 A **4 Claims**



In high-frequency coils wound from litz wires which each comprise a plurality of strands which each have a diameter of less than 50 μm, the strands being insulated from one another (enameled) and being wound round with threads consisting of textile fibres, corrosion damage due to defect in the enamel coating are prevented by impregnating the threads with a wetting water-repellent agent which is a thin liquid at room temperature, for example undiluted chemically pure paraffin oil or a mixture of methacrylate, dimerised rosin, Japan wax and enamel petrol, the spaces between the thread layers not being filled with the agent.

3,783,180

FLUTED CABLE

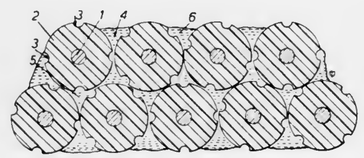
Lyndon Reginald Spicer, Llandevaud, Wales, assignor to International Standard Electric Corporation, New York, N.Y.

Filed June 13, 1972, Ser. No. 262,383

Claims priority, application Great Britain, July 15, 1971, 33189/71

Int. Cl. H01b *7/00*

U.S. Cl. 174—110 R **4 Claims**



A cable includes at least one elongated groove formed in the insulation around a conductor to provide radial and helical passages for impregnation by a viscous material such as wax. This is used for wire-guided devices connected to insulated conductors which are wound on reels of multi-layer close helical coils. The wax temporarily holds the turns together to permit the conductor to be paid off from the center of the reel without disturbing adjacent turns. The grooves permit the wax to penetrate into the gaps between the helical insulated conductors.

3,783,181

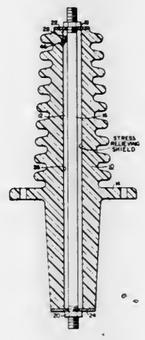
ELECTRICAL BUSHING HAVING A STRESS RELIEVING SHIELD AND METHOD OF CONSTRUCTING SAME

Paul W. Martincic, Sharpsville, and James F. Quirk, Penn Hills, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 30, 1972, Ser. No. 302,329

Int. Cl. H01b *17/26, 19/00*

U.S. Cl. 174—142 **7 Claims**



An electrical bushing having a corona shield and methods of constructing such a bushing. The bushing contains an opening through an epoxy insulator. The opening is lined with a shield having a thin conducting layer, such as a layer of aluminum, disposed on a thin insulating layer, such as a film of highly polymeric polyethylene terephthalate. The shield is wrapped around a mold plug and then epoxy is disposed around the plug. After the epoxy has cured, the mold plug is withdrawn to leave the shield attached to the wall of the molded opening. In another method of constructing a shield, a coating of conductive material is sprayed onto a mold plug which is placed into a mold. The mold plug is removed after the epoxy injected into the mold has cured and the conductive material is left as a coating on the inside of the opening provided by the mold plug.

3,783,182

ELECTRICAL BUSHING ASSEMBLY HAVING A DIRECT CABLE TO CONDUCTOR ROD TERMINAL ASSEMBLY

William E. Horton, III, Bogart, Ga., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

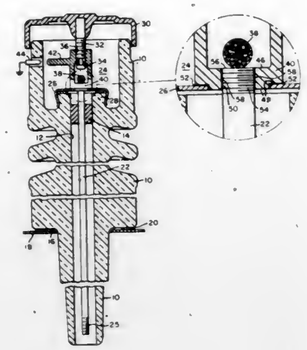
Filed Sept. 15, 1972, Ser. No. 289,403

Int. Cl. H01b *17/26*

U.S. Cl. 174—145 **1 Claim**

Bushing apparatus including a terminal assembly suitable for use with large currents. The terminal assembly clamps an

electrical cable directly to the conductor rod of the bushing. The conductor rod extends through an opening in the terminal assembly with the end of the conductor rod positioned flush



with the inside of the terminal assembly. Current flowing from the cable to the conductor rod does not appreciably flow through the terminal assembly.

3,783,183

ARRANGEMENT FOR THE CONNECTING OF TRANSMISSION DEVICES TO A PROGRAM CONTROLLED ELECTRONIC DATA EXCHANGE SYSTEM

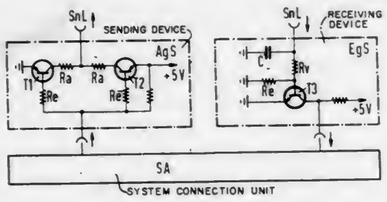
Fritz Giebler, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Apr. 20, 1971, Ser. No. 135,573

Claims priority, application Germany, Apr. 30, 1970, P 20 21 339.2

Int. Cl. H04l *15/00*

U.S. Cl. 178—3 **3 Claims**



A circuit arrangement is described for transmitting binary signals at high speeds between data signal transmission devices and system connections of a program controlled data exchange, even though the latter elements may be remotely located one from the other.

Interface lines interconnect the system connections and the transmission device for data traffic in either direction therebetween. Each interface line end is connected to one of a sending circuit or a receiving circuit. The sending circuit transmits either of two voltage levels corresponding to the logic levels and maintains a constant internal resistance, regardless of the voltage being transmitted. The receiving means has a threshold value intermediate of the two binary voltage levels. Conventional cable having multiple lines is used for the interface cable, and a portion of the lines therein are grounded at both ends to prevent inter-line disturbance.

3,783,184

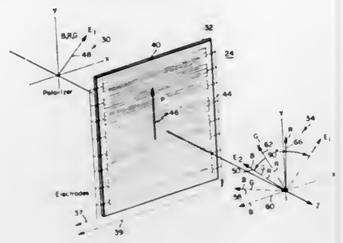
ELECTRONICALLY SWITCHED FIELD SEQUENTIAL COLOR TELEVISION

Michael N. Ernstoff, Mar Vista; Eric R. Fehr, Los Angeles; William C. Hoffman, and Richard N. Winner, both of Torrance, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 8, 1972, Ser. No. 232,890

Int. Cl. H04n *9/12*

U.S. Cl. 178—5.4 BD **3 Claims**



A high brightness, field sequential color television display system utilizing electronically controlled color switching of ferro-electric ceramic wafers. The stationary filter provides a color change electronically and color switching is the result of selected retardations of the signals for each of the basic red, green and blue colors so that a rapid field sequential operation is performed. The system employs two polaroid filters, the polarizer and the analyzer, with a ceramic material positioned intermediate thereto, to control the polarization of the light passing through it by the desired amounts and therefore provide the primary colors. Wavelength selection over a relatively narrow bandwidth is thus achieved by using a material with the property to obtain angles for transmission as a function of the wavelength. The color image is formed in the field sequential fashion by placing the spectral filter in front of a cathode ray tube and observing the various intensities of white light on the face of the tube through the composite filter.

3,783,185

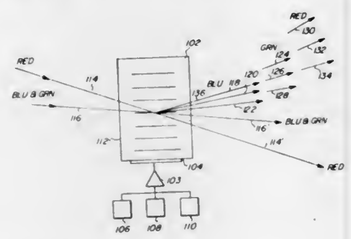
MULTI-COLOR ACOUSTOOPTIC MODULATOR

Richard A. Spaulding, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 28, 1972, Ser. No. 221,668

Int. Cl. H04n *1/46, 5/84*

U.S. Cl. 178—5.2 **28 Claims**



An apparatus and method are disclosed for acoustooptically modulating and diffracting a plurality of optical wavelengths contained in laser light impinging on an acoustooptic cell to form a composite output beam comprising intensity modulated component beams of selected wavelengths present in the impinging laser light. To accomplish this, a plurality of amplitude modulated electrical signals of different fixed frequencies are applied to an electrical-to-acoustical transducer operatively attached to the cell. Every frequency applied to the transducer produces an acoustic wave within the cell to form a diffraction spectrum of the wavelengths present in the laser light impinging or incident on the cell. The acoustic wave producing electrical frequencies are chosen such that diffracted component beams of selected wavelengths are collinear. Thus, the collinear component beams form a composite output beam comprising the selected diffracted wavelengths. Non-collinear beams of the selected wavelengths as well as unwanted diffracted wavelengths and undiffracted beams are masked or blocked from further passage through the optical system. The amplitudes of the electrical signals producing the acoustic waves within the cell are modulated independently to control the intensities of the individual component beams of selected wavelengths present in the composite output beam. The laser light impinging on the cell can comprise a single multi-wavelength beam; two collinear beams of different wavelengths and a third noncollinear beam of another wavelength; or beams of different wavelengths can be mutually noncollinear, the angles of impingement being chosen in accordance with what electrical frequencies are applied to the transducer.

3,783,186

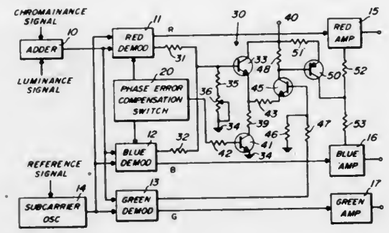
AUTOMATIC HUE CONTROL AND METHOD

William H. Slavik, and Brett A. Valiquet, both of Palos Hills, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 15, 1972, Ser. No. 253,375

Int. Cl. H04n *9/12*

U.S. Cl. 178—5.4 HE **12 Claims**



In a three-color television receiver utilizing red, blue and green demodulators, variable phase shifting networks (or permanently phase shifted networks) are connected to supply to the red and blue demodulators reference signals with predetermined phases relative to the synchronizing signal. A reference signal is provided or the red and blue components of the chrominance signal are combined to form a negative green component and the positive green component is compared thereto to provide a source of signal for reducing the output of the red and blue component amplifiers when the positive green component exceeds the reference signal.

3,783,187

FACSIMILE TRANSMISSION SYSTEM

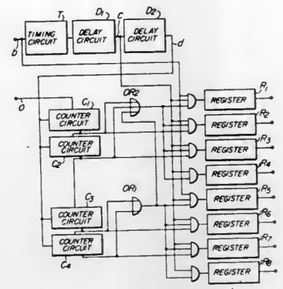
Takeo Kusama, and Takashi Hyodo, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 7,966, Feb. 2, 1970, abandoned. This application May 5, 1972, Ser. No. 250,723

Int. Cl. H04n *7/12*

U.S. Cl. 178—6 **16 Claims**

A facisimile transmission system wherein each of white or black run lengths of an original picture is coded into a binary form, whose bit number is required to represent the maximum run length of said original picture, and each of the codes constituted by said number of bits is divided into blocks, each thereof containing a predetermined number of bits, and a bit for discriminating whether the code represents a white or black run length is added to the block containing a first "1" bit starting from the highest order block and is also added to the succeeding block or blocks, thereby eliminating the block or blocks, which precede said block containing the first "1" bit



and contain only "0" bits to constitute only insignificant portions, so as to reduce the number of bits of the codes to be transmitted and to thereby compress a bandwidth of a facsimile signal. Typically, the number of bits of a run length is less than ten, but not necessarily.

3,783,188

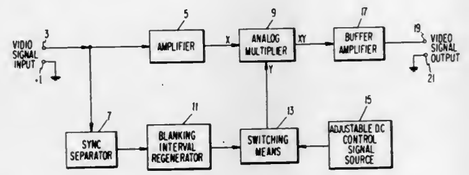
FADE-TO-BLACK VIDEO SIGNAL PROCESSING APPARATUS

Winslow Leroy Hurford, Cape Coral, Fla., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 17, 1972, Ser. No. 244,564

Int. Cl. H04n *5/22*

U.S. Cl. 178—6.8 **6 Claims**



Fade-to-black video signal processing apparatus, used to fade picture portions of a video signal provided from a source not synchronized to available studio sync, employs an analog multiplier as a fader element. Apparatus to regenerate horizontal and vertical blanking interval pulses, arranged for synchronization with the video signal, is used to place the analog multiplier into full gain condition during the horizontal and vertical blanking intervals of the video signal.

3,783,189

TELEVISION SYSTEM FOR PRECISELY MEASURING DISTANCES

Christopher M. Nelson, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

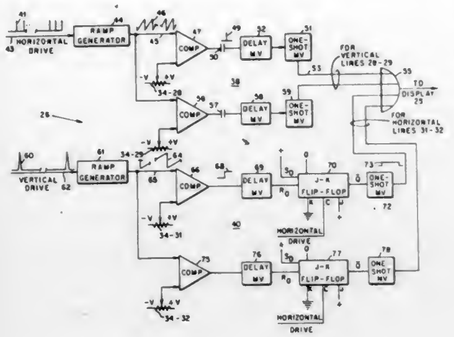
Filed June 1, 1972, Ser. No. 258,643

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **9 Claims**

An alignment detection system for the long pipe, including a television camera mounted at one end of the pipe for viewing pre-indexed light sources mounted inside and along the length of the pipe, a television display for viewing images of the light sources, a line generator for developing a plurality of *x–y*

traces on the television display, each x and y trace being movable to pass through a light-source image and thereby locate the image with respect to a reference point to indicate the amount of lateral pipe misalignment.



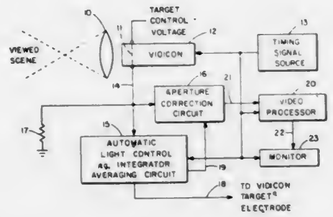
Microscopic lengths may also be measured with the system by magnifying the image of the length before viewing with the television camera and using only y traces derived from a horizontal drive signal.

3,783,190

APERTURE CORRECTION CIRCUIT FOR LOW LIGHT LEVEL TELEVISION CAMERA

Rolf Gaebele, Redwood City, Calif., assignor to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Apr. 8, 1971, Ser. No. 132,443
Int. Cl. H04n *5/14*
U.S. Cl. 178—7.2 **5 Claims**



An aperture correction circuit for a low light level television (LLLTV) camera comprises a transistor differential amplifier having a delay line connected between the transistor base electrodes and a voltage controlled variable resistor, such as a Raysistor, connected between the emitter electrodes of the transistors. The control voltage for the Raysistor is derived from the video signal amplitude or the target control voltage as a measure of the average value of the intensity of light from a viewed scene. The control signal may be obtained from a threshold circuit or from the automatic light control circuit.

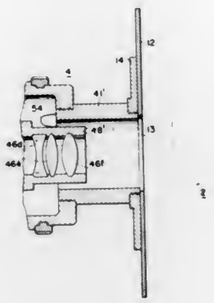
3,783,191

OBJECTIVE LENS FOR TELEVISION CAMERAS

Noboru Sugimoto, Fujiidera, and Shoichi Ohneda, Wakayama, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-shi, Japan

Filed Dec. 27, 1972, Ser. No. 318,945
Claims priority, application Japan, Dec. 28, 1971, 46/122661
Int. Cl. G02b *7/02*
U.S. Cl. 178—7.92 **12 Claims**

An objective lens for television cameras is provided wherein a bodytube supporting the objective lens and a shield case of the electrical system of the camera including the vidicon tube are maintained at the same potential when connected to each other for preventing disturbances on the received picture image caused by a potential discrepancy in the transmitting system. The objective lens has a mounting or coupling portion by way of which the lens is conductively mounted on the casing of the electric system of the television camera accommodating the vidicon tube. In order to improve conductivity in the connection between the mounting portion of the objective



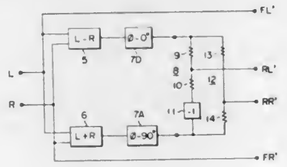
lens and the closest portion to the television camera of a movable member which supports the lenses, conduction surfaces are provided on the mounting portion and the closest portion to the television camera of the movable member and an electrically conductive member is interposed between the two conduction surfaces in constantly contacting relationship therewith for maintaining the closest portion to the television camera of the objective lens and the photoelectric surface of the vidicon at the same potential.

3,783,192

DECODER FOR USE IN MATRIX FOUR-CHANNEL SYSTEM

Susumu Takahashi, Tokyo, Japan, assignor to Sansui Electric Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1972, Ser. No. 317,134
Claims priority, application Japan, Dec. 30, 1971, 47/3172; Nov. 30, 1972, 47/120033
Int. Cl. H04r *5/04*
U.S. Cl. 179—1 GQ **14 Claims**



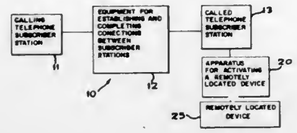
A decoder for use in an SQ matrix four-channel system comprises first and second matrix circuits for forming a difference signal and a sum signal of the first and second channel signals respectively. The output signals from the first and second matrix circuits are supplied to third and fourth matrix circuits to produce reproduced rear signals which are supplied to two rear loudspeakers disposed to the rear of a listener. Between the first and second matrix circuits and third and fourth matrix circuits is connected at least one phase shifter which gives a phase difference of about 90° between the output signals from the first and second matrix circuits. The first and second channel signals are supplied to respective ones of two front loudspeakers disposed in the front of the listener.

3,783,193

APPARATUS FOR ACTIVATING A REMOTELY LOCATED DEVICE IN RESPONSE TO THE RINGING OF A CALLED TELEPHONE SUBSCRIBER STATION

Martin Lee, Santa Clara, Calif., assignor to Pantek Corporation, San Mateo, Calif.

Filed Jan. 28, 1971, Ser. No. 110,520
Int. Cl. H04m *11/00*
U.S. Cl. 179—2 A **8 Claims**



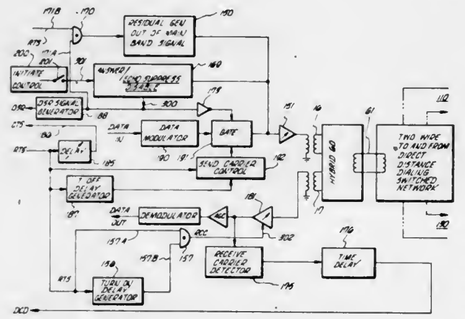
Apparatus for the activation of a remotely located device under the control of telephone subscriber lines and stations. The apparatus of the present invention is located in the vicinity of a called telephone subscriber station and is operated to activate a remotely located device through two series of ringing signals initiated by a calling telephone subscriber station and produced by the called telephone subcriber station. The first series of ringing signals activates a timer which resets a counter that controls the operation of the remotely located device providing the counter is not on a preselected code position. The timer disables the counter from receiving counting pulses during the first series of ringing signals. In addition thereto, the timer enables the counter to receive counting pulses during a period P_2. Should the second series of ringing signals be produced by the called subscriber station within the period P_2 and be a preselected number of ringing signals, the counter will then activate the remotely located device.

3,783,194

DATA MODEM HAVING A FAST TURN-AROUND TIME OVER DIRECT DISTANCE DIALED NETWORKS

Viesturs Valentins Vilips; Joseph Lowey, both of Miami Lakes, and Paul E. Payne, Fort Lauderdale, all of Fla., assignors to Milgo Electronic Corporation, Miami, Fla.

Filed Nov. 20, 1972, Ser. No. 308,286
Int. Cl. H04m *11/06*
U.S. Cl. 179—2 DP **18 Claims**



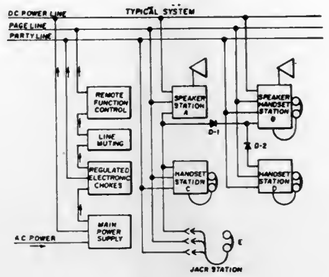
This invention relates to data communication over networks employing echo suppressors. The invention generates a tone to initially disable the echo suppressors, thereafter whenever the network is free of data a tone generator is enabled to supply a signal at a frequency outside the frequency range of data transmission to keep the echo suppressors disabled during the absence of data transfer in either direction thereby effecting a data transmission system with a reduced turn around time.

3,783,195

PLANT TELEPHONE COMMUNICATION SYSTEM

Paul B. Day, 1406 Holland Rd., Reading, Pa.

Filed Dec. 22, 1971, Ser. No. 210,758
Int. Cl. H04m *13/00*
U.S. Cl. 179—28 **19 Claims**



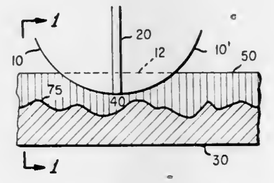
This invention relates to a voice communication system for intra or interplant use and which operates with a constant D.C. line voltage with relatively lower currents to enable the lines to be much longer with less power loss. The line impedance may be of the order of 3,300 ohms. The system includes a complete handset amplifier and selector switch within the handset handle. A resistor in series with one of the lines provides energizing voltage to a silicon controlled rectifier which is also energized by an A.C. source to energize a relay or other controlled device. The system is basically a voltage system as compared to a regular telephone which is basically a current system.

3,783,196

HIGH-DENSITY CAPACITIVE INFORMATION RECORDS AND PLAYBACK APPARATUS THEREFOR

Thomas Osborne Stanley, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,678
Int. Cl. G11b *3/44, 9/06;* **H04n** *5/76*
U.S. Cl. 179—100.1 B **20 Claims**



A high-density information record comprises a stamped thermoplastic (e.g., vinyl) disc having a constant-width spiral surface groove, the center-to-center spacing of successive closely spaced convolutions of the groove spiral being substantially constant and independent of the recorded information. The recorded information appears as an information track constituting variations in the geometry of the groove bottom along its length. Playback apparatus employs a stylus having a tip conformed to be received in the disc groove in engagement with smoothly curved side walls of groove. As a disc-supporting turntable rotates, the stylus rides in the groove passing over successive dimension-varying information track elements in the groove bottom, which serve to vary the capacitance presented between a conductive electrode incorporated in the stylus tip and a reference conductor (e.g., a conductive surface of the disc-supporting turntable). The capacitance variations occurring during playback are trans-

lated into electrical signal variations by appropriate circuitry. Per illustrative embodiment, inexpensively replicated video disc of appreciable playing time is subject to playback by above-described techniques.

3,783,197

DATA ACQUISITION AND RECORDING SYSTEMS

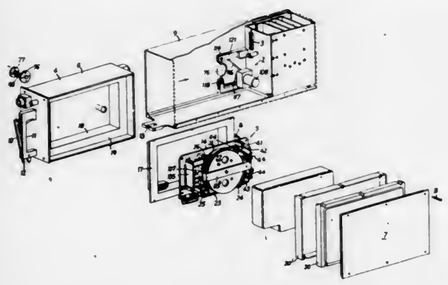
Frank Richard Towner, Wokingham, England, assignor to Sperry Rand Limited, London, England

Filed Aug. 24, 1971, Ser. No. 174,344

Claims priority, application Great Britain, Aug. 26, 1970, 41,019/70

Int. Cl. G11b *23/04, 15/18*

U.S. Cl. 179—100.2 Z **10 Claims**



A compact flight data acquisition and recording system is disclosed in which a recorder unit is detachable from the remainder of the system. The recorder unit comprises a casing in which is mounted a tape deck and drive means for the tape deck is mounted externally of the recorder unit and is disconnectible from the tape deck when the recorder is detached from the system.

3,783,198

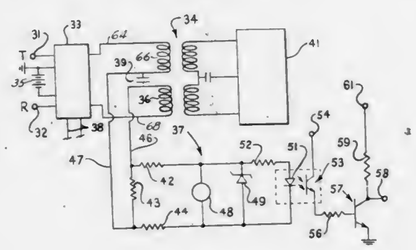
BATTERY REVERSAL DETECTION

Francis O. Couch, Belmont, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Mar. 18, 1971, Ser. No. 125,674

Int. Cl. H04m *3/22*

U.S. Cl. 179—16 AA **4 Claims**



Electronic circuitry for detecting battery reversal in telephone control signaling while completely isolating signaling circuits with logic circuits and at the same time interfacing signaling circuits with logic circuits.

3,783,199

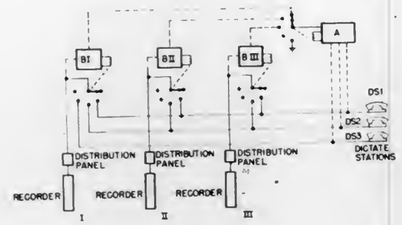
SWITCHING APPARATUS FOR SELECTIVELY INTERCONNECTING OILTATION MACHINES AND STATIONS

William M. Nye, Seattle, and Stanley W. Jones, Bellevue, both of Wash., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Division of Ser. No. 49,432, June 24, 1970, Pat. No. 3,705,961. This application Feb. 24, 1972, Ser. No. 229,083

Int. Cl. G11b *19/00;* **H04m** *11/10*

U.S. Cl. 179—100.1 DR **3 Claims**



A plurality of central dictation systems are selectively interconnected between a plurality of dictate stations by way of a recorder selector switch and dictate station selector switches. Rotary stepping switches may be used as the selector switches. An off-hook dictate station condition causes a dictate station selector switch of an available recorder to hunt for the off-hook dictate station. After the dictate station is located, the recorder selector switch then hunts for the next available recorder. Another feature is that every other pulse of a rectified standard 60-cycle per second current is utilized, with the pulses spaced by a time interval sufficient to allow the control circuits and mechanical movements in both the switching apparatus and recorder-transcriber to effectively seize an available recorder-transcriber prior to the next pulse. The dictate station energizes a stepping circuit when the headset is raised (off-hook condition) only after a predetermined delay to preclude the stepping circuit from responding to simultaneous off-hook signals from multiple dictate stations. Only a portion of the rectified 60-cycle voltage is utilized in the control circuits so tat the maximum voltage capability of the transistor components in the circuits is not exceeded.

3,783,200

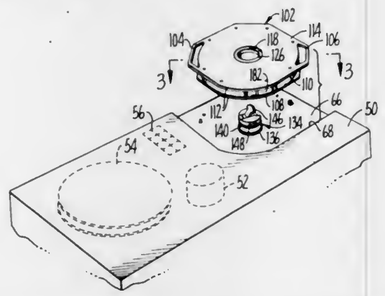
SELF-THREADING MAGNETIC TAPE TRANSPORT AND MAGAZINE

Johannes K. Jantzen, Mountain View, Calif., and Robert L. Moore, La Grange, Ill., assignors to International Video Corporation, Sunnyvale, Calif.

Filed Aug. 18, 1971, Ser. No. 172,649

Int. Cl. G11b *15/18*

U.S. Cl. 179—100.2 T **1 Claim**



A self-threading magnetic tape transport and dust-tight tape magazine for use therewith. When the magazine is in place on the transport, a locking hub/turntable breaks the dust seal and permits the enclosed tape reel to rotate freely within the magazine. Upon giving the load command, an automatic threading procedure is initiated that opens an access door in the magazine, inserts a puck drive wheel to drive the stiff leader on the end of the tape past a stripper arm into a threading path. A spirally grooved sleeve threads the leader around the helical scan assembly. After passing the scanner, the puck is withdrawn and the leader is driven by the capstan. A set of guide arms directs the leader around the slowly rotating take up reel where it is cinched up by friction to complete the automatic threading. Tape cannot leave the magazine if the magazine is improperly installed by the operator due to the configuration of the magazine and transport top cover in conjunction with guide finders and interlocks.

3,783,201

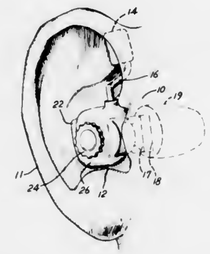
MINIATURE HEARING AID STRUCTURE

Erwin M. Weiss, Chicago, and Richard Brander, Cicero, both of Ill., assignors to Beltone Electronics Corporation, Chicago, Ill.

Filed Dec. 2, 1970, Ser. No. 94,273

Int. Cl. H04r *25/02*

U.S. Cl. 179—107 E **5 Claims**



A hearing aid structure is provided in which all of the components of the hearing aid may be fitted within a person's ear. The structure includes a main housing for a power source and an amplifier and a microphone housing isolated from the main housing and connected to it by a deformable, flexible, skeletal structure. A receiver is compliantly connected to the main housing and an ear seal is rigidly coupled to the receiver and adapted to fit snuggly into the ear canal of a person's ear.

3,783,202

SPEAKER SYSTEM AND ELECTROSTATIC SPEAKER

Lloyd J. Bobb, Glenside, Pa., assignor to Chester C. Pond, Doylestown, Pa.

Continuation of Ser. No. 724,805, April 4, 1968, abandoned. This application Jan. 7, 1971, Ser. No. 104,741

Int. Cl. H04r *19/02*

U.S. Cl. 179—111 R **15 Claims**

A speaker system incorporating an electrostatic speaker and a dynamic speaker in which a cross-over network is employed providing for operation of the dynamic speaker only up to the frequency at which it will function as a piston. Also, a flat push-pull electrostatic speaker incorporating a pair of planar single ended electrostatic speakers so constructed as to maintain omni-directional tensioning of their respective electrically conductive membranes and electrical contact therewith and to provide controlled spacing between each membrane and its associated conductive perforated backing plate and constructed to provide acoustic coupling of the pair of speakers by means of a thin air film of controlled thickness at ambient pressure.

3,783,203

APPARATUS FOR THE FEED-IN AND FOR DISTRIBUTION OF AN ELECTRIC CURRENT

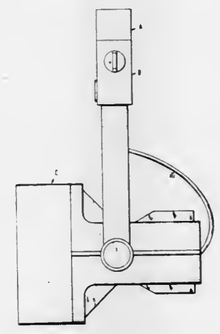
Heinz Seelbach, Kierspe, and Gerhard Eversberg, Ludenscheid, both of Germany, assignors to Firma Erco-Leuchten K. G., Reininghaus, Germany

Filed Feb. 11, 1972, Ser. No. 225,445

Claims priority, application Germany, Feb. 11, 1971, P 21 06 422.2

Int. Cl. B60m *1/34*

U.S. Cl. 191—23 **15 Claims**



An apparatus for feeding and distributing an electric current in electric line rails, which comprises a profiled carrier rail having a longitudinal, central receiving channel. Pole rails are disposed in superposed planes inside of the profiled carrier rail on both sides of the receiving channel. A zero conduit rail and a grounding rail are also provided. Both last mentioned rails are disposed in the receiving channel. A terminal box carries a lamp capable of being coupled at any selected point of the electric line rails. A terminal coupling connects at one point of the carrier rail at least one main to the rails on the side of the carrier rail, and an electric line rail comprises at least three pole rails, the zero conduit rail, and the grounding rail. The coupling includes a frame-shaped housing of insulating material which is longitudinally rectangular, and open in an upward direction and closed downwardly by a removable cover. A coupling plug body has its cross-section adjusted to the cross-section of the receiving channel and is integral at least one end side of the frame housing and step-like setoff and projecting relative to the latter. The coupling plug body has

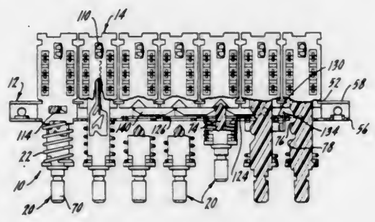
transmission contacts for the electric current corresponding with the contact rail arrangement in the electric line rail disposed in planes superposed, adjacent each other in pairs and laterally projects, and a grounding member extends beyond the transmission contacts and is disposed corresponding with the grounding rail on the side of the electric line rail. The coupling plug body is also equipped with a clamping means for causing a mechanical clamping holding of the coupling in the electric line rail, and comprises a guide plate, retained on the bottom side of the coupling plug body and engages over parts of the width on both sides in longitudinal pockets of the carrier rail free of the contact rails, and a clamping plate, provided in a longitudinal guide slot of the carrier rail in a plane therebelow, arranged one-sided only on one side of the conduit rail, and free of the rails, in order to insure a non-interchangeability during insertion of the coupling. A tension screw clamps together the guide plate and the clamping plate, as well as a carrier rail stay therebetween, against the latter and relative to each other.

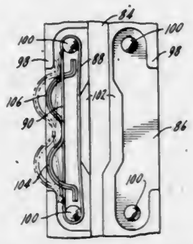
3,783,204

MULTIPLE CIRCUIT CONTROL PUSHBUTTON SWITCH ASSEMBLY WITH IMPROVED PUSHBUTTON ACTUATOR LATCH BAR MECHANISM AND MOVABLE CONTACTS

Maurice E. Kennedy; Bernard J. Golbeck, both of Crytsal Lake, and Raymond F. Lewandowski, Mt. Prospect, all of Ill., assignors to Oak Industries Inc., Crystal Lake, Ill.

Filed Sept. 11, 1972, Ser. No. 287,973
Int. Cl. H01h *9/26*
U.S. Cl. 200—5 EB **16 Claims**





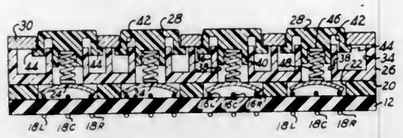
A pushbutton switch construction utilizes a shorting bar having integral but independently flexible arms. The shorting bar is positioned in the switch plunger and arranged to electrically connect at least two contact terminals within the switch housing. The cam follower which moves within a cam slot in the switch plunger also functions as a stop preventing accidental removal of the plunger. A plurality of such switches are fastened to a channel with blockout members being slidably arranged within the channel in front of the switch housings. There are cooperating portions on each blockout member and the adjacent plungers such that only one of such plungers may be moved inwardly to an operative position. A latch bar is positioned in the channel and arranged for sliding movement adjacent the blockout members. A latch bar spring is positioned on the front of the channel and has portions extending through the channel and into cooperative relationship with the latch bar.

3,783,205

KEYBOARD SWITCH MATRIX ASSEMBLY WITH IMPROVED GUIDE MEANS FOR REDUCING TRANSFER OF BOUNDING MOTION TO MOVABLE CONDUCTOR

Henry J. Boulanger, Cumberland, Providence County, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1971, Ser. No. 192,995
Int. Cl. H01h *13/30*
U.S. Cl. 200—5 A **18 Claims**



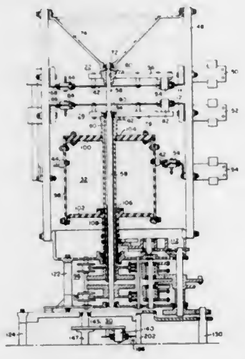
A system employing a keyboard comprises a base mounting an array of key bodies each adapted to reciprocably move to cause actuation of electrical circuits. A diaphragm is employed as an electrical conductor moving into and out of engagement with underlying contacts upon actuation and deactuation of the key body. Bounding problems have been minimized while maintaining tactile feedback by locating a spring member between the key and its respective diaphragm providing increased motion differential and by providing elongated guiding surfaces which eliminate skew movement of the key. Several forms of keys and key mountings are shown embodying the elongated guideway including an elongated hub molded in the bezel plate and receiving a close fitting rod portion of the key, a separate tubular guide and close fitting plunger, and a key having tabs extending laterally therefrom, the tabs slidably received in grooves formed in the base. Another embodiment particularly useful where two or more circuits are to be actuated from the same key employs a second spring to maintain the diaphragm away from the underlying contacts until the key is depressed thereby precluding undesirable back circuits without the use of blocking diodes or the like.

3,783,206

TAP CHANGING APPARATUS WITH IMPROVED CONTACT STRUCTURE TO ELIMINATE ELECTRICAL FIELDS ACROSS OPEN INTERRUPTER SWITCHES

Robert C. Lingenfelter, Sharon, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 6, 1972, Ser. No. 269,364
Int. Cl. H01h *21/20*
U.S. Cl. 200—11 TC **8 Claims**



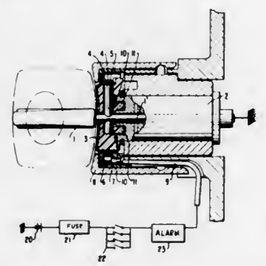
Apparatus for providing load tap changes having means for protecting the current interrupting switches from winding surge voltages. Current interrupting switches are connected to stationary contacts of a load transfer switch. Movable contacts of the load transfer switch rotate during a tap change to shunt the open and closed current interrupting switches and to eliminate the electrical fields across open current interrupting switches upon completion of the tap change.

3,783,207

STEERING LOCK IN MOTOR VEHICLES

Gerhard Schiesterl, Stuttgart-Mohringen, and Josef Eibl, Ingolstadt/Donau, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Division of Ser. No. 11,167, Feb. 13, 1970. This application June 6, 1972, Ser. No. 260,216
Int. Cl. H01h *27/00*
U.S. Cl. 200—44 **7 Claims**



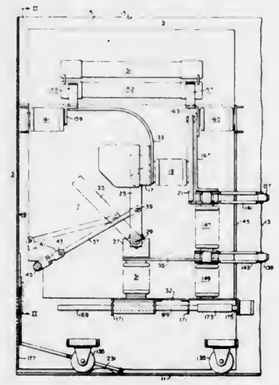
A steering lock for a motor vehicle which includes a make-contact to actuate a warning installation when the ignition key is left inserted in the lock and a vehicle door is opened; the locking cylinder of the steering lock includes a mounting support made from insulating material which contains two opposite pins or spring-ring parts projecting into the path of the key but without contacting one another; the inner ends of the pins or spring-ring parts may be constructed ball-shaped, conical, or the like, and are in contact with their outer ends at a slip-ring that is connected with the warning installation.

3,783,208

METAL-ENCLOSED SWITCHGEAR WITH INTERLOCK MEANS

Norman Davies, Trafford, and Robert E. Wobrak, Irwin, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 17, 1972, Ser. No. 272,702
Int. Cl. H01h *9/24, 33/50*
U.S. Cl. 200—50 AA **9 Claims**



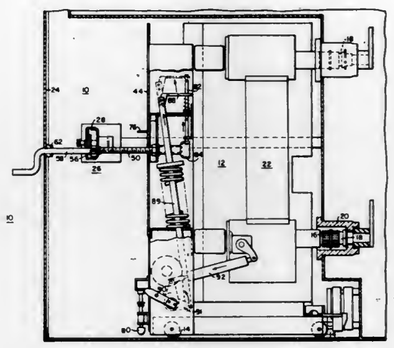
Metal-enclosed switchgear comprising improved safety interlock means for preventing withdrawal or insertion of a circuit interrupter, or charging of the overcenter spring means, under certain conditions.

3,783,209

MECHANISM FOR HOLDING AND LEVERING LARGE DRAW OUT TYPE CIRCUIT BREAKERS

Charles M. Cleaveland, Irwin, and Fred Bould, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 31, 1972, Ser. No. 302,623
Int. Cl. H01h *33/50*
U.S. Cl. 200—50 AA **8 Claims**



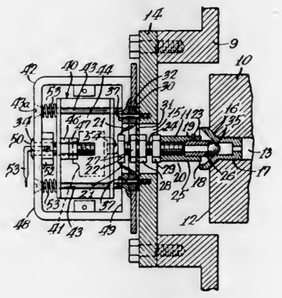
A levering and holding device is provided for positioning large circuit breakers in a switchgear compartment or cell. The levering and holding device comprises a box beam which can be secured to the cell walls and a rotatable threaded shaft which is connected to the beam. A threaded shaft has a nut threaded thereon and has one end fixed to the beam. The thread shaft may be rotated with a crank. The breaker is attached to the nut, and as the shaft is rotated, the nut is moved along the shaft and moves the breaker into position. Interlocks are provided to prevent the breaker from being levered into the cell when the beam is not engaged in the cell wall and to prevent the beam from being disengaged from the cell wall unless the breaker is in a fully disengaged position. Another interlock is provided so that when the breaker is closed and in the operating position the threaded shaft cannot be rotated to lever out the breaker.

3,783,210

SHAFT POSITION AND WEAR INDICATOR SWITCH DEVICE

Robert E. Spooner, 6212 W. Catalpa Ave., Chicago, Ill.

Filed July 28, 1972, Ser. No. 276,126
Int. Cl. H01h *3/16*
U.S. Cl. 200—61.4 **19 Claims**



A shaft wear indicator for both axial and radial displacement of a shaft is disclosed. One end of an elongated probe assembly is maintained against the center of rotation of an ex-

posed end of the shaft rotatably supported upon bearings in a housing. The probe end facing the shaft is concave, and a ball bearing is captured between this concavity and the shaft end. The probe is resiliently supported at the shaft end in alignment with the shaft axis by being passed centrally through a diaphragm spaced from the end of the shaft and fixed therein, with the diaphragm held about its periphery by a rigid annular plate secured to the housing. The probe is biased toward the shaft by either a spring or by means of the vacuum created over the side of the diaphragm facing the shaft end. A sensing device including one or more microswitches bears upon the end of the probe opposite that facing the shaft to sense displacements of the shaft with respect to the shaft housing transmitted via the probe assembly. More than one diaphragm, each of a different exposed area and axially spaced from the other along the probe assembly to define chambers therebetween, may be used for convenience if detection of bearing oil pressure failure is also desired. If a positive pressure greater than atmospheric is provided, rather than a vacuum with double-acting micro-switches, pressure failure detection may also be accomplished with a single diaphragm.

3,783,211

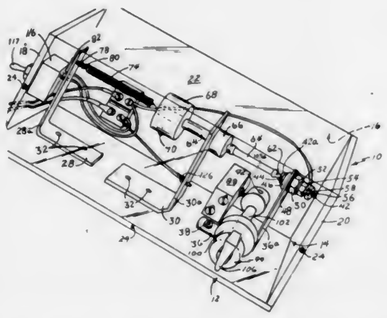
SAFETY IMPACT SWITCH DEVICE FOR MOTOR VEHICLES

Pietro Panettieri, Taunton, Mass.

Filed Aug. 5, 1971, Ser. No. 169,408The portion of the term of this patent subsequent to Feb. 22, 1989, has been disclaimed.

Int. Cl. H01h *35/14*

U.S. Cl. 200—61.50 **6 Claims**



A safety impact switch device is normally connected to the ignition system of a motor vehicle and is automatically disconnected by force of an impact resulting from a vehicle collision the disconnection being effected by movement of a comparatively heavy article connected to a contact member. The switch device is combined with reset apparatus, and one side of a housing provides the basic support for the mounting members that support the actuating mechanism of my device.

3,783,212

CONTACTS FOR USE IN VACUUM SWITCH ARRANGEMENTS

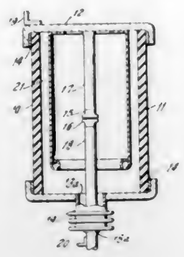
Arthur C. Bates, Greensburg, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Continuation of Ser. No. 750,503, Aug. 6, 1968, abandoned. This application July 28, 1971, Ser. No. 167,024

Int. Cl. H01h *9/30, 33/00*

U.S. Cl. 200—144 **5 Claims**

This invention discloses vacuum interrupter contacts and methods for manufacturing same. The contact compositions and the methods for producing same yield a contact structure which is capable of sustaining an arc at relatively low current conditions so as to prevent the occurrence of the "current chipping" effect. One contact composition which is comprised of spiral wound conductive and vapor cloud forming materials further performs the function of generating an electromag-



netic field having a radial component which causes the ends of the arc to move over the contact surfaces to prevent burning of the contact surfaces due to an arc whose ends may remain stationary so long as the arc persists.

3,783,213

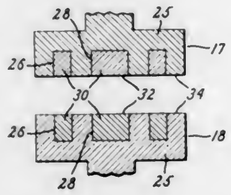
VACUUM TYPE ELECTRIC CIRCUIT INTERRUPTER

Victor W. Amoth, Media, Pa.; Graham R. Mitchell, Willingboro, N.J., and Carl C. Popadick, West Chester, Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed Apr. 27, 1972, Ser. No. 247,995

Int. Cl. H01h *33/66*

U.S. Cl. 200—144 B **6 Claims**



A vacuum-type circuit interrupter comprises separable contacts, each comprising a body of iron having one or more recesses therein and a material within the recesses consisting essentially of copper and bismuth, the bismuth being present in an amount of a few percent or less by weight of the material. When the interrupter is first operated, the arcing surface of each contact is constituted by portions of copper-bismuth and by portions of iron.

3,783,214

CIRCUIT INTERRUPTER WITH IMPROVED OVERCENTER SPRING OPERATING MECHANISM

Norman Davies, Trafford, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

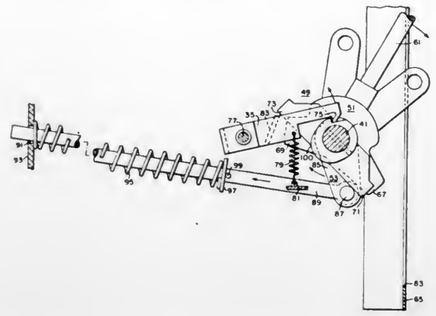
Filed June 7, 1972, Ser. No. 260,637

Int. Cl. H01h *3/30*

U.S. Cl. 200—153 SC **5 Claims**

An improved circuit interrupter comprises an operating shaft pivotally movable to move a movable contact structure, an overcenter spring operating mechanism movable by means of a manually operable drive means from a spring discharged position to an overcenter spring charged position, latch means in a latching position for latching the operating shaft until the overcenter spring operating mechanism reaches the overcenter spring charged position and means automatically unlatching the latch means when the overcenter spring operating mechanism reaches the overcenter spring charged position to

permit the overcenter spring operating mechanism to drive the movable contact structure to the closed position independent of the manually operable drive means. The latch means



may also be a double latch for performing the same latching function during an opening operation. The latch means prevents slow closing and opening operations of the circuit interrupter.

3,783,215

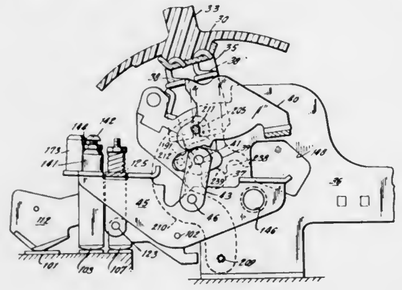
POSITIVE ON POSITION INDICATOR

John C. Brumfield, Drexel Hill, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed July 27, 1972, Ser. No. 275,622

Int. Cl. H01h *3/46*

U.S. Cl. 200—153 G **9 Claims**



A molded case circuit breaker having spring powered overcenter toggle contact operating mechanisms is provided with means to prevent the operating handle from moving to its off position unless the contacts are open. This means may engage the toggle near the knee thereof to assist in driving the toggle over center during opening movement of the handle.

3,783,216

SAFETY SWITCH MECHANISM

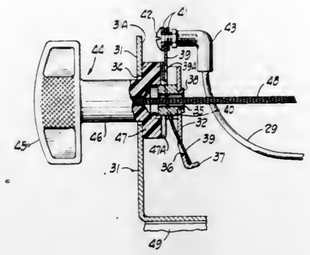
Gerhard R. Plamper, Parma, and Juergen Kaesgen, Brunswick, both of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Nov. 6, 1972, Ser. No. 304,072

Int. Cl. H01h *17/08*

U.S. Cl. 200—161 **4 Claims**

A safety switch mechanism for use in connection with a recoil starter using a rope or cable. Such a starter is used on the usual internal combustion engine mounted on a vehicle such as a tractor which carries with it a powered tool such as a grass cutting unit. The mechanism is particularly adapted for safety systems wherein the engine is short-circuited so that the engine can not be started by pulling the rope or cable unless both the clutch of the tractor and the clutch of the powered tool are disengaged. This safety switch mechanism has a unique construction enabling it to be locked in open position so that the switch mechanism is not inadvertently opened by



vibration or other means after the engine is started and the tractor and powered tool are being used. This is an abstract only of the specific illustration of the invention given by way of example, and is not to be used in the interpretation of the claims nor as a limitation on the scope of the invention.

3,783,217

HIGH FREQUENCY PRESS WITH CAPACITIVE TUNING

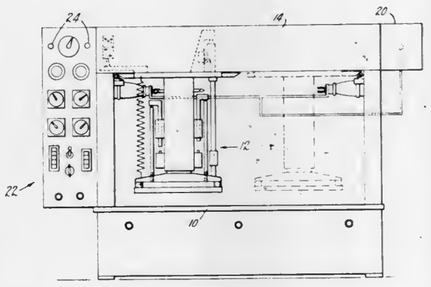
Terence J. Brown, Wigston, England, assignor to USM Corporation, Boston, Mass.

Filed Feb. 14, 1972, Ser. No. 226,118

Claims priority, application Great Britain, Feb. 19, 1971, 4,994/71

Int. Cl. B23k *13/02*; **H05b** *9/04*

U.S. Cl. 219—10.53 **3 Claims**

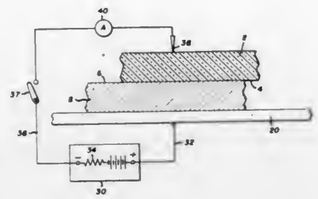


A press for applying high frequency welding and cutting energy to a workpiece placed between platens of the press, at either of two work stations at each of which the platens apply pressure and high frequency energy to the workpiece, has control means for independently tuning a generator of the high frequency energy to selected conditions at each work station. A parallel plate capacitor associated with the generator for the high frequency energy has a capacitance adjustable by changing the spacing between the parallel plates to tune the generator. The plates are urged toward each other by a spring and separated from each other by tension in a cable secured to the spring-movable plate. Means for controlling the cable include a camming member and adjustable stop means for shifting the cable in response to the work station locations of the platen to independently adjust the capacitance at each work station.

3,783,218
ELECTROSTATIC BONDING PROCESS

Norbert Adams, Syracuse, and Edward A. Baum, Liverpool, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Jan. 12, 1972, Ser. No. 217,117
Int. Cl. B23k *13/02*
U.S. Cl. 219—10.53 8 Claims

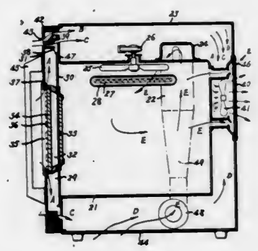


A process is disclosed for uniting a plurality of one or more vitreous members with one or more metallic members. The metallic members can be bodies of semiconductor material of either the monatomic or compound type. Such bodies are united in accordance with the invention by the process involving the application of heat and the simultaneous application of a magnetic field having flux lines extending in the plane of the surfaces to be united, and an electrostatic field.

3,783,219
AIR COOLED MICROWAVE COOKING OVEN AND DOOR

Koichi Tateda, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 8, 1971, Ser. No. 196,591
Claims priority, application Japan, Nov. 11, 1970, 45/100487; Nov. 11, 1970, 45/100489
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 4 Claims

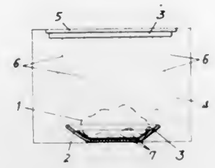


In a microwave cooking apparatus, more particularly in an apparatus having a radiant heating means for surface browning of the foodstuff and the like, the interior of the door and the handle are heated at a relatively high temperature. A blower means for providing an air stream is so installed as to cool the interior of the door whereby prevents the temperature rise of the door and the handle due to the heat from the browning means and so forth.

3,783,220
METHOD AND APPARATUS FOR BROWNING EXTERIOR SURFACES OF FOODSTUFF IN AN ELECTRONIC RANGE

Hiroshi Tanizaki, Kamakura, Japan, assignor to Yamamizu Shoji Kabushiki Kaisha, Tokyo, Japan

Filed June 30, 1971, Ser. No. 158,287
Claims priority, application Japan, July 6, 1970, 45/58847
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 10 Claims

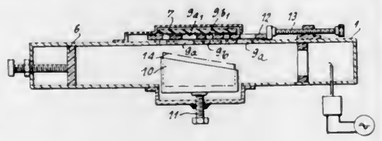


Browning the outer external surface of a foodstuff with infrared rays emitted from an infrared source at the same time the interior of the foodstuff is processed in an electronic range. The foodstuff and the source for emitting the infrared rays are placed in a region where electromagnetic waves are radiated from a high frequency generator. The infrared source is constructed by evaporating a conductive thin film on the outer surface of a dish or other vessel for holding the foodstuff. Alternately, crystallized glass having fine pieces of carbon fibres scattered throughout may form the infrared source. In yet another embodiment, a layer of silicon carbide may be formed on an insulating base plate. In each of the embodiments, the infrared heat is generated by the action of the electromagnetic waves on the specially constructed source.

3,783,221
DEVICE FOR ADJUSTING THE MICROWAVE ENERGY APPLIED TO A BAND OR A SHEET TO BE TREATED IN A RESONANT CAVITY FURNACE

Joel Henri Auguste Soulier, 66, Chaussee, Jules Cesar, Eaubonne, France

Filed Dec. 22, 1971, Ser. No. 210,742
Claims priority, application France, Dec. 31, 1970, 70.47568; Dec. 31, 1970, 70.47569
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 34 Claims



A wave-guide has a slot whose area increases in the direction of reduction of the energy transmitted by a microwave generator.

3,783,222
WELDING TORCH OSCILLATOR AND POSITIONER

Richard B. Gwin, Arlington; William L. Ballis, Hilliard; Claude W. Churchheus, Laurelville, and Bruce L. Hutt, Valley View, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Division of Ser. No. 189,175, Oct. 14, 1971. This application May 16, 1972, Ser. No. 253,866
Int. Cl. B23k *9/02*
U.S. Cl. 219—60 A 2 Claims

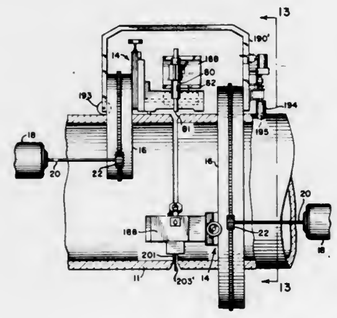
A welding head clamping and oscillating assembly is disclosed for use in a welding machine having means for supporting and moving the assembly along a joint to be welded. The assembly includes a support platform connected to the assembly supporting means of the welding machine and a support plate slidably mounted on the support platform for reciprocal movement in a direction transverse to the joint to be welded. A welding head clamp is pivotally mounted on the support plate for arcuate oscillating movement in a direction substantially parallel to the direction of the slidable mounting of the support plate and a reversible stepping motor is operatively connected to the clamp for oscillating the clamp about its pivot axis. An electrical control circuit is also provided for the stepping motor and includes logic circuitry for producing a pulse signal at a predetermined frequency and a binary counting circuit for counting a predetermined number of pulses from the signal and producing an output signal when the predetermined number of pulses is counted. The circuit includes means responsive to the output signal and operatively connected to the motor to drive the motor alternately in first and second directions in response to successive output signals from the binary counter thereby to oscillate the welding head clamp assembly about its pivot axis.

ing and moving the assembly along a joint to be welded. The assembly includes a support platform connected to the assembly supporting means of the welding machine and a support plate slidably mounted on the support platform for reciprocal movement in a direction transverse to the joint to be welded. A welding head clamp is pivotally mounted on the support plate for arcuate oscillating movement in a direction substantially parallel to the direction of the slidable mounting of the support plate and a reversible stepping motor is operatively connected to the clamp for oscillating the clamp about its pivot axis. An electrical control circuit is also provided for the stepping motor and includes logic circuitry for producing a pulse signal at a predetermined frequency and a binary counting circuit for counting a predetermined number of pulses from the signal and producing an output signal when the predetermined number of pulses is counted. The circuit includes means responsive to the output signal and operatively connected to the motor to drive the motor alternately in first and second directions in response to successive output signals from the binary counter thereby to oscillate the welding head clamp assembly about its pivot axis.

3,783,223
WELDING TORCH OSCILLATOR

Richard B. Gwin, Arlington; William L. Ballis, Hillard, and Claude W. Churchheus, Valley View, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Division of Ser. No. 189,175, Oct. 14, 1971. This application May 16, 1972, Ser. No. 253,867
Int. Cl. B23k *9/02*
U.S. Cl. 219—60 A 9 Claims

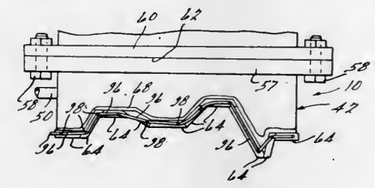


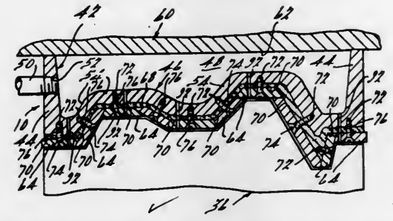
A welding head clamping and oscillation assembly is disclosed for use in a welding machine having means for supporting and moving the assembly along a joint to be welded. The assembly includes a support platform connected to the assembly supporting means of the welding machine and a support plate slidably mounted on the support platform for reciprocal movement in a direction transverse to the joint to be welded. A welding head clamp is pivotally mounted on the support plate for arcuate oscillating movement in a direction substantially parallel to the direction of the slidable mounting of the support plate and a reversible stepping motor is operatively connected to the clamp for oscillating the clamp about its pivot axis. An electrical control circuit is also provided for the stepping motor and includes logic circuitry for producing a pulse signal at a predetermined frequency and a binary counting circuit for counting a predetermined number of pulses from the signal and producing an output signal when the predetermined number of pulses is counted. The circuit includes means responsive to the output signal and operatively connected to the motor to drive the motor alternately in first and second directions in response to successive output signals from the binary counter thereby to oscillate the welding head clamp assembly about its pivot axis.

3,783,224
EDM ELECTRODE CONSTRUCTION AND METHOD OF MAKING SAME

Lloyd A. Schroeder, Southfield, Mich., assignor to Automotive Pattern Co., Detroit, Mich.

Division of Ser. No. 822,892, May 8, 1969, Pat. No. 3,584,179. This application Mar. 29, 1971, Ser. No. 128,739
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 E 20 Claims



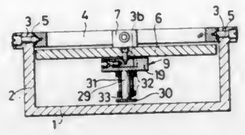


An electrode construction for use in operative association with electrical discharge machines, and method of making same, the electrode comprising a plurality of adjacently oriented cooperable segmental electrode sections arranged so as to define a working surface having a conformation corresponding to the shape to which a workpiece is to be machined; a support structure or holder member adapted to operatively support the electrode sections in a manner such that said sections may be removed and replaced after they have become excessively eroded or otherwise consumed; the method of making the electrode including the steps of providing a mold or form having a face portion of the same conformation as the ultimate shape to which the workpiece is to be machined; providing a parting or release substance on the face portion of the form and thereafter arranging the plurality of electrode sections on the form; providing a deformable material on one side of the holder member and biasing said member toward and into engagement with the electrode sections in a manner such that the material is deformed so as to define a reference surface upon which the electrode sections may be detachably mounted.

3,783,225
PRODUCTION OF CONICAL BORES

Werner Filsinger, Baumelsgewann 3, Heidelberg, Germany

Filed Aug. 25, 1972, Ser. No. 283,713
Int. Cl. B23p 1/12
U.S. Cl. 219—69 V 9 Claims

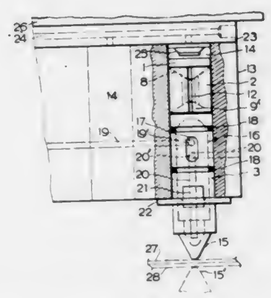


Method for producing a conical bore in a work-piece, in which the work-piece is suspended on gimbals and is wobbled during the boring process. Advantageously the production of the bore is by spark erosion. The invention also extends to a work-piece support in which a clamping table is suspended on gimbals for rotation about at least two axes. An eccentric device is used to move the clamping table.

3,783,226
MULTIPLE WELDING ELECTRODE

Donald J. Beneteau, 1293 Front St., Amherstburg, Ontario, Canada

Filed Dec. 15, 1972, Ser. No. 315,685
Int. Cl. B23k 9/24, 11/30; H01r 7/06
U.S. Cl. 219—120 2 Claims



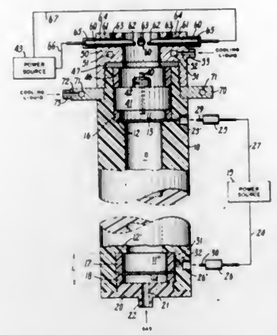
In resistance multiple spot welding where several electrodes are slidably contained in a single electrically conductive block, an electrode which is divided into three sections, i.e., an upper plug, a middle expending socket, and a lower electrode section. These sections are not connected but slide upon each other on conical surfaces in order to provide expansion to the central socket, in order to cause jamming between the electrode and the block thereby insuring good contact for the passage of an electric current.

3,783,227
FULLY ENERGIZED PLASMA JET

Michael D. Aitken, 1 Beekman Pl., New York, N.Y.

Filed Apr. 15, 1971, Ser. No. 134,315
Int. Cl. B23k 9/00
U.S. Cl. 219—121 P 24 Claims

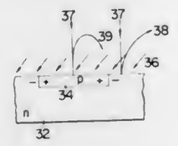
Apparatus and method for generating a more efficient, fully energized plasma are disclosed. The gas is introduced into an enclosed channel where it is subjected to an electromagnetic field. The field is adjusted to energize the gas close to its ionization potential. The energized gas is then passed through a nozzle and into and through a high voltage electrical arc where it is converted to a plasma. In another embodiment, the gas passing through the nozzle is first subjected to a high voltage electrical field where it is further energized prior to being subjected to an electric arc and thus converted to a plasma.



3,783,228
METHOD OF MANUFACTURING INTEGRATED CIRCUITS

Yasuo Tarui; Seiichi Denda; Harutsune Baba, all of Tokyo, and Yasuo Komimiya, Yokohama, all of Japan, assignors to Agency of Industrial Science and Technology, Minister of International Trade and Industry, Tokyo, Japan

Continuation-in-part of Ser. No. 712,797, March 13, 1968, abandoned. This application Dec. 28, 1970, Ser. No. 102,026
Claims priority, application Japan, Apr. 13, 1967, 42-23128; Apr. 13, 1967, 42-23129; Apr. 13, 1967, 42-23130; Apr. 19, 1967, 42-24564; May 10, 1967, 42-29124; June 13, 1967, 42-37339; June 16, 1967, 42-38144; Aug. 4, 1967, 42-49789
Int. Cl. B23k 15/00
U.S. Cl. 219—121 EM 4 Claims



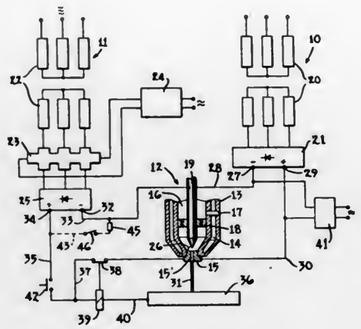
In the manufacture of a pattern of an integrated circuit, a reference mark is detected by an electron beam scan to correctly determine the position of the pattern on each semiconductor chip, or to correctly combine the patterns of circuit elements. The reference mark may also be used to locate defects of the semiconductor material so as to avoid defective regions.

3,783,229
DEVICE FOR PLASMA WELDING AND CUTTING

Josef Rohe, Frankfurt/Main-Schwanheim, and Dieter Staacks, Sprendlingen, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany

Filed Aug. 2, 1972, Ser. No. 277,250
Claims priority, application Germany, Aug. 16, 1971, P 21 40 968.7
Int. Cl. B23k 9/06
U.S. Cl. 219—121 P 5 Claims

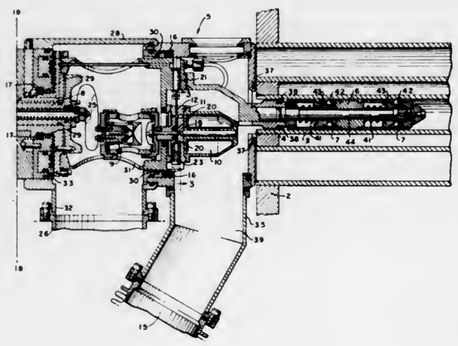
A device for plasma welding and cutting by means of a plasma torch or burner. A first current source is provided for feeding a pilot arc discharge. The negative pole of the current source is connected to the electrode of the burner while the positive pole is connected to the nozzle of the burner. A second current source feeds the main plasma arc discharge and its negative pole is connected to the burner electrode and the positive pole to the work piece. Specifically, the current branch of the second current source which connects to the work piece is bypassed by a bypass branch in such a manner that when the plasma main arc discharge current is closed the resulting peak current is diverted through this bypass branch.



3,783,230
GUN FOR WELDING TUBES ON A TUBE PLATE

Jean-Pierre Peyrot, 1 place de la Division du General Leclerc, Val de Marne, France

Continuation-in-part of Ser. No. 64,506, Aug. 17, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,693
Int. Cl. B23k 15/00
U.S. Cl. 219—121 EB 6 Claims

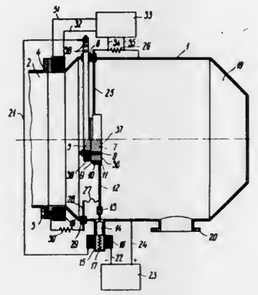


A rotatable welding gun comprising an electron gun, a secondary vacuum chamber around the said gun and a primary vacuum chamber at the level of the joint to be welded, a centering mandrel, a sealing plug at the free extremity of said mandrel and an annular sealing joint on the periphery of said primary vacuum chamber, in order to weld automatically the tubes of a heat exchanger on the bottom plates.

3,783,231
APPARATUS FOR VACUUM-EVAPORATION OF METALS UNDER THE ACTION OF AN ELECTRIC ARC

Leonid Pavlovich Sablev, ulitsa Entuziastov, 3, kv. 51; Jury Ivanovich Dolotov, bulvar Mira, 2, kv. 50; Leonid Ivanovich Getman, prospekt Kurchatova, 27, kv. 23; Valentin Nikolaevich Gorbunov, ulitsa Vesnina, 7, kv. 19; Evgeny Georgievich Goldiner, prospekt Kurchatova, 5, kv. 31, all of Kharkov; Karl Teodorovich Kirshfeld, ulitsa Lokomotives, 86, kv. 45, Riga, and Vladislav Vasilievich Usov, prospekt Kurchatova, 27, kv. 34, Kharkov, all of U.S.S.R.

Filed Mar. 22, 1972, Ser. No. 237,083
Int. Cl. B23k 9/08
U.S. Cl. 219—123 2 Claims



A method for vacuum-evaporation of metals under the action of an electric arc and using a magnetic field is characterized by the fact that for retaining a cathode spot of an electric arc, a constant magnetic field is substituted by a pulsed magnetic field whose intensity reaches a maximum when the cathode spot is shifted to a non-evaporable cathode surface. This enables the travel of the cathode spot of electric arc to be unaffected by the inhomogeneity of the magnetic field and by any possible lack of perpendicularity of its lines of force to the surface being evaporated. A device for carrying out the method employs a sensor to take up the effect of electric arc, which is so arranged as to straddle the non-evaporable cathode surface and takes up the effect of electric arc only when the cathode spot is found on the non-evaporable cathode surface; the device is simple in design, smaller in size, and features a simplified-construction of an electromagnet that needs less power to be operated as compared to the prior-art devices used for vacuum-evaporation of metals under the effect of an electric arc.

3,783,232
APPARATUS FOR THE MANUFACTURE OF HOLLOW ROD ELEMENTS

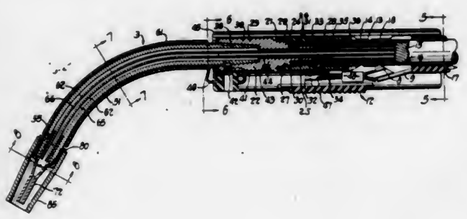
Max Mengeringhausen, Wurzburg; Hermann Quenzel, Lengfeld; Reinhold Gehrig, Retzstadt, and Willi Spanheimer, Waldbuttelbrunn, all of Germany, assignors to Mero AG, Zug, Switzerland

Continuation-in-part of Ser. No. 234,881, March 15, 1972, abandoned. This application Aug. 9, 1972, Ser. No. 279,051
Int. Cl. B23k 9/12
U.S. Cl. 219—124 6 Claims

Apparatus for manufacturing hollow rod elements with a pair of end sections connected thereto, including guide bar

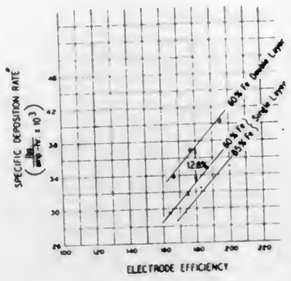
means having two pairs of adjustable supports individually slidable thereon, the outermost supports carrying rotatable holding and clamping devices supporting the end sections above the guide bar means, with at least one of the outer supports having a motor connected thereto to rotate the clamping and holding devices and hollow rod element held therebetween, and the inner pair of supports carrying arc welding devices and stop members for axially centering the tube on the end sections.

3,783,233
WELDING GUN COOLING STRUCTURE AND ELECTRODE TIP RETAINER
Guido A. dal Molin, Westlake, Ohio, assignor to Co-Ordinated Industries, Inc., Aliquippa, Pa.
Division of Ser. No. 10,389, Feb. 11, 1970, Pat. No. 3,610,875, which is a continuation-in-part of Ser. No. 672,794, Oct. 4, 1967, Pat. No. 3,544,758. This application July 14, 1971, Ser. No. 162,678
Int. Cl. B23k 9/00
U.S. Cl. 219—130 7 Claims



A welding gun and cable apparatus utilizing quick connect and disconnect couplings to provide electrical current and shielding gas to a welding gun as well as a welding electrode if desired. The welding gun includes an elongate body having a gas passage and a passage formed between the body and an outer covering through which air flows by connection to cool the body. Additionally the gas passage may also contain a liner with radially sprung fingers at one end to outwardly bias against a welding tip to retain the welding tip in a nozzle portion.

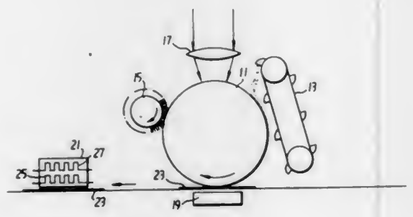
3,783,234
ARC WELDING COATED ELECTRODE
Robert J. Russell, Yorktown Heights, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed Mar. 31, 1972, Ser. No. 240,150
Int. Cl. B23k 35/22
U.S. Cl. 219—146 8 Claims



*Avg. of AC, DCSP, DCRP

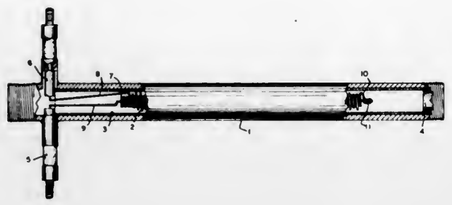
A multi-coated stick electrode having an inner layer surrounding a metal core wire and containing a majority of the arc stabilizers in said electrode. The outer layers contain a majority of the metal powder.

3,783,235
FUSER LOW VOLTAGE SENSOR FOR PHOTOCOPY MACHINE
Roland E. Sprague, Lansdale, Pa., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Oct. 31, 1972, Ser. No. 302,588
Int. Cl. H05b 1/00; G03g 15/20
U.S. Cl. 219—216 5 Claims



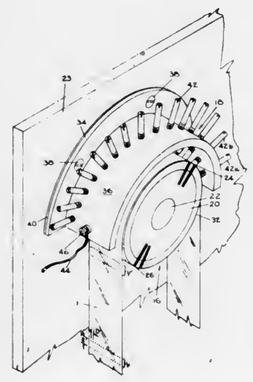
A fuser system for a xerographic photocopy machine. The fuser system comprises primary and secondary fuser heating resistors connected in parallel legs across an A.C. line voltage. The primary fuser heating resistor is connected directly across the line voltage and continuously produces fusing heat. A triac is connected in series with the secondary fuser resistor and a monitoring-and-controlling circuit is connected in parallel with the first and second parallel legs, across the line voltage, for monitoring the line voltage and controlling the triac so as to cause electrical current flow through the secondary fuser heating resistor when the line voltage drops below a predetermined value. The monitoring-and-controlling circuit comprises a lamp and a photoconductor, each being connected in parallel across the line voltage. Light from the lamp controls the voltage across the photoconductor and the voltage across the photoconductor is used to control current flow through the triac.

3,783,236
ELECTRICALLY OPERATED STEAM HEATER
Ronald E. Edin, Straham, N.H., assignor to GTE Sylvania Incorporated, Danvers, Mass.
Filed Mar. 2, 1973, Ser. No. 337,594
Int. Cl. H05b 3/02
U.S. Cl. 219—381 3 Claims



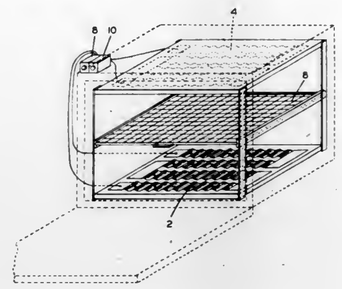
An electrical heater for heating steam to a superheated temperature has a longitudinal heating element disposed within a glass or ceramic tube which, in turn, is disposed within a metal cylinder. The heating element is made of resistance wire and has a cyclical spiral shape for efficient heat transfer. Steam is introduced into one end of the metal cylinder, passes through the heater and exits from the other end as superheated steam.

3,783,237
APPARATUS FOR ELECTRICALLY PERFORATING SHEET MATERIAL
Colin S. McArthur, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Nov. 6, 1972, Ser. No. 304,180
Int. Cl. H05b 7/18
U.S. Cl. 219—384 6 Claims



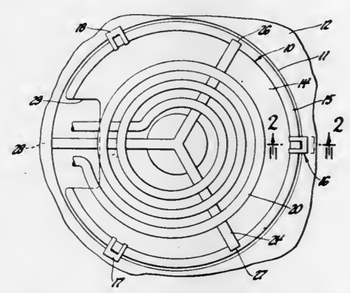
A web perforating apparatus for making rows of holes in a moving web, the rows being perpendicular to the direction of movement of the web and spaced longitudinally along the length of the web.

3,783,238
ELECTRIC CURING OVEN
George C. Dietz, Lancaster, and William G. Gross, York, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.
Filed Nov. 8, 1972, Ser. No. 304,758
Int. Cl. F27d 11/02
U.S. Cl. 219—395 1 Claim



A curing oven is provided for the quick curing or drying of floor samples. The sample is held on a screen support within the oven, and high output, quick response electric radiant heaters mounted above and below the wire screen rapidly cure the sample.

3,783,239
VARIABLE EFFECTIVE DIAMETER REFLECTOR PAN ASSEMBLY FOR ELECTRIC RANGES
Harry W. Hill, 102 East Ripley Road, and Raymond Slowik, both of West Branch, Mich., assignors to Harry W. Hill, West Branch, Mich.
Filed July 17, 1972, Ser. No. 272,627
Int. Cl. H05b 3/68
U.S. Cl. 219—461 5 Claims



A reflector pan assembly for use in horizontally disposed electric range cooktops having a substantially circular heater element assembly opening of a certain diameter. A substantially circular reflector pan having an effective diameter less than said certain diameter is positioned in said opening. The reflector pan has a concave cross-section and a lip extending radially outward from the periphery thereof. At least one clip is affixed to said reflector pan at one or more locations on said lip so as to increase the effective diameter of the reflector pan to a larger diameter than the certain diameter. The clips and the lip support the reflector pan in the cooktop opening regardless of the concentricity of the opening and the reflector pan. In a first embodiment each clip has three tangs that receive the reflector pan lip and a flange extending radially outward of the pan for engaging the cooktop. In a second embodiment the lip has an S shaped cross-section, the opening on one side of the S shape receiving the reflector pan lip and the opposite end of which extends radially outward of the pan to

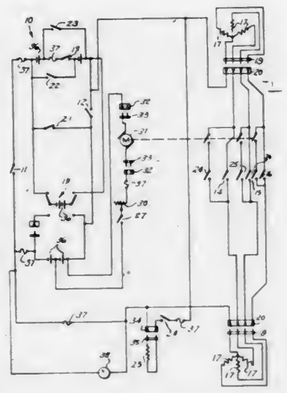
engage the cooktop. In a third embodiment the reflector pan lip is depressed and the depression is pierced to receive a clip that surrounds the depression and has a tang extending through the pierced opening and has a flange extending radially outward of the pan to engage the cooktop.

3,783,240

ELECTRICAL HEATING SYSTEM FOR BODY AND FOOT WARMTH

Courtney L. Drummond, Jr., C-8, 2103 Crimea Rd., Baltimore, Md.

Filed July 19, 1972, Ser. No. 273,106
Int. Cl. H05b *1/02*
U.S. Cl. 219—486 **1 Claim**



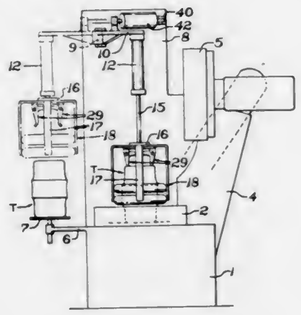
A portable electric heating system. This device consists primarily of plug in units having heating elements controllable manually and automatically. The circuit consists of a multiple number of manual and motor operated switches with a battery power pack for supplying current to the plug in units.

3,783,241

APPARATUS FOR HEAT CONDITIONING OF GREEN TIRES FOR VULCANIZATION

Francis J. Cimprich, Canton, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 149,693, June 3, 1971, Pat. No. 3,712,769. This application Sept. 28, 1972, Ser. No. 293,073
Int. Cl. H05b *3/58*
U.S. Cl. 219—535 **6 Claims**



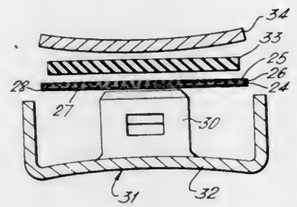
The preheating of selective thickest portions of a green tire as in the shoulder regions of a green tire as by a radian heater to condition the green tire for vulcanization such that the green tire when vulcanized by the molding press receives and utilizes its maximum amount of heat energy to reduce the vulcanizing and curing cycle.

3,783,242

ELECTRICAL CONNECTIONS USING DISCRETE, ELECTRICALLY-CONDUCTIVE PARTICLES

Dominic Paul Edmund Barnard, Witney, England, assignor to Smith Industries Limited, London, England

Claims priority, application Great Britain, Apr. 30, 1971, 12306/71
Filed Apr. 25, 1972, Ser. No. 247,490
Int. Cl. H05b *3/02*
U.S. Cl. 219—546 **11 Claims**



An electric heater for a rear windscreen of a motor vehicle including a heater element constituted by a thin strip of electrically resistive material and a pair of terminals clamped to respective ends of the element, has discrete electrically-conductive particles disposed between the ends of the element and the terminals to establish electrical connection therebetween. The strip is coated on one surface with a layer of adhesive to facilitate mounting of the element on the windscreen, and the particles adhere to the adhesive layer at the ends of the strip and impinge on the element through the adhesive layer.

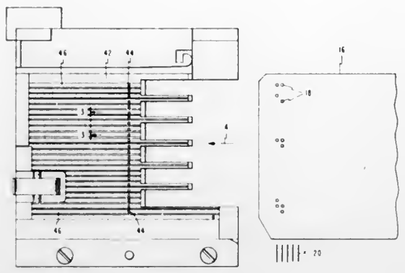
3,783,243

PNEUMATIC READING SYSTEM FOR DOCUMENT CARDS

Donald F. Jensen, Endicott, N.Y.; Richard E. Lagergren, Rochester, Minn.; Robert C. Lentz, Rochester, Minn.; John R. Reidenbach, Rochester, Minn., and Robert R. Schaffer, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 25, 1971, Ser. No. 156,728
Int. Cl. G06k *7/02*
U.S. Cl. 235—61.11 J **6 Claims**

A document card reading system comprising a pneumatic switch assembly located opposite an air plenum and between which perforated document cards are passed. The plenum and switch assembly have aligned air discharge and reception ports between which jetted air flows when not blocked by a document card, and each of the reception ports is connected with a circular portion of a flexible film carrying a helical copper cladding contact portion. A contact board is disposed above the helical contact portions, and the board has cooperating contact portions of copper cladding each of which is provided with a series of slots so that the helical contact portions may in effect make edge to edge contact with the contact portions on the contact board. The helical contact portions and the contact portions on the board are sealed with respect to atmosphere by means of diaphragms of flexible film carried by a back plate located above the contact board, with small openings being provided through the contact board to provide communication between the flexible film carrying the helical contact portions and the diaphragms. A pump, such as a positive displacement pump, provides air under pressure to the plenum. Longitudinal grooves are provided in the facing surfaces of the switch assembly and plenum in communication respectively with the ports therein to prevent crosstalk or unwarranted application of pressure to any of the ports in the switch assembly not in alignment with an aperture in the document card.

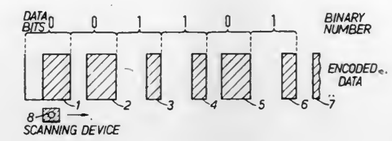


3,783,245

DATA CODING SYSTEMS

John Stuart Howell, Broadstone, England, assignor to Plessey Handel Und Investments AG, Zug, Switzerland

Filed Oct. 12, 1971, Ser. No. 188,695
Claims priority, application Great Britain, Oct. 13, 1970, 48,674/70; Dec. 22, 1970, 60,731/70
Int. Cl. G06k *7/14, 19/06;* **G01n** *21/30;* **G06k** *9/13*
U.S. Cl. 235—61.11 E **2 Claims**



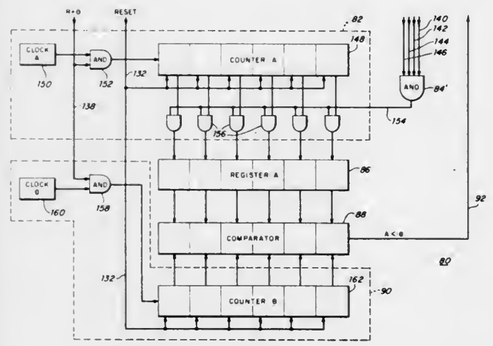
An optical coding system in which data is presented in the form of printed blocks and wherein data significance, i.e., 'mark' or 'space,' is determined by the width of the block relative to the width of an adjacent space or unprinted region.

3,783,244

GAUGED PULSE WIDTH DETERMINING CIRCUIT

Christos Basil Kapsambelis, Canton, Mass., assignor to Computer Identics Corporation, Westwood, Mass.

Filed Aug. 2, 1971, Ser. No. 168,043
Int. Cl. G06k *7/14*
U.S. Cl. 235—61.11 E **5 Claims**



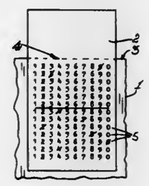
In an automatic identification system for reading a remote label containing information in the form of a plurality of vertically arrayed horizontal stripes which may include wide stripes and narrow stripes, a stripe width determining circuit which detects a stripe of known absolute width, measures the relative width of the stripe of known absolute width, stores a representation of the relative size of the stripe of known absolute width, measures the relative width of each of the other stripes, and compares the relative width of the stripe of known absolute width with the relative width of each of the other stripes to determine the absolute width of each of the other stripes.

3,783,246

CODING OF ARTICLES

Edward Bernard Bayer, 27 Melrose Gardens, North St., Illovo, Johannesburg, South Africa

Filed Sept. 21, 1971, Ser. No. 182,316
Claims priority, application South Africa, Sept. 29, 1970, 70/3676; May 25, 1971, 71/3359
Int. Cl. G06k *19/04;* **G09f** *3/00*
U.S. Cl. 235—61.12 R **2 Claims**

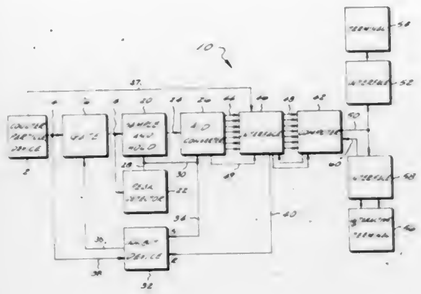


A method and apparatus for applying a coded mark to an article for the purpose of facilitating the subsequent treatment thereof in an automatic manner utilize a coding element which is adapted to apply the mark to the article by utilising an edge of the article and so to fix the relative position of the mark on the article. In one embodiment, the coding element comprises a stamp adapted to be pasted over an edge of the article in a predetermined manner, and on which the coded mark may be written. In another embodiment, the coding element comprises a rigid "L" shaped member adapted to engage around an edge of the article with one of its legs being provided with apertures through which, or projections by means of which, the mark may be applied to the article. The coding system utilizes a registered number system such as, for example, that of the International telephone number system, and apparatus suitable for use in the decoding of the mark on the articles is disclosed by way of example only.

3,783,247
PARTICLE ANALYZING SYSTEM FOR COULTER PARTICLE DEVICE AND METHOD

Robert I. Klein, Hialeah, and Walter R. Hogg, Miami Lakes, both of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Aug. 30, 1971, Ser. No. 176,101
Int. Cl. G06m *11/04*
U.S. Cl. 235—92 PC 9 Claims

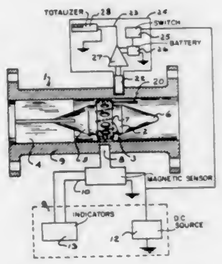


The output of a Coulter particle analysis device is converted into a computer acceptable code and stored in the computer in accordance with particle size information available for recall automatically or on command.

3,783,248
PARITY CHECK FOR TURBINE METER ELECTRONIC COUNTING INSTRUMENTATION OR THE LIKE

Harry Sugden, Jr., Statesboro, Ga., assignor to Emerson Electric Co., St. Louis, Mo.

Filed June 25, 1971, Ser. No. 156,688
Int. Cl. G01f *1/06*; G06f *25/00*
U.S. Cl. 235—92 FL 10 Claims

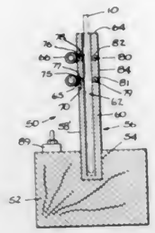


This invention provides a system separate and independent from the normal high frequency turbine meter signal circuit to yield a parity check signal. A pick-up separate from the normal pick-up collects a low frequency signal and records it on a locally mounted totalizer. A self-contained power system provides continuous output in case of failure of the main power system.

3,783,249
CODED MAGNETIC CARD AND READER

John Richard Wiegand, Valley Stream, L. I., N.Y., assignor to Milton Velinsky, Plainfield, N.J. and John R. Wiegand, Valley Stream, N.Y., part interest to each

Continuation-in-part of Ser. No. 5,632, Jan. 26, 1970, abandoned. This application Oct. 13, 1971, Ser. No. 189,027
Int. Cl. G06k *7/08*; G11b *5/00*
U.S. Cl. 235—61.11 D 14 Claims

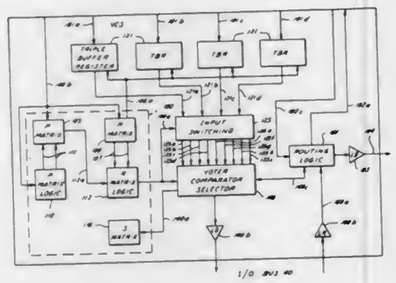


A coded pulse generation system includes a coded card and card reader. The card has a plurality of axially straight helically twisted magnetic wires disposed parallel to each other transversely of the card. Some of the wires may have polarities reversed from the remaining wires and may be disposed between two opaque layers. The card reader has a fixture including two spaced walls defining a slot into which the card is inserted. Permanent magnets and magnetic cores wound with wire coils are mounted on the walls of the fixture. While the card is being inserted into the slot, sequentially the magnetic state of each wire changes instantaneously generating a pulse in the coils.

3,783,250
ADAPTIVE VOTING COMPUTER SYSTEM

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Louis J. Koczela, 2900 Maple Tree Dr., Orange, Calif., and Donald S. Wilgus, 24481 Castello Cir., Mission Viejo, Calif.

Filed Feb. 25, 1972, Ser. No. 229,354
Int. Cl. G06f *15/16*
U.S. Cl. 235—153 AK 7 Claims



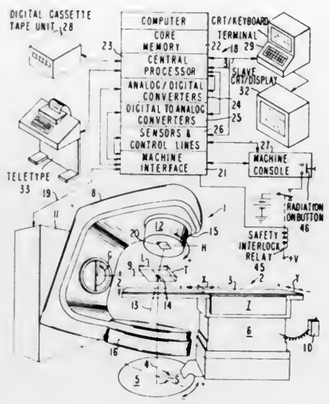
A computer system using adaptive voting to tolerate failures and operate in a fail-operational, fail safe manner. Each of four computers is individually connected to one of four external input/output (I/O) busses which interface with external subsystems. Each computer is connected to receive input data and commands from the other three computers and to furnish output data and commands to the other three computers.

An adaptive control apparatus including a voter-comparator-switch (VCS) is provided for each computer to receive signals from each of the computers and permits adaptive voting among the computers to permit the fail-operational, fail-safe operation.

3,783,251
COMPUTER ASSISTED RADIATION THERAPY MACHINE

John M. Pavkovich, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 27, 1970, Ser. No. 93,331
Int. Cl. A61n *5/01*
U.S. Cl. 235—151 9 Claims

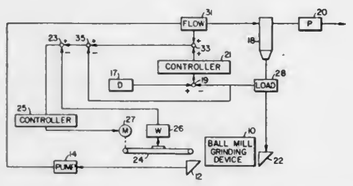


A computer assisted radiation therapy machine is disclosed. The machine includes a rotatable gantry having a radiation source portion which is rotatable about a patient treatment couch. Geometric and dose parameters of the machine for defining a prescribed treatment plan of radiation are stored in the memory of the computer. A readout and display means is provided for displaying the geometric and dose parameters of the defined radiation treatment plan. Editing and updating capability are provided for editing and updating the treatment plan with the cumulative radiation dose administered to each portal and the total cumulative dose administered to the patient. Each parameter of a proposed treatment plan is compared with permissible ranges of machine parameters stored in a memory to verify that the proposed treatment is within the permissible range of the machine.

3,783,252
CONTROL SYSTEM AND METHOD FOR A REVERSED BALL MILL GRINDING CIRCUIT

Richard E. J. Putman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 7, 1972, Ser. No. 241,946
Int. Cl. B02c *25/00*
U.S. Cl. 235—151.1 7 Claims

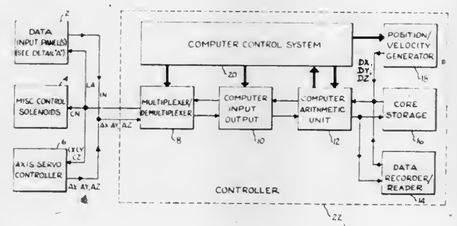


The dynamically fast in response and stable control arrangement for a reversed ball mill grinding circuit, which operates in accordance with the basic control algorithm that the new material feed rate to the reversed ball mill grinding circuit is controlled as a function of the net output solids flow production from the production cyclones associated with that grinding circuit plus the integral of the error between the desired solids flow load and the actual solids flow load of the grinding mill associated with that circuit.

3,783,253
NUMERICALLY CONTROLLED MACHINE TOOL

William T. Anderson, Arlington Heights, Ill., and Robert A. Wallace, Jr., Hacienda Heights, Calif., assignors to DoAll Company, Des Plaines, Ill.

Filed Aug. 13, 1971, Ser. No. 171,503
Claims priority, application Great Britain, Aug. 17, 1970, 39,500/70
Int. Cl. G06f *15/46*
U.S. Cl. 235—151.11 5 Claims



A digital processing system is disclosed including manual controls to specify a process (step-by-step) and responsive means to execute the process and formulate an operating program of the process. The controls are related to the steps of the process and coding techniques are unnecessary. Signal generators provide digital signals responsive to the manual controls, which signals control a machine tool (in the disclosed embodiment) and are provided in a suitable form for recording. The system may be controlled to delay recording until the propriety of a step is verified by its performance. Means are included for predicting and accomplishing dimensions on the basis of various simple specifications, as for generating arcs and multiple dimension motions with allowance for tool diameter. On completion of a recorded program of operations, the system is operable under such control.

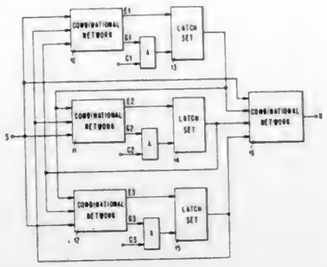
3,783,254
LEVEL SENSITIVE LOGIC SYSTEM

Edward Baxter Eichelberger, Purdy Station, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,543
Int. Cl. G06f *7/38*; H03k *19/00*
U.S. Cl. 235—152 20 Claims

A generalized and modular logic system for all arithmetic/logical units of a digital computer. Each arithmetic/logical unit of a computer is partitioned into sections formed of combinational logic networks and storage circuitry. The storage circuitry is sequential in operation and employs clocked dc latches. Two or more synchronous, nonoverlapping, independent system clock trains are used to control the latches. A single-sided delay dependency is imparted to the system. The feedback connections from the respective latch circuitry are made through combinational logic to other latch circuitry that has a system clock other than the system

clock acting on the initiating latch circuitry. With each latch, there is provided additional circuitry so that each latch acts as one position of a shift register having input/output and shift



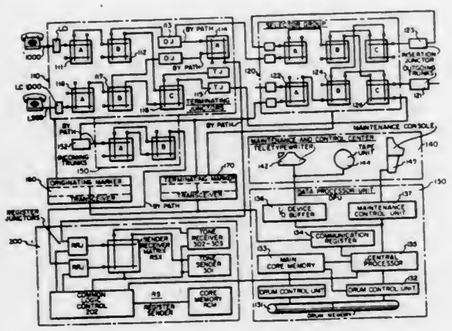
controls that are independent of the system clocks and the system inputs/outputs. All of the shift register latches are coupled together into a single shift register.

3,783,255

DATA HANDLING SYSTEM MAINTENANCE ARRANGEMENT FOR PROCESSING SYSTEM TROUBLE CONDITIONS

Charles K Buedel, Wood Dale, and James P. Caputo, Chicago, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 12, 1972, Ser. No. 270,910
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **15 Claims**



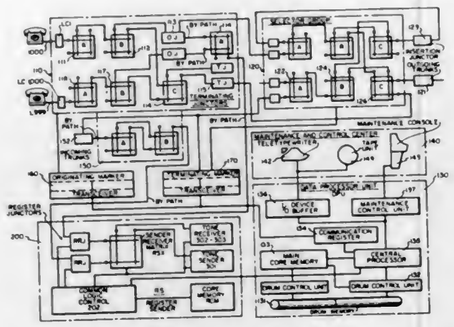
A maintenance arrangement for a data handling system producing data handling signals includes logic circuits for responding to a system trouble condition and in turn for generating a servicing request signal to cause servicing equipment to initiate diagnostic operations for the data handling system, and memory control logic circuits that respond to the servicing request signal for causing system trouble identity information indicative of the identity of a certain group of data handling signals associated with the system trouble request signal to be conveyed to the memory of the data handling system for storage therein so that the servicing equipment is assisted in locating the source of the trouble condition. The memory control circuits also supply address information for the system memory for directing the system trouble identity information into a maintenance location therein. After the servicing equipment commences its diagnostic functions, it sets a service bit in the system memory, and in response thereto, the system trouble logic circuits are thereafter inhibited from requesting the servicing equipment for other trouble conditions occurring in connection with the data handling signals until the servicing equipment has completed its function and clears the service bit from the system memory.

3,783,256

DATA HANDLING SYSTEM MAINTENANCE ARRANGEMENT FOR RECHECKING SIGNALS

James P. Caputo, Chicago, and Gerald O'Toole, Elmhurst, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 12, 1972, Ser. No. 270,916
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **16 Claims**



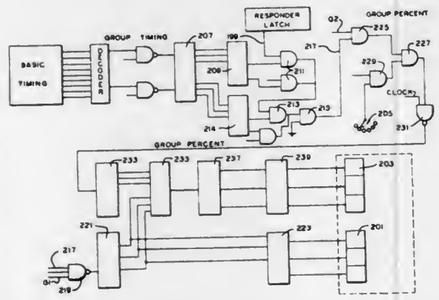
A maintenance arrangement for use with a data handling system producing data handling signals responds to a false signal condition to cause the data handling system to reproduce the data handling signals by adjusting a timing generator providing the timing control for the data handling system and by inhibiting from changing the inputs to the logic circuits generating the signals, so that the data signals may be reviewed to determine whether the false signal condition was a self-correcting error condition as in the case of a momentary false signal condition caused by noise or the like, or a more permanent fault condition which requires servicing by other equipment. By selectively adjusting different timing distributors of the timing generator, only certain ones of the handling signals and not all of them are reproduced.

3,783,257

RESPONSE SYSTEM WITH IMPROVED COMPUTATIONAL METHODS AND APPARATUS

David Friedman, Framingham, Mass., and Bernard Mortimer Segal, Binghamton, N.Y., assignors to The Singer Company, New York, N.Y.

Division of Ser. No. 62,382, Aug. 10, 1970, Pat. No. 3,656,243.
This application Sept. 20, 1971, Ser. No. 182,116
Int. Cl. G06f *7/39*
U.S. Cl. 235—156 **9 Claims**



An improved classroom response system of the type wherein a number of students are provided with individual responders each having a plurality of switches selectively

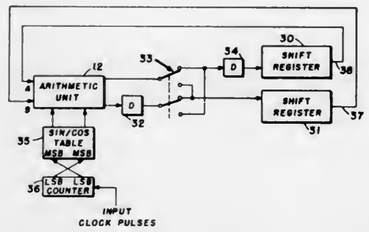
operable to indicate the student's choice of response to a question or other stimulus. The invention is directed to novel methods and apparatus for performing arithmetic operations and displays which make available to the instructor information helpful in conducting the class and otherwise simplify instructional tasks. Included are means for automatically indicating which of several responses is "correct" by determining the response to which the highest weight has been assigned by the instructor. Also disclosed are novel means to calculate each individual student's cumulative score and to indicate automatically the students whose scores fall below a preselected acceptable percentage of the maximum possible score. Displays of the total number of students responding to a given question, and the percent of the class which has responded with any of the possible choices are provided.

3,783,258

FFT PROCESSOR UTILIZING VARIABLE LENGTH SHIFT REGISTERS

Adolph M. Chwastyk, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 3, 1971, Ser. No. 195,394
Int. Cl. G06f *15/34*
U.S. Cl. 235—156 **2 Claims**



A processor for radar and multichannel sonar spectral analysis of band-limited input signals, is based on a shift register implementation of a fast Fourier transform algorithm coupled with a single flow-through arithmetic unit. Speed is obtained by using an organization that performs the rapid data reordering required for execution of the algorithm. A post-processing unit is used to increase the quality of estimation of line spectra in statistically short term spectra. The unit can be used either as an integrator or as a first order recursive filter. The post-processing unit is implemented in a floating point format to maintain the dynamic range.

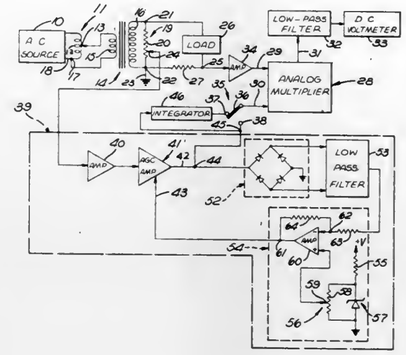
3,783,259

APPARATUS FOR RESOLVING A COMPLEX A.C. VOLTAGE OR CURRENT INTO ITS VECTOR COMPONENTS

Neil A. Marshall, San Jose, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 20, 1972, Ser. No. 299,638
Int. Cl. G06g *7/16, 7/22*
U.S. Cl. 235—186 **13 Claims**

A method and system which may be employed to, for example, produce a D.C. voltage or current directly proportional to I cos ϕ_a or I sin ϕ_a, where I is the peak A.C. current through a load, and ϕ_a is the phase of the current. Current and voltage analogs of the load current and voltage, respectively, are multiplied. A low pass filter eliminates the A.C. terms of the multiplier output. The D.C. term is directly proportional to I cos ϕ_a or I sin ϕ_a. A ninety degree phase shifter with a single-pole, double-throw switch makes, for example, manual selection of one of the two outputs I COS ϕ_a and I sin ϕ_a possible. Alternatively, a square or other periodic wave may be used for the voltage analog. In any case, the voltage analog or equivalent has a peak amplitude which may be maintained constant by a



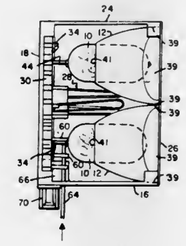
variable gain amplifier or by sampling the above breakdown voltage drop across a zener diode. The analog voltage or current of the products I cos ϕ_a and I sin ϕ_a may be read on a D.C. voltmeter or milliammeter, respectively, calibrated in current.

3,783,260

SELECTIVE ACTUATING MECHANISM FOR PERCUSSIVE PHOTOFLASH LAMP ARRAY

David R. Broadt, Lewisburg, and Donald E. Armstrong, Williamsport, both of Pa., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed June 6, 1972, Ser. No. 260,286
Int. Cl. G03b *15/02*
U.S. Cl. 240—1.3 **29 Claims**

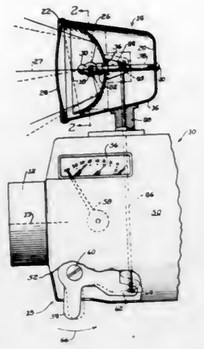


For a photoflash assembly comprising a plurality of percussively-ignitable flashlamps arranged in a planar array with respectively associated reflectors and preenergized striker springs, a selective actuating mechanism for sequentially releasing the striker springs to fire respective flashlamps in response to successive indexing. The selective actuating mechanism comprises a coplanar train of intermeshing spur gears having a number of circumferentially spaced projecting ramps. The lamps and striker springs are supported on the end surfaces of shafts upon which the gears are rotatably mounted. The strikers are radially mounted on each shaft to project over the surrounding gear and lie in the path of travel of the ramps. Rotational indexing of the gear train causes one of the ramps to release a striker. A ratchet retains the position of the gears after each indexing cycle, and the sequence of releasing the strikers in response to successive indexing is programmed by the number and circumferential location of the ramps.

3,783,261
PARALLAX COMPENSATION CAMERA LIGHT

Rudolf Hartmann, Skokie, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 1, 1972, Ser. No. 302,682
Int. Cl. G03b 15/02
U.S. Cl. 240—1.3 7 Claims

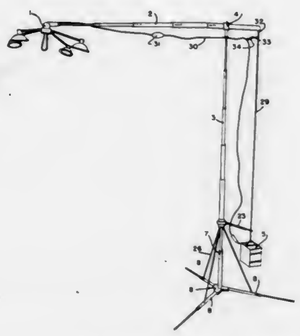


A light for a camera having an objective lens coupled to an automatic focusing apparatus. A link assembly connects the focusing apparatus to a pivotally supported camera light reflector. The position of the reflector is varied in accordance with the setting of the focusing apparatus so as to direct the light beam at the subject over a wide range of subject to camera distances.

3,783,262
PORTABLE SURGICAL LAMP

Benjamin D. Pile, Colorado Springs, Colo., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 3, 1973, Ser. No. 347,533
Int. Cl. F21v 21/22
U.S. Cl. 240—1.4 9 Claims

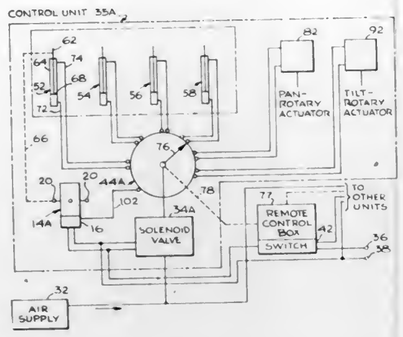


The invention is a portable, battery-operated, lighting apparatus to provide illumination for the performance of medical treatment and surgical procedures in the field where normal electric power is not available. The light source comprises lightweight, collapsible, tubular members arranged to provide a tripod stand and vertical support surmounted by an adjustable counterbalanced arm carrying a lamp cluster providing shadow-free lighting at one end and a suspended battery at an opposite end to counterbalance the lamp cluster. The device may be transported and assembled by one man without requiring any additional equipment.

3,783,263
REMOTE LIGHTING CONTROL SYSTEM

William Marion Cruse, 600 W. End Ave., Apt. 8A, New York, N.Y.

Filed Aug. 19, 1971, Ser. No. 173,097
Int. Cl. F21p 5/02
U.S. Cl. 240—3 12 Claims

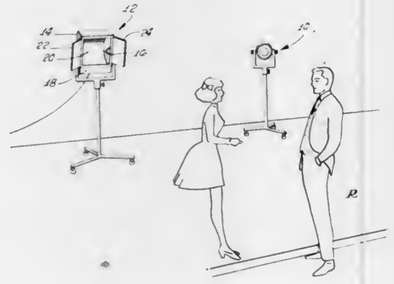


A remotely controlled lighting system which utilizes pneumatically driven actuators for adjusting a spotlight. The pneumatically driven system can be used to position moveable spotlight elements to achieve the desired lighting effect, as well as to position the spotlight about its moveable axes. Selector units are used to adjust each spotlight of a theatrical lighting system. The selector units are driven in tandem, with air being supplied only to the activator system which is being adjusted. Moreover, the air supply used to adjust each of the spotlights may also be utilized for cooling the spotlights when the entire system has been adjusted and is in prolonged operation.

3,783,264
REFLECTIVE BARNDOOR

Fenton D. Hamilton, Los Angeles; Richard B. Glickman, Sherman Oaks; George R. Hartz, Canoga Park, and Joseph N. Tawil, Woodland Hills, all of Calif., assignors to Berkey-Colortran, Inc., Burbank, Calif.

Filed July 7, 1972, Ser. No. 269,709
Int. Cl. F21p 5/00
U.S. Cl. 240—3 3 Claims

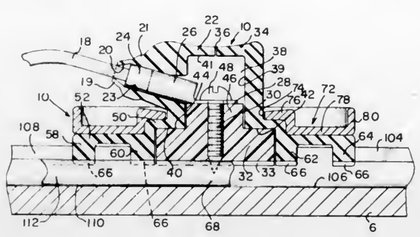


A soft fill luminaire for minimizing shadows on the field to be illuminated is provided with reflective barndoors. The barndoors raise the level of fill illumination at the center of the field without materially reducing the fill illumination at the margins of the field.

3,783,265
ADAPTER FOR MARKER LIGHT

George W. Carr, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill.

Filed Nov. 6, 1972, Ser. No. 304,153
Int. Cl. B60q 1/32
U.S. Cl. 240—8.2 19 Claims

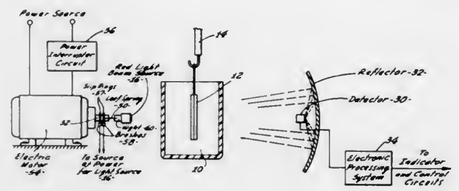


An adapter for attaching any vehicle marker light to the side of the vehicle provided with a groove in which is carried an electrical conductor where the adapter includes a lead connection with the grounded marker light and a conductor piercing screw carried in a guide bushing held against the side of the vehicle by an adapter receptacle provided with a slit in its top to have access to the piercing screw and which is held by an adapter retainer ring structure to hold the receptacle tightly against the side of the vehicle and the conductor, the receptacle having a drainway for allowing condensation or moisture to escape from the receptacle.

3,783,266
SCANNING MECHANISM FOR FILM DEVELOPER, AND THE LIKE

David Paul Gregg, 1936 Kelton Ave., Los Angeles, Calif.

Filed Dec. 14, 1972, Ser. No. 315,073
Int. Cl. F21p 3/06; G03d 3/10
U.S. Cl. 240—10.1 4 Claims



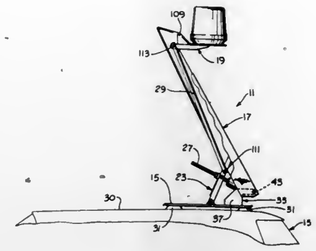
A light scanning mechanism for use in conjunction with automatic X-ray film developing apparatus, and the like. The mechanism permits a red beam to be repeatedly scanned across the film being developed in order to provide appropriate control signals so that the developing process may be stopped automatically when a desired density has been reached. The scanning mechanism includes a resilient member, such as a leaf spring, which couples the source of the red beam of light to a motor drive shaft. The motor is intermittently energized to cause the red beam to be cyclically moved in a random spiral scanning path.

3,783,267
EXTENDIBLE VEHICLE LIGHT MOUNT

Robert E. Thomas, 1323 N. Spurgeon St., Santa Ana, Calif.

Filed July 21, 1972, Ser. No. 273,729
Int. Cl. B60g 1/00
U.S. Cl. 240—57 14 Claims

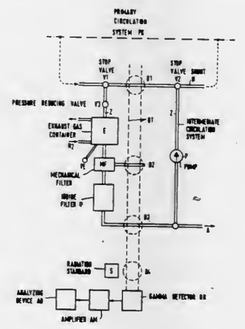
An extendible vehicle light mount comprising a boom pivotally connectible to the roof of a vehicle for pivotal movement between an elevated position and a retracted position and a light supporting arm pivotally connected to the boom. The boom is elevated by an appropriate linkage which also controls the angular position of the light supporting arm relative to the boom. The vehicle light mount is mounted on the vehicle so that the longitudinal axis of the boom is generally parallel to the longitudinal axis of the vehicle in the retracted position. A warning light is mounted on the light supporting arm so that the warning light is substantially elevated above the roof of the vehicle when the boom is in the elevated position.



3,783,268
DEVICE FOR MEASURING ACTIVITY CONCENTRATION IN PRIMARY CIRCULATION SYSTEMS OF NUCLEAR REACTORS

Karl Heinz Neeb; Herbert Neidl, both of Erlangen, and Heinz Stockert, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed July 14, 1971, Ser. No. 162,437
Claims priority, application Germany, July 30, 1970, P 20 37 796.2
Int. Cl. G01n 23/12
U.S. Cl. 250—83.3 R 9 Claims

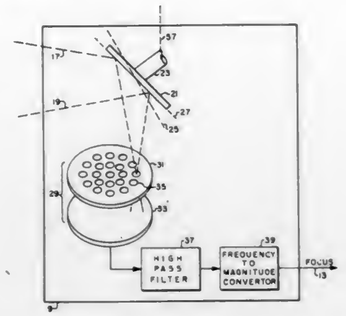


A device for measuring the activity concentration of radioactive fission and corrosive products in coolant primary circulation systems of nuclear reactor plants comprises a shunt to the primary circulation stem. The shunt has a closed pipe system comprising stop valves, pressure reducing valve means, exhaust gas container means and filter means. A displaceable high-resolution gamma detector in operative proximity with the closed pipe system measures the contents of the filter means at different points of the pipe system.

3,783,269
AUTOMATIC FOCUS POSITIONING CIRCUIT

Robert G. McConnell, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 5, 1972, Ser. No. 259,788
Int. Cl. G01j 1/20; G01b 9/00
U.S. Cl. 250—201 8 Claims

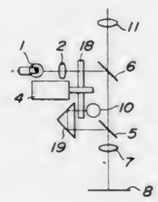


An automatic focusing apparatus includes a lens means which is driven back and forth between two extreme positions. A wobbulating mirror reflects radiations passing through the lens means, to a multi-apertured mask, positioned at a predetermined plane, at which an image of a scene is to be formed. A light detector responds to radiations passing through the apertures in the mask to effect the generation of a signal which varies with the degree of sharpness of the image. A memory device stores a representation of the position of the lens means at which the image appeared in focus during a first movement of the lens means between the extreme positions, and thereafter effects the termination of movement of the lens means at that in-focus position during a second movement between the extreme positions.

3,783,270
FOCUS INDICATING DEVICES

Shinichi Kamachi, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed May 17, 1972, Ser. No. 254,313
Claims priority, application Japan, May 19, 1971, 46/33237
Int. Cl. G01j 1/20; H01j 3/14
U.S. Cl. 250—201 4 Claims

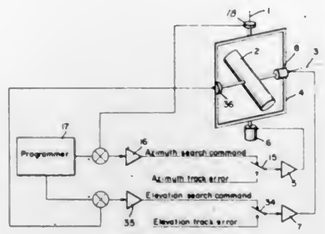


Focus indicating device for use in optical measuring devices comprises a light source, a condenser lens, a grating provided at its periphery with equidistant and parallel lines and adapted to be moved, an objective lens, an object to be measured and a photoelectric converter element. The grating is located in front of the photoelectric converter element and the light rays emanated from the light source after passing the objective lens, the object to be measured and the grating are impinged on the photoelectric converter element. The grating is moved such that the light rays are traversed by the lines of the grating to generate from the photoelectric converter element a signal for indicating the focal condition of the objective lens.

3,783,271
RADIATION TRACKING SYSTEM

Edward A. Abbott, Jr., Granada Hills, and David I. Blanchard, Los Angeles, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Sept. 27, 1971, Ser. No. 183,970
Int. Cl. G01j 1/20
U.S. Cl. 250—203 R 21 Claims

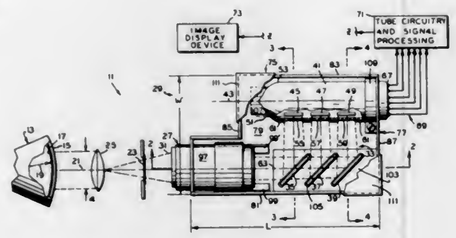


A tracking system including a staggered array of radiation detectors for use with a telescope wherein the configuration of the array, the geometry of sweep of the array, and the electronics connected to the elements of the array are combined to produce control signals adapted to be used to point the optical axis of the telescope at the geometrical centroid of all signals, above a predetermined amplitude, within the field of view of the apparatus.

3,783,272
OPTICAL-TO-ELECTRICAL TRANSDUCER ASSEMBLAGE

George Norman Williams, and Robert F. Wilson, both of Seneca Falls, N.Y., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed July 10, 1972, Ser. No. 270,216
Int. Cl. H01j 5/16
U.S. Cl. 250—216 R 5 Claims

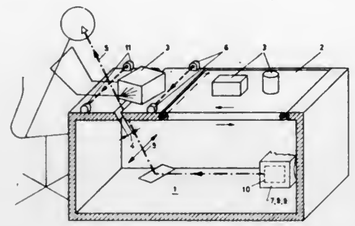


A packaged assemblage is provided for an optical-to-electrical signal transducer employed in a system for displaying a film image on the screen of a CRT display device. The assemblage includes a condensing lens, a related plural-mirror system, and a single multi-channel photomultiplier tube all of which are compactly arranged in optical alignment within a plural-sided, light-tight and dust-free enclosure. The desired compaction of the assemblage is achieved within the walled enclosure by orienting the tube in a manner that its longitudinal axis is parallel with the optical axis of the condensing lens.

3,783,273
METHOD AND APPARATUS FOR CONTROLLING A LIGHT SOURCE OF AN OPTICAL READER MECHANISM

Walter Strohschneider, Oberrieden, Switzerland, assignor to Zellweger AG, Uster, Switzerland

Filed July 3, 1972, Ser. No. 268,692
Claims priority, application Switzerland, July 8, 1971, 10079/71
Int. Cl. G01n 21/30; G06m 7/00
U.S. Cl. 250—223 10 Claims



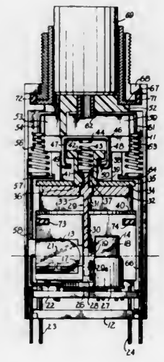
A method of controlling a light source of an optical reader mechanism wherein a light source generating a scanning light beam is essentially only placed into its operating condition during the time-span required for carrying out a scanning operation, during the remaining time it is controlled so as to assume a preparatory condition with reduced or interrupted power supply.

The apparatus for carrying out the aforesaid method embodies a light source for generating the scanning light beam and a supply means associated with such light source. A control mechanism is provided for the supply means for regulating the respective operating and preparatory condition of the light source. The control mechanism has delivered thereto an input signal as a function of the throughpassage of an object through a reading zone of the reader mechanism.

3,783,274
SOLID-STATE SWITCH

Herbert Towne, 17 Rolling Dr., Glen Head, and Harold Rapp, 59-23 154th Pl., Flushing, both of N.Y.

Filed Apr. 6, 1972, Ser. No. 241,664
Int. Cl. H01j 39/12
U.S. Cl. 250—221 R 14 Claims

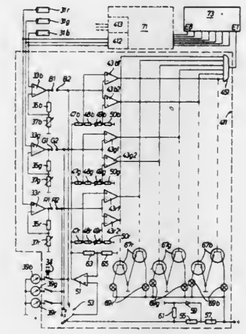


A switch utilizing a solid-state circuit in place of ohmic contacts. A light-emitting diode illuminates a photosensitive solid-state device to make the circuit conductive or non-conductive, depending upon whether the light path from the diode to the photosensitive device is interrupted by a shutter or not. The shutter is controlled by an actuator to move between "on" and "off" positions. Motion of the shutter may be made more sudden and tease-proof by attaching the shutter to a magnetic device attracted to a fixed member to prevent the shutter from moving until enough force is applied via the actuator to overcome the magnetic attraction. Movement may be further speeded by connecting the shutter and actuator by a lost motion device and placing a compression spring between the shutter and actuator to store energy to overcome the magnetic field and then release the stored energy sharply. Another fixed magnetic member at the other end of travel of the shutter provides audible detection of operation and some energy storage and release for return motion.

3,783,275
APPARATUS FOR THE OPTICAL-ELECTRICAL SCANNING OF A DRAWING HAVING A LARGE NUMBER OF POINTS OF DIFFERENT COLORS

Reinhold Oelmayer; Albert Seelos, both of Kaufbeuren; Winfried Reif, Stuttgart-Rohr; Denes Nagy, Plattenhardt, and Hans Joachim Stock, Freiburg, all of Germany, assignors to Firma Franz Morat GmbH, Stuttgart, Germany

Filed Apr. 7, 1972, Ser. No. 242,071
Claims priority, application Germany, Apr. 17, 1971, P 21 18 720.2
Int. Cl. G01j 3/34
U.S. Cl. 250—226 20 Claims



Apparatus for scanning a drawing consisting of a large number of points each of which is of a colour selected from a number of colours, and for converting the information obtained by scanning the points into colour signals characteristic of the individual colours, comprising a scanning head movable relative to the drawing having a number of optical electrical scanning elements each responding to a definite spectral range and colour discriminators connected to the scanning head for producing a respective colour signal only when the analogous output signals of all the scanning elements associated with it, or signals derived from the said output signals, lie within an upwardly and downwardly limited tolerance range.

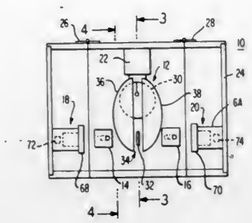
3,783,276
DUAL BEAM OPTICAL SYSTEM

Robert W. Allington, Lincoln, Nebr., assignor to Instrumentation Specialties Company, Lincoln, Nebr.

Filed June 5, 1972, Ser. No. 259,868
Int. Cl. H01j 39/12
U.S. Cl. 250—226 46 Claims

To compensate for variations in the intensity of light emitted from different locations in or in different directions from a lamp, a radiating member is located in one focus of an ellipsoidal reflector to receive light from the lamp which is mounted with its bright spot in the other focus of the ellipsoidal reflector and to radiate in directions in line with a narrow dimension of the radiating member two oppositely

directed, proportional-intensity beams of light through two aligned light-beam holes in the walls of the ellipsoidal reflector on opposite sides of the radiating member, with the radiating member having, in a first embodiment, a surface that diffuses the light so that it is radiated with proportional intensities into both beams in accordance with Lambert's cosine law, in a second embodiment, a surface that fluoreses light with proportional intensities into both beams, and in a third embodiment, a surface with flouresent particles that both diffuse the light and fluorese in response to it, all three embodiments causing the beams of light to be of proportional intensity. Interchangeable filters in the light beams of the third embodiment are selected to pass either the diffused light or the fluorescent light from the radiating member, thus enabling the system to be used for different purposes by changing filters.

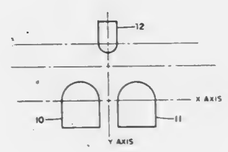


3,783,277

LIGHT RESPONSIVE SENSOR SYSTEM

James R. Younkin, Fayetteville, and John M. Nixon, Springdale, both of Ark., assignors to Edo-Aire Mitchell Industries, Inc., Mineral Wells, Tex.

Filed June 2, 1972, Ser. No. 259,044
Int. Cl. H01j *39/12*
U.S. Cl. 250—237 R **12 Claims**



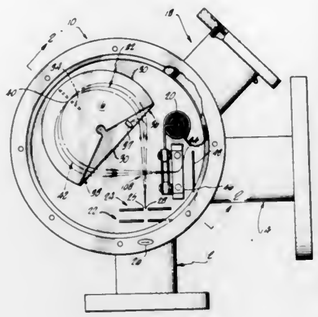
Relative movement between a barrier positioned with relation to light sources and light sensors produces a signal at the light sensors related to the barrier movement. Two light sources are alternately energized from a regulated voltage controlled current source to provide two sources of light of equal intensity with system perturbations minimized. Two light sensors positioned from the light sources respond to light from both of the alternately energized sources. A signal from a first of the light sensors connects to a voltage follower amplifier that provides a system output signal that varies with and is related to barrier movement. The second light sensor provides a signal to a regulator circuit that controls the current source to the light sources. This signal from the second light sensor is compared with a signal from a reference source to provide light source regulation. As an alternate embodiment, signals from both light sensors are coupled to voltage follower amplifiers each having an output signal related to the barrier movement. These two output signals are summed for a system output signal.

3,783,278

SINGLE MAGNET TANDEM MASS SPECTROMETER

Leslie A. Cambey, Arcadia, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation of Ser. No. 819,840, April 28, 1969. This application Dec. 2, 1971, Ser. No. 204,336
Int. Cl. H01j *39/34*
U.S. Cl. 250—299 **17 Claims**



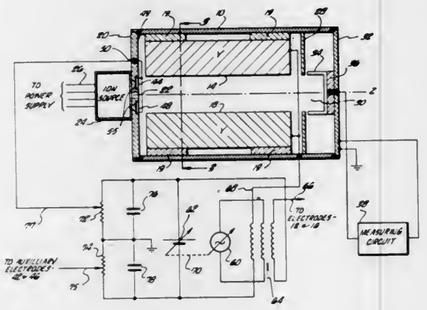
A mass analyzer utilizing a single magnet for providing two mass analyzing sectors in tandem. The analyzer is equipped with a magnet defining an ion trajectory subtending an angle of deflection between 180° and 360°. A slit is located within the magnet at a first point of focus for substantially limiting ions passing beyond the slit to those of a predetermined mass.

3,783,279

HYPERBOLIC FIELD MASS FILTER

Wilson M. Brubaker, 1954 Highland Oaks Dr., Arcadia, Calif.

Filed Mar. 3, 1971, Ser. No. 120,482
Int. Cl. H01j *39/34*
U.S. Cl. 250—292 **9 Claims**



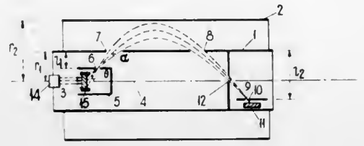
A hyperbolic field mass filter (quadrupole or monopole) is described which includes at least two primary electrodes, an ion entrance aperture, an ion exit aperture and a.c. and d.c. bias sources coupled to the primary electrodes for producing a.c. and d.c. field components between the electrodes. At least one auxiliary electrode is disposed between the primary electrode and the entrance aperture together with means for biasing the auxiliary electrode with d.c. potentials to neutralize the d.c. field produced by the primary electrodes in the vicinity of the entrance aperture.

3,783,280

METHOD AND APPARATUS FOR CHARGED PARTICLE SPECTROSCOPY

John Merza Watson, Manchester, England, assignor to Associated Electrical Industries Limited, London, England

Filed Mar. 21, 1972, Ser. No. 236,748
Claims priority, application Great Britain, Mar. 23, 1971, 7,594/71
Int. Cl. H01j *39/34*
U.S. Cl. 250—305 **19 Claims**



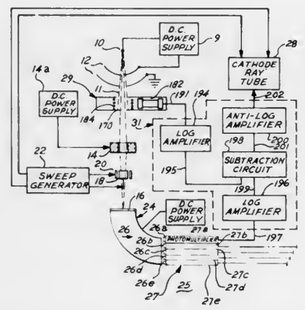
In a cylindrical mirror analyzer, charged, particles from a source are deflected in the radial electric field between a pair of coaxial tubular electrodes, and are brought to a focus. A collector aperture positioned at the focus selects particles of predetermined energy, these particles being detected by a suitable detector. The particles cross the axis at some point between the source and the focus. An apertured member located at this point prevents skew electrons (i.e. electrons not travelling in radial planes) from reaching the focus. In this way the performance of the analyzer is improved.

3,783,281

ELECTRON MICROSCOPE

Albert V. Crewe, Palos Park, Ill., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Continuation of Ser. No. 73,117, Sept. 17, 1970, abandoned. This application Feb. 3, 1972, Ser. No. 223,382
Int. Cl. H01j *37/26*; **G01n** *23/22*
U.S. Cl. 250—311 **4 Claims**



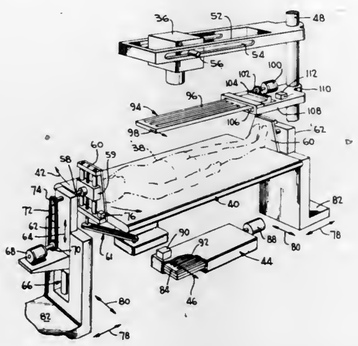
The application describes improved techniques for correcting an output detection signal from an electron microscope for aberrant variations in the electron beam produced by the microscope. The preferred embodiment comprisea a monitor assembly for producing a reference signal proportional to the magnitude of the electron beam and a correction circuit for varying the magnitude of the detection signal in response to variations in the reference signal. The monitor assembly may comprise a diverting assembly for diverting a portion of the electron beam from its normal path to produce a flow of diverted electrons and a transducer assembly for producing a signal proportional to the number of diverted electrons so that a reference signal is produced. The correction circuit may comprise logarithmic amplifiers, a subtraction circuit, and an antilogarithmic amplifier for producing a signal which corresponds to the ratio of the detection signal and the reference signal. This corrected signal may be used to drive a cathode ray tube display of the specimen.

3,783,282

STEREOSCOPIC RADIOGRAPHY TECHNIQUES AND APPARATUS

Reuben Hoppenstein, 710 Park Ave., New Rochelle, N.Y.

Filed June 7, 1971, Ser. No. 150,297
Int. Cl. G01n *23/04*; **H01j** *37/22*
U.S. Cl. 250—313 **10 Claims**



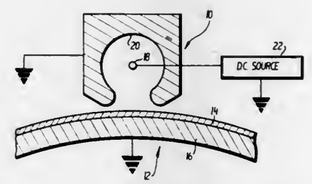
Method and apparatus for stereographic radiography are disclosed, the apparatus including a source of X-rays, a table or cradle disposed beneath the X-ray source, and a cassette disposed beneath the table or cradle, the cassette including a pair of image intensifying screens, a pair of grids between the image intensifying screens, and a double emulsion film between the grids. During the exposure the cradle is moved through an arc while simultaneously creating relative movement between the grids and the film. In the preferred embodiment a shield having a series of slits is disposed between the X-ray source and the patient, with the slits in alignment with the slots in the grids.

3,783,283

CORONA CHARGING DEVICE WITH SEMICONDUCTIVE SHIELD

Daniel Paul Smith, Jr., Creamery, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 26, 1972, Ser. No. 292,285
Int. Cl. G03g *15/00*
U.S. Cl. 250—324 **8 Claims**



A corona charging device, suitable for imparting an electrostatic charge to a photoconductive surface, comprises a corona discharge electrode having a high voltage applied thereto, and a grounded semiconductive shield partially surrounding the electrode. As compared to prior art conductive shields, the semiconductive shield results in a more efficient charging device since less of the corona ion current flows to the shield. It also permits charging of the photoconductive sur-

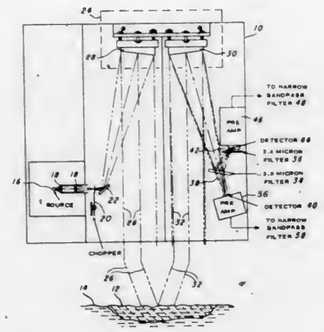
face to a higher voltage than prior art devices without the occurrence of arcing, and if arcing does occur it takes place between the electrode and the shield rather than between the electrode and the photoconductive surface.

3,783,284

METHOD AND APPARATUS FOR DETECTION OF PETROLEUM PRODUCTS

Kent McCormack, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 28, 1971, Ser. No. 193,439
Int. Cl. G01n *21/34*
U.S. Cl. 250—339 **17 Claims**



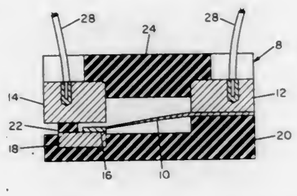
Disclosed is a method and apparatus for indicating the presence or absence of petroleum products in a water area by utilizing an active infrared source which illuminates the water area which may contain a petroleum product. The reflected infrared radiation is filtered by two filters at two different wavelengths, λ_1 and λ_2. Two infrared detectors produce signals which are proportional to the detected reflected radiation at the wavelengths λ_1 and λ_2. A processing channel is connected to each detector, the processing channels each including a log amplifier, the output of which is coupled to a differencing circuit which produces an output signature signal, $\ln [V(\lambda_1)/V(\lambda_2)]$, which indicates either the presence or absence of the petroleum products in the water area.

3,783,285

NEUTRON-FLUX RESPONSIVE SWITCH

Robert Parker, Danville, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 6, 1972, Ser. No. 286,787
Int. Cl. G01t *3/00*
U.S. Cl. 250—390 **3 Claims**



The present invention is a neutron-activated switch having a neutron-flux sensitive disk soldered to a spring steel strip. The spring steel strip has an end attached to one electrical contact while the other soldered end is bent away from a second contact. A neutron burst impinging on the neutron-sensitive disk generates heat which melts the solder thereby allowing the switch to close. The switch has application in circuits used in specimen crack detection systems.

3,783,286

X-RAY IMAGE BRIGHTNESS STABILIZER

Phillip A. Kremer, Parma, Ohio, assignor to Picker Corporation, Cleveland, Ohio

Continuation of Ser. No. 720,280, April 10, 1968, abandoned. This application Dec. 23, 1970, Ser. No. 101,095
Int. Cl. G03b *41/16*; **H05g** *1/60*
U.S. Cl. 250—401 **53 Claims**

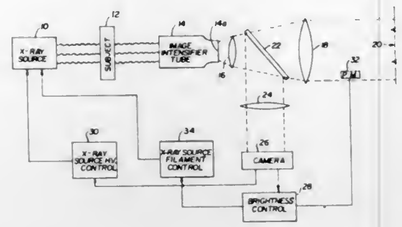


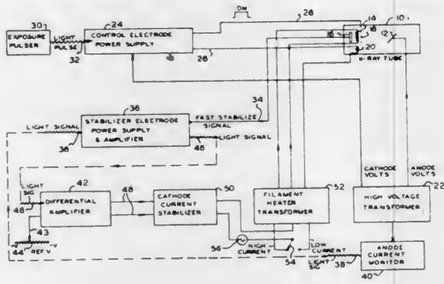
Image intensifier brightness for both cine and fluoroscopic use is controlled by varying X-ray tube filament current. In cine operation, brightness is integrated over each time interval that the camera shutter is opened, and, while the shutter is next closed, the integral is compared with a standard. Comparison output current controls X-ray tube filament curent. In fluoro-scopic operation, a signal proportional to brightness is continuously compared to a standard and the X-ray tube filament current is varied in accordance with the comparison.

3,783,287

ANODE CURRENT STABILIZATION CIRCUIT X-RAY TUBE HAVING STABILIZER ELECTRODE

George L. Fulton, Chicago; Robert M. Gager, Elmhurst, and Zed J. Atlee, Oak Brook, all of Ill., assignors to Picker Corporation, Cleveland, Ohio

Filed May 18, 1972, Ser. No. 254,646
Int. Cl. H05g *1/34*
U.S. Cl. 250—404 **10 Claims**



A stabilization circuit for maintaining the anode current of an x-ray tube substantially constant is described including a first stabilization means in which a stabilization voltage signal proportional to changes in the anode current is applied to a stabilization electrode in such tube. A stabilization electrode is positioned behind the cathode filament with respect to the anode and collects a portion of the electrons emitted from the filament to reduce the number of electrons striking the anode. The amplitude of the stabilization voltage determines the amount of electrons collected by the stabilizer electrode and thereby maintains the anode current constant. A second stabilization means of slower operation gradually takes over from the first stabilization means and varies the cathode filament heating current in order to maintain the electron flow to the anode constant in response to a control signal produced by a differential amplifier comparator means which is proportional

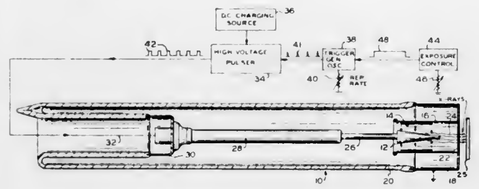
to the stabilization voltage applied to the stabilizer electrode. Light signal coupling is employed between the x-ray tube anode current monitor and the stabilizer electrode power supply, as well as between such power supply and the differential amplifier for voltage insulation purposes.

3,783,288

PULSED VACUUM ARC OPERATION OF FIELD EMISSION X-RAY TUBE WITHOUT ANODE MELTING

John P. Barbour, and Francis M. Charbonnier, both of McMinnville, Oreg., assignors to Field Emission Corporation, McMinnville, Oreg.

Filed June 26, 1972, Ser. No. 266,218
Int. Cl. H05g *1/32*
U.S. Cl. 250—414 **12 Claims**



A field emission x-ray apparatus and pulsed vacuum arc method of operation is described in which a plurality of extremely high voltage pulses of short duration and high repetition rate are applied between the anode and cathode of the x-ray tube to provide an electron discharge of low energy density below about 20 joules per square centimeter to prevent anode melting, which greatly increases the useful lifetime of such tube. For example, with a tube having a conical anode of tungsten having a surface area of 1.8 square centimeter, pulses of 350 kilovolts and 1,000 amperes with a width of 30 nanoseconds, a repetition rate of 1,000 pulses per second can be employed with an energy of 10.5 joules per pulse to provide the tube with a useful life in excess of 200,000 pulses. This increased tube life results from recognition and exploitation of the fact that, at higher pulse voltages, the anode temperature rise per pulse is reduced due to the fact that the electrons penetrate through a thicker surface layer of the anode. The high voltage, greater than about 250 kilovolts, of the pulses also give improved results in radiographic apparatus, such as is employed for x-raying the human chest, since the resulting film radiographs are of better contrast and contain more useful diagnostic information.

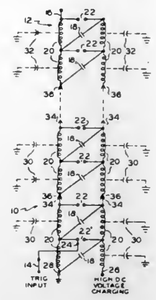
3,783,289

MARX SURGE PULSER HAVING STRAY CAPACITANCE WHICH IS HIGH FOR INPUT STAGES AND LOW FOR OUTPUT STAGES

Michael P. Hafner, McMinnville, Oreg., assignor to Field Emission Corporation, McMinnville, Oreg.

Filed June 14, 1972, Ser. No. 262,706
Int. Cl. H05g *1/24*
U.S. Cl. 250—417 **10 Claims**

A high voltage pulse generator of the Marx surge type is described in which the stray shunt capacitance to ground associated with the first several spark gaps of the input stages is of a higher value than the stray capacitance associated with the spark gaps of the output stages. The high stray capacitance of the input stages increases the amount of over-voltage transmitted to succeeding gaps when earlier gaps break down which enables a wider pressure range between the self fire and no fire pressures of the gas in the spark gaps. However, by providing a low stray capacitance for the output stages the pulser is still capable of producing high voltage output pulses of a narrow width and fast rise time. These different stray capacitances are provided by placing a grounded metal sleeve of smaller diameter than the pulser housing around the first few storage modules forming the input stages of the pulser, while leaving the last few storage modules forming its output stages free of any such sleeve. As a result, the storage modules of such output stages are spaced from the grounded metal



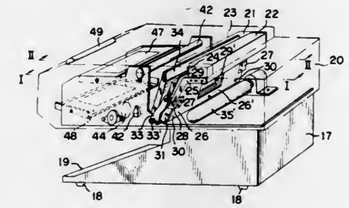
housing by a greater distance than the spacing between the input modules and such sleeve to provide a lower stray capacitance for the output modules than for the input modules.

3,783,290

INDICIA IDENTIFICATION SYSTEM

Motoharu Fujii; Isao Yamaguchi, both of Tokyo; Kimio Miyamoto, Yokohama; Masaru Yamaguchi, Tokyo, and Yozo Sano, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 735,823, June 10, 1968, abandoned. This application Mar. 1, 1971, Ser. No. 119,613
Claims priority, application Japan, June 12, 1967, 42/37469; Feb. 12, 1967, 42/50067
Int. Cl. G01d *7/06*
U.S. Cl. 250—456 **10 Claims**



The invention relates to an apparatus for identification of a concealed sign, such as a signature, on a card or the like and comprises a fluorescent member, a light source for stimulating the fluorescent member, a retaining member for holding the card carrying the concealed sign during the identification process and an infrared ray source. The apparatus of this invention may further include an optical system for directly comparing the visualize image of the concealed sign with a second sign and an instantly lighting circuit for the light source.

3,783,291

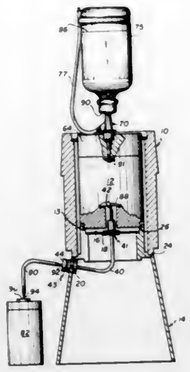
STERILE GENERATOR HOUSING AND SUPPORT

Thomas V. Czaplinski, North Brunswick; Gerald A. Bruno, Shrewsbury, and Thomas A. Haney, East Brunswick, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Continuation of Ser. No. 778,523, Nov. 25, 1968, abandoned. This application Jan. 3, 1972, Ser. No. 214,747
Int. Cl. G21h *5/02*
U.S. Cl. 250—434 **10 Claims**

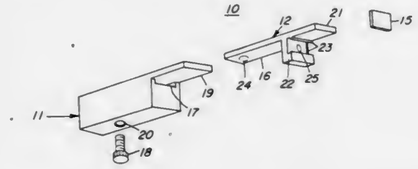
Disclosed herein is a new apparatus for eluting sterile nonpyrogenic radioactive material safely, effectively and with a

minimum of radiation exposure to the operator. This unit comprises a support base that supports a housing for a sterile



generator, said support base having notched sleeves incorporated therein.

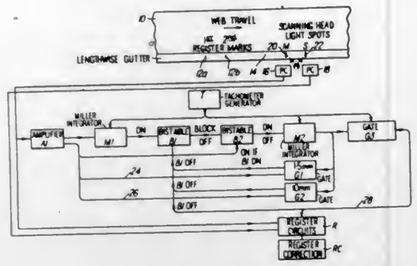
3,783,292
ALPHA PARTICLE DOSIMETER
Henry Ward Alter, Danville, and Daniel B. Lovett, Dublin, both of Calif., assignors to General Electric Company, San Jose, Calif.
Filed July 16, 1971, Ser. No. 163,150
Int. Cl. G01t 5/00, 5/10
U.S. Cl. 250—83 CD **11 Claims**



A dosimeter for recording alpha particles using track-registration material is disclosed. The dosimeter consists of a housing and an insert means holding the track-registration material. The dosimeter can be secured to a hat worn by a person working in an environment to be monitored, such as a uranium mine, which may contain quantities of radon gas and radon daughter products. The insert means is easily secured to and removed from the housing. The dosimeter is exceptionally small, light-weight and effective. The combined housing and insert means provides shielding for the film against unwanted radiation from deposited alpha-emitting particles and protects the film from physical contamination.

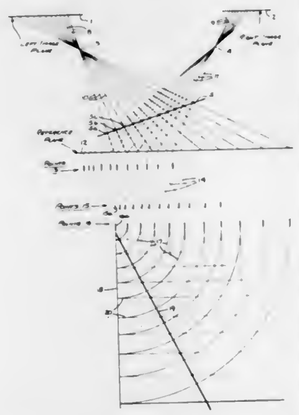
3,783,293
REGISTER CONTROL SYSTEMS
Daniel Gold, London, and Geoffrey David Clinton, Garston, both of England, assignors to Crosfield Electronics Limited, London, England
Continuation of Ser. No. 28,394, April 4, 1970, abandoned.
This application Mar. 10, 1972, Ser. No. 233,506
Claims priority, application Great Britain, Apr. 17, 1969, 19741/69
Int. Cl. H01j 39/12
U.S. Cl. 250—548 **3 Claims**

In a method of register control two or more register marks, corresponding to different operations performed on the web, are printed on the web, one behind the other in a track extending in the direction of travel of the web, the marks being separated from one another by a predetermined distance when register is correct. A mark is recognised when a photocell signal indicates clear space in the track for a predetermined distance (longer than the nominal separation between the marks) followed by the leading mark. It may also



be required for recognition that the mark thickness is less than a given amount and that the mark is followed by at least a predetermined length of clear space. When a mark is recognition, a register comparison is made between the positions in the track of the leading mark and the next mark. The circuit discriminator against others print in the track and other register marks behind the two compared marks.

3,783,294
AUTOMATED STEREO-PHOTOGRAMMETRIC INSTRUMENT
Robert Koper, Heerbrugg, Switzerland, assignor to Wild Heerbrugg Limited, Heerbrugg, Switzerland
Filed May 19, 1972, Ser. No. 255,231
Int. Cl. G01c 11/12
U.S. Cl. 250—558 **20 Claims**



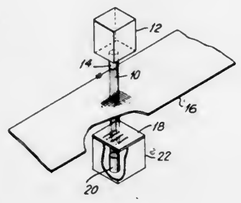
An automated photogrammetric instrument adapted to observe conjugate areas in a stereo-pair of photographs for the purpose of determining terrain elevation and for carrying out other measurements. In order to measure X-parallax, the instrument includes means to scan each of the photographs along a path in which X-parallax is present, but which is substantially free of Y-parallax and the effects of image rotation, thereby producing first and second video signals representative of the scanned paths in the pair of photographs. The first and second video signals are applied to a correlator to produce an output value reflecting the degree of differential X-parallax.

3,783,295
OPTICAL SCANNING SYSTEM
David Henry Casler, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 30, 1971, Ser. No. 184,994
Int. Cl. H01j 39/12
U.S. Cl. 250—567 **3 Claims**



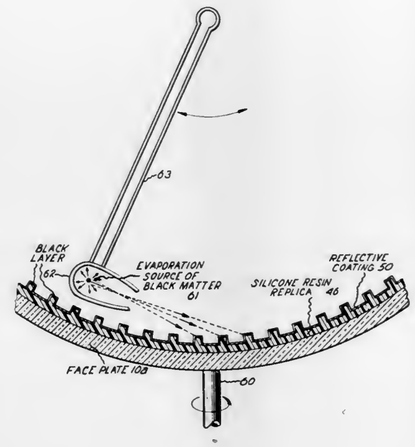
An optical character scanning system including synchronously scanned illumination and image paths. An operator viewing station is included in the image path and a strobing means is included in the illumination path to allow the operator to directly view a character being scanned by the scanning system. The planes defined by the illumination and image paths form unequal angles with the axis of a rotating polygon mirror used as a deflector. Two illumination sources are placed at equal angles to the mirror axis. Different wavelengths are used for machine scanning and operator viewing.

3,783,296
METHOD AND APPARATUS FOR DETECTING FLAWS IN A FABRIC WEB
Maurice E. Blevins, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Continuation of Ser. No. 18,196, March 10, 1970. This application Apr. 14, 1972, Ser. No. 244,200The portion of the term of this patent subsequent to Apr. 18, 1989, has been disclaimed.
Int. Cl. G01n 21/30
U.S. Cl. 250—550 **2 Claims**



A method and apparatus to inspect and detect deviations in a repetitive mesh pattern from a predetermined norm for the particular mesh pattern wherein a highly collimated monochromatic light beam, such as a laser beam, is directed to pass through the mesh pattern, such as a woven or knitted fabric, is diffracted by the mesh pattern, and the diffracted laser pattern is directed onto a mask which is indicative of a norm for the mesh pattern. A light-detecting apparatus, such as a photocell, is placed beyond the mask and any deviation in the mesh of the fabric from a predetermined norm for that particular fabric results in a deviation of the diffracted pattern of the laser beam through the mask which affects, and is detected by, the photocell.

3,783,297
X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF
John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed May 17, 1972, Ser. No. 254,065
Int. Cl. H01j 1/62
U.S. Cl. 250—483 **32 Claims**

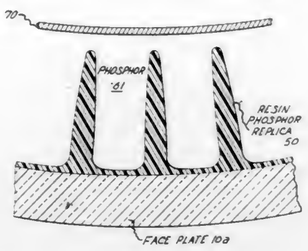


A waffle-like light-reflective surface on a substrate member has slightly protruding ribs of the waffle pattern coated with a light-absorbing material. The ribs absorb low-angle rearward traveling light photons generated in a transparent phosphor layer formed on the waffle surface and thereby reduce degradation of x-ray image resolution and contrast whereas the floor of the waffle pattern reflects the light photons traveling rearward more normal to the floor surface, back through the phosphor layer to the photocathode of the x-ray image intensifier tube. The method of fabricating the phosphor screen includes the intermediate step of forming a rubber replica of a metal master of the waffle surface from which a silicone resin replica is developed. The silicone resin replica is metal coated to provide the light reflective surface and the ribs are blackened to be light-absorbing.

3,783,298
X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF
John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed May 17, 1972, Ser. No. 254,099
Int. Cl. H01j 1/62
U.S. Cl. 250—483 **22 Claims**

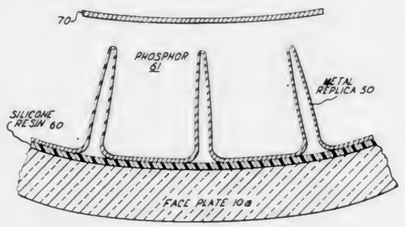
The surface of a waffle-like silicone resin and granular phosphor mixture substrate forms an array of cells for the support for the input transparent phosphor screen of an x-ray image intensifier tube. The solid projecting silicone resin-granular phosphor walls substantially reduce degradation of image resolution and contrast duc to lateral scattering of light in the transparent phosphor and thereby permits use of a thicker phosphor screen for higher x-ray absorption, and, or higher image resolution. The method of fabricating the phosphor screen includes the intermediate step of forming a

rubber replica of a metal master of the waffle surface. The rubber replica is coated with the granular phosphor-silicone



resin mixture and a vacuum is drawn between the rubber replica and face plate of the x-ray image intensifier tube for causing adhesion therebetween.

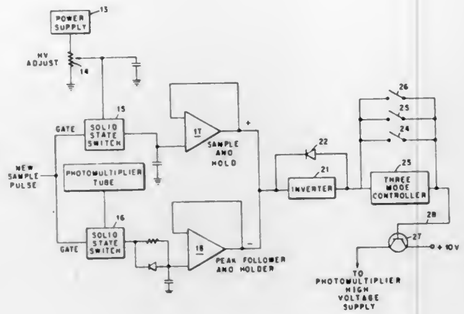
3,783,299
X-RAY IMAGE INTENSIFIER INPUT PHOSPHOR SCREEN AND METHOD OF MANUFACTURE THEREOF
John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed May 17, 1972, Ser. No. 254,100
Int. Cl. H01j *1/62*
U.S. Cl. 250—483 **20 Claims**



The surface of a waffle-like metal substrate forms an array of cells for the support for the input phosphor screen of an x-ray image intensifier tube. The hollow projecting walls of the metal surface substantially reduce degradation of image resolution due to lateral scattering of light in the phosphor and thereby permits use of a thicker phosphor screen for higher x-ray absorption and, or higher image resolution. The method of fabricating the phosphor screen includes the intermediate steps of forming rubber and plastic replicas of a metal master of the waffle surface. The plastic replicas are nickel plated to form low cost metal replicas with the plastic being dissolved whereby the projecting walls are hollow.

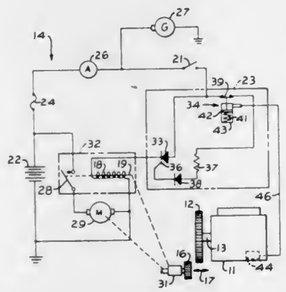
3,783,300
AUTOMATIC PHOTOMULTIPLIER TUBE VOLTAGE CONTROLLER
Wayne F. Johnson, Loudon, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Sept. 18, 1972, Ser. No. 289,906
Int. Cl. G01n *21/26*
U.S. Cl. 250—564 **3 Claims**

The repeating chain of pulses of a GeMSAEC analytical photometer is referenced to a contant amplitude water blank pulse that is sampled with each revolution of the rotor. A feedback circuit samples the amplitude of the water blank cuvet signal by means of a fast-acting solid state switch. It assures that the water blank signal amplitude remains constant by controlling the photomultiplier tube high voltage supply following comparison of the water blank transmission signal with a very well regulated reference voltage. Thus, in the



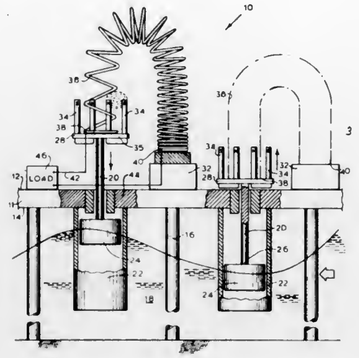
event of photomultiplier gain change or power supply drift during operation, automatic restoration of the photometer data transmission signals to their correct values will occur.

3,783,301
LOCKOUT CIRCUIT FOR ENGINE STARTER SYSTEM
Robert L. Nieukirk, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed June 8, 1972, Ser. No. 261,080
Int. Cl. F02n *11/00*
U.S. Cl. 290—37 **3 Claims**



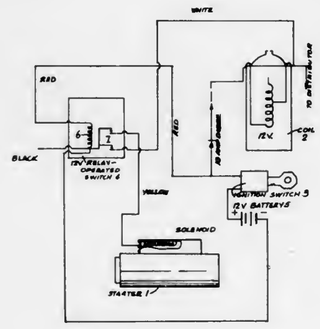
The risk of damage to starter mechanism for cranking an engine is reduced by a simple and reliable lockout circuit which prevents re-energization of the starter system from inadvertent closing of the starter switch after the engine is running. The lockout circuit detects when the engine has started by sensing engine oil pressure but does not deactivate the starter system until such time as the operator releases the starter switch. Thereafter the starter system cannot be re-energized until after the engine has been shutdown. All electrical elements of the lockout circuit are de-energized during running of the engine after the starter switch is released.

3,783,302
APPARATUS AND METHOD FOR CONVERTING WAVE ENERGY INTO ELECTRICAL ENERGY
David D. Woodbridge, P.O. Box 1425, Melbourne, Fla.
Filed Apr. 6, 1972, Ser. No. 241,702
Int. Cl. F03b *13/12*
U.S. Cl. 290—42 **14 Claims**



Apparatus including a coil supported on one end by a platform which reciprocates in response to wave action on a body of water. A magnetic field is provided through the coil so that an electromotive force is generated therein due to motion of the coil in the magnetic field.

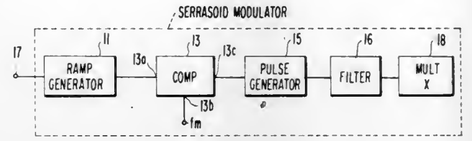
3,783,303
ANTI-THEFT DEVICE FOR MOTOR VEHICLE
John L. Johnson, Jr., Dallas, Tex., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed June 14, 1972, Ser. No. 262,776
Int. Cl. B62d *45/00*
U.S. Cl. 307—10 AT **1 Claim**



A circuit component connected in the ignition system of a motor vehicle selectively opens and closes the circuit of the ignition system thereby controlling the starting of the engine of the vehicle.

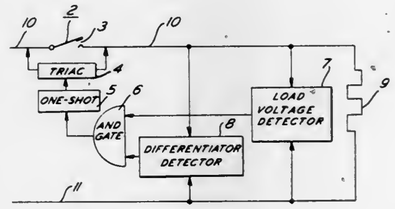
3,783,304
CONSTANT PULSE WIDTH GENERATOR
Haydn Milton Fox, Delran, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 22, 1972, Ser. No. 317,741
Int. Cl. H03k *3/00, 3/64*
U.S. Cl. 307—106 **4 Claims**

A generator useful as the output pulse generator in a serrasoid modulator provides a constant pulse width output regardless of input pulse amplitude or width variations. The pulse generator includes a differential amplifier wherein input signals through a first input coupling circuit to one terminal of the differential amplifier are integrated and the input signals



through a second input coupling circuit to the second terminal are coupled without appreciable integration. A fixed D.C. offset voltage between the two inputs is achieved by a constant current source coupled to a resistor in the second input coupling circuit.

3,783,305
ARC ELIMINATION CIRCUIT
Peter Lefferts, Hopewell, N.J., assignor to Heinemann Electric Company, Trenton, N.J.
Filed Aug. 18, 1972, Ser. No. 281,968
Int. Cl. H01h *9/30*
U.S. Cl. 307—136 **9 Claims**

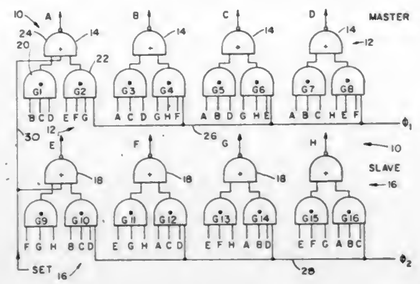


A circuit arrangement for eliminating arcs formed across a set of contacts on the opening or closing thereof comprising a thyristor connected across the contacts to be protected. The control electrode of the thyristor is coupled to a control circuit which includes a logic circuit for generating a trigger pulse upon the simultaneous occurrence of a plurality of contact arc-indicative conditions. The control circuit also includes sensing circuits for generating control signals upon the occurrence of preselected arc-indicative conditions, such as preselected contact or load voltages and contact or load transient voltages having a preselected rise time or frequency characteristics.

3,783,306
LOW POWER RING COUNTER
Kurt Hoffmann, Sunnyvale, Calif., assignor to American Micro-Systems, Inc., Santa Clara, Calif.
Filed Apr. 5, 1972, Ser. No. 241,275
Int. Cl. H03k *21/00, 19/08*
U.S. Cl. 307—223 C **5 Claims**

A ring counter that is operable by a relatively low power level comprises master and slave flip-flop sections having n stages connected in parallel to alternating clock means. Each stage has a series of AND-NOR gates including one AND-NOR gate used as a reset and connected to the other parts of

the section. The alternating clocks for the master and slave sections are applied to advance the counter by shifting the direct current path from stage to stage. Each stage is self gated so that power is consumed only when that stage or flip-flop is being enabled.

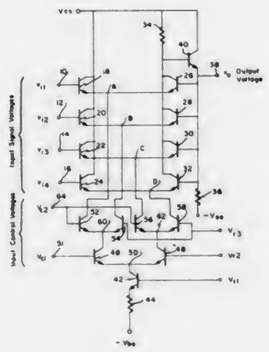


3,783,307

ANALOG TRANSMISSION GATE

David R. Breuer, Malibu, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jan. 3, 1972, Ser. No. 214,903
Int. Cl. H03k *17/30, 17/60*
U.S. Cl. 307—243 **8 Claims**



A transistor switching network, responding to a logic input, switches current selectively into one of a number of nodes, each node connecting a pair of bipolar transistors coupled differentially in a unity gain amplifier circuit. From a number of analog input signals applied to the differentially connected transistor pairs, only the one coupled to the selected node will produce an output from the voltage follower circuit. Conversely, a single analog input signal may be gated selectively to any one of a number of output terminals.

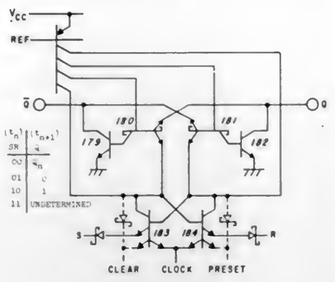
3,783,308

FLIP-FLOP ELEMENT

Clark R. Williams, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 19, 1972, Ser. No. 264,216
Int. Cl. H03k *3/286*
U.S. Cl. 307—291 **7 Claims**

Flip-flop circuits are defined by bipolar elements including multiple emitter transistors, Schottky diodes and multiple emitter Schottky transistors configured to operate with a supply voltage of only 1 volt. The circuits are well adapted for use in devices such as electronic wrist watches when implemented in integrated circuit form wherein current sources are used in place of high value resistors.

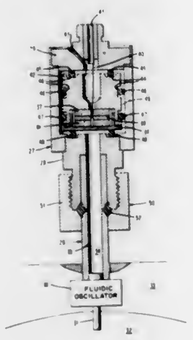


3,783,309

SIGNAL GENERATING DEVICE FOR USE WITH A STRUCTURE WHICH IS SUBJECTED TO A RANGE OF VIBRATIONS

Vernon F. Alibert, Chester Hgts., and Thomas H. Carey, Chester, both of Pa., assignors to Columbia Research Laboratories, Inc., Woodlyn, Pa.

Filed Aug. 7, 1972, Ser. No. 278,489
Int. Cl. H04r *17/00*
U.S. Cl. 310—8.7 **7 Claims**



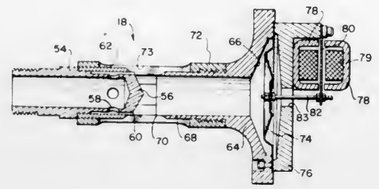
The present invention employs a piezo-electric crystal means which is supported by nonrigid material within a housing device. The housing device is adapted to be rigidly held by a vibrating body. The piezo-electric crystal means is coupled to a source of pressure signals which vary in frequency in response to temperature variations and said crystal means is further coupled to an electronic network to provide signals thereto which are converted into pulses whose repetition rate is commensurate with the frequency of said pressure signals. The vibration experience to which the housing and therefore the piezo-electric crystal means is subjected does not cause the piezo-electric crystal means to generate high amplitude electrical signals (noise) because the energy of the vibrations is substantially absorbed by the non-rigid material. In addition the electronic network provides a flat response over a dynamic range that includes the pressure signals generated by the temperatures of the device being monitored. Accordingly, the signals from the pressure source can be readily detected and therefore are readily usable for their intended purpose.

3,783,310

AIR-DRIVEN GENERATOR

Carl J. Campagnuolo, Potomac; Clayton D. McKindra, Hyattsville; Clinton J. Sewell, Silver Spring; Fernando Villarroel, Bowie, and Lionel L. Woolston, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 44,679, June 9, 1970, Pat. No. 3,712,170.
This application June 23, 1972, Ser. No. 265,935
Int. Cl. H02k *35/00*
U.S. Cl. 310—15 **6 Claims**



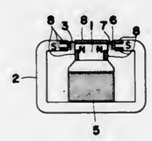
A system for firing aircraft rockets including a fluidic generator exposed to the airstream passing the launching aircraft in flight for generating the electrical power necessary to operate the firing circuit. The fluidic generator, produces a voltage output when a predetermined minimum air speed is achieved to charge capacitors in the firing circuit. Silicon controlled rectifiers are shunted across the capacitors to immediately discharge them when the aircraft decelerates below the predetermined minimum air speed.

3,783,311

MAGNETIC DEVICE FOR USE IN ACOUSTIC APPARATUS

Tadao Sato, Asaka, and Toshio Ebihara, Ichikawa, both of Japan, assignors to Coral Audio Corporation, Kawaguchi City and Shinko Magnet Kabushiki Kaisha, Narashino City, both of Japan

Filed Dec. 13, 1971, Ser. No. 207,081
Claims priority, application Japan, Dec. 19, 1970, 45/114666
Int. Cl. H02k *33/18*
U.S. Cl. 310—27 **1 Claim**



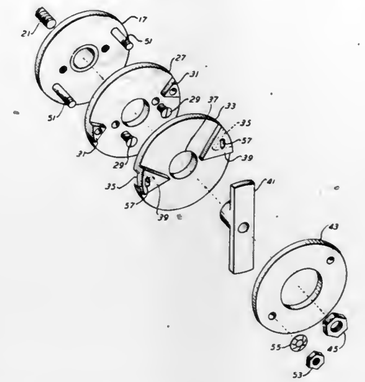
This invention relates to a magnetic device comprising a magnet, a center pole secured to an upper surface of said magnet, a yoke enclosing said magnet and said center pole such that a gap is formed between said yoke and said center pole, a voice coil wound on a bobbin loosely received in said gap, and a metallic member which permits the lines of magnetic force to move substantially in one direction only. Said magnetic member is mounted either on the center pole or the yoke in the vicinity of the surface of the north pole or south pole.

3,783,312

VISCOUS DECELERATION DAMPED INCREMENTAL POSITION MOTOR

Arnold Schindel, Fairlawn, and David Wojtowicz, South Plainfield, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Jan. 15, 1973, Ser. No. 323,843
Int. Cl. H02k *7/02*
U.S. Cl. 310—36 **10 Claims**



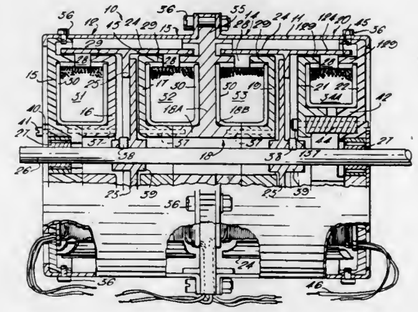
Damping apparatus for use in a dual position stepper motor is shown. An arm on the motor shaft rotates therewith in a recess formed in a friction plate held for limited movement between two surfaces. Damping is obtained by the arm striking an edge of the recess of the friction plate and moving it slightly to absorb the momentum of the motor and its load. Means are provided to adjust the pressure on the friction plate to allow it to be effective for different motor loads.

3,783,313

ELECTRICAL STEPPING MOTORS HAVING LOW INERTIA ROTORS

Radhey Mohan Mathur, Winnipeg, Manitoba, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

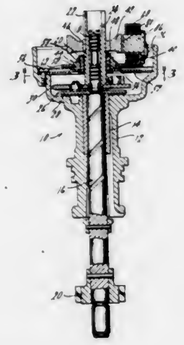
Filed June 29, 1972, Ser. No. 267,587
Int. Cl. H02k *37/00*
U.S. Cl. 310—49 **8 Claims**



The stepping rate of a multi-phase electrical stepping motor is increased by pairing stator sections with a rotor disc carrying two sets of axially extending rotor poles. Embodiments having four sections and a rotor of two discs, carrying segmental strip rotor poles, has stator poles of segmental opposed form aligned across an annular ring slot opening in the outer torus wall. Another embodiment has an annular pole slot in

the torus side and angularly staggered salient poles, cooperating with a ring rotor of crenulate form with arcuate segmental pole faces joined by oblique bridge portions. All sections may be active sections, or an end section may have permanent magnet excitation of stator poles which number is the count of all active poles, and the rotor pole set associated has a like number of poles, to lock the rotor in each step position; a winding energized by low DC current is poled to cancel holding flux, a magnetic shunt being provided to avoid magnet demagnetization.

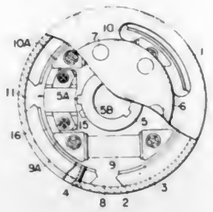
3,783,314
SIGNAL GENERATING MECHANISM
Charles C. Kostan, Detroit, Mich., assignor to The Ford Motor Company, Dearborn, Mich.
Filed Dec. 20, 1972, Ser. No. 316,945
Int. Cl. H02k *11/00*
U.S. Cl. 310—70 **5 Claims**



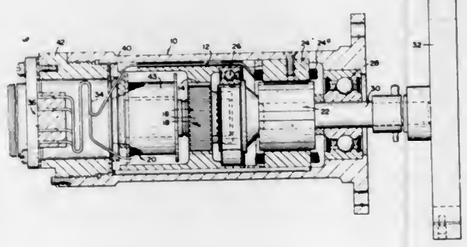
A signal generating mechanism is disclosed for producing an electrical signal having a frequency proportional to the angular velocity of a rotating shaft. The signal generating mechanism may be used in the distributor for a breakerless ignition system for a multi-cylinder internal combustion engine, in which case the frequency of the alternating signal is equal to the rate at which ignition sparks are to be generated. The signal generating mechanism includes a lower plate and bushing through which the rotating shaft passes. A non-adjustable stator assembly is formed by a hub positioned around the bushing, the hub having an upper plate attached to it on which is affixed a permanent magnet. A stator is positioned on the permanent magnet and has an extending pole-piece that passes through an electrical pickup coil. An armature, or rotor, is formed by a toothed-wheel that is affixed to the rotating shaft. The teeth of the toothed-wheel come into and go out of alignment with the portion of the stator pole-piece that extends through the electrical coil.

3,783,315
FLYWHEEL MAGNETO HAVING TRIGGER GENERATOR FOR IGNITING ENGINE
Osamu Takahashi, Hitachi, and Nobuhico Ogasawala, Mito, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Nov. 18, 1971, Ser. No. 199,981
Claims priority, application Japan, Nov. 25, 1970, 45/104277
Int. Cl. H02k *7/02*
U.S. Cl. 310—74 **7 Claims**

A trigger generator is incorporated in a flywheel magneto which is directly coupled to the crankshaft of an engine to be driven thereby. A plurality of rotary magnetic poles are mounted on the body portion of the flywheel to constitute a rotor, and the iron core of the trigger generator is disposed in the space defined between the magnetic poles and the hub portion of the flywheel so as to establish a magnetic path which passes through the iron core and the hub and body portions of the flywheel. The trigger generator generates an output in response to the rotation of the engine without producing any noise voltage. Ignition can be reliably attained during each rotation and a high output can be obtained even when the engine is rotating at a low speed.



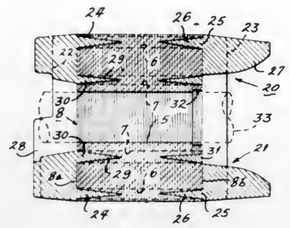
3,783,316
STABILIZED ROTOR CONSTRUCTION FOR WHEEL SPEED TRANSDUCER
Basil M. Madigan, Wadsworth, Ohio, assignor to The Goodyear Tire and Rubber Company, Akron, Ohio
Filed July 25, 1972, Ser. No. 274,860
Int. Cl. H02k *5/16*
U.S. Cl. 310—90 **7 Claims**



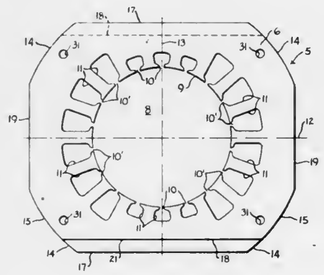
Disclosed is a new bearing design adaptable for use between rotatably moving parts having tolerances therebetween which are subject to change due to temperature or other variations. A stationary assembly has a bearing race fixedly attached about the inner circumference thereof. A rotatable member, received within the stationary member, has a race about the outer circumference thereof substantially concentrically aligned with the fixed race. Balls are interposed between the two bearings. A spring washer operatively engages the rotatable member so as to maintain a consistent bearing engagement between the two races and the balls regardless of temperature variations or force fluctuations.

3,783,317
DYNAMOELECTRIC MACHINE ROTOR
Hollis D. Sisk, Chesterfield, Mo., assignor to Wagner Electric Corporation, Newark, N.J.
Filed Nov. 22, 1972, Ser. No. 308,707
Int. Cl. H02k *3/06*
U.S. Cl. 310—212 **9 Claims**

A squirrel-cage rotor for an electric motor is provided with a lamination stack having the usual integrally cast windings and conductively connected opposed end rings, and cold strength bars are also integrally cast in said lamination stack respectively having opposed ends adjacent to said end rings with at least one of said opposed ends electrically disassociated from its adjacent end ring.



3,783,318
LAMINATED STATOR CORE FOR DYNAMOELECTRIC MACHINES
John C. Widstrand, Wausau, Wis., assignor to Marathon Electric Manufacturing Corporation, Wausau, Wis.
Filed Oct. 6, 1972, Ser. No. 295,706
Int. Cl. H02k *1/16*
U.S. Cl. 310—216 **6 Claims**

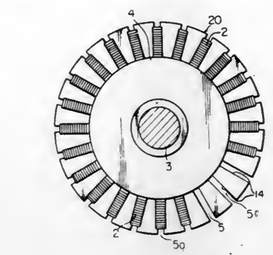


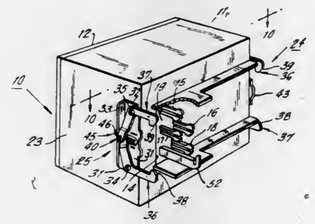
A stator core for an induction-run motor comprises identical laminations. Each has a circular inner edge to which winding slots open. The outer edge is asymmetrical, defined by arcuate portions curved on a uniform radius concentric to the inner edge, peripherally alternating with straight portions that are parallel to mutually perpendicular lines through the center of the inner edge. Along the stator the laminations have different angular orientations, but orientations differ by uniform angular increments and preferably vary in a regular sequence along the core; hence the core as a whole is symmetrical.

3,783,319
LAMINATED ROTOR TOOTH ASSEMBLY FOR AN ELECTRIC PULSE MOTOR
Sakae Yamamura, Tokyo, and Seiuemon Inaba, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki-shi and Fujitsu Fanuc Limited, Chiyoda-ku, Tokyo, both of Japan
Filed Aug. 21, 1972, Ser. No. 282,021
Claims priority, application Japan, Aug. 24, 1971, 46/76000
Int. Cl. H02k *1/22*
U.S. Cl. 310—268 **10 Claims**

An electric pulse motor having a rotatably supported rotor including a plurality of equiangularly arranged rotor teeth carried by a support element and a stator assembly including a number of stator elements stationarily arranged around the rotor. The stator teeth of the stator assembly project toward one another across an air gap and both face the rotor teeth between them. Each of said plurality of rotor teeth is a laminated element made by stacking a plurality of laminations in the radial direction of the rotor.

3,783,320
CLAMPING MEANS FOR MECHANICAL SECUREMENT OF ENCLOSURES TO BUS DUCT
Ralph C. Clement, Bellefontaine, Ohio, assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Dec. 15, 1972, Ser. No. 315,553
Int. Cl. H02b *1/04*
U.S. Cl. 317—99 **15 Claims**



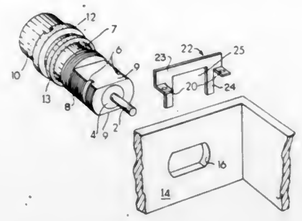


Each end of a bus duct plug is provided with a clamping assembly to mechanically secure the plug to a bus duct housing. Each clamping assembly includes a pair of pivoted L-shaped crank members having hooks at one end thereof and being joined at their other ends to a connecting member that is mounted for guided linear movement. A single adjusting screw in threaded engagement with the connecting member moves the latter, with such movement being effective to simultaneously pivot both crank members and thereby selectively move the hooks into and out of clamping engagement with the bus duct housing.

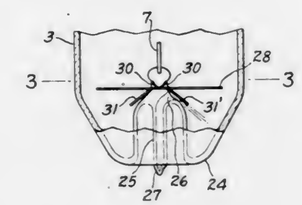
3,783,321
COAXIAL CONNECTOR
William L. Patterson, Berlin, Mass., assignor to Adams-Russell Co., Inc., Waltham, Mass.
Filed Mar. 23, 1972, Ser. No. 237,326
Int. Cl. H02b *1/02*
U.S. Cl. 317—101 R **5 Claims**

A coaxial connector for making an electrical connection through the wall of an enclosing box to a printed circuit board. The connector has one end formed in conventional fashion to mate with a cable connector, while the other end which extends through a clearance hole in the enclosing wall, has an outer cylindrical conductor flatted on two sides and a central conductor embedded in insulating material and extending beyond the end of the outer conductor. The slots in the outer conductor interconnect the flatted portions and a bracket has

a pair of tabs extending out from a U-shaped portion, the U-shaped portion fitting through the slots to retain the connector within the enclosing wall, the tabs supporting the printed circuit board and providing an electrical connection to the ground plane thereon. A retaining ring threads on the opposite end to fasten the conductors from outside the wall.



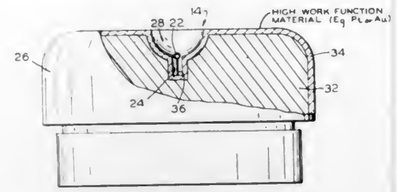
3,783,322
ELECTRIC LAMP HAVING PHOSPHOR COATING AND HEAT DEFLECTOR
John W. Anthony, Pepper Pike, Ohio, assignor to General Electric Company, Schenectady, N.Y.
Filed Dec. 14, 1972, Ser. No. 314,955
Int. Cl. H01j *61/52*
U.S. Cl. 313—42 **5 Claims**



In electric lamps which contain a gas filling at appreciable pressure and which have a phosphor coated on the inside of the envelope, it is necessary to guard against blowing phosphor off the wall by the jet of gas issuing from the exhaust tube at gas fill. Also in high intensity lamps, a heat deflector in the neck may be desirable to prevent overheating of the base. A heat deflector is provided in the form of a slotted disc which straddles the press and has tabs bent out therefrom at an acute angle. The tabs overlie the exhaust tube blow-out aperture in the stem and deflect the gas jet to prevent blowing phosphor off the wall at gas fill.

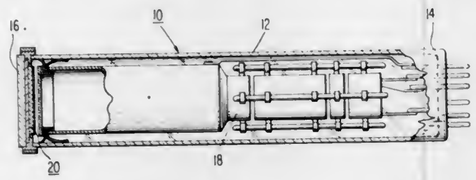
3,783,323
X-RAY TUBE HAVING FOCUSING CUP WITH NON-EMITTING COATING
Zed J. Atlee, Oak Brook, and Roy F. Kasten, Jr., Elmhurst, both of Ill., assignors to Picker Corporation, Cleveland, Ohio
Filed Aug. 30, 1972, Ser. No. 284,735
Int. Cl. H01j *35/06*
U.S. Cl. 313—57 **7 Claims**

An x-ray tube is described including a focusing cup electrode coated with a high work function material, such as platinum or gold, to prevent the field emission of electrons from such cup. The method of applying the non-emitting coating is preferably sputtering or ion plating, but may also be



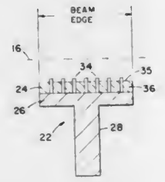
electroplating followed by vacuum fusion in the case of gold or other low melting point metals.

3,783,324
PHOTOSENSITIVE CHARGE STORAGE ELECTRODE HAVING A SELECTIVELY CONDUCTING PROTECTIVE LAYER OF MATCHING VALENCE BAND ON ITS SURFACE
Christopher Roman Wronski; Woongsoon Michael Yim, and Joseph Dresner, all of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.
Filed Sept. 11, 1972, Ser. No. 287,859
Int. Cl. H01j *31/28*
U.S. Cl. 313—65 A **4 Claims**



A photosensitive charge storage electrode comprises a photoconductive substrate having a bulk region with a surface region of reduced conductivity. On the surface region is a selectively insulating layer of a composition such that the top of the valence band of the layer is essentially at the same energy level as the top of the valence band in the bulk region of the photoconductive substrate.

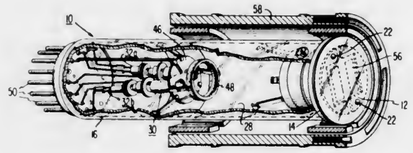
3,783,325
FIELD EFFECT ELECTRON GUN HAVING AT LEAST A MILLION EMITTING FIBERS PER SQUARE CENTIMETER
Joe Shelton, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Dec. 21, 1971, Ser. No. 210,452
Int. Cl. H01j *1/20, 19/24*
U.S. Cl. 313—336 **1 Claim**



An electron gun uses a field effect emitter in a vacuum tube, providing the advantages of cold cathode emission at atmospheric temperature in addition to a simplified control

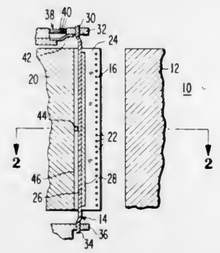
system. Temperature independent emission is achieved by using an oxide-metal composite emitter for releasing electrons. The anode and emitter can be shaped to produce a desirable electric field and current path for special electron tubes.

3,783,326
MAGNETICALLY-FOCUSSED CATHODE-RAY TUBE COMPRISING A TILTED AND SKEWED OFF-AXIS ELECTRON GUN
Eduard Luedicke, Neshanic, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Sept. 18, 1972, Ser. No. 289,780
Int. Cl. H01j *29/46*
U.S. Cl. 313—83 **7 Claims**



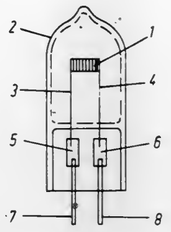
The tube comprises an evacuated envelope having a magnetic focus axis and an electron gun spaced from the focus axis and having a gun axis along the general direction of the electron beam in the gun. The electron gun is oriented at an angle with respect to the focus axis, the angle being the sum of a component tilt angle and a component skew angle.

3,783,327
FILAMENTARY CATHODE MOUNT AND MOUNTING METHOD
Benjamin Baker Adams, Jr., Landisville, Pa., assignor to RCA Corporation, New York, N.Y.
Filed June 30, 1972, Ser. No. 267,906
Int. Cl. H01j *1/88, 19/42*; **H01k** *1/18*
U.S. Cl. 313—272 **10 Claims**



A mount comprising a filamentary cathode held in longitudinal tension between two suspension members movable one with respect to the other; a fixed electrically-insulating support in contact with a surface of the cathode intermediate the ends thereof; and means for displacing the longitudinal pulling plane relative to the center-of-gravity of the cathode, whereby the cathode surface is forced against the support. Also included is a method of mounting a filamentary cathode in the mount.

3,783,328
HALOGEN INCANDESCENT LAMP
Gerhard M. Neumann, Munich, Germany, assignor to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH, Munich, Germany
Filed July 11, 1972, Ser. No. 270,730
Claims priority, application Germany, Aug. 10, 1971, P 21 40 087.3
Int. Cl. H01k *1/50*
U.S. Cl. 313—222 **9 Claims**



Halogen incandescent lamps containing a tungsten filament and an inert fill gas. The lamps also contain an equimolar quantity of oxygen and fluorine in the envelope together with the inert gas. Preferably the amount of each of the oxygen and fluorine is between about 0.1 and 5 torr.

3,783,329
TUBULAR INCANDESCENT LAMP HAVING IMPROVED FILAMENT SUPPORT
Frederick J. McNeill, Londonderry, N.H.; Joseph S. Kulik, Jr., Amesbury, Mass., and David L. Smith, Sr., Nashua, N.H., assignors to GTE Sylvania Incorporated, Danvers, Mass.
Filed Nov. 2, 1972, Ser. No. 303,035
Int. Cl. H01j *1/96, 19/50*
U.S. Cl. 313—274 **3 Claims**

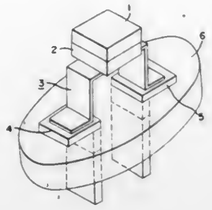


A tubular, double ended electric incandescent lamp has one or more improved support members intermediate the ends of a coiled lamp filament to support the filament from the lamp envelope walls and to maintain the filament at about the axis of the lamp envelope. Each support member comprises a plurality of intertwisted wires, each of which partially encircles the filament. The ends of the intertwisted wires bear against the lamp envelope radially.

3,783,330
DIRECT HEATED CATHODE
Hisao Nakanishi; Takushi Ushiro, and Kinjiro Sano, all of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 28, 1972, Ser. No. 238,894
Claims priority, application Japan, Apr. 2, 1971, 46/20127
Int. Cl. H01j *1/14, 1/20, 19/14*
U.S. Cl. 313—310 **3 Claims**

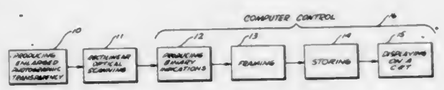
A direct heating cathode for electronic tube application having excellent electrical characteristics, e.g., thermionic emission characteristics and cut-off characteristics, and excellent mechanical characteristics, e.g., thermal strength, impact strength, is provided which comprises a heating element having a cathode contact surface and having side wall portions

supporting said contact surface, a cathode base plate contacting said heating element contact surface, a thermionic emitting layer for emitting electrons by thermal energy being in contact with said cathode base plate, wherein said heating



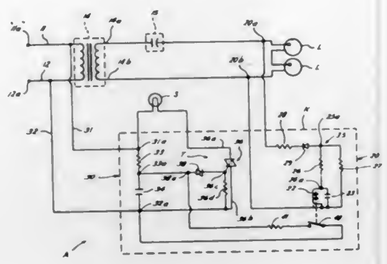
element is formed from a metallic material having an electric resistance of greater than 110μΩ-cm at 800°C., a tensile strength of greater than 15 kg/mm², a thickness of 20 – 50μ and a width of 0.5 – 1.5 mm.

3,783,331
METHOD FOR GENERATING INFORMATION TO CONTROL THE SCANNING BEAM OF A DISPLAY DEVICE
John C. Darnall, Van Nuys, Calif., assignor to The Times Mirror Company, Los Angeles, Calif.
Filed Mar. 17, 1970, Ser. No. 20,320
Int. Cl. H01j *29/70*
U.S. Cl. 315—18 **10 Claims**



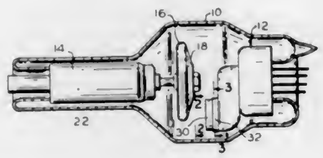
An enlarged photographic transparency of a print character to be displayed on a cathode ray tube is placed between a directional light source and a directional light detector aligned with the light source. Relative motion is introduced between the transparency and the aligned source and detector to form a vertical rectilinear scanning pattern across the transparency. Each subject print character is placed on the transparency between two reference characters that are in predetermined spatial relationship to the boundaries of the em square of the subject character. A series of binary indications corresponding to the elemental areas of the scanning pattern is produced from the response of the detector and stored on a first storage medium. Then, the indications representing the reference characters are sensed. From the indications representing the reference characters, the indications that represent the boundaries of the em squares of the subject characters are determined. Finally, the indications within the boundaries of the em squares of the subject characters are selectively transferred to a second storage medium. The subject characters are retrieved from the second storage medium as required to control the electron beam of the cathode ray tube.

3,783,332
VAPOR LAMP STANDBY APPARATUS
John D. Peterson, and Walter E. Bates, both of Seabrook, Tex., assignors to W. E. Bates Engineering Co., Seabrook, Tex.
Filed June 5, 1972, Ser. No. 259,553
Int. Cl. H05b *41/46, 37/04, 37/03*
U.S. Cl. 315—91 **9 Claims**



A new and improved apparatus for providing light when a vapor lamp, such as a mercury vapor lamp, has been extinguished because of a temporary failure in the electrical power supply of such lamp.

3,783,333
X-RAY TUBE WITH IMPROVED CONTROL ELECTRODE ARRANGEMENT
Zed J. Atlee, Oak Brook, Ill., assignor to Picker Corporation, Cleveland, Ohio
Filed Feb. 24, 1972, Ser. No. 229,136
Int. Cl. H01j *29/52*
U.S. Cl. 315—30 **8 Claims**

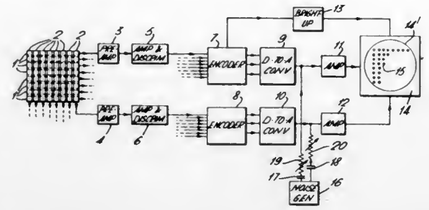


Electron emissive device such as an x-ray tube having a cathode for generating electrons and an anode for receiving the same is provided with an auxiliary electrode insulated from the focusing cup electrode and positioned behind the cathode filament. A positive potential may be applied to such auxiliary electrode relative to the filament so that such auxiliary electrode attract electrons and prevent their flow to the anode.

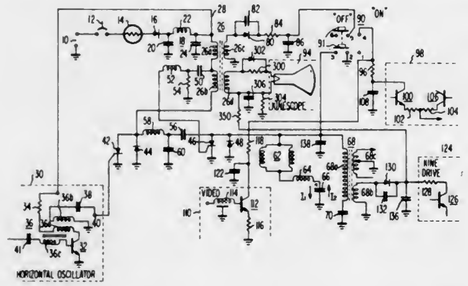
3,783,334
CATHODE RAY TUBE DISPLAY SYSTEMS
William George Gore, Newbury, and Roy Percival Parker, Leatherhead, both of England, assignors to National Research Development Corporation, London, England
Filed July 16, 1970, Ser. No. 55,495
Claims priority, application Great Britain, July 23, 1969, 37,138/69
Int. Cl. H01j *29/80*
U.S. Cl. 315—18 **7 Claims**

A display system, having particular application in gamma cameras, in which items of information are represented by

bright spots on the screen of a cathode ray tube. The display is basically in the form of a digital array of positions corresponding to different kinds of item, but is made easier to interpret by spreading out the spots for each position of the array.



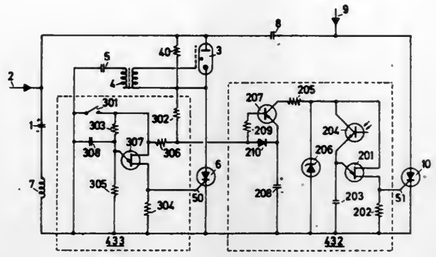
3,783,335
INSTANT-ON CIRCUIT FOR A TELEVISION RECEIVER OFFERING INDEPENDENT FILAMENT VOLTAGE CONTROL
Robert Joseph Gries, Marion, Ind., assignor to RCA Corporation, New York, N.Y.
Filed July 3, 1972, Ser. No. 268,786
Int. Cl. H01j *29/70*
U.S. Cl. 315—30 **6 Claims**



The instant-on circuit cooperates with a horizontal deflection system of the type utilizing two bidirectionally conductive switching means which serve respectively as trace and commutating switches. When the on-off control for the television receiver is turned to its "ON" position, the two switches cooperate to provide those direct potentials needed for image or reproduction on the face of a picture tube kinescope. When the control is turned to its "OFF" position, on the other hand, the trace switch is inactivated, but the commutating switch continues to operate to provide a reduced filament voltage for the picture tube. A resistor-rectifier combination is included in series with the filament of the picture tube to provide a means by which the amplitude and ratio of the voltages applied to the filament between the "ON" and "OFF" conditions of the receiver can be controlled.

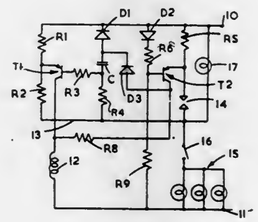
3,783,336
AUTOMATIC PHOTOFLASH DEVICES
Zoltan Vital, Brussels, and Jean Orban, Clabecq, both of Belgium, assignors to Ponder & Best, Inc., Los Angeles, Calif.
Continuation-in-part of Ser. No. 799,554, Feb. 13, 1969, abandoned. This application Aug. 23, 1971, Ser. No. 174,096
Claims priority, application Belgium, Aug. 24, 1970, 93116; Mar. 8, 1971, 100618; Apr. 9, 1971, 102057; June 11, 1971, 104488; Sept. 23, 1970, 94290; Feb. 13, 1968, 54471; Nov. 21, 1968, 66425; Dec. 27, 1968, 68017; Jan. 20, 1969, 68982
Int. Cl. H05b *37/00, 37/02*
U.S. Cl. 315—159 **32 Claims**

Automatic flash limiting devices for use in electronic photoflashes and including means for more rapidly and accurately terminating a light flash and/or blocking discharge of



the photoflash energy storage capacitor after termination of such a light flash.

3,783,337
FLASHING LAMP CIRCUITS
Robert Hulme Brown, Kingston-Upon-Thames, England, assignor to C.A.V. Limited, Birmingham, England
Filed July 14, 1971, Ser. No. 271,654
Claims priority, application Great Britain, July 17, 1971, 33,692/71
Int. Cl. H05b *37/03*
U.S. Cl. 315—200 A **5 Claims**

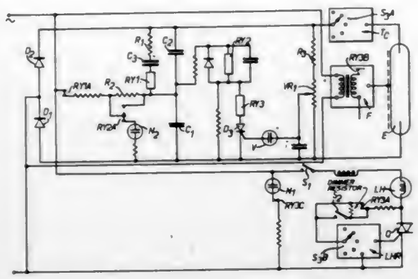


A flashing lamp circuit includes a capacitor which is charged by a source of d.c. supply when the circuit is energised and switch means including a relay the operating coil of which is energised when the voltage across the capacitor attains a predetermined voltage. In addition there is provided a current sensing means including a resistor and a transistor for sensing the current flow through the lamp or lamps. The current sensing means is arranged to maintain the relay coil energised in the event of failure of the or one or more of the lamps.

3,783,338
ELECTRONIC FLASH LIGHTING EQUIPMENT
Kenneth Bowen, London, England, assignor to Bowens Sales & Service Limited, London, England
Filed May 18, 1972, Ser. No. 254,555
Int. Cl. H05b *37/00*
U.S. Cl. 315—241 P **5 Claims**

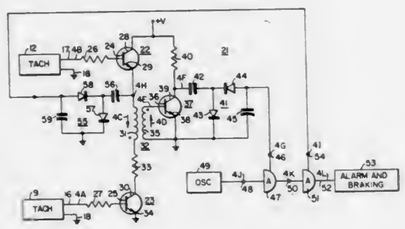
An electronic flash unit comprising an electronic flash tube, a modelling light, and a power supply and triggering arrange-

ment for the flash tube, in which the said arrangement is coupled to the circuit supplying the modelling light in such a way



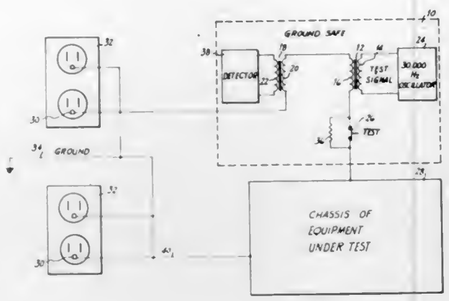
that triggering of the electronic tube will, at least for a space of time thereafter, modify the light output of the modelling light.

3,783,339
METHOD OF AND APPARATUS FOR PRODUCING A VEHICLE MOVEMENT CONTROL SIGNAL IN RESPONSE TO SENSING THE DIRECTION OF TRAVEL OF A VEHICLE
Thomas C. Matty, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 26, 1972, Ser. No. 220,829
Int. Cl. H02p *15/00*
U.S. Cl. 317—5 8 Claims



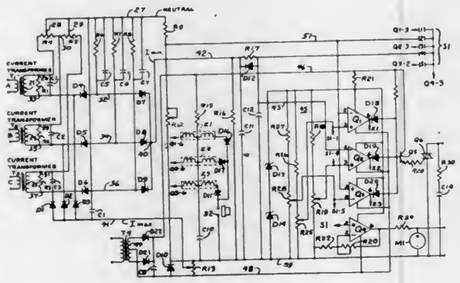
A pair of tachometers are operatively engaged with the drive mechanism of a vehicle. The tachometers are aligned relative to one another such that if the vehicle is traveling in a forward direction the signal provided at the output of the first tachometer leads the signal provided at the output of the second tachometer by a first predetermined phase angle, and if the vehicle is traveling in the reverse direction, the signal output of the second tachometer leads the signal output of the first tachometer by a second predetermined phase angle. Apparatus is included for sensing the relative phase of the respective signals provided at the outputs of the tachometers. In response to sensing that the output signal of the first tachometer leads the output signal of the second tachometer by the first predetermined phase angle, a vehicle movement control signal is provided which informs the vehicle drive mechanism that it is safe for the vehicle to continue its movement. In the event the apparatus senses that the output signal of the second tachometer leads the output signal of the first tachometer by the second predetermined phase angle, the provision of the vehicle movement control signal is inhibited.

3,783,340
GROUND SAFE SYSTEM
Richard S. Becker, Burlington, Vt., assignor to Bio-Tek Instrument, Inc., Shelburne, Vt.
Filed Sept. 7, 1972, Ser. No. 286,864
Int. Cl. H02h *3/16*
U.S. Cl. 317—18 B 5 Claims



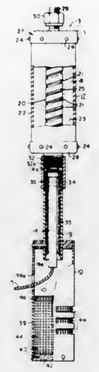
The chassis of the equipment which is to be monitored is connected in series with a closed switch, the secondary winding of a first transformer, and the primary winding of a second transformer to a ground terminal such as is commonly found in a grounded wall outlet. The primary winding of the first transformer is supplied with a high frequency signal from an oscillator. The secondary winding of the second transformer is connected to a transistorized alarm circuit. As long as the equipment is properly grounded, the high frequency signal will flow through the series circuit and keep the alarm inoperative. If the ground line of the hospital equipment is broken or increases greatly in its resistance, the high frequency signal will be interrupted and this will activate the alarm circuit. The system includes a redundant ground connection to the chassis of the equipment.

3,783,341
PHASE CONDITION INDICATING CIRCUIT
Robert W. Beckwith, 1002 Greenfield Ln., Mt. Prospect, Ill.
Continuation-in-part of Ser. No. 66,486, Aug. 24, 1970, Pat. No. 3,648,112. This application Jan. 3, 1972, Ser. No. 215,021
Int. Cl. H02h *3/26*
U.S. Cl. 317—27 R 2 Claims



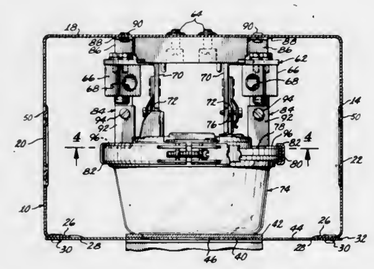
A circuit for an electric polyphase system for indicating conditions of unbalance between the phases, a condition of overloading or a condition of underloading, and for providing response thereto.

3,783,342
INDICATING FUSE HAVING IMPROVED DEIONIZING MUFFLER CONSTRUCTION
Peter H. Thiel, and James N. Santilli, both of Bloomington, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 3, 1972, Ser. No. 231,563
Int. Cl. H01h *85/38*
U.S. Cl. 317—103 11 Claims



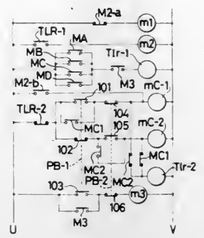
An improved indicating-type fuse structure is provided having an improved deionization muffler provided therefor to prevent ionized gas and metallic particles from the fusing link from being ejected into areas of high-electrical stress to minimize the possibility of flashover, and consequent damage to the equipment. The deionizing and condensing muffler has one end closed by an end-plug, and is provided with one or more lateral vents to relieve the gas pressure. In addition, the improved muffler has a lateral opening to accommodate the fuse link cable.

3,783,343
CONTAINER IN WHICH A WATTHOUR METER AND A METER SOCKET ARE ENCLOSABLY MOUNTABLE AND FOR READABLY DISPLAYING THE WATTHOUR METER
Clarence H. Byland, 1122 E. Concorda Dr., Phoenix, Ariz.
Continuation-in-part of Ser. No. 78,130, Oct. 5, 1970, abandoned. This application Apr. 27, 1972, Ser. No. 248,031
Int. Cl. H02b *9/00*
U.S. Cl. 317—107 4 Claims



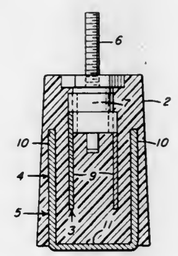
A container in which a watthour meter and meter socket are mountable for total enclosure thereof is provided with means therein for supporting the meter in conductive contact with the socket and for grounding the meter to the container.

3,783,344
LIFTING MAGNET ASSEMBLY
Kuniharu Ono; Tsutomu Kamae; Kinzo Takahashi, and Masao Miyatake, all of Niihama, Japan, assignors to Sumitimi Jukikai Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 5, 1972, Ser. No. 215,588
Int. Cl. H01f *7/04*
U.S. Cl. 317—123 3 Claims



The assembly includes at least one core of permanent magnet metal, a respective magnetizing winding embracing each core and a casing having walls at least partially enclosing each winding. An energizing circuit connected to each winding includes switch means selectively operable to energize the windings in a forward direction, to augment the permanent magnet flux of the cores, or in a reverse direction, to neutralize the permanent magnet flux of the cores. A timer in the energizer circuit is operable, following the lapse of a predetermind short interval after energization of the windings in the forward direction, to pick up a load by magnetic attraction, to deenergize the windings so that the load is held magnetically by the permanent magnet flux of the cores. The energizing circuit further provides a small holding current to the windings in the forward direction. Each core has a pole piece of magnetizable metal on its outer end and, in one embodiment of the invention, the pole pieces are pivotally secured to the associated cores so as to be swingable to embrace a load having a circular cross section such as, for example, an iron pipe.

3,783,345
HEAT-DISSIPATING ENCAPSULATED SEMI-CONDUCTOR ASSEMBLY
Thomas D. Taylor, Roanoke, and Harvey F. Bredlow, Salem, both of Va., assignors to Graham-White Manufacturing Company, by said Taylor and Graham-White Sales Corporation, Salem, Va., by said Bredlow
Filed Sept. 8, 1971, Ser. No. 178,612
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 R 6 Claims

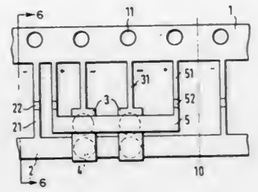


A diode or other semi-conductor device encapsulated with a directly connected heat sink in a heat-conductive, electrically insulating plastic matrix and dissipating heat generated by the device from the heat sink to a mounting bracket through a thickness of the matrix only sufficient for electrical insulation.

3,783,346
SEMICONDUCTOR ARRANGEMENT

Winfried Schierz, Nurnberg, Germany, assignor to Semikron Gesellschaft fur Gleichrichterbau und Elektronik mbH, Nurnberg, Germany

Continuation-in-part of Ser. No. 8,996, Feb. 5, 1970. This application Nov. 8, 1971, Ser. No. 196,291
Claims priority, application Germany, Apr. 1, 1969, P 19 16 554.9
Int. Cl. H01l 5/00
U.S. Cl. 317—234 R 8 Claims

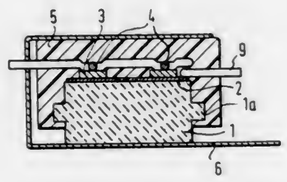


A semiconductor arrangement including a continuous band of planar conductive material forming a geometric structure with periodically repeating zones. The structure has conductor portions connected together by a longitudinal edge strip serving as a transporting strip, at least one contact bar extending alongside the transporting strip and connected to the transporting strip by a plurality of ones of the conductor portions, and planar contact portions which are also connected to the transporting strip and arranged between pairs of the plurality of conductor portions. The contact bar is arranged to be offset and to overlap a number of the contact portions by bending the conductor portions in the direction of the transporting strip and to contact the contact portions under pressure in the manner of a spring to form a clamp-type mount with the contact portions for at least one semiconductor wafer.

3,783,347
HEAT-EXTRACTING HOUSING FOR SEMICONDUCTOR

Liboslav Vladik, Nurnberg, Germany, assignor to SEMIKRON Gesellschaft fur Gleichrichterbau und Elektronik mbH, Nurnberg, Germany

Continuation of Ser. No. 868,328, Oct. 22, 1969, abandoned. This application July 27, 1972, Ser. No. 275,887
Claims priority, application Germany, Dec. 20, 1968, P 18 15 989.2
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 14 Claims

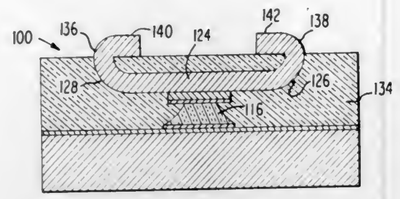


A semiconductor tablet is in thermally conductive contact with one face of an oxide ceramic plate. A plastic cover is molded around the tablet and is mechanically locked to the oxide ceramic plate. The opposite face of the oxide ceramic plate is free of the plastic cover so that heat extracting means can contact it.

3,783,348
ENCAPSULATED SEMICONDUCTOR DEVICE ASSEMBLY

George Allan Swartz, Princeton, N.J., and Richard Earl Chamberlain, Yardley, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 302,182
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 12 Claims

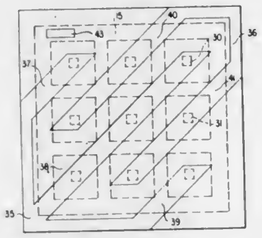


A semiconductor assembly is presented which uses an encapsulated semiconductor device with a substantially U-shaped contact ribbon bonded thereto. The contact ribbon has elbows which extend beyond the surface of the semiconductor device. Upon the application of direct, downward pressure at the ends of the contact ribbon, the downward pressure is transferred to and absorbed by the encapsulating material. This assembly allows for very short lead length to the semiconductor device while at the same time shielding the semiconductor device from direct pressure.

3,783,349
FIELD EFFECT TRANSISTOR

James D. Beasom, Indian Harbour Beach, Fla., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed May 25, 1971, Ser. No. 146,737
Int. Cl. H01l 11/14
U.S. Cl. 317—235 R 12 Claims



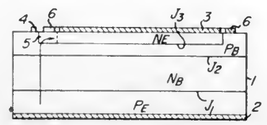
A field effect transistor fabricated at least partially in a body of semiconductor material has a plurality of regions of one conductivity type adjacent a surface of the body, and has a gate overlying a plurality of intersecting channels of like conductivity type between the regions. Contacts in each of the regions are interconnected by a metallization pattern such that the regions form an array of alternating sources and drains, each source and drain being separated by a channel.

3,783,350
THYRISTOR DEVICE

Tsutomu Yatsuo, and Takuzo Ogawa, both of Hitachi, Japan, assignors to Hitachi Ltd., Tokyo, Japan

Filed Aug. 10, 1971, Ser. No. 170,595
Claims priority, application Japan, Aug. 14, 1970, 45/70789
Int. Cl. H01l 13/00
U.S. Cl. 317—235 R 15 Claims

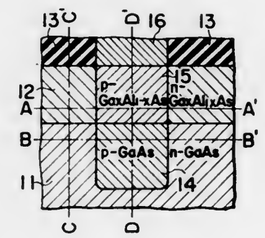
A thyristor device comprising a first thyristor and a second thyristor of smaller capacity which is turned on in response to a gate current smaller than that for the first thyristor. In the thyristor device, majority carriers accumulating in excess in an intermediate layer of the second thyristor due to the turn-on of the second thyristor are transferred into an intermediate layer of the first thyristor for turning on the latter.



3,783,351
SEMICONDUCTOR LASER DEVICE AND METHOD FOR MANUFACTURING THE SAME

Toshihisa Tsukada, Suginami-ku; Junichi Umeda, Kodaira, and Masao Kawamura, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 7, 1971, Ser. No. 178,020
Claims priority, application Japan, Sept. 7, 1970, 45/77766
Int. Cl. H01l 15/00, 3/20; H05b 33/00
U.S. Cl. 317—235 R 13 Claims



A semiconductor laser device includes an n-type direct transition III-V Group compound semiconductor substrate, another n-type III-V Group compound semiconductor epitaxial growth layer formed on a principal plane of said semiconductor substrate and having a wider forbidden gap than the same, a p-type impurity diffusion layer which reaches said semiconductor substrate through a center portion of said epitaxial growth layer and extends to a pair of opposing end faces of the hetero-junction element, an electrode provided on the surface of said p-type impurity diffusion layer, and another electrode provided on the surface opposite thereto of said semiconductor substrate, a pair of opposing end faces of the hetero-junction element, being parallel to each other and mirror polished, thereby forming a laser resonator.

3,783,352
DEVELOPING METHOD FOR ELECTROPHOTOGRAPHY

Ikuo Soma, Tokyo, and Yujiro Ando, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

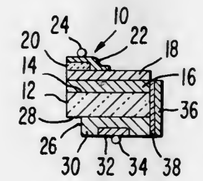
Filed July 31, 1972, Ser. No. 276,368
Int. Cl. H01t 19/00
U.S. Cl. 317—262 A 8 Claims

A developing method for electrophotography comprises the provision of a corona-ion shield member between a developing electrode for developing an electrostatic latent image and a charger disposed adjacent to the developing electrode, to thereby prevent the developing electrode from being charged with corona ions from the charger.

3,783,353
ELECTROLUMINESCENT SEMICONDUCTOR DEVICE CAPABLE OF EMITTING LIGHT OF THREE DIFFERENT WAVELENGTHS

Jacques Isaac Pankove, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 27, 1972, Ser. No. 301,468
Int. Cl. H05b 33/00
U.S. Cl. 317—235 R 10 Claims



An electroluminescent semiconductor device includes a transparent substrate having mounted on one surface a body of insulating crystalline gallium nitride and on its other surface a semiconductor diode which is capable of emitting red light. Contacts are provided for the gallium nitride body and the diode with one contact being common to each. When a voltage is applied across the gallium nitride body either blue or green light is emitted depending on the polarity of the voltage. When a voltage is applied across the diode, red light is emitted. All three colors of the emitted light can be seen through one surface of the gallium nitride body. A plurality of the electroluminescent semiconductor devices can be formed in an array to provide a flat display panel.

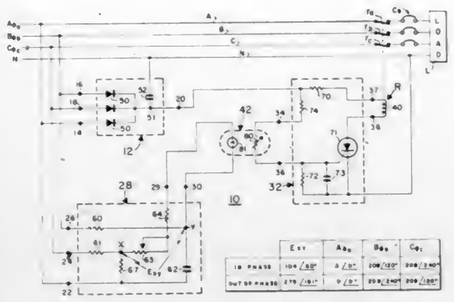
3,783,354
PHASE PROTECTION SYSTEM FOR AC POWER LINES

James C. Fletcher, Administrator of the National Aeronautic and Space Administration with respect to an invention by, and Wing J. Wong, 4054 Pelita Ave., Apt. 2, Los Angeles, Calif.

Filed Sept. 29, 1972, Ser. No. 293,727
Int. Cl. H02h 3/26
U.S. Cl. 317—33 SC 5 Claims

A phase protection system is provided for protecting phase sensitive loads from being or remaining connected to AC

power lines whenever a phase reversal occurs. It comprises a solid state phase detection circuit, a DC power relay circuit, an AC-to-DC converter for energizing the relay circuit, and a



bi-stable 4-terminal transducer coupled between the phase detection circuit and the power relay circuit, for controlling both circuits.

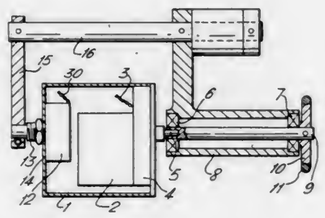
ERRATA

For Classes 317—99 and 317—101 R see:
Patents Nos. 3,783,320 and 3,783,321

3,783,355
PLURAL MOTOR DIFFERENTIAL CONTROL MECHANISM

Peter Gabor Kalman, 51 Compayne Gdns., London, England

Filed Oct. 29, 1971, Ser. No. 193,766
Claims priority, application Great Britain, Oct. 30, 1970, 51,812/70
Int. Cl. H02f 5/46
U.S. Cl. 318—8 14 Claims

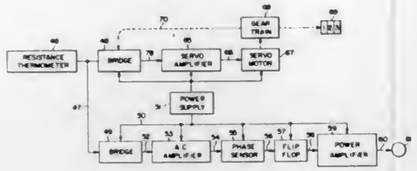


Mechanism for controlling the rate of movement of a movable body by resolving mechanically the difference between the actual rate of movement of the body and the desired rate of movement as established by a motor driven at a predetermined rate so as to provide a differential movement constituting an error signal. A rotary mechanism has the rotor of a motor connected through high ratio gear to a coupling wheel adapted for rotation by movement of the moving body and the stator of a motor mounted in a housing rotatable relative to a support; the difference between the actual and the desired speed is resolved as movement of the housing relative to the support which actuates a potentiometer to derive a control signal. A linear arrangement is also described, to control the rate of filter forwarding in a plastics filtering apparatus.

3,783,356
NULL BALANCE INDICATING AND CONTROL APPARATUS AND PHASE SENSITIVE PULSE RESPONSIVE CIRCUITS FOR USE THEREIN

Basil M. Lide, III, Pittsburgh, and Harry Kowalcheck, West Newton, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 6, 1965, Ser. No. 453,692
Int. Cl. G05b 11/14
U.S. Cl. 318—18 20 Claims

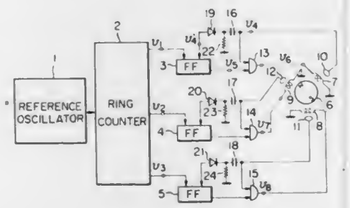


In apparatus and circuits especially suitable in instrumentation for indication and control of nuclear power plant coolant systems, a bridge contains in a sensing arm a resistance thermometer or a differential transformer. The output of the bridge is supplied to a servo amplifier which feeds a servo motor which is operatively connected to a bridge arm to utilize an error signal to rebalance the bridge and reduce the error signal to zero, and at the same time supply an input to a counting or indicating device. Unique circuits provide control set points, isolation being provided between the indication and control functions. New and improved phase sensitive monostable multivibrator transistor circuits are employed.

3,783,357
CONSTANT SPEED CONTROLLING DEVICE FOR A DIRECT CURRENT MOTOR

Toshikazu Ichiyanage, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 10, 1971, Ser. No. 197,255
Claims priority, application Japan, Nov. 14, 1970, 45-100611
Int. Cl. H02k 29/00
U.S. Cl. 318—138 7 Claims

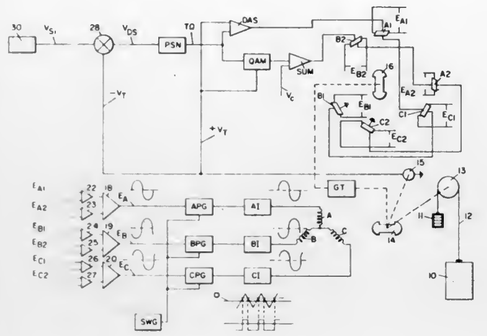


An improved DC motor is provided with an external reference (frequency signal) oscillator, means for detecting the angular position of a rotor of the motor including magnets, and control means which is adapted to flow the exciting current to the field or driving windings of the motor in synchronism with either the output signals from said reference oscillator and said detecting means, and to interrupt the exciting or driving current in response to the other signal, whereby the motor functions as a DC motor until its rotational speed reaches a predetermined speed to provide the starting torque, but functions as a synchronous motor which rotates in synchronism with the signals from said reference oscillator after the speed of the motor has reached said predetermined speed.

3,783,358
CONTROL SYSTEM FOR A RELUCTANCE TYPE MOTOR

Otto Albert Krauer, Tuckahoe, N.Y., assignor to Otis Elevator Company, New York, N.Y.

Filed June 22, 1972, Ser. No. 265,174
Int. Cl. H02p 7/36
U.S. Cl. 318—166 14 Claims

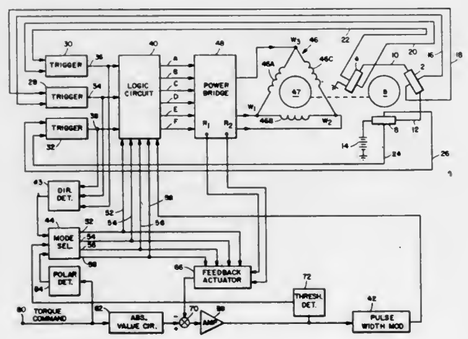


A control system for a reluctance type motor which is operable in response to a desired torque signal and a signal signifying the instantaneous speed of the motor as well as to a flux producing bias signal and to the position of the motor rotor to produce voltages for the phase windings of the motor which produce torque in response to a continuously applied load to maintain the rotor of the motor under such load at zero angular velocity at any angular position and to move it at any speed from zero angular velocity to a rated operating speed.

3,783,359
BRUSHLESS D. C. MOTOR USING HALL GENERATORS FOR COMMUTATION

Saul L. Malkiel, East Orange, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Dec. 23, 1971, Ser. No. 211,519
Int. Cl. H02k 29/00
U.S. Cl. 318—254 9 Claims

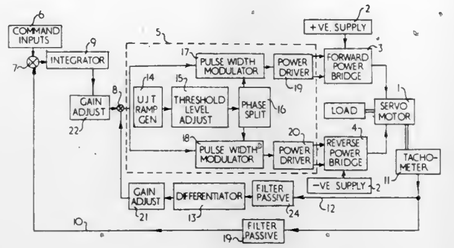


A brushless motor is driven by a transistorized bridge and commutated by an arrangement of Hall generators. The motor is controlled in torque generating and constant speed modes. Pulse width modulation is applied to control the amplitude of the motor voltage and regenerative braking is applied.

3,783,360
ELECTRIC MOTOR SPEED CONTROL SYSTEMS

John E. Bundy, Churchover, near Rugby, England, assignor to Dunlop Limited, London, England

Filed May 23, 1972, Ser. No. 256,183
Claims priority, application Great Britain, May 28, 1971, 18,079/71
Int. Cl. H02p 5/16
U.S. Cl. 318—327 11 Claims

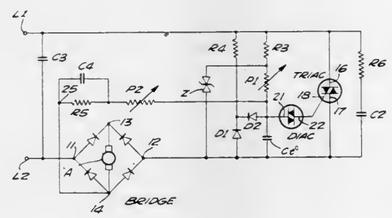


A control system, for maintaining an electric motor at a required speed of rotation irrespective of the externally applied load, in which a command input provides a voltage proportional to the desired speed and direction of rotation of the motor and a switching circuit supplies current to the motor as a series of current pulses of constant frequency. The switching circuit is arranged to vary the duration of the pulses of current applied to the motor in response to input signals received from the command input and two negative feed back loops, one feed back loop being arranged to feed back a voltage dependent on the actual velocity of the motor and the other on the acceleration of the motor, of which the following is a Specification.

3,783,361
TRIAC MOTOR SPEED CONTROL

Raymond J. Mason, Lynnwood, Calif., assignor to Minarik Electric Co., Los Angeles, Calif.

Filed Apr. 24, 1972, Ser. No. 246,892
Int. Cl. H02p 5/16
U.S. Cl. 318—331 7 Claims

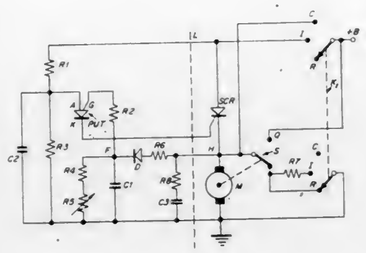


A motor speed control including a full wave diode bridge rectifier for rectifying alternating current received from a supply circuit, a triac coupled in a series loop circuit with the bridge rectifier and the supply line for controlling the flow of current through the bridge rectifier during both positive and negative half-cycles of the supply line voltage, a control circuit including a diac coupled in series with a timing capacitor for controlling the firing of the triac, and a feed back loop coupled between the junction of the diac and timing capacitor and the negative output terminal of the bridge circuit.

3,783,362
ELECTRONIC CONTROL DEVICE FOR INTERMITTENT OPERATION OF A WINDSCREEN WIPER, PARTICULARLY FOR MOTOR VEHICLES

Eugenio Basso, Levico; Gaetano Viviani, and Luigi Cartabia, both of Milano, all of Italy, assignors to Fabbrica Italiana Magneti Marelli S.p.A., Milan, Italy

Filed Nov. 2, 1971, Ser. No. 194,968
Claims priority, application Italy, Nov. 5, 1970, 31340/70
Int. Cl. H02p 3/16
U.S. Cl. 318—443 6 Claims

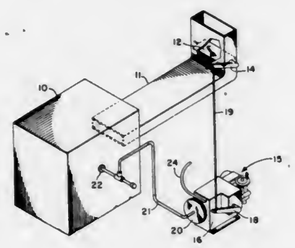


An adjustable electronic timing device for controlling the operating speed of windscreen wipers. A switch is provided for operating the wipers in either a continuous or an intermittent fashion. During intermittent operation, a programmable unijunction transistor (PUT) is caused toconduct to trigger an SCR which is connected in circuit to the wiper motor. A capacitor is charged during each wiping cycle and discharges at the termination of each wiping cycle to prevent retriggering of the SCR until the capacitor is fully discharged. The wiper operating frequency is adjusted by adjusting the resistivity of the discharge path for the capacitor. A braking circuit is provided for dynamic braking of the wiper motor.

3,783,363
VARIABLE POWER ACTUATOR AND SWITCH THEREFOR

Arthur A. Kraft, Strongsville, Ohio, assignor to Vari-Systems, Inc., Cleveland, Ohio

Filed Mar. 23, 1972, Ser. No. 237,365
Int. Cl. G05b 13/02
U.S. Cl. 318—481 16 Claims

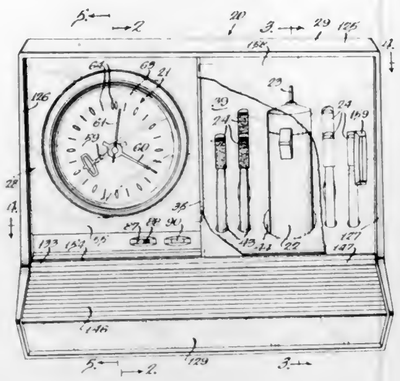


A variable rotary power actuator for modulating damper position in response to sensed pressure levels includes a solid state reversible motor drive having SCR's triggered by a switch monitoring diaphragm extension. The switch is adjustable to vary the pressure differential in conjunction with an adjustable spring loaded mechanical linkage for determining the pressure set point.

3,783,364
ELECTRIC APPLIANCE

George P. Gallanis, Elmhurst, and Albert R. Spohr, Park Ridge, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed June 21, 1967, Ser. No. 647,855
Int. Cl. H01m 45/04
U.S. Cl. 320—2 10 Claims

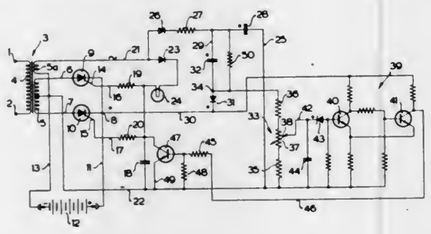


An electric appliance including timing means and adapted to receive a battery operated device for storage and for the purpose of charging the battery contained therein. The appliance has a plastic housing which provides chambers for the timing means, the battery operated device, accessory items such as toothpaste and for cord storage. Two lamps are provided, one of which indicates that the battery operated device is being charged, and the other both illuminates the timing means and directs light outwardly to provide a night light.

3,783,365
BATTERY CHARGING ARRANGEMENT WITH AUTOMATIC CHARGE TERMINATION CIRCUIT HAVING INPUT RIPPLE SUPPRESSION

Karl Ackermann, Berlin, Germany, assignor to Robert Bosch Photokin GmbH, Stuttgart, Germany

Filed May 26, 1972, Ser. No. 257,332
Claims priority, application Germany, May 28, 1971, P 21 26 528.1
Int. Cl. H02j 7/04
U.S. Cl. 320—39 6 Claims



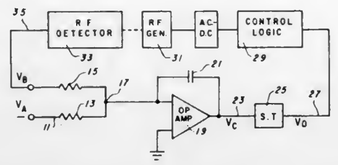
The control voltage for a circuit terminating the charging process of a battery being charged from an A.C. voltage source through first rectifiers is derived from a common point of a second rectifier connected with reversed polarity to one battery output terminal and a first capacitor connected in series with said second rectifier and also connected to the output of a D.C. reference voltage source. The D.C. reference voltage source is a second capacitor connected through a diode and resistor to an additional winding of the output transformer

of the A.C. voltage source. A discharge resistor connected in parallel with the first capacitor allows discharge thereof when the A.C. output voltage decreases.

3,783,366
DUTY CYCLE CONTROL SYSTEM

Harold Autrey Cox, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 13, 1971, Ser. No. 171,673
Int. Cl. H02m 7/12
U.S. Cl. 321—5 5 Claims

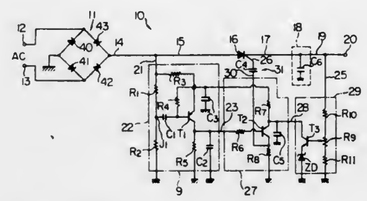


A closed loop control system for controlling the average output of a generator or other device. The output is detected and the detected signal is applied to a summing point at which it is summed with an externally supplied control signal. The summed signal is integrated and applied to a Schmidt Trigger, the output of which is coupled through control logic to control the generator. The generator duty cycle is controlled to maintain a desired average output. In a specific embodiment wherein the average output of a three phase converter supplying D.C. to the generator is controlled, at each duty cycle the converter is turned on at an initial reference potential crossing point and thereafter the output is a function of the difference between the most positive and the least positive phases.

3,783,367
CONSTANT-VOLTAGE CONVERTER EMPLOYING THYRISTOR

Katsuhiko Yamamoto, and Ryuhei Nakabe, both of Osaka, Japan, assignors to Matsushita Electric Industrial Company Limited, Osaka, Japan

Filed Nov. 22, 1971, Ser. No. 200,760
Int. Cl. H02p 13/26; H02m 7/00
U.S. Cl. 321—11 1 Claim

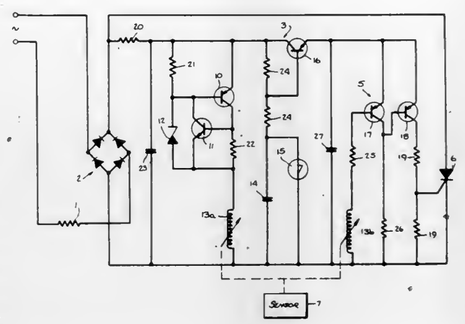


A constant voltage converter having a rectifier for rectifying AC power and with a thyristor connected between the rectifier and a filter for selectively passing therethrough a rectified output to an output terminal. There is a wave generator connected to the output of the rectifier for producing a first signal and an intergrator circuit connected to the output of the wave generator for producing an integral output in response to this first signal. In addition there is a detector circuit for detecting a fluctuation of the rectified output power and for producing second signal. A comparison circuit is connected between the intergrator circuit and the detector circuit for producing third signal in accordance with the comparison. A trigger circuit is connected between the comparison circuit and the control gate of the thyristor for supplying a phase control signal to the thyristor to thereby obtain a constant voltage output regardless of the fluctuation of the rectified output.

3,783,368
PROCESS AND CIRCUIT FOR THE APPROXIMATELY CONTINUOUS CONTROL BY MEANS OF AN ELECTRIC ON-OFF CONTROL

Peter Dosch, Jona, and Dieter Dorsch, Ebnat-Kappel, both of Switzerland, assignors to Heberlein & Co. AG., Wattwil, in the Canton of St. Gall, Switzerland

Filed Apr. 3, 1972, Ser. No. 240,543
Int. Cl. H02m 7/20; G05f 1/64
U.S. Cl. 321—18 16 Claims

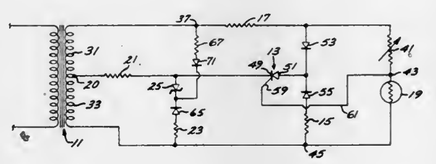


Continuous control of an on-off-type A-C powered regulating system incorporating a thyristor switch is obtained by varying the switch activation threshold voltage repetitively at a rate the period of which is several times greater than the period of the supply voltage.

3,783,369
VOLTAGE COMPENSATED ELECTRICAL CONTROL SYSTEM

William W. Chambers, Anaheim, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 5, 1971, Ser. No. 196,009
Int. Cl. G05f 1/44
U.S. Cl. 323—22 SC 12 Claims

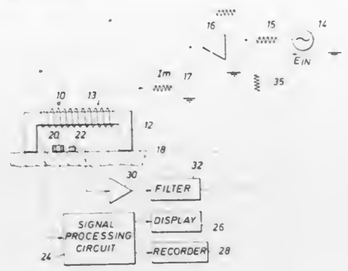


A voltage compensated electrical control system for connection to an AC source and including a gate controlled rectifier, compensating resistor connected with the source and cathode of the rectifier and voltage control means responsive to a selected voltage to be rendered conductive to initiate current flow through the resistor in proportion to the magnitude by which the selected voltage is exceeded to modify the signal imposed between the gate and cathode to compensate for the source voltage changes to prevent erratic triggering of the SCR as a result of voltage changes.

3,783,370
METHOD AND CIRCUIT FOR COMPENSATING BARKHAUSEN SIGNAL MEASUREMENTS IN MAGNETIC MATERIALS HAVING A VARIABLE GEOMETRY

James A. Birdwell; John R. Barton, and Clarence G. Gardner, all of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Dec. 6, 1972, Ser. No. 312,675
Int. Cl. G01r 33/12
U.S. Cl. 324—34 R 13 Claims

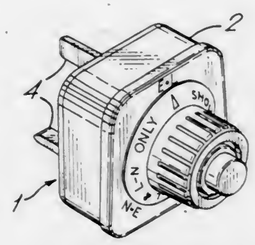


In one exemplar embodiment, a feedback circuit in a Barkhausen signal measuring system is utilized to reduce variations in the measured Barkhausen signal due to the geometry of the magnetic body. The improvement utilizes a magnetic flux detector disposed in the area adjacent where the Barkhausen signal is measured for detecting the magnetic flux density of the test body. The signal generated by the detector is fed back to a gain control for controlling the gain of the power source providing the time-varying current to the Barkhausen signal measuring system, the gain control controlling the magnitude of the time-varying current in order to maintain the rate of change of the magnetic flux in the body in the area of the detector at a predetermined value.

3,783,371
ROTARY SWITCH THREE PIN CIRCUIT TESTER FOR ELECTRICAL OUTLET SOCKET

Roderick Duncan McMillan, 18 Michleham Down, Woodside Park, London, England

Filed June 19, 1972, Ser. No. 264,384
Claims priority, application Great Britain, July 7, 1971, 31907/71
Int. Cl. G01r 31/02
U.S. Cl. 324—51 11 Claims

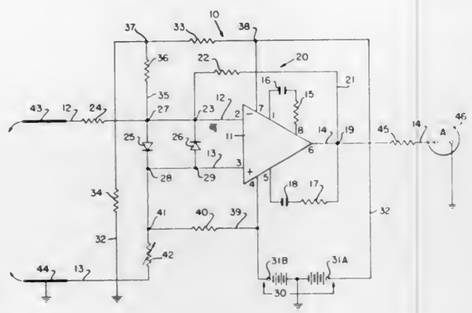


An electrical circuit tester for testing the wiring to an electrical socket comprising a housing having three pins protruding therefrom for connection into a socket to be tested. A three-position rotary switch incorporating a neon indicator bulb is provided on the housing and is arranged to interconnect selected pairs of the pins. The switch is provided with a pointer, and the housing carries a legend showing which pair of pins is electrically coupled together and the operative state of the indicator for a correctly wired socket at each setting of the switch.

3,783,372
ELECTRICAL TEST APPARATUS INCLUDING HIGH GAIN AMPLIFIER CIRCUIT

James C. Boyd, Fairborn, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed May 19, 1972, Ser. No. 255,067
Int. Cl. G01r 31/22, 31/02
U.S. Cl. 324—158 T 8 Claims

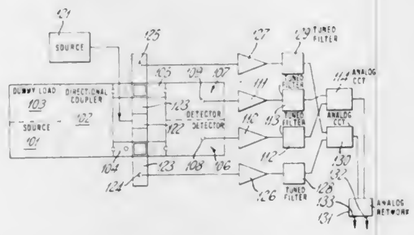


A test apparatus comprising an amplifier circuit including a high gain or operational amplifier and readout means connected to an output means or lead of the amplifier circuit. The amplifier circuit is adapted to produce a first value output (current or voltage) in the readout means with the input means or leads of the amplifier circuit connected in an open circuit. The amplifier circuit includes amplifier offset producing means which causes a second value output (current or voltage), distinctively different from the first value output in the readout means with the input means of the amplifier circuit connected in a short circuit.

3,783,373
APPARATUS FOR MEASURING DENSITY AND MOISTURE

Tadeusz Bronislaw Jawor, London, England, assignor to Molins Limited, Deptford, England

Filed Feb. 8, 1972, Ser. No. 224,798
Claims priority, application Great Britain, Feb. 11, 1971, 4495/71
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 A 6 Claims

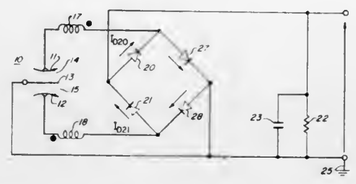


A device for monitoring density of a rod of tobacco in a cigarette-making machine comprises a source of microwave radiation and a waveguide through which said radiation is propagated in the evanescent mode to a detector. The rod is passed across the path of the radiation, through apertures in the walls of the waveguide. The radiation may be split into two beams, one beam being directed through said waveguide and the other beam directed through a second, similar waveguide to a second detector providing a reference signal.

3,783,374
CAPACITANCE DIFFERENCE DETECTOR CIRCUIT

Melvin O. Eide, Bellevue, and Donald E. Clark, Redmond, both of Wash., assignors to Sundstrand Data Control, Inc., Redmond, Wash.

Filed Apr. 7, 1972, Ser. No. 242,082
Int. Cl. G01r 11/52, 27/26
U.S. Cl. 324—60 C 9 Claims

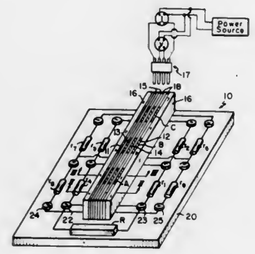


A circuit for detecting or sensing the ratio of or unbalance between two impedance elements, as the sections of a differential capacitor in a servoed instrument. A source of alternating current has two outputs of opposite phase, one connected in each of a pair of circuits with the two impedance elements. A diode in each of the circuits is poled so that both circuits conduct during the same half cycle. A load connected with both circuits sums the opposite phase currents and the difference between the currents represents the ratio of the impedance elements.

3,783,375
MEANS FOR CALIBRATING A FOUR-PROBE RESISTIVITY MEASURING DEVICE

Allan I. Bennett, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 21, 1973, Ser. No. 334,326
Int. Cl. G01r 27/14
U.S. Cl. 324—64 6 Claims

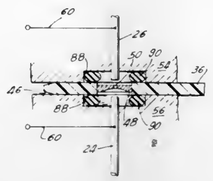


A means for calibrating a four-probe resistivity measuring device which comprises at least one set of electrical contacts consisting of a pair of inner and outer conductive pads. The conductive pads are collinear, coplanar and equally spaced apart to make electrical contact with each of the four probes. Each pad is insulated from each of the other pads, and each pad of each pair of pads is electrically connected to the other pad of the pair through a resistance equivalent circuit.

3,783,376
PARTICLE COUNTER HAVING REMOVABLE APERTURE SLIDE

Thaddeus M. Doniguian, Laguna Beach, Calif., assignor to Becton, Dickinson and Company, East Rutherford, N.J.

Filed June 21, 1972, Ser. No. 264,748
Int. Cl. G01m 27/00, 27/02
U.S. Cl. 324—71 CP 7 Claims



An aperture slide receptacle has a top and a bottom plate spaced apart. Each plate has a circular depression formed therein for receiving an O-ring. Said depressions and O-rings are juxtaposed so that the O-rings contact each other and form a seal between the top and bottom plates. A pair of hollow tubes are mounted in the top and bottom plates so that they are in axial alignment having ends spaced apart and terminating at the center of the O-rings. The first of said tubes extends downwardly into a fluid source, while the second of said tubes is connected to a means for drawing the fluid from the source through the tubes.

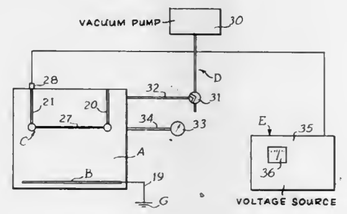
A thin Myler slide has a jewel pressed into a hole formed in the slide. The jewel has an aperture formed therein which is positioned between the ends of the hollow tubes by inserting the Mylar slide between the spaced top and bottom plates. The O-rings forming a seal between the slide and the top and bottom plates.

The tubes form electrodes upon which an rf signal is imposed to develop a voltage across the fluid which is drawn through the aperture. The rf signal is modulated by the conductivity of the fluid instantaneously passing through the aperture so that when a high resistance particle suspended in the fluid passes through the aperture, the rf signal intensity increases in relationship to the rf signal intensity when the low resistance fluid is passing through the aperture. The rf signal is processed to provide pulses corresponding to the particles passing through the aperture and said pulses are counted to provide an indication of the number of particles passing through the aperture.

3,783,377
CORONA TEST DEVICE AND METHOD

John J. Shortall, Yardley, Pa., and Calvin C. Oliver, Gainesville, Fla., assignors to Southwire Company, Carrollton, Ga.

Filed Apr. 29, 1971, Ser. No. 138,599
Int. Cl. G01r 31/02
U.S. Cl. 324—72 12 Claims



A method and device for using voltages of relatively low potential to determine the relative susceptibility of an uninsu-

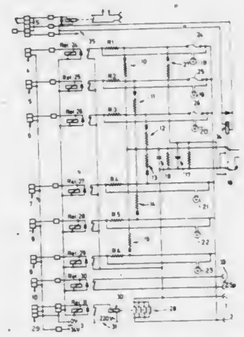
lated electrical power transmission cable to the occurrence of corona and related phenomena when extra high voltages are transmitted by the cable. The method includes placing a short length of an uninsulated electrical power transmission cable with its lengthwise axis substantially parallel and relatively close to a substantially flat and relatively large plate of conductive material at ground potential, placing the short length of cable and the plate in an enclosure with air, and varying the pressure of the air and the potential of an alternating current voltage applied to the length of cable so as to cause the occurrence or extinction of corona within the enclosure at one or more combinations of pressure and potential. The device includes an enclosure having an inner surface formed by a substantially flat plate of conductive material at ground potential, mounting means for mounting a short length of an uninsulated electrical power transmission cable within the enclosure with its lengthwise axis substantially parallel and relatively close to the plate, pressure means for varying the pressure of air within the enclosure, and voltage means for applying an alternating current voltage of varying potential to the short length of cable.

3,783,378

BATTERY ADAPTER

Walfrid Mildner, Verlautenheide, Germany, assignor to ERA Electronische Rechnanlagen Studiengesellschaft fur Wissenschaftliche Datenverarbeitung mbH, Verlautenheide, Germany

Filed July 31, 1972, Ser. No. 276,690
Int. Cl. G01r *15/12*
U.S. Cl. 324—73 R **10 Claims**



An adapter may be quickly and easily connected between a vehicle battery and the vehicle battery terminals. A digital computer may then be connected to the adapter and may monitor the vehicle electrical system. Means are provided whereby the computer may automatically insert any one of a series of measuring resistors in series with the battery current flow so as to allow a wide variety of measurements to be made with a single adapter. Means are also provided whereby the computer may shunt the measuring resistors when excessive current levels are encountered so as to protect them from destruction.

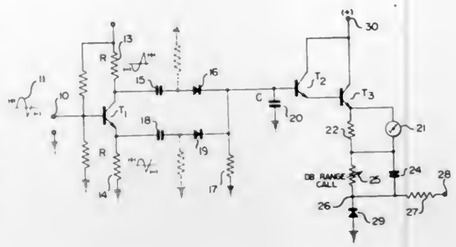
3,783,379

FULL WAVE PEAK RESPOND METER

Mioljub R. Nestorovic, Endwell, N.Y., assignor to McIntosh Laboratory, Inc., Binghamton, N.Y.

Filed Mar. 8, 1971, Ser. No. 122,010
Int. Cl. G01r *19/16, 19/22*
U.S. Cl. 324—103 P **6 Claims**

A peak voltage detector responsive to a wide band AC signal, which detects both the negative and positive peaks of the signal, indicating which is the larger. The signal is applied to a transistor amplifier, and outputs are taken from equal collector and emitter loads through capacitors and diodes to a common high resistance load and a sustain timing capacitor in parallel to the load. The voltage across the latter is applied to the base of an emitter loaded Darlington amplifier. The emitter load includes a meter in series with a second time constant circuit. The function of the second time constant circuit is to accelerate upward deflection of the meter. The function of the first time constant circuit is to hold a charge long enough to maintain the meter reading for a time after the peak pulse has passed.

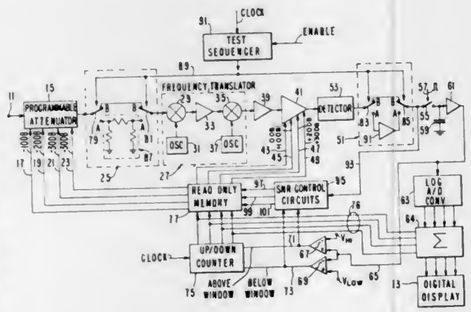


3,783,380

FREQUENCY SELECTIVE LEVEL METER WITH AN AUTOMATIC DISTORTION ELIMINATOR

Donald A. Bradley, Milpitas, Calif., assignor to Cushman Electronics, Inc., Sunnyvale, Calif.

Filed May 8, 1972, Ser. No. 251,296
Int. Cl. G01r *1/02*
U.S. Cl. 324—130 **19 Claims**



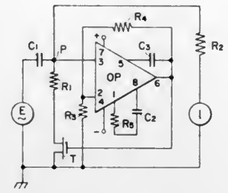
A frequency selective level meter having automatic circuits for first adjusting an input attenuator to bring a signal level applied to a measuring circuit within its measuring range or "-window," and subsequently to adjust the input attenuator and a high gain amplifier in the path of the signal by equal amounts in order to reduce distortion generated as a result of non-linearities of components operated on by the signal. Such distortion is detected by switching simultaneously both input and output circuits of non-linear elements between two levels of gain or attenuation while keeping the overall gain of the circuit the same in both levels.

3,783,381

RECTIFIER CIRCUIT USING MOS FIELD EFFECT TRANSISTOR

Masakazu Oshima, 1529 Nakashinden, Ebina-shi, Kanagawa-ken, Japan

Filed May 31, 1972, Ser. No. 258,270
Claims priority, application Japan, May 31, 1971, 46/36975
Int. Cl. G01n *15/10*; **H03k** *17/60, 3/26*
U.S. Cl. 324—132 **4 Claims**



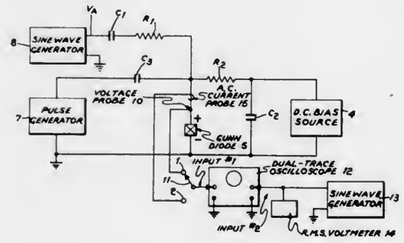
A rectifier circuit, comprising the combination of a MOS field effect transistor and an amplifier, in which non-linearity in the input a-c voltage versus output d-c current characteristic in the low voltage region, such as encountered in the conventional diode rectifier circuit, is improved, thus realizing linearity down to millivolt range.

3,783,382

APPARATUS AND A METHOD FOR EMPLOYING SAID APPARATUS TO DETERMINE THE LOW FIELD RESISTANCE OF DC-BIASED GUNN DIODES

Allan L. Reynolds, White Plains, N.Y., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 5, 1973, Ser. No. 329,767
Int. Cl. G01r *31/22, 27/02*
U.S. Cl. 324—158 D **23 Claims**



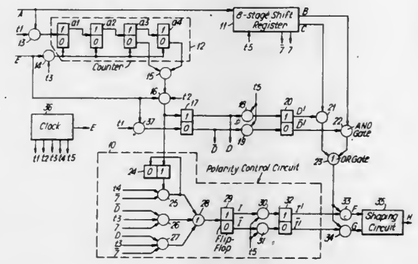
A Gunn diode is DC-biased to its operating point. A negative pulse having an amplitude equal to the bias voltage is applied across the Gunn diode. A first sinewave signal having a given frequency and a selected magnitude is applied across the Gunn diode. A voltage probe is coupled by a switch to one input of a dual-trace oscilloscope to display the waveform of the voltage across the Gunn diode on the oscilloscope. A second sinewave signal having the given frequency is applied to the other input of the dual-trace oscilloscope. The displayed waveform of the second signal is adjusted in magnitude until it is superimposed upon the first waveform on the oscilloscope. A RMS voltmeter is coupled across the second input of the oscilloscope to measure the value of the voltage of the second signal and, hence, the voltage across the Gunn diode, after the two sinewave signals are superimposed. The switch is moved to a second position so that the output of an AC current probe is coupled to the first input of the oscilloscope. The current probe converts the current through the Gunn diode to a voltage and has a known calibration or ampere to voltage conversion factor. The voltage waveform produced by the current probe is displayed on the oscilloscope and the magnitude of the second sinewave signal is adjusted until it is superimposed upon this displayed waveform. The RMS voltmeter measures the value of this second sinewave signal after these two sinewave signals are superimposed. This latter value is equal to the voltage at the output of the current probe. This latter reading of the voltmeter is multiplied by the calibration factor to provide the value of the current flowing through the Gunn diode. Then the first reading of the voltmeter is divided by the second reading of the voltmeter to determine the low field resistance of the Gunn diode.

3,783,383

LOW DISPARITY BIPOLAR PCM SYSTEM

Daniel Emile Forster, Suresnes, and Jean Perrault, Louveciennes, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed May 10, 1972, Ser. No. 252,112
Claims priority, application France, May 28, 1971, 71.19563
Int. Cl. H04b *1/00*
U.S. Cl. 325—38 A **4 Claims**



There is disclosed herein a signalling process for a PCM transmission system having reduced disparity, that is, a substantially equal number of binary "1" digits for the pulse stream. This is accomplished by complementing normal PCM words if the number of binary "1"s in a word are less than $n/2$, where n is equal to the number of digits per word, and using alternate-polarity bipolar code PCM transmission. In accordance with the present invention the complementing of PCM words is indicated by a polarity violation of the bipolar code of the first digit of the complemented words. This results in two pulses of the same polarity being adjacent each other rather than alternate polarity as is usual in alternate-polarity bipolar PCM. Transmission and reception circuits are also disclosed to implement the PCM signalling process of this invention.

3,783,384

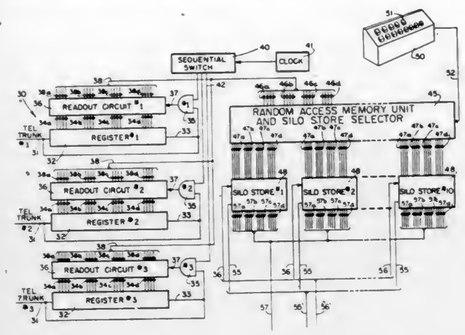
HIGH SPEED SELECTIVE CALLING COMMUNICATION SYSTEM HAVING LOW DRAIN RECEIVER

Keith H. Wycoff, P.O. Box 308, Lexington, Nebr.

Continuation-in-part of Ser. No. 861,719, Sept. 29, 1969, Pat. No. 3,651,413. This application Jan. 31, 1972, Ser. No. 222,146
Int. Cl. H04b *1/00*
U.S. Cl. 325—55 **30 Claims**

The system includes a transmitter which sequentially transmits a multiplicity of code signals each having a cue tone and a predetermined number of control tones, the code signals being arranged into a plurality of signal groups for sequential transmission thereof, the number of signal groups corresponding to the number of cue tone frequencies, each signal group containing all those code signals which include the corresponding cue tone of that group. The system also comprises at least one receiver including a pulser circuit for producing a series of pulses intermittently to render a signal processing circuit operative, a decoder responsive to a predetermined cue

tone for generating a first control signal and responsive to a predetermined code signal for generating a second control signal, the pulser circuit being responsive to the first control signal to furnish a continuous supply voltage to the processing circuit, a utilization circuit responsive to the second control signal to cause an annunciator to provide an alerting signal.

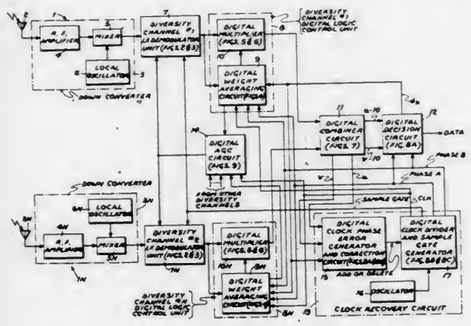


3,783,385

DIGITAL DIVERSITY COMBINER

James G. Dunn, Montclair, N.J.; John R. Cowan, Brooklyn, and Anthony J. Russo, Richmond Hills, both of N.Y., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Nov. 28, 1972, Ser. No. 310,192
Int. Cl. H04b *1/06*
U.S. Cl. 325—305 **17 Claims**



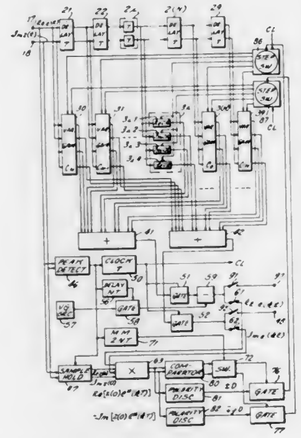
This relates to a predetection maximal ratio digital diversity combiner for a phase shift keyed digital data signal propagating on N different paths through a dispersive medium, where N is an integer greater than one. Each of N signal channels respond to the data signal propagated on a different one of the N different paths. Each of the channels include an arrangement to separate the data signal into an inphase component and a quadrature component and also a pair of analog-to-digital converters to convert the inphase component into an inphase digital signal and the quadrature component into a quadrature digital signal. A digital adder arrangement is coupled in common to the output of each of the N channels to digitally add the inphase digital signal of each of the channels together to produce a combined inphase digital signal and to digitally add the quadrature digital signals of each of the channels together to produce a combined quadrature digital signal. A decision circuit responds to the most significant digit of both the combined inphase digital signal and the combined quadrature digital signal to recover the data conveyed by the data signal. A clock recovery circuit responds to the combined inphase digital signal, the combined quadrature digital signal and the recovered data to produce properly phased timing signals for control of the decision logic, each of the analog-to-digital converters and an automatic gain control circuit common to each of the N channels. Each of the channels further include an arrangement coupled between the associated pair of analog-to-digital converters and the digital adder arrangement and also to the decision circuit. This arrangement is responsive to the recovered data and the inphase and quadrature digital signals to determine the maximal ratio weights of these signals. The determined inphase and quadrature digital weight signals are employed to weight the inphase digital signal and the quadrature digital signal prior to digitally adding thereof in the adder arrangement. An automatic gain control circuit is coupled to the last mentioned arrangement of each of the channels and to the clock recovery circuit to produce an automatic gain control signal to control the gain of the data signal in each of the channels. This is accomplished by detecting the maximum maximal ratio weight of either the inphase or quadrature digital signal of any of the channels involved in the diversity combiner and generating from this maximum maximal ratio weight an automatic gain control voltage.

3,783,386

EQUALIZER OF PRESET TYPE FOR QUADRATURE AMPLITUDE MODULATED SIGNALS

Yoichi Sato, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed June 12, 1972, Ser. No. 261,949
Claims priority, application Japan, June 16, 1971, 46/42545
Int. Cl. H04b *1/16*
U.S. Cl. 325—321 **4 Claims**



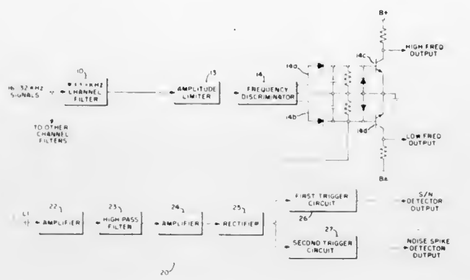
An equalizer of the preset type for a demodulated quadrature amplitude modulated signal comprises sampling means for simultaneously deriving a predetermined number, $2N+1$, of the unit impulse response characteristic samples $z(kT-hT)$ at each of sampling times kT [$z(t)$, a unit impulse response characteristic of complex amplitude; T, the code pulse interval; $t=0$, the time of occurrence of the greatest complex amplitude; k and $h=-N, \ldots, 0, 1, \ldots, N$], variable gain means for simultaneously deriving a plurality of amplitude varied signal samples $C_h \cdot z(kT-hT)$ at each of the sampling times kT, and adjusting means for adjusting the variable gains C_h with reference to the sampling times, the greatest complex amplitude, and the amplitude varied signal samples.

3,783,387

NOISE DETECTOR CIRCUIT

Andreas Wernli, Charlottesville, Va., assignor to General Electric Company, Lynchburg, Va.

Filed June 14, 1972, Ser. No. 262,537
Int. Cl. H04b *1/10*
U.S. Cl. 325—348 **4 Claims**



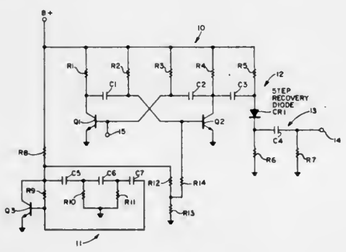
In a power-line carrier receiver having a discriminator that produces output signals in response to frequency-shift-keyed signals, a noise detector circuit is provided to squelch the receiver under certain noise conditions. The detector circuit uses two trigger circuits having a signal-to-noise ratio detector threshhold and a noise spike threshhold. If a low signal-to-noise ratio is detected, or if a noise spike is detected, the respective trigger circuit produces a signal to squelch or disable the receiver.

3,783,388

MULTIPLE CARRIER FREQUENCY MODULATED SIGNAL GENERATING APPARATUS

Donald E. Disinger, North Tonawanda, N.Y., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Filed Jan. 20, 1972, Ser. No. 219,364
Int. Cl. H03b *21/00*
U.S. Cl. 325—363 **5 Claims**



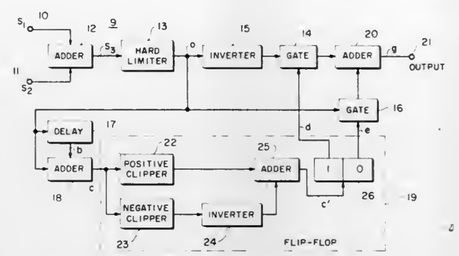
Signal generator for use in testing FM communication receivers including a triggered free-running multivibrator which may be synchronized to operate at a frequency equal to the spacing between adjacent channels of the FM receiver. An audio oscillator modulates the output of the multivibrator which output is applied to a step recovery diode. The output of the step recovery diode is a plurality of harmonics of the frequency of the multivibrator each frequency modulated at the frequency of the audio oscillator.

3,783,389

MEDIAN FREQUENCY GENERATOR

Frank S. Gutleber, Little Silver, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 142,963, May 27, 1971. This application May 31, 1972, Ser. No. 258,273
Int. Cl. H03b *19/00*
U.S. Cl. 328—15 **4 Claims**



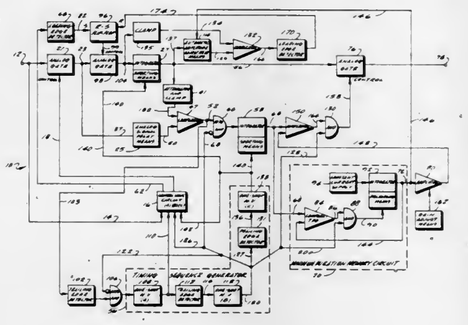
The median frequency generator linearly adds two input signals having the same amplitude to obtain a third signal having a frequency equal to the median of the frequencies of the two input signals, an amplitude which varies with time, and a phase which reverses at a frequency equal to the difference in the frequencies of the input signals. Timing pulses are generated by a flip-flop in synchronism with the phase reversals and are used as gating signals to invert the phase reversed portions of the third signal to produce the median frequency output signal.

3,783,390

AXIAL TRAJECTORY SENSOR HAVING GATING MEANS CONTROLLED BY PULSE DURATION MEASURING FOR ELECTRONIC PARTICLE STUDY APPARATUS AND METHOD

Walter R. Hogg, 15930 Dornock Round, Miami Lakes, Fla.

Continuation-in-part of Ser. Nos. 84,440, Oct. 27, 1970, and Ser. No. 101,325, Dec. 24, 1970. This application Feb. 9, 1971, Ser. No. 113,920
Int. Cl. H03k *5/20*; G01n *27/00*
U.S. Cl. 328—111 **49 Claims**



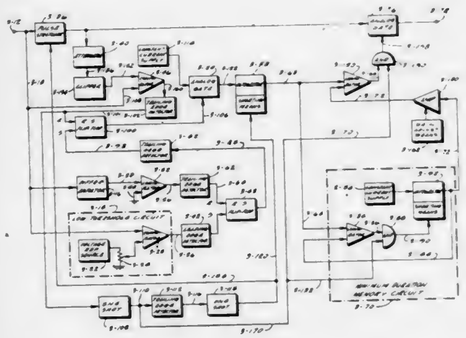
A sensor for use with apparatus operating in accordance with the principles of the Coulter electronic particle studying device, for differentiating between particles passing on axial or near axial paths through an aperture and particles passing off center. The duration of each particle pulse produced by a particle passing through the aperture is measured at some fraction of the amplitude of an artificial pulse produced in the apparatus and only those particle pulses whose thus-measured durations meets the criterion of duration established by the

electronic circuitry are permitted to pass for use in pulse height analysis following the sensor. Each artificial pulse is produced from each particle pulse by choosing as the amplitude of said artificial pulse the amplitude of the particle pulse at substantially the instant that the particle causing the same is halfway through the aperture of the particle studying device, and for this purpose electronic circuitry is provided for finding the center of the particle pulse. This is done for all particle pulses, irrespective of their durations, but only pulses which have durations that meet the criterion established by the circuitry are passed, the others being discarded on the basis of their longer durations. The apparatus provides structure for deriving a duration-measuring pulse whose duration is that of the artificial pulse at its fractional amplitude, converting the signal into one which has an amplitude proportional to duration, and then subjecting the latter signal to the criterion of duration established as an amplitude level to operate gating means automatically for rejecting the longer duration pulses and passing the shorter duration pulses.

3,783,391
AXIAL TRAJECTORY SENSOR HAVING GATING MEANS CONTROLLED BY PULSE DURATION MEASURING FOR ELECTRONIC PARTICLE STUDY APPARATUS AND METHOD

Walter R. Hogg, and Wallace H. Coulter, both of Miami Springs, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Feb. 8, 1971, Ser. No. 113,165
Int. Cl. H03k *5/20*
U.S. Cl. 328—111 **36 Claims**

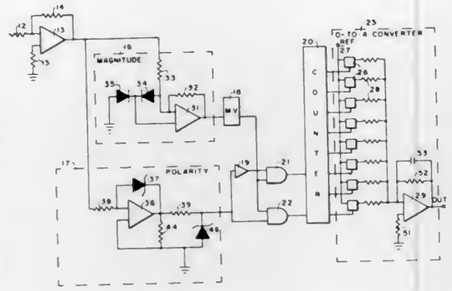


A sensor for use with apparatus operating in accordance with the principles of the Coulter electronic particle studying device, for discriminating between signals from particles passing on axial or near axial paths through an aperture and particles passing off center on the basis of their differing durations. The pulse duration of a portion of the pulse is measured and only those which meet the criteria of duration established by the electronic circuitry are permitted to pass for use in pulse height analysis apparatus following the sensor. The other pulses are discarded on the basis of their greater durations. The apparatus provides structure for deriving a duration-measuring pulse whose duration extends in one case from the peak of a particle pulse to a fractional amplitude thereof, and in another case from the time of maximum slope of the leading edge to the time of maximum slope of the trailing edge. In each case the duration-measuring pulse is converted into a signal which has an amplitude proportional to duration and the latter signal is compared with a certain maximum signal level to operate gating means for rejecting the longer duration pulses and passing the shorter duration ones. Multiple peak pulses are also discarded by means of suitable circuitry.

3,783,392
LONG PERIOD INTEGRATOR

Daniel D. Drake, Riverdale; Evan E. M. Lloyd, Columbia, and Richard F. Norris, Rockville, all of Md., assignors to The Singer Company, Binghamton, N.Y.

Filed Apr. 7, 1972, Ser. No. 242,165
Int. Cl. G06g *7/18*
U.S. Cl. 328—127 **2 Claims**

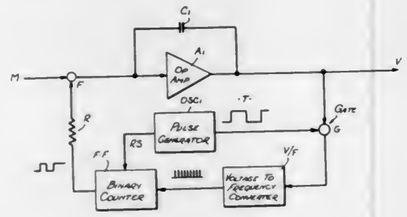


The device of this invention is an integrator which can operate properly in a wide variety of situations, and particularly in those situations where the input to the integrator may be relatively constant for long periods of time. The integrator of this invention provides means for separating the incoming signals into a magnitude indication and a polarity indication. The magnitude indication is used to control the frequency of a voltage controlled oscillator whose output is supplied to the input of a reversible counter. The polarity indication is used to determine the direction in which the counter counts. The contents of the counter at any instant is converted into an analog quantity by a digital-to-analog converter.

3,783,393
DRIFT-COMPENSATED ANALOG HOLD CIRCUIT

Hiroshi Kakiura, Yokohama, Japan, assignor to Fischer & Porter Company, Warminster, Pa.

Filed May 25, 1972, Ser. No. 256,946
Claims priority, application Japan, May 31, 1971, 46/37057
Int. Cl. G06g *7/18*; **H03k** *5/00*
U.S. Cl. 328—127 **1 Claim**

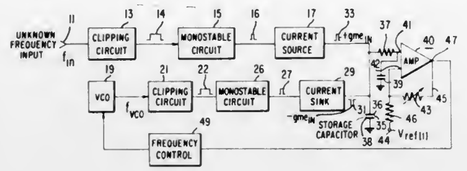


An analog integral hold circuit adapted to provide a control signal to the valve of a process control system in order to hold the valve position, the circuit being drift free. The drift-free circuit is constituted by an analog hold circuit having integrating characteristics, the output thereof being converted into digital signals that are counted by a variation-detecting circuit. The output of the variation detecting circuit is applied to a feedback circuit that delivers a compensating signal to the input of the analog hold circuit to obviate drift effects.

3,783,394
FREQUENCY COMPARATOR SYSTEM

Leslie Ronald Avery, Byfleet, England, assignor to RCA Corporation, New York, N.Y.

Filed Nov. 19, 1971, Ser. No. 200,543
Int. Cl. H03b *3/04*
U.S. Cl. 328—134 **6 Claims**

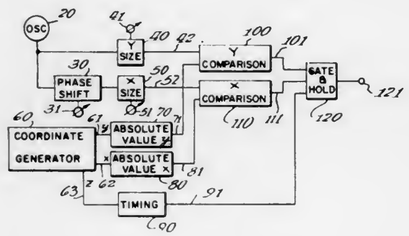


Input frequency signal wave energy and the signal wave energy from a variable frequency oscillator are each squared and applied to separate monostable multivibrators. The output pulses from that multivibrator responsive to the input frequency signal wave energy are compared to the output pulses from that multivibrator coupled to the variable frequency oscillator. A resultant difference reflects the difference between the input frequency and the variable frequency oscillator frequency.

3,783,395
ANALOG WINDOW FOR SCINTILLATION CAMERA

Oreste J. Lucchesi, Schaumburg, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Division of Ser. No. 835,534, June 23, 1969, Pat. No. 3,655,974. This application June 7, 1971, Ser. No. 150,779
Int. Cl. G01t *1/20*; **H03k** *5/20*
U.S. Cl. 328—147 **10 Claims**

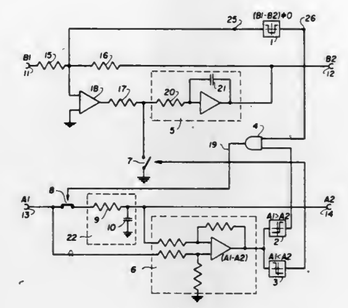


Analog window apparatus for use with Anger-type scintillation camera or the like. Two phase-related sinusoidal waveforms of the same frequency determine an analog window of a shape dependent upon the phase relationship. Two comparison circuits receive coordinate signals and the sinusoidal waveforms and register output indications when the amplitudes of the waveforms exceed the amplitudes of corresponding coordinate signals and a gate and hold circuit registers an output when coincident output indications are received at some instant during a comparison period lasting at least one period of the waveforms.

3,783,396
SIGNAL TRANSMITTAL CONTROL CIRCUIT

Carl Martin Wawra, Bensheim-Auerbach, and Ivan Chudey, Ober-Ramstadt, both of Germany, assignors to Carl Schenck Maschinenfabrik GmbH, Darmstaat, Germany

Filed Mar. 8, 1972, Ser. No. 232,723
Claims priority, application Germany, Feb. 21, 1972, P 22 07 993.2
Int. Cl. H03k *5/18*; **H03b** *3/02*
U.S. Cl. 328—151 **10 Claims**

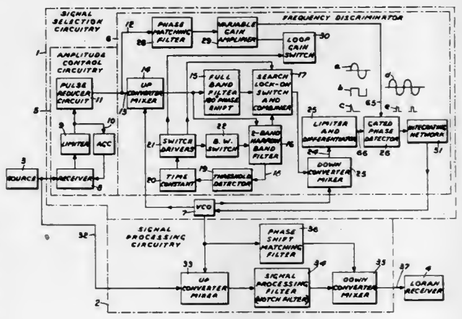


The present circuit arrangement controls the transmitting of signals, for example, rated control signals, in accordance with predetermined transmittal requirements as represented by the signals to be transmitted, for example, by their amplitudes. For this purpose a signal path is provided for each signal between respective input and output terminals. Switching means in each signal path controlled by signal responsive control means are provided to block or close the respective signal path in accordance with the instantaneous transmittal requirement.

3,783,397
SELECTION AND PROCESSING SYSTEM FOR SIGNALS, INCLUDING FREQUENCY DISCRIMINATOR

Milton Dishal, Upper Montclair, and Henri Baran, Parsippany, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Division of Ser. No. 763,225, Sept. 27, 1968. This application June 14, 1971, Ser. No. 153,087
Int. Cl. H03d *3/24*
U.S. Cl. 329—110 **9 Claims**

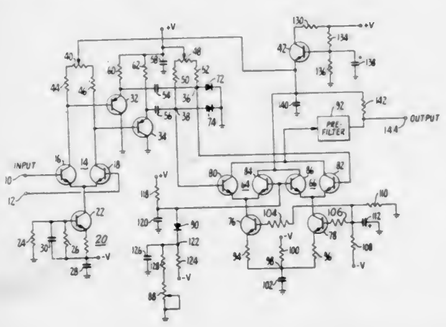


A signal selection and processing system for use with a broadband LORAN receiver in which the average of the strongest interfering signal having a predetermined duty cycle sets the AGC level and, via a special frequency discriminator,

controls the frequency of a voltage controlled oscillator (VCO). The VCO output is used to shift the entire band of input frequencies so that said strongest signals fall into the attenuating notch of a notch filter while passing the other signals to the LORAN receiver.

In said discriminator, signals are transmitted through one channel in which a certain phase shift is produced and a second channel which also produces the same phase shift plus an additional phase shift which varies 180° over the band of interest. Gating pulses are derived from the phase shifted signals in the second channel and gate out different portions of the signals in the first channel so that the output pulses are of different amplitude and polarity, depending on the input frequency. These output pulses are applied to an integrating network arranged to maintain its charge in the absence of an input signal. The integrated voltage controls the VCO frequency. Frequency search and lock-on are accomplished by switching broadband and narrow band phase shifting filters and varying the gain in the first channel to maintain stability. Up-and-down frequency conversions in said second channel are effected by said VCO. In another embodiment a single frequency conversion for both channels is employed.

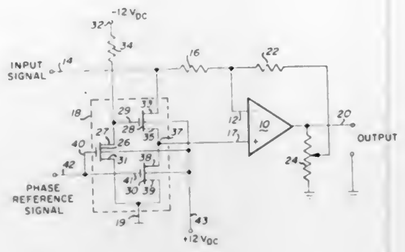
3,783,398
FM PULSE AVERAGING DEMODULATOR
Bert H. Dann, Mountain View, Calif., assignor to International Video Corporation, Sunnyvale, Calif.
Filed Sept. 1, 1972, Ser. No. 285,924
Int. Cl. H03d *3/18*; **H03k** *5/08*
U.S. Cl. 329—50 **6 Claims**



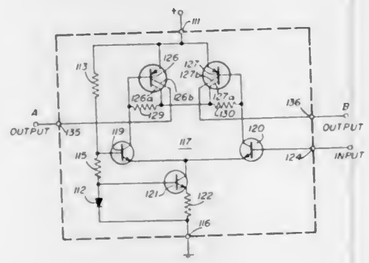
An FM pulse averaging demodulator particularly useful in high quality broadcast television video tape recorders and reproducers employing high carrier frequencies. Extremely constant area pulses are generated in response to a well limited FM signal by generating ramps in response to successive FM wave zero crossings. The ramps are applied to respective differential comparator/clipper pairs whose threshold level sets the demodulator gain. The resulting constant area pulses at each zero crossing are applied to a low pass filter which provides a demodulated signal having high linearity and excellent differential gain characteristics.

3,783,399
FULL-WAVE MOD ULATOR-DEMODULATOR AMPLIFIER APPARATUS
James M. Black, Lancaster, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed July 13, 1971, Ser. No. 162,100
Int. Cl. H03f *1/02*
U.S. Cl. 330—9 **4 Claims**

Full-wave modulator-demodulator apparatus including an operational amplifier having a first input terminal coupled to a circuit input terminal, and a second input terminal alternately coupled to the circuit input terminal and a circuit ground by a switching circuit responsive to a phase reference signal whereby the operational amplifier is alternately switched between a noninverting mode and an inverting mode. The switching circuit includes three field-effect transistors operatively associated to provide the desired switching function in response to an alternating reference signal of the same frequency as an AC input signal applied to the circuit input terminal.

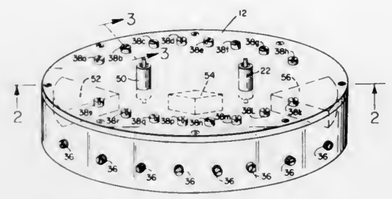


3,783,400
DIFFERENTIAL CURRENT AMPLIFIER
Michael J. Gay, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Continuation of Ser. No. 149,466, June 3, 1971, abandoned. This application Dec. 1, 1972, Ser. No. 311,405
Int. Cl. H03f *3/68*
U.S. Cl. 330—30 D **9 Claims**



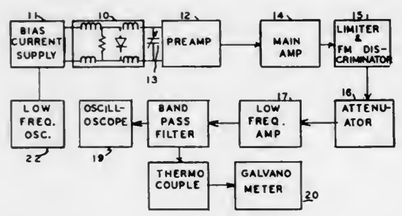
A differential current amplifier suitable for realization in monolithic integrated circuit form includes a pair of input transistors supplied with differential current at the bases thereof. The emitters of the transistors are interconnected, as are the collectors, and feedback resistors are connected between the collectors and the bases of the respective transistors. A pair of output transistors have the bases coupled in common with the bases of the input transistors and the emitters connected in common with the emitters of the input transistors, so that the collectors of the output transistors then provide a differential output current in accordance with differential input current supplied to the bases of the input transistors.

3,783,401
MEANS AND METHOD FOR SUPPRESSING MICROWAVE RESONANCE IN ELLIPTICAL CAVITIES
Henry G. Oltman, Jr., Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Mar. 3, 1972, Ser. No. 231,664
Int. Cl. H03f *3/60*
U.S. Cl. 330—56 **14 Claims**



Means and method for suppressing resonant modes in a substantially right cylindrical elliptical cavity by suppressing the transmission of microwave energy perpendicular to the major axis of the cavity.

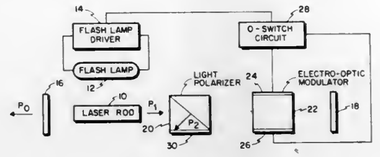
3,783,402
JOSEPHSON JUNCTION AMPLIFIER
Aldert Van Der Ziel, Minneapolis, and Hyun Mook Choe, St. Paul, both of Minn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 28, 1972, Ser. No. 266,910
Int. Cl. H03f *15/00*
U.S. Cl. 330—61 R **10 Claims**



The invention disclosed herein utilizes the Josephson tunneling effect to provide an amplifier having unique characteristics.

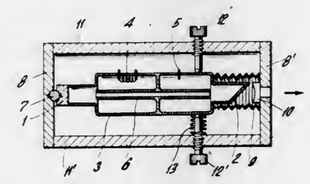
The Josephson tunneling effect relates to a supercurrent flow thru a thin barrier between two superconductors by quantum mechanical tunneling of electron pairs; in other words, current can flow with no voltage applied between the superconductors. The dc quantum interference effect can produce thru the use of an external magnetic field a large change in barrier current by tunneling and is used herein to produce an amplifier.

3,783,403
DOUBLE PULSE LASER
William R. Hook, Los Angeles; Ronald P. Hilberg, Redondo Beach, and Roland H. Dishington, Pacific Palisades, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Sept. 22, 1972, Ser. No. 291,203
Int. Cl. H01s *3/10*
U.S. Cl. 331—94.5 **5 Claims**



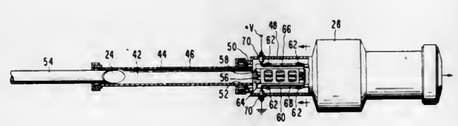
Double pulses are produced from a single laser by generating two successive optical pumping pulses from the same flash lamp and Q-switching once after each pumping pulse prior to the next pumping pulse.

3,783,404
GAS LASER
Tohru Matsuoka, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Dec. 20, 1971, Ser. No. 210,067
Claims priority, application Japan, Dec. 18, 1970, 45-1113123
Int. Cl. H01s *3/08*
U.S. Cl. 331—94.5 **5 Claims**



A gas laser comprises a gas laser tube, an inner mirror having a fixed position within the tube, an outer mirror disposed outside the tube, and a side plate. The tube is pivotally coupled to the side plate. The tube is supported and prevented from moving pivotally whereby the angle of the inner mirror with respect to the outer mirror is adjusted.

3,783,405
LASER HAVING MEANS FOR DEFOGGING THE OPTICAL CAVITY THEREOF
Nubar S. Manoukian, San Jose, Calif., assignor to Coherent Radiation, Palo Alto, Calif.
Filed Feb. 4, 1972, Ser. No. 223,602
Int. Cl. H01s *3/22*
U.S. Cl. 331—94.5 **15 Claims**



In a laser, having a lasing medium and having an optical resonator and wherein there is a space or cavity between the

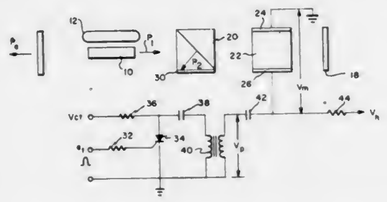
lasing medium and the mirrors forming the optical resonator, means is provided for removing contamination particles, such as dust and fog from the cavity region in the path that the reflected coherent light beam passes. This is accomplished by providing a radioactive source for electrostatically charging the contamination particles and then removing the charged particles from the path of the light beam by, for example, an electrical field.

3,783,406

LASER Q-SWITCHING

William R. Hook, Los Angeles, and Ronald P. Hilberg, Redondo Beach, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed June 19, 1972, Ser. No. 264,153
Int. Cl. H01s *3/12*
U.S. Cl. 331—94.5 **5 Claims**



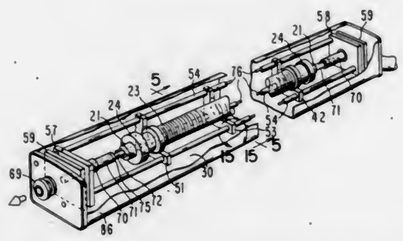
A transformer-driven electro-optic Q-switching arrangement reduces the high-voltage switching requirements with greatly simplified circuitry. Lasing efficiency is not significantly reduced even when the transformer rise time is twice as long as the laser pulse build-up time.

3,783,407

IMPROVED LASER OPTICAL RESONATOR

Wayne S. Mefferd, and James L. Hobart, both of Palo Alto, Calif., assignors to Coherent Radiation Laboratories, Palo Alto, Calif.

Continuation of Ser. No. 842,956, July 18, 1969, abandoned. This application Sept. 26, 1972, Ser. No. 292,343
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 C **18 Claims**



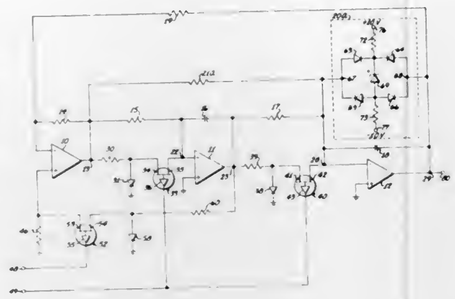
The reflectors in a laser are mounted in precise axial alignment by means of an elongated mounting structure made of a material of low thermal coefficient of expansion which serves to prevent reflector misalignment due to temperature changes in the laser, the elongated mounting structure also including an associated member made of a material of high thermal conductivity which serves to direct heat away from the elongated mounting structure along the length, further reducing any temperature effects thereon. In addition, a kinematic mounting structure is provided for further enhancing the alignment stability characteristics of the plasma tube and resonator structure.

3,783,408

LOW FREQUENCY OSCILLATOR CIRCUIT

David A. Bird, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 30, 1972, Ser. No. 267,828
Int. Cl. H03b *5/20*
U.S. Cl. 331—135 **10 Claims**



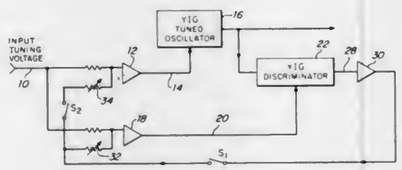
First, second and third inverting amplifiers and a pair of integrators are connected to form an RC oscillator circuit which uses field effect transistors to switch the value of the resistors that determine the frequency of oscillation of the circuit. The circuit uses limiter networks to regulate the amplitude of the signal being generated and to prevent distortion of the signal.

3,783,409

SYSTEM FOR LINEARIZING INHERENTLY NONLINEAR CIRCUITS

Lawrence L. Polson, Jr., Los Altos, Calif., assignor to Itek Corporation, Lexington, Mass.

Filed Apr. 12, 1973, Ser. No. 350,673
Int. Cl. H03b *3/04*
U.S. Cl. 331—177 R **4 Claims**



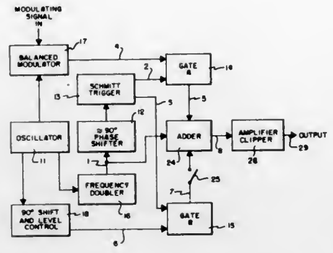
A system for allowing an inherently nonlinear, YIG tuned oscillator to respond linearly to an input signal. The output of the oscillator is directed to a YIG tuned discriminator which is tuned to its center frequency by the same input signal utilized to tune the oscillator. The discriminator is selected to have a nonlinear response which is proportional to, but not equal to, the nonlinear response of the oscillator. The output of the discriminator is utilized in a first feed back loop to drive the center frequency of the discriminator toward the oscillator frequency. The discriminator output signal is also proportional to the inherent oscillator nonlinearity, and is utilized in a second feed back loop to drive the oscillator toward a linear response to the input signal.

3,783,410

WAVEBORN EDGE-SHIFTING MODULATION SYSTEM FOR VIDEO RECORDING AND REPRODUCTION

George Bruck, Riaz, Switzerland, assignor to Avco Corporation

Filed Jan. 7, 1972, Ser. No: 216,031
Int. Cl. H03k *7/08*; **G11b** *5/06*
U.S. Cl. 332—9 R **12 Claims**



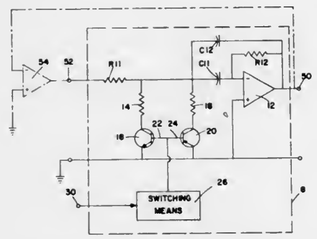
A modulation system for generating a train of substantially rectangular pulses, the trailing edges of alternate pulses being delayed by an amount proportional to a modulating signal and the trailing edges of the remaining pulses being advanced by an amount similarly proportional to the modulating signal, in order to provide an output signal in which the carrier and even order sidebands are suppressed and the odd order sidebands have amplitudes given by the odd order Bessel functions of the first kind with arguments dependent on the index of modulation. Optionally, a carrier signal component can be injected into the output signal in a controlled amount independent of the modulating signal by delaying the leading edges of alternate pulses by a predetermined constant amount and advancing the leading edges of the remaining pulses by the same amount.

3,783,411

CONTINUOUSLY VARIABLE OSCILLATOR AND FREQUENCY MODULATOR

Ross C. Libby, 236 W. Main St., West Jefferson, Ohio

Filed Oct. 30, 1972, Ser. No. 301,745
Int. Cl. H03b *3/04*, *5/20*; **H03k** *7/10*
U.S. Cl. 332—9 R **13 Claims**



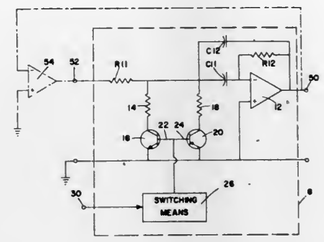
A method and circuits are disclosed for permitting a pair of discrete circuit elements to operate as a continuously variable circuit element. The pair of elements, preferably resistances, are alternatively, periodically switched into connection and disconnection in a circuit at a rate substantially greater than the operative frequency of the circuit. The effective value of the switched elements depends upon their relative connection time. A continuously variable filter comprises an active filter in which the frequency determining resistance element is such a switched discrete pair of resistances. The addition of a regenerative feedback loop to such a filter provides a continuously variable oscillator. The further addition of a pulse width modulator to the oscillator, for alternatively switching the discrete resistances in response to an input signal provides a frequency modulator.

3,783,412

ACTIVE BAND PASS FILTER HAVING CONTINUOUSLY VARIABLE PASS BAND

Ross C. Libby, West Jefferson, Ohio, assignor to MI , Inc., Columbus, Ohio

Filed Oct. 30, 1972, Ser. No. 301,750
Int. Cl. H03h *7/10*; **H03f** *1/38*; **H03k** *7/00*
U.S. Cl. 332—9 R **6 Claims**



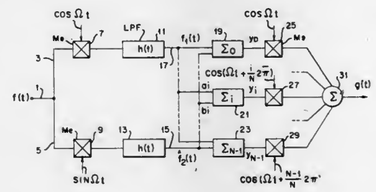
A method and circuits are disclosed for permitting a pair of discrete circuit elements to operate as a continuously variable circuit element. The pair of elements, preferably resistances, are alternatively, periodically switched into connection and disconnection in a circuit at a rate substantially greater than the operative frequency of the circuit. The effective value of the switched elements depends upon their relative connection time. A continuously variable filter comprises an active filter in which the frequency determining resistance element is such a switched discrete pair of resistances. The addition of a regenerative feedback loop to such a filter provides a continuously variable oscillator. The further addition of a pulse width modulator to the oscillator, for alternatively switching the discrete resistances in response to an input signal provides a frequency modulator.

3,783,413

N PATH FILTER HAVING TWO INPUT AND N OUTPUT PATHS

Jean C. Froment, Villeneuve Loube, and Jean L. Monrolin, Tourette/sur/Loup, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 10, 1972, Ser. No. 252,042
Claims priority, application France, May 19, 1971, 7119836
Int. Cl. H03c *3/00*; **G01r** *23/16*
U.S. Cl. 332—23 **9 Claims**

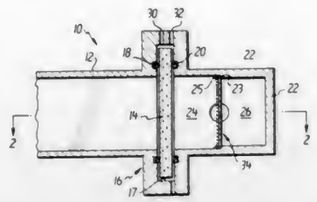


An N path filter where signals are applied to two orthogonal input paths and where the modulated and filtered signals from the input paths are combined and applied to each of the N equiphase output paths, the signals on each output path being suitably modulated, the filter output signal being formed from the algebraic sum of the modulated N output path signals. A pulse approximation to sinusoidal modulating signals is also disclosed.

3,783,414
LIQUID DIELECTRIC COOLED TERMINATIONS

Gerald I. Klein, Baltimore, and Edward R. Mittelman, Silver Spring, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1973, Ser. No. 330,156
Int. Cl. H01p 1/26
U.S. Cl. 333—22 F 9 Claims

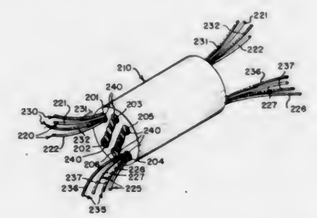


A termination for terminating or absorbing a signal transmitted along a transmission line is disclosed as comprising a short circuit disposed across the transmission line and a thin film of a resistive material disposed a critical length from the short circuit to absorb substantially the signal transmitted along the transmission line. A cooling chamber is formed about the thin film and a cooling liquid of given dielectric constant and relatively low microwave loss is directed through said cooling chamber to remove the heat absorbed by the thin film. A window is disposed across the transmission line to form the cooling chamber. The cooling liquid of given dielectric constant acts as a matching transformer to reduce the impedance seen by a wave propagated along the transmission line. The resistivity or impedance of the thin film is selected to be substantially equal to that of the transformed impedance effected by the cooling liquid. To establish the desired matching transformer, the spacing between the window and the resistive film is selected to be an odd integral multiple of one-fourth the wavelength of a signal as transmitted through the cooling liquid. Further, to ensure that the resistive film absorbs substantially the energy of the signal transmitted along the transmission line, the aforementioned critical distance is selected to be an odd integral multiple of one-fourth the wavelength of the signal as transmitted through the cooling medium. The given dielectric constant of the cooling medium in turn determines the wavelength of a signal transmitted therethrough, and therefore the spacings between the window and the resistive film, and the resistive film and the short circuit.

3,783,415
TRANSFORMER

Sulo Koskinen, Burnaby, British Columbia, Canada, assignor to The Anaconda Company, New York, N.Y.

Filed Apr. 19, 1972, Ser. No. 245,495
Int. Cl. H03h 7/38, 7/42
U.S. Cl. 333—25 11 Claims



A transformer is described comprising a body of ferromagetic material and first and second conducting means that are wrapped around or pass through the ferromagnetic body. Each said conducting means comprises a plurality of insulated wires that are twisted together and doped with a high dielectric constant material in the region adjacent the ferromagnetic body. By this arrangement, an impedance transforming device is provided that has excellent broadband characteristics over several octaves in the radio frequency region and also has extremely low output impedance levels. Consequently, this device is suitable for matching the input impedance levels of transistor amplifiers.

3,783,416
SOLID ULTRASONIC DELAY LINES AND GLASS COMPOSITIONS THEREFOR

Marshall Field, Toledo, Ohio, assignor to Owens Illinois, Inc., Toledo, Ohio

Division of Ser. No. 887,264, Dec. 22, 1969. This application July 6, 1971, Ser. No. 160,164
Int. Cl. H03h 7/30; C03c 3/30, 3/10
U.S. Cl. 333—30 R 4 Claims

Solid ultrasonic delay lines are provided including an input transducer for converting electrical energy to acoustical energy, an output transducer for converting the acoustical energy to electric energy, and a glass delay line medium located therebetween as a delay line, the glass having a composition comprising the following ingredients in approximate molar amounts:

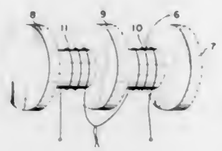
Ti Ingredients	*Tn Moks*
SiO_2	3.55 to 6.0
Al_2O	1
RO	1

where R is a divalent metal such as magnesium, cadmium and lead.

3,783,417
INDUCTANCE COIL

Hisasi Osada, and Tadaharu Akino, both of Tokyo, Japan, assignors to TDK Electronic Company, Tokyo, Japan

Division of Ser. No. 102,596, Dec. 30, 1970, abandoned. This application Aug. 9, 1972, Ser. No. 279,072
Claims priority, application Japan, Jan. 14, 1970, 45/4315
Int. Cl. H03h 7/32
U.S. Cl. 333—70 S 6 Claims

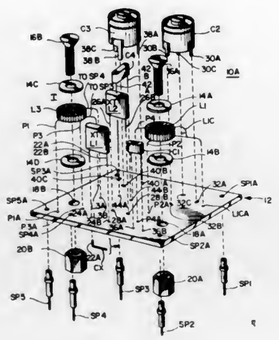


An inductance coil is disclosed having a core with flanges at both ends thereof. A partition wall is provided at an intermediate part of the core so as to form at least two separate coil winding spaces on the core between the two end flanges and the partition wall. The coil winding spaces are exactly the same width and windings are provided in the winding spaces with exactly the same number of turns.

3,783,418
CRYSTAL FILTERING DEVICE

Clyde S. Redwine, Longwood, Fla., assignor to Johnson Electronics, Inc., Casselberry, Fla.

Filed Jan. 4, 1973, Ser. No. 320,849
Int. Cl. H03h 7/08, 7/10, 9/00
U.S. Cl. 333—70S 4 Claims

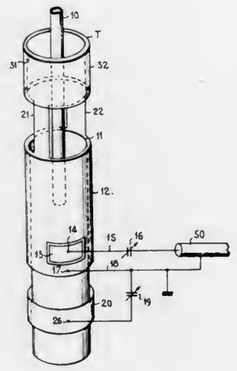


An IF crystal filter for frequency modulation receivers of the SCA (Subsidiary Communication Authorization) type, which receive signals utilizing relatively high modulating frequency subcarriers, is provided which includes, on a single circuit card, a phase splitter across its input terminals providing first and second signals of equal amplitude and opposite phase to an output resonant circuit tuned to a given center frequency through first and second resonant crystals, respectively, one resonant above and one resonant below that center frequency in equal amounts.

3,783,419
RESONATOR FOR GYROMAGNETIC-RESONANCE SPECTROMETER

Christian Lafond, Orsay, and Jean Jacques Dunand, Paris, both of France, assignors to Thomson CSF, Paris, France

Filed May 12, 1972, Ser. No. 252,748
Claims priority, application France, June 7, 1971, 7120418
Int. Cl. H01p 7/02, 7/04, 5/04
U.S. Cl. 333—82 A 5 Claims

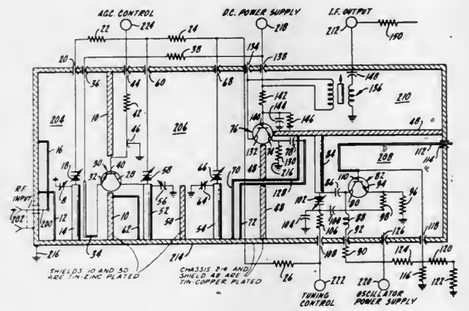


In order to avoid disturbing the tuning of a resonator, formed by an essentially capacitive line and an essentially inductive Lecher line connected in series, when the sample is introduced into the resonator, the capacitive line is a coaxial line section, the inner conductor of which forms a shield against the electric field due to this line. Alternately the first capacitive line also is Lecher line but a metal tube protects the space containing the sample from the electric field due to this line.

3,783,420
METHOD FOR COUPLING AND BANDPASS CONTROL IN UHF VARACTOR TUNERS

Elmer Bastian, Union, Ill., assignor to Oak Industries, Inc., Crystal Lake, Ill.

Filed Nov. 20, 1972, Ser. No. 308,009
Int. Cl. H03j 3/02; H01p 7/00
U.S. Cl. 334—39 10 Claims

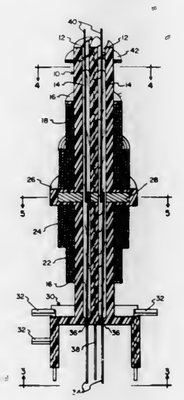


A method for optimizing coupling and bandpass control in UHF varactor tuners by using two or more types of plating materials.

3,783,421
PRINTED WIRING CARD MOUNTABLE REED SWITCH

Sigitas Miknaitis, Chicago, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 4, 1972, Ser. No. 311,999
Int. Cl. H01h 67/30
U.S. Cl. 335—152 6 Claims



A magnetic latching reed switch is provided with an improved bobbin having a plurality of coil terminals disposed in

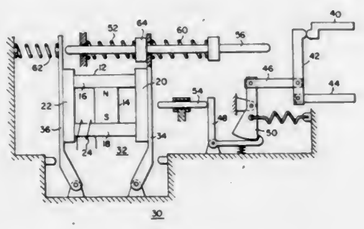
a bottom flange or base. On terminal of each reed capsule inserted in the bobbin extends beneath the base and the other is welded to a return strap which also extends through the base such that the switch terminals and coil terminals are adapted to engage a corresponding pattern of apertures in a printed wiring car. A plurality of reed switches are thus supported by the wiring card which also provides all internal switch wiring.

3,783,422

CIRCUIT BREAKER TRIPPING DEVICE OPERABLE FROM A LOW ENERGY TRIPPING SIGNAL

John H. Taylor, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 25, 1972, Ser. No. 292,211
Int. Cl. H01h *9/20*
U.S. Cl. 335—174 **6 Claims**



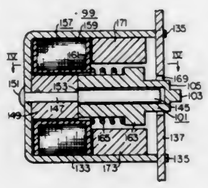
An electric circuit breaker comprising an electromagnetic tripping device. The electromagnetic tripping device comprises an H-shaped structure which is constructed of a permanent magnet disposed between two pole pieces. A trip keeper is releasably held to the pole faces on one end of the H-shaped structure and a reset keeper is movably held to the pole faces at the other end of the H-shaped structure. A winding means encircles one leg of the H-shaped structure and when energized bucks the flux through the magnetic path closed by the trip keeper and boosts the flux through the reset keeper so as to release a trip arm and trip the circuit breaker.

3,783,423

CIRCUIT BREAKER WITH IMPROVED FLUX TRANSFER MAGNETIC ACTUATOR

Alfred E. Mater, Beaver Falls, and John A. Wafer, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 30, 1973, Ser. No. 327,964
Int. Cl. H01h *9/20*
U.S. Cl. 335—174 **7 Claims**



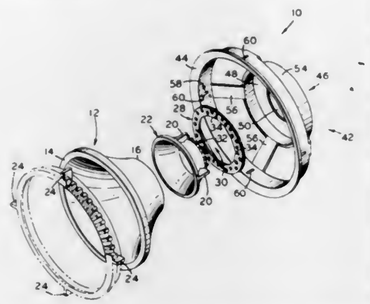
A circuit breaker comprises a magnetic trip actuator comprising an armature movably supported on a stationary nonmagnetic support pin, and permanent magnet means supplying magnetic flux that operates through a magnetic supporting frame to maintain the armature in an initial position. When released, the armature moves in an opening in the frame to actuate the breaker mechanism to trip the breaker. Upon movement of an operating handle structure to a reset position to reset the mechanism of the circuit breaker, the handle structure engages a pivoted reset member to move the reset member against the armature to thereby reset the armature in the initial position.

3,783,424

TOROIDAL YOKE FOR TELEVISION CATHODE RAY TUBE

Charles Edward Torsch, Geneva, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,027
Int. Cl. H01f
U.S. Cl. 335—210 **5 Claims**



A deflection yoke for a cathode ray tube comprises a hollow, substantially frusto-conical core having a plurality of coils toroidally wound thereabout. The coils have terminations to which connections will be made. A plurality of first projections are formed on the core and are circumferentially distributed thereabout between the ends of the core. A plurality of second projections are formed on the wide end of the core and are also circumferentially spaced thereabout. An annular terminal board for receiving the coil terminations is fitted over the narrow end of the core and is provided with slots for engaging the first projections. A protective housing having a shape roughly corresponding to the core is fitted over the terminal board and at its forward end is provided with slots which engage the second projections.

3,783,425

BOBBIN COIL

Martinus Johannes Van Hirtum, and Wilhelmus Leonard Louis Lenders, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 853,058, July 26, 1969, Pat. No. 3,634,164. This application Mar. 26, 1971, Ser. No. 128,542
Claims priority, application Netherlands, Aug. 31, 1968, 6812445
Int. Cl. H01f *27/30*
U.S. Cl. 336—189 **1 Claim**



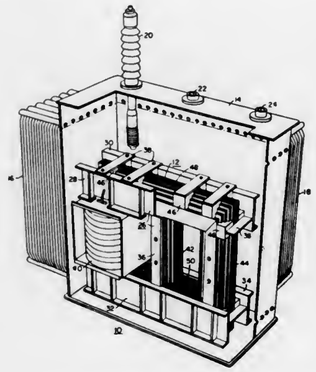
A coil which forms a dry and firmly coherent unit immediately after the winding process made by winding the coil from wire which has previously been provided with a dry layer of a contact adhesive, with the result that the wire becomes firmly fixed as soon as it contacts the previously wound part of the coil.

3,783,426

ELECTRICAL INDUCTIVE APPARATUS HAVING RIGID FOAM SUPPORTING MEMBERS AND METHODS OF PROVIDING SAME

Louis Morris, Jr., Campbell; Donald R. Slanina, Youngstown, both of Ohio, and Martin P. Seidel, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 9, 1973, Ser. No. 322,237
Int. Cl. H01f *27/30*
U.S. Cl. 336—196 **11 Claims**



A power transformer having rigid plastic foam support blocks and rods. A support block located between the magnetic core and the core supporting structure is formed by injecting a plastic foam material into an expandable container and forming the container of foam in a mold located in the transformer where the molded support block is to remain. The foam expands and then solidifies when the block has the proper shape. A support rod located between the magnetic core and the winding structure disposed thereon is constructed by placing a flexible, substantially non-expandable tubular member between the core and the winding structure, injecting a plastic foam material into the tubular member, and allowing the foam material in the tubular member to expand and force the tubular member tightly against the core and the winding structure.

3,783,427

LAYER WINDING FOR ELECTRICAL APPARATUS

Uno Zetterlund, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Nov. 23, 1971, Ser. No. 201,356
Claims priority, application Sweden, Nov. 23, 1970, 15807/70
Int. Cl. H01j *27/32*
U.S. Cl. 336—206 **2 Claims**



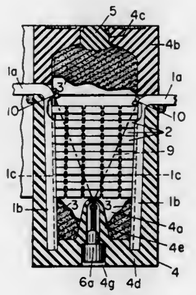
In widing a conductor winding for electrical apparatus on a support, the conductor and an insulated tape of greater width than the conductor are simultaneously wound on the support. The tape is wound with a greater pitch than the pitch of the conductor so that the tape reaches the end of the layer sooner than the conductor. The tape is then wound with zero pitch until the conductor reaches the end of the layer, thus forming edge supports for the winding of twice the thickness of the conductor. The pitch of the tape on the next layer is abruptly increased from zero to a value greater than the pitch of the conductor, and from an intermediate point in the layer at which the conductor overlies the tape, the pitch of the tape is decreased so as to build up a body of insulation layer of greater thickness at the end of the layer.

3,783,428

LOW-VOLTAGE FUSE WITH BLOWN FUSE INDICATOR

Kenneth W. Swain, and Richard A. Belcher, both of Hampton Falls, N.H., assignors to The Chase-Shawmut Company, Newburyport, Mass.

Filed Oct. 28, 1971, Ser. No. 193,302
Int. Cl. H01h *85/30*
U.S. Cl. 337—148 **7 Claims**



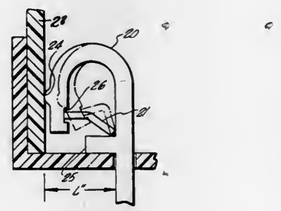
A low-voltage fuse has a molded insulating casing of a synthetic resin and a blown fuse indicator is installed in the casing's front wall. The spring biased plunger of the indicator is of electric insulating material and has an axially outer cylindrical portion of relatively large and an axially inner cylindrical portion of relatively small diameter. The former is arranged in an aperture having a relatively large inner diameter formed in the aforementioned front wall, and the latter is arranged in a hollow projection inside the housing coaxial with the indicating plunger having a relatively small inner diameter.

3,783,429

TEMPERATURE ACTUATED CONNECTOR

Richard F. Otte, Los Altos, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

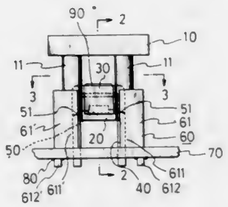
Filed June 21, 1972, Ser. No. 264,782
Int. Cl. H01h *37/46*
U.S. Cl. 337—393 **12 Claims**



A temperature actuated device is disclosed which is capable of movement with a change in temperature of at least a por-

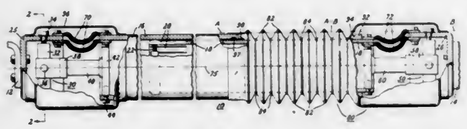
tion of the device. The device has a first member which is fabricated from a material which undergoes a relatively large change in strength over the operating temperature range of the device. This first member may be operably connected to a second spring member so that movement of the second spring member causes movement of the first member. The second spring member preferably has a different strength-temperature characteristic so that the device will attempt to assume a first stable configuration at a first temperature and a different stable configuration at a second temperature.

3,783,430
CONTACTLESS SWITCHING APPARATUS
Seishiro Nishiba; Masasi Kuroyanagi, both of Tokyo, and Koichi Ogawa, Yokohama, all of Japan, assignors to Denki Onkyo Co., Ltd., Tokyo, Japan
Filed May 23, 1972, Ser. No. 256,153
Claims priority, application Japan, May 24, 1971, 46/42300
Int. Cl. H01c *7/16*
U.S. Cl. 338—32 H **17 Claims**



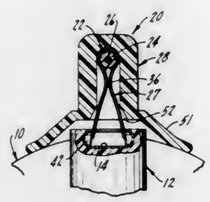
A contactless switching apparatus comprised of a magnetic strip both ends of which are bent to form opposed terminal portions, a magnetic piece which is fitted in said strip and is attracted at its both ends by said bent terminal portions, a supporting member which fixes either the strip or the magnetic piece to a base and hold it at a position a certain distance away from the base, an actuating means which actuates the rest, which is not fixed at the base, of the strip and magnetic piece and galvano-magneto effect devices which are provided at the ends of the fixed magnetic member, wherein the magnetic field intensity applied to the device is varied with movement of the movable magnetic member actuated by said actuating means.

3,783,431
ELECTRIC CONNECTOR WITH RELATIVELY-MOVABLE TERMINALS FOR OUTDOOR, ICING ENVIRONMENT
Paul E. Badey, Media, and John A. Oppel, Aldan, both of Pa., assignors to General Electric Company, Philadelphia, Pa.
Filed Apr. 3, 1972, Ser. No. 240,493
Int. Cl. H01r *39/64*
U.S. Cl. 339—2 R **10 Claims**



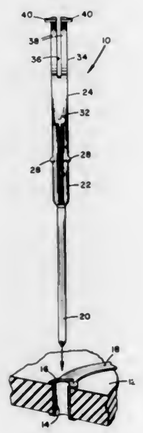
An electric connector usable in an outdoor, icing environment for conducting current between spaced-apart, relatively movable parts. The connector comprises a tubular contact member, a rod contact member telescopically slidable therein, and two universal joints respectively mounting said contact members on said movable parts to permit angular movement of the contact members relative to said parts. A tubular sheath of flexible material encircles the portion of the rod contact member located outside said tubular contact member and has an external shape containing protuberances adapted to notch, and thereby weaken, any ice forming thereabout.

3,783,432
CONNECTOR
Edward A. Biba, Westchester, and Leonard A. Sowinski, Chicago, both of Ill., assignors to Mandex Manufacturing Company, Inc., Chicago, Ill.
Filed Dec. 22, 1971, Ser. No. 210,939
Int. Cl. H01r *11/30*
U.S. Cl. 339—12 V **3 Claims**



A connector for connecting a lead wire to a terminal socket, such as an anode socket. The connector includes a clip formed of spring sheet metal and comprising legs which bow inwardly and then outwardly to flanged ends. Compression of the legs causes the bowed segments to engage and increase spring retention force of the clip. A crimp barrel fastens the clip to the conductor wire, and a bead around a portion of the crimp barrel and along the length of the legs provides an excellent electrical and mechanical connection between the lead wire and the connector clip, as well as flexural strength to the legs. The clip is seated in a flexible, insulating cup which controls the flexure of the legs.

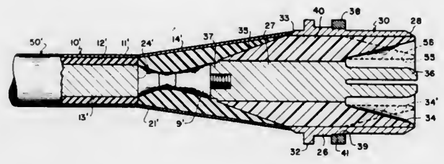
3,783,433
SOLDERLESS ELECTRICAL CONNECTION SYSTEM
Harvey N. Kurtz, Huntington, and Charles A. Gourley, Bethel, both of Conn., assignors to Litton Systems, Inc., Oakville, Conn.
Filed Jan. 18, 1971, Ser. No. 107,240
Int. Cl. H05k *1/02*
U.S. Cl. 339—17 C **6 Claims**



A solderless electrical connection system is shown having a main mounting board with a plurality of plated-through holes

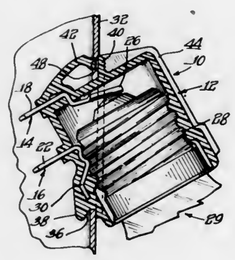
therein. A conductive electrical contact including a central section is pressed into the plated-through holes with the central section thereof flexing as it is urged into the hole and yielding to generate retention forces therein without destroying the hole. The flexing central section of the contact provides a gas seal between the plated-through hole and the contact for preventing deterioration of electrical continuity therebetween. Each end of the conductive contact may be provided with a configuration which allows electrical components to be mounted thereby or attached thereto.

3,783,434
SHIELDED CABLE COUPLER
Herbert E. Ransford, III, Pittsburgh, Pa., assignor to Mark III, Inc., Pittsburgh, Pa.
Filed Aug. 10, 1972, Ser. No. 279,456
Int. Cl. H01r *17/04*
U.S. Cl. 339—60 C **7 Claims**



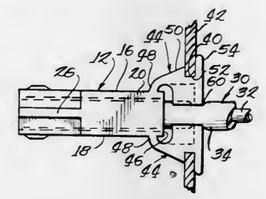
A cable coupler device, of the type used in mining applications, suitable for interconnecting portions of shielded, three phase electrical cable which greatly reduces the hazard of phase-to-phase faults. The coupler device includes electrically shielded male and female coupling members which are adapted to be connected with the shielded portions and conductor portions of the phase conductors such that a continuous shield at ground potential is maintained around each phase conductor as it passes through the coupler device. The coupler device also includes annular insulators positioned between the electrical contacts and the shielded coupling members.

3,783,435
LIGHT SOCKET DEVICE
Julian V. Fisher, Carpentersville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 23, 1971, Ser. No. 211,355
Int. Cl. H01r *13/54*
U.S. Cl. 339—92 M **9 Claims**



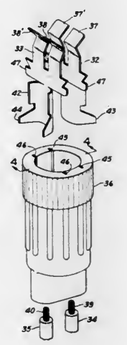
The present invention relates generally to improvements in light sockets of the type adapted for accommodating the metallic threaded base of a conventional electric light bulb and more particularly to a novel molded plastic light socket device adapted for use in refrigerator interiors. The embodiment of the invention disclosed herein comprises a molded plastic light bulb accommodating housing formed of two symmetrical abutting half sections having electrical terminal members projecting therethrough, one for contacting the entering end of a light bulb base and the other for contacting the base periperhy. A section of the housing is adapted to interlock with the margin of the supporting panel and an oppositely disposed section is provided with flexible prong means for yieldably engaging said panel.

3,783,436
ELECTRICAL CONNECTOR HOUSING WITH BUILT-IN STRAIN RELIEF
Allen J. Bury, Prospect Heights, Ill., assignor to Molex, Incorporated, Dowers Grove, Ill.
Filed July 17, 1972, Ser. No. 272,435
Int. Cl. H01r *13/58*
U.S. Cl. 339—107 **9 Claims**



A plastic electrical housing for mounting a plurality of terminals is provided with mounting ears that extend out from the body substantially at right angles, and are folded over into parallelism with the body for receipt in an aperture in a panel to mount the housing therein. When folded over, the ears extend to the rear of the housing or body and are provided with confronting sections for gripping against lead wires in a strain relief arrangement.

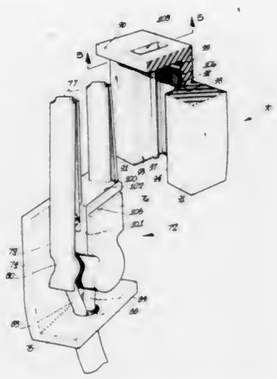
3,783,437
LAMP AND SOCKET FOR DECORATIVE STRING SET
James C. Graff, and Robert M. Rhoades, both of Cleveland Heights, Ohio, assignors to General Electric Company, Schenectady, N.Y.
Filed Oct. 7, 1971, Ser. No. 187,348
Int. Cl. H01r *13/26*
U.S. Cl. 339—144 R **4 Claims**



An electric lamp having a stem press with opposite parallel faces, each face having a groove terminating in an end wall followed by an indentation, lead wires bent around the stem press's outer edge are guided by the respective grooves so as

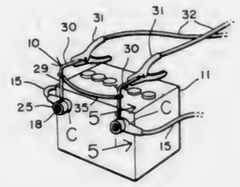
to be positioned over the indentations. A socket with two contacts adapted to engage the stem press of a lamp, each contact having two fingers one of which makes electrical contact with the lamp's bent around lead wires while the other finger contacts the glass portion of the stem press.

3,783,438
ELECTRIC WALL PLUG
Philippe G. Grant, P.O. Box 1076, Station B, Ottawa, Ontario, Canada
Filed May 26, 1972, Ser. No. 257,115
Int. Cl. H01r 33/06
U.S. Cl. 339—196 R **2 Claims**



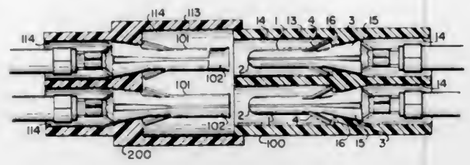
An electric wall plug having a sleeve or insert member maintaining the contact ends of the flexible prongs in secure engagement with the ends of the connector wires without any need for wrapping the wires around the contact ends. This permits rapid assembly and disassembly of the plug.

3,783,439
BATTERY CHARGER ADAPTER
Paul Valentino, 790 N.E. 119th St., Biscayne Park, Miami, Fla.
Filed Feb. 14, 1973, Ser. No. 332,320
Int. Cl. H01r 11/26
U.S. Cl. 339—234 **3 Claims**



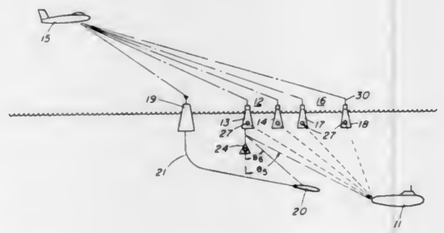
An adapter for connecting a battery to a battery charger wherein the battery is provided with terminals extending along its side wall with a threaded bore for receiving a connector post. The adapter is provided with a pair of metallic rings each of which fits over the post and is tightened thereon by an elongated metallic rod threaded on the ring and engaging the post. The end of each of the rods is bent to form a handle for tightening and loosening the rods against the posts. The rods are prevented from being separated by an elongated pliable member that consists of non-conducting material. The handles are each connected by conductors that extend to the battery charger.

3,783,440
ELECTRICAL CONNECTOR
Soichi Karube, Tokyo; Yoshio Hamada, Hitachi, and Yoshiyasu Suganuma, Hiratsuka, all of Japan, assignors to Kanto Seiki Co., Ltd., Saitama-ken; Hitachi Cable Ltd., Tokyo and Nippon Tanshi, Ltd., Kanagawa-ken, Japan
Filed May 30, 1972, Ser. No. 257,553
Claims priority, application Japan, June 2, 1971, 46/38751; June 2, 1971, 46/38752
Int. Cl. H01r 9/08
U.S. Cl. 339—217 S **5 Claims**



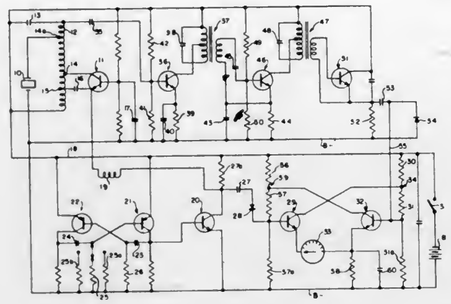
An electrical connector for connection to a lead wire comprising at least one terminal including a male or female contact portion at one end thereof, a resilient bellmouth-shaped portion interposed between the contact portion and the end of the terminal adapted for connection to the lead wire, and an engaging portion; and a connector body including a terminal-receiving aperture with its internal surface partly or wholly tapered and a portion for holding the terminal by engagement with the engaging portion of the terminal; the engaging portion of the terminal being inserted into the terminal-receiving aperture to such an extent as to engage with the holding portion, the bellmouth-shaped portion of the terminal being resiliently pressed against the internal surface of the tapered portion thereby to support the electrical connector.

3,783,441
AIR LAUNCHED, WIRE GUIDED TORPEDO
Zaka I. Slawsky, Bethesda, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 30, 1965, Ser. No. 469,060
Int. Cl. G01s 9/68
U.S. Cl. 340—2 **13 Claims**



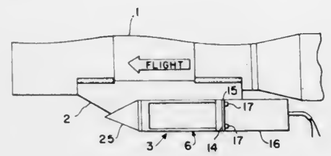
A submarine detecting and tracking system which utilizes sonouoys to track both a target submarine and a guided torpedo. The sonobuoy signals are received and processed on a surface vessel or aircraft and the torpedo is guided by remote control to intercept the target submarine.

3,783,442
DEPTH SOUNDER
George Feinman, Whitestone, N.Y., and Richard Haven, Long Branch, N.J., assignors to Andrea Radio Corporation, Long Island City, N.Y.
Filed Apr. 10, 1972, Ser. No. 242,421
Int. Cl. G01s 9/68
U.S. Cl. 340—3 R **13 Claims**



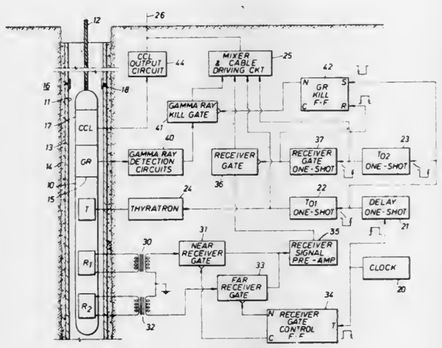
A depth sounding instrument including an oscillator for supplying AC energy to a transducer. The oscillator is keyed on by a multivibrator which produces clock pulses. Each clock pulses switches the state of a flip flop and starts a time measuring interval each time a clock pulse is supplied to the oscillator. A receiver receives the reflected sonic energy and terminates the time measuring interval of the flip-flop. A meter responds to the measured time interval to provide a visual indication of the depth from which energy was reflected.

3,783,443
EJECTABLE UNDERWATER SOUND SOURCE RECOVERY ASSEMBLY
Stephen C. Irick, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed July 19, 1972, Ser. No. 273,240
Int. Cl. H04b 11/00
U.S. Cl. 340—5 R **11 Claims**



For ejectable mounting on a mobile device (e.g., a rocket) intended to travel over water to facilitate location and recovery of the device when submerged, an underwater sound source is mounted in a mounting bracket which is attachable to the device so as to detach or eject upon impact, destruction, or automatically at a prescribed time or under prescribed conditions. Preferred attachment means for some uses comprise bolts which are adapted to fracture upon impact with the water. A length of flexible line is coiled within a line housing coupled to the mounting bracket such that the line will freely feed out from the housing when pulled by one free end thereof, which free end is adapted for coupling with the device, the other end being coupled with the sound source and its bracket. This allows ejection of the bracket with the sound source, while maintaining a flexible connection between the mobile device and the sound source. An aerodynamic fairing which provides a clean aerodynamic surface during flight is adapted to separate from the bracket upon ejection from the mobile device. During recovery, the sound source is located by a diver, and the line leads to the device, which may be a rocket buried in mud on the ocean floor.

3,783,444
METHOD AND APPARATUS FOR USE IN INVESTIGATING EARTH FORMATIONS
Geary L. Leger, Yucaipa, Calif., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Aug. 1, 1969, Ser. No. 846,907
Int. Cl. G01v 1/40
U.S. Cl. 340—18 CM **20 Claims**

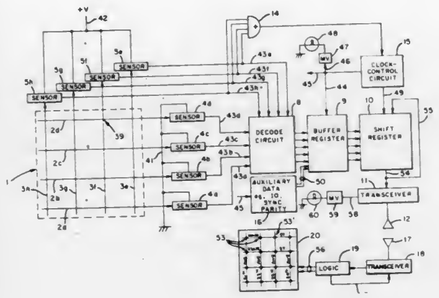


In accordance with an illustrative embodiment of the present invention, a well tool having first and second exploring means is moved through a borehole for investigating the media surrounding the well tool. The first exploring device produces pulses whose rate is representative of a formation parameter. The second exploring means, on the other hand, includes an energy emitting transmitter and two nearby energy receiving receivers. This transmitter is periodically energized to emit energy into the surrounding media and a sync pulse representative of the time of such energy emission is produced for transmission to the surface of the earth. The signals produced by each receiver are transmitted to the surface of the earth on alternate emissions of energy. All of these above-mentioned signals from both exploring means are transmitted on a common transmission channel. The pulses from the first exploring means are inhibited from transmission for a predetermined time interval prior to the transmission of each sync pulse until after a receiver signal has been transmitted. Thus, a transmission dead period results during this predetermined time interval prior to the sync pulse transmission. At the surface of the earth, a detector circuit is repsonsive to the periodic nature of the sync pulses plus the transmission dead period for detecting each sync pulse. To identify which receiver produced each receiver signal, the time interval between the sync pulses and their corresponding receiver signals are measured and compared.

3,783,445
VEHICLE LOCATOR SYSTEM
Kent A. Penwarden, Los Altos, Calif., assignor to E-Systems Incorporated, Dallas, Tex.
Continuation of Ser. No. 44,219, June 8, 1970, abandoned.
This application Sept. 11, 1972, Ser. No. 287,631
Int. Cl. G08g 1/12
U.S. Cl. 340—24 **4 Claims**

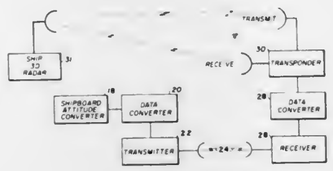
A compression type matrix switch comprising rows of parallel horizontal conductors in one plane and columns of parallel

vertical conductors in a second plane parallel to the first plane and spaced therefrom by a resilient mat having apertures therethrough at the crossover points of the horizontal and vertical conductors is located behind a beat map overlay in a police patrol car. One end of each conductor is connected to a different sensor that monitors the electrical continuity between conductors at associated horizontal and vertical crossover points. The location of the car is selected for transmission to a monitor facility by firmly pressing the map at the crossover point nearest the actual location of the car. This



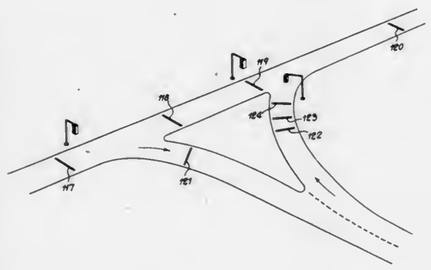
electrically connects a pair of horizontal and vertical conductors through an aperture in the mat so that the output signals of only the two associated sensors indicate continuity at the crossover point. The outputs of all the sensors comprise a binary code signal uniquely defining the location of the car. This code signal is coupled, together with a binary code signal identifying the car, through a shift register to a transceiver for transmission to the monitor facility. Binary signals received at the monitor facility are processed in a logic circuitry for presenting on a map a visual indication of the location of the patrol car.

3,783,447
THREE DIMENSIONAL RADAR TRANSPONDER SYSTEM
Robert W. Snaders, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 21, 1972, Ser. No. 291,120
Int. Cl. G01s 7/40
U.S. Cl. 343—17.7 **6 Claims**



An independent system to evaluate three dimensional radars which derive their height information from slant range and beam elevation. This transponder system consists of two major units, one of which senses the ship attitude and transmits this information to the control station. The second major unit on shore receives this information and uses it to update and pre-set conditions of the transponder, in accordance with the ship attitude, to synthesize a target at a given range, elevation and azimuth when the radar uses a specific beam to determine the angle of elevation of the target above the horizon.

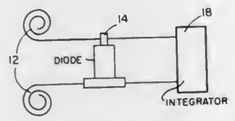
3,783,446
TRAFFIC CONTROL SYSTEM
John W. McGimpsey, 83 Oakdene Ave., Teaneck, N.J.
Filed Dec. 9, 1971, Ser. No. 206,274
Int. Cl. G08g 1/02
U.S. Cl. 340—31 R **4 Claims**



A traffic control and warning system for the control of traffic characterized by a series of traffic lights selectively

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3,783,448
APPARATUS FOR MEASURING ELECTROMAGNETIC RADIATION
Morris E. Brodwin, 145 Laurel Ave., Highland Park, Ill.
Filed July 30, 1971, Ser. No. 167,734
Int. Cl. G01w 1/00
U.S. Cl. 343—100 ME **12 Claims**

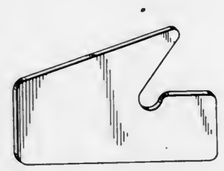


This invention relates to a new apparatus for measuring total electromagnetic radiation or exposure to non-ionizing electromagnetic radiation. The apparatus comprises, in combination, an equiangular spiral antenna, a crystal diode detector, a processor and an integrator. The apparatus, by means of the integrator totals the amount of electromagnetic radiation which it is exposed to.

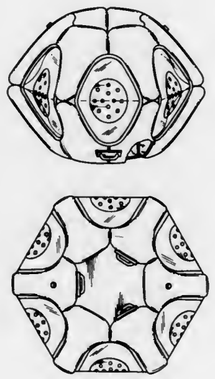
DESIGNS

JANUARY 1, 1974

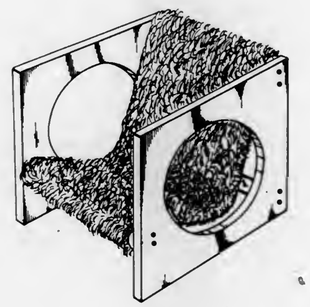
229,729
TAB FOR HOLDING THREAD ON A BOBBIN
Haruo Ueda, 36 Sakurazono-machi; Masano Sugi, 607–4 Midorigaoka-cho; and Hiroshi Chayamichi, 3–1 Nakagawara-machi, 2-chome, all of Nobeoka, Japan
Original design application June 23, 1970, Ser. No. 23,636, now abandoned. Divided and this application Oct. 12, 1971, Ser. No. 188,647
Claims priority, application Japan Dec. 23, 1969
Term of patent 14 years
Int. Cl. D5—99
U.S. Cl. D3—19 A



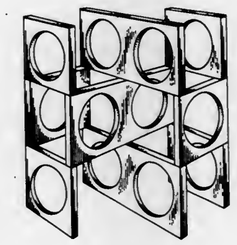
229,730
PNEUMATIC PLAY PEN
Shoji Suzuki, 6–11, 3-chome, Higashi-Mukojima, Sumida-ku, Tokyo, Japan
Filed Apr. 6, 1972, Ser. No. 241,866
Claims priority, application Japan Oct. 20, 1971
Term of patent 14 years
Int. Cl. D6—06
U.S. Cl. D6—13



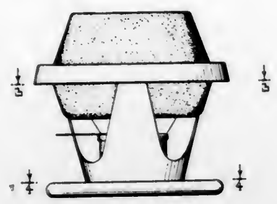
229,731
CHAIR
Francis B. Walsh, 1865 Charmelton St., Eugene, Oreg. 97401
Filed Mar. 6, 1972, Ser. No. 232,357
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D6—70



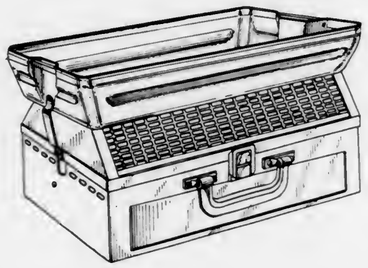
229,732
STORAGE RACK FOR WINE BOTTLES OR THE LIKE
Eugene J. Majewski, 121 Elmore St., Park Ridge, Ill. 60068
Filed Jan. 18, 1972, Ser. No. 218,853
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D7—71



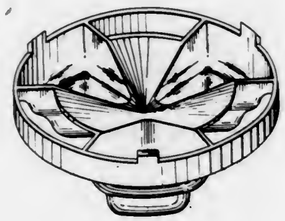
229,733
CHAFING DISH FOR FONDUE OR THE LIKE
Fred Press, White Plains, N.Y., assignor to House Mates Inc., Hartsdale, N.Y.
Filed June 23, 1971, Ser. No. 156,166
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—90



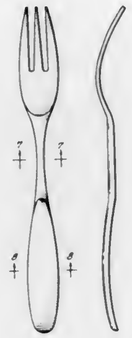
229,734
CONVERTIBLE HEATER AND COOKER
Manley R. MaKenny, Beggs, and Billy Joe Duncan, Tulsa, Okla., and Jay N. Smith and Ted J. McDonald, Wichita, Kans., assignors to Brunswick Corporation
Filed Dec. 14, 1972, Ser. No. 315,111
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—110



229,735
REMOVABLE COMPARTMENTED CUP FOR A DISPENSING CONTAINER
Jack V. Croyle, Woonsocket, and James B. Sweet, Barrington, R.I., assignors to Dart Industries, Inc., Los Angeles, Calif.
Filed Jan. 3, 1972, Ser. No. 215,244
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—129



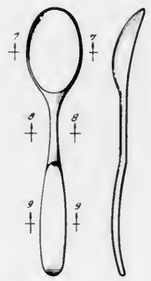
229,736
FORK
Donald Wallace, Croton-on-Hudson, N.Y., assignor to H. E. Lauffer Co., Inc., Somerset, N.J.
Filed July 25, 1972, Ser. No. 274,879
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—137



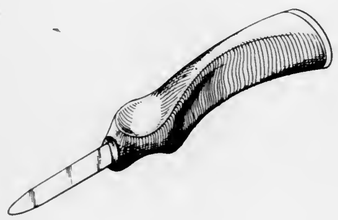
229,737
FOOD CONTAINER LID
William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated
Filed Sept. 27, 1972, Ser. No. 294,263
Term of patent 7 years
Int. Cl. D7—*02*
U.S. Cl. D7—131



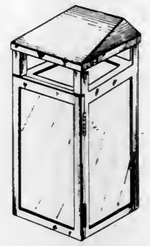
229,738
SPOON
Donald Wallance, Croton-on-Hudson, N.Y., assignor to H. E. Lauffer Co., Inc., Somerset, N.J.
Filed July 25, 1972, Ser. No. 274,919
Term of patent 14 years
The portion of the term of the patent subsequent to Jan. 1, 1988, has been disclaimed
Int. Cl. D7—*03*
U.S. Cl. D7—137



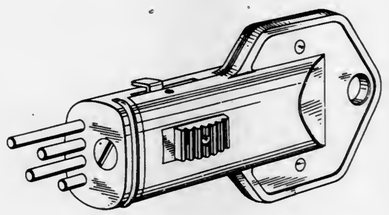
229,739
OYSTER SHUCKING KNIFE
Charles D. Briddell, 335 Hill-N-Dale Drive, York, Pa. 17403
Filed July 5, 1972, Ser. No. 269,070
Term of patent 7 years
Int. Cl. D7—*03*
U.S. Cl. D7—150



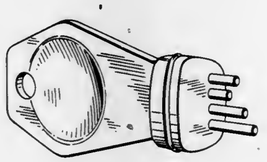
229,740
LITTER BIN OR SIMILAR ARTICLE
Harry Zelenko, 240 E. 61st St., New York, N.Y. 10021
Continuation-in-part of design application Ser. No. 141,096, May 6, 1971. This application Jan. 9, 1973, Ser. No. 322,161
Term of patent 14 years
Int. Cl. D20—*99*
U.S. Cl. D7—194



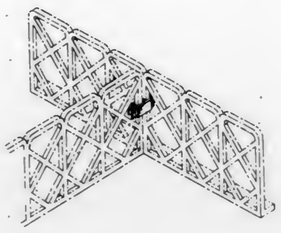
229,741
ADJUSTABLE KEY FOR LOCKS
Kalju Helenurm, Willowdale, Ontario, Canada, assignor to Jonathan Lock Limited, Toronto, Ontario, Canada
Filed Jan. 15, 1973, Ser. No. 323,797
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—136



229,742
KEY FOR LOCKS
Kalju Helenurm, Willowdale, Ontario, Canada, assignor to Jonathan Lock Limited, Toronto, Ontario, Canada
Filed Jan. 25, 1973, Ser. No. 323,798
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—136



229,743
RESILIENT CONNECTOR FOR DISPLAY PARTITIONS OR THE LIKE
David M. Moore, Pittsburgh, Pa., assignor to Armstrong Store Fixture Corporation, Pittsburgh, Pa.
Filed Sept. 1, 1972, Ser. No. 285,827
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—259



229,744
RANGE GRATE HOLD DOWN CLIP
Joseph J. Oletti, South Bend, Ind., assignor to D & G Associates, Inc., Elkhart, Ind.
Filed Mar. 24, 1972, Ser. No. 237,999
Term of patent 3½ years
Int. Cl. D8—*07*
U.S. Cl. D8—259



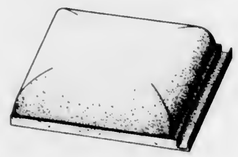
229,745
INSULATOR BRACKET
Clarence E. Dean, Birmingham, Ala., assignor to Dixie Electrical Manufacturing Company
Filed Aug. 30, 1972, Ser. No. 285,011
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D8—230



229,746
BOTTLE
Charles J. McPhee, Sylmar, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed June 19, 1972, Ser. No. 264,353
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—159



229,747
ROOF ELEMENT
Willard J. Schroll, Jessup, Md., assignor to Better Marketing Industries, Inc., Jessup, Md.
Filed Nov. 24, 1971, Ser. No. 202,067
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1 H



229,748
LIQUID SPECIMEN TUBE
Fred K. White, Glen Ellyn, Ill., assignor to Miles Laboratories, Inc., Elkhart, Ind.
Filed Sept. 30, 1971, Ser. No. 185,474
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D16—1 R



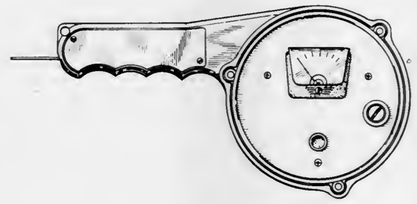
229,749
VITAMIN TABLET OR SIMILAR ARTICLE
Ian C. Modelevsky, Pleasantville, Benjamin S. De Young, Sands Point, and Donald Nevins, East Elmhurst, N.Y., and Morley A. Stern, Mexico City, Mexico, assignors to Bristol-Myers Company, New York, N.Y.
Filed June 27, 1972, Ser. No. 266,821
Term of patent 14 years
Int. Cl. D1—*01*; D28—*01*
U.S. Cl. D16—3



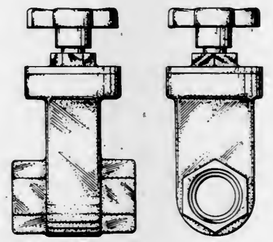
229,750
FLY
Jim A. Teeny, 915 NE. 108th, Portland, Oreg. 97220
Filed June 20, 1972, Ser. No. 264,623
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27



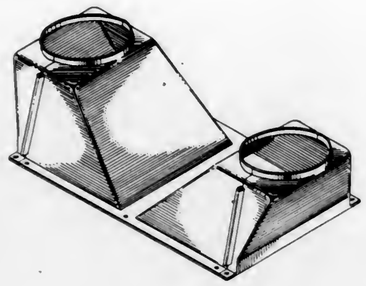
229,751
FISHING THERMOMETER INSTRUMENT
Horst M. Krenz, St. Joseph, Mich., assignor to Heath Company, Benton Harbor, Mich.
Filed Oct. 8, 1971, Ser. No. 187,707
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—99



229,752
VALVE
Eddy K. Dayne, Glendora, and Wilbur G. Land, Anaheim, Calif., assignors to Bagdad Plastics Company, Phoenix, Ariz.
Filed Sept. 20, 1971, Ser. No. 182,307
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



229,753
COMBINED AIR SCOOP AND DUCT COUPLING COLLAR ASSEMBLY FOR A HUMIDIFIER UNIT
William B. Morrow, Winston-Salem, N.C., assignor to Aqua-Mist Incorporated, Winston-Salem, N.C.
Filed May 1, 1972, Ser. No. 249,488
Term of patent 14 years
Int. Cl. D23—*146*
U.S. Cl. D23—146



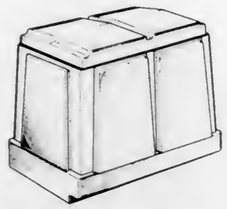
229,754
AIR FRESHENER
James V. Ali, 2646 Richmar Drive, Xenia, Ohio 45385
Filed Dec. 4, 1972, Ser. No. 311,862
Term of patent 14 years
Int. Cl. D23—*04*; D11—*04*
U.S. Cl. D23—150

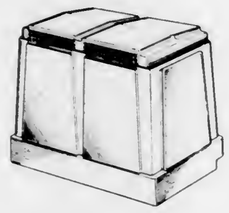


229,755
SPARK PLUG
Lester B. Moss, 5619 Sapphire Ave., Jennings, Mo. 63136
Filed Mar. 28, 1972, Ser. No. 238,996
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D26—1.5

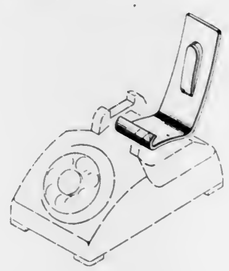


229,756
PCM SUBSCRIBER CARRIER SYSTEM REMOTE TERMINAL WEATHERPROOF HOUSING OR SIMILAR ARTICLE
James R. Stewart, San Jose, and Donald G. Tweed, Mountain View, Calif., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Nov. 1, 1972, Ser. No. 302,974
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





229,757
TELEPHONE MESSAGE HOLDER
Robert S. Hansen, 151 Glenwood Court, Santa Rosa, Calif. 95404
Filed Feb. 5, 1973, Ser. No. 329,630
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





229,758
CHRISTMAS TREE BLANKET
Mary F. Bartel, 45 N. Hamilton St., Poughkeepsie, N.Y. 12601
Filed Feb. 14, 1972, Ser. No. 226,363
Term of patent 7 years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B





229,759
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,912
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



229,760
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,913
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



229,761
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,914
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



229,762
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed June 16, 1971, Ser. No. 153,915
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



229,763
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,332
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



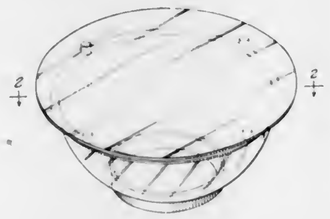
229,764
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,333
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



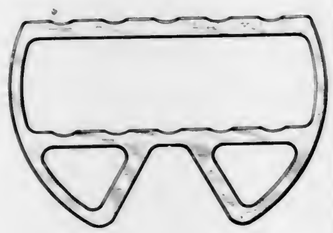
229,765
NONMONETARY COIN AND THE LIKE
Tomás Batista, San Juan, Puerto Rico, assignor to Del-Bros Jewelry Manufacturing Co., Inc., Bayamon, Puerto Rico
Filed July 13, 1971, Ser. No. 162,334
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19 R



229,766
COMBINED TABLE AND AQUARIUM OR SIMILAR ARTICLE
Lynn H. Kephart, 2109 Skylark St., Arlington, Tex. 76010
Filed Feb. 22, 1972, Ser. No. 228,461
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—11



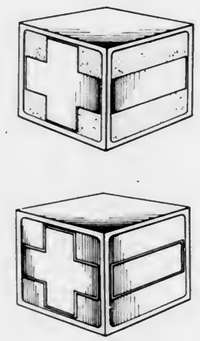
229,767
GOLF BAG DIVIDER
Thomas Kelly Ferguson, Eminence, Ky., assignor to The Brunswick Corporation
Filed Jan. 24, 1972, Ser. No. 220,540
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GB



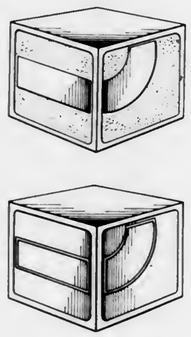
229,768
SHUFFLEBOARD GAME DEVICE
Raymond J. Lohr and Laurie May Campbell, Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed May 12, 1972, Ser. No. 252,963
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 BB



229,769
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,031
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



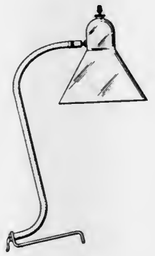
229,770
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,058
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



229,771
WATCHCASE
Laurie Jay Campbell, Erie, Pa., assignor to Louis Marx & Co., Inc., New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,238
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—8 R



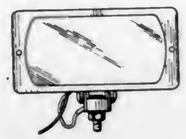
229,772
TABLE LAMP
Stephen W. Morris, 1354 Eastshore Drive, Alameda, Calif. 94501
Filed May 24, 1972, Ser. No. 256,628
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 F



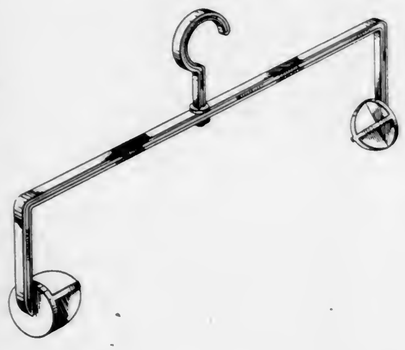
229,773
COMBINED VEHICLE SAFETY LIGHTS ENSEMBLE AND MOUNTING BRACKET THEREFOR
Ladell P. Olson and Frank P. Cooley, Eagle Grove, Iowa, assignors to Rycol Corporation, Eagle Grove, Iowa
Filed May 26, 1972, Ser. No. 257,485
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32 R



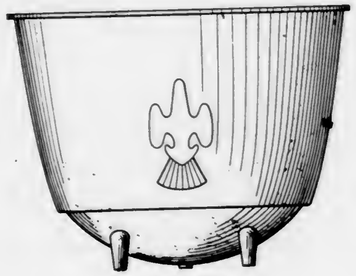
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AUXILIARY LIGHT FOR AUTOMOBILES
Pierre Cibie, 150 Avenue de Wagram 75017, Paris, France
Filed Nov. 6, 1972, Ser. No. 304,155
Claims priority, application France July 18, 1972
Term of patent 14 years
Int. Cl. D26—*06, 03*
U.S. Cl. D48—32 R



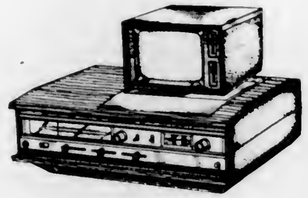
229,775
PAPER TOWEL HOLDER
Clifford F. Carroll, Box 76, Cave Creek, Ariz. 85331
Filed June 6, 1972, Ser. No. 260,348
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D52—2 C



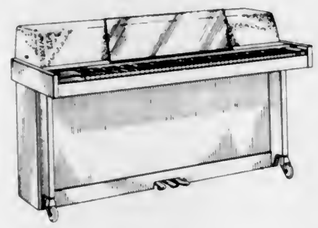
229,776
BASE KETTLE FOR A MUSICAL DRUM
Robert L. Leighton, Box 22, Cortez, Colo. 81321
Filed Mar. 5, 1971, Ser. No. 121,613
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D56—1 E



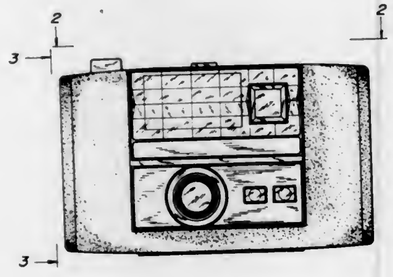
229,777
COMBINED RADIO AND RETRACTABLE TELEVISION RECEIVER
Makoto Terauchi, Yasunobu Nakamura, Osamu Sugihara, Tadashi Sumino, Kazuhiro Ueda, and Kiyoshi Suzuki, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Dec. 17, 1971, Ser. No. 209,496
Claims priority, application Japan June 18, 1971
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



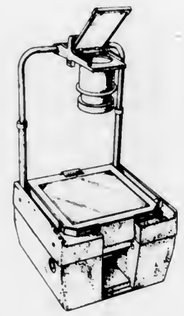
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PIANO
Thomas E. Kimble, Covington, Ky., assignor to D. H. Baldwin Company, Cincinnati, Ohio
Filed June 12, 1972, Ser. No. 262,140
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



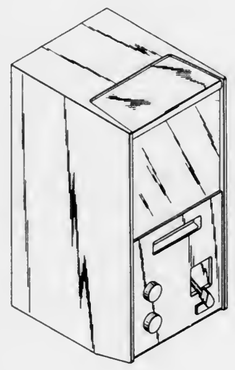
229,779
CAMERA
Ronald A. Emmerling, New City, N.Y., assignor to Keystone Division of Berkey Photo, Paramus, N.J.
Filed Nov. 19, 1971, Ser. No. 200,663
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 B



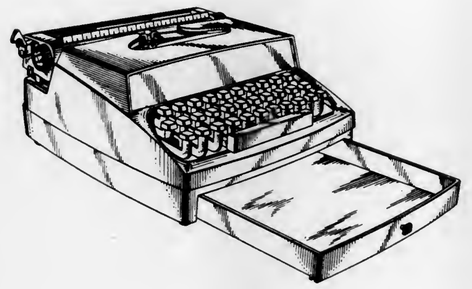
229,780
OVER-HEAD PROJECTOR OR SIMILAR ARTICLE
Tooru Ishida, Yamato-machi, Japan, assignor to Kabushiki Kaisha Koparu, Tokyo-to, Japan
Filed Sept. 24, 1971, Ser. No. 183,724
Claims priority, application Japan Apr. 7, 1971
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 L



229,781
APERTURE CARD VIEWER
Thomas C. Laughon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 11, 1972, Ser. No. 287,958
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 N



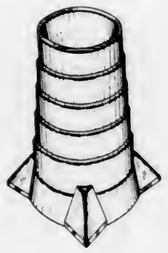
229,782
TYPEWRITER
Frank C. Fusco, Monroe, and Bill Gold, Great Neck, N.Y., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Aug. 10, 1971, Ser. No. 170,679
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



229,783
PUMP
Jerry L. Campbell and Farral D. Gay, Jr., Salt Lake City, Utah, assignors to Toran Corporation, Salt Lake City, Utah
Filed Nov. 26, 1971, Ser. No. 202,731
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D65—1 R



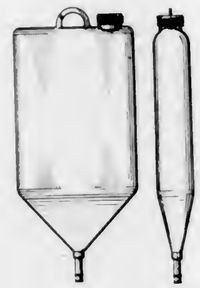
229,784
TRAFFIC MARKER
Howard Bryan Carter, Scarborough, Ontario, Canada, assignor to Rosedale Plastics (Containers) Limited, Toronto, Ontario, Canada
Filed Apr. 9, 1973, Ser. No. 348,973
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D72—1 J



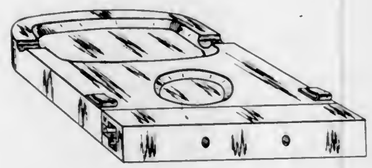
229,785
WRITING INSTRUMENT
Raymond A. Lanoie, East Greenwich, R.I., assignor to Garland Industries, Inc.
Filed Apr. 17, 1972, Ser. No. 245,005
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D74—17 B



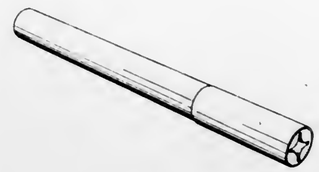
229,786
ENEMA BAG
Norbert Kinkel, 2 Wiesenstrasse, 6373 Weisskirchen, Taunus, Germany, and Eckhardt Knauff, 28 Leitziger Strasse, 6205 Bleidenstadt, Germany
Filed July 16, 1971, Ser. No. 163,550
Claims priority, application Germany Jan. 9, 1971
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D83—1 U



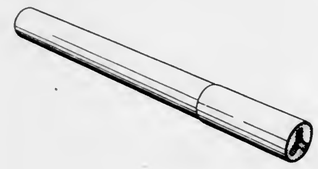
229,787
COMBINED CUP TRAY AND ASH RECEIVER
Benjamin Pitts, 9929 Chenlot, Detroit, Mich. 48204
Filed Mar. 7, 1972, Ser. No. 232,657
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 K



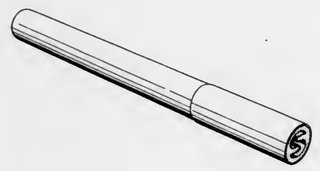
229,788
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,021
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B



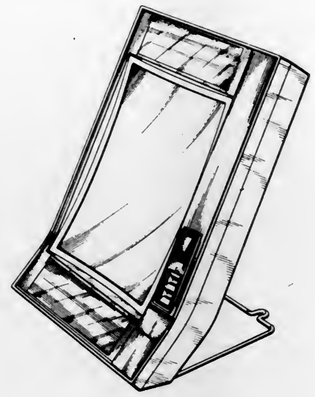
229,789
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,022
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B



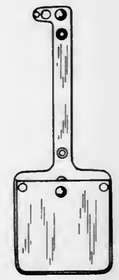
229,790
FILTERED CIGARETTE
Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.
Original design application June 21, 1971, Ser. No. 155,371. Divided and this application Apr. 11, 1973, Ser. No. 350,024
Term of patent 14 years
Int. Cl. D27—*01*
U.S. Cl. D85—6 B



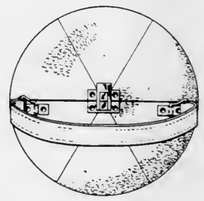
229,791
MAKE-UP MIRROR
Dominic De Fano, Palatine, and Robert I. Kallman, Elburn, Ill., assignors to Clairol Incorporated, New York, N.Y.
Filed Nov. 8, 1972, Ser. No. 304,682
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10 H



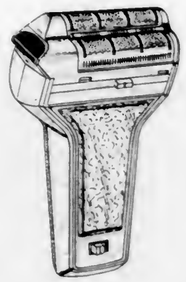
229,792
WALLET
Matt J. Vitol, Woodstock, Va. 22664
Filed Oct. 7, 1971, Ser. No. 187,599
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—3 R



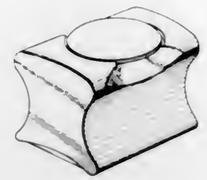
229,793
HANDBAG
Clarence V. Tibbs, 7119 Kingston Pike, Knoxville, Tenn. 37919
Filed Jan. 12, 1973, Ser. No. 323,142
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



229,794
ELECTRIC SHAVER
Robert O. Ernest, Oak Park, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Aug. 4, 1972, Ser. No. 278,120
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



229,795
RAZOR
Bartholomew A. Holohan, 1486 Deer Path, Mountainside, N.J. 07092
Filed Nov. 3, 1971, Ser. No. 195,540
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A & A Manufacturing Company, Inc.: *See—*
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A/S Kongsberg Vapenfabrik: *See—*
Ulrichsen, Borre Bengt, 3,783,036.

Aaron, Maurice L.: *See—*
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AB Ljungmans Verkstader: *See—*
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Abbey, Henry. Covered ice bucket. 3,782,583, Cl. 220-31.00s.

Abbott, Edward A., Jr.; and Blanchard, David I., to Hughes Aircraft Company. Radiation tracking system. 3,783,271, Cl. 250-203.00r.

Abbott, Thomas I.; Dappen, Glen M.; and Irani, Nayyir F., to Eastman Kodak Company. Diffusion transfer reception elements, film units and processes therefor. 3,782,936, Cl. 96-3.000.

Abe, Taizo, to Ayumi Industries Company, Limited. Oil diffusion vacuum pump. 3,782,861, Cl. 417-153.000.

Abel, Irving Raymond, to United States of America, National Aeronautics and Space Administration. Optical instruments. 3,782,835, Cl. 356-216.000.

Accles & Shelvoke Limited: *See—*
Hancox, Roger John, 3,782,018.

Ackermann, Karl, to Bosch, Robert, Photokino G.m.b.H. Battery charging arrangement with automatic charge termination circuit having input ripple suppression. 3,783,365, Cl. 320-39.000.

Adachi, Takeshi: *See—*
Sato, Chosei; Adachi, Takeshi; and Inoy, Hiroyuki, 3,783,122.

Adamovske Strojirny, narodni podnik: *See—*
Jurny, Josef; and Sedlak, Vaclav, 3,782,280.

Adams, Benjamin Baker, Jr., to RCA Corporation. Filamentary cathode mount and mounting method. 3,783,327, Cl. 313-272.000.

Adams, Kenneth D.; and D'Orio, Salvatore A., to Singer Company, The. Simplified basting stitch mechanism. 3,782,311, Cl. 112-158.00r.

Adams, Norbert: *See—*
Intrator, Alexander M.; and Adams, Norbert, 3,781,978.

Adams, Norbert; and Baum, Edward A., to General Electric Company. Electorstatic bonding process. 3,783,218, Cl. 219-10.530.

Adams-Russell Co., Inc.: *See—*
Patterson, William L., 3,783,321.

Agfa-Gevaert Aktiengesellschaft: *See—*
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Mucke, Bruno; Lohmer, Karl; and Himmelmann, Wolfgang, 3,782,955.
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Ahmad, Iqbal, to United States of America, Army. Process for electrodeposition of metals under the influence of a centrifugal force field. 3,783,110, Cl. 204-12.000.

Air Reduction Company, Incorporated: *See—*
Tramposch, Ralph F., 3,783,009.

Aisin Seiki Kabushiki Kaisha: *See—*
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Aitken, Michael D. Fully energized plasma jet. 3,783,227, Cl. 219-121.00p.

Akado, Hajime: *See—*
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, 3,782,349.

Akesson, Stellan. Valve means, particularly automatic waste gas valve means. 3,782,627, Cl. 236-93.000.

Akhmedov, Baba Abbas Ogly: *See—*
Kheifets, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielevich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

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Akzo N.V.: *See—*
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Albers, Gene H.: *See—*
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Alberto, Pietro. Automatic machine for forming rolls of piece-fabrics having a pre-established length and discarding of defective fabric. 3,782,664, Cl. 242-56.00r.

Aldinger, Ulrich, to Bosch, Robert, G.m.b.H. Pressure balanced radial piston machine. 3,782,245, Cl. 91-6.500.

Alexander, George L. Spare tire carrier. 3,782,568, Cl. 214-454.000.

Alexander, Stephen H.; and Holberg, Arnold J., to Bank of New York, N.Y., The, mesne. Asphaltic coatings. 3,782,988, Cl. 106-282.000.

Alexeev, Jury Evgenievich: *See—*
Kozhevnikov, Sergei Nikolaevich; Tkachenko, Arkady Semenovich; Verderevsky, Vadim Anatolievich; Cherevik, Ivanovich; Alexeev, Jury Evgenievich; Bondarenko, Alexandr Grigorievich; and Vyshinsky, Valery Trofimovich, 3,782,163.

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Alfano, Robert R.; and Shapiro, Stanely L., to G.T.E. Laboratories, Inc. Picosecond spectrometer using picosecond continuum. 3,782,828, Cl. 356-85.000.

Alferov, Jury Fedorovich: *See—*
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Alibert, Vernon F.; and Carey, Thomas H., to Columbia Research Laboratories, Inc. Signal generating device for use with a structure which is subjected to a range of vibrations. 3,783,309, Cl. 310-8.700.

Allemand, Pierre; and Havasse, Christian, to Rhone-Progil. Adjuvants for cements, mortars and concretes. 3,782,984, Cl. 106-90.000.

Allen Anchor Corporation: *See—*
Allen, George E., 3,782,058.

Allen, Donn W. Fuel storage cell. 3,782,588, Cl. 220-88.00r.

Allen, George E., to Allen Anchor Corporation. Tying devices for tying wooden members to composite brick and masonry walls. 3,782,058, Cl. 52-300.000.

Allen, Philip H., to H.J.J. Co., Inc. Screw holding driver. 3,782,432, Cl. 145-50.00e.

Alley, Bernard J.: *See—*
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Allington, Robert W., to Instrumentation Specialties Company. Dual beam optical system. 3,783,276, Cl. 250-226.000.

Allis-Chalmers Corporation: *See—*
Dandois, Charles L., 3,782,891.
Drone, Gary A., 3,782,249.
Hartwig, Walter J., 3,782,533.
McCray, Ferris L., 3,782,478.
Onare, Robert F., 3,782,888.

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Sandblom, Henry, 3,782,192.
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Almog, Ehud. Panels and method of making same. 3,783,082, Cl. 161-37.000.

Almond, Francis Martin; Shibley, Edward Albert; and Coroch, Brian Wilfrid, to Templebouough Rolling Mills Limited and British Ropes Limited. 3,783,043, Cl. Treatment of hot-rolled steel.

Altenpohl, William F. Poultry shackle suspension. 3,781,946, Cl. 17-44.100.

Alter, Henry Ward; and Lovett, Daniel B., to General Electric Company. Alpha particle dosimeter. 3,783,292, Cl. 250-475.000.

Aluminium AG: *See—*
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Aluminum Company of America: *See—*
Monks, Frank E., 3,783,071.
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American Air Filter Company: *See—*
Smith, Thomas R.; Pond, Robert W.; and Rivers, Richard D., 3,782,082.

American Air Filter Company, Inc.: *See—*
Woods, Walter E.; and Hammann, Paul E., 3,782,062.

American Carrier Equipment: *See—*

Sweet, Phillip J.; Hamlet, Buck G.; and Sweet, David L., 3,782,753.
American Clinic, Inc.: *See*—
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American Cyanamid Company: *See*—
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Savides, Christos; and Cannelongo, Joseph Fredrick, 3,783,146.
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American Metal Climax, Inc.: *See*—
Hubbard, S. Eugene; and Biebuyck, Lawrence P., 3,781,973.
American Micro-Systems, Inc.: *See*—
Hoffmann, Kurt, 3,783,306.
American Optical Corporation: *See*—
Kantorski, Joseph W.; Smith, Donald A.; LaMarre, David A.; Hansen, Donald H.; and Thorburn, Milton R., 3,782,823.
American Potato Company: *See*—
Beck, Roderick; Harmon, James F.; Shatila, Mounir A.; Richins, David A.; and Lach, John, 3,782,969.
American Safety Equipment Corporation: *See*—
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AMF Incorporated: *See*—
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Anderson, John Dale, to Hesston Corporation. Spring-loaded gauge roller. 3,782,086, Cl. 56-344.000.
Anderson, Lawrence, to Medical Incorporated. Method of forming rotatable suturing member on a device. 3,781,969, Cl. 29-445.000.
Anderson, Ronald W.; and Henry, William B., to Balance Technology, Inc. Method and apparatus for balancing segmented parts. 3,782,202, Cl. 73-455.000.
Anderson, William T.; and Wallace, Robert A., Jr., to DoAll Company. Numerically controlled machine tool. 3,783,253, Cl. 235-151.110.
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Blackstein, Frederick Paul, to Atomic Energy of Canada, Limited. Thermally actuated and thermally sealed valve. 3,782,681, Cl. 251-11.000.
Blackwell, William L. Tap arrangement useful with measuring means. 3,782,407, Cl. 137-317.000.
Blake, Donald L., to Rockwell International Corporation. Textile spindle. 3,782,660, Cl. 242-46.210.
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Blatt, Leland F. Toggle clamp with detent open guided arm. 3,782,712, Cl. 209-228.000.
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Blevins, Maurice B., to Deering Milliken Research Corporation. Method and apparatus for detecting flaws in a fabric web. 3,783,296, Cl. 250-572.000.
Blohm, Thomas R.: *See*—
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Bloom, John A.; and Wakefield, Gene F., to Texas Instruments, Incorporated. Metal carbonitrile coatings. 3,783,007, Cl. 117-95.000.
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Boardman, Harry Lynn, to Boardman, H. L., Inc. Apparatus and methods for recording acceleration. 3,782,204, Cl. 73-492.000.
Bobb, Lloyd J., 1/2 to Pond, Chester C. and Speaker system and electrostatic speaker. . 3,783,202, Cl. 179-111.00r.
Boehringer Ingelheim G.m.b.H.: *See*—
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Boekkooi, Anton; Luursema, Meerten; and Tol, Taeke, to U.S. Philips Corporation. Ignition arrangement for a discharge tube. 3,782,258, Cl. 95-11.50r.
Boerner, Gerhard, to Bosch, Robert, Photokino G.m.b.H. Photographic apparatus with automatic diaphragm adjusting means. 3,782,255, Cl. 95-10.00c.
Bogachenko, Alexei Georgievich: *See*—
Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexei Georgievich; and Latash, Jury Vadimovich, 3,783,168.
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Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, to Agfa-Gevaert Aktiengesellschaft. Light-sensitive color photographic material with indazolone color coupler. 3,782,956, Cl. 96-100.000.
Boileau, Jacques, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Tire having carcass cords describing S-shaped and Z-shaped path. 3,782,441, Cl. 152-356.000.
Bolkey, Harold B.: *See*—
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Boll, Martin William; and MacRobbie, Robert Murray, to Richmond Screw Anchor Co. Concrete supporting form and a hanger therefor. 3,782,675, Cl. 249-23.000.
Boll, Martin William; and MacRobbie, Robert Murray, to Richmond Screw Anchor Co. Concrete supporting form and a hanger therefor. 3,782,676, Cl. 249-23.000.
Bolton, Richard H., to Eastman Kodak Company. Lens gimbaling and carriage release apparatus. 3,782,807, Cl. 350-255.000.
Boltz, Ronald R.; and Ojala, William K., to Ford Motor Company. Fuel injection apparatus. 3,782,639, Cl. 239-405.000.
Bomball, William A.; Drury, Raymond L., Jr.; Nevin, Charles S.; and Witmer, Ralph C., II, to Staley, A. E., Manufacturing Company. Vicinal halohydrins prepared from olefins containing carbon atoms. 3,782,987, Cl. 106-271.000.
Bondarenko, Alexandr Grigorievich: *See*—
Kozhevnikov, Sergei Nikolaevich; Tkachenko, Arkady Semenovich; Verderevsky, Vadim Anatolievich; Cherevik, Ivanovich; Alexeev, Jury Evgenievich; Bondarenko, Alexandr Grigorievich; and Vyshinsky, Valery Trofimovich, 3,782,163.
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Bosshard, Fritz. Book binding method and machine therefor. 3,782,306, Cl. 112-21.000.
Boulanger, Henry J., to Texas Instruments, Incorporated. Keyboard switch matrix assembly with improved guide means for reducing transfer of bounding motion to movable conductor. 3,783,205, Cl. 200-5.00a.
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Bowen, Kenneth, to Bowens Sales & Service Limited. Electronic flash lighting equipment. 3,783,338, Cl. 315-241.00p.
Bowens Sales & Service Limited: *See*—
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Boyd, James C., to National Cash Register Company, The. Electrical test apparatus including high gain amplifier circuit. 3,783,372, Cl. 324-158.00t.
Boylan, John R.: *See*—
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Brandenburg, Klaus, to U.S. Philips Corporation. Thermodynamic reciprocating machine with temperature-controlled fuel supply to burner. 3,782,120, Cl. 60-524.000.
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Brandis, Helmut; and Oppenheim, Rudolf, to Deutsche Edelstahlwerke GmbH. Ferritic heat-resistant steel. 3,782,925, Cl. 75-124.000.
Braun, Arthur R. Sealing sleeve. 3,782,865, Cl. 418-56.000.
Braun, Franz; Ribnitz, Peter; and Huber, Willi, to Gema AG Apparatebau. Powder spray gun for spraying different color powders from a power channel of a spray gun. 3,782,632, Cl. 239-112.000.
Braun, Thomas A. Safety closure. 3,782,575, Cl. 215-9.000.
Brede, Alexander, III; Talmage, Charles Robert; and Tuttle, Elvin E., to Motor Wheel Corporation. Method and apparatus for sintering annular compacts. 3,782,931, Cl. 75-224.000.
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Brekke, Carroll E. Light liquid skimmer. 3,782,553, Cl. 210-242.000.
Bretino, Oliver. Material handling roller. 3,782,530, Cl. 198-127.00e.
Breuer, David R., to TRW Inc. Analog transmission gate. 3,783,307, Cl. 307-243.000.
Bridges, William A.; and Harris, Charles L. Pest exterminating apparatus. 3,782,026, Cl. 43-124.000.
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Briggs, Eugene C.; and Reichel, Lee E., to Koehring Company. Compactor. 3,782,845, Cl. 404-133.000.
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Britnell, Douglas A., to Outboard Marine Corporation. Wheel assembly and method of manufacture. 3,782,779, Cl. 301-63.0pw.
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Broadt, David R.; and Armstrong, Donald E., to GTE Sylvania Incorporated. Selective actuating mechanism for percussive photoflash lamp array. 3,783,260, Cl. 240-1.300.
Brockly, Albert T., to Koppers Company, Inc. Silica welding apparatus. 3,782,631, Cl. 239-85.000.
Brockmeyer, Bernard J.; Goedlke, Edward R.; Schweig, Melvern A.; and Tracy, William R., to Security Fire Door Company. Dumbwaiter loading and unloading apparatus. 3,782,563, Cl. 214-16.40r.
Brodhead, Albert S., to Thetford Corporation. Method and apparatus for forming hollow plastic articles. 3,783,078, Cl. 156-499.000.
Brodie, Donald E.; Camorota, Mathew; and Jakowski, Charles R. Adjustable temperature indicators. 3,782,194, Cl. 73-343.00r.
Brodwin, Morris E. Apparatus for measuring electromagnetic radiation. 3,783,448, Cl. 343-100.0me.
Broes, Frank, to Stradco, Inc. Hydraulic propulsion system. 3,782,114, Cl. 60-221.000.
Broghammer, Werner, to Dual Gebruder Steidinger, Firma. Driving device for oppositely rotating tone shafts of a sound recording device. 3,782,656, Cl. 242-201.000.
Brook, Greville B.; and Iles, Roger F., to Fulmer Research Institute, Limited. Treatment of alloys. 3,783,037, Cl. 148-11.50r.
Brothers, Jack, 70% to Pentel, Jerry. Sealing means. 3,782,587, Cl. 220-46.00r.
Brown, Alexander M. Vehicular safety system. 3,782,756, Cl. 280-150.00b.
Brown, Donald, to Westinghouse Air Brake Company. Combined overspeed and safety interlock for vehicle control. 3,782,782, Cl. 303-13.000.
Brown Engineering Corporation: *See*—
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Brown, Gary G., to Northrop Corporation. Method of forming fusible reinforced polymer films and resulting composite structure. 3,783,068, Cl. 156-173.000.
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Brown, John, to Qantix Corporation. Front projection screen made from a transparent material. 3,782,805, Cl. 350-129.000.
Brown, Omar L., to Fraze, Ermal C. Easy opening container wall. 3,782,586, Cl. 220-54.000.
Brown, Richard O., to Tri-Men Manufacturing, Inc. Gaseous fuel burner. 3,782,887, Cl. 431-353.000.
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Brown, Robert Hulme, to C.A.V. Limited. Flashing lamp circuits. 3,783,337, Cl. 315-200.00a.
Brown, Ronald W. Dental pulp tester. 3,782,366, Cl. 128-21.00r.

Brown, Terence J., to USM Corporation. High frequency press with capacitive tuning. 3,783,217, Cl. 219-10.530.

Browne, Ronald O.; and Huffman, James L., to Brown Engineering Corporation. Waste discharge valve for toilet bowl. 3,781,920, Cl. 4-85.000.

Browning, Charles W. Knot tying device. 3,782,764, Cl. 289-17.000.

Brubaker, Wilson M. Hyperbolic field mass filter. 3,783,279, Cl. 250-292.000.

Bruck, George, to Avco Corporation. Waveform edge-shifting modulation system for video recording and reproduction. 3,783,410, Cl. 332-9.00r.

Brucken, Byron L., to General Motors Corporation. Heat-cleaning range construction. 3,782,360, Cl. 126-19.00r.

Brumfield, John C., to I-T-E Imperial Corporation. Positive on position indicator. 3,783,215, Cl. 200-153.00g.

Brundiek, Horst. Roller mill of the edge-runner type. 3,782,646, Cl. 241-117.000.

Bruno, Gerald A.: *See—*
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Bruno, Onofrio P. Delaying arm fuze principle. 3,782,289, Cl. 102-76.000.

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Buchi, Paul: *See—*
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Buck, Willard E. Simplified flat mirror scanner. 3,782,803, Cl. 350-7.000.

Budzich, Tadeusz, to Weatherhead Company, The. Brake anti-skid system. 3,782,785, Cl. 303-21.00f.

Budzyna, Edward S., to Rockwell International Corporation. Weft yarn control device. 3,782,421, Cl. 139-122.00w.

Buedel, Charles K.; and Caputo, James P., to GTE Automatic Electric Laboratories Incorporated. Data handling system maintenance arrangement for processing system trouble conditions. 3,783,255, Cl. 235-153.0ak.

Bullard, Haran W., to United States Steel Corporation. Manipulator. 3,782,162, Cl. 72-250.000.

Bumb, Frank C., Jr., to California Data Machines. Tape transport dual reel drive from single capstan. 3,782,659, Cl. 242-201.000.

Bumpstead, John, to Anthony Manufacturing Corporation. Part circle sprinkler. 3,782,638, Cl. 239-242.000.

Bundy, John E., to Dunlop, Limited. Electric motor speed control systems. 3,783,360, Cl. 318-327.000.

Bunker Ramo Corporation: *See—*
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Bunn, Clinton O., to Col-Mont Corporation. Method of and apparatus for the recovery of oil from water. 3,783,129, Cl. 210-30.000.

Burch, Daniel G.; Liang, Po-Lung; Pierce, Stanely L., Jr.; and Winn, William C., to Ford Motor Company. Mechanical torque sensor for a hydrokinetic torque converter. 3,782,186, Cl. 73-136.00r.

Burdette, Fredrick E.: *See—*
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Bures, Ladislav; Rajnoha, Jaroslav; Chrtek, Milan; Cerny, Miroslav; Doudlebsky, Ctibor; and Hybl, Josef, to Elitex, Zavody Textilniho Strojirenstvi. Method and arrangement for withdrawing air from spinning units. 3,782,095, Cl. 57-56.000.

Burg, Karlheinz: *See—*
Grossmann, Hans-Hermann; Burg, Karlheinz; and Wolters, Ernst, 3,783,145.

Burge, Harland L.; and Rodewald, Newell C., to TRW Inc. Foam cooling and acoustic damping for internal combustion engines. 3,782,116, Cl. 60-258.000.

Burge, Theodor, to Sika AG. Aluminum sulfate and calcium sulfate additives for improving the quality of cement, mortar and concrete and method for the production of such improved products. 3,782,991, Cl. 106-315.000.

Burger, Jacobus J.; De Jong, Gerrit; and Den Boer, Gradus J. J., to Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V. Method and a device for mixing and homogenizing of bulk material. 3,782,528, Cl. 198-36.000.

Burgin Electronic Grade Control, Inc.: *See—*
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Burgin, Luther B., to Burgin Electronic Grade Control, Inc. Slope control for paving machines. 3,782,844, Cl. 404-84.000.

Burt, Harold S.; and Carvalho, Vasco O., to Conveyor Systems, Inc. Apparatus for stacking empty pallets. 3,782,562, Cl. 214-6.00m.

Burt, Harold S., to Conco Inc. Product picking stacker crane system. 3,782,564, Cl. 214-16.40a.

Bury, Allen J., to Molex, Inc. Electrical connector housing with built-in strain relief. 3,783,436, Cl. 339-107.000.

Busse, Claus; and Schlitt, Karl, to European Atomic Energy Community. Temperature stabilization system. 3,782,449, Cl. 165-32.000.

Butter, Karl; Kaufmann, Michael; and Dederra, Helmut, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Regeneratively cooled thrust gas generator construction and method of making same. 3,782,118, Cl. 60-260.000.

B.V.S.: *See—*
Levin, Leon, 3,782,416.

Bye-Jorgensen, Jorgen; and Larsen, Gunnar, to Kruger, I. A/S. Decanting centrifuge for draining off water from sewage sludge. 3,782,623, Cl. 233-7.000.

Byland, Clarence H. Container in which a watthour meter and a meter socket are enclosably mountable and for readably displaying the watthour meter. 3,783,343, Cl. 317-107.000.

Byron, Melville, to Creative Patents & Products Limited. Controllable amusement device. 3,782,031, Cl. 46-244.00r.

Byrt, Graham Archie Bruce; Rosevear, Adrian Tuckwell; and Clarke, William Frank, to Masson Scott Thrissell Engineering Limited. Winding of continuous webs of sheet material. 3,782,665, Cl. 242-56.00r.

Cadcom, Incorporated: *See—*
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Cain, James P., to Marlboro Manufacturing, Inc. Hydraulic door closer. 3,781,943, Cl. 16-52.000.

Calgon Corporation: *See—*
Kirwin, Roscoe Conklin; Hart, William Lewis; and Antonetti, Joseph Michael, 3,782,546.

Calicchia, David J.; and Modan, Michael M., to General Electric Company. Removal of catalyst residue from polyphenylene ethers. 3,783,147, Cl. 260-47.0et.

California Data Machines: *See—*
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Callow, Donald Sidney; Capel, Brian John; and Evans, Charles Gervase Thorngate, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Social Services in Her Britannic Majesty's Government of the. Production of L-asparaginase. 3,78,102, Cl. 195-66.00a.

Calnek, Bruce W.; and Hitchner, Stephen B., to Cornell Research Foundation Inc. Highly potent, viable and stable cell-free virus preparations from cells infected with cell-associated viruses and method for obtaining the same. 3,783,098, Cl. 195-1.100.

Cambey, Leslie A., to Bell & Howell Company. Single magnet tandem mass spectrometer. 3,783,278, Cl. 250-299.000.

Camco, Incorporated: *See—*
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Cammi, Ferdinano. Anti-theft device. 3,782,862, Cl. 417-313.000.

Camorota, Mathew: *See—*
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Campagnuolo, Carl J; McKindra, Clayton D.; Sewell, Clinton J.; Villarroel, Fernando; and Woolston, Lionel L., to United States of America, Navy. Air-driven generator. 3,783,310, Cl. 310-15.000.

Campbell, James D., Jr.; and Maurey, Joseph E., to Maurey Manufacturing Corporation. Multiple groove pulley construction. 3,782,211, Cl. 74-230.17c.

Campbell, Scott V.: *See—*
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Campbell Soup Company: *See—*
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Campisi, Jimmy T. Binocular pocket. 3,782,614, Cl. 224-5.00v.

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Cannelongo, Joseph Fredrick: *See—*
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Canning, Thomas N., to United States of America, National Aeronautics and Space Administration. Heater-mixer for stored fluids. 3,782,698, Cl. 259-60.000.

Canning, Thomas N., to United States of America, National Aeronautics and Space Administration. Bimetallic fluid displacement apparatus. 3,782,699, Cl. 259-98.000.

Canon Kabushiki Kaisha: *See—*
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Kanayama, Mitsutoshi; and Toda, Takako, 3,782,819.
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Caputo, James P.: *See—*
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Caputo, James P.; and O'Toole, Gerald, to GTE Automatic Electric Laboratories Incorporated. Data handling system maintenance arrangement for rechecking signals. 3,783,256, Cl. 235-153.0ak.

Carboni, Victor B.; and Harrison, Paul, to Consolidated Foods Corporation. Positive registration labeling gun. 3,782,279, Cl. 101-288.000.

Carborundum Company, The: *See—*
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Cardin, Carl J., Sr. Locking hitch box cover. 3,782,761, Cl. 280-507.000.

Carey, Thomas H.: *See—*
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Carl, Robert C.: *See—*
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Carlick, Daniel J.; Marra, Frank; and Sprenger, Gerhard E., to Sun Chemical Corporation. Isocyanate-modified esters. 3,783,151, Cl. 260-471.00c.

Carlile, Hollis B., Jr.: *See—*
Felmann, Ted S.; Carlile, Hollis B., Jr.; and Blankenhorn, Charles F., 3,782,471.

Carlton, Jacqueline H. Camouflaged device for temporary face lifting. 3,782,372, Cl. 128-76.00b.

Carpenter, James H., Jr., to Carborundum Company, The. Apparatus for conditioning a granular material. 3,782,643, Cl. 241-60.000.

Carr, George W., to Pullman Incorporated. Adapter for marker light. 3,783,265, Cl. 240-8.200.

Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., to Gulf Research & Development Company. Process for reducing the arsenic content of gaseous hydrocarbon streams by use of supported lead oxide. 3,782,076, Cl. 55-74.000.

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Carter, Carol Y. Protective device for automobile door handle and locks. 3,782,149, Cl. 70-455.000.

Cartwright, Thomas Edward; and Wightman, John Clifford, to Ayres, Jones D., and Company Limited. Food dispensing apparatus. 3,782,428, Cl. 141-115.000.

Carvalho, Vasco O.: *See—*
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Cascade Corporation: *See—*
House, Marshall K.; and Train, Michael D., 3,782,409.

Cascione, Alexander, to General Foods Corporation. Soluble coffee antifoam and sludge suspending agents. 3,783,165, Cl. 426-329.000.

Casco, Ernest L.; and Kosic, Ralph F., to General Dynamics Corporation. Fixed spool winch mechanism. 3,782,692, Cl. 254-139.000.

Casler, David Henry, to International Business Machines Corporation. Optical scanning system. 3,783,295, Cl. 250-567.000.

Caterpillar Tractor Company: *See—*
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Cates, Robert E., to Marley Company, The. Hydraulic flow distribution system for multiple pass air cooled heat exchanger. 3,782,451, Cl. 165-38.000.

Cates, Robert L.; Mitchell, Robert M.; and Houx, James R., to Marley Company, The. Siphon breaking vent manifold for multiple pass heat exchanger. 3,782,453, Cl. 165-138.000.

Catlin, Kenneth A.: *See—*
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C.A.V. Limited: *See—*
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Cavanna, Cesar: *See—*
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Ceplon, Peter Sol. Spacer system for use with pipes employing tracer lines. 3,782,452, Cl. 165-135.000.

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Chambers, William W., to Robertshaw Controls Company. Voltage compensated electrical control system. 3,783,369, Cl. 323-22.0sc.

Chao, Pao J., to United States of America, Atomic Energy Commission, mesne. Method for producing evaporation inhibiting coating for protection of silicon-germanium and silicon-molybdenum alloys at high temperatures in vacuum. 3,783,031, Cl. 136-237.000.

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Chiles, Robert D.: *See—*
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Choe, Hyum Mook: *See—*
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Clark, George William Joseph; Golder, Gerald William; and Hart, Frederick Leslie, to GKN Sankey Limited. Doors for vehicles. 3,782,036, Cl. 49-502.000.

Clark, Ralph E., to International Telephone and Telegraph Corporation. Air conditioning structure. 3,782,448, Cl. 165-16.000.

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Cleary, Harold J.; Horton, James B.; and Melloy, George F., to Bethlehem Steel Corporation. Corrosion resistant aluminum-zinc coating and method of making. 3,782,909, Cl. 29-196.200.

Cleaveland, Charles M.; and Bould, Fred, to Westinghouse Electric Corporation. Mechanism for holding and levering large draw out type circuit breakers. 3,783,209, Cl. 200-50.0aa.
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Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See—*
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Compare, Giampiero, to General Electric Information Systems S.p.A. Method for preparing artwork to be used in manufacturing of printed circuits. 3,782,942, Cl. 96-41.000.
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Cook, Harry E.; and Jamosi, Francis L., to Ford Motor Company. Caliper retaining means for a motor vehicle disc brake. 3,782,509, Cl. 188-73.300.
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Costanza, Carl; Weber, Walter W.; Setlejewski, Frank W.; and Frystak, Richard, to Bell & Howell Company. Slide return mechanism. 3,782,816, Cl. 353-112.000.
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Cowen, William E., Jr., to United Industrial Engineering Corporation. Shaft driver device and conveyor system embodying the same. 3,782,515, Cl. 192-56.00c.
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Cox, Robert L. Adjustable router guide. 3,782,431, Cl. 144-144.500.
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Crosby, David Winston, to Imperial Chemical Industries Limited. Treatment of sheet materials. 3,782,899, Cl. 8-149.200.
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Cruse, William Marion. Remote lighting control system. 3,783,263, Cl. 240-3.000.
Csikor, Laszlo: *See—*
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Curcio, Michael P. Miter box. 3,782,235, Cl. 83-762.000.
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Daly, Daniel G.; and Ritacco, Gerardo A., to Bendix Corporation, The. Method for sealing anodized beryllium components to improve dielectric and corrosion resistant properties. 3,782,997, Cl. 117-49.000.
Dandois, Charles L., to Allis-Chalmers Corporation. External material lifters for rotary kilns and the like. 3,782,891, Cl. 432-118.000.
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Darnall, John C., to Times Mirror Company, The. Method for generating information to control the scanning beam of a display device. 3,783,331, Cl. 315-18.000.
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Depmeyer, Lothar, to Continental Gummi-Werke Aktiengesellschaft. Pneumatic vehicle tire. 3,782,440, Cl. 152-330.000.
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Donnell, Emerson B., Jr., to Egan Machinery Company. Web winder control. 3,782,650, Cl. 242-56.800.
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Donohue, Allen C.; Grote, Albert O.; and Tielborg, Bernard P., to Mini-Motor Speedways, Inc. Vehicle-to-track linkage. 3,782,293, Cl. 104-245.000.
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Giatti, Filippo, to AMF Incorporated. Storing and feeding device for cigarettes. 3,782,523, Cl. 198-22.00r.

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Gobel, Klaus. Bearing for support of roofing tiles. 3,782,060, Cl. 52-126.000.

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Goto, Kenjiro, to Mansei Kogyo Kabushiki Kaisha. Gas lighter. 3,782,882, Cl. 431-150.000.

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Graham-White Sales Corporation: *See—*
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Gregor, Lawrence V.; and Maissel, Leon L., to International Business Machines Corporation. Method for passivating semiconductor material and field effect transistor formed thereby. 3,783,119, Cl. 204-192.000.

Gries, Robert Joseph, to RCA Corporation. Instant-on circuit for a television receiver offering independent filament voltage control. 3,783,335, Cl. 315-30.000.

Griffing, Walter. Ceiling mounting arrangement. 3,782,065, Cl. 52-39.000.

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Grisar, Johann Martin; and Blohm, Thomas R., to Richardson-Merrell Inc. Hypoglycemic compositions containing benzhydryl- lactamimide derivatives. 3,783,162, Cl. 424-267.000.

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Hook, William R.; Hilberg, Ronald P.; and Dishington, Roland H., to TRW Inc. Double pulse laser. 3,783,403, Cl. 331-94.500.
Hook, William R.; and Hilberg, Ronald P., to TRW Inc. Laser Q-switching. 3,783,406, Cl. 331-94.500.
Hoop, James M., to United States of America, National Aeronautics and Space Administration. Method and apparatus for non-destructive testing. 3,782,177, Cl. 73-71.50u.
Hopkins, David L. Chamfer strip. 3,782,680, Cl. 249-188.000.
Hoppenstein, Reuben. Stereoscopic radiography techniques and apparatus. 3,783,282, Cl. 250-313.000.
Horchler, Stephen Alexander, to Euronics Limited. Golf balls. 3,782,730, Cl. 273-213.000.
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Horton, William E., III, to Westinghouse Electric Corporation. Electrical bushing assembly having a direct cable to conductor rod terminal assembly. 3,783,182, Cl. 174-145.000.
House, Marshall K.; and Train, Michael D., to Cascade Corporation. Line take-up assembly. 3,782,409, Cl. 137-355.170.
Housing Systems Corporation: *See—*
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Houston, John M., to General Electric Company. X-ray image intensifier input phosphor screen and method of manufacture thereof. 3,783,297, Cl. 250-483.000.
Houston, John M., to General Electric Company. X-ray image intensifier input phosphor screen and method manufacture thereof. 3,783,298, Cl. 250-483.000.
Houston, John M., to General Electric Company. X-ray image intensifier input phosphor screen and method of manufacture thereof. 3,783,299, Cl. 250-483.000.
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Howorth, Frederick Hugh, to Howorth Air Conditioning Limited. Fume extractors for the heaters of textile processing machines. 3,782,890, Cl. 432-59.000.
Hruby, John O., Jr., to Rain Jet Corporation. Flow control in ornamental fountains. 3,782,629, Cl. 239-17.000.
Huang, A. Ben; and Ducoffe, Arnold L. Electrostatic precipitating apparatus and method. 3,782,905, Cl. 23-284.000.
Hubbard, S. Eugene; and Biebuyck, Lawrence P., to American Metal Climax, Inc. Method of wall construction. 3,781,973, Cl. 29-526.000.
Hubbard, S. Eugene; and Biebuyck, Lawrence F. Moisture deflector for a wall system. 3,782,064, Cl. 52-97.000.
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Hudson, James A., to Campbell Soup Company. Rotary extruder and loader. 3,782,878, Cl. 425-314.000.
Huffman, Donald; and Majewski, Richard M., to Coleco Industries, Inc. Football game with magnetic control rods. 3,782,726, Cl. 273-94.00r.
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Hughes, George H., to National Distillers and Chemical Corporation. Stitched non-woven textile fabric having varied pattern of raised ribs on one face. 3,782,137, Cl. 66-192.000.
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Huhta-Koivisto-Esko Ensio; and Saari, Risto Vaino Juhani. Method and apparatus for distilling freshwater from seawater. 3,783,108, Cl. 203-11.000.
Huizinga, Ebe. Transparent sheet. 3,782,331, Cl. 119-5.000.
Huller, Karl, Gesellschaft mit beschrankter Haftung: *See—*
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Humbert, John E.: *See—*
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Hungerford, Gordon P., to Mobil Oil Corporation. Method of making a coated tape, and particularly smooth surface magnetic recording tape. 3,783,023, Cl. 117-237.000.
Hunt, Harold G. Destratification system and air diffuser unit for user therein. 3,782,701, Cl. 261-65.000.
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Hurford, Winslow Leroy, to RCA Corporation. Fade-to-black video signal processing apparatus. 3,783,188, Cl. 178-6.800.
Hurst, Alan R.; and Mirasol, Salustiano S., to Phillips Petroleum Company. Heat sealed, readily peelable or tearable structure suitable for closures, labels, packaging, etc. 3,783,089, Cl. 161-166.000.
Hurtmanns, Heinz: *See—*
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Igwe, Godwill M. Camera mount. 3,782,671, Cl. 248-183.000.
Iijima, Yoo: *See—*
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Intrator, Alexander M.; and Adams, Norbert, to General Electric Company. Process of making thermoelectrostatic bonded semiconductor devices. 3,781,978, Cl. 29-589.000.
Inukai, Takashi; and Nakamura, Takao, to Chisso Corporation. Method for producing unsaturated carboxylic acid esters. 3,783,136, Cl. 260-410.90r.
Iprofil "Technolemn"-Industria Produselor Finite Din Lemn Timisoara: *See—*
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Irick, Stephen C., to United States of America, National Aeronautics and Space Administration. Ejectable underwater sound source recovery assembly. 3,783,443, Cl. 340-5.00r.
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Irving, John Anderson, to Findlay, Irvine Limited. Apparatus for providing an indication of the imminence of ice-formation. 3,782,130, Cl. 62-128.000.
Isaacs, Harold. Self-supporting nesting cart. 3,782,746, Cl. 280-33.99H.
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Ito, Shoji; Okamoto, Mitsuhiro; and Hasegawa, Katsumi, to Toray Industries, Inc. Method for winding a plural number of yarns and an apparatus therefor. 3,782,648, Cl. 242-35.50r.
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Jacobs, Gordon B., to General Electric Company. Apparatus for measuring vibration in a moving object. 3,782,176, Cl. 73-71.300.
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Jafs, Daniel; Marttala, Tapani; Christiansen, Kai; and Hakulin, Bertel, to Ahlstrom, A. Osakeyhtio. Process for recovering turpentine and heat in connection with the evaporation of black lye. 3,783,095, Cl. 162-16.000.
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Jerpe, James H. Apparatus for chromatographic separations. 3,782,078, Cl. 55-197.000.
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Jones, Donnie Roland, to Bowles Fluidics Corporation. Self contained fluidic level sensor. 3,782,323, Cl. 116-118.00r.
Jones, James J., to Texas Instruments, Incorporated. Programmed oscillator circuit and fixed threshold variable duty cycle pulse generator. 3,782,783, Cl. 303-21.00p.
Jones, Kenneth W.; and Richie, Edward. Non-lethal projectile and launcher therefor. 3,782,286, Cl. 102-41.000.
Jones, Roger L. Safety paper carton opening blade holder. 3,781,988, Cl. 30-2.000.
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Justus, Edgar J., to Beloit Corporation. Hydrodynamically loaded web press with slipper bearing shoes. 3,783,097, Cl. 162-358.000.
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Kammerer, Heinz; and Moller, Heinz, to Bosch, Robert, G.m.b.H. Capacitive type ignition arrangement for internal combustion engines. 3,782,353, Cl. 123-148.00e.
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, to Nippondenso Co., Ltd. Intake air temperature automatic adjusting device and air cleaner with such device for internal combustion engines. 3,782,349, Cl. 123-122.00d.
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Kanayama, Mitsutoshi; and Toda, Takako, to Canon Kabushiki Kaisha. Microfilm driving device for macriofiche camera. 3,782,819, Cl. 355-54.000.
Kanazawa, Yasunori; and Eto, Yoshizumi, to Hitachi, Ltd. Holography using multiple diffused object illumination beams. 3,782,804, Cl. 350-3.500.
Kanda, Masami. Contact lens polishing system. 3,782,045, Cl. 51-124.001.
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Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, to Kantos Seiki Company, Ltd., Hitachi Cable Ltd. and Nippon Tanshi, Ltd. Electrical connection. 3,783,440, Cl. 339-217.00s.
Kasa, Joseph. Power cord slack takeup reel. 3,782,654, Cl. 242-100.100.
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Katsuyama, Shigeo; Atsumi, Asami; Masahide, Watanabe; Tsutomu, Sato; Toshiaki, Norimatsu; and Eizo, Nakajima, to Asahi Kasei Kogyo Kabushiki Kaisha. Apparatus for the scouring of wet-spun filament bundles. 3,781,950, Cl. 28-1.0sm.

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Kawasaki, Takuji; Ogihara, Shoki; and Watanabe, Mikio, to Sakai Senl Kogyo Kabushiki Kaisha and Hokuriku Kakoki Kabushiki Kaisha. Apparatus for treating cloth with liquid. 3,782,138, Cl. 68-177.000.

Kawase, Tsuyoshi: *See—*
Kimura, Shinji; Ichihara, Izumi; and Kawase, Tsuyoshi, 3,783,020.

Keck, Donald Bruce: *See—*
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Keller, Harry Nevin; and Pfahnl, Arnold, to Bell Telephone Laboratories Incorporated. Technique for the fabrication of an air isolated crossover. 3,783,056, Cl. 156-3.000.

Kelly, Henry J., to Lee, Raymond, Organization, Inc., The. Toy operated by drinking straw. 3,782,028, Cl. 46-41.000.

Kelsey-Hayes Company: *See—*
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Kelso, James W., to Cintex Products, Inc. Insulating cap. 3,783,177, Cl. 174-87.000.

Kennametal, Inc.: *See—*
Jones, Dennis G.; and McCreery, James F., 3,781,956.

Kennecott Copper Corporation: *See—*
Platzke, Ronald N.; and Spedden, Henry Rush, 3,783,158.

Kennedy, Maurice E.; and Golbeck, Bernard J., to Lewandowski, Raymond F. Oak Industries Inc. Multiple circuit control pushbutton switch assembly with improved pushbutton actuator latch bar mechanism and movable contacts. 3,783,204, Cl. 200-5.0eb.

Kenney, John Thomas, to Western Electric Company, Incorporated. Method of depositing a metal on a surface of a nonconductive substrate. 3,783,005, Cl. 117-212.000.

Kenon Corporation: *See—*
Panico, Richard, 3,782,889.

Kerst, Al F.; and Douros, John D., Jr., to Gates Rubber Company, The. Diethyl allyl phosphonate as an antimicrobial agent. 3,783,160, Cl. 426-219.000.

Kessler, Milton. Screw cap with safety cover. 3,782,604, Cl. 222-153.000.

Kester, Charles E.; and Hughes, Thomas E., to Coleman Company, Inc., The. Removable clip with rotary projectile cylinder for a gun. 3,782,359, Cl. 124-48.000.

Ketteringham, John M.: *See—*
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Khalafalla, Sanaa E.: *See—*
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Khraschevsky, Vitaly Alexeevich: *See—*
Lavrinenko, Vyacheslav Vasilievich; Miroshnichenko, Anatoly Petrovich; and Khraschevsky, Vitaly Alexeevich, 3,781,955.

Kielma, Ervin J., to A & A Manufacturing Company, Inc. Carrier link mechanism for flexible supply lines. 3,782,670, Cl. 248-51.000.

Kimberly-Clark Corporation: *See—*
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Kimura, Shinji; Ichihara, Izumi; and Kawase, Tsuyoshi, to Kobe Steel, Ltd. Anti-hygroscopic arc welding coated electrode and the process for producing the same. 3,783,020, Cl. 117-206.000.

Kinderman, Abraham S. Apparatus for protecting and displaying tinsel garland and the like. 3,782,538, Cl. 206-45.120.

King, Eugene: *See—*
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King, Randall N.; and Skelly, David W., to General Electric Company. Method of making a thin cadmium oxide electrode with an ionic polymer and subsequent removal of the polymer. 3,783,025, Cl. 136-76.000.

King, Robert S. Apparatus for mixing and treating fluids. 3,782,702, Cl. 261-87.000.

Kirkland, Joseph J., to Du Pont de Nemours, E. I., and Company. Completely porous microspheres for chromatographic uses. 3,782,075, Cl. 55-67.000.

Kirkpatrick, Milton E.; and Mendelson, Ralph A., to TRW Inc. Method for producing and evaluating alloys. 3,782,926, Cl. 75-129.000.

Kirsch, Jordan. Timer having a color-display system. 3,782,104, Cl. 58-50.00r.

Kirschmann, John D. Valve mechanism for liquid applicator. 3,782,640, Cl. 239-571.000.

Kirschner, Leon: *See—*
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Kirshfeld, Karl Teodorovich: *See—*
Sablev, Leonid Pavlovich; Dolotov, Jury Ivanovich; Getman, Leonid Ivanovich; Gorbunov, Valentin Nikolaevich; Goldiner, Evgeny Georgievich; Kirshfeld, Karl Teodorovich; and Usov, Vladislav Vasilievich, 3,783,231.

Kirwin, Roscoe Conklin; Hart, William Lewis; and Antonetti, Joseph Michael, to Calgon Corporation. Cationic conditioning agents for potash flotation. 3,782,546, Cl. 209-166.000.

Kiszewski, Robert F., to Microdot, Inc. Control system. 3,782,250, Cl. 91-433.000.

Kitayama, Minoru; Nakamura, Motoharu; Inaoka, Masanobu; and Okada, Hiroshi, to Nippon Steel Corporation. Method for forming an insulating film of good punching characteristics on electrical steel sheets and strips. 3,783,034, Cl. 148-6.200.

Kittredge, Raymond E., to Singer Company, The. Sky fill-in projector. 3,782,815, Cl. 353-29.000.

Kizler, Harald: *See—*
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Klaeger, Joseph H. Pneumatic counter balanced oil well pump actuator utilizing an improved snifter valve. 3,782,247, Cl. 91-306.000.

Klein, Gerald I.; and Mittelman, Edward R., to Westinghouse Electric Corporation. Liquid dielectric cooled terminations. 3,783,414, Cl. 333-22.00f.

Klein, Robert I.; and Hogg, Walter R., to Coulter Electronics, Inc. Particle analyzing system for Coulter particle device and method. 3,783,247, Cl. 235-92.0pc.

Klein, Walter, to Didier-Werke A.G. Silica bricks. 3,783,171, Cl. 13-35.000.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*.
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Klockner-Werke Aktiengesellschaft: *See—*
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Kneubuehler, Werner: *See—*
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Knickerbocker, Barbara. Inflatable therapeutic device. 3,781,931, Cl. 5-337.000.

Knight, James W., to CPC International Inc., mesne. Method of upgrading starch-containing crude gluten. 3,782,964, Cl. 426-364.000.

Kobayashi, Akira, to Aisin Seiki Kabushiki Kaisha. Vane-type rotary engine. 3,782,110, Cl. 60-39.430.

Kobayashi, Motoki; Sakaguchi, Masaoki; and Maeda, Masahiro, to Nissan Shatai Co., Ltd. Main pole of a fork lift truck. 3,782,502, Cl. 187-9.000.

Kobe Steel, Ltd.: *See—*
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Kober AG: *See—*
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Kobinger, Walter: *See—*
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Kochevar, Rudolph J. Sinker putty mounting member. 3,782,025, Cl. 43-44.900.

Koczela, Louis J.: *See—*
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Koehring Company: *See—*
Briggs, Eugene C.; and Reichel, Lee E., 3,782,845.

Koester, Waldemar; and Huber, Reinhold, to Kober AG. Movable and tiltable bearing, especially for bridges. 3,782,788, Cl. 308-3.00r.

Koester, Waldemar; and Huber, Reinhold, to Kober AG. Tiltable bearing, especially for bridges. 3,782,789, Cl. 308-3.00r.

Koger, John W.; and Lawrence, Eugene J., to United States of America, Atomic Energy Commission. Electroless coating of molybdenum on stainless steels. 3,783,014, Cl. 117-130.00r.

Kohlmuller, Hans: *See—*
Cnobloch, Herbert; Kohlmuller, Hans; and Marchetto, Manfredo, 3,783,028.

Kohlmuller, Hans, to Siemens Aktiengesellschaft. Water depletion unit for fuel cells. 3,783,107, Cl. 202-160.000.

Kohn, Erwin; Bickl, Horst; Pfeifer, Josef; and Schrecke, Hans-Joachim, to Agfa-Gevaert Aktiengesellschaft. Combined reading and enlarging apparatus for microfilm. 3,782,820, Cl. 355-45.000.

Kohn, Karl Walter; and Corein, Marcel Pierre Ernest Marie, to Societe d'Etudes de Machines Thermiques. Internal-combustion-engine valve-rocker and valve-stem lubrication circuit. 3,782,357, Cl. 123-196.00s.

Kolano, Frank J., to Westinghouse Electric Corporation. Electric arc furnace apparatus having a shaped magnetic field for increasing the utilized area of the arcing surface of an electrode and improving the heating efficiency. 3,783,170, Cl. 13-18.000.

Kolar, Vaclav, to Ceskoslovenska akademie ved. Device for mass and heat transfer. 3,782,703, Cl. 261-112.000.

Kolyer, John M.; and Kveglis, Albert A., to Allied Chemical Corporation. Monfunctionally-blocked tris (2-hydroxyalkyl) isocyanurates and polyesters thereof. 3,783,150, Cl. 260-248.0ns.

Komimiya, Yasuo: *See—*
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Komor, Joseph A., to GAF Corporation. Air entrainment compositions for cement mortars. 3,782,983, Cl. 106-88.000.

Kondo, Isao: *See—*
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Burger, Jacobus J.; De Jong, Gerrit; and Den Boer, Gradus J. J., 3,782,528.

Koper, Robert, to Wild Heerbrugg Limited. Automated stereo-photogrammetric instrument. 3,783,294, Cl. 250-558.000.

Koppers Company, Inc.: *See—*
Brockly, Albert T., 3,782,631.
Newhall, Henry S., 3,783,169.

Korber, Karl-Heinz; Steiert, Hermann; and Dehnert, Heinz, to Hugo Sachs Electronik KG. Apparatus for measuring muscular contractions and the like. 3,782,188, Cl. 73-141.0ab.

Kordesch, Karl V., to Union Carbide Corporation. Air-depolarized cells utilizing a cyanate- or thiocyanate-containing electrolytes. 3,783,026, Cl. 136-86.00a.

Korpman, Ralf, to Johnson & Johnson. Extrusion process for pressure sensitive adhesive sheets and tapes. 3,783,072, Cl. 156-244.000.

Korr, Peter; Pollark, Gottfried; and Sternjakob, Rolf, to Tehalit Kunststoffwerk GmbH, Firma. Cable installation conduit with L and T joints. 3,782,420, Cl. 138-156.000.

Kosic, Ralph F.: *See—*
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Koskinen, Sulo, to Anaconda Company, The. Transformer. 3,783,415, Cl. 333-25.000.

Koslo, Robert Carl: *See—*
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Kostan, Charles G., to Ford Motor Company. Signal generating mechanism. 3,783,314, Cl. 310-70.000.

Kotoc, Stefan, to Ustav Pro Vyzkum Motorovych Vozidel. Method and apparatus for generating waste gases. 3,782,111, Cl. 60-39.690.

Kowalcheck, Harry: *See—*
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Kozhevnikov, Sergei Nikolaevich; Tkachenko, Arkady Semenovich; Verderevsky, Vadim Anatolievich; Cherevik, Ivanovich; Alexeev, Jury Evgenievich; Bondarenko, Alexandr Grigorievich; and Vyshinsky, Valery Trofimovich. Mechanism of turning a billet of tube coldrolling mills. 3,782,163, Cl. 72-250.000.

Kozlowski, Tadeusz; and Pemberton, Ernest H., to Owens-Illinois, Inc. Notch sensing control system for a partition assembly machine. 3,782,252, Cl. 93-37.00r.

Kraft, Arthur A., to Vari-Systems Inc. Variable power actuator and switch therefor. 3,783,363, Cl. 318-481.000.

Krainin, Stanley. Talking book, an educational toy with multi-position sound track and improved stylus transducer. 3,782,734, Cl. 274-9.00r.

Krall, Harry J., to Eastman Kodak Company. Photographic product with photographically transparent magnetic recording medium. 3,782,947, Cl. 96-67.000.

Kramer, Dean C., to Martinson Mfg. Co., Inc. Pitless well adaptor. 3,782,462, Cl. 166-88.000.

Kramer, Walter W., to Fuller Company. Support pillar for fluid bed grid. 3,782,903, Cl. 23-284.000.

Krauer, Otto Albert, to Otis Elevator Company. Control system for a reluctance type motor. 3,783,358, Cl. 318-166.000.

Krawagna, Alois A. Stable closure for flexible bags. 3,782,601, Cl. 222-107.000.

Krawczyk, Miecislaus. Reverse flow lawn sprinkler hose assembly. 3,782,635, Cl. 239-199.000.

Kremer, Phillip A., to Picker Corporation. X-ray image brightness stabilizer. 3,783,286, Cl. 250-401.000.

Kriedt, Frederick A.; Sundstrom, Thomas H.; and Walko, Richard. Submersible salvage unit. 3,782,317, Cl. 114-52.000.

Kruger, I. A/S: *See—*
Bye-Jorgensen, Jorgen; and Larsen, Gunnar, 3,782,623.

Kuffer, Philippe, to Montres Rolex S.A. Timepieces with torsion resonators. 3,782,101, Cl. 58-23.00v.

Kuhlman Corporation: *See—*
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Kuhlman, Norma Jean. Finger exercising device. 3,782,719, Cl. 272-67.000.

Kuhn, Robert R.: *See—*
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Kuhn, Stephanus Hendrik; Freeme, Charles Richard; Beulink, Rombout; and Basson, John Edgar Baron, to South African Inventions Development Corporation. Measuring transient loads. 3,782,486, Cl. 177-210.000.

Kulik, Joseph S., Jr.: *See—*
McNeill, Frederick J.; Kulik, Joseph S., Jr.; and Smith, David L., Sr., 3,783,329.

Kulzer, Leonard J. Method and apparatus for reconditioning cylinder heads. 3,782,847, Cl. 408-1.000.

Kumpf, Leonard F.: *See—*
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Kundig, Konrad J. A.: *See—*
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Kurreck, Manfred: *See—*
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Kurtz, Harvey N.; and Gourley, Charles A., to Litton Systems, Inc. Solderless electrical connection system. 3,783,433, Cl. 339-17.00c.

Kurtz, Leonard D.: *See—*
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Kusama, Takeo; and Hyodo, Takashi, to Hitachi, Ltd. Facsimile transmission system. 3,783,187, Cl. 178-6.000.

Kuwada, James T., to Rogers Engineering Co., Inc. Geothermal hot water recovery process and system. 3,782,468, Cl. 166-267.000.

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La Mere Industries Inc.: *See—*
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Lach, John: *See—*
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Lackner, Helmut G., to United States of America, National Aeronautics and Space Administration. Method and apparatus for checking the stability of a setup for making reflection type holograms. 3,782,825, Cl. 356-106.000.

Lafond, Christian; and Dunand, Jean Jacques, to Thomson-CSF. Resonator for gyromagnetic-resonance spectrometer. 3,783,419, Cl. 333-82.00a.

Lagergren, Richard E.: *See—*
Jensen, Donald F.; Lagergren, Richard E.; Lentz, Robert C.; Schaffer, Robert R.; and Reidenbach, John R., 3,783,243.

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Lale, Walter G. Fluid flow controller. 3,782,682, Cl. 251-61.100.

LaMarre, David A.: *See—*
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Lambda Instruments Company: *See—*
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Lampe, Warren R., to General Electric Company. Method of obtaining room temperature vulcanizable silicone rubber composition. 3,782,379, Cl. 128-152.000.

Land, Edwin H.; and Weed, Lucretia, to Polaroid Corporation. Photographic system employing film margin rails. 3,782,263, Cl. 95-89.00r.

Land, Edwin H., to Polaroid Corporation. Method of manufacturing photographic film unit. 3,783,075, Cl. 156-309.000.

Landwehrkamp, Hans; and Hoeber, Gerhard, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Apparatus for piecing-up yarn in an open-end-spinning device. 3,782,089, Cl. 57-34.00r.

Lane, Frances & John S., Limited: *See—*
MacMaster, Malcolm John; and MacMaster, Kenneth John George, 3,782,644.

Lang, Karl; and Steiner, Hans, to Mettler Instrumente AG. Stackable housings for electronic equipment. 3,782,589, Cl. 220-97.00r.

Lange, Gunter; and Ulderup, Jorgen, to Lemforder Metallwaren AG. Sliding bearing particularly for universal joints in shifting and steering mechanisms of motor vehicles. 3,782,797, Cl. 308-238.000.

Lange, Zelman Iosifovich: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielevich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

Langieri, Michael, Jr.; and Meyers, Michael, to Questor Corporation. Chip holder and dispenser. 3,782,594, Cl. 221-274.000.

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Larkin, John J.: *See—*
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Latash, Jury Vadimovich: *See—*

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Latham, S. Duane; Seeley, Robert D.; Reitz, Henry F.; and Reitz, Ronald F., to Anheuser-Busch, Incorporated. Omelet preparing machine and process. 3,782,269, Cl. 99-427.000.
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Laurenti, Alfred. Unitary, double ended chuck or coupling. 3,782,741, Cl. 279-62.000.
Lauterbach, Herbert G.: *See—*
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Lavrinenko, Vyacheslav Vasilievich; Miroshnichenko, Anatoly Petrovich; and Khraschevsky, Vitaly Alexeevich. Method of making a piezoelectric element. 3,781,955, Cl. 29-25.350.
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Le Marchand, Claude, to Societe Anonyme D.B.A. Spring brake with manual release mechanism. 3,782,251, Cl. 92-63.000.
Le Peuvedic, Jean-Pierre: *See—*
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Le Suer, William M., to Lubrizol Corporation, The. Calcium-containing dispersions and process. 3,783,131, Cl. 252-34.700.
Leach, Irby H. Flame proofing method. 3,782,476, Cl. 169-1.00a.
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LeBlanc, Joseph A., Jr., to Componetrol, Inc., mesne. Rotary vane pump. 3,782,868, Cl. 418-83.000.
Lee, Dennis D.; and Gilchrist, Robert F., to Claw Corporation. Pipe couplings. 3,782,683, Cl. 251-148.000.
Lee, Harold Barry, to Bond's-Wear Pty. Limited. Method and apparatus for manufacturing articles of clothing. 3,782,309, Cl. 112-121.290.
Lee, Mark W. Trenching tool. 3,782,770, Cl. 294-49.000.
Lee, Martin, to Pantek Corporation, mesne. Apparatus for activating a remotely located device in response to the ringing of a called telephone subscriber station. 3,783,193, Cl. 179-2.00a.
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Johnson, John L., Jr., 3,783,303.
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Lee, Shung-Yan, to Du Pont de Nemours, E. I., and Company. Photopolymerizable compositions capable of yielding reverse images. 3,782,951, Cl. 96-86.00p.
Leen, Morris W. Weight annunicator. 3,782,487, Cl. 177-245.000.
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Leger, Geary L., to Schlumberger Technology Corporation. Method and apparatus for use in investigating earth formations. 3,783,444, Cl. 340-150.0tm.
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Leon, Henry A.; Connolly, James P.; Hitchman, Maurice J.; and Humbert, John E., to United States of America, National Aeronautics and Space Administration. Automatic real-time pair-feeding system for animals. 3,782,334, Cl. 119-54.000.
Lerner, Irwin S., to Robins, A. H., Company, Incorporated. Intrauterine contraceptive device. 3,782,376, Cl. 128-130.000.
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Clarke, Terence James Leonard; Quarmby, Robert Charles; and Lett, Philip Michael, 3,782,425.
Levashov, Gennady Vasilievich; Kalashnikov, Sergei Nikiforovich; Glukhov, Ivan Ivanovich; and Shemyrev, Mikhail Pavlovich. Machine for cutting straight-tooth bevel gears. 3,782,244, Cl. 90-9.000.
Lever Brothers Company: *See—*
Van Roon, Johannes Hendrik, 3,782,971.
Levey, John, 40% to Levey, Sandra and 40% to Levey, Robert. Adjustable sanitizer dispenser for toilet tank. 3,781,926, Cl. 4-228.000.
Levey, John, 40% to Miller, Sandra Levey and 40% to Levey, Robert. Combination lockable closure spout. 3,782,577, Cl. 215-98.000.
Levey, Robert: *See—*
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Levey, Sandra: *See—*
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Levin, Leon, to B.V.S. Apparatus for filling and emptying reservoirs. 3,782,416, Cl. 127-590.000.
Levy, Eliezer, to Filigree Arts, Inc. Ornamental element. 3,783,081, Cl. 161-7.000.
Lewandowski, Raymond F.: *See—*
Kennedy, Maurice E.; and Golbeck, Bernard J., 3,783,204.
Lewis, Charles B.: *See—*
Cranston, Albert E., III; and Lewis, Charles B., 3,782,772.
Lewis, John G., to Emerson Electric Co. Centrifugal actuated mechanism with separable mounting bracket. 3,782,669, Cl. 248-14.000.
Lewis, Richard L., to Bendix Corporation, The. Single fluid booster and system. 3,782,781, Cl. 303-9.000.
Liang, Po-Lung: *See—*
Burch, Daniel G.; Liang, Po-Lung; Pierce, Stanely L., Jr.; and Winn, William C., 3,782,186.
Libby, Ross C. Continuously variable oscillator and frequency modulator. 3,783,411, Cl. 332-9.00r.
Libby, Ross C., to MI³, Inc. Active band pass filter having continuously variable pass band. 3,783,412, Cl. 332-9.00r.
Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Ressel, Franz; and Ritter, Andreas, 3,781,975.
Lide, Basil M., III; and Kowalcheck, Harry, to Westinghouse Electric Corporation. Null balance indicating and control apparatus and phase sensitive pulse responsive circuits for use therein. 3,783,356, Cl. 318-672.000.
Lieberman, Irving, to Whittaker Corporation. Method of explosively expanding sleeves in eroded tubes. 3,781,966, Cl. 29-401.000.
Lietzke, Heinz, to Schiess Aktiengesellschaft. Hydraulic lifting device for lifting heavy loads. 3,782,691, Cl. 254-106.000.
Liggett & Myers Incorporated: *See—*
Means, Richard E.; Kallianos, Andrew G.; and Tenney, Kinwood P., 3,782,391
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Powell, James B.; Yeiser, Beverly G.; and Lightner, Joseph R., 3,782,398.
Likas, Algerd C.; and Hamilton, Douglas D. Combined boom, grapple and bunk assembly. 3,782,567, Cl. 214-77.000.
Lindemann, Hans; and Lindemann, Wolfgang. Method and machine for scalping rod stock. 3,782,228, Cl. 82-20.000.
Lindemann, Wolfgang: *See—*
Lindemann, Hans; and Lindemann, Wolfgang, 3,782,228.
Linder, Ernst, to Bosch, Robert, G.m.b.H. Combustion engine construction. 3,782,348, Cl. 123-119.00a.
Lindgren, Erik A. Double isolated shielding enclosure. 3,783,174, Cl. 174-35.0ms.
Linebrink, Kail L.; and Stearns, Charles F., to United Aircraft Corporation. Fuel control. 3,782,109, Cl. 60-39.28t.
Lingenfelter, Robert C., to Westinghouse Electric Corporation. Tap changing apparatus with improved contact structure to eliminate electrical fields across open interrupter switches. 3,783,206, Cl. 200-11.0tc.
Lingens, Paul; and Martin, Gerhard, to Dynamit Nobel Aktiengesellschaft. Defined disintegration of the casing of an explosive element. 3,782,283, Cl. 102-23.000.
Lipschutz, Paul; and Leroy, Jean, to Societe d'Exploitation des Brevets NEIMAN Neuilly. Anti-theft devices. 3,782,493, Cl. 180-114.000.
Liquid Controls Corporation: *See—*
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List, Hans: *See—*
Thien, Gerhard; Skatsche, Othmar; and Fachbach, Heinz, 3,782,496.
Little, Vincent C.: *See—*
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Litton Systems, Inc.: *See—*
Kurtz, Harvey N.; and Gourley, Charles A., 3,783,433.
Livengood, Paul; and Christophel, Reuben L., to Shenandoah Manufacturing Co., Inc. Incinerator with stack transition chamber. 3,782,301, Cl. 110-8.00c.
Lloyd, Evan M.: *See—*
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Lochet, Jean A.: *See—*
Bick, Maurice; and Lochet, Jean A., 3,783,111.
Locke, Reginald A. J.: *See—*
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Lohmer, Karl: *See—*
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Lohoff, Hermann, to CTC GmbH. Heat-exchange system. 3,782,132, Cl. 62-260.000.
Loner, Aldo, to U.S. Philips Corporation, mesne. Dry shaver with selectively engagable short and long hair cutters. 3,781,990, Cl. 30-34.100.
Long, Thomas R.; Miller, Warren H., Jr.; and Campbell, Scott V., to Digi-Data Corporation. Device for selecting data cards. 3,782,716, Cl. 271-99.000.
Lontz, John Frank; and D'Alonzo, Constance Anthony; deceased (by Bryant, Shirley; executrix). Dietetic salt substitute composition. 3,782,974, Cl. 426-229.000.
L'Oreal: *See—*
Morane, Bruno P., 3,782,002.
Lorenz, Jerome L., to Ranco Incorporated. Heat motor. 3,782,122, Cl. 60-531.000.
Love, Gordon David, to Silverson Machines, Limited. Mixing devices. 3,782,696, Cl. 259-6.000.
Lovett, Daniel B.: *See—*
Alter, Henry Ward; and Lovett, Daniel B., 3,783,292.
Loving, Jerry P.: *See—*
Batorewicz, Valeria; and Loving, Jerry P., 3,782,063.
Lowe, Dennis. Collapsible revolving door having pairs of pivot detents at the top and bottom of each leaf. 3,782,035, Cl. 49-44.000.
Lower, Kenneth Eugene: *See—*
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Loyd, Patrick V. Breast pump. 3,782,385, Cl. 128-281.000.
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Lucchesi, Oreste J., to Searle, G. D., & Co. Analog window for scintillation camera. 3,783,395, Cl. 328-147.000.
Luchok, John; and Wooding, Patrick J., to Consarc Corporation. Method of casting a plurality of ingots in a consumable electrode furnace. 3,782,445, Cl. 164-52.000.
Ludwig, Lawrence P.; and Strom, Thomas N., to United States of America, National Aeronautics and Space Administration. Spiral groove seal. 3,782,737, Cl. 277-27.000.
Luedicke, Eduard, to RCA Corporation. Magnetically-focussed cathode-ray tube comprising a tilted and skewed off-axis electron gun. 3,783,326, Cl. 313-83.000.
Luginbuhl, Pierre, to Schweizerische Industrie-Gesellschaft. Device for feeding glue from a glue container to a glue applying head. 3,782,599, Cl. 222-51.000.
Lund, Alvin R.; and Kaufman, Jack, to Markstone Manufacturing Company. Connection between electrical conduit and enclosure, and method. 3,783,176, Cl. 174-65.00r.
Luongo, Michael C., to Westinghouse Electric Corporation. Electric power plant system and method for operating a steam turbine especially of the nuclear type with electronic reheat control of a cycle steam reheater. 3,782,113, Cl. 60-73.000.
Luthi, Oscar, to Improved Machinery Inc. Drum including annular grid structure. 3,781,957, Cl. 29-121.00r.
Lutz, Friedrich, to Ruti Machinery Works Ltd. Arrangement for braking the picker stick of a loom. 3,782,423, Cl. 139-166.000.
Luursema, Meerten: *See—*
Boekkooi, Anton; Luursema, Meerten; and Tol, Taeke, 3,782,258.
Luwa AG: *See—*
Gasser, Hermann; and Plezer, Imre, 3,782,617.
Lybbert, Lyle Dean; and Atwood, Daniel H., to Atwood, Daniel H. Core tray. 3,782,582, Cl. 220-23.006.
Lynn, Robert J.; Daugirdas, Kriatupas; and Reddy, Redreddy Sukumar, to Vapor Corporation. Electrical door operator. 3,782,034, Cl. 49-13.000.
Lynnknowles, Frederick, to Du Pont de Nemours, E. I., and Company. Thickness control apparatus for polymeric film structures. 3,782,873, Cl. 425-141.000.
M & J Valve Company: *See—*
Walles, Rodney A., 3,782,168.
Maas, Melvin L., to Moorman Manufacturing Company. Sampler. 3,782,200, Cl. 73-422.00r.
MacFarland, Charles H., to Scott & Fetzer Company, The. Vacuum intake safety means. 3,781,941, Cl. 15-339.000.
MacGregor, Paul T.: *See—*
Ellis, Ernest W.; MacGregor, Paul T.; and Simon, Myron S., 3,782,937.
Machleder, Warren H.; and Kuhn, Robert R., to Rohm & Haas Company. Detergent motor fuel. 3,782,912, Cl. 44-66.000.
Mackie, Harry A.: *See—*
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MacMaster, Malcolm John; and MacMaster, Kenneth John George, to Lane, Frances & John S., Limited. Sledger crusher. 3,782,644, Cl. 241-69.000.
MacPherson, Charles L., Jr., to Morgan Construction Company. Apparatus and method for aligning roller entry guides in a rolling mill. 3,782,158, Cl. 72-37.000.
MacRobbie, Robert Murray: *See—*
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Maddock, John C.: *See—*
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Madsen, Ditlev P.; and Pikel, John H. Apparatus for rendering. 3,782,902, Cl. 23-280.000.
Maeda, Masahiro: *See—*
Kobayashi, Motoki; Sakaguchi, Masaoki; and Maeda, Masahiro, 3,782,502.
Maeda, Takashi; and Shirouchi, Yasunari, to Fujitsu Limited. Method for manufacturing electrodes of a display device utilizing gas discharge. 3,781,984, Cl. 29-624.000.
Magnaflux Corporation: *See—*
O'Connor, Donald T.; and Frine, David W., 3,782,183.
Mahan, John E.: *See—*
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Maico Fahrzeugfabrik GmbH: *See—*
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Maier, Alfred E.; and Wafer, John A., to Westinghouse Electric Corporation. Circuit breaker with improved flux transfer magnetic actuator. 3,783,423, Cl. 335-174.000.
Maier, Gary W.; and Jehn, David H., to Dun-Hot, Inc. Popcorn package and handle assembly. 3,782,976, Cl. 426-110.000.
Maisch, Hans; and Jung, Ernst, to Eisenwerke Gaggenau GmbH. Ventilating system for a water closet. 3,781,923, Cl. 4-213.000.
Maison, Richard L., to Rohr Industries, Inc. Rotatable bridge switch for trackless air cushion vehicle. 3,782,291, Cl. 104-130.000.
Maissel, Leon L.: *See—*
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Majewski, Martin, to Stahlwerke Peine-Salzgitter, A.G. Reinforcing bar, bolt or the like. 3,782,839, Cl. 403-43.000.
Majewski, Richard M.: *See—*
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Majumdar, Amalendu Jyoti, to National Research Development Corporation. Cement compositions containing glass fibers. 3,783,092, Cl. 161-170.000.
Maki, Michiyoshi: *See—*
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Maley, Stephen Barry, to Eastman Kodak Company. Purification of silver halide precipitates. 3,782,953, Cl. 96-94.00r.
Malkiel, Saul L., to Bendix Corporation, The. Brushless D.C. motor using hall generators for commutation. 3,783,359, Cl. 318-254.000.
Mall, Gunther, to Pfaff Industriemaschinen GmbH, Firma. Sewing unit having a stencil rail for guiding the material. 3,782,308, Cl. 112-121.150.
Mandell, Harry Creston, Jr., to Pennwalt Corporation. Temporary soil release resins applied to fabrics in laundering. 3,782,898, Cl. 8-137.000.
Mandex Manufacturing Company, Inc.: *See—*
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Mann, Frederick W. Cushioned adjustable swing hitch for vehicle. 3,782,760, Cl. 280-467.000.
Mann, Henry, Inc.: *See—*
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Manoukian, Nubar S., to Coherent Radiation. Laser having means for defogging the optical cavity thereof. 3,783,405, Cl. 331-94.550.
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Marathon Electric Manufacturing Corporation: *See—*
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Maravetz, Lester L., to Esso Research and Engineering Company. N-cyclopropylmethyl-phenylureas. 3,783,143, Cl. 260-553.00a.
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Marcoux, Leo; and Berg, Peter G., to Texas Instruments, Incorporated. Actuator apparatus. 3,782,121, Cl. 60-527.000.
Marker, Hannes. Individually selectively useable anti-glare goggle glasses. 3,782,810, Cl. 351-47.000.
Marks III, Inc.: *See—*
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Marlboro Manufacturing, Inc.: *See—*
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Marlett, Everett M.; and Sanders, Robert N., to Ethyl Corporation. High energy beryllium rocket fuel compositions and processes therefor. 3,783,054, Cl. 149-109.000.

Marley Company, The: *See—*
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Marshall, Neil A., to International Telephone and Telegraph Corporation. Apparatus for resolving a complex A.C. voltage or current into its vector components. 3,783,259, Cl. 235-186.000.

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Martelli, Mario; and Martelli, Mario. Document recognition systems. 3,782,543, Cl. 209-75.000.

Martenson, Leroy V. Flour mill. 3,782,645, Cl. 241-100.000.

Martin, Dennis Douglas, to Dobson Park Industries Limited. Tool positioning extensible boom. 3,782,484, Cl. 173-43.000.

Martin, Frank L., Jr.: *See—*
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Martin, Gerhard: *See—*
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Martin, Wilhelm N., to Consolidated Bathurst Limited. Method for flame bonding by use of high velocity high temperature direct flame. 3,783,062, Cl. 156-82.000.

Martin, William T., 1/4 to Bohlman, Ivan C. and 1/4 to Bohlman, Vernon O. Continuous contact distributor for use with irrigation systems. 3,782,408, Cl. 137-344.000.

Martincic, Paul W.; and Quirk, James F., to Westinghouse Electric Corporation. Electrical bushing having a stress relieving shield and method of constructing same. 3,783,181, Cl. 174-142.000.

Martinet, Charles, to Regie Nationale des Usines Renault and Automobiles Peugeot. Isostatic working process. 3,782,159, Cl. 72-60.000.

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Marttala, Tapani: *See—*
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Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Treated glass fibers for glass fiber-elastomeric products and method. 3,783,001, Cl. 117-72.000.

Masahide, Watanabe: *See—*
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Maschinenfabrik Rieter AG: *See—*
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Masson Scott Thrissell Engineering Limited: *See—*
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Materese, Vincent, to Dayton Manufacturing Company. Waste treatment system. 3,782,550, Cl. 210-134.000.

Mathur, Radhey Mohan, to Canadian Patents and Development Limited. Electrical stepping motors having low inertia rotors. 3,783,313, Cl. 310-49.000.

Mathys, Robert. Hip joint prosthesis. 3,781,917, Cl. 3-1.000.

Mathys, Robert. Artificial joint socket. 3,781,918, Cl. 3-1.000.

Matoushek, Ralph F., to Ralston Purina Company. Xanthophyllic extraction process. 3,783,099, Cl. 195-2.000.

Matsuhisa, Tsuneyasu; and Nagai, Yoshiaki, to Fuji Photo Film Co., Ltd. Process for producing a resin-coated paper as a support for a photographic paper. 3,783,003, Cl. 117-76.00p.

Matsumura, Yoshihiro, to Nippon Air Brake Company, Ltd. Modulator in anti-skid system. 3,782,786, Cl. 303-21.00f.

Matsuo Electric Company, Limited: *See—*
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Matsuoka, Tohru, to Nippon Electric Company, Limited. Gas laser. 3,783,404, Cl. 331-94.500.

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Matsushita Electric Industrial Co., Ltd.: *See—*
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Maxie, Lee. Ant poison distributing apparatus. 3,782,606, Cl. 222-244.000.

Maytag Company, The: *See—*
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McArthur, Colin S., to Reynolds, R. J., Tobacco Company. Apparatus for electrically perforating sheet material. 3,783,237, Cl. 219-384.000.

McBride, Edward D., to Outboard Marine Corporation. Neutral start only mechanism. 3,782,350, Cl. 123-179.00k.

McConnell, John A.; and Williamson, Everett W. Valve mechanism. 3,782,603, Cl. 222-153.000.

McConnell, Robert G., to Honeywell Inc. Automatic focus positioning circuit. 3,783,269, Cl. 250-201.000.

McCord, Robert C., to Vistron Corporation. Toothbrush and dental-floss dispenser. 3,782,397, Cl. 132-84.00a.

McCormack, Kent, to Texas Instruments, Incorporated. Method and apparatus for detection of petroleum products. 3,783,284, Cl. 250-339.000.

McCray, Ferris L., to Allis-Chalmers Corporation. Fluid control system for earthworking apparatus including automatic pressure regulating means. 3,782,478, Cl. 172-4.500.

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McCullough, John R.: *See—*
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McDermott, Hugh L. Rotary fluid pressure device. 3,782,866, Cl. 418-61.000.

McDonald, Bernard. Surgical retractor. 3,782,370, Cl. 128-20.000.

McDonnell Douglas Corporation: *See—*
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McGeeney, William S.; Trapp, George S.; and Zsamboky, Leslie, to Wean United, Inc. Apparatus for dismantling and assembling roll assemblies for a 4-high rolling mill. 3,782,161, Cl. 72-239.000.

McGimpsey, John W. Traffic control system. 3,783,446, Cl. 340-31.00r.

McGraw-Edison Company: *See—*
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McLarson, John K., to Shell Oil Company. Leak detector for fluid conductors. 3,782,172, Cl. 73-40.50r.

McMillan, Roderick Duncan. Rotary switch three pin circuit tester for electrical outlet socket. 3,783,371, Cl. 324-51.000.

McNeill, Frederick J.; Kulik, Joseph S., Jr.; and Smith, David L., Sr., to GTE Sylvania Incorporated. Tubular incandescent lamp having improved filament support. 3,783,329, Cl. 313-274.000.

McNerney, Richard P., to Schlumber Technology Corporation. Wire insulation splicing technique for high temperature well logging cable. 3,783,057, Cl. 156-49.000.

McWilliams, Joseph E. Nutting truck unloading arrangement for mail bag loading apparatus. 3,782,566, Cl. 214-41.000.

Means, Richard E.; Kallianos, Andrew G.; and Tenney, Kinwood P., to Liggett & Myers Incorporated. β-methylvaleric acid alkyl esters as tobacco flavorants. 3,782,391, Cl. 131-17.00r.

Medical Development Corporation: *See—*
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Medical Incorporated: *See—*
Anderson, Lawrence, 3,781,969.

Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexey Georgievich; and Latash, Jury Vadimovich. Method of operation of a convertible ESR furnace-installation. 3,781,935, Cl. 13-34.000.

Medovar, Boris Izrailevich; Popov, Viktor Andreevich; Alferov, Jury Fedorovich; Bogachenko, Alexei Georgievich; and Latash, Jury Vadimovich. Electroslag remelting plant. 3,783,168, Cl. 13-9.000.

Medvick, Richard J.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Bovlan, John R.; and Danko, Oliver L., 3,782,685.

Meek, John S.; and Nelson, J. Roy. Temperature indicating vessel. 3,782,195, Cl. 73-343.00b.

Meess, Jack D.; Kastovich, John C.; and Lackey, Robert S., to Westinghouse Electric Corporation. Absorption refrigeration system. 3,782,134, Cl. 62-476.000.

Mefferd, Wayne S.; and Hobart, James L., to Coherent Radiation Laboratories. Laser optical resonator. 3,783,407, Cl. 331-94.50c.

Mefina S.A.: *See—*
Torre, Marcel, 3,783,130.

Mehnert, Gottfried, to Bekum Maschinenfabriken GmbH. Apparatus for separating the surplus of thermoplastic material from the neck portions of blow-molded containers. 3,782,877, Cl. 425-292.000.

Meilun, Edwin C.: *See—*
Hayward, Gardner L.; and Meilun, Edwin C., 3,783,126.

Melloy, George F.: *See—*
Cleary, Harold J.; Horton, James B.; and Melloy, George F., 3,782,909.

Mendelson, Ralph A.: *See—*
Kirkpatrick, Milton E.; and Mendelson, Ralph A., 3,782,926.

Mendelson, Ralph A.; Staudhammer, Karl P.; and Valencia, Roberto, Jr., to United States of America, Interior, mesne. Corrosion resistant, non-austenitic Fe-Ni-Mo-Co-Se alloy. 3,782,923, Cl. 75-122.000.

Mengeringhausen, Max; Quenzel, Hermann; Gehrig, Reinhold; and Spanheimer, Willi, to Mero AG. Apparatus for the manufacture of hollow rod elements. 3,783,232, Cl. 219-124.000.

Menold, Robert F.; and Summers, James J., to Mine Safety Appliances Company. Goggle-supporting assembly for hard hats. 3,781,915, Cl. 2-10.000.

Mercer, Allen C.: *See—*
Kahwati, Ghassan N.; and Mercer, Allen C., 3,782,560.

Merit Company, The: *See—*
Pitt, William V., 3,781,948.

Mero AG: *See—*
Mengeringhausen, Max; Quenzel, Hermann; Gehrig, Reinhold; and Spanheimer, Willi, 3,783,232.

Merrick, Woodrow W.: *See—*
Norris, Clarence G.; and Merrick, Woodrow W., 3,781,962.

Merryfull, Albert Edward. Refrigeration system evaporator. 3,782,131, Cl. 62-218.000.

Messenger, William E., to Scovill Manufacturing Company. Childproof aerosol actuator consisting of two members operative by relatively rotating the two members. 3,782,605, Cl. 222-153.000.

Messer Griesheim GmbH: *See—*
Rohe, Josef; and Staacks, Dieter, 3,783,229.

Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung: *See—*
Butter, Karl; Kaufmann, Michael; and Dederra, Helmut, 3,782,118.
Hohl, Jean-Marie; Schipf, Anton; and Schmid, Werner, 3,782,808.

Messmer, Edwin E. Label applicator. 3,783,077, Cl. 156-446.000.

Metal Box Company Limited, The: *See—*
Franek, Jozef Tadeusz; and Rhodes, Peter, 3,782,314.

Metcalf, John M., to LTV Aerospace Corporation. Switching system for a transportation system employing a guideway. 3,782,292, Cl. 104-130.000.

Meteor-Siegen Apparatebau Paul Schmeck GmbH: *See—*
Isermann, Heinrich, 3,782,817.

Metrology Systems Corporation: *See—*
Fink, Anton; and Wentworth, Harold, 3,782,742.

Mettler Instrumente AG: *See—*
Lang, Karl; and Steiner, Hans, 3,782,589.

Meyer, Edward: *See—*
Ruhl, Charles A. H.; Meyer, Edward; and Chatterjea, Probir K., 3,782,489.

Meyer, Thomas I.; Shaffer, Thomas N.; and Wright, Lawrence G., to Westinghouse Electric Corporation. Flowmeter apparatus. 3,782,193, Cl. 73-181.000.

Meyers, Michael: *See—*
Langieri, Michael, Jr.; and Meyers, Michael, 3,782,594.

Mica Trust: *See—*
Perdue, Roy D.; and Cohn, Morris I. (said Purdue assor. to), 3,783,096.

Michelson, Irving, to American Safety Equipment Corporation. Method of making a cigarette of reduced biological damage capability, 3,782,393, Cl. 141-9.000.

Micheron, Francois; and Bismuth, Guy, to Thomson-CSF. Ferro-electric system for bulk storage of phase holograms. 3,782,802, Cl. 350-3.500.

Microdot, Inc.: *See—*
Kiszewski, Robert F., 3,782,250.

Middleton, Verne L., to Olin Corporation. Method of producing a mechanical joint between metal sheets. 3,781,971, Cl. 29-470.100.

Midland-Ross Corporation: *See—*
Nesbitt, John D.; Hemsath, Klaus H.; and Vereecke, Frank J., 3,782,883.

Miknaitis, Sigitas, to GTE Automatic Electric Laboratories, Inc. Printed wiring card mountable reed switch. 3,783,421, Cl. 335-152.000.

Mildner, Walfrid, to ELD Elektronische Lichenanlagen Studiengesellschaft fur Wissenschafhiche Datenberarbatung mbH. Battery adapter. 3,783,378, Cl. 324-73.00r.

Miles, John M.; and Sherk, Fred T., to Phillips Petroleum Company. Arylene sulfide polymerization process. 3,783,138, Cl. 260-79.000.

Miles Laboratories, Inc.: *See—*
Wiley, Richard H., 3,783,154.

Milgo Electronic Corporation: *See—*
Vilips, Viesturs Valentins; Lowey, Joseph; and Payne, Paul E., 3,783,194.

Miller, Bernard: *See—*
Nagy, Charles E.; Nagy, John F.; and Miller, Bernard, 3,782,762.

Miller, Eugene Boyd. Pistol-grip garden hoe. 3,782,482, Cl. 172-381.000.

Miller, George D., to Armco Steel Corporation. Simplified strip accumulation. 3,782,662, Cl. 242-55.000.

Miller, Jerald E.: *See—*
Garbick, John R.; and Miller, Jerald E., 3,782,433.

Miller, Sandra Levey: *See—*
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Miller, Walter E., Jr.; Peacher, Teddy J.; Duke, Jimmy R.; and Sitton, Robert L., to United States of America, Army. Beamrider missile guidance method. 3,782,667, Cl. 244-3.130.

Miller, Warren H., Jr.: *See—*
Long, Thomas R.; Miller, Warren H., Jr.; and Campbell, Scott V., 3,782,716.

Milner, Freddy L. Self closing tent door. 3,782,399, Cl. 135-14.00d.

Milovich: *See—*
Milovich, Dimitrije; and Stoveken, Wayne E., 3,782,744.

Milovich, Dimitrije: *See—*
Stoveken, Wayne E., 3,782,745.

Milovich, Dimitrije; and Stoveken, Wayne E., 60% to said Milovich and 40% to Stoveken, Wayne E. Snow surfboard with stepped stabilizing sides. 3,782,744, Cl. 280-18.000.

Minarik Electric Co.: *See—*
Mason, Raymond J., 3,783,361.

Mine Safety Appliances Company: *See—*
Menold, Robert F.; and Summers, James J., 3,781,915.

Mini-Motor Speedways, Inc.: *See—*
Donohue, Allen C.; Grote, Albert O.; and Tielborg, Bernard P., 3,782,293.

Minnesota Mining and Manufacturing Company: *See—*
Bonham, James A.; and Petrellis, Panayotis C., 3,782,939.
Stevenson, William W., 3,782,663.

Minoda, Minoru: *See—*
Takimoto, Hisashi; Minoda, Minoru; and Takagi, Akira, 3,782,995.

Minolta Camera Kabushiki Kaisha: *See—*
Sugimoto, Noboru; and Ohneda, Shoichi, 3,783,191.

Minster Machine Company, The: *See—*
Voorhees, John E., 3,782,618.

Minutoli, Andrea J.; and Locke, Reginald A. J. Concrete building construction with improved post tensioning means. 3,782,061, Cl. 52-125.000.

Mirasol, Salustiano S.: *See—*
Hurst, Alan R.; and Mirasol, Salustiano S., 3,783,089.

Miroshnichenko, Anatoly Petrovich: *See—*
Lavrinenko, Vyacheslav Vasilievich; Miroshnichenko, Anatoly Petrovich; and Khraschevsky, Vitaly Alexeevich, 3,781,955.

Mirtain, Henri Jean, to Uniroyal. Pneumatic tire and tread therefor having variable rolling contact with the ground. 3,782,438, Cl. 152-209.000.

Mischenko, Nicholas, to Bell & Howell Company. Reel drive. 3,782,658, Cl. 242-192.000.

Mitchell, Graham R.: *See—*
Amoth, Victor W.; Mitchell, Graham R.; and Popadick, Carl C., 3,783,213.

Mitchell, Robert M.: *See—*
Cates, Robert L.; Mitchell, Robert M.; and Houx, James R., 3,782,453.

Mitsubishi Denki Kabushiki Kaisha: *See—*
Nakanishi, Hisao; and Ushiro, Takushi, 3,783,330.
Ueda, Fumio, 3,783,022.

Mitsuboshi-Sangyo Co., Ltd.: *See—*
Takase, Takashi; Hayashi, Tsunekazu; and Saitoh, Hirokazo, 3,783,000.

Mitsui Mining & Smelting Co., Ltd.: *See—*
Ishii, Masahito; and Ichiki, Minoru, 3,783,114.

Mittelman, Edward R.: *See—*
Klein, Gerald I.; and Mittelman, Edward R., 3,783,414.

Miura, Tatuo; and Kaneko, Toshiro, to Nippondenso Co., Ltd. Method for making armature-commutator assembly having armature winding of very small diameter. 3,781,981, Cl. 29-597.000.

Miyamoto, Kimio: *See—*
Fujii, Motoharu; Yamaguchi, Isao; Miyamoto, Kimio; Yamaguchi, Masaru; and Sano, Yozo, 3,783,290.

Miyatake, Masao: *See—*
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.

Mizoguchi, Sutemaru. Boring head. 3,782,849, Cl. 408-197.000.

Mizukoshi, Masahiko: *See—*
Tomita, Tsutomu; and Mizukoshi, Masahiko, 3,782,970.

MI³, Inc.: *See—*
Libby, Ross C., 3,783,412.

Mnilk Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, to Holstein & Kappart, Maschinenfabrik Phonix GmbH. Molding apparatus. 3,782,879, Cl. 425-450.000.

Moak, Mervin S. Bar scraper and mud drag. 3,782,479, Cl. 172-26.500.

Mobil Oil Corporation: *See—*
Hungerford, Gordon P., 3,783,023.
Rubin, Mae R.; and Rosinski, Edward J., 3,783,124.

Mobile Systems International, Inc.: *See—*
White, David J.; and Dion, Donald J., 3,782,300.

Modan, Michael M.: *See—*
Calicchia, David J.; and Modan, Michael M., 3,783,147.

Modine Manufacturing Company: *See—*
Slaasted, Raymond S.; and Smith, Edward D., 3,782,454.

Moen, Alfred M. Faucet construction. 3,782,417, Cl. 137-625.170.

Molex, Inc.: *See—*
Bury, Allen J., 3,783,436.

Molins Limited: *See—*
Jawor, Tadeusz Eronislaw, 3,783,373.

Moller, Heinz: *See—*
Kammerer, Heinz; and Moller, Heinz, 3,782,353.

Monarch Marking Systems, Inc.: *See—*
Jenkins, William A., 3,783,083.

Moneymaker, John R.; and Forsyth, Curtis J., to Top-Scor Products, Inc. Process for separating constituents of grain flour and products produced thereby. 3,783,139, Cl. 260-112.00g.

Monks, Frank E., to Aluminum Company of America. Heat-sealable coated metal package and method of making same. 3,783,071, Cl. 156-217.000.

Monroe Auto Equipment Company: *See—*
Fader, John H.; Hegel, Robert W.; and West, Burke A., 3,782,769.

Monrolin, Jean L.: *See—*
Froment, Jean C.; and Monrolin, Jean L., 3,783,413.

Monsanto Company: *See—*
Herber, John F., 3,783,132.

Monte, Matthew Salles; deceased (by Monte, Teresa B.; administratrix). Smoking tobacco composition. 3,782,392, Cl. 131-17.000.

Monte, Teresa B.: *See—*
Monte, Matthew Salles, 3,782,392.

Monters, Carl Georg. Packing or body for moisture exchanger. 3,782,081, Cl. 55-278.000.

Montgomery, Hubert T. Sawmill dog assembly. 3,782,711, Cl. 269-31.000.

Montgomery, Ray E., to Bemis Company, Inc. Plastic bags. 3,782,622, Cl. 229-54.00r.

Montgomery, Thurman R. Self unloading carrying dolly. 3,782,569, Cl. 214-506.000.

Montres Rolex S.A.: *See—*
Kuffer, Philippe, 3,782,101.

Montz, Horst: *See—*
Zeimet, Heinrich; Rentel, Alfred; and Montz, Horst, 3,782,427.

Moody, Robert E. Freely mounted gear. 3,782,215, Cl. 74-410.000.

Moore, Alan, to Rolls-Royce (1971) Limited. Gas turbine engine blades. 3,782,852, Cl. 416-97.000.

Moore, Alvin Edward. Resilient, tubular bumpers. 3,782,767, Cl. 293-71.00r.

Moore, Alvin Edward. Tubular, Shock-absorbing bumpers. 3,782,768, Cl. 293-71.00r.

Moore, Charles H. Panel positioning apparatus and method. 3,782,771, Cl. 294-67.00r.

Moore, George A. Apparatus for pressure cooking food. 3,782,267, Cl. 99-410.000.

Moore, Glenn E.; and Carl, Robert C., to Dover Corporation. Shut-off valve assembly. 3,782,401, Cl. 137-68.000.

Moore, Robert L.: *See—*
Jantzen, Johannes K.; and Moore, Robert L., 3,783,200.

Moorman Manufacturing Company: *See—*
Maas, Melvin L., 3,782,200.

Morane, Bruno P., to L'Oreal. Hair dryer particularly adapted to the drying of long hair. 3,782,002, Cl. 34-99.000.

Morat, Franz, GmbH, Firma: *See—*
Oelmayer, Reinhold; Seelos, Albert; Reif, Winfried; Nagy, Denes; and Stock, Hans Joachim, 3,783,275.

Moretini, Billy, to International Design Corporation. Modular merchandise display device. 3,782,296, Cl. 108-101.000.

Morgan Construction Company: *See—*
MacPherson, Charles L., Jr., 3,782,158.
Rickley, Samuel S.; and Boghosian, Harry, 3,782,796.

Morgan, Thomas Edward; and Koslo, Robert Carl, to International Telephone and Telegraph Corporation. Strap tensioning and cut-off tool. 3,782,426, Cl. 140-123.600.

Mori, Yasunori: *See—*
Hayashi, Fusao; and Mori, Yasunori, 3,782,338.

Morita, Koh; and Ishii, Teiji, to Chisso Corporation. Vacuum metallized polyolefins. 3,783,012, Cl. 117-107.000.

Morkes, Jakob, to Alfa-Laval AB. Filter for liquids. 3,782,556, Cl. 210-409.000.

Morris Limited: *See—*
Stoltz, Andries Johannes, 3,782,047.

Morris, Louis, Jr.; Slanina, Donald R.; and Seidel, Martin P., to Westinghouse Electric Corporation. Electrical inductive apparatus having rigid foam supporting members and methods of providing same. 3,783,426, Cl. 336-196.000.

Morris, Ronald P. Non-interfering golf tee. 3,782,723, Cl. 273-33.000.

Mosely, Donald E., to Bitco, Inc., mesne. Lumber separator. 3,782,540, Cl. 209-73.000.

Moser, Werner; Buchi, Paul; and Weber, Peter, to Aluminium AG. Warp beam flange. 3,782,655, Cl. 242-118.500.

Motor Wheel Corporation: *See—*
Brede, Alexander, III; Talmage, Charles Robert, and Tuttle, Elvin E., 3,782,931.

Motorenfabrik Hatz KG: *See—*
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Motorola, Inc.: *See—*
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Fisher, John A., 3,783,052.
Gay, Michael J., 3,783,400.
Myers, Charles Frank, 3,783,046.
Slavik, William H.; and Valiquet, Brett A., 3,783,186.

Mousel, Robert: *See—*
Glaesener, Ernest; Schleimer, Francois; Wagner, Fernand; Goedert, Ferdinand; Bauer, Alex; and Mousel, Robert, 3,782,921.

Moyer, Rudolph H.; and Sibbett, Donald J., to Geomet, Incorporated. Apparatus for assaying enzyme activity. 3,783,105, Cl. 195-127.000.

Mrowca, Joseph J., to Du Pont de Nemours, E. I., and Company. Cyclopentadienyl(group IV-b metal) hydrocarbon-sulfinates and sulfinates as agents for increasing crop yields. 3,782,917, Cl. 71-97.000.

MRT Magnet-Regeltechnik GmbH: *See—*
Hallmann, Hermann, 3,782,147.

MTD Products Inc.: *See—*
Plamper, Gerhard R.; and Kaesgen, Juergen, 3,783,216.

Mucke, Bruno; Lohmer, Karl; and Himmelmann, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Photographic material. 3,782,955, Cl. 96-114.800.

Mueller, Felix Gottfried, to Ciba-Geigy AG. Separation or extraction apparatus utilizing distribution of solutes between immiscible phases. 3,782,624, Cl. 233-20.00r.

Mueller, Helmut, to Voith Getriebe KG. Hydrokinetic device. 3,782,514, Cl. 188-296.000.

Muhlpfordt, Werner, to U.S. Philips Corporation. Reactor for preparing metal powders. 3,782,706, Cl. 266-22.000.

Mullen, Joseph D.; and Nivens, Mary P., to General Mills, Inc. Textured base materials or products from certain carboxyalkyl ethers of polygalactomannans and process of preparing same. 3,782,962, Cl. 426-70.000.

Muller, Jacques. Filter and aerator device. 3,782,549, Cl. 210-95.000.

Murayama, Osamu: *See—*
Okubo, Kei; Yamamoto, Katuyuki; and Murayama, Osamu, 3,783,064.

Murphy, James W.; Frantz, Robert J.; and Hildebrecht, Harold V., to Towmotor Corporation. Lift truck mast-mounting arrangement. 3,782,571, Cl. 214-674.000.

Murray, William K., to Tri-State Oil Tool Industries Inc. Method for cutting and retrieving pipe from a floating drill ship. 3,782,459, Cl. 166-.500.

Muschalek, Ben E., Jr. Hydraulic stroke increaser. 3,782,123, Cl. 60-533.000.

Musser, Malcolm E. Bag holder and opening device. 3,782,073, Cl. 53-384.000.

Muzzy, Raymond J., to United States of America, Navy. Hybrid generator. 3,782,112, Cl. 60-251.000.

Myers, Charles Frank, to Motorola, Inc. Method of making high speed shallow junction semiconductor device. 3,783,046, Cl. 148-187.000.

Myers, Robert E. Reinforced structural member of fiberglass and method of making the same. 3,783,066, Cl. 156-161.000.

Naftulin, Henry; and Kirschner, Leon, to K-N Enterprises, Inc. Means for blood administration and the like. 3,782,382, Cl. 128-214.00r.

Nagai, Yoshiaki: *See—*
Matsuhisa, Tsuneyasu; and Nagai, Yoshiaki, 3,783,003.

Nagy, Charles E.; Nagy, John F.; and Miller, Bernard. Theft proof vehicle trailer hitch connection. 3,782,762, Cl. 280-507.000.

Nagy, Denes: *See—*
Oelmayer, Reinhold; Seelos, Albert; Reif, Winfried; Nagy, Denes; and Stock, Hans Joachim, 3,783,275.

Nagy, John F.: *See—*
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Naidenov, Georgy Fedorovich: *See—*
Sigal, Isaak Yakovlevich; Naidenov, Georgy Fedorovich; Gurevich, Nikolai Alexandrovich; Danilevich, July Iosifovich; Shiman, Andrei Matveevich; Shishkin, Viktor Fedorovich; and Goncharenki, Nikolai Ivanovich, 3,782,302.

Nakada, Tetsuo; and Oyama, Noboru, to Janome Sewing Machine Co., Ltd. Carriage locking arrangement for a manual printer. 3,782,276, Cl. 101-56.000.

Nakahe, Ryuhei: *See—*
Yamamoto, Katsumiko; and Nakahe, Ryuhei, 3,783,367.

Nakamura, Minoru; and Umefuji, Akira, to Osaka Kiko Kabushiki Kaisha. Spinning machinery provided with the flyer twisting and winding mechanism. 3,782,097, Cl. 57-96.000.

Nakamura, Motoharu: *See—*
Kitayama, Minoru; Nakamura, Motoharu; Inaoka, Masanobu; and Okada, Hiroshi, 3,783,034.

Nakamura, Takao: *See—*
Inukai, Takashi; and Nakamura, Takao, 3,783,136.

Nakanishi, Hisao; and Ushiro, Takushi, to Mitsubishi Denki Kabushiki Kaisha. Direct heated cathode. 3,783,330, Cl. 313-310.000.

Nakano, Kenji; and Teramoto, Ryuzo, to Hitachi Shipbuilding & Engineering Co., Ltd. Joint construction for low temperature purpose liquid-tight. 3,782,053, Cl. 52-753.00j.

Nalle, George S., Jr. Apparatus for extruding woven plastic mesh. 3,782,872, Cl. 425-131.000.

Nalooka, Edward C.; and Street, Thomas R., Jr., to Ford Motor Company. Adjustable tie rod link. 3,782,221, Cl. 74-586.000.

Nam, Joong Woo. Gear-type rotary engine. 3,782,340, Cl. 123-823.000.

Nanha, Mitsuo; Takano, Yukio; Higuchi, Hisayuki; and Maki, Michiyoshi, to Hitachi, Ltd. Method of making semiconductor device using polycrystal thin film for impurity diffusion. 3,783,050, Cl. 148-188.000.

Nancarrow, James H.: *See—*
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Nankai Tekko Co., Ltd.: *See—*
Tomozawa, Yoshiaki, 3,782,778.

Nassof, Martin. Ceiling tile. 3,782,495, Cl. 181-33.00g.

National Cash Register Company, The: *See—*
Boyd, James C., 3,783,372.
Frock, Brian G., 3,783,155.

National Distillers and Chemical Corporation: *See—*
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National Forge Company: *See—*
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National Oats Company, Inc.: *See—*
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National Research Development Corporation: *See—*
Evans, John Yorath Gwynne, 3,782,189.
Gore, William George; and Parker, Roy Percival, 3,783,334.
Majumdar, Amalendu Jyoti, 3,783,092.

Navarro, Jorge Roca. Rotary roasting device. 3,782,268, Cl. 99-421.00p.

Neal, Maurice M. Offset press numbering assembly. 3,782,277, Cl. 101-76.000.

Neeb, Karl Heinz; Neidl, Herbert; and Stockert, Heinz, to Siemens Aktiengesellschaft. Device for measuring activity concentration in primary circulation systems of nuclear reactors. 3,783,268, Cl. 250-370.000.

Neidl, Herbert: *See—*
Neeb, Karl Heinz; Neidl, Herbert; and Stockert, Heinz, 3,783,268.

Nelson, Christopher M., to United States of America, Atomic Energy Commission. Television system for precisely measuring distances. 3,783,189, Cl. 178-6.800.

Nelson, J. Roy: *See—*
Meek, John S.; and Nelson, J. Roy, 3,782,195.

Nelson, John, to Leesona Corporation. Bobbin. 3,782,657, Cl. 242-125.100.

Nelson, John E., to Diamond Power Speciality Corporation. Method and apparatus for cleaning heated surfaces. 3,782,336, Cl. 122-379.000.

Nesbitt, John D.; Hemsath, Klaus H.; and Vereecke, Frank J., to Midland-Ross Corporation. Flat flame burner having a low air to gas ratio. 3,782,883, Cl. 431-185.000.

Nestorovic, Mioljub R., to McIntosh Laboratory, Inc. Full wave peak respond meter. 3,783,379, Cl. 324-103.00p.

Neumann, Gerhard M., to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH. Halogen incandescent lamp. 3,783,328, Cl. 313-222.000.

Neumann, John W.; and Mackie, Harry A., to Udylite Corporation, The. Vortex diffuser fluid bearing device. 3,782,791, Cl. 308-9.000.

Nevin, Charles S.: *See—*
Bomball, William A.; Drury, Raymond L., Jr.; Nevin, Charles S.; and Witmer, Ralph C., II, 3,782,987.

Nevitt, Milton. Spray shoe polish. 3,782,979, Cl. 106-5.000.

Newcomb, Sidney M. Bottle orienting device. 3,782,517, Cl. 193-43.00r.

Newhall, Henry S., to Koppers Company, Inc. Method and apparatus for the continuous fluidizing of steel. 3,783,169, Cl. 13-10.000.

Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M, to Shipley Company, Inc., The, mesne. Electrolytic regeneration of spent etchant. 3,783,113, Cl. 204-106.000.

Nicoladu, Michael C. Material for direct thermoelectric energy conversion with a high figure of merit. 3,782,927, Cl. 75-134.00b.

Nielsen, Erik: *See—*
Pedersen, Hans Christian; and Nielsen, Erik, 3,782,580.

Nieukirk, Robert L., to Caterpillar Tractor Company. Lockout circuit for engine starter system. 3,783,301, Cl. 290-37.000.

Nimtz, Klaus: *See—*
Franzen, Gustav; and Nimtz, Klaus, 3,782,087.

Nippon Air Brake Company, Ltd.: *See—*
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Nippon Electric Company, Limited: *See—*
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Nippon Gakki Seizo Kabushiki Kaisha: *See—*
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Tokushima, Tadao, 3,783,041.

Nippon Kokan Kabushiki Kaisha: *See—*
Yamagishi, Hidehisa; and Yokoi, Fumitoshi, 3,781,968.

Nippon Steel Corporation: *See—*
Kitayama, Minoru; Nakamura, Motoharu; Inaoka, Masanobu; and Okada, Hiroshi, 3,783,034.

Nippon Tanshi, Ltd.: *See—*
Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, 3,783,440.

Nippondenso Co., Ltd.: *See—*
Kamo, Hideo; Akado, Hajime; and Kato, Yasutosi, 3,782,349.
Miura, Tatuo; and Kaneko, Toshiro, 3,781,981.

Nisenson, Peter; and Blackman, Elliot S., to Itek Corporation. Optical device for characterizing the surface or other properties of a sample. 3,782,827, Cl. 356-120.000.

Nishiba, Seishiro; Kuroyanagi, Masasi; and Ogawa, Koichi, to Denki Onkyo Company, Ltd. Contactless switching apparatus. 3,783,430, Cl. 338-32.00h.

Nishimatsu Construction Company Limited: *See—*
Ohira, Takuya; Shiraishi, Shunta; Matsushima, Hiroshi; Kato, Yukiya; Shimokawa, Kiyomitsu; and Yoshida, Kiroshi, 3,782,738.

Nishizawa Shoji Co., Ltd.: *See—*
Kuroda, Minoru, 3,783,156.

Nissan Shatai Co., Ltd.: *See—*
Kobayashi, Motoki; Sakaguchi, Masaoki; and Maeda, Masahiro, 3,782,502.

Nittel, Fritz: *See—*
Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, 3,782,956.

Nivens, Mary P.: *See—*
Mullen, Joseph D.; and Nivens, Mary P., 3,782,962.

Nixon, John M.: *See—*
Younkin, James R.; and Nixon, John M., 3,783,277.

Noble, Samuel. Camera. 3,782,259, Cl. 95-31.00r.

Nohe, Heinz: *See—*
Beck, Fritz; Haufe, Juergen; and Nohe, Heinz, 3,783,112.

Noll, Harry L.: *See—*
Richey, John Cecil; McKelvey, Ralph E.; Cornish, Robert F.; and Noll, Harry L., 3,782,795.

Norgaard, Richard Arlund; and Larsen, Rex Stemann, to Eskofot A/S. Feeler device, especially for photocopying apparatus. 3,782,715, Cl. 271-57.000.

Normanton, John Reginald, to Duplan Corporation, The. Method of bonding using strings of adhesive. 3,783,074, Cl. 156-291.000.

Norris, Clarence G.; and Merrick, Woodrow W., to General Refractories Company. Apparatus for applying a metal plate to a refractory brick. 3,781,962, Cl. 29-200.00b.

Norris, Richard F.: *See—*
Drake, Daniel D.; Lloyd, Evan M.; and Norris, Richard F., 3,783,392.

Northrop Corporation: *See—*
Brown, Gary G., 3,783,068.

Noshiro, Atsumi: *See—*
Ohto, Michihiro; Noshiro, Atsumi; and Mayuzumi, Tetsuya, 3,782,940.

Notaras, Angelo Lambrinos: *See—*
Notaras, John Arthur; and Notaras, Angelo Lambrinos, 3,782,343.

Notaras, John Arthur; and Notaras, Angelo Lambrinos. Carburetor mounting. 3,782,343, Cl. 123-52.00m.

Novak, George E.: *See—*
Hassenauer, Robert L.; Wolak, Thomas J.; and Novak, George E., 3,782,185.

Novar Corporation: *See—*
Bennett, William C., 3,782,731.

Novosad, Eugene, to Crane Packing Company. Banded sealing washer. 3,782,735, Cl. 277-22.000.

Nozawa, Hideo, to Kabushiki Kaisha Daini Seikosha. Rectangular waterproof watch casing assembly. 3,782,105, Cl. 58-90.00r.

NRM Corporation: *See—*
Turk, Leonard G., 3,782,871.

Nupio Company: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Medvick, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,782,685.

N.V. Machinefabriek L. te Strake Deurne: *See—*
Vermeulen, Geert Jan, 3,782,422.

Nyc, Vladimir. Remote, controlled, self-propelled lawn sprinkler. 3,782,633, Cl. 239-191.000.

Nye, William M.; and Jones, Stanley W., to Lanier Electronic Laboratory, Inc., mesne. Switching apparatus for selectively interconnecting dictation machines and stations. 3,783,199, Cl. 179-100.1dr.

Oak Industries, Inc.: *See—*
Bastian, Elmer, 3,783,420.

O'Connor, Donald T.; and Frine, David W., to Magnaflux Corporation. Detection of paster welds with acoustic emission. 3,782,183, Cl. 73-100.000.

O'Connor, Joseph M., to Peerless of America, Incorporated. Method of fabricating a finned heat exchanger tube. 3,781,959, Cl. 29-157.30b.

Odell, Richard G.: *See—*
Edgeington, James N., Jr.; Lowrance, Edgar G., II; and Odell, Richard G., 3,782,621.

Oelmayer, Reinhold; Seelos, Albert; Reif, Winfried; Nagy, Denes; and Stock, Hans Joachim, to Morat, Franz, GmbH, Firma. Apparatus for the optical-electrical scanning of a drawing moving a large number of points of different colors. 3,783,275, Cl. 250-226.00.

Oetiker, Alfred: *See—*
Froehlich, Alfred; Oetiker, Alfred; and Schaller, Heinrich, 3,782,948.

Oettmeier, Bert W.; and Porter, Samuel J., to Gulf Oil Corporation. Process for manufacturing gas-entrained aqueous gel explosive. 3,783,053, Cl. 149-41.000.

Offutt, Warren B., to Cutler-Hammer, Inc. Method and apparatus for measuring rotational angles by measuring changes in optical beam path length. 3,782,826, Cl. 356-110.000.

Ogasawala, Nobuhico: *See—*
Takahashi, Osamu; and Ogasawala, Nobuhico, 3,783,315.

Ogawa, Akira: *See—*
Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, 3,782,957.

Ogawa, Koichi: *See—*
Nishiba, Seishiro; Kuroyanagi, Masasi; and Ogawa, Koichi, 3,783,430.

Ogawa, Takuzo: *See—*
Yatsuo, Tsutomu; and Ogawa, Takuzo, 3,783,350.

Oggoian, Waltes, to Smithe, F. L., Machine Company, Inc. Die cutter drive for an envelope blank forming machine. 3,782,232, Cl. 83-236.000.

Ogihara, Shoki: *See—*
Kawasaki, Takuji; Ogihara, Shoki; and Watanabe, Mikio, 3,782,138.

Chi, Reiichi: *See—*
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.

Ohira, Takuya; Shiraishi, Shunta; Matsushima, Hiroshi; Kato, Yukiya; Shimokawa, Kiyomitsu; and Yoshida, Kiroshi, to Nishimatsu Construction Company Limited. Tail seal for a shield type tunneling machine. 3,782,738, Cl. 277-58.000.

Ohkubo, Kinji: *See—*
Arai, Atsuaki; Ohkubo, Kinji; Tajima, Tatsuya; Tanaka, Mitsugu; and Tutiya, Yosinori, 3,782,946.

Ohkubo, Kinji; Masuda, Takao; Shiba, Keisuke; Hinata, Masanao; Sato, Akira; and Ogawa, Akira, to Fuji Photo Film Co., Ltd. Fogged, direct-positive silver halide emulsion layer containing a cyanine dye and a compound containing a metal of Group VIII of the eriodic table. 3,782,957, Cl. 96-101.000.

Ohlschlager, Hans; Riester, Oskar; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Vanheertum, Ir Johannes, to Agfa-Gevaert Aktiengesellschaft. Sensitized electrophotographic layers. 3,782,933, Cl. 96-1.700.

Ohlschlager, Hans; Ghys, Theofiel Hubert; Verhille, Karel Eugeen; and Kampfer, Helmut, to Agfa-Gevaert Aktiengesellschaft. Spectrally sensitized electrophotographic material. 3,782,934, Cl. 96-1.700.

Ohneda, Shoichi: *See—*
Sugimoto, Noboru; and Ohneda, Shoichi, 3,783,191.

Ohto, Michihiro; Noshiro, Atsumi; and Mayuzumi, Tetsuya, to Dai Nippon Printing Co., Ltd. Ion-etching method. 3,782,940, Cl. 96-36.000.

Ojala, William K.: *See—*
Boltz, Ronald R.; and Ojala, William K., 3,782,639.

Okada, Hiroshi: *See—*
Kitayama, Minoru; Nakamura, Motoharu; Inaoka, Masanobu; and Okada, Hiroshi, 3,783,034.

Okamoto, Lisaku, to Nippon Gakki Seizo Kabushiki Kaisha. Group training systems utilizing electronic musical instruments. 3,782,237, Cl. 84-470.000.

Okamoto, Mitsuhiro: *See—*
Ito, Shoji; Okamoto, Mitsuhiro; and Hasegawa, Katsumi, 3,782,648.

Okazaki, Katsutoshi, to Yehan Numata. Inside micrometer comprising a counter. 3,781,998, Cl. 33-166.000.

Okubo, Kei; Yamamoto, Katuyuki; and Murayama, Osamu, to Matsushita Electric Industrial Co., Ltd. Method and apparatus for automatically connecting tapes. 3,783,064, Cl. 156-159.000.

Okutsu, Eiichi: *See—*
Shimamura, Isao; Iijima, Yoo; Okutsu, Eiichi; Iwano, Haruhiko; Shishido, Tadao; and Ohi, Reiichi, 3,782,945.

Olin Corporation: *See—*
Eisenlohr, Douglas H.; and Schiessl, Henry W., 3,783,035.
Middleton, Verne L., 3,781,971.

Olin, Paul H., to Timesavers, Inc. Wide abrasive belt type lumber planing machine. 3,782,044, Cl. 51-138.000.

Olivares, Ismael Adolfo; Bean, Frederick Roland; and Haist, Grant Milford, to Eastman Kodak Company. Photographic element comprising a hydroxy substituted aliphatic carboxylic acid aryl hydrazide. 3,782,949, Cl. 96-76.00r.

Oliver, Calvin C.: *See—*
Shortall, John J.; and Oliver, Calvin C., 3,783,377.

Oliver Machinery Company: *See—*
Solomon, William H.; Davies, John R.; and Eorward, Carrel M., 3,783,058.

Olivett, Alessandro, to Soc. S. A. M. E. R. Audio-visual teaching system consisting of a self propelling magnetic reading unit sliding along magnetic tracks pre-recorded on paged sheets. 3,782,005, Cl. 35-8.00a.

Olivetti, Ing., C., & C., S.p.A.: *See—*
Gianardi, Acostino, 3,781,944.
Pagella, Elio; and Guerici, Carlo, 3,781,997.
Pagella, Elio, 3,782,501.
Sandrone, Bruno; and Toniolo, Antonio, 3,782,666.

Olschewski, Paul, bison-werke Bahre and Greten GmbH KG. Apparatus for the continuous manufacture of chip boards. 3,782,875, Cl. 425-223.000.

Olsen, Kaare Ritter. Method and apparatus for depositing foundations under submerged structures. 3,782,127, Cl. 61-50.000.

Olsson, Sven-olle Paul, to Trelleborgs Gummifabriks Aktiebolag. Methods of manufacturing endless conveyor belts. 3,783,063, Cl. 156-137.000.

Oltman, Henry G., Jr., to Hughes Aircraft Company. Means and method for suppressing microwave resonance in elliptical cavities. 3,783,401, Cl. 330-56.000.

Olympus Optical Co., Ltd.: *See—*
Matsuzaki, Soichiro; and Kondo, Isao, 3,782,254.

Olympus Optical Company Limited: *See—*
Fujimori, Ryo; and Kamachi, Shinichi, 3,782,834.
Kamachi, Shinichi, 3,783,270.

Omar, Mohammed Hosny: *See—*
Bishay, Adli; El Hamamsy, Mahmoud Aly, and Omar, Mohammed Hosny, 3,782,958.

Omeda, Junichi: *See—*
Tsukada, Toshihisa; Omeda, Junichi; and Kawamura, Masao, 3,783,351.

Onare, Robert F., to Allis-Chalmers Corporation. Method and apparatus for heat treating with heat recuperation from material cooling and auxiliary heat during startup. 3,782,888, Cl. 432-14.000.

Ondrey, John A.; and Basila, Michael R., to Howe-Baker Engineers, Inc. Sweetening liquid hydrocarbons with a calcined heavy metal exchanged zeolite. 3,783,125, Cl. 208-191.000.

Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, to Sumitimi Jukikai Kogyo Kabushiki Kaisha. Lifting magnet assembly. 3,783,344, Cl. 317-123.000.

Onoda Cement Co., Ltd.: *See—*
Uchikawa, Hiroshi; and Uchida, Shunichiro, 3,782,992.

Oppel, John A.: *See—*
Badey, Paul E.; and Oppel, John A., 3,783,431.

Oppenheim, Rudolf: *See—*
Brandis, Helmut; and Oppenheim, Rudolf, 3,782,925.

Orban, Jean: *See—*
Vital, Zoltan; and Orban, Jean, 3,783,336.

Orii, Masaru. Workpiece transfer means. 3,782,561, Cl. 214-1.0bb.

Ormont, Louis. Convertible roof for a station wagon. 3,782,776, Cl. 296-137.00b.

Ort, Wolfgang: *See—*
Ettischer, Helmut; Blattner, Dietmar; and Ort, Wolfgang, 3,782,260.

Orthopedic Equipment Company, Inc.: *See—*
Smythe, Walter J., 3,782,373.

Orzel, Edward S., to Weatherhead Company, The. Brake warning switch requiring recentering pressure. 3,782,780, Cl. 303-6.00c.

Osada, Hisasi; and Akino, Tadaharu, to TDK Electronic Company. Inductance coil. 3,783,417, Cl. 333-70.00s.

Osaka Kiko Kabushiki Kaisha: *See—*
Nakamura, Minoru; and Umefuji, Akira, 3,782,097.

Oshima, Masakazu. Rectifier circuit using mos field effect transistor. 3,783,381, Cl. 324-132.000.

Ostdiek, Arthur J., to United States of America, Army. Vortex linear accelerometer. 3,782,206, Cl. 73-515.000.

Osteen, Mitchell M., to General Electric Company. Joint structure. 3,782,056, Cl. 52-758.00f.

Otis Elevator Company: *See—*
Krauer, Otto Albert, 3,783,358.

O'Toole, Gerald: *See—*
Caputo, James P.; and O'Toole, Gerald, 3,783,256.

Otte, Richard F., to Raychem Corporation. Temperature actuated connector. 3,783,429, Cl. 337-393.000.

Outboard Marine Corporation: *See—*
Britnell, Douglas A., 3,782,779.
Hackbarth, Eugene R.; and Ward, Harry M., III, 3,782,851.
McBride, Edward D., 3,782,350.
Ward, Harry M., III, 3,782,212.

Owens Illinois, Inc.: *See—*
Field, Marshall, 3,783,416.

Owens-Corning Fiberglas Corporation: *See—*
Belue, James C.; and Schaefer, Robert S., 3,782,996.
Marzocchi, Alfred, 3,782,999.
Marzocchi, Alfred, 3,783,001.

Owens-Illinois, Inc.: *See—*
Kozlowski, Tadeusz; and Pemberton, Ernest H., 3,782,252.
Mansur, Fred E., 3,782,989.

Oyama, Noboru: *See—*
Nakada, Tetsuo; and Oyama, Noboru, 3,782,276.

Paffen, Maria Magdalena Mathilda; Appels, Johannes Arnoldus; and Verkuijlen, Wilhelmus Henricus Cornelis Gerardus, to U.S. Philips Corporation. Method of manufacturing a semiconductor device and semiconductor device manufacture by using such a method. 3,78,047, Cl. 148-187.000.

Page, Michael E. Frozen water containers with liquid dispenser for camping. 3,782,602, Cl. 222-143.000.

Page, Sarah J. Shield for intravenous feeding apparatus. 3,782,378, Cl. 128-133.000.

Page, Sarah J. Medical tube holder. 3,782,388, Cl. 128-348.000.

Pagella, Elio; and Guerici, Carlo, to Olivetti, Ing., C., & C., S.p.A. Diameter gauge for machine tools. 3,781,997, Cl. 33-143.001.

Pagella, Elio, to Olivetti, Ing., C., & C., S.p.A. Lubricating-oil control device for use in machines, for instance machine tools. 3,782,501, Cl. 184-6.400.

Painter, William Howard, to PM Holding Co., mesne. Beneficiation of phosphate ores. 3,782,539, Cl. 209-2.000.

Palitex Project Company-G.m.b.H.: *See—*
Bermges, Manfred, 3,782,098.
Franzen, Gustav; and Nimtz, Klaus, 3,782,087.

Pall Corporation: *See—*
Rosenberg, David J., 3,782,083

Palmour, Harold H., to Armco Steel Corporation. Power fluid conditioning unit. 3,782,463, Cl. 166-68.000.

Panettieri, Pietro. Safety impact switch device for motor vehicles. 3,783,211, Cl. 200-61.500.

Panfill, Harry, to Master Products Manufacturing Co. Stacked bellows and apparatus and method for manufacturing the same. 3,782,156, Cl. 72-59.000.

Panico, Richard, to Kenon Corporation. Apparatus for rapid curing of resinous materials. 3,782,889, Cl. 432-59.000.

Pankove, Jacques Isaac, to RCA Corporation. Electroluminescent semiconductor device capable of emitting light of three different wavelengths. 3,783,353, Cl. 317-235.00r.

Pantek Corporation, mesne: *See—*
Lee, Martin, 3,783,193.

Parfitt, Norman Leslie Cyril, to Coal Industry (Patents) Limited. Self-adjusting brakes. 3,782,511, Cl. 188-75.000.

Parker, Gordon M., to PPG Industries, Inc. Method of forming a flat coated surface. 3,783,004, Cl. 117-93.310.

Parker, James M.; and Rydin, Carl N., to Parkton Corporation. Lawn mower and auxiliary unit with control means. 3,782,085, Cl. 56-11.600.

Parker, Richard J., to United States of America, National Aeronautics and Space Administration. Method of making rolling element bearings. 3,781,958, Cl. 29-148.04a.

Parker, Robert, to United States of America, Atomic Energy Commission. Neutron-flux responsive switch. 3,783,285, Cl. 250-390.000.

Parker, Roy Percival: *See—*
Gore, William George; and Parker, Roy Percival, 3,783,334.

Parkins, Eversly V.: *See—*
Philibert, Robert A.; Polimine, Robert; and Parkins, Eversly V., 3,783,178.

Parkton Corporation: *See—*
Parker, James M.; and Rydin, Carl N., 3,782,085.

Passenheim, Wolfgang, to Swiss Aluminium Ltd. Method and apparatus for producing a stepped rim on a seamless can body. 3,782,315, Cl. 113-7.00a.

Passera, Franco Ugo. Physical training device. 3,782,721, Cl. 272-79.00d.

Patel, Jayantilal M., to Procter & Gamble Company, The. Aromatizing edible oils. 3,783,163, Cl. 426-221.000.

Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH: *See—*
Neumann, Gerhard M., 3,783,328.

Patterson, William L., to Adams-Russell Co., Inc. Coaxial connector. 3,783,321, Cl. 317-101.00r.

Pavkovich, John M., to Varian Associates. Computer assisted radiation therapy machine. 3,783,251, Cl. 235-151.000.

Pawson, Beverly Ann; and Saucy, Gabriel, to Hoffmann-La Roche Inc. 3,7,9,11-Tetramethyl-10-alkoxy or benzyloxy-trideca-2,7,11-trienoic acids and esters containing a 4 position triple or double bond. 3,783,141, Cl. 260-410.90r.

Payne, Paul E.: *See—*
Vilips, Viesturs Valentins; Lowey, Joseph; and Payne, Paul E., 3,783,194.

Peacher, Teddy J.: *See—*
Miller, Walter E., Jr.; Peacher, Teddy J.; Duke, Jimmy R.; and Sitton, Robert L., 3,782,667.

Pearson, Anthony: *See—*
Pearson, William Michael; and Pearson, Anthony, 3,783,085.

Pearson, William Michael; and Pearson, Anthony, to Bondina Limited. Protective materials. 3,783,085, Cl. 161-87.000.

Peck, James G., Jr., to PPG Industries, Inc. Mercury cathode electrolytic cells. 3,783,120, Cl. 204-219.000.

Pedersen, Hans Christian; and Nielsen, Erik, to Danfoss A/S. Electrical connecting arrangement for an encased refrigerating machine. 3,782,580, Cl. 220-4.00b.

Peerless of America, Incorporated: *See—*
O'Connor, Joseph M., 3,781,959.

Pelka, Walter: *See—*
Hafer, Karl-Heinz; Pelka, Walter; Karkutt, Reimund; and Frenyo, Pal, 3,782,777.

Pelz, Willibald: *See—*
Boie, Immo; Schulte, Walter; Pelz, Willibald; Nittel, Fritz; and Kunitz, Friedrich-Wilhelm, 3,782,956.

Pemberton, Ernest H.: *See—*
Kozlowski, Tadeusz; and Pemberton, Ernest H., 3,782,252.

Penberthy, Walter L., Jr.: *See—*
West, Robert C.; and Penberthy, Walter L., Jr., 3,782,470.

Pennwalt Corporation: *See—*
Mandell, Harry Creston, Jr., 3,782,898.

Pentel, Jerry: *See—*
Brothers, Jack, 3,782,587.

Penwarden, Kent A., to E-Systems, Inc. Vehicle locator system. 3,783,445, Cl. 340-24.000.

Per-Erik Pettersson: *See—*
Swallert, Sven Arild, 3,781,928.

Perdue, Roy D.; and Cohn, Morris I.; deceased (b Rosenberg, Elliot E.; executor), said Purdue assor. to Mica Trust. Method of making paper using a pigment comprising calcium sulfate particles embedded in silica gel particles. 3,783,096, Cl. 162-181.00a.

Pergament, Henry. Anti-skid traction devices. 3,782,439, Cl. 152-218.000.

Perkin-Elmer Corporation, The: *See—*
Crewe, Albert V., 3,783,281.

Perkins, Brooks S., Incorporated: *See—*
Pink, David A., 3,781,934.

Perkins, Joseph R., III, to AMF Incorporated. Automatic grader. 3,782,544, Cl. 209-111.600.

Perr, Julius P., to Cummins Engine Company, Inc. Fuel injector. 3,782,864, Cl. 417-493.000.

Perrault, Jean: *See—*
Forster, Daniel Emile; and Perrault, Jean, 3,783,383.

Persson, Leif Gunnar: *See—*
Hansen, Bunde Knut; and Persson, Leif Gunnar, 3,782,597.

Peter, Richard: *See—*
DeFago, Raymond; Angliker, Hans-Joerg; Holzrichter, Herbert; Kneubuehler, Werner; and Peter, Richard, 3,782,896.

Peters, Dudley C. Battery truck. 3,782,750, Cl. 280-43.017.

Peters, Norman J., to DEC International Inc. Method for making cheese. 3,783,166, Cl. 426-491.000.

Petershack, Victor D., to Rex Chainbelt, Inc. Clipped-disc device for right-angle transfer. 3,782,527, Cl. 198-25.000.

Peterson, J. L.: *See—*
Scott, Dellie J., 3,782,688.

Peterson, John D.; and Bates, Walter E., to Bates, W. E., Engineering Co., Inc. Vapor lamp standby apparatus. 3,783,332, Cl. 315-91.000.

Peterson, Robert S.; Cook, John W.; and Bolkey, Harold B., to Westinghouse Electric Corporation. Automatic gauge control system for tandem rolling mill. 3,782,151, Cl. 72-9.000.

Peterson, Rodney J., to General Dynamics Corporation. Proportionate flow cryostat. 3,782,129, Cl. 62-56.000.

Petrellis, Panayotis C.: *See—*
Bonham, James A.; and Petrellis, Panayotis C., 3,782,939.

Petrolite Corporation: *See—*
Siess, Charles P., Jr., 3,782,472.

Petzetakis, Aristovoulos G. Composite synthetic-resin sheet material. 3,783,067, Cl. 156-163.000.

Peyrot, Jean-Pierre. Centering chuck. 3,782,740, Cl. 279-2.000.

Peyrot, Jean-Pierre. Gun for welding tubes on a tube plate. 3,783,230, Cl. 219-121.0eb.

Pfaff Industriemachinen GmbH: *See—*
Stockel, Wilhelm, 3,782,310.

Pfaff Industriemaschinen GmbH, Firma: *See—*
Mall, Gunther, 3,782,308.

Pfahnl, Arnold: *See—*
Keller, Harry Nevin; and Pfahnl, Arnold, 3,783,056.

Pfeifer, John. Combination expandable cutting and seating tool. 3,782,848, Cl. 408-156.000.

Pfeifer, Josef: *See—*
Kohn, Erwin; Bickl, Horst; Pfeifer, Josef; and Schrecke, Hans-Joachim, 3,782,820.

Pfister, Leo F.; and Rosenow, Darold K., to Conco Inc. Draft inducer. 3,782,303, Cl. 110-162.000.

Pfleiderer, Ernst, to Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.). Cylinder-piston internal combustion engine and bearing construction therefor. 3,782,792, Cl. 308-23.000.

Pfyffer, Peter: *See—*
Wangi, Kurt Angst; and Pfyffer, Peter, 3,782,093.

Pharmacia Fine Chemicals AB: *See—*
Hjerten, Vilhelm Einar Stellan, 3,783,118.

Philadelphia Quartz Company: *See—*
Pierce, Richard H., 3,782,906.
Weldes, Helmut H.; and Vessey, Eric W., 3,783,008.

Philibert, Robert A.; Polimine, Robert; and Parkins, Eversly V., to General Signal Corporation. Expansion joint for connecting rigid conduit with grounding continuity. 3,783,178, Cl. 174-86.000.

Phillips Petroleum Company: *See—*
Beazer, Charles W., 3,782,581.
Hessert, James E., 3,782,467.
Hurst, Alan R.; and Mirasol, Salustiano S., 3,783,089.
Miles, John M.; and Sherk, Fred T., 3,783,138.
Reynolds, William B.; and Mahan, John E., 3,783,055.
Stegelman, Albert F., 3,781,953.

Picker Corporation: *See—*
Atlee, Zed J.; and Kasten, Roy F., Jr., 3,783,323.
Atlee, Zed J., 3,783,333.

Fulton, George L.; Gager, Robert M.; and Atlee, Zed J., 3,783,287.
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Pielkenrood, Jacob; Van Galen, Piet; and Van Nes, Johannes G., to Pielkenrood-Vinitex B.V. Assembly for separating a dust-free part from a space, and method for disinfecting the same. 3,782,265, Cl. 98-33.000.

Pielkenrood, Jacob, to Pielkenrood-Vinitex N.V. Separation device. 3,782,557, Cl. 210-521.000.

Pielkenrood-Vinitex B.V.: *See*—
Pielkenrood, Jacob; Van Galen, Piet; and Van Nes, Johannes G., 3,782,265.

Pielkenrood-Vinitex N.V.: *See*—
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Pierce, Richard H., to Philadelphia Quartz Company. Process for preparation of agglomerated hydrated alkali metal silicate glass particles. 3,782,906, Cl. 23-313.000.

Pierce, Stanely L., Jr.: *See*—
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Pinna, Sanford. Detector for locating veins in living bodies. 3,782,365, Cl. 128-2.00r.

Pitt, William V., 1/2 to Merit Company, The. Split lid casket. 3,781,948, Cl. 27-17.000.

Pittet, Alan O.; and Seitz, Eugene W., to International Flavors & Fragrances Inc. Flavoring compositions and processes. 3,782,973, Cl. 426-175.000.

Pittman, Robert W., to Texaco Inc. Method and apparatus for rotary drill testing. 3,782,190, Cl. 73-151.000.

Pladys, Nestor, to Soceite Anonyme dite: Societe Francaise des Petroles B.P. and Societe Anonyme dite: Soletanche. Liquid storage tank. 3,782,124, Cl. 61-.500.

Plamper, Gerhard R.; and Kaesgen, Juergen, to MTD Products Inc. Safety switch mechanism. 3,783,216, Cl. 200-161.000.

Platzke, Ronald N.; and Spedden, Henry Rush, to Kennecott Copper Corporation. Process for recovering volatilized metal oxides from gas streams. 3,783,158, Cl. 423-49.000.

Pless, John H. Drying of timber. 3,782,000, Cl. 34-9.500.

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Plummer, Walter A. Flattened heat reactive tubing with expanded passage. 3,783,086, Cl. 161-126.000.

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Sablev, Leonid Pavlovich; Dolotov, Jury Ivanovich; Getman, Leonid Ivanovich; Gorbunov, Valentin Nikolaevich; Goldiner, Evgeny Georgievich; Kirshfeld, Karl Teodorovich; and Usov, Vladislav Vasilievich. Apparatus for vacuum-evaporation of metals under the acion of an electric arc. 3,783,231, Cl. 219-123.000.
Sabo, William V. Sprinkler control system. 3,782,630, Cl. 239-70.000.
Sachs, Melvin H. Wall forming blocks. 3,782,049, Cl. 52-309.000.
Saffro, Dennis W. Root canal reversible stop. 3,781,996, Cl. 32-57.000.
Saito, Toshiaki, to Kabushiki Kaisha Suwa Seikosha. Driving arrangement for liquid crystal display in timepieces. 3,782,103, Cl. 58-23.000.
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Salkino, Michael J.; and Reinfelder, William C., to United Aircraft Corporation. Composite aerodynamic blade with twin-beam spar. 3,782,856, Cl. 416-226.000.
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Sandera, Jiri, to TRW Inc. Method of platinum diffusion. 3,783,049, Cl. 148-188.000.
Sanders, Robert N.: *See—*
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Sanders, Robert W., to United States of America, Navy. Three dimensional radar transponder system. 3,783,447, Cl. 343-17.700.
Sanders, Thomas J., to Harris-Intertype Corporation, mesne. High frequency transistor fabrication. 3,783,048, Cl. 148-187.000.
Sanderson, Paul H., Jr.: *See—*
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Sandiford, Burton B., to Union Oil Company of California. Apparatus and method for dispensing solid particles in a liquid. 3,782,695, Cl. 259-4.000.
Sandoz Ltd.: *See—*
Dore, Jacky, 3,782,897.
Goorhuis, Hendrik, 3,782,895.
Sandrone, Bruno; and Toniolo, Antonio, to Olivetti, Ing., C., & C., S.p.A. Re-winding device for the paper for teleprinter machines and printing machines in general. 3,782,666, Cl. 242-67.200.
Sano, Yozo: *See—*
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Sansui Electric Co. Ltd.: *See—*
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Santilli, James N.: *See—*
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Sargent Industries, Inc., mesne: *See—*
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Sarna, Toby R. Hair teaser. 3,782,395, Cl. 132-9.000.
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Sato, Akira: *See—*
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Sato, Chosei; Adachi, Takeshi; and Inoy, Hiroyuki, to Showa Denko Kabushiki Kaisha. Inter-cell bus bar connection means. 3,783,122, Cl. 204-279.000.

Sato, Hisanao: *See—*
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Sato, Yoichi, to Nippon Electric Company, Limited. Equalizer of preset type for quadrature amplitude modulated signals. 3,783,386, Cl. 325-321.000.
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Hayakawa, Yoshihide; and Satomura, Masato, 3,782,944.
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Schier, Gunther, to Maico Fahrzeugfabrik GmbH. Cylinder unit for an air-cooled two-stroke-cycle engine. 3,782,342, Cl. 123-41.690.
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Schimkat, Harald, to Volkswagenwerk Aktiengesellschaft. Steering arrangement for vehicles, especially motor vehicles, with a steering servo mechanism. 3,782,490, Cl. 180-79.100.
Schindel, Arnold; and Wojtowicz, David, to Singer Company, The. Viscous deceleration damped incremental position motor. 3,783,312, Cl. 310-36.000.
Schindler, Walter; deceased (Blattner, Hans; and Gysin, Leonhard; executors), to Ciba-Giegy Corporation. Derivatives of dibenzo(B,F) pyrrolo (3,4-D)azepine as CNS-depressants. 3,783,161, Cl. 424-274.000.
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Schmidt, Verna Grace. Fire extinguisher. 3,782,475, Cl. 169-1.00r.
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Sittmann, Brigitte, to Vereinigte Baubeschlogfabriken Gretsch & Co., GmbH. Ski safety binding element. 3,782,743, Cl. 280-11.35t.
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Miller, Walter E., Jr.; Peacher, Teddy J.; Duke, Jimmy R.; and Sitton, Robert L., 3,782,667.
Skatsche, Othmar: *See—*
Thien, Gerhard; Skatsche, Othmar; and Fachbach, Heinz, 3,782,496.
Skelly, David W.: *See—*
King, Randall N.; and Skelly, David W., 3,783,025.
Skinner, Denis J., to Shell Oil Company. Method of installing a combination pedestal conductor and conductor string at an offshore location. 3,782,460, Cl. 166-.500.
Slaasted, Raymond S.; and Smith, Edward D., to Modine Manufacturing Company. Heat exchanger. 3,782,454, Cl. 165-144.000.
Slack, John, to Gray Tool Company. Upright, swivelable buoyed conduit for offshore system. 3,782,458, Cl. 166-.500.
Slanina, Donald R.: *See—*
Morris, Louis, Jr.; Slanina, Donald R.; and Seidel, Martin P., 3,783,426.
Slavik, William H.; and Valiquet, Brett A., to Motorola, Inc. Automatic hue control and method. 3,783,186, Cl. 178-5.4he.
Slawsky, Zaka I., to United States of America, Navy. Air launched, wire guided torpedo. 3,783,441, Cl. 340-2.000.
Sleichter, Kenneth W. Vehicle overload spring apparatus. 3,782,754, Cl. 280-124.00r.
Slowik, Raymond: *See—*
Hill, Harry W.; and Slowik, Raymond, 3,783,239.
Smith, Daniel Paul, Jr., to Sperry Rand Corporation. Corona charging device with semiconductive shield. 3,783,283, Cl. 250-324.000.
Smith, David L., Sr.: *See—*
McNeill, Frederick J.; Kulik, Joseph S., Jr.; and Smith, David L., Sr., 3,783,329.
Smith, Donald A.: *See—*
Kantorski, Joseph W.; Smith, Donald A.; LaMarre, David A.; Hansen, Donald H.; and Thorburn, Milton R., 3,782,823.
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Smith, Hoyt L.: *See—*
Frederick, Cecil S.; and Smith, Hoyt L., 3,782,649.
Smith, Ian E., to Savin Business Machines Corporation. System for reducing background developer deposition in an electrostatic copier. 3,782,818, Cl. 355-10.000.
Smith Industries Limited: *See—*
Barnard, Dominic Paul Edmund, 3,783,242.
Smith, John D., to Wellman Industries. Coin controlled vending apparatus. 3,782,518, Cl. 194-54.000.
Smith, Roy Richard, to International Business Machines Corporation. Kinematic extensible truss mechanism. 3,782,674, Cl. 248-370.000.
Smith, Terrance M., to Babcock & Wilcox Company, The. Refractory pouring tube. 3,782,980, Cl. 106-57.000.
Smith, Thomas R.; Pond, Robert W.; and Rivers, Richard D., to American Air Filter Company. Ceiling filter system for clean room. 3,782,082, Cl. 55-494.000.
Smithe, F. L., Machine Company, Inc.: *See—*
Helm, Herbert W., 3,782,233.
Oggoian, Walter, 3,782,232.
Smolderln, Albert Emiel, to Agfa-Gevaert N.V. Method and apparatus for continuously wrapping flexible sheets. 3,782,067, Cl. 53-28.000.
Smythe, Walter J., to Orthopedic Equipment Company, Inc. Drill jig for a femoral prosthesis. 3,782,373, Cl. 128-92.0eb.
Snook, Randolph W., to Pullman Incorporated. Apparatus for providing expansible chimneys. 3,782,266, Cl. 98-58.000.
Soc. S. A. M. E. R.: *See—*
Olivett, Alessandro, 3,782,005.
Soceite Anonyme dite: Societe Francaise des Petroles B.P.: *See—*
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Societe Anonyme: *See—*
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Societe Anonyme D.B.A.: *See—*
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Marouby, Guy, 3,782,784.
Societe Anonyme dite: Soletanche: *See—*
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Societe Anonyme: Societe Francaise du Ferodo: *See—*
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Societe d'Etudes de Machines Thermiques: *See—*
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Societe d'Exploitation des Brevets NEIMAN Neuilly: *See—*
Lipschutz, Paul; and Leroy, Jean, 3,782,493.
Societe du Caoutchouc Technique: *See—*
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Societe Nationale des Petroles D'Aquitaine: *See—*
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Soiret, Francois J.: *See—*
Henshilwood, Jack R.; and Soiret, Francois J., 3,783,104.
Soldan, Gerd. Lauter tub and method. 3,782,551, Cl. 210-179.000.
Soll, Wolfgang: *See—*
Scholl, Hermann; Mauch, Harald; Rittmannsberger, Norbert; and Soll, Wolfgang, 3,782,339.
Sollerud, Soren Elof Mauritz, to Maskin AB Selco. Apparatus for making food units. 3,782,270, Cl. 99-450.400.
Solomadina, Elizaveta Andreevna: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasieievich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.
Solomon, William H.; Davies, John R.; and Eorward, Carrel M., to Oliver Machinery Company. Method of applying halide and checking the same. 3,783,058, Cl. 156-64.000.
Solum, Dallas H., to Envirotech Corporation. Feed distribution means for vacuum filters. 3,782,555, Cl. 210-404.000.
Solvay & Cie: *See—*
Chauffoureaux, Jean, 3,783,011.
Soma, Ikuo; and Ando, Yujiro, to Canon Kabushiki Kaisha. Developing method for electrophotography. 3,783,352, Cl. 317-262.00h.
Soman, George O.: *See—*
Lawson, Jimmie Brown; Richardson, Edwin A.; and Soman, George O., 3,782,466.
Soodalter, Arnold. Dispensing machine for food products. 3,782,607, Cl. 222-249.000.
Sorensen, Robert P.; and Strombeck, Leo, to Anderson Bros. Mfg. Co. Apparatus for wrapping articles. 3,782,072, Cl. 53-229.000.
Soter, Ernest J., to United States of America, National Aeronautics and Space Administration. Modification of one man life raft. 3,781,933, Cl. 9-11.00a.
Soulier, Joel Henri Auguste. Device for adjusting the microwave energy applied to a band or a sheet to be treated in a resonant cavity furnace. 3,783,221, Cl. 219-10.550.
South African Inventions Development Corporation: *See—*
Kuhn, Stephanus Hendrik; Freeme, Charles Richard; Beulink, Rombout; and Basson, John Edgar Baron, 3,782,486.
Southwest Research Institute: *See—*
Birdwell, James A.; Barton, John R.; and Gardner, Clarence G., 3,783,370.
Southwire Company: *See—*
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Souza, Joseph Francis, to Shipley Company, Inc. Electroless nickel plating. 3,782,978, Cl. 106-1.000.
Sowinski, Leonard A.: *See—*
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Sparser, Frederick J. Pressure sensitive fluid injector and pogo stick utilizing same. 3,782,352, Cl. 123-139.0aj.
Spaulding, Richard A., to Eastman Kodak Company. Multi-color acoustooptic modulator. 3,783,185, Cl. 178-5.200.
Speaker Motion Systems, Inc.: *See—*
Wolbrink, David W., 3,782,531.
Speaker system and electrostatic speaker: *See—*
Bobb, Lloyd J., 3,783,202.
Spedden, Henry Rush: *See—*
Platzke, Ronald N.; and Spedden, Henry Rush, 3,783,158.
Spence, Mack L. Method and apparatus for automatic ranging with variable power telescopic gun sight. 3,782,822, Cl. 356-21.000.
Spencer, Dudley W. C. Horseshoe. 3,782,473, Cl. 168-4.000.
Spencer, Harvey J.; and Wittkopf, Eugene W., to Kimberly-Clark Corporation. Folding apparatus. 3,782,714, Cl. 270-69.000.
Spencer, William H.; Dorius, John O.; and Brown, James D., to Trend Ceilings Systems Co. Expansion joint assembly for ceiling grid system. 3,782,055, Cl. 52-758.00d.
Speranza, George Phillip, to Jefferson Chemical Company, Inc. Rigid fire retardant pdlyurethane foam. 3,783,133, Cl. 260-2.5ar.
Sperry Rand Corporation: *See—*
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Sprague, Roland E., 3,783,235.
Stoliar, Arthur P.; and Brown, Richard T., Jr., 3,782,824.
Webster, Neil W.; and Sheesley, Donald L., 3,782,275.
Sperry Rand Limited: *See—*
Towner, Frank Richard, 3,783,197.
Spicer, Lyndon Reginald, to International Standard Electric Corporation. Fluted cable. 3,783,180, Cl. 174-110.00r.

Spichala, Paul, to Fichtel & Sachs AG. Hydraulic levelling apparatus for automotive vehicles and shut-off valve for the same. 3,782,755, Cl. 280-124.00f.

Spight, James S.: *See—*
Curtis, George C.; and Spight, James S., 3,781,925.

Spin Company: *See—*
Donnelly, Frank R., 3,782,636.

Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H.: *See—*
Stahlecker, Fritz, 3,782,100.

Spitz, Melvin P. Connection device for adjustable bedframe. 3,781,930, Cl. 5-201.000.

Spohr, Albert R.: *See—*
Gallanis, George P.; and Spohr, Albert R., 3,783,364.

Spooner, Robert E. Shaft position and wear indicator switch device. 3,783,210, Cl. 200-61.400.

Sprague, Gordon P.: *See—*
Billmaier, Joseph F.; and Sprague, Gordon P., 3,782,504.

Sprague, Roland E., to Sperry Rand Corporation. Fuser low voltage sensor for photocopy machine. 3,783,235, Cl. 219-216.000.

Sprenger, Gerhard E.: *See—*
Carlick, Daniel J.; Marra, Frank; and Sprenger, Gerhard E., 3,783,151.

Spring Mills, Inc.: *See—*
Flowers, Thad T., 3,782,094.

Springer, Charles H. Apparatus for producing a laterally directed spray of fluid. 3,782,641, Cl. 239-598.000.

Spurgeon, Richard C. Texturing yarns by false twisting. 3,782,091, Cl. 57-34.0hs.

Squibb, E. R., & Sons, Inc.: *See—*
Czaplinski, Thomas V.; Bruno, Gerald A.; and Haney, Thomas A., 3,783,291.

St. Clair, Theodore A., to Textron, Inc. Temperature compensated rotary gas meter. 3,782,196, Cl. 73-254.000.

Staacks, Dieter: *See—*
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Staatsbedrijf Artillerie Inrichtingen: *See—*
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Stadium Limited: *See—*
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Stadmark, Nils Hagert: *See—*
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Stahlecker, Fritz, to Spindelfabrik Suessen, Schurr, Stahlecker & Grill G.m.b.H. Spindle for spinning or twisting machines. 3,782,100, Cl. 57-135.000.

Stahlfeld, Donald L.: *See—*
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., 3,782,076.

Stahlwerke Peine-Salzgitter, A.G.: *See—*
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Staley, A. E., Manufacturing Company: *See—*
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Larson, Roy F.; and Turner, Almerin W., 3,783,100.

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Schoen, Lowhardt A., 3,783,134.

Standard Oil Company: *See—*
Shumaker, Willis L., 3,782,884.

Stanley, Robert K., to Textured Yarn Co., Inc., mesne. Method and apparatus for compressively crimping textile strands. 3,781,951, Cl. 28-1.600.

Stanley, Robert K. Textile treatment method and apparatus. 3,781,952, Cl. 28-1.600.

Stanley, Thomas Osborne, to RCA Corporation. High-density capacitive information records and playback apparatus therefor. 3,783,196, Cl. 179-100.10b.

Stanley Works, The: *See—*
Remington, John L.; and Benner, Willard J., 3,782,800.

Stanny, Edward P.: *See—*
Frisby, Paul W.; and Stanny, Edward P., 3,782,516.

Starr, James E., to Vishay Intertechnology, Inc. Strain multiplier. 3,782,182, Cl. 73-88.50r.

Stasiuk, Michael, to Versatile Manufacturing Ltd. Power transmission device. 3,782,224, Cl. 74-687.000.

State of Florida, Department of Citrus: *See—*
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Statnikov, Vladimir Mikhailovich: *See—*
Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasielevich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Guliev, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.

Staudhammer, Karl P.: *See—*
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Stearns, Charles F.: *See—*
Linebrink, Kail L.; and Stearns, Charles F., 3,782,109.

Stegelman, Albert F., to Phillips Petroleum Company. Yarn processing apparatus. 3,781,953, Cl. 28-71.300.

Steiert, Hermann: *See—*
Korber, Karl-Heinz; Steiert, Hermann; and Dehnert, Heinz, 3,782,188.

Steiner, Hans: *See—*
Lang, Karl; and Steiner, Hans, 3,782,589.

Steiner, Joseph. Clinch stud. 3,782,436, Cl. 151-41.730.

Steinwart, Johannes; and Bauder, Armin, to Audi NSU Auto Union Aktiengesellschaft and Wankel GmbH. Oil seal construction for rotary engines. 3,782,869, Cl. 418-142.000.

Stephens, Leonard J.; Granger, Derril D.; McCullagh, John S.; and Hagar, Donald K., to Rockwell international Corporation. Seat insert for butterfly-type valves. 3,782,684, Cl. 251-306.000.

Sternjakob, Rolf: *See—*
Korr, Peter; Pollark, Gottfried; and Sternjakob, Rolf, 3,782,420.

Steuby, Thomas A. Valve. 3,782,410, Cl. 137-496.000.

Stevens, Simon, to U.S. Philips Corporation. Stretcher. 3,781,929, Cl. 5-81.00r.

Stevenson, William W., to Minnesota Mining and Manufacturing Company. Artificial roll-up field. 3,782,663, Cl. 242-55.000.

Stewart, Alice. Three-dimensional stichery ornaments, apparatus and method for making same. 3,781,954, Cl. 28-15.000.

Stiles, Denis Arthur: *See—*
Hollister, Ralph George; and Stiles, Denis Arthur, 3,782,077.

Stock, Hans Joachim: *See—*
Oelmayer, Reinhold; Seelos, Albert; Reif, Winfried; Nagy, Denes; and Stock, Hans Joachim, 3,783,275.

Stockel, Wilhelm, to Pfaff Industriemachinen GmbH. Sewing machine with equipment for sewing of edge-parallel seams. 3,782,310, Cl. 112-153.000.

Stockert, Heinz: *See—*
Neeb, Karl Heinz; Neidl, Herbert; and Stockert, Heinz, 3,783,268.

Stockmann, Helmut: *See—*
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Stocton, Paul M.: *See—*
Thompson, Thomas C.; Center, John L.; and Stocton, Paul M., 3,782,383.

Stoliar, Arthur P.; and Brown, Richard T., Jr., to Sperry Rand Corporation. Apparatus and method for measuring extinction coefficient of an atmospheric scattering medium. 3,782,824, Cl. 356-103.000.

Stoll, H., and Company: *See—*
Ploppa, Jurgen; and Hadam, Wilhelm, 3,782,136.

Stoltz, Andries Johannes, to Morris Limited. Apparatus for positioning bricks. 3,782,047, Cl. 52-749.000.

Stone & Webster Engineering Corporation: *See—*
Hayward, Gardner L.; and Meilun, Edwin C., 3,783,126.

Stone, Charles D.: *See—*
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Stone, Henry Dermott, to U.S. Philips Corporation. Image intensifiers and the like. 3,781,979, Cl. 29-592.000.

Stone, Julian, to Bell Telephone Laboratories, Incorporated. Method for splicing liquid-core optical fibers. 3,783,065, Cl. 156-158.000.

Stookey, Stanley D.: *See—*
Pierson, Joseph E.; and Stookey, Stanley D., 3,782,982.

Stooksberry, Franklin D.: *See—*
Womack, Robert R.; and Stooksberry, Franklin D., 3,782,668.

Storz, Karl. Endoscope with irrigation means. 3,782,369, Cl. 128-7.000.

Stoveken, Wayne E.: *See—*
Milovich, Dimitrije; and Stoveken, Wayne E., 3,782,744.

Stoveken, Wayne E., 30% to Milovich, Dimitrije. Snow surfboard. 3,782,745, Cl. 280-18.000.

Stradco, Inc.: *See—*
Brnes, Frank, 3,782,114.

Strasbaugh, Ray Howard. Lens grinding and polishing units. 3,782,042, Cl. 51-58.000.

Straut, Harold J., Jr.; and Weber, Raymond E. Spool and sleeve pneumatic accelerometer. 3,782,207, Cl. 73-515.000.

Street, Thomas R., Jr.: *See—*
Nalooka, Edward C.; and Street, Thomas R., Jr., 3,782,221.

Streit, James L. Lesson selector element controlled device for presenting visual and audio lessons and receiving recorded answers on a sound track. 3,782,007, Cl. 35-8.00a.

Stretton, Joseph Blake; and Borachok, William, to Textron, Inc. Brush cutter. 3,781,991, Cl. 30-276.000.

Strohbeck, Gotthilf, to Bosch, Robert, G.m.b.H. Vibratory compactor. 3,782,693, Cl. 259-1.000.

Strohschneider, Walter, to Zellweger AG. Method and apparatus for controlling a light source of an optical reader mechanism. 3,783,273, Cl. 250-223.000.

Strom, Thomas N.: *See—*
Ludwig, Lawrence P.; and Strom, Thomas N., 3,782,737.

Strombeck, Leo: *See—*
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Strong-Robinette Bag Company, Inc.: *See—*
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Stuelpnagel, John C., to Westinghouse Electric Corporation. Onboard calibration and test of airborne inertial devices. 3,782,167, Cl. 73-1.00e.

Sturek, James S. Camper tie-down system. 3,782,774, Cl. 296-23.0mc.

Suganuma, Yoshiyasu: *See—*
Karube, Soichi; Hamada, Yoshio; and Suganuma, Yoshiyasu, 3,783,440.

Sugaya, Inawo: *See—*
Hiruma, Kenji; and Sugaya, Inawo, 3,781,983.

Sugden, Harry, Jr., to Emerson Electric Co. Parity check for turbine meter electronic counting instrumentation or the like. 3,783,248, Cl. 235-92.0fl.

Sugimoto, Noboru; and Ohneda, Shoichi, to Minolta Camera Kabushiki Kaisha. Objective lens for television cameras. 3,783,191, Cl. 178i7.920.

Sullivan, Donald P.: *See—*
Walters, David W.; Heeks, Robert E.; and Sullivan, Donald P., 3,782,960.

Sumitimi Jukikai Kogyo Kabushiki Kaisha: *See—*
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.

Summerfield, William F., to Mattel, Inc. Selectable message voice unit. 3,782,732, Cl. 274-9.0ra.

Summers, James J.: *See—*
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Sun Chemical Corporation: *See—*
Carlick, Daniel J.; Marra, Frank; and Sprenger, Gerhard E., 3,783,151.

Sun Research and Development Co.: *See—*
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Sunbeam Corporation: *See—*
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Sundby, Gustav B., to Rockwell International Corporation. Articulated railway truck swinging bolster. 3,782,294, Cl. 105-182.00r.

Sunderman, Lavern C. Automatic loading and unloading bale wagon. 3,782,570, Cl. 214-519.000.

Sundstrand Data Control Inc.: *See—*
Eide, Melvin O.; and Clark, Donald E., 3,783,374.

Sundstrom, Thomas H.: *See—*
Kriedt, Frederick A.; Sundstrom, Thomas H.; and Walko, Richard, 3,782,317.

Surber, John L., Jr., to U.S. Postage Box Company. Stamp dispensing apparatus. 3,782,616, Cl. 226-43.000.

Surface Technology Corporation: *See—*
Rausch, John J.; and Van Thyne, Ray J., 3,783,039.
Van Thyne, Ray J.; and Rausch, John J., 3,783,038.

Svenska Aktiebolaget Bramsregulator: *See—*
Bjork, Jan, 3,782,282.

Svilans, Olgerts Janis. Device for air and fluid acceleration and method of making same. 3,782,857, Cl. 416-236.000.

Swain, Kenneth W.; and Belcher, Richard A., to Chase-Shawmut Company, The. Low-voltage fuse with blown fuse indicator. 3,783,428, Cl. 337-148.000.

Swallert, Sven Arild, to Per-Erik Pettersson. Device for raising the head end and/or foot end of a bed. 3,781,928, Cl. 5-68.000.

Swartz, George Allan; and Chamberlain, Richard Earl, to RCA Corporation. Encapsulated semiconductor device assembly. 3,783,348, Cl. 317-234.00r.

Swartz, Karl M.: *See—*
Depenthal, Fritz; and Swartz, Karl M., 3,782,332.

Sweet, David L.: *See—*
Sweet, Phillip J.; Hamlet, Buck G.; and Sweet, David L., 3,782,753.

Sweet, Phillip J.; Hamlet, Buck G.; and Sweet, David L., to American Carrier Equipment. Pneumatic suspension unit. 3,782,753, Cl. 280-124.00f.

Swenson, Donald R.; and Rich, Philip J. Pill box having safety sliding closure. 3,782,584, Cl. 220-41.000.

Swenson Spreader & Mfg. Co.: *See—*
Herman, John R., 3,782,634.

Swetlitz, Myron; and Richard, James A., to Westinghouse Electric Corporation, mesne. Can opener. 3,781,989, Cl. 30-4.00r.

Swift, Samuel C.: *See—*
Rosenwald, Gary W.; and Swift, Samuel C., 3,782,585.

Swiss Aluminium Ltd.: *See—*
Passenheim, Wolfgang, 3,782,315.

Swozil, Adolf, to Sigri Elektrographit GmbH. Heat exchanger with nests of tubes. 3,782,450, Cl. 165-81.000.

Symmes, Eliot N., to American Clinic, Inc. Means and methods to assist people in building up an aversion to undesirable habits. 3,782,006, Cl. 35-22.00r.

Tajima, Tatsuya: *See—*
Arai, Atsuaki; Ohkubo, Kinji; Tajima, Tatsuya; Tanaka, Mitsugu; and Tutiya, Yosinori, 3,782,946.

Takagi, Akira: *See—*
Takimoto, Hisashi; Minoda, Minoru; and Takagi, Akira, 3,782,995.

Takahashi, Katsutoshi; and Takase, Masanori, to Dainippon Ink and Chemicals, Incorporated. Photosensitive composition comprising polyurethane prepolymer. 3,782,961, Cl. 96-115.00r.

Takahashi, Kinzo: *See—*
Ono, Kuniharu; Kamae, Tsutomu; Takahashi, Kinzo; and Miyatake, Masao, 3,783,344.

Takahashi, Osamu; and Ogasawala, Nobuhieo, to Hitachi, Ltd. Flywheel magneto having trigger generator for igniting engine. 3,783,315, Cl. 310-74.000.

Takahashi, Susumu, to Sansui Electric Co. Ltd. Decoder for use in matrix four-channel system. 3,783,192, Cl. 179-1.0gq.

Takano, Yukio: *See—*
Nanba, Mitsuo; Takano, Yukio; Higuchi, Hisayuki; and Maki, Michiyoshi, 3,783,050.

Takase, Masanori: *See—*
Takahashi, Katsutoshi; and Takase, Masanori, 3,782,961.

Takase, Takashi; Hayashi, Tsunekazu; and Saitoh, Hirokazo, to Mitsuboshi-Sangyo Co., Ltd. Method for preparing water-proof asphalt materials. 3,783,000, Cl. 117-21.000.

Takimoto, Hisashi; Minoda, Minoru; and Takagi, Akira, to Fuji Photo Film Co., Ltd. Method of coating both surfaces of a web. 3,782,995, Cl. 117-34.000.

Tally Corporation: *See—*
Barnett, David L.; Rose, Stanley E.; and Zurcher, Robert S., 3,782,278.

Talmage, Charles Robert: *See—*
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Tanaka, Mitsugu: *See—*
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Tanizaki, Hiroshi, to Yamamizu Shoji Kabushiki Kaisha. Method and apparatus for browning exterior surfaces of foodstuff in an electronic range. 3,783,220, Cl. 219-10.550.

Tarshis, Lemuel A., to General Electric Company. Rapid solidification to improve the oxidation resistance of directionally solidified eutectic alloys. 3,783,033, Cl. 148-32.000.

Tarui, Yasuo; Denda, Seiichi; Baba, Harutsune; and Komimiya, Yasuo, to Industrial Science and Technology, Minister of International Trade and Industry, Agency of. Method of manufacturing integrated circuits. 3,783,228, Cl. 219-121.0em.

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Yamamura, Sakae; and Inaba, Seiuemon, to Fujitsu Limited and Fujitsu Fanuc Limited. Laminated rotor tooth assembly for an electric pulse motor. 3,783,319, Cl. 310-268.000.
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Kheifeis, Georgy Naumovich; Plyatskovsky, Oskar Alexandrovich; Yankovsky, Vladimir Mikhailovich; Akhmedov, Baba Abbas Ogly; Lange, Zelman Iosifovich; Golubev, Jury Vasieievich; Solomadina, Elizaveta Andreevna; Statnikov, Vladimir Mikhailovich; Ibragimov, Irafil Naftali Ogly; Gulicv, Tagi Rza Ogly; and Porokhovnikov, Jury Zinovievich, 3,782,160.
Yao, Shi-Kuang, to GAF Corporation. Novel tetranuclear methine dyes, processes for preparing the same, and electrophotographic systems and silver halide emulsions containing the same. 3,782,935, Cl. 96-1.700.
Yarrington, James Clifford, to International Business Machines Corporation. Mechanical motion retarding means. 3,782,506, Cl. 188-1.00b.
Yasuda, Norio, to Sega Enterprises Kabushiki Kaisha. Sinking vessel simulation apparatus. 3,782,728, Cl. 273-101.002.
Yatsuo, Tsutomu; and Ogawa, Takuzo, to Hitachi, Ltd. Thyristor device. 3,783,350, Cl. 317-235.00r.
Yehan Numata: *See*—
Okazaki, Katsutoshi, 3,781,998.
Yeiser, Beverly G.: *See*—
Powell, James B.; Yeiser, Beverly G.; and Lightner, Joseph R., 3,782,398.
Yim, Woongsoon Michael: *See*—
Wronski, Christopher Roman; Yim, Woongsoon Michael; and Dresner, Joseph, 3,783,324.
Yokoi, Fumitoshi: *See*—
Yamagishi, Hidehisa; and Yokoi, Fumitoshi, 3,781,968.
Yonkers, John L. Method and apparatus for assembling liners in connectors. 3,781,985, Cl. 29-629.000.

York, William C., to Eastman Kodak Company. Conducting lacquers for electrophotographic elements. 3,783,021, Cl. 117-212.000.
Yoshida, Kiroshi: *See*—
Ohira, Takuya; Shiraishi, Shunta; Matsushima, Hiroshi; Kato, Yukiya; Shimokawa, Kiyomitsu; and Yoshida, Kiroshi, 3,782,738.
Yoshimura, Shigetake: *See*—
Tatsutomi, Yasuo; and Yoshimura, Shigetake, 3,782,346.
Yoshiyasu, Mitsuo; and Toyoda, Takashi, to Kabushiki Kaisha Oji Goseishi Kenkyujo. Synthetic paper. 3,783,088, Cl. 161-160.000.
Young, Dean Arthur, to Union Oil Company of California. Hydrocarbon conversion process. 3,783,123, Cl. 208-111.000.
Young, John E., Jr.: *See*—
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., 3,782,076.
Young, Philip, to United Aircraft Corporation. Lubrication means. 3,782,500, Cl. 184-64.000.
Younkin, James R.; and Nixon, John M., to Edo-Aire Mitchell Industries, Inc. Light responsive sensor system. 3,783,277, Cl. 250-237.00r.
Yount, Robert H. One man holder for vehicles doors, bumpers, and the like during repair thereof. 3,782,713, Cl. 269-297.000.
Yousch, Thomas. Screw conveyor coil wiper. 3,782,535, Cl. 198-229.000.
Zahid, Abduz, to Green Hydraulics, Inc. Pressure pulse dampener device. 3,782,418, Cl. 138-26.000.
Zajac, Bruno G., to Conaar Corporation. Coin controlled meter construction. 3,782,519, Cl. 194-83.000.
Zakaras, Anthony E., to Simmons Company. Motor operated bed having low leakage current. 3,781,927, Cl. 5-67.000.
Zarges, Walther. Collapsible receptacle. 3,782,579, Cl. 220-4.00f.
Zeimet, Heinrich; Rentel, Alfred; and Montz, Horst, to Seitz-Werke G.m.b.H. Device for shutting off the return gas line of counterpressure filling elements of multi-chamber vessel filling machines. 3,782,427, Cl. 141-39.000.
Zellweger AG: *See*—
Strohschneider, Walter, 3,783,273.
Zembaty, Stanley A., to General Electric Company. Meter dial with mirror image portion. 3,782,324, Cl. 116-129.00t.
Zeppenfeld, Gisela, to Ve Textilkombinat Cottbus. Process for the radiation treatment of polyethylene. 3,783,115, Cl. 204-159.200.
Zetterlund, Uno, to Allmanna Svenska Elektriska Aktiebolaget. Layer winding for electrical apparatus. 3,783,427, Cl. 336-206.000.
Ziegler, William H., to United States of America, Army. Automatic azimuth recovery system for cannons. 3,782,243, Cl. 89-37.00c.
Ziemek, Gerhard; and Scheffler, Ernst, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Method of making a superconductor. 3,781,982, Cl. 29-599.000.
Zimmermann, Heinrich, to Dual Gebruder Steidinger, Firma. Console for record players. 3,782,801, Cl. 312-284.000.
Zoecon Corporation: *See*—
Henrick, Olive A.; and Siddall, John B., 3,783,135.
Zotter, John F., to Textron, Inc. Method of making a bearing seal. 3,783,070, Cl. 156-211.000.
Zsamboky, Leslie: *See*—
McGeeney, William S.; Trapp, George S.; and Zsamboky, Leslie, 3,782,161.
Zucconi, Homer R. Keg tapping assembly. 3,782,609, Cl. 222-394.000.
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Schaap, Sanford; and Zura, Borys, 3,782,046.
Zurcher, Robert S.: *See*—
Barnett, David L.; Rose, Stanley E.; and Zurcher, Robert S., 3,782,278.
Zyss, Thadeus B., 20% to Appleman, Milo Don, Jr. Method of producing cured low sodium meat products. 3,782,975, Cl. 426-281.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 1ST DAY OF JANUARY, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Baker, Sara Z.: *See*—
Baker, William P., Jr., and Sahatjian, T918,005.

Baker, William P., Jr., decreased, late of Chadds Ford, by S. Z. Baker, executrix, and R. A. Sahatjian, said Sahatjian assignors to E. I. du Pont de Nemours and Co. Tractable aromatic poly(schiff bases). T918,005, 1-1-73, Cl. 260—72.5.

Battista, Mario A., L. E. Freed, R. S. Harbison, J. W. Nestork, J. R. Struk, and D. Tuman, to International Business Machines, Inc. Integrated circuit junction isolation structure. T918,007, 1-1-74, Cl. 317—235.

Brack, Karl, M. Ghafghaichi, and H. Wimpfheimer, to International Business Machines Corp. Integrated circuit structure electrically isolated by a combination of amorphous silicon walls and insulating PN junction. T918,008, 1-1-74, Cl. 317—235.

Chappell, William M., H. C. Fallon, G. Geortzel, and W. G. Strohm, to International Business Machines Corp. Program generator for branching questionnaire. T918,004, 1-1-74, Cl. 340—172.5.

Du Pont de Nemours, E. I., and Co.: *See*—
Baker, William P., Jr. T918,005.

Fallon, Hugh C.: *See*—
Chappell, William M., Fallon, Geortzel, and Strohm. T918,004.

Freed, Larry E.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Freeman, Emma J.: *See*—
Sherwin, Ernest R., Luckadoo, and Freeman. T918,003.

Gambino, Giuliano: *See*—
Wrye, Robert G., and Gambino. T918,009.

Geortzel, Gerald: *See*—
Chappell, William M., Fallon, Geortzel, and Strohm. T918,004.

Ghafghaichi, Majid: *See*—
Brack, Karl, Ghafghaichi, and Wimpfheimer. T918,008.

Gray, Theodore F., Jr., J. C. Weaver, and M. A. McCall. Flame retardant molding compositions having desirable mechanical properties. T918,001, 1-1-74, Cl. 260—40.

Harbison, Richard S.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

International Business Machines Corp.: *See*—
Brack, Karl, Ghafghaichi, and Wimpfheimer. T918,008.
Chappell, William M., Fallon, Geortzel, and Strohm. T918,004.

International Business Machines, Inc.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Knoth, Eugene E. Automatic system for printing information on the trailing end of continuously transported articles. T918,002, 1-1-74, Cl. 101—41.

Luckadoo, Bobby M.: *See*—
Sherwin, Ernest R., Luckadoo, and Freeman. T918,003.

Macalusa, Carroll J.: *See*—
Schramm, James N., Macalusa, and Schumann. T918,006.

McCall, Marvin A.: *See*—
Gray, Theodore F., Jr., Weaver, and McCall. T918,001.

Nestork, William J.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Sahatjian, Ronald A.: *See*—
Baker, William P. Jr. T918,005.

Schramm, James N., C. J. Macalusa, and R. C. Schumann, Jr. Method of securing stacked polyolefin containers against slipping. T918,006, 1-1-74, Cl. 117—94.

Schumann, Robert C., Jr.: *See*—
Schramm, James N., Macalusa, and Schumann. T918,006.

Sherwin, Ernest R., B. M. Luckadoo, and E. J. Freeman. Antioxidant compositions. T918,003, 1-1-74, Cl. 426—181.

Strohm, William G.: *See*—
Chappell, William M., Fallon, Geortzel, and Strohm. T918,004.

Struk, James R.: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Tuman, Daniel: *See*—
Battista, Mario A., Freed, Harbison, Nestork, Struk, and Tuman. T918,007.

Weaver, James C.: *See*—
Gray, Theodore F., Jr., Weaver, and McCall. T918,001.

Wimpfheimer, Hans: *See*—
Brack, Karl, Ghafghaichi, and Wimpfheimer. T918,008.

Wrye, Robert G., and G. Gambino. Method for producing a high stretch textured polyester yarn for package dyeing. T918,009, 1-1-74, Cl. 57—157.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Adler, Stanford L., to Technicon Corp. Apparatus for the automatic determination of the coagulation, aggregation and or flocculation, or the like, rates or fluids, and novel reaction intensifying agent for use therewith. Re. 27,866, 1-1-74, Cl. 23—253.

Asahi Toy Co., Ltd.: *See*—
Miura, Keiichiro, Re. 27,859.

Baker, Robert G., and S. R. Rosen, to Nordson Corp. Applicator having a fixed module with static parts and a removable module with moving parts. Re. 27,865, 1-1-74, Cl. 222—504.

Davis, Steven J., and R. A. Liberman, to General DataComm Industries, Inc. Closed loop test method and apparatus for duplex data transmission modem. Re. 27,864, 1-1-74, Cl. 179—2.

Day, Ronald H., to Sargent Industries, Inc. Aspirator apparatus for bag inflation systems. Re. 27,860, 1-1-74, Cl. 417—184.

General DataComm Industries, Inc.: *See*—
Davis, Steven J., and Liberman. Re. 27,864.

General Electric Co.: *See*—
Porter, Dennis A. Re. 27,868.

Hansford, Rowland C.: *See*—
Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Helfrey, Paul F., N. L. Kay, B. Peralta, and C. P. Reeg, to Union Oil Co. of California. Hydrocracking process. Re. 27,856, 1-1-74, Cl. 208—59.

Helfrey, Paul F., N. L. Kay, B. Peralta, C. P. Reeg, and R. C. Hansford, to Union Oil Co. of California. Hydrocracking process. Re. 27,857, 1-1-74, Cl. 208—111.

Kay, Nicholas L.: *See*—
Helfrey, Paul F., Kay, Peralta, and Reeg. Re. 27,856.
Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Kraus, Charles E. Motion transmission device. Re. 27,861, 1-1-74, Cl. 74—227.

Laughlin, Eugene W., by Trextron, Inc. Centrifugal clutch. Re. 27,858, 1-1-74, Cl. 74—230.17.

Liberman, Richard A.: *See*—
Davis, Steven J., and Liberman. Re. 27,864.

Matsushita Electric Industrial Co., Ltd.: *See*—
Yano, Tadashi, and Oka. Re. 27,863.

Miura, Keiichiro, to Asahi Toy Co., Ltd. Toy car. Re. 27,859. 1-1-74, Cl. 46—206.

Mohan, William L.: *See*—
Willits, Samuel P., and Mohan. Re. 27,869.

Nordson Corp.: *See*—
Baker, Robert G., and Rosen. Re. 27,865.

Oka, Shunzo: *See*—
Yano, Tadashi, and Oka. Re. 27,863.

Peralta, Bernal: *See*—
Helfrey, Paul F., Kay, Peralta, and Reeg. Re. 27,856.
Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Porter, Dennis A., to General Electric Co. DC shunt starter generator. Re. 27,868, 1-1-74, Cl. 290—31.

Reeg, Cloyd P.: *See*—
Helfrey, Paul F., Kay, Peralta, and Reeg. Re. 27,856.
Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Rosen, Samuel R.: *See*—
Baker, Robert G., and Rosen. Re. 27,865.

Sargent Industries, Inc.: *See*—
Day, Ronald H. Re. 27,860.

Silchenstedt, Albert B. Means and method for locating shrimp and other marine animals. Re. 27,862, 1-1-74, Cl. 43—4.5.

Spartonics Ltd.: *See*—
Willits, Samuel P., and Mohan. Re. 27,869.

Technicon Corp.: *See*—
Adler, Stanford L. Re. 27,866.

Texas Instruments Inc.: *See*—
Years, Kenneth E. Re. 27,867.

Trextron, Inc.: *See*—
Laughlin, Eugene W. Re. 27,858.

Union Oil Co. of California: *See*—
Helfrey, Paul F., Kay, Peralta, and Reeg. Re. 27,856.
Helfrey, Paul F., Kay, Peralta, Reeg, and Hansford. Re. 27,857.

Willits, Samuel P., and W. L. Mohan, to Spartonics Ltd. Pitch matching detecting and counting system. Re. 27,869, 1-1-74, Cl. 235—92.

Yano, Tadashi, and S. Oka, to Matsushita Electric Industrial Co., Ltd. Variable resistor of sliding type with switch activated by slider. Re. 27,863, 1-1-74, Cl. 338—198.

Years, Kenneth E., to Texas Instruments Inc. Radiation-sensitive camera shutter and aperture control systems. Re. 27,867, 1-1-74, Cl. 95—10.

LIST OF PLANT PATENTEES

Duffett, William E.: *See*—
Jessel, Walter H., Jr., and Duffett. 3,416.
Skou, William J., Knicely, and Duffett. 3,417.
Sweet, Jack S., Jessel, and Duffett. 3,421.

Gilbert, Franklin A. Apple tree. 3,420, 1-1-74, Cl. 34.

Jackson & Perkins Co.: *See*—
Kordes, Reimer. 3,414.
Tantau, Mathias. 3,415.

Jessel, Walter H., Jr.: *See*—
Sweet, Jack S., Jessel, and Duffett. 3,421.

Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,416, 1-1-74, Cl. 74.

Knicely, Walter W.: *See*—
Skou, William J., Knicely, and Duffett. 3,417.

Kordes, Reimer, to Jackson & Perkins Co. Rose plant. 3,414. 1-1-74, Cl. 15.

Mason, Herbert S. Apple tree. 3,418, 1-1-74, Cl. 34.

Merrill, Grant. Peach tree. 3,413, 1-1-74, Cl. 43.

Motzkau, Henry W.: *See*—
Skou, William J., Knicely, and Duffett. 3,417.

Ownbey, Marion, to The Wayside Gardens Co. Dicentra plant. 3,419, 1-1-74, Cl. 68.

Skou, William J., W. W. Knicely, and W. E. Duffett, to Henry W. Motzkau, Azalea plant. 3,417, 1-1-74, Cl. 55.

Small, Earl J., Growers Inc.: *See*—
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Sweet, Jack S., W. H. Jessel, Jr., and W. E. Duffett, to Earl J. Small, Growers Inc. Chrysanthemum plant. 3,421, 1-1-74, Cl. 78.

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Thomson, W. W., Co. Inc., The: *See*—
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Thomson, William P., to The W. W. Thomson Co. Inc. Carnation plant. 3,422, 1-1-74, Cl. 70.

Wayside Gardens Co., The: *See*—
Ownbey, Marion. 3,419.

Yoder Brothers, Inc.: *See*—
Jessel, Walter H., Jr., and Duffett. 3,416.

LIST OF DESIGN PATENTEES

Ali, James V. Air freshener. 229,754, 1-1-74, Cl. D23—150.

American Filtrona Corp.: *See*—
Berger, Richard M. 229,788.
Berger, Richard M. 229,789.
Berger, Richard M. 229,790.

American Hospital Supply Corp.: *See*—
McPhee, Charles J. 229,746.

Aqua-Mist Inc.: *See*—
Morrow, William B. 229,753.

Armstrong Store Fixture Corp.: *See*—
More, David M. 229,743.

Bagdad Plastics Co.: *See*—
Dayne, Eddy K., and Land. 229,752.

Baldwin, D. H., Co.: *See*—
Kimble, Thomas E. 229,778.

Bartel, Mary F. Christmas tree blanket. 229,758, 1-1-74, Cl. D29—1.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,759, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,760, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,761, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,762, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,763, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,764, 1-1-74, Cl. D29—19.

Batista, Tomas, to Del-Bros Jewelry Mfg. Co., Inc. Non-monetary coin and the like. 229,765, 1-1-74, Cl. D29—19.

Berger, Richard M., to American Filtrona Corp. Filtered cigarette. 229,788, 1-1-74, Cl. D85—6.

Berger, Richard M., to American Filtrona Corp. Filtered cigarette. 229,789, 1-1-74, Cl. D85—6.

Berger, Richard M., to American Filtrona Corp. Filtered cigarette. 229,790, 1-1-74, Cl. D85—6.

Better Marketing Industries, Inc.: *See*—
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Briddell, Charles D. Oyster shucking knife. 229,739, 1-1-74, Cl. D7—150.

Bristol-Myers Co.: *See*—
Modelevesky, Ian C., De Young, Nevins, and Stern. 229,749.

Brunswick Corp.: *See*—
Ferguson, Thomas K. 229,767.
MaKenny, Manley R., Duncan, Smith, and McDonald. 229,734.

Campbell, Jerry L., and F. D. Gay, Jr., to Toran Corp. Pump. 229,783, 1-1-74, Cl. D65—1.

Campbell, Laurie J., to Louis Marx & Co., Inc. Watchcase. 229,771, 1-1-74, Cl. D42—8.

Campbell, Laurie M.: *See*—
Lohr, Raymond J. 229,768.

Carroll, Clifford F. Paper towel holder. 229,775, 1-1-74, Cl. D52—2.

Carter, Howard B., to Rosedale Plastics (Containers) Ltd. Traffic marker. 229,784, 1-1-74, Cl. D72—1.

Cible, Pierre. Auxiliary light for automobiles. 229,774, 1-1-74, Cl. D48—32.

Clairol Inc.: *See*—
DeFano, Dominic, and Kallman. 229,791.

Cooley, Frank P.: *See*—
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Croyle, Jack V., and J. B. Swett, to Dart Industries, Inc. Removable compartmented cup for a dispensing container. 229,735, 1-1-74, Cl. D7—129.

D & G Associates, Inc.: *See*—
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Daenen, Robert, to Dart Industries, Inc. Toy building block. 229,769, 1-1-74, Cl. D34—15.

Daenen, Robert, to Dart Industries, Inc. Building block toy (IV). 229,770, 1-1-74, Cl. D34—15.

Dart Industries, Inc.: *See*—
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Daenen, Robert. 229,770.

Dayne, Eddy K., and Wilbur G. Land, to Bagdad Plastics Co. Valve. 229,752, 1-1-74, Cl. D23—19.

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DeFano, Dominic, and R. I. Kallman, to Clairol Inc. Make-up mirror. 229,791, 1-1-74, Cl. D86—10.

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Emmerling, Ronald A., to Keystone Division of Berkey Photo. Camera. 229,779, 1-1-74, Cl. D61—1.

Ernest, Robert G., to Sunbeam Corp. Electric shaver. 229,794. 1-1-74, Cl. D95—3.

Ferguson, Thomas K., to Brunswick Corp. Golf bag divider. 229,767, 1-1-74, Cl. D34—5.

Fusco, Frank C., and B. Gold, to Marx, Louis & Co., Inc. Typewriter. 229,782, 1-1-74, Cl. D64—11.

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Hansen, Robert S. Telephone message holder. 229,757, 1-1-74, Cl. D26—14 A.

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Helenurm, Kalju, to Jonathan Lock Ltd. Adjustable key locks. 229,741, 1-1-74, Cl. D8—136.

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Holohan, Bartholomew A. Razor. 229,795, 1-1-74, Cl. D95—3.

House Mates Inc.: *See*—
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Kephart, Lynn H. Combined table and aquarium or similar article. 229,766, 1–1–74, Cl. D30—11.
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Kinkel, Norbert, and E. Knauff. Enema bag. 229,786, 1–1–74, Cl. D82—1.
Knauff, Eckhardt: *See*—
Kinkel, Norbert, and Knauff. 229,786.
Krenz, Horst M., to Heath Co. Fishing thermometer instrument. 229,751, 1–1–74, Cl. D22—99.
Land, Wilbur G.: *See*—
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Lanole, Raymond A., to Garland Industries, Inc. Writing instrument. 229,785, 1–1–74, Cl. D74—17.
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Leighton, Robert L. Base kettle for musical drum. 229,776, 1–1–74, Cl. D56—1.
Lohr, Raymond J., and L. J. Campbell, to Louis Marx & Co., Inc. Shuffle board game device. 229,768, 1–1–74, Cl. D34—5.
Majewski, Eugene J. Storage rack for wine bottle or the like. 229,732, 1–1–74, Cl. D7—71.
MaKenny, Manley R., B. J. Duncan, J. N. Smith, and T. J. McDonald, to Brunswick Corp. Convertible heater and cooker. 229,734, 1–1–74, Cl. D7—110.
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Lohr, Raymond J., and Campbell. 229,768.
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MaKenny, Manley R., Duncan, Smith, and McDonald. 229,734.
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Carter, Howard B. 229,784.
Rubbermaid Inc.: *See*—
Taylor, William D. 229,737.
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Tweed, Donald G.: *See*—
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NOTE.—First number, class; second number, subclass; third number, patent number

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3,781,915
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CLASS 4
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161 3,781,921
172.15 3,781,925
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228 3,781,926
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88	3,782,983
90	3,782,984
97	3,782,985
110	3,782,986
271	3,782,987
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8R	3,782,300
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66	3,782,998
71R	3,782,999
72	3,783,001
75	3,783,002
76P	3,783,003
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	3,783,006
95	3,783,007
100A	3,782,993
	3,783,008
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106R	3,783,010
	3,783,011
107	3,783,012
127	3,783,013
130R	3,783,014
136	3,783,015
	3,783,016
	3,783,017
	3,783,018
201	3,783,019
206	3,783,020
212	3,783,005
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215	3,783,022
237	3,783,023

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133	3,782,378
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158	3,782,375
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214.4	3,782,381
277	3,782,384
281	3,782,385
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348	3,782,388
419D	3,782,389
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89	3,783,029
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237	3,783,031

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81	3,782,402
86	3,782,403
101	3,782,404
110	3,782,405
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344	3,782,408
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362	3,782,430

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CLASS 145

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	3,783,039
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121	3,783,041
153	3,783,042
156	3,783,043
175	3,783,044
187	3,783,045
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188	3,783,049
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189	3,783,051
191	3,783,052

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109	3,783,054

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330	3,782,440
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137	3,783,063
158	3,783,065
159	3,783,064
161	3,783,066
163	3,783,067
173	3,783,068
184	3,783,069
211	3,783,070
217	3,783,071
230	3,783,073
244	3,783,072
291	3,783,074
309	3,783,075
364	3,783,076
446	3,783,077
499	3,783,078
502	3,783,079
514	3,783,080

CLASS 157

1.26	3,782,442

CLASS 160

22	3,782,443
235	3,782,444

CLASS 161

7	3,783,081
37	3,783,082
38	3,783,083
45	3,783,084
87	3,783,085
126	3,783,086
127	3,783,087
160	3,783,088
166	3,783,089
	3,783,090
168	3,783,091
170	3,783,092
	3,783,093
196	3,783,094

CLASS 162

16	3,783,095
181A	3,783,096
358	3,783,097

CLASS 164

52	3,782,445
260	3,782,446
281	3,782,447

CLASS 165

16	3,782,448
32	3,782,449
38	3,782,451
81	3,782,450
135	3,782,452
138	3,782,453
144	3,782,454
162	3,782,455
164	3,782,456
165	3,782,457

CLASS 166

.5	3,782,458
	3,782,459
	3,782,460
68	3,782,463
72	3,782,461
88	3,782,462
224	3,782,464
248	3,782,465
254	3,782,466
261	3,782,467
267	3,782,468
279	3,782,469
303	3,782,470
	3,782,472
307	3,782,471

CLASS 168

4	3,782,473

CLASS 169

1A	3,782,476
1R	3,782,475
2R	3,782,474

CLASS 171

12	3,782,477

CLASS 172

4.5	3,782,478
26.5	3,782,479
110	3,782,480
265	3,782,481
381	3,782,482

CLASS 173

15	3,782,483
43	3,782,484

CLASS 174

35GC	3,783,173
35MS	3,783,174
48	3,783,175
65R	3,783,176
86	3,783,178
87	3,783,177
110R	3,783,180
121A	3,783,179
142	3,783,181
145	3,783,182

CLASS 177

157	3,782,485
210	3,782,486
245	3,782,487

CLASS 178

3	3,783,183
5.2	3,783,185
5.4BD	3,783,184
5.4HE	3,783,186
6	3,783,187
6.8	3,783,188
	3,783,189
7.2	3,783,190
7.92	3,783,191

CLASS 179

1GO	3,783,192
2DP	Re.27,864
	3,783,194
2A	3,783,193
16AA	3,783,198
28	3,783,195
100.1DR	3,783,199
100.1B	3,783,196
100.2T	3,783,200
100.2Z	3,783,197
107E	3,783,201
111R	3,783,202

CLASS 180

6.48	3,782,488
	3,782,489
79.1	3,782,490
79.2R	3,782,491
82C	3,782,492
114	3,782,493
124	3,782,494

CLASS 181

33G	3,782,495
33K	3,782,496
33	3,782,497

CLASS 182

119	3,782,498
230	3,782,499

CLASS 184

6.4	3,782,501
64	3,782,500

CLASS 187

9	3,782,502
	3,782,503
29R	3,782,504

CLASS 188

1B	3,782,506
1C	3,782,505
2D	3,782,507
73.3	3,782,508
	3,782,509
	3,782,510
75	3,782,511
134	3,782,512
206R	3,782,513
296	3,782,514

CLASS 191

23	3,783,203

CLASS 192

56C	3,782,515
88A	3,782,516

CLASS 193

43R	3,782,517

CLASS 194

54	3,782,518
83	3,782,519

CLASS 195

1.1	3,783,098
2	3,783,099
31	3,783,100
63	3,783,101
66A	3,783,102
99	3,783,103
104	3,783,104
127	3,783,105
139	3,783,106

CLASS 197

1R	3,782,520
158	3,782,521

CLASS 198

20R	3,782,522
22R	3,782,523
24	3,782,525
25	3,782,527
31AA	3,782,526
33AA	3,782,524
36	3,782,528
41	3,782,529
127E	3,782,530
155	3,782,531
184	3,782,532
196	3,782,533
229	3,782,535
230	3,782,534
233	3,782,536

CLASS 200

5EB	3,783,204
5A	3,783,205
11TC	3,783,206
44	3,783,207
50AA	3,783,208
	3,783,209
61.4	3,783,210
61.5	3,783,211
144B	3,783,213
144	3,783,212
153SC	3,783,214
153G	3,783,215
161	3,783,216

CLASS 202

160	3,783,107

CLASS 203

11	3,783,108

CLASS 204

1T	3,783,109
12	3,783,110
46	3,783,111
59R	3,783,112
106	3,783,113
149	3,783,114
159.2	3,783,115
164	3,783,116
180G	3,783,118
180R	3,783,117
192	3,783,119
219	3,783,120
243M	3,783,121
279	3,783,122

CLASS 206

.82	3,782,537
45.12	3,782,538

CLASS 208

59	Re.27,856
111	Re.27,857
	3,783,123
	3,783,124
191	3,783,125
351	3,783,126

CLASS 209

2	3,782,539
73	3,782,540
74R	3,782,541
74	3,782,542
75	3,782,543
111.6	3,782,544
114	3,782,545
166	3,782,546
268	3,782,547

CLASS 210

22	3,783,127
27	3,783,128
30	3,783,129
94	3,782,548
95	3,782,549
134	3,782,550
179	3,782,551
242	3,782,552
	3,782,553
350	3,782,554
404	3,782,555
409	3,782,556
521	3,782,557

CLASS 211

13	3,782,558
17	3,782,559

CLASS 214

1BB	3,782,561
1BS	3,782,560
6M	3,782,562
16.4A	3,782,564
	3,782,565
16.4R	3,782,563
41	3,782,566
77	3,782,567
454	3,782,568
506	3,782,569
519	3,782,570
674	3,782,571
762	3,782,572
768	3,782,573

CLASS 215

9	3,782,574
	3,782,575
42	3,782,576
46A	3,782,578
98	3,782,577

CLASS 219

10.53	3,783,217
	3,783,218
10.55	3,783,219
	3,783,220
	3,783,221
60A	3,783,222
	3,783,223
69E	3,783,224
69V	3,783,225
120	3,783,226
121EB	3,783,230
121EM	3,783,228
121P	3,783,227
	3,783,229
123	3,783,231
124	3,783,232
130	3,783,233
146	3,783,234
216	3,783,235
381	3,783,236
384	3,783,237
395	3,783,238
461	3,783,239
486	3,783,240
535	3,783,241
546	3,783,242

CLASS 220

4B	3,782,580
4F	3,782,579
9A	3,782,581
23.6	3,782,582
31R	3,782,592
31S	3,782,583

41	3,782,584
46P	3,782,585
46R	3,782,587
54	3,782,586
88R	3,782,588
97R	3,782,589

CLASS 221

13	3,782,590
213	3,782,591
248	3,782,593
274	3,782,594

CLASS 222

1	3,782,595
	3,782,596
28	3,782,597
49	3,782,598
51	3,782,599
94	3,782,600
107	3,782,601
143	3,782,602
153	3,782,603
	3,782,604
	3,782,605
244	3,782,606
249	3,782,607
368	3,782,608
394	3,782,609
484	3,782,610
504	Re.27,865
569	3,782,611

CLASS 223

85	3,782,612

CLASS 224

5E	3,782,613
5V	3,782,614

CLASS 225

94	3,782,615

CLASS 226

43	3,782,616
97	3,782,617
155	3,782,618

CLASS 229

14R	3,782,619
23A	3,782,621
52AM	3,782,620
54R	3,782,622

CLASS 233

7	3,782,623
20R	3,782,624

CLASS 234

2	3,782,625

CLASS 235

61.11D	3,783,249
61.11E	3,783,244
	3,783,245
61.11J	3,783,243
61.12R	3,783,246
70R	3,782,626
92FL	3,783,248
92PC	3,783,247
92SB	Re.27,869
151	3,783,251
151.1	3,783,252
151.11	3,783,253
152	3,783,254
153AK	3,783,250
	3,783,255
	3,783,256
156	3,783,257
	3,783,258
186	3,783,259

CLASS 236

93	3,782,627

CLASS 237

12.3C	3,782,628

CLASS 239

17	3,782,629
70	3,782,630
85	3,782,631
112	3,782,632
156	3,782,634
191	3,782,633
199	3,782,635
216	3,782,636
232	3,782,637
242	3,782,638
405	3,782,639
571	3,782,640
598	3,782,641
683	3,782,642

CLASS 240

1.3	3,783,260
	3,783,261
1.4	3,783,262
3	3,783,263
	3,783,264
8.2	3,783,265
10.1	3,783,266
57	3,783,267

CLASS 241

60	3,782,643
69	3,782,644
100	3,782,645
117	3,782,646
215	3,782,647

CLASS 242

35.5R	3,782,648
46.21	3,782,660
47.12	3,782,661
55	3,782,662
	3,782,663
56R	3,782,664
	3,782,665
56.8	3,782,650
67.2	3,782,649
	3,782,666
74	3,782,651
75.43	3,782,653
84.1R	3,782,652
100.1	3,782,654
118.5	3,782,655
125.1	3,782,657
192	3,782,658
201	3,782,656
	3,782,659

CLASS 244

3.13	3,782,667
3.24	3,782,668

CLASS 248

14	3,782,669
51	3,782,670
183	3,782,671
302	3,782,672
357	3,782,673
370	3,782,674

CLASS 249

23	3,782,675
	3,782,676
97	3,782,677
129	3,782,678
170	3,782,679
188	3,782,680

CLASS 250

201	3,783,269
	3,783,270
203R	3,783,271
216R	3,783,272
221R	3,783,274
223	3,783,273
226	3,783,275
	3,783,276
237R	3,783,277
292	3,783,279
299	3,783,278
305	3,783,280
311	3,783,281
313	3,783,282
324	3,783,283
339	3,783,284
370	3,783,268
390	3,783,285
401	3,783,286
404	3,783,287
414	3,783,288
417	3,783,289
434	3,783,291
456	3,783,290
475	3,783,292
483	3,783,297
	3,783,298
	3,783,299
548	3,783,293
550	3,783,296
558	3,783,294
564	3,783,300
567	3,783,295

CLASS 251

11	3,782,681
61.1	3,782,682
148	3,782,683
306	3,782,684
	3,782,685
309	3,782,686
347	3,782,687

CLASS 252

12	3,783,130
34F	3,783,131
78	3,783,132

CLASS 254

2R	3,782,688
93R	3,782,689
105	3,782,690
106	3,782,691
139	3,782,692

CLASS 259

1	3,782,693
4	3,782,694
	3,782,695
6	3,782,696
24	3,782,697
60	3,782,698
98	3,782,699
192	3,782,700

CLASS 260

2.5AR	3,783,133
28	3,783,134
37AL	3,783,145
45.9R	3,783,146
47CP	3,783,137
47ET	3,783,147
79	3,783,138
112G	3,783,139
192	3,783,148
210.5	3,783,149
248NS	3,783,150
330.5	3,783,140
345.9	3,783,135
410.9R	3,783,136
	3,783,141
465E	3,783,142
471C	3,783,151
	3,783,152
533N	3,783,153
535P	3,783,154
553A	3,783,143
633	3,783,144

CLASS 261

65	3,782,701
87	3,782,702
112	3,782,703
124	3,782,704

CLASS 264

65	3,783,155
94	3,783,156
97	3,783,157

CLASS 266

5R	3,782,705
22	3,782,706
35	3,782,707

CLASS 267

91	3,782,708
114	3,782,709
118	3,782,710

CLASS 269

31	3,782,711
228	3,782,712
297	3,782,713

CLASS 270

69	3,782,714

CLASS 271

57	3,782,715
99	3,782,716

CLASS 272

58	3,782,717
67	3,782,719
70.1	3,782,720
79A	3,782,722
79D	3,782,721

CLASS 273

33	3,782,723
55R	3,782,724
60	3,782,718
81.3	3,782,725
94R	3,782,726
97R	3,782,727
101.2	3,782,728
138A	3,782,729
213	3,782,730

CLASS 274

4D	3,782,731
9RA	3,782,732
9B	3,782,733
9R	3,782,734

CLASS 277

22	3,782,735
24	3,782,736
27	3,782,737
58	3,782,738
62	3,782,739

CLASS 279

2	3,782,740
62	3,782,741
110	3,782,742

CLASS 280

11.35T	3,782,743
18	3,782,744
	3,782,745
33.99A	3,782,747
33.99H	3,782,746
35	3,782,748
36C	3,782,749
43.17	3,782,750
47.19	3,782,752
87.01	3,782,751
124F	3,782,753
	3,782,755
124R	3,782,754
150B	3,782,756
154.5	3,782,757
179R	3,782,758
457	3,782,759
467	3,782,760
507	3,782,761
	3,782,762

CLASS 285

419	3,782,763

CLASS 289

17	3,782,764

CLASS 290

31	Re.27,868
37	3,783,301
42	3,783,302

CLASS 292

103	3,782,765

CLASS 293

1	3,782,766
71R	3,782,767
	3,782,768
88	3,782,769

CLASS 294

49	3,782,770
67R	3,782,771
82R	3,782,772

CLASS 296

3	3,782,773
23MC	3,782,774
	3,782,775
137B	3,782,776

CLASS 299

34	3,782,777

CLASS 301

9DN	3,782,778
63PW	3,782,779

CLASS 303

6C	3,782,780
9	3,782,781
19	3,782,782
21F	3,782,785
	3,782,786
21P	3,782,783
21R	3,782,784

CLASS 305

35EB	3,782,787

CLASS 307

10AT	3,783,303
106	3,783,304
136	3,783,305
223C	3,783,306
243	3,783,307
291	3,783,308

CLASS 308

3R	3,782,788
	3,782,789
	3,782,790
9	3,782,791
23	3,782,792
160	3,782,793
193	3,782,794
214	3,782,795
234	3,782,796
238	3,782,797

CLASS 310

8.7	3,783,309
15	3,783,310
27	3,783,311
36	3,783,312
49	3,783,313
70	3,783,314
74	3,783,315
90	3,783,316
212	3,783,317
216	3,783,318
268	3,783,319

CLASS 312

138R	3,782,798
206	3,782,799
284	3,782,801
333	3,782,800

CLASS 313

42	3,783,322
57	3,783,323
65A	3,783,324
83	3,783,326
222	3,783,328
272	3,783,327
274	3,783,329
310	3,783,330
336	3,783,325

CLASS 315

18	3,783,331
	3,783,334
30	3,783,333
	3,783,335
91	3,783,332
159	3,783,336
200A	3,783,337
241P	3,783,338

CLASS 317

5	3,783,339
18B	3,783,340
27R	3,783,341
33SC	3,783,354
99	3,783,320
101R	3,783,321
103	3,783,342
107	3,783,343
123	3,783,344
234R	3,783,345
	3,783,346
	3,783,347
	3,783,348
235R	3,783,349
	3,783,350
	3,783,351
	3,783,353
262A	3,783,352

CLASS 318

8	3,783,355
138	3,783,357
166	3,783,358
254	3,783,359
327	3,783,360
331	3,783,361
443	3,783,362
481	3,783,363
672	3,783,356

CLASS 320

2	3,783,364
39	3,783,365

CLASS 321

5	3,783,366
11	3,783,367
18	3,783,368

CLASS 323

22SC	3,783,369

CLASS 324

34R	3,783,370
51	3,783,371
58.5A	3,783,373
60C	3,783,374
64	3,783,375
71CP	3,783,376
72	3,783,377
73R	3,783,378
103P	3,783,379
130	3,783,380
132	3,783,381
158D	3,783,382
158T	3,783,372

CLASS 325

38A	3,783,383
55	3,783,384
305	3,783,385
321	3,783,386
348	3,783,387
363	3,783,388

CLASS 328

15	3,783,389
111	3,783,390
	3,783,391
	3,783,392
127	3,783,393
	3,783,394
134	3,783,395
147	3,783,396
151	3,783,398
110	3,783,397

CLASS 330

9	3,783,399
30D	3,783,400
56	3,783,401
61R	3,783,402

CLASS 331

94.5C	3,783,407
94.5	3,783,403
	3,

CLASS 418		219	3,783,160	314	3,782,878	221	3,783,163	511	3,782,968	CLASS 432	
56	3,782,865	267	3,783,162	450	3,782,879	229	3,782,974	CLASS 431		59	3,782,889
61	3,782,866	274	3,783,161	CLASS 426		275	3,782,966	4	3,782,880	14	3,782,888
82	3,782,867	CLASS 425		62	3,782,967	281	3,782,975	90	3,782,881		3,782,890
83	3,782,868	4C	3,782,870	70	3,782,962	303	3,782,963	150	3,782,882	118	3,782,891
142	3,782,869	54	3,782,871	110	3,782,976	312	3,783,164	185	3,782,883	206	3,782,893
CLASS 423		131	3,782,872	140	3,782,977	329	3,783,165	186	3,782,884	132	3,782,892
49	3,783,158	141	3,782,873	145	3,782,969	363	3,782,970	255	3,782,885	260	3,782,894
292	3,782,877	190	3,782,874	175	3,782,973	364	3,782,964	264	3,782,886		
CLASS 424		223	3,782,875	185	3,782,971	432	3,782,965	353	3,782,887		
181	3,783,159	232	3,782,876	192	3,782,972	491	3,783,166				

CLASSIFICATION OF DESIGNS

D03—	19A 229,729	D08—	136 229,741	D23—	19 229,752		229,763		229,774	D74—	17B 229,785
D06—	13 229,730		229,742		146 229,753		229,764	D52—	2C 229,775	D83—	1U 229,786
	70 229,731		230 229,745		150 229,754		229,765	D56—	1E 229,776	D85—	2K 229,787
D07—	71 229,732		259 229,743	D26—	1J 229,755	D30—	11 229,766		4D 229,777		6B 229,788
	90 229,733		229,744		14A 229,756	D34—	5BB 229,768		9 229,778		229,789
	110 229,734	D09—	159 229,746		229,757		GB 229,767	D61—	1B 229,779		229,790
	129 229,735	D13—	1H 229,747		19R 229,760		15FF 229,769		L 229,780	D86—	10H 229,791
	131 229,737	D16—	R 229,748	D29—	1B 229,758		229,770		N 229,781	D87—	3F 229,793
	137 229,736		3 229,749		19R 229,759	D42—	8R 229,771	D64—	11A 229,782		R 229,792
	229,738	D22—	27 229,750		229,761	D48—	20F 229,772	D65—	1R 229,783	D95—	A 229,794
	150 229,739		99 229,751		229,762		32R 229,773	D72—	J 229,784		229,795
	194 229,740										

CLASSIFICATION OF PLANTS

P. —	15 3,414	P. —	34 3,418	P. —	43 3,413	P —	68 3,419	P. —	74 3,416	P. —	78 3,421
P. —	3,415	P. —	3,420	P. —	55 3,417	P. —	70 3,422				

DEFENSIVE PUBLICATIONS APPLICATIONS

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3,783,318
56 : 3,782,023

Design Patents

1 : 229,745
4 : 229,775
6 : 229,746
229,752
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229,772
8 : 229,776
17 : 229,732
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19 : 229,773
21 : 229,767
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24 : 229,747
26 : 229,751
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29 : 229,755

34 : 229,795
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229,781

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37 : 229,753
39 : 229,737
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40 : 229,734
41 : 229,731
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44 : 229,735
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47 : 229,793
48 : 229,766
49 : 229,783
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Plant Patents

1 : 3,418
6 : 3,413

9 : 3,422
12 : 3,421

39 : 3,416

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53 : 3,419

55 : 3,420

Defensive Publications Applications

[Notice of Dec. 16, 1969, 869 O.G. 6877]

9 : T918,007
22 : T918,006

26 : T918,002
34 : T918,004

42 : T918,005

47 : T918,001

T918,003

T918,009

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January 8, 1974 Volume 918 Number 2

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PATENT OFFICE NOTICES

Board of Appeals Decisions Rendered in the Month of November 1973

Examiner affirmed	130
Examiner affirmed in part	17
Examiner reversed	27
Total	174

Registration to Practice

The following list contains the names of all applicants for registration to practice before the United States Patent Office who attained passing grades in the examination of September 11, 1973. Information tending to affect the eligibility of any of said applicants on moral, ethical, or other grounds should be furnished the Commissioner of Patents on or before February 15, 1974.

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Zall, Michael E., 426 E. 23rd St., New York, N.Y. 10028

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,729,551, C. C. Cohn, SURFACE TREATMENT OF ALUMINUM AND ITS ALLOYS, **filed** May 4, 1973, D.C. Md. (Baltimore), Doc. 73–444–B, *Colonial Alloys Company (a partnership of Samuel L. Cohn and Charles C. Cohn)* v. *Easco Corporation.*

3,008,263, J. Ellman, BUBBLE PRODUCING TOY, **filed** May 21, 1973, D.C., S.D.N.Y., Doc. 73–C–2267, *George Lerner and Julius Ellman* v. *Ohio Art Company.*

3,072,582, C. B. Frost, POLYETHER-URETHANE FOAMS AND METHOD OF MAKING SAME, **filed** May 30, 1973, D.C. Del. (Wilmington), Doc. 4665, *BASF Wyandotte Corporation* v. *The General Tire and Rubber Company.*

3,079,728, A. K. Melin, HOOP TOY, **filed** May 25, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73–C–743, *Wham-O Mfg. Co.* v. *All-American Yo-Yo Corporation.*

3,137,937, Cowan and Holtzman, EXPLOSIVE BONDING; **3,233,312**, same, EXPLOSIVELY BONDED PRODUCT, **filed** May 17, 1973, D.C. Colo. (Denver), Doc. C–5018, *E. I. du Pont de Nemours and Company* v. *E. F. Industries, Inc.*

3,139,213. (See 3,061,139.)

3,162,114, F. Quiroz, FRUIT JUICE EXTRACTION; **3,682,092**, G. C. Scott, RANGING SYSTEM USING PHASE DETECTION, **filed** Feb. 1, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–218–RJK, *Federated Machinery, Inc., Juice Tree, Inc. and Francisco A. Quiroz* v. *John Natalicio.* Judgment by consent, patent valid, by mesne assignments, plaintiff, Juice Tree Inc., now is the owner of the legal title thereto, defendant has infringed, permanently enjoined, May 30, 1973.

3,202,006, W. G. Lewellen, Jr., ROTATING MECHANISM FOR PLATING BARREL OR THE LIKE, **filed** June 2, 1972, D.C., E.D. Mich. (Detroit), Doc. 38390, *Imperial Industries, Inc.* v. *Rea A. York, doing business as C & R & D Industries.* Consent judgment: Court has jurisdiction, Imperial Industries, Inc. is the owner, patent valid, defendant has infringed, May 22, 1973.

3,233,312. (See 3,137,937.)

3,265,290, A. J. Cali, AXIAL FLOW COMPRESSORS FOR JET ENGINES, **filed** May 22, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73–C–724, *Anthony J. Cali* v. *Braniff Airways, Inc. et ano.*

3,333,888, Williams and Williams, WALKING TRACTOR CABS, **filed** Jan. 22, 1973, D.C., N.D. Ind. (Fort Wayne), Doc. 73–F–13, *Original Tractor Cab Company, Incorporated* v. *International Harvester Company and Royal Industries, Inc.* Case dismissed. Plaintiff remains free to refile its claims in a district with proper vinue over the patent infringement claims, May 24, 1973.

3,389,242, L. A. Gross, Jr., CODED ELEMENT AND MEANS FOR USE THEREWITH, **filed** July 22, 1971, D.C., S.D. Ohio (Cincinnati), Doc. 8054, *Randomatic Data Systems* v. *Access Corporation.* Judgment: Court has jurisdiction over plaintiff and defendant, patent valid, plaintiff is owner of patent, defendant has infringed, May 23, 1973.

3,419,876, Edwards and Winterstein, STREAMLINED ANTENNA AND METHOD OF MAKING THE SAME, **filed** May 25, 1973, D.C., N.D. Ohio (Cleveland), Doc. C–73–534, *Sterling Manufacturing Co., doing business as Tenatronics, Ltd.* v. *Radio Shack, a division of Tandy Corp. and Ward Products Co.*

3,438,520, M. A. Williams, SLUG FILLING OF BINS, **filed** May 21, 1973, D.C., W.D. Okla. (Oklahoma City), Doc. 73–353–C, *CMI Corporation* v. *Metropolitan Enterprises, Inc. and Metropolitan Paving Company, Inc.*

3,514,074, R. E. Self, HIGH ENERGY LOSS FLUID CONTROL, **filed** May 31, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1211–EC, *Richard E. Self* v. *Fisher Controls Co., Inc. and Control Specialists, Inc.*

3,665,637, I. Starr, BUBBLE PIPE TOY, **filed** May 21, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1138–JWC, *Imperial Toy Corporation* v. *Chemtoy Corporation.*

3,670,089, Paton, Latash, Medovar, Emelianeko and Kluinev, APPARATUS FOR ELECTROSLAG REMELTING OF METALS WITH MOLTEN SLAG INTRODUCTION; **3,736,124**, same, METHOD FOR ELECTROSLAG REMELTING OF METALS WITH SLAG INTRODUCTION, **filed** Apr. 10, 1973, D.C. Pa. (Philadelphia), Doc. 73–831, *Patent Management Inc.* v. *Lukens Steel Company.*

3,671,264, Drews and Raffensperger, PACKAGED MIXES FOR FLAVORED FOOD PRODUCTS AND THE PROCESS OF MAKING THEM, **filed** Jan. 9, 1973, D.C., E.D. Tenn. (Knoxville), Doc. 8142, *The White Lily Foods Company* v. *Martha White Foods, Inc.* Case dismissed by stipulation, the defendant having taken a license, complaint dismissed with prejudice, Apr. 30, 1973.

3,682,092. (See 3,162,114.)

3,706,914, G. F. Van Buren, LIGHTING CONTROL SYSTEM, **filed** May 31, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1217–DWW, *Van Buren Industries, Inc.* v. *Century Strand, Inc. and Dennis Moore.*

3,736,124. (See 3,670,089.)

P.P. 2,056, H. C. Swim, ROSE PLANT; **P.P. 2,078**, same; **P.P. 2,592**, L. Lens, same, **filed** Oct. 10, 1972, D.C., E.D. Tex. (Tyler), Doc. 5595, *Armstrong Nurseries, Inc.* v. *Charles R. Cadey, Ty-Tex Rose Nurseries and Consolidated Nurseries, Inc.* Consent judgment: Plant patents owned by plaintiff, defendants have infringed and are hereby enjoined, Oct. 24, 1972.

P.P. 2,078. (See P.P. 2,056.)

P.P. 2,592. (See P.P. 2,056.)

Certificates of Correction for the Week of Jan. 8, 1974

D. 227,106	3,730,613	3,740,901	3,748,238
3,640,937	3,730,678	3,741,330	3,748,595
3,641,969	3,731,009	3,741,587	3,748,649
3,643,922	3,731,024	3,741,775	3,748,656
3,660,478	3,731,136	3,742,371	3,749,174
3,667,035	3,731,353	3,743,271	3,749,371
3,682,093	3,731,903	3,744,006	3,750,012
3,685,016	3,733,175	3,744,012	3,750,083
3,694,247	3,733,547	3,744,475	3,750,227
3,695,854	3,734,762	3,744,761	3,750,546
3,700,044	3,734,784	3,744,857	3,751,025
3,702,758	3,734,813	3,745,109	3,751,037
3,706,946	3,734,814	3,745,224	3,751,747
3,715,339	3,734,868	3,745,938	3,751,987
3,719,236	3,735,728	3,746,307	3,752,125
3,719,647	3,737,312	3,746,314	3,752,418
3,723,171	3,737,505	3,746,386	3,752,558
3,724,589	3,737,531	3,747,523	3,752,972
3,724,687	3,738,099	3,747,803	3,753,129
3,725,563	3,738,874	3,747,882	3,753,246
3,726,976	3,738,981	3,747,913	3,753,580
3,727,897	3,739,267	3,747,922	3,753,667
3,728,294	3,740,070	3,748,058	3,754,229
3,728,467	3,740,172	3,748,137	3,755,244
3,728,501	3,740,283	3,748,222	3,757,103

Disclaimer and Dedication

3,705,938.—*Seymour Hyman*, New York, N.Y., *Bruce S. Bernstein*, Somerville, N.J., and *Ramesh Kapoor*, Seaford, Del. ACTIVATED POLYMER MATERIALS AND PROCESS FOR MAKING SAME. Patent dated Dec. 12, 1972. Disclaimer and dedication filed Sept. 10, 1973, by the assignee, *Herculite Protective Fabrics Corporation*.

Hereby disclaims and dedicates claims 24, 30 and 67 of said patent.

Disclaimers

3,080,135.—*Roelof P. Steijn*, Wilmington, Del. TEXTILE APPARATUS. Patent dated Mar. 5, 1963. Disclaimer filed May 16, 1973, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to claims 1–10 of said patent.

3,233,031.—*Walter Munch, Jr.*, Covington, Ky., and *Robert C. Scherer*, Cincinnati, Ohio. GATING CIRCUITS FOR ELECTRICAL MUSICAL INSTRUMENTS. Patent dated Feb. 1, 1966. Disclaimer filed Oct. 11, 1973, by the assignee, *D. H. Baldwin Company*.

Hereby enters this disclaimer to claims 12, 13, 14 and 15 of said patent.

3,350,611.—*Robert I. Seace*, Skaneateles, N.Y. GATE FIRED BIDIRECTIONAL SWITCH. Patent dated Oct. 31, 1967. Disclaimer filed Nov. 26, 1973, by the assignee, *General Electric Company*.

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6, 7, 8 and 9 of said patent.

3,735,940.—*Vincent Anderson*, Chicago, Ill. THREE-MONTH WATCH BAND CALENDAR WITH JEWELRY LIKE SURFACE. Patent dated Sept. 4, 1973. Disclaimer filed Mar. 19, 1973, by the assignee, *Chicago Etching Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Jan. 16, 1990.

3,762,313.—*Charles M. Schott, Jr.*, Gloucester, Mass. EXTRUDING PLASTIC. Patent dated Oct. 2, 1973. Disclaimer filed May 29, 1973, by the assignee, *Gloucester Engineering Co. Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Feb. 29, 1989.

Dedications

2,750,674.—*John W. Lee*, Festus, Mo. GLASS CUTTER. Patent dated June 19, 1956. Dedication filed July 25, 1973, by the assignee, *PPG Industries, Inc.*

Hereby dedicates for the remainder of its term to the free use and benefit of the People of the United States.

2,755,518.—*Charles E. Stroug*, Tarentum, Pa. SAFETY WINDOW CONSTRUCTION. Patent dated July 24, 1956. Dedication filed July 25, 1973, by the assignee, *PPG Industries, Inc.*

Hereby dedicates for the remainder of its term to the free use and benefit of the People of the United States.

2,756,545.—*Florian V. Atkeson*, Springdale, Pa. AUTOMATIC GLASS CUTTING MACHINE. Patent dated July 31, 1956. Dedication filed July 25, 1973, by the assignee, *PPG Industries, Inc.*

Hereby dedicates for the remainder of its term to the free use and benefit of the People of the United States.

2,757,491.—*William F. Galey*, Tarentum, Pa. PLASTIC POLISHING RUNNER. Patent dated Aug. 7, 1956. Dedication filed July 25, 1973, by the assignee, *PPG Industries, Inc.*

Hereby dedicates for the remainder of its term to the free use and benefit of the People of the United States.

2,758,042.—*Richard F. Raymond*, Saxonburg, and *Emil A. Fusco*, Pittsburgh, Pa. SAFETY GLASS CONSTRUCTION. Patent dated Aug. 7, 1956. Dedication filed July 25, 1973, by the assignee, *PPG Industries, Inc.*

Hereby dedicates for the remainder of its term to the free use and benefit of the People of the United States.

3,543,447.—*Alec Leibowitz*, London, England. APPARATUS TO CONTROL GRAVITATIONAL MOVEMENT OF A GEM STONE POLISHING TANG TOWARDS A STONE POLISHING SURFACE. Patent dated Dec. 1, 1970. Dedication filed Sept. 7, 1973, by the assignee, *Spectrum Diamonds (Proprietary) Ltd.*

Hereby dedicates the entire remaining term of said patent to the Public.

National Technical Information Service

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Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent 3,733,130. Slotted Probe for Spectroscopic Measurements. Filed Mar. 7, 1972. Patented May 15, 1973. Not available NTIS.

DEPARTMENT OF TRANSPORTATION
Patent Counsel, 400 7th Street SW., Washington, D.C. 20590

Patent application 372,749, Automotive Exhaust System Leak Test. Filed June 22, 1973. PC $3/MF $1.45.

Patent application 395,241, Condition Responsive Control Apparatus. Filed Sept. 7, 1973. PC $3/MF $1.45

DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Streets NW.,
Washington, D.C. 20240

Patent 3,763,830. Apparatus for Burning Sulfur Containing Fuels. Filed Jan. 24, 1973. Patented Oct. 9, 1973. Not available NTIS.

DEPARTMENT OF THE NAVY
Assistant Chief for Patents, Office of Naval Research,
Code 302, Arlington, Va. 22217

Patent 3,500,145. Thin Vapor-Deposited Metal Film Voltage Regulator. Filed Mar. 1, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,500,172. High Voltage, High Power Series Regulator. Filed June 21, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,513,332. Polyphase Power Interruption Apparatus Including Bidirectional Semiconductors. Filed July 27, 1967. Patented May 19, 1970. Not available NTIS.

Patent 3,514,949. Turboprop Fuel Control for Use With Contaminated or Varied Fuels. Filed June 18, 1968. Patented June 2, 1970. Not available NTIS.

Patent 3,515,449. Soft Rubber, Squeeze Film Bearing. Filed Sept. 10, 1968. Patented June 2, 1970. Not available NTIS.

Patent 3,517,170. System or Apparatus for Optimizing the Operation of a Combustion Process. Filed May 29, 1967. Patented June 23, 1970. Not available NTIS.

Patent 3,517,550. Load and Rate of Change of Load Detection System. Filed May 8, 1968. Patented June 30, 1970. Not available NTIS.

Patent 3,518,121. Nonaqueous Ammonia Primary Cell Utilizing Nitrated Polystyrene Cathode Oxidant. Filed July 16, 1969. Patented June 30, 1970. Not available NTIS.

Patent 3,520,793. Electrophoretic Separator. Filed Sept. 29, 1967. Patented July 14, 1970. Not available NTIS.

Patent 3,521,189. Multiple Crystal High Power Laser Design. Filed Jan. 3, 1967. Patented July 21, 1970. Not available NTIS.

Patent 3,522,037. Stainless Steel Compositions With Increased Corrosive Resistance. Filed Oct. 31, 1966. Patented July 28, 1970. Not available NTIS.

Patent 3,523,514. Salvage Pontoon. Filed Nov. 27, 1968. Patented Aug. 11, 1970. Not available NTIS.

Patent 3,524,276. Elimination of Jellyfish and the Like. Filed Jan. 26, 1968. Patented Aug. 18, 1970. Not available NTIS.

Patent 3,526,745. Welding Machine. Filed Sept. 12, 1966. Patented Sept. 1, 1970. Not available NTIS.

Patent 3,527,919. Extended Electrode Welding Technique. Filed Feb. 5, 1969. Patented Sept. 8, 1970. Not available NTIS.

Patent 3,528,165. Corrosion Inhibiting Process. Filed Apr. 24, 1967. Patented Sept. 15, 1970. Not available NTIS.

Patent 3,532,176. Contoured Sidewalls for Captured Air Bubble Surface Effect Ships. Filed May 29, 1968. Patented Oct. 6, 1970. Not available NTIS.

Patent 3,532,180. Semi-Flexible Seal for Captured Air Bubble Vehicle. Filed May 17, 1968. Patented Oct. 6, 1970. Not available NTIS.

Patent 3,533,870. Method of Fabricating a Flexible Impregnated Glass Fiber Tether Having Maximum Strength Properties. Filed July 21, 1966. Patented Oct. 13, 1970. Not available NTIS.

Patent 3,533,897. Optically Clear Roughened Glass and Method for Making Same. Filed June 19, 1967. Patented Oct. 13, 1970. Not available NTIS.

Patent 3,535,246. Heat Producing Composition and Method of Employment. Filed Mar. 21, 1968. Patented Oct. 20, 1970. Not available NTIS.

Patent 3,541,503. Optical Glide Slope Reference Indicator for Aircraft. Filed Oct 27, 1969. Patented Nov. 17, 1970. Not available NTIS.

Patent 3,544,421. Filament Wound Structural Laminates. Filed May 31, 1967. Patented Dec. 1, 1970. Not available NTIS.

Patent 3,546,151. Water Repellent Corrosion Inhibiting Composition. Filed June 10, 1968. Patented Dec. 8, 1970. Not available NTIS.

Patent 3,548,411. Retractable Goggles for Helmet. Filed Feb. 26, 1969. Patented Dec. 22, 1970. Not available NTIS.

Patent 3,549,155. Helically Cut Sleeve Seal. Filed Apr. 26, 1968. Patented Dec. 22, 1970. Not available NTIS.

Patent 3,551,850. Suppressed-Carrier Modulator. Filed Nov. 14, 1968. Patented Dec. 29, 1970. Not available NTIS.

Patent 3,700,939. Ferroelectric Ceramic Stack. Filed Sept. 10, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,945. High Power Pulsed Electron Beam. Filed Aug. 30, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,952. High Power Pulsed Microwave Source. Filed Aug. 30, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,057. Broad-Band Lumped-Element Directional Coupler. Filed May 20, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,059. Remote Controlled, Adjustable Bandwidth Low Pass Filter. Filed Apr. 16, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,143. Walsh Function Generator. Filed Aug. 24, 1970. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,144. High Frequency Analog-to-Digital Converter. Filed Oct. 28, 1970. Patented Oct. 24, 1972. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP–2, Washington, D.C. 20546

Patent application 237,491. Integrated Lift/Drag Controller for Aircraft. Filed Mar. 23, 1972. PC $3.25/MF $1.45.

Patent application 307,714. Aircraft-Mounted Crash-Activated Radio Device. Filed Nov., 17, 1972. PC $3/MF $1.45.

Patent application 332,529. Temperature Measurement System. Filed Feb. 14, 1973. PC $3/MF $1.45.

Patent application 350,300. Apparatus and Method of Molding. Filed Apr. 11, 1973. PC $3/MF $1.45.

Patent application 379,049. Evacuated Displacement Compression Molding. Filed July 13, 1973. PC $3/MF $1.45.

Patent application 386,793. Holographic System for Nondestructive Testing. Filed Aug. 8, 1973. PC $3/MF $1.45.

Patent application 387,094. A Guide for a Typewriter. Filed Aug. 9, 1973. PC $3/MF $1.45.

Patent application 389,916. Variable Ratio Mixed-Mode Bilateral Master-Slave Control System for Shuttle Remote Manipulator System. Filed Aug. 20, 1973. PC $3.25/MF $1.45.

Patent application 390,466. A Method for Making Conductors for Ferrite Memory Arrays. Filed Aug. 22, 1973. PC $3/MF $1.45.

Patent application 390,467. Raw Liquid Waste Treatment System and Process. Filed Aug. 22, 1973. PC $3.25/MF $1.45.

Patent application 392,823. Remote Fire Stack Igniter. Filed Aug. 29, 1973. PC $3/MF $1.45.

Patent application 393,523. Material Suspension Within an Acoustically Excited Resonant Chamber. Filed Aug. 31, 1973. PC $3.50/MF $1.45.

Patent application 393,525. Apparatus for Forming Drive Belts. Filed Aug. 31, 1973. PC $3.25/MF $1.45.

Patent application 395,687. Shock Absorbing Mount for Electrical Components. Filed Sept. 10, 1973. PC $3/MF $1.45.

Patent 3,395,565. Gauge Calibration by Diffusion. Patented Aug. 6, 1968. Not available NTIS.

Patent 3,446,075. Apparatus for Absolute Pressure Measurement. Patented May 27, 1969. Not available NTIS.

Patent 3,745,082. Semiconductor Surface Protection Material. Patented July 10, 1973. Not available NTIS.

Patent 3,745,410. Driving Lamps by Induction. Patented July 10, 1973. Not available NTIS.

Patent 3,745,475. Measurement System. Patented July 10, 1973. Not available NTIS.

Patent 3,748,853. Swirl Can Primary Combustor. Patented July 31, 1973. Not available NTIS.

Patent 3,748,905. Vacuum Probe Surface Sampler. Patented July 31, 1973. Not available NTIS.

Patent 3,749,123. Dual Stage Check Valve. Patented July 31, 1973. Not available NTIS.

Patent 3,749,156. Thermal Control System for a Spacecraft Modular Housing. Patented July 31, 1973. Not available NTIS.

Patent 3,749,205. Metal Shearing Energy Absorber. Patented July 31, 1973. Not available NTIS.

Patent 3,749,362. Fastener Stretcher. Patented July 31, 1973. Not available NTIS.

Patent 3,749,911. Collimator of Multiple Plates With Axially Aligned Identical Random Arrays of Apertures. Patented July 31, 1973. Not available NTIS.

Patent 3,750,016. RF-Source Resistance Meters. Patented July 31, 1973. Not available NTIS.

Patent 3,750,067. Ferrofluidic Solenoid. Patented July 31, 1973. Not available NTIS.

Patent 3,750,131. Silent Emergency Alarm System for Schools and the Like. Patented July 31, 1973. Not available NTIS.

Patent 3,750,168. Apparatus for Aiding a Pilot In Avoiding a Midair Collision Between Aircraft. Patented July 31, 1973. Not available NTIS.

Patent 3,751,123. Low Mass Rolling Element for Bearings. Patented Aug. 7, 1973. Not available NTIS.

Patent 3,752,559. Ritchey-Chretien Telescope. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,752,564. Optical Data Processing Using Paraboloidal Mirror Segments. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,752,986. Compton Scatter Attenuation Gamma Ray Spectrometer. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,752,993. Spacecraft Attitude Sensor. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,744,912. Holographic Thin Film Analyzer. Patented July 10, 1973. Not available NTIS.

[FR Doc. 73-26204; Filed 12-11-73; 8:45 am]

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the GSA Patent Licensing Regulations.

Copies of patent applications, either paper Copy (PC) or Microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title. Requests for licensing information should be directed to the address cited with each copy of the patent application.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent 3,725,659. Thermoluminescence Dosimeter System. Filed Mar. 16, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,736,429. Random Source Interrogation System. Filed June 28, 1972. Patented May 29, 1973. Not available NTIS.

Patent 3,737,789. Count Rate Discriminator. Filed Dec. 21, 1971. Patented June 5, 1973. Not available NTIS.

Patent 3,738,171. Attenuation Compensation for Ultrasonic Thermometers. Filed Apr. 26, 1972. Patented June 12, 1973. Not available NTIS.

Patent 3,740,554. Multi-Ampere Duoplgatron Ion Source. Filed Apr. 13, 1972. Patented June 19, 1973. Not available NTIS.

DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Streets NW.,
Washington, D.C. 20240

Patent 3,761,713. Method of Detecting Loose Rock. Filed July 13, 1971. Patented Sept. 25, 1973. Not available NTIS.

Patent 3,763,055. Microporous Support for Reverse Osmosis Membranes. Filed July 7, 1971. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,763,493. Recovery of Nickel and Cobalt. Filed Aug. 31, 1972. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,540. Magnetofluids and Their Manufacture. Filed May 28, 1971. Patented Oct. 9, 1973. Not available NTIS.

DEPARTMENT OF THE NAVY
Assistant Chief for Patents, Office of Naval Research,
Code 302, Arlington, Va. 22217

Patent 3,701,147. Surface Wave Devices for Signal Processing. Filed Feb. 3, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,152. Bipolar Sample and Hold Circuit. Filed July 20, 1970. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,701,954. Adjustable Pulse Train Generator. Filed July 7, 1971. Patented Oct. 31, 1972. Not available NTIS.

Patent 3,702,395. Condenser System for High Intensity Light Source. Filed Oct. 9, 1970. Patented Nov. 7, 1972. Not available NTIS.

Patent 3,702,597. Salvage Work Vehicle. Filed Apr. 7, 1971. Patented Nov. 14, 1972. Not available NTIS.

Patent 3,703,012. Close Packing of Uniform Size Spheres. Filed Dec. 12, 1969. Patented Nov. 21, 1972. Not available NTIS.

Patent 3,703,719. Sequence Matrix. Filed May 31, 1967. Patented Nov. 21, 1972. Not available NTIS.

Patent 3,703,894. Rigid Foam Polyurethane Hand Splint. Filed Feb. 16, 1971. Patented Nov. 28, 1972. Not available NTIS.

Patent 3,703,968. Linear Linkage Manipulator Arm. Filed Sept. 20, 1971. Patented Nov. 28, 1972. Not available NTIS.

Patent 3,704,420. Automatic Frequency Control for Suppressed Carrier Receivers. Filed July 20, 1970. Patented Nov. 28, 1972. Not available NTIS.

Patent 3,704,463. Direction Finding Antenna System. Filed June 2, 1970. Patented Nov. 28, 1972. Not available NTIS.

Patent 3,704,673. Light Weight Pallet Construction. Filed Jan. 20, 1971. Patented Dec. 5, 1972. Not available NTIS.

Patent 3,704,966. Method and Apparatus for Rock Excavation. Filed Sept. 13, 1971. Patented Dec. 5, 1972. Not available NTIS.

Patent 3,706,535. Carbon Monoxide Burner for Undersea Habitats. Filed Nov. 23, 1970. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,706,621. Vacuum Process for Application of Sheet Coatings. Filed Jan. 7, 1970. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,706,651. Apparatus for Electroplating a Curved Surface. Filed Dec. 30, 1970. Patented Dec. 19, 1972. Not available NTIS.

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Patent 3,706,772. Fluorodiglycidyl Ethers. Filed Mar. 23, 1971. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,706,932. Amplitude Independent, Automatic Frequency Control/Discriminator. Filed Jan. 7, 1971. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,706,967. Underwater Acoustic Projector. Filed Jan. 21, 1971. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,707,483. Fluorinated Monoglycidyl Ethers. Filed Feb. 4, 1971. Patented Dec. 26, 1972. Not available NTIS.

Patent 3,711,139. Pressure Actuated Spring Biased Latch. Filed Aug. 20, 1971. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,711,351. Method of Impregnating Inorganic Filament Strands. Filed Sept. 9, 1970. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,711,514. Highly Fluorinated Alkyl Esters of Trimellitic Acid Anhydride and Method for Their Production. Filed Feb. 12, 1970. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,711,586. Method of Increasing Tensile Strength of Plastic Materials. Filed Mar. 18, 1971. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,712,131. Heat Flux Indicator. Filed Feb. 22, 1971. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,713,034. Audio Signal Controlled Amplitude Modulation Circuit of Square Wave Output. Filed Oct. 26, 1971. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,713,394. Smoke Signal Device. Filed Mar. 1, 1971. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,713,414. System for Attachment to and Lifting of Objects From Deep Water. Filed Aug. 26, 1965. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,713,548. Folded Tensioned Highline System. Filed Oct. 21, 1971. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,713,636. Incendiary Cutting Torch for Underwater Use. Filed Sept. 22, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,713,750. Circulation Control Rotor System. Filed Dec. 7, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,430. Photoelement Intense Radiation Protective Device. Filed May 19, 1967. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,721,994. Dual Visor Headgear. Filed Mar. 29, 1971. Patented Mar. 27, 1973. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20546

Patent application 253,725. Three-Axis, Adjustable Loading Structure. Filed May 16, 1972. PC $3/MF $1.45.

Patent application 280,029. Bimetallic Fluid Displacement Apparatus. Filed Aug. 11, 1972. PC $3/MF $1.45.

Patent application 280,032. Heater-Mixer for Stored Fluids. Filed Aug. 11, 1972. PC $3/MF $1.45.

Patent application 310,193. Photomultiplier Circuit Including Means for Rapidly Reducing the Sensitivity Thereof. Filed Nov. 28, 1972. PC $3/MF $1.45.

Patent application 321,180. Single Wing Supersonic Aircraft. Filed Jan. 5, 1973. PC $4/MF $1.45.

Patent application 387,095. An Improved System for Enhancing Tool Exchange Capabilities of a Portable Wrench. Filed Aug. 9, 1973. PC $3.25/MF $1.45.

Patent application 386,790. Automatically Operable Self-Leveling Load Table. Filed Aug. 8, 1973. PC $3.25/MF $1.45.

Patent 3,452,103. Fluorohydroxy Ethers. Patented June 24, 1969. Not available NTIS.

Patent 3,463,761. Polyurethanes of Fluorine Containing Polycarbonates. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,463,762. Polyurethanes From Fluoroalkyl Propyleneglycol Polyethers. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,475,384. Fluorine Containing Polyurethane. Filed Oct. 28, 1969. Not available NTIS.

Patent 3,577,356. Highly Fluorinated Polymers. Patented May 4, 1971. Not available NTIS.

Patent 3,745,352. Radiation Sensitive Solid State Switch. Patented July 10, 1973. Not available NTIS.

Patent 3,746,998. Automatic Carrier Acquisition System. Patented July 17, 1973. Not available NTIS.

Patent 3,749,831. Television Multiplexing System. Patented July 31, 1973. Not available NTIS.

Patent 3,751,913. Barium Release System. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,752,847. Fluorinated Esters of Polycarboxylic Acids. Patented Aug. 14, 1973. Not available NTIS.

Patent application 287,149. Stagnation Pressure Prove. Filed Sept. 7, 1972. PC $3/MF $1.45.

Patent application 294,727. Nuclear Thermionic Converter. Filed Oct. 3, 1972. PC $3/MF $1.45.

Patent application 301,417. Auditory Display for the Blind. Filed Oct. 27, 1972. PC $3/MF $1.45.

Patent application 307,727. Rotating Raster Generator. Filed Nov. 17, 1972. PC $3.50/MF $1.45.

Patent application 317,567. Method of Producing a Storage Bulb for an Atomic Hydrogen Maser. Filed Dec. 22, 1972. PC $3/MF $1.45.

Patent application 327,921. Circuit for Detecting Initial Systole and Dicrotic Notch. Filed Jan. 30, 1973. PC $3/MF $1.45.

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Patent application 301,418. Miniature Ingestible Telemeter Devices To Measure Deep Body Temperature. Filed Oct. 27, 1972. PC $3/MF $1.45.

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Patent application 326,326. Method and Device for Detection of Surface Discontinuities or Defects. Filed Jan. 24, 1973. PC $3.25/MF $1.45.

Patent application 327,982. Formaldehyde Base Disinfectants. Filed Jan. 30, 1973. PC $3/MF $1.45.

Patent application 329,243. Solid Propellant and Method of Preparation. Filed Feb. 2, 1973. PC $3.25/MF $1.45.

Patent application 340,864. Method of Fabricating an Object With a Thin Wall Having a Precisely Shaped Slit. Filed Mar. 13, 1973. PC $3/MF $1.45.

Patent application 343,607. Thrust Isolating Mounting. Filed Mar. 21, 1973. PC $3.75/MF $1.45.

Patent application 352,382. Continuous Fourier Transform Method and Apparatus. Filed Apr. 18, 1973. PC $3.25/MF $1.45.

Patent application 346,341. Hollow Rolling Element Bearings. Filed Mar. 30, 1973. PC $3/MF $1.45.

[FR Doc. 73-26205; Filed 12-11-73; 8:45 am]

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the GSA Patent Licensing Regulations.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title. Requests for licensing information should be directed to the address cited with each copy of the patent application.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

DEPARTMENT OF THE ARMY

Chief, Patents Division, Pentagon, Office of the Judge Advocate General, Patent Division, Rm. 2C-455,
Washington, D.C. 20310

Patent 3,715,668. Air-Launched Radio Apparatus. Filed Sept. 26, 1967. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,689. Wideband Microwave Power Divider. Filed Feb. 10, 1972. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,692. Microstrip-Slot Line Phase Shifter. Filed Jan. 10, 1972. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,717,580. Method of Disinfecting and Self-Limiting Solution Therefor. Filed Dec. 2, 1969. Patented Feb. 20, 1973. Not available NTIS.

ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent 3,725,294. Method for Dissolving Plutonium Dioxide. Filed Jan. 27, 1972. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,730,833. Scavengers for Radioactive Iodine. Filed May 17, 1971. Patented May 1, 1973. Not available NTIS.

Patent 3,733,265. Cross-Flow Filtration Process for Removal of Total Organic Carbon and Phosphates From Aqueous Sewage Effluents. Filed Nov. 22, 1971. Patented May 15, 1973. Not available NTIS.

Patent 3,733,760. Reactor Vessel. Filed Mar. 5, 1970. Patented May 22, 1973. Not available NTIS.

Patent 3,736,658. Thermionic Gas-Pressure-Bonded Sheathed Insulators and Method of Producing Same. Filed Oct. 12, 1970. Patented June 5, 1973. Not available NTIS.

Patent 3,742,219. High Energy Neutral Particle Beam Source. Filed June 23, 1971. Patented June 26, 1973. Not available NTIS.

DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Streets, NW.,
Washington, D.C. 20240.

Patent application 393,385. Recovery of Sulfur. Filed Aug. 31, 1973. PC $3/MF $1.45.

Patent 3,760,868. Disposal of Waste Heat. Filed Jan. 28, 1971. Patented Sept. 25, 1973. Not available NTIS.

Patent 3,760,949. Sealing Means for Hollow Fiber Bundles. Filed Aug. 13, 1971. Patented Sept. 25, 1973. Not available NTIS.

Patent 3,761,622. Amplitude Modulated Telemetering System. Filed Nov. 23, 1970. Patented Sept. 25, 1973. Not available NTIS.

Patent 3,761,708. Electron Suppressor Grid for a Mass Spectrometer. Filed Oct. 8, 1971. Patented Sept. 25, 1973. Not available NTIS.

DEPARTMENT OF THE NAVY
Assistant Chief for Patents, Office of Naval Research,
Code 302, Arlington, Va. 22217

Patent 3,712,232. Variable Delay Fuse for Aircraft Parachute Flare. Filed Oct. 23, 1968. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,714,069. Corrosion Preventing Composition. Filed Dec. 17, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,189. Phenylated Pyromellitimides. Filed July 22, 1971. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,498. Television camera. Filed Feb. 16, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,552. Method of Reducing Errors Arising From the Radio Frequency Oscillator System of Optically Pumped Magnetometers. Filed Jan. 19, 1972. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,601. Variable Direct Current Bias Control Circuit for Linear Operation of Radio Frequency Power Transistors. Filed Oct. 14, 1971. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,661. Method and Apparatus for Coupling Multiple Power Sources to Single Radiating Antenna. Filed Jan. 24, 1972. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,777. Pressure Differential Limiter. Filed July 6, 1970. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,714,830. Water Sampling Device. Filed Mar. 26, 1971. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,574. Interface Converter for Feeding High Frequency Signals Into Low Frequency Circuits. Filed July 21, 1971. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,654. Crystal Magnetometer and Gradiometer. Filed June 4, 1970. patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,748. Method and Apparatus for Measuring the Intensity of Atmospheric Turbulence. Filed Apr. 30, 1971. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,716,424. Method of Preparation of Lead Sulfide PN Junction Diodes. Filed Apr. 2, 1970. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,716,711. Water Level Gauge Using Neutron Source. Filed June 18, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,718,570. Cathodic Protection Anode With Sections Replaceable Underwater. Filed June 1, 1970. Patented Feb. 27, 1973. Not available NTIS.

Patent 3,719,610. Low Loss Electrical Conductive Coating and Bonding Materials Including Magnetic Particles for Mixing. Filed Aug. 4, 1971. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,720,093. Carbon Dioxide Indicating Meter. Filed Dec. 3, 1970. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,101. Automatic Spring Rate Plotter. Filed July 23, 1971. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,166. Apparatus and Method for Terrain Clearance. Filed Aug. 2, 1971. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,611. Gelation Inhibited Silicone Fluids. Filed Mar. 23, 1971. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,639. Fluorinated Polyols. Filed June 24, 1971. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,736. Process for the Synthesis of Dihydro Carbonphosphinates. Filed Mar. 17, 1970. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,720,834. High Power Infrared Imaging Device. Filed June 15, 1971. Patented Mar. 13, 1973. Not available NTIS.

Patent 3,721,207. Collection and Disposal of Ship's Sewage. Filed Apr. 15, 1971. Patented Mar. 20, 1973. Not available NTIS.

Patent 3,721,408. Variable Mode Sling for Helicopter Recovery Systems. Filed Nov. 19, 1971. Patented Mar. 20, 1973. Not available NTIS.

Patent 3,721,500. Instrument for Measuring the Depolarization of Backscattered Light. Filed Aug. 6, 1971. Patented Mar. 20, 1973. Not available NTIS.

Patent 3,721,763. Single Line Bi-Directional Data Transmission System. Filed July 29, 1971. Patented Mar. 20, 1973. Not available NTIS.

Patent 3,721,764. Auditory Test Facility With Multistage Single Sideband Heterodyning. Filed Jan. 14, 1970. Patented Jan. 20, 1973. Not available NTIS.

Patent 3,722,967. Low Heat Generation Turbine Engine Bearing. Filed Oct. 26, 1971. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,723,207. Process for Preparing Stable Essentially Water-Free Slurries of Nitrocellulose and Products Thereof. Filed Oct. 23, 1970. Patented Mar. 27, 1973. Not available NTIS.

[FR Doc. 73-26206; Filed 12-11-73; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 22, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-02-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo, Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-12-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-11-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	1-02-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-01-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-16-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	9-01-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	4-02-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-17-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-15-73
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-17-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	3-08-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-10-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	3-02-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	3-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-28-72

Expiration of patents: The patents within the range of numbers indicated below expire during December 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,772,415 to 2,775,761, inclusive
Plant Patents..... Numbers 1,532 to 1,542, inclusive

REISSUES

JANUARY 8, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,870

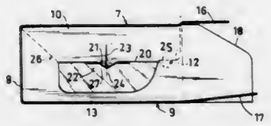
FOLDABLE BLANKS AND CARTONS, BOXES, TRAYS OR PACKING CASES MADE THEREFROM

Karl Rune Persson, Halmstad, Sweden, assignor to AB Ahlen & Akerlund, Forpackning, Halmstad, Sweden

Original No. 3,112,854, dated Dec. 3, 1963, Ser. No. 140,004, Sept. 22, 1961. Application for reissue Mar. 26, 1973, Ser. No. 345,236

Int. Cl. B65d *5/18*

U.S. Cl. 229—39 R **14 Claims**



A carton formed of a blank having fold lines to form at least bottom and side panels when folded along the fold lines. Pairs of cooperating engaging panels are interlocked with one another by the provision of an insertion slot in one panel and a cooperating tab forming the slot in the other panel. One of the pair of panels is inserted into the slot of the other panel until the edge of one panel engages a fold line along which the other panel is folded, to assure registry of the cooperating slots with the tab portion of the tab being offset from the other slot. Interlocking is obtained by applying sidewise pressure to the tab thereby snapping the tab over a portion of the other slot.

27,871

POSITION CONTROL SYSTEMS FOR AN ARTICLE HANDLING APPARATUS

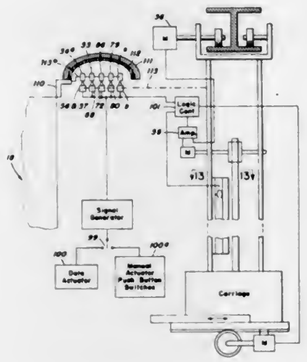
Ward F. O'Connor, Denville, N.J., assignor to The Lummus Company, New York, N.Y.

Original No. 3,406,846, dated Oct. 22, 1968, Ser. No. 651,791, July 7, 1967. Application for reissue Oct. 16, 1970, Ser. No. 81,338

Int. Cl. B65g *1/06*

U.S. Cl. 214—16.4 A **22 Claims**

Automated warehouse apparatus operating at a central point for continuously controlling a load transporting carriage located at a remote point to retrieve a load from a preselected storing space or to place a load therein, and comprising a plurality of groups of discrete electric buses, each group including continuous electric conductors and segmented conductors, for continuously transmitting instructional signals from the central point to the remote point and vice versa, and a plurality of electric motors located on the carriage and controlled by the instructional signals continuously transmitted on the electric buses for providing the necessary X, Y and Z movements of certain components of the carriage to achieve the load retrieval or placement actions. An amplifier derives low



values of direct current from low voltages of direct current voltage to provide the instructional signals.

27,872

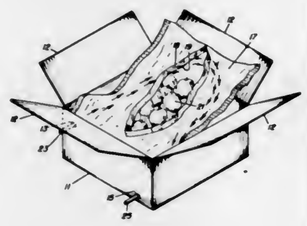
CARTON

Joseph J. Esty, San Diego, Calif., assignor of a fractional part interest to Oberlin J. Evenson, San Diego, Calif.

Original No. 3,521,806, dated July 28, 1970, Ser. No. 645,968, June 14, 1967. Application for reissue Mar. 22, 1971, Ser. No. 126,652

Int. Cl. B65d *5/60, 81/20*

U.S. Cl. 229—14 B **5 Claims**



A package for preserving perishable products, such as food and flowers, in which the product is in an impermeable container which has been purged, after the product is in the container, by forcing an inert gas through the container. The composite package includes the container enclosed in an inherently stable carton.

27,873

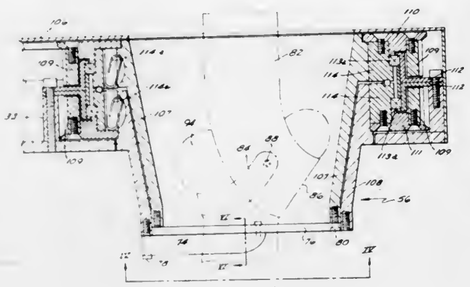
DEBONING APPARATUS

Ferdinand Weits, Holland, and Theodore C. Zwiep, Grand Rapids, Mich., assignors to Prince Manufacturing Company, Holland, Mich.

Original No. 3,457,586, dated July 29, 1969, Ser. No. 720,052, Apr. 10, 1968. Application for reissue July 22, 1971, Ser. No. 166,324

Int. Cl. A22b *5/00;* **A22c** *17/00*

U.S. Cl. 17—1 G **30 Claims**



This disclosure relates to a method and apparatus for removing meat from bones. The meat is removed by plowing the meat away from the bone by a plurality of dull plow members which rotate about the bone and are urged against the bone to force the meat away from and separate it from the bone without cutting the meat. Special tools are disclosed for holding the different ends of the bone so that the bone can be held without crushing during the deboning operation. Special tools are also disclosed for removing kneecaps and fibula bones prior to the meat stripping operation.

27,874

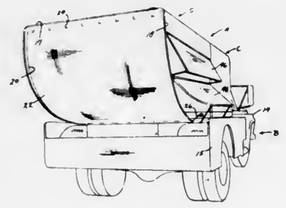
SHROUD FOR SEWER CLEANING TRUCK

Benjamin P. Fisco, Jr., Cleveland Heights, Ohio, assignor to Aquatech Inc.

Original No. 3,570,526, dated Mar. 16, 1971, Ser. No. 752,662, Aug. 14, 1968. Application for reissue Aug. 23, 1971, Ser. No. 174,282

Int. Cl. F16k *49/00*

U.S. Cl. 137—340 **14 Claims**



In a mobile unit which includes a water reservoir; water-handling components including a hose reel and hose normally coiled thereon, pump means suitably connected between the reservoir and the hose to pump from the reservoir through the hose, valve means to control the flow of water; an internal combustion engine utilized to drive the pump means and a source of heat; the improvement for use with severe winter freezing conditions comprising a shroud assembly which in combination with a wall of the reservoir encloses the water-handling components and source of heat on all four sides and the top, the source of heat being arranged to circulate a flow of warm air within the space enclosed by the shroud in a continuous flow path against the wall of the reservoir and across and around the water-handling components to maintain all of such components and water in the reservoir above the freezing temperature of water.

27,875

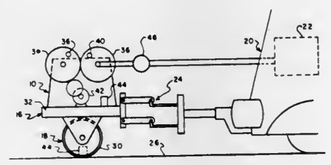
METHOD AND APPARATUS FOR DETERMINING DEFLECTION OF A STRUCTURE

Gilbert Swift, Rte. 3, Box 266A, Bryan, Tex. 77801

Original No. 3,481,183, dated Dec. 2, 1969, Ser. No. 760,125, Sept. 12, 1968, which is a continuation-in-part of Ser. No. 192,475, May 4, 1962, now Patent No. 3,341,706, and a continuation of abandoned Ser. No. 386,342, July 30, 1964. Application for reissue Nov. 30, 1971, Ser. No. 203,490

Int. Cl. G01m *7/00;* **G01n** *29/00*

U.S. Cl. 73—67.1 **16 Claims**



A pair of counter - rotating masses are rotated synchronously in a vertical plane, the masses being arranged with respect to a mechanical coupling means which may be formed of a single wheel trailer so as to produce a cyclic variation of the downward force exerted by the wheel of the trailer on the surface of the structure being tested. The trailer is designed with respect to the force generated by the rotatable masses such that there will always be a downward force acting against the surface, avoiding any negative force during the entire cycle of the rotating masses. Motion sensing devices are provided to determine the amplitude of the vertical oscillatory motion and/or the phase angle of the motion with respect to the driving force of the rotating masses.

27,876

DISPENSING APPARATUS

Fredrick W. Hudson, West Henrietta, and William C. Emerson, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

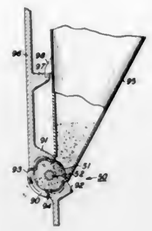
Original No. 3,596,807, dated Aug. 3, 1971, Ser. No. 796,964, Feb. 6, 1969. Application for reissue Aug. 25, 1972, Ser. No. 283,882

Int. Cl. G01f *11/20*

U.S. Cl. 222—181 **6 Claims**

A disposal-dispensing unit for dispensing particulate material in which a substantially enclosed container having

an opening in the bottom thereof is sealed by a resilient open-celled elastomeric roll which is rotatably supported in biasing contact with the walls of said opening to retain particulate material therein. Further means are provided exterior the container for rotating the roll sequentially



through the toner material in the container wherein the open-celled cavities on the roll surface are uniformly loaded with particulate material, and then past at least one biasing wall where the roll surface is deformed sufficiently to force the particulate material from the roll surface into the dispensing opening.

27,877

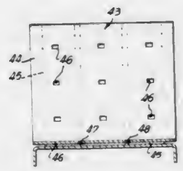
HEATING DEVICE FOR ELECTRICAL ACTUATION

James W. Welsh, Summit, N.J., and Fred Adler, Westbury, N.Y., assignors to Standard Motor Products, Inc., Long Island City, N.Y.

Original No. 3,657,518, dated Apr. 18, 1972, Ser. No. 28,326, Apr. 14, 1970. Application for reissue Oct. 2, 1972, Ser. No. 293,805

Int. Cl. H05b *3/06*

U.S. Cl. 219—536 **17 Claims**



A heating device for electrical actuation is shown which includes an elongated convoluted support and an insulated electrical resistance wire disposed upon the support. A base member optionally underlies the support and is secured thereto. The support may be formed alternatively of a pair of superimposed members, a lateral inturned portion, or a pair of spaced lateral inturned portions or folded portions. Flange portions may also be optionally provided upon the base member for stiffening purposes.

27,878

PROCESS

Gary L. Sommars, 63 Brittain Road, Akron, Ohio 44305, and Adel F. Halasa, 5040 Everett Road, P.O. Box 244, Bath, Ohio 44210

No Drawing. Original No. 3,692,883, dated Sept. 19, 1972, Ser. No. 150,837, June 7, 1971, which is a continuation-in-part of Ser. No. 854,267, Aug. 29, 1969. Application for reissue Dec. 13, 1972, Ser. No. 314,875

Int. Cl. C08d *3/04, 3/06*

U.S. Cl. 260—94.2 T **13 Claims**

Conjugated dienes are polymerized by a new catalyst system which permits control of the molecular weight and gives a more easily processed product. This catalyst system comprises (1) a sodium hydrocarbon compound having 1–10 carbon atoms in which the hydrocarbon portion is a primary, secondary or tertiary alkyl or an aryl radical, and (2) potassium hydroxide or preferably lithium hydroxide. The diene polymers produced by this process have controllable molecular weights in the range of 5,000 to 1,000,000, preferably 100,000 to 500,000, broad molecular weight distribution, high glass transition temperatures, high degree of branching and are more easily processed in the production of rubber and other compositions for commercial use.

27,879

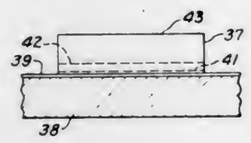
OHMIC CONTACT FOR GROUP III–V p-TYPE SEMICONDUCTORS

Neil E. Collins, Richmond Heights, and Ira E. Halt, Chesterland, Ohio, assignors to General Electric Company

Original No. 3,684,930, dated Aug. 15, 1972, Ser. No. 101,971, Dec. 28, 1970. Application for reissue Feb. 21, 1973, Ser. No. 334,237

Int. Cl. H01l *1/14*

U.S. Cl. 317—234 R **14 Claims**



A combination of gold-germanium or gold-silicon alloy and zinc or other metallic Group II element provides an electrical contact and low-temperature bonding material for p-type semiconductors of Group III–V such as gallium arsenide.

27,880

LIQUID POLYSULFIDE POLYMERIC GLASS-TO-METAL SEALANT COMPOSITION

John P. Gallagher, Forked River, N.J., Robert M. Meyers, Fairless Hills, Pa., Earl H. Song, Trenton, N.J., and Clark M. Willitts, Lewistown, Pa., assignors to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Original No. 3,697,472, dated Oct. 10, 1972, Ser. No. 76,300, Sept. 28, 1970. Application for reissue Dec. 4, 1972, Ser. No. 312,240

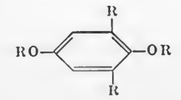
Int. Cl. C08g *51/04, 51/30, 51/60*

U.S. Cl. 260—33.8 R **11 Claims**

A liquid polysulfide polymer sealant composition for sealing glass to metal having greatly improved adhesion

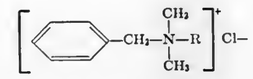
stability when exposed to ultraviolet radiation or sunlight transmitted through glass and greatly improved penetrometer cure and adhesion rate properties is obtained by use of hydroquinone and quinone ultraviolet radiation adhesion stabilizers and quaternary ammonium chloride curing and adhesion rate regulators.

Quinone and compounds having the structure

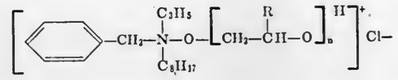


where R represents H or alkyl groups having 1–6 carbon atoms, e.g. hydroquinone and p-methoxy phenol, are effective additives for preventing loss of cohesive strength or loss of adhesion of cured polysulfide polymer compositions to glass where the sealant/glass interface is exposed to ultraviolet radiation, including sunlight. However, the addition of these adhesion stabilizers have an adverse effect on quick adhesion and curing rate of the sealant. Therefore, the addition of curing and adhesion rate regulators is required.

Improved quick adhesion and cure rate properties are obtained by the use of quaternary ammonium chlorides represented by the formula



where R represents an alkyl having 8 to 24 carbon atoms [and quaternary ammonium chlorides represented by the formula



where R' represents hydrogen or methyl and n is a number from 3 to 5].

PLANT PATENTS

GRANTED JANUARY 8, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,423

ROSE PLANT

William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Dec. 27, 1971, Ser. No. 212,839

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—18 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a plant branching freely from its base, bearing very freely flowers which change from Indian Lake in the tight bud to Phlox Pink in the open flower; generally light green foliage; thorny stems; long pointed flower buds; extremely strong pleasant fragrance.

3,424

CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Dec. 10, 1971, Ser. No. 206,954

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Puritan by its yellow flower color; approximately one-quarter inch smaller diameter flowers; approximately one to two inches shorter plant habit; its slightly lighter foliage color and its approximately two to five days later response, with such response difference being greatest during low light periods of winter, and least during high light, high temperature periods.

3,425

CHRYSANTHEMUM PLANT

Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Dec. 27, 1971, Ser. No. 212,834

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, spray type, substantially as shown and described, characterized particularly as to novelty by the unique combination of a red bronze color, extreme vigor, and ability to set buds and flower uniformly in a wide range of environmental conditions.

3,426

AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.

Filed Jan. 24, 1972, Ser. No. 220,508

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by the medium to large size of its delicate pink flowers which are carried on short peduncles branching from relatively long flower stalks which tend to spread laterally above relatively large, almost circular leaves carried on long, horizontally extending petioles to provide a sharply contrasting background for a bunched mass of the flowers.

3,427

AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.

Filed Jan. 24, 1972, Ser. No. 220,505

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by its very profuse year around production of relatively large, long lasting, dark pink flowers which grow in clusters on strong upright stalks. The blossoms are medium large in size and appear massed above a flatly spreading bed of dark green leaves.

3,428

AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.

Filed Jan. 24, 1972, Ser. No. 220,507

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant characterized by the delicate pink color of its very large blossoms which bloom profusely and recurrently the year around, and by its vigorous growth with abundant outwardly spreading foliage and relatively high display of closely massed flowers.

3,429

AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.

Filed Jan. 24, 1972, Ser. No. 220,506

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by its profuse, year around production of long lasting blossoms which appear on erect stalks displaying the flowers well above the plant foliage. The new plant flowers uniformly with large blossoms of a pleasing pink color.

3,430

CARNATION PLANT

Bent E. Graust, 3233 Freedom Blvd., Watsonville, Calif. 95076

Filed Mar. 6, 1972, Ser. No. 232,296

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—73 **1 Claim**

1. The new and distinct variety of carnation substantially as herein disclosed characterized as to novelty by the color of its flower.

3,431

ROSE PLANT

William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Dec. 6, 1971, Ser. No. 205,421

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous, well branched plant, large dark green foliage, long pointed buds, burnt orange color opening to Chinese coral and fading lightly to a lighter carrot red.

3,432

ROSE PLANT

William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Dec. 6, 1971, Ser. No. 205,422

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—14 **1 Claim**

1. A new and distinct variety of rose plant of a type intermediate between hybrid tea and floribunda in bush habit, flower clustering, flower size; a prolific producer of cut flowers in the greenhouse, nearly white bud and open flowers, and a strong resistance to rose powdery mildew.

PATENTS

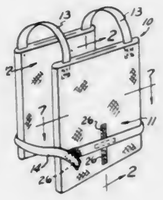
GRANTED JANUARY 8, 1974

GENERAL AND MECHANICAL

3,783,449
BULLET-PROOF PROTECTIVE ARMOR AND METHOD OF MAKING SAME

Richard C. Davis, 8611 Whitehorn, Romulus, Mich.

Filed May 8, 1972, Ser. No. 251,077
Int. Cl. F41h *1/02*
U.S. Cl. 2—2.5 4 Claims

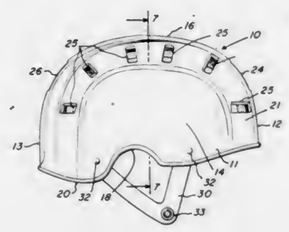


A bullet-proof armor formed of a pad made of a number of loose sheets woven of heavy gauge, linearly oriented nylon threads, the pad being enclosed within a cloth envelope, and means for holding the envelope containing the pad upon the object to be protected. The sheets are treated by subjecting them to super-cooling in a cryogenic atmosphere to thereby increase their impact resistance capabilities.

3,783,450
HOCKEY HELMET

William Raymond O'Connor, 2190 Sargent Ave., St. Paul, Minn.

Continuation of Ser. No. 216,633, Jan. 10, 1972, abandoned.
This application Feb. 5, 1973, Ser. No. 329,320
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 R 12 Claims

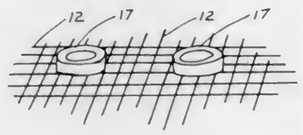


A hockey helmet is disclosed in which an outer shell is formed of lightweight material generally by injection molding with three protective ribs extending longitudinally over the top of the helmet, the two outer ribs having openings formed therein. The openings progressively decrease in area as they extend from the front to the back of the helmet. The inside of the helmet has three protective pads secured to the inside of the outer protective shell so that a pair of passages are formed in cooperation with the ribs in cooling the upper part of the head of the wearer. The central pad covers the central rib and forms an air cushion for the top of the head of the wearer.

3,783,451
INSECT PROTECTIVE GARMENT

Eugene F. Malin, 1040 Bayview Dr., Suite 201, Fort Lauderdale, Fla.

Continuation of Ser. No. 138,677, April 29, 1971, abandoned.
This application Dec. 20, 1972, Ser. No. 316,676
Int. Cl. A42b *3/00*
U.S. Cl. 2—4 6 Claims

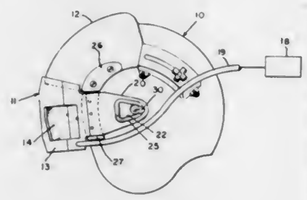


An insect protective garment for use in a warm climate comprising an insect netting material coupled to skin separating members such as, circular rings or elongated rib members which hold the netting material off the users skin to prevent mosquitoes from reaching or making contact with the skin of the wearer. Insects adjacent the net area are unable to reach the skin, while the garment provides sufficient air flow through the net and about the wearer's skin.

3,783,452
REMOVABLE GOGGLES FOR HELMET

Alden P. Benson; Kenneth J. Foster, both of Dedham, and Alfred R. Quellette, Saugus, all of Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 11, 1972, Ser. No. 242,999
Int. Cl. A42h *3/00*
U.S. Cl. 2—6 3 Claims

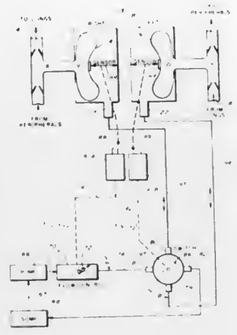


Apparatus for attaching removable photochromic goggles to a conventional crash helmet includes a post on one side of the helmet adjacent the face opening thereof and an over-center latch on the other side of the helmet which engage apexes of triangular eyelets formed in straps extending from the distal ends of the goggles. The over-center latch has a lever with a camming surface formed thereon, notched to retain the apex of one of the eyelets and pivoted such that upon turning of the lever aftwards the notch is moved aftwards, stretching the straps, within side brackets formed on the helmet for vertically locating the goggles in front of the wearer's eyes.

3,783,453
SELF-REGULATING ARTIFICIAL HEART

Victor W. Bolie, 7504 American Heritage Dr., Albuquerque, N. Mex.

Filed Dec. 23, 1971, Ser. No. 211,485
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 17 Claims



This invention describes a complete artificial heart system which is capable of providing complete self-regulative control of the pumping action of the heart. It comprises a right and left ventricular bladder connected to the blood system. These bladders are housed in right and left ventricular chambers, the space between the bladder and the chamber being filled with a drive fluid. Means are provided for sensing the volume of blood in the right and the left ventricular bladders.

There is a power fluid system which comprises a sump maintained at atmospheric pressure, a pump, a flow control means and a switching means. The right and left sensors in the corresponding right and left ventricular chambers have outputs which are functions of the blood volume in the right and left ventricular bladders. A control means takes these sensor outputs and computes two control signals, one of which is a function of the difference between the volumes in the right and the left ventricular bladders, and the other is a function of the sum of the volumes in the right and the left ventricular bladders. The sum function goes to control the rate of flow of the power fluid and the difference function goes to control the switching.

The switching means is provided so that when one bladder, for example the right ventricular bladder, becomes fully extended the left ventricular bladder becomes fully compressed, whereupon the drive fluid is switched into the right ventricular chamber to compress the bladder and push its contained blood out into the body system; at the same time, the power fluid that was filling the left chamber is released to flow back to the sump.

3,783,454
SURGICALLY IMPLANTABLE PROSTHETIC DUCT FOR THE REMOVAL OF BIOLOGICAL LIQUIDS

Andre Sausse, Hauts-de-Seine, and Andre Stern, Paris, both of France, assignors to Rhone-Poulenc S.A., Paris, France

Filed Mar. 29, 1972, Ser. No. 239,218
Claims priority, application France, Apr. 7, 1971, 7112306
Int. Cl. A61f *1/24*; A61m *27/00*
U.S. Cl. 3—1 11 Claims

A duct for the removal of biological liquids, especially urine, in the form of a tubular body having internal and external surfaces, at least, of silicone elastomer. Near its upper end, e.g., for connection to a ureter, the body is surrounded by a woven or knitted textile sheath, which is secured by silicone elastomer adhesive to the body and is used as a suturing

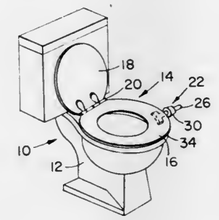


member for securing the duct to the ureter. Near its lower end the body is provided with a similar sheath or a radially outwardly projecting flange to secure it, e.g., to a bladder.

3,783,455
TOILET OPERATING ASSEMBLY

William R. Vanderbrook, 623 Sunny Side Dr., Cadillac, Mich.

Filed July 20, 1972, Ser. No. 273,351
Int. Cl. A47k *17/00*; E03d *11/00*
U.S. Cl. 4—1 5 Claims

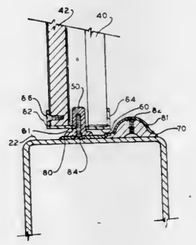


A toilet operating assembly for protecting the hands of a user of a toilet against germs, the operating assembly being adapted to attach to a toilet seat and to include a partially housed vapor emitting, wick, separating an operating handle and the toilet seat.

3,783,456
BATHING FACILITY

Troy L. Doan, 2090 Alta Vista Dr., Vista, Calif.

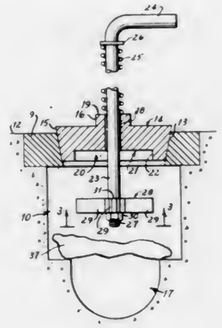
Filed Feb. 14, 1972, Ser. No. 226,135
Int. Cl. A47k *3/14*, *3/22*
U.S. Cl. 4—149 9 Claims



The outer side rim of a tub or a shower has a rib along the outer, upper margin forming an abutment and water seal for a

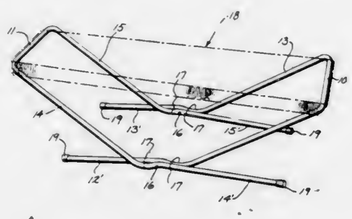
closure such as a weighted curtain or sliding shower doors. In the case of sliding shower doors, further guidance for the doors is provided by an upstanding abutment interposed between the doors and by a pair of U-shaped guide members, each attached to one door and extending under the other door to guidingly bear on the opposite side of the other door. The rim is sloped to drain inwardly.

3,783,457
DRAIN CLEANER
Salvatore J. Tornabene, 164-30 90th St., Howard Beach, N.Y.
Filed June 20, 1972, Ser. No. 264,557
Int. Cl. E03d *11/00*
U.S. Cl. 4—255 **5 Claims**



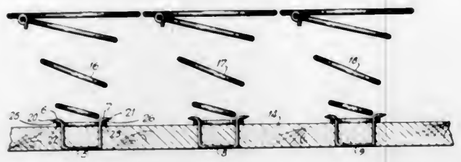
A vertical shaft is manipulated through a drain trap cover so as to lower a cleaning member into the drain trap and dislodge clogging substances therein. The vertical shaft is provided with a spring which urges it out of the drain trap when the cleaning member is not in use.

3,783,458
HAMMOCK BED-SUPPORTING FRAMES
James L. Westrich, Algoma, Wis., assignor to Gleason Corporation, Milwaukee, Wis.
Filed Apr. 3, 1972, Ser. No. 240,489
Int. Cl. A47k *11/02*
U.S. Cl. 5—129 **3 Claims**



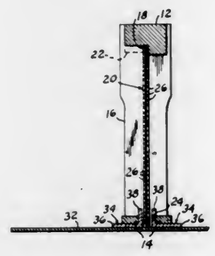
A hammock-supporting stand or frame, formed of metal tubing or the like and designed particularly for lounge-type hammocks, is provided with a pair of leg portions on each side thereof which extend downwardly at an angle to a point adjacent the stand longitudinal midpoint and are thence deflected to a substantially straight, horizontal position forming elongated ground-engaging portions, the horizontal portions of said legs on each side of the stand being pivotally joined to permit said stand to be jackknifed to a folded, space-conserving compact condition for convenient shipping, storage, or display.

3,783,459
COIL SPRING ANCHOR ASSEMBLY
James Piliero, 30-83 37th St., Astoria, N.Y.
Filed Dec. 11, 1972, Ser. No. 313,804
Int. Cl. A47c *23/02*
U.S. Cl. 5—259 B **5 Claims**



A prefabricated spring anchor assembly is disclosed comprising a furniture slat along whose length U-shaped anchoring staples are partially embedded at substantially equal intervals. Protruding vertical legs of each staple are curved to form a pair of spring clenching fingers which serve, in cooperation with the bottom turn of a tapered coil spring, to lock the spring to the top surface of the slat.

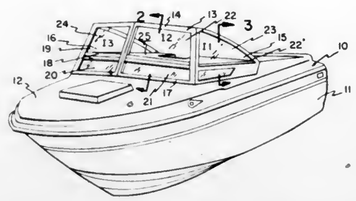
3,783,460
HONEYCOMB FOUNDATION INSTALLING DEVICE
Thurman E. Goff, 2216 N.W. 38, Oklahoma City, Okla.
Filed Oct. 2, 1972, Ser. No. 294,404
Int. Cl. A01k *47/02*
U.S. Cl. 6—10 **2 Claims**



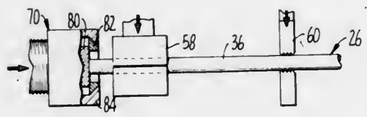
A pair of upstanding guides, secured in parallel spaced-apart relation to a horizontal base, are interposed between horizontal side members forming a honeycomb frame bottom rail for forcing the side members apart and loosely disposing a longitudinal edge portion of a honeycomb foundation therebetween.

3,783,461
PLEASURE BOAT CONSTRUCTION
Dave Charles Sugden, 2935 W. 3590 South, Salt Lake City, Utah
Filed Oct. 2, 1972, Ser. No. 294,439
Int. Cl. B63c
U.S. Cl. 9—1 R **4 Claims**

An improved boat construction wherein the front and side windshield structure provides light for both a lower cabin area as well as for an upper viewing area. The upper horizontal portion of a molded dash, by way of example, constitutes a partition or roof of the so-defined cabin area. By the invention the cutting of apertures in the boat hull, deck or cabin for supplying light to the boat interior are avoided.

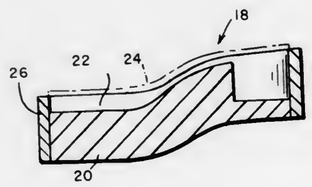


3,783,462
CONCRETE FORM SNAP-TIE ROD AND METHOD OF FORMING THE HEAD THEREFOR
William J. Steffan, Fremont, Calif., assignor to Burke Concrete Accessories, Inc., Burlingame, Calif.
Filed June 17, 1971, Ser. No. 153,979
Int. Cl. B21k *1/46*
U.S. Cl. 10—27 H **3 Claims**



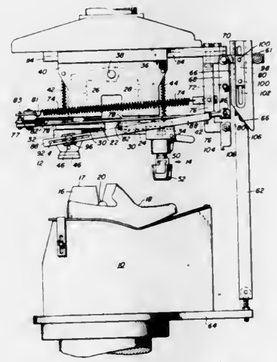
A snap-tie rod having a hot-upset end with other than a round periphery so that the end may be gripped with a socket-type wrench. The head of the rod is fabricated by a hot-upsetting method wherein the periphery of the head is confined within a flat-sided peripheral die during upsetting so that the periphery of the head is formed with flat sides conforming to the die.

3,783,463
MATRIX FOR SUPPORTING A UNIT SOLE FOR ROUGHING OR THE APPLICATION OF ADHESIVE
Bertram A. Von Schoppe, Marlboro, Mass., assignor to Compo Industries, Inc., Waltham, Mass.
Filed Dec. 15, 1972, Ser. No. 315,630
Int. Cl. A43d *25/00*
U.S. Cl. 12—17 R **15 Claims**



A matrix for receiving a rigid unit sole of the kind wherein there is a sharp slope and relatively large drop from heel to forepart comprising a rigid form containing a cavity of such shape and depth as to contain the unit sole with its top surface substantially flush with the top of the form, said form having a peripheral contour corresponding to that of the unit sole, a top surface corresponding to the longitudinal profile of the top surface of the sole, a height greater than the maximum thickness of the unit sole, and a bottom surface, the longitudinal profile of which is substantially parallel to the top surface. Alternatively, the bottom may be flat and provided with a peripheral flange. The matrix is employed to enable traversing the unit sole peripherally in a machine provided with cross-feed rolls for advancing the peripheral edge of the matrix against fixed guides or provided with opposed feed rolls arranged to engage the inner and outer sides of the bottom flange to advance the matrix peripherally.

3,783,464
MACHINE FOR APPLYING PRESSURE TO SHOE BOTTOMS
Leo F. Stanton, Newburyport, Mass., assignor to American Shoe Machinery Corp., Wakefield, Mass.
Filed Oct. 2, 1972, Ser. No. 294,110
Int. Cl. A43d *09/00, 89/00*
U.S. Cl. 12—142 T **13 Claims**

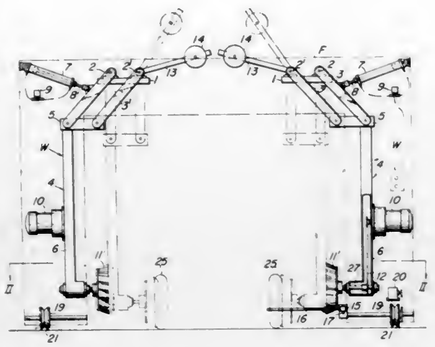


The spacing between the heel and toe abutting members in a sole pressing machine is adjustable automatically to enable proper spacing of the abutting members lengthwise of shoe assemblies of varying sizes. The machine includes a pad box which supports the shoe, bottom down, below the abutting members. The pad box is movable upwardly to urge the shoe against the abutting members and to apply pressure to the bottom of the shoe. Means are provided for moving the heel and toe abutting members inwardly toward each other in response to and as the pad box moves upwardly. The inward motion of the abutting members terminates when the upwardly moving shoe engages one or both of them. This locates the abutting members in proper longitudinal spacing on the shoe so that they may properly brace the shoe against the further application of increased force against the shoe bottom. The machine also includes means for disabling the automatic adjustment for spacing the abutting members to enable the spacing to be adjusted manually.

3,783,465
CAR WHEEL WASHING APPARATUS
Shigeo Takeuchi, Nagoya, Japan, assignor to Takeuchi Tekko Kabushiki Kaisha, Nagoya, Japan
Filed June 2, 1971, Ser. No. 149,228
Claims priority, application Japan, June 3, 1970, 45/53996
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **1 Claim**

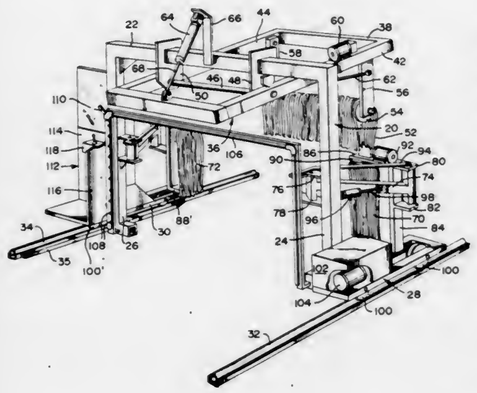
A car wheel washing apparatus comprising a movable frame, a pair of rotatable washing brushes mounted movably in the direction transverse to the direction of movement of the frame, and feeler means provided adjacent to the lower end of

the movable frame for controlling the stopping of said movable frame and for controlling the transverse movement and the



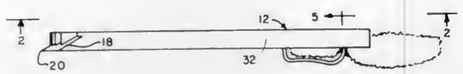
rotation of said washing brushes, said feeler means having a feeler arm adapted to contact with the outer periphery of a wheel on a car to be washed.

3,783,466
MANUALLY CONTROLLED VEHICLE WASHING APPARATUS
Donald A. Bernardi, Camp Hill, Pa., assignor to Bernardi Bros. Inc., Harrisburg, Pa.
Filed Oct. 26, 1971, Ser. No. 192,154
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **12 Claims**



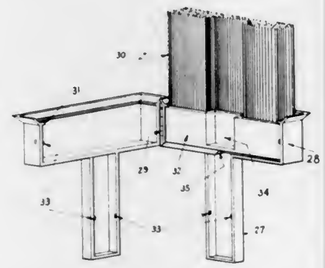
Vehicle washing apparatus including a movable frame adapted to be driven in first and second opposite directions for passing over a vehicle to be washed, a pair of side brush assemblies disposed on the frame and transversely movable relative thereto, and a unitary control assembly which is manually movable to control both the movement of the frame and the transverse position of the side brush assemblies whereby the apparatus may be inexpensively manufactured and may be operated by the manipulation of only a single control device.

3,783,467
COMBINED SCOURING DEVICE HOLDER AND SCRAPER
Harry Grossman, 5105 Ventnor Ave., Ventnor, N.J.
Filed Feb. 22, 1972, Ser. No. 228,146
Int. Cl. A47l *17/04*
U.S. Cl. 15—105 **4 Claims**



A handle member, one end of which is provided with clamping means for receiving and holding a steel wool pad for scouring pots and pans and the like. The other end of said handle member may take the form of a scraper.

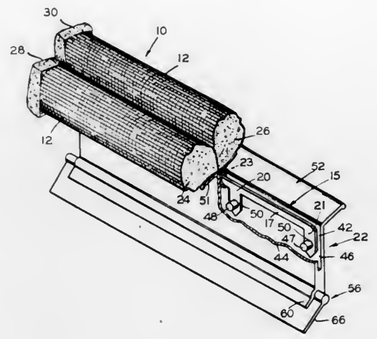
3,783,468
PAINT BRUSH WITH BRISTLE CARTRIDGE
Louis Saloutos, 4002 Drexel Ave., Madison, Wis.
Filed Jan. 20, 1972, Ser. No. 219,324
Int. Cl. A46b *11/00, 3/08*
U.S. Cl. 15—202 **1 Claim**



A paint brush with a removable bristle packet. The bristle packet comprises one or more cartridges, each having a multitude of bristles permanently secured in a ferrule with an epoxy type adhesive. The bristles encircle a central void or reservoir area for holding paint. The ferrule of a single bristle cartridge may form a portion of the paint reservoir or the ferrules of two or more bristle cartridges may engage one another to form a portion of the reservoir. In addition, the bristle packet may include a bristle reservoir cartridge releaseably secured in the central reservoir area.

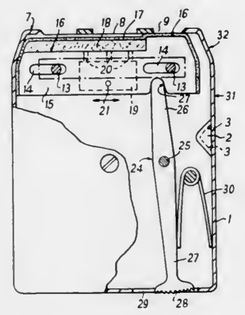
3,783,469
COMBINATION WINDOW WASHER, SCRAPER AND SQUEEGEE
Herbert A. Siemund, 2800 N. Lake Shore Dr., Apt. 3201, Chicago, Ill.
Filed June 20, 1972, Ser. No. 264,612
Int. Cl. A47l *1/08*
U.S. Cl. 15—209 R **8 Claims**

A cleaning implement of a type including a frame structure, a manipulating handle attached to the absorbent member of a sponge or sponge like resilient material, the absorbent member being covered by a tight encompassing reticulated netting material and mounted on the frame structure by an improved comb-like mounting member or strip. The mounting strip having prongs projecting in spaced relation along the strip. The prongs being so arranged that upon the mounting strip being positioned in a longitudinally extending parallel relation to the absorbent member with the prongs being directed into the absorbent member. The longitudinally extending strip may be thereupon forced into the resilient material of the absorbent member and covering netting material so as to form a pair of juxtaposed roll shaped portions of the absorbent member with the prongs of the mounting strip passing through a portion of the resilient material of the absorbent member intermediate the pair of roll shaped portions thereof. The prongs of the mounting strip thus projecting



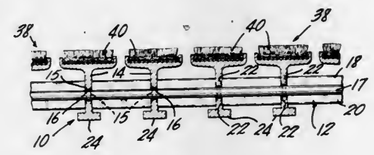
through the intermediate portion of the absorbent member are in turn positioned in a channel defined by opposite plate portions of the frame structure and secured therein so as to in turn fasten the mounting strip to the frame structure, thereby effectively mount the pair of roll shaped portions of the absorbent member covered by the encompassing reticulated netting material on the frame structure.

3,783,470
CLEANER FOR TAPE CARTRIDGE PLAYERS
Mark Stanley Myers, Cockfosters, and Ronald Frederick Bishop, Brookmans Park, both of England, assignors to Metrosound Manufacturing Company Limited, Waltham Abbey, Essex, England
Filed Nov. 26, 1971, Ser. No. 202,514
Claims priority, application Great Britain, May 18, 1971, 15,458/71
Int. Cl. G11b *5/00*
U.S. Cl. 15—210 R **4 Claims**



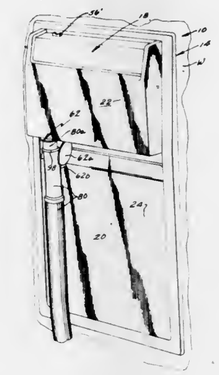
The invention provides a device, for cleaning tape-coacting operative portions of a magnetic tape cartridge player of that kind which includes at least a cartridge-receiving passage in which said operative portions are disposed and which may further include means for retaining a cartridge in fully inserted position in said cartridge-receiving passage, said device comprising a body adapted for insertion into said cartridge-receiving passage of said player, said body having cleaning means disposed adjacent to an end thereof such that when the body is inserted in said cartridge-receiving passage with said cleaning means at the leading end of said body said cleaning means become positioned for and can pass into abutment with said operative portions of said player, said cleaning means being movable past said operative portions so as to exert a wiping action thereon.

3,783,471
FOOT GRILLES AND MATS
Frank L. McGeary, Scotch Plains, and Patrick L. Zampetti, Cranford, both of N.J., assignors to Construction Specialties, Inc., Cranford, N.J.
Filed Nov. 19, 1971, Ser. No. 200,372
Int. Cl. A47l *23/22;* **E04f** *19/10*
U.S. Cl. 15—215 **10 Claims**



A foot grille, grating, mat, or the like comprises parallel, closely spaced bars, each of which has a shallow channel that has overhanging lips and receives and captures a replaceable carpet strip. Each carpet strip has a semi-rigid backing that imparts sufficient stiffness to the carpet to prevent it from pulling out of the bar channel.

3,783,472
WALL MOUNTED VACUUM CLEANER UNIT AND METHOD OF INSTALLATION
Jacob C. Mol, Grand Rapids, Mich., assignor to Wal Vac, Inc., Grand Rapids, Mich.
Continuation-in-part of Ser. No. 37,211, May 14, 1970, abandoned. This application Jan. 14, 1972, Ser. No. 217,890
Int. Cl. A47l *5/38*
U.S. Cl. 15—314 **20 Claims**

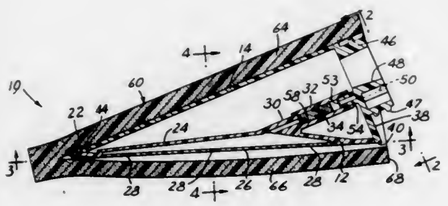


A wall mounted vacuum cleaner unit being substantially a four piece assembly and consisting of a main support frame with an integral lower rearwardly projecting cover shell having a front opening defining a receptacle compartment, upper

front and rear cover shells in opposite and opposed relation releasably secured to the main support frame defining a power compartment and a front access door for the receptacle compartment front opening. The front cover shell of the power compartment is characterized by being outwardly protruding from the main support frame and having a downwardly oriented bottom surface within which there is provided a vacuum hose receptacle. Conduit means are provided to be communicant with the receptacle compartment and with the downwardly disposed hose receptacle.

A mounting frame to which is mounted the main support frame, after the former is initially installed in an opening provided in the wall, is provided to be adjustably installed to compensate for wall thickness and insure flush engagement of the main support frame relative to the wall surface upon final installation.

3,783,473
WASHING DEVICE
Jan-Eric Engquist, Eskilstuna, Sweden, assignor to Forenade Fabriksverken, Eskilstuna, Sweden
Filed Nov. 9, 1972, Ser. No. 305,002
Int. Cl. A47l *7/00*
U.S. Cl. 15—322 **11 Claims**



A washing device for cleaning surfaces such as human skin and the like hygienically which includes an upper shell portion and a lower plate portion having discharge and suction return openings therein adapted for connection, respectively, to a source of washing foam and a source of vacuum. A porous cover element is received over the shell and the lower plate and underlies the discharge and suction return openings in a manner to effect passage of the washing foam through the porous cover onto the surface being cleaned when the device is pressed thereagainst, the cover effecting passage of the discharged washing foam directly to the suction return opening so as to prevent dripping when the device is raised from the surface being cleaned.

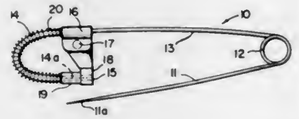
3,783,474
SHAG RUG ATTACHMENT FOR SUCTION CLEANER NOZZLE
Max L. Fairaizl, Chagrin Falls, and Eugene F. Martinec, East Cleveland, both of Ohio, assignors to Health-Mor Inc., Chicago, Ill.
Filed July 3, 1972, Ser. No. 268,860
Int. Cl. A47l *9/06*
U.S. Cl. 15—369 **7 Claims**

A skid is attached to the nozzle of a suction cleaner, permanently or detachably and adjustably, and has a pair of spaced sled-like runners extending laterally of the nozzle opening and connected together laterally in spaced relation. A rake is mounted for limited pivotal movement at either or both of the front and rear ends of the skid. Each rake has spaced straight tines, points or teeth. The skid determines the height of the nozzle above the backing and shag strands of a shag rug during cleaning. Pivotal movement of any rake is controlled so that the rake points extend upright on either the back or the front stroke of the nozzle, and so that the rake pivots away from a rug on the nozzle stroke across a rug reverse from that during which the points are maintained upright. This enables



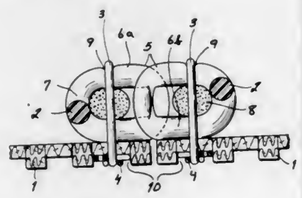
the rug shag strands to be rake-combed during any selected one or both of the back and front strokes of the nozzle across the rug.

3,783,475
SAFETY PIN
Rodvinon I. Zamotin, P.O. Box 721, Miami Springs, Fla.
Filed Sept. 1, 1972, Ser. No. 285,642
Int. Cl. A44b *9/10*
U.S. Cl. 24—158 S **5 Claims**



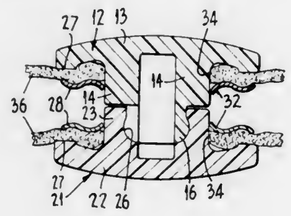
A safety pin in which the back and front legs are resiliently biassed apart. The back leg extends to form one arm of a U-shaped end loop, the other arm of which has a guide slot associated therewith to receive the pointed end of the front leg. A band on the end loop is movable to an end position at which it encircles the pin point in the closed position thereof, and including a coil spring on the end loop resiliently urging the band to the said end position.

3,783,476
SLIDE FASTENER STRINGER WITH STITCHED COUPLING ELEMENT
Alfons Frohlich, Essen, Germany, assignor to Opti-Holding AG, Glarus, Switzerland
Filed Feb. 18, 1972, Ser. No. 227,485
Claims priority, application Germany, Oct. 13, 1971, P 21 51 001.0; Oct. 13, 1971, P 21 51 002.1
Int. Cl. A44b *19/10*; **D05b** *3/12*
U.S. Cl. 24—205.16 C **6 Claims**



A slide-fastener stringer has its turns (of continuous coil or meander coupling element) secured to its fabric support tapes by means of single-needle or double-needle double chain-stitch or lockstitch wherein bights of the needle thread straddle the coil turns and pass through the filler cords. The U-shaped bights of the needle-thread loops of each stringer half snugly embrace the individual turns and this thread is so tensioned that the looper or gripper thread lies completely along the opposite face of the support tape. The support tape is formed parallel to at least one of its longitudinal edges with a longitudinally extending valley or channel in which the looper, locking or gripper thread lies. In addition the upper side of the coil is formed with a longitudinally extending groove (formed by notches in the shanks of the turns) in which the needle thread lies. After stitching of the interleaved coils to the tapes the thermoplastic monofilament needle thread which has been stretched, is heated to thermally fix and shrink it.

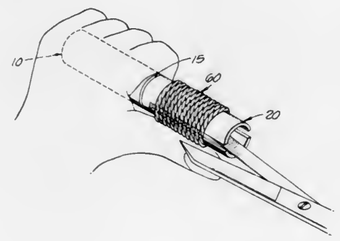
3,783,477
SNAP FASTENER
Ross Lynton Hamilton, 12 Bhenheim Ave., Glen Waverly, and Wilfred Laurence Hallam, 4 Garden Rd., Burwood, both of Australia
Filed Sept. 8, 1971, Ser. No. 178,568
Claims priority, application Australia, Oct. 7, 1970, 2781/70
Int. Cl. A44b *17/00*
U.S. Cl. 24—213 CS **6 Claims**



The invention comprises a single or two piece snap fastener comprising a head and depending shank arranged to snap engage with a second part. A washer having a bore slightly less than the diameter of the shank is mounted on the shank. The washer has the inner-edge portion thereof directed away from the head so that the edge bites into the shank and firmly resists forces tending to move the washer along the shank away from the head.

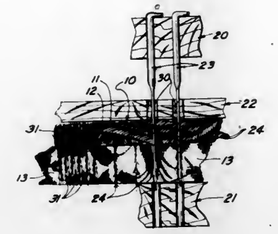
The fastener is fixed onto clothing, fabric or other material by clamping the material between the washer and the head of the fastener.

3,783,478
HAND TOOL FOR USE IN MAKING TUFTED YARD GOODS
Florence Osterhout, 10935 Bonavista Ln., Whittier, Calif.
Filed Apr. 26, 1972, Ser. No. 247,735
Int. Cl. D04d *7/06*; **A41h** *43/00*
U.S. Cl. 28—2 **2 Claims**



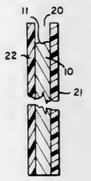
A hand tool is positionally arranged with a slotted gauge for use in making tufts of material.

3,783,479
METHOD OF PREPARING A NONWOVEN FABRIC
Claude E. Terry, Rockmart, Ga., assignor to Southern Mills, Inc., Atlanta, Ga.
Filed Aug. 27, 1970, Ser. No. 67,595
Int. Cl. B32b *5/06*; **D04h** *13/00*
U.S. Cl. 28—72.2 R **4 Claims**



A method of preparing a nonwoven fabric from a plurality of randomly disposed and interlaced sections of yarn or the like comprising mechanically entangling fibers from a first section of yarn within a second section of yarn below the first section of yarn. If a backing material is used, fibers from yarn are entangled within the backing to secure the backing to the nonwoven fabric. At least a portion of the sections of yarn is disposed angularly with respect to the remaining sections of yarn.

3,783,480
METHOD OF MAKING A CAPACITOR
James M. Booe, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Filed Mar. 9, 1972, Ser. No. 233,252
Int. Cl. H01g *13/06*
U.S. Cl. 29—25.42 **21 Claims**

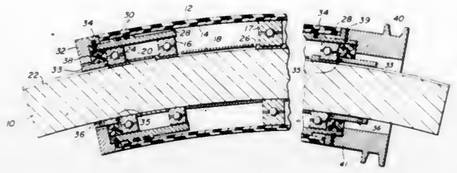


Improved capacitors employing metal foil electrodes having polymeric dielectric coatings thereon are described for use at operating voltages up to moderately high values such as 1,000–2,000V of either AC or DC. A bonding agent is used to bond together adjacent dielectric coatings, and an edge clearing technique is used to recess the edge of alternate electrodes on each side of the device.

3,783,481
CURVED ROLL
James O. Gallant, Rehoboth, Mass., assignor to Mount Hope Machinery Company, Taunton, Mass.
Filed Nov. 25, 1970, Ser. No. 92,657
Int. Cl. B21b *13/02*
U.S. Cl. 29—116 AD **12 Claims**

A longitudinally-curved roll has a rotating surface sleeve which extends over the full face length of the roll without support apart from a series of spaced bearings mounted on a curved axle. The sleeve is formed of reinforced resin, and has the configuration of a circular cylindrical tube. It is rotatably mounted by the series of bearings, and is deflected thereby

within its elastic limit into the longitudinally curved form of a toroidal segment. This form remains stable as the sleeve



rotates. A surface sleeve of elastomeric material can be fitted snugly over the resin sleeve, and does not require reinforcing cords if it is bonded thereto.

3,783,482

METHOD OF FILLING ANTIFRICTION BEARINGS

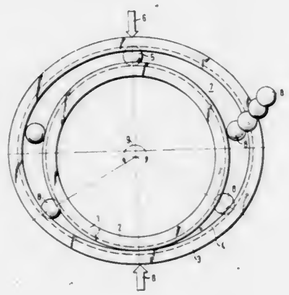
Karlheinz Kunert, and Herbert Kozalla, both of Schweinfurt, Germany, assignors to Kugelfischer Georg Schafer & Co., Schweinfurt, Germany

Filed Jan. 20, 1972, Ser. No. 219,295

Claims priority, application Germany, Jan. 28, 1971, 2104063

Int. Cl. B23p *11/00*

U.S. Cl. 29—148.4 A **2 Claims**



A method is disclosed for introducing rolling elements between the inner and outer rings of an antifriction bearing, each of which is provided with two uninterrupted shoulders, wherein the inner and outer rings are shifted to a relative eccentricity and at least one rolling element is introduced between the two rings at the widest place in the center of the crescent-shaped gap, whereupon the rings are re-shifted into a position concentric with respect to each other and then the outer ring is elastically compressed by two oppositely directed forces to form an ellipse said forces being applied to said outer ring in the region of the rolling element which has been introduced and in the region diametrically opposite the region of the rolling element, and the elastic deformation being effected until the shoulders of the two rings are at such a distance apart in the two regions of the small radii of curvature of said ellipse as to permit the introduction of the remaining rolling elements which are then introduced.

3,783,483

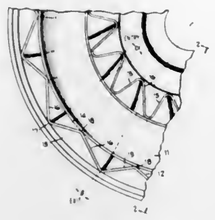
METHOD OF MAKING A FLUID COUPLING MEMBER

John Saxon Ivey, Hitchin, England, assignor to Borg-Warner Limited, Letchworth, Hertfordshire, England

Division of Ser. No. 73,526, Sept. 18, 1970, Pat. No. 3,709,635. This application Sept. 11, 1972, Ser. No. 287,959

Int. Cl. B21k *3/04*; **B23p** *15/02, 15/04*

U.S. Cl. 29—156.8 FC **10 Claims**



A hydraulic coupling member including an outer hollow part-toroidal shell and an internal hollow part-toroidal core ring and blading between and connected to the shell and core ring, the blading being provided by an undulating element with the undulations of generally triangular section providing back-to-back triangular section flow channels. The undulating element can be cast or stamped in a single piece, or formed segmentally and secured together, and then connected to the shell and core ring.

3,783,484

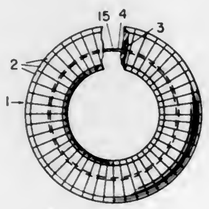
METHOD OF MAKING BUILT-UP TIRE WITH BUTT WELDED INTERNAL BAND IRON

Frederick D. Estabrook, Lookout Mountain, Tenn., assignor to Mitchell Industrial Tire Co., Inc., Chattanooga, Tenn.

Continuation-in-part of Ser. No. 860,359, Sept. 23, 1969. This application Nov. 4, 1971, Ser. No. 195,683

Int. Cl. B21h *1/10*; **B21k** *1/38*

U.S. Cl. 29—159.1 **1 Claim**



The method of making a tire built up from many radial compressible pads having registering openings through which an internal band iron passes. The pads are compressed together into a toroidal shape under heavy force, bringing the ends of the band iron into abutment within a spacer and must be aligned with great accuracy for welding in order to accomplish maximum strength of the finished product. Instead of a lap joint as heretofore used, the ends are butt welded together.

3,783,485

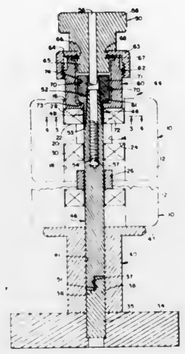
DEVICE FOR EXTRACTING AND FOR INSERTING BEARINGS IN A ROLLER SKATE WHEEL

Gaetano Nastasi, 1251 Ash Ave., Bensenville, Ill.

Filed July 19, 1972, Ser. No. 273,160

Int. Cl. B23p *19/04*

U.S. Cl. 29—201 **9 Claims**



A device for extracting the bearings from a precision roller skate wheel comprising means for gripping the bearing while in the skate wheel and applying a pressure against the wheel to move the skate wheel axially with respect to the stationarily gripped bearing to thereby move said wheel away from the bearing and extract the bearing from the skate wheel. Said device also has means which insets the bearings in the skate wheel.

3,783,486

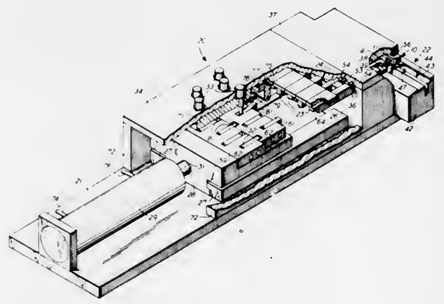
TERMINAL EJECTOR DEVICE

Harry M. Wagner, Jr., Timonium, Md., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Sept. 29, 1972, Ser. No. 293,690

Int. Cl. H05k *13/00*; **B23p** *19/04*

U.S. Cl. 29—203 P **11 Claims**



A device for ejecting snap-in terminals from a connecting block releaseably positioned within the device includes a plurality of plungers which are reciprocably movable relative to the terminals. A slide is reciprocably movable relative to the plungers by an air cylinder or other source of motive power and has a plurality of pawls mounted thereon for engaging the plungers. A keyboard is used to preset individual ones of the pawls for engaging associated plungers, then the air cylinder is actuated to advance the slide and pawls so that the preset pawls drive the plungers forward to engage and eject the terminals. Upon reversal of the operation of the air cylinder, the slide, the pawls, and the plungers are returned to their initial positions. The connecting block is released by and removed from the terminal ejector device upon the insertion of another connecting block into the device.

3,783,487

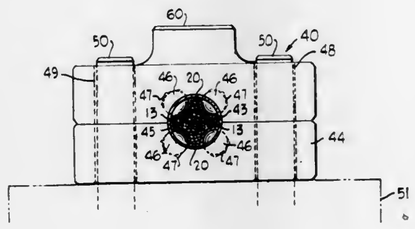
CABLE SPLICE APPARATUS

Francis A. May, Pittsburgh, Pa., assignor to Consolidation Coal Company, Pittsburgh, Pa.

Division of Ser. No. 179,445, Sept. 10, 1971. This application Sept. 18, 1972, Ser. No. 289,603

Int. Cl. H01r *43/04*

U.S. Cl. 29—203 D **3 Claims**

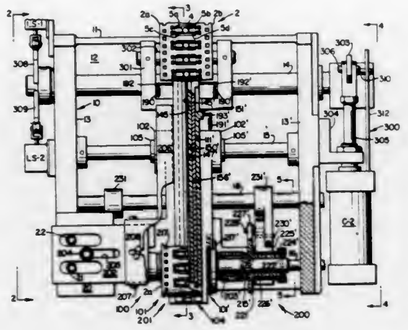


An improved cable splice joining a pair of cables and a cable splicing tool for forming that splice. The cable splice includes a pair of overlapping cable end portions held together in a common copper sleeve. The sleeve is crimped into compressing contact with the overlapping cable end portions and includes a plurality of crimping indentations formed in a circle around the periphery thereof whereby the cable splice has a tensile strength up to the maximum safe tension of the cables being spliced. A cable splicing tool for crimping the copper sleeve having overlapping cable portions therein comprises a pair of opposed die housings adapted to be fitted together in abutting contact for forming a channel-shaped crimping die for receiving said overlapping cable end portions in a copper sleeve. Each die housing includes a semicircular die extending longitudinally thereof and each die includes pendent means projecting radially inwardly thereof whereby fitting said die housing together in abutting contact may compress said pendent means into said sleeve and overlapping cable end portions for forming a crimped cable splice having desired tensile strength. Thereafter, plastic tape, rubber putty and neoprene filler material may be placed around the splice and held there with a suitable insulating tape for sealing and insulating the spliced cables.

3,783,488
FILM MOUNTED ELECTRONIC COMPONENT INSERTION MACHINE

Phillip A. Ragard, Binghamton, and Jim Paton, Johnson City, both of N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.

Filed July 5, 1972, Ser. No. 269,168
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 B **21 Claims**

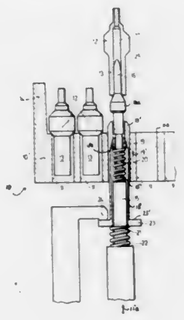


An apparatus for severing electronic components from a film strip upon which they are mounted; for bending the leads of the component; and for inserting the components into a circuit board.

3,783,489
APPARATUS FOR FIRING CERAMIC SPARKPLUG INSULATORS

Josef Duffner, Bamberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 10, 1972, Ser. No. 279,634
Claims priority, application Germany, Sept. 9, 1971, P 21 45 057.7
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 P **11 Claims**

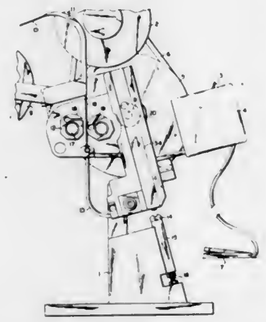


Apparatus for firing sparkplug insulators comprises a jig having an apertured bottom wall. A pin having a free end and a collar situated adjacent the latter is arranged to move vertically from below the bottom wall through a respective aperture therein. A sleeve slidably mounted on the pin is introduced into the aperture to be expanded therein in response to a further upward movement of the pin beyond the point at which a stop prevents the sleeve from moving upwardly, and thus to center the pin in respect to the aperture. The free end of the pin engages the central hole of an insulator, the extent of penetration into the latter being limited by the collar and the pin with the thus centered insulator is then moved downwardly so as to introduce the insulator into the aperture, while the collar prevents the sleeve from enclosing the free end of the pin.

3,783,490
APPARATUS FOR SPLICING WIRES

Jack Garfinkel, Bayside, N.Y., assignor to Genstape, Inc.

Division of Ser. No. 21,363, March 20, 1970, Pat. No. 3,685,148. This application June 1, 1972, Ser. No. 258,809
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 D **5 Claims**



An apparatus is provided for splicing wires, which apparatus includes shaping means for shaping a blank strip material into an approximate U-shape, and die means including a bottom wall and two side walls. The walls define a die cavity having an open side spacedly opposite the bottom wall between the side walls. The bottom wall has an elongated ridge spacedly intermediate the side walls and two concavely arcuate face portions whose axes of curvature are parallel to the ridge and which connect the same to the side walls. The apparatus also includes a ram member, moving means for moving the ram member inward of the cavity through the open side toward the bottom wall, and means for placing the shaped blank in the path of movement of the ram member for insertion of the blank into the cavity by the ram member and crimping of the blank by sliding contact with the side walls. The cavity is open longitudinally of the ridge for insertion of wires to be spliced.

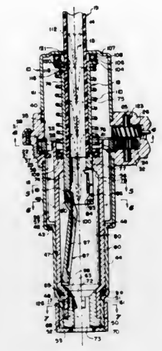
The ram member has a front face opposite the bottom wall, which front face has a crest and flares from the crest in a direction away from the bottom wall. The crest of the front face is transverse to the ridge of the bottom wall.

3,783,491
AUTOMATIC SCREW DRIVER

Frederick W. Meitz, Chicago, Ill., assignor to MSL Industries, Inc., Chicago, Ill.

Filed Apr. 7, 1972, Ser. No. 241,922
Int. Cl. B23q *7/10*; **B23p** *19/04*
U.S. Cl. 29—212 R **19 Claims**

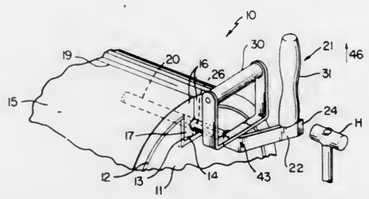
A portable powered screw driver handling individual screws that have slotted and recessed heads. The screws are fed axially through the driver between non-rotating normally spread jaws which close behind the screw to form a screw driver bit that engages the head of the screw and advances it through a wrenching surface which rotates the bit to drive the screw into a work piece.



3,783,492
TOOL FOR INSTALLING LOCKING PIN USED TO HOLD A DIEcCUTTING MAT ON A ROTARY ANVIL

John C. Duckett, Clyde; Ivan Gaster, Waynesville, and Rufus Neal Ensley, Clyde, all of N.C., assignors to Dayco Corporation, Dayton, Ohio

Filed Apr. 13, 1972, Ser. No. 243,725
Int. Cl. B25b *27/02*
U.S. Cl. 29—278 **9 Claims**



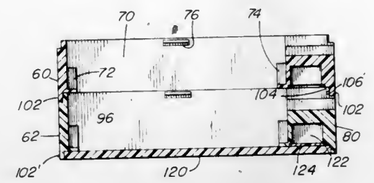
An improved tool for installing and removing an elongated wedge which has a longitudinal opening therein between locking flanges of a die-cutting mat to thereby urge the flanges tightly against holding surfaces provided on an associated rotary anvil supporting the mat to tighten and lock such mat against the anvil.

3,783,493
METHOD FOR DISPENSING RAZOR BLADE CARTRIDGES

Jan Dawidowicz, Fairfield, and Frank A. Ferraro, Trumbull, both of Conn., assignors to Warner-Lambert Company, Morris Plaines, N.J.

Continuation of Ser. Nos. 191,665, Oct. 22, 1971, and Ser. No. 236,723, March 21, 1972, and Ser. No. 258,682, June 1, 1972. This application July 10, 1972, Ser. No. 270,138
Int. Cl. B23p *17/00*; **B23q** *7/10*
U.S. Cl. 29—400 **4 Claims**

The specific embodiments provide a method for dispensing a plurality of razor blade cartridges comprising at least one dispenser having a longitudinal row of transverse cartridge chambers. Means are provided in each one of the chambers for releasably maintaining a razor blade cartridge therein with engageable surfaces of the cartridge positioned for engagement by supporting surfaces on a holder. Guide means are formed in a side wall of the dispenser unit to one side of each of the chambers for guiding the supporting surfaces of the holder into or out of engagement with the engageable surfaces of the cartridge. One of the cartridge chambers is empty, and the next successive chambers have unused cartridges therein.

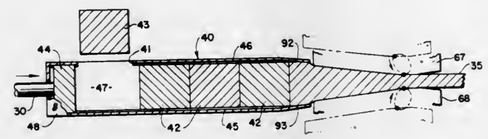


When an initial cartridge on the holder is no longer suitable for use, it is placed in the empty chamber, and the unused cartridge in the next successive chamber is used. Thereafter, each cartridge, when no longer suitable for use, is replaced in the chamber from which the cartridge was removed and the cartridge from the next successive chamber is removed for use until all the cartridges are successively removed from the dispenser unit.

3,783,494
METHOD OF REPETITIVELY IMPACTING SMALL PIECES OF METAL IN ORDER TO PRODUCE A DENSIFIED CONTINUOUS BODY

Mark E. Whalen, Pepper Pike, and Joseph W. Malleck, Chagrin Falls, both of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Filed July 21, 1971, Ser. No. 164,788
Int. Cl. B22f *3/24*; **B23q** *17/00*
U.S. Cl. 29—403 **27 Claims**



A method and apparatus for forming metal products from scrap or other small pieces. Pieces of scrap metal are bonded together by baling into bales of from 20 percent to 50 percent metal by volume. The bales are then heated from 1,200°F. to 2,350°F. and fed through a feed magazine into a harmonic impacting press.

Deformation of bales prior to reaching the impacting station in the harmonic press is controlled by control of the press and by peripheral confinement of the bales prior to being fed into the impacting station in the press.

There is also a disclosure of a means to fuse bales together through use of a thermal powder.

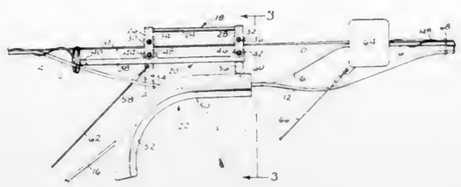
3,783,495
CABLE DE-LASHING TOOL

Carson E. Derrer, 6821 104th St., N.W., Gig Harbor, Wash.

Filed Dec. 4, 1972, Ser. No. 312,188
Int. Cl. B23p *19/00*
U.S. Cl. 29—426 **9 Claims**

A tool for stripping lashing wire from cable assemblies comprising a utility cable lashed to a support line comprises a trol-

ley which rides along the support line and mounts a wire stripping bar arranged for placement between the utility cable and support line in bearing engagement with the lashing wire which in a preliminary operation has been severed into



lengths. Upon moving the trolley along the support line, the bar pushes the lashing cable ahead of the trolley, forming a loose ball comprised of wire strands. At periodic intervals these are clipped and the lashing wire removed, thus freeing the cable from the support line.

3,783,496

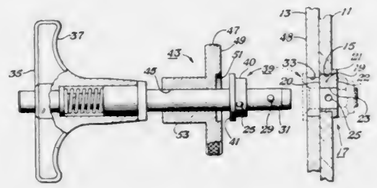
METHOD OF ASSEMBLING MEMBERS HAVING MISALIGNED HOLES

Joseph T. Siler, 1678 Columbia Dr., Mountain View, Calif.

Continuation-in-part of Ser. Nos. 785,323, Dec. 19, 1968, Pat. No. 3,590,461, and Division of Ser. No. 97,540, Dec. 14, 1970, Pat. No. 3,725,993. This application Aug. 31, 1972, Ser. No. 285,528

Int. Cl. B23q *3/00*

U.S. Cl. 29—464 **4 Claims**



Following are disclosed methods and apparatus for facilitating the alignment of the eccentric bores of "work side" and "blind side" bushings used in the misaligned, fastener receiving holes of structural members. A shaft is sized to extend into the eccentric bores, and a latch element is laterally carried by the shaft and adapted to extend into, and retract from at least one indentation in the bore of a selected bushing for rotational orientation thereof. An adjustment bushing is carried by the shaft and has a uniform cylindrical wall thickness equal to the minimum wall thickness of the work side bushing. An alignment collar is also carried by the shaft and has an aperture that receives the shaft, the collar having a larger diameter than the diameter of an engaged bushing to enable application of torque and visual reference for detecting axial angularity misalignment between said bushing and its receiving hole in the structural member. When used with the alignment collar, the adjustment bushing gauges and establishes the position of the blind side bushing to enable insertion of the work side bushing and a fastener in a more efficient manner without need for additional rotation of either the blind side or the work side bushing. Hence, the work side and blind side bushings may be accurately aligned through the utilization of both the alignment collar and the adjustment bushing.

3,783,497

METHOD FOR MAKING THIN WALLED METAL TUBING

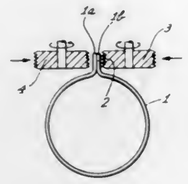
Wolfram Griesinger, Ottobrunn, Germany, assignor to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hanover, Germany

Filed Feb. 24, 1972, Ser. No. 228,947

Claims priority, application Germany, Feb. 25, 1971, P 21 08 895.9

Int. Cl. B23p *3/00*

U.S. Cl. 29—460 **6 Claims**



Longitudinally paid metal strip or tape is formed into a tube, the two edges of the tape or strip having been flanged so that upon tube forming the flanges abut and extend radially outwardly; and squeezing the flanges for the flanges to undergo plastic deformation and forming a tightly closed tab; the two flanges may be differently high and the higher one is folded around the lower one prior to squeezing the flanges into a three layer tab. The two flanges may be quite long and of similar height, and they are bent over prior to squeezing to form a four layer tab. The tab may then be bent against the tube which is subsequently jacketted in plastic.

3,783,498

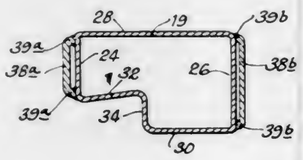
METHOD OF CONSTRUCTING A HOLLOW BEAM

Harris P. Moyer, Deerfield, and Herbert H. Klein, Arlington Heights, both of Ill., assignors to Unarco Industries, Inc., Chicago, Ill.

Division of Ser. No. 74,046, Sept. 21, 1970, Pat. No. 3,735,547. This application Apr. 11, 1973, Ser. No. 349,913

Int. Cl. B23k *31/02*

U.S. Cl. 29—471.3 **4 Claims**



A hollow steel beam is formed of sheet metal by automated forming machines including a continuous welding operation. To provide sufficient material along the upper and lower surfaces of the beam, to develop the full potential strength of the beam in bending, reinforcing strips are welded to the upper and lower stringer sections of the beam in an automated machine operation.

3,783,499

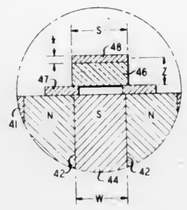
SEMICONDUCTOR DEVICE FABRICATION USING MAGNETIC CARRIER

Harry Elroy Hughes, Jr., and Meyer Herbert Wachs, both of Reading, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 136,127, April 21, 1971, abandoned. This application Apr. 24, 1972, Ser. No. 246,852

Int. Cl. B01j *17/00*

U.S. Cl. 29—574 **5 Claims**



A process is described in which a semiconductor slice containing an array of individual semiconductor devices is temporarily mounted on a magnetic carrier plate initially by adhesive means. Final processing, such as lapping or otherwise thinning the slice, is done and a film of magnetically responsive material is applied to the semiconductor slice. Alternatively such material may be included in the earlier metalization of the semiconductor devices. The slice is then treated to separate it into an array of individual devices and the adhesive is removed. The devices then remain in the original spaced array and orientation for electrical testing and assembly into apparatus. In such form the devices are suitable for transportation.

3,783,500

METHOD OF PRODUCING SEMICONDUCTOR DEVICES

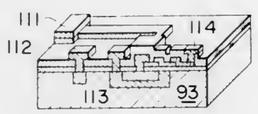
Takashi Tokuyama, Hoya, and Takaaki Mori, Kokubunji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 716,033, March 26, 1968, Pat. No. 3,632,433. This application Apr. 23, 1971, Ser. No. 136,795

Claims priority, application Japan, Apr. 26, 1967, 42/26325

Int. Cl. B01j *17/00*

U.S. Cl. 29—577 **3 Claims**



A method of producing a semiconductor device in which a first insulating film of silicon dioxide is provided on surface of a semiconductor substrate, at least one passive circuit element is formed on said first insulating film, and a second silicon dioxide layer containing uniformly a small amount of phosphorus is deposited from the vapor phase on said first insulating film and passive element, thereby realizing stable passivation of the electrical characteristics of said semiconductor device. The water-proof property and accurate etching of said films are also accomplished.

3,783,501

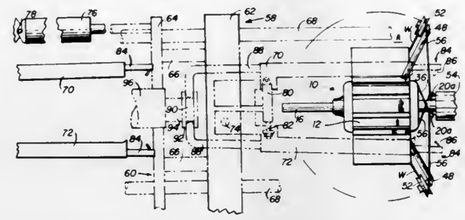
AUTOMATIC ARMATURE WINDING

John M. Biddison, and Clarence W. Donnaker, both of Dayton, Ohio, assignors to The Globe Tool and Engineering Company, Dayton, Ohio

Division of Ser. No. 812,258, April 1, 1969, Pat. No. 3,628,229. This application July 19, 1971, Ser. No. 163,978

Int. Cl. H01r *43/00*

U.S. Cl. 29—597 **4 Claims**



In the automatic winding of armatures, the last lead wire from a coil wound in an armature is looped about an appropriate commutator tang and the wire portion connected between the newly wound armature and an unwound armature is cut closely adjacent the aforementioned commutator tang. Also disclosed is a double flier apparatus for winding armatures, wire cutting assemblies, and a transfer mechanism adapted to hold the connecting wire portions in a position where they may be cut closely adjacent the tangs about which the wires are looped. In one embodiment the commutator tangs are collapsed at the time the connecting wire portions are cut.

3,783,502

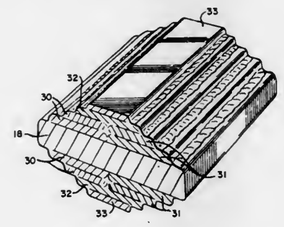
METHOD OF MAKING HIGH SPEED HOMOPOLAR GENERATOR WITH STRAIGHT WINDING CONSTRUCTION

Eike Richter, and George E. Brissey, both of Erie, Pa., assignors to General Electric Company, Wilmington, Mass.

Division of Ser. No. 181,001, Sept. 16, 1971, Pat. No. 3,737,696. This application Sept. 18, 1972, Ser. No. 290,137

Int. Cl. H02k *15/00*

U.S. Cl. 29—598 **4 Claims**



A high speed homopolar generator is described capable of operating efficiently at rotational speeds of 90,000 rpm and above. The generator includes a smooth cylindrical rotor with axially in-line magnetic north and south poles at opposite ends of the rotor. The AC windings in the individual stator stacks are offset by 180 electrical degrees as they pass between stacks to insure that the induced voltage in the active portions of each winding are of the proper polarity. The cylindrical rotor construction minimizes windage losses and includes a straight bar of magnetic material with the circumferential in-

terpolar space filled with a non-magnetic material. The non-magnetic material is bonded to the magnetic bar so that the resulting magnetic-non-magnetic composite rotor is strong enough to withstand the mechanical stresses to which it is subjected at speeds in excess of 90,000 rpm. Layers of the non-magnetic material are deposited on the bar of magnetic material by a plasmaarc hot wire welding process and the assembly is then machined into the desired cylindrical shape to minimize windage. In this fashion, the geometry of the rotor is optimized, the maximum amount of axial magnetic section is obtained with the simplest rotor geometry, the requisite physical strength is obtained, while at the same time, reducing or minimizing windage at the very high velocities obtained in the machine.

3,783,503

METHOD OF PRODUCING A COMPOSITE CONDUCTOR BAND FOR USE IN MAKING A TUBULAR SUPERCONDUCTOR

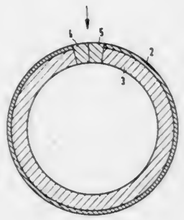
Heinrich Diepers, Erlangen-Bruck, and Horst Musebeck, Erlangen, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 10, 1972, Ser. No. 279,385

Claims priority, application Germany, Nov. 2, 1971, P 21 54 452.5

Int. Cl. H01v *11/00*

U.S. Cl. 29—599 **6 Claims**



A method for producing a conductor band which includes a layer of niobium adjacent a layer of an electrically normal conducting metal and respective ribbon-like niobium chords defining the longitudinal edges of the band. The conductor band is produced by joining niobium chords to the longitudinal narrow sides of a niobium strip respectively to form a niobium band having a U-shaped profile, each of the chords having a thickness greater than the thickness of the strip, at least approximately filling the space bounded by the inside surface of the U-shaped niobium band with an electrically normal conducting metal, and then joining the normal conducting metal to the U-shaped niobium band to form the conductor band. The conductor band made in this manner is used in a method of producing a tubular conductor for superconducting cables and the like.

3,783,504

PROCESS OF FABRICATING MULTICHANNEL MAGNETIC HEAD UNITS

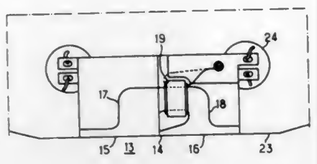
Guy Prival, Chilly Mazarin, and Lucien Robert Prieur, Ecouen, both of France, assignors to Societe Industrielle BULL-GENERAL Electric (Societe Anonyme), Paris, France

Division of Ser. No. 62,525, Aug. 10, 1970, Pat. No. 3,701,858. This application June 28, 1972, Ser. No. 267,224

Int. Cl. G11b *5/42*; **H01f** *7/06*

U.S. Cl. 29—603 **4 Claims**

A process of fabricating a multichannel magnetic transducer wherein each of a plurality of aligned magnetic heads thereof are formed of a plurality of composite laminations,



wherein the composite laminations are arranged to form a magnetic circuit and electric and magnetic shields.

3,783,505

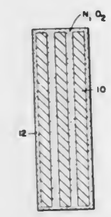
METHOD FOR ELECTRICALLY INSULATING MAGNETOSTRICTIVE MATERIAL

Oscar W. Schoen, Jr., Corona, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 29, 1972, Ser. No. 239,153

Int. Cl. H01f *7/06*

U.S. Cl. 29—609 **6 Claims**



A process of electrochemically plating and annealing in a protective atmosphere the surface of ferrous material used in the construction of underwater transducer scrolls and transformer cores to insulate sheets and plates from each other. The process also eliminates work hardening of the material due to handling, and increases operating and production efficiency.

3,783,506

METHOD OF PRODUCING ELECTRICAL FUSE ELEMENTS

Lothar Rehfeld, Drosselbartstr 4, Berlin, Germany

Filed Oct. 12, 1971, Ser. No. 188,582

Claims priority, application Germany, Oct. 13, 1970, P 20 50 125.1

Int. Cl. H01h *69/02*

U.S. Cl. 29—623 **14 Claims**

The present disclosure relates to a method of producing electrical fuse elements by single or multiple vacuum deposition of one or several electrically conductive elements or compounds onto substrates of insulating materials in forming thereon resistance paths having predetermined geometrical configurations and a predetermined electrical conductivity and/or magnetic, optical, radioactive, photoconductive or semiconductive properties.

3,783,507

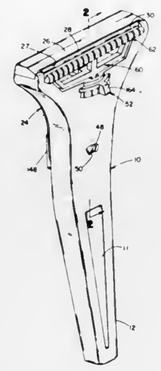
STRIP FEED SAFETY RAZOR

Roger L. Perry, Lynnfield Center, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 887,910, Dec. 24, 1969, abandoned. This application Oct. 8, 1971, Ser. No. 187,610

Int. Cl. B26b *21/26*, *21/52*

U.S. Cl. 30—40.1 **19 Claims**



A shaving implement has a body member and front and rear cover members. The body member defines a blade supply position, a blade take up position, and a blade support platform which receives a shaving length of ribbon-like razor blade in supporting position with the sharpened front edge of the blade projecting beyond the front edge of said support platform, and a blade guard structure extending in generally parallel spaced relation to and disposed forwardly of the front edge of said blade support platform. The front cover member has integral upstanding spaced side wall portions and an end wall portion which define a recess for receiving the body member and an integral handle portion that extends downwardly away from the recess. The rear cover includes a cap portion that overlies the blade support platform, and a spring member that acts against the blade support platform to urge said blade support platform toward said cap portion for securing said blade in proper shaving position on said support platform between said cap portion and said support platform while allowing sliding movement of said blade across said platform. Blade take up mechanism that is coupled to the take up position and operates to position a sequence of shaving portions of said blade on said blade support platform, includes a molded member that comprises an arbor portion to which one end of the blade is secured, a handle portion, and a shaft portion connecting the arbor and handle portions, the shaft portion being journalled in the body member.

3,783,508

ELECTRIC SHAVERS

Norman Joseph Brown, Maidenhead; Charles Christopher Packham, Wokingham, and Raymond Graham Parsonage, Maidenhead, all of England, assignors to The Gillette Company, Boston, Mass.

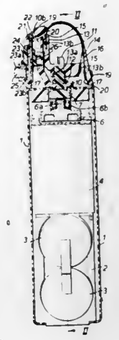
Filed Aug. 13, 1971, Ser. No. 171,476

Claims priority, application Great Britain, Aug. 14, 1970, 39,377/70; Mar. 12, 1971, 6,714/71

Int. Cl. B26b *19/02*, *19/20*

U.S. Cl. 30—43.92 **2 Claims**

An electric dry shaver of the cordless type has the motor, battery and other parts supported in an integrally moulded body frame, a sheet metal body casing enclosing the frame and supported parts, with a cutter drive member projecting through the casing and carrying externally thereof a reciprocable cutter which co-operates with a shear plate carried on a head casing detachably secured to the body. The head casing also carries a long hair trimmer. Provision is made for recharging the cells from an external power source and for operating direct from an external source in an emergency, suitable external sources for both purposes being disclosed.



3,783,509

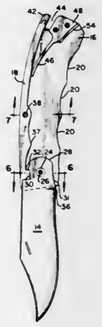
FOLDING KNIFE

Ronald W. Lake, 38 Illini Dr., Taylorville, Ill.

Filed Feb. 11, 1972, Ser. No. 225,699

Int. Cl. B26b *1/04*

U.S. Cl. 30—161 **3 Claims**

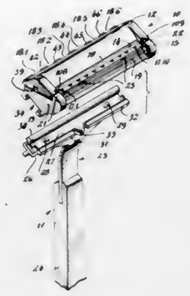


The following specification describes a knife in which a pair of plates are spaced apart along one edge by an elongate pivotable detent member having a tooth at one end for engagement in a recess of the blade under the influence of a cantilever spring to latch the blade in open position. The cantilever spring is integrally formed on a spacer located at the butt end of the knife and the detent member is operated from the butt end against the spring bias to release the blade for enabling the blade closure. The detent member tooth also engages a recessed portion of the blade to hold the blade closed under the spring bias. A projection adjacent the cutting edge of the blade engages a stop on the detent to prevent the cutting edge of the blade from being dulled on closure. In addition the external surfaces of the plates are recessed to receive a respective inlay of contrasting appearance and the pins supporting the blade and spacer are finished flush with the plate surface to disguise their appearance.

3,783,510
RAZOR HAVING TANDEMLY MOUNTED BLADES BONDED IN A DISPOSABLE CARTRIDGE

Jan Dawidowicz, Fairfield, and Frank A. Ferraro, Trumbull, both of Conn., assignors to Warner-Lambert Company, Morris Plaines, N.J.

Filed Oct. 22, 1971, Ser. No. 191,665
Int. Cl. B26b *21/24, 21/20, 21/54*
U.S. Cl. 30—32 R 5 Claims

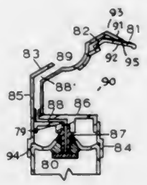


The specific disclosure provides a disposable bonded blade cartridge having a pair of single edge blades tandemly mounted and vertically spaced apart by a spacer. The blades and the spacer are permanently bonded in the cartridge, and the spacer has a plurality of channels for providing flow paths for shaving residue from between the cutting edges of the tandemly mounted blades rearwardly between the blades and out the rear end of the cartridge. The cartridge comprises an upper cap portion and a lower blade seat portion. The lower blade is positioned against vertically rising stops extending from the front part of the blade seat portion. The spacer is also positioned against the stops of the blade seat portion, and the upper blade is positioned against vertically rising stops of the forward and outward portions of the spacer. The cap portion has a plurality of posts extending downwardly through the blades, spacer and blade seat portion which are deformed at the lower ends thereof to bond the components of the cartridge together. A T-shaped channel is formed in the lower side of the blade seat portion for sliding engagement with outwardly extending flanges formed at the top end of a holder.

3,783,511
LATHER DISPENSING SHAVING INSTRUMENT

Roger D. Pass, 1119 W. Montana Ave., St. Paul, Minn.

Filed Mar. 10, 1971, Ser. No. 122,686
Int. Cl. B26b *21/44, 21/52*
U.S. Cl. 30—41 1 Claim

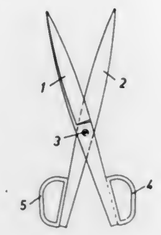


The basic elements for shaving the face, a razor, a lather dispensing container, a lather spreading surface and an optional heat transfer device are combined into one operable unit with each element functionally cooperating together to form an Integrated Shaving Instrument.

3,783,512
SCISSORS

Werner Schon, No. 15, Eintrachtstrasse, Solingen, Germany

Filed Apr. 27, 1971, Ser. No. 137,931
Claims priority, application Germany, Apr. 28, 1970, P 20 20 702.7
Int. Cl. B25g *3/34*
U.S. Cl. 30—254 12 Claims

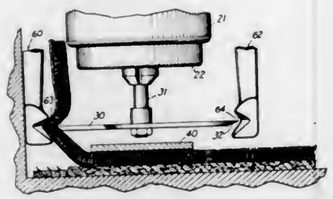


A pair of scissors comprise a pair of blade members preferably made of bright steel sheeting and including each a blade part and a handle part with plane faces; a pivot pin connecting said blade members with one another at the end portions of the blade parts adjacent the handle part, and two initially separate grasp eyes each made of a section of bright material and secured to its associated handle part at large-area plane faces formed on said handle part and said grasp eye.

3,783,513
CARPET CUTTER

James L. Escoe, Route No. 2, Loganville, Ga.

Filed Mar. 21, 1972, Ser. No. 236,673
Int. Cl. B26b *25/00*
U.S. Cl. 30—273 6 Claims

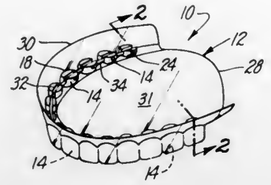


Apparatus for use in cutting carpet including a frame support means having a power driven motor for supporting a rotary cutting disc. The cutting apparatus includes a skid plate mounted beneath the rotary cutting disc and attached to the frame support means by adjustable support means whereby the skid plate can be secured in a plurality of vertically adjusted positions relative to the rotary cutting disc. The cutting apparatus includes a pair of diametrically opposed backing plates supported by adjustable link means and detailed in location to include a shaped surface for cooperating with the rotary cutting disc to provide a backing means for carpet being cut. A sharpening element is adjustably mounted on the frame support means for movement from a displaced inoperable position to an adjusted position for sharpening the rotary cutting disc.

3,783,514
STRUCTURES FOR USE IN CREATING ARTIFICIAL DENTURES

Daniel D. Kersten, 984 Chestnut, Escondido, Calif.

Filed Aug. 14, 1972, Ser. No. 280,530
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 5 Claims

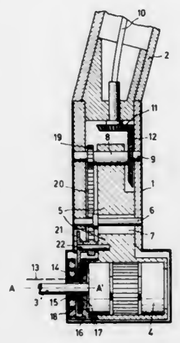


A structure for use in creating an artificial denture can be constructed utilizing a sheet-like self-supporting part and a plurality of simulated tooth elements. The self-supporting part is formed to include a plurality of upwardly opening pockets located in a generally U-shaped line corresponding to a line of teeth in a mouth and includes regions on both sides of this line having upper surfaces corresponding to the configuration of a mouth on both sides of such a line of teeth. The simulated tooth elements are located within the pockets so as to be exposed at the upper surface of said part. Preferably the pockets have open bottoms. The pockets are preferably interconnected; several of the tooth elements can be integral with one another.

3,783,515
DENTAL DRILLING MACHINE HAVING IMPROVED COOLING

Michel Joseph Auphan, Courbevoie, and Guy Martin, Puteaux, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 296,314
Claims priority, application France, Jan. 21, 1972, 7202043
Int. Cl. A61c *1/08*
U.S. Cl. 32—28 7 Claims

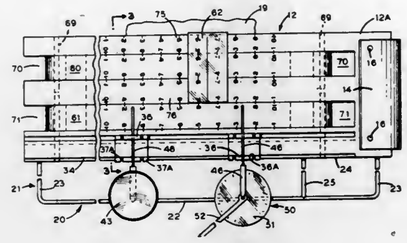


A dental drilling machine having a drill spindle which performs two periodic movements:
a fast rotary movement about its own axis and a comparatively slow rotary movement about a stationary axis which is parallel to the drill spindle. Moreover, a cooling liquid jet which is parallel to the drill spindle performs a slow periodic movement about the same stationary axis such that the liquid jet is periodically directed to the part of the borehole which has been vacated as a result of the slow movement of the drill spindle.

3,783,516
NAVIGATION DEVICE

Nathan Kurzrok, 40 Candy Ln., Great Neck, N.Y.

Filed May 17, 1971, Ser. No. 143,902
Int. Cl. G01b *5/24*
U.S. Cl. 33—1 SD 5 Claims

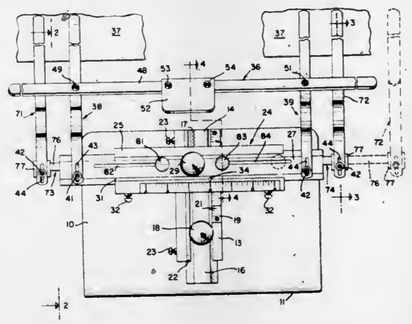


A navigation device which includes map holding means and a position indicator, together with a plurality of mounted and mountable navigation aids. Such device is of a construction whereby the aids may be interchanged and used individually or in combination to suit varied navigational requirements and lending itself to single handed manual operation.

3,783,517
PATTERN GRADING MACHINE

David Post, 69-20 108th St., Forest Hills, N.Y.

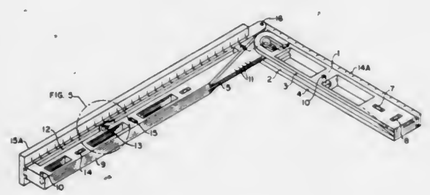
Filed Feb. 14, 1972, Ser. No. 225,821
Int. Cl. A41h *3/00*
U.S. Cl. 33—17 A 7 Claims



This invention has to do with a pattern grading machine adapted to be supported upon a table surface at the edge thereof and provided with adjustable slide assemblies, one of which extending fore and aft of the edge of the table and the other of which is carried upon the slide of the first assembly and running longitudinally on the machine and set to carry a series of finger clip assemblies for grasping the pattern that is to be moved from one station to another either to reduce the size of the pattern or to enlarge the pattern upon a pattern mater lying under the original pattern. The individual finger clip assemblies are connected to the longitudinally extending slide for fore and aft adjustment so that one finger can be extended beyond the other and wherein extensions are provided

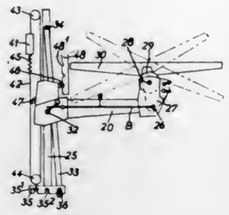
with this means to have an unusually large adjustment of the finger clip assembly and at the same time be sufficiently rigidly carried and secured to the slide for adjustment therewith. A common operating member is provided upon the slide and adapted to engage clip members on each of the clip assemblies so that the clip assemblies can be opened in unison to allow the pattern to be slid under the same. Extensions are provided on the ends of the slides for carrying further clip assemblies and the common operating member is extended in such a manner as to overlie the assemblies on the extensions from the ends of the longitudinally extending slide. A clamping nut for holding the finger clip assemblies on the longitudinally slide may also serve to hold the clip assemblies extensions on the ends of the slides in their adjusted position and at the same time the supports for the clip assemblies on the slide can be longitudinally adjustable along the slide. The common operating member is mounted on a bracket extending upwardly from the slide and beyond a horizontally extending portion having a slot therein so that the operating member can be operated fore and aft and the upper clip members have extended handles with which the common operating member can engage whereby with any extent of adjustment of the finger clip assemblies the common operating member can serve as the handles and finger clip assemblies. The common operating member can also extend over and have engagement with the handles of the clip assemblies on the lateral extensions in their adjusted positions.

3,783,518
CARPENTER'S TOOL
Robert J. Jones, Rt. 2, Proctorville, Ohio
Filed May 10, 1971, Ser. No. 141,616
Int. Cl. B43l *7/06*
U.S. Cl. 33—75 R **10 Claims**



A new and improved carpenter's tool has been designed which will measure pitches or angles in carpenter's work with speed and ease. This tool also contains a mechanism which will lock the tool in a rigid position simply and quickly. This tool comprises a first leg member having two elements at one end forming a slot; a second leg member pivotably mounted between the shoulders of the first leg member and having a blade element adapted for insertion into the slot of the first leg member; a locking sleeve joining the two leg members at the pivot point, said locking sleeve being right-hand threaded at one end and left-hand threaded at the other end; and a locking lever slidably mounted through the first and second leg member and through the locking sleeve such that a turn of the lever from either side of the tool will cause the shoulder elements of the first leg member to bind down against the blade element of the second leg member locking the leg members into a rigid position. The tool also can contain a first sliding member mounted perpendicular to and slidably connected to the side of the first leg member and a second slidably member slidably connected to the side of the second leg member said second sliding members being spring pivotably connected to the first sliding member. These slidably mounted members enable an angle measured by the two leg members to be extended beyond the pivot point connecting the first and second leg members.

3,783,519
DRAWING APPARATUS
Daniel Sartori, residence Jeanne d'Arc, rue Jeanne d'Arc, Pau, France
Filed Jan. 13, 1971, Ser. No. 106,088
Claims priority, application France, Jan. 14, 1970, 7001484; Dec. 22, 1970, 7046928
Int. Cl. B43l *13/14*
U.S. Cl. 33—77 **19 Claims**

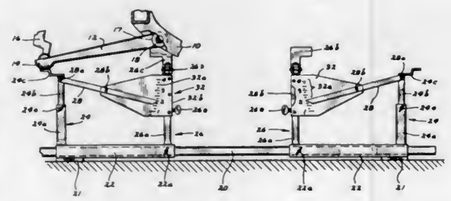


Perspective effects in the basic lines of a technical drawing are obtained either by means of a transparent sheet marked with lines and placed on a drawing board illuminated from behind, or by use of a drawing board provided with a pivotable rule mounted on an arm that can be moved in a vertical direction, control means being provided so that the rule will alter direction and be aligned with one "vanishing point" over the whole vertical traverse of the supporting arm.

3,783,520
HIGH ACCURACY ALIGNMENT PROCEDURE UTILIZING MOIRE PATTERNS
Michael Charles King, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.
Division of Ser. No. 75,983, Sept. 28, 1970, Pat. No. 3,690,881. This application Aug. 1, 1972, Ser. No. 276,913
Int. Cl. G03c *5/00*
U.S. Cl. 33—180 R **1 Claim**

A pair of moire gratings that comprise a similar pattern of concentric lines but have a different pitch are used with a microscope to provide extremely accurate alignment of objects such as a photolithographic mask and a substrate of a semiconductive material.

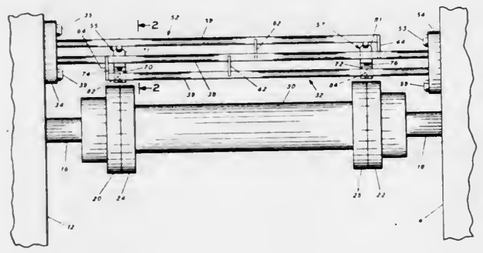
3,783,521
VEHICLE TORSION BAR SETTING GAUGE
Raymond H. Schmidt, Buffalo, Minn., assignor to Royal Industries, Inc., Osseo, Minn.
Filed Feb. 18, 1972, Ser. No. 227,353
Int. Cl. G01b *5/24*
U.S. Cl. 33—181 AT **6 Claims**



This is a gauge for facilitating the setting of the two torsion bars on an automobile and embodies a single base unit

adapted to be stably supported on the same surface as the wheels of the car, the base unit supporting two pairs of upstanding gauge strut assemblies, each pair of which includes extensible portions with feeler elements for respective engagement with two vehicle reference surfaces and also includes an elongated pointer arm coupled to the pair of extensible portions to indicate the relative elevation differential between said vehicle reference surfaces.

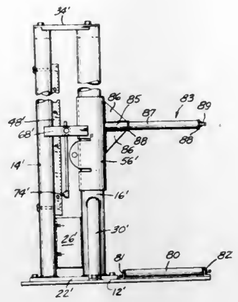
3,783,522
METHOD AND APPARATUS FOR SHAFT ALIGNMENT
Vaal Ray Dodd, Box 273, Rt. 2, Grand Bay, Ala.
Continuation-in-part of Ser. No. 240,930, April 4, 1972, abandoned. This application Mar. 9, 1973, Ser. No. 339,907
Int. Cl. G01b *7/31*
U.S. Cl. 33—181 R **17 Claims**



Method and apparatus for obtaining misalignment data of rotating apparatus under operating conditions and for offset aligning shafts of rotating apparatus at ambient conditions to provide substantially coaxial alignment when operating under equilibrium conditions. Remotely operable proximity sensing means and reference means are supported by elongate members, bearing a predetermined relationship to shaft axes, and cooperate to continuously detect at least functions of relative horizontal and relative vertical displacement of the elongate members. The remotely operable proximity sensing means further cooperates with display means to provide a continuous display of the proximity of the remotely operable proximity sensing means to the reference means and provide a display indicative of the functions of relative horizontal and vertical displacement of the elongate members occurring as the rotating apparatus changes from atrest ambient condition to a thermal equilibrium operating condition. This display is provided at a location remote from the shafts of the rotating apparatus and remote from the elongate members.

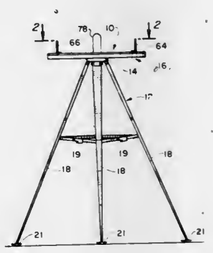
3,783,523
TIRE CALIPER
Ivan O. Smith, 1353 Acacia St., San Bernadino, Calif.
Filed Nov. 30, 1971, Ser. No. 203,154
Int. Cl. G01b *5/08, 5/20*
U.S. Cl. 33—203.13 **2 Claims**

A tire caliper comprising a tire-engaging member having two parallel posts extending perpendicularly therefrom. At their other ends, the posts are connected by a bridge-like member which is secured by tight-fitting bolts screwed into plugs inserted into the ends of the posts, so as to prevent twisting of the posts. A sleeve-like head is slidably mounted on one of the posts, and projecting laterally from one side thereof is a caliper arm. A pair of guide fingers project from the other side of the head and slidably engage the other post on opposite sides thereof to keep the head from turning. A graduated scale is fixed to said other post on the side facing said one post, and



a pointer on the head indicates on the scale the outside diameter of a tire engaged on one side by said member and on the other side by said caliper arm.

3,783,524
UNDERWATER ANGLE MEASURING DEVICE
John B. Ciani, Port Hueneme, Calif., and Richard G. Luthy, Davisville, R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Dec. 7, 1971, Ser. No. 205,617
Int. Cl. G01c *1/00, 1/02*
U.S. Cl. 33—285 **4 Claims**

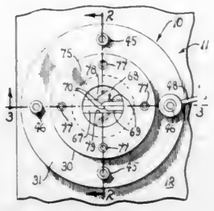


An underwater angle measuring instrument comprising a plane table tripod with a leveling head attached thereto and an angle reading device positioned on the head. The latter includes an outer bearing circle, a vernier circle and adjustment means. By sighting at one specific point and then at a second point, the difference in bearings is the angle of interest.

3,783,525
LEVEL
C. W. Bloxom, 1025 Devore Ave., Bakersfield, Calif.
Filed May 26, 1972, Ser. No. 257,176
Int. Cl. G01c *9/24*
U.S. Cl. 33—379 **12 Claims**

A level having a body with an upper surface, the upper surface having a U-shaped passage provided therein having a curved end and legs defining parallel axes, the body also having a base for supporting the body at an angle of inclination along the axes of the legs in the direction of the curved end and relative to the base; a transparent plate mounted on the upper surface in sealing relation to the passage; and fluid

disposed in the passage so as to define a bubble extending through the curved end of the passage and into the legs, the bubble having ends adapted to register the horizontal or vertical disposition of the base along an axis normal to the axes of the legs when said ends of the bubble define a line of reference normal to the axes of the legs.



3,783,526
PROCESS FOR THE TREATMENT OF MATERIAL LENGTHS

Heinz Fleissner, Egelsbach near Frankfurt am Main, Germany, assignor to Vepa AG, Basel, Switzerland

Division of Ser. No. 799,478, Feb. 14, 1969, Pat. No. 3,605,280, which is a continuation-in-part of Ser. No. 654,728, July 20, 1967, abandoned. This application July 1, 1970, Ser. No. 60,205

Claims priority, application Germany, Feb. 14, 1968, P 17 10 513.4The portion of the term of this patent subsequent to Mar. 31, 1987, has been disclaimed.

Int. Cl. F26g *3/06, 13/30*

U.S. Cl. 34—12 **9 Claims**

The present disclosure is directed to a process for the treatment of materials which comprises a heat-insulated treatment chamber, a plurality of sieve drum means subjected to a suction draft rotatably disposed within said treatment chamber, fan means for producing a suction draft and for circulating the treatment medium in said treatment chamber, heating means provided in the circulation zone of the treatment medium, tentering means containing tensioning chains at least partially disposed outside of the treatment chamber as inlet means, said tentering means cooperating with the sieve drum means for the effective conveyance of the material being treated to said sieve drum means, and outlet means for removing the material being treated from the treatment chamber.

3,783,527
DRYING APPARATUS WITH FEED AND HUMIDITY CONTROL

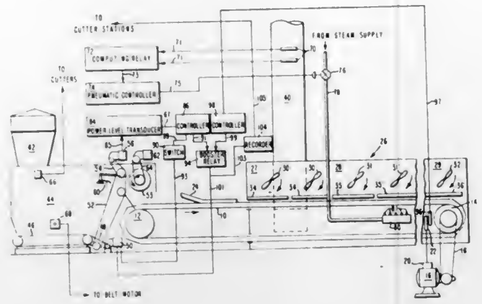
Gerald Jon Driscoll, Crozet, and James Larkin Wellborn, Waynesboro, both of Va., assignors to E.I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 13, 1972, Ser. No. 314,603

Int. Cl. F26d *13/12*; **F26b** *21/08*

U.S. Cl. 34—56 **2 Claims**

An improved dryer for bulk material of the type employing a feed apron, a pin elevator and an endless, foraminous belt moved through a series of air drying zones, the improvement comprising (A) a humidity transducer in the air exhaust stack arranged to regulate flow of steam to a sparger under the belt in a zone and (B) a power level transducer attached to the pin elevator drive motor, a temperature transducer located under the belt in the final zone, each transducer connected through a separate controller to a booster relay arranged to select the lower of the two control signals and apply this to regulate feed apron drive motor speed.



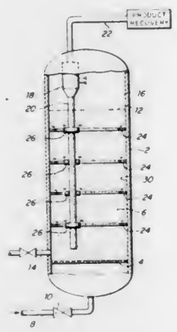
3,783,528
REACTOR STAGING

Harold R. Sheely, Newton, Mass., assignor to The Badger Company, Inc., Cambridge, Mass.

Filed Jan. 5, 1971, Ser. No. 104,003

Int. Cl. F26b *17/10*

U.S. Cl. 34—57 A **1 Claim**



Catalyst staging of a fluidized catalyst bed in a reactor is achieved by providing horizontal ridges or flanges which interrupt downward flow of catalyst as a dense layer along vertical interior surfaces of the reactor.

3,783,529
CLOTHES DRYER WITH PRESS SAVER CYCLE INCLUDING PERIODIC SIGNALS

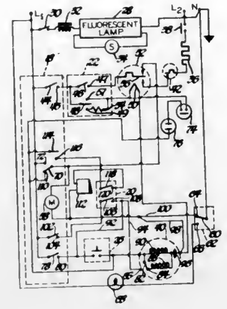
James L. Miller, Dayton; Carl J. Wright, Bellbrook, and Marshall C. Harrold, Dayton, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 24, 1971, Ser. No. 201,763

Int. Cl. F26b *19/00*

U.S. Cl. 34—45 **3 Claims**

A clothes dryer including a press saver cycle to obviate fabric wrinkling is provided with an intermittent buzzer signal during the extended tumbling following normal drying. The requisite intermittent signal is developed by the dryer timer control by the addition of appropriate contacts, thus avoiding the necessity for an auxiliary timer.



3,783,530
TRAINING DEVICES

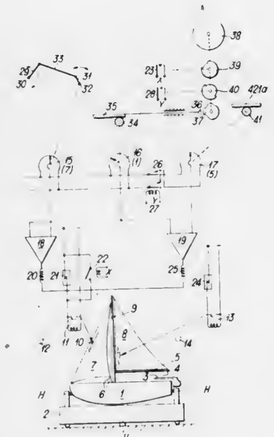
Bruce Duval, Nassau, Bahamas, assignor to T. P. I. Limited, Nassau, Bahamas

Filed Dec. 6, 1971, Ser. No. 205,176

Claims priority, application Great Britain, Dec. 5, 1970, 57,887/70

Int. Cl. G09b *9/06*

U.S. Cl. 35—11 **10 Claims**



A simulator by which a pupil can learn something of the art of sailing, has a sail, a device for giving the sail a fluttering movement, and means for starting and stopping the fluttering so that the pupil can be provided with a representation of the fluttering of a sail which occurs in actual sailing. The fluttering is preferably started and stopped automatically by a control system and the device is conveniently a vibrator carried by the sail itself. In learning to sail on water, pupils have difficulty both in determining the direction of the wind, and in setting the sails to provide a useful forward thrust even when the wind direction is known. It is found that this difficulty is minimised for pupils who have been trained on the present simulator.

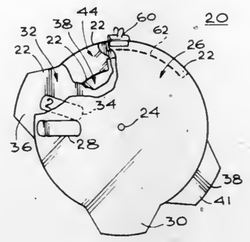
3,783,531
TEACHING AID DEVICE

Marion R. Kattenhorn, 4592 W. Olive, Fresno, Calif.

Filed Sept. 22, 1972, Ser. No. 291,287

Int. Cl. G09b *17/04*

U.S. Cl. 35—35 B **12 Claims**



The improved device comprises a plurality of stacked plates or disks joined together on a concentric axis for individual rotation. The plates include first and second masking plates having alignable viewing apertures and behind them first and second viewing plates of differing diameter and bearing radially alignable indicia on the front surfaces thereof, which indicia are viewable through the masking plate apertures. A clamp or the like can be provided to releasably hold the front masking and second viewing plate together while permitting free rotation of the other plates. Indicia on the back of the two viewing plates facilitate alignment of the indicia of the front of those plates. Rapid rotation means, such as a spring-controlled advancing mechanism can be provided to permit the second masking plate to rotate at a controlled rate relative to the front masking plate to permit only a predetermined momentary viewing of the indicia on the viewing plates.

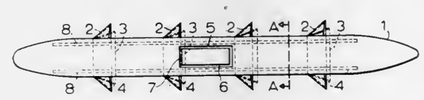
3,783,532
WATER SHOES

Hubert W. Harradine, 1688 Armanda St., Windsor, Ontario, Canada

Filed May 24, 1973, Ser. No. 363,607

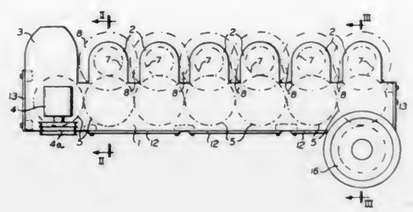
Int. Cl. A43b *00/00*

U.S. Cl. 36—2.5 AA **3 Claims**



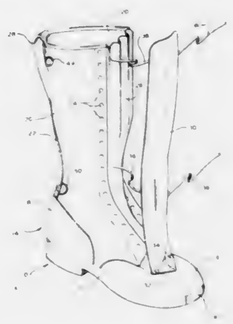
This invention consists of shoes for walking on the surface of water as a sport or recreation. It consists primarily of a foam plastic, streamlined, solid throughout pontoon for each foot of the wearer. The pontoons are provided with flexible fins which are wrapped around the sides and bottom of, and attached to, the pontoon. These fins open up to resist backward motion thereby providing traction, and close against the bottom and sides of the pontoon to reduce drag during the forward motion. Also, when the fins are closed, folds are formed at the bottom corners of the pontoon to provide additional stability.

3,783,533
MOWING MACHINE
Kark-Heinz Konig, and Antonius Huntrup, both of Essen, Germany, assignors to H. Vissers N.V., Nieuw-Venne, Netherlands
Division of Ser. No. 795,296, Jan. 30, 1969, Pat. No. 3,623,300. This application Dec. 9, 1970, Ser. No. 96,546
Int. Cl. A01d 75/30
U.S. Cl. 56—6 2 Claims



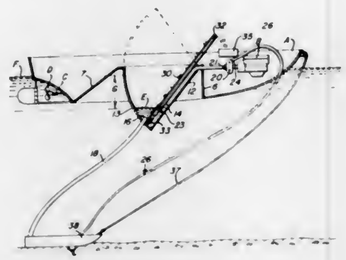
A mowing machine adapted to be attached to a vehicle, as a tractor or the like, which comprises a carrier including cutter discs, which are mounted thereon for rotation about a vertical axis and to overlap each other in their operating areas. A plurality of gear wheels is disposed inside of the carrier and extends to its outer end for rotating the cutter discs. A plurality of cutter gear wheels is arranged each meshing the corresponding of the gear wheels. A carrying device and a drawing device are adapted to be connected to the rear end of a tractor and to its transmission, respectively. Tension springs and a cable connecting the carrying device with said carrier, are provided to balance out at least a part of the weight of the carrier upon raising the latter into transporting position.

3,783,534
PROTECTIVE BOOT
Richard F. Phillips, Hillside Dr., Kirkwood, N.Y., and Gordon S. Fluharty, R.D. No. 1, Box 7, Chenango Forks, N.Y.
Filed May 14, 1973, Ser. No. 360,052
Int. Cl. A43b 13/22
U.S. Cl. 36—72 R 8 Claims



A protective boot designed especially for wear by motorcycle riders, particularly in off-the-road or trail riding, and in racing. The boat includes a protective front tongue extending from a hinged attachment near the toe, in covering relation to the boot laces and the wearer's shin. The tongue includes, between two layers of leather, a rigid shin protector. Similar rigid lower leg protectors are provided on both sides of the wearer's legs above the ankle, between two layers of the boots. The tongue is held in place by straps at the top and bottom which pass through loops attached in pairs to the back strap of the boot. The lower pair of loops also serves as an anchoring means for straps holding a "steel shoe" in place over the sole and toe of the left boot which is dragged when rounding corners.

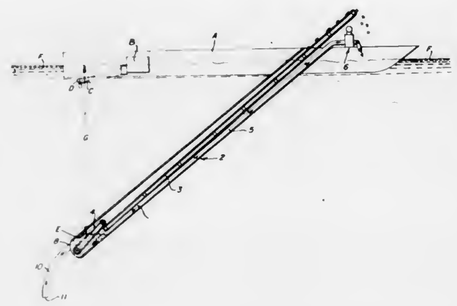
3,783,535
APPARATUS FOR COLLECTING SPECIMENS
Fletcher Hanks, c/o Hanks Seafood Co., Inc., P.O. Box 70, Easton, Md.
Filed Jan. 5, 1972, Ser. No. 215,454
Int. Cl. E02f 5/00
U.S. Cl. 37—55 1 Claim



Biological and geological specimens are collected from the water, floor, or sub-floor of a waterway by the use of a surface craft carrying a water tank which is open to atmosphere and which is mounted for downward movement into partial submergence in the waterway, the water tank having an intake opening adjacent its bottom and an exhaust conduit which is in adjacent but spaced relationship with respect thereto. Both the intake opening and the exhaust conduit communicate with the water at a level which is lower than the normal level of the surface of the water therein when the water tank is in its lowered position. A flexible conduit extends downwardly from the intake opening of the water tank to a point which is at or adjacent the locale of the specimens to be collected. The intake port of a suction pump carried on the surface craft communicates with the exhaust conduit of the water tank. The foregoing arrangement permits the establishment of a head in the water tank which is of sufficient magnitude to enable water to continuously flow upwardly through the flexible conduit and into the water tank and out of the exhaust conduit of the latter. An upwardly inclined perforate endless belt conveyor is disposed with its lower end between and below the intake opening of the water tank and the adjacent end of the exhaust conduit therefor. The upper end of the upwardly inclined perforate endless belt conveyor projects upwardly beyond the upper end of the water tank; and a collection device on the surface craft collects specimen which are retained on the upper flight of said conveyor as it approaches or arrives at the upper limit of its travel.

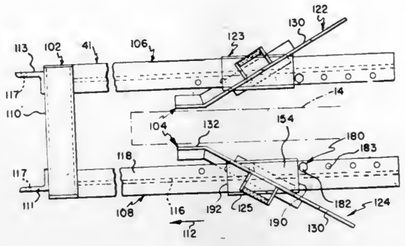
3,783,536
APPARATUS FOR COLLECTING BIOLOGICAL AND/OR GEOLOGICAL SPECIMENS FROM WATERWAYS
Fletcher Hanks, c/o Hanks Seafood Co., Inc., P.O. Box 70, Easton, Md.
Continuation-in-part of Ser. No. 215,454, Jan. 5, 1972. This application Aug. 29, 1972, Ser. No. 284,763
Int. Cl. E02f 3/88
U.S. Cl. 37—55 4 Claims

An elongate downwardly depending and sternwardly declining cylindrical conduit communicates with the hold of a boat at its upper end and contains an endless belt conveyor which projects from its upper end but terminates short of its lower end. A second, but materially shorter endless belt conveyor is disposed within the cylindrical conduit and at its upper end overlaps the lower end of the first-named endless belt conveyor. A smaller elongate cylindrical conduit is disposed in the first-named cylindrical conduit, and extends beneath the first-named endless belt conveyor with its lower end terminating beneath the intermediate portion of the lower flight of the second-named and materially shorter endless belt conveyor. The upper end of the second-named and smaller elongate cylindrical conduit is connected to the suction side of a suction pump which is carried by the boat. The lowermost end of the first-named cylindrical conduit is closed except for an opening which communicates with the interior of the first-named cylindrical conduit at a position which is immediately above the lower end of the upper flight of the second-named endless belt conveyor. Communicating with the immediately aforementioned opening is an enlarged hose which extends downwardly into the depths of the waterway from which the biological and/or geological specimens are to be recovered. The shorter, and lower, endless belt conveyor is perforate, and the upper and materially longer endless belt conveyor preferably imperforate. The head of water which is maintained on the lower end of the first-named elongate downwardly depending and stern-wardly declining cylindrical conduit will be found to be adequate to raise the specimens referred to and pass them through the aperture in the larger conduit onto the second-named lower endless belt conveyor and through the latter onto the lower end of the first-named endless belt conveyor. Thus, the two endless belt conveyors greatly assist the movement of the specimen upwardly through the larger cylindrical conduit and into the hold of the boat.

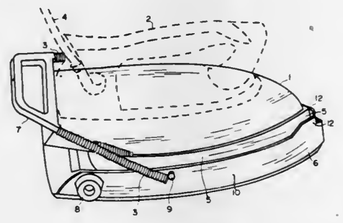


3,783,537
PLOW ASSEMBLY FOR EXCAVATING MACHINE
Vincent S. Penote, Shaker Heights, and Melvin K. Rear, Chesterland, both of Ohio, assignors to The Cleveland Trencher Company, Cleveland, Ohio
Division of Ser. No. 783,244, Sept. 12, 1968, Pat. No. 3,610,691. This application June 23, 1971, Ser. No. 155,831
Int. Cl. E02f 5/14
U.S. Cl. 37—94 9 Claims

An excavating machine of the type including a chassis and a digging unit mounted for digging movement thereon. The unit comprising an endless wheel-like member and a plurality of peripherally spaced sets of laterally staggered tooth members detachably mounted in angularly oriented relation on the wheel-like member for moving excavated material upwardly and outwardly of the digging unit. The body of each tooth member having leading and trailing ends and inner and outer edges extending therebetween, and including an attachment portion adjacent the leading and trailing ends, and a blade portion made integral therewith adjacent the leading end and outer edge thereof. A plow assembly is mounted for selective directional adjustment on the chassis and includes an angularly oriented wing-like scraper construction operative on opposed sides of the digging unit for moving excavated material away from the digging unit.



3,783,538
STEAMING AND IRONING APPLIANCE
Dietlof Von Arnim, Diagonal 109, No. 27-10, Bogota, Colombia
Filed Mar. 20, 1973, Ser. No. 343,043
Int. Cl. D06f 75/38
U.S. Cl. 38—97 2 Claims

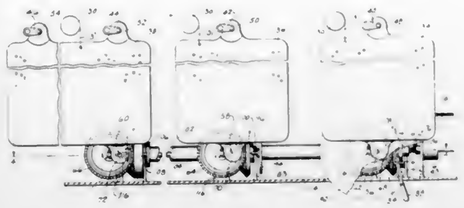


A steaming and ironing appliance which is suitable to be removably attached to the base plate of a conventional domestic iron comprises a hollow body having a flat bottom plate generally shaped in accordance with the shape of a conventional domestic iron and an upper plate suitably conformed for supporting the base plate of a domestic iron, a pair of coil springs with one end of each being fixedly attached to symmetrically opposed attaching means disposed on each of the appliance's side walls and with the other ends of the coil springs being attached to a rigid fastening member for removably fastening the iron against the supporting upper plate of the appliance. The hollow body of the appliance is provided with water input means and the underside of the base plate is provided with elongated recesses wherein there are arranged passages for delivering steam to a garment being ironed.

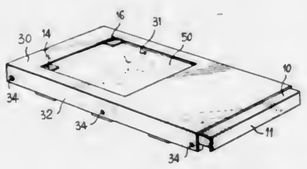
3,783,539
DIGITAL CLOCK DISPLAY
Charles E. Trame, Fox Point, Wis., assignor to Everbrite Electric Signs, Inc., South Milwaukee, Wis.
Filed June 14, 1972, Ser. No. 262,690
Int. Cl. G09f 11/00
U.S. Cl. 40—28 C 3 Claims

An opaque face plate has openings arranged in rectangular arrays, with each array representing one digit of a multi-digit number. A light source is mounted behind the face plate and an opaque, orbitally movable plate is mounted between each rectangular array of openings and the light source. Each or-

bitally movable plate has sets of orbitally arranged openings so that each opening, when moved into alignment with a corresponding opening in the array of openings, will transmit light through that opening in the faceplate. The geometrical pattern of light transmission through each orbitally movable plate is arranged to produce a time sequence of digits in each of the rectangular arrays of openings so that the invention may function as an illuminated digital clock. Drive means is coupled to the orbitally movable plates to drive the plates in predetermined correlation around their respective orbits. A transparent light-diffusing element may be wound over each opening in the face plate to spread the light transmitted through the openings and make the openings appear larger than they actually are.



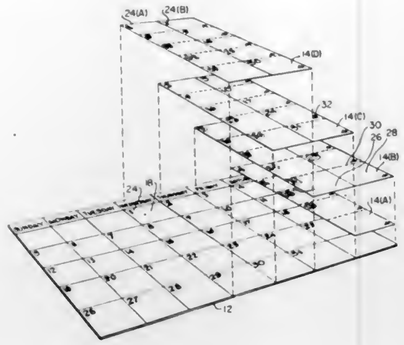
3,783,540
VIEWING APPARATUS
Roger Barclay, Vernet Les Bains, France, assignor to Pierre Naguet, Le Grand and Societe Anonyme Laboservice, Toulouse, France
Filed Mar. 27, 1972, Ser. No. 238,295
Claims priority, application France, Apr. 19, 1971, 7113683
Int. Cl. G09f *11/30*
U.S. Cl. 40—78.07 **10 Claims**



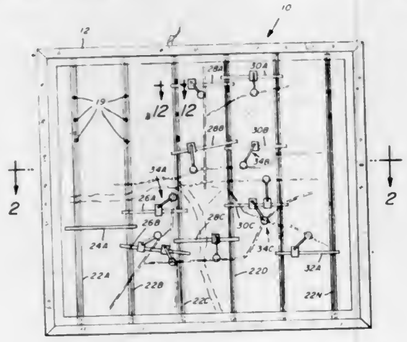
Apparatus for receiving a stack of flat objects and for serially presenting such objects to a viewing window is disclosed. The viewing apparatus includes a manually operated reciprocal slide member which withdraws objects from the top of a stack and returns the withdrawn objects to the bottom of the stack whereby the objects are advanced upwardly in the stack for viewing.

3,783,541
CALENDAR OR THE LIKE WITH DETACHABLE OVERLAYS
William R. Bowerman, 1824 Mississippi St., Lawrence, Kans.
Filed July 21, 1972, Ser. No. 274,046
Int. Cl. G09d *3/04*
U.S. Cl. 40—121 **4 Claims**

A graphic arts product is formed by a plurality of separable plies mounted in superimposed staggered relation over a backing member. The backing member as well as the superimposed plies bear selected graphical representations such as drawings, photographs, numbers, etc., having a predetermined established relationship. The superimposed plies are detachably connected whereby removal of one ply exposes the underlying images on two underlying plies or the backing member. The overlay device is particularly adaptable for use as a calendar whereby one overlay will be removed daily to expose a current date having a unique appearance to enhance that date with respect to all other dates. Various and different graphical presentations such as drawings and photographs of any selected subjects, advertising messages and the like may be printed on the backing member. The device may be used for other purposes such as games or similar applications.



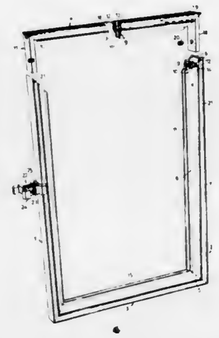
3,783,542
MAP DISPLAY SYSTEM
Coyote Johnson, Tulsa, Okla., assignor to Atkins & Merrill, Incorporated, Tulsa, Okla.
Filed Nov. 10, 1972, Ser. No. 305,217
Int. Cl. G09f *13/04*
U.S. Cl. 40—132 R **8 Claims**



This invention describes an improved type of map display system. It comprises a rectangular framework covered with a sheet of translucent material that is held rigidly in a plane, such that a sheet of photographic material can be adhered to the front surface of the display sheet. Means including a plurality of spaced vertical rails and adjustable horizontal rails attached thereto are provided for holding lamp fixtures which may be positioned on the horizontal rails so that a lamp house can be positioned at any point on the back surface of the display sheet. The lamp fixture is of improved design in that it comprises a system which can be moved vertically or horizontally, and has an arm which rotates about a horizontal axis perpendicular to the display sheet, and a lamp fixture that can be

rotated about this arm, and holds a lamp house which can be rotated separately about its axis. The lamp house may include 1, 2 or 4 separate lamp bulbs which can be lighted one or more at a time. The lamp house may also include dividers between the lamps such that the light from one or two or four of the lamps can be directed to separate areas of the display sheet.

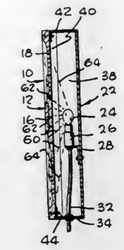
3,783,543
FRAME FOR EXCHANGEABLE POSTERS OR THE LIKE
Sven Anders Hemgren, Kungsangen, Sweden, assignor to Dymo Industries, Inc., San Francisco, Calif.
Filed June 21, 1972, Ser. No. 264,997
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **2 Claims**



The invention concerns a frame for exchangeable posters or the like, normally comprising four frame side bars, the ends of which are pairwise connectable over mitre joints to form said frame. Each such bar contains at least one channel which on all sides is defined by means of substantially continuous walls and extends coextensively along the side of said bar, intended to form one circumferential side of the frame, and also a groove for accommodating one edge of said poster, said groove extending coextensively along the opposite side of the bar. An angle connector is arranged at each corner of the frame, one leg thereof being fully inserted into and secured in said channel of one frame bar forming the corner, whereas the other angle connector leg is fully insertable in the corresponding channel of the other bar of the corner and is releaseably lockable therein.

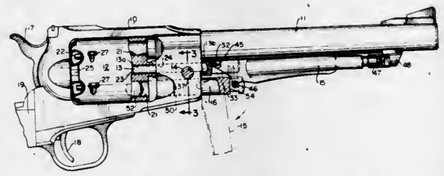
3,783,544
DECORATIVE LAMP ELEMENT AND LAMP
Norman M. Brody, Los Angeles, Calif., assignor to Norman Industries, Inc., Santa Fe Springs, Calif.
Division of Ser. No. 64,533, Aug. 31, 1970, Pat. No. 3,709,766.
This application Aug. 31, 1972, Ser. No. 285,537
Int. Cl. G09f *13/00*
U.S. Cl. 40—152.2 **10 Claims**

Lamp element comprising three dimensional plastic colored article, e.g., reproduction of a cartoon character and the like, in the form of a clear transparent polyester cast resin body having a colored fiber glass paper inlay embedded in the resin, such inlay preferably being a silk screened multicolored configuration, the cast resin body having an external shape corresponding to the external shape of the colored inlay, forming a three dimensional plastic duplicate of the colored inlay having the corresponding coloration and outlines of the colored fiber glass paper inlay, and creating a three dimensional effect to the eye of an observer; and a light translucent polyester resin sheet attached to the rear surface of the colored cast resin body, and preferably extending outwardly therefrom, whereby light from a light source behind such translucent sheet and transmitted diffusely through such sheet to the cast resin body is uniformly transmitted also through such body to light evenly and brightly the entire colored cast resin body, and light transmitted diffusely through the outer portions of said translucent sheet around the colored cast resin body, highlights the colored representation in the brightly lighted colored cast resin body. Preferably, a border area, which may be of decorative design, and formed of an opaque polyester resin, is disposed around the outer edge portions of the translucent resin sheet.



The above lamp element is attached over a front opening in a lamp box containing a lamp such as an electric light bulb, preferably positioned directly behind the colored cast resin body. The result is a brightly colored glass-like appearance of the colored representation in the colored cast resin body highlighted by the light passing through the adjacent portions of the translucent sheet and framed by the decorative border area.

3,783,545
LOADING LEVER ARRANGEMENT FOR MUZZLE LOADING REVOLVER
Harry H. Sefried, II, New Haven, Conn., assignor to Sturm, Ruger & Co., Inc., Southport, Conn.
Filed May 10, 1972, Ser. No. 252,046
Int. Cl. F41c *1/00*
U.S. Cl. 42—61 **9 Claims**



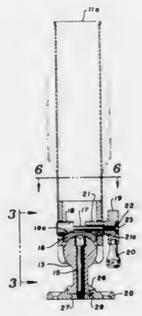
A loading lever arrangement for muzzle loading revolvers comprises a loading lever having an integrally formed transverse pivot pin located adjacent the rearward end of the lever and an integrally formed rammer engaging lug located below the pivot pin, a cylinder base pin having a transverse pivot pin receiving groove formed in the upper surface thereof and a transverse retaining pin receiving groove formed in the lower surface thereof, a base pin retaining pin releasably engaging the cylinder base pin, and a bullet rammer having a T-shaped vertical slot formed in the forward end portion of the rammer. The transverse pivot pin of the loading lever is received in the pivot pin receiving groove of the cylinder base pin, the bullet rammer engaging lug of the loading lever is received in the T-shaped vertical slot of the bullet rammer, and the base pin retaining pin is received in the retaining pin receiving groove of the cylinder base pin. As a result, the cylinder base pin is retained in the frame by the base pin retaining pin, the loading lever is pivotally secured to the cylinder base pin and the bullet rammer is connected to the loading lever.

3,783,546
FISHING LURE RETRIEVER
Duane A. Meyers, 7125 Main St., Trumbull, Conn.
Filed Mar. 15, 1972, Ser. No. 234,706
Int. Cl. A01k *97/00*
U.S. Cl. 43—17.2 **10 Claims**



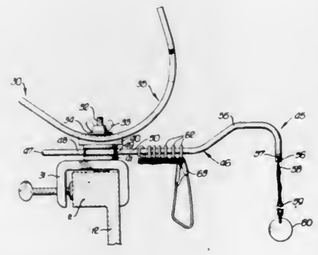
A fishing lure retriever for recovering lures which have become entangled in submerged debris. The retriever comprises a latching member adapted to be applied to a fishing line, and to slide along the line to the lure so as to latch onto the latter. The body of the member has a substantially greater density than that of water, thereby enabling it to readily submerge. The body is provided with a longitudinal slot into which the fishing line can be easily and quickly inserted without requiring that it be broken or cut; thereafter the retriever body is allowed to gravitationally slide downward along the line to the location of the lure. The retriever body is also connected with a recovery line which is fastened to one of its ends. A pair of spring-loaded retractable grippers are disposed at the other end of the body, and have camming surfaces which can engage the usual hollow ball carrying swivel eyes by which the lure is fastened to the line. With the retriever body securely seizing the swivel ball, the lure can now be recovered by merely forcibly pulling on the recovery line.

3,783,547
FISHING ROD HOLDER
Andrew G. C. Bystrom, 4901 Trillium Ln., Minneapolis, Minn., and Mikeal G. Bystrom, 6106 Park Ave., Minneapolis, Minn.
Filed Nov. 13, 1972, Ser. No. 306,367
Int. Cl. A01k *97/10*
U.S. Cl. 43—21.2 **3 Claims**



A fishing rod holder arranged to receive the butt end of a fishing rod and including a generally cylindrical tube having a closed bottom and an open top with mounting means at the base thereof to secure said holder to a stationary surface. The mounting means includes a ball, with the base of the tube having a socket formed therein, and with clamping means including a transversely mounted screw and a compression block, being provided at the base of the tube to lockingly retain the tube in predetermined disposition. The screw has relatively movable clamping members mounted thereon to urge the block towards the ball.

3,783,548
FISH CATCH KEEPER
Frank W. Fisher, 27141 13th St., Highland, Calif.
Filed July 5, 1972, Ser. No. 269,282
Int. Cl. A01k *65/00, 97/10*
U.S. Cl. 43—21.2 **6 Claims**



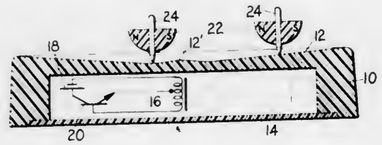
An accessory for water storage of fish caught from a small boat, the device comprising a fish safety pin racking rod fastened to the gunwale and extending outward therefrom with a horizontal portion for racking a multiplicity of pins, the rod arching upwardly and then pointing downwardly at its outer end to retain said pins racked on said horizontal portion, a chain long enough to reach the water being attached to the end of the rod and terminating in a keeper disc preventing the escape of fish holding safety pins threaded on said chain. The rod is optionally welded to a clamp for attachment to the boat gunwale or provided with an eye insertable in a secondary fishing rod holding clamp which in turn has a primary clamp for securing the same to a boat gunwale.

3,783,549
ANTI-SNAGGING FISHING GEAR
W. Kenneth Griggs, Champaign, Ill., assignor to The Raymond Lee Organization Inc., New York, N.Y.
Filed Oct. 20, 1971, Ser. No. 190,953
Int. Cl. A01k *85/04, 95/00*
U.S. Cl. 43—42.4 **3 Claims**



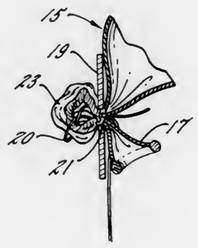
A device for use with fishing tackle to prevent snagging and loss of fishing lures and sinkers. The device consists of a curved flat runner fastened to three trailing legs of stiff wire. The fishing line is threaded through eyes at the head and tail of the runner and then fastened to the lures and sinker. In operation the tripod configuration of the three trailing wires guides the curved runner to ride over and around underwater obstructions including rocks, weeds and underwater tree limbs.

3,783,550
NOVELTY ELECTRIC MOTOR
Roger Wayne Andrews, 4190 Oakman St., South, Salem, Oreg.
Filed Apr. 21, 1972, Ser. No. 246,454
Int. Cl. A63h *33/26*
U.S. Cl. 46—45 **14 Claims**



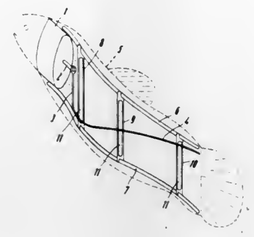
A permanent magnet armature is arranged to be moved initially in spaced proximity to an induction coil connected in an electric circuit including a source of electric potential and an electronic switch such that when the moving magnetic field of the magnet cuts the coil turns the resulting induced current operates the switch momentarily to connect the source of electric potential across the coil. The resulting current flow through the coil produces a magnetic field which is imposed upon the moving magnet such as to accelerate its movement. The magnet may take many forms, such as a spinning top, a motor rotor, a pendulum or other reciprocating member, and others.

3,783,551
BALLOON AND SEALING MEANS THEREFOR
Rudolph L. Allison, and Gary L. Lindstrand, both of Rockford, Ill., assignors to MTL Incorporated, Rockford, Ill.
Division of Ser. No. 133,143, April 12, 1971, Pat. No. 3,720,991. This application Aug. 28, 1972, Ser. No. 284,233
Int. Cl. A63h *3/06*
U.S. Cl. 46—90 **3 Claims**



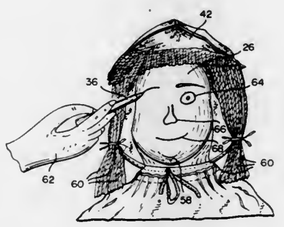
An inflatable balloon is sealed gas-tight by an apertured disc which pinches together a doubled-over section of the neck of the balloon. A string optionally may be attached to the neck by the same disc.

3,783,552
DRIVING APPARATUS, ESPECIALLY FOR A FLOATING TOY
Wend Goldbach, Muehlheim am Main, Germany, assignor to Erika Goldbach, Muehlheim am Main, Germany
Filed Sept. 28, 1972, Ser. No. 292,969
Claims priority, application Germany, Sept. 30, 1972, P 21 48 789.8
Int. Cl. A63h *23/10*
U.S. Cl. 46—92 **8 Claims**



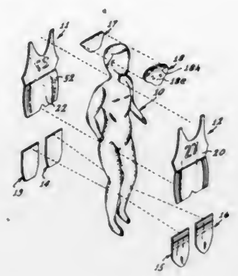
The present driving apparatus is especially suitable for floating toys having a flexible skin. The driving apparatus imparts a wriggling or serpent like motion to the skin by means of a coiled member having a coiling extending at least over 180°. The skin is supported on flexible upper and lower longitudinal ribs and on cross ribs connected to said longitudinal ribs. The cross ribs have guide slots therein through which the coiled member extends. The coiled member is cranked by a motor, for example, a spring motor or an electric motor.

3,783,553
BLANK-FACED CHILDS DOLL
Murray Goozner, 642 Diane Pl., North Woodmere, N.Y.
Filed July 26, 1972, Ser. No. 275,441
Int. Cl. A63h *13/00*
U.S. Cl. 46—116 **7 Claims**



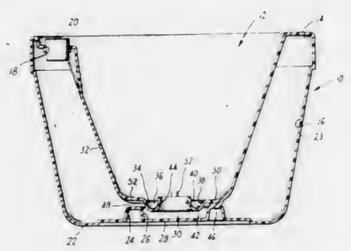
A doll assembly includes a stuffed doll body having a plastic blank face portion of a single uniform color secured to the doll head. The face portion is devoid of facial features and is formed with slight concave depressions suggesting the location of eyes and a mouth. The surface of the blank face portion is made to accept the markings of crayons or similar non-permanent drawing materials, whereby the child user may draw selected facial features thereon. A garment is provided having pockets for storing the crayons or drawing materials, and a wiping cloth for removing the drawn features when desired.

3,783,554
APPLIABLE DOLL DECORATIONS
Wallace H. Shapero, El Toro, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Feb. 4, 1972, Ser. No. 223,586
Int. Cl. A63h 13/00
U.S. Cl. 46—116 6 Claims



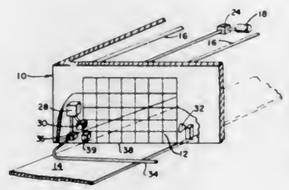
A doll construction kit which enables a child to mold a three-dimensional doll and decorate it will preprinted labels so that the doll has an attractive appearance similar to that of a doll wholly constructed at a factory. Preprinted labels defining clothing and defining facial and hair features are provided for application by a child to a doll he has molded, the labels being constructed of a rubber-like material so they can stretch when applied to a contoured doll surface, to eliminate wrinkles. They will also stretch when doll is posed in various positions.

3,783,555
SELF-WATERING FLOWER POT
James R. Peters, Chicopee, Mass., assignor to Universal Products Development Corporation, Simsbury, Conn.
Filed Jan. 3, 1972, Ser. No. 214,764
Int. Cl. A01g 27/00
U.S. Cl. 47—38 10 Claims



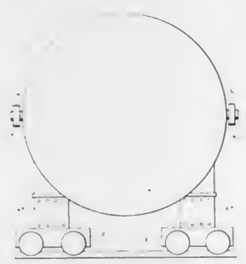
A self-watering flower pot has a unitary, double-walled construction comprising an outer shell, a potting receptacle therewithin, and a water-receiving chamber in the space between the outer shell and the inner receptacle. An upwardly opening recess is defined in the upper surface of the bottom wall of the outer shell, and the potting receptacle has a depending peripheral wall element which extends about a passageway through a lower portion thereof and is disposed with its lower edge within the recess of the bottom wall. In operation a vacuum is created in the space between the double walls, which is relieved when the soil within the potting receptacle becomes sufficiently dry to permit air to permeate and pass outwardly into the chamber. This effectively meters the water by allowing a small amount to flow as dictated by the dryness of the soil. The elements in the lower portion of the flower pot trap the soil and thereby eliminate the need for a porous plug of the type which is normally used for that purpose at such a water/soil interface.

3,783,556
DOOR CONTROL SYSTEM PROVIDING AUTOMATIC DELAYED DOOR REVERSAL
John F. Cook, Milwaukee, Wis., assignor to Telectron, Inc., Fort Lauderdale, Fla.
Filed July 13, 1972, Ser. No. 271,511
Int. Cl. E05f 15/16
U.S. Cl. 49—25 8 Claims



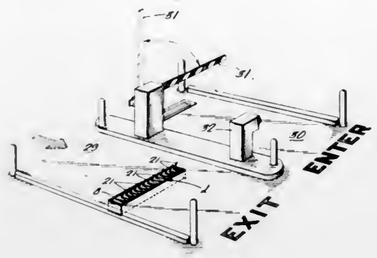
A door control system for controlling a door which is operated by an instantaneously electrically reversible motor is disclosed. When a door open sensor is actuated while the door is closing, the control system stops the door and after a predetermined delay energizes the motor to reopen the door fully. If an emergency reverse sensor is actuated while the door is closing, the drive motor is instantaneously reversed to stop the door in a minimum time and immediately reopen it.

3,783,557
CLOSURE MEANS FOR VACUUM CHAMBERS
Manfred Heiland, Hahn/Pfungstadt, Germany, assignor to Firma Carl Schenck GmbH, Darmstadt, Germany
Filed Oct. 20, 1971, Ser. No. 190,801
Claims priority, application Germany, Aug. 14, 1971, P 21 40 880.0
Int. Cl. E05d 15/10
U.S. Cl. 49—221 5 Claims



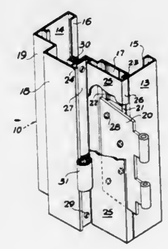
The present closure means, such as a gate for vacuum chambers, is movably supported in front of an opening of such a vacuum chamber on a carriage by means of flat or leaf springs which permit a movement of the gate toward and away from said opening.

3,783,558
DIRECTIONAL TRAFFIC CONTROL DEVICES
Frederic R. Keator, Bryn Mawr, Pa., assignor to Auto Parks, Incorporated, Devon, Pa.
Filed Jan. 17, 1973, Ser. No. 324,501
U.S. Cl. 49—49 3 Claims



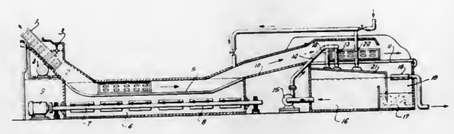
Traffic direction control device for automobile roadways normally operable to permit automobile traffic in one direction and prevent such travel in the opposite direction comprising an enlongated casing adapted to be recessed in a roadway transversely thereof and having a top plate supported substantially flush with the surface of the roadway. A shaft is supported longitudinally within the casing and a plurality of prong assemblies is provided each having a helical spring portion mounted on the shaft and provided at one end with a prong portion projecting angularly upward through a slot in the top plate inclined in the direction from which automobile traffic is to be prevented, the other ends of the spring portions of the prong assemblies being connected to a common tie bar extending longitudinally within the casing. A fixed support member is mounted in underlying engagement with the helical spring portions of the prong assemblies to prevent downward deflection and deformation of the assemblies and shaft as a result of impact engagement of the projecting prong portions by the tires of automobiles moving in the direction in which traffic is to be prevented by the device.

3,783,559
DOOR FRAME ASSEMBLY
Norman E. Yocum, Salem, Ohio, and Frank H. McIntyre, Jr., New Castle, Pa., assignors to Superior Industries, Inc., Youngstown, Ohio
Filed May 5, 1972, Ser. No. 250,794
Int. Cl. E06b 1/04
U.S. Cl. 49—504 Claims



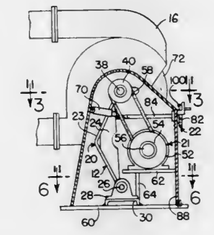
A door frame assembly formed of frame members including web portions to which hinge butts and striker plates can be secured in desired position together with cover members releasably mounted on the frame members in a position to cover the web portions and the hinge butts secured thereto.

3,783,560
APPARATUS FOR WASHING PACKING CASES
Gherasim Casapopol, and Napoleon Iaru, both of Galati, Romania, assignors to Intreprinderea Judeteana De Morarit Si Panificalie, Galati, Romania
Filed June 28, 1971, Ser. No. 157,090
Int. Cl. B24b 31/00
U.S. Cl. 51—5 5 Claims



An apparatus for washing packing cases and delivery trays, e.g., for baked goods has a downwardly sloping trough leading onto a grate in a receptacle filled with a detergent solution in which sand is suspended. A rotating shaft carrying a plurality of axially-spaced blades is provided in the receptacle below the grate for agitating the solution and cleaning the cases which are immersed therein. From the grate each case is pushed by the following case up a second chute and onto a second grate above which a plurality of nozzles are provided which spray the washed crate with recycled rinse water from which the sand has been separated, with the further upstream spray ejecting clean fresh water.

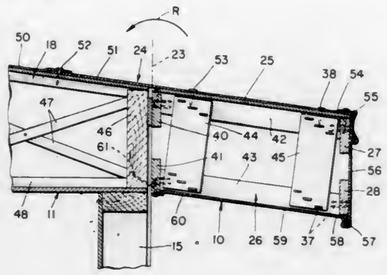
3,783,561
CONSTANT SURFACE SPEED GRINDER
Anthony C. Fortunski, Grosse Pointe Park, Mich., assignor to Fargo Machine & Tool Company, Detroit, Mich.
Filed May 26, 1972, Ser. No. 257,342
Int. Cl. B24b 47/18
U.S. Cl. 51—134.5 R 14 Claims



A grinding wheel spindle pivoting bracket unit provides elements for effecting delivery of a constant wheel peripheral speed as the wheel diameter becomes progressively reduced. The position of the wheel spindle is adjusted by pivoting the bracket unit, upon which the spindle is mounted, in a direction toward the work-supporting table of the grinding machine. The bracket unit is pivotally mounted in bearings affixed to the machine. The grinding wheel spindle is fixedly secured to the bracket unit in a position whereby the peripheral edge of the grinding wheel is disposed closely adjacent and in operative relationship to a work table mounted upon the machine housing at a level reasonably comfortable for the machine operator. As the grinding wheel wears and gradually decreases in diameter, the pivoting bracket is adjustably pivoted forward so that the center distance between the driven spindle pulley

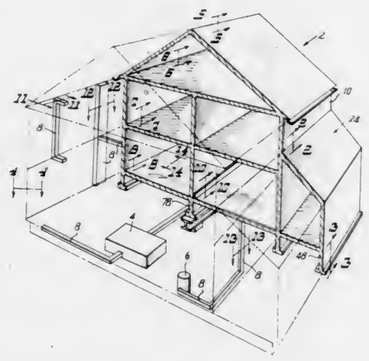
and the driving self-adjusting motor pulley is decreased, allowing the drive belt therebetween to assume an adjusted position, and thus maintain a substantially constant peripheral edge surface speed.

3,783,562
FOLD DOWN EAVE FOR MOBILE HOME
Edward M. Eysenring, Camarillo, Calif., assignor to Dual-Wide, Inc., Oxnard, Calif.
Filed Oct. 14, 1971, Ser. No. 189,089
Int. Cl. E04b *7/16*
U.S. Cl. 52—69 **3 Claims**



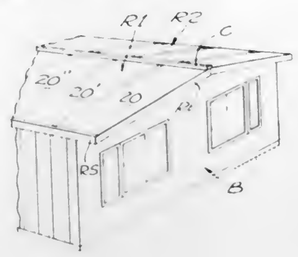
A mobile home is equipped along an upper portion with a movable eave that is capable of being swung between a functional extended position and an in-transit retracted position on top of the roof. The eave and mobile home upper portion are interconnected by a flexible sheet that bends as the eave is being swung between its extreme positions.

3,783,563
PREFABRICATED BUILDING COMPONENTS
Clyde Maurice Moore, Richmond, Va., assignor to Moorex Industries Inc., Richmond, Va.
Filed July 6, 1971, Ser. No. 160,037
Int. Cl. E04b *1/14*; **E04c** *1/10*
U.S. Cl. 52—11 **13 Claims**



Prefabricated building construction using panel and connector modules formed of molded plastic material reinforced with glass fibers. The connector modules are elongated beam-like members having longitudinally extending open channels adapted to receive complementary ribs on the edges of generally flat panel modules. The connector modules permit the assembling of panels in any desired angular relationship and are provided with interior passageways constituting conduits for electrical wiring, heating, water and waste facilities.

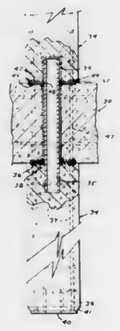
3,783,564
ROOF LOCK ASSEMBLY WITH EAVE STRUCTURE
R. S. Dunn, 200 S. Occidental, Los Angeles, Calif., and William J. Rife, 4142 W. Whitten, Phoenix, Ariz.
Division of Ser. No. 148,470, June 1, 1971, Pat. No. 3,729,884.
This application Oct. 13, 1972, Ser. No. 297,269
Int. Cl. E04b *7/00*
U.S. Cl. 52—96 **4 Claims**



A method of roof construction in which a flexible roof cover sheet is placed over the upper surface of a roof frame and is attached to that upper surface at points spaced inwardly from its outer edge, an elongated roof lock member is positioned adjacent the outer edge of the roof frame, the cover sheet is extended out over the upper surface of the roof lock member, the cover sheet is attached to the upper surface of the roof lock member at various points spaced along the length of the member, the outer longitudinal edge of the member is rotated downwardly so as to stretch the cover sheet in a lateral direction, and then the roof lock member is rigidly fastened in its rotated position so as to maintain the lateral tension in the cover sheet.

Apparatus for carrying out the forgoing method, including a roof lock member which is formed as an aluminum extrusion, the outer surface of one longitudinal edge of the extrusion being rounded to provide a pivotal bearing upon the roof frame edge, and the extrusion being hollow adjacent its rounded edge so as to receive a wooden insert member for purpose of attachment of the cover sheet.

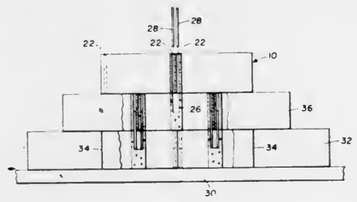
3,783,565
BUILDING CONSTRUCTION AND COMPONENTS THEREOF
John K. Hughes, Hunnewell Rd., Scarboro, Maine
Division of Ser. No. 836,782, June 26, 1969, Pat. No. 3,594,971. This application May 13, 1971, Ser. No. 143,086
Int. Cl. E04b *1/00*; **E04c** *1/10, 3/34*
U.S. Cl. 52—127 **6 Claims**



Building constructions are disclosed in which the framework comprises preformed, reinforced concrete

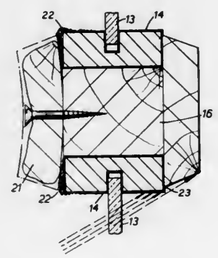
columns, beam modules having angularly disposed beam portions, and intermediate beam members. Means are provided to interconnect the reinforcements of vertically aligned columns through the module supported by one column and in support of another column. The beam portions and the beam members include end plates secured to their reinforcements, the end plates including complemental structure enabling each intermediate beam member to be supported by beam portions prior to the joining of the engaged plates by a weld. The modules and columns provide for the marginal support of wall panels and the beam portions of the modules have marginal shoulders for support of floor structure.

3,783,566
WALL CONSTRUCTION BLOCKS AND MORTARLESS METHOD OF CONSTRUCTION
Richard F. Nielson, 925 Bertch, Waterloo, Iowa
Filed Aug. 10, 1972, Ser. No. 279,492
Int. Cl. E04c *2/46*
U.S. Cl. 52—232 **4 Claims**



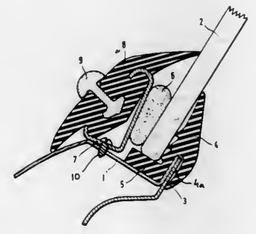
A mortarless system for constructing a wall from masonry blocks. Each block is coated on its top, bottom, and ends with a material having a relatively low melting point. Each block also has multiple vertical openings, one of which contains a connecting rod held in place by a material, such as wax, having a very low melting point. The blocks are put into place to erect the wall, and then heat is applied to melt the substances which will fuse the blocks together and allow the connecting rods to drop into the blocks in the next lower course to further interlock the individual blocks and form a solid stable wall.

3,783,567
GLAZING STRIP
William J. B. Ollis, Haddenham, England, assignor to Timber Research and Development Association, Wycombe, England
Continuation of Ser. No. 831,407, June 9, 1969, abandoned. This application Feb. 5, 1971, Ser. No. 113,063
Int. Cl. E04c *2/04*; **E06b** *1/08*
U.S. Cl. 52—232 **10 Claims**



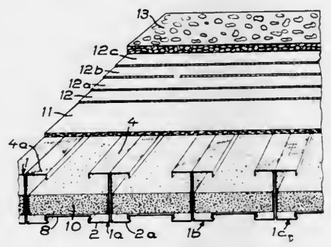
This invention is a grooved glazing strip of non-combustible, poor heat-conducting material for enabling a glazed timber panel to have good resistance against fire spreading from one side to the other. The glazing strip can prevent heat being convected through the panel and may have a coating which expands when heated to seal any gaps which appear following distortion or burning of the timber.

3,783,568
AUTOMOTIVE WINDOW ASSEMBLY AND PROCESS
Jurgen Adler; Karl Erck, both of Wolfsburg; Horst Klebba, Weyhausen; Wolfgang Kramer, Ribbesbuttel; Ernst Maneck, Tappenbeck; Hans Mueller-Eckhardt, and Kurt Schwenk, both of Wolfsburg, all of Germany, assignors to Volkswagenwerk Akt, Wolfsburg, Germany
Filed May 21, 1971, Ser. No. 145,764
Claims priority, application Germany, May 21, 1970, P 20 24 753.4
Int. Cl. B60j *1/00*
U.S. Cl. 52—400 **5 Claims**



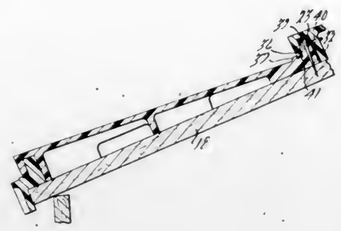
An automotive window assembly is constructed by gluing a windowpane to an auxiliary frame at a location remote from the automobile and thereafter attaching the auxiliary frame to a primary frame on the automobile.

3,783,569
BUILDING CONSTRUCTION FOR FORMING A CEILING FLOOR
Yvonne Henriette Roussin, 81 Boulevard Soult, Paris, France
Filed June 21, 1971, Ser. No. 155,116
Claims priority, application France, June 29, 1970, 7024059
Int. Cl. E04b *5/52*
U.S. Cl. 52—480 **3 Claims**



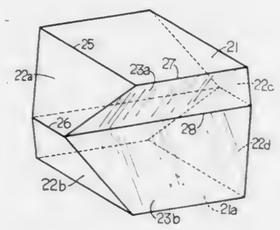
A building construction suitable for forming ceiling floor and wall structures comprises spaced pairs of profiled members, each pair consisting of two U-shaped or channel section members arranged back-to-back with their bases adjacent so as to form an I-section member. The profiled members have flanged webs forming edges against which rest intermediate members located between successive pairs of profiled members.

3,783,570
ROOFING SYSTEM
Harold A. Storch, 31819 Mayfair Ln., Birmingham, Mich.
Filed Sept. 21, 1971, Ser. No. 182,361
Int. Cl. E04d 1/08, 1/34
U.S. Cl. 52—520 15 Claims



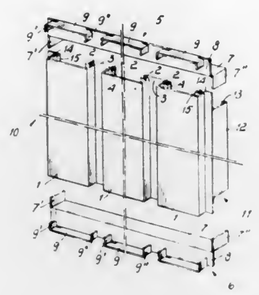
A roofing system particularly adapted for roofs having eaves, gables, valleys, peaks and/or ridges. The system comprises identical roofing tiles with novel means for sealing and fastening both the longitudinal and lateral edges of adjacent tiles. The system further comprises special gable end sections and valley, ridge and hip peak sections which interfit with the aforementioned tiles to assure proper sealing at hip peaks, valleys and ridges. The roofing system includes filler pieces fabricated from the tiles which permit the length of a roof portion to be independent of the tile size. Also included are various eave edge strips which interfit with the tiles and may incorporate drip caps, facia boards and gutters. Further shown is a vent stack formed integrally with the tile to eliminate leakage potential and having a flexible connection to a conduit from a gaseous fluid source.

3,783,571
BUILDING UNIT
Eugene A. Horvath, 1121 Cosper Pl., Rockford, Ill.
Filed June 24, 1971, Ser. No. 156,377
Int. Cl. E04c 1/04, 1/30
U.S. Cl. 52—575 1 Claim



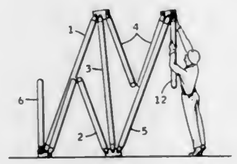
A building unit adapted to interfit various different relationships with like units in a building system in which the building unit is a ten faced polyhedron having two rectangular faces, two pair of outwardly converging isosceles trapezoid end faces at opposite ends of the unit, and two pairs of isosceles trapezoid side faces at opposite sides of the unit converging inwardly at an angle corresponding to the angle of the outwardly converging end faces.

3,783,572
FACING PANEL
Francesco Sironi, Via Plinio 63, Milan, Italy
Filed July 2, 1971, Ser. No. 159,372
Claims priority, application Italy, July 7, 1970, 27098 A/70
Int. Cl. E04c 2/28
U.S. Cl. 52—599 7 Claims



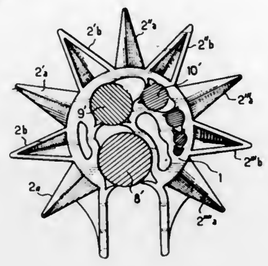
A facing panel for buildings and similar structures comprises a lost-type form including a plurality of longitudinal staves each having stave engaging means along the longitudinal edges thereof, and a plurality of counter-staves each having counter-stave engaging means along the longitudinal edges thereof. The stave and counter-stage engaging means are adapted to mate with and engage one another. The lost-type form further includes a suitable decorative covering on a front side thereof and containing means on a rear side thereof. A hardened material occupies the containing means and anchoring means are provided for fastening the hardend material to the lost type-form.

3,783,573
EXPANDABLE TRUSS STRUCTURE
Desmond H. Vaughan, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.
Filed Dec. 7, 1972, Ser. No. 313,039
Int. Cl. E04h 12/18
U.S. Cl. 52—646 16 Claims



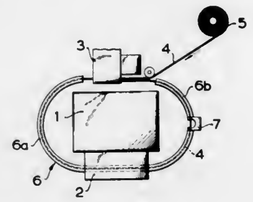
A standard structural building module which is a three-dimension triangulated truss, capable of being retracted into a compact package for storage and shipment and then expanded on site for erection and connection to similar modules. Modules may be joined side-by-side or end-to-end to construct many structural forms such as, for example, a bridge in the horizontal orientation or a tower in the vertical orientation. A structure may be sized to support any magnitude or mode of loading by adding modules until adequate strength is attained.

3,783,574
CENTERING BLOCK FOR POSITIONING REINFORCEMENT IRON PIECES
Giuseppe Cennerelli, 8, Cite Jean Grenmillon, Bobigny, France
Filed Jan. 6, 1972, Ser. No. 215,800
Claims priority, application France, Jan. 6, 1971, 7100230
Int. Cl. E04c 5/16
U.S. Cl. 52—687 3 Claims



A centering block for positioning reinforcement iron pieces, in a mould adapted for manufacturing concrete building elements, the said block comprising a circular plastic member provided with a central channel and with peripheral radially arranged branches, the said channel forming a plurality of recesses of decreasing sizes adapted for lodging iron pieces of different sizes.

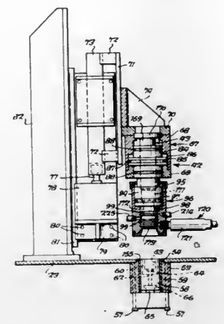
3,783,575
METHOD OF AND APPARATUS FOR STRAPPING AND LABELING OF OBJECTS
Jacob Anton Angenendt, Obersasbach, Germany, assignor to Hoesch Aktiengesellschaft, Dartmund, Germany
Filed Apr. 19, 1972, Ser. No. 245,402
Claims priority, application Germany, Apr. 21, 1971, P 21 19 385.1
Int. Cl. B65d 15/00
U.S. Cl. 53—3 10 Claims



A strapping tape is guided in a predetermined path about the circumference of an object to be packed, and across its path there is placed a label having one or two openings through which the advancing tape is guided, whereupon the tape on completion of its encirclement of the object, is tightened and secured.

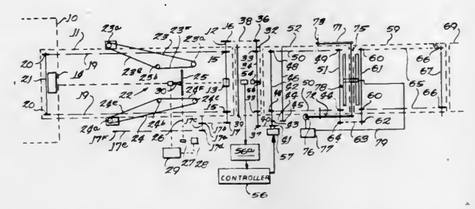
3,783,576
METHOD AND APPARATUS FOR FILLING AND SEALING CONTAINERS
James H. Riesenberg, Amherst, and Joseph M. Rait, Buffalo, both of N.Y., assignors to Pelorex Corporation, Buffalo, N.Y.
Filed Feb. 7, 1972, Ser. No. 223,842
Int. Cl. B65b 31/02
U.S. Cl. 53—7 20 Claims

An apparatus and method for charging an aerosol container with propellant through an open end thereof beneath the container closure member. The propellant filling head includes a



closure applying assembly for sealing the closure member to the container after the propellant filling operation.

3,783,577
SYSTEM FOR PACKING FOOD PATTIES
Orlie E. Knutson, Downers Grove, Ill.; Louis E. Gernandt, and Arthur J. Charmoli, both of Eau Claire, Wis., assignors to Armour and Company, Chicago, Ill.
Filed June 24, 1971, Ser. No. 156,324
Int. Cl. B65b 57/12
U.S. Cl. 53—24 28 Claims

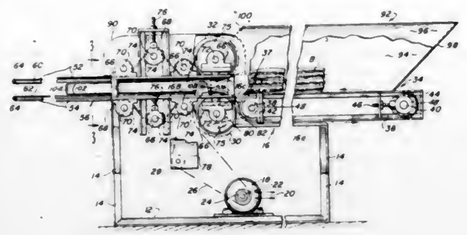


Individual meat patties are deposited on an endless conveyor belt. The patties are formed into individual drafts. Each draft is then conveyed along the belt, and compacted sideways as well as longitudinally. The compacted drafts are then fed onto a sheeting conveyor lined with a continuous plastic film fed onto the conveyor by powered feed rolls. The drafts hold the continuous film in frictional engagment with the sheeting conveyor which runs slightly faster than the film is being paid out to keep the film taut. The drafts are then fed onto a separator conveyor moving at a slightly higher speed. After a draft is fully deposited onto the separator conveyor at determined by sensing fingers, the film is cut between drafts so that the separated draft travels faster than the web and is further separated from a subsequent draft to facilitate removal of that draft at a final packing conveyor section from which the drafts are placed in cartons.

3,783,578
MATERIAL GUIDE MEMBERS FOR A COMPRESSING AND CONVEYING APPARATUS
Arnold L. Willis, Chicago, and Harold Wortman, Morton Grove, both of Ill., assignors to MSL Industries, Inc.
Division of Ser. No. 844,348, July 24, 1969. This application Mar. 7, 1972, Ser. No. 232,380
Int. Cl. B65b 63/02
U.S. Cl. 53—24 1 Claim

An apparatus having aparallel, spaced apart belt conveyors

and a hopper used in conjunction therewith and provided with a pair of flexible spaced apart material guide members positioned inwardly of and adjacent to the lateral edges of the belt conveyors to prevent material being conveyed by the conveyors from becoming entangled therewith.

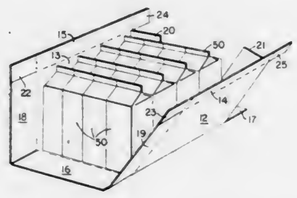


3,783,579

METHOD OF PACKAGING CONTAINERS IN A CARTON BLANK

William J. Howe, Los Altos, Calif., assignor to Georgia-Pacific Corporation, Portland, Oreg.

Division of Ser. No. 883,216, Dec. 8, 1969, Pat. No. 3,704,823.
This application Sept. 1, 1972, Ser. No. 285,815
Int. Cl. B65b *43/00, 63/00*
U.S. Cl. 53—24 **9 Claims**



A method of packaging a plurality of containers in a carton blank having a bottom wall portion, two opposite side wall portions, opposite front and rear walls, and top wall portions. First, one side wall portion is erected by folding it ninety degrees relative to said bottom wall portion, and the other side wall portion is partially erected. Next a plurality of containers are placed on the bottom wall and snugly against the erected side wall portion, so as to occupy substantially fully the area of the bottom wall and to extend up nearly but not quite for the distance between the widthwise fold lines of the fully erected side wall portion. Then, the other side wall portion is fully erected until it bears snugly against the containers, so that the two side walls squeeze the containers against each other. The front and rear walls are then erected so that they act to squeeze said containers against each other, the top wall portions are folded to a horizontal position, and the walls are secured together.

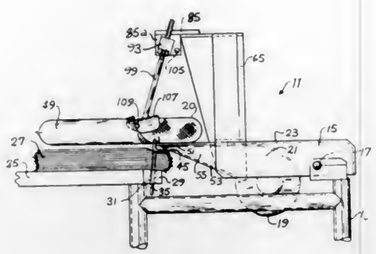
3,783,580

CLOSE FITTING ARTICLE PACKAGING SYSTEM

Vytas Andrew Raudys, Chicago, Ill., assignor to Union Carbide Corporation, New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 295,949
Int. Cl. B65b *43/36*
U.S. Cl. 53—29 **8 Claims**

Stacked wicketed flexible bags are air-opened sequentially one at a time at a packaging station, product being packaged is directed into each bag under a pendant product-contoured guide which shapes and holds the bag upper ply and the closely fitted product filled bag is pulled from the wicket.

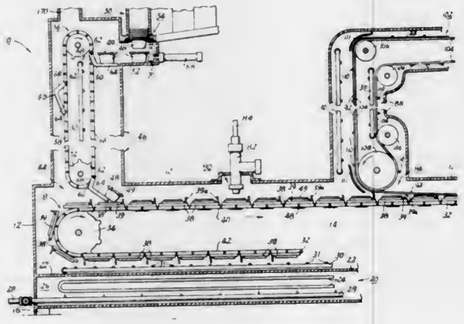


3,783,581

ASEPTIC PACKAGING METHOD AND MACHINE

Joseph E. Pierce, Allentown, Pa., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Apr. 18, 1972, Ser. No. 245,112
Int. Cl. B65b *31/02*
U.S. Cl. 53—37 **27 Claims**



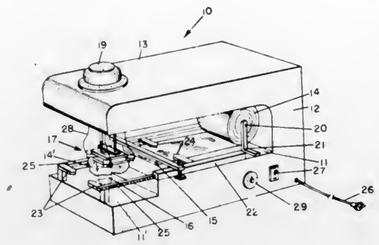
An apparatus for aseptically packaging food and other products includes a housing which defines an enclosed sterile chamber and contains an endless conveyor having an upper flight adapted to transport individual containers through a plurality of operating stations. The housing is formed with a container sterilization section located adjacent one end of the conveyor and has a container dispenser mechanism mounted therein which holds individual containers in this section for a predetermined period of time and thereafter dispenses the containers on the upper flight of the conveyor; the latter transports the containers to a filling station where a sterile product is placed in the container. Downstream of the filling station, a continuous strip of interconnected covers is sequentially advanced, through a cover sterilization section formed in the housing, into position in registry with the containers on the conveyor. Thereafter, the covers are heat sealed to the containers and discharged from the housing. The entire sterile chamber is supplied with a sterile atmosphere at a pressure above atmospheric pressure to maintain the containers and covers in a sterile condition during the filling and cover sealing operation.

3,783,582

SHRINK-FILM CAPPING MACHINE

Ernest Willvonseder, 530 Shore Arris Dr., Mamaroneck, N.Y.

Filed Nov. 30, 1972, Ser. No. 310,978
Int. Cl. B65b *7/28*
U.S. Cl. 53—67 **8 Claims**



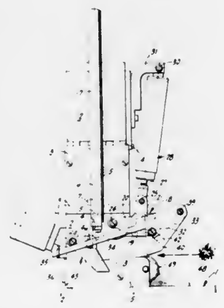
An automatic shrink-film capping machine for forming and applying caps of shrink-film to the open mouths of containers. This device comprises means to advance, cut and position a sheet of shrink-film over the top of a container. A positioned sheet is engaged by a capper head which is lowered relative to the sheet and container whereby heating elements, disposed therein are moved radially inwardly and contact the shrink-film and container to form a heat shrunk cap thereover.

3,783,583

GATHERING MEANS FOR CLIPPERS

Arnold E. Dobbert, Fremont, Calif., assignor to Rheem Manufacturing Company, New York, N.Y.

Filed Sept. 22, 1972, Ser. No. 291,334
Int. Cl. B65b *13/20*
U.S. Cl. 53—138 A **5 Claims**



Gathering means adapted to be employed with a clipping device which applies a sealing clip to the mouth of a flexible bag or like container. The gathering device compresses the material simultaneously in two directions substantially at right angles to each other to optimize the sealing effect.

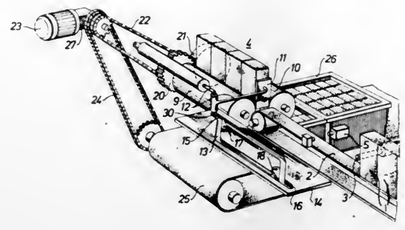
3,783,584

DEVICE FOR THE PLACING OF PACKAGES INTO A COLLECTING CARTON

Jan Axel Ingemar Rauser, Lomma, Switzerland, assignor to Tetra Pak International AB, Lud, Sweden

Filed Aug. 14, 1972, Ser. No. 280,179
Int. Cl. B65b *35/46*
U.S. Cl. 53—160 **3 Claims**

A device for depositing groups of packages into a collecting carton in which successive groups of packages are delivered from a conveying belt to and between a pair of spaced rollers having ledges for receiving the group of packages and when said rollers are rotated in opposite directions the group of packages is lowered into a collecting carton and the sequence of steps is repeated until the carton is filled.

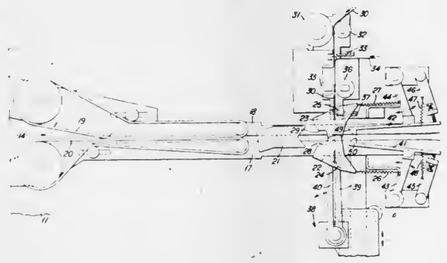


3,783,585

MACHINE FOR CLOSING FILLED BAGS

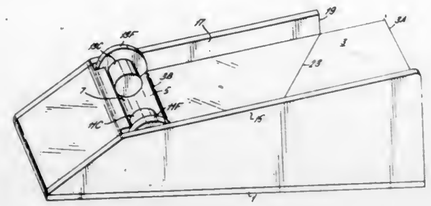
Trevor Hoyland, Norwich, England, assignor to Thurme Engineering Company Limited, Norwich, Norfolk, England

Filed Sept. 18, 1972, Ser. No. 289,867
Int. Cl. B65h *13/16*
U.S. Cl. 53—198 A **8 Claims**



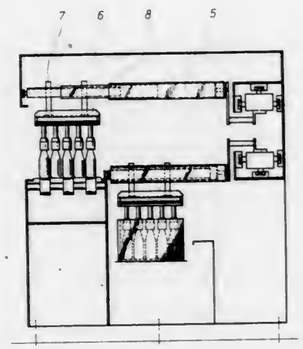
A machine for closing the open ends of filled bags which are conveyed through the machine by a conveyor comprises a guide for receiving the open end part of each filled bag as it is moved through the machine, a stop which is movable between a retracted position and an advanced position in which it extends into the path of the end part of the bag as this moves along the guide, a follow-up member which is moved along the guide following the bag to compress the open end part of the bag against the stop which then moves towards the retracted position as the compressed end of the bag is moved further along the guide, means for supplying a length of adhesive strip and holding it across the path of the compressed part of the bag as this moves further along the guide and means for clamping the adhesive strip around the compressed end part of the bag to close the bag, the clamping means subsequently releasing the closed end of the bag to allow it to be moved by the conveyor out of the guide. Preferably the stop comprises a pair of contra-rotatable members which are pivotable between the advanced and retracted positions and these members are biassed by a spring into the advanced position and are moved to the retracted position by the pressure against them of the compressed end of the bag.

3,783,586
COIN WRAPPING DEVICE
Patrick Steven Dorman, 37 Exhibition St., Truro, Nova Scotia, Canada
Filed May 8, 1972, Ser. No. 251,058
Claims priority, application Canada, Feb. 9, 1972, 134284
Int. Cl. B65b *11/04*
U.S. Cl. 53—213 9 Claims



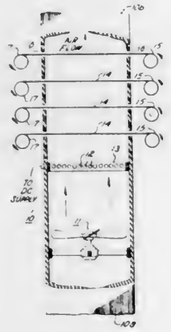
A coin wrapping device comprises a flat surface of a width greater than the length of a desired pack of coins and merging into a depression having a part-cylindrical surface. A sheet of coin wrapping material is laid on these surfaces and over a stack of coins arranged on their sides in the depression, at each end of which is provided a roller which can roll in contact with the part-cylindrical surface and the flat surface during a coin wrapping operation in which the stack of coins and the rollers move together out of the depression and along the flat surface. Outward movement of the two rollers is prevented, so that the number of coins of a given denomination which can be inserted into the depression between the two rollers is determined by the dimensions of the rollers.

3,783,587
TRANSFER OF DISCRETE ARTICLES BETWEEN TWO PATHS
Willi Kurtenbach, Klothkamp, Germany, assignor to Holstein & Kappert Maschinenfabrik Phonix GmbH, Dortmund, Germany
Filed Oct. 18, 1971, Ser. No. 189,998
Claims priority, application Germany, Oct. 17, 1970, P 20 51 139.1
Int. Cl. B65b *21/18*
U.S. Cl. 53—247 5 Claims



A method and apparatus are disclosed for transferring discrete articles between two paths, in particular for casing or uncasing of articles such as bottles. The articles are advanced in groups in a first path, either in a case or without a case, and when they reach a transfer station all articles of a respective group are engaged and raised and at the same time moved laterally for deposition in another path. If the articles are originally in a case they are removed and deposited in the other path in uncased condition, or if the articles are originally in uncased condition they are moved to the other path and deposited in a case.

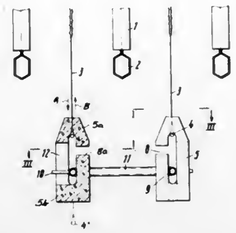
3,783,588
POLYMER FILM ELECTRET AIR FILTER
Martin Hudis, Scotia, N.Y., assignor to General Electric Company
Filed Dec. 20, 1971, Ser. No. 210,054
Int. Cl. B03c *3/28*
U.S. Cl. 55—126 3 Claims



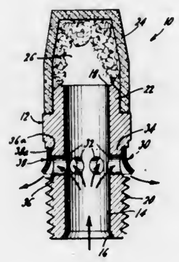
A duct for the transmission of an air flow therethrough is provided with at least one thin film of a permanently electrically charged polymer. The polymer film electret may be oriented in the duct normal, or at some desired angle, to the air flow in which case it has small holes formed therethrough, or it may be in parallel relationship to the air flow. Electrostatic fields generated by the polymer film cause electrostatic collection on the polymer film of charged particles in the air flow. The polymer film may be adapted to be constantly moving and be rolled up onto a spool to maintain a constant efficiency of filtering.

3,783,589
CORONA-DISCHARGE ELECTRODE SYSTEM
Dietrich Ertl, Konigstein; Horst-Gunter Eishold, Frankfurt am Main; Helmut Gilles, Bergen-Enkheim; Gunther Schmolling; Walter Steuernagel, both of Frankfurt am Main, and Jurgen Nitz, Neu Isenburg, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Filed July 9, 1971, Ser. No. 161,070
Claims priority, application Germany, July 13, 1970, P 20 34 628.5
Int. Cl. B03c *3/41*
U.S. Cl. 55—146 13 Claims

A corona-discharge electrode system, especially for electrostatic precipitators and similar devices for the electrostatic separation of particles from a fluid stream, wherein the electrodes are secured to an upper carrying structure and a lower spacing structure. The electrodes, which are suspended from the upper structure, positively engage the same, e.g., via hooks, eyes or a clamping connection. Tensioning weights of a nonconducting material, preferably waterproof concrete, are removably secured to the lower ends of the electrodes and are provided with openings adapted to receive the spacing structure.



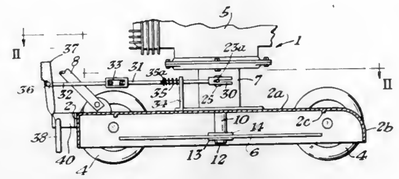
3,783,590
FILTER-SILENCER FOR PNEUMATIC DEVICES
Alton K. Allen, 11 Flower Ln., Kings Point, N.Y.
Filed July 9, 1970, Ser. No. 53,564
Int. Cl. B01d *46/42*
U.S. Cl. 55—310 6 Claims



A filter-silencer for pneumatic devices such as air valves, cylinders and the like of the type including a porous filter of a sintered metallic mass wherein, upon clogging of the filter and reduction of the air flow through the exhaust port for the corresponding air device, an auxiliary exhaust path is established which precludes the build-up of excessive back pressures in the pneumatic device and which also provides an audible warning signal indicating the need for servicing of the filter-silencer to restore the porous filter to its normal and intended functional state.

3,783,591
POWER MOWER SAFETY MECHANISM
John B. Sotak, 122 Church Rd., Irwin, Pa., and Harold A. Williamson, 559 Idlewood Rd., Penn Hills Township, Allegheny County, Pa.
Filed Dec. 23, 1971, Ser. No. 211,385
Int. Cl. A01d *53/00*
U.S. Cl. 56—10.2 12 Claims

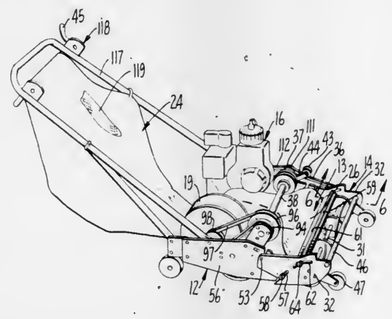
This disclosure relates to a rotary type of lawn mower having a skirted housing, a power motor mounted on the housing, a rotary grass cutting blade driven by the power motor, and a blade lifting assembly for selectively raising the rotary blade substantially against the underside of the housing.



ERRATUM

For Class 56—6 see:
Patent No. 3,783,533

3,783,592
GARDEN GROOMING MACHINE AND ROTOR THEREFOR
Karl Schraut, 5431 E. Sussex, Fresno, Calif.
Filed May 6, 1970, Ser. No. 35,069
Int. Cl. A01d *87/10*
U.S. Cl. 56—13.3 4 Claims

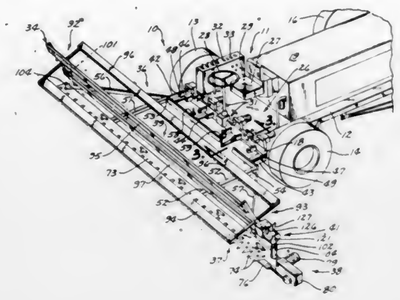


A self-propelled lawn vacuum, mower and sweeper having interchangeable reel-type mower and rotary brush units, both feeding material tangentially toward the intake of the vacuum. The drive wheels are spring-loaded to follow the ground contour, and the height of the interchangeable units with respect to the vacuum is adjustable. A moveable shutter is interposed between the mower and brush units and the vacuum intake to regulate air flow. The prime mover drives an axial-intake fan having an unusual rotor design, with two pairs of diametrically opposed blades perpendicular to the back plate, each of the pairs being tangent to its own circle concentric with the shaft of the fan, the two circles being of differing diameters. The radially inner corner of each blade away from the back plate is bevelled.

3,783,593
PLANT CUTTING APPARATUS

Arnold E. Ernst, Wolverton, Minn.

Filed June 12, 1972, Ser. No. 261,878
Int. Cl. A01d *45/02*
U.S. Cl. 56—14.4 3 Claims

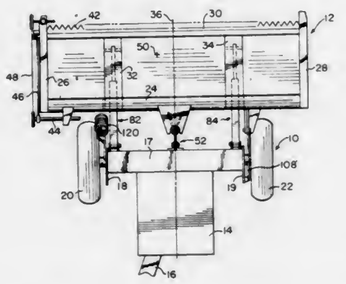


A plant cutting apparatus adapted for mounting to a self-propelled vehicle. The apparatus having a frame connected to the forward portion of the vehicle, a cutter bar including a reciprocal blade disposed transversely to the direction of movement of the vehicle, a first motor for operating the blade and adapted to selectively adjust the speed of movement of the blade, a rotatable reel to comb the plants toward the cutter bar, a second motor selectively operable to control the speed of rotation of the reel, and an adjusting unit interconnecting the vehicle and frame to adjustably fix the height of the cutter bar relative to the ground.

3,783,594
HARVESTER PLATFORM SUSPENSION AND LINKAGE SYSTEM

J. Donald Watt, Millgrove, Ontario, and Herbert W. Molzahn, Hamilton, Ontario, both of Canada, assignors to International Harvester Company, Chicago, Ill.

Filed Sept. 18, 1972, Ser. No. 289,912
Int. Cl. A01d *35/14*
U.S. Cl. 56—15.8 9 Claims

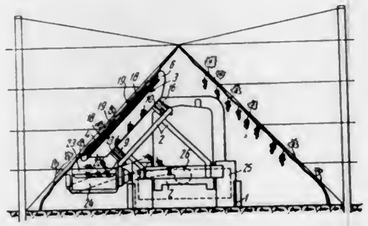


A self-propelled windrower having a wheeled frame and a harvester platform disposed forwardly of the frame for cutting a standing crop and depositing the crop onto the ground in a windrow. The platform is mounted on the frame by a central ball and socket joint permitting radial float. The platform is movable vertically by a pair of hydraulic lift cylinders and is floatably supported by coil springs disposed on the cylinder units. A stabilizer bar prevents undesirable swinging of the platform about a vertical axis. The platform is of the type wherein the location of the drive system components contributes to an asymmetrical center of gravity. A balancing spring is connected between the frame and the platform to counter the effect of the asymmetrical center of gravity.

3,783,595
GRAPE HARVESTER

Cheslav Stanislavovich Tolochko, ulitsa Budennovskaya 203/2, kv. 17; Vladimir Ivanovich Popov, ulitsa Budennovskaya 203/2, kv. 9, both of Novocherkassk; Miron Vasilievich Tsitsiv, ulitsa narodnaya, 14, Kishinev; Alexandr Nikolaevic Varfolomeev, Kotovskoe Shosse, 226, kv. 16, Kishinev, and Marlen Mikhailovich Gervolsky, ulitsa Frunze, 9, kv. 3, Kishinev, all of U.S.S.R.

Continuation-in-part of Ser. No. 760,811, Sept. 19, 1968, abandoned. This application July 9, 1971, Ser. No. 161,061
U.S. Cl. 56—331 3 Claims

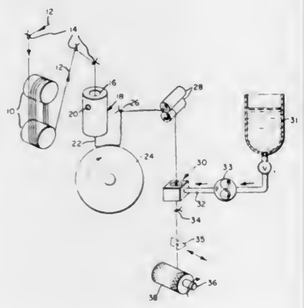


A grape harvester comprising a blade cutting apparatus mounted on a carrier bar so that its longitudinal axis of symmetry forms an acute angle with the plane normal to the direction of movement of chassis; the upper end of said cutting apparatus arranged in front with respect to the direction of the harvester movement in the cutting position. Cutting apparatus is mounted on the carrier bar at another acute angle to the plane superposable upon the espalier canopy.

3,783,596
JET APPLICATION OF TEXTILE FINISH TO MOVING THREADLINES

Richard B. Waldkirch, Camden, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed May 26, 1971, Ser. No. 146,876
Int. Cl. D01h *13/30*
U.S. Cl. 57—157 F 3 Claims



An air jet of the type used to apply torque to a moving threadline is used as an applicator for liquid finish. The liquid is supplied to the yarn passage of the jet at a controlled rate and the yarn is contacted around its periphery by the liquid as the yarn passes through the jet.

3,783,597
THREAD-TWISTING APPARATUS WITH DUAL THREAD GUIDE

Aloys Greive, and Aloys Treus, both of Westfalia, Germany, assignors to Hamel GmbH Zwirnmaschinen, Munster/Westf., Germany

Continuation-in-part of Ser. No. 188,335, Oct. 12, 1971. This application June 19, 1972, Ser. No. 264,280
Claims priority, application Germany, June 21, 1971, G 71 23 827.2
Int. Cl. D01h *1/10, 7/86, 13/10*
U.S. Cl. 57—58.52 13 Claims

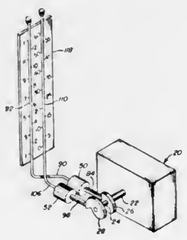


A thread-twisting apparatus has a hollow stem through which the threads to be twisted together are drawn axially. A pair of axially spaced thread brakes are provided in the stem, and a hub carrying a thread guide is rotationally mounted on the stem. This guide is a bent wire having a C-shaped central portion embracing the hub and formed with an inwardly directed finger engaging in a radially open hole in the hub for rotational coupling of the hub and guide. A rotation brake acts on the hub and the adjustment for this brake and for one of the thread brakes can be carried out in a single operation whereby both braking effects are either increased or decreased simultaneously.

3,783,598
INSTRUMENT FOR INDICATING TIME

Edward L. Parr, 301 N. Cuyamaca, El Cajon, Calif.

Substitute for Ser. No. 806,412, March 12, 1969, abandoned. This application Oct. 26, 1972, Ser. No. 301,240
Int. Cl. G04b *45/00*
U.S. Cl. 58—2 8 Claims

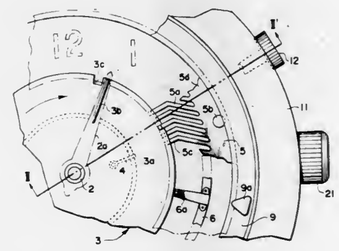


An instrument for indicating time in which an elongated tube is in registrable relationship with time indicating indicia and in which clock mechanism is employed for effecting longitudinal movement of a colored liquid in the tube progressively in synchronism with the movement of the clock mechanism. Preferably, two such tubes are provided, one indicating the hours and the other indicating the minutes, both being actuated by one clock mechanism.

3,783,599
ALARM TIMEPIECE

Kazuo Tanaka, Tokyo, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan

Filed July 14, 1972, Ser. No. 271,727
Claims priority, application Japan, July 15, 1971, 46/52716
Int. Cl. G04c *21/16*; G04b *23/06*
U.S. Cl. 58—16.5 11 Claims



An alarm mechanism having an improved presetting device for use in a small timepiece, especially an alarm watch. A multi-point presetter is provided comprising a unique memory device comprising in turn a stationary preset ring having a number of substantially inwardly extending elongated resilient spring contact arms, on the one hand, and an alarm switch disc which is arranged to rotate in unison with the hour hand of the watch movement, on the other. When a manipulating crown or knob is turned so as to bring the alarm switch disc to a certain predetermined position corresponding to a first alarm time point, and it is pulled in. Then, a corresponding one of the spring contact arm is forcibly transferred from below to the top of the disc, so as to occupy a preset memory position. Second and further presetting operations can be performed in the similar way as above. When the hour hand arrives at the earlier preset position, a conductive layer or member provided on the disc is brought into electrical connection with the preset one of the contact arms, so as to energize an electrical alarming buzzer.

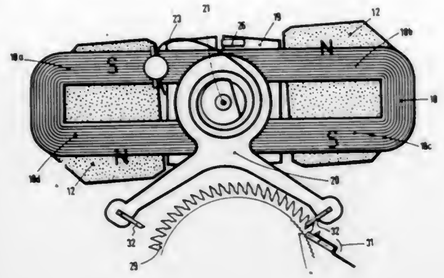
3,783,600
ELECTROMECHANIC DRIVING MECHANISM FOR THE HANDS OF A TIMEPIECE

Wolfgang Ganter, Schramberg-Sulgen, and Horst Dinger, Tennenbronn, both of Germany, assignors to Firma Gebruder Junghans G.m.b.H., Schramberg, Germany

Filed July 27, 1972, Ser. No. 275,872
Claims priority, application Germany, July 29, 1971, P 07 12 931.8; July 29, 1971, P 07 12 931.9
Int. Cl. G04b *17/00*
U.S. Cl. 58—28 B 11 Claims

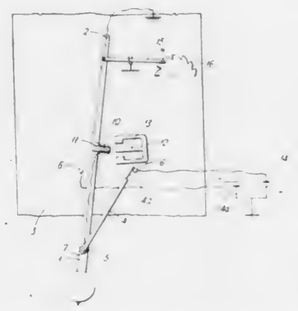
A driving mechanism for a timepiece comprises a shaft which rotatably mounts a stepping anchor and a coil. The coil is disposed between a plurality of permanent magnets. Suita-

ble electrical connections are provided between the coil and an impulse generator. The coil may be asymmetrically ar-



ranged on the shaft to compensate for unbalances in the mechanism. Alternately, a bushing or disk may be mounted on the shaft to compensate for unbalances.

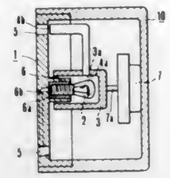
3,783,601
PENDULUM SWITCH ASSEMBLY FOR CLOCKS OR THE LIKE WITH ELECTROMAGNETIC IMPULSE MEANS
Samuel Crowe Curran, University of Strathclyde Royal College, 204 George St., Glascow, Scotland
Filed Oct. 11, 1972, Ser. No. 296,568
Claims priority, application Great Britain, Oct. 14, 1971, 47,756/71
Int. Cl. G04c *3/02*; **H01h** *35/02, 51/34*
U.S. Cl. 58—30 **12 Claims**



A pair of terminals are arranged one on either side of the vertical rest position of a main pendulum. An inverted secondary pendulum is pivotally mounted on the main pendulum such that oscillations of the main pendulum induces synchronous oscillation of the secondary pendulum between and into and out of contact with the terminals whereby the secondary pendulum is usable as a switching member.

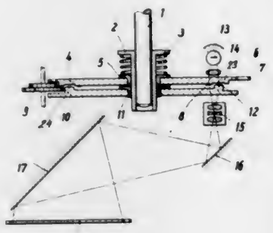
3,783,602
OPTICAL TIME DISPLAY DEVICE HAVING INTERMITTENT DRIVE
Jiro Ochiai, Yokohama, and Rintaro Nishina, Yonezawa, both of Japan, assignors to Tamura Electric Works, Ltd., Tokyo, Japan
Filed May 22, 1972, Ser. No. 255,782
Claims priority, application Japan, May 25, 1971, 46/41977
U.S. Cl. 58—50 R **1 Claim**

An optical time display device comprises a dial plate provided with a plurality of unit time display perforations arranged on a circle on one side of the dial plate, a source of light mounted on the opposite side of the dial plate at the center thereof. The source of light is enclosed by an opaque



rotary cylinder provided with a radial opening and the light is successively transmitted to the unit time display openings by means of a bent light transmission member with one end fitted in the radial opening.

3,783,603
CLOCK WITH OPTICALLY DISPLAYED DIGITAL TIME INDICATION
Paul Himmelsbach, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optishe Werke, Kreuznach, Germany
Filed June 2, 1972, Ser. No. 259,224
Claims priority, application Germany, June 4, 1971, P 21 27 932.3
Int. Cl. G04b *19/30, 19/06*
U.S. Cl. 58—50 R **9 Claims**

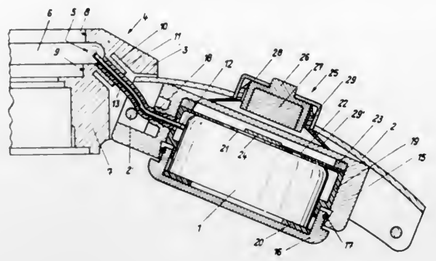


A clock with two coaxial transparent or translucent disks bearing hour and minute digits, respectively, has a screen onto which the instantaneous time is projected by an optical system including an objective in line with overlapping peripheral zones of the two disks. The digits of one disk are carried on an annular ridge of its peripheral zone received in an annular depression of the other disk so that the two sets of digits lie in the same plane, the objective being focused upon that plane.

3,783,604
WRIST WATCH WITH A DIAL-ILLUMINATING DEVICE
Brigliano Florent; Vogt Ernest, and Edmond Marmound, all of Geneva, Switzerland, assignors to PR Societe de Revision, Traitement de l'Information et Recouvrement SA, Geneva, Switzerland
Filed Feb. 5, 1973, Ser. No. 329,553
Int. Cl. G04b *19/30, 37/08*
U.S. Cl. 58—50 R **5 Claims**

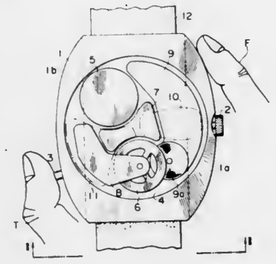
In a wrist watch comprising a pivotally mounted bracelet element housing an electric storage cell supplying a miniature bulb for illuminating the dial, the bulb is housed in a recess between two glass-retaining snap grooves in the watch case,

said recess communicating with the exterior via a bore in a tubular projection on the watch case. A sheathed conducting lead connecting the bulb to the cell passes through and is constricted in said projection by ductile deformation of the metal



thereof to form a watertight fit, and is likewise constricted in a similar projection on the cell casing. The bracelet element also includes contact means for closing and opening the electric circuit of the bulb.

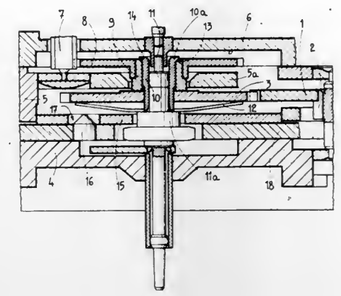
3,783,605
WRIST WATCH HAVING A PUSH-BUTTON
Tetuya Yasuda, Tokyo, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan
Filed Oct. 12, 1972, Ser. No. 297,150
Claims priority, application Japan, Oct. 12, 1971, 46/93460
Int. Cl. G04f *7/04*
U.S. Cl. 58—74 **3 Claims**



A wrist watch having two externally operating members, at least one of which is a push-button, in which said push-button is provided on the side surface of a case between the 7:30 and 8:30 positions of a dial and the other one of said externally operating members is provided on the side surface of said case opposite to said push-button but at a location deviating from the position squarely opposite to said push-button with respect to the center of said case.

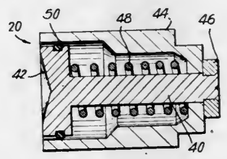
3,783,606
MECHANISM FOR COUPLING AND LOCKING A ROTATABLE MEMBER OF A TIMEPIECE AND OF A SMALL MECHANISM
Gerald Dubois, and Francois Berthoud, both of Le Lieu, Switzerland, assignors to Ebauches S.A., Neuchatel, Switzerland
Filed Mar. 8, 1973, Ser. No. 339,300
Claims priority, application Switzerland, Mar. 15, 1972, 761/72
Int. Cl. G04f *7/04*; **G04b** *33/00*
U.S. Cl. 58—74 **4 Claims**

Mechanism for coupling and locking a rotatable member of a timepiece. Rotatively connected driving and driven elements are coaxially mounted on a common shaft. One element bears axially against a shoulder of the shaft by the force of a spring bearing on another shoulder of the shaft. A control member



acts on the spring to effect movement of the spring and two elements until the driven element abuts a locking stud causing release of the force against the elements and thereby releasing them one from another.

3,783,607
PUSHER FOR ELECTRONIC DIGITAL WATCH
Walter Alphonse Feurer, Armonk, N.Y., assignor to Feurer Bros., Inc., North White Plains, N.Y.
Filed June 12, 1972, Ser. No. 261,731
Int. Cl. G04b *37/08, 19/30*
U.S. Cl. 58—90 B **5 Claims**

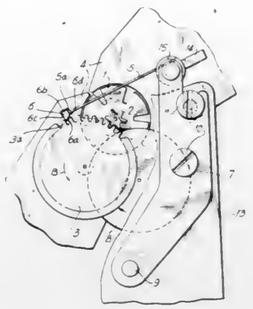


A manual actuating arrangement on electronic watches for illuminating the dial face of the watch or setting the time. A plunger is actuated against the force of a spring within a sleeve-shaped housing. Upon actuation of the plunger, a switch may be closed for connecting the battery within the watch to means for illuminating the dial face. The actuation of the plunger may also set the time for the watch. The plunger has either a cap-shaped head portion or a recessed head portion which may be actuated by the thumb of the user. O-rings between the plunger and the internal surface of the housing provide for waterproof construction.

3,783,608
INDEXING DEVICE FOR A STEP MOTOR IN AN ELECTRONIC TIMEPIECE
Hideichi Miyazawa, Owa Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Feb. 15, 1972, Ser. No. 226,586
Claims priority, application Japan, Feb. 17, 1971, 46/8428
Int. Cl. G04c *17/00, 15/00*
U.S. Cl. 58—116 R **3 Claims**

An indexing device is provided for an electronic timepiece which includes a rotor and stator arrangement. The indexing device includes a pinion rotatable with the rotor and an index

wheel engaged with and rotated by the pinion. An index spring having cantilever form is mounted adjacent the index wheel



and a pallet jewel is mounted on the spring and is in engagement with the index wheel to prevent reverse rotation and vibration of the same.

3,783,609

METHOD AND APPARATUS FOR REMOVING THE BURR OF CHAIN-LINKS

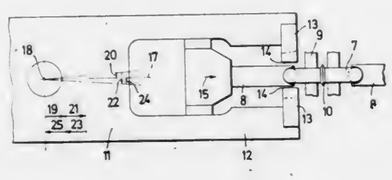
Toni Wuest, Cologne, Germany, assignor to Meyer, Roth & Pastor, Maschinenfabrik GmbH, Koln, Germany

Filed Mar. 13, 1972, Ser. No. 234,352

Claims priority, application Germany, Mar. 11, 1971, P 21 11 659.6

Int. Cl. B21l *15/00*

U.S. Cl. 59—35 **6 Claims**



A method and apparatus for fully removing weld-burrs from a workpiece formed by butt-welding two sections end to end, such as a welded chain link. The weld-burr which extends annularly of the workpiece cross-section is removed by shearing the burr into two diametrically opposed pieces. The method for removing the weld-burrs is applicable for any cross-section of the work-piece which is symmetrical about an axis in the plane of the cross-section. An apparatus for removal of weld-burrs uses a fork-shaped tool having two cutting edges formed at the ends of in-turned members provided one each at the free ends of the fork-shaped tool. The tool is expediently pivotally mounted so as to be capable of controlled oscillatory movement about an axis perpendicular to a plane containing the two limbs of the fork. The apparatus also incorporates means to move and retract the fork-shaped tool in a direction parallel to the length of the workpiece so that the removal of the weld-burr is effected by longitudinal shear strokes of the cutting edges which are successively made to engage diametrically opposite sides of the welded cross-section of the workpiece.

3,783,610

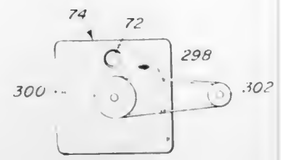
ANTI-POLLUTION INTERNAL COMBUSTION ENGINE

Orville Gano, 18632 Talisman, Hesperia, Calif.

Filed Feb. 8, 1972, Ser. No. 224,423

Int. Cl. F01b *29/04*

U.S. Cl. 60—16 **33 Claims**



This disclosure relates to an anti-pollution internal combustion and compressed air operated engine. The engine includes a group of firing cylinders and a group of compression cylinders. A storage reservoir is filled with compressed air during the engine firing and braking modes of operation. After stopping, the stored air motors the engine until it begins firing. The engine is provided with a pressurized fuel system which is regulated by the pressure in the storage reservoir. A selector valve is used to select the proper modes of operation for the compression cylinders; namely, the braking mode for storing compressed air, the motoring mode for driving the engine on the compressed air stored during the braking mode or the normal compression mode when the engine is firing.

3,783,611

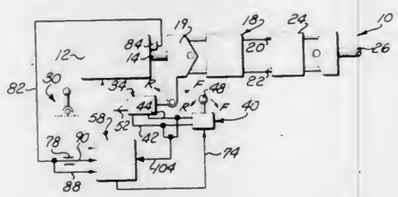
HYDROSTATIC TRANSMISSION CONTROL SYSTEM

Edward J. Bojas, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 22, 1972, Ser. No. 237,086

Int. Cl. F16h *39/46*

U.S. Cl. 60—19 **29 Claims**



An improved control system for a hydrostatic transmission includes an anti-stall system for preventing overloading of an engine which drives the hydrostatic transmission. The anti-stall system senses the speed at which the engine is operating, the input to output speed ratio of the transmission as indicated by the displacement of one unit of the hydrostatic transmission, and the setting of a throttle for the engine. The anti-stall system utilizes these three inputs to regulate the pressure of control fluid conducted to a speed control valve. The speed control valve is selectively operable to vary the pressure of control fluid conducted to a pressure responsive control motor which adjusts the displacement of a unit of the hydrostatic transmission. The anti-stall system varies the pressure of the control fluid conducted to the speed control valve with variations in the fluid pressure conducted to the control motor from the speed control valve. However in the event of an impending stalling of the engine, the anti-stall system reduces fluid pressure conducted to the speed control valve. The speed control valve opens in response to this decrease in pressure to quickly decrease the fluid pressure to which the control motor

is exposed. This effects operation of the control motor to decrease the output speed of the hydrostatic transmission and thereby reduce the load on the engine.

3,783,612

HOT-GAS PISTON ENGINE

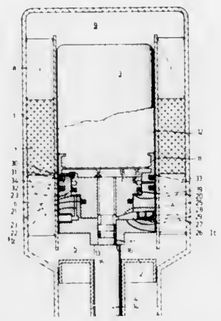
Johan Herman DeWilde DeLigny; Cornelis Leendert DeWit, and Petrus Johannes Cornelius Van Rooij, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 119,577, March 1, 1971, abandoned. This application May 24, 1972, Ser. No. 256,486

Claims priority, application Netherlands, Mar. 28, 1970, 7004499

Int. Cl. F02g *1/04*

U.S. Cl. 60—24 **1 Claim**



The invention relates to a hot-gas piston engine comprising at least one compression space of variable volume and at least one expansion space also of variable volume communicating with the former, said spaces having, in operation, relatively different temperatures, the volumes of these spaces being variable by means of piston-like bodies, which are connected each via a piston rod with a driving gear, while at least the piston-like body adapted to vary the volume of the expansion space is formed by a base element secured to the end of the piston rod concerned, said base element being provided on its side facing the expansion space with a heat-insulating piston cap.

3,783,613

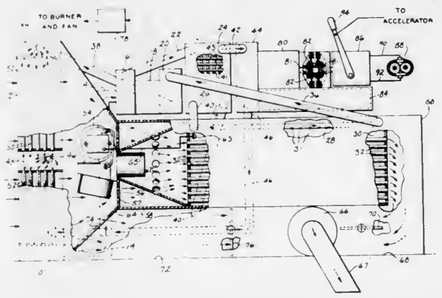
VEHICULAR POWER PLANT

Roy O. Billings, and Samuel R. Henderson, both of Milwaukee, Wis., assignors to Kaye A. Meyer, New Berlin, Wis., a part interest

Filed Mar. 29, 1972, Ser. No. 239,202

Int. Cl. F01k *25/00, 25/02*

U.S. Cl. 60—38 **5 Claims**



An expanded-vapor-driven device is driven by pressurized vapor from a generator, and a pressurized-liquid-driven device is driven by pressurized liquid from the same generator. The working fluid in the generator is preferably a mixture of two different fluids, one of which is more volatile than the other and which is soluble in the other. The vapor and liquid exhaust from the two devices is piped to an absorber unit where the vapor and liquid are cooled and remixed before being recycled back to the generator. The absorber is located in the air inlet path to the burner for the generator and preheats the primary and secondary air for the burner. The mixed fluid from the bottom of the absorber is pumped to a heat exchanger which is connected so as to be in a heat exchange relationship with the hot liquid that is moving from the bottom of the generator to the pressurized-liquid-driven device. This preheats the mixed fluid just before it is pumped into the generator.

3,783,614

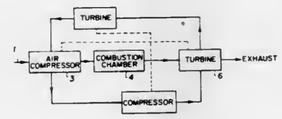
TURBINE ENGINE

Harold L. Walker, P.O. Box 185, Finch, Ontario, Canada

Filed Feb. 10, 1972, Ser. No. 225,121

Int. Cl. F02g *5/00*

U.S. Cl. 60—39.18 R **3 Claims**



A turbine engine of conventional compressor, combustion chamber, power turbine type has a fluoro carbon cooling system. The cooling system comprises a heat exchanger formed by passages through the turbine of the basic engine in which heat is exchanged between the heated and expanded air of the basic engine and the fluoro carbon and from which the expanded fluoro carbon is directed through a cooling system turbine to produce power. From the cooling system turbine the fluoro carbon is directed to a condenser which is in fact constituted by the compressor of the basic engine and then returned through a compressor to the heat exchanger so that effective cooling of the basic engine is achieved and power is derived from the heat of the exhaust gases of the basic engine to be applied to the fluoro carbon turbine.

3,783,615

EXPANSION ENGINE

Cornelis Hubers, Van Ostadelam 2, Rozenburg, Netherlands

Filed Oct. 29, 1971, Ser. No. 193,685

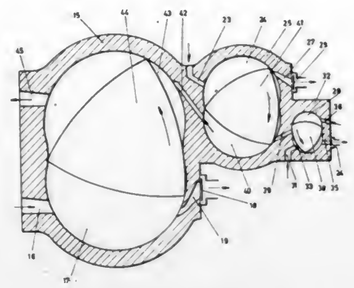
Claims priority, application Netherlands, Oct. 29, 1970, 7015862

Int. Cl. F02g *1/00*

U.S. Cl. 60—39.61 **2 Claims**

An expansion engine having a motor driven by combustion gases delivered by a combustion apparatus and a control unit for the motor. The motor includes an epicycloidal piston rotatably mounted in a cylinder, an expansion chamber, an air compression chamber, an inlet for fresh air and an outlet for the exhaust gases. The control unit has an epicycloidal piston rotatably mounted in a cylinder, an inlet chamber for the combustion gases provided with an inlet channel for the combustion gases with the inlet channel being in open connection with the combustion apparatus and an air compression chamber provided with an outlet channel connected with the

combustion apparatus and provided with a non-return valve. The inlet chamber and the air compression chamber of the



control unit are connected by channels with the expansion chamber and the compression chamber, respectively of the motor.

3,783,616
CONTROL METHOD FOR DETONATION COMBUSTION ENGINES
Leslie W. Norman, Scottsdale; Skillman C. Hunter, and George A. Russell, both of Phoenix, all of Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Mar. 2, 1961, Ser. No. 92,827
Int. Cl. B63b *11/00*
U.S. Cl. 60—204 **1 Claim**

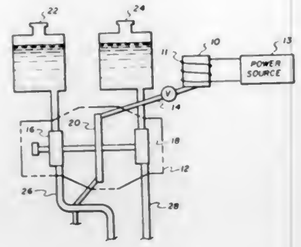


1. A method of operating a hypersonic aircraft powered by a hypersonic detonation combustion engine of the thermodynamic duct type, and wherein the aircraft includes means for generating standing oblique shock waves in the airstream approaching the duct inlet and the duct includes a constricted combustion zone between said inlet and the duct exhaust nozzle, means for generating standing oblique shock waves in the airstream within the duct between said inlet and zone, a forwardly hinged, angularly adjustable ramp in and defining a wall of said zone for generating a standing oblique shock wave in the airstream within said zone, means at the exhaust end of said zone for generating a standing normal shock wave in the airstream as the latter emerges from said zone, and means for injecting fuel into said airstream within the duct between said inlet and zone, whereby the static temperature of the airstream is successively elevated across said shock waves and said fuel undergoes steady state detonation across said normal shock wave, said operating method comprising the steps of:

regulating the rate of fuel flow to said duct in response to changes in speed of the aircraft to maintain said aircraft speed in the hypersonic range for which the shock wave generating means of the aircraft and engine are designed; and
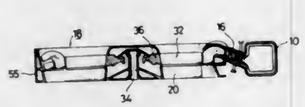
simultaneously adjusting the angle of said ramp in predetermined relation to the rate of fuel flow to said duct to maintain the specific fuel consumption at a predetermined optimum value.

3,783,617
PROCESS FOR PRODUCING ENERGY IN A GAS GENERATOR SYSTEM
Donald Pilipovich, Ventura, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed Sept. 26, 1968, Ser. No. 762,938
Int. Cl. C06d *5/04*
U.S. Cl. 60—218 **4 Claims**



In a gas generator system, a process for producing hot gaseous power by heating bis-(fluoroformyl)-peroxide to give carbon dioxide, carbonyl fluoride, and oxygen.

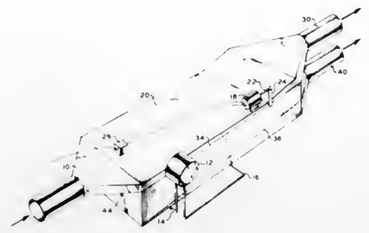
3,783,618
AERODYNAMIC ENGINE SYSTEM
Osamu Kawamura, No. 2-13 Koganehara, Matsudo, Japan
Filed Mar. 29, 1972, Ser. No. 239,113
Int. Cl. F02k *3/04*
U.S. Cl. 60—226 R **7 Claims**



A lift-fan engine system of small size but strong lifting power which comprises a lift-fan having a plurality of fan blades each formed by an inner-fan blade portion gradually twisted toward its outside and a turbo-fan blade portion incorporated with the inner-fan blade portion at its outer end. At the boundary between the inner-fan and turbo-fan blade portions is provided a first shroud segment of the turbo-fan blade portion and beneath it is provided a second shroud segment. By radially mounting the fan blades as constructed in the above by means of their root portions on a fan or rotor disc, the first and second shroud segment of the respective fan blades are adjoined with the first and second shroud segments of adjacent fan blades so as to constitute a first ring and a second ring between which a passage of the high-temperature gas is formed.

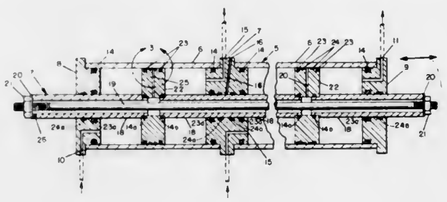
3,783,619
OXIDATIVE CATALYTIC CONVERTER
Henry E. Alquist, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed May 3, 1972, Ser. No. 249,787
Int. Cl. F01n *3/14*
U.S. Cl. 60—288 **6 Claims**

An oxidative catalytic converter comprising a shell, partitions within said shell which divide the interior into a plurality of sections which contain a catalyst material, an inlet to said shell, a valve located in said inlet which selectively admits gases passing through the converter to portions of the catalyst



material in accordance with the gas flow rate or volume and/or temperature and an outlet from said shell for withdrawing gases therefrom.

3,783,620
SYNCHRONIZER FOR HYDRAULIC CYLINDERS
Jack M. Moe, 4550 Sixth Ave., Tacoma, Wash.
Filed Sept. 3, 1971, Ser. No. 177,589
Int. Cl. F15b *7/00*; **F01b** *7/00*
U.S. Cl. 60—547 **5 Claims**



This invention consists of a plurality of steel tubes placed end to end with a divider plate between the ends of the aforesaid tubes; and an end plate on the outer end of each tube. The aforesaid invention is held together by a plurality of longitudinally disposed tie bolts or rods that pass through all of the dividers and the aforesaid end plates. The piston rod is provided with a plurality of pistons while the aforesaid divider plates and the end plates are all provided with L-shaped fluid passages, the invention being suitably connected by pipes or tube to a plurality of hydraulic cylinders, each hydraulic cylinder having a different load imposed thereon; and the said invention also being connected by pipes or tubes to a source of hydraulic fluid under pressure, the synchronizer adapted to keep all of the aforesaid hydraulic cylinders in unison.

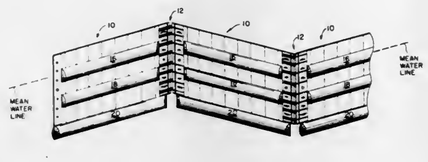
3,783,621
CONVERTIBLE BARRIER FOR SUBSTANCES FLOATING ON WATER
Paul Preus, P.O. Box 1002, Toms River, N.J., and John J. Gallagher, 252 Burley Rd., Annapolis, Md.
Division of Ser. No. 137,799, Apr. 27, 1971, Pat. No. 3,667,235
Filed June 5, 1972, Ser. No. 259,559
Int. Cl. E02b *15/04*
U.S. Cl. 61—1 F **2 Claims**

A barrier for substances floating on water having a flotation member and a liquid pervious and a liquid impervious skirt depending therefrom. The liquid impervious skirt is deflected at currents greater than about one knot and the oily substances



are treated with a particulate oleophilic-hydrophobic substance less dense than water for retention by said liquid pervious skirt.

3,783,622
METHOD AND SYSTEM FOR THE CONTAINMENT AND SALVAGE OF CHEMICALS AND OILS AT SEA
Charles L. Gambel, 3500 Monticello Ave., New Orleans, La.
Filed Sept. 16, 1971, Ser. No. 181,162
Int. Cl. E02b *15/04*
U.S. Cl. 61—1 F **14 Claims**

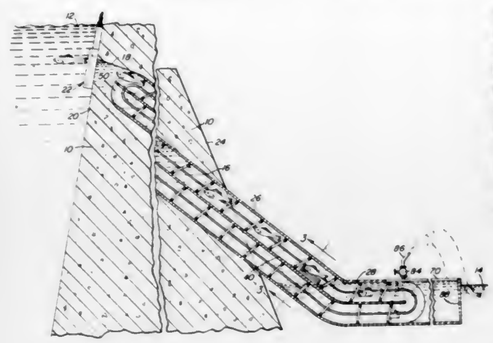


A rigid barrier unit for use in assembling an enclosure around a surface area of a body of water is provided with adjustable buoyancy and ballasting chambers so that a nearly neutral buoyancy condition can be established with substantially all of the mass of the unit below the turbulence level of a body of water in which the barrier unit is placed. A method of deployment of such units involves a floatation of the units in horizontal attitudes to the area to be enclosed, followed by a ballasting of the units into vertical attitudes so as to extend around an oil or chemical spill area.

3,783,623
FISH ESCALATOR
Stanley E. Ogden, P.O. Box 618, Mill City, Oreg.
Filed Feb. 8, 1972, Ser. No. 224,509
Int. Cl. E02b *8/08*
U.S. Cl. 61—21 **6 Claims**

An enclosed endless conveyor-type fish elevator for carrying fish upstream over or through a dam. The elevator includes a pair of parallel tubular passageways having one set of identical corresponding transverse dimensions and a second set of different corresponding dimensions. An endless chain is disposed at each pair of corresponding sides of the passageways and each chain is arranged in generally parallel reaches with one reach extending along the mid-point of the adjacent side of one of the passageways and the other reach of the chain extending midway along the adjacent side of the other passageway. Corresponding reaches of the chains have partition members secured therebetween and the partition

members are mounted in such a manner as to be at least slightly oscillatable and urged into tight sliding engagement with the associated passageways by means of tension of the endless chains. The passageway having the smaller cross-sectional area comprises the elevating passageway for elevating fish to the higher level and the passageway having the greater cross-sectional area comprises the return passageway or means for lowering fish to the lower level. In this manner, a



greater downward thrust is applied to the partition members in the return passageway by the head pressure of water acting upon the upstream side of the partitions disposed in the return passageway than the pressure exerted by head pressure in the fish elevating passageway and the elevator thereby works somewhat in the manner of an undershot waterwheel with means being provided to admit fish to be elevated to the higher level or lowered to the lower level into the compartments defined between adjacent partition members.

3,783,624

METHOD OF PROVIDING A PILE IN A GROUND FORMATION HAVING A HIGH RESISTANCE TO MOVEMENT

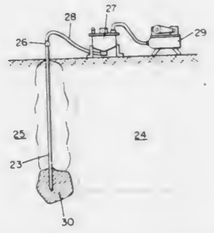
Sadao Nakade, Itami; Hirosuke Kubota, Osaka; Toshiyuki Oshita, Osaka, and Kuniyoshi Sakane, Osaka, all of Japan, assignors to Kabushiki Kaisha Takenaka Komuten, Osaka-shi, Japan

Division of Ser. No. 808,865, March 20, 1969, Pat. No. 3,623,330. This application May 11, 1971, Ser. No. 142,377

Claims priority, application Japan, Nov. 16, 1968, 43/83940; July 13, 1968, 43/49492; Mar. 21, 1968, 43/18635

Int. Cl. E02d *3/12, 3/14*

U.S. Cl. 61—36 R **8 Claims**



This invention relates to technique of plugging formations in civil engineering and construction, reinforced underground structure and underground structure required for strengthening the ground thereof, which may be effectively utilized in plugging or in strengthening unstable ground in sealing-off points of water leakage or oil leakage in civil engineering and construction, in preventing gas leaks in soils or in construction, or in increasing bearing capacities of pull-out or push-in piles to be constructed.

Thus, the invention is intended to provide a technique for plugging formations having interstices and a technique for compacting formations by filling interstices with a solidified substance and also provide a reinforced ground structure and an underground structure for reinforcing the ground, characterized in that a fluidal substance, such as an isocyanate compound, which upon coming into contact with water, reacts thereby to produce water-insoluble solidified substance and liberating a gas, is forced to be present in the interstices in formations such as water leakage regions in civil engineering and construction and a ground or weak ground where water leakage or water seepage is expected, so that it reacts with the water and the resulting insoluble solidified substance is allowed to be intimately bonded to the surfaces of the interstices under the pressure of the liberated gas, thereby sealing-off the interstices easily and effectively.

3,783,625

LINING SYSTEM FOR TUNNELS AND LIKE PASSAGES

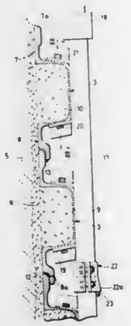
Franz Gantke; Walter Zywietz, both of Dortmund; Rudolf Seiz, Herrsching, and Heinz Eickhoff, Bochum, all of Germany, assignors to Hoesch AG, Dortmund and Eisenhutte Heintzmann & Co., Bochum, Germany

Filed Feb. 24, 1972, Ser. No. 228,855

Claims priority, application Germany, Feb. 27, 1971, P 21 09 354.9

Int. Cl. E21d *11/14*

U.S. Cl. 61—45 R **11 Claims**



A plurality of arcuate lining units are adapted to be arrayed in longitudinal direction of a passage and are each composed of two or more arcuate segments having an outwardly open profiled cross section and provided with a pair of flanges extending substantially parallel in longitudinal direction of the passage. One of the flanges has one face which is directed outwardly of the passage and provided with a recess extending longitudinally thereof and the other flange has another face directed inwardly of the passage and provided with a bead which also extends in longitudinal direction of the passage, with the bead of one segment being received in the recess of a circumferentially adjacent segment so that the flanges of the two segments overlap one another. These flanges are connected and sealing means may be provided at the joints between the flanges.

3,783,626

STRUCTURE, AND METHOD AND APPARATUS FOR FOUNDING A STRUCTURE

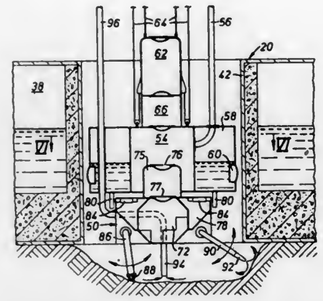
Frode Johan Hansen, Kingswood, England, assignor to Redpath Dorman Long (Contracting) Limited, Edinburgh, Scotland

Filed Feb. 4, 1972, Ser. No. 223,590

Claims priority, application Great Britain, Feb. 8, 1971, 4,191/71

Int. Cl. E02b *17/04*; **E02d** *27/52*

U.S. Cl. 61—46.5 **10 Claims**



A method of founding a structure in a subaqueous bed comprising disposing the structure on the bed and excavating beneath the structure, the excavation being effected by a wheeled positively buoyant vehicle which moves upon an undersurface of the structure and which is provided with excavating equipment.

3,783,627

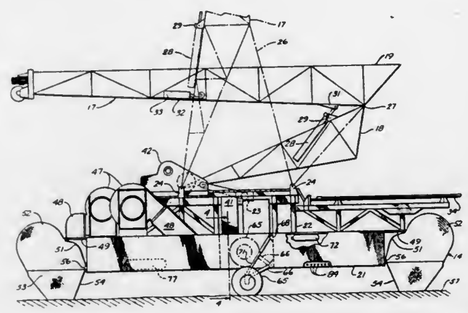
AIR CUSHION VEHICLE

Leon C. Blurton, Brea, Calif., and Saverio J. Cina, Brooklyn, N.Y., assignors to Global Marine Inc., Los Angeles, Calif.

Division of Ser. No. 12,778, Feb. 19, 1970, Pat. No. 3,693,729. This application Apr. 1, 1971, Ser. No. 130,462

Int. Cl. E21b *7/12*

U.S. Cl. 61—46.5 **5 Claims**



An air cushion vehicle particularly useful for a drilling rig for oil wells and the like employed in arctic environments having open water, muskeg, ice, snow, and tundra is described. Means are also described for launching the air cushion vehicle from a ship and for preparing an arctic drilling site for the air cushion supported drilling rig. Means are provided on the bottom of the vehicle for preventing thawing of the frozen soil or ice beneath the vehicle as oil well drilling or workover operations are performed.

3,783,628

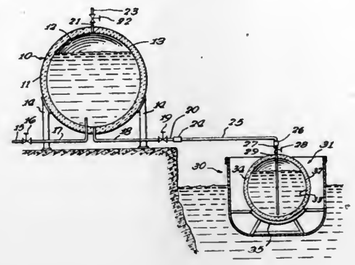
METHOD AND APPARATUS FOR TRANSPORTING LIQUEFIED NATURAL GAS

Robert Fredrick Reiche, Wheaton, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed July 17, 1972, Ser. No. 272,127

Int. Cl. F17c *7/02*

U.S. Cl. 62—55 **6 Claims**



Liquefied natural gas is transported by subcooling the liquefied natural gas below a temperature at which it has a vapor pressure equal to atmospheric pressure, loading the subcooled liquefied natural gas into an insulated vacuum vessel in a transporting means, transporting the subcooled liquefied natural gas in said insulated vacuum vessel to a destination, without refrigerating the liquefied gas, during a time period such that the liquefied natural gas arrives at the destination at a temperature no warmer than −260°F. and, unloading the liquefied natural gas at the destination. The liquefied natural gas while subcooled is unloaded and stored at about atmospheric pressure in an insulated tank without added refrigeration.

3,783,629

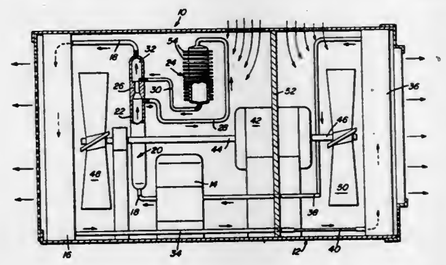
REFRIGERATION SYSTEM

Clyde G. Phillips, 105 Maryland Ave., Westview III, Wilmington, Del.

Filed Sept. 13, 1972, Ser. No. 288,542

Int. Cl. F25b *47/00*

U.S. Cl. 62—85 **7 Claims**

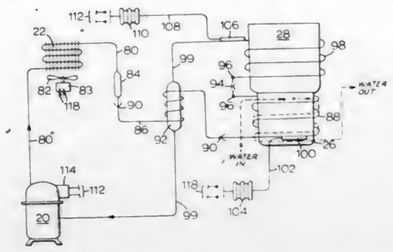


A refrigeration system having a compressor and a condenser, a pipeline connected between the compressor and condenser and a filter-dryer heat exchanger connected to a high gas velocity ejector built into a pipeline between the compressor and condenser. This ejector is formed by a port through which passes refrigerant gas at high velocity. At the discharge end of this port a pipe of small diameter is inserted to the exact spot which will cause a suction to be drawn on it, thus creating the ejector effect. The suction on the small-diameter pipe causes hot refrigerant gas to be drawn from a hot gas discharge line through a filter-dryer heat exchanger of large size where the hot gas is filtered and cooled so it will change to a liquid in the small diameter pipe and be ejected back into the main hot gas line as a cool liquid refrigerant by the action of the ejector. The ejector is of large port design so as not to cause back pressure on the main refrigerant system.

3,783,630
METHOD AND APPARATUS FOR COOLING LIQUIDS

Douglas Clark, Scarborough, Ontario, Canada, assignor to CDRH Limited, Toronto, Ontario, Canada

Filed Nov. 24, 1971, Ser. No. 201,788
Int. Cl. F25d *17/00*
U.S. Cl. 62—98 10 Claims

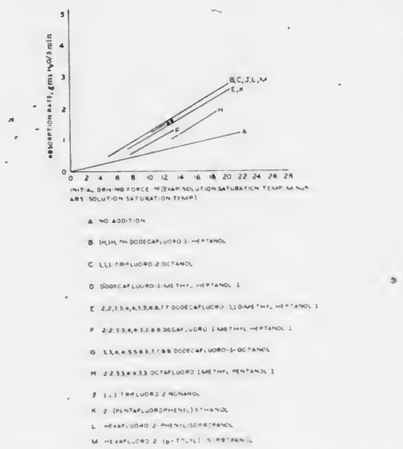


A valve for mixing two separate liquids, in which a discontinuous conduit provides a separably adjustable nozzle and seat, the seat forming the upstream end of a Venturi, and means for lateral entry into the conduit at the discontinuity. In a pair of separate containers for housing the liquids, one of the containers holds liquid under pressure and is connected with the conduit while the other container has a spigot connected with the lateral entry means. In a method and apparatus for cooling the liquids within different temperature ranges a closed refrigerant circuit includes coils encompassing the containers, throttling means preceding each coil, and temperature sensing means for each liquid, the temperature of the first liquid in the series controlling the operation of the fan of the condenser and the temperature of the second liquid controlling the overall operation of the circuit.

3,783,631
ABSORPTION HEAT EXCHANGE SYSTEMS, METHODS AND ABSORBENT COMPOSITIONS

Robert Modahl, Galesville, and Paul J. Lynch, La Crosse, both of Wis., assignors to The Trane Company, La Crosse, Wis.

Continuation-in-part of Ser. No. 168,870, Aug. 4, 1971, abandoned. This application Sept. 13, 1972, Ser. No. 288,788
Int. Cl. F25b *15/06*
U.S. Cl. 62—112 19 Claims

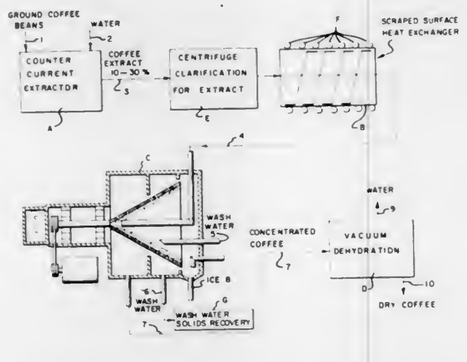


Absorption heat exchange systems and methods, and especially absorption refrigeration systems and methods, employing an absorbent comprised of an aqueous solution of a lithium halide salt and including at least one fluoroalcohol which is stable at high temperatures and which increases the rate of absorption in the absorber and the rate of heat transfer in the condenser for a given amount of surface.

3,783,632
ICE WASH APPARATUS

Richard G. Reimus, c/o P.O. Box 1500, Brandon, Manitoba, Canada, and Anthony Saporito, 11 Parker St., Warren, Pa.

Continuation of Ser. No. 889,231, Dec. 30, 1967, abandoned, which is a division of Ser. No. 763,058, Sept. 27, 1968, which is a division of Ser. No. 718,510, April 3, 1968, Pat. No. 3,432,308, which is a division of Ser. No. 511,173, , Pat. No. 3,381,302. This application May 19, 1971, Ser. No. 145,051
Int. Cl. A23f *1/06*; B01d *9/04*
U.S. Cl. 62—123 6 Claims

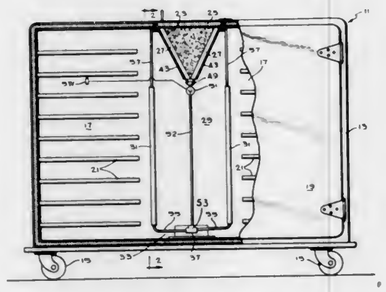


A system of apparatus for removing water from coffee and tea extract by first chilling to form a suspension of solids in the liquid is provided which forms a mixture of ice and liquid. The ice is separated in a centrifuge and is washed.

3,783,633
CO^2 REFRIGERATION SYSTEM

Emmett P. Glynn, Lemont, and Howard L. Hsu, Hickory Hills, both of Ill., assignors to Liquid Carbonic Corporaiton, Chicago, Ill.

Division of Ser. No. 66,961, Aug. 26, 1970, Pat. No. 3,695,056. This application Aug. 11, 1972, Ser. No. 279,968
Int. Cl. F25d *3/12*
U.S. Cl. 62—168 4 Claims

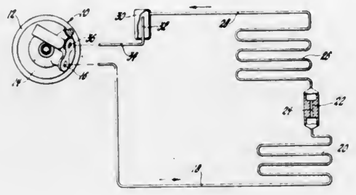


Refrigeration apparatus utilizing solid carbon dioxide as a refrigerant comprising a pair of refrigeration compartments, a solid carbon dioxide hopper defined by a pair of hollow condensers arranged in the shape of a V for cooling a circulating heat-exchange fluid. A pair of evaporators vertically below the hopper define a chimney between compartments for the circulation of air being cooled. A blower may be used to control air circulation.

3,783,634
HEAD PRESSURE BIASED CONTROL VALVE

John H. Heidorn, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 14, 1972, Ser. No. 289,000
Int. Cl. F25b *41/04*
U.S. Cl. 62—217 4 Claims

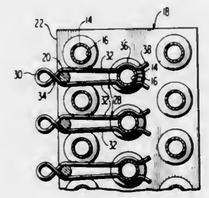


An automatic control for preventing freezing of the evaporator of an air conditioner including a piston type main valve within the compressor inlet. One side of the main valve is exposed to a control pressure in a space connected by a port to compressor inlet. A control valve in this port is operated by an expandable, evacuated bellows which opens and closes the valve to maintain a substantially constant pressure in the space. A plunger of small cross section is aligned with the control valve and is exposed to the high pressure discharge of the compressor to tend to open the control valve in response to increased discharge pressure. This lowers the control pressure and allows the main valve to open earlier than during lower discharge pressure operation.

3,783,635
REPLACEABLE DEFROST HEATER FOR FIN AND TUBE EVAPORATOR AND SPRING RETAINING CLIP FOR SAME

John L. Perez, Bridgewater, Va., assignor to Dunham-Bush, Inc., Harrisonburg, Va.

Filed July 25, 1972, Ser. No. 275,005
Int. Cl. B25b *27/14*
U.S. Cl. 62—276 8 Claims

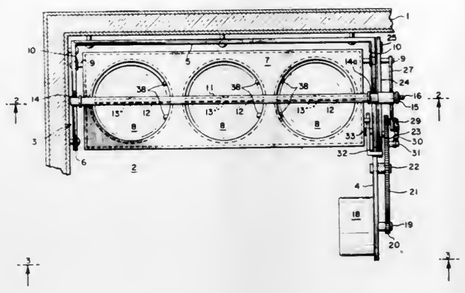


Spring retaining clips maintain an electrical heating wire in contact with the side edges of the fins in a fin and tube refrigeration evaporator coil. The U-shaped spring retaining clips project within the spaced fins with the free ends grasping opposed sides of a longitudinally extending tube carried by the right angle, spaced heat transfer fins.

3,783,636
AUTOMATIC ICECUBE MAKER

Erling B. Archer, Flushing, N.Y., assignor to Eric Archer, Town of Old Saybrook, Middlesex, Conn.

Filed June 22, 1971, Ser. No. 155,592
Int. Cl. F25c *1/10*
U.S. Cl. 62—353 4 Claims



An automatic icecube maker having a tray that tilts freely during each ejection.

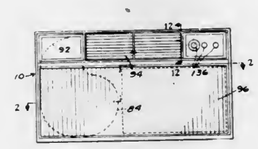
An elongated divider unit moving freely vertically during the ejection period. same having one divider nestling within each tray mold, dividing each mold into two sections while the tray remains horizontal. Each divider being provided with means to release the cubes from the molds when mechanical force is being applied to the unit, and means to release the cubes from the deviders.

Means to release the tray to a vertical position to allow the cubes to fall into the harvesting bin, and means to return the tray and deviders into the normal freezing position.

3,783,637
ROOM AIR CONDITIONER

Norman W. Woods, c/o Keep Rite Products Ltd., Brantford, Ontario, Canada

Continuation-in-part of Ser. No. 21,105, March 19, 1970, abandoned. This application Mar. 6, 1972, Ser. No. 231,905
Int. Cl. F25d *17/06*
U.S. Cl. 62—427 19 Claims



A room air conditioner having a relatively short front to back dimension made possible by a novel compact arrangement of the condenser, compressor and evaporator on the chassis of the unit in combination with a novel air flow pattern through the unit. The interior of the air conditioner casing is divided lengthwise by an upright partition into a rear compartment in which the condenser and compressor are located and a front compartment in which the evaporator and blower are arranged. The blower is of the axial intake, radial discharge type and has its inlet facing the partition rather than the front grille of the unit so as to reduce the noise incident to the high velocity air stream. The unit also includes a pair of ventilating doors on the partition arranged to be operated by a single manually operable control knob for selectively admitting outside air to the room and discharging room air to the outside.

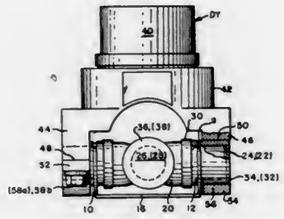
The front grille inside the room is provided with a novel air scoop and vane arrangement for directing the conditioned air effectively in the desired direction. The air conditioner also includes in the condenser compartment a slinger ring and deflector arrangement for picking up evaporator condensate and depositing it on the coils of the condenser to evaporate the condensate and discharge it from the unit with the condenser cooling air.

3,783,638

DUAL RETAINING RING DEVICE FOR FACILITATING THE ASSEMBLY OF UNIVERSAL JOINTS

E. James Doran, Southfield, Mich., and Wallace H. Berliner, Jericho, N.Y., assignors to Waldes Kohinoor, Inc., Long Island City, N.Y.

Filed June 9, 1972, Ser. No. 261,333
Int. Cl. F16d *3/26*
U.S. Cl. 69—17 A **7 Claims**



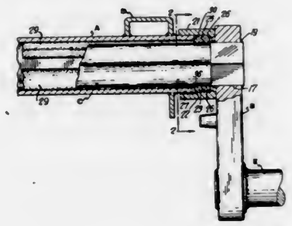
For use in holding two grease (bearing) cups in place on the trunnions of the cross of a universal joint prior to final clamping of a yoke thereto, a dual retaining ring device comprising two like external spring retaining rings of the radially installable type permanently secured one to the other in spaced-apart, parallel plane, coaxial, gap-aligned relationship by a substantially non-resilient strap-form bridge preferably fashioned integral with said rings and being connected to corresponding outer-edge points or portions thereof.

3,783,639

RESILIENT JOINT

Derek J. Goodman, Ingersoll, Ontario, and Gerald N. Farr, Woodstock, Ontario, both of Canada, assignors to Ingersoll Machine and Tool Company Limited, Ingersoll, Ontario, Canada

Filed June 21, 1972, Ser. No. 264,742
Int. Cl. F16d *3/14*
U.S. Cl. 64—27 NM **5 Claims**



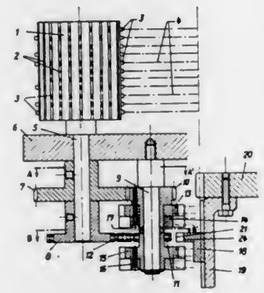
An elastic joint of the type using interposed elastomeric springs for resiliently restraining against relative rotation an outer tubular member and an inner polygonal member connected to a torsion arm and means for connecting the inner and outer members in relative rotational relationship while maintaining their coaxial alignment. The connecting means is in the form of a cup provided with an inner cylindrical pocket rotatably containing a ring with a polygonal bore fitting about the inner member and an outer socket non-rotatably receiving the end of the outer member. The joint is assembled by sliding the cup and ring over the inner member followed by sliding the outer member and rubber springs over the inner member until the end of the outer member is received in the socket.

3,783,640

MECHANISM FOR THE CONTROL OF REVERSIBLE STEP-BY-STEP ROTATION OF SELECTOR DRUMS OF CIRCULAR KNITTING MACHINES

Norbert Paul Bourgeois, Troyes, France, assignor to Etudes et Bonneterie S.A.

Filed June 1, 1972, Ser. No. 258,783
Claims priority, application Switzerland, June 7, 1971, 8250/71
Int. Cl. D04b *15/74*
U.S. Cl. 66—50 B **9 Claims**



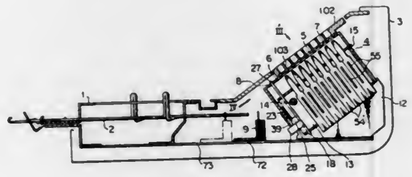
Each selector drum of a circular knitting machine is associated with a control device including two coaxial pairs of axially spaced apart like toothed wheels, the wheels of each pair being fixed together with the teeth of one wheel angularly dephased by half a pitch in relation to those of the other. A cam able to selectively occupy four discrete positions is mounted on a rotatable crown so that each revolution it may angularly displace a selected wheel by half a pitch or a pitch, depending on the initial position thereof, this displacement being transmitted into a rotation of the drum by one or two steps of its selection members in a selected direction according to the pair of wheels acted upon.

3,783,641

KNITTING MACHINE

Hiroshi Kitazawa, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Dec. 28, 1971, Ser. No. 213,010
Claims priority, application Japan, Dec. 29, 1970, 45/124567
Int. Cl. D04b *7/00*
U.S. Cl. 66—60 R **9 Claims**



For reading or memorizing a pattern perforated in rows in a card, pattern-reading members having pointed ends in a row

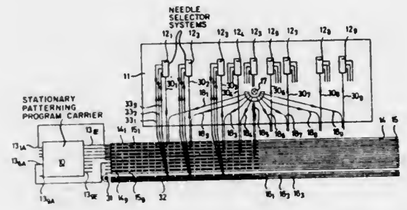
are successively fed from a first to an arbitrarily selectable last row of the irregular perforations making up the pattern. The thus memorized pattern is conveyed to needle-selecting members including pattern plates which have projections formed at constant spacings thereon. Some of the pattern plates associated with those of the pattern-reading members which correspond to the perforations in each row are operated to select needles that are required for the knitting operation in accordance with the pattern, the selected needles being urged to their operative positions by the projections on the pattern plates.

3,783,642

METHOD AND APPARATUS FOR DATA TRANSMISSION IN KNITTING MACHINES

Wilhelm Hadam, Reutlingen, and Ernst Goller, Pfullingen, both of Germany, assignors to H. Stoll & Company, Reutlingen, Germany

Filed Mar. 21, 1972, Ser. No. 236,599
Claims priority, application Germany, Mar. 23, 1971, P 21 14 013.6
Int. Cl. D04b *7/00, 15/66*
U.S. Cl. 66—75 R **14 Claims**



A method for transmitting data between an electronic needle selector system located on the carriage of a flat knitting machine and a stationary programmer unit, provides for transmission of the data optically and conversion of the data so transmitted into corresponding electrical signals using photoelectric transducers. The optical system includes pairs of light conducting rods which extend parallel to the direction of travel of the carriage and which serve to conduct light signals to and back from the needle selector system. The light conductor rods preferably include light transmissive side and end walls, the side walls of the first of rods of each pair of rods comprising a checkered pattern of alternate light transparent and light opaque sections the pitch of which is equal to the pitch of needles in the needle bed or beds of the machine.

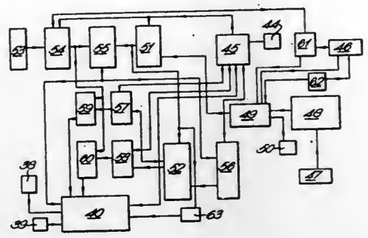
3,783,643

KNITTING MACHINES HAVING LINEARLY ARRANGED NEEDLES

Peter Francis Ladyman, Long Eaton, and Dennis Gaunt, Berry Hill, both of England, assignors to Stibbe-Monk Developments Limited, Leicester, England

Filed Apr. 13, 1972, Ser. No. 243,591
Claims priority, application Great Britain, Apr. 23, 1972, 11112/72
Int. Cl. D04b *11/06*
U.S. Cl. 66—89 **9 Claims**

In a knitting machine having at least one set of linearly arranged needles and motor operated means for moving the selvedge stop and/or fashioning points of said machine during the production of a series of garment blanks, the provision of at least one coded element associated with said needles, reading means adapted to scan said coded element and to transmit a signal to a comparator indicating the actual position of said stop and/or points, at least one coded tape, other reading means adapted to scan said tape and to transmit a signal to said comparator indicating a position to which said stop and/or said points are to be moved, and means which utilize said information imparted to said comparator to control the



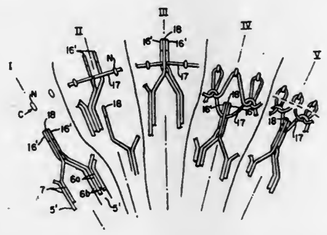
speed, and the direction of operation, of said motor operated means. Means are also provided to limit the extent of movement imparted by said motor controlled means to said stop/or points.

3,783,644

LOOP TRANSFER MEANS FOR CIRCULAR KNITTING MACHINES

Heinz Mutze, Karl-Marx-Stadt; Gerhard Barth, Dittersdorf, and Klaus Kertzscher, Zschopau, all of Germany, assignors to Veb Wirkmaschinenbau Karl-Marx-Stadt, Karl-Marx-Stadt, Germany

Continuation-in-part of Ser. No. 856,083, Sept. 8, 1969, abandoned. This application Aug. 2, 1971, Ser. No. 169,573
Int. Cl. D04b *15/02, 9/56*
U.S. Cl. 66—95 **2 Claims**



Loop transfer jacks for circular knitting machines, especially single cylinder machines for closing tubular knitted goods, wherein the jacks are arranged in pairs, one jack of each pair for loop receiving, the other for loop delivering. The jacks are separately moveable back and forth in a pivotable half dial. The jacks of a pair have tips which provide cooperating hooks and tongues. These are constructed and arranged in such a manner that at least during the pivoting of the half dial the hooks and tongues have vertical surfaces contacting one another in a common plane, and have additional surfaces which provide a substantially continuous, smooth and unobstructed sliding path for the yarn loop to be transferred.

3,783,645

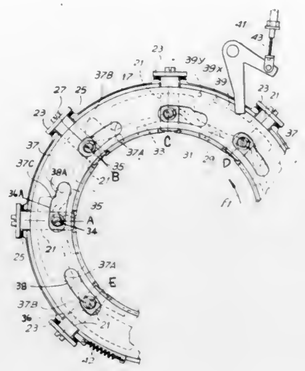
SINKER OPERATING CAMS FOR CIRCULAR KNITTING MACHINES

Massimo Bianchi, Firenze, Italy, assignor to G. Billi & C.S.p.A., Firenze, Italy

Filed July 15, 1971, Ser. No. 163,007
Claims priority, application Italy, July 20, 1970, 9587 A/70
Int. Cl. D04b *15/06*
U.S. Cl. 66—108 R **5 Claims**

The sinker operating cams at each feed of a multiple feed circular knitting machine are mounted upon a slide, the slides

are supported by and are movable radially of the sinker cam ring of the machine whereby the slides and the sinker operating cams thereon may be selectively moved at each of the feeds to each of a pair of radial positions. An annular plate circumferentially movable to three angular positions atop the



sinker cam ring is operatively related to a tappet on each of the slides whereby in one position of the plate all of the slides are in their outer radial position, in a second position of the plate alternate slides only are in their inner radial position, and in the third position of the plate all of the slides are in their inner radial position.

3,783,646

HOLDER HAVING SLIDE NEEDLES MOUNTED THEREIN FOR KNITTING MACHINES

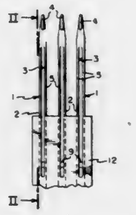
Siegfried Naumann; Manfred Lauckner; Christian Golbs, and Harry Schubert, all of Limbach-Oberfrohnau, Germany, assignors to Veb Wirkmaschinenbau Karl-Marx-Stadt, Karl-Marx-Stadt, Germany

Filed Mar. 27, 1972, Ser. No. 238,098

Claims priority, application Germany, June 23, 1971, WPD 046/156007

Int. Cl. D04b *35/04, 35/06*

U.S. Cl. 66—120 **5 Claims**



In a knitting machine, a needle holder having grooves, a needle mounted in each of the grooves, each of the needles having a head, a shaft and a groove extending into the head and the shaft, the needle groove being laterally bounded by parallel side walls, the side walls being thicker in the shaft than in the head.

3,783,647

KNITTING MACHINE NEEDLE

James Peter Torrant, and Carl F. Benson, both of Torrington, Conn., assignors to The Torrington Company, Torrington, Conn.

Filed June 29, 1972, Ser. No. 267,409

Int. Cl. D04b *35/02*

U.S. Cl. 66—123 **2 Claims**



A butt section made of flat stock is fused to a hook and blade section made of wire stock. The fusion is made along longitudinal portions of the two sections.

3,783,648

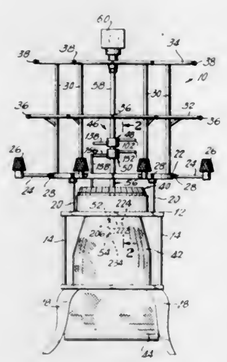
CLEANING AND LIGHTING APPARATUS FOR KNITTING MACHINE

Roland P. Heinrichs, Lindenhurst, N.Y., assignor to Uniwave, Inc., Farmingdale, N.Y.

Filed July 27, 1972, Ser. No. 275,597

Int. Cl. D04b *35/32, 35/00*

U.S. Cl. 66—168 **14 Claims**



A knitting machine having a rotatable part is provided with an axially extending conduit positioned in substantial alignment with the axis of rotation of said rotating part and extending therethrough. The conduit is provided with a cable channel and a separate air passage. A rotary joint is mounted on said conduit for rotation about said axis of rotation, said mounting permitting selective axial displacement of said rotary joint along said conduit to one end thereof for the removal of said rotary joint therefrom. Electrical cable passes through said cable channel to a lamp releasably mounted on the conduit at said one end thereof. The rotary joint is mounted in registration with an opening in said conduit providing communication between the air passage in the conduit and an air passage in the rotary joint for directing air under pressure to the portions of the machine to be cleaned.

3,783,649

APPARATUS FOR CONTINUOUSLY TREATING FIBROUS MATERIALS UNDER PRESSURE

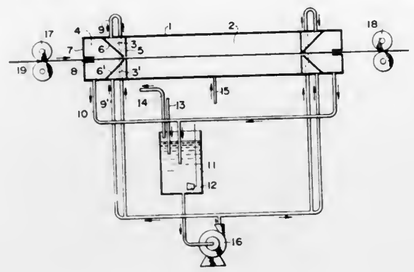
Katsuo Yamamoto; Hideo Sato; Toshio Iwasa; Hisao Nakamura, all of Fujishi, and Katsuhiro Adachi, Moriyamashi, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sept. 27, 1972, Ser. No. 292,500

Claims priority, application Japan, Oct. 7, 1971, 46/78340

Int. Cl. D06c *1/10*

U.S. Cl. 68—5 E **3 Claims**



Fibrous materials are continuously heat-treated under pressure by passage through a heat-treating chamber filled with a pressurized heating fluid and provided with at least a pair of symmetrical sealing chambers which are located at the inlet part and the outlet part of the heat-treating chamber. Sealing fluid is introduced into the sealing chambers through pipes for introducing the sealing fluid; and ejected from the clearances A and A′ toward the outside of the heat-treating chamber, while applying a static pressure to the atmosphere around the fibrous materials passing through the slits formed in the central part of the inlet and outlet of the heat-treating chamber. Leakage of the pressurized heating fluid from the heat-treating chamber can be thereby prevented, and the fibrous materials can be heat-treated without any damages.

3,783,650

APPARATUS FOR THE PROCESSING OF TEXTILES, FIBRES AND THE LIKE

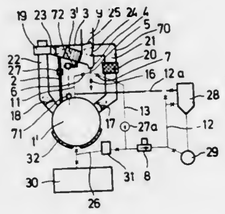
Hans-Peter Weber, Basel; Alfred Litzler, Itingen; Jean Hertig, Basel; Branimir Milicevic, Riehen, all of Switzerland; Heinrich Fuhring, Augsburg, and Johannes-Helmut Sieber, Aystetten, both of Germany, assignors to Ciba Limited and Bowe Bohler & Weber KG, Maschinenfabrik, Basel, Switzerland

Filed June 2, 1970, Ser. No. 42,818

Claims priority, application Switzerland, June 2, 1969, 8327/69; Germany, June 20, 1969, P 19 31 353.2

Int. Cl. D06f *43/08*

U.S. Cl. 68—18 C **8 Claims**



The invention relates to a plant for the processing of textiles, fibers or the like in a liquor, in which an organic solvent immiscible with water, having a specific gravity greater than 1, and forming azeotropic mixtures with water is used.

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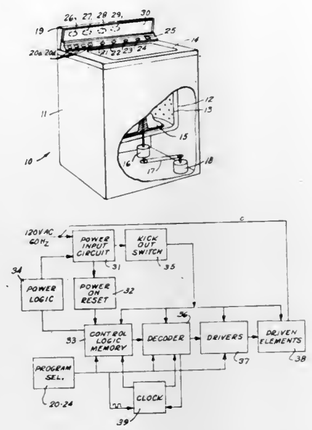
DIGITAL LOGIC CONTROL FOR AUTOMATIC WASHER

Joseph Karklys, Saint Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Dec. 27, 1971, Ser. No. 211,885

Int. Cl. D06f *33/02*

U.S. Cl. 68—12 R **11 Claims**



An automatic washer employs a digital control circuit comprising a programmable memory having an alterable information content controlled by operator actuated selection switches. A decoder reads the output of the memory and is operable to control driver circuits in accordance with the selected program, which driver circuits accordingly control the operation of the associated machine elements.

3,783,652

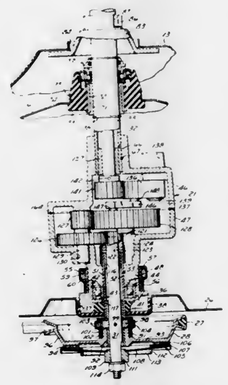
WASHING MACHINE

Ralph L. Archbold, Euclid, Ohio, assignor to Franklin Manufacturing Company, St. Cloud, Minn.

Filed Apr. 28, 1972, Ser. No. 248,422

Int. Cl. D06f *23/04*

U.S. Cl. 68—23.7 **3 Claims**



A power drive in a washing machine oscillates an agitator with a positive drive and spins a basket with a limited torque for gradual spin-up. The arrangement includes a transmission for selectively driving either the agitator or the basket as

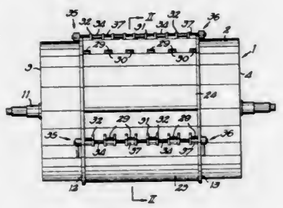
determined by the direction of rotational input. The drive to the transmission includes a one-way clutch adapted to positively drive the transmission in the agitation direction and a slip clutch to drive the basket with a predetermined torque in the opposite spin direction. A rotatable housing of the transmission forms both a sealed enclosure and a rigid structure in which a gear train is mounted. The housing has two mating sections in each of which are mounted spatially independent gear sets connected by a common pivotal link whereby critical gear center to center distances between housing sections are eliminated.

3,783,653

LOCKING DEVICE FOR WASHING MACHINE DRUMS

Jan Armand Haerick, Gent, Belgium, assignor to Em. D'Hooge N.V., Ledeberg, Belgium

Filed July 18, 1972, Ser. No. 272,826
Int. Cl. D06f *39/14*
U.S. Cl. 68—145 **7 Claims**



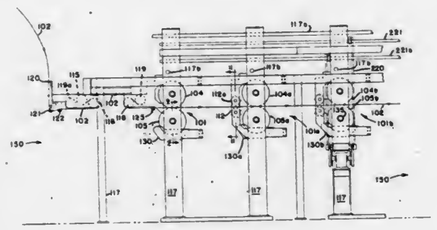
Improved locking device for washing machine drums of the type in which said drum's periphery is fitted with one or more access doors, characterized in that it mainly consists of one or more hook-shaped components fitted to one side border of a curved door; of one shaft assembled in a rotary manner with regard to the drum wall and, fitted to this shaft, of devices operating together with said hook-shaped components when the door involved is being closed, all this for the purpose of both locking and tightening said door in its guides.

3,783,654

PRINTING APPARATUS

Allan H. Crawford, Amsterdam, N.Y., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.

Filed May 26, 1972, Ser. No. 257,089
Int. Cl. B05c *1/04, 1/06;* **B41f** *17/10*
U.S. Cl. 68—200 **50 Claims**



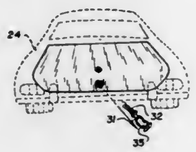
A method and apparatus for printing a plurality of single warp ends of yarn wherein the ends of yarn are passed through a series of printing assemblies, each assembly including a pair of roll-like assemblies at least one of which roll-like assemblies carries a plurality of reciprocally movable pads thereon which can be selectively, reciprocally moved in a pre-determined manner in a direction normal to the longitudinal axis of the roll-like assembly to contact the yarn being printed on. Control of the pads is, in turn, made possible by a plurality of patterned program bars which can be selectively moved in a predetermined manner in a direction normal to the reciprocal direction of movement of the pads.

3,783,655

AUTOMOBILE TRUNK LOCK SAFETY ADAPTER

Salvatore Giannetto, 35 Acorn Ln., Plainview, N.Y.

Filed June 16, 1972, Ser. No. 263,476
Int. Cl. E05b *63/00*
U.S. Cl. 70—1.5 **3 Claims**



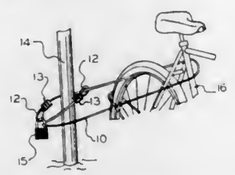
An adapter safeties an automobile trunk lock when the lock cylinder is forcibly removed. A spring on the lock rod serves as a secondary precaution.

3,783,656

LOOPED CABLE END CLAMP

Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed Aug. 14, 1972, Ser. No. 280,328
Int. Cl. E05b *73/00*
U.S. Cl. 70—18 **4 Claims**



The opposite looped ends of an article protecting cable, which can be brought into adjacency for the reception of a lock, have clamps applied thereto which are polygonal with the angles between adjacent sides being obtuse. Bores extending longitudinally through the clamps receive the cable ends which form the loops. By swaging portions of all sides of a clamp, displaced extents of metal form internal protuberances whose ends bite into the bore-inserted extents of the cable ends in inwardly converging, angular relationship and thus very effectively clamp the inserted portions of the cable ends.

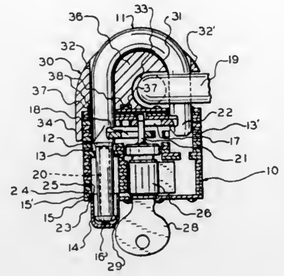
3,783,657

PADLOCK BODY AFFIXED SHACKLE ENVELOPING GUARD

Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed Oct. 16, 1972, Ser. No. 297,714
Int. Cl. E05b *67/02, 67/33*
U.S. Cl. 70—52 **7 Claims**

To provide a metallic protector for substantially enveloping the major exposed portion of a retracted and locked padlock shackle an eccentrically shaped guard is affixed to the end portion of the padlock body in covering relation to the normally exposed portion of the shackle. The outer end of the guard is slotted so that when the shackle is unlocked and



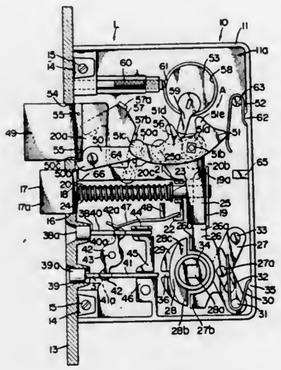
reciprocated outwardly for staple eye engaging or releasing purposes, it will freely move outwardly through the slotted end of the guard while the guard remains immovably affixed to the padlock body.

3,783,658

DOOR LOCK

Waichi Wada, 35-29, 1-chome, Ikegami, Ohta-ku, Tokyo, Japan

Filed Feb. 23, 1972, Ser. No. 228,713
Int. Cl. E05b *59/02*
U.S. Cl. 70—110 **4 Claims**



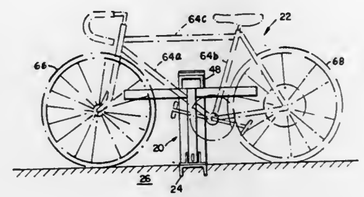
A door lock in which there is provided a latch bolt, a dead bolt, a first lever secured to the dead bolt and having an abutting portion being capable of abutting against the rear portion of the latch bolt, a second lever pivotably connected at one end to the first lever, abutting means on the second lever and being capable of abutting against the rear portion of the dead bolt, and a third lever pivotally connected at one end to the other end of said second lever and rockable about its axis. The second lever and the third levers move in a manner of toggle levers when the third lever is rocked about its axis and, when the dead bolt is in its projected position, the first, second and third levers are disposed in such a manner that the first lever abuts against the rear surface of the latch bolt and an external force acting directly on the dead bolt to retract the same will tend to prevent rotation of the second lever and the third lever by abutting engagement of the abutting means with the rear portion of the dead bolt whereby both the latch bolt and the dead bolt are restrained against retraction.

3,783,659

BICYCLE SECURING APPARATUS

Gerald F. Rossi, 715 4th St., San Ramon, Calif.

Filed June 29, 1972, Ser. No. 267,508
Int. Cl. E05b *71/00*
U.S. Cl. 70—234 **7 Claims**



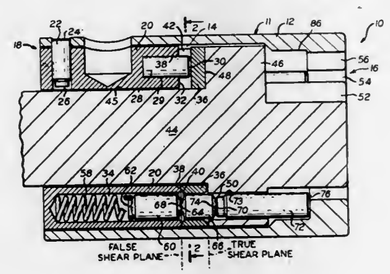
A device for locking a bicycle in place has a base fixed relative to the ground, and a pair of arms upwardly extending from the base. Each arm has a cross bar fixed to its upper end, and one arm is pivotally attached to the base so as to be movable towards and away from the other arm. The cross bar fixed to the pivotable arm has three shafts extending therefrom generally toward the other cross bar. When the pivotable arm is positioned away from the other arm, the bicycle may be positioned between the arms and is in proper position for locking. Swinging of the pivotable arm toward the other arm brings the shafts through the body of the bicycle, one passing through the frame of the bicycle and the other two passing through the front and rear wheels respectively. The extended ends of the shaft are brought into close proximity with the other cross bar by the pivoting, and a lock is provided to hold the ends of the shafts in such close proximity so that the bicycle may be secured between the arms.

3,783,660

PICK RESISTANT LOCK

Vincent A. Gill, Montclair, N.J., assignor to Unican Security Systems, Ltd., Montreal, Canada

Filed Apr. 20, 1972, Ser. No. 245,736
Int. Cl. E05b *27/08, 63/00*
U.S. Cl. 70—363 **3 Claims**



A pick resistant lock having a housing and a rotatable spindle therewithin, each having a registrable aperture. Interposed

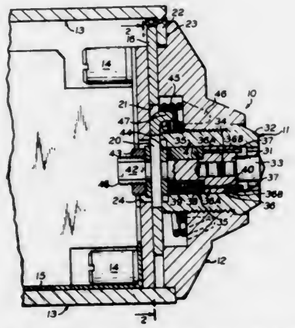
between the housing and spindle is a ring that is rotatable relative to said housing a limited distance and has an aperture registrable with said housing and spindle apertures. A tumbler is disposed in said registrable apertures and is biased to a normal position in which said spindle and ring must move together. When the spindle is torqued to pick the lock, the spindle and ring will rotate said limited distance to permit the apertures therein, and the tumbler, to move out of register with said housing aperture and thus prevent the unlocking of the lock. The tumbler is further provided with a chamfered end so that it cannot be felt when the tumbler moves into said housing aperture.

3,783,661

ANTI-PICK LOCK ASSEMBLY

Harry Greenwald, Whitestone, N.Y., assignor to Walter Kidde & Company, Inc., Clifton, N.J.

Filed July 26, 1972, Ser. No. 275,218
Int. Cl. E05b *63/00*
U.S. Cl. 70—419 **2 Claims**



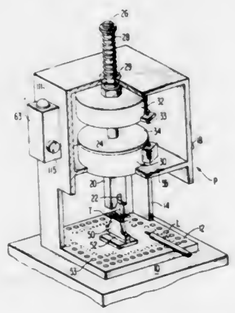
An anti-pick lock assembly in which the rotor of a tumbler lock is biased toward its locking position by a torsion spring. The spring bias force is sufficient to prevent the tumbler rotor from being set at a displacement within the working tolerance of the internal lock parts that allows the code pins to be manipulated one at a time into their release positions by a pick tool.

3,783,662

CONTROL CIRCUIT FOR MAGNETIC ACTUATOR

Joseph Richard Keller, and Bruce Cameron Longenecker, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 15, 1972, Ser. No. 253,039
Int. Cl. B21d *55/00*
U.S. Cl. 72—1 **10 Claims**



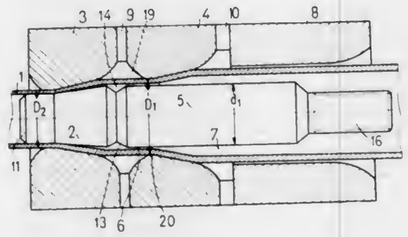
A control circuit for a magnetically actuated die closing apparatus, featuring force responsive die closing cycle termination circuitry as well as safety features for protecting the operator and the apparatus. The safety features include an electro-optic guard and clock circuit. The initial let down force of the ram as the dies make initial closing contact with the workpiece is limited by a let-down circuit incorporated into the control circuit.

3,783,663

METHOD OF AND DEVICE FOR THE DRAWING OF TUBULAR WORKPIECES

Tadeusz Prajsnar; Jozef Rulinski, both of Gliwice; Edward Zglobicki, Zabrze, and Bronislaw Sojka, Zawadzkie, all of Poland, assignors to Instytut Metalurgii Zelaza im. St. Staszica, Gliwice, Poland

Filed Mar. 17, 1971, Ser. No. 125,191
Int. Cl. B21b *45/02*
U.S. Cl. 72—41 **7 Claims**



A tubular workpiece, to be reduced in diameter and wall thickness, is drawn through a progressively narrowing gap formed between a die and a mandrel coaxial therewith, the die and the mandrel having confronting annular undercuts in an intermediate region of the gap whereby the latter is widened to form storage chambers for lubricant entrained under pressure by the inner and outer surfaces of the advancing workpiece. The lubricant is supplied to the outer storage chamber through a reservoir formed by a sleeve upstream of the entrance end of the die while being also funneled into the inner storage chamber through a narrowing clearance between the tail end of the mandrel and the workpiece. This clearance is surrounded by a converging first die section whose smallest diameter, preceding the undercut, is larger than the exit diameter of a converging second die portion in which the workpiece is shaped to its final dimension; the inner and outer workpiece surfaces are coated with films of lubricant leaving the respective storage chambers.

The invention permits to introduction of the plug into the tube unconstrainedly and to obtention an optional small clearance beweeen the plug and the tube, whereby the drawing process operates under conditions of hydrodynamic lubrication. The method of drawing consists in bending the tube around the bearing part of the plug by means of a bearing-working tube drawing die situated immediately in ahead of the working tube drawing die which has a cross section reducing in co-operation with the plug and the tube wall.

The plug for application of the method has an initial entry part in the form of a cone and a cylindrical-and-conical part serving for reduction of the tube-wall thickness, behind which a pressing part is situated with at least one pressure-regulating undercut being provided to maintain and to govern the pressure.

3,783,664

PROCESS FOR CONTROL OF LUBRICANTS IN AN ALUMINIUM ROLLING MILL

Krishna Chandra Tripathi, Deddington, England, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Jan. 12, 1972, Ser. No. 217,248
Claims priority, application Great Britain, Jan. 13, 1971, 1767/71
Int. Cl. C10m *1/06, 1/08*
U.S. Cl. 72—42 **3 Claims**

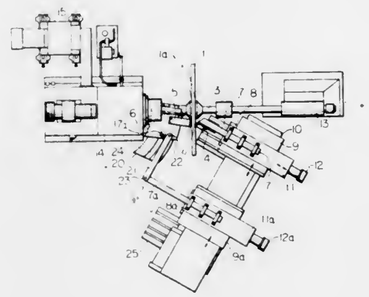
In the operation of an aluminum rolling mill, in which the lubricant is an oil-in-water emulsion, having an oil phase consisting of a hydrocarbon oil base, containing a free fatty acid and an amino-soap, the average particle size of the oil phase particles is periodically adjusted by the addition to the water phase either of multivalent metallic ion to increase particle size or of an alkali metal soap or material to generate an alkali metal soap by reaction with free fatty acid to reduce particle size so as to retain the particle size within an optimum range.

3,783,665

SPINNING MACHINE

Yoshimi Ashizawa, Kanagawa, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed July 31, 1972, Ser. No. 276,797
Claims priority, application Japan, Aug. 11, 1971, 46/60768
Int. Cl. B21d *22/18*
U.S. Cl. 72—81 **3 Claims**



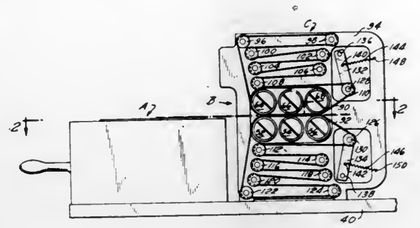
In a spinning machine for shaping a blank into a product of a desired configuration without using a metal mold, there are provided a rotary shaft, a push rod, the rotary shaft and push rod cooperating to clamp therebetween a flat plate shaped blank for rotating the same, a back-up roller having a peripheral contour conforming to a portion of the inside contour of a spinned product, means to urge the back-up roller against one side of the blank, means to move the back-up roller along a predetermined path conforming to the inside contour of the product, a work roll having a working edge of smaller radius of curvature than said back-up roller, means to urge the work roll against the opposite side of the blank with a predtermined definite axial spacing between the work roll and the back-up roller and means for moving the work roll to follow the movement of the back-up roller while maintaining the definite axial spacing with respect to the back-up roller.

3,783,666

APPARATUS FOR FABRICATING LITHIUM ANODES

Martin G. Rosansky, Monsey, and Bruce E. Jagid, Whitestone, both of N.Y., assignors to Power Conversion, Inc., Tuckahoe, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,530
Int. Cl. B21b *1/00*
U.S. Cl. 72—199 **7 Claims**



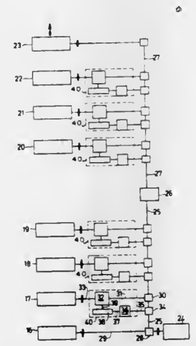
An apparatus and method for rolling and laminating highly malleable metals such as lithium. A plastic belt is interposed between the rollers and the lithium during the rolling operation to prevent the lithium from adhering to the roller surfaces.

3,783,667

APPARATUS FOR STRAIGHTENING METAL BY STRETCHING

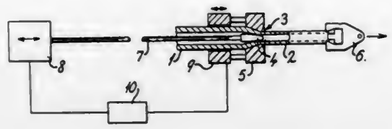
Curt Munchbach, Pforzheim-Sonnenberg, Germany, assignor to Irma Ungerer, Pforzheim-Brotzingen, Germany

Filed Mar. 31, 1972, Ser. No. 240,135
Claims priority, application Germany, Apr. 14, 1971, P 21 18 051.8
Int. Cl. B21d *1/02*; **B21b** *39/08*
U.S. Cl. 72—160 **4 Claims**



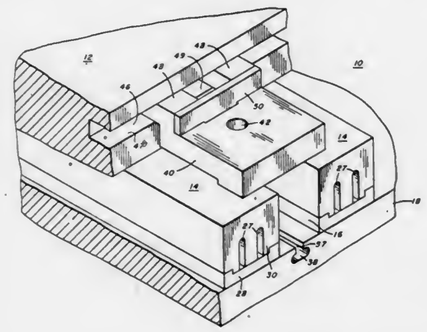
In an apparatus for straightening a continuously running metal strip with a stretching operation, there provided a hold-back roll assembly and a drawing roll assembly; every roll in both roll assemblies has the same diameter and is, with the exception of the fastest roll in one assembly and the slowest roll in the other assembly, associated with a separate differential gearing, the output rpm of which is individually variable by a regulating device in accordance with the required rpm increase or rpm decrease of the associated roll with respect to the adjacent roll.

3,783,668
VIBRATORY FORMING
Graham Robert Dawson, Bewdley, and Dennis Hugh Sansome, Sutton Coldfield, both of England, assignors to National Research Development Corporation, London, England
Filed Mar. 17, 1972, Ser. No. 235,546
Claims priority, application Great Britain, Mar. 18, 1971, 7201/71
Int. Cl. B21d 26/02; B21c 1/24
U.S. Cl. 72—283 **3 Claims**



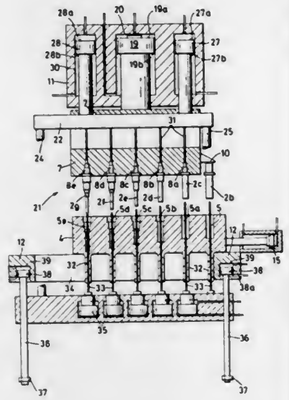
A vibratory forming method, and apparatus, in which material is drawn across a pair of forming tools which are both vibrated. The phase angle between the two vibrations is neither zero nor 180°, but is adjusted to a defined intermediate value to increase the efficiency of the process, especially by minimising the drawing force required. The invention applies particularly to the plug drawing of metal tube.

3,783,669
UNDERFIRED FORGING DIE HEATER
Charles P. Furney, Jr., Delmont, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed June 12, 1972, Ser. No. 261,590
Int. Cl. B21j 1/06
U.S. Cl. 72—342 **3 Claims**



A structure providing efficient gas heating of forging dies comprising a plurality of bearing bars made of a high strength metal located between the dies of a forging press and respective die supporting structures. The bars are spaced apart to accommodate gas fired burners and layers of heat insulation in such a manner that only the bearing bars receive forging loads, the layers of insulation and the burners, being accommodated in the spaces between the bearing bars, receive no forging loads. The bearing bars are provided with longitudinally extending openings for preheating and conducting the gas (or gas-air mixture) to the burners, and for limiting the conduction of heat from the dies to the die supporting structures. Each die supporting structure includes a plate or platen provided with slots adapted to receive and retain die clamping bolts, the bolts being located between adjacent bearing bars, and extending from the plate to and through respective clamps engaging the edges of the die and portions of at least two adjacent bearing bars extending beyond the edges of the die.

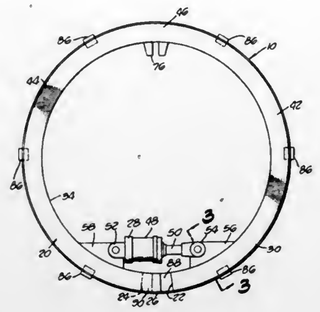
3,783,670
APPARATUS FOR THE TRANSFER OF WORKPIECES IN A MULTISTAGE PRESS FOR THE COLD DEFORMATION BY MEANS OF COLD EXTRUSION AND THE LIKE
Kurt Nickrawietz, Pattscheid, Germany, assignor to Eumuco Aktiengesellschaft fur Maschinenbau, Leverkusen-Schlebusch, Germany
Filed Aug. 21, 1972, Ser. No. 282,183
Int. Cl. B21d 45/00
U.S. Cl. 72—346 **5 Claims**



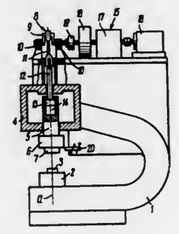
A multistage press for the cold deformation of workpieces comprising a first and second opposing toolholders capable of reciprocating relative to each other by the distance therebetween is disclosed which is characterized by an apparatus for transferring the workpieces from one working station to the next and permitting bilateral deformation of the workpieces. The apparatus comprises a plurality of die recesses in each of the said toolholders, the first toolholder having a greater number of die recesses than the second toolholder; means to displace the first toolholder laterally with respect to the second toolholder; means to displace the second toolholder longitudinally with respect to said first toolholder; ejector means associated with each die recess in the two toolholders; and an ejector press in operative communication with the ejector means and being coordinated with the deformation press to alternately transfer the workpieces from one toolholder to the other.

3,783,671
APPARATUS FOR SIZING JOINT RINGS FOR CYLINDRICAL PIPES
Homer C. Lamborn, Glendora, Calif., assignor to Curwood, Inc., New London, Wis.
Filed Feb. 28, 1972, Ser. No. 229,907
Int. Cl. B21d 41/02
U.S. Cl. 72—392 **22 Claims**

A method and apparatus for sizing steel joint rings welded to the ends of cylindrical pipes. A substantially closed integral ring member is used within a joint ring and expanded outwardly thereagainst. A force applying means, such as a hydraulic cylinder, applies a controlled outward force to the ring member which distributes the force in a radially outward direction against the inner circumference of the joint ring for the desired sizing thereof.

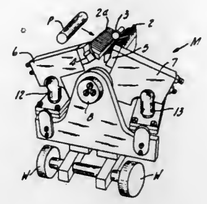


3,783,672
HIGH-SPEED MACHINES FOR SHAPING METALS WHICH EMPLOY THE ENERGY OF HIGH-PRESSURE GAS
Anatoly Sergeevich Morgolenko, ulitsa Chkalova, 15; Vadim Grigorievich Kononenko, ulitsa Chkalova, 15, kv. 12; Igor Grigorievich Fedosenko, 602 mikroraion, 51, kv. 206; Gennady Dmitrievich Selivanov, ulitsa Chkalova, 15; Sergei Grigorievich Kushnarenko, poselok Pesochin, ulitsa kooperativnaya, 7, and Vladimir Semenovich Lepetjukha, 607 mikroraion, 52, kv. 8, all of Kharkov, U.S.S.R.
Filed Feb. 23, 1972, Ser. No. 228,714
Int. Cl. B21j 7/28
U.S. Cl. 72—407 **3 Claims**



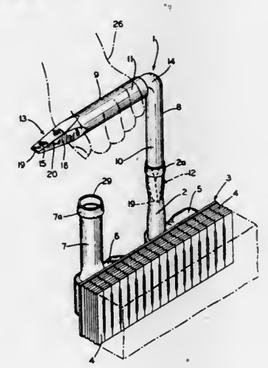
A metal forming machine is disclosed having a working tool mounted on the head of a ram located within a receiver and performing a working stroke under the action of the compressed gas filling the receiver. In order to return the working tool to its initial position, the ram is connected through a rod with a crank gear. The rod through its one end is hinged to the crank arm and through its other end is connected to a piston which is located in the space provided within the ram. The stroke of the piston is somewhat greater than the stroke of the ram.

3,783,673
MACHINE FOR FORMING METAL STOCK FOR HOT FORGING
Arne O. Andresen, Racine, Wis., assignor to Walker Forge, Inc., Racine, Wis.
Division of Ser. No. 148,092, May 28, 1972, Pat. No. 3,713,320. This application Sept. 7, 1972, Ser. No. 286,866
Int. Cl. B21j 9/12
U.S. Cl. 72—407 **4 Claims**



A machine for deforming the end of a piece of metal for handling it for insertion into a forging press or the like to form the finished article. The machine receives, holds and deforms a piece of metal which has been heated to a plastic condition, and has stop means for holding the piece against axial shifting in one direction while its squeezing jaws deform the end of the piece into a holding portion. The swingable jaws of the machine are of a shape (1) that precludes axial shifting of the piece in the other direction and (2) that forms the holding portion into a flattened and axially elongated shape having tool engaging projections.

3,783,674
TUBE EXPANSION TOOL
Ralph Hinerman, 120 Seventh St., N.E., North Canton, Ohio
Filed Sept. 20, 1971, Ser. No. 181,854
Int. Cl. B21c 3/16
U.S. Cl. 72—476 **3 Claims**

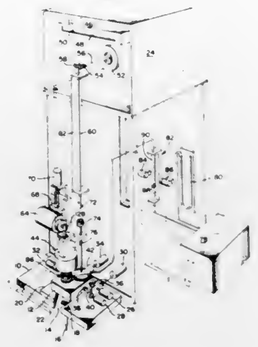


A hand tool for expanding thin-wall metal tubes such as the inlet and outlet tubes of vehicle heater radiators. A pair of cylindrical shank members are joined together at a generally right angle. The free ends of the shank members are formed with a plurality of tapered flat surfaces terminating in an elongated tip. The surfaces form sharp corners at their junctions extending along the tapered ends, which corners expand a damaged tube when either of the tapered ends is rotated and moved downwardly within a tube having a diameter equal to the inserted shank diameter. The other shank member functions as a handle for rotating the inserted shank member within a tube being expanded.

3,783,675
AUTOMATIC WATER HEATER CONTROL TEMPERATURE CALIBRATION MEANS

Emmett E. Kreps, Lynwood, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 4, 1971, Ser. No. 185,975
Int. Cl. G01k 15/00
U.S. Cl. 73—1 F 13 Claims

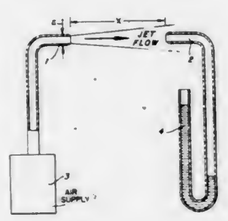


An assembly is disclosed for automatically calibrating water heater controls and like controls having a clutch spring disposed in friction engagement about a temperature control shaft and adopted to carry a suitable adjusting knob. The calibraion assembly includes a temperature-to-motion transducer and a calibration lockup head which cooperate to sense ambient temperature, seize the clutch spring and position the same to a dial position corresponding to the sensed ambient temperature. A motor is also included and is driven by a flow sensing control device to rotate the control shaft for opening and closing the water heater control valve several times before the clutch spring is set at the proper control point.

3,783,676
METHOD AND APPARATUS FOR MEASURING THE DENSITY OF A FLUID

John W. Tanney, 34 Harwick Crescent, Ottawa, Ontario, Canada

Filed Mar. 13, 1973, Ser. No. 340,929
Int. Cl. G01n 9/32
U.S. Cl. 73—32 8 Claims



A fluid densitometer and its method of use, comprising directing a fluid jet into a fluid whose density is to be measured and towards an open end of a tube. The nozzle and tube have a turbulent jet forming space extending between them a distance of less than fifty times the maximum distance across the nozzle orifice, and the fluid pressure in the tube is measured to determine the density of the fluid into which the jet is directed. The geometry of the fluid jet is derived from

$$R = (V h \rho)/\mu$$

R is the Reynolds number and is in excess of 1700,
V is the velocity of the fluid delivered to the device,
ρ is the density of the fluid delivered to the device,
μ is the viscosity of the fluid delivered to the device, and
h is the hydraulic radius obtained from,

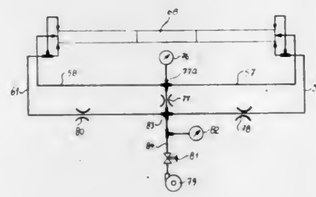
$$h = (4A)/(P_1), \text{ where}$$

A is the area of the fluid jet orifice, and
P_1 is the distance around the perimeter of the fluid jet orifice.

3,783,677
METHOD AND APPARATUS FOR TESTING CIGARETTES OR LIKE ROD-SHAPED ARTICLES

Uwe Heitmann, Hamburg, and Hans Jochen Grasse, Wentorf, both of Germany, assignors to Hauni-Werke Korber & Cie KG, Hamburg, Germany

Filed Apr. 26, 1972, Ser. No. 247,714
Claims priority, application Germany, Apr. 30, 1971, P 21 21 366.1
Int. Cl. G01m 3/26
U.S. Cl. 73—41 17 Claims



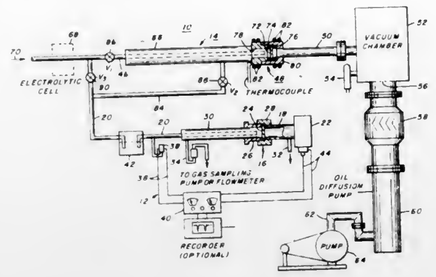
Cigarettes or analogous rod-shaped articles are tested on a conveyor having flutes wherein the cigarettes move sideways between pairs of sealing elements each having an apertured sealing face and an annular nozzle. At least one sealing element of each pair is movable toward the other sealing element so that their sealing faces engage portions of or entire end surfaces of wrappers on cigarettes in the respective flutes. A testing fluid is thereupon passed through the cigarettes, either by admitting such fluid at both ends of cigarettes or by admitting the fluid at one end and allowing it to issue from the other end of each cigarette. During testing, the nozzles discharge annular streams of compressed air which impinge upon the external surfaces of wrappers in immediate or close proximity of their end surfaces to prevent uncontrolled escape of testing fluid in the event that the end surfaces of the wrappers are not located in planes which are exactly normal to the axes of the respective cigarettes. The sealing air can be discharged at right angles to the axes of the cigarettes or in directions having a first component normal to and a second component parallel with the axis of the respective cigarette.

3,783,678
VACUUM GAUGE CALIBRATOR

Khandelwal B. Das, Seattle, and William E. Strobelt, Auburn, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Oct. 13, 1971, Ser. No. 188,903
Int. Cl. G01l 27/02
U.S. Cl. 73—4 V 4 Claims

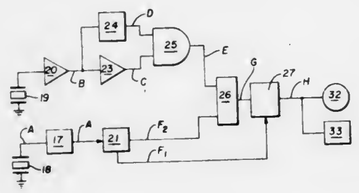
A vacuum gauge calibrator characterized by a vacuum chamber having an outlet for an ionization gauge to be calibrated in combination with a vacuum chamber and associated vacuum pump, which pump includes a liquid nitrogen trap to liquefy any foreign gas heavier than nitrogen, a hydrogen analyzer, a heated palladium disc permeable to hydrogen and an electrolysis cell for generating a precisely known amount of hydrogen, whereby hydrogen generated by the cell is caused to seep through the disc and to be collected in the vacuum chamber where the ionization gauge is then calibrated.



3,783,679
TIME BASE MEASUREMENT CIRCUIT

Jerry L. Jackson, San Antonio, Tex., assignor to Walter A. Gunkel, San Antonio, Tex.

Filed Feb. 22, 1971, Ser. No. 117,663
Int. Cl. G01n 29/04
U.S. Cl. 73—67.7 1 Claim



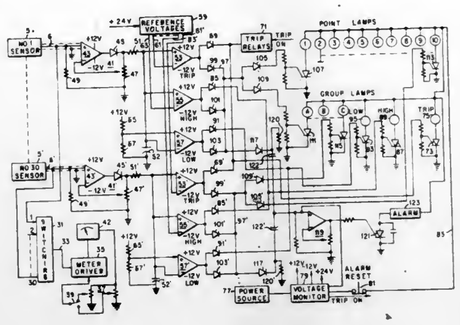
A time base measurement circuit is disclosed which responds to the lapsed time between two electrical signals to provide an electrical voltage proportional to this lapsed time by detecting a phase condition of the second of the electrical signals. The circuit is particularly useful in an ultrasonic inspection system which determines the relative thickness of an object being ultrasonically inspected.

3,783,680
MULTIPOINT VIBRATION MONITORING SYSTEM

Charles H. Mason, Paducah, Ky., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed July 12, 1972, Ser. No. 270,883
Int. Cl. G01h 1/08
U.S. Cl. 73—71.2 10 Claims

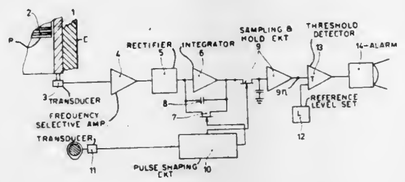
A multipoint vibration monitor has been provided for monitoring vibration emanating from rotating equipment. A plurality of seismic-type detectors are placed at various vulnerable points on the equipment. These detectors are electromechanical generators whose output signals are proportional to both frequency and magnitude of vibration in a single plane, thereby reducing errors introduced by extraneous vibrations of a transient nature which would give false indications. A unique multichannel electronic circuit is provided into which the detector signals are fed to remotely monitor the plurality of detectors and provide both an alarm and point location of abnormal vibrations.



3,783,681
METHOD AND APPARATUS TO MONITOR QUALITY OF OPERATION OF A PISTON IN A CYLINDER

Dieter Hirt, Augsburg; Leonhard Gerlich, Hirblingen, and Eugen Heinle, Neusass, all of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Augsburg, Germany

Filed Jan. 16, 1973, Ser. No. 324,111
Claims priority, application Germany, Jan. 22, 1972, P 22 03 047.3
Int. Cl. G01m 15/00
U.S. Cl. 73—119 R 21 Claims

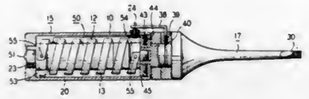


A transducer is connected to the cylinder sleeve or liner, and deflection, preferably axial vibration or oscillation of the liner is converted into an electrical signal, which is integrated, and detected with respect to a reference level; if a vibration frequency, particularly in the ultrasonic range is detected, or if vibration amplitudes exceed a certain level, an alarm signal is provided. The reference level may be a dynamic level, in which output signals from all cylinders of a multi-cylinder engine are combined, and the combined signal is utilized as a dynamic reference for comparison with any individual cylinder signal. Additional operating parameters can be considered in a logic circuit, for example fuel supply, or extent of loading on the engine, with feedback to reduce fuel supply, or shut off the engine upon detection of excessive vibration in any one or more cylinders.

3,783,682
TORQUE TESTING SCREWDRIVER WITH AUTOMATIC TORQUE INDICATING MEANS

Dominic Timothy Lipari, Columbus, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,683
Int. Cl. G01l 5/24
U.S. Cl. 73—139 10 Claims



A torque-testing screwdriver is disclosed which includes a blade, a handle, a spring for transmitting torque from the handle to the blade, a scale for indicating the amount of torque transmitted from the handle to the blade, and an indicating contact which continuously enables a signal device during the torque test and which automatically positions itself opposite the scale reading representing the maximum resistive torque exerted by the screw under test.

3,783,683
MINIMIZING CLAY DAMAGE IN A LOG-INJECT-LOG PROCEDURE

Robert P. Murphy, and Frank O. Jones, Jr., both of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed Dec. 27, 1971, Ser. No. 212,783
Int. Cl. E21b 49/00
U.S. Cl. 73—152 3 Claims

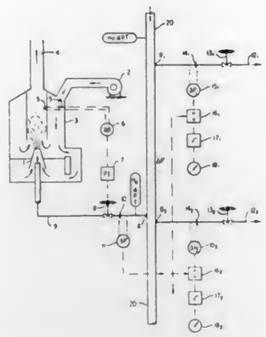
This invention relates to determining the oil saturation in an underground rock reservoir penetrated by a well such as by use of a log-inject-log technique. In some such techniques thermal neutron decay time logs are taken in the native state and then after fresh water injection. These logs are used in an equation to find oil saturation. This invention is directed to a method of treating the fresh water so that clay impairment or permeability loss is prevented but such that the neutron capture cross section of the treated water is not significantly different from that of fresh water.

3,783,684
FUEL GAS FLOW-METER CORRECTOR EQUIPMENT FOR GASES HAVING VARIABLE CHARACTERISTICS

Guy Baudelet De Livois, Paris, France, assignor to Controle Bailey (Societe Anonyme), Clamart, France

Filed Mar. 20, 1972, Ser. No. 236,255
Claims priority, application France, Apr. 2, 1971, 71.11674
Int. Cl. G01e 17/00
U.S. Cl. 73—190 1 Claim

Corrector equipment for converting gas flow rate measurements into heat flow measurements in a fuel gas distribution network using gas or gas mixture having variable characteristics and including a plurality of user stations branched on the general piping of said network, each of said stations including a gas admission valve, a diaphragm inserted upflow of said valve and a differential pressure gauge connected with said diaphragm. The equipment comprises a calorimetric oven gas-supplied from said network through a pipe, a regulator valve inserted on said pipe and controlled by a regulator system so as to keep the heat flow in said oven at a constant value, a further diaphragm inserted on said pipe and a further differential pressure gauge connected with said further diaphragm, said further pressure gauge delivering a signal $\Delta P'$, means for keeping the temperature and pressure of the gas supplied at any instant to all of said diaphragms at common constant values, and calculation means for deriving from said

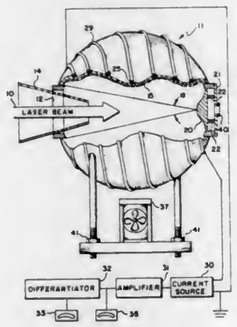


signal and from the flow rates ΔP_1, ΔP_2, . . . measured by said differential pressure gauges in each one of said stations quantities proportional to $\sqrt{\Delta P_1/\Delta P'}$, $\sqrt{\Delta P_2/\Delta P'}$, . . . and representing the actual heat flow rates in each one of said stations.

3,783,685
HIGH POWER LASER ENERGY MEASURING DEVICE

Glenn W. Zeiders, Jr., Boston, and Richard A. Hella, Andover, both of Mass., assignors to Avco Corporation, Cincinnati, Ohio

Filed Aug. 23, 1972, Ser. No. 282,901
Int. Cl. G01h 17/00
U.S. Cl. 73—190 R 6 Claims

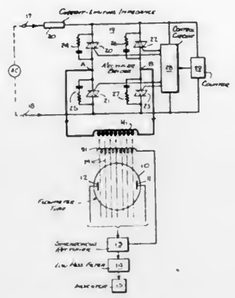


Apparatus for measuring high power laser output by calorimetric means, wherein the laser beam whose energy is to be measured is directed within a hollow container. The beam within the container is redirected to evenly illuminate the interior surface of said container. The temperature rise of the container is measured and the effective energy of the incident beam is thereby determined calorimetrically.

3,783,686
MAGNETIC FLOWMETER ARRANGEMENT

Rainer Hentschel, Hanover, Germany, assignor to Fischer & Porter Company, Warminster, Pa.

Filed Nov. 5, 1971, Ser. No. 196,011
Claims priority, application Germany, Nov. 6, 1970, P 20 54 624.1
Int. Cl. G01f 1/04
U.S. Cl. 73—194 EM 9 Claims

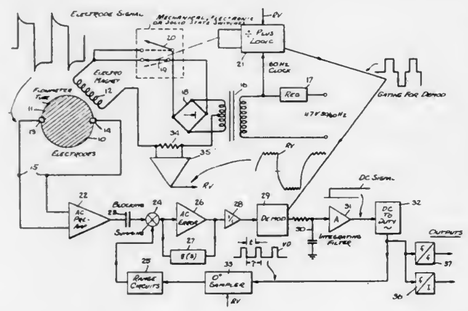


A magnetic flowmeter in which a pair of metering electrodes is disposed at diametrically opposed points in a flow tube through which flows the fluid to be measured, a magnetic field being established at right angles to the direction of flow by an excitation winding. The winding is energized by a cyclical voltage derived from an a-c power line, the polarity of the cyclical voltage being reversed at a rate which is a sub-multiple of the line frequency whereby each interval between successive points of reversal contains the same number of full cycles and the polarity of the last half cycle in each interval is the same as the first half cycle in the succeeding interval. The arrangement is such as to cancel error voltage components resulting from line frequency disturbances.

3,783,687
ELECTROMAGNETIC FLOWMETER WITH SQUARE-WAVE EXCITATION

Elmer D. Mannherz, Southampton; Hubert A. Riester, Huntington Valley; Roy F. Schmoock, Ivyland, and John S. Yard, Warminster, all of Pa., assignors to Fischer & Porter Company, Warminster, Pa.

Filed May 26, 1972, Ser. No. 257,378
Int. Cl. G01f 1/00; G01p 5/08
U.S. Cl. 73—194 EM 7 Claims

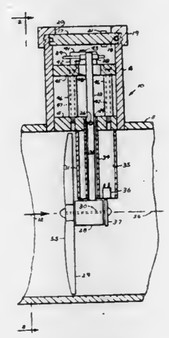


An electromagnetic flowmeter system wherein liquid to be measured is conducted through a flow tube to intersect a transverse magnetic field produced by an electromagnet, the voltage induced in the fluid being transferred to a pair of electrodes mounted at diametrically opposed points on the tube. To avoid spurious voltages arising from stray couplings between the electromagnetic and the loop constituted by the electrodes and the liquid extending therebetween, without, however, causing polarization of the electrodes, the electromagnet is energized by a low-frequency square wave. This wave is produced by applying the output voltage of an unfiltered full-wave rectifier to the electromagnet and periodically reversing the voltage polarity at a low-frequency rate by means of an electronic switch, filtration of the applied voltage being effected largely by the electromagnet induction. Since the steady state field produced by the square wave is disrupted by switching transients occurring at the points of reversal, the converter to which the signal from the electrodes is applied includes a demodulator which is gated synchronously with an electronic switch to yield an output only when the magnet flux achieves a steady state condition.

3,783,688
FLOW METERING DEVICE

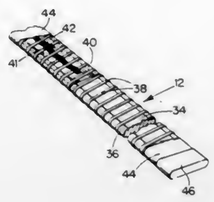
Berthold A. Knauth, Daytona Beach, Fla., assignor to Rotron Incorporated, Woodstock, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,333
Int. Cl. G01f 1/06
U.S. Cl. 73—194 R 15 Claims



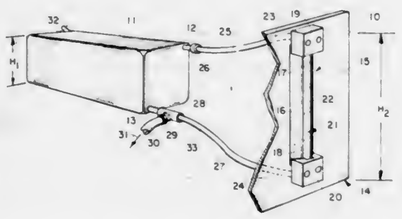
A metering device for measuring volume flow rate or density conditions has a linearly moveable fluid reactive screw member. At one position of movement, the assembly is positively driven so that the screw carries to another position at which the drive means is rendered inoperative. As such, the screw assembly seeks a null position at which forces operating on the assembly are balanced, the sensed revolutions of the assembly being equatable to the volume flow or density condition depending upon the mode of operation of the device. Buoyancy and gravitational force components acting along the line of movement are equalized when the device is used in the fluid flow mode of operation while a force biasing the screw assembly into the drive position is needed when density conditions are being sensed. Gravitational and magnetic biasing is illustrated although other means may be used. One embodiment uses a pivotal mounting arrangement for the screw assembly and the drive motor is energized and de-energized in response to the sensed position of the pivot arm. In another embodiment, a clutching arrangement is used and wherein one clutch plate is driven and the other clutch plate is fixed to the screw assembly. The screw under such circumstances seeks a null position at which clutch plate slippage occurs and the forces acting on the line of movement of the assembly are equalized.

3,783,689
DISCRETE LEVEL DETECTOR
Albert D. Ehrenfried, and Norton T. Pierce, both of Concord, Mass., assignors to Metritape, Inc., West Concord, Mass.
Filed Mar. 24, 1970, Ser. No. 22,204
Int. Cl. G01f 23/18
U.S. Cl. 73—301 9 Claims



A level indicator for indicating the presence or absence of a fluent material at a discrete position. An elongated sensing element is provided which is operative in the presence of surrounding pressure to actuate one or more redundant contacts integrally formed therewith and which is isolated from the working environment.

3,783,690
LEVEL INDICATOR FOR WATER TANK OF RECREATIONAL VEHICLE
James Earl Bridegum, 12143 Gothic Ave., Granada Hills, Calif., and Rudy A. Laczkovich, 1343 Carmelena St., West Los Angeles, Calif.
Filed Feb. 11, 1972, Ser. No. 225,482
Int. Cl. G01f 23/02
U.S. Cl. 73—328 11 Claims

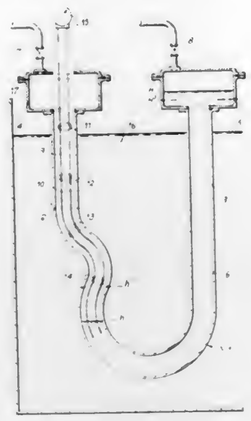


A flow tube arranged in fluid communication with a remotely located water storage tank is coupled to a convenient fixture inside a recreational vehicle.

A transparent part of the tube is stably held against the fixture by a retaining means. In order to indicate the water level of the tank, a floatation marker is located within the tube for viewing by a person.

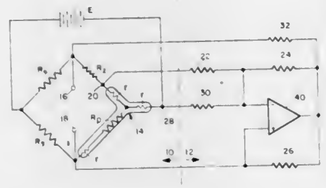
3,783,691
THERMOCOUPLE PROBE FOR TEMPERATURE MEASUREMENT
Jean-Claude Arlaud, Aix-en-Provence, France, assignor to Commissariat A L'Energy Atomique, Paris, France
Filed Jan. 29, 1973, Ser. No. 327,727
Claims priority, application France, Feb. 1, 1972, 7203250
Int. Cl. G01k 3/06, 7/08
U.S. Cl. 73—341 3 Claims

A thermocouple probe for the indication of temperature over a wide range of values has a hot junction which can readily be displaced. The thermocouple comprises a tube which is suspended from a stationary pressure chamber but electrically insulated therefrom and which contains in the lower portion thereof a liquid having good electrical conductivity and supplied from a reservoir, two electrically conductive wires



formed of different metals and connected at the upper ends thereof to a voltmeter whilst the lower ends are immersed in said liquid, and pneumatic means for displacing the level of the free surface of the liquid within the tube, said tube being formed of material which is compatible with the liquid.

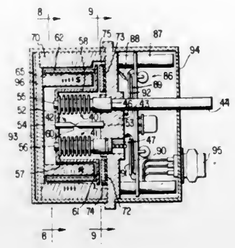
3,783,692
RESISTANCE BULB COMPENSATION CIRCUITS
Peter D. Hansen, Wellesley Hills, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Apr. 6, 1972, Ser. No. 241,547
Int. Cl. G01k 7/20
U.S. Cl. 73—362 AR 9 Claims



Bridge circuits for three wire resistance bulbs used for temperature measurements including compensation for line resistance and non-linearity of platinum type resistance bulbs.

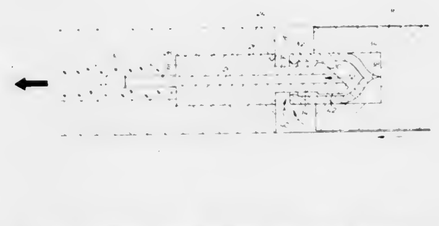
3,783,693
ABSOLUTE PRESSURE TRANSDUCER
Jerome M. Paros, 15109 N.E. 68th St., Redmond, Wash.
Continuation-in-part of Ser. No. 4,576, Jan. 21, 1970, Pat. No. 3,664,237. This application Feb. 17, 1971, Ser. No. 115,954
Int. Cl. G01l 9/12, 19/04
U.S. Cl. 73—398 C 4 Claims

Disclosed is an absolute pressure transducer including a mechanical assembly comprising an open bellows, a suspension system, and a sealed bellows arranged to yield a torque about a single sensitive axis when pressure is applied to the open bellows and an electronic circuit comprising a detector for sensing angular motion and a torquing device to restore the mechanical assembly toward its null position. The amount



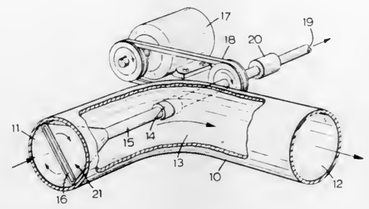
of electrically generated torque necessary to balance the pressure induced torque is proportional to, and a measure of, the applied pressure.

3,783,694
PUNCH FOR PIERCING SAMPLE CAPSULES
Eginhart Otte, and Dietrich Jentzsch, both of Uberlingen/Bodensee, Germany, assignors to Bodenseewerk Perkin-Elmer & Co., GmbH,, Uberlingen/Bodensee, Germany
Filed Mar. 3, 1972, Ser. No. 231,618
Claims priority, application Germany, Mar. 18, 1971, P 21 12 991.9
Int. Cl. G01n 1/22
U.S. Cl. 73—422 GC 5 Claims



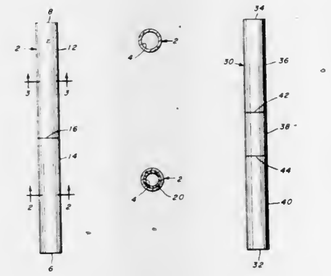
A punch assembly for releasing individual samples contained in metallic capsules into an analytical instrument includes a punch for piercing the capsule. The punch has a generally cylindrical piercing front end having a chamfered front surface formed by a plane cutting the front surface at an oblique angle and a central longitudinal channel extending from the front surface through the length of the punch. The cylindrical front end has a diameter which is only moderately smaller than the interior diameter of the capsule, so that the punch acts at least in part as a piston to push the sample material into the longitudinal channel which is connected to the analytical instrument. A relatively rapid flow of transfer gas is caused to flow around the surface of the punch into the capsule to both avoid sample loss and to carry the rest of the sample into the longitudinal channel. The punch assembly thus tends to inject all of the sample into the analytical instrument (e.g., a gas chromatograph) rapidly as a discrete relatively compact "packet" or "slug" of sample material.

3,783,695
FLUID SAMPLING APPARATUS
John Grothe, Lakefield, Ontario, and Brian Frank Osborne, Peterborough, Ontario, both of Canada, assignors to Milltronics Limited, The Kingsway Peterborough, Ontario, Canada
Filed Apr. 12, 1972, Ser. No. 243,298
Claims priority, application Great Britain, Apr. 13, 1971, 9,233/71
Int. Cl. G01n 1/10
U.S. Cl. 73—422 9 Claims



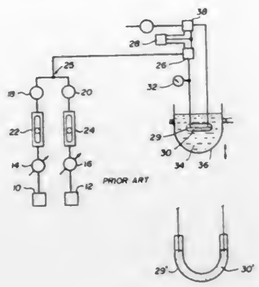
A fluid sampling apparatus comprises a tubular duct of circular or elliptical cross-section, a sampling tube extending into the duct and terminating in an outlet opening, and means for rotating the sampling tube about a rotary axis to cause the inlet opening to sweep a circular area bounded by the internal surface of the tube.

3,783,696
AUTOMATIC VOLUME CONTROL PIPET
Charles M. Coleman, 958 Washington Rd., Pittsburgh, Pa.
Filed Dec. 9, 1971, Ser. No. 206,442
Int. Cl. B01l 3/02; G01f 23/02, 19/00
U.S. Cl. 73—425.4 P 3 Claims



An automatic filling capillary pipet having a tubular body defining an elongated bore having a fluid entry end. The interior surface of the tubular body having a first zone with hydrophobic means for resisting wetting by aqueous liquids. The tubular body interior surface having a second zone which is hydrophilic with respect to aqueous fluids. Introduction of an aqueous fluid into the elongated bore will effect retention therein of a predetermined volume of aqueous fluid proportional to the cross section of the bore and the length of the second zone. In one embodiment the hydrophobic first zone originates at a position spaced from the fluid entry end and the hydrophilic second zone is disposed between the first zone and the fluid entry end. In another embodiment a hydrophobic third zone is disposed intermediate the hydrophilic second zone and the fluid entry end.

3,783,697
METHOD OF DETERMINING SMALL SURFACE AREAS
Seymour Lowell, 42 Wood Hollow Rd., Albertson, N.Y., and Stewart Karp, 67 Hickory Ln., Roslyn Heights, N.Y.
Filed June 20, 1972, Ser. No. 264,461
Int. Cl. G01n 15/08
U.S. Cl. 73—432 PS 2 Claims

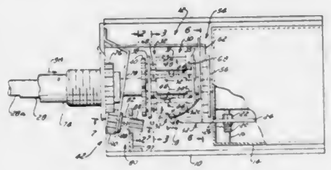


As an improvement over the method of U.S. Pat. No. 3,555,912 which uses flowing mixtures of adsorbate and inert diluent gases to develop surface measurement data, the within improved method further advances this technique by utilizing a cell, which contains the powder sample being measured, of an appropriate design to overcome errors which are found when low surface areas are measured. One optimum consequence using the improved cell hereof is that the measuring gaseous mixture is forced through the mass of the powder sample, thus controllably confining the surface area thereof being measured to the surface bounding the internal voids of the powder sample.

ERRATUM

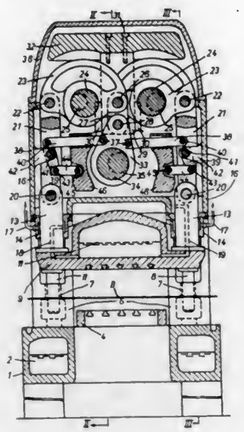
For Class 74—5 see:
Patent No. 3,784,363

3,783,698
PRESET DEVICE FOR UHF TUNER
Shoji Ogasawara; Teruzo Tamate, and Toshimitsu Sonobe, all of Tokyo, Japan, assignors to Alps Electric Co. Ltd., Tokyo, Japan
Filed Jan. 18, 1972, Ser. No. 218,747
Int. Cl. H03j 1/14; F16h 35/18
U.S. Cl. 74—10.2 5 Claims



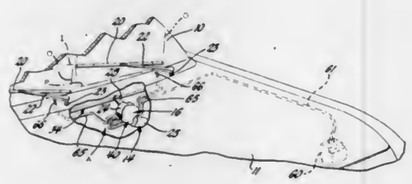
A preset device for a tuner comprises a plurality of externally threaded tuning screws rotatably mounted in grooves on the periphery of a channel selector drum. Each screw is provided with a nut threadedly mounted thereon and movable within the drum grooves axially therealong in response to rotation of the screw.

3,783,699
APPARATUS FOR BALANCING MASSES AT A PUNCH PRESS
August Thomas Portmann, Arbon, Switzerland, assignor to Bruderer AG., Arbon, Switzerland
Filed Sept. 26, 1972, Ser. No. 292,378
Claims priority, application Switzerland, Oct. 1, 1971, 14367/71
Int. Cl. F16h 21/32
U.S. Cl. 74—40 3 Claims

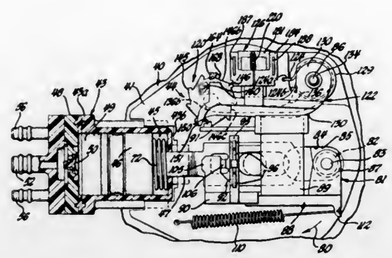


An apparatus for balancing the masses at a transverse shaft-double connecting rod-punch press for follow dies or the like wherein the press ram is driven through the agency of two pressure columns, guides and double levers from a crank defined by the double connecting rods arranged at the transverse shaft. For balancing the vertically moved masses and the vertical components of the eccentrically rotating masses, the crosshead driven by the crank and guided in vertical direction carries a balance weight. For balancing the horizontal components of the eccentrically rotating masses there are provided further balance weights connected with the crank through the agency of double levers and guides mounted at the press housing.

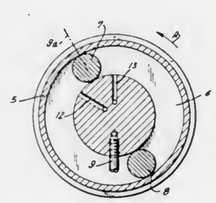
3,783,700
WINDSHIELD WASHER PUMP ASSEMBLY
Lloyd L. Kuck, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 29, 1972, Ser. No. 310,578
Int. Cl. F16h 25/08
U.S. Cl. 74—55 3 Claims



In a preferred form, this disclosure relates to a washer pump assembly for a windshield cleaning apparatus for an automotive vehicle. The washer pump assembly includes a reciprocable pump having a spring actuated delivery stroke and an interruptible driving connection with a drive means. The washer pump assembly further includes a control and timer mechanism which is selectively operable, when energized, to provide either a demand wash cycle during which the pump operates as long as the operator desires or a programmed wash cycle during which the pump is drivingly connected with the drive means for a predetermined time interval and then automatically disconnected therefrom.



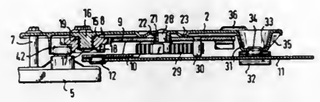
3,783,701
VIBRATOR
Werner Steprath, Gohr, and Manfred Birkholz, Schoenkirchen, both of Germany, assignors to Maschinenfabrik Buckau R. Wolf Aktiengesellschaft, Grevenbroich, Germany
Filed Aug. 9, 1972, Ser. No. 279,170
Claims priority, application Germany, Aug. 10, 1971, P 21 40 006.6
Int. Cl. F16h 33/10
U.S. Cl. 74—87 18 Claims



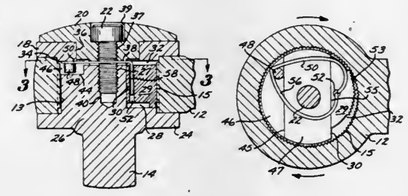
In an apparatus for producing vibrations, there is provided a combination consisting of a housing having an annular channel and at least one mass accomodated in and movable circumferentially of the channel. The combination further includes an arrangement for effecting movement of the mass circumferentially of the channel to respective locations therein. Abutments are provided in the channel for impeding movement of the mass through distances in excess of a predetermined portion of arc.

3,783,702
ELECTRIC WINDOW OPERATING MECHANISM
Bernhard Dehler, Coburg, Germany, assignor to Metallwerk Max Brose & Co., Coburg, Germany
Filed June 7, 1972, Ser. No. 260,628
Claims priority, application Germany, June 28, 1971, P 21 32 067.2
Int. Cl. F16h 27/02
U.S. Cl. 74—89 9 Claims

The operating mechanism for a window includes an electric motor fastened to a mounting plate which is a unitary zinc diecasting formed with bearings, backing surfaces, and retaining claws for the movable elements of the mechanism including a gear wheel driven by the motor and a circumferentially toothed segment meshing with the gear wheel. A guide sleeve pivoted on the plate slidably receives the window operating lever, one end of which is hingedly connected to a radial crank arm on the segment. Angular movement of the segment is limited by an abutment on the plate, and a spiral spring biases the segment away from the position of abutment in a direction to assist lifting of the window and to brake its descent.



3,783,703
RATCHET MECHANISM
Lester B. Trimble, Downey, and Zygmunt J. Sopinski, Pico Rivera, both of Calif., assignors to Jo-Line Tools, Inc., Anaheim, Calif.
Filed Nov. 17, 1972, Ser. No. 307,428
Int. Cl. F16h 27/02
U.S. Cl. 74—157 11 Claims

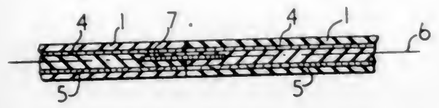


A ratchet tool is described which has a ring for reversal of the ratcheting mechanism. The ratcheting tool comprises a work-receiving member that fits into a cylindrical recess of a ratchet tool housing and which has a segmentally relieved, inner, flat surface to define a segmental recess with a chordal shoulder. A segemental pawl is disposed within the recess and is biased to either side of the segmental recess by resilient means that is biased between the pawl and abutment means, the latter being eccentrically carried on the inside surface of the ring means. In its preferred embodiment, the ratcheting tool has a cap that serves as a force plate and is in force transmitting relationship to the work-receiving means whereby an axial force or pressure can be applied to the tool. Another preferred embodiment employs a circular flange on the work-receiving member to provide a peripheral gripping surface whereby the work-receiving member may be rotated with finger pressure.

3,783,704
POWER TRANSMISSION, CONVEYOR AND VEHICLE TRACK
Neil Lawson, Glamorgan, Wales, assignor to Dunlop Limited, London, England
Filed Mar. 8, 1972, Ser. No. 232,854
Claims priority, application Great Britain, Mar. 11, 1971, 06,637/71
Int. Cl. F16g 1/00
U.S. Cl. 74—231 J 16 Claims

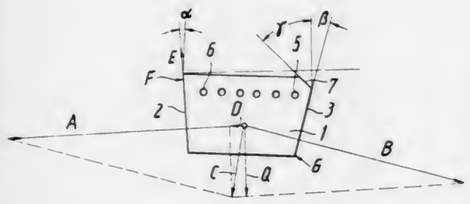
A belt having a joint with abutting ends both above and below the neutral axis of longitudinal bending of the belt, and

a flexible jointing ply located between the abutting ends and lying along the neutral axis to reinforce the joint, the flexible



jointing ply being of a strength sufficient to withstand substantially the same tensile load as that which the uncut belt is capable of withstanding.

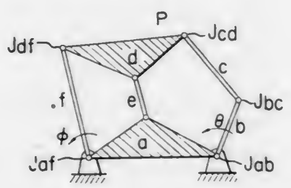
3,783,705
V-BELT FOR A STEPLESS VARIABLE ASYMMETRIC V-BELT DRIVING GEAR
Friedrich Moogk, Sinn, Germany, assignor to Emil and Adolf Becker KG, Sinn, Germany
Filed June 14, 1972, Ser. No. 262,442
Int. Cl. F16g *5/00*
U.S. Cl. 74—234 **5 Claims**



It is the object of the invention to provide a V-belt in such a manner that at higher rate of power input the V-belt will have longer life-time.

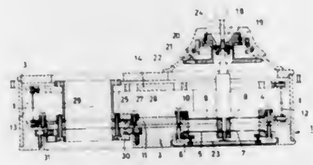
It was found that this object is met if the flank of the V-belt associated with the almost vertical side flank is inclined by at least 1° more than this side flank; and if the flank of the V-belt associated with the inclined side flank is inclined by at least 1° less than this side flank.

3,783,706
SIX-BAR LINKAGE HAVING SYMMETRICAL DISPLACEMENT CURVE
Kiyoshi Ogawa; Yoshiaki Yokoyama, and Yoshio Fukushima, all of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
Continuation-in-part of Ser. No. 23,073, March 26, 1970, abandoned. This application Mar. 10, 1972, Ser. No. 233,455
Int. Cl. G05g *1/04*
U.S. Cl. 74—469 **5 Claims**



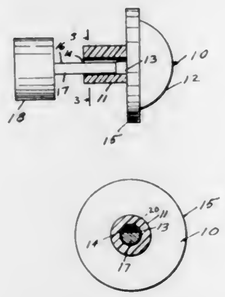
A six-bar linkage which has an angular displacement curve between θ and ϕ where θ is the angle of rotation of a driving link and ϕ is the angle of rotation of a driven link for producing a rectilinear motion of one point of the six-bar linkage without guide means when the driving link rotates.

3,783,707
CROSSTABLE FOR POSITIONING ARTICLES
Antonius Franciscus Foederer; Andrianus Jacobus Jozef Franken, and Jacobus Andrianus Johannes Maria Van Noord, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed June 5, 1972, Ser. No. 259,912
Claims priority, application Netherlands, June 16, 1971, 7108235
Int. Cl. G05g *11/00*
U.S. Cl. 74—470 **4 Claims**



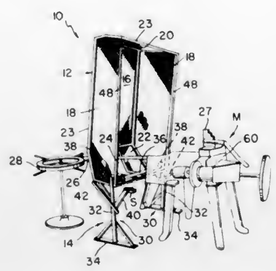
A crosstable for positioning articles, comprising a frame and a table which is movable relative thereto. An adjusting lever is connected by a diaphragm to the frame and to the table. The table is connected by a first pair of leaf springs, to an intermediate member which in turn is connected, by a second pair of leaf springs to the frame. The direction of support of the first pair of leaf springs being transverse to that of the second pair.

3,783,708
KNOB FOR ELECTRONIC CONTROL SHAFT
Henry J. Witkowski, 5625 E. Lake Rd., Erie, Pa.
Filed Oct. 27, 1971, Ser. No. 192,909
Int. Cl. G05g *1/10*
U.S. Cl. 74—553 **3 Claims**



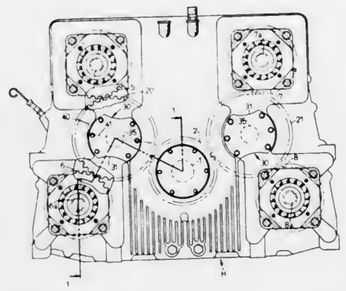
This specification discloses a handle knob or button for a shaft such as the shaft of electronic components; for example, volume controls for use in radio and television sets, potentiometers and the like. The conventional handle or knob of this type is molded of a plastic material and has an inserted metallic spring to engage the flat side of a shaft or a slot in the shaft. The knob disclosed herein has an integral web molded into it. The web is curved from the sides of the opening toward the diammetrical center of the opening in the handle and, therefore, provides in effect a resilient member or spring.

3,783,709
MACHINE GUARD
Robert E. Scott, 1471 Club Dr., Bloomfield Hills, Mich.
Filed May 26, 1972, Ser. No. 257,084
Int. Cl. F16p *3/08*
U.S. Cl. 74—612 **6 Claims**



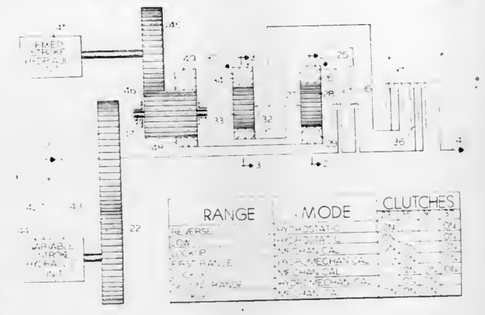
A machine guard for protecting the machine operator and others comprising a cage-like hood adapted to at least partially cover the machine when in use and capable of being swung away from the machine to a retracted position. Means are provided to cut off power to the machine immediately upon initial retraction of the hood.

3,783,710
POWER TRANSMITTING DRIVE APPARATUS
Horst G. Steinhagen, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.
Filed Nov. 16, 1972, Ser. No. 307,103
Int. Cl. F16h *37/06, 3/08, 57/02*
U.S. Cl. 74—665 GA **3 Claims**



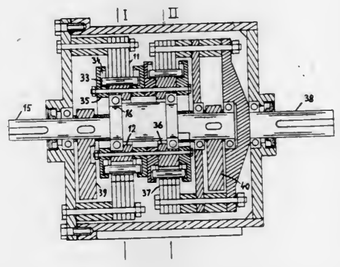
A power transmitting drive apparatus for distributing power from a single power source to a plurality of outputs for driving various mechanism, such as fluid pumps. A fixedly located power input means is rotatably mounted in the housing and furnishes power to two intermediate gear means, the intermediate gear means then each transmitting the power to two output gear means which are attached to the load, such as fluid pumps or the like. The output gear means is at a fixed location in the housing and need not be changed. The intermediate gear means as well as the input gear means are changeable as to size and number of teeth to effect different gear ratio changes. The arrangement is such that the intermediate gears can be replaced with others of different size, but at the same time, the housing requires no additional mounting holes for mounting the intermediate gears in various positions. Instead, various types of gear support means are provided in fixed locations in the housing so as to be able to shift the center of rotation of the intermediate gears along a certain predetermined line.

3,783,711
PLURAL RANGE TRANSMISSION
Elias Orshansky, Jr., San Francisco, Calif., assignor to Orshansky Transmission Corporation, New York, N.Y.
Filed June 2, 1972, Ser. No. 259,025
Int. Cl. F16h *47/04*
U.S. Cl. 74—687 **22 Claims**



A transmission comprising a plurality of planetary assembiles, each having input means, output means, and reaction means, the output means for the one assembly being in driving relation with the input means of a succeeding assembly. Respective clutches connect (1) the input means of the first assembly to the input shaft, (2) the input means of the first assembly to the output means thereof, (3) the output means of the first assembly to the output shaft, (4) the output means of the second assembly to said output shaft. First and second hydraulic units are connected together so that when one is a pump the other is a motor and vice versa, the first hydraulic unit having a fixed stroke and the second hydraulic unit having a variable stroke and driven by the input shaft, the second hydraulic unit being connected by a gear train to the reaction means of both planetary assemblies, which rotate in opposite directions.

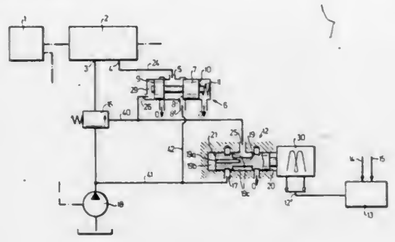
3,783,712
HIGH RATIO FRICTIONLESS SPEED REDUCTOR
Rene D. Colinet, 4902 N. 13th St., Philadelphia, Pa.
Filed Mar. 28, 1972, Ser. No. 238,887
Claims priority, application Belgium, July 30, 1971, 770716
Int. Cl. F16h *1/28*
U.S. Cl. 74—805 **3 Claims**



A mechanical rotary speed reductor for high ratio reduction of speed between an input shaft and an output shaft with no in-

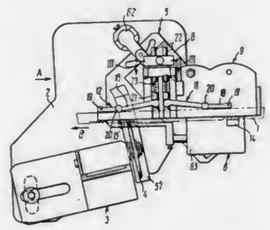
termediary shaft. With no friction between the teeth of the gears and a unique design, high torques can be transmitted with great mechanical efficiency.

3,783,713
KICKDOWN ARRANGEMENT FOR A HYDRAULIC TRANSMISSION
Gerhard Will, Beutelsbach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Oct. 4, 1972, Ser. No. 294,889
Claims priority, application Germany, Oct. 9, 1971, P 21 50 468.7
Int. Cl. B60k *21/00*; **F16h** *3/74*
U.S. Cl. 74—865 **5 Claims**



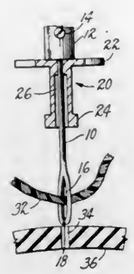
A kickdown arrangement for the hydraulic transmission of a motorcar includes an electrohydraulic transducer with a throttle valve operated by an electromagnet, and a control valve controlled by pressure fluid from the throttle valve, and producing a hydraulic kickdown signal when a predetermined maximum control pressure is reached upon full depression of the gas pedal. Both valves receive fluid under pressure from the outlet of a pump driven by the motor which drives the transmission. A servo main valve connects the outlet of the pump with the hydraulic transmission, and is controlled by a control flow from the outlet of the throttle valve.

3,783,714
BAND SAW GRINDER
Vladimir Viktorovich Idel, ulitsa Gertsena 3, kv. 37, Zavolzhie Gorkovskoi Oblasti, U.S.S.R.
Filed Oct. 24, 1972, Ser. No. 300,414
Claims priority, application U.S.S.R., Oct. 25, 1971, 1706658; Feb. 22, 1971, 1746568
Int. Cl. B23d *63/12*
U.S. Cl. 76—37 **4 Claims**



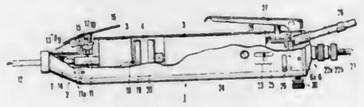
A band saw grinder wherein the saw-holding device comprises a flexible appliance for holding the side surfaces of the saw, a flexible appliance for holding the back surface of the saw, located before the grinding wheel in the direction of saw pitch feed with relation to the grinding wheel, and an additional flexible appliance for holding the back surface of the saw, located after the grinding wheel in the direction of pitch feed. The provision of the additional appliance ensures identical profiles of the saw teeth throughout the length of the saw.

3,783,715
TIRE REPAIR TOOLS
Alec W. Niconchuk, 267 Lowell St., Peabody, Mass.
Filed Nov. 1, 1971, Ser. No. 194,113
Int. Cl. B60c *25/16*
U.S. Cl. 81—15.7 **3 Claims**



There is disclosed in the specification a tire repair tool for inserting plugging material typically in the form of rubber coated twisted strands, into a tire puncture. The plugging material is threaded into the open eye of a needle forming a part of the tool and inserted into the puncture. The inserting motion is limited by a stop free to rotate on the needle's shank so that the ends of the strand are not drawn into the puncture and the stop also limits the withdrawal of the needle.

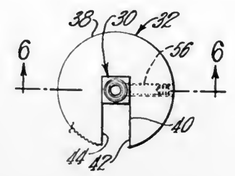
3,783,716
TOOL DEVICES OF THE VARIABLE TORQUE TYPE
Susumu Saito, Tokyo, Japan, assignor to Tokyo Ferrite Manufacturing Company, Ltd., Kita-ku, Tokyo, Japan
Filed Jan. 19, 1972, Ser. No. 218,906
Int. Cl. B25b
U.S. Cl. 81—52.4 R **6 Claims**



In a tool device of the type comprising rotary driving means, a working tool and a clutch adapted to couple the working tool with the rotary driving means, the clutch comprises a first magnetized disc driven by the rotary driving means and a second magnetized disc confronting the first magnetized disc and connected to the working tool and wherein means is provided for varying the spacing between the first and second magnetized discs whereby to adjust the torque applied to the working tool.

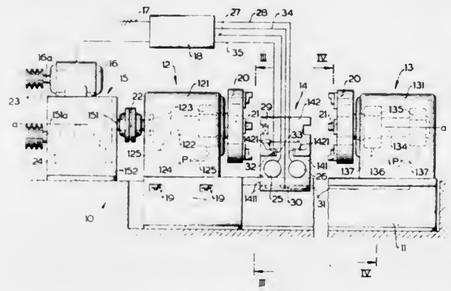
3,783,717
ALIGNMENT AND INSTALLATION TOOL FOR THREADED MALE MEMBERS
Ronald T. Ramge, 2275 N. Cable Rd., Apt. No. 5, Lima, Ohio
Filed May 3, 1972, Ser. No. 250,059
Int. Cl. B25b *13/48*
U.S. Cl. 81—119 **5 Claims**

A support and alignment tool for installing a threaded elbow into a threaded opening whose axis extends at right angles to the line of sight of the installer, and access to which opening



can only be had from a direction that is at right angles to the axis of the threaded opening.

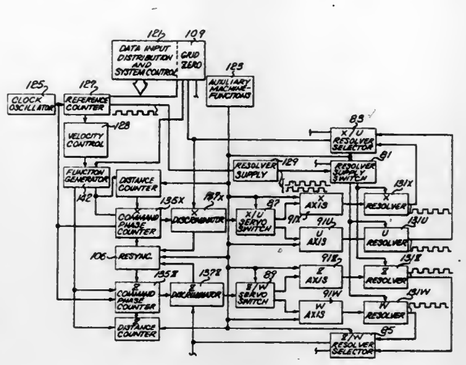
3,783,718
MACHINE FOR ROUGH-AND/OR FINISH-TURNING OF HEAVY WORKPIECES
Wolfgang Kuhne, Dortmund-Huckarde, and Hubert Goletz, Bergkamen, both of Germany, assignors to Hoesch Maschinenfabrik Deutschland AG, Dortmund, Germany
Filed Jan. 27, 1972, Ser. No. 221,188
Claims priority, application Germany, Feb. 1, 1972, P 21 04 534.1
Int. Cl. B23b *5/08*
U.S. Cl. 82—2 R **10 Claims**



A heavy-duty machine for rough- and/or finish-turning of heavy workpieces has a bed to which is bolted a headstock and which reciprocably supports a tailstock. The spindles in the headstock and tailstock are rotatable in hydrostatic bearings and the tailstock is provided with hydrostatic ways which are parallel to the common axis of the spindles. The main transmission of the turning machine has a discrete casing mounted behind the headstock and supporting the main motor which rotates the spindle of the headstock by way of the transmission and a coupling for transmitting torsion only which connects the output element of the transmission with the headstock spindle. The output shaft of the main motor is located in a vertical plane which includes the common axis of the two spindles. The outer dimensions of the housing of the headstock match the outer dimensions of the housing of the tailstock. The headstock, the tailstock, the transmission, the main motor and the coupling have halves which are mirror symmetrical with reference to the aforementioned plane.

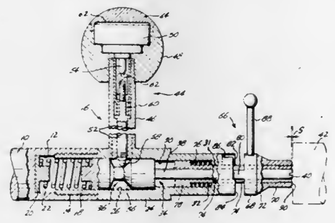
3,783,719
MACHINE TOOL
Donald R. Gugliotta, Chagrin Fall, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Aug. 15, 1972, Ser. No. 280,870
Int. Cl. B23b *21/00*
U.S. Cl. 82—21 B **11 Claims**

An improved control apparatus is utilized with a machine tool having side and end turrets. Each of the turrets is moveable along either one of two axes. This control apparatus is operable in response to command signals from a stored program or from manual data inputs to effect movement of either one of the turrets while the other turret remains parked or stationary. The control apparatus includes a single function



generator and two discriminators or position error signal generators, each of which is selectably switched between one position servoloop associated with the side turret and one position servoloop associated with the end turret. Switching may be initiated either by command signals from a stored program or from manual data inputs.

3,783,720
STOP GAUGES WITH HANDLE MOUNTED INDICATOR AND LOCKOUT MEANS
Harrison Martin Dean, 205 N. 31st Ave., Yakima, Wash.
Filed Sept. 2, 1971, Ser. No. 177,249
Int. Cl. B23b *25/06*
U.S. Cl. 82—34 A **11 Claims**

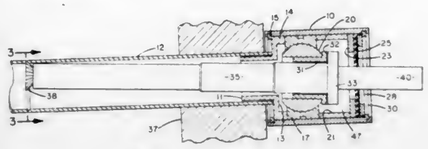


A stop gauge attachment for lathes, milling machines, drill presses and the like, for accurately measuring critical finishing advances of a cutting tool as the tool carriage is tightened against a stop. The device is generally applicable to machines having a tool carriage and drive means for moving the carriage toward a work piece held in the machine, where relative movement between the work piece and tool is terminated by impact of a stop screw or the like on the tool carriage with a stationary stop on the machine, to measure minute amounts of advancement of the tool after the initial impact shuts down the machine drive. Embodiments disclosed include indicators for the bar stop, the ram carriage and the cross feed carriage of a lathe. A dial indicator is included in the knob of the handle used for gripping the device for adjustment purposes. Lockout means are disclosed for rendering the indicator inoperative so as to serve simply as a stop mechanism and provide a reference point from which measurements are made.

3,783,721
ROTARY INTERNAL TUBE CUTTER

Charlie D. Miller, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed May 30, 1972, Ser. No. 257,515
Int. Cl. B23b *3/04*; **B23d** *67/00*
U.S. Cl. 82—82 **4 Claims**

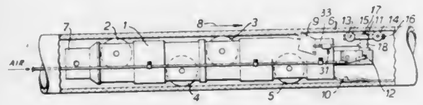


The invention is a device for severing a tube inwardly of the tube sheet. An arbor is journaled in a spherical bearing structure mounted in a housing. The housing has a tubular extension for insertion in the outer end of the tube being severed for positioning the housing relative to the tube. The arbor extends a distance into the tube and a circular cutter is fixed to the inner end of the arbor. The opposite end of the arbor extends from the housing for attachment to a hand manipulated, power-operated driver, such as a portable drill.

3,783,722
INTERNAL BEAD TRIMMERS

Clive James Arthur Bosworth, Kettering, England, assignor to British Steel Corporation, London, England

Filed Aug. 28, 1972, Ser. No. 284,080
Claims priority, application Great Britain, Sept. 21, 1971, 44,019/71
Int. Cl. B26d *3/00*
U.S. Cl. 83—1 **13 Claims**



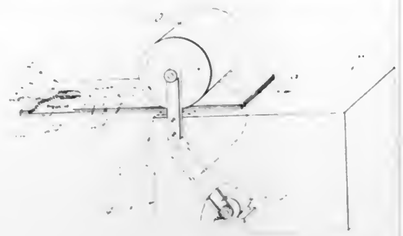
An internal bead trimmer for removing the internal bead formed in the production of welded metal tube, in which the trimmer is mountable for relative axial movement within a tube. The trimmer includes: a bead cutting member; a measuring jet orifice carried by the trimmer downstream of the bead cutting member, said measuring jet orifice being connectable to a source of fluid pressure; and means for enabling the fluid pressure at the outlet of the measuring jet to be sensed; said orifice being so arranged and disposed that in use it follows the path of the cutting member at a predetermined spacing from the internal tube wall and directed at the weld line.

3,783,723
METHOD OF CUTTING THIN, BRITTLE MATERIAL

William H. Van Orden, Enfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 23, 1972, Ser. No. 282,996
Int. Cl. B26f *1/44*
U.S. Cl. 83—21 **1 Claim**

A method of cutting shaped pieces from thin brittle material, such as composite fiber reinforced tape, comprises positioning the material to be cut on top of the flat surface of a template, wherein an edge of the template defines the periphery of the flat surface and is the cutting edge of the template, and the flat surface has the shape of the piece to be produced; a compressible material is pressed against the brittle material forcing the brittle material against the flat surface

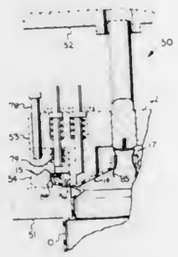


and causing overhanging portions of the brittle material to bend below the plane of the flat surface, whereupon it is cut by the edge of the template.

3,783,724
PLASTIC BOTTLE MANUFACTURE

Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois Inc., Toledo, Ohio

Division of Ser. No. 103,660, Jan. 4, 1971. This application Nov. 7, 1972, Ser. No. 304,547
Int. Cl. B26d *3/00*
U.S. Cl. 83—140 **5 Claims**



A blow molding apparatus for forming containers from organic plastic material wherein the container is formed with an expanded radially extending wall at the finish of the container so that the flash and moile material can be removed by a die cut or blanking operation of the apparatus.

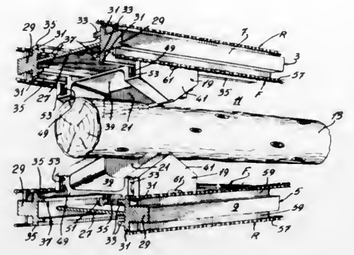
3,783,725
MECHANICAL SHEARS

Marcel Payeur, Plessisville, Quebec, Canada, assignor to Forano Limitee, Plessisville, Quebec, Canada

Filed Apr. 26, 1972, Ser. No. 247,666
Int. Cl. B26d *1/56*; **B27b** *23/00*
U.S. Cl. 83—326 **18 Claims**

The invention is in mechanical shears for slashing tree stems into logs. It is formed of a pair of conveyor assemblies including endless tracks of which the forward portions are mounted so as to face one another and be inclined toward one another whereby to define therebetween a tapering passage along which the stems to be slashed are moved; the wide end of the passage being the inlet end and the narrow one, the outlet end. The tracks have, mounted thereon, an equal number of shear blocks spaced from one another a distance equal to the length of logs desired, the shear blocks each having a shear blade projecting laterally outwardly of the respective track. The blocks are so located along the tracks that the cutting edge of a shearing blade of one block edgedly faces the cutting edge of a shearing blade of a block on the other conveyor track when

the blocks ride along the track forward portions. Because the latter are inclined toward one another, the blades move

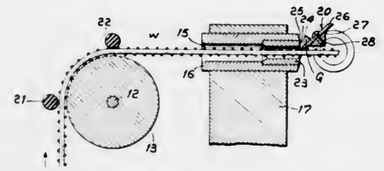


toward one another and thus shear any tree stem fed into the tapering passage.

3,783,726
WIRE CUTTING APPARATUS

John L. Marks, Peabody, Mass., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Continuation of Ser. No. 147,097, May 26, 1971, abandoned. This application Mar. 19, 1973, Ser. No. 342,336
Int. Cl. B26d *5/22*
U.S. Cl. 83—355 **5 Claims**

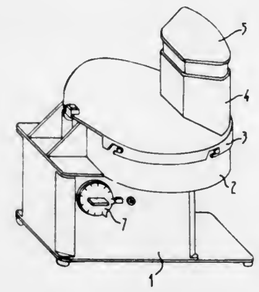


This is an invention for wire cutting apparatus. A drive shaft is coupled both to means for continuously feeding wire and rotating means for cutting and providing clearance for the continuously fed wire.

3,783,727
VEGETABLE CUTTING AND SLICING MACHINE

Francois C. Brignard, 1 Bis rue du Marechal Joffre, Nice, and Jean E. Lefranc, "La Montagne", Beaune, both of France

Filed Apr. 8, 1971, Ser. No. 132,408
Claims priority, application France, Apr. 9, 1970, 7012908
Int. Cl. B26d *5/08*
U.S. Cl. 83—592 **3 Claims**

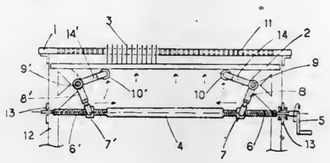


A machine adapted to slice vegetables, and particularly potatoes, and especially a machine adapted for cutting slices of various desired shapes, such as flat slices, wavy slices, chequered wavy slices and substantially cubical shaped pieces.

3,783,728
NEEDLE TABLE FOR PADDING OF PATTERN FABRICS

Leon Glasman, 30 Boulevard de Strasbourg, Paris, and Jean O. Prioux, 3 Villa de l'"Alliance, Sannois, both of France

Filed May 15, 1972, Ser. No. 253,621
Claims priority, application France, May 14, 1971, 7117465
Int. Cl. B26f *1/24*
U.S. Cl. 83—620 **3 Claims**

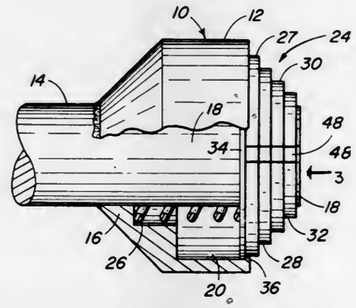


An apparatus for padding of pattern fabrics wherein said padding and fabric are supported upon a table having a plurality of holes or aperatures or the like to permit the passage of a plurality of needles positioned beneath said table. The holes or aperatures serve as guiding means for the needles as they are raised for the purpose of penetrating the padding and fabric.

3,783,729
TOOL HOLDER

Edward L. Parr, El Cajon, Calif., assignor to Wendell L. Thompson, Burbank, Calif.

Filed Oct. 26, 1972, Ser. No. 301,186
Int. Cl. B27b *5/32*
U.S. Cl. 83—666 **4 Claims**



A tool holder for circular tools, such as saws, the tool holder having a recess. A sleeve is adapted to be received in the recess, the sleeve having at least two concentric, circular and stepped shoulders that are parallel with the axis of the sleeve, each shoulder being adapted to be received by tools having different and complementary diameter eyes. The holder also having removable means for readily clamping tools thereto.

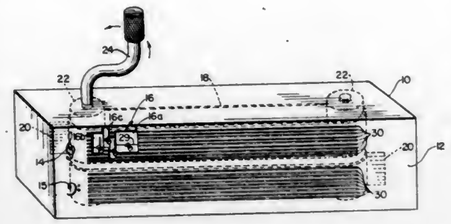
3,783,730
MUSIC BOX

James B. Waters, Jr., 12111 Parklawn Dr., Suite 206, Rockville, Md.

Filed June 29, 1973, Ser. No. 375,131
Int. Cl. G10f *1/06*
U.S. Cl. 84—94 **22 Claims**

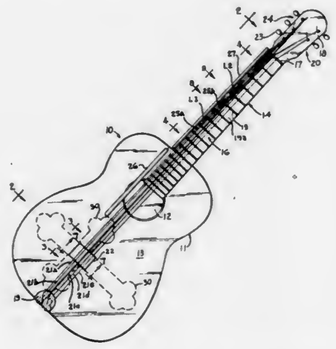
An improved music box having an internal rotatable endless belt carrying a pair of swiss reeds offset 180° one from the

other and a box enclosure with two lines of music on one long side of the box. Swiss reed actuating pegs in the form of notes



are insertable through the music lines. The notes are of varying widths to give corresponding varying time values for the notes.

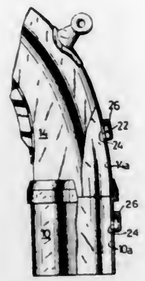
3,783,731
CHROMATIC MULTIPLE STRINGED MUSICAL INSTRUMENT
James E. Pash, 1025 W. Gladstone St., La Puente, Calif.
Filed May 9, 1972, Ser. No. 251,641
Int. Cl. G10d *1/00*
U.S. Cl. 84—173 **9 Claims**



The disclosure is of a chromatic, multiple stringed, musical instrument having features of conventional banjos, and also features of the sitar of India. As best employed, it comprises a five stringed instrument with each string tightened or loosened to play in any chord. After the strings have been tuned to a chord, a mode is played on a melody string (one of the five).

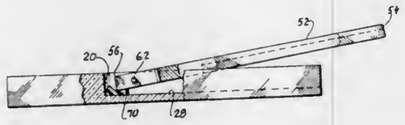
By arranging the strings in a sequence of gauges and by employing a pitch raising peg means critically with relation to string arrangement it is possible to obtain the effects of playing a chromatic melody with a fixed chord tuning. A conventional sitar type bridge may be used to achieve unique string sound. Also a thumb rest may be provided to aid the manual leverage of the player. With this background instrument, mode-stick sets are provided, selectively to be attached beside the neck of the instrument, the respective mode-sticks being color coded to guide finger manipulation upon the melody string with relation to respective frets, in correspondence with various modes, as for instance, with various international musical scales.

3,783,732
WIND-TYPE MUSICAL INSTRUMENT
Yasuharu Ihara, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuka-ken, Japan
Filed July 31, 1972, Ser. No. 276,585
Int. Cl. G10d *7/08*
U.S. Cl. 84—385 **9 Claims**



Herein disclosed is an improved wind-type musical instrument such as a saxophone, wherein at least one outwardly projecting air chamber is formed in a tubular neck section between a mouthpiece and a tubular body section or in that portion of the tubular body section which is located intermediate between a tone-hole for the highest note and the neck section. The air chamber serves as if it were a capacitor in an electric circuit, storing therein a portion of the tonal energy and thus giving the player a feeling of responsiveness and resistance.

3,783,733
MUSICAL INSTRUMENT
Demosthenes Zirimis, 25 Croley St., Huntington, L. I., N.Y.
Filed Dec. 8, 1972, Ser. No. 313,511
Int. Cl. G10d *13/02*
U.S. Cl. 84—402 **4 Claims**

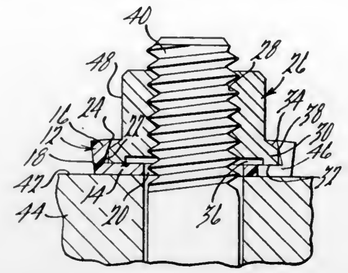


A hand held sound emitting instrument embodying a sounding shell having a handle formed integrally therewith and a clapper freely hinged to the shell. Back and forth motion of the shell produced by hand yields rotational motion of the clapper with respect to the shell. Such clapper rotation is limited by a stop in a direction substantially away from the shell and by the shell itself in the opposite direction. Sharp contact between the clapper and the shell results in a particular sound emanating from the unit.

3,783,734
CLAMP LOAD INDICATING AND SEALING FASTENER ASSEMBLY
Arthur E. Velthoven, Werren, Mich., assignor to Federal Screw Works, Detroit, Mich.
Filed Aug. 28, 1972, Ser. No. 284,284
Int. Cl. F16b *31/02*
U.S. Cl. 85—62 **7 Claims**

A fastener assembly in which a plastic member is snap fitted on a threaded metallic fastener. As the fastener is tightened

the plastic is extruded into the fastened joint. When the clamp load reaches a predetermined value, the plastic is severed by

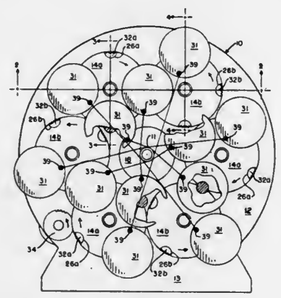


the fastener, causing the outer peripheral portion of the plastic to fall off the fastener. This gives a visible signal that the desired clamp load has been reached.

3,783,735
APPARATUS FOR PREPARING AND PACKAGING STICK SLURRY EXPLOSIVES
Charles H. Murphy, Northumberland, England, and Lex L. Udy, Salt Lake City, Utah, assignors to Ireco Chemical, Salt Lake City, Utah
Filed Mar. 2, 1972, Ser. No. 231,162
Int. Cl. C06d *1/08*
U.S. Cl. 86—20 R **4 Claims**

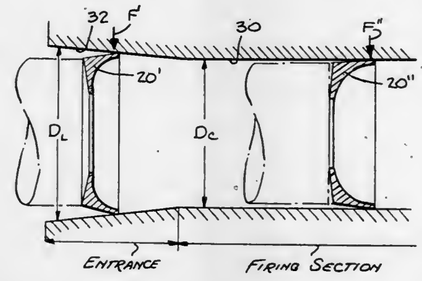
Packaged sticks of stiff slurry blasting composition are produced by apparatus and method which (1) form a slurry of pumpable consistency by blending together a solution of inorganic oxidizer salts, such as ammonium nitrate, sodium nitrate and/or others with solid fuels and/or sensitizers, (2) pump the slurry, by means of an air-diaphram pump, through a hollow mandrel or tube, (3) package the extruded slurry as it emerges from the mandrel by encompassing the composition in a packaging material of tubular shape, which is either surrounding or sealed around the extruded slurry, (4) performing a tying and cutting operation between successive lengths to form sticks as they are filled, and (5) conveying the filled sticks to packaging or delivery, all in a continuous process.

3,783,736
BRAIDING MACHINE
Donald Richardson, 70 Grandview Blvd., Wyomissing Hills, Reading, Pa.
Filed Aug. 14, 1972, Ser. No. 280,631
Int. Cl. D04c *3/02, 3/40*
U.S. Cl. 87—29 **14 Claims**



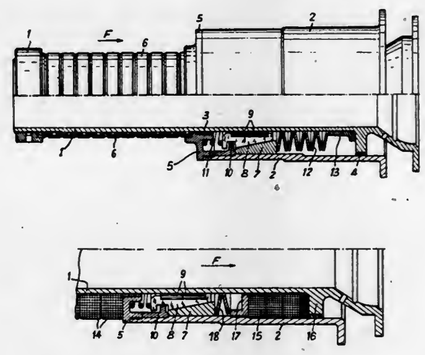
A maypole-type braider for the reinforcing of hose and other tubular products and for the production of ropes, cables and the like, having mechanism for directing strand supply carrier spindles in intersecting serpentine paths around a braiding point, the mechanism including a circle of carrier spindle drivers, cooperating means on the drivers and carrier spindles for retaining each carrier spindle in contact with a driver while it is being driven thereby and for transferring each carrier spindle from a driver to a next adjacent driver of the circle, said cooperating means eliminating the necessity of a track plate or other stationary part acting upon the carrier spindles, the braider also including means for maintaining a strand pay-off point of each carrier substantially on a line drawn through the center of the spindle and the braiding point during the travel of the carrier spindles in their serpentine paths around the braiding point, the last-mentioned means contributing to the operation of the carrier spindle retaining and transfer means.

3,783,737
SEAL
Eugene Ashley, Burlington, Vt., assignor to General Electric Company, Burlington, Vt.
Filed Feb. 4, 1972, Ser. No. 223,643
Int. Cl. F41f
U.S. Cl. 89—7 **3 Claims**



A liquid propellant gun is provided with a seal and a multi diametered chamber which centripetally deflects the seal to generate a preseating force thereon.

3,783,738
RECOIL ABSORBER
Patrice Pelat, Paris, France, assignor to International Vibration Engineering and Avions Marcel Dassault
Filed Feb. 23, 1972, Ser. No. 228,523
Int. Cl. F41f *19/04*
U.S. Cl. 89—44 R **21 Claims**



Recoil absorber comprises combination of spring means and friction means for absorbing a part of the energy imparted

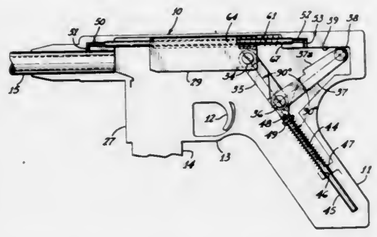
to a weapon when it is fired. The friction means is arranged to absorb energy only during the recoil, but not when the weapon is being restored to its initial position.

3,783,739

GUN TOGGLE MECHANISM WITH BIASING MEANS POSITIONED IN PREDETERMINED AREA ON TOGGLE TO ABSORB SHELL EXPLOSIVE REACTIVE FORCES

Walter E. Perrine, 11833 W. Olympic Blvd., Los Angeles, Calif.

Filed Dec. 7, 1971, Ser. No. 205,533
Int. Cl. F41d *3/02*
U.S. Cl. 89—189 **12 Claims**



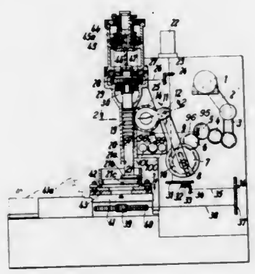
A toggle action pistol in which a toggle is tripped to recede into its handle by the effects of gas pressure generated at the time of firing and employing a toggle biasing means in a given area on the toggle mechanism for absorbing shell explosive reactive forces.

3,783,740

GEAR SHAPING APPARATUS WITH IMPROVED CUTTER RETRACTION ARRANGEMENT

Walter Seiberlich, Ettlingen, Germany, assignor to Maschinenfabrik Lorenz Aktiengesellschaft, Ettlingen, Germany

Filed Sept. 25, 1972, Ser. No. 291,566
Claims priority, application Germany, Sept. 25, 1971, P 21 47 923.2
Int. Cl. B23f *23/00*
U.S. Cl. 90—7 **15 Claims**



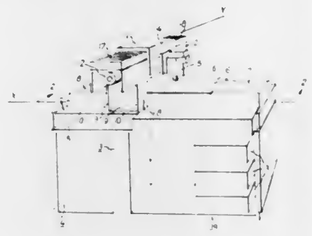
A gear shaping apparatus in which a spindle with the cutting wheel thereon is movable axially from its normal operating range to a retracted position to facillitate insertion and removal of the work piece. A retracting drive is provided separate from the stroke drive which reciprocates the spindle axially for normal cutting. For retraction of the spindle, the stroke drive is first disengaged from its driving connection to the spindle, after which the retracting drive is drivingly engaged with the spindle to retract the same. The retracting drive may be a fluid operated piston and cylinder unit operably connected to the spindle or a separate motor attached to a shaft which is permanently drivingly engaged with the spindle.

3,783,741

PROGRAM CONTROLLED COORDINATE MACHINE

Gerhard Schadebrodt, Neu-Isenburg; Gustav Altzschner, Kleinosiheim; Hans-Helmut Feldmann, Neu-Isenburg; Bernhard Graichen, Neu-Isenburg, and Wolfgang Pabst, Neu-Isenburg, all of Germany, assignors to LICENTA Patent-Verwaltung-GmbH, Frankfurt am Main, Germany

Filed Aug. 30, 1971, Ser. No. 176,118
Claims priority, application Germany, Aug. 29, 1970, P 20 42 912.3
Int. Cl. B23b *47/00*; **B23c** *1/16*
U.S. Cl. 90—13 C **10 Claims**



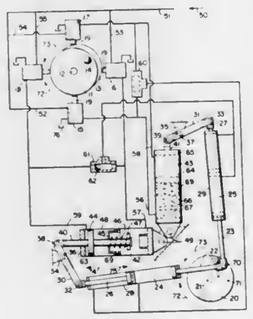
A program controlled coordinate machine including at least two separately functioning coordinate modules each including a bed on each of which a carriage is supported for movement. One of the modules is supported by the other module which in turn is supported by a support module. The support is such that the carriages move in defined perpendicular directions with respect to each other. The support module is enclosed by a housing module which also supports electronic modules which house the electronic components required for machine control.

3,783,742

REMOTE ROTARY CONTROL

Jack R. Kobelt, 235 E. 5th Ave., Vancouver, Canada

Filed July 27, 1972, Ser. No. 275,489
Int. Cl. F15b *11/18*
U.S. Cl. 91—413 **9 Claims**



This disclosure pertains to that class of remote rotary controls wherein an actuated rotary element situate remote from a control rotary element duplicates or reproduces the rotary action of the control element. More particularly, my present invention provides for a remote rotary following action which

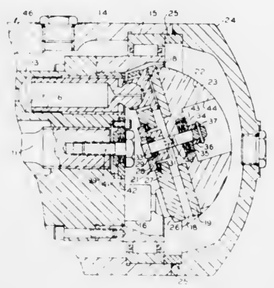
is infinitely variable and infinitely continuous in either direction of rotation. A rotary control head and a rotary actuator are rotatably mounted on a common base means. A cam integral to the control head sequentially actuates a plurality of pressure varying control valves as the head is rotated. Each of the control valves is duct connected to one of a plurality of linear actuators mounted on the base means. Each of the linear actuators is interconnected to an extensible and retractable fluid controlled actuator link; each actuator link is interconnected to the rotary actuator. Each linear actuator is duct connected for fluid flow through a shuttle-valve to the actuator link of an adjacent linear actuator whereby the fluid pressure in each actuator link is substantially inversely proportional to the fluid pressure in its interconnected linear actuator. Sequential actuation of the plurality of control valves by rotation of the control head causes sequential operation of each linear actuator whereby the rotary actuator reproduces the rotation of the control head.

3,783,743

AXIAL PISTON HYDRAULIC TRANSDUCER SHOE RETAINER STRUCTURE

David G. Raymond; Gary C. Smith, Jr., both of Westerville, and Alan H. Viles, Columbus, all of Ohio, assignors to Abex Corporation, New York, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,320
Int. Cl. F01b *13/04*
U.S. Cl. 91—488 **7 Claims**



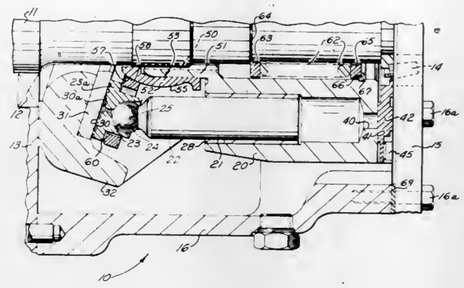
In hydraulic transducer apparatus of axial piston type having a rotatable piston barrel mounted within a body, a rocker cam defining a swash plate having a slip surface pivotally mounted within an accommodating cradle including within the said body, and a plurality of piston structures including piston shoes reciprocatively mounted with such piston shoes disposed in abutting relation with the swash plate. A piston shoe retainer structure is provided operable to urge said piston shoes into even and uniform abutting contact with the swash plate slip surface. The shoe retainer structure comprises: A shoe retainer plate is provided which is rotatable with the pistons and which respectively retains the piston shoes against the slip surface. A spherical retainer socket is disposed to urge the plate and the shoes against the swash plate surface through a thrust bearing, the retainer socket having means cooperating with said rocker cam to prevent rotation of the retainer socket. A fastener means extends into the rocker cam and connects the retainer socket and the retainer plate through a spherical washer universally fitted into the socket. Resilient retainer means, such as a Belleville spring structure, connects the fastener means into prestressed relation with the rocker cam. The shoe retainer structure is operable independently of the piston barrel structure.

3,783,744

HYDRAULIC FLUID DEVICE AND METHOD OF ASSEMBLY THEREOF

Roger J. Benkovic, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Apr. 24, 1972, Ser. No. 246,829
Int. Cl. F01b *13/04*
U.S. Cl. 92—57 **8 Claims**



A hydraulic fluid device includes a cylinder block, a plurality of pistons with inner ends disposed for reciprocation within cylinders in the cylinder block, and an inclined cam plate having a bearing surface facing one end of the cylinder block. The outer ends of the pistons have bearing means in the form of a slipper which slidably follows the bearing surface on the cam plate. The cylinder block is mounted for rotation relative to the cam plate. A fluid inlet and outlet means communicates successively with ports in the cylinder block upon rotation of the cylinder block relative to the cam plate. The cylinder block has a hub portion projecting therefrom and a spherical collar is pressfit on the hub portion. A slipper retainer plate is supported on the spherical surface of the collar and is engageable with the slipper, and a spring means biases the cylinder block and collar in a direction to create a predetermined clearance which during running provides a clearance between the retainer plate and the slipper.

The hydraulic fluid device is assembled by a process in which the cylinder block is pressfit part way into the spherical collar and the assemblage thereof is placed in the housing of the hydraulic fluid device. A fixture or ram member is then engaged in a cooperative association with the cylinder block and moved inwardly to move the cylinder block farther into pressfitting relationship with the spherical collar. The fixture is then removed and a cover is bolted onto the housing. The spring means then biases the cylinder block and collar in a direction toward the cover for the housing. These steps result in the predetermined clearance referred to above being established.

3,783,745

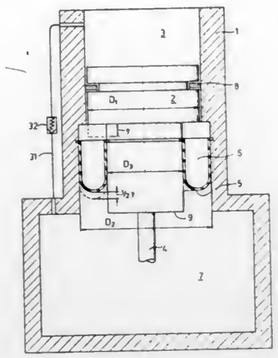
GAS-SUPPORTED ROLLING DIAPHRAGM SEAL FOR PISTON AND CYLINDER ASSEMBLY

Roelf Jan Meijer, and Hendrik Alphons Jaspers, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 26,580, April 8, 1970, abandoned. This application Dec. 23, 1971, Ser. No. 211,406
Int. Cl. F15b *21/04*; **F16j** *1/19*
U.S. Cl. 92—83 **12 Claims**

A piston and cylinder element in an assembly as in a com-

pressor or hot gas engine, with a rolling diaphragm seal secured between these elements, with supporting gas on both

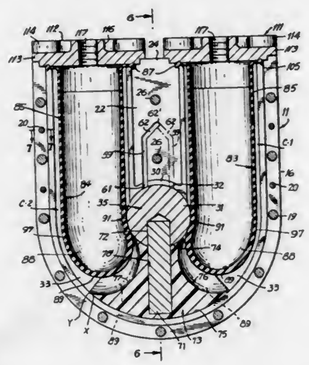


sides of the seal and a constant pressure differential maintained across the seal.

3,783,746
ROTARY ACTUATOR

Alphonse A. Jacobellis, Woodland Hills, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 120,656, May 3, 1971, Pat. No. 3,680,982. This application May 5, 1972, Ser. No. 250,663
Int. Cl. F01c *9/00*
U.S. Cl. 92—121 **20 Claims**

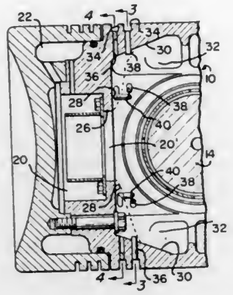


The invention relates to a rotary actuator of the type having a movable vane positioned in an arcuate chamber and secured to and extending radially outward from a shaft extending coaxially with the axis of said arcuate chamber. The arcuate chamber forms a central part of a substantially U-shaped chamber having a pair of legs open at their outer end, each chamber receiving a deformable bladder having a closed end adapted to react against opposed ends of the vane, means being provided to permit fluid under pressure to charge said bladders to effect expansion of one of the bladders for consequent movement of said movable vane and the shaft to which it is secured with resultant compression of the other bladder.

3,783,747
OIL-CONTROLLED PISTON, AND OIL CONTROL MEANS

Raymond N. Alford, Coopers Plains, and Hugh A. Race, Big Flats, both of N.Y., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Sept. 8, 1972, Ser. No. 287,541
Int. Cl. F16j *1/08*
U.S. Cl. 92—160 **5 Claims**

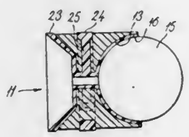


The oil control means, in one embodiment thereof, comprises an elongated conduit formed of a spring pin for insertion into drain holes of a piston to restrict admittance of oil into the drain holes from within the piston. The oil-controlled piston comprises a typical gas-engine-type piston having at least one oil-control-ring drain hole formed therein in which drain hole the aforementioned oil control means has been inserted (for instance, by way of retrofitting).

3,783,748
CAM FOLLOWER PISTON

Sinclair Upton Cunningham, Glasgow, Scotland, assignor to National Research Development Corporation, London, England

Filed Sept. 2, 1971, Ser. No. 177,266
Claims priority, application Great Britain, Sept. 2, 1970, 42010/70
Int. Cl. F16j *1/02, 1/10*
U.S. Cl. 92—249 **2 Claims**

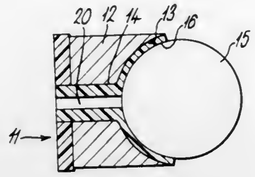


A piston adapted to carry a cam follower and particularly for use as a ball or roller piston in a hydrostatic pump or motor, comprises a piston body having a seating at one end, an insert of low friction material which is shaped to provide in the seating a bearing for the cam follower, and means for securing the insert to the piston body. The piston body preferably has a recess or aperture communicating with the seating and the insert of low friction material extends into or through the recess or aperture to lock the insert to the piston body. The insert is conveniently made of polytetrafluorethylene, nylon or an acetal material.

3,783,749
CAM FOLLOWER PISTON

Sinclair Upton Cunningham; James Rutherford Wells, and Donald Firth, all of Glasgow, Scotland, assignors to National Research Development Corporation, London, England

Filed Sept. 2, 1971, Ser. No. 177,265
Claims priority, application Great Britain, June 3, 1971, 18,903/71
Int. Cl. F16j *1/02, 1/10*
U.S. Cl. 92—249 **6 Claims**

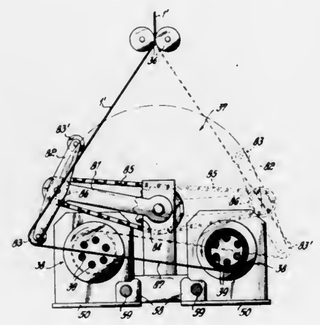


A piston adapted to carry a cam follower and particularly for use as a ball or roller piston in a hydrostatic pump or motor, comprises a piston body having a seating at one end, an insert of low friction material which is shaped to provide in the seating a bearing for the cam follower, and means for securing the insert to the piston body. The piston body preferably has a recess or aperture communicating with the seating and the insert of low friction material extends into or through the recess or aperture to lock the insert to the piston body. The insert is conveniently made of polytetrafluorethylene, nylon or an acetal material.

3,783,750
METHOD AND APPARATUS FOR FORMING PACKAGES OF BAGS MADE FROM PLASTICS MATERIAL

Carolus Lambertus Josephus Antonius Maria Heimeijer, Amsterdam, Netherlands, assignor to Verenigde Fabrieken Van L. J. Heijmeijer N.V., Amsterdam, Netherlands

Filed June 7, 1971, Ser. No. 150,647
Claims priority, application Netherlands, June 9, 1970, 7008368
Int. Cl. B31b *1/00;* **B65h** *19/20*
U.S. Cl. 93—32 **23 Claims**

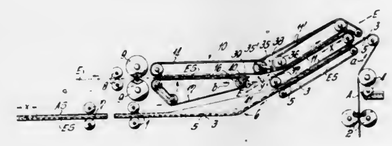


A method and apparatus for forming a package of plastics bags, wherein a web of flattened tubular bag material is intermittently fed to welding and perforating stations where the web is respectively welded transversely to define the bag bottoms and perforated transversely to form scorelines along which the bags can be separated for use. The intermittent web movement is converted to continuous motion prior to coiling the leading length of web onto rotary prongs of a winding head. The prongs are arranged in a circle, the circle of prongs being contractable to facilitate stripping of the coil. There are two alternately operable such winding heads. While the prongs of one of the heads are not rotating, they are projected longitudinally so that the web being coiled on the other head passes through the circle defined by the stationary prongs. Upon braking said other head and simultaneously setting said one head into rotation, the coiled length is severed from the rest of the web along one of the scorelines and the next coil is formed on said one head.

3,783,751
METHODS AND APPARATUS FOR MAKING SACKS OR BAGS

Aloys Winnemoller, Rhine, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

Filed Feb. 29, 1972, Ser. No. 230,360
Claims priority, application Germany, Mar. 6, 1971, P 21 10 815.6
Int. Cl. B31b *39/02*
U.S. Cl. 93—35 R **11 Claims**



A method and apparatus for making bags or sacks which comprise an outer sack and an inner sack, part of which projects from the mouth end of the outer sack. Tube portions for the inner sacks are applied to a web of material for the outer sack, and the web is made into a tube around the tube portions and divided into the lengths required for the individual sacks. The sacks pass through the apparatus with their mouth end leading, the mouth end of each inner sack being folded inwardly by the amount corresponding to the intended projecting part of the inner sack. The apparatus has a double-belt conveyor for passing the inner sack tube portions over a displaceable plate which initiates the inward fold and which then pushes the folded edge into a second double-belt conveyor to complete the fold and convey the tube portion on to the outer sack web.

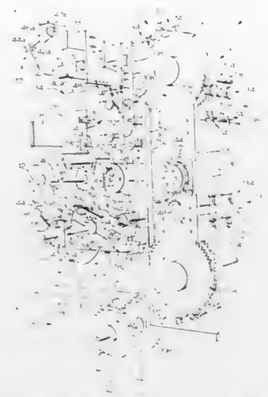
3,783,752
CARTON OPENING DEVICE

Marinus J. M. Langen, and Jacobus J. Langen, both of Rexdale, Ontario, Canada, assignors to H. J. Langen & Sons Ltd., Rexdale, Ontario, Canada

Filed May 9, 1972, Ser. No. 251,765
Int. Cl. B31b *1/76*
U.S. Cl. 93—53 SD **28 Claims**

Improvements in carton loading machines and, in particular, the carton manipulating mechanisms used for opening knocked down cartons. The improvements include a transfer mechanism mounted on a chain so as to be movable in one direction only from a carton loading station to a carton opening station to transfer a carton therebetween. A carton storage means is also provided which includes primary and secondary drive wheels for urging a leading carton to a predetermined pick-off position. The secondary drive wheels are preferably provided at the upper and lower edges of the cartons in the storage means. A suitable detection device is also provided for detecting the presence or absence of a carton at the pick-off position. The detecting means serves to activate the secondary

drive means when the absence of a carton is detected. A carton dispenser is also provided for separating the leading carton from a stack of cartons to facilitate its transfer by providing carton engaging means for engaging an outwardly directed face of the of the outermost carton at at least one predetermined location and actuator means for moving the carton engaging means between an inner position and an outer position



and stop means for limiting the extent of withdrawal of a predetermined portion of the carton during movement of the carton engaging means from the first position to the second position. The present invention also provides a further improvement in the carton device for use in opening knocked down cartons. The improved opening device includes an opening mechanism which is mounted for rotation about a fixed axis in one direction only.

3,783,753

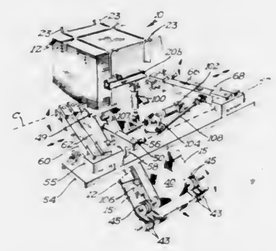
APPARATUS FOR FEEDING FLATTENED, TUBULAR CONTAINER BLANKS

Jack J. Rejsa, Minneapolis, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Nov. 26, 1971, Ser. No. 202,290

Int. Cl. B31b *1/06*

U.S. Cl. 93—58.1 **5 Claims**



A pair of cooperating, rotating conveying elements are located adjacent to a storage station in which the tubular containers are temporarily stored. The tubular blanks in the storage station are oriented normal to the feed axis of the conveyor with the center of each blank approximately aligned with the conveyor feed axis. A pair of coaxial feeding blades located in the plane of the feed axis extend into the open ends of the blank. The blank when in the storage station is oriented with its open ends spaced along the common axis of the feeding blades. In operation, the feeding blades are moved centrally on their common axis so that their pointed ends extend almost to the center of the tube. The blades are then moved along the conveyor feed axis until the score line of one corner of the blank is driven into the nip of the conveyor. The blades then are raised to their original position and moved apart along their common axis until their tips are withdrawn far enough to clear aligned portions of the blank.

3,783,754

METHOD AND APPARATUS FOR MANUFACTURING COLOR PICTURE TUBES

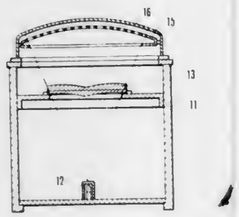
Takeo Takemoto; Eiich Yamazaki; Koichi Maruyama, and Toshio Ueda, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 2, 1972, Ser. No. 231,312

Claims priority, application Japan, Mar. 5, 1971, 46/11275

Int. Cl. G03b *27/02*

U.S. Cl. 95—1 R **14 Claims**



In a method of manufacturing a colour picture tube wherein the phosphor coated on the inner surface of the panel of the tube is exposed to the light emanated from a source of light and transmitting through a correction lens having a discontinuous surface, the phosphor is exposed to the light while continuously changing the relative positions of the panel, the source of light and the correction lens thereby uniformly exposing the phosphor.

3,783,755

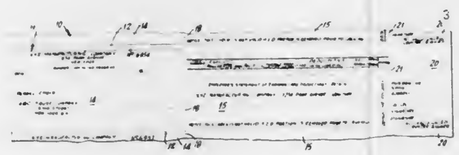
APPARATUS FOR APPLYING INDICIAS TO SHEETS

Herbert Lagin, 31 Deer Park Rd., Great Neck, N.Y.

Continuation of Ser. No. 885,456, Dec. 16, 1969, abandoned. This application June 5, 1972, Ser. No. 260,002

Int. Cl. G03b *17/24*

U.S. Cl. 95—1.1 **4 Claims**



This combination payroll check, data and identification sheet is prepared on a computer. One prepunched computer card controls typing on the check and on the data section of the sheet. Attached thereto is an identification section controlled by an identification card prepunched for proper stacking and carrying a photo of the employee, and a replica of his signature. This identification is photocopied on the identification section. When the check is being cashed, the photo can be looked at to identify the employee and the employee countersigns on the identification section, thus making doubly sure that the check is not cashed by an unauthorized person.

3,783,756

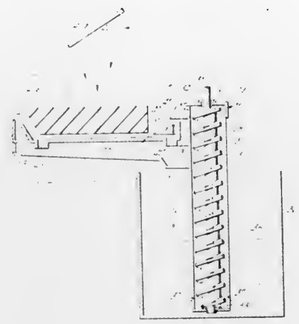
EXPOSING AND DEVELOPING APPARATUS FOR PHOTOGRAPHIC COMPOSING DEVICE

Murray Friedel, North Miami, Fla., assignor to Visual Graphics Corporation, New York, N.Y.

Filed May 10, 1972, Ser. No. 249,262

Int. Cl. B41b *13/00*

U.S. Cl. 95—4.5 **5 Claims**



An exposing and developing apparatus for a photographic composing device in which the photosensitive material to be exposed and developed is transported through a series of cells. Each cell has a transparent block overlying but spaced from the photosensitive material. Pumps deliver the developing and fixing solutions to the space between the blocks and the surface of the photosensitive material in a constant flow to insure uniform coverage of said material and minimize solution deterioration.

3,783,757

PHOTOGRAPHIC APPARATUS FOR THE MAKING OF EXPOSURES IN ARTIFICIAL LIGHT

Karl Wagner, Ottobrunn; Otto Rosenberg, Grunwald, and Adam Hummel, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 14, 1972, Ser. No. 234,576

Claims priority, application Germany, Mar. 16, 1971, P 21 12 599.5

Int. Cl. G03b *15/05*

U.S. Cl. 95—10 CE **10 Claims**



A still camera wherein the main diaphragm can be adjusted by a focussing ring is coupled with or incorporates an electric flash unit wherein a photosensitive receiver which measures the amount of light reflected from the subject is located behind an adjustable auxiliary diaphragm. The auxiliary diaphragm is adjustable with the main diaphragm to change the threshold value of the control circuit of the flash unit. The motion transmitting connection between the main diaphragm and the auxiliary diaphragm is separable in response or prior to detachment of a removable flash unit so that the main diaphragm can be adjusted by the focussing ring when the flash unit is detached or when the housing of the camera is connected with a different flash unit.

3,783,758

COMPOUND LIGHT RECEIVING ELEMENTS FOR EXPOSURE METERS

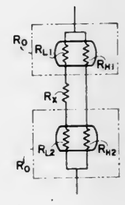
Kayoshi Tsujimoto, Osaka; Kotaro Yata, Ikeda, and Motonobu Matsuda, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

Filed Dec. 6, 1971, Ser. No. 204,832

Claims priority, application Japan, Dec. 10, 1970, 45/109168

Int. Cl. G01j *1/52*

U.S. Cl. 95—10 C **7 Claims**



A photometric device for generating an electric signal related to coincident light intensity comprises a number of photoresponsive means each including first and second photoconductive elements having response characteristics such that the logarithm of resistance to the logarithm of light intensity are respectively proportional over different ranges of light intensity. Additionally, the first photoconductive element in each of the photoresponsive means has a higher sensitivity than that of the second photoconductive element. The first and second photoconductive elements are positioned to receive light for different areas of the objective field. The first and second photoconductive element of each photoresponsive means are specifically interconnected with similar elements of another photoresponsive means to enhance the light response characteristics.

3,783,759

ELECTRONIC EXPOSURE CONTROL ARRANGEMENT IN PHOTOGRAPHIC APPARATUS

Karl Wagner, Ottobrunn, and Klaus Nicolay, Gruenwald, both of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 63,096, Aug. 12, 1970. This application Mar. 19, 1973, Ser. No. 342,807

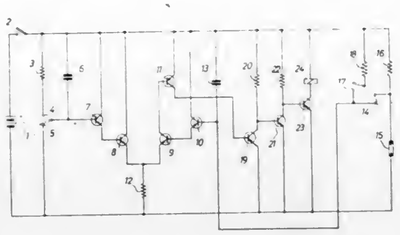
Claims priority, application Germany, Aug. 20, 1969, P 19 42 287.8

Int. Cl. G03b *7/08, 9/62*

U.S. Cl. 95—10 CT **3 Claims**

One input of a differential amplifier is connected to a charging or discharging capacitor and the other input to a discharging capacitor that has previously been charged to the voltage across one leg of a voltage divider consisting of a photocon-

ductor and a resistor connected in series across a battery. When the voltages at the two inputs are approximately equal,



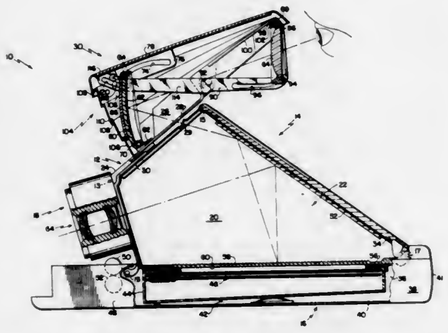
one branch of the differential amplifier shuts off, de-energizing the shutter control magnet and closing the camera shutter.

3,783,760

COLLAPSIBLE VIEWING DEVICE

Joseph H. Allen, Needham, and Richard R. Wareham, Marblehead, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 20, 1972, Ser. No. 245,967
Int. Cl. G03b *19/12*
U.S. Cl. 95—11 V **11 Claims**



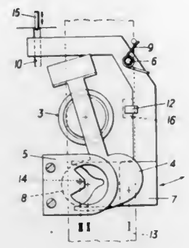
A compact folding camera including a plurality of housing sections coupled to each other for movement between folded and extended positions and a collapsible viewing device mounted on one of the housing sections for movement between inoperative and operative positions. An elongated link structure is pivotally coupled intermediate its ends to one of the housing sections and has its opposite ends pivotally and slidably coupled to the viewing device. One end of the link structure is mounted in position to be engaged and rotated by a second housing section, during movement of the housing sections into the folded position, to move the viewing device into its inoperative position. When the camera and the viewing device are in their folded positions, inadvertent movement of the viewing device into its extended operative position is precluded by the engagement between the end of the link structure and the second housing section. Movement of the housing sections of the camera toward the extended position is effective to move the second housing section in a direction away from the end of the link structure, thereby allowing rotation of the link structure to move the viewing device toward the extended operative position.

3,783,761

EXPOSURE CONTROL DEVICE FOR PHOTOGRAPHIC CAMERAS

Josef Schild, Vienna, and Harald Wessner, Neunkirchen, both of Austria, assignors to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

Filed Dec. 11, 1972, Ser. No. 313,696
Claims priority, application Austria, Dec. 9, 1971, 10617
Int. Cl. G03b *11/00*
U.S. Cl. 95—11 R **9 Claims**



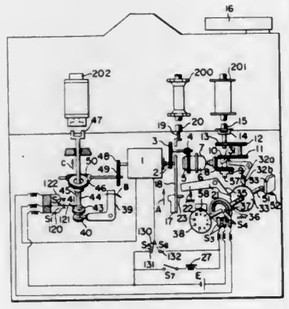
In a camera an objective is provided which defines an optical path having an axis. The objective comprises an adjustable diaphragm arranged within a diaphragm plane, and a neutral density spot cooperating with the diaphragm to diminish light intensity in the diaphragm plane within a central range on the axis. A gate is arranged on the optical path in a plane normal to the axis and receiving light through the objective for exposure of a film having a specific spectral sensitivity. A support is provided to carry the neutral density spot and has at least an inoperative and an operative position, in the operative position the neutral density spot is arranged in a central position on the axis, and in inoperative position the neutral density spot is excentric to the axis. A control device is connected to the support to control its position, the control device having at least two positions according to the spectral composition of light used for exposure of the film, whereby with artificial light the support is in the inoperative position, with day light the support means is in operative position.

3,783,762

MOTOR DRIVE FOR A CAMERA

Shiro Sugimori, Tokyo, Japan, assignor to Nippon Kagaku K.K., Tokyo, Japan

Filed July 13, 1972, Ser. No. 271,628
Int. Cl. G03b *19/04, 1/60, 17/36*
U.S. Cl. 95—31 EL **7 Claims**



A motor drive for a camera has a motor drive system which comprises a motor, a circuit for driving the motor including

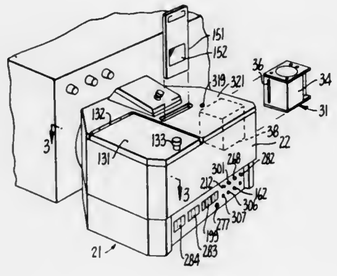
two switches, means for blocking film transportation in a rewinding direction, a first manually operable member connected to the rewind blocking means and movable between first and second positions, and a second manually operable member for engagement with a supply spool and connected to the motor and movable between first and second positions. One of the two switches in the circuit may be opened and closed in response to movement of the first operable member to its first and second positions, respectively. In the second position of the first operable member, the rewind blocking means is rendered ineffective. The other switch is opened and closed in response to movement of the second operable member to its first and second positions, respectively. In its second position, the second operable member is engageable with the supply spool so that the spool may be rotated by the drive from the motor to take up the film thereon.

3,783,763

DATA RECORDING CAMERA

Ernest M. Whitley, Palo Alto; Don L. Beaman, and William S. McCombie, both of Sunnyvale, all of Calif., assignors to Redlake Corporation, Santa Clara, Calif.

Filed Dec. 29, 1971, Ser. No. 213,320
Int. Cl. G03b *1/32, 17/22, 19/02*
U.S. Cl. 95—31 EL **15 Claims**



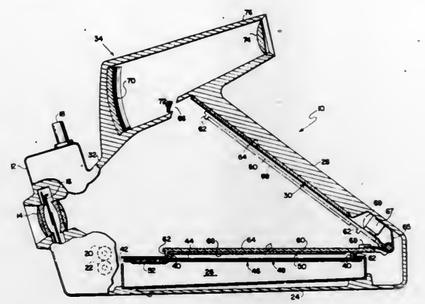
A data recording camera for periodically photographing oscilloscope displays, using a self-threading takeup cassette which may be removed without fogging remaining film, and a solenoid-driven pivoted-blade shutter which closes during automatic film advancing. Film is supplied from a supply spool and automatically severed adjacent the cassette by a solenoid-driven knife prior to release of the cassette from the camera. Data is projected from the oscilloscope face onto the emulsion side of the film by a lens system, and a removeable data slide may have the data written on it contact printed onto the rear side of the film by an internal lamp. The film is automatically advanced before and after the data card is projected onto it, and the camera is disabled during operations likely to fog the film. The interlocks also disable the camera when the cassette is not in place, when it is full, when the camera is out of film and when the film supply compartment is open. The electronic control circuit controls the duration of shutter opening, with decade incremental selection of duration, and also boosts shutter opening by applying an initial opening voltage higher than the subsequent holding voltage. Delay circuits allow the shutter to begin closing before the film is moved, and hold the shutter closed to allow time for film movement to be completed.

3,783,764

REFLEX CAMERA AND VIEWING DEVICE

James G. Baker, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 98,356, Dec. 15, 1970, abandoned.
This application June 21, 1972, Ser. No. 264,933
Int. Cl. G03b *19/12*
U.S. Cl. 95—42 **96 Claims**



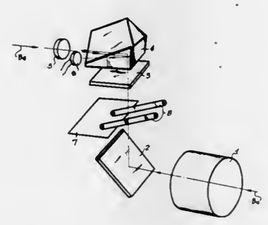
The specification describes a reflex camera and a viewing device particularly suited for use with it which forms an erect, unreverted viewing image of a subject to aid a user in focusing and aiming the reflex camera. One version of the viewing-device employs the reflex camera's mirror to direct light from a reflective focusing screen to an approximately ellipsoid concave mirror. An eye lens magnifies a real image formed by the concave mirror. Another version of the viewing device uses a hemispherical lens, having a substantially plano mirror on its rear surface, to form a real image and a concave mirror used obliquely to magnify the image for an observer.

3,783,765

PHOTOMETRIC DEVICE IN A SINGLE LENS REFLEX CAMERA OF THROUGH-THE-LENS TYPE

Naoyuki Uno, Oimachi; Katsuhiko Nomura, Kawagoe; Tadazumi Sakazaki; Koichiro Watanabe, both of Tokyo; Katsuhiro Miyata, Kawasaki, and Fumio Urano, Tokyo, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

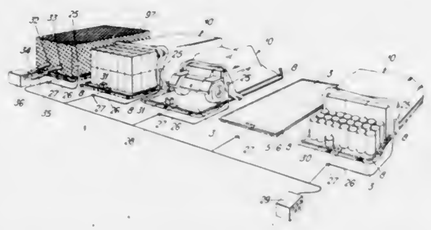
Filed Aug. 7, 1972, Ser. No. 278,226
Claims priority, application Japan, Aug. 9, 1971, 46/70450
Int. Cl. G03b *19/12*
U.S. Cl. 95—42 **8 Claims**



A single lens reflex camera of through-the lens type having an objective lens, a pentaprism, a snap-up mirror and a viewfinder and providing a light path for an image between the objective lens and the viewfinder across the mirror and through the pentaprism. An electrically controlled shutter system of through-the-lens type is provided having a photosensitive sensing element located in the light path and in the path of

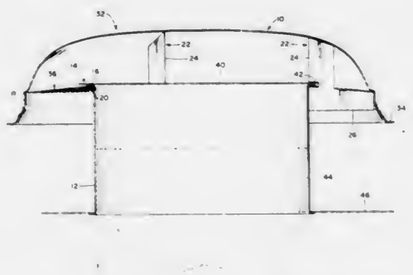
light from the viewfinder. A light intercepting means is provided together with means for moving the light intercepting means into and out of the light path at a position along the light path in between the pentaprism and the mirror.

3,783,766
ENCLOSURES
Reginald Comyn Boucher, Millsted, near Sittingbourne, England, assignor to E. P. S. (Research & Development) Limited, Kent, England
Filed Feb. 3, 1972, Ser. No. 223,234
Claims priority, application Great Britain, Feb. 10, 1971, 4,330/71
Int. Cl. F24f *7/02*
U.S. Cl. 98—33 R **6 Claims**



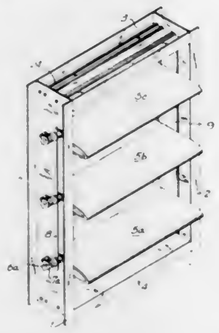
The invention concerns enclosures having especial application in relation to storing equipment liable to atmospheric deterioration comprising a rigid base having a strip peripherally secured thereto with coupling means sealingly to connect the strip to a bag-like cover to provide a generally weather proof enclosure.

3,783,767
ROOF VENTILATOR
James E. Stalker, Richardson, Tex., assignor to Home Metal Products Company, Plano, Tex.
Filed July 10, 1972, Ser. No. 270,309
Int. Cl. F24f *7/02*
U.S. Cl. 98—42 **3 Claims**



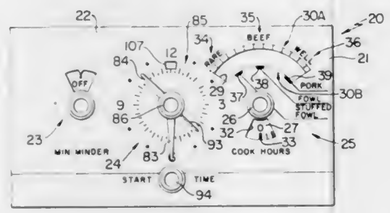
A roof ventilator includes a tubular member extending to an upper flange defining an upper sealing edge and providing a radially outwardly extending lip which prevents moisture from entering the ventilator. Three tabs are mounted at circumferentially spaced points around the tubular member and support a cover which extends over the tubular member and downwardly to a flange positioned below the upper sealing edge. An annular screening section extends between the tubular member and the cover to prevent foreign objects from entering the ventilator. A plate is normally engaged with the upper sealing edge under the action of gravity to seal the ventilator and includes slots which receive the tabs to guide the plate for vertical movement out of engagement with the sealing edge in response to pressure developed within the tubular member.

3,783,768
DAMPER ASSEMBLY
Lionel P. Caming, New York City, and Frank J. Fromwiller, New City, both of N.Y., assignors to Imperial Damper Co., Inc., Bronx, N.Y.
Filed Oct. 14, 1971, Ser. No. 189,085
Int. Cl. F24f *13/08*
U.S. Cl. 98—110 **13 Claims**



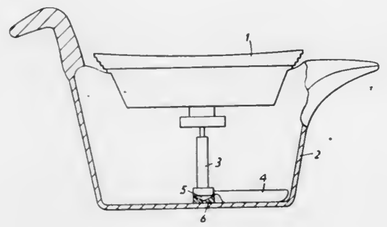
A damper assembly is provided in a rectangular frame with streamlined blades rotatable on parallel shafts. The shafts may be square in section and ride in square orifices extending through hubs of the extruded blades. Air, smoke or other gaseous leakage is immeasurably reduced between the ends of the blades and the frame by a unique composite seal disposed between the end of the blades and the damper frame.

3,783,769
COOKING COMPUTER MEANS
Carl J. Goodhouse, Litchfield, and Robert Strachan, New Haven, both of Conn., assignors to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 112,132, Feb. 3, 1971, Pat. No. 3,688,978.
This application July 19, 1972, Ser. No. 273,134
Int. Cl. A47j *27/086*
U.S. Cl. 99—332 **10 Claims**



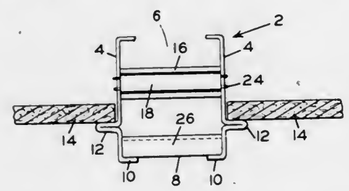
A cooking computer for determining the cooking operation of a cooking apparatus, the computer having a stationary input means indicating selectable variables other than the weight of a meat item. The computer has a manually settable weight input means for indicating a single selected indicated weight applicable to all meat items and corresponding to the weight of a particular meat item to be cooked, the weight input means being settable in relation to a selected variable of the stationary input means. The computer has a time period output means operatively associated with the input means to provide as an output a cooking time period for the particular meat item computed as a function from the selection of both of the input means according to a cooking formula.

3,783,770
STIRRER DEVICES FOR CULINARY PURPOSES
Graham John Aries, 30 Worcester Ln., Pedmore, Stourbridge, England
Filed Oct. 15, 1971, Ser. No. 189,643
Claims priority, application Great Britain, Oct. 20, 1970, 49,774/70
Int. Cl. A47j *43/044, 43/07*; **B01f** *7/16*
U.S. Cl. 99—348 **6 Claims**



A cooking vessel or a lid therefor is described, having a shaft journalled for rotation by drive means and one or more wiper arms connected to the lower end of the shaft and positioned so as to wipe the major portion of the upper surface of the base of the cooking vessel as the shaft is rotated.

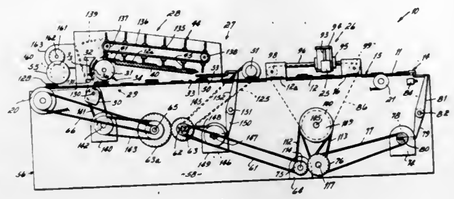
3,783,771
SPACER FOR A FIRE-RATED AIR BAR
Lyndon G. Hartzell, Gaithersburg, Md., and James C. Ollinger, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.
Filed May 1, 1972, Ser. No. 249,039
Int. Cl. F24f *13/06*
U.S. Cl. 98—40 D **5 Claims**



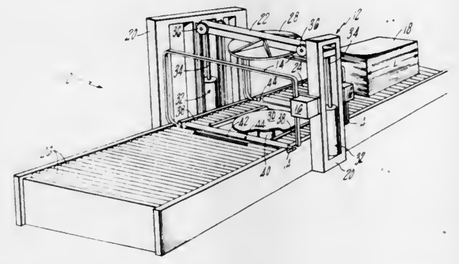
An air bar has supports made of a low temperature melting point material located between the side rails. A high temperature melting point spacer assembly is frictionally fitted between the side rails of the air bar, at periodic points along the air bar, to support the side rails and prevent their collapse in a fire.

3,783,772
SANDWICH MACHINE
Rudolph J. Fay, 6911 Wildflower Trail, Cincinnati, Ohio
Filed Sept. 17, 1971, Ser. No. 181,476
Int. Cl. A21c *15/04, 9/08*
U.S. Cl. 99—450.4 **27 Claims**

A sandwich making machine for receiving columns of objects in irregularly spaced and misaligned rows and for automatically aligning those rows, applying topping to alternate ones of the rows, and layering the alternate untopped rows onto the top rows. The machine comprises a reciprocating feeder bar operable upon detection of a predetermined weight of objects at the infeed station to push the objects forwardly onto a continuously moving endless belt conveyer. Simultaneously with the actuation of the pusher bar, a memory circuit is actuated to record the position of the objects on the conveyer. This memory circuit then controls the application of the topping to alternate rows of objects and subsequent pickup, inversion and layering of untopped rows of objects onto topped rows.



3,783,773
APPARATUS FOR ASSEMBLING A BATTEN MOUNTED PACKAGE
Edwin J. Willard, East Longmeadow, Mass., and James Elmore, Simsbury, Conn., assignors to The Stanley Works, New Britain, Conn.
Filed Apr. 20, 1972, Ser. No. 245,807
Int. Cl. B65b *13/06*
U.S. Cl. 100—7 **6 Claims**

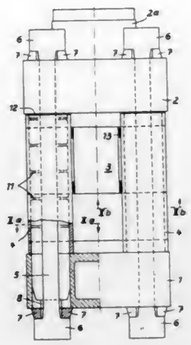


Apparatus for use with a package compression strapping machine including a batten receiving passageway below a lower pressure platen in adjacent spaced relation thereto and a batten lift mechanism in the passageway for raising a batten from a recessed position in the passageway below the lower pressure platen into engagement with a bottom surface of a compressed package and for holding the batten in a controlled position thereon for subsequent engagement and tensioning of strapping about the batten and compressed package.

3,783,774
PRE-STRESSED PRESS FRAME
Horst Hans Groos, Metzkausen, and Walter Zander, Krefeld, both of Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed Aug. 6, 1971, Ser. No. 169,630
Int. Cl. B30b *1/00*
U.S. Cl. 100—214 **11 Claims**

It is known to provide a pre-stressed frame for a hydraulic press in which the frame has two opposed cross-heads with

thrust members spacing the cross-heads apart and traction members drawing the cross-heads against the thrust members and thus pre-stressing the frame. There is provided a simpler



construction which is easier to manufacture, and which is not so susceptible to notch stresses, by having the traction members in the form of plates.

3,783,775

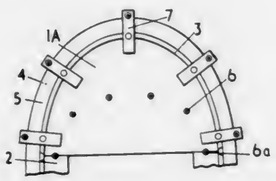
STANDS FOR PRESSES

Baltzar Carl Von Platen; Finn Lennart Jonsson, and Sten Trolle, all of Ystad, Sweden, assignors to Etablissement Radiator, Vaduz, Liechtenstein

Division of Ser. No. 72,358, Sept. 15, 1970, Pat. No. 3,687,066. This application May 19, 1972, Ser. No. 254,910

Int. Cl. B30b *1/00*

U.S. Cl. 100—214 3 Claims



This invention relates to stands for high pressure presses. Such presses are often of a type including a pair of yokes, separated by a pair of uprights and surrounded by a girdle built up from prestressed steel strip. In order to reduce the piece weight and increase the strength of such presses, it is now proposed to build up the yokes, and preferably also the uprights, from sections arranged in face to face relationship. Each section is similar in shape to its fellows and the sections may be bolted together in closely packed or spaced face to face relationship.

3,783,776

AUTOMATIC MARKING DEVICE FOR METAL OBJECTS

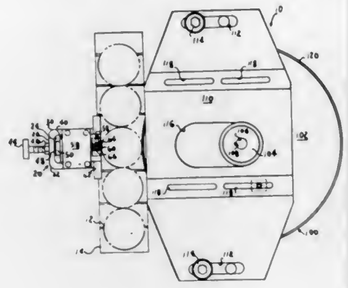
Arthur J. Noble; Edwin W. Speicher, and Walter J. Speicher, all of Pittsburgh, Pa., assignors to M. E. Cunningham Company, Ingomar, Pa.

Filed Jan. 14, 1972, Ser. No. 217,820

Int. Cl. B41f *17/20*

U.S. Cl. 101—7 3 Claims

A device for marking metal objects having a conveyor which carries the object to be marked to a marking station positioned between a marker assembly and a drive assembly. The marker assembly includes a housing in which are mounted a chase for holding a plurality of type dies and a block slidable in the housing which forcibly engages the chase by the action of a set screw acting through the block to maintain the desired force upon the chase and type. The marking assembly is connected to the frame of the device by an adjustment assembly which enables adjustment of the angle between the type dies and the preselected surface of the object to be marked. The drive assembly includes a rotating disc mounted in the frame of the device and adjustable in position along a line perpendicular to the line of travel of the objects to be



marked past the marking station. The drive disc rotates against the object to be marked to rotate that object in the direction opposite to its direction of linear travel past the marking station to enable the placement of a plurality of marks on the surface of the object. A ring of urethane or other resilient material is mounted around the circumference of the drive disc, and a block of urethane or other resilient material is mounted in the marking assembly between the rear of the chase block and the adjusting screw to absorb partially and limit the forces and stresses applied to the object being marked by the interaction of the marking assembly and the drive assembly.

3,783,777

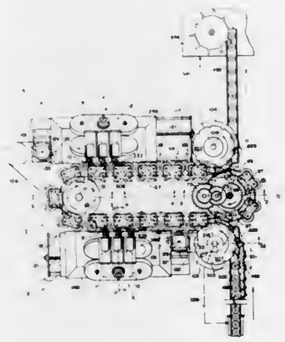
APPARATUS FOR IMPRINTING OBJECTS SUCH AS BOTTLES AND THE LIKE

Richard J. Killen, Manchester, Mo., and Robert G. Jones, Sapulpa, Okla., assignors to Liberty Glass Company, Sapulpa, Okla.

Filed Nov. 30, 1971, Ser. No. 203,288

Int. Cl. B41f *17/18*

U.S. Cl. 101—40 46 Claims



The invention comprises a vertical bottle conveyor, two movable carriages adjacent thereto with a stencil-screen and a squeegee-circulating conveyor supported on each of the carriages. The squeegee conveyor and the screen are subject to three independent adjustments relative to the bottle conveyor to accommodate various sizes and shapes of bottles. In addition each screen is adjustably tiltable. Each squeegee conveyor slants over a color pool on its support to pick up color by its squeegee strikers and deliver color to one side of the screen for striking therethrough to sides or necks of bottles which substantially roll on the other side of the screen. Each squeegee during travel is driven toward each screen under air pressure, and is air returned, there being included positive mechanical safety return means. Cam means, upon air return, properly positions the strikers to pick up color from rotary drums which lift color from the color pool. Bottles moving from a loading station are fed serially to centering bottle hangers and then to dual rotary bottle carriers on the bottle conveyor. Included are bottle registration means and clutches for initiating substantial rolling of the bottles on the screens. The inputs to the clutches are driven from the bottle conveyor in all positions of the carriages. Change gears are provided to obtain for any bottle diameters equal linear speeds on opposite sides of each screen of striking squeegees and of substantially rolling bottles.

3,783,778

DATA INDICATING DEVICE FOR PRINTING MACHINES

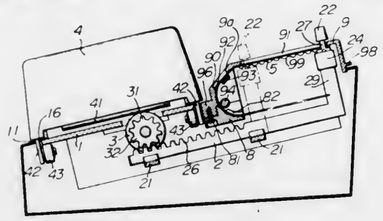
Tetuo Nakada; Noboru Ooyama, and Kenichi Miyazkaki, all of Tokyo, Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Sept. 20, 1971, Ser. No. 181,887

Claims priority, application Japan, Dec. 29, 1970, 45/133079

Int. Cl. B41f *5/08*

U.S. Cl. 101—45 8 Claims



The disclosure relates to a data indicating device for printing machines wherein a plurality of rotatable type wheels adjacently aligned, and respectively inscribed with printing numerals on the peripheries thereof are each furnished with a gear at one side thereof, and the same number of rack bars are arranged each to engage the gear of the type wheel, and manual operating end portions of the rack bars project out of the machine housing in spaced relation. To these operating portions are connected flexible data indicating bands bearing on one face thereof numerals corresponding to the printing numerals on the peripheries of the type wheels, and these bands are guided on a concave curved inner surface to windows formed in the machine housing, thereby to indicate at the windows the selected printing numerals corresponding to those on the type wheels which are rotated by manipulation of the operating and portions of the rack bars.

3,783,779

ROTARY SCREEN PRINTING CYLINDER

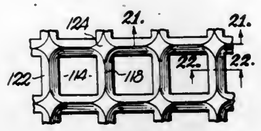
Aaron O. Greenwood, Greenwood; Ramon J. Magee, Independence, and Stanley W. Otto, Platto City, all of Mo., assignors to Hallmark Cards, Incorporated, Kansas City, Mo.

Division of Ser. No. 844,777, July 25, 1969, Pat. No. 3,610,143. This application May 20, 1971, Ser. No. 145,516

Int. Cl. B44a *3/06*

U.S. Cl. 101—127 4 Claims

A rotary screen printing stencil is produced by etching techniques. A cylindrical base member is first provided with a layer of etchable material on the outer surface thereof. An etch-resistant coating is provided over selected portions of the etchable material corresponding to the area surrounding the design to be printed and the grid pattern of the printing stencil. The etchable material is then removed in those areas thereof not protected by the etch-resistant coating. The resulting stencil having a foraminous design area with a grid pattern therein and an imperforate section surrounding the design area is then separated from the base member.



3,783,780

INTAGLIO PRINT MACHINE WITH NOVEL ROLL MOUNTING MANDREL AND BUSHING ASSEMBLY

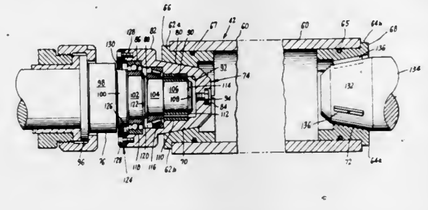
Johann Heinrich Saueressig, 19, Barlerstrasse, Wuellen, Ahaus, Germany

Division of Ser. No. 210,064, Dec. 20, 1971, which is a continuation-in-part of Ser. No. 23,564, March 30, 1970, abandoned. This application Mar. 8, 1973, Ser. No. 339,075

Claims priority, application Germany, Mar. 29, 1969, P 19 16 359.8

Int. Cl. B41f *13/20*

U.S. Cl. 101—153 8 Claims



An intaglio print machine for multicolor operation has a multiplicity of pairs of cooperating intaglio rolls and back up rolls rotatably supported on the machine frame and a vertical gate member pivotally mounted on the frame with a multplicity of inking units suppored thereon in vertical spaced alignment and cooperating with the intaglio rolls. The intaglio rolls are of cylindrical configuration and supported upon the frameby novel cone assemblies and novel expandable bushings which press fit in the ends of the cylindrical rolls and are engaged to prevent relative rotation.

3,783,781

DOCTOR BLADE CONTROL MECHANISM, PARTICULARLY FOR USE IN PRINTING PRESSES

Siegfried Grommek, Luisenstrasse 11, D-7600 Offenburg, Germany

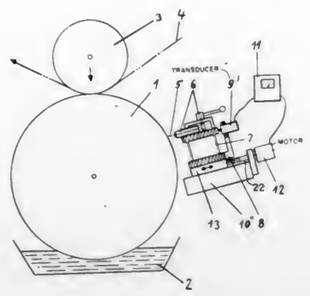
Filed Sept. 20, 1971, Ser. No. 181,767

Int. Cl. B41f *9/10*

U.S. Cl. 101—157 12 Claims

To control the application pressure of a doctor blade against a cylindrical surface, for example a cylinder used in rotogravure printing, a parallelogram support for the doctor blade is provided having resilient, parallel arms to hold the doctor blade to move in an essentially radial direction with respect to the cylindrical surface against which the doctor blade is adapted to bear, and a deflection meter is secured to

the doctor blade support, measuring the resilient deflection of the doctor blade holder with respect to the support; the meter may be included in an electrical control circuit which re-sets



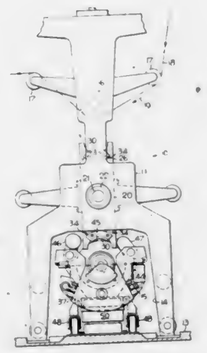
the holder with respect to the support so that the application pressure of the doctor blade against the cylindrical surface will be uniform.

3,783,782

REVOLVING TURRET FOR SUPPORTING PRINTING PRESS CART

David R. Hardt, Milwaukee, Wis., assignor to Faustel Incorporated, Butler, Wis.

Filed Aug. 4, 1972, Ser. No. 278,074
Int. Cl. B41f *9/18, 31/32*
U.S. Cl. 101—216 15 Claims



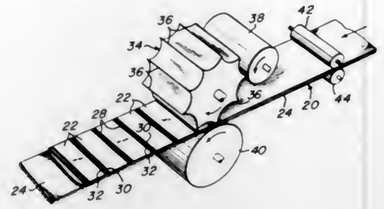
A wheeled printing press cart comprising an ink pan, a removable printing roll, an ink applicator and a doctor blade is insertable and removable in an upright position through an opening in the side of a web type printing press. When inserted, the cart is raised slightly, pivotably connected to a revolving turret on the press, and the turret is rotated 180° to raise the cart to operating position. The turret is further rotatable 180° to return the cart to lowered position in either the upright position or in inverted position. Return of the cart in upright position allows for removal of the printing roll thereon or removal of the entire cart. Return of the cart in inverted position allows it to be automatically flushed or washed while still on the turret. The turret can accommodate two carts simultaneously on opposite sides.

3,783,783

METHOD OF MAKING WEB OF RECORD MEMBERS

Paul H. Hamisch, Sr., Dayton, Ohio, assignor to The Monarch Marking System Company, Dayton, Ohio

Filed Nov. 24, 1970, Ser. No. 92,468
Int. Cl. B41f *13/60*
U.S. Cl. 101—226 6 Claims



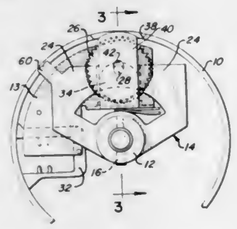
There are disclosed record members in the form of a web of pressure sensitive labels and a web of tickets formed by transverse cuts in the web, with each member having a mark printed at one marginal edge, the mark preferably being printed using invisible ink. A method of making the record members includes the step of inking a cutter and operating the cutter to simultaneously cut the web to provide a plurality of record members and printing along at least one marginal edge of each member. Another record member has an aligner formed in it and a printed mark forming an outline around the aligner, the aligner having a predetermined relationship with respect to a code printed on the record member. A method of making the record member comprises providing code forming members and aligner forming members, inking the aligner forming member, applying the code to the record member and substantially simultaneously forming an aligner in the record member and printing a mark immediately adjacent the aligner. There is also disclosed a web of record members composed either of pressure sensitive ticket, or label stock material in which there are marks disposed at equally spaced apart intervals along its length. The marks are used to control intermittent feeding of the web of record members so that recording can be at any desired location on the record members and the record members can be cut to the desired length without shifting the cutter or the recorder means relative to each other. There is also disclosed apparatus for practicing these methods.

3,783,784

MARGIN CONTROL MEANS FOR DUPLICATOR DRUM

George W. Bookless, Franklin Park, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Apr. 13, 1972, Ser. No. 243,679
Int. Cl. B41f *13/14*
U.S. Cl. 101—248 7 Claims



In a duplicating machine which includes a drum mounted on a drive shaft for rotation therewith for carrying a master copy. Coupling means is provided between the drum and drive shaft for providing selective arcuate adjustment of the drum

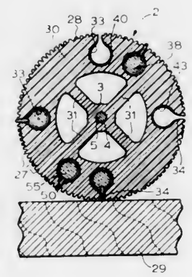
relative to the shaft to adjust the head margin on a sheet of copy paper fed to the drum. The coupling means includes an eccentric mounted on the drum for movement bodily therewith and for selective rotation relative thereto about an axis parallel to the axis of the drive shaft, and an abutment member fixed to the drive shaft in position for engagement by the eccentric on rotation thereof relative to the drum to cause relative rotation between the drum and drive shaft and, thus, providing angular adjustment therebetween.

3,783,785

LAYOUT MARKING WHEEL

William Frank, 3N711 Elizabeth St., Addison, Ill., and Frank E. Lindgren, 4818 N. Clifton Ave., Norridge, Ill.

Filed Aug. 14, 1972, Ser. No. 280,448
Int. Cl. B43l *13/00*
U.S. Cl. 101—328 7 Claims



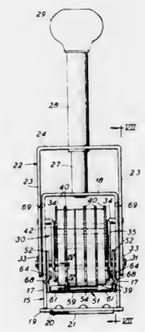
A marking device comprising a drum having a plurality axially elongated peripheral receptacles or pockets and cartridges arranged to be inserted into the receptacles from opposite ends of the drum and floatingly supported therein for radial movement which effects a pumping action to force marking fluid into a marking wick and aspiration of excess fluid into the cartridge.

3,783,786

SELF-INKING HAND STAMP

Lynn E. Ellison, 476 Golf Rd., and Charles D. Ellison, 297 S. Virginia St., both of Crystal Lake, Ill.

Filed Mar. 20, 1972, Ser. No. 236,024
Int. Cl. B41f *1/50*
U.S. Cl. 101—333 16 Claims



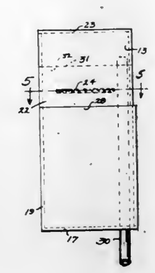
A self-inking hand stamp includes a novel positively indexing, quick-settable character band printing unit structure and a novel inking structure, as well as a simple, rugged and durable arrangement of parts for extended life in hard usage.

3,783,787

BLASTING CHARGE AND CONTAINER THEREFOR

Gary M. Thornley, Bountiful, and Robert C. Stokes, Sandy, both of Utah, assignors to Ireco Chemicals, Salt Lake City, Utah

Filed Jan. 17, 1972, Ser. No. 218,324
Int. Cl. F42b *3/00*
U.S. Cl. 102—24 R 10 Claims



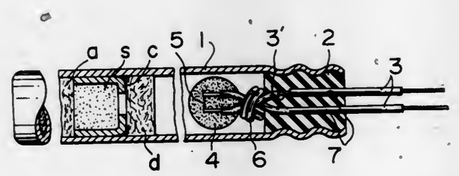
The invention is a container especially suitable for packaged blasting charge. A particular embodiment is one of the type used in mines for support on a stick or a pile, at points where a local blast is required as for removal of hang-ups of ore, protruding rock formations, and the like. The container is a bag or envelope of internally valved type, made of preformed flat or folded flexible sheet material, preferably a tough elastic heat sealable polymeric film or sheeting material suitably inturned and sealed to form a self-closing compartment for liquid or flowable slurry explosive. A supplemental pocket may be formed at the side of the main compartment for supporting the charge on a stick or pole. The main compartment is sealed along both sides and across one end, and is closed by a flat lying valve element integral with one of the main side walls but sealed to the other main side wall across part only of its width and along a line spaced from the end of the valve element. A filler opening is thus provided at one or both sides of this cross-seal.

3,783,788

ELECTRIC DETONATOR FREE FROM ACCIDENTAL ELECTROSTATIC FIRING

Keizo Hayashi, Tokyo, Japan, assignor to Nippon Oils and Fats Company Limited, Tokyo, Japan

Filed Oct. 7, 1971, Ser. No. 187,459
Int. Cl. F42b *3/18*
U.S. Cl. 102—28 R 14 Claims



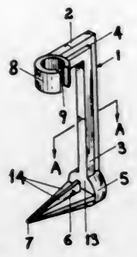
An electric detonator carrying a fuse head disposed in a tube and being fired by an electric current delivered through a pair of legs carried by a plug fitted at an open mouth of the tube. The plug is made of a moldable sealing material having a comparatively low electric resistance, and at least one of the legs is electrically connected to the plug, so as to allow the grounding of the tube through the plug and the leg.

3,783,789

BLASTING OPERATIONS

Nathaniel G. Rose, 12 Terrace Rd. Mountainview, Johannesburg, South Africa

Filed Mar. 14, 1972, Ser. No. 234,564
Claims priority, application South Africa, Mar. 15, 1971, 71/1675
Int. Cl. F42b 3/10
U.S. Cl. 102—28 A 13 Claims



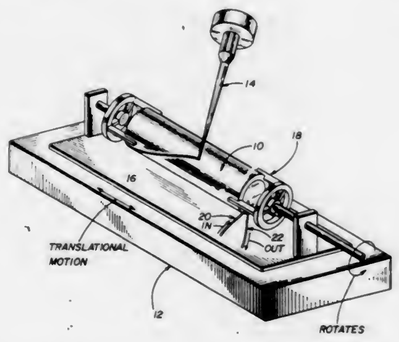
This invention relates to a device for maintaining a detonator and its associated firing connection in position relative to an explosive charge while the latter is inserted into a previously prepared hole during blasting operations. The device comprises an elongated member divided into two arms by a generally right-angled bend, the free end of one arm having a spike extending substantially parallel to the other arm which has at its free end a clip adapted to frictionally engage a fuse or detonating wire extending roughly parallel to said first arm, said arms being flexible but substantially non-deformable.

3,783,790

CONTROLLED FRAGMENTATION WARHEAD

Raymond J. Pokcha, Fredericksburg, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 145,977, May 21, 1971. This application Feb. 2, 1973, Ser. No. 329,242
Int. Cl. F42b 13/48
U.S. Cl. 102—67 3 Claims



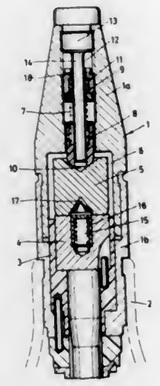
A method of producing fragmenting warheads that permits selecting sizes and numbers of fragments desired while allowing for assembly line production. The sizes and shapes of desired fragments are traced onto the outside of an explosive case by an electron beam welder. The electron beam creates a thin molten zone along its path of travel. Upon fast cooling of the molten zones by circulating a liquid coolant inside the case, a very hard and brittle martensite structure is created along the path of beam travel. When detonated, the explosive case will fragment along the brittle martensite zones created.

3,783,791

SWITCH FOR ELECTRICAL IMPACT DETONATORS

Gunter Backstein, and Lothar Petzsch, both of Meerbusch-Langst, Germany, assignors to Rheinmetall GmbH, Dusseldorf, Germany

Filed Oct. 13, 1971, Ser. No. 188,953
Claims priority, application Germany, Nov. 7, 1970, P 20 54 839.4
Int. Cl. H01h 35/14
U.S. Cl. 102—70.2 R 8 Claims



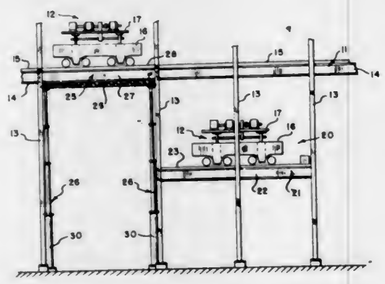
A switch for electrical impact detonators, which comprises an inertial mass effective as a contact member. A housing forms a complementary contact and surrounds the contact member for axial and tiltable movement therein. A spring acts in a direction against the firing direction and retaining the contact member in resting position, and the contact member has the greatest possible mass relative to the external dimensions of the housing.

3,783,792

REPAIR FACILITY FOR OVERHEAD CRANE

John T. Cullom, 628 6th Ave., San Manuel, Ariz.

Filed Jan. 20, 1972, Ser. No. 219,217
Int. Cl. B61b 3/00
U.S. Cl. 104—128 7 Claims



An overhead crane arrangement that includes an overhead railway and at least one traveling crane riding on the rails of the railway is provided with a crane repair bay located directly below the overhead railway and with a vertically movable crane elevator section of the overhead railway that is adapted

to receive and transport the traveling crane from the level of the overhead railway to the level of a railway spur located in the crane repair bay. Lift means are provided for moving the crane elevator section from the level of the overhead railway to the level of the repair bay railway spur and return.

3,783,793

TRACK SYSTEM HAVING NON-LOAD BEARING TRACK SWITCH

Francis Cyril Perrott, The Manor House, S. Cerney, Cirencester, and Ian Miller Edington Aitken, London, England, assignors to said Perrott, by said Aitken

Filed Mar. 22, 1971, Ser. No. 126,556
Int. Cl. E01b 7/00, 26/00
U.S. Cl. 104—130 3 Claims



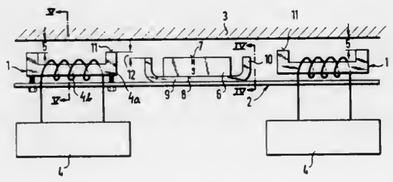
The means of transportation include tracked vehicles, are especially applicable to railways and provide improvements relating particularly to the routing of vehicles at track branches. The means comprise a vehicle and two pairs of support tracks which define alternative routes for the vehicle at a branch, with one track of each pair not meeting the corresponding track of the other pair. The tracks continuously support the vehicle while passing over the branch, and guidance means are operative at and immediately before the branch to align the vehicle with respect to either one of the pairs of tracks whereby to select the corresponding route for the vehicle without relative movement of the support tracks.

3,783,794

MAGNETIC SUSPENSION SYSTEM FOR VEHICLES AND THE LIKE WITH NON CONTROLLED SUSPENDING MAGNETS

Max Gopfert, and Rudolf Gebhardt, both of Munich, Germany, assignors to Krauss-Maffei AG, Munich, Germany

Filed July 24, 1972, Ser. No. 274,454
Claims priority, application Germany, July 28, 1971, P 21 37 691.0
Int. Cl. B61b 13/08
U.S. Cl. 104—148 MS 10 Claims



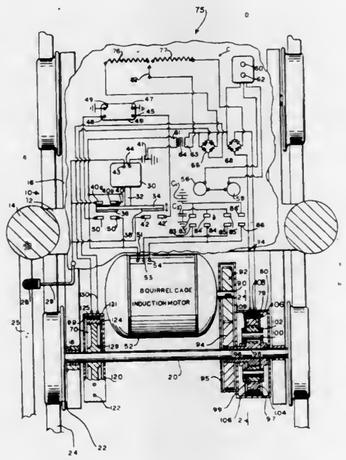
A magnetic-suspension system for vehicles and the like adapted to travel along a track provided with a fixed armature rail of magnetically permeable—ferromagnetic—material. The suspended vehicle comprises, on a portion of the vehicle confronting the rail and therebelow, controlled electromagnets which regulate the suspension force and, adjacent the controlled electromagnets and preferably alternating therewith, uncontrolled suspending magnets which provide a substantial proportion of the suspension force.

3,783,795

PROPULSION SYSTEMS USING SQUIRREL CAGE INDUCTION MOTORS TO OPERATE FROM AN AC OR DC SOURCE

Robert Helmer, 19 Cornwallis Rd., Setauket, N.Y.

Filed June 19, 1972, Ser. No. 264,144
Int. Cl. B61c 9/48; B50l 9/16
U.S. Cl. 105—61 15 Claims



A mechanical load is coupled to an AC drive motor via a planetary gear transmission controlled by a magnetic torque convertor such that speed of the load is variable while speed of the motor is constant. A magnetic coercive force clutch is arranged to brake the load while the motor runs continuously. The system may be energized by alternating or direct current. A DC to AC inverter provides alternating current to run the AC motor when direct current is supplied to the system. The converter and clutch are supplied with direct current via rectifiers connected to a transformer energized by alternating current. Alternatively, the transformer is energized by alternating current which may be supplied by the inverter.

3,783,796

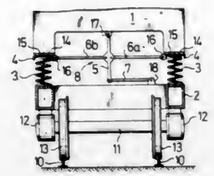
LATERALLY SHIFTABLE RAILWAY CAR SPRING SUSPENSION

Ernst Florian Kreissig, Seuzach, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed June 15, 1971, Ser. No. 153,239
Claims priority, application Switzerland, June 17, 1970, 9155/70
Int. Cl. B61f 3/00, 5/14, 5/20
U.S. Cl. 105—199 R 10 Claims

The spring-like supporting elements are connected at one end to either the body or the bogie while a deflecting element

is connected to the other end of each supporting element. The lever serves to reduce the lateral movement of the deflecting elements in proportion to the lengths of the sub-divided lever

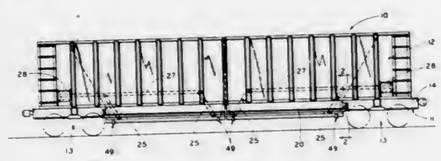


arm. Thus, the supporting elements are subjected to only a fraction of the total displacement between the body and the bogie.

3,783,797
HOOPER DOOR ACTUATING MECHANISM AND AUXILIARY LOCK

William R. Shaver, Hammond, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Feb. 4, 1972, Ser. No. 223,424
Int. Cl. B61d *7/02, 7/18, 7/28*
U.S. Cl. 105—251 **4 Claims**



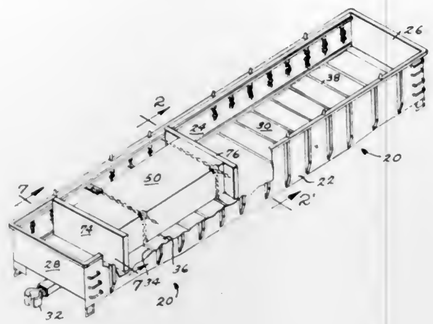
A railway hopper car includes a hopper construction provided with a pair of motor actuated discharge gates pivotally supported for swinging movement from a closed position of V-shaped configuration to a spread apart gravity discharge position. In the closed position lower terminal edges of the gates respectively overlap and are moved to and retained in this position by a power actuated linkage arrangement. An auxiliary lock or latch is provided which includes a keeper pivotally connected to one of the doors and includes finges and supporting surfaces disposed in V-shaped relation and in the closed position of the doors support and lock the terminal edges against the possibility of accidental opening.

3,783,798
RAILROAD CAR FOR HAULING FLAT STACKS OF MATERIAL

Frank Gordon Christian, Jr., Huntington, W. Va., assignor to The Chesapeake and Ohio Railway Company, Cleveland, Ohio and The Baltimore and Ohio Railroad Company, Baltimore, Md.

Filed Dec. 15, 1971, Ser. No. 208,224
Int. Cl. B60p *7/08*; **B61d** *45/00*
U.S. Cl. 105—369 A **2 Claims**

A railroad car for hauling stacked, flat sheets of material, such as rectangular cut sheet steel, and a method of securing such a stack in a railroad car having a plurality of sunken chain troughs extending in the bed of the car from one side to the other with a chain holding member or saddle mounted in each trough, and a plurality of chain holding devices, each attached to one side of the car roughly above the intersection of a trough with that side. To secure the load, a first chain portion passes along in each of one or more troughs beneath the load to the side of the stack adjacent one side of the car, passes up that side of the stack and over the top of the stack to attach to the opposite side of the car, while another chain portion passes in that same chain trough in the opposite direction to the side of the stack adjacent that opposite car side, up that side of the stack and over the top of the stack to attach to the

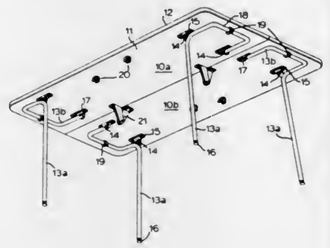


first car side. A plurality of bulkheads each extending from one side of the car to the other and movable along the length of the car in a pair of tracks which each extend along one car side are also preferably provided for securing the stack against movement in a direction parallel to the car sides.

3,783,799
FOLDING TWO-LEVEL TABLE, BENCH OR THE LIKE

Emanuel F. Dupuis, 12 Parkview Rd., St. Catharines, Ontario, Canada

Continuation-in-part of Ser. No. 106,821, Jan. 15, 1971, abandoned. This application Mar. 9, 1972, Ser. No. 233,035
Int. Cl. A47b *3/08, 9/18*
U.S. Cl. 108—19 **2 Claims**

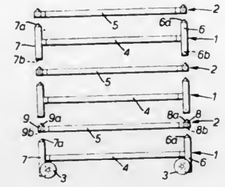


A two-level foldable table, bench or the like comprises a top divided into two parts with the parts hinged together. Four individual leg assemblies are provided, two to each top part, each of which has one long leg and one short leg. The assemblies are pivotally mounted to the underside of the top at the junction of the two legs, so that with the short legs vertical the long legs extend along the underside of the top, and vice versa when the long legs are vertical, thus providing a fully supported top at two different selected levels. Catches are provided to hold the legs in their selected positions. When the top is folded the short legs engage each other so that the table etc. forms a compact, solid package suitable for storage and/or carrying.

3,783,830
DRYING TROLLEYS FOR BRICKS AND OTHER ARTICLES

Franz Bucker, Laggenbeck, Germany, assignor to C. Keller U. Co., Laggenbeck, Germany

Filed Feb. 10, 1972, Ser. No. 225,170
Claims priority, application Germany, Nov. 23, 1971, P 21 57 996.4
Int. Cl. B65d *19/38*
U.S. Cl. 108—53 **3 Claims**

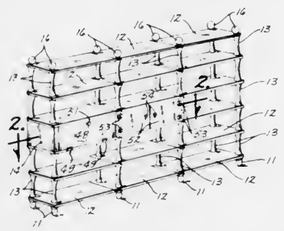


A trolley for drying bricks in a drier comprises a demountable stack of pallets. The stack comprises first and second sets of pallets alternately arranged. When the pallets of the two sets are arranged in the same configuration, adjacent pallets are spaced apart by equal distances, and when the pallets of the two sets are arranged in different configurations, each pallet o the second set rests on the frame of an adjacent lower pallet of the first set. In this manner, the distance between adjacent tier of pallets is increased.

3,783,801
ARTICLE OF FURNITURE

Gerald Engman, Des Moines, Iowa, assignor to Emco Industries, Inc., Des Moines, Iowa

Filed June 1, 1972, Ser. No. 258,732
Int. Cl. A47b *57/00*
U.S. Cl. 108—60 **2 Claims**



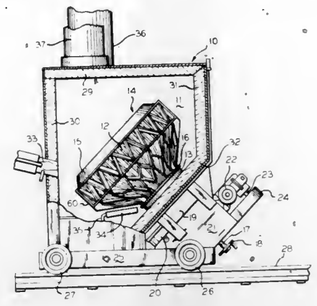
An article of furniture comprised of a number of individually available pieces which may be assembled in any fashion by the purchaser, then disassembled and reassembled as a different article of furniture, and which includes a side wall unit having one or more vertical grooves therein for combination with a rear wall, and being connectable with other elements by a single male-dual female connecting unit.

3,783,802
GRATE STRUCTURE FOR INCINERATOR

Donald J. Schrage, Germantown, Wis., assignor to Aqua-Chem, Inc., Milwaukee, Wis.

Filed Apr. 26, 1972, Ser. No. 247,579
Int. Cl. F23g *5/06*
U.S. Cl. 110—14 **14 Claims**

In a hollow pyrometric incinerator grate structure are groups of axially spaced grate support means such as rings. Elongated grate bars are disposed on the support means circumferentially in rows about the interior of the hollow body.

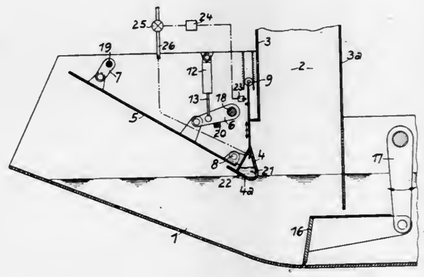


Each grate bar is engaged at its center with an intermediate support and the opposite ends of each grate bar bear freely on opposite axially spaced supports to enable biaxial stress relief.

3,783,803
FURNACE CONSTRUCTION

Johannes Josef Martin; Walter Josef Martin, and Frich Weber, all of Munich, Germany, assignors to Josef Martin Feuerungsbau GmbH, Munich, Germany

Filed June 8, 1972, Ser. No. 260,783
Claims priority, application Germany, June 11, 1971, P 21 28 998.5
Int. Cl. F23j *1/02*
U.S. Cl. 110—165 R **10 Claims**



A horizontal trough accommodates a body of water and has two transversely spaced lateral sides one of which is provided with an edge. A substantially vertical discharge chute has an upper endportion into which slag and other combustion residue from a furnace is permitted to enter and a lower endportion with an outlet through which the residue enters into the trough. The lower endportion is bounded by two transversely spaced walls one of which is closer to the first edge and the other of which is closer to the second edge of the trough, with the other wall being vertically movable with reference to the stationary upper portion of the chute. A pusher pushes residue out of the trough, beneath the vertically movable wall and over the free edge of the trough.

3,783,804
SUB-SURFACE ROOT FERTILIZER AND PROBE

Edward A. Platz, Opossum Rd., Bellemead, N.J.

Filed Apr. 21, 1972, Ser. No. 245,959
Int. Cl. A01c *23/02*
U.S. Cl. 111—7.4 **11 Claims**

A sub-surface root fertilization apparatus for use in injecting the soil with a concentrated liquid fertilizer comprising a

frame, a portion of the frame adapted to receive at least one tank, at least one tank within this portion, a pump mounted on the frame having an inlet and an outlet, a tube communicating one of the tanks with the input of the pump, control means for operating the pump, a probe having a mounting chuck at one



end, a fluid passage within the probe, the fluid passage terminating in a nozzle means at the end of the probe opposite the mounting chuck, a tube mounted on the probe communicating the probe with the outlet of the pump and an impact hammer attached to the mounting chuck of the probe.

3,783,805

DEVICE FOR TURNING-IN THE BORDER OF PIECES MADE OF FLEXIBLE SHEETS

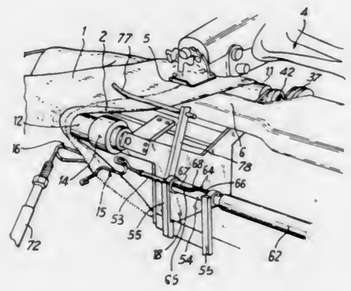
Jean Guichard, Yerres, France, assignor to Centre D'Etudes Techniques Des Industries De L'Habillement, Paris, France

Filed Jan. 6, 1972, Ser. No. 215,787

Claims priority, application France, Jan. 11, 1971, 7100607

Int. Cl. D05b *27/00, 35/02*

U.S. Cl. 112—2 **5 Claims**



Device for turning-in the border of pieces made of flexible sheets comprising : means for supporting the piece in such a way that its marginal portion that is to be turned-in finds itself, at least partially, in a predetermined reference plane ; a lateral guide for positioning the border of the said marginal portion ; means for causing the border of the marginal piece portion which finds itself in the said reference plane to advance longitudinally, against the said lateral positioning guide ; a stop whose position, in relation to the lateral guide, determines the width of the turning-in that is to be formed ; a turning mobile member ensuring the formation of the turning-in in cooperation with the said stop ; control means for the turning-in member ; and means for introducing the turned-in marginal portion of the piece into the entry of the machine for fixing the turning-in.

3,783,806

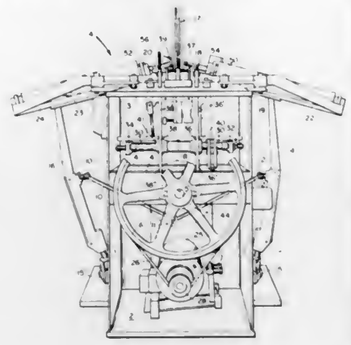
STITCH SPACER FOR BROOM STITCHING MACHINE

Edmund McCaffray, Jr., 2800 Sisson St., Baltimore, Md.

Filed Sept. 18, 1972, Ser. No. 289,873

Int. Cl. D05b *23/00*

U.S. Cl. 112—6 **5 Claims**



A broom stitching machine having a movable vise assembly including movable jaws for clamping the broom in sewing position wherein reciprocating needles move through the broom straws at substantially 70° to 80° to the plane of the vise jaws for binding the strands together, including improved means for moving the broom vise a predetermined distance between each stitch by providing an intermittent rotating shaft to which the movable vise assembly is connected including means for adjusting the amount of the shaft rotation for regulating the length of the stitch.

3,783,807

WORK CLAMP MECHANISM FOR SEWING MACHINES

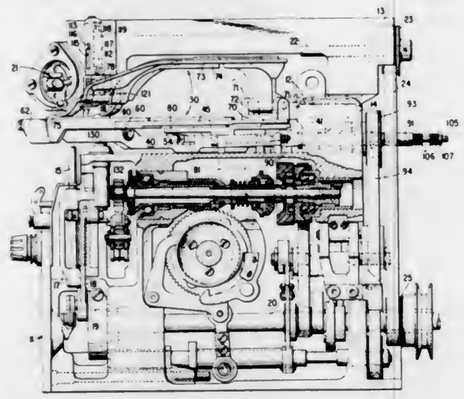
Gunter Tolle, Wendelinusstr. 15, Bruchsal, Germany

Filed Feb. 16, 1973, Ser. No. 333,079

Claims priority, application Germany, May 6, 1972, P 22 22 294.2

Int. Cl. D05b *3/04*

U.S. Cl. 112—76 **8 Claims**



A work holding clamp for a cyclic sewing machine in which the stitch forming instrumentalities are organized with the loop taker arranged above the work and the needle therebeneath. The loop taker supporting bracket arm can be raised and lowered and a spacing member is provided between the loop taker supporting bracket arm and the upper jaw of the work clamp to provide uniform spacing between the work and the loop taker during sewing despite work thickness variation. The work clamp is also pivoted to the machine frame and articulated with respect to the work feeding mechanism so that the entire work clamp may be swung up to provide access to the needle.

3,783,808

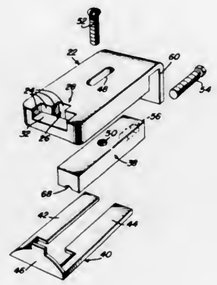
HOLDER FOR SHANK BUTTON

Daniel V. Miscevic, Miami, Fla., assignor to Martin D. Gopman, Miami, Fla., a part interest

Filed Sept. 29, 1972, Ser. No. 295,988

Int. Cl. D05b *3/00*

U.S. Cl. 112—114 **10 Claims**



A holder for articles such as shank buttons and the like to be attached to a material such as a fabric has a body member provided with walls defining a recess. This recess is arranged for receiving an article, and cooperates with a needle of an associated sewing machine for sewing the button to a material arranged between the recess and needle, such that the button is sewed to the underside of the material. A block member and a holding member are combined with the body member to form a holder which is adjustable for different size buttons and the like.

3,783,809

APPARATUS FOR PRODUCING STITCHING PATTERNS WITH SEWING MACHINE REMOVING MEANS

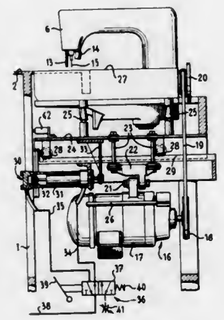
Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy

Filed May 17, 1972, Ser. No. 253,965

Claims priority, application Italy, June 18, 1971, 26013 A/71

Int. Cl. D05b *75/00*

U.S. Cl. 112—121.14 **5 Claims**



This invention relates to an apparatus for producing stitching patterns on fabric workpieces in which a sewing machine is mounted with its working face in the same plane as the supporting face of a table on which the fabric to be stitched is located. The sewing machine is contained or mounted on a frame in such a way that it can be moved laterally with respect to the surface of the table from an inner position where it can cooperate with the surface of the supporting table and an outer position where it is located or positioned completely outside of the confines of the supporting structure. The movement of the sewing machine between one position and the other can be effected by any suitable means such as hydraulic or pneumatic cylinders or by reversible electric motor if desired. Also included is a safety inner lock system that prevents the sewing machine from becoming automatically operated when it is located in a position outside the supporting frame.

3,783,810

LOOPER DRIVING DEVICE WITH PERIODICALLY VARIABLE SPEED IN ZIG-ZAG CHAINSTITCH SEWING MACHINES

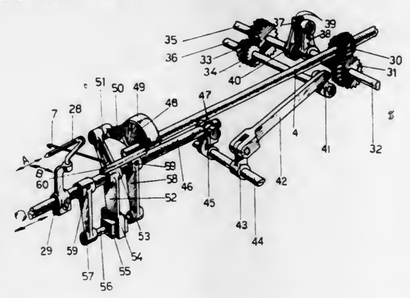
Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy

Filed Nov. 9, 1971, Ser. No. 196,974

Claims priority, application Italy, Nov. 18, 1970, 31873 A/70

Int. Cl. D05b *3/02, 1/06*

U.S. Cl. 112—159 **7 Claims**



The invention relates to an improved means for driving the looper device of a sewing machine of the type which sews a chain-stitch in a zig-zag pattern. According to the invention, the looper is oscillated respectively at different speeds in mutually perpendicular directions.

3,783,811

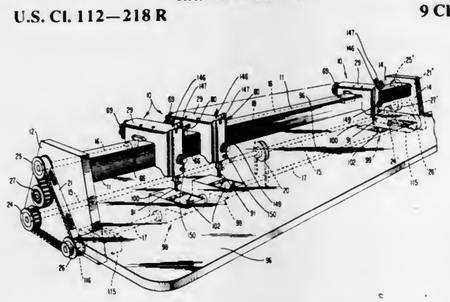
SEWING MACHINE

Albert A. Schmedding, and Ernest L. Pfeifer, both of Oradell, N.J., assignors to Bergenfield Development Co., Inc., Dumont, N.J.

Division of Ser. No. 720,632, April 11, 1968, Pat. No. 3,595,188. This application Aug. 20, 1970, Ser. No. 65,672

Int. Cl. B65h *59/26*

U.S. Cl. 112—218 R **9 Claims**



Sewing machine, here illustrated as a machine for simultaneously embroidering a plurality of pieces of goods with an

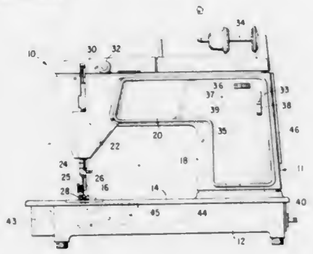
identical pattern or for embroidering a plurality of identical patterns on a single piece of goods. The illustrative machine comprises a plurality of embroidering stations, a plurality of embroidering mechanisms each of which is disposed at a respective embroidering station, and means for traversing the goods relative to the mechanisms at the stations to embroider the goods in accordance with the pattern.

3,783,812

SEWING MACHINE WITH A PRINTED CIRCUIT SWITCH AND VARIABLE SPEED CONTROL MEANS

Harry Fersch, Lakewood, and Walter Heinz Kopido, Rockaway, both of N.J., assignors to The Singer Company, New York, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,318
Int. Cl. D05b *69/14*
U.S. Cl. 112—220 **9 Claims**



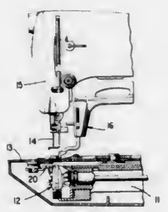
A sewing machine is provided with a printed circuit switch and a cooperating control means whereby the mechanisms thereof can be selectively operated with variable speed in a forward direction or in a reverse direction such that the conventional handwheel of a sewing machine can be eliminated. Additionally, a sewing machine may be operated without the use of the conventional operator-actuated foot controller connected to the machine.

3,783,813

UNDERBED THREAD TRIMMING DEVICE FOR SEWING MACHINES

Gunter Kroll, Munich, Germany, assignor to The Singer Company, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,701
Int. Cl. D05b *65/00*
U.S. Cl. 112—252 **1 Claim**



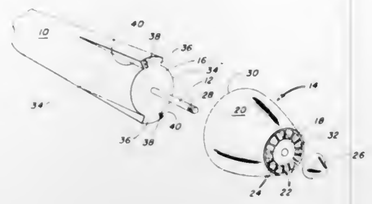
A device for severing both the bobbin and needle threads of a lockstitch sewing machine in which a movable cutting blade is carried beneath the sewing machine throat plate for cooperation with a ledger blade formed on the bottom surface of a throat plate insert having a needle aperture formed therein.

3,783,814

THRUST AUGMENTING EXPANSION ENGINE

Carl T. Zovko, 302 Penwood Rd., Silver Spring, Md.

Filed Jan. 23, 1968, Ser. No. 701,813
Int. Cl. F42b *19/12, 19/18, 19/22*
U.S. Cl. 114—20 A **26 Claims**



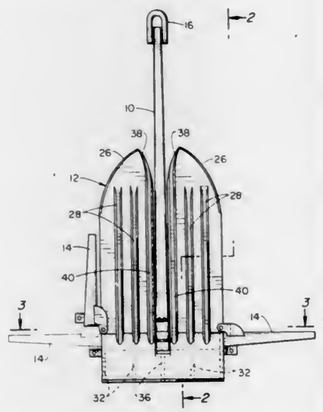
An expansion engine capable of extracting energy from an expanding gas and distributing that energy between the gas and a fluid stream to generate a propulson or power force. The engine includes a thrustor mounted for rotation about a shaft and consisting of a hub and a concentric shroud connected by a number of evenly spaced, helical vanes. The vanes divide the annular space between the hub and shroud into equal sized helical channels which are open at both ends. The forward ends of the channels are open during a portion of the rotation and closed during a second portion of the rotation. The channels are filled with fluid when in the unobstructed position, and an expandable gas is delivered behind each slug of fluid in the channel when in the obstructed position. The high pressure gas accelerates the already moving water to the rear of each channel.

3,783,815

HEAVY DUTY MARINE ANCHOR

Richard C. Towne, 822 W. Roderick Ave., and Johnnie V. Stalcup, 3121 Paula St., both of Oxnard, Calif.

Filed Jan. 24, 1972, Ser. No. 220,148
Int. Cl. B63b *21/26*
U.S. Cl. 114—208 R **4 Claims**



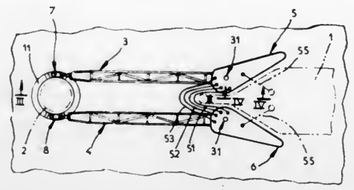
A large cast low cost anchor construction of high holding power to weight ratio. Specially shaped fluke stiffening ribs permit relatively thin flat flukes in massive anchors and a new aspect ratio of fluke length to shank length in excess of 0.600.

3,783,816

SYSTEM FOR MOORING SHIPS TO STRUCTURES

Christain de Chassy, Vauhallan, and Andre Capdeboscq, Jurancon, both of France, assignors to Entreprise de Recherches Et D'Activites Petrolieres (Elf), Paris, France

Filed Apr. 12, 1972, Ser. No. 243,293
Claims priority, application France, Apr. 16, 1971, 7113441
Int. Cl. B63b *21/00*
U.S. Cl. 114—230 **10 Claims**



This invention concerns a system for mooring ships to structures consisting of two rigid arms (3 and 4), jointed at one end to two diametrically opposite points (7 and 8) on a crown-wheel, which can revolve on the mooring structure (2), and at the other end, by means of universal joints (31 and 32), to two floating caissons (5 and 6); these are connected by flexible couplings (51, 52 and 53), and the stem-post of the ship (1) passes between them.

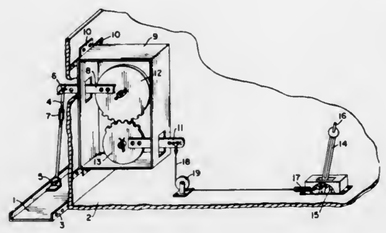
The invention concerns the mooring of oil-tankers or other vessels, floating appliances, etc.

3,783,817

MECHANICAL TRIM TAB MEANS FOR MARINE CRAFT

Philip M. Banner, 28 Oxford Rd., Massapequa, N.Y.

Continuation-in-part of Ser. No. 16,476, March 14, 1970, Pat. No. 3,628,484. This application Dec. 6, 1971, Ser. No. 204,996
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 P **6 Claims**



A pair of trim tabs are pivotally connected to the transom of a power boat adjacent to the water line. The angle of the trim tabs is adjusted to desired operating positions by a hand operated lever and cable assembly attached to leverage arms and gears adjustable for mechanical power means. The leverage arms are adjustable for lesser or greater leverage power to the trim tabs.

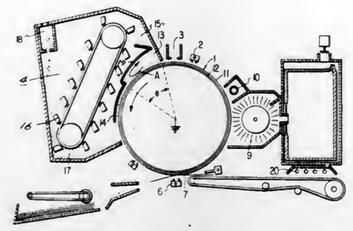
3,783,818

ELECTROPHOTOGRAPHIC DEVELOPING PROCESS

Katsuo Makino, Odawara; Seiji Joh, and Kouzou Takeda, both of Tokyo, all of Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1971, Ser. No. 211,577
Claims priority, application Japan, Dec. 26, 1970, 45-119046
Int. Cl. G03g *13/08*
U.S. Cl. 118—4 **6 Claims**

An electrophotographic cascade developing process and apparatus for rendering an electrostatic latent image visible which comprises (1) providing a developing electrode in the proximity of a surface holding the electrostatic latent image to be developed thereon and in facing relationship to the surface; (2) moving the surface with respect to the electrode; (3) developing the latent image by flowing cascade developer including charged toner particles and carrier particles between the surface and the electrode while applying to the electrode a first electric potential of a polarity capable of attracting the toner particles; and (4) after the portion of the surface containing the developed image is moved past the space under the influence of the electrode, changing the first potential on the electrode to a second potential which attracts said charged toner particles less than the first potential while maintaining the flow of developer to thereby remove toner particles sticking on the electrode.



3,783,819

MOVEMENT OF A WORKING STATION WITH REFERENCE TO A SUBSTANTIALLY VERTICAL SURFACE

Paul Hammelmann, Zum Sundern 17, Oelde/Westfalen, Germany

Division of Ser. No. 803,126, Feb. 26, 1969, Pat. No. 3,623,902. This application Nov. 12, 1970, Ser. No. 88,722
Nov. 12, 1970, Ser. No. 88,722
Claims priority, application Germany, Feb. 28, 1968, P 15 56 454.2
Int. Cl. B08b *3/02*; **B05c** *5/00*
U.S. Cl. 118—4 **19 Claims**

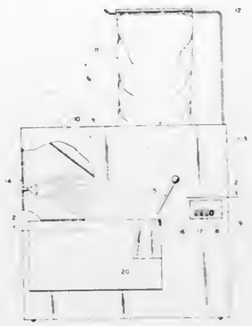


Arrangement for moving a working station with reference to a substantially vertical surface, particularly the external surface of a ship hull. A vehicle is advanced in a horizontal path adjacent to and along the surface and a working station, movably supported on the vehicle, is simultaneously moved in a substantially vertical path with reference to the travelling vehicle between an upper and a lower end position whereby it moves along a substantially vertical strip of the surface. On reaching one or the other of its end positions, the working station is rapidly shifted in the direction of advancement of the vehicle and thereupon again moved in a substantially vertical path with reference to the travelling vehicle along another substantially vertical strip of the surface which is directly adjacent to but does not overlap over the first vertical strip.

3,783,820
POPCORN FLAVORING AND DISPENSING APPARATUS

Harry B. Hautly, Kirkwood, and Samuel T. Echols, Jr., Bismarck, both of Mo., assignors to Buttermist, Inc., Bismarck, Mo.

Filed Apr. 3, 1972, Ser. No. 240,592
Int. Cl. A23g 3/26
U.S. Cl. 118—19 10 Claims

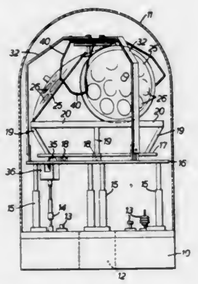


A popcorn flavoring and dispensing apparatus, comprising a hopper for popped popcorn, an opening in the bottom of the hopper, a valve in the opening to control dispensing of popcorn through the opening, and a spray nozzle closely adjacent the opening to spray liquid butter or other flavoring uniformly and positively onto the popped popcorn as it is dispensed through the opening.

3,783,821
PLANETARY WORKHOLDERS

Christopher D. Dobson, 44 Fields Park Rd., and Kenneth Nash Knight Willmott, 158 Linden Ct., both of Newbridge, England

Filed July 20, 1971, Ser. No. 164,336
Claims priority, application Great Britain, Mar. 2, 1971, 5745/71; June 14, 1971, 27788/71
Int. Cl. C23c 11/08
U.S. Cl. 118—48 16 Claims

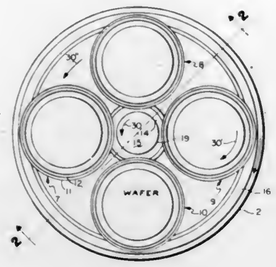


A movable workholder in a vacuum enclosure, for vacuum deposition, including a planetary system comprising a number of planet workholders engaging a horizontal driving annulus at their lower edges and resting on a sun wheel at their upper edges, the planets being held apart by a rotary spider. The angular inclination of the planets can be adjusted by locating them selectively on one of two spaced sun wheels, or by tilting one of the sun wheels so that the planets tilt as they rotate. The apparatus may include means for rotating sections of the planets to expose the opposite sides of the workpieces, and each planet may incorporate a subsidiary planetary system.

3,783,822
APPARATUS FOR USE IN DEPOSITION OF FILMS FROM A VAPOR PHASE

John S. Wollam, 53 Atcott St., Acton, Mass.

Filed May 10, 1972, Ser. No. 251,931
Int. Cl. C23c 13/08
U.S. Cl. 118—49.1 9 Claims

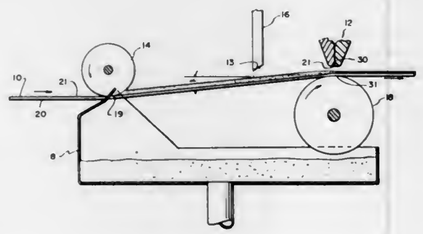


Separate platform discs for carrying workpieces or substrates such as slices or wafers of semiconductor material in a deposition environment are moved in a common circular orbit and rotated by the action of two co-axial annular support surfaces upon which each disc rests at opposite areas of the lower periphery of the disc, one of these support surfaces being driven with respect to the other in rotation about the axis common to the two annular supports. The temperature of the discs and/or substrates is maintained by proximity to a heat or other energy source or sink, with deposition occurring on the exposed upper surface of the substrate resting on the disc.

3,783,823
FILM THICKNESS CONTROL APPARATUS

William C. Sievert, Chesterton; William A. Carter, Gary, and James L. Munson, Highland, all of Ind., assignors to Inland Steel Company, Chicago, Ill.

Filed May 13, 1971, Ser. No. 142,927
Int. Cl. B05c 11/06, 5/00
U.S. Cl. 118—63 10 Claims

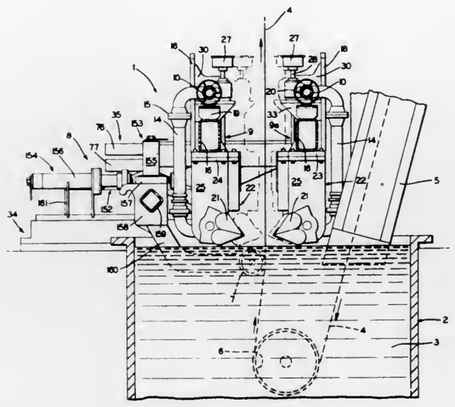


A coating system for a continuous strip comprising a roller means station and an air knife station spaced from and vertically above the roller means station with a fluid depositing means located between the roller means station and air knife station.

3,783,824
ELEVATOR CONSTRUCTION FOR COATING CONTROL EQUIPMENT

John B. Kohler, North Canton, and David H. Croston, Navarre, both of Ohio, assignors to The Kohler Coating Machinery Corporation, Greentown, Ohio

Filed May 30, 1972, Ser. No. 258,063
Int. Cl. B05c 11/06
U.S. Cl. 118—63 24 Claims



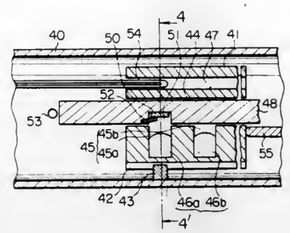
An elevator construction for holding and positioning jet nozzle coating control equipment with respect to a vertically extending strip of coated metal. A horizontal platform is supported by two pairs of parallel support links above a fixed base. The support links, base and platform are arranged in a parallelogram or pantographic configuration. A pair of control links, one-half the length of the support links, are pivotally attached at the midpoints of the pair of the support links and to the base. A frame is slidably mounted within the base and the lower ends of the support links are pivotally attached thereto, whereby straight-line horizontal movement of the frame within the base imparts a straight-line vertical motion to the platform through the movement of the support and control links. Blocks for supporting the jet nozzles are slidably mounted in horizontal slideways formed in the platform for horizontal movement of the jet nozzles towards and away from the coated strip, independent of the vertical position of the platform.

3,783,825
APPARATUS FOR THE LIQUID-PHASE EPITAXIAL GROWTH OF MULTI-LAYER WAFERS

Hiroyuki Kobayasi, and Isamu Akasaki, both of Osaka, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Mar. 1, 1972, Ser. No. 230,661
Claims priority, application Japan, Mar. 5, 1971, 46/12067
Int. Cl. B05c 3/00; B01d 9/00
U.S. Cl. 118—422 1 Claim

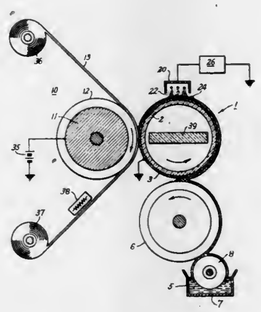
An apparatus for the liquid-phase epitaxial growth of multi-layer wafer comprising a refractory furnace tube, a boat placed in the furnace tube and having a plurality of bathes which are aligned in the longitudinal direction of the furnace tube and respectively carry solutions each containing semiconductive substances, and a holding member for holding a substrate which is arranged to succeedingly flood the substrate with the solutions so as to epitaxially grow a multi-layer wafer on the substrate. The holding member arranged to upset the substrate upon picking-up or separating of the substrate from the solution so that the solution remained on the substrate is dropped from the substrate whereby unwanted mixing of the solutions neighbouring each other can be avoided.



3,783,826
ION FILM REGULATING DEVICE

Edwin A. Urbanek, Penfield, and Richard C. Vock, Ontario, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Aug. 20, 1971, Ser. No. 173,583
Int. Cl. G03g 13/00; B05c 5/00
U.S. Cl. 118—620 1 Claim



Apparatus for regulating liquid film thickness are provided. The apparatus provided by the present invention comprises:
- an elongated corona discharge electrode;
- a corona generating potential source connected to said discharge electrode adapted to apply a corona generating potential between said discharge electrode and a ground electrode;
- means adapted to overcoat a surface with a non-conductive liquid film; and
- means adapted to establish relative motion between said discharge electrode and the overcoated surface in close spaced relation to said discharge electrode, whereby said discharge electrode creates an ion curtain extending across the path of relative movement of the surface and the discharge electrode which impinges upon said non-conductive liquid film, and, upon relative movement of said surface and said discharge electrode, wipes at least the portion of said film from said surface.

3,783,827
LIQUID DEVELOPMENT APPARATUS FOR ELECTROPHOTOGRAPHY

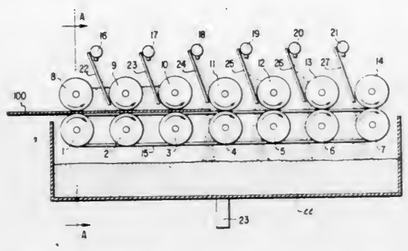
Osamu Fukushima; Masamichi Sato, and Satoru Honjo, all of Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 30, 1971, Ser. No. 214,252

Claims priority, application Japan, Dec. 30, 1970, 45/122799

Int. Cl. G03g *13/10*

U.S. Cl. 118—637 **2 Claims**



An electrophotographic developing apparatus comprising: multiple carrier rollers, held in supporting means, conveying an electrophotographic sheet material to be processed and driven at a common speed by driving means; two endless belts hung at the side ends of said carrier rollers to form a loop including at least some of said carrier rollers; multiple development electrodes arranged facing to carrier rollers; and a means of supplying liquid developer onto the electrophotographic sheet which is conveyed between said carrier rollers and said development electrodes, whereby a developer pool is formed on the electrophotographic sheet, said pool being limited by the sheet as bottom plane, and the adjacent developing electrodes and the supporting means as side borders, said sheet being conveyed with its rear surface in contact with said endless belts.

3,783,828
APPARATUS FOR DEVELOPING LATENT ELECTROSTATIC CHARGE IMAGES

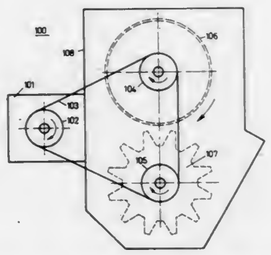
Gabor Forgo; Erwin Meyer, both of Zurich, and Josef Schilter, Ruti, all of Switzerland, assignors to Zellweger AG, Uster, Switzerland

Filed July 3, 1972, Ser. No. 268,783

Claims priority, application Switzerland, Aug. 16, 1971, 12106/71

Int. Cl. G03g *13/08*

U.S. Cl. 118—637 **9 Claims**



An apparatus for developing latent electrostatic charge images by means of a magnetic brush wherein there is provided a rotatably mounted scoop or bucket wheel formed of insulating material and serving for dispensing a mixture of magnetic and toner particles. Above the scoop wheel there is arranged a rotatably mounted drum formed of non-magnetic material and within which there is provided a stationary magnet system with a core of soft magnetic material and prismatic permanent magnets arranged about such core. The magnets starting from the lowest location of the internal compartment of the drum and within the ascending drum wall possess alternating polarity and at least two successive permanent magnets at the upper portion of the inner compartment of the drum have the same polarity.

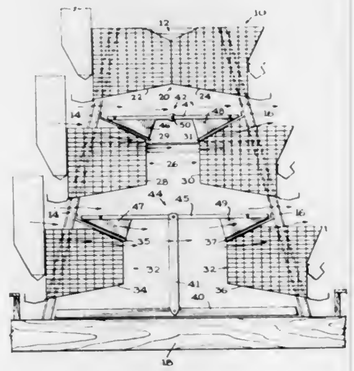
3,783,829
MANURE SHEDS AND JOIST CLEANER ARRANGEMENT

Anthony J. Siciliano, Vineland, N.J., assignor to Diamond International Corporation, New York, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,407

Int. Cl. A01k *31/04*

U.S. Cl. 119—17 **18 Claims**



A cage-row battery arrangement for raising poultry comprising vertically spaced batteries of pairs of cage rows with the cage rows of batteries at intermediate and lower levels being provided with overhead manure drying sheds to catch droppings from the cage rows thereabove. The batteries are mounted on a framework supported on joist members and are spaced above the joist members. Power actuated scraper means are provided to remove dried manure, dirt or debris from the shed and movable bars are provided to prevent excessive build-up of manure, dirt or debris on the joist members.

3,783,830
AUTOMATIC MILKING BARN

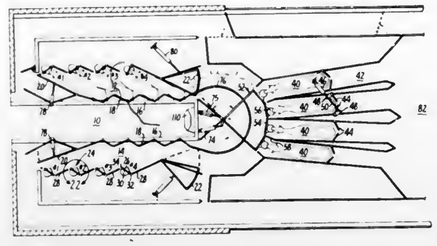
William Z. Holm, Petaluma, Calif., assignor to Ross-Holm Division, Holm Tractor & Equipment Company, Petaluma, Calif.

Division of Ser. No. 226,220, Feb. 14, 1972, which is a continuation of Ser. No. 62,714, Aug. 10, 1970, Pat. No. 3,699,922, which is a continuation of Ser. No. 730,818, May 21, 1968, abandoned. This application Apr. 5, 1973, Ser. No. 321,302

Int. Cl. A01k *05/02*

U.S. Cl. 119—14.03 **1 Claim**

A herringbone milking parlor having automatic controls for preparation and movement of milking cows, stall adjusting means for accommodating cows of different size in a single herringbone stall, and a swinging sector gate for transferring a



group of cows in sequence from a group of preparation stalls to a herringbone milking stall.

3,783,831
NESTING PLACE FOR PURPLE MARTIN

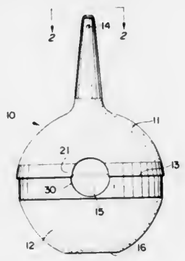
Edmond Lewis Patliff, 5139 Clinton Blvd., Jackson, Miss.

Continuation-in-part of Ser. No. 78,369, Oct. 6, 1970, abandoned.

Filed Dec. 15, 1972, Ser. No. 315,448

Int. Cl. A01k *31/00*

U.S. Cl. 119—23 **8 Claims**



A nesting place for the purple martin made of a synthetic resin material and comprising a hollow housing having an upper portion and a lower portion removably affixed to said upper portion. An egress and ingress opening is divided between both portions. There are means for removably affixing the lower portion to the upper portion.

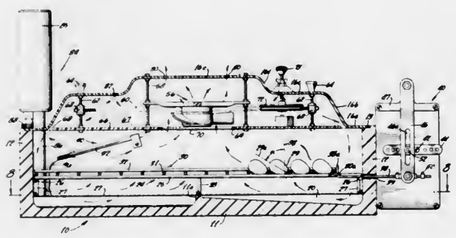
3,783,832
AUTOMATIC EGG INCUBATOR

Albert F. Marsh, 14232 Brookhurst, Garden Grove, Calif.

Filed May 19, 1972, Ser. No. 254,891

Int. Cl. A01k *41/06*

U.S. Cl. 119—37 **20 Claims**



A rack supports the eggs in rows with a movable grid above the rack extending between the eggs. The grid is moved periodically by a motor to turn the eggs. A transparent dome-like cover extending over the eggs supports a fan and a heater, while a plate supported by the cover directs the air downwardly around the periphery of the rack and upwardly towards the centrally supported fan. A humidifier water supply fountain is supported on the cover with a tube extending into a water compartment formed in the base of the incubator. An adjusting screw extending between the fountain and the cover adjusts the position of the lower end of the tube and thereby controls the water level within the incubator. The cover is formed with a peripheral flange which rests upon the side walls of the incubator so that the cover can be inverted during storage and shipment.

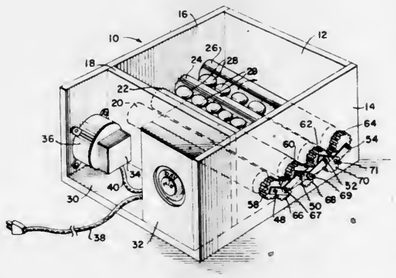
3,783,833
AUTOMATIC EGG TURNER

Rex Edward Bailey, P.O. Box 264, Hahnville, La.

Filed Mar. 12, 1971, Ser. No. 123,547

Int. Cl. A01k *41/06*

U.S. Cl. 119—44 **5 Claims**



An automatic egg turner including an enclosure, a plurality of spaced rollers extending across the enclosure, an adjustable timer, a small electrical motor providing power to a gear reduction box, a power transmission train connected to the output gear of the gear reduction box, and normally opened switches in a control circuit periodically closed by camming means driven by the timer to energize the small motor and advance the rollers, thereby turning the eggs within the enclosure. The power transmission train employs a large input gear and a series of smaller driven gears and interspersed idler gears, so arranged that all of the rollers are advanced at the same time and in the same direction. The smaller driven gears and idler gears are held in constantly engaged and aligned position by a series of retainer links. The driven gears and idler gears are identical in shape. Consequently, when the control circuit is completed, the rollers are advanced so smoothly that layers of eggs can be stacked upon each other, with the lower layer serving as a roller for the eggs in each succeeding upper layers.

3,783,834
QUAIL HARNESS

Jake T. Story, 2206 N.W. 17th, Oklahoma City, Okla.

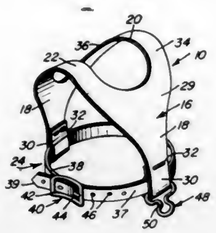
Filed Jan. 12, 1972, Ser. No. 217,338

Int. Cl. A62b *35/00*

U.S. Cl. 119—96 **1 Claim**

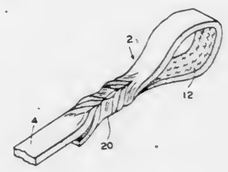
A harness for birds, particularly quail, having a first single, longitudinally extending strap forming breast and back strap portions and provided with an opening forming a collar for enclosing the neck of a bird to be harnessed. A second single, longitudinally extending strap removably connected to the first strap for encircling the body of the bird beneath the wings thereof. The second strap is provided with a buckle for selec-

tively connecting end portions thereof to one another. An eye is connected to an end portion of the first strap adjacent the



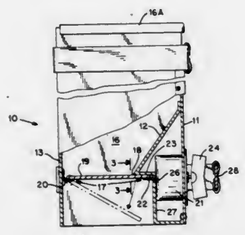
second strap for selectively connecting a line thereto for controlling the movement of the bird.

3,783,835
ANIMAL LEASH
Joseph Kepirq, R.D. No. 2, Parkesburg, Pa.
Filed July 14, 1972, Ser. No. 271,637
Int. Cl. A01k *27/00*
U.S. Cl. 119—109 **2 Claims**



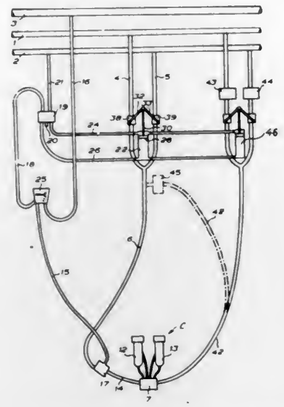
An animal leash is normally provided with two looped ends. One looped end is used to receive the hand of the person walking the animal. The other looped end is used to receive some type of fastening means which connects the leash to the animal. The leash herein has the two looped ends formed without the utilization of any fastening structures. The ends of the leash are braided into a loop, causing the leash itself to be the means for sustaining the loop structure.

3,783,836
TIMER CONTROLLED FEEDER APPARATUS
Albert E. Williams, 502 Hawkins Blvd., Copiague, N.Y.
Filed Nov. 16, 1972, Ser. No. 306,991
Int. Cl. A01k *5/02*
U.S. Cl. 119—51.14 **3 Claims**



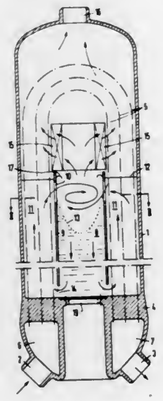
A timer controlled feeder apparatus in which the timer has a projecting pin that secures a door closed to retain feed material within a receptacle until a preset time interval has elapsed, and then the timer pin moves to release the door for opening to discharge the feed material from the receptacle.

3,783,837
MILKING MACHINE
Karl Erik Olander, Sodertalje, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed July 14, 1971, Ser. No. 162,448
Claims priority, application Belgium, Feb. 16, 1971, 99814
Int. Cl. A01j *05/04*
U.S. Cl. 119—14.08 **4 Claims**



A duct under partial vacuum leads mlk from the teat cup cluster and creates a milking milk therein, the duct having a regulating valve operable to vary the milking vacuum. A device for sensing changes in the rate of milk flow through this duct is connected to control means for operating the regulating valve to decrease the milking vacuum from a working value to an idling value in response to a decrease in the milk flow rate and in increase the milking vacuum from an idling to a working value in response to an increase in said rate.

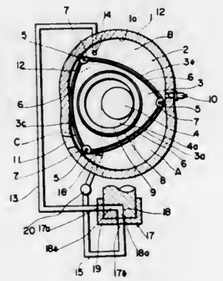
3,783,838
STEAM GENERATOR FOR PRESSURIZED WATER NUCLEAR REACTORS
Eberhard Michel, Boxdorf, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed June 9, 1972, Ser. No. 261,249
Claims priority, application Germany, June 11, 1971, P 21 28 879.9
Int. Cl. F22b *1/06*
U.S. Cl. 122—34 **1 Claim**



A steam generator for pressurized water nuclear reactors has an upright U-tube bundle of heating surface members. A

cylindrical hollow chamber is provided at the center of the U-tube bundle and serves as preseparator for a steam-water mixture supplied tangentially to the chamber from a region of the U-tube bundle which contains the vertically extending legs, whereby water is separated from the steam-water mixture and flows downwardly while steam containing remnant moisture entrained therein flows upwardly from the hollow chamber. A fine separator is diposed between a portion of the U-tube bundle and the hollow chamber and separates the remnant moisture from the upwardly flowing steam to produce purified steam. The steam then passes through the above-mentioned portion of the U-tube bundle with the remnant moisture removed thereby providing increased super-heating of the steam.

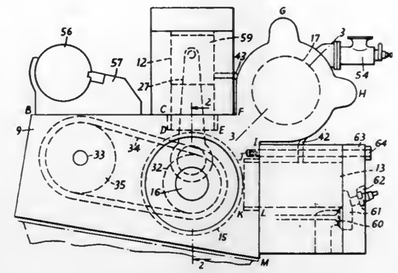
3,783,839
ROTARY PISTON ENGINE WITH EXHAUST RECIRCULATING DEVICE
Hiroshi Shimizu, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima-ken, Japan
Filed Dec. 16, 1971, Ser. No. 208,746
Claims priority, application Japan, Dec. 21, 1970, 45/116179
Int. Cl. F02b *53/06*
U.S. Cl. 123—8.45 **23 Claims**



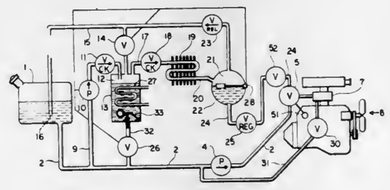
A rotary piston internal combustion engine provided with an exhaust recirculating device for effecting the reduction of both the nitrogen oxide content and the noxious unburned compounds present in the automobile exhaust gas and concurrently improving the engine power output with efficient fuel consumption by recirculating a portion of the exhaust gas from the engine working chamber under the power stroke to the engine working chamber under the compression stroke in response to the rotation of the power output shaft.

3,783,840
CYLINDER BLOCK
John Edward Squelch, 24B Greenfern Ave., Slough, England
Continuation-in-part of Ser. No. 808,798, March 20, 1969, abandoned. This application Mar. 4, 1971, Ser. No. 120,848
Int. Cl. F02d *39/04*; **F04b** *17/00, 7/00*
U.S. Cl. 123—65 B **2 Claims**

A two-stroke internal combustion engine has cylinders in two planes offset from each other at 90°, a bore to contain a crankshaft is provided adjacent the inner ends of the cylinders and at right angles thereto, and a bore is provided within the included angle parallel to the crankshaft bore constituting a valve cylinder which has ports for supplying air or fuel and air to the cylinders.



3,783,841
FUEL SYSTEM
Daniel A. Hirschler, Jr., Birmingham, and Frederick J. Marsee, Clawson, both of Mich., assignors to Ethyl Corporation, Richmond, Va.
Continuation-in-part of Ser. No. 152,678, June 14, 1971, and a continuation-in-part of Ser. No. 174,015, Aug. 23, 1971. This application Oct. 4, 1971, Ser. No. 185,940
Int. Cl. F02m *31/16*
U.S. Cl. 123—127 **4 Claims**

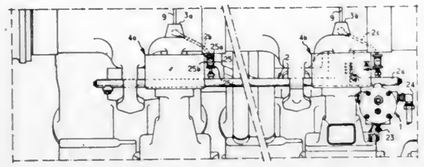


A dual liquid fuel system for an internal combustion engine is disclosed which delivers a liquid volatile hydrocarbon fuel to the engine induction system during start and warm-up and switches to gasoline after the engine attains operating temperature. The volatile hydrocarbon fuel is generated from the normal gasoline used to operate the engine by delivering gasoline to a vaporizing chamber, heating the gasoline in the chamber to vaporize a portion thereof, and condensing the vapors.

3,783,842
LEAK-FUEL COLLECTING AND DETECTING DEVICE FOR AN INTERNAL COMBUSTION ENGINE
Karl Walter Kuhn, Saint-Germain-en-Laye, and Marcel Pierre Ernest Marie Corbin, L'Isle Adam, both of France, assignors to Societe D'Etudes Machines Thermiques, Saint-Denis, France
Filed Mar. 14, 1972, Ser. No. 234,513
Claims priority, application France, Apr. 15, 1971, 7113340
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 R **8 Claims**

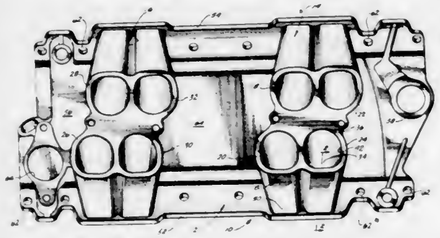
The present invention is concerned with a device for collecting and detecting leak-fuel in the fuel discharge pipe connecting the injection pump with the injector of the corresponding cylinder of an internal combustion engine. The device comprises a hood tightly covering the head of the injection pump and through which pass said delivery pipe and the

sheath surrounding it, and leak-fuel discharge means for discharging the leak-fuel accumulated in the internal volume



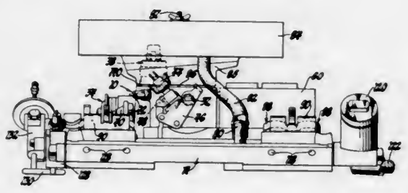
of said hood. Preferably, said discharge means comprise a collecting vessel provided with a warning device.

3,783,843
INLET MANIFOLD FOR AN INTERNAL COMBUSTION ENGINE
James D. McFarland, Jr., 20012 Septo St., Chatsworth, Calif.
Continuation-in-part of Ser. No. 130,329, April 2, 1971. This application Dec. 13, 1971, Ser. No. 207,407
Int. Cl. F02b *75/18, 75/22, 75/20*
U.S. Cl. 123—52 MV **13 Claims**



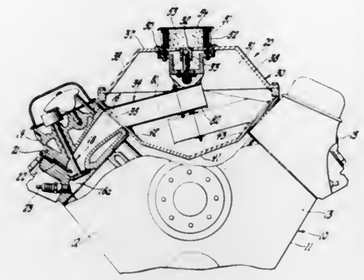
The entrance to each runner of a ram type manifold has a D-shaped cross section with the flat side of the D being along the short wall of the runner. The provision of a flat wall along the short side of the runner simulates a condition where all walls of the runner are of the same length. Consequently there is uniform flow of air and fuel throughout the cross section of each runner.

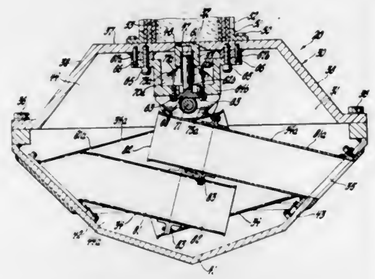
3,783,844
FUEL INJECTION SYSTEM
John A. Gural, Pittsford, N.Y., assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 18, 1972, Ser. No. 227,456
Int. Cl. F02b *75/22*
U.S. Cl. 123—52 MV **1 Claim**



In an electronically controlled fuel injection system, the air inlet body and the fuel rails are secured by a bracket whereby the air and fuel metering components of the system which are mounted thereon may be tested and shipped in a unitary package.

3,783,845
AIR INDUCTION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE
Walter R. Brandstetter, Isenbuttel, Germany, assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 21, 1972, Ser. No. 317,396
Int. Cl. F02b *29/02, 75/22*
U.S. Cl. 123—55 VE **4 Claims**





An air induction system for an internal combustion engine wherein an elongated, header housing adapted to be positioned between the banks of angularly disposed cylinders of the engine encloses an intake manifold chamber having an elongated throttle valve reciprocably positioned therein to regulate airflow to the engine through a rectangular aperture in the top wall of the housing to passages in the side wall of the housing, the side wall passages corresponding in number and position to the number of cylinders of the engine and the intake manifold chamber having header tubes positioned therein to further provide a uniform airflow from the aperture through the intake manifold chamber and the side wall passages to each of the cylinders of the engine.

3,783,846
INTERNAL COMBUSTION ENGINE IGNITION SPARK VACUUM ADVANCE SYSTEM
Bruce R. Barnhart, Livonia, and David C. Hill, Detroit, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 30, 1971, Ser. No. 203,369
Int. Cl. F02p *5/04*; **F02n** *17/00*
U.S. Cl. 123—117 A **1 Claim**

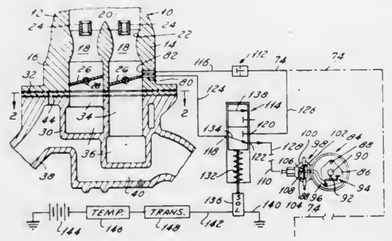
A system for enabling the ignition spark vacuum advance mechanism of an internal combustion engine until the engine has reached operating temperature for use with ignition spark vacuum advance systems which disenable the vacuum spark advance mechanism with vehicle speeds less than a predetermined magnitude of the type having a speed sensitive switch, closed below a selected vehicle speed, connected in series in the energizing circuit of the operating coil of a two-way valve which, when energized, operates the valve to the condition

which vents the associated spark advance vacuum unit to atmosphere. The parallel combination of a normally open temperature sensitive in-vehicle temperature switch and a normally open temperature sensitive engine temperature switch is



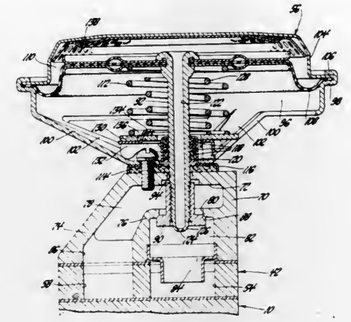
connected in series with the speed sensitive switch to prevent the operation of the valve to the condition which vents the spark advance vacuum unit vacuum port to atmosphere until the engine has reached operating temperature.

3,783,847
ENGINE SPARK CONTROL AND EXHAUST GAS RECIRCULATION VACUUM SIGNAL SELECTOR
Dale A. Kolody, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 6, 1972, Ser. No. 312,445
Int. Cl. F02m *25/06*; **F02d** *33/02*
U.S. Cl. 123—119 A **17 Claims**



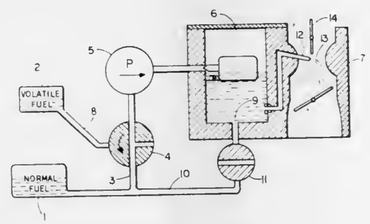
An engine emission control system includes exhaust gas recirculating and engine spark timing devices each normally connected respectively to axially spaced EGR and spark ports in the carburetor induction passage above the closed position of the throttle valve. Valving is provided under the control of temperature changes and changes in the operation of the vehicle transmission to at times switch the connections to the exhaust recirculating device from EGR port to spark port operation and vice versa, to at times improve emissions while maintaining a constant vehicle drive quality, and at other times improve vehicle drive quality while maintaining a constant emission level.

3,783,848
EXHAUST GAS RECIRCULATION VALVE
Ernst L. Ranft, Webster, N.Y., and William F. Thornburgh, Rochester, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 13, 1972, Ser. No. 314,569
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 A **5 Claims**



A diaphragm operated control valve assembly, responsive to exhaust back pressure, controls recirculation of exhaust gases from the intake manifold exhaust crossover passage to the intake manifold induction passages. The back pressure signal is applied through a restrictive orifice in a passage formed in the valve stem. A screen disposed above the diaphragm prevents any ice formed on the diaphragm cover from dislodging to cause malfunction of the valve assembly.

3,783,849
DUAL FUEL SYSTEM
Thomas Hugh Bramfitt, Pasadena, Tex., assignor to Ethyl Corporation, Richmond, Va.
Filed Nov. 5, 1971, Ser. No. 195,949
Int. Cl. F02m *13/06*
U.S. Cl. 123—127 **3 Claims**

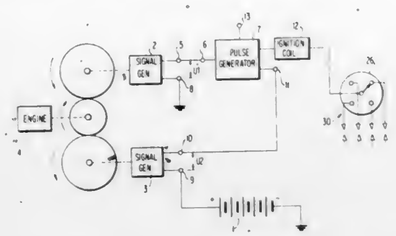


A fuel system for a spark ignited internal combustion engine which feeds gasoline and a volatile gasoline fraction to the engine has a volatile fuel generation means with an appropriate valve switching system designed to allow operation of the engine on the volatile fuel during start and warm-up and then switch to normal fuel during warmed-up operation. The self-generation system utilizes engine vacuum as an aid in vaporizing a portion of the normal gasoline.

3,783,850
IGNITION ADVANCE CIRCUIT

Roger Jean Habert, Epinay sur Seine, France, assignor to Ducellier & Cie, Paris, France

Continuation-in-part of Ser. No. 835,661, June 23, 1969, abandoned. This application Feb. 4, 1972, Ser. No. 223,627
Int. Cl. F02p 1/00, 5/04
U.S. Cl. 123—146.5 A 2 Claims

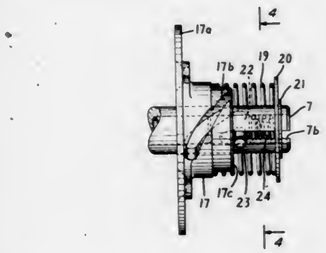


An ignition advance circuit which produces an advance varying linearly with engine speed and which advance reaches a maximum at some engine speed beyond which the advance remains fixed. Two voltage generators are driven by the engine. One generator has an output producing a series of time-separated pulses, each pulse increasing linearly from a fixed reference point. The other generator has an output which increases with engine speed. A pulse generator is controlled by a predetermined coincidence relationship between the outputs of the voltage generators.

3,783,851
REWIND STARTER

Noble Sherwood, Greenwich, and Ralph Lombard, Stamford, both of Conn., assignors to Textron, Inc., Providence, R.I.

Filed July 31, 1972, Ser. No. 276,536
Int. Cl. F02n 3/02
U.S. Cl. 123—185 BA 13 Claims

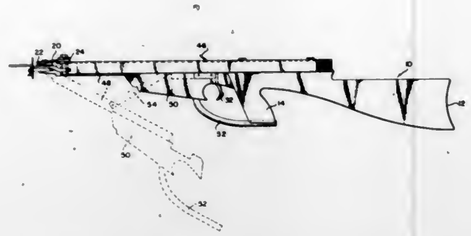


A rewind starter secured on the side of an internal combustion engine has a gear which is rotatable and axially slidable on a shaft which is rotatable in one direction by a pull cord wound on a pulley and in the opposite direction by a rewind spring. Means is provided for connecting the gear to the shaft so that when the shaft is rotated by pulling the cord, the gear is first moved axially to engage gear teeth on the fly wheel of the engine and then rotated with the shaft to crank the engine. When the engine starts, it immediately accelerates to a speed much higher than cranking speed. The starter gear is thereupon disengaged from the fly wheel gear but before full disengagement, it is given a forward spin. The connecting means between the starter shaft and gear permits the gear to overrun the shaft and avoids shock or impact. Means is provided for applying a frictional drag to rotation of the gear.

3,783,852
ELASTIC TYPE ARROW PROJECTING GUN

Robert G. Shepi... , 1513 Sewanee Dr., Columbia, S.C.

Filed Sept. 28, 1972, Ser. No. 292,896
Int. Cl. F41b 7/00
U.S. Cl. 124—22 4 Claims

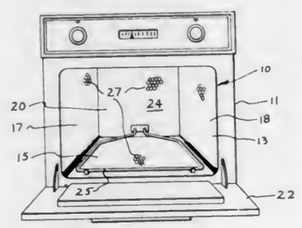


A cocking mechanism for a crossbow type weapon includes a cocking lever pivotally connected to the outer end of the weapon and to a trigger assembly slideable along the length of the weapon. A U-shaped portion of the carriage assembly automatically engages and holds the loop type bowstring of the bow and forces it as the carriage moves, the bowstring being tensioned in response to the movement of the cocking lever from a position underlying and perpendicular to the weapon to a position substantially adjacent to the weapon and received between a trackway which guides a projectile. The U-shaped member is spring biased to an out of bowstring engaging position, and the U-shaped member is pivoted into an upright position to receive the bowstring when an extension of the U-shaped member engages the bowstring when the carriage is moved forwardly by the action of the cocking lever. A trigger holds the U-shaped member in a bowstring engaging position.

3,783,853
TEXTURED CONTINUOUS CLEANING SURFACE FOR COOKING OVENS

Raymond L. Dills, Louisville, Ky., assignor to General Electric Company

Filed May 30, 1972, Ser. No. 257,777
Int. Cl. A21b 1/00
U.S. Cl. 126—19 R 7 Claims

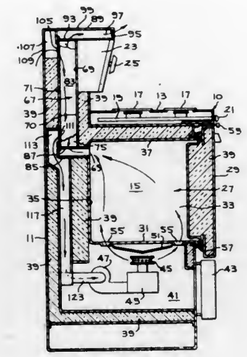


A cooking oven having at least the bottom wall and the two sides, and the rear wall, formed of embossed metal with a layer of vitreous porcelain enamel of dark porous matte finish covering the exposed surface of the embossed metal to have the continuous cleaning property during normal cooking operations of diminishing the accumulation of carbonaceous residue which results from the exposure to grease spatters during cooking.

3,783,854
FLOW-THROUGH SELF-CLEANING GAS OVEN WITH HEAT EXCHANGER

Bohdan Hurko, and Raymond L. Dills, both of Louisville, Ky., assignors to General Electric Company

Filed Aug. 1, 1972, Ser. No. 277,073
Int. Cl. A21b 1/28
U.S. Cl. 126—21 R 10 Claims

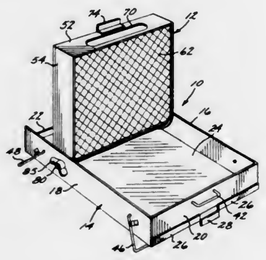


A self-cleaning gas-fired oven having a power burner beneath the oven cooking cavity so the flue gases pass up through the cooking cavity and exit through an oven exhaust means at the top rear of the oven. A counterflow heat exchanger rising from the oven exhaust means, and an air collector means at the bottom of the heat exchanger to convey the preheated cooling air to the power burner by means of a motor-blower unit. The heat exchanger is of special design with cylindrical flue gas tubes so the opposite wall plates operate at relatively cool temperatures.

3,783,855
HEATING DEVICE

Vann O. Newinger, 452 Holly St., Laguna Beach, Calif.

Filed Aug. 25, 1972, Ser. No. 284,010
Int. Cl. A47j 37/07
U.S. Cl. 126—25 R 5 Claims

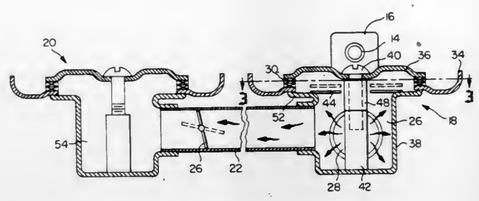


The functions of barbecue cooker, fry plate, and space heater are combined in a single unit consisting of a tray on which a fire box is pivotally mounted. The fire box is formed with a grate at one surface, and a solid wall at an opposite surface and it can be tilted so that either of those surfaces lies substantially horizontally for use in barbecuing or frying. The fire box can also be mounted vertically so that heat escapes through its grate in a horizontal direction to form the space heating function. The tray serves as an ash collector, as a support for the fire box in its several positions, and as a means by which the fire box is made portable without need to extinguish its burning fuel.

3,783,856
FLAME EQUALIZER FOR TWO OR THREE BURNER CAMP STOVES

James H. Amos, Mission Hills, Calif., assignor to Minnesota Mining and Manufacturing Company

Filed Oct. 14, 1971, Ser. No. 189,357
Int. Cl. F24c 15/10; F23d 23/00
U.S. Cl. 126—38 10 Claims

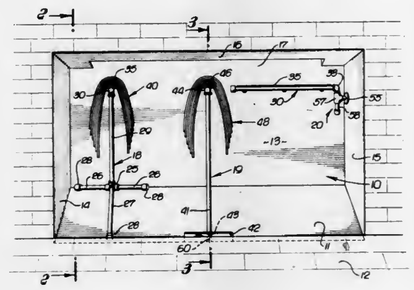


A flame equalizer for use in a two or three burner camp stove of the type having a primary burner with a series connection for fuel flow to the other burners associated therewith, the flame equalizer being contained within the primary burner to provide a variable restriction for the gas flow from the plenum to the primary burner surface to divert an equal flow of gas to the secondary burners as the secondary burners are actuated.

3,783,857
FIREPLACE ACCESSORY FOR BURNING NEWSPAPERS

George B. Schwenk, Yucca Valley, Calif.

Filed June 5, 1972, Ser. No. 259,493
Int. Cl. F23h 13/00
U.S. Cl. 126—164 3 Claims



A T-shaped metal base supporting a vertical metal member on the upper end of which a horizontal paper supporting arm is pivotally supported at one of its ends to swing freely on a vertical axis, the stem of the base, the vertical member and the arm each being approximately 18 inches in length.

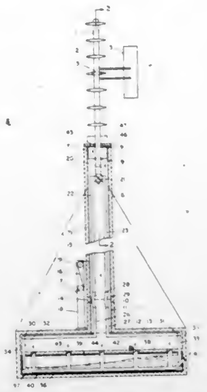
3,783,858
WIND OPERATED HEATING SYSTEM

Baruir Ashikian, 505 Frechette, Sherbrooke, Quebec, Canada

Filed Sept. 1, 1971, Ser. No. 177,009
Int. Cl. F24c 9/00
U.S. Cl. 126—247 8 Claims

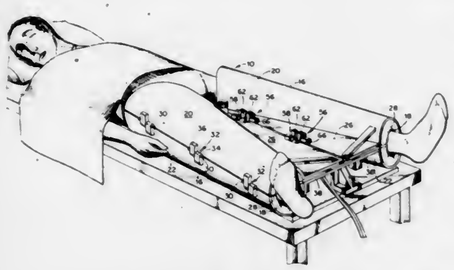
The pressure decrease resulting from wind's flow around suitably shaped bodies is used in a manner to produce oscilla-

tions in a suitably contained mass of liquid and the heat



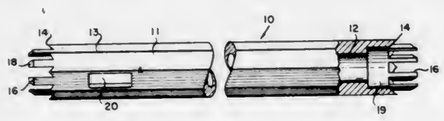
generated by the accompanying viscous dissipation is stored in the liquid and used as needed.

3,783,859
NOVEL EXTERNAL CIRCULATORY ASSIST DEVICE
Harold S. Sauer, Carlisle; Nubar D. Hagopian, Waltham, and John M. Colman, Lexington, all of Mass., assignors to Medical Innovations, Inc., Waltham, Mass.
Filed Oct. 13, 1972, Ser. No. 297,250
Int. Cl. A61h *1/00*
U.S. Cl. 128—24 R **6 Claims**



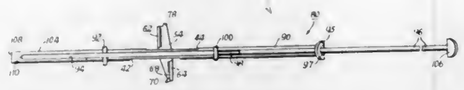
Novel external pressure circulatory assist apparatus utilizing movement of a shell portion of a limb-enclosing housing as a mechanical means for applying the requisite cyclic pressure to the limbs of a patient being treated.

3,783,860
INTRAMEDULLARY ROD
Albert H. Burstein, Shaker Heights, and William C. Allen, Gainesville, both of Fla., assignors to The Sampson Corporation, Pittsburgh, Pa.
Filed Oct. 27, 1972, Ser. No. 301,473
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 BC **6 Claims**



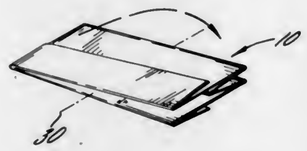
An intramedullary rod for internal fixation of long bone fractures in the form of an elongated hollow tube having longitudinal flutes about the periphery. Each end is castellated to provide alternate sharp cutting surfaces and angled face guide projections to facilitate emplacement in the medullary canal.

3,783,861
INSERTER FOR INTRAUTERINE DEVICES
Harvey J. Abramson, New York, N.Y., assignor to G. D. Searle & Co., Chicago, Ill.
Filed June 11, 1971, Ser. No. 152,101
Int. Cl. A61f *5/46*
U.S. Cl. 128—127 **27 Claims**



An instrument for the insertion into the uterus of a flexible contraceptive device formed from a tubular barrel having a first end for insertion into the uterus and an adjustable stop member for engaging the cervical is at a selected distance for the anterior end of the insertion end. The barrel has diametrically opposed axially extending apertures therein located posteriorly of the stop member for receiving the intrauterine device with the first arm thereof extending through the apertures transversely of the barrel and the second arm extending axially within the barrel toward the posterior portion thereof. A crossbar is provided on the barrel adjacent the apertures for folding the first arm into the barrel adjacent the second arm and substantially parallel thereto. A plunger member, telescopically inserted in the posterior portion of the barrel, has a free end adapted to move the folded intrauterine device from its position adjacent the apertures through the first barrel end to deposit the device in the uterus.

3,783,862
SURGICAL TOWEL
Mark S. Schrading, Menasha, and Marion T. Arps, Neenah, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed July 7, 1971, Ser. No. 160,428
Int. Cl. A61f *13/00*
U.S. Cl. 128—132 D **2 Claims**

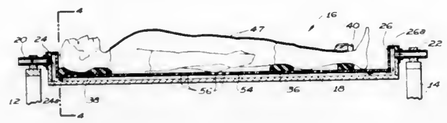


An elongated rectangular towel for use in squaring off a fenestration during a surgical operation or the like, the towel being transversely folded along two longitudinal fold lines forming a center and two outer portions, one of which is folded on the top of the center, with the other being folded under the center.

3,783,863
METHOD AND APPARATUS FOR IMMOBILIZING A PATIENT AND CONDUCTING AN X-RAY EXAMINATION
Waldo H. Kliever, P.O. Box 136, Gates Mill, Ohio
Filed Feb. 1, 1971, Ser. No. 111,602
Int. Cl. A61g *13/00*
U.S. Cl. 128—134 **21 Claims**

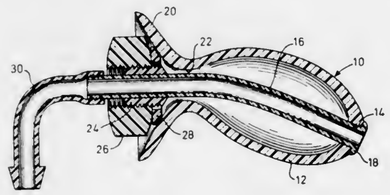
Patient immobilizing apparatus comprises a patient supporting table unit on which a patient lies. The patient is covered by

an imperforate sheet of film-like material which forms a seal between the patient's body and the table. The region between



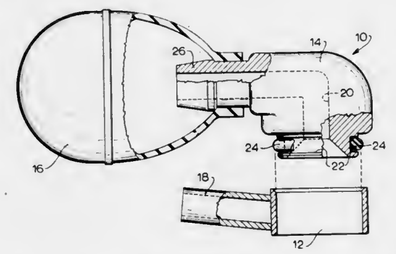
the table top, the patient and the sheet is evacuated so that differential pressure forces secure the patient on the table.

3,783,864
EAR PLUG
Frederik Christian Moller, 46, Finsensgade, Arhus N, Denmark
Filed Oct. 8, 1969, Ser. No. 864,592
Claims priority, application Denmark, Oct. 11, 1968, 4897/68
Int. Cl. A61f *11/02*
U.S. Cl. 128—152 **3 Claims**



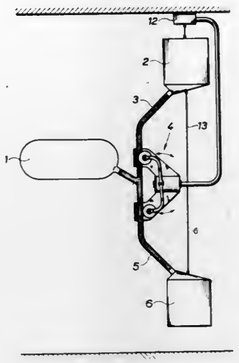
The invention relates to an ear plug to be inserted into the auditory meatus of an ear, having an exterior member of a soft flexible material and an interior tubular member which extends through the exterior member from one end thereof, and having manually operable means, operatively connected with the exterior as well as the interior member, operable to cause an expansion of the exterior member and thereby engage the exterior member firmly against the wall of the auditory canal.

3,783,865
SUCTION ELECTRODE
James R. Ricketts, Milwaukee, Wis., assignor to Marquette Electronics Inc., Milwaukee, Wis.
Filed Nov. 8, 1971, Ser. No. 196,605
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 E **5 Claims**



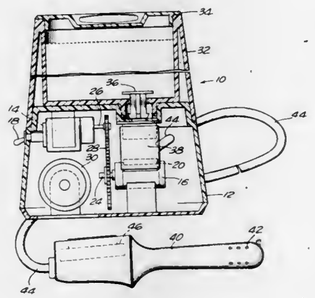
An improved suction electrode includes an electrically conductive ring suitable for application to the patient's skin. A body having an angular passage therethrough is affixed to the ring by a static sealing means such as an O-ring. A suction bulb is mounted on the body in communication with the passage to provide the suction necessary to affix the electrode to the skin.

3,783,866
DOSING DEVICE UTILIZING AN ELECTRONIC SCALE AND REGULATING MEANS
Erkki Tapio Tirkkonen, Kajavarannantie 3 as 5, Helsinki, Finland
Filed Feb. 3, 1971, Ser. No. 112,112
Claims priority, application Finland, Feb. 5, 1970, 318/70
Int. Cl. A61m *5/00*
U.S. Cl. 128—213 **4 Claims**



A method for dosing patients with blood, nutrients, chemical solutions and the like, using a new device which includes gravity dose feeding means and gravity dose removal means both in communication with a regulating valve. The valve is regulated by an electric motor which is turn controlled by an electronic scale. The scale senses changes in gravity flow containers to automatically control the dosage.

3,783,867
WOMAN'S HYGIENE APPARATUS
E. John Summersby, Lawndale, and Dietmar Nagel, Redondo Beach, both of Calif., assignors to Beverly Enterprises, Pasadena City, Calif.
Filed Dec. 7, 1970, Ser. No. 95,524
Int. Cl. A61m *1/00*
U.S. Cl. 128—230 **3 Claims**

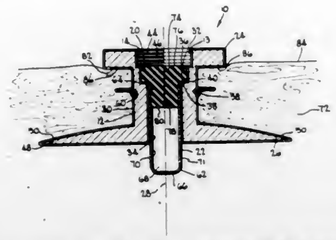


A woman's hygiene apparatus having a fluid container, nozzle, pump, and motor. The nozzle has a hollow tubular structure with a number of perforations at its extended end. The pump contains a pressure relief mechanism to limit the maximum pressure output of the pump, so that a user cannot inadvertently exceed the medically determined maximum pressure and thereby cause injury.

3,783,868
PERCUTANEOUS IMPLANT

Jack C. Bokros, San Diego, Calif., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed May 6, 1971, Ser. No. 140,869
Int. Cl. A61m 31/00; A61f 1/00
U.S. Cl. 128—260 12 Claims

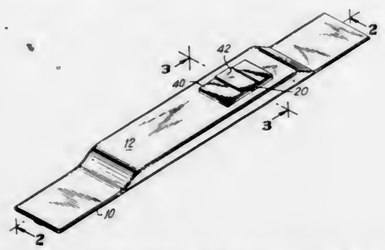


A percutaneous device for drug injection in a living body which is implanted through the skin and which has a pyrolytic carbon coating. The device has a stem and a stabilizing flange, and a collar associated with the stem for preventing the progressive growth of epithelium tissue along the stem and for anchoring the device. A normally closed valve is in a passageway through the stem for administration of medication.

3,783,869
COMBINED SANITARY NAPKIN AND MEDICATED BANDAGE

Leonard B. Schnipper, 2373 56th Dr., Brooklyn, N.Y.

Filed May 20, 1972, Ser. No. 236,386
Int. Cl. A61m 35/00; A61f 13/16
U.S. Cl. 128—261 21 Claims



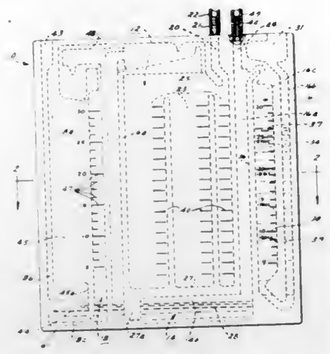
Medication, in the form of an anaesthetic gel, is applied to the incision resulting from an episiotomy by providing a gel-retaining zone in a sanitary napkin. The medication is provided on an impermeable layer affixed to the absorbing face of the napkin and is protected from contamination, prior to use, by a covering membrane. The impermeable layer between the anaesthetic gel and the napkin prevent the absorption of the former on the latter. The gel-retaining zone is approximately two inches by three inches in size and is spaced by about one inch from the forward edge of the absorbent region of the sanitary napkin.

3,783,870
SUCTION DRAINAGE DEVICE

Eli Schachet, St. Louis, Mo., assignor to Sherwood Medical Industries, Inc., Saint Louis, Mo.

Filed Dec. 27, 1971, Ser. No. 212,075
Int. Cl. A61m 1/00
U.S. Cl. 128—276 12 Claims

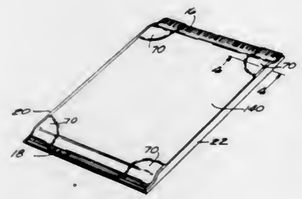
A suction drainage device having a drainage collector chamber for connection to a pleural cavity, a series liquid seal chamber connecting the collector chamber with a pressure regulating manometer chamber, and a second manometer connected to the collector chamber in by-passing relation with the seal chamber having calibrations providing an indication of the pressure within the collector chamber, the pressure regulating chamber being connectable through a restricted orifice to the source of negative pressure to reduce the bubbling of air through the reservoir portion of the manometer.



3,783,871
DIAPER WITH THICKENED FASTENING AREAS

Reinhardt N. Sabee, 728 S. Summit St., Appleton, Wis.

Continuation-in-part of Ser. No. 17,714, March 9, 1970, abandoned. This application Feb. 14, 1972, Ser. No. 226,067
Int. Cl. A41b 13/02
U.S. Cl. 128—287 24 Claims



An article such as a diaper or bed pad which includes a pad, an absorbent ply and a polymeric cover ply of extruded synthetic resin, may advantageously be made in various forms having, if desired, a synthetic resin cover ply light in weight and selectively given variable pin or tape retention strength by varying extrusion according to the strength needed to make the film stronger or weaker or softer or more flexible.

3,783,872
DISPOSABLE ABSORBENT PADS CONTAINING INSOLUBLE HYDROGELS

Paul A. King, Warwick, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

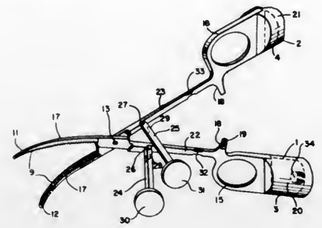
Filed June 23, 1969, Ser. No. 835,721
Int. Cl. A61f 13/16
U.S. Cl. 128—290 R 9 Claims

Improved disposable absorbent articles, such as diapers, catamenial devices and sanitary napkins, are provided which contain certain insoluble hydrogels as an absorbing media.

3,783,873
WEIGHTED SURGICAL CLAMP HAVING FOLDABLE PROP

Harvey Barry Jacobs, 11613 Vantage Hill Rd., Reston, Va.

Filed Sept. 16, 1971, Ser. No. 181,040
Int. Cl. A61b 17/02, 17/08, 17/28
U.S. Cl. 128—303 R 2 Claims

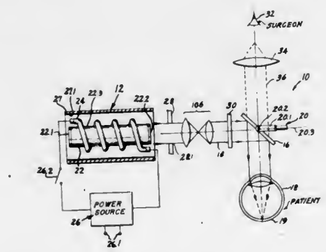


Weighted clamp for surgical retracting use in the operating room. In one form, a clamp is fitted with weights in one or both handles which may be detachable and will vary in accordance with the surgical procedure. For gall bladder or hernia operations in adults the weights may vary from about ½ pounds to about 5 pounds. In infants the weights are smaller, e.g., from ¼ to 2 pounds. For venous or arterial surgery the weights may vary from 2 to 6 ounces for light veins up to 1–2 pounds for larger arteries. For use in stabilizing fractures the weights vary from 2 pounds up to 50 pounds. The weighted units may be screwed on, clipped on, pushed on or magnetically attached to or taken off of the handle. A pivoted folding prop is attached to each leg of the clamp. The arms of the prop are swung outwardly to stabilize the weighted clamp in, outside or on the body. A modified form of weighted clamp is fitted with a suction pad in the jaw portion for atraumatically holding hollow organs, such as bowel, heart or lung or solid organs such as spleen, liver, or kidney and the handles with pad may be separated by unbolting at the scissors pivot.

3,783,874
METHOD AND APPARATUS FOR EFFECTING PHOTO-COAGULATION

Charles J. Koester, South Woodstock, Conn., and Elias Snitzer, Sturbridge, Mass., assignors to American Optical Company, Southbridge, Mass.

Continuation-in-part of Ser. No. 108,020, May 5, 1961, abandoned. This application Oct. 23, 1963, Ser. No. 318,450
Int. Cl. A61b 17/36
U.S. Cl. 128—303.1 8 Claims

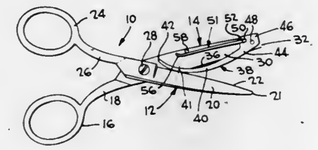


1. Photo-coagulation apparatus comprising laser means having a pair of plane, parallel, reflective, opposite end surfaces, said laser means being actuable to emit a collimated beam of relatively intense light from one of said surfaces in a single direction perpendicular to said surface, means for directing said light through the pupil of an eye to be concentrated upon a selected fundus area by refractive media of the eye for effecting photo-coagulation of said fundus area, and means adapted to direct a beam of collimated light of relatively lower intensity upon said light-emitting surface of the laser means to be reflected therefrom in said single direction perpendicular to said surface, whereby said apparatus can be positioned for directing said reflected beam of light upon an eye to be concentrated upon a selected fundus area prior to actuation of the laser means, and can thereby be positioned for directing light subsequently emitted from the laser means to be concentrated upon the selected fundus area for effecting photo-coagulation of said fundus area.

3,783,875
CIRCUMCISION SURGICAL TOOL

Alan W. Winshel, 1408 Patuxent Dr., Silver Spring, Md.

Filed Apr. 21, 1972, Ser. No. 246,467
Int. Cl. A61b 17/326
U.S. Cl. 128—318 6 Claims

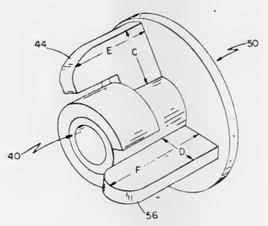


A surgical tool fashioned from scissors having an attached cam member for moving along the lateral face of one scissor member thereby crushing skin positioned between the cam and lateral face which seals veins and arteries along the crushed line. Scissor action follows the crushing action and severs skin along the crushed line instantaneously.

3,783,876
TABBED ECCENTRIC LOCKING DEVICE

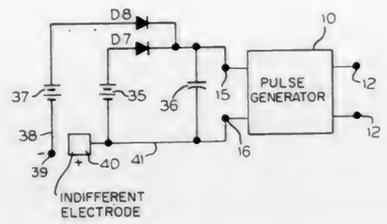
John F. Dye, Barrington, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed May 4, 1972, Ser. No. 250,237
Int. Cl. A61b 17/34; A61m 25/02
U.S. Cl. 128—347 10 Claims



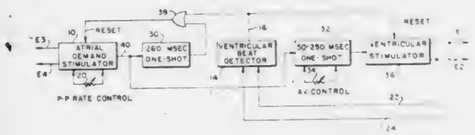
A locking guard device regulating the penetrating depth of a rigid or semi-rigid hollow member such as a hypodermic needle, catheter, or hollow members used for draining body cavities, is formed by mounting on the shaft of the member a guard comprising a male and female element with holes bored therethrough, the holes being concentric with respect to each other but eccentric with respect to the true centers of the elements. Both the male and the female elements of the guard are provided with projecting tab members, so that pinching the tab members together locks the guard upon the shaft upon which they are mounted.

3,783,877
BODY IMPLANTABLE STIMULATOR BATTERY UTILIZATION CIRCUIT
David L. Bowers, Wauwatosa, Wis., assignor to General Electric Company, Milwaukee, Wis.
Filed Apr. 26, 1971, Ser. No. 137,418
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 2 Claims



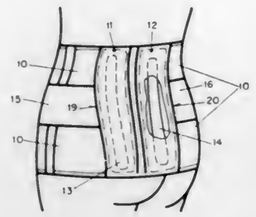
Paralleled sets of batteries are used to supply power to an implantable electric organ stimulator stimulus signal generator. Each set has a device having the characteristics of a diode connected in series with it. The diodes have different forward voltage characteristics. One preferred set of batteries supplies current initially and the others do not deliver current unless the preferred battery is near depletion or unless there is a high current drain from the batteries. In one embodiment, a mild but perceptible physical sensation is produced to warn a patient of impending battery depletion.

3,783,878
ATRIAL AND VENTRICULAR PACER HAVING INDEPENDENT RATE AND AV DELAY CONTROLS
Sherwood S. Thaler, Lexington, and Richard E. Daynard, Chelmsford, both of Mass., assignors to American Optical Corporation, Southbridge, Mass.
Filed Dec. 6, 1971, Ser. No. 205,178
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 7 Claims



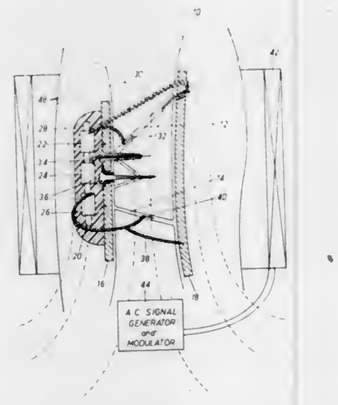
There is disclosed an atrial and ventricular pacer having independent rate and AV delay controls. Adjustment of one potentiometer changes the basic pacer rate without affecting the AV delay; adjustment of another potentiometer varies the AV delay without affecting the pacer rate. This is achieved by having the rate control determine the atrial escape interval, a variable one-shot multivibrator being provided to delay the ventricular stimulus after it is triggered simultaneously with the generation of an atrial stimulus. The variable one-shot multivibrator is reset when a spontaneous ventricular beat is detected, and the atrial timing period always begins at the end of a fixed time interval following an atrial stimulus, the fixed time interval being longer than the maximum AV delay.

3,783,879
WAIST SUPPORT AND HIP GIRDLE
Otto Stalder, Buchs/Schweiz, Switzerland, assignor to Etablissement Temova, Vaduz, Furstentum, Fla.
Filed Aug. 25, 1971, Ser. No. 174,637
Claims priority, application Switzerland, Sept. 2, 1970, 13088/70
Int. Cl. A41c 1/00
U.S. Cl. 128—570 7 Claims



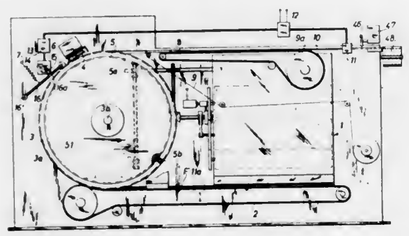
Waist support and hip girdle having a trunk part of knitted elastic fabric made of synthetic fibers suitable for producing static electricity and of sufficiently open mesh construction to allow skin moisture to evaporate. The girdle has spaced parallel stiffeners at the back and adapted to be positioned parallel to the spinal column, one on each side thereof, when the girdle is worn. The girdle also includes a strong elastic band having ends secured at the back adjacent the stiffeners without overlapping the latter, and having front ends adapted to be fastened together to close the girdle.

3,783,880
METHOD FOR AIDING FORMATION OF BONE FORMING MATERIAL
Werner Kraus, Bauerstrasse 31, Munich, Germany
Division of Ser. No. 26,809, April 9, 1970, Pat. No. 3,745,995.
This application May 1, 1973, Ser. No. 356,162
Claims priority, application Germany, Apr. 10, 1969, P 19 18 299.1
Int. Cl. A61n 15/00
U.S. Cl. 128—82.1 12 Claims



Method for aiding formation of bone forming material in the region of a bone structure of a living being. Two electrodes are applied to spaced areas on opposite sides of the region of the bone structure. An alternating electric potential difference is applied across the electrodes. This potential difference has a frequency below 100 c/s and a magnitude such that it produces a current density of at most 10 $\mu A/mm^2$ at the electrode surfaces in physical contact with the areas.

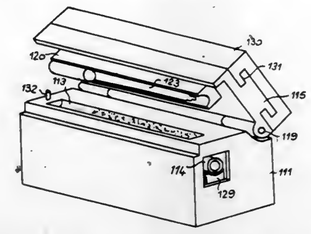
3,783,881
METHOD AND MACHINE FOR MAKING A CONTINUOUS CIGARETTE ROD
Georg Lakos, Wentorf Bei Hamburg, Germany, assignor to Hauni Werke Koerber and Co. KG, Hamburg-Bergedorf, Germany
Continuation-in-part of Ser. No. 152,510, Nov. 15, 1961, abandoned. This application Jan. 13, 1966, Ser. No. 528,688
Claims priority, application Germany, Nov. 17, 1960, H 40971
Int. Cl. A24c 05/34
U.S. Cl. 131—21 D 8 Claims



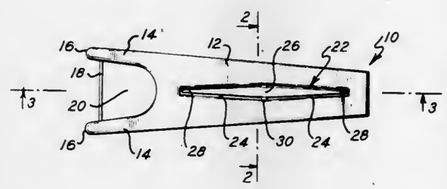
A cigarette rod making machine including a hopper to feed a stream of shredded tobacco containing tobacco in excess of that required in the rod, onto an elongated conveyor adapted to form the same into a filler stream. The filler stream is conveyed thereby to the lower portion of a vertically disposed suction wheel having a peripheral groove adapted to receive the stream and hold the same therein. A trimmer is positioned adjacent to the periphery ofthe wheel near the upper portion thereof, and is adapted to remove the excess in order to provide a uniform rod. An adjustable roller is positioned adjacent to the periphery of the wheel in advance of the trimmer, and presses on the free surface of the tobacco stream in the groove in order to compact the same before the excess is removed by trimming. The roller is driven so that its peripheral speed is the same as the peripheral speed of the wheel. The trimmed stream is transferred to another elongated conveyor where it is wrapped into a rod and then cut into individual cigarettes. A detector measures the quantity of tobacco in the wrapped rod and provides a signal which is fed to a device which adjusts the position of the roller with respect to the suction wheel thereby controlling the degree of compaction of the filler stream in advance of the trimmer. If desired, a detector may be located so as to measure the quantity of tobacco in the filler stream. The trimmed excess is returned to the filler stream in advance of the wheel.

3,783,882
DEVICE FOR FILLING CIGARETTE TUBES
Rudolf Messner, Trossingen, and Hans-Joachim Zilken, Stuttgart, both of Germany, assignors to EFKA-Werke Fritz GmbH, Trossingen, Germany
Filed Dec. 28, 1971, Ser. No. 212,941
Claims priority, application Germany, Dec. 31, 1970, P 20 64 641.7; Aug. 19, 1971, P 21 41 471.1
Int. Cl. A24c 05/42
U.S. Cl. 131—70 14 Claims

A device for filling cigarette tubes or cigarette filter tubes comprising a housing with a chamber for pressing tobacco, the chamber being arranged in the longitudinal direction of the housing and having the shape of a first half shell fixed in the housing. A press bar in a hinged lid covers the housing and forms the second half shell on the side of the lid. An ejector slide for ejecting a compressed tobacco plug into a paper tube is provided.

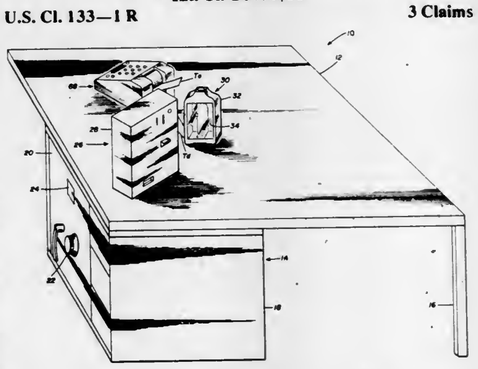


3,783,883
COMBINATION DENTAL FLOSS HOLDER AND TOOTHPICK
Dale Alexander, 324 Royal Palm Way, Palm Beach, Fla.
Filed May 16, 1972, Ser. No. 253,846
Int. Cl. A61c 15/00
U.S. Cl. 132—91 1 Claim



A device for cleaning teeth formed of a handle portion having a toothpick detachably mounted thereto, and an end portion extending away from the handle portion having a string of dental floss secured thereto.

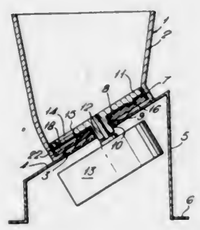
3,783,884
SECURE MONEY CHANGING AND MONEY RECEIVING SYSTEM
Edwin W. Carlberg, Dallas, Tex., assignor to Dale O. Simpson, Dallas, Tex., a part interest
Filed Nov. 19, 1971, Ser. No. 200,404
Int. Cl. G07f 9/00
U.S. Cl. 133—1 R 3 Claims



A secure money changing and money receiving system for convenience establishments and the like includes a safe, a

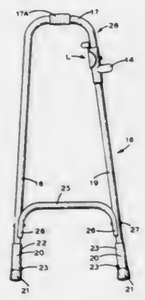
money-changing apparatus, and a money receiving apparatus. The safe has a theft proof housing and a normally locked access door, and the money-changing apparatus has a theft proof housing which is attached to the housing of the safe. The money receiving apparatus includes a theft proof housing having at least one window and includes a partition which separates the housing into coin and currency receiving portions. A pair of doors are provided for normally retaining coins and currency in the coin and the currency receiving portions of the housing, respectively, and for selectively permitting the coins and the currency to pass into the safe. Thus, all of the money that is on the premises of the convenience establishment is situated either in the safe or in the change-making apparatus and is therefore totally secure from theft.

3,783,885
DISC DISPENSING APPARATUS
John Gordon Williams, 74 Ravenhill Rd., Swansea, and Peter John Griffiths, 2 Castle St., Glamorgan, both of Wales
Filed June 27, 1972, Ser. No. 266,648
Int. Cl. G07d *1/00*
U.S. Cl. 133—5 **16 Claims**



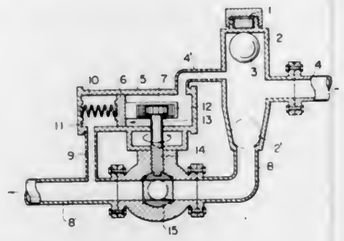
The specification discloses a disc dispensing apparatus in which the discs are placed in a hopper in the base of which is a pair of plates placed one above the other, the upper plate being rotatable and having a number of holes to receive discs which drop into a recess of the lower plate and are ejected from the recess by an ejecting member depending from the upper plate and running in an annular groove in the lower plate.

3,783,886
FOLDING WALKER
Morton I. Thomas, 125 South St., Monroe, N.Y.
Filed Sept. 24, 1971, Ser. No. 183,360
Int. Cl. A45b *1/00*
U.S. Cl. 135—45 A **3 Claims**



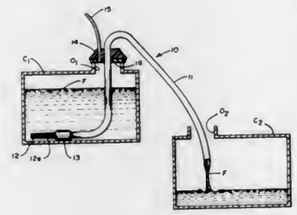
A folding walker construction having side members swivelly mounted on a front member for movement from an open operative position, to a folded inoperative position to allow for convenient storage when not in use. Improved locking means is provided for maintaining the side members in their open position, in rigid locked relation to the front member; the locking means including release means operative to allow the side members to be moved to their folded overlapping position; the release means being of a character to allow the same to be easily operated with a minimum force requirement.

3,783,887
SELF-CLOSING VALVE DEVICE IN A PIPING SYSTEM OF FLUIDS
Akira Shoji, Tokyo, Japan, assignor to Nippon Automation Kiki Co., Ltd., Tokyo, Japan
Filed May 24, 1972, Ser. No. 256,528
Claims priority, application Japan, June 23, 1971, 46/45437
Int. Cl. F16k *17/36*
U.S. Cl. 137—38 **8 Claims**



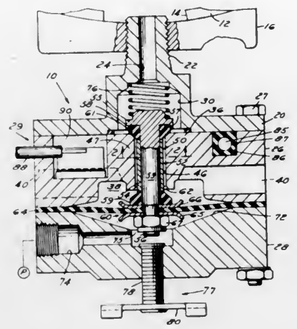
A self-closing valve device in a piping system of fluids comprising : a permanent magnet provided in the upper part of a valve chamber, a globe valve member hanging down attracted by said permanent magnet, an inlet pipe for a fluid being connected to a primary side including an upper portion of the valve chamber and a piston in a control cylinder, an outlet pipe for a fluid located at the bottom of said valve chamber and adapted to close by fall of said globe valve member, said outlet pipe being connected to a secondary side of said control cylinder, and a shut-off valve disposed in a piping system connecting the inlet pipe to the outlet pipe, said shut-off valve being closed by pressure difference of a fluid through transmission means combined with the piston in the control cylinder.

3,783,888
SIPHON
Verne E. Johnson, P.O. Box 421, Rockford, Minn.
Filed Nov. 8, 1971, Ser. No. 196,403
Int. Cl. F04f *10/02*
U.S. Cl. 137—145 **2 Claims**



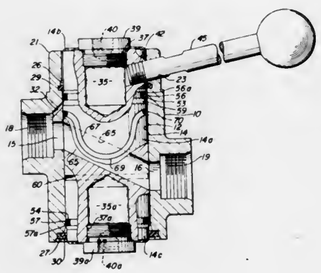
A siphon particularly adapted for transferring gasoline with operator induced pressurizing means for initiating fluid flow without exposing the operator's mouth to the fluid path. The siphon is characterized by a primary siphon tube and a secondary blow tube each of which pass through a flanged collar, and includes a screen and weight on the intake end of the primary siphon tube.

3,783,889
CONDENSATE VALVE
Kenneth E. Pyle, Marine City, Mich., assignor to Reef-Baker Corporation, East Detroit, Mich.
Continuation-in-part of Ser. No. 31,649, April 24, 1970, Pat. No. 3,682,194. This application June 15, 1972, Ser. No. 263,093
Int. Cl. F16t *1/00*
U.S. Cl. 137—204 **1 Claim**



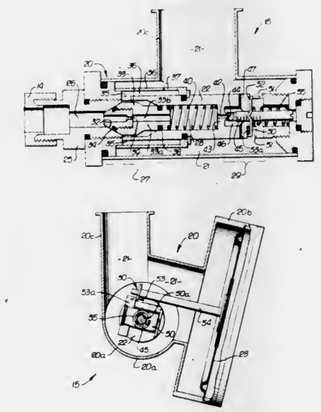
A condensate valve comprising a housing having a chamber for the accumulation of liquid, and a double-acting valve member for closing an outlet passage from the chamber. The valve member comprises a stem having a rod extending through the passage and also comprises a tubular member sleeved on the rod which is of polygonal cross section to guide the reciprocatory movement of the valve member in the passage while providing clearnace for the flow of liquid. Sealing members are sleeved on the rod at opposite ends of the tubular member. The sealing members and tubular member are held assembled on the rod by a nut. A manually operable device is provided for holding the valve member in a shut-off position and for holding it in an intermediate position for draining the condensate valve.

3,783,890
PLUG VALVE WITH STORAGE COMPARTMENT
Paul D. Wurzburger, 3255 E. Monmouth Rd., Cleveland, Ohio
Filed Dec. 4, 1972, Ser. No. 311,845
Int. Cl. F16k *31/528*
U.S. Cl. 137—315 **6 Claims**



A rotary plug valve including a valve body open at one or both axial ends and having a bore with a lateral inlet port and a lateral outlet port communicating with the bore on opposite sides thereof. A plug is provided in the bore having a passage which communicates with the inlet and outlet ports in the open position of the valve. Removable sealing means are provided between the bore and the plug for preventing leakage between the inlet and outlet ports and to the outside of the valve. The plug has an opening extending axially inwardly from one or both ends thereof corresponding to the open end or ends of the valve body. The openings are normally closed by closure plugs and serve as storage compartments for replacement parts of the valve. In some forms of the invention a valve operating handle can be threaded into a hole in either closure plug or into a storage compartment itself to serve as an aid in seating or unseating the plug in the valve body.

3,783,891
BALANCED REGULATOR SECOND STAGE
Raymond A. Christianson, Inglewood, Calif., assignor to Under Sea Industries, Inc., Compton, Calif.
Filed Mar. 22, 1972, Ser. No. 237,180
Int. Cl. A62b *7/00*; **B63c** *11/16*
U.S. Cl. 137—491 **14 Claims**

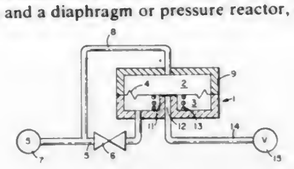


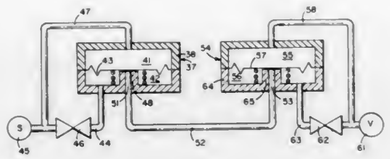
A balanced demand valve for use as the regulator second stage of a self contained underwater breathing apparatus. The device includes a primary valve which control the flow of breathable gas from a supply conduit inlet to a mouthpiece outlet chamber. The primary valve operates in response to the pressure differential between the inlet and a control chamber. A pilot valve controls the pressure in the control chamber in response to inhalation demand of the diver as sensed by a diaphragm located in the outlet chamber and linked to the pilot valve poppet. The mechanical advantage of the linkage together with the pneumatic amplifier cooperation of the pilot and primary valves provide sensitive regulator operation supplying breathable gas in close response to inhalation demand.

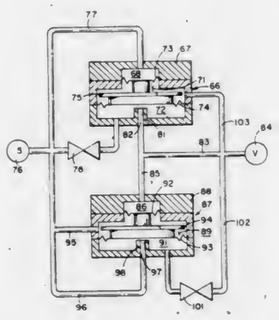
3,783,892
LONG TIMING, SLOW FLOW DEVICE
Frederick D. Joesting, Park Ridge, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 3, 1972, Ser. No. 294,737
Int. Cl. G05d *7/01*
U.S. Cl. 137—493 **14 Claims**

A long timing fluidic device comprises a conventional restriction in a supply conduit, a diaphragm module having a flow chamber in communication with the supply conduit, a valving chamber connected to an output conduit, a control chamber in communication with a third conduit the other end

of which is connected to the supply conduit upstream of said restriction, and a diaphragm or pressure reactor, whereby the







module insures that the pressure drop across the restriction is of a low value.

3,783,893

PIVOTED WEIGHT BIASED VALVE

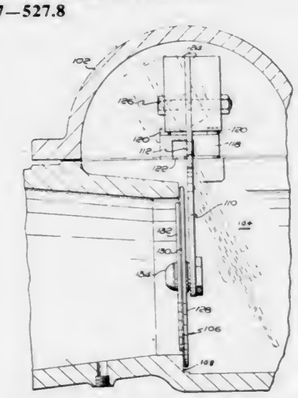
George Robert Davison, Chesterfield, England, assignor to The Bryan Donkin Company Limited, Chesterfield, Derbyshire, England

Filed Nov. 20, 1972, Ser. No. 307,785

Claims priority, application Great Britain, Nov. 26, 1971, 55076/71

Int. Cl. F16k *15/03*

U.S. Cl. 137—527.8 **4 Claims**



A non-return valve having a closure member which pivots on knife-edged bearing portions in contact with flat bearing plates. Aligning means are provided to align the closure member with the valve seat. The valve plate is biased by an upstanding balance weight and a removable domed closure cap is provided to house the balance weight and provide access to the valve.

3,783,894

NON-RETURN VALVES

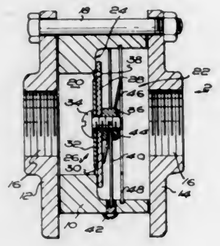
George Robert Davison, Chesterfield, England, assignor to The Bryan Donkin Company Limited, Chesterfield, Derbyshire, England

Filed Nov. 21, 1972, Ser. No. 308,457

Claims priority, application Great Britain, Nov. 26, 1971, 55,074/71

Int. Cl. F16k *15/02*

U.S. Cl. 137—535 **8 Claims**



A non-return valve having a closure member disposed in a casing and supported on pins loosely located at their outer ends in the casing wall so that it can move freely towards or away from a valve seat.

3,783,895

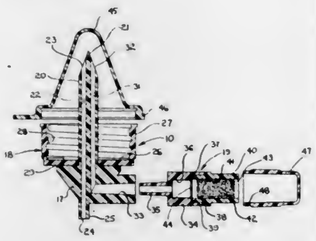
UNIVERSAL PARENTERAL FLUID ADMINISTRATION CONNECTOR

Theodore E. Weichselbaum, St. Louis, Mo., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed May 4, 1971, Ser. No. 140,139

Int. Cl. F16k *45/00*

U.S. Cl. 137—588 **5 Claims**



A connector for connecting parenteral fluid administration tubing to any one of a plurality of different parenteral fluid supply containers having different closure means. The connector includes threaded means for engagement with the threaded closure portion of one form of such parenteral fluid supply containers and piercing means for piercing a pierceable closure portion of a different form of such containers. The connector further includes an improved anti-siphoning valve providing for venting of the container during withdrawal of the fluid therefrom while preventing undesirable loss of the fluid through the venting means. The venting means includes means for filtering the venting fluid, such as ambient air.

3,783,896

VALVE MECHANISM FOR THROTTLING A FLOWING FLUID

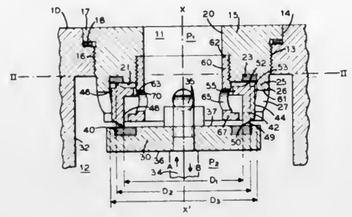
Raymond Jacquemard, Paris, France, assignor to Compteurs-Schlumberger, Montrouge, France

Filed Mar. 30, 1972, Ser. No. 239,443

Claims priority, application France, Apr. 2, 1971, 7111719

Int. Cl. F16k *1/52*

U.S. Cl. 137—630.14 **10 Claims**



According to an illustrative embodiment, a mechanism is provided for throttling a fluid flowing through an opening in a body between two regions at different pressures. A first and a second throttling flow paths are provided through said opening by means of a valve member movable between a first and a second position. First seal means are provided around this opening for sealingly engaging such valve member in the first position thereof to close the first flow path. This first flow path is opened by movement of the valve member toward its second position for throttling a first flow of fluid. Means movable with the valve member between the first and second positions thereof are also provided for controlling the displacement of the valve member, the pressure difference between the two regions acting to urge the valve member into sealing engagement with second seat means carried by the movable controlling means, between the first and up to the second position of the valve member. A tubular extension surrounding the opening has lateral throttling apertures formed therein the lateral wall of the valve member is arranged to progressively uncover larger portions of the apertures when moving from first to second position, thus varying the section of the first flow path in a non-linear manner with the displacement of the valve member. Abutment means are provided to maintain the valve member in its second position whereby the second flow path opens upon movement of the controlling means with respect to the valve member in the section position, the flow throttling section of such second flow path varying linearly with the latter movement.

3,783,897

WARM LIQUID SUPPLY SYSTEM FOR RESERVOIR AND MIXING VALVE THEREFOR

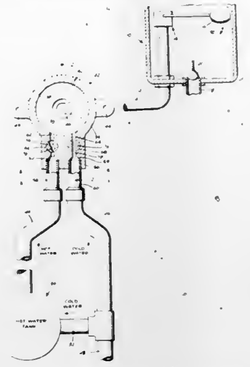
Claude L. Pegg, 149 Grant St., Wabash, Ind., and John L. Pegg, both of Wabash, Ind., assignors to Claude L. Pegg, by said John L. Pegg

Filed Aug. 11, 1971, Ser. No. 170,820

Int. Cl. A47k *17/00*; **E03d** *3/00*

U.S. Cl. 137—564 **11 Claims**

A system for supplying warm liquid to a reservoir, such as a toilet tank. A mixing chamber is provided and a first conduit couples the mixing chamber to the reservoir for supplying warm liquid thereto, the first conduit having a valve therein for opening and closing the same. Second and third conduits are respectively coupled to the mixing chamber for respectively supplying hot and cold liquid thereto, a source of a cold liquid under pressure being coupled to the second conduit and heating means coupling the source to the third conduit for continuously heating the liquid supplied to the mixing chamber. The heating means is positioned at a lower level than the mixing chamber whereby liquid recirculates from the third conduit to the second conduit through the mixing chamber when the valve is closed thereby continuously providing warm liquid in the mixing chamber. Each of the second and third conduits has a restriction therein whereby the pressure in the mixing chamber is lower than in the second and third conduits upstream from the restrictions thereby



causing mixing of the hot and cold liquid in the mixing chamber when the valve is open, the restrictions also limiting the recirculation thereby preventing material heating of the liquid in the second conduit. Each of the restrictions has a valve therein selectively actuable between open and closed positions.

3,783,898

FLUID FLOW CONTROL DEVICES

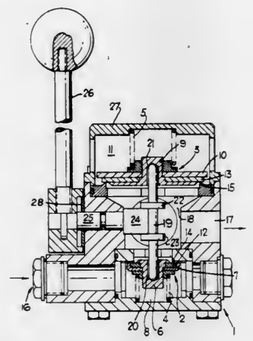
Douglas Frederick Kirkman, Ickenham, England, assignor to I. V. Pressure Controllers Limited, Feltham, Middlesex, England

Filed Apr. 26, 1972, Ser. No. 247,744

Claims priority, application Great Britain, Dec. 15, 1971, 58,300/71

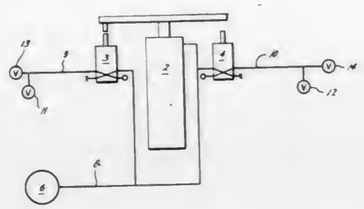
Int. Cl. F16k *31/00*

U.S. Cl. 137—596.2 **8 Claims**



A fluid flow control device having first and second valve means biassed normally towards closed positions, and control means. The control means is operable, when the device is connected in a fluid flow path, either to displace the first valve means against its bias into an open position to permit fluid to flow through the device from an inlet side to an outlet side thereof, or to displace the second valve means against its bias into an open position to vent the outlet side of the device. The second valve means is also openable independently of the control means under the action of excess pressure on the outlet side of the device to relieve this excess pressure.

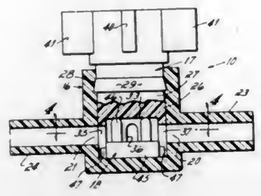
3,783,899
VALVE OPERATOR
John H. Fowler, and Charles F. Johnson, both of Houston, Tex., assignors to Rockwell International Corporation, Houston, Tex.
Continuation of Ser. No. 72,838, Sept. 16, 1970, which is a continuation of Ser. No. 705,876, Jan. 3, 1968, which is a continuation-in-part of Ser. No. 587,892, Oct. 19, 1966. This application Feb. 24, 1972, Ser. No. 229,229
Int. Cl. G05b *19/06*
U.S. Cl. 137—624.2 19 Claims



A pilot control system for selectively activating a plurality of hydraulically operated devices with power supplied from a remote source through a single conduit. The control system comprises a sequencing unit with a case enclosing a rotating and reciprocating stem. Attached to the end of the stem is an actuating plate which on rotation of the stem registers with various control devices and on reciprocating movement of the stem engages one or more of these control devices to permit pressure from the power source to activate one or more of the hydraulically operated devices. To impart rotational and reciprocal motion to the stem an annular piston is non-rotatingly and slidingly received in an annular space between the stem and case. This annular space is connected to the single conduit from the power source. The stem is provided with a continuous slot traversing its circumference and having upper and lower extremities connected by inclined channels to give a sawtooth-like appearance. The annular piston has a projection thereon which engages the stem slot. By applying pressure to the annular piston, which is spring biased against movement, the piston may be reciprocally moved causing the stem to rotate due to the slot configuration and the engaging piston projection. The stem, which is also spring biased against reciprocal motion, may then be reciprocally moved by a further increase in pressure since the piston projection lies at one extremity of the saw-tooth-like slot. Alternate increases and decreases in pressure will cause complete rotation of the stem due to the slot configuration. If it is not desired to actuate a particular control device by reciprocal movement of the stem, intermediate pressure only is used to re-register the plate engaging device, the higher pressure step, which initiates reciprocal motion, being eliminated. As previously stated, all control devices, hydraulically operated devices, and the sequencing unit are supplied with power from the remote power source through a single conduit.

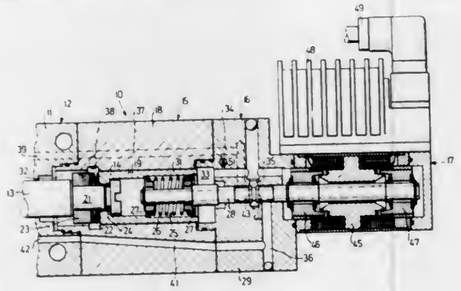
3,783,900
STOP COCK
Charles C. Waldbillig, Columbus, Ohio, assignor to Medex, Inc., Hilliard, Ohio
Filed June 5, 1972, Ser. No. 259,945
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.47 5 Claims

A stop cock comprising a cup-shaped body having three ports and associated spigots formed at right angles to one another, and a plug disposed in the body and sealed thereto above said ports. The plug has a downwardly depending, generally cylindrical wall which defines a recess in the bottom of the plug, the wall being slotted to provide openings alignable with the ports. A stiffening element is inserted in the recess to provide assurance of sufficient radially outward pressure of



said walls against the internal surface of said body to seal off said ports when the plug is rotated to a sealing position.

3,783,901
ELECTRO HYDRAULIC CONTROL UNIT
Klaus Schneider, Ludwigsburg, and Heinz Flaschar, Asperg, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 13, 1973, Ser. No. 340,823
Claims priority, application Germany, Mar. 20, 1972, P 22 13 439.0
Int. Cl. F16k *11/07, 31/02*
U.S. Cl. 137—625.64 15 Claims

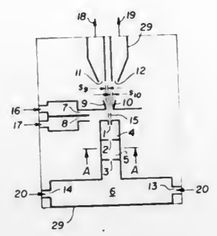


A fluid-pressure controlled piston element is shiftable in a housing element and a valve, including a pre-selecting member movable from a rest position for controlling the flow of pressure fluid and preselecting the position of the piston element, is provided. A solenoid moves the preselecting member from its rest position, and the solenoid and valve are both connected with one of the elements whereas a restoring device connects the preselecting member with the other of the elements and permanently urges the preselecting member to its rest position.

3,783,902
FLUIDIC SURFACE DEVICE AND NOZZLE SYSTEM FOR THE FORMATION OF JETS IN THE DEVICE
Arnulf Schwarz; Gerhard Konig, and Manfred Pieloth, all of Dresden, Germany, assignors to Veb Kombinat Mess-und Regelungstechnik Dessau, Dessau, Germany
Filed Mar. 27, 1972, Ser. No. 238,260
Claims priority, application Germany, Apr. 5, 1971, WP F 15 d/ 154 207
Int. Cl. F15c *1/00*
U.S. Cl. 137—803 10 Claims

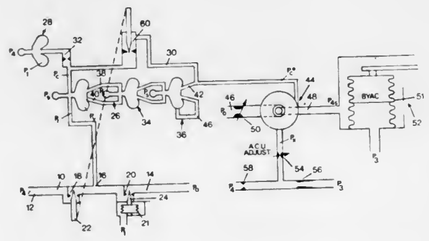
A fluidic circuit element includes a nozzle assembly in the form of a nozzle supplied from a supply source of fluid by way of one or more throttles separated from each other and from the nozzle by intermediate chambers. The spacing between the throttles and between the last throttle and nozzle are less

than the smallest transverse dimensions of the throttles. A symmetrical jet is produced by a single arrangement of this type, or alternatively an asymmetrical jet may be produced by



employing a similar series of throttles and outlet nozzle of larger dimensions cooperating with the first system. The nozzle system is shown and disclosed in combination with a wall attachment device.

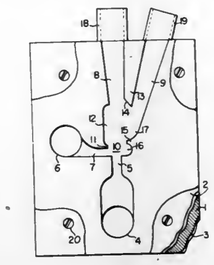
3,783,903
FLUIDIC PRESSURE RATIO CONTROL
Hugh Francis Cantwell, Derby, England, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed June 7, 1971, Ser. No. 150,705
Claims priority, application Great Britain, June 16, 1970, 29,003/70
Int. Cl. F15c *1/12*
U.S. Cl. 137—805 11 Claims



This invention relates to a fluidic apparatus for controlling the ratio between two variables, namely, the inlet and outlet pressures of the compressor of a gas turbine engine, through the use of error detectors, sensing means and amplifier means all for the purpose of producing a control pressure for the fluidic means, which also incorporates feedback means in one of its stages.

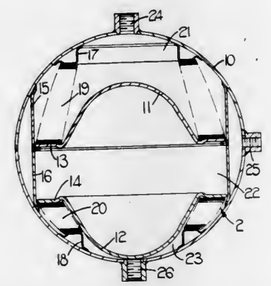
3,783,904
FLUID AMPLIFIER
Keizo Amagami, Neyagawa; Masaru Nishijyo, Yamatokoriyama; Yutaka Takahashi, and Motoyuki Nawa, both of Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 1, 1972, Ser. No. 277,132
Int. Cl. F15c *1/16*
U.S. Cl. 137—811 10 Claims

A pure fluid amplifier with a high output power and a high switching gain is provided in which vortexes are generated in



an interaction region so that the high output power may be obtained even when the output load is increased.

3,783,905
HYDRAULIC ACCUMULATOR
Harry Simister Bottoms, Warwickshire, England, assignor to Joseph Lucas Industries Ltd., Birmingham, England
Filed Oct. 5, 1971, Ser. No. 186,723
Claims priority, application Great Britain, Oct. 8, 1970, 47,832/70
Int. Cl. F16l *55/04*
U.S. Cl. 138—30 10 Claims

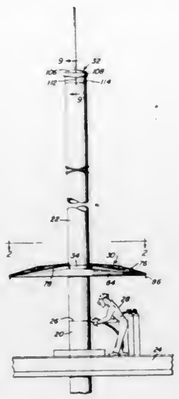


A hydraulic accumulator has a chamber divided into compartments by a slidable member and a bellows. The bellows is provided at its outer and inner edges with axially extending portions which nest together when the bellows is compressed by discharge of hydraulic fluid from one of the compartments, whereby relative lateral movement of the bellows segments is prevented.

3,783,906
APPARATUS FOR WELDING VERTICAL MEMBERS DURING INCLEMENT WEATHER
Lee J. Matherne, 2717 W. Main St., Houma, La.
Filed June 23, 1972, Ser. No. 265,675
Int. Cl. F16l *55/00*
U.S. Cl. 138—103 7 Claims

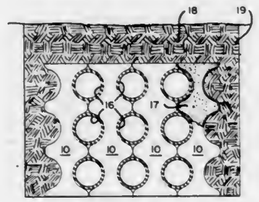
A canopy for mounting on the external surface of the upper member of a pair of vertically aligned and abutting members to protect the juncture area between the members while being butt welded to protect the weld from rain, snow, hail, sleet and the like which causes crystallization of the heated metal due to rapid cooling of certain areas when contacted by rain and the like. The vertical members are pipes such as employed in oil wells such as conductor pipes, casings and the like with the upper end of the upper pipe being provided with a closure cap to prevent entry of rain and the like into the interior of the pipe thereby protecting both the interior and exterior of the

pipes to enable effective continuance of the welding operation and installation of the pipe into the oil well during periods of inclement weather. In practicing the method and employing the apparatus, any residual moisture on the pipe is quickly dried due to the heat generated by the welding operation and the canopy is sealed to the external periphery of the upper



pipe above the juncture area and is of sufficient dimension to enable normal welding operations thereby eliminating the necessity of shutting down operations during periods of rain, hail, sleet, snow and the like.

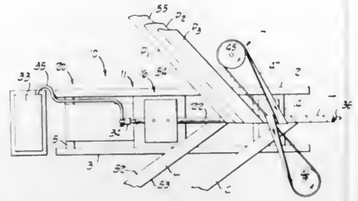
3,783,907
PIPE SPACERS
Harvey G. Skinner, Latrobe, Pa., assignor to Westmoreland Plastics Company, Latrobe, Pa.
Filed Mar. 16, 1972, Ser. No. 235,360
Int. Cl. F16l *3/10*
U.S. Cl. 138—106 **4 Claims**



A pipe spacer is provided of blow molded plastic having two opposite sides with corresponding semi-cylindrical recesses therein corresponding to one half of the circumference of a pipe to be spaced.

3,783,908
HELICALLY WOUND TUBES
Paul W. Stump, North Olmsted; James A. Huber, Strongsville, and John M. Lipinski, Cleveland, all of Ohio, assignors to Clevepak Corporation, Cleveland, Ohio
Division of Ser. No. 172,010, Aug. 16, 1971, abandoned, which is a division of Ser. No. 842,298, July 16, 1969, Pat. No. 3,620,869. This application Sept. 20, 1972, Ser. No. 290,579
Int. Cl. F16l *9/16*
U.S. Cl. 138—144 **5 Claims**

A helically wound tube comprised of sheet-like plies including a liner and a plurality of body plies. The liner and a first surrounding body ply are interwoven along a helical butt joint defined by adjacent edges of the surrounding body ply, and the liner forms a helical lap joint. The tube is continuously formed and an interior protective coating is concurrently ap-

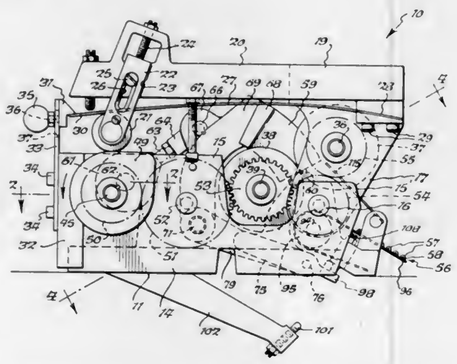


plied to the tube as an airless spray of coating material comprising 100 per cent solids in a liquid state, which hardens substantially on contact with the tube.

3,783,909
TREATING SKINNED ANIMAL CARCASSES
Beverly E. Williams, P. O. Box 299, San Mateo, Calif.
Filed Sept. 22, 1971, Ser. No. 182,846
Int. Cl. D03d *15/00*
U.S. Cl. 139—426 **4 Claims**

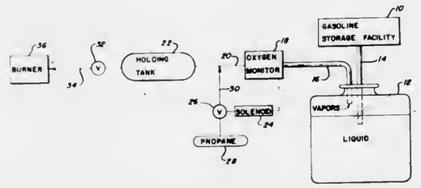
Treating skinned animal carcasses such as beef by using shrouds in which the individual yarns comprise a blend of ramie fiber and a synthetic fiber, the ramie fiber comprising between 50 and 65 percent and the synthetic fiber comprising between 35 and 50 percent. The preferred synthetic is a polyester filament. The blended yarn in the shroud is characterized by the fact that the filaments, both the ramie and the polyester average six inches in length and are twisted together approximately 25 turns per inch. In use, the shroud is soaked in brine and is applied to the carcass while soaking wet and is tightly skewered to the carcass promptly after slaughter and skinning. The shrouded carcass is then put in the cooler for up to about 24 hours, during which time the shroud tends to lose its moisture content before being pulled off the carcass. The shroud of the present invention has an outstanding combination of strength against tearing both while wet and while dry.

3,783,910
BENDING MACHINE FOR STRAIGHTENING ELONGATED WORKPIECES
John F. Kopczynski, 1671 Sweeney, Tonawanda, N.Y.
Filed Apr. 19, 1972, Ser. No. 245,543
Int. Cl. B21f *1/02*
U.S. Cl. 140—147 **6 Claims**



A machine for rolling elongated workpieces by inserting the workpiece between two spaced parallel series of rolls and holding the workpiece in position in a work zone by means of two opposed series of fingers which cause the workpiece to be retained substantially in a plane connecting the centers of rotation of the spaced series of rolls, the two series of fingers approaching the work zone from opposite directions simultaneously because they are driven by a differential type of linkage, with one of the series of fingers comprising carrier fingers which carry the straightened workpiece from the work zone and deposit it on a conveyor, and a toggle mechanism mounting the carrier fingers so as to cause them to be moved to a position, after depositing the workpiece, which permits them to clear the workpiece in returning to the work zone, and thereafter assume a carrying position for carrying a subsequent workpiece to the conveyor.

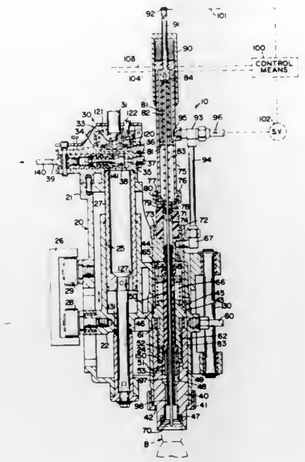
3,783,911
METHOD FOR SAFELY COLLECTING HYDROCARBON VAPORS PRESENT DURING LOADING OR UNLOADING OF FLAMMABLE FUELS
Howard W. Husa, Park Forest, and Irwin Ginsburgh, Morton Grove, both of Ill., assignors to Standard Oil Company, Chicago, Ill.
Filed July 28, 1972, Ser. No. 276,132
Int. Cl. B65b *1/30*
U.S. Cl. 141—11 **3 Claims**



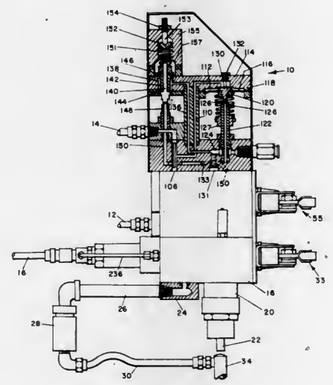
Disclosed is a method for collecting hydrocarbon vapors before they are dispersed in the atmosphere surrounding a site where loading or unloading of flammable fuels occur. The collected vapors are monitored to determine when the air-hydrocarbon vapor mixture is near or in the combustible range. When it is determined that the mixture is near or in the combustible range, a hydrocarbon gas such as propane is injected into the mixture to remove the danger of explosion or fire. The collected vapors are held in a holding tank and, preferably, are periodically burned.

3,783,912
BEVERAGE CONTAINER FILLING HEAD
Kenneth F. Friendship, Akron, Ohio, assignor to A-T-O Inc., Cleveland, Ohio
Filed Dec. 30, 1968, Ser. No. 787,700
Int. Cl. B65b *31/00*
U.S. Cl. 141—46 **3 Claims**

A beverage container filling head including a valve means is provided for controlling flow of fluid through the filling head and an electrically conductive probe extends longitudinally of the filling head. The probe is adapted to be moved an adjustable distance as a separate member from a retracted position within the filling head to an extended position where it projects from the filling head to contact liquid in an associated bottle and control termination of the bottle filling action.



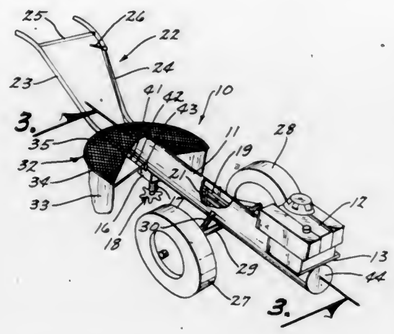
3,783,913
CONTROL FOR CONTAINER FILLING MACHINE
William H. Trusselle, Braintree, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
Filed July 8, 1971, Ser. No. 160,840
Int. Cl. B65b *31/00, 57/14*
U.S. Cl. 141—46 **15 Claims**



A control circuit for filling apparatus of the kind wherein there is a nozzle through which liquid is delivered to a container and a filling valve for controlling flow through the nozzle. The circuit includes valve means that supplies sensing pressure to a sensing tube, an exhaust valve through which the pressure in the circuit is adapted to be exhausted to below operating pressure to terminate the filling operation by closing the filling valve in the nozzle and a diaphragm responsive to back pressure developed in the sensing tube to effect operation of the exhaust valve. There is also in the circuit, valve

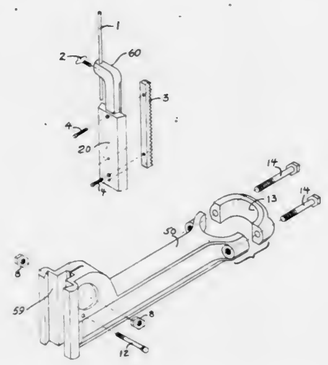
means for at times terminating the flow of sensing air and injecting high-pressure air into the sensing tube to clear it.

3,783,914
STUMP CUTTER
James T. Daugherty, and James J. Baber, Jr., both of P.O. Box 668, Valley, Nebr.
Filed June 22, 1972, Ser. No. 265,418
Int. Cl. A01g *23/06*; B27g *21/00, 13/08*
U.S. Cl. 144—2 N 5 Claims



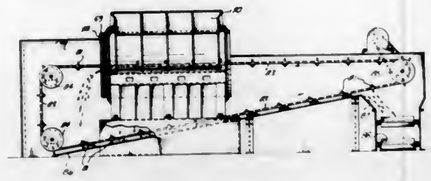
A manually operated stump cutter is disclosed including an elongated tubular frame member with an engine mounted at one end and a cutting means at the other. An operator handle extends from the other end and a shield assembly protects the operator. The tubular frame member is supported by a pair of wheels on a transverse axle midway of the tubular frame member.

3,783,915
ROUTER OVERARM ATTACHMENT
Norman E. Bryden, 2407 Arden Dr., Champaign, Ill.
Filed May 30, 1972, Ser. No. 258,045
Int. Cl. B27c *5/10*
U.S. Cl. 144—134 B 7 Claims



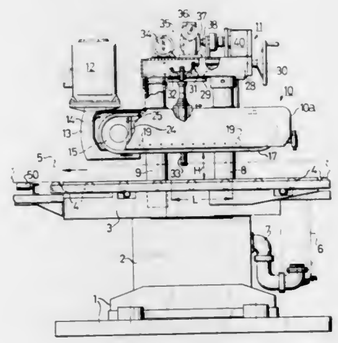
A device which will contain an electric router in a detachable manner and provide for a controlled vertical movement of the router relative to a work surface. The device is detachably mounted to a round pipe column or spindle. Affixed in this manner, the tool is used for cutting wood, and other materials.

3,783,916
CHIPPER CHIP-REMOVING STRUCTURE
Thomas W. Nicholson; Ray B. Jorgensen, and Stanley Donald Vanek, all of Seattle, Wash., assignors to Nicholson Manufacturing Company, Seattle, Wash.
Continuation-in-part of Ser. No. 883,038, Dec. 8, 1969, Pat. No. 3,661,192. This application May 2, 1972, Ser. No. 249,721
Int. Cl. B27l *11/02*
U.S. Cl. 144—172 6 Claims



A rotating chipping drum is mounted in a hollow body with a portion of its periphery exposed to a chipping chamber for holding log sections to be chipped. Cutting bits are mounted in apertures of the chipping drum so that chips cut from the log section enter the interior of the drum. The chips are removed from the interior of the drum by a conveyor of the screw type, of the belt type, or of the chain type, extending partially or entirely through the interior of the drum. The rotative axis of the chipping drum may be inclined to urge a log section toward one end of the chipping chamber.

3,783,917
WOOD SLICER MACHINE
Nakataro Mochizuki, Shizuoka, Japan, assignor to Marunaka Tekkosho Inc., Shizuoka-shi, Japan
Filed May 9, 1972, Ser. No. 251,698
Int. Cl. B27l *5/06*
U.S. Cl. 144—175 4 Claims

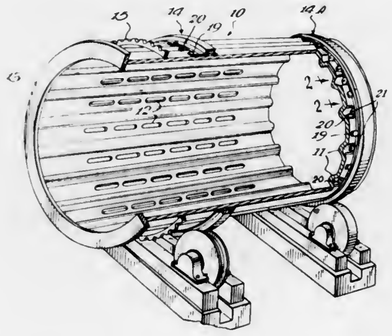


A wood stock slicer machine for slicing a wood stock having a bar, pillar, thick plate or the like, cut by cut into thin sliced sheets having preferably a thickness of the order of 0.2 – 2.0 mm. by performing the slicing operation in the axial direction and generally in a parallel direction to the orientation of the wood fibers of the stock.

The machine is provided with a stationary table in which a cutter unit is adjustably provided, with said unit having a cutter knife with its cutting edge arranged in an acute angle relative to the travelling direction of the stock on the table.

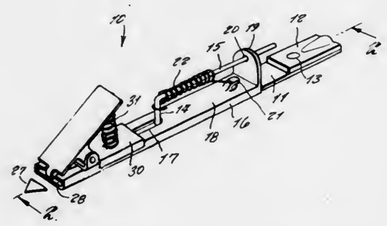
Above the table, there is provided a stock feed unit, the positional level of the latter unit relative to said table being adjustable by a manipulating unit mechanically coupled with said stock feed unit. The sliced product is discharged downwardly through a discharge opening formed through said table and partially defined by said cutting edge. The stock feed unit includes a rotatable belt which is resiliently pressurized at its lower side run, so as to compensate for possible undulations for positive and accurate force-feed of the stock by keeping pressure contact of said belt with the upper surface thereof.

3,783,918
ROTATING DRUM WITH ELASTOMERIC PAD-MOUNTED SUPPORTING RINGS
Arthur R. Simpson, Riverside, and Frank S. Egloff, LaGrange, both of Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.
Filed Feb. 16, 1972, Ser. No. 226,788
Int. Cl. B27l *1/00*
U.S. Cl. 144—208 B 7 Claims



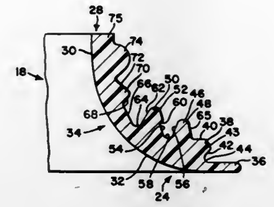
A horizontally positioned cylindrical drum, such as for debarking logs, a pair of spaced-apart circumferential metal rings located longitudinally along the drum, and an elastomeric pad means between each of the rings and the drum holding the rings in position thereon. The drum can be supported by, and rotate on, trunnion wheels.

3,783,919
GLAZIER'S POINT HOLDER
Julian Torres, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, New York, N.Y.
Filed Apr. 25, 1972, Ser. No. 247,403
Int. Cl. B25c *3/00*
U.S. Cl. 145—46 2 Claims



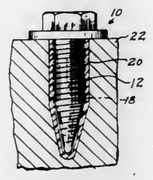
A tool for holding a glazier's point in position for driving into a window frame in an easy manner; the device consisting of a base unit around which there is a slidable frame for supporting in a correct driving position a glazier point located in front thereof, so that when the base unit is hit with a hammer, the point is properly installed into the window frame.

3,783,920
CONTAINER AND CLOSURE THEREFOR
Roy J. Weikert, c/o General Films, Inc., Covington, Ohio
Filed June 20, 1972, Ser. No. 264,488
Int. Cl. B65d *33/16, 39/00*
U.S. Cl. 150—8 20 Claims



A bag having a relatively large diameter, closure or valve, the components of which are formed in molds using a one piece mold cavity. The three components of the valve include a base having a flange positioned within the bag and a neck extending through an opening in the bag, a collar which clamps the bag to the base and a cap which forms a seal with the neck of the base. The collar and base have complementary, vertically extending beads to grip the bag material and the cap has a dome shaped central portion which seals against the inner surface of the neck.

3,783,921
SCREW FASTENER AND METHOD OF APPLYING SAME
David P. Wagner, Elmhurst, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Apr. 1, 1971, Ser. No. 130,199
Int. Cl. F16b *37/04*
U.S. Cl. 151—41.7 3 Claims

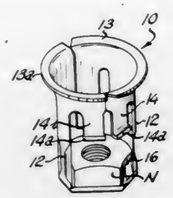


The present invention relates generally to improvements in screw type fasteners and to novel methods of applying such fasteners to a preformed aperture in a workpiece. The embodiments of the present invention disclosed in the accompanying drawing includes a headed screw member, the entering extremity of which is encapsulated by an adhesive having the functional characteristics of a partially cured epoxy resin. Interposed between the threaded peripheral surface of the screw shank and the aforesaid adhesive is a release coating to prevent the establishment of a bond between the adhesive and the peripheral screw surface when said adhesive is completely cured or solidified within a work aperture.

3,783,922
BLIND MOUNTING FASTENER
Stephen Petrus, Parma, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed Sept. 5, 1972, Ser. No. 286,511
Int. Cl. F16b *13/06*
U.S. Cl. 151—41.74 9 Claims

A caged nut or bolt for assembly and retention preferably in a round mounting hole in a blind panel. The retainer is formed integrally from a flat blank and has a base with central aper-

ture for bolt clearance and a pair of integral leg portions extending outwardly from the base in cupped arrangement. The free ends of the legs have transverse portions formed in semicircular configuration with the edges flanged radially outwardly. Each of the transverse portions has a pair of integral lugs extending therefrom toward the base with the ends of the lugs flared outwardly. Integral outwardly extending tabs are provided on the base in cupped arrangement for retaining a nut or bolt head centrally between the tab and leg portions. Portions of the tabs and legs are chamfered or sized near the base portion to permit insertion of the retainer, with a nut or bolt head therein, in a panel mounting hole of a diameter substantially that of a circle including the nut points. Where a nut

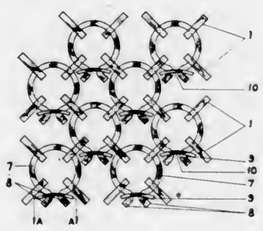


is caged, a bolt is inserted through the mounting hole, threaded into the nut, and tightened to draw the nut away from the base portion toward the panel undersurface. As the bolt is tightened, the leg and lug portions of the retainer are wedged between the edge faces of the nut and the wall of the mounting hole, and the nut is thereby secured in the mounting hole. Where a bolt is used, the head of the bolt is received between the leg portions and the shank extends outwardly of the retainer between the radially flanged portion. A nut is threaded over the bolt to draw the bolt head away from the base portion toward the panel undersurface wedging the leg portion between the wall of the mounting hole and the bolt head.

3,783,923
PROTECTIVE CHAINS

Hans Otto Dohmeier, 24 Shipston Ln., Johannesburg, South Africa

Filed Jan. 19, 1972, Ser. No. 218,920
Claims priority, application South Africa, Jan. 28, 1971, 71/0553
Int. Cl. B60c *27/00*
U.S. Cl. 152—243 **9 Claims**

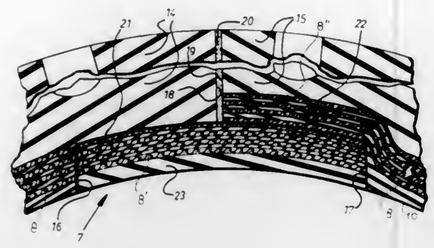


Chain comprising links connected together by resilient steel loops threaded through apertures in the links and with the ends of the loops closed by means of a locking member located on the ends of a loop when it is in a resiliently deformed condition such that the release of the loop after location of the locking member thereon causes interlocking between the locking member and the loop end.

3,783,924
REPLACEMENT TREAD BAND FOR RETREADING A WORN TIRE

Guy Pelletier, Ville d'Anjou, Quebec, Canada, assignor to Rockland Industries Ltd., Kingsbury, Quebec, Canada

Filed Feb. 7, 1972, Ser. No. 224,001
Int. Cl. B60c *9/18*
U.S. Cl. 152—330 **4 Claims**

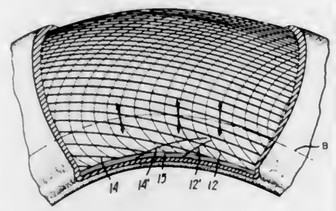


A replacement tread band for retreading a worn tire including a band of vulcanized rubber having the width of the tread band of a worn tire, cords embedded longitudinally into the band of vulcanized rubber and having opposite ends arranged to overlap longitudinally of the replacement tread band of a worn tire and to be secured one to another, then forming a reinforcement ring acting against separation of the band of vulcanized rubber from the tire under action of the centrifugal force. The opposite end portions of the band of vulvanized rubber are provided with cutouts adapted to lodge said ends of said cords and an elastomeric material to secure said ends together.

3,783,925
TIRE HAVING BI-BIASED CARCASS

Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France

Filed Mar. 2, 1972, Ser. No. 231,105
Claims priority, application France, Mar. 8, 1971, 71.08006; Jan. 14, 1972, 72.01371
Int. Cl. B60c *9/06*
U.S. Cl. 152—356 **13 Claims**

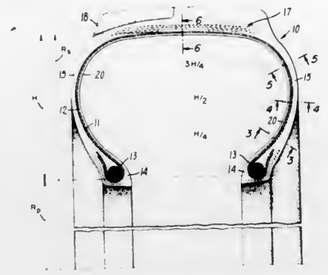


A tire has an asymmetrical carcass comprising two plies of cords forming a network of quadrilateral meshes. The sides of the quadrilaterals form with the circumferential direction of the tire acute angles α and β which are different and which vary as a function of the distance of the mesh from the axis of the tire. The angle α is larger than the angle β and varies, between any two points located at different distances from the axis, more than does the angle β. In manufacturing the tire by turning the edges of the two plies around bead wires on a building drum and then shaping the assembly into the form of a tire, at least one of the bead wires is permitted to rotate about the axis of the tire so that the meshes rotate about normals to the carcass.

3,783,926
TIRE HAVING TWO-PLY CARCASS MERGING INTO ONE PLY

Yves Jacques de Zarauz, Le Cendre, France, assignor to Compagnie Generale Des Etablissements Michelin, raison Sociale Michelin & Cie, Clermont-Ferrand, France

Filed Apr. 26, 1972, Ser. No. 247,780
Claims priority, application France, Apr. 28, 1971, 71.15304
Int. Cl. B60c *9/06*
U.S. Cl. 152—356 **7 Claims**

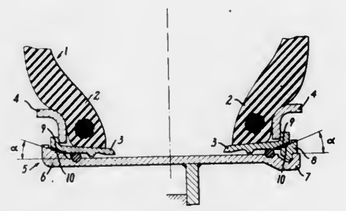


A tire carcass is formed of a pair of plies adjacent to each other and extending through the tire from one bead to the other. Each ply comprises cords arranged with the same pitch and along the same direction, and the cords of each ply are staggered with respect to those of the other by half the pitch. The cords of the two plies, in regions of the carcass close to the beads, are located respectively at different distances from the inner wall of the tire. Successive cords of each ply, in regions of the carcass between the midheights of the two sidewalls, are inserted between adjacent cords of the other ply, so that the cords of the two plies, in regions of the carcass between the midheights of the two sidewalls, are located substantially at the same distance from the inner wall of the tire.

3,783,927
TIRE AND RIM STRUCTURE FOR CONSTRUCTION EQUIPMENT

Henri Verdier, Beauregard-L'Eveque, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France

Filed Oct. 20, 1971, Ser. No. 190,892
Claims priority, application France, Oct. 20, 1970, 70.37907
Int. Cl. B60b *25/10*
U.S. Cl. 152—409 **4 Claims**

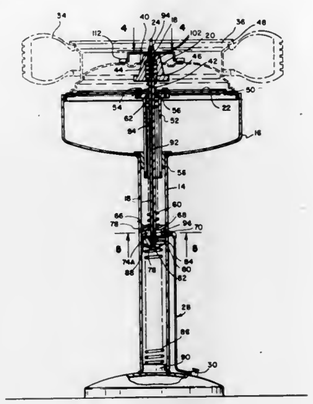


Each bead of a large pneumatic tire nas permanently connected to its bottom an annular metal part serving as a bead seat and formed with a conical bearing surface. The rim for the tire has a fixed or movable axial stop member for each bead. Each axial stop member is formed with a conical stop surface, and the conical bearing surfaces are respectively engageable with the conical stop surfaces. Each pair of engaged bearing and stop surfaces is inclined with respect to the common axis of the tire and rim by an angle within the range of 10° to 30°. The structure prevents the tire and rim from slipping in rotation with respect to each other and is particularly adapted for use on construction equipment and the like.

3,783,928
STRUCTURE FOR MOUNTING TIRES ON WIDE RIMS

Robert B. Lee, 4925 N. 73rd St., Scottsdale, Ariz.

Filed Sept. 14, 1972, Ser. No. 289,160
Int. Cl. B60c *25/12*
U.S. Cl. 157—1.1 **7 Claims**

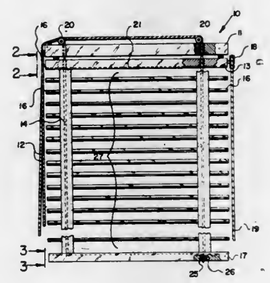


A pneumatic tire mounting device for mounting pneumatic tires on wheel rims, and more particularly for mounting tubeless pneumatic automotive tires on wheel rims of substantially greater than normal width.

3,783,929
VENETIAN BLIND

Andrew Logar, 555 W. Middlefield Rd., Mountainview, Calif.

Filed Mar. 6, 1972, Ser. No. 231,878
Int. Cl. E06b *9/30*
U.S. Cl. 160—168 **13 Claims**

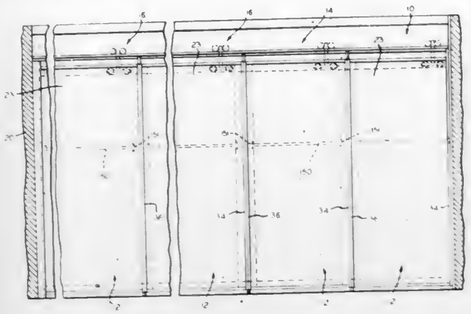


A venetian blind slat webbing unit is constructed for ease of replaceability. This construction replaceability of the slat unit may serve as an alternative to arduous cleaning of the slats and webbing of dirty blinds.

3,783,930
TRAIN OPERATED FOLDING PARTITION

Charles E. Williams, Janesville, Wis., assignor to Hough Manufacturing Corporation, Janesville, Wis.

Filed Apr. 5, 1972, Ser. No. 241,356
Int. Cl. E05d 15/26
U.S. Cl. 160—199 13 Claims

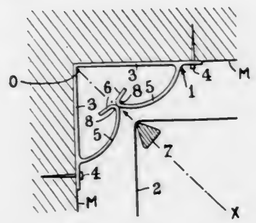


A train operated foloing partition of the top supported, center folding, operable panel, type, in which each panel is supported from an overhead trackway by its own carrier, and the panels are hinged together in side by side relation for movement between wall forming or unfolded positions, and wall folded or stacked positions, wherein each carrier is free to move relative to the panel it carries between a position at the center of the panel and a position adjacent one edge of the panel, as the panels are moved between their stacked and the wall forming positions.

3,783,931
DEVICE FOR FIXING A COVERING SHEET INSIDE A DIHEDRON FORMED BY TWO PERPENDICULAR SURFACES

Marcel Assael, 12 Place Maurice Gillet, Brest, France

Filed Feb. 12, 1973, Ser. No. 331,858
Claims priority, application France, Feb. 15, 1972, 7204992; May 18, 1972, 7217817
Int. Cl. A47h 23/00, 13/00
U.S. Cl. 160—327 6 Claims

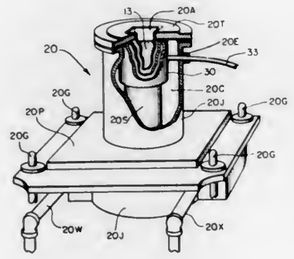


Device for fixing one or two covering sheets, such as hangings, inside a dihedron formed between two perpendicular surfaces, said device consisting of a section member comprising two wings extending at right angles to each other and adapted to be secured to the corresponding perpendicular surfaces, respectively. Said wings carry inside the angle or corner formed therebetween a pair of resilient blades projecting towards each other and having their ends curved or bent towards the apex of the angle formed by said wings, these wings contacting substantially each other in their inoperative or unstressed condition and carrying at their aforesaid ends inturned lips extending substantially at right angles to the bisectrix of the angle formed between said wings, so as to constitute means for efficiently retaining an extra-thickness of material formed along the marginal portion of the covering sheet to be fixed in position.

3,783,932
METHOD OF CONTROLLING MOLTEN METAL-HEIGHT IN CONTINUOUS CASTING

Jack R. Crowell, Cedar Lake, Ind.; James R. Tomashek, Wood Dale, and Donald H. Ward, Glen Ellyn, both of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 3,421, Jan. 16, 1970, Pat. No. 3,670,801. This application Oct. 15, 1971, Ser. No. 189,569
Int. Cl. B22d 11/00
U.S. Cl. 164—4 1 Claim

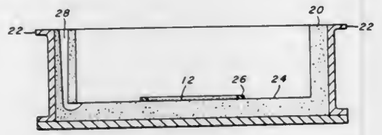


A method of controlling the height of molten metal in a continuous casting system of the type having a mold unit having a generally vertical, integral and electrically conductive form, which form defines a shaping surface and into which form molten metal is poured and from which form a continuous billet is produced, and a cooling jacket about said form in which an electrically conducting coolant is circulated from which unit a continuous billet is extracted by a drive system therefor, comprising the steps of: providing an inductance level detector; positioning the detector in said jacket adjacent to but outside of the form; developing a time-varying magnetic field employing the inductance level detector positioned within the mold jacket and adjacent to the core; sensing the magnetic field strength of the detector as affected by the height of molten metal in the form, and controlling the drive system to counter changes in the level of molten metal in the mold form so as to tend to maintain that level at or about a predetermined desirable level.

3,783,933
METHOD OF MAKING AN INGOT MOLD STOOL

Verne B. Leedy, Palos Heights, Ill., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1971, Ser. No. 173,435
Int. Cl. B22d 27/18
U.S. Cl. 164—58 4 Claims

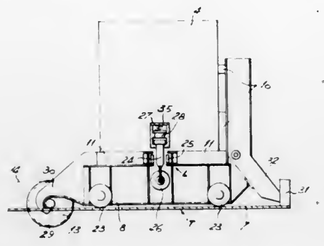


A cast iron ingot mold stool having a coating of granulated iron oxide particles fused into the upper surface thereof to prevent cast ingots from sticking thereto.

3,783,934
APPARATUS FOR REPLACING THE ROLLER GUIDE SECTIONS OF THE STRAND GUIDING ASSEMBLIES OF CONTINUOUS CASTING PLANTS

Karl-Heinz Golde, am Kleinen Rahm 61, Ratingen, and Ernst Schuler, Feldstrasse 47, Dusseldorf, both of Germany

Filed Oct. 29, 1971, Ser. No. 193,686
Claims priority, application Germany, Nov. 2, 1970, P 20 53 755.5
Int. Cl. B22d 11/12
U.S. Cl. 164—282 7 Claims

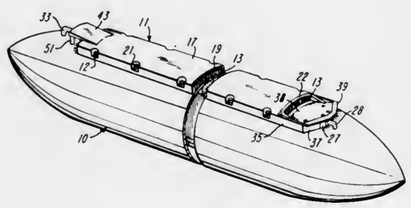


An apparatus for replacing the roller guide sections of the strand guiding assemblies of continuous casting plants which embodies a carriage movably guided at a trackway located externally of its associated strand guide assembly, A pair of rails forming each trackway extends along each such strand guide assembly. This carriage contains supporting surfaces for the individual strand guide sections of the strand guide assemblies. According to important aspects of the invention the carriage can be commonly employed for servicing the strand guide assemblies of multiple continuously cast strands. This common carriage is designed for selective shifting to each of the rail pairs of each of the trackways associated with each strand guide assembly.

3,783,935
SURFACE COOLER

Carl E. Simmons, and Joseph F. Fernandes, both of Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio

Filed May 30, 1972, Ser. No. 258,127
Int. Cl. B60h 3/00
U.S. Cl. 165—44 12 Claims

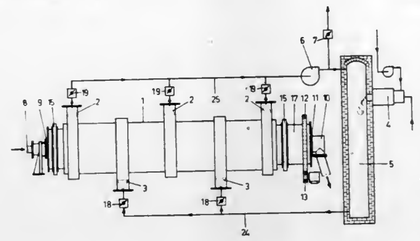


A surface cooler for interposing in ram air or the like. Aerodynamic devices at the leading end of the cooler capture high energy air from the free air stream outwardly of the cooler mounting surface and divert the more stagnant air at the mounting surface away from the cooler inlet, the function being to reject heat to this captured air from a fluid used as a coolant in a location remote from the cooler. At the trailing end of the cooler other aerodynamic devices utilize the air flowing over the cooler to facilitate venting of a system fluid.

3,783,936
METHOD AND APPARATUS FOR CARRYING OUT A HEAT EXCHANGE BETWEEN A HEAT CARRIER MEDIUM AND A DRUM REACTOR

Edward Wisz, Kaiseraugst, Switzerland, assignor to Buss AG, Basel, Switzerland and Eisenbau Wyhlen AG, Wyhlen/Dentschland, Switzerland

Filed Jan. 12, 1972, Ser. No. 217,133
Claims priority, application Austria, Jan. 13, 1971, 226/71
Int. Cl. F28d 11/02
U.S. Cl. 165—90 3 Claims

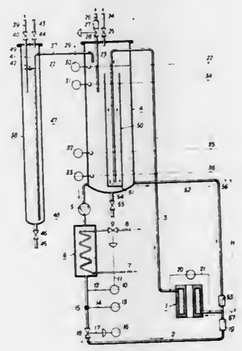


The present invention pertains to the indirect heating or cooling of a drum reactor by the exchange of heat from a heat carrier medium. The heat carrier medium is fed to one or more annular distribution chambers fixedly disposed about a stationary outer wall or jacket, thence through openings in the jacket into the annular space between the jacket and the rotatable drum wall, and finally out to one or more annular collection chambers. The distribution and collection chambers are spaced apart from each other and cause the heat carrier medium to flow longitudinally along the drum for more efficient heat exchange. In addition, the various inlet and exit ports of the alternate distribution chambers are radially spaced from each other such that the heat carrier flow is both longitudinal and rotational about the drum reactor.

3,783,937
APPARATUS FOR COOLING A CONTINUOUS CASTING MOULD

August Maurer, Linz, Austria, assignor to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Dec. 13, 1972, Ser. No. 207,167
Claims priority, application Austria, Dec. 16, 1970, 11303/70
Int. Cl. B22d 7/04
U.S. Cl. 165—107 8 Claims



The invention relates to an apparatus for cooling a continuous casting mould, comprising a cooling water supply conduit,

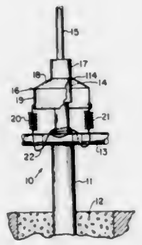
an emergency cooling water supply conduit and a cooling water return conduit, all three conduits being joined to an overhead container which for its greatest part is filled with boiler feed water. At the upper part of said overhead container a space filled with a pressurized fluid is provided forming an elastic pressure cushion to protect the overhead container and all conduits from corrosion and boiler scale.

3,783,938
DISTURBING DEVICE AND HEAT EXCHANGER EMBODYING THE SAME
Andre Chartet, Meudon, France, assignor to Societe Anonyme Des Usines Chausson, Asnieres, France
Filed Jan. 11, 1972, Ser. No. 216,925
Claims priority, application France, Jan. 28, 1971, 7102885
Int. Cl. F28b *3/02*
U.S. Cl. 165—166 **10 Claims**



A heat exchanger comprises at least one tube containing at least one flow directing turbulence member disposed longitudinally therein and comprising a thin metal strip having at least one row of longitudinally spaced wings struck angularly therefrom and extending in the same direction longitudinally, said wings each having an aperture therein and being disposed at an obtuse angle alternately on opposite sides of the strip and resiliently engaging the inner wall of the tube.

3,783,939
SPRAY SHIELD FOR OIL WELLS
Billy J. Edge, and Lloyd O. Collins, both of P.O. Box 6487, Odessa, Tex.
Filed Mar. 30, 1972, Ser. No. 239,699
Int. Cl. E21b *33/03*
U.S. Cl. 166—81 **5 Claims**



A spray shield assembly for oil wells which require artificial lift apparatus The shield assembly includes a hollow bonnet member and a seal assembly wherein the seal assembly is supported in overlying relationship relative to a stuffing box on an oil well. The bonnet member is affixed to oil well structure by resilient biasing means. A polished rod is sealingly and reciprocatingly received axially of the bonnet member and the seal assembly.

The spray shield is made in component parts which are joined together in a manner which enables its assembly to the well head without the necessity of dismantling any portion of the pumpjack.

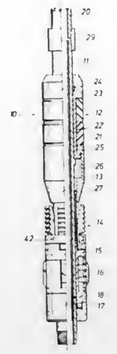
3,783,940
APPARATUS FOR PLUGGING WELL BORES WITH HARDENABLE FLUENT SUBSTANCES
Harold J. Urbanosky, Pearland, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Apr. 19, 1972, Ser. No. 245,421
Int. Cl. E21b *33/127*
U.S. Cl. 166—181 **17 Claims**



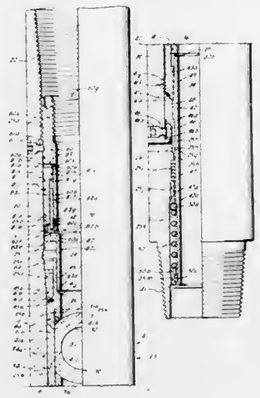
As a preferred embodiment of the apparatus of the present invention disclosed herein, an expansible bag mounted around a first tubular body is operatively arranged to be expanded into engagement with a well bore wall by a hardenable fluent substance initially contained in a selectively-operable displacement assembly including a second tubular body suspended from a cable and releasably coupled to the first body. Biasing means are operatively arranged for imposing opposed axial forces against the ends of the expanded bag to securely anchor the tool until the fluent substance has solidified. The new and improved apparatus further includes a unique release mechanism which is capable of withstanding severe shocks and other forces which may be imposed on the apparatus to guard against the unexpected or premature uncoupling of the two tubular bodies as it is being moved into a well bore and operated. The release mechanism is, however, easily and positively released by the discharge of the fluent substance from the displacement assembly.

3,783,941
ANCHORING MECHANISM FOR A WELL TOOL
James W. Kisling, III, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Nov. 22, 1971, Ser. No. 200,912
Int. Cl. E21b *23/00*
U.S. Cl. 166—217 **9 Claims**

An anchoring mechanism for a well tool includes a slip element coupled for both tilting and lateral movement to an associated housing and held in normally retraction position by a conical coil spring capable of deflection to a substantially flat condition, said slip element when contacted by an expander tilting in one direction until a slip tooth engages the casing, whereupon continued movement of the expander behind the slip head causes tilting in the opposite direction for full engagement of all slip teeth with the casing. Such tilting and outward movement is enabled by the coil spring's ability to assume a substantially flat condition so that the parts occupy a minimum of space.

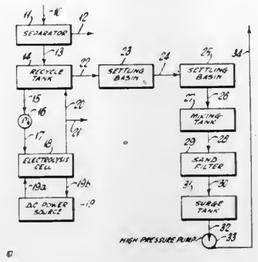


3,783,942
INSIDE DRILLING TOOL BLOWOUT PREVENTER
James D. Mott, Houston, Tex., assignor to Hydril Company, Los Angeles, Calif.
Filed Nov. 24, 1971, Ser. No. 201,878
Int. Cl. E21b *41/00*
U.S. Cl. 166—244 **13 Claims**



A drilling tool connected in a drilling string includes a pressure responsive rotatable ball valve for enabling drilling fluid flow down the bore of a drill string which automatically rotates closed for blocking flow through the bore of the drill string when incipient pressure conditions indicate the direction of flow through the bore may be reversed. Means for releasably locking the ball in the open position in response to a preselected directional pressure to enable the running of other tools and the like through the bore of the drilling string are provided. The drilling tool may be employed for controlling an undesired flowing stream of fluid from the bore of the drilling string by stabbing the tool to connect with the drilling string utilizing a stabbing member which is removed after connecting to enable the ball valve to rotate closed to control the flowing stream.

3,783,943
SECONDARY RECOVERY PROCESS UTILIZING BRINE ELECTROLYZED TO REMOVE HYDROGEN SULFIDE
Vernon H. Schievelbein; Leonard A. Shankle, both of Houston, Tex., and Herbert N. Wade, Riverside, Conn., assignors to Texaco Inc., New York, N.Y.
Filed Jan. 7, 1972, Ser. No. 216,190
Int. Cl. E21b *43/22*
U.S. Cl. 166—266 **2 Claims**



A process for the recovery of liquid hydrocarbons in which brine is injected into the formation via an injection well and a mixture of liquid hydrocarbons together with brine contaminated with hydrogen sulfide is recovered through a production well. After separation of the liquid hydrocarbons, the brine is subjected to electrolysis to form sodium hypochlorite which reacts with the hydrogen sulfide to yield brine having a substantially reduced hydrogen sulfide content suitable for reinjection into the formation.

3,783,944
IMPROVED PROCESS FOR THE RECOVERY OF OIL
Robert R. Jennings, Walnut Creek, Calif., and William M. Thornton, Houston, Tex., assignors to Dow Chemical Company, Midland, Mich. and Marathon Oil Company, Findlay, Ohio; a part interest to each
Filed Oct. 5, 1972, Ser. No. 295,204
Int. Cl. E21b *43/22*
U.S. Cl. 166—274 **15 Claims**

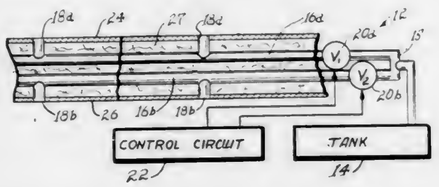
Improved oil recoveries, where the reservoir is flooded with a REM (recovery enhancing material) followed by a mobility control polymer, are obtained by either preceding the injection of the REM with a PCA (polymer conserving agent) or incorporating the PCA in a portion of the REM. The PCA, then, preferentially adsorbs onto available adsorption sites within the subterranean reservoir which otherwise would be occupied by the mobility control polymer. Examples of the PCA include polymers and copolymers of, for instance, acrylamide and sodium acrylate. They generally have an average molecular weight within the range of about 2000 to about 500,000.

3,783,945
REMOVING WATER FROM OIL-PRODUCING FORMATIONS
Dwight L. Dauben, and H. R. Froning, both of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.
Filed Jan. 5, 1972, Ser. No. 215,660
Int. Cl. E21b *43/16, 43/25*
U.S. Cl. 166—305 **11 Claims**

Water is removed from the portion of an oil-producing formation near a producing well. A micellar solution is used for this purpose. The solution may be a water-free concentrate or it may contain water. When the salt content of water in the well and in the formation is between about 20,000 and about 100,000 parts per million by weight, the formation of objectionable emulsions may occur. The severity of this problem is decreased by injecting a batch of low-viscosity substantially aliphatic hydrocarbon liquid ahead of the micellar solution. In

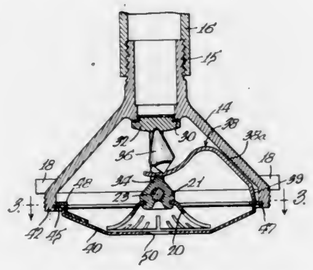
some cases, such as where very highly saline brines are present, the aliphatic hydrocarbon liquid may be preceded by a small batch of water containing little, if any, salt. The aliphatic hydrocarbon liquid may also be preceded by an aromatic hydrocarbon liquid or other solvent to dissolve organic deposits, such as paraffin, asphaltenes, and the like. Use of the aliphatic hydrocarbon liquid is also advantageous, even when low-salinity brine is present.

3,783,946
SELF-CONTAINED AUTOMATIC SEQUENCING FIRE EXTINGUISHING SYSTEM
Robert G. Petrinec, and Joan A. Petrinec, both of 617 S. East Ave., Oak Park, Ill.
Filed Jan. 29, 1973, Ser. No. 327,706
Int. Cl. A62c *35/12*
U.S. Cl. 169—2 A **10 Claims**



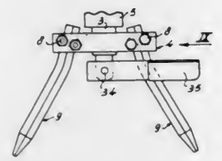
The invention disclosed herein is directed to a self-contained fire extinguishing system which includes a quantity of fire extinguishing material under pressure which is connected through conduit means to one or more dispensing nozzles. Control valve means are interposed in conduit means and are initially energized to cause the extinguishing material to pass through the valve means during a first initial condition and thereafter to cause subsequent sequential energization of the flow control valve means to insure that fire extinguishing characteristics are maintained for a predetermined time thereafter.

3,783,947
AUTOMATIC SPRINKLER HEAD
Keith M. Dix, Des Plaines, and Bert Bonbrake, Jr., Argo, both of Ill., assignors to Fire Protection Company, Chicago, Ill.
Continuation-in-part of Ser. No. 205,224, Dec. 6, 1971, abandoned. This application Apr. 2, 1973, Ser. No. 346,760
Int. Cl. A62c *37/08*
U.S. Cl. 169—40 **30 Claims**



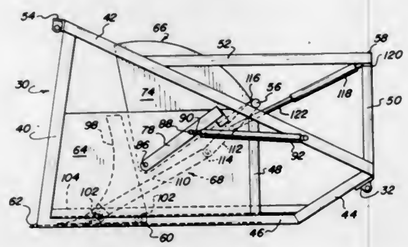
An automatic sprinkler head adapted to be mounted in a ceiling approximately flush with the ceiling surface including a dish-shaped housing member having a water inlet adapted to be attached to a supply pipe, a deflector mounted on the housing opposite the inlet and having a fulcrum thereon opposed to the inlet, a valve disc closing the inlet, a strut holding the disc, a lever holding the strut, a cover closing the housing and having a portion engaging the lever to hold the latter in position, and latch tabs on the cover engaging the housing, at least one of which tabs is separably attached to the cover by fusible material which releases when the ambient temperature reaches a predetermined high value. Four forms are shown.

3,783,948
CULTIVATORS
Ary Van Der Lely, Maasland, and Cornelis Johannes Gerardus Bom, Rozenburg, both of Netherlands
Continuation of Ser. No. 817,110, Apr. 17, 1969, abandoned. Filed Sept. 13, 1971, Ser. No. 180,125
Claims priority, application Netherlands, Apr. 17, 1968, 6805358
Int. Cl. A01b *33/00*
U.S. Cl. 172—49 **6 Claims**



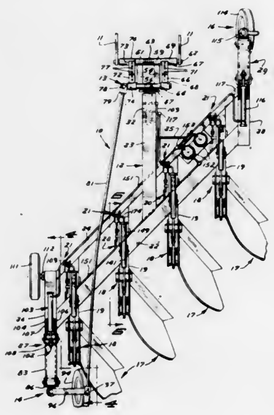
A cultivator with a frame that supports a plurality of side-by-side rotatable members having spaced-apart tines that crumble the soil during operation. The tines are held by a support in a vareity of positions so that the soil working portions are changed depending on the amount of soil working desired. A trailing soil-smoothing member is attached to the rear of the cultivator.

3,783,949
SNOW HANDLING APPARATUS
Loren R. Maxey, 615 S. Loomis, Fort Collins, Colo.
Filed Apr. 5, 1971, Ser. No. 130,892
Int. Cl. A01b *5/00*; **E02a** *5/00*
U.S. Cl. 172—133 **9 Claims**



Snow handling apparatus especially useful for the grooming of ski slopes or roads or trails used by over-the-snow vehicles. A pan assembly with a flat rectangular bottom panel and opposed vertical side walls is mounted in a snow roller frame to be towed behind a towing vehicle. The pan assembly is pivotally supported at its rearward end on the snow roller axis and its forward end can be raised or lowered relative to the roller frame by hydraulic motors controlled from the towing vehicle. A bulldozer-like blade extends transversely between the opposed side walls and is supported on the bottom panel for movement between the front and rear edges of the bottom panel, movement of the blade again being controlled by hydraulic motors. A gate is pivotally mounted on the side walls for movement between a closed position in which the gate rests on the front edge of the bottom panel and closes the space between the forward ends of the side walls and an open position in which the gate projects upwardly from the rearward ends of the side walls. When the blade is in its rearward most position, the gate when in its open position provides a vertical extension of the blade. With the gate opened and the blade in its rearwardmost position, the pan assembly is lowered to scoop up snow as it is towed. When the pan is filled the gate, which is curved concentrically about its pivotal axis, is closed and the pan assembly is elevated to enable the snow in the pan assembly to be transported to a dumping area. At the dumping area, the gate is opened and the blade is advanced forwardly at a rate related to the speed at which the assembly is being towed to discharge snow from the pan assembly in a layer of selected thickness. The discharged snow is leveled and compacted by the trailing snow roller.

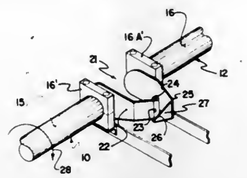
3,783,950
SEMI-MOUNTED PLOW
Cletus J. Geurts, Gwinner, N. Dak., assignor to Geurts, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 486,712, Sept. 13, 1965, Pat. No. 3,642,074, Division of Ser. No. 666,047, Sept. 7, 1967, Pat. No. 3,642,073. This application Apr. 29, 1971, Ser. No. 138,827
Int. Cl. A01b *69/00, 63/16, 59/042*
U.S. Cl. 172—285 **12 Claims**



A semi-mounted moldboard plow connected to the draft links of a tractor by a hitch having longitudinal, upright and transverse pivotal movements with respect to the frame of the plow. The hitch is connected to a tail wheel of the plow so that the wheel turns in the direction of movement of the tractor. Each plow bottom of the plow is held in the ground working position by a hydraulic holding, release and return mechanism. Fluidly coupled with the hydraulic mechanism of each plow bottom is a fluid cylinder which yieldably holds a colter in ground working position.

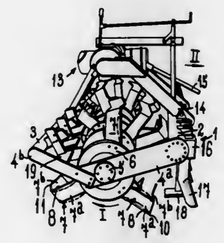
3,783,951
HARROW ASSEMBLY WITH ROCK FRAME TUBES
Robert J. Gugin, P.O. Box 926, Minnedosa, Manitoba, Canada
Filed Feb. 22, 1972, Ser. No. 228,280
Int. Cl. A01b *49/00*
U.S. Cl. 172—311 **1 Claim**

A flange or pocket is offstanding on one end of the rock tube of the wing sections of a harrow and is engageable by an offstanding crank on the corresponding end of the rock tube of the center section so that rotation of the center section rock tube also rotates the rock tubes of the wing sections. An adjustment is provided and of importance is the fact that the connection between the flanges or pockets and the cranks is



free and not fixed thus allowing upward hinging and flexibility of the wing sections relative to the center section.

3,783,952
ROTARY SOIL WORKING MACHINE
Antonius Josephus Van Gemert, Wanroy, Netherlands, assignor to Van Gemert N.V., Wanroy, Noord-Brabant, Netherlands
Continuation-in-part of Ser. No. 824,556, May 14, 1969, abandoned. This application Sept. 29, 1971, Ser. No. 184,922
Claims priority, application Netherlands, May 17, 1968, 6807087
Int. Cl. A01b *33/10*
U.S. Cl. 172—540 **3 Claims**

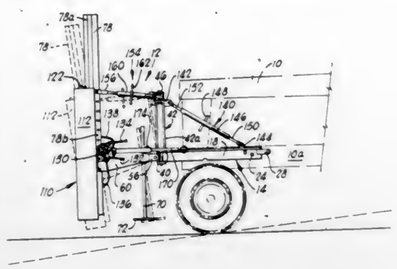


A shaft mounted in the machine to rotate on a horizontal axis extending transverse to the travel of the machine carries a plurality of generally radial members lying substantially in a common plane perpendicular to the shaft. A plurality of sod-lifting arms extend axially in the same direction from the ends of the radial members. Each of the arms consists of a substantially flat plate which is L-shaped in outline and consists of a base portion having substantially parallel sides which is attached to the radial member and is raked forward in the direction of rotation and a stem portion having substantially parallel sides which is raked backward.

3,783,953
POST DRIVING APPARATUS
Arnold F. Kopaska, Guthrie Center, Iowa
Filed Aug. 5, 1971, Ser. No. 169,247
Int. Cl. E21c *11/02*
U.S. Cl. 173—23 **15 Claims**

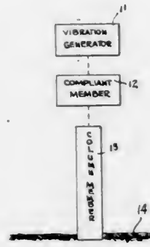
Apparatus for driving a post into the earth, including a mounting frame assembly for attaching the apparatus to a supporting vehicle, and a vertically extending mast assembly pivotally mounted on the mounting frame assembly for pivotation about horizontal and vertical pivotal axes. A driving assembly is slidably mounted on the mast assembly for vertical reciprocating movement, and a hydraulic piston and cylinder assembly is mounted on the mast assembly and includes a hydraulic cylinder having one end pivotally connected to the lower end of the mast assembly, and a piston rod extending from the upper end of the hydraulic cylinder, and detachably engaging teeth on said driving assembly. The piston rod car-

ries cam rollers at its upper end which engage track plates and camways for automatic disengagement of the piston rod from



the teeth on the driving assembly at the stroke limit of the piston rod.

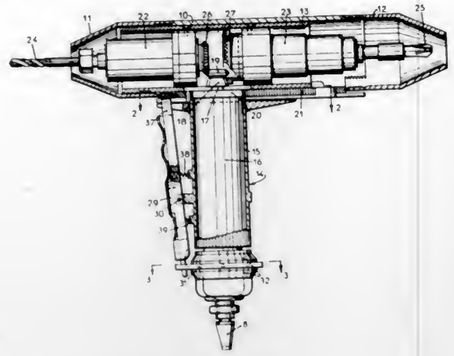
3,783,954
SONIC RESONANT DRIVING OF A COLUMN MEMBER UTILIZING COMPLIANT RESONATOR ELEMENT
Albert G. Bodine, 7877 Woodbury Ave., Van Nuys, Calif.
Filed Jan. 24, 1972, Ser. No. 220,250
Int. Cl. E02d *7/18*
U.S. Cl. 173—49 **6 Claims**



A column member which may comprise a piling, casing, shaft or the like, is driven into the ground by means of sonic energy generated by a vibration generator. The vibration generator, which may comprise an orbiting mass oscillator, is coupled to the column member by a high impedance compliant element, the compliancce of this element and the mass of the column forming a resonant vibration system. The vibration generator is operated at a frequency such as to cause resonant vibration of the system with the compliant element providing lumped constant compliance and the column member providing lumped constant mass in such system.

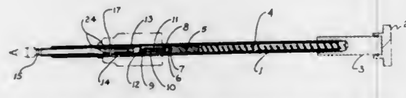
3,783,955
POWER TOOL
Peter John Gill, Wolverhampton, England, assignor to G.K.N. Screws & Fasteners Limited, Worley, England
Filed Apr. 21, 1972, Ser. No. 246,271
Claims priority, application Great Britain, Apr. 21, 1971, 10,374/71
Int. Cl. B23b *45/00*
U.S. Cl. 173—50 **14 Claims**

A portable power tool having two work implements, such as a drill bit and a screwdriver bit, located at opposite ends of the body of the tool and facing in opposite directions with the body being mounted on a handle so that it can be turned through 180° relative to the handle to bring one or the other of the implements into a working position. The body is provided with guard means so that whichever implement is not working is covered by the guard means. An air motor for driving the work implements may be mounted in the body of the tool or in



the handle and driving the work implements through suitable gearing.

3,783,956
AUTOMATIC DRIVER
Donald J. Schultz, 3505 Silver Creek Rd., Joplin, Mo.
Filed Jan. 24, 1972, Ser. No. 220,261
Int. Cl. B25b *19/00*
U.S. Cl. 173—93.7 **15 Claims**

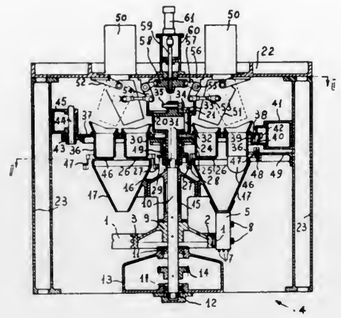


This application discloses an automatic driving device of a type suitable for driving conventional screws, threaded fasteners or other fastening devices, opened or closed, by relative rotation. The device incorporates a means of automatically storing energy and releasing the stored energy to impart a controlled torque to a tool capable of rotating a fastening device whil simultaneously exerting axial pressure forcing the tool against the fastening device. The device may be incorporated in a tool suitable for manual use.

3,783,957
APPARATUS FOR SUPPLYING LOOSE MATERIALS IN AMOUNTS OF WEIGHT TO CONTINUOUSLY MOVING CONTAINERS
Vincenzo Borghi, Modena, Italy, assignor to Azionaria Costruzioni Macchine Automatiche A. C. M. A. S.p.A., Bologna, Italy
Filed Oct. 26, 1971, Ser. No. 192,552
Claims priority, application Italy, Nov. 7, 1970, 3610A/70
Int. Cl. G01g *13/00*
U.S. Cl. 177—54 **3 Claims**

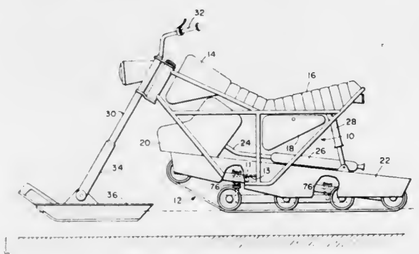
An apparatus for the supply of loose materials in amounts of determined weight to containers, comprising a horizontal continuously moving endless conveyor provided thereon with regularly spaced seats for containers a first station for placing the containers to be filled on the said conveyor and a second station for releasing the filled containers therefrom, between the said first and second stations and over the said conveyor it further comprises at least one series of automatic stationary scales capable of receiving product from at least one feeding station and arranged to intermittently release amounts of product of determined weight, at least two series of hoppers regularly spaced from one another and relative to the scales

and seats, and arranged at a level lower than that of the series of scales, each series of hoppers including a number of hoppers equal to that of the scales and being carried movable along a path parallel to the series of scales and another length parallel to a section of the said conveyor, the said series of hoppers being also controlled alternatively to one another



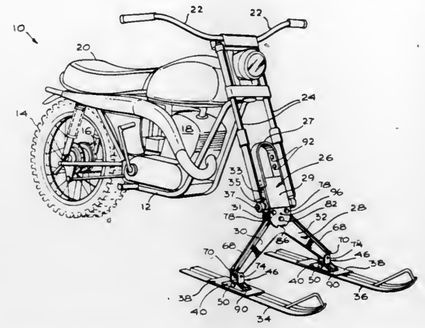
thus successively going from a standstill condition below the scales to receive the amounts of product to a motion condition in time relationship with the conveyor to discharge the amounts of product into the containers on the conveyor, relative series of conveyors being provided at the outlets of the scales and hoppers.

3,783,958
OFF-ROAD VEHICLE
Thomas E. Canavan, 326 S. Webber Dr., Chittenango, N.Y.
Filed May 10, 1972, Ser. No. 252,102
Int. Cl. B62m *27/02*; **B62d** *55/02*, *55/10*
U.S. Cl. 180—5 R **6 Claims**



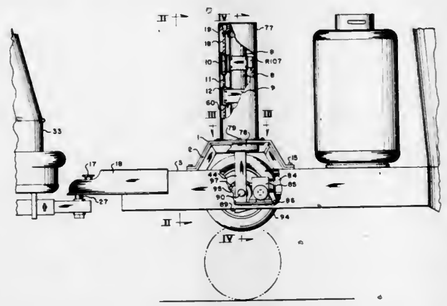
An off-road vehicle comprising an endless track for driving the vhicle, front and rear rotary members mounted for rotation upon a fixed frame, the track being trained about the rotary members to define a closed loop having upper and lower lengths of track with respect to those rotary members, and pairs of load-bearing wheels rotatably mounted upon a second frame disposed within the loop, the wheels engaging inside the lower length of track in load-supporting relation to the fixed frame. Connecting means are provided which connect the second frame to the fixed frame, the connecting means including positioning means operative to maintain a first end pair of wheels at a greater distance from the fixed frame than the other end pair of wheels, the second frame and positioning means being movable with respect to the fixed frame to an orientation in which the first end pair of wheels is at a lesser distance from the fixed frame than the other end pair of wheels for adjusting the position of the lower track run relative to the terrain.

3,783,959
SKI VEHICLE WITH IMPROVED FRONT SUPPORT MEANS
Robert E. Krume, 20440 Anza Ave. No. 224, Torrance, Calif.
Filed Mar. 6, 1972, Ser. No. 231,877
Int. Cl. B62m *29/00*
U.S. Cl. 180—6 A **20 Claims**



A ski vehicle with improved front support means is provided which includes a two-wheeled powered vehicle body frame, seat, motor, powered rear support wheel and steering means, including handle and front wheel frame. The front support means for the vehicle is in the form of a bracket secured to the wheel frame, a ski support assembly pivotably connected to the bracket to permit transverse rotation of the former relative to the latter, a pair of skis pivotably connected to the spaced depending legs of the assembly and means interconnecting the bracket and each ski, whereby rotation of the bracket and frame in a transverse plane effects like rotation of the skis. The skis can also rotate upwardly and downwardly, the extent being controlled by limit means. Means may also be provided to limit the extent of transverse rotation of the skis and to releasably lock the bracket and ski support assembly together for ease of transportation.

3,783,960
TRAILER MANEUVERING JACK
Jack M. Feliz, 34-808 Via Echo, Palm Springs, Calif.
Filed Jan. 10, 1972, Ser. No. 216,653
Int. Cl. B60s *9/16*
U.S. Cl. 180—14 A **4 Claims**



A self-contained conveyance or maneuvering device for mounting to the tongue platform of a trailer or the like which has a jack column and a ground-engaging wheel at the lower end thereof which can be vertically raised or lowered by power. The jack column is also rotatably power driven in either direction so as to direction orient the wheel. The wheel

is reversibly power driven to move the platform and trailer. The vertical and rotational movement of the jack is accomplished by a single drive source which drives a tranmission which in turn is connected, respectively, to the drives for vertically translating the jack column, and for rotating it. The directions of movement and power applications are determined by a control circuit and control switches, the switches for controlling wheel direction and wheel reversible rotation being located in a hand control unit at the end of a length of electrical cable.

3,783,961
LOOP DRIVEN VEHICLES

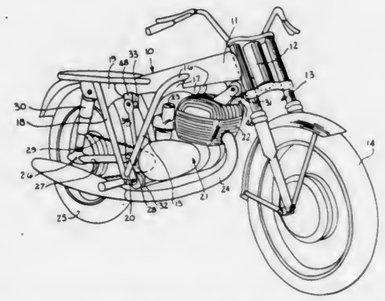
Bernard Hooper, Wordsley near Stourbridge, England, assignor to Norton Villiers Limited, Wolverhampton, England

Filed July 2, 1971, Ser. No. 159,448

Claims priority, application Great Britain, July 7, 1970, 32803/70

Int. Cl. B60k *5/12*

U.S. Cl. 180—33 A **12 Claims**



The specification discloses a motor cycle in which a power unit is mounted in a frame on resilient mountings and the rear road wheel is mounted in a fork swinging on the power unit and connected to springing means. There are two mounting means and a lateral locating means between the power unit and the frame, such mountings being at the apices of a triangle lying in a plane perpendicular to the rotary axis of the rear road wheel. The mounting means are resilient and the means together, are such as to allow a greater amplitude of movement in directions radial of said rotary axis than in directions parallel to said rotary axis and the movement of the power unit relative to the frame at each of said means is positively controlled in directions parallel to said axis. The specification also discloses that the mountings are located on parts of the frame which are rigidly interconnected with a link from one of the mountings to the power unit. The frame may be of sheet metal construction.

3,783,962
MECHANICAL LINKAGE FOR AUXILIARY DRIVE CONTROL IN VEHICLES

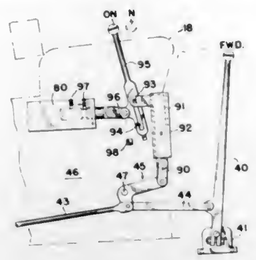
Walter M. Shaffer, Peoria, Ill., assignor to Towmotor Corporation, Cleveland, Ohio

Filed Oct. 10, 1972, Ser. No. 296,222

Int. Cl. B60k *7/00*

U.S. Cl. 180—44 F **4 Claims**

By employing a pivoted bellcrank having one end connected to a transmission control lever in a vehicle a linkage-valve arrangement can provide automatic directional control for an auxiliary drive when connected to the other end of the bellcrank without complex mechanisms. This arrangement includes a fulcrum bar reciprocally mounted in a guide having one end connected to the bellcrank and a fulcrum pin at its opposite end, a control lever having an elongated slot engaged on the pivot pin with a valve mounted so its cylindrical spool axis is normal to the reciprocal movement of the fulcrum arm with the control lever connected to valve spool whereby the



position of the fulcrum arm will automatically determine the direction of valve movement when the control lever is actuated.

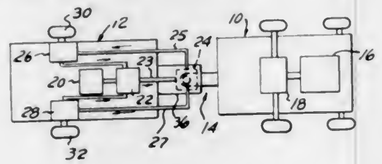
3,783,963
LINKAGE ANGLE STEERING CONTROL FOR POWERED IN-TANDEM VEHICLES

Louis R. Erwin, Livonia, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 28, 1972, Ser. No. 229,900

Int. Cl. B62d *11/04*

U.S. Cl. 180—6.3 **2 Claims**



A steering control arrangement for powered in-tandem vehicles, in which a powered vehicle trails a leading powered vehicle connected thereto by a linkage, the arrangement comprising an angle sensor at the connecting linkage sensing the angle between the vehicles created by steering of the lead vehicle or by deviations of the trailing vehicle due to roadway variations or other causes, and means for controlling the power to individual wheels of the trailed vehicle so as to create a steering-by-driving thereof in accordance with the sensed angle so that the trailed vehicle is steered so as to tend to eliminate the angle therebetween and follow the lead vehicle. In the embodiment disclosed, the angle existing at the linkage controls a valve which distributes flow from a pump to drive individual fluid motors on the trailed vehicle in accordance with the sensed angle to steer-by-drive the trailed vehicle to track the lead vehicle.

3,783,964
VEHICLE WITH QUICK-DISCONNECT ENGINE MODULE

George O. Telesio, 7709 S. Milan Ave., Whittier, Calif.

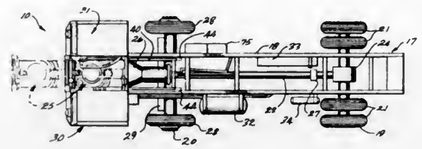
Filed Mar. 2, 1972, Ser. No. 231,133

Int. Cl. B60k *5/10*

U.S. Cl. 180—64 L **5 Claims**

A commercial vehicle, such as a refuse collection truck, has a chassis which includes a frame, drivable ground-engaging traction means mounted to the frame, and drive means coupled to the traction means and connectible to an engine for driving the traction means. An engine for the vehicle is carried in a support which is mounted to the frame for movement of the support between a retracted position, in which the engine is connected to the drive means, and an extended position in which the engine is disconnected from the drive means and is

accessible for ready disconnection from the support and the vehicle. Selectively operable means are provided for moving the engine support between its retracted and extended positions relative to the frame and for connecting the engine to the drive means in the retracted position of the support. All control systems provided between the vehicle operating station and the engine include quick-disconnect couplings by which the engine is readily disconnected from the vehicle. Also, fuel lines and the like associated with the engine also include quick-disconnect couplings.



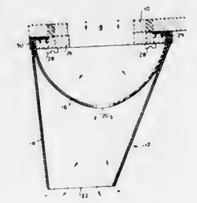
3,783,965
AIR CUSHION VEHICLE SEAL SYSTEM

Raymond Grenville Whitehead Wright, New Orleans, La., assignor to Textron Inc., Providence, R.I.

Filed May 25, 1972, Ser. No. 256,886

Int. Cl. B60v *1/16*

U.S. Cl. 180—128 **12 Claims**



In an air cushion vehicle, a novel side-by-side arrangement of a plurality of like sized-and-shaped two-part "jupe" type air-inflated cell-bag units of novel form; providing a novel two-stage stiffness air cushion seal system featuring improved maintainability.

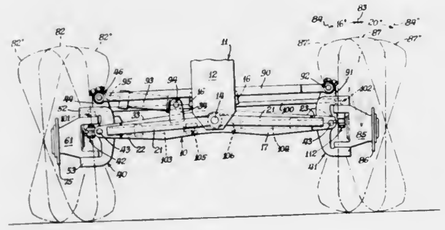
3,783,966
STEERING SYSTEM FOR VEHICLES

John J. Campbell, and Cullen P. Hart, both of Decatur, Ill., assignors to Caterpiller Tractor Co., Peoria, Ill.

Filed Aug. 18, 1972, Ser. No. 281,919

Int. Cl. B62d *5/06, 7/00*

U.S. Cl. 180—79.2 R **13 Claims**



A steering system for vehicles includes an oscillating axle, a pair of wheel lean members individually transversely rockably coupled to the opposite ends of the axle, a pair of king pins associated with each of the wheel lean members, a pair of spindle housings individually pivotally movable on each wheel lean member through the king pins and having an integral steering arm thereon, a pair of wheels individually rotatable with respect to the spindle housings, a tie rod directly connecting each of the steering arms, and at least one steering cylinder connected between one of the steering arms and the axle to provide a high angle of steer for increased vehicle maneuverability and a minimum of interaction between wheel lean and steering functions.

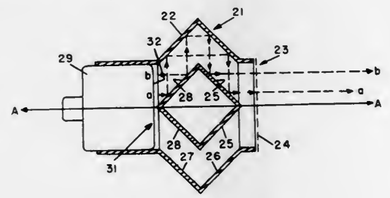
3,783,967
FOCUSING PROTECTIVE ENCLOSURE FOR ULTRASONIC TRANSDUCER

Edward G. Apgar, Lexington, Mass., assignor to The United States of America as represented by the Secretary of the Department of Transportation, Washington, D.C.

Filed Feb. 24, 1972, Ser. No. 229,084

Int. Cl. G10k *11/06*

U.S. Cl. 181—.5 ED **5 Claims**



Disclosed is an enclosure for ultrasonic transducers that can either project a narrow beam of energy or receive energy within a narrow cone of angles and also protect the transducer from damage. The enclosure defines an opening that is covered with a screen mesh that permits ingress and egress of wave energy. Within the enclosure the wave energy is subjected to a plurality of reflections from conically shaped reflective surfaces that provide optical shielding for the transducer, yet maintain the planar wave characteristics. An embodiment is disclosed that passes the wave energy through a honeycomb structure to further enhance directional properties. The subject enclosure can be used as a transmitter of wave energy or a directional receiver of wave energy.
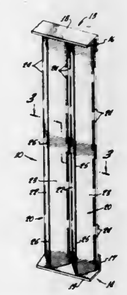
3,783,968
SOUND BARRIER

Carl E. Derry, 400 W. Orangethorp, No. 105 B, Fullerton, Calif.

Filed Dec. 29, 1972, Ser. No. 319,379

Int. Cl. B64f *1/26;* **E01f** *15/00*

U.S. Cl. 181—33 G **17 Claims**



A sound barrier comprising a plurality of hollow, wedge-shaped, energy dissipating cells mounted in parallel, side-by-

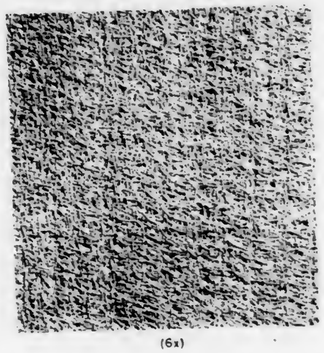
side, spaced relationship as inverse-acting acoustic horns, first sides of all cells being coplanar. Each of the cells has a plurality of openings in the remaining two sides thereof along the edges which are adjacent the first side and a plurality of elongated openings along the apex defined by the intersection of the two sides. Each cell is made in two interlocking parts, one part forming the first side and the other part forming the remaining two sides. Each part comprises a thin outer shell of structurally rigid material and an inner lining of sound deadening material, such as polyurethane closed cell foam.

3,783,969

ACOUSTIC INSULATION COMPRISING ANISOMETRIC COMPRESSED AND BONDED MULTILAYER KNITTED WIRE MESH COMPOSITES

David B. Pall, Roslyn Estates, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Division of Ser. No. 732,443, May 27, 1968, Pat. No. 3,690,606. This application Sept. 29, 1970, Ser. No. 76,634
Int. Cl. F01n *1/10, 1/04, 7/16*
U.S. Cl. 181—33 G **18 Claims**



(6x)

Acoustic insulation is provided which comprises anisometric compressed and bonded knitted wire mesh composites composed of a plurality of sheets of knitted wire mesh, superimposed at random orientation with respect to each other, compressed or densified to a voids volume within the range from about 10 to about 90 percent and bonded together. The sheets are taken in sufficient number, usually at least five and preferably 10 or more, and as much as 1,000 or more, to form a self-supporting relatively non-resilient composite of high tensile strength and high breaking strength having an average pore diameter of less than 200 microns, and preferably less than 100 microns, that is relatively uniform in any unit area of the surface, and having an anisometric porosity, the through pores extending crosswise of the sheet greatly exceeding in number the through pores extending laterally of the sheet, which latter pores can be reduced virtually to zero in a highly compressed composite.

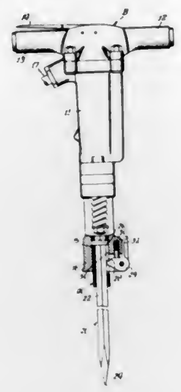
The composite is formed by superimposing a plurality of knitted wire mesh sheets, annealing the composite to avoid wire breakage during later processing, compressing the composite to the desired density and anisometricity by application of pressure in a direction approximately perpendicular to the plane of the layers of the composite, and bonding the sheet layers and the wire filaments of the sheets together at their points of contact and/or crossing. The bonding holds the composite at the selected density, prevents relative movement of the wires in the composite, and in conjunction with the multilayer structure imparts the self-supporting nonresilient characteristic, together with high tensile strength and high breaking strength.

3,783,970

SOUND ATTENUATING DEVICE FOR A WORK STEEL OR THE LIKE

Irvin R. Danielson, Burr Ridge, Ill., assignor to Thor Power Tool Company, Aurora, Ill.

Filed June 7, 1972, Ser. No. 260,373
Int. Cl. E04b *1/99*
U.S. Cl. 181—33 A **12 Claims**



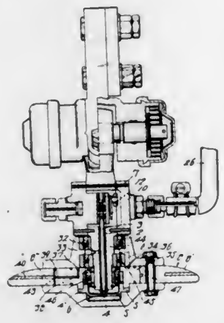
A sound attenuating device for a work steel or other tool subject to impact blows during the operation thereof is disclosed, wherein a metal sleeve encircles a portion of the body of the steel and a quantity of elastomeric material is provided in the clearance between the sleeve and steel so as to fill such clearance and engage both the exterior of the steel and the interior of the sleeve.

3,783,971

LUBRICATION OIL APPLICATOR DEVICE

Susumu Miyake, Takamatsu, Japan, assignor to Fuji Toyuki Co., Ltd., Takamatsu City, Japan

Filed Mar. 8, 1972, Ser. No. 232,828
Int. Cl. F16n *9/02*
U.S. Cl. 184—3 R **4 Claims**



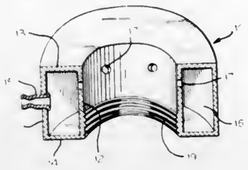
A lubrication oil applicator device for applying lubrication oil on a running vehicle wheel and or a rail on which said wheel runs, is provided, said device comprising an oil applicator wheel assembly adapted to contact and apply lubrication oil on the rim of the vehicle wheel and/or the top of the rail and an oil metering mechanism including a reciprocally and rotatably movable member which is adapted to reciprocally and axially move and rotate in response to the rotational movement of said applicator wheel so as to pump the lubrication oil to the applicator wheel in a predetermined amount.

3,783,972

WIRE LUBRICATING DEVICE

David R. Molstad, Box 318, Blair, Wis.

Filed Dec. 16, 1971, Ser. No. 208,695
Int. Cl. F16n *3/10*
U.S. Cl. 184—15 R **2 Claims**



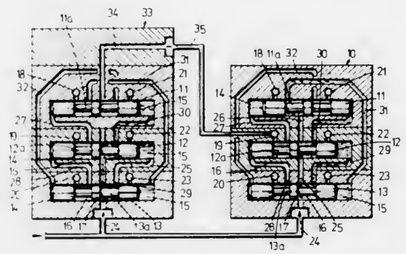
A wire lubricating device for lubricating cable to facilitate sliding the cable through conduit. The device is a hollow cylindrical tube section which fits around the wire and holds the lubricant under pressure therein. Apertures juxtaposed to the cable spread the lubricant on the cable as it passes through the device.

3,783,973

CENTRAL LUBRICATING SYSTEM

Fritz Kurten, Dornap, and Horst Saretzky, Ennepetal, both of Germany, assignors to De Limon Fluhme & Co., Dusseldorf, Germany

Filed May 17, 1971, Ser. No. 144,118
Int. Cl. F16n *25/02*
U.S. Cl. 184—7 E **10 Claims**



A central lubricating system with at least a first and second distributing means each of which has cylinder means with reciprocable valve spools each having two end pistons and an intermediate control member. The control members of each distributing means control the admission of lubricant to areas to be lubricated. Conduit means lead from outlet means of the first distributing means to a control member controlled control chamber of the second distributing means. The conduit means establish the sole fluid communication of the last mentioned outlet means of the first distributing means with the control chamber of the second distributing means.

3,783,974

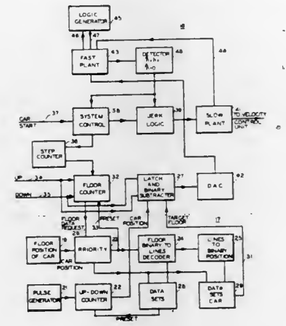
PREDICTIVE DRIVE CONTROL

Edward O. Gilbert, and Elmer G. Gilbert, both of Ann Arbor, Mich., assignors to Reliance Electric Company, Cleveland, Ohio

Filed May 9, 1972, Ser. No. 251,810
Int. Cl. B66b *1/30*
U.S. Cl. 187—29 R **81 Claims**

A drive control illustrated for controlling an elevator hoist motor and car position involving a control pattern causing the car to follow idealized constraints of constant jerk in transitions between constant velocity and constant acceleration. In the initial phase the control pattern for the car is started, from zero velocity, through constant positive jerk to a constant acceleration which, if a run of sufficient length is required, is followed by a constant negative jerk into a maximum constant velocity. The length of the constant acceleration interval is terminated by achieving a predetermined velocity which when subjected to the predetermined negative jerk value will achieve zero acceleration at the given maximum velocity. Deceleration is initiated at the moment the control pattern is indicated to be capable of stopping the car, within the constraints of jerk and negative acceleration, at the desired destination.

The instant of initiation of the terminal phase of the pattern is ascertained by a high speed repetitive predicted pattern



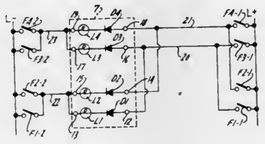
generated from the control pattern, for example at a speed one thousand times faster than the control pattern and with constraints which make its performance slightly inferior to that of the elevator. The predicted pattern indicates a stop position slightly in advance of the stop achieved by the elevator under the predetermined constraints of the control pattern. During deceleration, the predicted pattern is repetitively generated from the control pattern as an initial point. The indication of a predicted pattern stopping position short of the desired stop causes the control pattern to switch to positive jerk while prediction of a stop beyond the desired stop causes the control pattern to switch to negative jerk. This chattering control brings the elevator to the desired floor in a closed loop control.

3,783,975

POSITION INDICATING APPARATUS

Robert Lindegger, Scarborough, Ontario, Canada, assignor to Armor Elevator Company, Inc., Louisville, Ky.

Filed June 7, 1972, Ser. No. 260,429
Int. Cl. H02j *1/00*
U.S. Cl. 187—29 R **11 Claims**

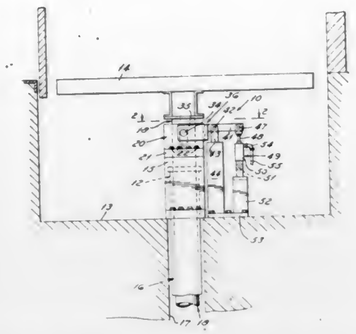


A position indicating apparatus for an elevator system is remotely located from a position sensing apparatus in a structure having n number of floors and a corresponding n number of position indicators which are electrically divided into a plurality of P number of groups. N number of conductors are employed for connecting the n number of position indicators to the position sensing apparatus as determined by the formula N=A+P where A is equal to n divided by P with the quotient increased to the next whole number if fractionalized.

3,783,976
SAFETY DEVICE FOR HYDRAULICALLY OPERATED LIFT

James W. Kerr, 18232 Magnolia, Southfield, Mich.

Filed July 26, 1972, Ser. No. 275,279
Int. Cl. B66f 7/00; F15b 15/26
U.S. Cl. 187—8.45 13 Claims



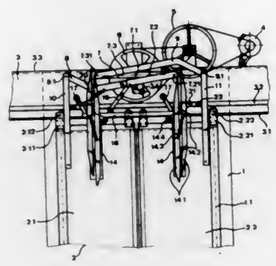
The device is shown as associated in the usual subfloor pit with a conventional hydraulically powered lift mechanism to check fall of a lift or elevator in the event of an emergency loss of pressure or overspeed. A fixed housing is mounted atop the lift's power cylinder super-structure; and a pivotal, bifurcated arm or fork-shaped actuator head embraces the fixed housing, an operating extension tail of said head projecting from one side of the latter. The furcations of said pivoted head carry trunnion-like actuator pins, which extend through vertically elongated slots in opposite sides of the fixed housing; and the ends of said trunnions are received in outer side openings of each of a pair of identical collets. These are actuable in the fixed housing parallel to the axis of the lift's hydraulic power rod or piston for releasable frictional radial engagement with said rod of arcuate inner collet areas, thus to safety-halt an undesired downward retrograde movement of the latter. To this end external tapered collet wedge surfaces engage correspondingly tapered internal wedge surfaces of the fixed housing. The same source of hydraulic power which operates the lift rod is at all times in communication with a spring return-type safety cylinder unit of the device; and the plunger of this unit is connected to the extension tail of the pivotal actuator head. This is in a manner such that normal hydraulic pressure urges the head in a direction to de-wedge the collets from clamping engagement with the lift power rod, through the agency of the head's trunnions. A loss or substantial droppage of the hydraulic pressure correspondingly depressurizes the safety cylinder unit, enabling its built-in return spring to operate the actuator head in the opposite direction and cause the collet members to grip the power rod against fall. Supplemental spring means normally assist in insuring separation of the collets from the rod when the device is not in operation.

3,783,977
DOOR ACTUATION APPARATUS WITH LOCKING MECHANISM FOR ELEVATORS

Albert Voser, Ebikon, Switzerland, assignor to Inventio AG, Hergiswil, Switzerland

Filed Dec. 20, 1971, Ser. No. 209,826
Claims priority, application Switzerland, Dec. 30, 1970, 19397/70
Int. Cl. B66b 13/00
U.S. Cl. 187—52 7 Claims

A door actuating apparatus for elevators, wherein an elevator cabin door is positively connected at the region of the floor of a building by a coupling mechanism with an elevator shaft door located at each such building floor. The elevator cabin door is movable through the agency of a thrust crank drive located in a dead-center position when the elevator cabin door is closed, such thrust crank drive possessing a crank wheel driven by a motor arranged at the elevator cabin through the agency of a speed reduction drive. According to important aspects of the invention the coupling mechanism incorporates an entrainment parallelogram mounted at the elevator cabin door and forming the entrainment member of the coupling mechanism. An actuation mechanism serves to actuate the entrainment parallelogram. At least one pin member is secured

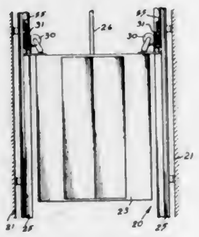


to the elevator shaft door. The entrainment parallelogram cooperates with such pin member for the purpose of coupling the elevator shaft door with the elevator cabin door. A blocking lever is connected for movement with the entrainment parallelogram. A stop member is secured to the elevator cabin and cooperates with said blocking lever to prevent opening of the elevator cabin door when the blocking lever is located within the effective range of said stop member and permits opening of said elevator cabin door when said blocking lever is located outside of the effective range of said stop member.

3,783,978
STOP CONTROL FOR ELEVATORS

Douglas Hamilton, Baltimore, Md., assignor to Elevator Safety Company, Baltimore, Md.

Filed July 24, 1972, Ser. No. 274,320
Int. Cl. B66b 5/16
U.S. Cl. 187—73 7 Claims

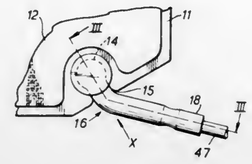


An elevator safety mechanism that includes a means for stopping movement of elevators in the event of earthquakes or other shocks.

3,783,979
BRAKE PADS AND WEAR INDICATORS THEREFOR

Wolfgang Hess, Koblenz, Germany, assignor to Girling Limited, Birmingham, England

Filed May 15, 1972, Ser. No. 253,349
Claims priority, application Great Britain, May 21, 1972, 16,275/72
Int. Cl. F16d 66/02
U.S. Cl. 188—1 A 2 Claims

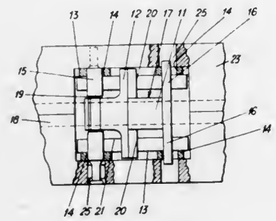


A disc-brake pad has a wear indicator characterised in that the indicator is separate from the frictional material and is slid into position on the backing plate from one edge thereof. The advantage is that the wear indicator and the leads thereto do not occupy space behind the backing plate .

3,783,980
BRAKE LINING HOLDING ARRANGEMENT FOR SPOT-TYPE DISC BRAKES

Werner Kallmeyer, Gifhorn, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Sept. 22, 1972, Ser. No. 290,284
Claims priority, application Germany, Oct. 13, 1971, P 21 51 044.1
Int. Cl. F16d 65/00
U.S. Cl. 188—73.5 11 Claims

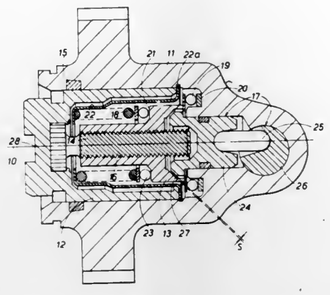


There is disclosed an arrangement to hold the brake-lining carrier plates and their associated brake lining in place in a spot-type disc brake. The holding arrangement eliminates one of the usual holding pins without any disadvantage. A cross-shaped expanding spring having a longitudinal beam and a transverse beam is employed in the holding arrangement. This spring has one end of the longitudinal beam engaged in a recess in a holding pin while a pair of transverse projections extending in opposite directions are formed integral with and on the other end of the longitudinal beam. The transverse projections take over the function of one holding pin. The transverse beam is provided with downward extending projections to engage the surface of the upper edge of both the carrier plates.

3,783,981
SELF-ADJUSTING DEVICE FOR BRAKES

Jochen Burgdorf, Odenwaldring, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed July 26, 1972, Ser. No. 275,374
Claims priority, application Germany, Aug. 31, 1971, P 21 43 575.7
Int. Cl. F16d 55/16
U.S. Cl. 188—106 F 10 Claims

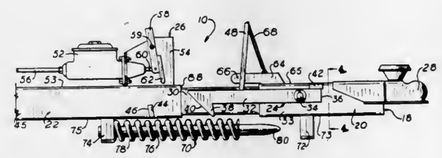


This relates to an automatic lining-wear adjusting device for a hydraulically and mechanically actuated spot-type disc brake. The adjusting device includes an adjusting spindle and an adjusting nut threaded together by a steep thread. The adjusting spindle is connected to the actuating piston and follows the axial piston movement without rotary motion. The adjusting nut rotates on the spindle for lining-wear adjustment. This rotation of the adjusting nut is accomplished by a spring biasing the adjusting nut against a low friction bearing at the cylinder bottom. To maintain handbrake clearance and to actuate the piston by the handbrake, a handbrake actuated mechanism engages the spindle-nut arrangement to prevent relative rotary motion of the two elements of this arrangement and at the same time causes axial motion of the arrangement to actuate the piston for brake application.

3,783,982
TELESCOPING TONGUE AND BRAKE ASSEMBLY FOR TRAILERS

Robert F. Wells, 1921 Kentucky, Lawrence, Kans.

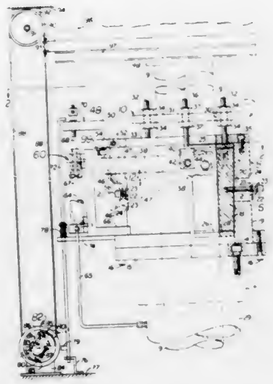
Filed July 13, 1972, Ser. No. 271,390
Int. Cl. B60t 7/20
U.S. Cl. 188—112 14 Claims



A combination telescoping tongue and brake actuator assembly for brake-equipped trailers in which a first section of the tongue is reciprocally received by a second section and is held against extension beyond a predetermined limit by a releasable latch, yet is shiftable in an opposite direction, such shifting or shortening of the tongue causing the brake actuator to apply the trailer brakes. A spring-dampening structure yieldably maintains the two tongue sections biased in opposite directions relative to one another when the latch means is in engagement such that a certain predetermined compressive force must be achieved before the relative movement between the two sections is sufficient for an arm of the brake actuator

to cause the latter to actuate the brakes. When released, the latch permits the extension of the tongue beyond the predetermined limit. A chain interconnects the sections at their trailing, rearmost ends and determines the maximum extent to which the tongue may be lengthened.

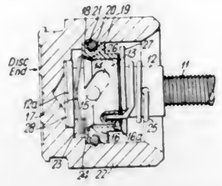
3,783,983
HYDRAULIC JACK LIFT SAFETY BRAKE SYSTEM
John P. McNally, 3336 Duke, Kalamazoo, and Henry O. Neumann, Rt. No. 1, Mattawan, both of Mich.
Filed Jan. 19, 1971, Ser. No. 107,625
Int. Cl. F16d *59/00*
U.S. Cl. 188—189 **6 Claims**



In a hydraulic jack lift safety brake system having a safety brake for braking the downward travel of the jack shaft in the event of a malfunctioning condition in the jack lift system in which at least a pair of tapered brake shoes are driven on a taper during a braking operation to clamp against the jack shaft, improvement in said safety brake comprising an arrangement joining the brake shoes together so that they can be held together in a poised position out of contact with the jack shaft, mechanical advantage mechanism connected to and operative upon the arrangement joining the brake shoes together, a latch operative upon the mechanical advantage mechanism for latching a force against operation except during a braking operation so that the brake shoes are normally held in said poised position, the latch being actuatable to initiate a braking operation in the event of a malfunctioning condition in the jack lift system, and the mechanical advantage mechanism operative upon the brake shoes for driving them during a braking operation with a brake shoe driving force which is multiplied over that which is latched by the latch.

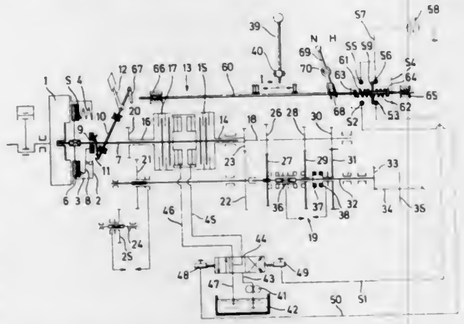
3,783,984
SELF-ADJUSTING DEVICE FOR DISC BRAKES
Wilhelm Knapp, Friedrichsthal, and Siegfried Ohmayer, Offenbach, both of Germany, assignors to ITT Industries, Inc., New York, N.Y.
Filed July 20, 1972, Ser. No. 273,589
Claims priority, application Germany, Aug. 4, 1971, P 21 39 030.7
Int. Cl. F16d *65/56*
U.S. Cl. 188—196 BA **29 Claims**

This relates to self-adjusting devices to compensate for worn brake linings and more particularly to such self-adjusting devices as employed in a hollow disc brake piston. A more compact structure and economy of structural components are achieved in that the return spring is disposed between an abutting element concentric with the adjusting nut and an



abutment secured to the end of the adjusting nut remote from the adjusting spindle.

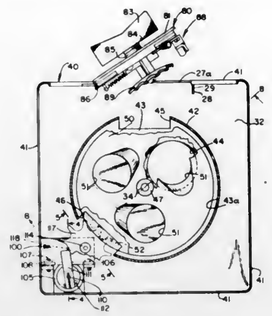
3,783,985
TRANSMISSION OVERDRIVE SHIFTED BY CLUTCH RELEASE
Oswald May, Bonn, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Koln-Deutz, Germany
Division of Ser. No. 79,011, Oct. 8, 1970. This application Dec. 30, 1971, Ser. No. 214,115
Int. Cl. B60k *21/00*; **F16h** *5/36*
U.S. Cl. 192—3.5 **2 Claims**



An arrangement including a master friction clutch selectively engageable and disengageable with respect to mechanism for controlling a multi-stage change gear transmission with a main gear control group. A control group is shiftable under load and is provided either preceding or following the main control group, in which the group shiftable under load has at least two forward stages with the step of progression of being considerably less than, for instance half, the step of progression of the main control group. During the shifting operation from one control stage to an adjacent control stage of the main control group, first the step of progression of the main control group is subdivided by the group shiftable under load and during the subsequent engagement of the next control stage of the main control group, the interposed control stage of the group shiftable under load is automatically shifted by operation of the master clutch.

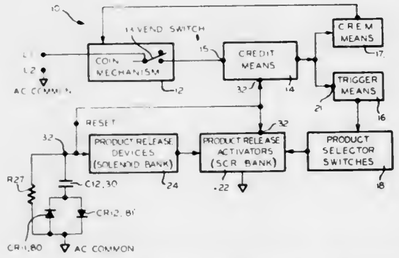
3,783,986
VENDING MACHINE WITH COUNTING MECHANISM
Waldo E. Bolen, Morris, Ill., assignor to The Northwestern Corporation, Morris, Ill.
Filed Mar. 9, 1972, Ser. No. 233,080
Int. Cl. G07f *11/00*
U.S. Cl. 194—2 **8 Claims**

A vending machine has a hollow base and a merchandise container supported thereby. A coin-actuated mechanism is preferably mounted on the front wall of the base and is arranged to operate a wheel which dispenses merchandise. A counting mechanism is mounted in the base and is operatively coupled to the dispensing wheel in such a manner that the counting mechanism is visible through an opening in the rear



of the base. Thus, the counting mechanism does not interfere with servicing of the coin-actuated mechanism and also is visible without gaining access to the interior of the vending machine.

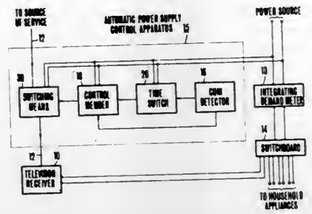
3,783,987
PRODUCT RELEASE CONTROL FOR A VENDING MACHINE
John A. Hanert, Buffalo Grove, and Gordon F. Severseh, Schaumburg, both of Ill., assignors to Televiso Electronics, Division of Domain Industries, Inc., Arlington Heights, Ill.
Filed June 16, 1971, Ser. No. 153,521
Int. Cl. G07f *11/00*
U.S. Cl. 194—10 **23 Claims**



A product release control means for a coin operated vending machine comprises a trigger capacitor which is charged, after the proper coins have been accepted by the machine and a product has been selected, to apply a turn-on firing voltage across the gate of a thyristor switch. A storage capacitor is then discharged, causing the energizing of a product release solenoid for dispensing the selected product.

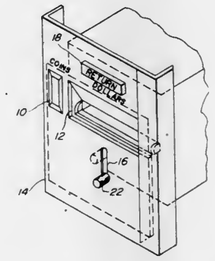
3,783,988
AUTOMATIC POWER SUPPLY CONTROL APPARATUS FOR FLAT RATE ELECTRIC SERVICE SYSTEMS
Masao Kinemura, Matsue City, Japan, assignor to Koshei Arita, Minamimagome, Ohota-ku, Tokyo, Japan, a part interest
Filed June 20, 1972, Ser. No. 264,491
Claims priority, application Japan, June 26, 1971, 46/55600 (utility model)
Int. Cl. G07f *15/10*
U.S. Cl. 194—11 **3 Claims**

The customers of a service system purchase prescribed coins having a predetermined effective period from dealers of the service system and insert the coins in the apparatus installed in their houses. The automatic power supply control apparatus comprises a detector which functions to discriminate whether a coin inserted into the apparatus is a prescribed one or not for generating a detection signal only when the coin is a prescribed one, a time switch for generating



a first signal upon termination of the effective period of the prescribed coin, switching means connected between a source of service and utilization apparatus enjoying the service, and a control member responsive to the detection signal from the detector and to the first signal from the time switch for controlling the switching means.

3,783,989
ESCROW AND SECURITY DEVICE FOR COIN AND DOLLAR BILL OPERATED VENDING MACHINE
Herman George Jensen, Chicago, Ill., assignor to The Seeburg Corporation of Delaware, Chicago, Ill.
Filed July 14, 1972, Ser. No. 271,731
Int. Cl. G07f *1/02*, *7/04*
U.S. Cl. 194—4 G **10 Claims**

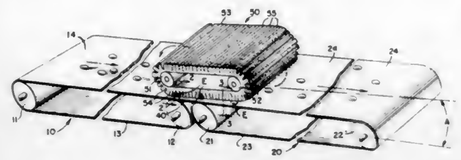


A door may be slid across the insert slot of a dollar bill validator for a vending machine to prevent removal of an inserted dollar bill during the validation and vending process. The door also closes the coin slot to prevent the insertion of coins after a dollar bill has been inserted. A locking arrangement is provided to prevent opening of the door until the dollar bill has been validated and transported to the cashbox. Once the vend of merchandise has been completed, the locking arrangement releases the door permitting the door to slide open for subsequent insertions of coins or dollar bills.

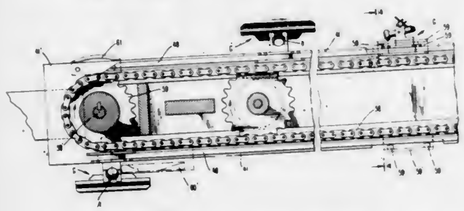
3,783,990
END TO END EGG TRANSFER MECHANISM
Anthony J. Siciliano, Vineland, N.J., assignor to Diamond International Corporation, New York, N.Y.
Filed Sept. 9, 1971, Ser. No. 179,003
Int. Cl. B65g *47/00*
U.S. Cl. 198—20 R **4 Claims**

A transfer mechanism for moving eggs or like objects across conveyor units disposed in end-to-end relationship comprising

in combination with said units a flat plate disposed between the ends of said conveyor units to close up the inherent gap therebetween and an endless transfer belt member disposed over the transfer zone at the adjacent ends of said conveyor units to yieldably grasp eggs or like objects in sandwiched relationship with said conveyor units to move the eggs or like objects thereacross and with gentle release of said eggs or like objects. The transfer belt includes an egg engaging surface made of spongelike material and is disposed at a slight inclination with respect to the belts of said conveyor units.

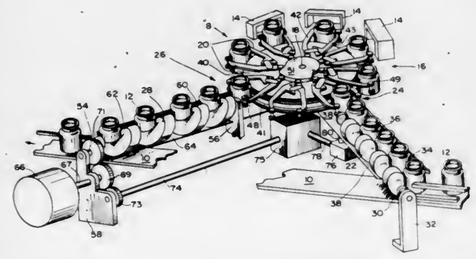


3,783,991
CONVEYOR
John O. McCahon, West Simsbury, Conn., and William J. Byrne, Pearl River, N.Y., assignors to Smyth Manufacturing Company, Bloomfield, Conn.
Division of Ser. No. 706,926, Feb. 20, 1968, Pat. No. 3,591,165. This application July 2, 1971, Ser. No. 159,227
Int. Cl. B65g *17/48, 47/24*
U.S. Cl. 198—33 AB **5 Claims**



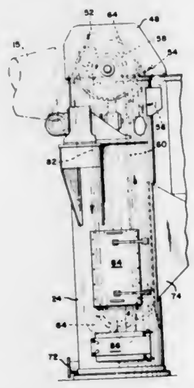
Apparatus for conveying sheet material or the like in suspension comprising clamping means adapted to be opened, closed and rotated in response to movement thereof.

3,783,992
APPARATUS FOR POSITIONING ARTICLES
Charles W. Cook, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind.
Filed Sept. 2, 1971, Ser. No. 177,236
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AB **10 Claims**



Apparatus for rapidly and accurately positioning articles, said apparatus being particularly well suited for positioning glassware for inspection purposes and includes a plurality of paired arms both of said arms in each pair being movable substantially equal distances between open and closed positions for sequentially engaging articles and positioning the same. Input and discharge screws are included to deliver and remove articles in timed relationship to the opening and closing movement of said arms and the movement of said articles along a predetermined path while engaged by said arms.

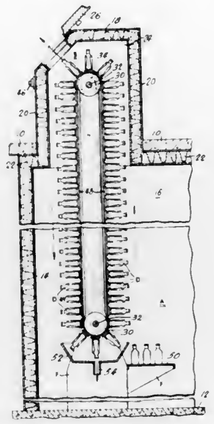
3,783,993
WASTE TREATMENT APPARATUS
William Herbert, Middletown, and Dean H. Kohlhepp, Dayton, both of Ohio, assignors to Block Clawson Fibreclaim, Inc., New York, N.Y.
Filed Jan. 18, 1972, Ser. No. 218,742
Int. Cl. B65g *17/12*
U.S. Cl. 198—140 **1 Claim**



A junker for removing relatively infrangible solids from a pulper of a solid waste treatment system. As the relatively frangible portions of the solids are treated in the pulper, the relatively infrangible portions pass from the pulper into the bottom of the junker through an interconnecting chute and are conveyed upwardly from the bottom of the junker by means of a series of chain mounted buckets. The top and bottom walls of the interconnecting chute diverge away from each other towards the junker so that relatively long objects, such as long pieces of pipe, do not jam in the chute as they are engaged by the upwardly moving buckets, and a washer-conveyor receiving solids from the buckets is suspended by cables so that it can swing away from the junker if abnormally large objects are carried through the junker. The chain carrying the buckets is trained about a sprocket rotatably mounted at the upper end of the junder and serving as the sole support for the chain. As a result, the chain hangs freely downwardly into the junker, so that if the buckets become jammed the chain may slip on the sprocket to decrease the possibility of damage to the unit.

3,783,994
CLIP STRUCTURE AND CONVEYING MEANS
Donald Ernest Tomalty, 209 Acadia Rd., Lachine, Quebec, Canada
Filed Sept. 9, 1971, Ser. No. 179,115
Int. Cl. B65g *15/00*
U.S. Cl. 198—179 **7 Claims**

There is provided a conveying system for restaurants or the like for moving containers, e.g. bottles, from a storage and loading area to a point of use in the restaurant. This system includes spaced-apart first and second stations, conveying means movable between the first and second stations, the conveying means comprising an endless belt, spaced-apart rotatable means on which said endless belt is mounted, and drive means for rotating at least one of the rotatable means, and a plurality of spaced-apart retaining clip means mounted on the endless belt. Each clip means is adapted to releasably retain a container therein, the clip means comprising a pair of spaced-



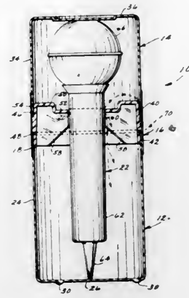
apart U-shaped members mounted in opposed relationship, each of said members comprising opposed tapering arms adapted to retain the body of a container and an intermediate arcuate arm connected to the tapering arms with the intermediate arcuate arm being adapted to retain the neck or top portion of the container.

3,783,995
TIE RACK
Robert A. Tobin, 67 Lake Bluff Rd., Rochester, N.Y.
Filed July 12, 1972, Ser. No. 271,071
Int. Cl. B65d *85/18*; **A47f** *5/08, 7/12*
U.S. Cl. 206—7 D **4 Claims**



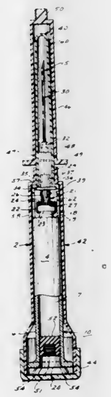
A tie rack specially suited for travel is formed of a sheet of plastic or leather having a hook and transverse openings with flaps near the top for holding ties. Other openings near the bottom hold cuff links, tie tacks, tie clips, rings and credit cards. A plastic sleeve, having an open bottom and a top central opening to receive the hook, is provided for covering the sheet, ties and articles.

3,783,996
SYRINGE PACKAGE
William L. Gerard, Overland, and John D. Ruck, St. Louis, both of Mo., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.
Filed Mar. 14, 1972, Ser. No. 234,560
Int. Cl. B65d *5/50, 85/00*
U.S. Cl. 206—17.5 **5 Claims**



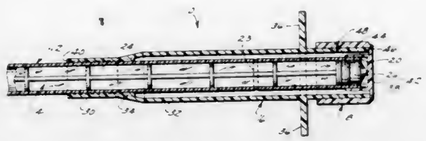
A three-piece syringe package which, when separated, is adapted to contain a fluid for performing an irrigation procedure. The package has a tubular base portion and a tubular cap portion separated by a tubular collar, the latter having a central opening receiving the syringe. A sealing tape joins the base, cap and collar such that the interior of the package may be sterilized as a completed unit.

3,783,997
SYRINGE PACKAGE
Alexander M. Brown, Daytona Beach, Fla., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.
Filed Apr. 27, 1972, Ser. No. 248,222
Int. Cl. A61m *3/00*; **B65d** *85/54*
U.S. Cl. 206—43 **5 Claims**



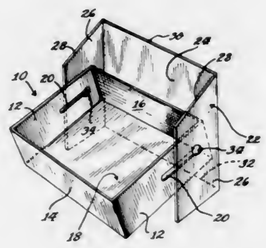
A package for a hypodermic syringe having a relatively shiftable barrel and needle assembly for arming the syringe is provided which includes a needle sheath engageable with the needle assembly for arming the syringe when unpackaged, and a sleeve member encircling the syringe and holding the proximal end portion of the sheath radially inwardly against a portion of the syringe to prevent inadvertent arming.

3,783,998
SAMPLING SYRINGE
Donald C. Brush, and Robert D. Oswald, both of Ballwin, Mo., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.
Filed Mar. 22, 1972, Ser. No. 236,877
Int. Cl. A61b 19/00; B65d 85/54
U.S. Cl. 206—43 10 Claims



A sampling syringe for the collection and transport of a sample, particularly a fecal sample. The syringe comprises a syringe barrel into which the sample may be forced or aspirated by a plunger slidable therein. A sheath having a distal end of greater internal diameter than the external diameter of the barrel is slidable on the barrel and a cap sealingly closes both the distal ends of the barrel and sheath.

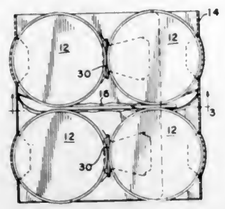
3,783,999
DISPLAY BOX WITH AN ATTACHABLE LID MOVABLE RELATIVE TO THE BOX
Leonard Richard Smith, Chicago, Ill., assignor to The S. K. Smith Company, Chicago, Ill.
Filed Oct. 4, 1971, Ser. No. 186,067
Int. Cl. B05d 5/52
U.S. Cl. 206—45.23 9 Claims



A display box with an attachable lid, which lid is movable to a cover position to close the top of the box and is movable to a vertical position to extend rearwardly of one of the ends of the box to support the box in an inclined display position and is also movable to a vertical position rearwardly and parallel to the bottom of the box to provide an open display box supported in an upright vertical position or in a horizontal position.

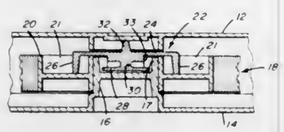
3,784,000
MULTIPLE UNIT CONTAINER PACKAGE WITH CONSUMER TOOL DIVIDER ASSEMBLY
William M. Brown, Darien, Conn., assignor to Federal Paper Board Company Inc., Montvale, N.J.
Filed June 21, 1971, Ser. No. 154,828
Int. Cl. B05d 71/00; B65d 79/00
U.S. Cl. 206—47 R 8 Claims

A package characterized by two rows of product containers, such as, cans or jars, enclosed in an open ended tubular wrapper of foldable sheet material, with an assembly of spoons which are suitable for use in consuming the product packaged in the containers, which spoons are disposed between the rows



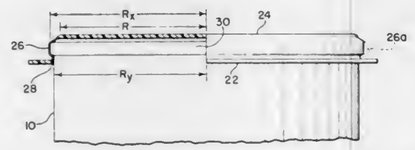
of containers so as to form a divider and which are not accessible without removing at least a portion of the wrapper.

3,784,001
ANTICLOCKSPRING CONNECTOR
Clifford B. Bushnell, Rochester; Edward J. Sheffer, Caledonia, and Robert C. Sutliff, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 14, 1972, Ser. No. 226,007
Int. Cl. B65d 85/67
U.S. Cl. 206—52 F 7 Claims



In a film cartridge having a core support hub extending at least partially through the film core, clockspringing of a roll of film therein is prevented by providing a frangible connector between the core and a portion of the cartridge which has sufficient strength to prevent the core from rotating during shipping but which will break as the film is withdrawn from the cartridge, permitting the core to rotate. The frangible connector is formed of a molded plastic insert arranged to engage both the core and the cartridge and having a necked-down portion which will fracture when a sufficient force is applied thereto, as by pulling the film from the cartridge. At the same time, the necked-down portion is sufficiently strong to prevent clockspringing of the film during shipment.

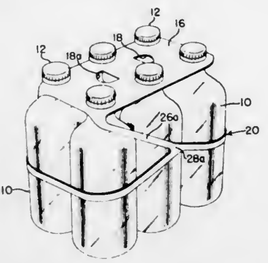
3,784,002
MULTIPLE CONTAINER CARRIER AND INDIVIDUAL CONTAINER LID ARRANGEMENT
Ronald Charles Owen, Harwood Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Apr. 20, 1972, Ser. No. 246,037
Int. Cl. B65d 71/00
U.S. Cl. 206—65 C 10 Claims



A multiple container package for cans and the like having outward chime, rim or bead formations at the upper ends thereof and in which there is provided a carrier in the form of

a resilient deformable sheet of plastic material preformed to provide downwardly open recessed pockets receiving the upper end portions of containers arranged in side by side relationship in the package with the material around the open end of each pocket stretched to pass over an associated chime or rim formation and then resiliently contracted as a gripping edge in engagement with the container wall beneath the chime formation for assembly of the containers in the package and transport thereof, the material of the plastic sheet forming the closed end of each pocket being joined to the adjacent gripping edge by a substantially inert or relaxed annular wall portion which has been stretched beyond its elastic limit; and the carrier sheet being provided with weakened web portions between adjacent containers in the package permitting selective removal of one or more containers from the package with the remnant recessed sheet material remaining attached thereto and separately removable to permit opening of the container proper and dispensing of the contents thereof and then reusable as a reclosure lid for the opened container where only part of the contents has been dispensed.

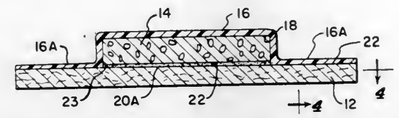
3,784,003
BOTTLE CARRIER
Herbert S. Bolton, 8501 W. Higgins Rd., Chicago, Ill.
Continuation of Ser. No. 78,527, Oct. 6, 1970, abandoned. This application Sept. 22, 1972, Ser. No. 291,517
Int. Cl. B65d 71/02, 85/62
U.S. Cl. 206—65 E 6 Claims



A carrier for a plurality of containers in package form, such as a six-pack, and including a sheet of elastic material apertured in accordance with the number of containers to be supported thereby and defining constrictive apertures to receive and snugly engage the upper ends of corresponding containers; and further including a band portion initially disposed around the carrier sheet in substantially the plane thereof and integral therewith at frangible and generally permanent connection areas with the frangible areas breaking when the band portion is moved downwardly to encircle and confine the intermediate body portions of the packaged containers and with the generally permanent connection areas then forming inclined strap portions connecting the band portion to the carrier sheet.

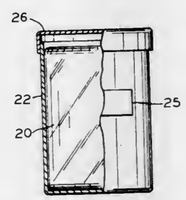
3,784,004
SKIN PACKAGING PROCESS AND SKIN PACKAGE THEREOF
Melvin H. Meyer, Maywood, Ill., assignor to Stone Container Corporation, Chicago, Ill.
Filed Feb. 28, 1972, Ser. No. 229,776
Int. Cl. B65d 73/00, 75/36
U.S. Cl. 206—80 A 13 Claims

A method of making a skin package which comprises carding an article on a substrate of porous or air-permeable material having a meltable, thermoplastic barrier coating subtending the article which renders the substrate substantially impervious to passage of air or moisture therethrough; feeding the substrate with carded article to the vacuum forming station of a skin packaging machine concurrently with the feeding of said article-bearing substrate and a thermoplastic film below a heater assembly sufficiently to raise the temperature of the film above the melt temperature thereof and permit the radiant heat from the heater assembly and the film to raise the temperature of the barrier coating above its melt temperature with exception of that part of the barrier coating immediately subtending said article; said parts of the substrate which have



melted barrier coating thereon being impregnated therewith and thereby being rendered pervious to air so as to permit a vacuum draw through the substrate for vacuum forming the softened plastic film around the article and laminating same to the substrate. The resulting skin package has an air impervious area immediately below the carded article provided by the unmelted coating which thereafter functions as a moisture vapor barrier for the film encased article.

3,784,005
ADDITIVE PACKAGE AND METHOD OF COMPOUNDING RESINS THEREWITH
Malcolm Scott C. McVay, Aurora, Ohio, assignor to U.S. Chemicals and Plastics, Inc., a division of Alco Standard Corporation, Canton, Ohio
Continuation-in-part of Ser. No. 10,316, Feb. 10, 1970, abandoned. This application Dec. 20, 1971, Ser. No. 210,018
Int. Cl. B65d 81/32
U.S. Cl. 206—84 12 Claims

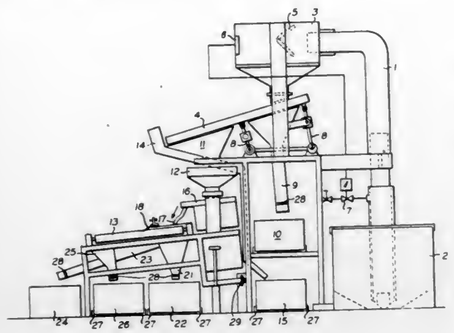


A package to contain materials to be added to a resin formulation containing vinylic monomer comprises a thin-walled plastic envelope which is soluble in the resin formulation. Preferably the envelope is made of polystyrene film. The polystyrene envelope is formed from sheet stock over a hot mandrel by sliding a rigid container onto the mandrel over a sheet of flexible plastic film overlying the mandrel. The sheet of film is large enough to form a lining for the rigid container with flaps of the film protruding from the rigid container. After materials are placed inside the lined rigid container, the flaps are sealed to form an enclosed film package within the rigid container. Additive materials which would themselves dissolve or attack the plastic envelope may be carried in an inert vehicle and/or be coated with an inert coating material to protect the envelope during storage.

3,784,006
DRAGEE SORTING APPARATUS
Hans Braun, Ilvesheim, Germany, assignor to Boehringer Mannheim, GmbH, Postfach, Germany
Filed June 28, 1972, Ser. No. 266,959
Claims priority, application Germany, July 8, 1971, P 21 33 968.4
Int. Cl. B07c
U.S. Cl. 209—73 8 Claims

Apparatus for sorting dragees according to diameter and thickness of the dragees, which apparatus comprises, in com-

bination, (a) plate-type sorting means comprising a perforated surface adjustable in tilt and oscillatable and disposed to receive the dragees to be sorted and, disposed therebelow, (b)



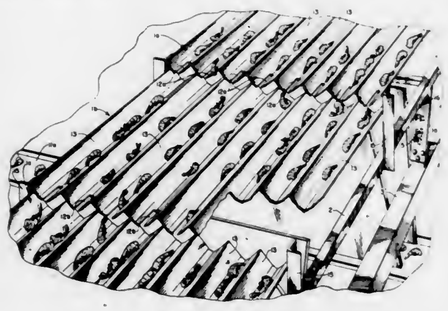
roller-type sorting means comprising a plurality of substantially parallel rollers wherein adjacent rollers rotate in opposite directions and wherein the spacing between said rollers is steplessly adjustable.

3,784,007

DYNAMIC SHRIMP GRADER AND GRADING METHOD

Raphael Q. Skrmetta, 4610 Press Dr., New Orleans, La.

Filed July 31, 1972, Ser. No. 276,391
Int. Cl. B07b *13/04*
U.S. Cl. 209—85 **13 Claims**



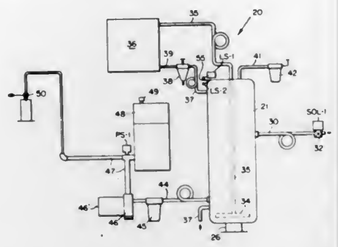
A dynamic shrimp grader and grading method of universal application to all types of shrimp which in a first embodiment (FIGS. 1–6) utilizes a series of sequential, slightly inclined trays, each hving a number of parallel V-shaped channels with grading slots at their end. The trays are mounted on an upper frame which is driven by an eccentric drive upwardly and simultaneously forwardly with respect to the grader's basic support structure, imparting a dynamic action, the upper frame and basic support structure being connected together by a number of angularly disposed, flexible reinforced fiberglass strip springs. Shrimp enter at the top of the grader moving down the channels under the dynamic action of the moving trays and are graded by their width, the smaller falling through the slots in the upper trays, the slot width and length becoming larger from each upper tray to the succeeding lower tray. The shrimp are aligned generally vertically by the sides of the channel and have a tendency to flatten out under the dynamic action of the trays as they progress down the channel (FIG. 8A–8C). The V-shaped channels are formed by means of joining together an alternating series of flat strips (FIG. 5) or alternatively by appropriately bending a single strip (FIGS. 5A). A second embodiment (FIG. 7) utilizes a single flat tray with a staggered series of progressively larger, grading holes therein in place of the trays with the V-shaped channels of the first embodiment.

3,784,008

OZONATING APPARATUS FOR DRINKING WATER

Vincent R. Troglione, Meadville, Pa., assignor to Moody Aquamatic Systems, Inc., Meadville, Pa.

Filed Aug. 20, 1971, Ser. No. 173,552
Int. Cl. B01d *21/24*
U.S. Cl. 210—104 **8 Claims**



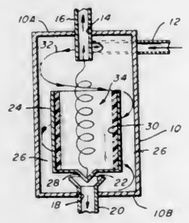
With this apparatus ozone gas is automatically applied to contaminated water in a contact tank, and is then transferred to a discharge tank in such manner that contaminated water cannot accidentally pass from one to the other tank, when the system is on automatic operation. Electrical controls responsive to sensing means disposed exteriorly of the contact tank, and responsive to predetermined changes in the weight or level of the water in the contact tank, automatically replenish the supply of ozonated water in the discharge tank, when necessary. A system is also disclosed for supplying ozone gas to a system selectively, and one at a time, from one of a plurality of ozone generators to prevent undue overloading of the generators, but the circuit to pump motor 46' may be temporarily interrupted as noted hereinafter.

3,784,009

HYDROCLONE FOR SEPARATING AN IMMISCIBLE HEAVY PHASE FROM A LIGHT PHASE LIQUID

L. Andrew Maciula, Stillwater, Okla., assignor to Oklahoma State University, Stillwater, Okla.

Filed Dec. 13, 1971, Ser. No. 207,047
Int. Cl. B04c *5/04*
U.S. Cl. 210—114 **9 Claims**



A hydroclone for separating an immiscible heavy phase from a light phase liquid including an upright cylindrical chamber having a tangentially intersecting inlet, an axial light phase outlet at the upper end thereof, a heavy phase outlet in the lower end, an opened top cylindrical interface member within the cylindrical chamber having an exterior diameter

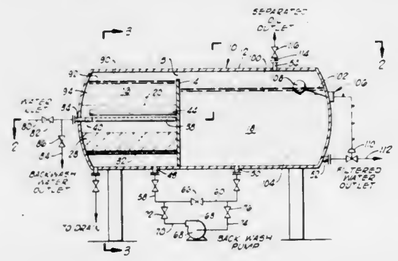
providing an annulus area between the interface member and the wall of the cylindrical chamber forming a passageway whereby heavy liquid cast outwardly by centrifugal force of circular liquid flow in the cylindrical chamber flows downwardly to the lower portion of the cylindrical chamber, and means of controlling the discharge of liquid from the heavy phase outlet in response to the level of heavy phase liquid in the cylindrical chamber.

3,784,010

APPARATUS FOR SEPARATING OIL AND SOLIDS FROM WATER

Frank J. Barra, Midwest City, Okla., and Kenneth R. Murrell, Odessa, Tex., assignors to Black, Sivalls & Bryson, Inc., Oklahoma City, Okla.

Filed Aug. 23, 1972, Ser. No. 283,180
Int. Cl. B01d *23/26*
U.S. Cl. 210—114 **5 Claims**



The present invention relates to improved apparatus for separating oil and solids from a stream of water. A closed vessel is provided having a first vertical partition disposed therein dividing the vessel into first and second compartments. A second vertical partition is disposed within the lower portion of the first compartment dividing it into two separate filter areas and a filter bed is disposed in each of the filter areas. An inlet water connection is provided extending to within the first compartment, and a pair of slotted inlet water distribution conduits are disposed in the first compartment, each positioned horizontally within a filter area centrally above a filter bed. The slotted water distribution conduits are connected together and to the inlet water connection. Means for removing separated oil from the first compartment are provided therein and a pair of filtered water outlet connections are provided, each disposed in a filter area below a filter bed. Filtered water inlet and outlet connections are disposed in the bottom portion of the second compartment, and conduit means for conducting filtered water between the first compartment and the second compartment are connected to the first compartment filtered water outlet connections and the second compartment filtered water inlet connection. A backwash pump is connected to the conduit means and valve means are provided in the conduit means for controlling the flow of filtered water from the first compartment to the second compartment, and the flow of backwash water from the second compartment separately to the filter areas of the first compartment.

3,784,011

AUTOMATIC TRANSMISSION FLUID FILTER

Elmer E. Ward, Lake Forest, Ill., assignor to F. P. Smith Corporation, Melrose Park, Ill.

Filed Apr. 28, 1972, Ser. No. 248,695
Int. Cl. F01m *11/00;* **B01d** *35/06*
U.S. Cl. 210—168 **8 Claims**

An automatic transmission fluid filter having an outlet port for supplying filtered fluid to the intake of an automatic transmission and including a filtering medium which is held by a support means. A cavity is formed between the filtering medium and the support means with the cavity receiving filtered automatic transmission fluid which has passed through the filtering medium. A magnetic material surrounds the outlet port



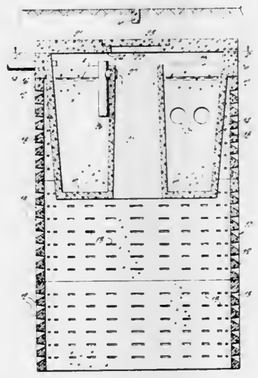
and attracts magnetic particles in the filtered fluid and is positioned out of the direct flow of the filtered fluid to prevent the washing away of magnetic particles attracted to the magnetic material.

3,784,012

SEPTIC TANK CONSTRUCTION

Henry B. Carlson, 95 Broadview Ave., Kings Park, N.Y.

Filed Mar. 31, 1972, Ser. No. 240,138
Int. Cl. C02c *1/14*
U.S. Cl. 210—170 **5 Claims**

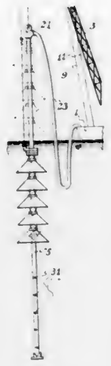


Precast concrete septic tank constructions and their assembly with leaching pools are disclosed wherein important economies in construction are obtained as well as improved efficiency and better access. In its preferred form the septic tank is supported inside the leaching pool from the top of the wall thereof, the wall being made of sanitary drain rings which provide rows of apertures for diffusion of effluent into the surrounding earth.

3,784,013
MULTI-UNIT APPARATUS FOR COLLECTING OIL FROM THE SURFACE OF A BODY OF WATER

William H. Daniel, 541 Putman Rd., Rogers, Ark.

Filed Feb. 8, 1971, Ser. No. 113,555The portion of the term of this patent subsequent to June 6, 1989, has been disclaimed.
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 5 Claims

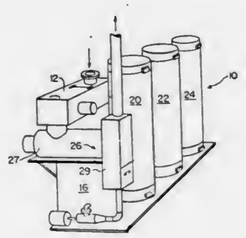


Oil is collected from the surface of a body of water by immersing a tent-shaped collector from above the surface of the water to a depth such that the hydrostatic pressure of the oil in the collector will pump oil to an elevation above the surface of the water and into a collection receptacle. The collector slides vertically on a conduit and delivers the oil into the lower end of the conduit, the lower end of the conduit being positioned at a depth which determines the height to which the oil can be pumped above the surface of the water. The tent-shaped collector is in the form of a plurality of superposed coaxial cones mounted on a sleeve that slides on a hollow multiperforate stem.

3,784,014
WASTE AND WATER TREATMENT SYSTEM

Abner B. Turner, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 80,985, Oct. 15, 1970, Pat. No. 3,716,159. This application July 1, 1971, Ser. No. 158,852
Int. Cl. B01d *17/06*
U.S. Cl. 210—263 3 Claims



A device for the separation of particulate matter including colloidal particles from a liquid medium consisting of a conveyer belt composed of tightly coiled springs, a dry chemical feed system, a surge conditioning tank, an incinerator and a plurality of filtration columns. The columns include a bimetallic medium which separates particles electrophoretically, for example electrically conductive metallic alluminum powder and electrically conductive carbon granules.

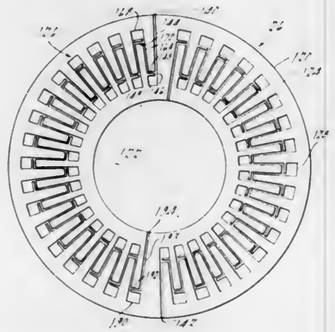
ERRATUM

For Class 210—321 see:
Patent No. 3,784,470

3,784,015
FILTER

Walter Kasten, Franklin, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 24,778, April 1, 1970, abandoned. This application Feb. 17, 1972, Ser. No. 227,642
Int. Cl. B01d *43/00*
U.S. Cl. 210—322 7 Claims



A stacked washer multi-stage impaction and centrifugal separation filtering apparatus with a filter element composed of flat washers having a channel system formed thereon utilizing particle collection pockets to remove and store contaminants.

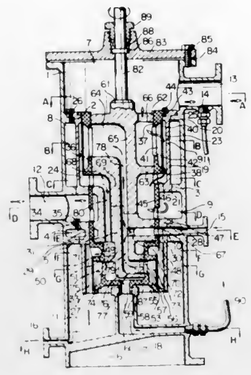
The purpose of the foregoing abstract is to enable the Patent Office and the public generally, and especially the scientists, engineers or practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,784,016
AUTOMATIC CONTINUOUSLY BACKFLOW WASHING-TYPE FILTER

Jiro Akiyama, Yokohama, Japan, assignor to Kanagawa Kiki Kogyo Co., Ltd., Yokohama-shi, Japan

Filed May 16, 1972, Ser. No. 253,871
Claims priority, application Japan, June 30, 1971, 46/56187
Int. Cl. B01d *33/02*
U.S. Cl. 210—333 1 Claim

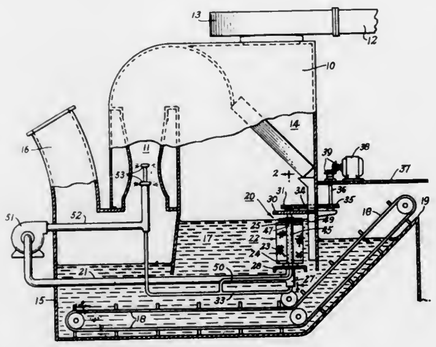
An automatic backflow washing-type filter comprising a primary filtering unit a substantial area portion of which is employed to primarily filter a charge of oil to be filtered, a filtrate accumulation unit for accumlating and supplying a substantial portion of the filtrate from said primary filtering unit to a consuming device and for recycling the remaining minor portion of the filtrate as a backflow washing filtrate. This washing filtrate washes the primary unit to remove foreign matter deposited on the primary filtering unit. In addition, the device includes a secondary filtering unit for filtering said backflow washing filtrate containing foreign matter after the washing of the primary filtering unit, the secondary filtering unit also being washed while filtering the backflow washing filtrate from the washing operation on the primary filtering unit.



3,784,017
LIQUID-SOLIDS SEPARATOR

Orlan M. Arnold, Grosse Pointe Park, Mich., and Carlo A. Vancini, Stamford, Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed Dec. 13, 1971, Ser. No. 207,048
Int. Cl. B01d *33/06*
U.S. Cl. 210—354 16 Claims

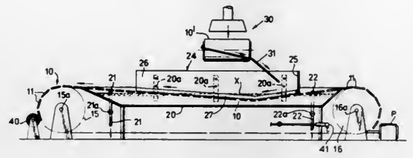


A liquid-solids separator comprising a rotating drum having a perforated peripheral surface immersed in the liquid. Liquid is drawn in through the peripheral screen and discharged through an axial pipe. A reverse flush is provided by an elongated liquid jet directed against the interior of the perforated wall and enmeshed particles are removed by an outside scraper blade or by a rotating outer brush. The device is particularly adapted for use in the reservoir of a gas washing unit for removing particulate material from the wash liquid.

3,784,018
APPARATUS FOR THE CONTINUOUS SEPARATION OF FINE PARTICLES FROM LIQUOR

William Ernst Hope; Mary Jarvie Hope, both of 56 Merryvale Ave., Giffnock, Scotland, and Thomas William McNeil, 6 Wayside Acres, Bodelwydden, Great Britain

Filed Jan. 24, 1972, Ser. No. 219,946
Claims priority, application Great Britain, Feb. 2, 1971, 03673/71
Int. Cl. B01d *33/04, 35/16*
U.S. Cl. 210—393 6 Claims

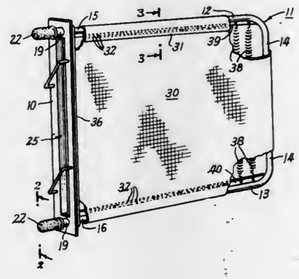


The invention provides filtering apparatus capable of continuous operation and without the need for shut down periods for cleaning the filter elements. The apparatus broadly comprises an endless filter conveyor, means for driving said conveyor at an appropriate speed, a catchment tank wherethrough a part at least of the operative run of said conveyor is guided below the liquid level in said catchment tank, retaining walls the lower edges whereof are in contact with said filter conveyor, means for directing liquid to be treated onto said conveyor within the confines of said retaining walls, an outlet in said catchment tank for removing treated liquid, and means for removing deposited solids from the filter conveyor.

3,784,019
BAG FILTER UNIT

George Gordon, III, Glenbrook, Conn., assignor to Peabody Engineering Corporation, New York, N.Y.

Filed Apr. 5, 1972, Ser. No. 241,329
Int. Cl. B01d *29/14*
U.S. Cl. 210—486 3 Claims

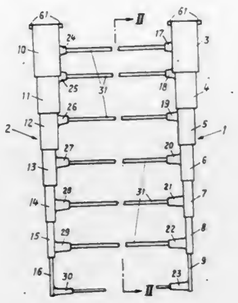


A bag filter unit for a filter module comprising a front plate carrying a U-shaped frame which supports a bag filter element. The fabric filter element is formed with overlapped seams having rows of stitches at the edges of the overlapped fabric which are spaced to lie beyond the frame elements so as not to increase the overall thickness of the fabric which is contacted by such elements. The elements are spring pressed to hold the filter bag under tension and to relieve strains on the bag due to variations in size or shrinkage.

3,784,020
TELESCOPING CLOTHES DRYER STRUCTURE

Walter Steiner, Oberseeverstrasse 14, Winterthur, Switzerland

Filed Feb. 14, 1972, Ser. No. 225,954
Claims priority, application Switzerland, Feb. 12, 1971, 2080/71
Int. Cl. A47b 53/00
U.S. Cl. 211—1.3 10 Claims

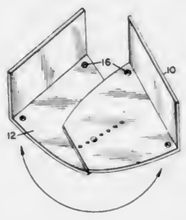


A plurality of interengaging sliding, hollow elements of essentially rectangular cross-sectional area are so arranged that the hollow profiles have guide surfaces formed on the outside and the inside, the profiles being additionally formed with inter-engaging projections and recesses at the horizontal sides of the rectangular profiled elements, so that the weight of clothes being hung on the dryer is accepted by the guide surfaces, and the guide surfaces do not distort. Preferably a pair of parallel arms are provided with rods interengaging the arms, secured to stubs attached to the telescoping interengaging elements, the stubs sliding in open notches formed in adjacent telescoping elements, to form a rigid assembly, which can support the weight of laundry hung thereon, without deformation.

3,784,021
BOOKRACK

Margaret F. Mark, P.O. Box 1267, Chicago, Ill.

Filed Dec. 23, 1971, Ser. No. 211,405
Int. Cl. A47b 65/00
U.S. Cl. 211—43 4 Claims

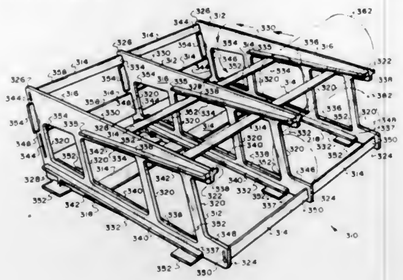


A self-contained bookend-bookrack structure, adjustable in width, and also adjustable in angle of relationship between the vertical ends, so as to accommodate books but more especially ring-binders or binders containing many or thick pasteups wherein the covers are not necessarily parallel but may form either an acute or an obtuse angle when the covers are closed.

3,784,022
PORTABLE AND DISPOSABLE DISPENSING PACKAGES

William N. Beesley, Jr., 2755 Apple Blvd., Salt Lake City, Utah

Continuation-in-part of Ser. No. 114,284, Feb. 10, 1971, abandoned. This application Mar. 22, 1972, Ser. No. 237,192
Int. Cl. A47f 7/00
U.S. Cl. 211—49 D 1 Claim

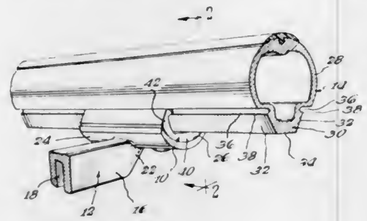


Two tier portable and disposable dispensing packages of cardboard or plastic construction including upper and lower tapered ramps connected by a chute and flanked by side panels for storage and sequential dispensing of canned or cylindrically-encased food or drink. The packages are also collapsible and can be manually carried in hand from place to place. Some packages may be vertically coupled together such that two tier packages may form a continuous multitier dispensing unit for receiving and dispensing cylindrical containers.

3,784,023
HANG RAIL SUPPORT STRUCTURE

Albert S. Varon, and Burton L. Siegal, both of Skokie, Ill., assignors to Crown Metal Manufacturing Co., Chicago, Ill.

Continuation-in-part of Ser. No. 93,091, Nov. 27, 1970, Pat. No. 3,685,662. This application Aug. 30, 1971, Ser. No. 176,224
Int. Cl. A47f 5/00
U.S. Cl. 211—105.1 3 Claims

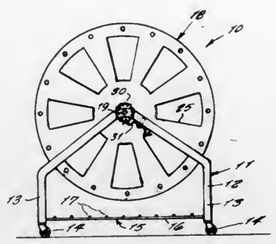


A connecting member or adapter which is adapted to be connected to a generally horizontal support member for supporting a hang rail has a generally C-shaped bracket member secured at the forward end thereof with the C opening upward. The C-shaped bracket member is preferably extruded and formed of a synthetic resin that has substantial rigidity but nevertheless has sufficient resilience so that the arms of the member can yield slightly. A hang rail is carried by the C-shaped bracket member, the hang rail comprising a tubular, extruded shape having a protruding rib along its bottom side, there being grooves formed at the juncture of the rib with the body of the hang rail. The body is substantially cylindrical in configuration. In mounting the hang rail, the ends of the arms of the C-shaped bracket member are spread apart to pass over the rib after which they snap into engagement with the grooves and firmly lock the hang rail onto the C-shaped bracket member. The said ends have hooklike enlargements to engage beneath the widest part of the rib in the grooves.

3,784,024
ROTARY BUFFET WHEEL

Joseph Kristy, Box 1440, Yellowknife, N.W. Territories, Canada

Filed May 9, 1972, Ser. No. 251,814
Int. Cl. A47f 3/14, 5/02
U.S. Cl. 211—131 2 Claims

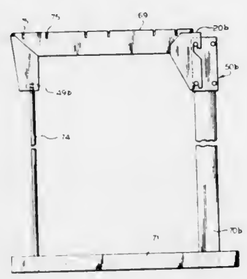


A ferris-wheel shaped display device for various foods such as may be served at a party, the device comprising a rotatable reel supporting a plurality of trays each of which contains a different food, the reel being supported upon a frame that can be moved along a floor upon small wheels or casters.

3,784,025
SHELF SUPPORT LEG LOCK BRACKET

Joseph P. Dumit, Chicago, Ill., assignor to Atco Corporation, Chicago, Ill.

Filed Sept. 28, 1971, Ser. No. 184,430
Int. Cl. A47f 5/00
U.S. Cl. 211—148 9 Claims



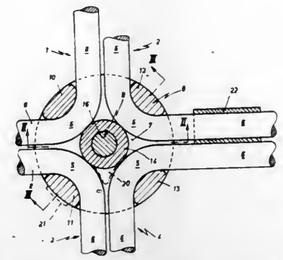
A clip or snap-on bracket allows a shelf to be removably attached to the top of a vertical post. The bracket includes two parts, a first of which slips over the top of the post and has attachment pins for giving support to a cantilevered shelf, extending from either or both the right or the left sides of the post. Also, suitable connectors on this bracket give horizontal stabilization on either or both sides. The other part of the bracket is a very low cost folded piece of metal, which hangs on the pins of the first bracket.

3,784,026
CONNECTING ELEMENTS FOR WIRE FRAMES

Wolfgang C. F. Grosse, Seestrasse, Au near Zurich, Switzerland

Filed Apr. 10, 1972, Ser. No. 242,484
Claims priority, application Germany, Apr. 22, 1971, P 21 19 585.7
Int. Cl. A47f 5/14
U.S. Cl. 211—181 12 Claims

A connecting element similar to a snap fastener for securing two to four laterally adjacent and/or superimposed wire frames at their upper and/or lower end corners to each other,

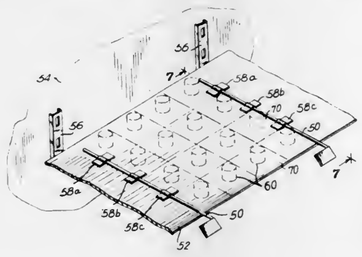


the connecting element including a pair of opposed members having projection means abuting the corners of the frames.

3,784,027
DISPLAY DEVICE AND METHOD OF MERCHANDISING AND INVENTORY CONTROL

Ronald J. Gold, Spring Valley, N.Y., assignor to Uni-Systems, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 1,764, Jan. 9, 1970, Pat. No. 3,645,485. This application May 13, 1971, Ser. No. 142,995
Int. Cl. A47f 5/00
U.S. Cl. 211—184 8 Claims

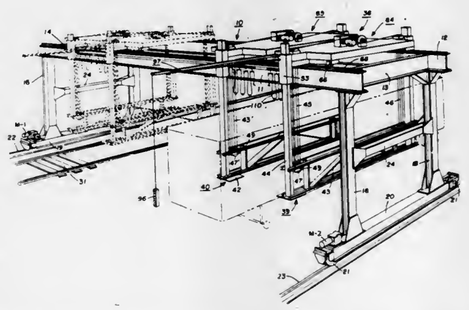


Display device having support means and indicating means which enables a merchandise inventory control system to be easily maintained.

3,784,028
GANTRY CRANE

Kenneth James Stewart, Muskegon, Mich., assignor to Dresser Industries, Inc., Dallas, Tex.

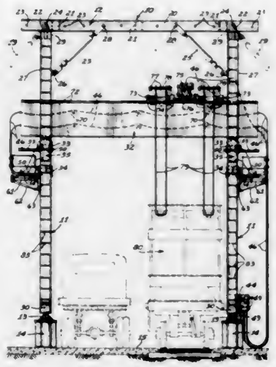
Filed June 9, 1972, Ser. No. 261,470
Int. Cl. B66c 17/06
U.S. Cl. 212—11 10 Claims



A heavy duty gantry crane suitable for railroad piggyback operations. Forming the bridge is a pair of spaced apart paral-

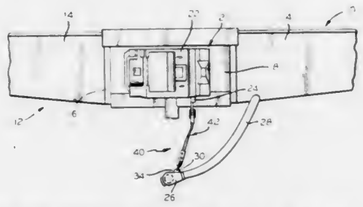
lel girders supported on steel legs and wheeled trucks for operating over runway rails. Interconnecting trolleys laterally positionable on the bridge operate lift forks in controllably guided horizontal and vertical planes. A pendant push-button station connected to a widely pivotal swivel boom enables one man operational control from ground level.

3,784,029
FLUID ACTUATED JACKING FRAME
Cecil A. Pelts, 2500 N. 24th Ave., Phoenix, Ariz.
Filed Oct. 12, 1972, Ser. No. 296,890
Int. Cl. B66c *5/02*
U.S. Cl. 212—14 11 Claims



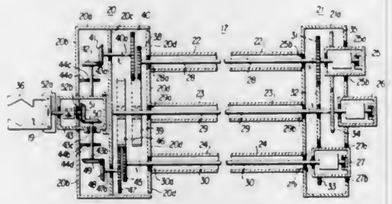
A jacking frame for hoisting and transporting cargo from one position to another wherein the hoisting mechanism comprises a load beam moved vertically upwardly and downwardly in an inverted U-shaped bridge like structure by two rams providing step by step vertical travel while periodically repositioning themselves on the bridge like structure.

3,784,030
AIR HOSE SUPPORT FOR CUSHION CARS
Osvaldo F. Chierici, Elmhurst, Ill., assignor to Holland Company, Elmhurst, Ill.
Filed May 8, 1972, Ser. No. 251,405
Int. Cl. B61g *5/08*; F16l *3/16*
U.S. Cl. 213—76 9 Claims



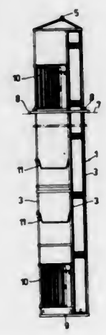
An air hose support for cushion cars, to replace the conventional chain and S-hook support, comprising a rod member formed from a resiliently stretchable elastomeric material, such as polyurethane, having its ends each formed with a plurality of cross holes spaced longitudinally of the rod member for selectively receiving special connector elements to connect the rod member ends to existing coupler and glad hand supporting lugs. Each connector element is of one piece construction formed from a length of resiliently flexible but stiff wire to define a rectilinear loop, with one length end being straight and parallel to the loop throughout its length and the other length being similarly parallel and straight to an end portion which is at right angles to the first length end and is formed with a hooked portion into which the first length end is snapped to close the loop. The connectors are formed to be disposed in locking relation to the rod member end they are secured to when the support is in its operative position.

3,784,031
MACHINE FOR PERFORMING WORK
Moritada Niitu, Kawasaki, and Toshio Ide, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Japan
Filed Sept. 23, 1971, Ser. No. 183,141
Claims priority, application Japan, Sept. 25, 1970, 45/83371
Int. Cl. B63c *8/00*
U.S. Cl. 214—1 BC 5 Claims



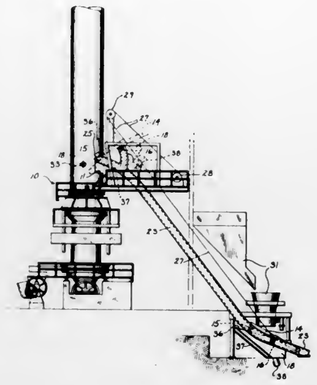
In a machine for performing work characterized by a manipulator arm having a working hand rotatably carried in a frame rotatably mounted in a support and gear train means for rotating the hand, the frame and the support to permit bending and swivelling motions of the hand. A transmission gearing arrangement is provided between the frame rotating means and the hand rotating means to prevent rotating the hand through rotating the frame, and another transmission gearing arrangement connects the support rotating means and the frame rotating means for preventing rotating the frame and the hand through rotating the support, whereby undesirable bending and swivelling of the hand are eliminated.

3,784,032
HOIST ARRANGEMENT ON SHIPS
Tage Westerlund, and Jarl Hedman, both of Skelleftea, Sweden, assignors to Linden-Alimak AB, Skelleftea, Sweden
Filed May 19, 1972, Ser. No. 255,114
Claims priority, application Sweden, May 26, 1971, 6796/71
Int. Cl. B65g *67/58*
U.S. Cl. 214—15 R 1 Claim



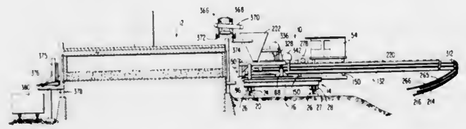
This invention relates to a hoist arrangement of the kind intended for use on ships and comprising a lift cage guided by a vertical frame and movable therein.

3,784,033
VIBRATORY FURNACE CHARGING APPARATUSES
Francis T. Kaiser, and Robert R. Schanen, both of Port Washington, Wis., assignors to Modern Equipment Company, Port Washington, Wis.
Filed Feb. 17, 1972, Ser. No. 227,043
Int. Cl. B66c *17/08*
U.S. Cl. 214—19 3 Claims



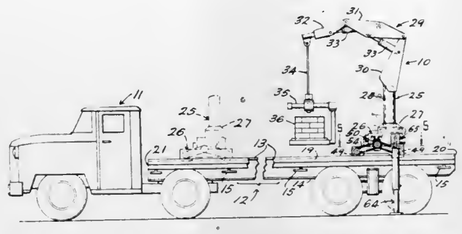
An apparatus for introducing a charge into a metal melting furnace, featuring a wheeled skip car supporting a spring-suspended charge bucket provided with a vibrator and adapted to have the charge ingredients weighed externally of said skip car and bucket unit prior to being deposited therein, said skip car being designed to be mechanically elevated on inclined tracks to a position projecting into the furnace charging doorway where said car can be adjustably tilted to discharge the bucket contents into the furnace while simultaneously actuating the vibrator to impart a vibratory motion thereto promoting the evacuation of the charge under control with a minimum of force and reduced charge door size requirements.

3,784,034
COKE OVEN PUSHING AND CHARGING MACHINE AND METHOD
Buster Ray Thompson, Rt. No. 1, Lowes Ferry Pike, Louisville, Tenn.
Filed Apr. 4, 1972, Ser. No. 240,937
Int. Cl. C10b *31/08*
U.S. Cl. 214—21 20 Claims



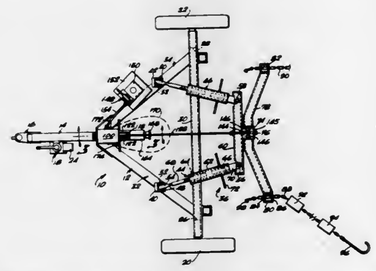
A combined coke oven pushing and charging machine is supported on tracks for movement along the front of a bank of coke ovens and is operable to open an oven door, push the coke from the open oven, and close the oven door, and to open the door of an adjacent empty oven, charge the oven with a uniform, level, compact charge of coal, and close the door. The machine is then moved along the track a distance equal to the width of one oven, a second oven is pushed, and the oven previously pushed is charged. The pusher head is provided with roller supports adapted to roll along the oven floor during the pushing operation, and the head is water cooled to prevent warping and damage by the intense heat of the coke. The coal is deposited into the empty ovens by a drag-type endless chain conveyer having a width substantially equal to the width of the coking chambers and which is telescoped into the oven from the pusher door opening. The generally horizontal cantilevered conveyer simultaneously fills, levels, and compacts the coal in the coking chamber.

3,784,035
VEHICLE MOUNTED LOADING HOIST
Glenn G. Dunbar, 2608 Overbrook Dr., Toledo, Ohio
Filed Apr. 17, 1972, Ser. No. 244,414
Int. Cl. B60p *1/54*
U.S. Cl. 214—75 H 5 Claims



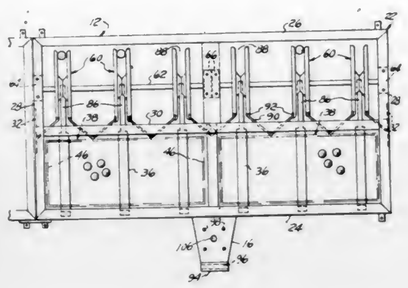
The invention is a vehicle mounted loading hoist for use with a vehicle having a pair of spaced parallel rails positioned on a load carrying bed. A carriage is positioned for movement along the rails and a hoist is mounted on the carriage. The carriage includes a pair of axles mounting wheels which ride on the rails. A motor is positioned at one side of the carriage and drive chains on that side of the carriage are connected from the motor to the axles to selectively drive the loading hoist along the rails. An outrigger assembly is provided on the carriage. The outrigger assembly includes a mechanism for adjusting the positions of a pair of outrigger legs both horizontally and vertically. The outrigger legs may also be moved between storage and operative positions.

3,784,036
TOW TRAILER FOR VEHICLE
H. Eric Gjoerloff, Gern Park, Fla., assignor to Redy-Tow, Inc., Evanston, Ill.
Filed Aug. 17, 1972, Ser. No. 281,329
Int. Cl. B60p *3/12*
U.S. Cl. 214—86 A 15 Claims



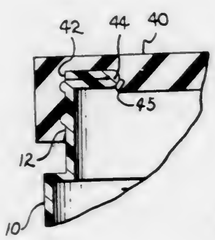
A self contained independent two trailer unit comprised generally of a horizontally disposed V frame, having a forwardly extending tongue, providing a trailer hitch at its forward end, and a transverse axle, extending across the distal ends of the V, carrying a pair of support wheels. A vertical beam is fixed to and extends upwardly from the apex of the V and houses a hydraulic cylinder which is operable by a hydraulic pump means, carried on the frame, to actuate a pair of lift arms to elevate one end of a vehicle by means of chains fixed relative to a clevis bar carried by the lift arms.

3,784,037
GOLF BALL RETRIEVER
Leslie Woodall, 3560 Oulette Ave., Windsor, Ontario, Canada
Filed Oct. 17, 1972, Ser. No. 298,382
Int. Cl. B60p *1/00*
U.S. Cl. 214—356 8 Claims



Golf balls lying at random locations on the golf driving range are picked up and deposited automatically in baskets mounted on a trailer forwardly of pick-up wheels, each of which consists of a pair of spaced resilient metallic discs, preferably of steel, with inwardly-converging peripheral portions. The wheels and baskets are mounted in multiple sets upon independent units of the trailer which can be coupled to one another, by pivoted rocking links and connected by converging draw bars to a junction plate drawn by a single tractor. The pickup wheels have pairs of discs with integral frustoconical portions facing toward one another and spot-welded to one another to form a hub for each pickup wheel. These hubs are welded to shafts which are rotatably mounted in bearings on the trailer frame. The balls picked up and gripped between the opposing steel discs are ejected into the baskets by ball-expelling members extending therebetween and mounted on the trailer frame.

3,784,038
PLASTIC BOTTLE MANUFACTURE
Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Division of Ser. No. 103,660, Jan. 4, 1971. This application Nov. 7, 1972, Ser. No. 304,316
Int. Cl. B65d *39/08*
U.S. Cl. 215—1 C 2 Claims



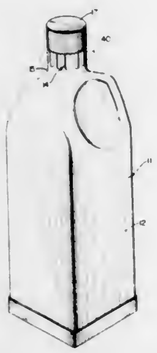
A blow molding apparatus for forming containers from organic plastic material wherein the container is formed with an expanded radially extending wall at the finish of the container so that the flash and moile material can be removed by a die cut or blanking operation of the apparatus.

3,784,039
NURSING BOTTLE CONSTRUCTION AND ASSEMBLY
Leslie Stephan Marco, Oaklawn, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Jan. 10, 1972, Ser. No. 216,402
Int. Cl. A61j *9/00*
U.S. Cl. 215—11 E 2 Claims



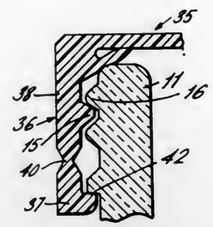
A disposable nursing container made from a preform having an annulus and a plastic material wall integral therewith and extending across the opening therethrough to be subjected to localized heating and forming of the plastic material into a container with a thin flexible wall remaining integral with the annulus and collapsible or foldable within the confines of the annulus to form a saleable article which can later be interiorly attached to a more permanent type of holder with the flexible container wall disposed therein and filled with formula for dispensing through a nipple attached to the annulus.

3,784,040
CONTAINER
Livingston C. Douglas, Leonia, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Jan. 25, 1972, Ser. No. 220,619
Int. Cl. B65d *1/02*
U.S. Cl. 215—31 4 Claims



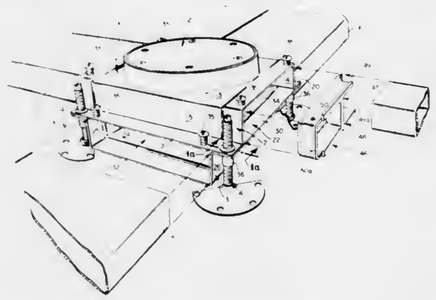
A plastic bottle or like container is provided adjacent an externally threaded discharge nozzle with a longitudinally fluted gripping portion whereby it may be held without substantial deformation during capping in an automatic capping machine.

3,784,041
CLOSURE CAP
Ralph William Birch, 4 Fort Rd., Guildford, England
Filed May 5, 1971, Ser. No. 140,353
Int. Cl. B65d *55/08*
U.S. Cl. 215—40 3 Claims



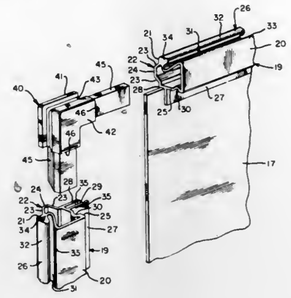
The invention concerns a closure cap adapted to seal the neck of a container, the closure cap being formed of a molding of elastomeric material and having a top portion, an annular skirt which extends from the periphery of the top portion, an abutment portion of said skirt which is adapted firmly to engage said neck to releasably retain the closure cap thereon, and an annular resilient flange portion which extends from and radially inwardly of the skirt and which is spaced from the internal surface of the said top portion by an annular groove whose outside diameter is less than the major internal diame ter of the skirt, the resilient flange portion having a surface which is remote from the top portion and which, even when the resilient flange portion is undeformed, is radially inwardly inclined towards the top portion, the radially innermost part of the last-mentioned surface being convexly curved, the resilient flange portion, when the cap is fitted to the container, effecting a primary sealing engagement with the radially outer edge of the end portion of the neck and a secondary sealing engagement with the top surface of the end portion of the neck, and the resilient flange portion engaging the internal surface of the top portion and trapping a pocket of air therebetween.

3,784,042
UNDERFLOOR BOXES
Robert W. Hadfield, Belpre, Ohio, and William H. Harding, Parkersburg, W. Va., assignors to Textron Inc., Providence, R.I.
Filed May 11, 1971, Ser. No. 142,318
Int. Cl. H02g *3/08*
U.S. Cl. 220—3.3 2 Claims



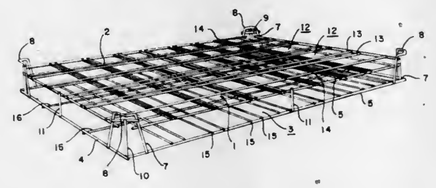
An underfloor box made of identical upper and lower sections which abut each other through flanges. The flanges carry fasteners which lock the flanges together and also serve as nuts for leveling lugs. In one particular form, the box is combined with an adapter which conditions the box to accept either small of large size ducts.

3,784,043
LIGHTWEIGHT COLLAPSIBLE STRUCTURES
Michael C. Presnick, 111 Bloomingdale Rd., New York, N.Y.
Continuation-in-part of Ser. No. 779,750, Nov. 29, 1968, Pat. No. 3,517,849. This application June 26, 1970, Ser. No. 50,065
Int. Cl. B65d *7/30*; F16b *5/00*
U.S. Cl. 220—4 F 4 Claims



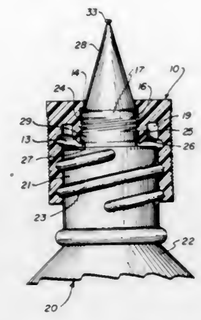
A lightweight, collapsible or knock-down parallelepiped structure and other geometric structures, such as geodesic domes, having a high strength-weight ratio, erected without tools from series of standardized wall sections are disclosed herein. Each wall section of the structure comprises a plurality of framing rails which define a closed frame, which supports a rigid sheet of lightweight, durable paneling. The cross section of the framing rials is hermaphroditic, i.e., it is especially configured to mate with itself. The appropriate mating of two of the framing members is the first step in forming a unique edge joint of the structure without the use of tools. The edge joint is rigidly established by swinging toggle clamp members which firmly lock together the mating framing members of adjacent wall sections. When desired, the new structure may be disassembled or knocked down, also without tools, for storage in minimum space, by releasing the toggle clamp members by a simple pivoting movement. Spring keeper elements hold the toggle clamps in predetermined relation to the wall sections in both the operative and inoperative positions of the toggle clamps.

3,784,044
WIRE BOX OR CRATE
Frans Bruggeman, Zulzeke, Belgium, and Jacobus C. Smit, Venhuizen, Netherlands, assignors to N.V. Bekaert S.A., Zwevegem, Belgium
Filed July 28, 1972, Ser. No. 275,915
Claims priority, application Belgium, July 30, 1971, 770714
Int. Cl. B65d *5/38, 21/00*; A47b *5/14*
U.S. Cl. 220—19 11 Claims



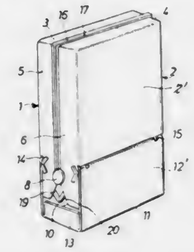
This invention relates to a wire box or a crate made of wires welded to one another in which to place flower pots, whereby the frame of the upper and base surface consists of four wires running perpendicular to one another, the base and upper surface being parallel to one another at a distance practically equal to the height of the flower pots to be placed therein.

3,784,045
PERMANENTLY SEALED CONTAINERS AND END CAPS THEREFOR
Henry Komendowski, Evanston, Ill., assignor to Automatic Liquid Packaging, Inc., Elk Grove Village, Ill.
Filed Oct. 26, 1971, Ser. No. 192,127
Int. Cl. B65d 17/00, 51/20
U.S. Cl. 220—27 8 Claims



Improved thermoplastic containers which normally are permanently sealed and which have end caps thereon which, upon being threadedly manipulated, are operable to open the containers.

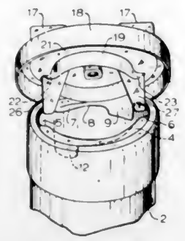
3,784,046
PREFECTED CASE
Nicolas G. Cata, Malgrat De Mar, 30 Mahon St., Barcelona, Spain
Filed Apr. 19, 1972, Ser. No. 245,429
Int. Cl. B65d 43/15, 51/10
U.S. Cl. 220—35 9 Claims



A case or receptacle for cigarettes, change or as a purse itself, for example, and having opposed casing parts freely pivoted at a lower extremity without linking elements, but by eyelets disposed in an aperture formed partially in one casing part and partially in the other casing part, which parts are held together by opposing pairs of pincer springs which also serve to establish stable open and closed positions of the casing parts. The bottom of the case is closed by an element which is removably secured in notches along the outer edges of the casing parts and allows the free opening and closing of the case while retaining its contents securely.

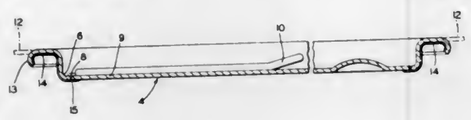
3,784,047
SAFETY CLOSURE CAP
Alfred Cooper, 1381 Via La Paloma, San Lorenzo, Calif.
Filed May 4, 1972, Ser. No. 250,241
Int. Cl. B65d 5/02, 5/42
U.S. Cl. 220—40 R 8 Claims

A safety closure cap for bayonet connection with a spout, wherein latching lugs on the cap insertable through bayonet notches in the spout and latching is effected upon turning of the cap, is provided with elongated blocking prongs extending



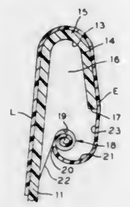
downwardly from and rigid with the lugs which prevent turning of the cap unless the cap is fully seated on the top of the spout.

3,784,048
CONTAINERS FOR CORROSIVE FOOD PRODUCTS
Bernard J. McKernan, Massillon, Ohio, assignor to Van Dorn Company, Cleveland, Ohio
Filed Sept. 9, 1970, Ser. No. 70,843
Int. Cl. B65d 17/20
U.S. Cl. 220—54 4 Claims



An aluminum food product container or can having an easily opened can end seamed to one end of the can body. The outer surface of the can end member has a score line along which the can end is severed for opening the can. The inner can end surface is coated with an enamel coating to withstand the corrosive attack of food products packed in the can. The undersurface area of the can end member beneath the score line is coated with a sealing compound material to prevent corrosive attack of the aluminum by the food product contents of the can where the enamel may have cracked incident to scoring the can end member.

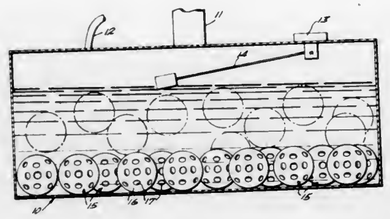
3,784,049
CONTAINER WITH BAG-LINER LOCKING RIM
Bob R. Hawk, Crowley, Tex., assignor to Loma Corp., Ft. Worth, Tex.
Filed Oct. 26, 1972, Ser. No. 301,177
Int. Cl. B65b 67/12
U.S. Cl. 220—63 7 Claims



A container is provided with a locking rim for securing flexible-bag liner in an open configuration in the container. The upper rim of a container is formed with a plurality of locking ribs angularly spaced around the rim. Each of the ribs is formed with a socket of a configraution that interlocks with

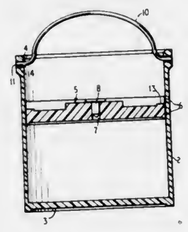
the flexible-bag liner. Rolling of the upper periphery of the bag liner over the rim and into the socket locks the liner to the container.

3,784,050
FLOATING BAFFLE SYSTEM FOR FUEL TANKS
Melvin Pollack, Coral Gables, Fla., assignor to Apeco Corporation, Evanston, Fla.
Filed Oct. 26, 1971, Ser. No. 192,044
Int. Cl. B65d 25/00
U.S. Cl. 220—85 3 Claims



A floating baffle system for dampening the liquid fuel in fuel tanks supplying vehicular engines is described. A plurality of hollow, thin-walled, three-dimensional perforate objects of a tough, semi-rigid, somewhat resilient material are contained within the tank to be churned up and more or less uniformly distributed within the fluid fuel upon agitation of the tank in use, whereupon they act as individual baffle members dampening fluid flow not only by baffle action, but also by absorbing kinetic energy within the fluid by their reactive collision with one another.

3,784,051
CONTAINER
James Anthony Carpenter Shaw, and Eva Shaw, both of Tabacum, Mareeba, Australia
Filed Feb. 9, 1971, Ser. No. 113,919
Claims priority, application Australia, June 8, 1970, 1460/70
Int. Cl. B65d 25/10, 25/32
U.S. Cl. 220—93 4 Claims



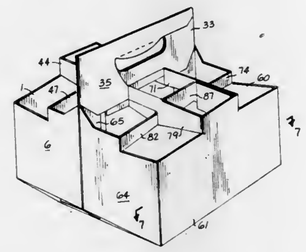
The invention relates to containers for the preservation of materials which evaporate, deteriorate or oxidise when exposed to air. Preservation is achieved by a closure member sealingly movable in the container in contact with the contents and exclude air from the surface of the contents.

3,784,052
STACKABLE CONTAINER
Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 30, 1971, Ser. No. 214,276
Int. Cl. B65d 21/02, 1/26
U.S. Cl. 220—97 C 2 Claims



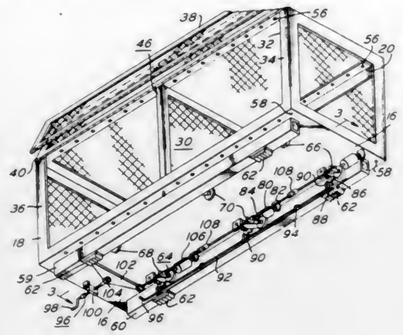
A relatively thin walled plastic container including bottom stacking means such that a plurality of the subject containers in a stacked or nested condition will provide a column of containers which are not subject to jamming in storage or transport.

3,784,053
ARTICLE CARRIER
James T. Stout, Doraville, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed Apr. 17, 1972, Ser. No. 244,833
Int. Cl. B65d 73/00
U.S. Cl. 220—113 7 Claims



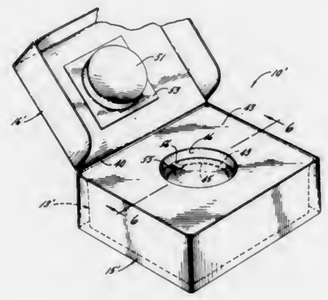
An article carrier of the so-called basket type having bottom, side and end walls secured medially thereof to riser panels which in turn are connected with medial handle structure is provided with two rows of article receiving cells on each side of the handle, the cells being defined by spaced transverse partition strips connected with each side wall and the handle structure together with a longitudinal partition strip struck from each transverse partition strip and foldably joined thereto and to the adjacent end wall together with a longitudinal partition panel secured between each of the transverse partition strips substantially mid-way between each side wall and the handle structure by means of anchoring flaps foldably joined to the longitudinal partition panels and secured in face contacting relation with one of the transverse partition strips. Web structure interconnects the bottom edge of each end wall panel while web structure interconnects the bottom edge of each end wall panel at the other end of the carrier and the lower end of the riser panels at the opposite end of the carrier in order to strengthen the bottom wall thereby to enhance the overall strength and stability of the carrier.

3,784,054
LOADING CONTAINER MEANS
Frances E. Mautz, 7922 Fairfield St., Philadelphia, Pa.
Filed Aug. 27, 1971, Ser. No. 175,439
Int. Cl. B65d 57/00
U.S. Cl. 220—22.3 3 Claims



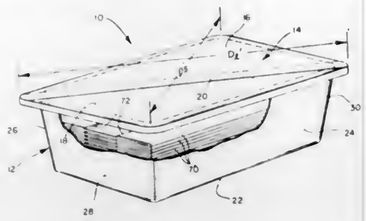
A loading container means comprising a body having horizontal top and bottom walls and vertical side walls providing a storage chamber therein, at least one of said walls providing an opening to said chamber of the body which is closed by a door, at least one of the walls is movable for controllably reducing the size of the chamber of the body to confine the material stored therein, and a plurality of wheel units movable between a retracted position and an extended position for movably supporting the body over a supporting surface when in their extended position. The body is of elongated configuration with first and second ends which are respectively provided with wheel units which are selectively actuatable allowing controlled elevating, lowering and leveling of the body.

3,784,055
RECLOSABLE PACKAGE
John R. Anderson, c/o Anderson Packaging, Inc., 1313 Samuelson Rd., Rockford, Ill.
Filed Dec. 4, 1972, Ser. No. 311,485
Int. Cl. A47k 10/20
U.S. Cl. 221—46 8 Claims



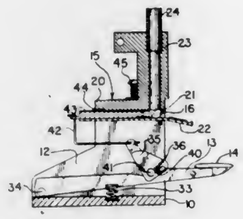
Alcohol-impregnated tissues are stacked face-to-face in a plastic dish-shaped container which is initially sealed air-tight by a peel-away sheet or film to prevent evaporation and leakage of the alcohol. The container is nested within a paperboard carton having a hinged cover whose underside carries a closure plug adapted to telescope into and reclose the container after removal of the sealing sheet.

3,784,056
MOISTURE-IMPERMEABLE PACKAGE
Harry Spruyt, New York, N.Y., and Louis S. Hoffman, Morristown, N.J., assignors to Scott Paper Company, Philadelphia, Pa.
Filed Nov. 6, 1972, Ser. No. 303,703
Int. Cl. B65h 1/00
U.S. Cl. 221—63 10 Claims



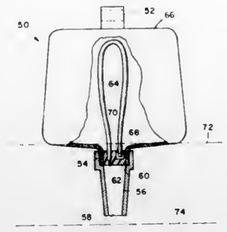
A moisture-impermeable package including a flexible container having a bottom wall and side walls extending upwardly from the bottom wall. The side walls terminate in upper marginal ends which define an opening into the container. A thin, flexible, substantially non-stretchable closure is secured to the container and extends over the opening defined by the marginal ends. The closure has overlapping sections which define a slit that is elongate in a predetermined direction, and the container is in a differentially stressed condition to apply slit-sealing tension forces to the closure in the direction of slit elongation whereby the overlapping sections of the closure defining the slit are maintained in sealing relationship for establishing a substantially moisture-impermeable closure.

3,784,057
PRIMER FEEDER FOR HAND LOADING OPERATIONS
Louis P. Tuttle, 4544 Hillard Ave., La Canada, Calif.
Filed Mar. 27, 1972, Ser. No. 238,029
Int. Cl. B65h 3/24
U.S. Cl. 221—196 4 Claims



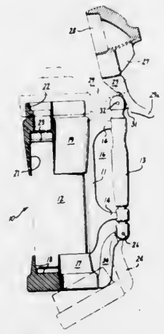
Disclosed is a small parts feeder designed to supply a shell primer between the thumb and forefinger of the operator from a supply upon the depression of a handle by the little finger of the same hand. The feeder includes a motion multiplying mechanism to actuate an ejector ram which advances the lower most of the stack of hat shaped shotgun shell primers or other small parts to a delivery region. The mechanism includes a restricted passage which allows only one primer in the upright position to be delivered at a time. The feeder includes provision for ejection of inverted primers. The driving mechanism for the ram ejector includes spring means which prevents undue load upon the mechanism in the case of jamming.

3,784,058
DISPENSER
Dean H. Buchtel, Canton, Ohio, assignor to NuCon, Inc., Canton, Ohio
Filed Nov. 29, 1971, Ser. No. 202,905
Int. Cl. E03d 9/03
U.S. Cl. 222—57 4 Claims



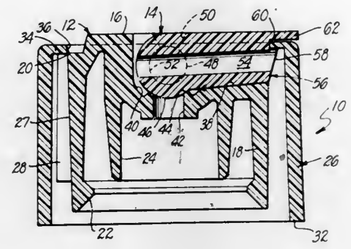
A device for dispensing a measured quantity of first liquid into a body of a second liquid as the second liguid falls and rises. A container for the first liquid has a dispensing nozzle which includes a small orifice. The nozzle is at the lower most point of the container which is otherwise closed. A U-shaped passage extends from the orifice to an opening within the container adjacent the lowest point thereof. The opposite side of the orifice communicates with an open-bottomed chamber. As the second body of liquid rises air entrapped in the open-bottom chamber is forced through the orifice and U-shaped passage and into the container. When the second body of liquid subsequently drops a controlled quantity of the first liquid is drawn out of the container.

3,784,059
BEVERAGE CAN DRINKING HOLDER
John Katzakian, 3411 Arden Creek Rd., Sacramento, Calif.
Filed Feb. 25, 1972, Ser. No. 229,421
Int. Cl. B67b 7/28
U.S. Cl. 222—86 6 Claims



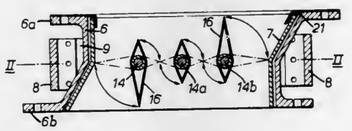
A beverage can drinking holder including an annular sleeve encircling the upper end margin of a beverage can wherein the sleeve has an interior surface gradually tapering radially inwardly progressively upwardly for receiving and seating the upper end edge of the can. The sleeve includes an annular upper end edge forming a drinking lip encircling the sleeve and spaced above the upper edge of the can a distance sufficient to provide an overflow reservoir for receiving an expanding volume of foam and beverage from the can below. In addition, a sharp rigid can-piercing element is carried within the sleeve for driving an opening into the top of the can. A stein or mug-like holder assembly includes a pair of spaced annular members for receiving the opposite ends of the can wherein one of the members is movable between advanced and retracted positions to permit insertion of the can therebetween and subsequent holding of the can by moving the movable member to its advanced position.

3,784,060
CHILD RESISTANT DEFORMABLE CLOSURE
Robert E. Hazard, North Kingstown, R.I., assignor to Polytop Corporation, Slatersville, R.I.
Filed Nov. 17, 1972, Ser. No. 307,357
Int. Cl. B67b 5/00
U.S. Cl. 222—153 12 Claims



A child-resistant closure can be constructed so as to include a deformable member mounted on a closure body by flexible means which serve to control the deformation of the deformable member when it is manually engaged. During such engagement, deformation of the deformable member is concentrated by the controlled flexure permitted so as to move the deformable member to a position in which a closure member mounted on the closure body can be moved from a closed position to an open position. Preferably, the closure member includes a surface which will engage and move the deformable member as the closure member is moved from an open position to a closed position so that when the closure member is in the closed position a part of the deformable member will overlie a part of said closure member so as to hold the closure member in a closed position.

3,784,061
FEEDER VALVES
John Gabriel Hogan, 19 Meadvale Rd., Addiscombe, England
Filed Jan. 17, 1972, Ser. No. 218,366
Claims priority, application Great Britain, Jan. 25, 1971, 3049/71
Int. Cl. B65g 3/12, 65/70
U.S. Cl. 222—200 7 Claims

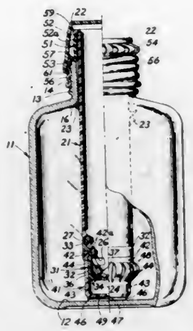


The invention consists of a feeder valve for periodically discharging material from a storage hopper or other source and consists of a valve housing having a valve aperture passing therethrough and valve opening and closing means consisting of a plurality of vanes or blades extending across said valve aperture and being rotatable about their axes from a horizontal position, in which they close said aperture and a vertical position in which they open said aperture.

3,784,062
INSERT FOR MEASURING, MIXING AND DISPENSING LIQUIDS

Jonas C. Harschel, 8 Mariposa Ct., Burlingame, Calif.

Continuation-in-part of Ser. No. 845,166, July 28, 1969, Pat. No. 3,596,806. This application Apr. 16, 1971, Ser. No. 134,796
Int. Cl. B67d 5/50
U.S. Cl. 222—377 6 Claims

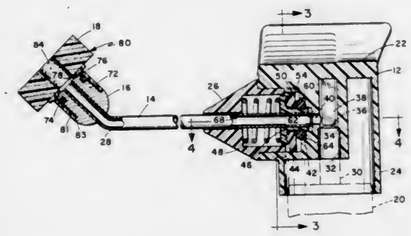


A device for measuring and dispensing liquids is dimensioned to fit through the neck of a container for a liquid; the device may also be used to mix the measured liquid with a measured diluent, if requested. A tube extends from a normal extended position above the neck to a valve unit near the bottom of the container. The tube is formed with a ball on its lower end and is formed with apertures above the ball. A cylindrical valve seat unit is secured to the bottom of the tube and has a flexibly mounted ring which engages the ball in the extended position of the device to form a liquid seal but flexes away from the ball to permit flow of liquid in a single direction — into the tube — under stress imposed by pushing down on the tube. Below the seat unit is an axially flexible apertured second valve unit which seals off a predetermined quantity of liquid when the tube is pushed down and then compresses axially to force a predetermined quantity of the entrapped liquid past the ring and into the tube: Upon release of the tube, liquid is sucked from the container into the valve slot unit. Water or other diluent may be poured in the open end of the tube to mix with the concentrate. The liquid in the tube is poured from the open upper end.

3,784,063
APPARATUS FOR FACILITATING APPLICATION OF FLUIDS

George A. Otis, 715 E. Los Angeles Dr., Vista, Calif., and Kenneth W. Gores, 9831 N.E. 16th St., Bellevue, Wash.

Filed July 7, 1971, Ser. No. 160,400
Int. Cl. B65d 83/14
U.S. Cl. 222—394 12 Claims

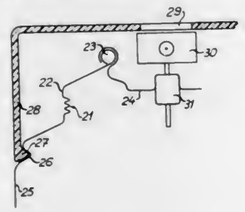


An apparatus for facilitating the application of fluids from a source of fluid such as an aerosol container. The apparatus comprises an actuator body which includes a bore for fitting over the dispensing tube of the aerosol bottle. Also mounted on the actuator body is a coupling means which provides for mounting of a dispensing tube in a sealed and rotatable configuration. The dispensing tube has a bend near its free end and may be rotated so as to position the dispensing end against any surface. A seal within the housing comprises a spring loaded seal that compensates for wear and compression of the O-ring seal. The spring also forces a detent sleeve into association with a detent washer creating a plurality of detent positions for the rotatable dispensing tube.

3,784,064
PRESSURIZED FLUID DISPENSING DEVICES

Jean Hardt, Fribourg, Switzerland, assignor to Aluminium Suisse S.A., Chippis, Switzerland

Filed June 19, 1972, Ser. No. 264,156
Claims priority, application Switzerland, June 22, 1971, 9097/71
Int. Cl. B65d 83/14
U.S. Cl. 222—397 4 Claims

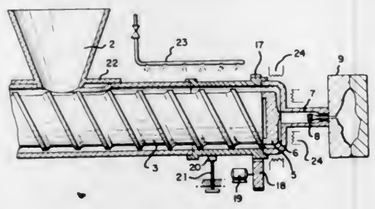


An aerosol dispenser comprises a can closed by a cup-like cap member, a valve body supported on the cap member, and a manually operable push button adapted when depressed to dispense the aerosol. Outward movement of the push button is limited by means of such as a cover, and one of the can and cap member include a part which when subjected to an internal pressure above a safe value deforms and moves outwards together with the valve body, thereby depressing the push button to dispense the aerosol as for normal operation.

3,784,065
INJECTION

George Arthur Rodolf Patfoort, Maldegem-Kleit, Belgium

Filed July 12, 1971, Ser. No. 161,440
Claims priority, application Belgium, Apr. 15, 1971, 102219
Int. Cl. B29b 3/02
U.S. Cl. 222—413 13 Claims



The invention provides a method of injecting by forcing, and apparatus for carrying out that method, which comprises the steps of (i) introducing material to be injected into a cylinder, (ii) compressing the solid material to injection pressure by rotating a screw in said cylinder, (iii) preventing said solid material at least to a large extent from slipping counter to the direction of rotation of the screw to achieve this pressure, (iv) plasticizing the solid material in a small space outside the zone where pressure is generated, and (v) injecting the plasticised material by forcing into a mould by means of the pressure generated in the solid material.

3,784,066
PRIMING HORN

Bobby H. Allen, Louisville, Ky., assignor to DJ Incorporated, Louisville, Ky.

Filed May 31, 1972, Ser. No. 258,349
Int. Cl. B65d 47/28
U.S. Cl. 222—514 11 Claims

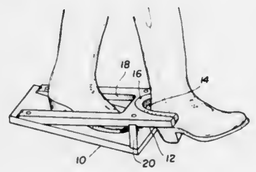


Discloses a priming horn for delivering a premeasured priming charge of powder to the pan of a flint lock rifle. A powder reservoir contains a powder dispensing neck into which a hollow tube is pressure fit so as to communicate with the main body of the reservoir. The tube is closed at it's outer end and contains a charge outlet in its wall and a sliding sleeve is fitted over said priming charge outlet and urged into normally closed position by means of a spring mounted between the body of the powder reservoir and the sleeve proper. The size of the charge may be adjusted manually by pulling the sliding sleeve back a portion of the total distance or it may be premeasured by pushing the hollow tube further back into the body of the powder reservoir. This decreases the total distance that the sleeve may slide and thus effectively decreases the opening of the charge outlet. Further the closure plug at the end of the hollow tube is so spaced from the charge outlet as to leave a proper gap between the flash hole of the pan of the flint lock rifle and the main body of the priming charge.

3,784,067
BOOT JACK

Carroll Hicks, Calico Rock, Ark., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,499
Int. Cl. A47j 51/02
U.S. Cl. 223—114 1 Claim



A boot jack comprising a pair of boards secured together at one end, the other end of the second board being raised above the first and having a boot heel receiving recess therein; and means interconnecting said boards.

3,784,068
VIBRATION DAMPENER SUPPORT FOR LENTICULAR DEVICES

Henry L. Pistilli, 3 Bedford Rd., Kendael Park, N.J.

Filed Nov. 16, 1967, Ser. No. 683,556
Int. Cl. A45f 5/00
U.S. Cl. 224—5 V 6 Claims

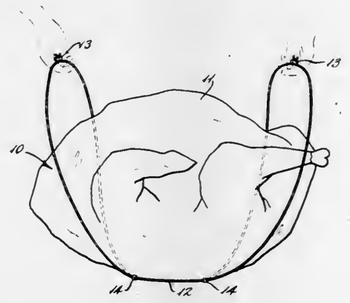
A preferred embodiment of this vibration dampener includes, a stiff upstanding rod of light weight supports a lenticular device such as a movie camera or a field glass or glasses. A ball and socket connection supports this rod from a wearer's belt and a flexible band extends from adjacent a mid-portion of said rod over a shoulder of the wearer, across the back and forward under an arm of the wearer on an opposite side of the wearer from the aforementioned shoulder, and also secured to said rod adjacent a midportion thereof. The over-shoulder portion of said band thus forms a much smaller angle to the rod than does the under-arm portion when said device is at the level of the wearer's eyes.



3,784,069
TURKEY AND ROAST LIFTER SLING

John F. Stoffel, Yonkers, N.Y., assignor to Stoffel Seals Corporation, Tuckahoe, N.Y.

Filed Mar. 7, 1972, Ser. No. 232,383
Int. Cl. B65d 63/16
U.S. Cl. 224—49 2 Claims



Apparatus for use in lifting a large fowl or roast from a roaster pan after the comestible has been cooked. The apparatus includes flexible cords joined together at selected areas to provide loops at opposite ends and such loops are disposed about opposite ends of the comestible.

3,784,070
METHOD AND DEVICE FOR BREAKING AWAY PRESTAMPED PIECES OF MATERIAL IN SHEET-LIKE WEBS

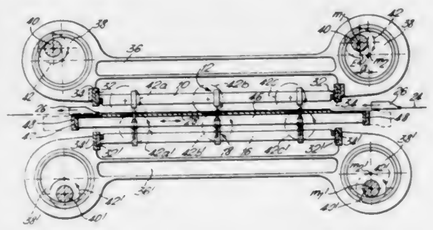
George Manfred Vossen, OP dem Felde 28, Elmpt, Germany

Filed Nov. 24, 1972, Ser. No. 309,460
Claims priority, application Germany, Nov. 27, 1971, P 21 58 907.1
Int. Cl. B26f 3/02
U.S. Cl. 225—1 6 Claims

A method of breaking away pre-stamped pieces of material in sheet-like webs of material comprises moving such a web of material in the direction of its length, progressively bringing a break-away matrix up to the speed of movement of the web to make surface contact with one side of the web on attaining speed synchronism therewith, also progressively bringing up

to the speed of movement of the web pairs of members whereof one of each pair is at each side of the web to grip therebetween on attaining speed synchronism with the web pieces of material to be broken away from the web, and breaking away the so-gripped pieces of material against the support of the matrix.

A device for carrying out the method comprises means for progressing such a web along a plane in the direction of its length, networks of rigidly-mounted break-away pins mounted in first and second carriers which are mirror images of one another one above and one below said plane, the first and second carriers being mounted in the frame of the machine at a break-away zone of a stamping machine for movement towards and away from said plane with the axes of the break-away pins normal to said plane and the lower break-away pins resiliently displaceable in the directions of their lengths, a third carrier supported in said frame below said plane and mounting a matrix having through-openings each co-axial with an upper and a lower break-away pin, and means for guiding the first, second and third carriers each along a path of movement in relation to the movement of the web with appropriate correlation of the break-away pins and the through-openings



in the break-away matrix with the pieces of material to be broken away such that in a first section the three carriers are accelerated from starting positions to the speed of the web, in a second section at least between the start and finish of the break-away operation the three carriers move synchronously with the web, in a third section the three carriers are decelerated, and in a fourth section the three carriers are returned to their starting positions, the path of movement of the first carrier including a phase of downwards movement towards said plane and substantially coincident with its first and second sections and a phase of upwards movement away from said plane and substantially coincident with its third section, the path of movement of the second carrier including a phase of upwards movement towards said plane and substantially coincident with its first section, and a phase of downwards movement away from said plane and substantially coincident with its second and third sections, and the path of movement of the third carrier including a phase of upwards movement towards said plane until the matrix is applied against the web, said phase being substantially coincident with its first section, and a phase of downwards movement away from the web and falling into the end of its fourth section.

3,784,071

VARIABLE LENGTH FESTOONING OF WEB MATERIAL

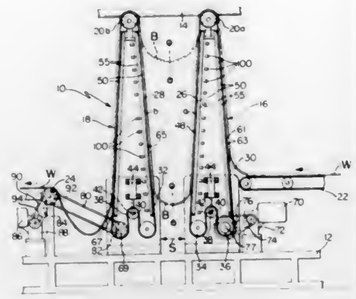
Ernest A. Milan, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 2, 1973, Ser. No. 347,295

Int. Cl. B65h *17/34*

U.S. Cl. 226—1 **15 Claims**

Variable length storage of running length material between stations in a web handling or processing line in which storage of the self-supporting portion of the variable length is nearly constant in length independent of the total length of the stored loop. The sides of the stored variable length loop are held against the respective surfaces of a pair of opposed and nearly vertical endless belts each of which belt is drivable in a direction generally opposite to that of the other belt. Each belt is driven independently of the other belt by drive means at least one of which is controlled in response to a pair of sensors respectively detecting the predetermined maximum and minimum extents of the length of the stored loop. In the particular and proximate utility of the invention, the web being handled comprises bias-cut wire fabric breaker belt stock for use in pneumatic tires. The respective sides of the variable length loop are held against the associated surfaces of the belts to insure movement of the web together therewith by a plurality of magnets arranged to act through the belt.



3,784,072

STRIP SHAPE CORRECTION IN GALVANISING LINE

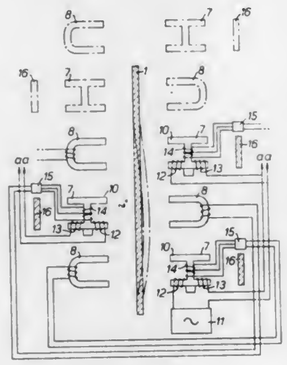
David Alun Armstrong, and Kenneth Gill Lewis, both of Glamorgan, Wales, assignors to British Steel Corporation, London, England

Filed Apr. 15, 1971, Ser. No. 134,266

Claims priority, application Great Britain, Apr. 15, 1970, 17,964/70

Int. Cl. B65h *23/00*

U.S. Cl. 226—1 **13 Claims**



A method of correcting planar disconformities in moving metal (e.g., ferromagnetic) sheet, in which a said disconformity from a predetermined plane is detected, (e.g., by a magnetic field detector), and in which the sheet is flexed (e.g., by electromagnets) in dependence on the degree of disconformity from the plane, the flexing being of such sense and magnitude as to urge the sheet to conform to the plane.

3,784,073

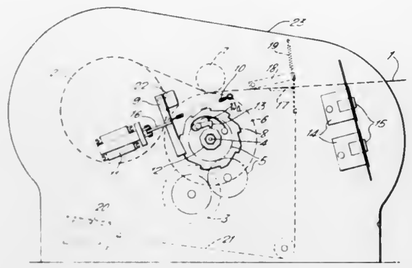
TAPE DISPENSING APPARATUS

Francis Edward Faggetter, Dartford, England, assignor to Better Packages (U.K.) Limited, London, England

Filed Dec. 13, 1971, Ser. No. 207,446

Int. Cl. B65h *17/22, 25/16*

U.S. Cl. 226—47 **2 Claims**



In a tape dispensing apparatus by which predetermined lengths of tape material are dispensed from a reel by co-operating rotatable feed and pressure rollers the feed roller is rotatable by a motor through a spindle driven by the motor. An electric signal producing means is operated by the spindle following a predetermined angle of rotation of the spindle and then sends an electric signal to a selection device which in response to the signal applies the brake to stop rotation of the spindle thus determining the length of tape drawn from the reel by the feed and pressure rollers.

3,784,074

ROLL MEMORANDUM DEVICE

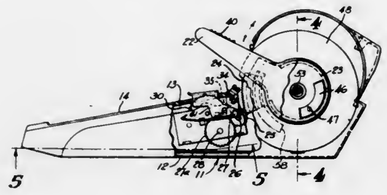
Chuzo Mori, 7-9 3-chome, Tateishi, Katsushika-ku, Tokyo, Japan

Filed Oct. 27, 1972, Ser. No. 301,550

Claims priority, application Japan, Nov. 27, 1971, 46/22491

Int. Cl. B65h *17/22*

U.S. Cl. 226—127 **17 Claims**



A roll memorandum device is shown which is formed with a body having a forwardly disposed table portion thereupon provided with a writing surface. A transversely disposed first shaft is connected to the body and is forwardly spaced and horizontally aligned with the paper roll support. Feed rollers are disposed upon the first feed shaft. A horizontally disposed pivotally movable holding member lies above the writing surface and overlies the feed rollers. A spring is connected to the holding member biasing the same toward the feed rollers. Means are provided to rotate the paper roll support and feed rollers simultaneously. Guide means are also provided within the body to guide selected portions of the paper roll.

3,784,075

APPARATUS FOR THE STEPWISE FEED OF WORKPIECES

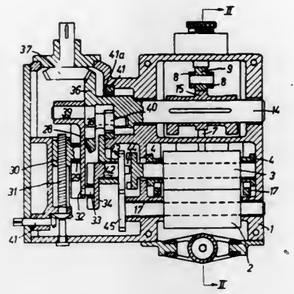
August Thomas Portmann, Arbon, Switzerland, assignor to Bruderer AG, Arbon, Switzerland

Filed Sept. 26, 1972, Ser. No. 292,385

Claims priority, application Switzerland, Oct. 1, 1971, 14369/71

Int. Cl. B65h *17/26*

U.S. Cl. 226—143 **9 Claims**



Apparatus for the stepwise feed of a workpiece comprising two contrarotating oscillating driven feed rollers which serve to receive the workpiece therebetween and which are respectively alternately movable at the point of time of reversal of their direction of rotation towards one another into a feed position and away from one another into an idle position. There is also provided a holding mechanism for the workpieces which can be synchronously switched-in or activated with the movement of the feed rollers from their feed position into the idling position and can be switched-out or inactivated when the rollers move from their idling position into the feed position.

3,784,076

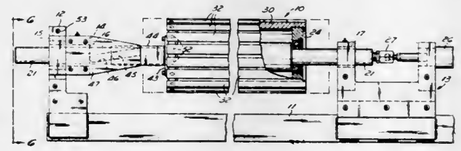
WEB GUIDING APPARATUS

R. Stanton Avery, Pasadena, Calif.; Robert T. Scharenberg, Mentor, and Gordon G. Zeidman, Columbus, both of Ohio, assignors to Avery Products Corporation, San Marino, Calif.

Filed Feb. 2, 1973, Ser. No. 329,223

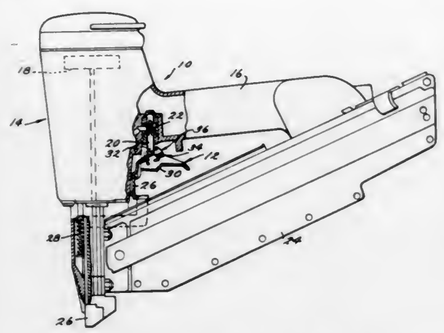
Int. Cl. B65h *17/22*

U.S. Cl. 226—179 **7 Claims**



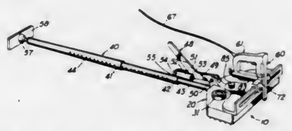
A web guide roll is bodily translated in a direction parallel to its axis to one or the other side of an intermediate bodily position and in opposition to lateral shifting of the web. At the same time, the steering action of the roll on the web is varied as a function of the translation of the web to one side or the other of such intermediate bodily position while maintaining the roll axis normal to the desired direction of web travel.

3,784,077
PORTABLE PNEUMATIC FASTENER DRIVING DEVICE WITH IMPROVED ACTUATING MECHANISM
George E. Burke, Jr., East Greenwich; Walter G. Lemos, and Dennis M. Shippee, both of Coventry, all of R.I., assignors to Textron Inc., Providence, R.I.
Filed May 5, 1972, Ser. No. 250,672
Int. Cl. B25c *1/04*
U.S. Cl. 227—8 **19 Claims**



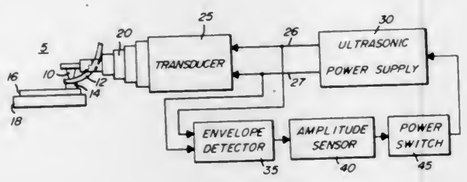
A portable fastener driving device of the conventional pneumatic type having an improved actuating mechanism including an acutating member mounted for movement from a normal inoperative position into an operative position for initiating the movement of the fastener driving means through a fastener driving stroke, a contact trip mounted for movement from a normal inoperative position into an operative position in response to the movement of said device into cooperating engagement with a workpiece, a trigger mounted for manual movement from a normal inoperative position into an operative position and an enabling structure operatively associated with the actuating member, the trigger and the contact trip for (1) enabling movement of the trigger into its operative position when the contact trip is in its inoperative position without movement of the actuating member into its operative position, (2) enabling movement of the trigger into its operative position when the contact trip is in its operative position to effect movement of the actuating member into its operative position, and (3) enabling movement of the contact trip into its operative position when the trigger is in its operative position without movement of the actuating member into its operative position.

3,784,078
CARPET STRETCHER AND KICKER
James L. Escoe, Rt. No. 2, Loganville, Ga.
Filed Mar. 21, 1972, Ser. No. 236,672
Int. Cl. B25c *1/00*
U.S. Cl. 227—13 **7 Claims**



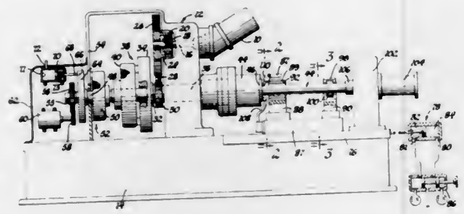
Apparatus for use in stretching and securing carpet in place on a supporting surface, including a carpet gripping head having a plurality of carpet engaging prongs and including an elongated handle means capable of being utilized to provide tension on carpet engaged by the carpet gripping head. A staple gun is carried by the carpet gripping head and is operable for ejecting staples into the carpet whereby the staples can be used for securing the edges of carpet in position on a supporting surface. An alternate embodiment of the carpet stretching and securing apparatus provides a staple gun which includes a plurality of staple magazines and a plurality of simultaneously operable plunger elements capable of ejecting a plurality of staples into a carpet and a carpet supporting means.

3,784,079
ULTRASONIC BOND CONTROL APPARATUS
Keith G. Spanjer, Scottsdale, Ariz., assignor to Motorola Inc., Franklin Park, Ill.
Filed Apr. 3, 1972, Ser. No. 240,404
Int. Cl. B23k *5/20*
U.S. Cl. 228—1 **6 Claims**



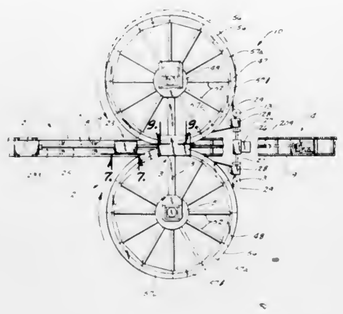
A method and apparatus for improving the quality of the bond obtained from an ultrasonic welding apparatus. The formation of the bond is detected by monitoring the voltage applied to the ultrasonic transducer and by detecting a drop in the applied voltage indicative of bond formation. The bonding apparatus is turned off immediately following bond formation to prevent further ultrasonic energy from weakening the bond.

3,784,080
APPARATUS FOR FRICTION WELDING
Edwin D. Ditto, 1332 Lake Crescent Dr., Bloomfield Hills, Mich.
Division of Ser. No. 184,660, Sept. 29, 1971. This application Nov. 6, 1972, Ser. No. 304,228
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **1 Claim**



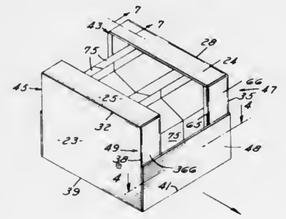
A flywheel driven through a one-way clutch by a motor can be selectively clutched to a drive spindle and connected chuck to relatively rotate workpieces which are moved into engagement under load. After expenditure of a portion of its stored energy, the rotating flywheel is released so that it can be readily accelerated by the motor under low load to a predetermined speed and energy level for another friction welding operation. The remaining stored energy in the rotating spindle and parts connected thereto is employed to complete the friction weld after flywheel release. A positioning device to facilitate loading of the workpieces into the chuck from a loader, an auxiliary brake to shorten friction weld times after flywheel release, and means for removing weld flash are disclosed.

3,784,081
APPARATUS FOR AND WELDING OF TAPERED PIPE
Thomas R. Karmann, Omaha, and Alton A. Adams, Arlington, both of Nebr., assignors to Valmont Industries, Inc., Valley, Nebr.
Filed Mar. 20, 1972, Ser. No. 236,007
Int. Cl. B23k *1/20*
U.S. Cl. 228—17 **5 Claims**



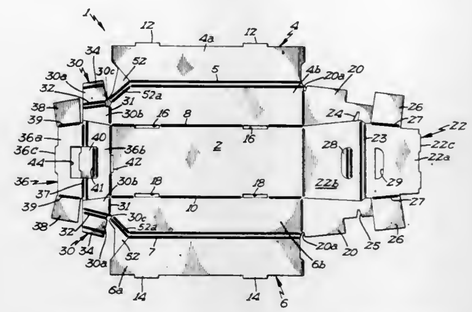
An apparatus capable of receiving a tapered tube having a straight, open seam, forcing and guiding the tube in a seam aligned condition into a welding station where the tube is then drawn through the welding station by the application of frictional pressure upon opposite external sides thereof, the guiding and alignment of the tube as it is being welded aided by a torque unit applied to the emerging end thereof, the torque unit capable of rotating the tube about its longitudinal axis as it is being longitudinally moved and welded; and with a hydraulic system capable of applying appropriate pressure to the sides of the tube-ever increasing in diameter, to aid in maintaining the open seam at a proper dimension for thermal-electric welding, and capable further of automatically decreasing the pressure at a predetermined distance from the butt end of the tube for the same reason, the apparatus capable of automatically completing the weld, ejecting the welded tube, and resetting itself for receiving and processing another tube for welding thereof.

3,784,082
NON-RETURNABLE CONTAINER CASE
Arthur C. Hurlock, Walled Lake, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich.
Filed Oct. 29, 1971, Ser. No. 193,809
Int. Cl. B65d *5/20*
U.S. Cl. 229—30 **2 Claims**



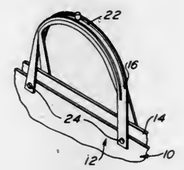
A single piece corrugated case blank which can be formed into a four support post one way case having reinforced three column structure per post provided with a support shelf supported by the support post members.

3,784,083
TOTE TRAY
James L. Pfaffendorf, Maple Grove, and Marlyn D. Johnson, Minneapolis, both of Minn., assignors to Liberty Carton Co., Minneapolis, Minn.
Filed Oct. 18, 1971, Ser. No. 189,950
Int. Cl. B65d *5/22*
U.S. Cl. 229—34 R **11 Claims**



A collapsible tray constructed from a single blank of fiberboard material folded and formed to provide an open top tray having a relatively short, front end wall providing a front access opening, and reinforced by a rigid rim extending around the entire, inner periphery of the tray with the side legs of the rim extending along the side walls of the tray in a downwardly and forwardly inclined position. The front end of the inclined rim extends across the top of the short, front end wall of the tray, and the rear end of the rim is supported at a higher elevation coinciding with the top of the rear end wall of the tray; and the side legs of the rim taper inwardly towards each other towards the front of the tray to provide for the snug positioning of the rim along the entire length of the inclined side walls of the tray.

3,784,084
BAG WITH BAIL HANDLE
Curt Charles Pearl, Pikesville, Md., assignor to APL Corporation, Great Neck, N.Y.
Filed Aug. 31, 1971, Ser. No. 176,496
Int. Cl. B65d *33/06*
U.S. Cl. 229—54 R **1 Claim**



A bag having a pair of bail handles is provided for use in bag vending machines. The bail handles are each connected to a different panel of the bag with the bag being folded into a planar configuration. The panels which have bail handles connected thereto are disposed in opposed relation with one of the handles having a projection which extends from the handle in the plane of the bag and the other of the handles having an opening therein for receiving the projection so that the handles are secured together by insertion of the projection in the opening to prevent the handles from being separated in a bag vending machine.

3,784,085
MULTIWALL BAG CONSTRUCTION

William E. Kilgore, Palatka, Fla., assignor to Hudson Pulp & Paper Corporation, Palatka, Fla.

Filed Mar. 17, 1971, Ser. No. 125,310
Int. Cl. B65d 33/02
U.S. Cl. 229—55 15 Claims

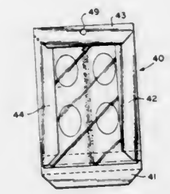


A bag formed of spunbonded material has an outer surface and at least one ply of paper secured to the outer surface in order to reduce actinic degradation of the olefinic polymer material.

3,784,086
DISPLAY PACKAGE

Hampton E. Forbes, Jr., Wilmington, Del., assignor to Westvaco Corporation, New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 213,880
Int. Cl. B65d 33/02, 33/04
U.S. Cl. 229—55 2 Claims



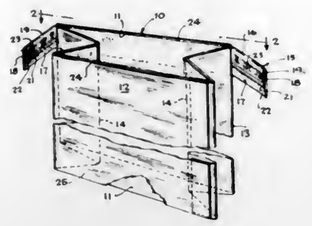
A package is disclosed for packaging articles having little or no depth and constructed from a pre-scored blank of material, such as paperboard, to which there is secured a tubular segment of transparent flexible material. The ends of the tubular segment are either heat sealed after the package is loaded with its contents, or the ends of the tube are closed by end flaps attached to the pre-scored blank.

3,784,087
TAMPERPROOF, RECLOSEABLE PACKAGE AND CLOSURE THEREFOR

Henry H. Styers, Chicago, Ill., assignor to Kloz-Seal Products Co., Inc., Chicago, Ill.

Filed Jan. 17, 1972, Ser. No. 218,407
Int. Cl. B65d 33/30
U.S. Cl. 229—62 5 Claims

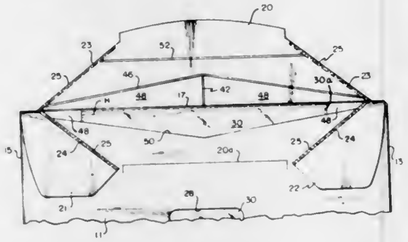
A container having a tamperproof, reclosable closure, the container being of the bag or carton type and having an opening formed by opposite front and rear walls, the closure comprising a flat strip, a portion of which is folded upon itself to form an envelope for a deformable wire. The closure is formed from a paper strip heat-sealable on one side only so that when the heat-sealable side is folded in face-to-face relationship over a portion of the width of the strip to form an envelope for the deformable wire sealed therein, there results a segment along the length of the strip which is heat-sealable and an adjacent segment, containing the wire, which is not heat-sealable. The closure is attached to the flattened opening of a bag by heat-sealing it to one side and folding the ends thereof to the other side of the bag and sealing thereto. Accordingly, when attached and sealed to a bag, the envelope portion of the closure, containing the deformable wire, will not seal thereto so that the end tab portions of the enclosed wire can be unfolded from the bag permitting the bag to be opened. The bag can then be reclosed by refolding the enclosed wire tabs. Prior to the initial opening, the heat-sealed segment must be ruptured so that the closure provides an indication that the container has been opened.



3,784,088
CONVERTIBLE HOSIERY PACKAGE

John V. Shea, and Raymond A. Cote, both of Charlotte, N.C., assignors to Rexham Corporation, New York, N.Y.

Filed Apr. 27, 1972, Ser. No. 248,105
Int. Cl. B65d 27/00
U.S. Cl. 229—68 12 Claims

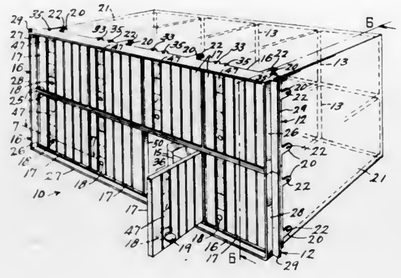


Disclosed herein is a new and improved reclosable convertible envelope for packaging hosiery or soft goods, having unique end constructions which accommodate the conversion of a normally flat, two-walled hosiery envelope into a bulging four-walled envelope, i.e., an envelope having front and rear walls and two end walls disposed there-between. Specifically, the unique end wall construction of the new envelope includes generally diamond-shaped panels which are derived in part from an envelope wall and in part from a closing flap. The diamond-shaped end panels are longitudinally bisected by the end scores of the flat two-walled envelope. For use with non-bulky contents, the envelope tends to remain flattened with its end flaps folded along the longitudinal end scores, however, for use with bulky goods, the envelope takes on "dimension" or is expanded by the separation of the front and rear walls. The expansion is accommodated by the formation of vaulted, generally diamond-shaped end walls by the infolding or collapsing of the end flap and wall portions along the opposite sides of the diamond-shaped panels. The new envelope may be lined, with a flexible liner or pre-formed plastic sleeve. It is provided with convenient tear opening and tab reclosing arrangements designed in such a manner as to eliminate rough edges that might snag or otherwise harm the hosiery.

3,784,089
POSTAL BOX

Byron W. Koch, Toledo, Ohio, assignor to N L Industries, Inc., New York, N.Y.

Filed Sept. 5, 1972, Ser. No. 286,334
Int. Cl. B65d 91/00
U.S. Cl. 232—24 4 Claims

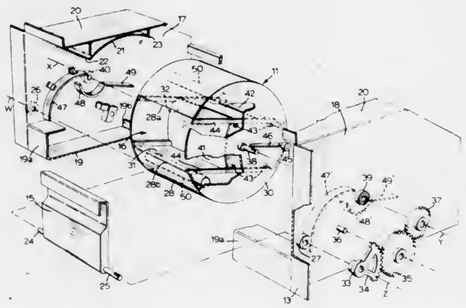


An improved postal box comprising a molded container having a plurality of letter compartments arranged into an even number of rows and two door assemblies for closing the compartments. Each door assembly has an identical die cast frame which extends around half of the rows of compartments. Integral members divide the frame into sections which are aligned with compartment openings. A door is selectively mounted within each section to pivot from adjacent either of two opposed section sides. Lock plates are formed on each of the opposed section sides for engaging a lock on a door when the door mounted adjacent the opposite section side is closed and locked.

3,784,090
SAFE DEPOSIT APPARATUS

Michael H. Markham, Rexdale, Ontario, Canada, assignor to Chubb Industries Limited, Brampton, Ontario, Canada

Filed July 28, 1972, Ser. No. 276,148
Int. Cl. B65g 11/04
U.S. Cl. 232—44 9 Claims

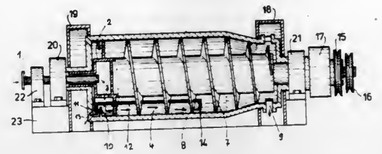


A safe deposit apparatus includes a rotary drum providing a receptacle into which the deposit is placed. The receptacle includes a reciprocatory ejector plate for ejecting the deposit when the drum is rotated into a discharging position. The ejector plate is actuated by a cam mechanism in accordance with the rotation of the drum, the ejector plate being retained by the mechanism in a position flush with the surface of the drum until the drum is returned to a receiving position.

3,784,091
CENTRIFUGAL SEPARATOR

Georg Hiller, Bergstrasse 8, Vilsbiburg, Germany

Filed Nov. 2, 1972, Ser. No. 303,058
Claims priority, application Germany, Nov. 3, 1971, 2154558
Int. Cl. B04b 1/20, 13/00
U.S. Cl. 233—7 19 Claims

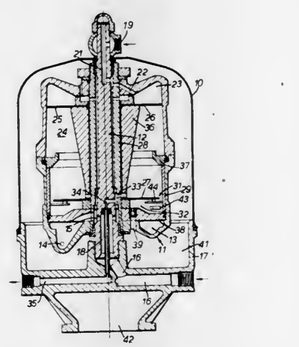


A centrifugal separator comprising a rotary bowl and a screw conveyor rotatable in said bowl on the uniflow principle, wherein liquid separated from slurry in the bowl is withdrawn under suction through a conduit disposed beyond the level of the liquid in the bowl.

3,784,092
CENTRIFUGAL SEPARATOR

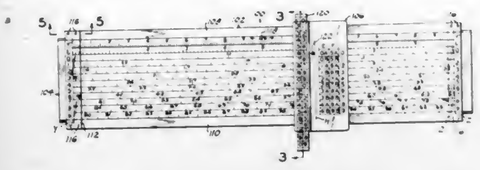
Roland Richard Gibson, London, England, assignor to The Glacier Metal Company Limited, Alperton, Wembley, Middlesex, England

Filed Apr. 26, 1972, Ser. No. 247,796
Claims priority, application Great Britain, Apr. 27, 1971, 11,569/71; Sept. 2, 1971, 40,904/71
Int. Cl. B04b 11/06
U.S. Cl. 233—20 R 5 Claims



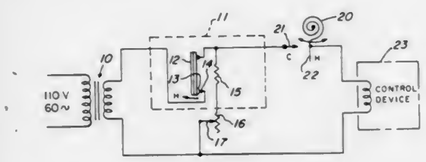
A centrifugal separator for separating say, oil from water, for example, in a cooling water system for a machine, has a separating chamber divided into two regions by a transverse plate which serves to collect the lighter fluid on one side and to allow the heavier fluid to flow to the other side around its edge. There may be a separate fluid for spinning the chamber and one of the fluids may also leave the chamber tangentially to help spin it. There may be a conical surface enabling the lighter fluid to run downwardly and inwardly to its outlet to assist separation.

3,784,093
FACTORMATIC SLIDE RULE
Kent H. Bennett, 2724 J-3 Waiaka Rd., Honolulu, Hawaii
Filed Oct. 2, 1972, Ser. No. 297,147
Int. Cl. G06g 1/02
U.S. Cl. 235—70 R 4 Claims



A slide rule extending the physical dimensions and calculating capacity of a logarithmic scale comprising a frame having start-answer index lines at its respective ends slidably supporting a slider having one or more scales adjacent one longitudinal side. The slider is longitudinally scored across its remaining transverse width to define a plurality of longitudinal parallel lines extending between transverse end limits respectively coinciding with the indexes. A logarithmic scale, equal in length with the combined length of the plurality of parallel lines, is equally divided to form a like plurality of logarithmic scale segments, which are progressively scored on the plurality of parallel lines. A cursor, supported by the frame, includes a scale line number calculator for determining the magnitude and location of a calculated result.

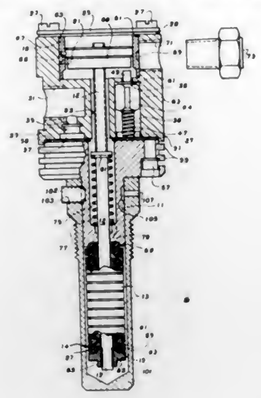
3,784,094
MODULATING HEAT CONTROL
Ralph C. Goodwin, 1430 Ranier Ln. Rt. 2, Wayzata, Minn.
Filed Sept. 18, 1972, Ser. No. 290,246
Int. Cl. G05d 23/30
U.S. Cl. 236—68 C 9 Claims



A heat loss time throttling circuit is disclosed in which an outdoor heat loss detector subordinates the indoor thermostat by using a condition sensitive housing to encapsulate the outdoor heat loss detector and a heating element which actuates the outdoor loss detector in short time durations through an electrical source. The heating element is placed in series with the source and the indoor thermostat may be connected between the source and the heating element or between the control device and the heating element. An alternate form is disclosed for use with a cooling mechanism, both forms being relatively inexpensive in their construction.

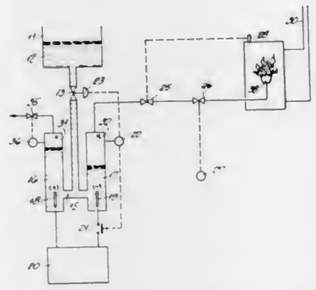
3,784,095
TEMPERATURE RESPONSIVE DEVICE
Robert A. Bilbrey, Orinda, Calif., assignor to Benjamin W. West d/b/a California Controls Company, Berkeley, Calif.
Filed Feb. 14, 1972, Ser. No. 226,043
Int. Cl. G05d 23/02
U.S. Cl. 236—101 12 Claims

A temperature responsive device is described for use in operating a control element which, for example, controls the opening and closing of a valve or an electrical switch. The control element is moved by a trip rod which, in turn, is moved in response to the expansion and contraction of a plurality of aligned thermal expansion cells. Each of the expansion cells comprises an expander of a material having a high thermal ex-



pansion coefficient, and means restraining the expander against deformation other than in the direction in which the cells are aligned.

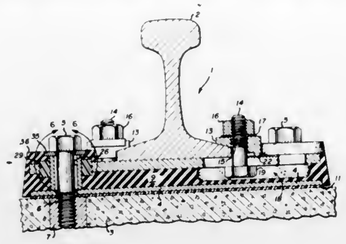
3,784,096
HYDROGEN HEATING SYSTEM
Fritz Zweifel, Linthal, Switzerland, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed July 12, 1972, Ser. No. 271,178
Int. Cl. C01b 13/04; F24d 12/00
U.S. Cl. 237—1 R 1 Claim



A gas furnace heating system, utilizing as a fuel, hydrogen gas obtained from the electrolytic decomposition of water. Water is fed from a storage tank into an electrolytic decomposition cell, with the hydrogen gas fed through appropriate piping and valves to the burner. The burner is controlled by a thermostat in the heated area. The oxygen produced may be vented into the atmosphere.

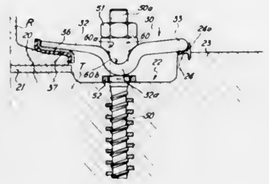
3,784,097
DIRECT FIXATION RAIL FASTENER
Robert L. Landis, Los Altos, Calif., assignor to The Landis Sales Company, Los Altos, Calif.
Filed Oct. 13, 1972, Ser. No. 297,318
Int. Cl. B01b 9/62
U.S. Cl. 238—310 9 Claims

The track of a rapid transit rail system is fastened to a supporting structure via the intermediary of a plurality of rail fasteners. Each rail fastener includes a track plate supported from a base plate via the intermediary of an elastomer layer bonded between the plates. A pattern of voids is provided in the elastomer to enhance the vibration damping effect of the elastomer layer. Increased lateral restraint for the track plate and rail is provided by means of a pair of tubular members up-



standing from the base plate on opposite sides of the rail. High compressive strength inserts are provided between the lateral side edges of the track plate and the upstanding tubular members for taking the lateral forces on the track plate in compression on the insert members.

3,784,098
RAIL FASTENING
Marian Serafin, Paris, and Maurice Decubber, Beaumont S. Oise, both of France, assignors to Societe Anonyme de Traverses en Beton Arme Systeme Vagneux, Paris, France
Filed July 3, 1972, Ser. No. 268,801
Claims priority, application France, July 30, 1971, 7128079; Dec. 17, 1971, 7145480
Int. Cl. E01b 9/30
U.S. Cl. 238—349 4 Claims

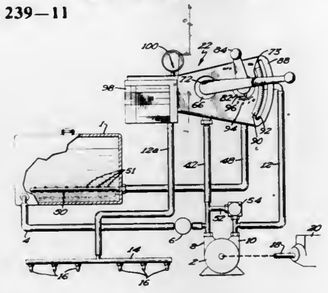


A rail fastening comprises a resilient U-shaped clip the base of which is supported against the sleeper with the free outer ends of the clip arms engaging the rail foot. Holding down means acting against an intermediate portion of the arms stresses the clip to clamp the rail foot. The intermediate arm portions are circularly curved in a vertical plane, and the holding down means engaging the curved portions has a complementary shape. This enables greater deflection of the clip for a given clamping pressure. The outer end portions are flattened where they engage the rail foot.

3,784,099
AIR POLLUTION CONTROL METHOD
Francis N. Bosco, 6119 W. 38th Ave., Wheat Ridge, Colo.
Filed Dec. 13, 1971, Ser. No. 207,595
Int. Cl. E01b 1/00, 21/00, 25/28
U.S. Cl. 239—2 R 12 Claims

A mixture of seeding, pollutant inhibiting, and co-alescing chemicals are vaporized and dispersed in a jetting action into the atmosphere to provide an aggregate of nuclei on the order of subcolloidal approximately submicromolecular sizes upon which nucleations of water vapor in the atmosphere take place free from adjacent nucleations to form water droplets and ice crystals with accompanying releases of latent heat, the water droplets, ice crystals further serving as nuclei in a breeding action for a chain reaction of latent heat releases with the vaporized coalescing chemicals aiding in the coalescence of water droplets and the released latent heat diffuses upwardly in an outward expansion to produce an updraft whereby to puncture atmospheric inversions and inhibit the formation of secondary pollutants.

3,784,100
FLOW CONTROL DEVICE FOR LIQUID APPLICATORS AND PROCESS OF OPERATING SAME
John D. Kirschmann, 323 Airport Rd., Bismarck, N. Dak.
Filed Mar. 30, 1972, Ser. No. 239,684
Int. Cl. B05b 9/06, 15/04
U.S. Cl. 239—11 7 Claims

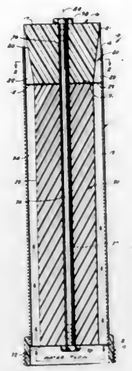


The distribution of a pressurized treating liquid, such as liquid fertilizer, from spray nozzles on an agricultural vehicle is metered and controlled to maintain a desired application rate onto the ground in gallons per minute at varying ground speeds of the vehicle by means of a control valve assembly including an applicaion selector valve located directly in the main flow line to the spray nozzles and serving to divide liquid flow between the spray nozzles and a bypass line leading to the inlet of a circulation pump. The selector valve is initially adjusted to establish a predetermined supply pressure to the spray nozzles which will provide the desired liquid application rate for a particular vehicle ground speed, crop row spacing and orifice size of the selector valve. On applications where the aforesaid circulation pump is driven by a power take-off from a vehicle engine, a second, ground speed control valve forming part of the control valve assembly and located directly in the main liquid flow line upstream of the aforesaid selector valve is adjusted to a setting corresponding to the predetermined vehicle ground speed and divides the liquid flow between the main flow passage leading to the selector control valve and a return line leading back to a liquid supply tank, or to the pump inlet.

3,784,101
LIQUID DISCHARGE NOZZLE HAVING CYLINDRICAL INTERNAL LIQUID FLOW DIRECTOR MEANS
Wayne W. Frempter, Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.
Filed July 24, 1972, Ser. No. 274,186
Int. Cl. B05b 17/08
U.S. Cl. 239—17 2 Claims

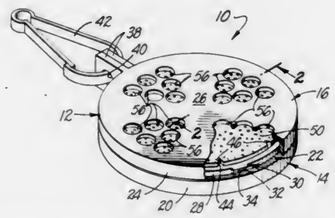
A liquid discharge nozzle for discharging liquid generally upwardly therefrom has an elongate straight body which defines a duct which extends between liquid inlet and outlet openings at the lower and upper ends of the body. A plug having substantial length between its opposite ends is disposed across the duct adjacent the duct outlet opening. A plurality of liquid flow passages are defined through the plug at regular intervals around the plug at locations proximate to the periphery of the plug. An elongate cylindrical liquid flow director member extends from the plug lower end along the duct toward the lower open end of the body. The director member and the body cooperate to define an elongate annular liquid flow path between the passages and the liquid inlet opening.

The annular flow path gas a width transversely has the body which is sufficiently great to prevent the upper end of the director member from restricting to any significant degree the



liquid flow area of the passages formed through the plug. The director member has a length which is substantially greater than any dimension of the director member transversely of the duct.

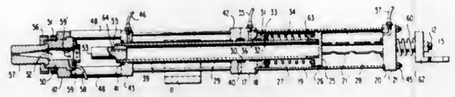
3,784,102
PENDANT CAPABLE OF EXPOSING DIFFERENT AREAS OF A VOLATILE TABLET
Allan C. Stults, 301 Edgewater, Balboa, Calif.
Filed Jan. 12, 1973, Ser. No. 322,931
Int. Cl. A61l *9/04*
U.S. Cl. 239—36 **14 Claims**



A device for exposing different areas of a body of a volatile material can be constructed using a multi-part housing to contain the body. At least one of the parts of the housing has at least one perforate area and at least one imperforate area. The housing and the body are shaped so that the body may be assembled in the housing against movement in different positions in which different portions of the body are covered by the perforate area or areas of the housing. Preferably the device is formed as a pendant so as to include means for securing the housing to a support member such as the collar fitting around the neck of an animal. Preferably the body used is in a disc-like tablet form and includes a volatile flea and tick insecticide.

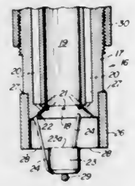
3,784,103
PULSED LIQUID JET DEVICE
William C. Cooley, 5400 Pooks Hill Rd., Bethesda, Md.
Filed Aug. 1, 1972, Ser. No. 277,077
Int. Cl. B05b *3/14*
U.S. Cl. 239—101 **12 Claims**

A gas spring driven hydraulically cocked pulsed water jet device having a driving piston supported on a tubular member and reciprocable in a cylinder, the piston and tubular member arranged to be cocked by fluid pressure applied to a follower and adapted to be restrained in a cocked position by a locking means during the time the follower is retracted, the lock being



arranged to be released to fire the device thereby driving a ram carried on the end of the tubular member into a water filled cavity whereupon the water is caused to be extruded at high pressure and high velocity through a nozzle.

3,784,104
GAS COOLER AND ATOMIZING SPRAY NOZZLE THEREOF
Charles A. Hartung, Kearny, Ariz., assignor to Kennecott Copper Corporation, New York City, N.Y.
Filed May 1, 1972, Ser. No. 248,967
Int. Cl. B05b *3/14*
U.S. Cl. 239—102 **3 Claims**

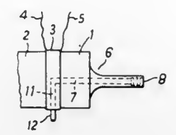


The usual vertical reactor vessel of a conventional gas cooler of a fluosolids or other dust-generating system has combined therewith special atomizing spray nozzles constructed and arranged in the reactor vessel to eliminate caking, on interior walls of the reactor vessel, of particulate solids suspended in the entering hot gas, and, thus, the necessity of digging out the caked solids at frequent intervals. The spray nozzles are of acoustic resonance type having respective resonator cups spaced from air-water-mixing nozzle discharge to interrupt, atomize, and disseminate the air-water streams. In accordance with the invention, the space between nozzle discharge and resonator cup of such a nozzle is protected against induction of particulate solids by a cylindrically tubular shield, thereby protecting nozzle parts against abrasion and the air-water stream against entrainment of solids. In contrast to conventional gas coolers, relatively few nozzles of relatively great capacity are positioned in the top only of the reactor vessel, the remainder of the reactor vessel being free of spray nozzles.

3,784,105
ATOMIZING DEVICES FOR LIQUID FUEL
Mark Wallinger Goodinge, Brentwood, and Norman Moss, Ilford, both of England, assignors to Plessey Handel und Investments A.G., Zug, Switzerland
Filed June 27, 1972, Ser. No. 266,778
Claims priority, application Great Britain, June 29, 1971, 30,370/71
Int. Cl. B05b *1/34, 1/08, 17/06*
U.S. Cl. 239—102 **5 Claims**

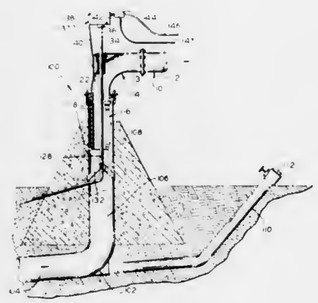
In the end portion of a fuel-atomization nozzle in which the fuel passage contains at its end pressure-atomization means as well as an end opening for atomization by ultrasonic vibration of the nozzle, the pressure-atomization means include a swirl

plug having helical passages and, spaced from it by a swirl chamber, an orifice disc containing a final orifice of smaller diameter than the plug. Both the plug and the disc are secured in a larger-diameter counter-bore at the end of the fuel



passage. They are secured in the counter-bore by electron-beam welding, the plug by radial spot welding through the wall, and the disc by a circumferential weld, which also forms seal closing the ends of the counter-bore.

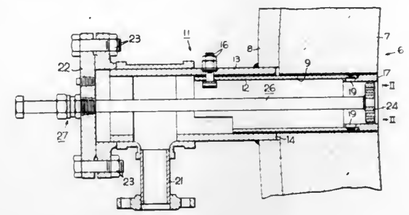
3,784,106
IRRIGATION CENTER PIVOT STRUCTURE
Warren N. Ross, 2123 N. First St., Hermiston, Oreg.
Division of Ser. No. 836,739, June 26, 1969, abandoned. This application Feb. 25, 1971, Ser. No. 119,024
Int. Cl. B05b *3/00*
U.S. Cl. 239—177 **1 Claim**



An irrigation line move has a pipe supported by carriages with flexible, tapered trusses below the pipe extending between the carriages with the central portions of the trusses rotatable on and slidable along the pipe. Control boxes over the carriages mount switches which are actuated by bars attached to the pipe to stop the carriages when excessive misalignment is approached. A center pivot water supply device has a flushing exit, and a slip ring connector for electrical power to electric motor drives of the carriages. The carriages have adjustable wheel supports to provide toe-in.

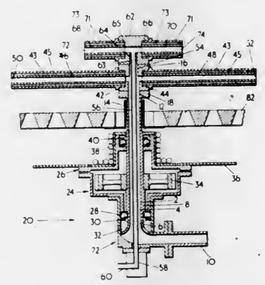
3,784,107
NOZZLE FOR ROTARY KILN
Eugene F. Rossi, Wauwatosa, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Oct. 25, 1972, Ser. No. 300,716
Int. Cl. B05b *3/00, 15/10*
U.S. Cl. 239—208 **3 Claims**

A nozzle connected to a kiln for supplying fluid thereto wherein the nozzle orifice plate is supported by an elongated rod extending through the nozzle body to the exterior thereof. The exterior end of the support rod can be manipulated to



cause movement of the orifice plate relative to the nozzle body and thereby prohibit material buildup at the inner end of the nozzle.

3,784,108
FLUIDIZED BED APPARATUS
Herbert Raymond Hoy, Surrey; Ronald Leslie Johnson, Bletchley, and Whalley Vowe Battcock, Surrey, all of England, assignors to Coal Industry (Patents) Limited, London, England
Filed Dec. 7, 1971, Ser. No. 205,559
Claims priority, application Great Britain, Dec. 23, 1970, 61,032/70
Int. Cl. B05b *3/02*
U.S. Cl. 239—264 **9 Claims**

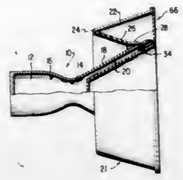


Fluid material distributing apparatus for use in a fluidized bed consists of a rotatable shaft having a longitudinal passage therein communicating with nozzle members located adjacent an outlet of the shaft. The nozzle members are tubular arms affixed to a distribution head carried by the shaft. Fluid material is, in use, conveyed, e.g. pneumatically, through the passage and discharges through the arms by virtue of centrifugal force generated by the rotation of the shaft, the material thereby being distributed within the fluidized bed.

3,784,109
DEPLOYABLE NOZZLE EXTENSION FOR ROCKET ENGINES
John Wilbur Dueringer, Kenmore, N.Y., assignor to Textron, Inc., Providence, R.I.
Filed May 22, 1972, Ser. No. 255,394
Int. Cl. B63h *11/10*
U.S. Cl. 239—265.19 **14 Claims**

A deployable nozzle for rocket engines and method of making same is disclosed in which the extension initially is in collapsed state and is provided with a detachable cover so that internal pressure may be utilized to extend and deploy the extension. The extension includes an outer convolution of annular divergent frusto-conical form joined along a fold line to an intermediate convolution also of frusto-conical form but

directed oppositely from the outer convolution and the intermediate convolution is joined at its small end to a divergent frusto-conical rocket nozzle portion through a relatively narrow cylindrical band which surrounds the divergent nozzle portion and is joined to it at a point spaced from the end of such nozzle portion. The length of this band is of predetermined relation with respect to the length of the free end portion of the nozzle extension such that when the nozzle extension is deployed, it will unroll over the edge of the free end of the nozzle extension to embrace it and form a non-offset and coplanar extension of the inner surface of the rocket nozzle portion.



3,784,110

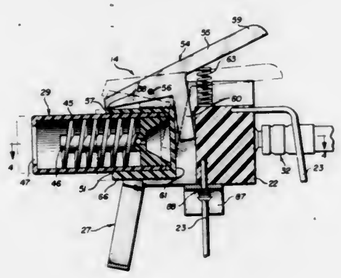
MIXING AND DISPENSING GUN HAVING A REPLACEABLE NOZZLE

William R. Brooks, 365 Alexander, Elmhurst, Ill.

Filed Nov. 16, 1972, Ser. No. 307,092

Int. Cl. B05b *7/12*

U.S. Cl. 239—304 **5 Claims**



A dispensing gun for fluids such as urethane foam and the like is provided in which separate fluid components are individually led to the gun and are mixed within a replaceable mixing and dispensing nozzle member. After gun use, the used nozzle member can be removed for cleaning or replacement with a fresh nozzle, thereby obviating difficulties encountered in cleaning and purging the entire gun. Also disclosed are inexpensive and effective component fluid flow control valves, which are opened by a gun trigger. Each valve is positively closed into a fluid-tight seal by pressure of the controlled fluid against a sealing resilient ball member, and is opened by the action of a plunger against the ball member.

3,784,111

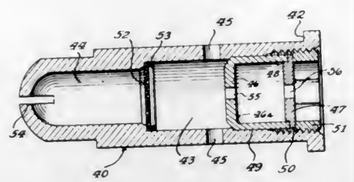
FOAM PRODUCING NOZZLE

Richard G. Piggott, Bellwood, Ill., assignor to Spraying Systems Co., Wheaton, Ill.

Filed Mar. 29, 1972, Ser. No. 239,167

Int. Cl. B05b *7/00*

U.S. Cl. 239—427.3 **5 Claims**



A foam producing nozzle of the type using an air and fluid mixing chamber for discharging a foaming stream from the nozzle. A pair of spaced orifice plates are between the nozzle inlet and the mixing chamber and arranged to enhance the foam producing effect.

3,784,112

NOZZLE

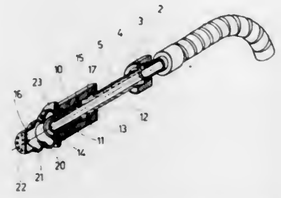
Jean Collignon, Villa "Fleur des bois", Chamonix, France

Filed Apr. 21, 1972, Ser. No. 246,284

Claims priority, application France, Apr. 27, 1971, 7116458

Int. Cl. B05b *1/16*

U.S. Cl. 239—443 **9 Claims**



A nozzle to provide either a weak dispersed jet or a strong concentrated jet comprises a sprayer with stages in the form of hollow rings joined together, each ring having the same inner diameter as the others, the stages having slant perforations for the emission of liquid. The sprayer slides on a tube supplying the liquid, the tube end acting as a regulator. If the tube is only just inserted in the sprayer, all the perforations of all the stages omit a diffused spray. As the regulator is further inserted in the sprayer, stages are progressively cut out until only the end one, pierced with a few axial holes, emits liquid in a concentrated jet.

3,784,113

NOZZLE

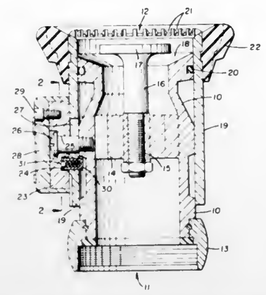
Glenn E. Specht, Charles Town, W. Va., assignor to American La France Inc., Willoughby, Ohio

Filed Sept. 11, 1972, Ser. No. 288,017

Int. Cl. B05b *1/30*

U.S. Cl. 239—460 **8 Claims**

A fire hose nozzle of the high constant gallonage class positions a cylindrical stream pattern sleeve for reciprocal motion around and about a beveled discharge orifice in the nozzle which includes a centrally positioned baffle. A rotatable dial on the nozzle has a cam channel therein engaging a detent on the cylindrical sleeve for imparting reciprocal motion thereto, the cam channel being so formed that rotation of the same to predetermined positions locates the pattern forming sleeve so as to provide a straight stream, narrow fog or wide fog patterns as desired.



3,784,114

PROTEIN-ENRICHED WHEY FRACTIONS

Ivan A. Wolff, Oreland, Pa., and Arthur C. Stringfellow, Washington, Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed June 7, 1972, Ser. No. 260,573

Int. Cl. B02c *13/14*

U.S. Cl. 241—24 **2 Claims**

Protein-enriched and lactose-enriched whey fractions are obtained by fine grinding dried whey in a pin or other impact milling device operated in the range of about 9,000 to 14,000 r.p.m. and then air classifying the fine ground whey into sized fractions in a standard air classifier.

3,784,115

PROCESS FOR THE MANUFACTURING OF DRY MATERIAL, BY CRUSHING, GRINDING OR MILLING

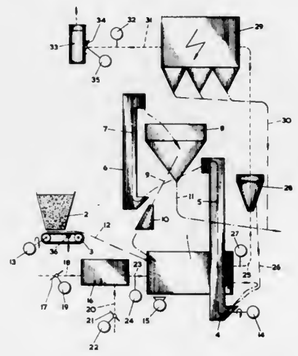
Willem Krijger, Uitgeest, and Jacobus J. Burger, Driehuis, both of Netherlands, assignors to Koninklijke Nederlandsche Hoogoverns En Staalfabrieken N.V., Ijmulden, Netherlands

Filed Oct. 12, 1971, Ser. No. 188,265

Claims priority, application Netherlands, Oct. 12, 1970, 7014936

Int. Cl. B02c *25/00*

U.S. Cl. 241—30 **5 Claims**



The method of controlling a process for the production of dry material on a continuous feed and discharge basis such as, for example, ore pellets, in a mill unit by the crushing, grinding or milling of the dry material is achieved by measuring the amount of material being fed and the amount of process material being discharged to obtain a first signal value and a second signal value, respectively, with each of these two signal values being thereafter fed to a first control means. The degree of fill of the milling unit is electroacoustically detected to obtain a signal value therefor which is thereafter passed to a second control means. The output signal of the second control means is passed to the first control means to adjust same to a constant value. The output signal of the first control means adjusts the first control means so that the first and second signal values of the material being fed and the material being discharged will be substantially equal during the processing of the dry material.

3,784,116

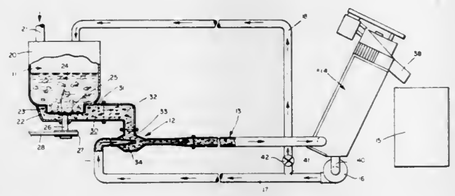
PULPING SYSTEM WITH JET ASSIST FOR PULPER DISCHARGE

Wayne T. Buckman, Pipersville; Blaine Monroe Miller, Malvern, and Thomas Robert Lewis, Hatboro, all of Pa., assignors to Wascon Systems Incorporated, Hatboro, Pa.

Filed Sept. 28, 1971, Ser. No. 184,461

Int. Cl. B02c *18/40*

U.S. Cl. 241—46.17 **2 Claims**



A pulping system is disclosed herein, having a pulping tank wherein waste is abraded and comminuted, and discharged therefrom, to a press as a water-waste slurry. Water is extracted from solids in the press, and is pumped therefrom, through a jet located at the pulper discharge, with the jet being operative to educt slurry from the pulper, and to assist its conveyance to the press. Waste water which feeds the jet is extracted from a return line of press water being recycled to the pulper.

3,784,117

ROTOR FOR USE IN IMPACT CRUSHERS

Rolf Koenig, Handorf, and Gerhard Hemesath, Munster, both of Germany, assignors to Hazemag Hartzerkleinerungs Und Zement-Maschinenbau-Gesellschaft mbH, Muenster, Germany

Filed Sept. 29, 1972, Ser. No. 293,373

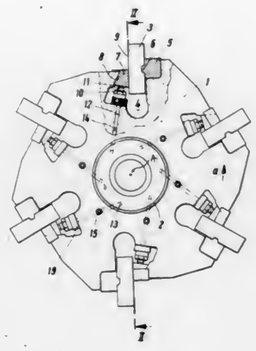
Claims priority, application Germany, Sept. 30, 1971, P 21 48 752.5

Int. Cl. B02c *13/06, 13/28*

U.S. Cl. 241—191 **10 Claims**

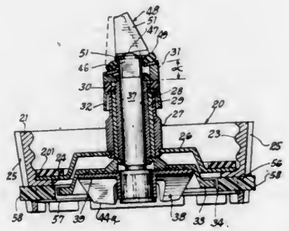
A rotor body is composed of a plurality of axially spaced parallel plates which are rigidly connected for rotation about a

joint axis. The outer periphery of the rotor body is provided with slots extending inwardly of the periphery and in parallelism with the axis, and impact bars are arranged in the respective slots. Between the bars and one sidewall of each slot is mounted a support bar which interengages with the impact bar, the latter extending to some extent outwardly beyond the periphery of the rotor body. Between the other sidewall of the slot and the impact bar is arranged a wedge member which is urged to wedging position by a plurality of pressure-fluid



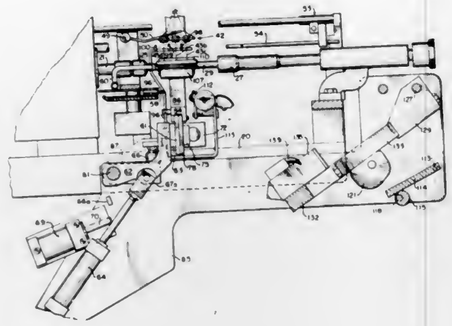
operated elements arranged in the slots and being connected via branch conduits with main pressure fluid conduits arranged in the rotor body.

3,784,118
MIXING AND COMMINUTING APPARATUS
Mathew Hurwitz, 63 Oakland Ave., Auburndale, Mass.
Filed Feb. 7, 1972, Ser. No. 224,111
Int. Cl. B02c *18/12*
U.S. Cl. 241—282.1 **16 Claims**



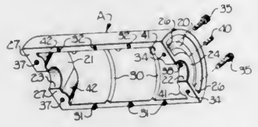
An agitator and cutter assembly for a food blender and the like having cutter blades arranged so that they may be tilted from a vertical axis to change the pitch of the blades.

3,784,119
APPARATUS FOR FASTENING YARN WINDING TAILS
Samuel P. Kenworthy, Phoenixville, Pa., and Marcus A. Hall, Branford, Conn., assignors to Frederic S. Claghorn, Chester Hill; John H. DeWitt, Huntington Valley and d/b/a Cezoma International, Royersford, Pa.
Filed Feb. 22, 1972, Ser. No. 228,042
Int. Cl. B65h *54/10*
U.S. Cl. 242—18 R **7 Claims**



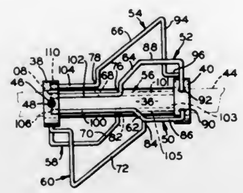
In the formation of a winding of yarn wherein a tail is left on the winding, a method and apparatus for releaseably fastening the tail which involves placing a bead of adhesive over the tail on the winding and causing the adhesive to set.

3,784,120
SPLIT DRIVE ROLL AND METHOD OF FORMING SAME
Ted D. Harris, Dallas, N.C., assignor to Universal Machine Company, Inc., Dallas, N.C.
Filed Dec. 26, 1972, Ser. No. 318,028
Int. Cl. B65h *54/46, 54/48;* **B21b** *31/00*
U.S. Cl. 242—18 DD **4 Claims**



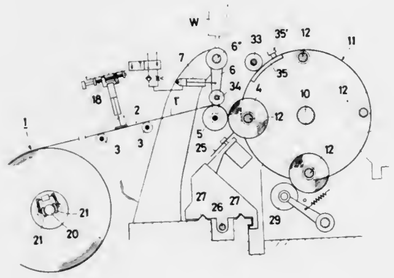
This drive roll is particularly adapted for use as the drive for rotating a yarn take-up package on a textile machine. The drive roll includes a pair of identical semi-circular molded plastic shell-like parts which may be easily mounted on and removed from a drive shaft. Each semi-circular shell includes a plurality of pins formed integrally with and spaced along one side of the shell and a plurality of matching recesses spaced along the other side of the shell and aligned with the pins so that the pins of one shell will mate with and be positioned in the recesses of the other shell when the shells are aligned and join at opposite sides of the drive shaft. Suitable fastening means is provided for maintaining the shells in joined together relationship and means is provided for preventing rotation of the assembled drive roll on the drive shaft.

3,784,121
TRAVERSING MECHANISM
David Michael Arno, Toledo, and John Gilbert Mohr, Maumee, both of Ohio, assignors to Johns-Manville Corporation, New York, N.Y.
Filed Mar. 2, 1971, Ser. No. 120,260
Int. Cl. B65h *54/28*
U.S. Cl. 242—43 **14 Claims**



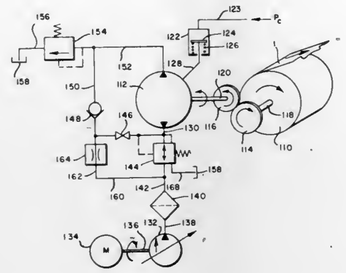
A traversing mechanism for strands comprising a series of cams mounted for rotation about an axis. Inclined working faces of the cams cooperate with faces parallel to the axis of rotation to traverse the strand over a path which maintains an essentially constant spacing from the axis of rotation during all traversing positions.

3,784,122
SHEET REWINDER
Hiroshi Kataoka, 5-8, Asahi 1-chome, Iyomishima, Japan
Filed Dec. 17, 1971, Ser. No. 209,074
Claims priority, application Japan, Dec. 18, 1970, 45/113030
Int. Cl. B65h *19/26, 19/06*
U.S. Cl. 242—56 A **8 Claims**



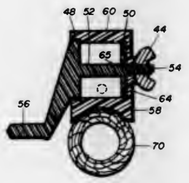
In the rewinding of a sheet from a feed roll onto smaller rolls, a bonding agent is applied to the upper surface of the sheet after a predetermined amount of the sheet has been wound to a predetermined tension and the sheet is cut so as to divided the area to which bonding agent has been applied to the front and rear. The front portion serves as a seal for the roll already wound while the rear portion serves to fasten the sheet to a new core.

3,784,123
TENSION CONTROL SYSTEM
Ernest E. Lewis, Topsfield, Mass., assignor to Whiteley Industries, Inc., Wilmington, Mass.
Filed Apr. 5, 1971, Ser. No. 130,925
Int. Cl. B65h *59/00*
U.S. Cl. 242—75.53 **14 Claims**



A tension control system for web movement and processing applications. The system employs improved tension reference and error detecting means together with variable displacement hydraulic units which provide for direct adjustment of driving and/or retarding torques to control web tension in response to set point and error signals.

3,784,124
FISHING REEL
Marvin T. Shumate, 2316 Liverpool, Mesquite, Tex., and Bobby G. Williams, 9551 Crestshire, Dallas, Tex.
Continuation-in-part of Ser. No. 26,586, April 8, 1970, abandoned. This application Oct. 22, 1971, Ser. No. 191,740
Int. Cl. A01k *89/02*
U.S. Cl. 242—84.1 R **2 Claims**

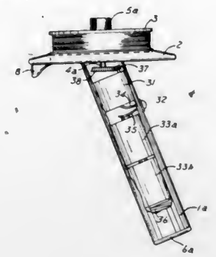


A reel designed primarily for cane pole fishing, the device having a construction which eliminates need to wind the line around the pole for adjusting length when fishing at different depths, one embodiment of the device comprising a housing securable to the fishing pole, a one-piece spool for storing line not in use, a housing end for enclosing the spool within the housing, a spool handle of crank shape and a winged nut for fitting the spool handle through the housing end, spool and spool housing, the spool handle serving to rotate the spool. In another embodiment of the invention, the reel is formed by the engagement of a housing having an annular shoulder adjacent its open end with a unitary spool body having an axle, two flanges and a crank.

3,784,125
FISHING APPARATUS

Richard D. Law, 10867 W. 30th Ave., Lakewood, Colo., and Robert E. Eckels, 2101 Youngfield St., Golden, Colo.

Filed July 22, 1971, Ser. No. 165,231
Int. Cl. A89k *89/00*
U.S. Cl. 242—96 2 Claims

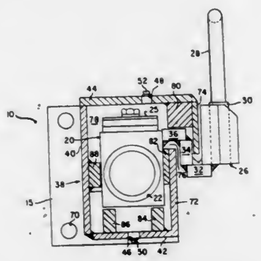


Fishing apparatus having a tubular disc-shaped member mounted on a handle and a rotatable open face spool for fishing line, drag for the spool being mechanically adjustable. Line-feed and drag is further controllable by manipulation of the handle relative to the line direction.

3,784,126
LEVEL WIND SPOOLING DEVICE WITH A STABILIZING HOUSING

Eston F. Petry, McMurray, Pa., assignor to Consolidation Coal Company, Pittsburgh, Pa.

Filed June 14, 1972, Ser. No. 262,476
Int. Cl. B65h *57/28*
U.S. Cl. 242—158.3 2 Claims



The level wind spooling apparatus includes a spooling shaft mounted in a spooling device housing and connected to apparatus operable to rotate the spooling shaft. The outer cylindrical surface of the spooling shaft has formed therein a pair of compound threads including a right-hand thread and a left-hand thread, each thread having the same pitch. The root and side walls of each thread form a continuous cam track extending along the length of the spooling shaft. A cam track follower assembly mounted on the spooling shaft includes an actuator positioned in one of the cam tracks to guide the follower assembly longitudinally along the shaft during rotation of the shaft and operable to transfer, at either end of the shaft, to the oppositely oriented cam track for guidance of the follower assembly in a reverse direction longitudinally along the shaft to the other end thereof. The housing substantially encloses the spooling shaft and follower assembly along the length of the shaft. A longitudinal slot extends along the front of the housing to permit the passage along the housing of a flexible strand guide assembly connected to the follower assembly within the housing. A plurality of stabilizing guide members are secured in spaced relation with each other to the inside surfaces of the housing walls and extend inwardly therefrom adjacent to preselected portions of the external surfaces of the follower assembly and are arranged to guide and stabilize the follower assembly in its traverse along the spooling shaft. The housing walls form a substantially enclosed container for lubricating material for the spooling shaft, the surfaces of the guide members and the follower assembly.

3,784,127
TRANSCRIPTION CONTROL FOR CASSETTE TAPE PLAYER

Mario E. Bachmann, 1324 S. Finley Rd., Apt. 1C, Lombard, Ill.

Continuation-in-part of Ser. No. 131,012, April 5, 1971, abandoned. This application July 3, 1972, Ser. No. 268,536
Int. Cl. G03b *1/04*; G11b *15/32, 23/04*
U.S. Cl. 242—199 24 Claims

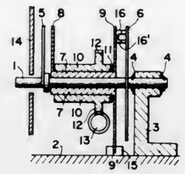


A case holding the transcription control apparatus mounts over the cassette. Sockets are aligned with each reel axis and are movable along that axis. The sockets have teeth which, when the sockets are moved against the reels, engage the reels. The teeth on the socket associated with the take-up reel project through the spokes of the reel to disengage the spindle from the reel. A finger is movably mounted to push the pressure roll away from the capstan. The socket associated with the feed reel is connected to a gear. A ratchet mechanism engages that gear in a direction such as to rotate the feed reel in the reverse of its feed direction. A foot control is connected by a Bowdin wire to a first slide within the case. An arm connects the first slide to a second slide. When the foot control is in the stop position, the first slide moves one or both sockets into the respective reels to disengage the spindles and the second slide moves the back-up roll away from the capstan. When the foot control is set in the play position the back-up roll is freed to press the tape against the capstan and the socket associated with the take-up reel is raised away from the respective reel. As the foot control is moved between the stop and backspace positions the back-up roll is held away from the capstan, the socket associated with the take-up reel is held in a position to disengage the respective spindle and the ratchet mechanism rotates the feed reel in a direction to take up tape thereon.

3,784,128
TAPE DRIVE CONTROL SYSTEM

Michinori Nagahiro, Nishinomiya; Toshiomi Yabu, Kyoto; Hiroo Hosono, Hirakata, and Masaharu Ushihara, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 13, 1972, Ser. No. 297,489
Claims priority, application Japan, Oct. 15, 1971, 46/95863
Int. Cl. B11b *15/32*; G03b *1/04*
U.S. Cl. 242—201 8 Claims

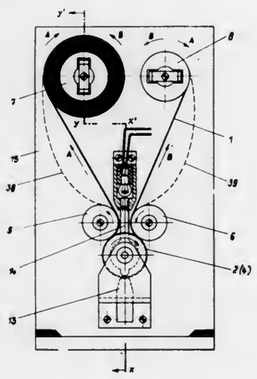


A system for automatically effecting various controls of the tape drive system in magnetic recording and reproducing systems or similar systems using magnetic tape in accordance with the tape position.

3,784,129
ALTERNATE WINDING AND UNWINDING OF A TWO-ENDED PROGRAM TAPE

Norbert Paul Bourgeois, Troyes, France, assignor to Etudes et Bonneterie S.A., Lausanne, Switzerland

Filed Feb. 25, 1972, Ser. No. 229,542
Claims priority, application Switzerland, Mar. 5, 1971, 3245/71
Int. Cl. B11b *15/32*; G11b *5/00*; G03b *1/04*
U.S. Cl. 242—201 7 Claims

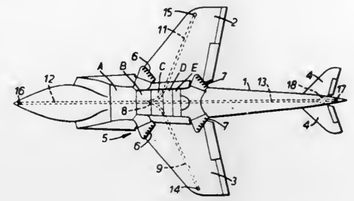


A two-ended program tape is alternately wound and unwound between two spools by a reversible motor, the spools being connected to this reversible motor via couplers and respective clutches so that the tape-receiving spool is also driven by the motor, and each spool also having a respective auxiliary motor. When a pre-reversal data on the tape passes under a reader, the clutch of the receiving spool is disengaged and its auxiliary motor supplied to rotate in the opposite direction thereby forming a length of loose tape between this spool and the reversible motor. A subsequent reading of a reversal data on the tape actuates reversal of the main motor and engagement of the clutch of the empty spool which is driven in the direction to wind tape thereon, supply to the auxiliary motor of the first spool being cut when the pre-reversal data passes back under the reader.

3,784,130
FUEL SYSTEMS FOR AIRCRAFT GAS TURBINE ENGINES

Keith Robinson, Churchdown, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Filed Feb. 29, 1972, Ser. No. 230,494
Claims priority, application Great Britain, Jan. 10, 1972, 1,093/72
Int. Cl. B64d *31/00*; F02k *3/02*
U.S. Cl. 244—76 J 9 Claims

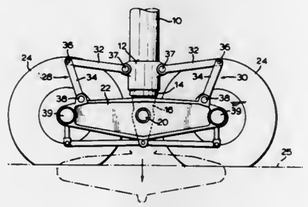


In an aircraft having a gas-turbine engine, one or more main jet nozzles directed downwardly to provide weight-supporting thrust for the aircraft, a plurality of stabilising nozzles, duct-means for feeding air at pressure from the engine compressor to the stabilising nozzles, and a pilot's adjustable valve means for adjusting air flow from the stabilising nozzles to control the attitude of the aircraft, the provision of a fuel system for the engine comprising, a source of fuel at pressure, a constant speed fuel flow control to feed fuel from the source to the engine for constant and slowly varying speeds, an acceleration fuel flow control to feed fuel from the source to the engine during engine acceleration at a rate ensuring safe acceleration without compressor stall, an auxiliary fuel flow control and control means for said auxiliary fuel flow control responsive to air flow to one or more stabilising nozzles to supply extra fuel flow to the engine during engine acceleration over and above the fuel flow supplied by the acceleration fuel flow control.

3,784,131
AIRCRAFT LANDING GEAR

Henry Ralph Stratford, 337 Fairview Dr., Whitby, Ontario, Canada

Filed May 19, 1972, Ser. No. 255,096
Int. Cl. B64c *25/58*
U.S. Cl. 244—102 R 4 Claims

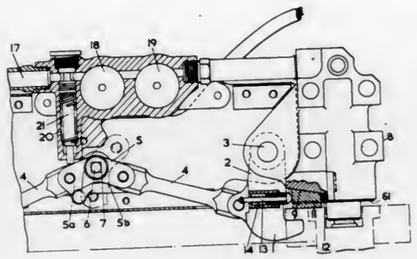


This invention provides an aircraft landing gear in which a bogie axle is mounted horizontally in bearing means at the bottom of a vertical strut which incorporates a shock absorber cylinder. The bogie beam extends in either direction from the bearing means and the latter is constructed for minimal resistance to rolling movement, preferably by incorporating a spherical bearing surface. Resistance to rolling movement is provided by two torque linkages extending between the vertical strut above the shock absorber piston and the ends of the bogie beam.

3,784,132
EJECTOR RELEASE UNITS

Cyril Newell, Odiham, England, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Mar. 20, 1972, Ser. No. 236,387
Claims priority, application Great Britain, Mar. 25, 1971, 7,772/71
Int. Cl. B64d *1/02*
U.S. Cl. 244—137 R **3 Claims**

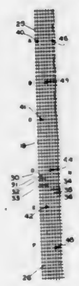


An ejector release unit, for carrying aircraft stores such as bombs, enables securing and crutching of a store to be accomplished in one manoeuvre. The store must have two saddles spaced apart thereon, with store-facing surfaces on the saddle. The preferred release unit has two hooks for each saddle, the hooks engaging the store-facing surfaces. Wedges between the top of each saddle and structure of the unit are forced into engagement with saddle and structure by spring loaded plungers associated with the hooks. A manually operable crank and lever arrangement allows hooks to be engaged or disengaged with a store, and plungers to be engaged with or disengaged from wedges as required. Any movement of store relative to unit after engagement results in tightening of the wedges. Operationally stores are released by a cartridge operated piston acting on the crank.

3,784,133
SEAM FOR WOVEN PAPER MAKING FABRICS

Vernon J. Hill, Jr., Chagrin Falls; Earl A. Southam, Cleveland Heights, both of Ohio, and John R. McDowell, Knoxville, Tenn., assignors to The Lindsay Wire Weaving Company, Cleveland, Ohio

Filed Jan. 19, 1972, Ser. No. 219,050
Int. Cl. B21f *27/10*
U.S. Cl. 245—10 **2 Claims**



A seam for joining opposite ends of a woven fabric to form a loop or belt suitable for various uses in connection with paper making machines. The seam is formed by using weft strands from the woven fabric for seam wefts. Weft strands on each end of the woven fabric are removed to leave warp pickets which are then interwoven with the seam wefts to form the seam, whereby the pattern of the weave across the seam is the same as that in the body of the fabric. The ends of successive warp strands are terminated over different seam wefts in a pattern which includes at least a six-warp sequence. The ends of adjacent warp strands terminate in spaced rows of seam wefts in a repeated sequence with a plurality of seam wefts between adjacent rows. The spacing and direction of the respective warp terminations are such as to achieve suitable seam strength and a reduced tendency to mark the paper sheet formed on the belt.

3,784,134
SWITCH FOR RAIL VEHICLES

Gunter Claus, and Friedrich Doring, both of Bochum, Germany, assignors to Krupp Huttenwerke AG, Alleestr., Germany

Filed Mar. 14, 1972, Ser. No. 234,567
Claims priority, application Germany, Mar. 27, 1971, P 21 14 926.8
Int. Cl. E01b *7/00*
U.S. Cl. 246—446 **17 Claims**

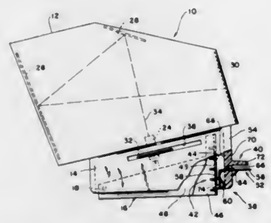


An improvement in a switch for rail vehicles having a switch and pivoting frog in which the frog point can be joined to either of the rails which are disposed within the frog wherein there are longitudinally displaceable rails ahead of the switch which can be brought to contact a set of movable lateral deflectable rails. A system is disclosed wherein there are non-movable rails, i.e., non-pivoting rails ahead of the frog point of the switch. According to the disclosure branch track rails are provided which can be elevated or depressed with respect to the main track rails suitably at the beginning of the entrance of the switch. These rails can be canted.

3,784,135
ELEVATION MECHANISM

William S. Owen, Jr., Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 7, 1972, Ser. No. 232,382
Int. Cl. F16m *13/00*
U.S. Cl. 248—11 **6 Claims**



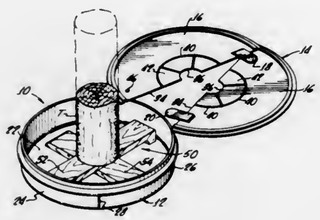
An elevation mechanism for varying the angle of a main housing relative to a base pivoted to the housing is disclosed. At the front of the base is provided a series of vertically disposed openings or indentations into one of which a detent finger supported by the front of the housing is adapted to be inserted. The finger preferably comprises a part of an operational member having spring members and a operating surface

whereby pressure applied to the operating surface will compress the spring members and retract the finger to permit rotation of the housing relative to the base. When pressure is withdrawn from the operating surface the spring members urge the finger into an opening in the base to establish the desired angle of the base relative to the housing.

3,784,136
CHRISTMAS TREE STAND HOLDER

Erlindo C. Lopez, 9270 Hemlock, Cucamonga, Calif.

Filed Aug. 18, 1972, Ser. No. 281,995
Int. Cl. A47g *33/12*
U.S. Cl. 248—44 **5 Claims**

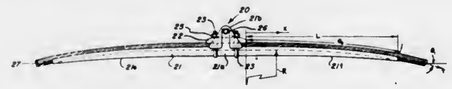


A device for holding the wooden Christmas tree stand with the bottom end of the tree trunk submerged in water, so that the tree can take up water and retain its freshness. The device comprises a shallow, flat-bottomed basin of sufficient lateral dimension to receive the conventional wooden stand, and sufficient depth to hold water to cover the stand and the cut end of the trunk. A two-piece lid is provided, in which the two halves are hinged together near one edge, so that they can be swung apart to pass the tree trunk between them, said halves being brought together with the trunk in the center. A swinging latch on one of the halves fastenes to the other half to tie the two lid halves together. At its center, the lid has a circular opening to receive the tree trunk, and a series of slots radiating from the opening form flaps that bend upwardly to accommodate a trunk that is larger than the opening. Score lines provide lines of weakness, so that the flaps will bend up freely at their bases.

3,784,137
TRANSMISSION LINE CABLE CLAMP

Fletcher C. Eddens, Wilmington, N.C.; William P. Corley, Birmingham, Ala.; Jack Ronald Salling, Birmingham, Ala., and Ralph E. McDonald, Birmingham, Ala., assignors to Anderson Electric Corporation, Leeds, Ala.

Filed Dec. 1, 1971, Ser. No. 203,652
Int. Cl. F16l *3/00*
U.S. Cl. 248—63 **7 Claims**

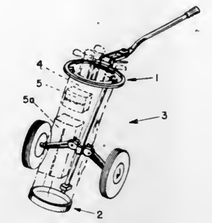


An clongate tapered clamp body is designed to flex under load in such a manner as to provide an arcuate support of large radius for a suspended cable. A pair of U-bolts clamp the cable between the clamp body and an upper keeper.

3,784,138
ROTATABLE GOLF BAG HOLDER

Charles A. Herling, 1308 Orchard Hills Pl., Hagerstown, Md., and Bernard L. Maizlish, 1016 Flagtree Ln., Baltimore, Md.

Filed Apr. 14, 1972, Ser. No. 244,047
Int. Cl. A63b *55/08*
U.S. Cl. 248—96 **10 Claims**

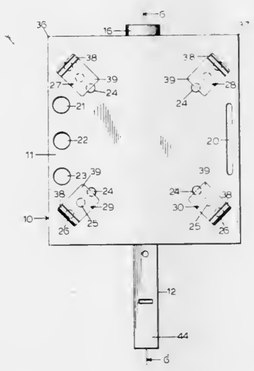


A rotatable golf bag holder for use on various types of golf carts. The holder includes a rotatable base on which the bottom of a conventional pocketed golf bag rests and a rotatable ring assembly which encircles and clamps the top of the golf bag, permitting full 360° rotation of the holder and bag to provide easy access to the ball and accessory pockets thereof.

3,784,139
ARTICLE SUPPORT AND LADDER ATTACHMENT

Carter D. Ellis, R.D. No. 2, Fairview, Pa.

Filed July 3, 1972, Ser. No. 268,900
Int. Cl. E06c *7/14*
U.S. Cl. 248—210 **6 Claims**



A paint bucket support and ladder attachment is disclosed herein. The attachment has a platform and support member which may be received in a hollow rung of a ladder, and a locking means on the support member to clamp the support member in the hollow rung. The paint bucket support has a flat surface for supporting a paint bucket and lugs to hold the paint bucket in place. The platform has several holes in it which may receive such tools as putty knives, screwdrivers, and other similar tools.

3,784,140
REMOTE FASTENER FOR LAMPS AND THE LIKE

Sherwin Leonard Auerbach, 473 Vallejo St., San Francisco, Calif.

Filed Sept. 1, 1972, Ser. No. 285,929
Int. Cl. F16m 13/02
U.S. Cl. 248—214 12 Claims

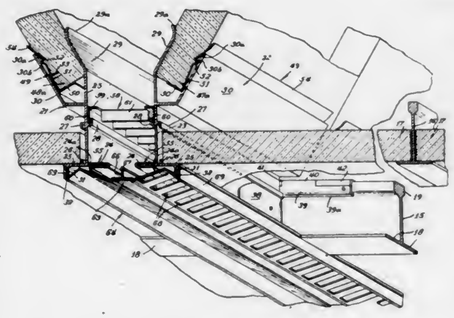


The fastener includes a head carrying a clamping jaw and an opening in which a rod is slidably received. Registering slots on the head and rod receive one end of a locking lever which is pivotally connected to the head. The opposite end of the lever carries a clamping jaw. A pin is carried by the rod and engages in a slot on the one lever end whereby reciprocating movement of the rod moves the jaw carried by the lever toward and away from the fixed clamping jaw. To retain the fastener clamped about a support, a locking sleeve is threaded on the rod. By threading the sleeve into butting engagement against the head the jaw carried by the lever is maintained in engagement against the support. The opposite end of the rod pivotally mounts a lighting fixture or the like.

3,784,141
VENTILATING AIR DISTRIBUTING CHANNEL FASTENING AND SUPPORTING BRACKET

Joel R. Rachlin, 1785 Wedgewood Way, Elm Grove, Wis., and Rudolph Otto Neudek, W. 271 N. 1275 Meadowbrook Rd., Waukesha, Wis.

Division of Ser. No. 10,508, Feb. 11, 1970, Pat. No. 3,673,945.
This application June 12, 1972, Ser. No. 262,039
Int. Cl. F16b 1/00
U.S. Cl. 248—214 5 Claims

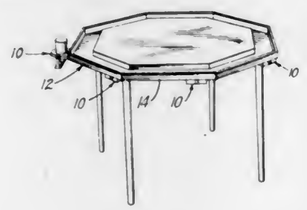


The supporting grid (e.g., main and cross inverted tees) of a suspended ceiling also completely supports ventilation air-distributing apparatus which may include the air supply duct. This apparatus, which is completely assembled before mounting in the grid, comprises a lower air flow channel section formed of two extruded metal bars having vertical webs with hooks on the outside of the web defining ways into which the wings of a bracket project to hold the spaced bars in a channel assembly. A clip integral with the bracket hooks over the top of a grid tee and has gripper conformations to mate with a clip on the opposite side of the tee to align channels. Along the top of the web of each bar are two outwardly extending spaced arms which are used to hold the sides of a fiberglass air duct. Between the webs and below the air duct is an optional air extractor. The air from the duct discharges out through the opening between the webs. At the bottom of the webs are flanges forming supports for ceiling panels and air flow control dampers.

3,784,142
EXTENSIBLE AND RETRACTABLE SUPPORT

Edward M. O'Brien, 1717 E. St. Louis Ave., Las Vegas, Nev.

Filed July 31, 1972, Ser. No. 276,672
Int. Cl. A47c 7/70
U.S. Cl. 248—311 5 Claims



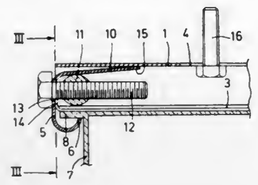
An extensible and retractable support mountable under a horizontal supporting structure, such as a counter top, table top, chair seat, or the like, and adapted, when extended, to hold a drinking glass, or other article. The extensible and retractable support includes a horizontal guide means adapted to be secured under the supporting structure inwardly of an outer edge thereof. A horizontal supporting member is slidable horizontally in the guide means between a retracted position beneath the supporting structure and an extended position wherein the supporting member projects outwardly beyond the outer edge of the supporting structure, the projecting portion of the supporting member being provided with an opening therethrough having an axis which is upright in both the extended and retracted positions of the support. A stirrup is pivotally mounted on the supporting member for gravity induced movement into a position below the opening when the supporting member is in its extended position, whereby a drinking glass, or other article, placed in the opening is seatable on the stirrup. The stirrup is pivotable upwardly into a position wherein it is aligned with the supporting member and is insertable into the guide means, whereby the stirrup is retractable into the guide means in response to movement of the supporting member into its retracted position.

3,784,143
CONNECTION DEVICE FOR ELONGATE LIGHTING FITTINGS

Charles Henri Joseph Anderson, and Henricus Johannes Verwegen, both of Emmasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 13, 1972, Ser. No. 271,349
Claims priority, application Germany, July 17, 1971, G 71 27 546.2
Int. Cl. F16m 13/02
U.S. Cl. 248—316 R 2 Claims

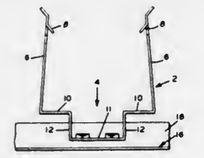
The invention to a device for securing against a wall an elongate lighting fitting which is provided with projecting edges extending in its longitudinal direction, which device comprises a brace which is provided at its ends with hooks for clamping the edges of the lighting fitting. At least one of the hooks is movable in the longitudinal direction of the brace and can be tightened in the direction transverse to the wall by means of a clamping member.



3,784,144
CEILING SYSTEM SUSPENSION CLIP

James C. Ollinger, Lancaster, and John W. Shenk, Columbia, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Aug. 9, 1972, Ser. No. 279,036
Int. Cl. F16l 3/00
U.S. Cl. 248—317 6 Claims

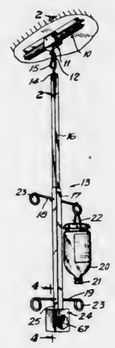


A U-shaped clip is fastened directly to the ceiling joists. Into the clip member is inserted a simple conventional runner member to which is fastened the ceiling tile. A spring finger structure is utilized to hold the runner member relative to the clip member.

3,784,145
HANGER FOR INTRAVENOUS BOTTLES

Raymond William Lawrie, Brooklyn, N.Y., assignor to Capital Cubicle, Inc., Brooklyn, N.Y.

Filed Mar. 31, 1972, Ser. No. 239,997
Int. Cl. F16m 13/00
U.S. Cl. 248—334 11 Claims

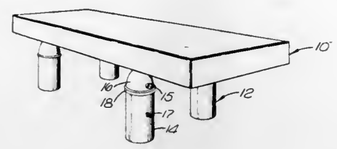


An adjustable intravenous bottle pendant assembly permitting heightwise and translatory adjustment of feeding units supported thereby by one hand operation by a nurse or hospital attendant.

3,784,146
HORIZONTAL VIBRATION ISOLATION SYSTEM

John W. Matthews, 17635 San Diego Cir., Fountain Valley, Calif.

Filed Apr. 24, 1972, Ser. No. 247,122
Int. Cl. F16m 1/122
U.S. Cl. 248—358 R 10 Claims

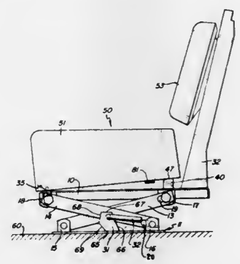


A horizontal vibration isolation system including a hollow piston defining a chamber closed by a top plate which is formed with a central aperture. An internal plate is suspended in the chamber by a plurality of cables secured between the top plate and the internal plate which supports a connecting rod which protrudes axially through the aperture in the top plate. The protruding end of the connecting rod is formed to be secured to the bottom surface of the member which is to be isolated from horizontal vibrations. The chamber may be filled with oil for damping the horizontal motion of the system at resonance. The cables may be solid metallic rods or be formed of braided wire. Each cable is swaged at its lower end, e.g., with a ball end, which fits into a hole therefor formed in the internal plate. The cables are adjustably secured to the top plate for aligning the internal plate to a desired horizontal position. In operation, a plurality of the pistons are provided, each of the pistons being secured to a bottom surface of the isolated member. Each of the pistons may be supported on a flexible diaphragm which provides vertical isolation of the vibrations, the diaphragm also forming the sealing surface of a fluid chamber, the fluid being a compressible gas such as air or nitrogen.

3,784,147
SEAT ADJUSTING MECHANISM

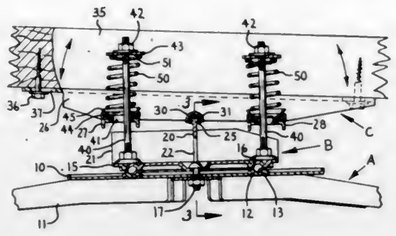
Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach and Car Equipment Corporation, Elk Grove Village, Ill.

Filed Feb. 11, 1972, Ser. No. 225,474
Int. Cl. A47c 3/00
U.S. Cl. 248—371 3 Claims



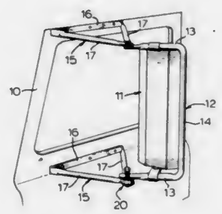
Vehicle seat is mounted on an assembly which moves seat vertically to a selected elevation corresponding to a setting on a polygonal plate without significant horizontal movement of the seat or plate. Vertical position of rearward portion of seat is adjusted by operation of a support means actuable by a seat occupant leaning forward and lifting said rear portion of the seat.

3,784,148
ROCKER BASE
Bernard E. Hill, P. O. Box 635 224 S. W. 5th St., Pendleton, Oreg.
Filed May 15, 1972, Ser. No. 253,020
Int. Cl. A47c 3/02
U.S. Cl. 248—382 6 Claims



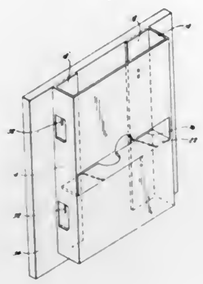
This is a swivel rocker base for a rocking chair. A rocker base frame is swivel mounted on a swivel base frame. A rocking trunnion comprising a steel rod is welded in horizontal position on the upper edge of a vertical plate which is mounted in diametral position on the rocker base frame. A rocker frame has a semicylindrical saddle bearing overlying the full length of the trunnion rod to support the chair. A nylon cushion is interposed as a bushing between the trunnion rod and saddle bearing. Four upstanding bolts on the rocker base frame extend upward through openings in the rocker frame, two of these bolts being on the front side of the trunnion rod and two on the rear side. Each bolt carries a coil spring compressed between a lower spring seat on the rocker frame and an upper spring seat on the upper end of the bolt whereby the springs are readily replaceable in case of breakage.

3,784,149
RETRACTABLE TRUCK MIRROR
Peter E. Brudy, Willowdale, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Ontario, Canada
Filed Jan. 3, 1972, Ser. No. 214,594
Int. Cl. B60r 1/06
U.S. Cl. 248—478 18 Claims



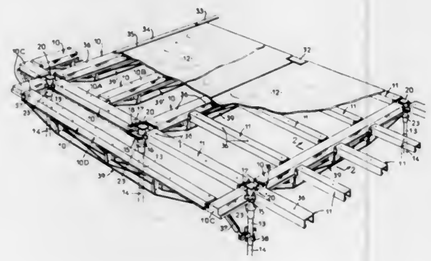
A truck mirror comprising a U-shaped support on which a mirror is pivotally mounted. The ends of arms of the support are pivoted to vertically spaced brackets that are adapted to be mounted on the truck. Pivot means are provided between the ends of the support arms and the brackets and comprise two members of low friction material. One of the members has axially extending circumferentially spaced grooves therein and the other of the members has complementary projections. The members are yieldingly urged toward one another such that the mirror is held in angularly adjusted position but may be readily moved to a new angular position by manual manipulation.

3,784,150
PICTURE SUPPORT
Barbara Kulicke, 43 East 10th St., New York, N.Y.
Filed Sept. 2, 1971, Ser. No. 177,258
Int. Cl. A47g 1/17
U.S. Cl. 248—496 1 Claim



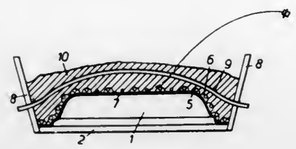
A picture support for mounting on the rear of a picture adapted to space the picture from a conventional picture display surface includes a shell formed from a front panel for frictionally engaging the display surface, a pair of opposed side panels connected to opposite edges of the front panel and extending toward the picture and means for engaging the rear of the picture for fastening the shell to the picture. The front panel has at least one transverse flap mounted to pivot inwardly of the shell to stabilize the shell.

3,784,151
FORMWORK FOR USE IN SUPPORTING SHUTTERING
Raymond Ernest Steele, Kenilworth, England, assignor to Kwikform Limited, Birmingham, England
Filed Apr. 24, 1972, Ser. No. 246,824
Claims priority, application Great Britain, Apr. 28, 1971, 11,757/71
Int. Cl. E04g 11/08
U.S. Cl. 249—18 15 Claims



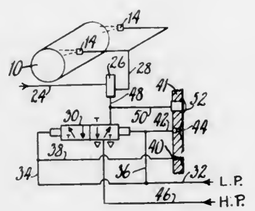
Formwork for supporting shuttering panels for forming concrete floors and the like, comprising vertical props, between the heads of which extend shuttering supporting beams, the beams and heads having upstanding edge flanges for engaging with dependent projections on the ends of shuttering supporting transoms which extend between the prop heads and/or the beams.

3,784,152
PROCESS OF PRODUCING A COMPOSITE MOLD HAVING COOLING PIPES EMBEDDED THEREIN
Paul Johnson Garner, Thorp Bay, and Thomas Robert Stephen Collins, Letchworth, both of England, assignors to Imperial Chemical Industries Limited, London, England
Continuation-in-part of Ser. No. 885,172, Dec. 15, 1969, abandoned. This application Apr. 24, 1972, Ser. No. 246,926
Int. Cl. B29c 1/02
U.S. Cl. 249—80 38 Claims



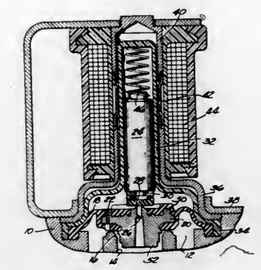
Producing a mould by spraying a metal shell around a model, attaching pipes to the shell with a metal filled epoxy resin and subsequently backing the shell with a reinforcing material to enable the shell to be used in moulding, the method of attaching the pipes being such that no air pockets are formed in the region of the underside of the pipes adjacent the shell after the reinforcing material has been applied.

3,784,153
ROLLING MILL ROLL COOLANT CONTROL
Hugh MacDonald Ross, and Allan Ball, both of Parkstone, England, assignors to Loewy Robertson Engineering Company Limited, Dorset, England
Filed Apr. 12, 1972, Ser. No. 243,212
Claims priority, application Great Britain, Apr. 15, 1971, 9,508/71
Int. Cl. G06c 7/02; F16k 31/14
U.S. Cl. 251—25 8 Claims



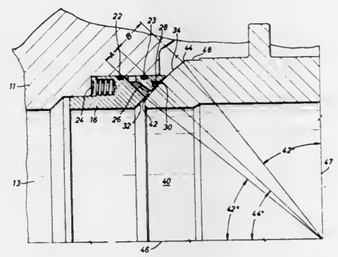
A control panel for use with a pneumatic control system has a plurality of openings on one face of the panel positioned relative to guide means on the panel so that an operator can temporarily cover up the openings by sliding a closure member, guided by the guide means, over the face of the panel to cover up in turn the openings beneath the path of travel of the closure member. The member is conveniently the operator's finger. By closing the openings, pneumatically operable switching components forming part of the control system are actuated. The components are pneumatically connected to the openings on the panel at a postiion away from the face of the panel.

3,784,154
WATER VALVE DIAPHRAGM
Edwin A. Ostrowski, Mount Prospect, and Charles A. De Lew, Des Plaines, both of Ill., assignors to Controls Company of America, Melrose Park, Ill.
Filed Oct. 12, 1970, Ser. No. 79,975
Int. Cl. F16k 31/06, 31/385
U.S. Cl. 251—30 5 Claims



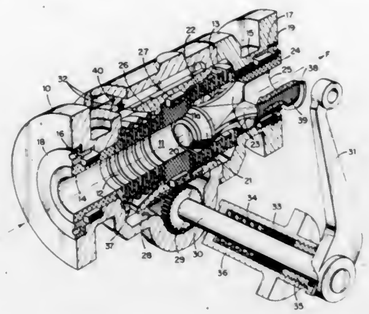
The rigid, plastic insert molded into the diaphragm has a raised seat against which the soft tip, solenoid plunger seats with no need for critical registry, thus allowing greater clearance between the plunger and guide. The insert includes a depending boss which cooperates with the outlet to throttle flow during closure to reduce water hammer. The necessary bleed hole is in the insert for greater precision and uniformity of operation. The diaphragm material is molded to include a spacer preventing seating the bleed hole against the cup-like portion of the guide with consequent inability to close.

3,784,155
BALL AND SEAT ARRANGEMENT FOR BALL VALVE
Jerry B. Tomlin, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.
Continuation-in-part of Ser. No. 228,999, Feb. 24, 1972, abandoned. This application Apr. 13, 1973, Ser. No. 351,125
Int. Cl. F16k 5/06, 5/20
U.S. Cl. 251—181 4 Claims



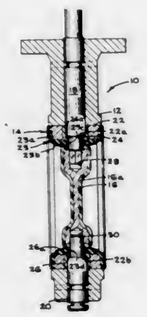
The purpose of the invention is to eliminate or minimize seat seal damage which occurs when opening a ball valve under full differential pressure. The seat seals are angularly displaced from the conventional position of 45° to the valve axis, to a position closer to the axis. The spherical seating surfaces of the ball extend equally on either side of the 45° lines. As the ball rotates to open the valve or to close the valve, the seal is first uncovered where the ball and seat form a metal to metal back-up downstream of the seal, which protects the seal against blowout or damage.

3,784,156
VALVE
Herbert Paetzel, and Horst Pfeiffer, both of Oedt-Mulhausen, Germany, assignors to Masoneilan International, Inc., Norwood, Mass.
Filed Feb. 23, 1972, Ser. No. 228,567
Claims priority, application Germany, Feb. 25, 1971, P 21 09 217.1
Int. Cl. F16k *31/53*
U.S. Cl. 251—250 16 Claims



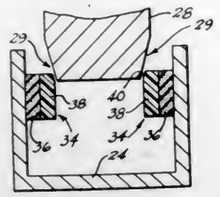
Corrosive fluid valve having a fixed valve plug and a shiftable valve seat ring. A fluid passage liner comprising flexible bellows endwise-engaging the seat ring, and which liner seals the valve end-to-end without any inside sealing points. A valve actuator engaging the seat ring to open and close the valve from outside the valve passage, and sealed off by the liner from exposure to the corrosive fluid.

3,784,157
BUTTERFLY VALVE STEM SEAL ENERGIZER
Frank G. Wenglar, Houston, Tex., assignor to FMC Corporation, San Jose, Calif.
Filed May 15, 1972, Ser. No. 253,369
Int. Cl. F16k *1/22*
U.S. Cl. 251—306 14 Claims



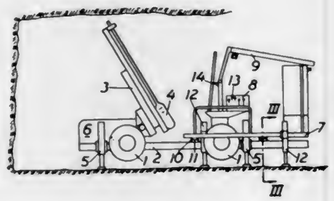
A butterfly valve with an improved valve stem seal that maintains a positive seal with a valve disc. In the valve, a removeable valve seat assembly fitted within the valve body is provided with rigid sleeve-type seat energizers disposed about the valve stems to compress liner material of the seat assembly into sealing contact with adjacent valve disc surface portions. Each seat energizer is disposed in a radial bore in the valve seat assembly with its radially outermost end pushed radially inward by the valve body to compress seat liner material between the valve disc and the radially innermost end of the seat energizer.

3,784,158
FLUID-FLOW CONTROL VALVES AND SEALING MEANS THEREFOR
Gordon Milford Cave, Solihull, England, assignor to Coplastix Limited, Redditch, Worcestershire, England
Filed May 1, 1972, Ser. No. 248,987
Int. Cl. F16k *3/12*
U.S. Cl. 251—327 13 Claims



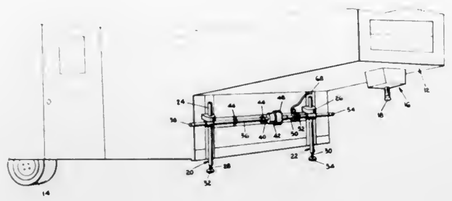
A valve of the type comprising a sliding closure member slidable across an opening to control flow of fluid through the opening and including a frame, a closure member slidable in the frame between an open condition and a closed condition, and a sealing member so disposed and arranged as to be compressed when the closure member is in the closed condition between adjacent surface portions of the frame and the closure member respectively to effect a seal between the frame and the closure member, the sealing member comprising a portion of resilient material bonded to one of said surface portions and a bearing portion bonded to said resilient portion and bearing on said other surface portion and having a low coefficient of friction with respect of said resilient portion and said other surface portion, said bearing portion being arranged to slide on said other surface portion as the closure member is moved between its closed and open conditions in the operation of the valve.

3,784,159
MOBILE, ROCK DRILL SUPPORTING RIG
Rune Carl Valfrid Skattman, 1, 96 Gubbangsvagen, Enskede, and Olov Richard Bjork, 2, 7 Lasarettsvagen, Ektorp, both of Sweden
Filed Mar. 17, 1971, Ser. No. 125,957
Claims priority, application Sweden, Mar. 19, 1970, 3611
Int. Cl. B66f *7/26*; E21c *11/02*
U.S. Cl. 254—45 11 Claims



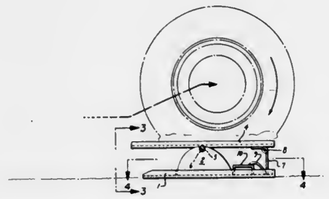
The drill rig comprises a mobile chassis, rock drill supporting means mounted on the chassis, hydraulic jacks attached to the chassis for setting up the rig in a work position, an operator's platform resting upon the chassis in a transport position by means of cooperating support means and lift and support means attached to the platform for separating the platform from the chassis into a work position in which the vibrations in the chassis, caused by the rock drill or drills, are not transferred to the platform.

3,784,160
VEHICLE SUPPORT SYSTEM
David P. Phillips, Lookout Mountain, Tenn., assignor to Wildwood Products, Inc., Lookout Mountain, Tenn.
Filed Nov. 9, 1972, Ser. No. 305,123
Int. Cl. B60s *9/02*
U.S. Cl. 254—86 R 9 Claims



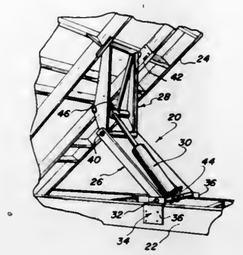
A vehicle support system for supporting the front and/or back end of travel vehicles and the like. The system includes first and second screw jack assemblies secured to the vehicle and a means to drive the jacks simultaneously with an equal torque into ground engaging position for self-leveling and lifting of the support system on any terrain. The jacks have drive shafts which drive extensible jack elements in the same direction when the drive shafts are rotated in opposite directions. A motor having an output shaft is mounted for free rotation with respect to the vehicle. The motor output shaft is coupled to one drive shaft and the motor housing is coupled to the other drive shaft.

3,784,161
WHEEL REMOVAL SAFETY DEVICE
Ralph L. Frese, 3109 Ross Rd., Palo Alto, Calif.
Filed July 8, 1971, Ser. No. 160,831
Int. Cl. E02c *3/00*; B66f *7/22*
U.S. Cl. 254—88 3 Claims



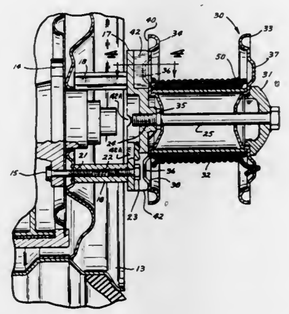
A rotating or swiveling plate is mounted on bearings above a stationary bed plate so that it may assume an acute angle with the bed plate to provide a ramp or incline for the vehicle wheel to ride upon. When the vehicle rises to a predetermined height on the ramp, gravity causes the rotating plate to assume a horizontal position where it is held by a suitable automatic positive stop, the wheel then being elevated and ready for the next step in removal.

3,784,162
SCISSOR HOIST
Glenn L. Channell, Loveland; Blaine W. Fuller, Greeley, and Kenneth R. Davisson, Severance, all of Colo., assignors to Hydraulics Unlimited Mfg. Co., Eaton, Colo.
Filed Aug. 6, 1971, Ser. No. 169,644
Int. Cl. B66f *3/00*; B60p *1/04*
U.S. Cl. 254—124 7 Claims



A scissor hoist for dump truck beds. The hoist is especially designed to be extremely rigid and resistant to twisting forces resulting from unbalanced loading of the tilting bed.

3,784,163
WHEEL WINCH WITH UNIVERSAL HUB
Paul A. Swanson, Excelsior, and Robert W. Wiele, Minneapolis, both of Minn., assignors to Frank D. Werner, Minneapolis, Minn.
Filed Aug. 31, 1971, Ser. No. 176,506
Int. Cl. B66d *3/00*
U.S. Cl. 254—166 10 Claims

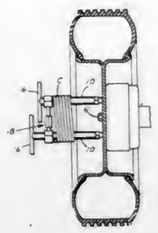


A wheel mounted winch for vehicles such as automobiles or four wheel drive vehicles utilizing a hub which permits universal mounting of the unit onto any of the standard wheel bolt patterns. The hub is made so that it may self-center through the use of the proper wheel support bolts. The winch includes a drum that is drivably mounted with respect to the hub, and which can be released from driving engagement for free wheeling to unreel the cable or rope used on the winch.

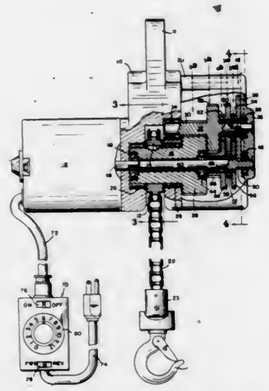
3,784,164
KNOCKDOWN WINCH ASSEMBLY FOR MOUNTING UPON A POWER DRIVEN VEHICLE WHEEL
Julius A. Blum, 5450 Vale Dr., Denver, Colo.
Filed Oct. 20, 1972, Ser. No. 299,310
Int. Cl. B66d *3/00*
U.S. Cl. 254—166 4 Claims

A knockdown type winch assembly for mounting upon a power driven vehicle wheel. The assembly includes two or

more rigid rod members threaded at one end for mounting the rod members upon the vehicle wheel in place of the vehicle wheel retaining nuts or bolts. When mounted upon the wheel, the rod members project axially from the wheel at locations spaced generally symmetrically about the wheel axis. Longitudinally adjustable struts are then mounted between adjacent rod members to brace the members in their axially extending positions. When the struts and rod members are so assembled upon the wheel, the resulting assembly provides a reel structure fixed to the vehicle wheel upon which a winch cable may be wound upon driven rotation of the wheel.

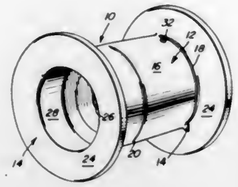


3,784,165
VARIABLE SPEED HOIST
Dana L. Pruitt, 209 N. Park, Martinsville, Ind.
Continuation-in-part of Ser. No. 829,503, June 2, 1969. This application Nov. 13, 1970, Ser. No. 89,170
Int. Cl. B66d *1/00*
U.S. Cl. 254—168 **4 Claims**



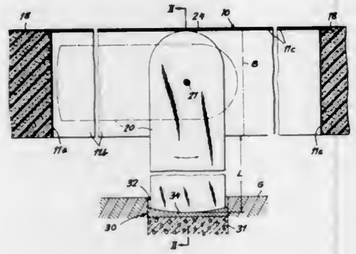
A hoist of light weight e.g., 10 lbs., and high capacity, e.g., 500 lbs., with infinitely variable speed and holding characteristics. A sprocket engaged with a roller chain is driven through a multiple-stage spur gear reduction train by a high-speed universal reversible electric motor energized through a modified silicon control rectifier. The reduction gears are of high tensile alloy steel, mounted on roller bearings to give an efficient drive, and the gear reduction is of such high ratio as to give the gear train a high degree of irreversibility. One-way drag braking opposes load-lowering movement of the high-speed and of the gear train, and interacts with the irreversibility to positively hold suspended loads and require the motor to drive the load down as well as up. This combines with the SCR control of the high-speed motor to give positive variable-speed lifting, lowering, and holding control of the rated load.

3,784,166
LEVEL WIND DRUM
Walter D. Renfroe, Geneva, N.Y., assignor to Terra Marine Scoop Company, Inc.
Filed Dec. 1, 1971, Ser. No. 203,778
Int. Cl. B66d *1/00*
U.S. Cl. 254—186 **6 Claims**



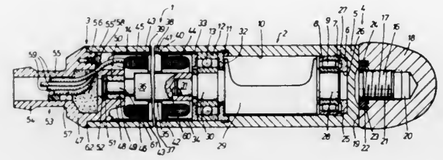
A drum for hoist, winches, pullers, and the like having a substantially cylindrical member provided with longitudinally spaced end portions and a winding surface having a diameter at a point at each end portion which is less than the diameter at a point substantially equidistant between the end portions for permitting a level wind action onto the drum of a line passing through a fairlead or sheave assembly.

3,784,167
GUARD-RAIL ASSEMBLY WITH PIVOTAL SUPPORT POSTS
Ernest Glaesener, Dudelange, Luxembourg, assignor to ARBED-Acieries Reunies de Burbach-Eich-Dudelange, Luxembourg G.D. de Luxembourg, Luxembourg
Filed Oct. 11, 1972, Ser. No. 296,653
Claims priority, application Luxembourg, Oct. 15, 1971, 64085
Int. Cl. E01f *15/00*
U.S. Cl. 256—13.1 **7 Claims**



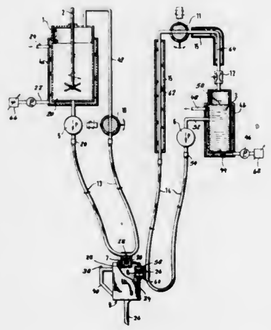
A guard rail formed of a downwardly open channel whose interior is filled with a bonded-in-place synthetic-resin mass is formed approximately every 10 meters with a downwardly open pocket in which the upper end of a support post is received. A pivot bolt transverse to the rail passes through the rail and the post and allows pivoting of this post relative to the rail in a horizontal plane including the rail. The lower end of the post is received in an upwardly open channel so that on collision of a vehicle with the post or a similar blow being struck to the post below the rail, this post will pivot out of its socket and up into the pocket so that the rail itself will take the blow to prevent a vehicle from flipping over the guard rail.

3,784,168
VIBRATORY DEVICE
Wolfgang Schneider, Leinfelden; Gotthilf Strohbeck, Leonberg; Walter Harlin, Stuttgart; Friedrich Ruckert, Stetten, and Eugen Stahle, Magstadt, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Dec. 3, 1971, Ser. No. 204,451
Claims priority, application Germany, Dec. 9, 1970, P 20 60 538.3
Int. Cl. B01f *11/00*
U.S. Cl. 259—1 R **10 Claims**



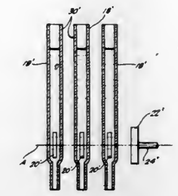
A vibratory compactor has a vibration-producing drive which is mounted in an elongated tubular housing. The housing has spaced end walls one of which is of one piece with its peripheral wall, and the peripheral wall increases in thickness towards the one end wall. A cap is provided which can be releasably connected with the one end wall.

3,784,169
METHOD OF AND APPARATUS FOR THE CONTROLLED MIXING OF TWO REACTIVE COMPONENTS
Alfred Bockmann, and Rudi Keuerleber, both of Munich, Germany, assignors to Krauss-Maffei AG, Munich, Germany
Filed Apr. 5, 1972, Ser. No. 241,122
Claims priority, application Germany, Apr. 6, 1971, 2116665
Int. Cl. B01f *5/04, 15/02*
U.S. Cl. 259—4 **15 Claims**



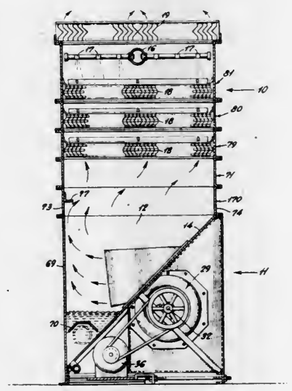
A method of and an apparatus for the mixing of two interactive components, especially two components adapted to form a castable synthetic resin such as a caprolactam system wherein the components are to be combined in a high-volume ratio wherein the components are circulated along closed paths at superatmospheric pressures and, by pressure increases in the respective paths, are discharged through injection nozzles into a mixing chamber.

3,784,170
SAMPLE CELL AND STIRRER THEREFOR
Arnie J. Petersen, Newport Beach, and Jack L. Hoffa, Brea, both of Calif., assignors to Beckman Instruments Inc., Fullerton, Calif.
Filed Jan. 20, 1972, Ser. No. 219,474
Int. Cl. B01f *7/02*
U.S. Cl. 259—65 **3 Claims**



A sample cell for use in a spectrophotometric instrument and a stirrer for mixing sample and reagent in the cell. The cell is formed with closely spaced parallel planar sidewalls and two end walls of radiation permeable material. The cell is disposed so that the end walls lie in the optical path defined between the source of radiation and the radiation detector in the instrument. A stirring element is positioned in the cell with its magnetic axis parallel to the sidewalls of the cell. A rotatable drive magnet is positioned outside of the cell so as to rotate the stirring element about an axis perpendicular to the sidewalls so that the plane of rotation of the stirring element is parallel to the sidewalls. A plurality of such cells may be stacked in parallel relationship and a single drive magnet employed to rotate stirring magnets in the cells.

3,784,171
EVAPORATIVE HEAT EXCHANGE APPARATUS
John Engalitcheff, Jr., Gibson Island; Thomas F. Facius, Baltimore; Wilson E. Bradley, Jr., Ellicott City, all of Md., and Axel F. L. Anderson, Clearwater, Fla., assignors to Baltimore Aircoil Company, Inc., Baltimore, Md.
Division of Ser. No. 706,003, Feb. 16, 1968, Pat. No. 3,442,494. This application May 1, 1969, Ser. No. 820,852. The portion of the term of this patent subsequent to May 6, 1986, has been disclaimed.
Int. Cl. F28d *5/02*
U.S. Cl. 261—29 **3 Claims**



A blow-through evaporative heat exchange apparatus having a blower section with a wet deck section above it. The blower section has at least one slanting wall to provide space

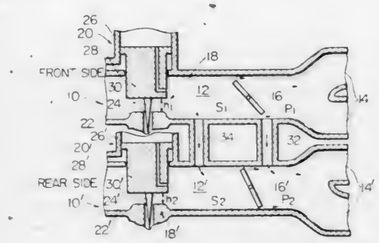
for an electric motor and blower under the slanting wall. Diffusion means are provided to ensure a uniform flow of air over the cross section of the wet deck.

3,784,172

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Takakazu Sato, and Takaya Masago, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Oct. 11, 1972, Ser. No. 296,530
Claims priority, application Japan, Oct. 19, 1971, 46-96618
Int. Cl. F02m *9/06*
U.S. Cl. 261—44 R **1 Claim**



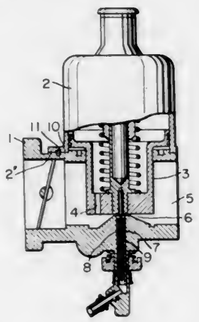
A twin carburetor of the variable-area choke type for use in multi-cylinder engine of a motor vehicle which twin carburetor includes a balance tube interconnecting a front side mixture passage and a rear side mixture passage at a point downstream of each throttle valve for balancing the pressures therein to equalize the amounts of air-fuel mixtures to be supplied to individual cylinders of the engine and an additional balance tube interconnecting the front side mixture passage and the rear side mixture passage at a point downstream of each choke for balancing the suctions or depressions acting on each air valve to provide the same effective cross-sectional area at each fuel jet for thereby producing air-fuel mixtures having equal air-fuel ratios in each mixture passage.

3,784,173

AIR VALVE TYPE CARBURETOR AND METHOD OF CONSTRUCTION

Isamu Kawai, Katsuta; Tadao Uchida, Hitachi, and Kenji Ishima, Katsuta, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan

Filed July 7, 1972, Ser. No. 269,732
Claims priority, application Japan, July 12, 1971, 46-51018
Int. Cl. F02m *9/06*
U.S. Cl. 261—44 R **6 Claims**



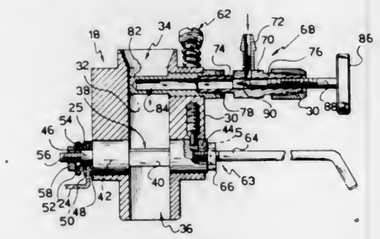
In an air valve-type carburetor in which a suction piston is mounted in a suction chamber, fixed to the main body of the carburetor, in such a manner that it will be slidingly projected from or retracted into said suction chamber under the influence of the suction pressure in the air intake passage of the carburetor, and a jet needle is fixed to said suction piston, while a fuel nozzle is provided in the main body of the carburetor, and the fuel metering area is varied by said jet needle moved into and out of said nozzle, a method of producing a positioning pin for maintaining said jet needle and said nozzle in a fixed relative position which is determined by the main body of the carburetor and the suction chamber, said method comprising boring holes through the main body of the carburetor and suction chamber in communication with each other and pouring a molten resin or the like into said holes to form a positioning pin after the relative position of said carburetor main body and suction chamber has been adjusted.

3,784,174

CARBURETOR FOR MODEL AIRCRAFT

Benjamin Tarnofsky, 942 Grow, St. Laurent, Quebec, Canada

Filed Aug. 31, 1972, Ser. No. 285,497
Int. Cl. F02m *17/34*
U.S. Cl. 261—65 **7 Claims**



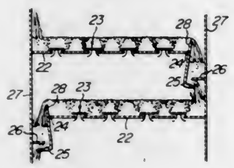
An adjustable friction clutch is provided for the lever arm of the throttle valve permitting it to override when the throttle valve reaches a limit stop thus allowing the rotary arm linking the carburetor to a remote controlled servo mechanism operating the carburetor to reach maximum travel; as a result, unnecessary battery current drain and induced load to the servo mechanism are avoided.

3,784,175

DOWNCOMER FOR FLUID CONTACTOR APPARATUS

Shoichi Hirao, Kakogawa; Satoshi Ihara, and Kanji Ueda, both of Ashiya, all of Japan, assignors to Seitetsu Kagaku Co., Ltd., Miyanishi, Harimacho, Kako-gun, Hyogo-ken, Japan

Filed Sept. 14, 1971, Ser. No. 180,378
Claims priority, application Japan, Dec. 9, 1970, 45-109766
Int. Cl. B01d *3/20*
U.S. Cl. 261—114 R **12 Claims**



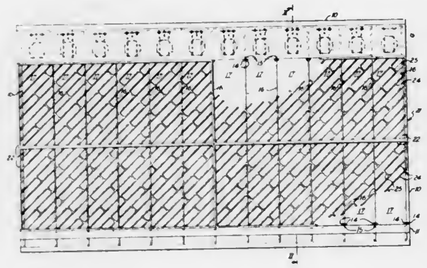
A downcomer for a fluid contactor apparatus comprises a vertical passage having an opening at the upper end thereof, which consists of a movable member and a fixed member, or consists only of movable members. Said movable member is supported on the fixed member or on the other fixed parts in a manner to be tilted and an area for discharging an effluent of the downcomer can be automatically changed according to a fluctuation in fluid load.

3,784,176

EXPENDABLE WORK SUPPORT FOR A BURNING TABLE

Joseph J. Walters, and Verdun R. McGibbon, both of Coatesville, Pa., assignors to Lukens Steel Company, Coatesville, Pa.

Division of Ser. No. 88,876, Nov. 12, 1970, Pat. No. 3,701,514.
This application June 8, 1972, Ser. No. 260,753
Int. Cl. B23k *7/02*
U.S. Cl. 266—1 R **14 Claims**



The combination of a table for cutting steel plate and an exhaust system for evacuating the fumes and smoke produced by the cutting operation. The expendable grating of the cutting table utilizes bars which are diagonal to the usual cutting directions and are connected by staggered stiffening bars also diagonally located so that the bars are not normally cut along their longitudinal axis. Duct work under the grating comprises heavy vertically extending removable plates resting on edge which additionally provide support for the grating and lead to an elongated exhaust manifold channel having a plurality of openings and a normally closed plate covering each of such openings. The openings are disposed in a horizontal dividing plate and communicate with the space formed between each of the vertically extending plates making up the ductwork under the grating. The cover plates are hinged and raised from a horizontal position by a pneumatic cylinder actuated through a photoelectric cell which is responsive to light from plasma of the cutting torch. The photoelectric cell further actuates adjacent cover plates on either side of the cover plate which corresponds to the duct with which the photoelectric cell involved is aligned. Each hinged cover plate has a deep lip soft sealed ring which seats on the peripheral surface of the dividing plate about the corresponding opening and the arrangement is such that the fumes must make a 90° turn prior to entering the opening which slings out heavy particles which then drop to the bottom of the exhaust chamber for easy removal.

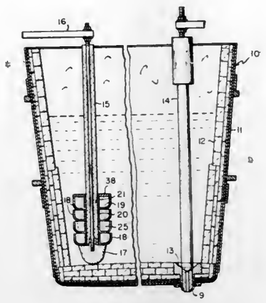
3,784,177

METHOD AND APPARATUS FOR LADLE ADDITIONS

George Rocher, Pittsburgh, Pa., and Pierre Andre Vayda, Burlington, Ontario, Canada, assignors to Metallurgical Exoproducts Corporation, McKees Rocks, Pa.

Filed July 26, 1972, Ser. No. 275,184
Int. Cl. C21c *7/04*
U.S. Cl. 266—34 T **7 Claims**

A ladle for receiving molten metal is equipped with an elongated, refractory lined rod having an enlarged bottom portion and terminating at the lower end of the ladle. A plurality of stacked container means are positioned about the rod. These container means contain the desired addition agents. The molten metal is then teemed into the ladle and the container means and addition agents are consumed thereby.

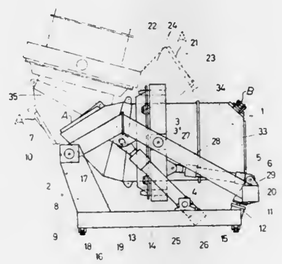


3,784,178

TILTABLE FOUNDRY CONVERTER FOR TREATMENT AND STORAGE OF MOLTEN METAL

Max Wernli, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland

Filed Apr. 26, 1972, Ser. No. 247,741
Claims priority, application Switzerland, Apr. 29, 1971, 6304/71
Int. Cl. C21b *7/14*
U.S. Cl. 266—38 **9 Claims**

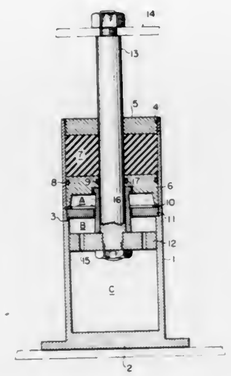


A generally cylindrical foundry converter, located normally about a horizontal axis, is pivotally secured to a pair of arms at intermediate points thereof. The forward ends of the arms pivot about a support, the rearward ends of the arms are abutted against the support, but free to be lifted therefrom. A first power lift means is connected between the converter vessel and the arms to effect tilting movement of the converter vessel with the arms stationary, to place the converter in a vertical position for treatment of metal contained therein with additives; a second power lift means is connected between the arms and the base support to lift and tilt the entire converter vessel together with the arms forwardly, so that molten metal in the converter can be poured out of the mouth opening thereof, the entire assembly being compact and permitting pouring of molten metal from essentially a single outlet location without change thereof as the converter continues to be tilted.

3,784,179
CUSHIONING DEVICE

Toshihiro Sugiura, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Japan

Filed May 11, 1972, Ser. No. 252,251
Claims priority, application Japan, May 14, 1971, 46-39278; June 25, 1971, 46-55499
Int. Cl. B60g 11/62
U.S. Cl. 267—35 5 Claims

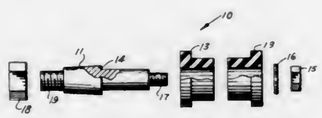


A cushioning device including a closed cylindrical chamber, floating piston means within the chamber to divide the same into first and second axially arranged chamber sections, liquid filling the first chamber section and a compressible solid, such as silicone rubber, filling the second chamber section, a piston rod entering from outside the chamber and extending through the second chamber section and into the first chamber section, and a piston head on the inner end of the piston having axial orifice means therein, whereby the energy of buff forces applied to the piston rod is dissipated as a result of both a throttling effect produced by the liquid and a volume-pressure change undergone by the compressible solid.

3,784,180
STABILIZER BAR LINK

Alvin G. Massinger, 426 Church Ln., Yeadon, Pa.

Filed May 17, 1972, Ser. No. 254,187
Int. Cl. B60q 25/00
U.S. Cl. 267—66 3 Claims

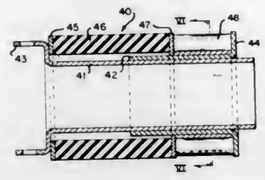


A stabilizer bar link device for vehicles such as trucks, buses, and automobiles. This device consists primarily of a structure of which the rubber bushings are replaceable on the stud portion of the device.

3,784,181
ENERGY ABSORBING BUCKLING BOX

John E. Nemec, Tallmadge, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Filed May 5, 1972, Ser. No. 250,765
Int. Cl. F16f 7/12
U.S. Cl. 267—140 12 Claims

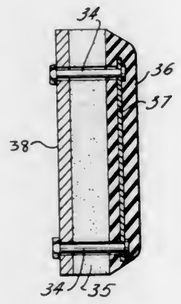


An energy absorbing buckling box having a tubular polygonal elastomeric member. The energy absorber preferably includes a pair of telescoping tubular polygonal members, each of which include a restraining means between which means is positioned at least one elastomeric member to control the relative telescoping of the members and absorb energy by buckling.

3,784,182
DEFORMABLE SHOCK ABSORBING GUARD

Leonard H. Sobel, Rockaway Park, N.Y., assignor to Collision Devices, Inc., Rockaway Park, N.Y.

Continuation-in-part of Ser. No. 792,737, Jan. 21, 1969. This application Oct. 1, 1971, Ser. No. 185,633
Int. Cl. F16f 7/02
U.S. Cl. 267—140 19 Claims

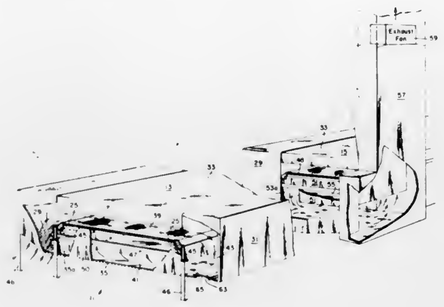


Energy absorbing crash or collision devices for vehicles or the like to reduce shock of collision by utilizing energy absorbing components which are flexible and compressible and/or rigid and crushable, which components may used singly or in combination, which may be used with single or multiple pressure plates, to effect gradual deceleration upon collision.

3,784,183
HOLDING AND SMOKE REMOVAL SYSTEM FOR A LASER CUTTER

Rodolfo Castro, La Palma; Esteban J. Toscano, Oceanside, and Felix Jerome Viosca, Canoga Park, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Sept. 27, 1971, Ser. No. 184,139
Int. Cl. B23q 3/00; B23k 27/00
U.S. Cl. 269—20 6 Claims

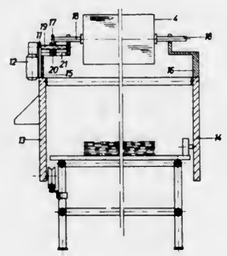


To remove combustion by-products and to secure fabric being cut, the cutting area of a laser fabric cutter is enclosed in a hood through which air flows in a stream, first over and then under the enclosed air-permeable cutting surface on which the cloth is supported.

3,784,184
CLOTH FOLDING MACHINE HAVING MEANS FOR CONTROL OF THE EDGES OF CLOTH UNWOUND FROM A ROLL

Gunter Stumpf, Mehrstetten/Kreis Munsingen, Germany

Filed June 9, 1971, Ser. No. 151,433
Claims priority, application Germany, Aug. 5, 1970, P 20 39 009.4
Int. Cl. B65h 29/46
U.S. Cl. 270—31 1 Claim

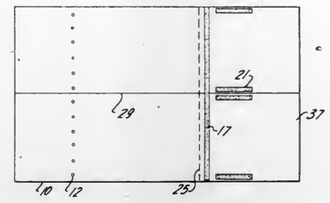


Material is unwound from a roll and deposited in layers by a reciprocating carriage supporting the roll. The roll is mounted on a rod supported in two carriers attached to the carriage and the rod is transversely displaced to maintain the edges of the unwound material in predetermined locations. The carriage carries a motor which drives a threaded spindle to impart transverse movement to the rod, the supports for the rod being secured to the carriage either fixedly or pivotably.

3,784,185
CROSS FOLDED ENVELOPE PAMPHLET

Robert E. Katz, Livingston, N.J., assignor to Webcraft Packaging, Inc., North Brunswick, N.J.

Filed Mar. 17, 1971, Ser. No. 125,213
Int. Cl. A22c 11/08
U.S. Cl. 270—37 7 Claims

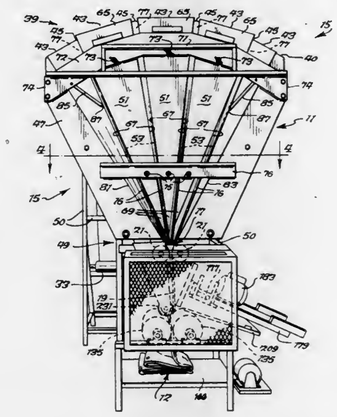


Pairs of envelopes formed by stitch glue and remoist glue applied in transverse lines to web, the web is split longitudinally, ribbons folded transversely to superimpose and crease, the crease is cut off to separate pages, folded again to form book, which is cut off transversely.

3,784,186
METHOD OF AND APPARATUS FOR MAKING PLEATED AND FOLDED ARTICLES FROM A WEB

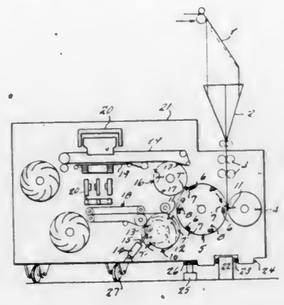
Robert Lenthall, Don Mills, Ontario, Canada, and Charles A. Lee, Knoxville, Tenn., assignors to International Paper Company, New York, N.Y.

Filed June 24, 1971, Ser. No. 156,184
Int. Cl. B65h 45/16
U.S. Cl. 270—64 6 Claims



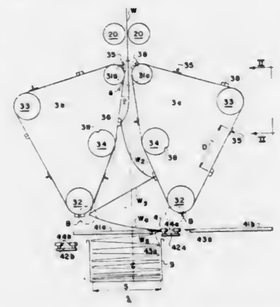
An elongated continuously traveling web is longitudinally pleated, transversely folded and subsequently severed to provide pleated and folded articles therefrom. The traveling web is first bowed into a substantially concave transverse cross section and then is pleated by forcing portions of the web to move outwardly in a direction normal to the direction of web travel. The pleats are formed along lines extending radially from the bowed cross section and the pleats converge at a focal point at which the pleats are forced together to form a longitudinally pleated web. Next, the pleated web is transversely folded in a zigzag manner and is severed to form a longitudinally pleated and transversely folded article.

3,784,187
FOLDING APPARATUS
Shigenao Takayanagi, Mihara City, and Toyoo Nimoda, Fukuyama City, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 29, 1970, Ser. No. 102,341
Claims priority, application Japan, Jan. 14, 1970, 45/3539
Int. Cl. B65h 45/09
U.S. Cl. 270—64 2 Claims



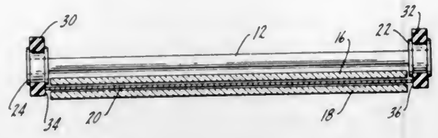
A web transferring, cutting and folding apparatus shiftable between two modes of operation for producing from a continuous web, either two streams of eight page sections or one stream of 16 page sections. In the first mode, two triangular formers double and redouble the web about its longitudinal axis. Then it is cut into single width, double length and finally single width, single length eight page sections which are alternately forwarded to separate streams. In the second mode, one triangular former doubles the web about its longitudinal axis. Then it is cut into double length, double width sections which are next folded into single length double width sections transversally and forwarded in one stream to a right angle folding unit which folds these sections about the longitudinal axis into single length, single width 16 page sections. In shifting between the two modes, most of the apparatus is relatively rotated 90° to alternatively utilize or by pass the one of the two triangular formers.

3,784,188
ACCORDION, FOLDING AND CUTTING APPARATUS
John De Ligt, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.
Filed Aug. 31, 1971, Ser. No. 176,487
Int. Cl. B65h 45/20
U.S. Cl. 270—79 6 Claims



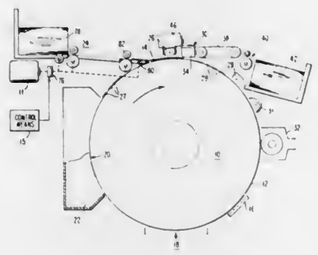
Apparatus for forming accordion folds in a longitudinally traveling web of substantially uniform width and indefinite length including web cutting means disposed upstream or downstream of said folding apparatus.

3,784,189
PAPER EDGE TRANSPORT SYSTEM
John A. Thiel, Wheeling, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed Mar. 30, 1972, Ser. No. 239,476
Int. Cl. B65h 5/02
U.S. Cl. 271—45 8 Claims



Improved sheet material handling apparatus and method having two rotating belt members disposed at opposite edges of the sheet for engaging or gripping the sheet between the belts by application of a slight compressive force. Pressure means such as a pair of plates are disposed adjacent the sheet material to confine the sheet material and prevent buckling of the sheet material.

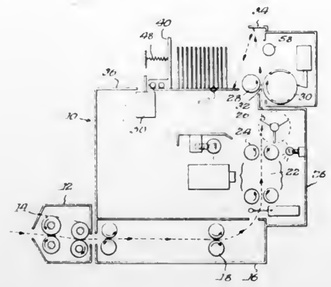
3,784,190
SHEET REMOVING APPARATUS
Roy P. Crawford, Saratoga, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,359
Int. Cl. B65h 5/06
U.S. Cl. 271—80 9 Claims



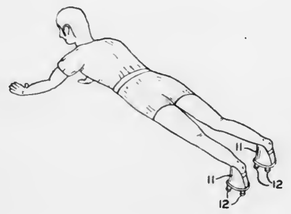
Apparatus is provided for separating a copy sheet bearing an unfused toner image from a moving electrophotographic surface to which the copy sheet is electrostatically attracted during the image transfer operation. The separating apparatus utilizes a nozzle assembly having a plurality of nozzles mounted near the electrophotographic surface. A high velocity flow of pressurized fluid from the nozzles for a predetermined time is sufficient to detact the leading edge of the sheet and a lower velocity flow of pressurized fluid from the nozzles is sufficient to hold the copy sheet closely adjacent to the nozzle assembly and permit movement of the copy sheet across the nozzle assembly to a sheet transport toward a fusing station.

3,784,191
CONVERTIBLE POWER STACKER
John A. Thiel, Wheeling, Ill., assignor to Bell and Howell Company, Chicago, Ill.
Filed Mar. 16, 1972, Ser. No. 235,141
Int. Cl. B65h 29/22, 31/06
U.S. Cl. 271—80 5 Claims

A document stacker at the exit of a processing device for business or other forms which accommodates automatic sequential vertical stacking of the forms, and is readily convertible to conventionally and horizontally stack larger size documents. Power stacking means are provided during the vertical stacker mode of operation of the invention to drive the lower edge of each form into the stack.



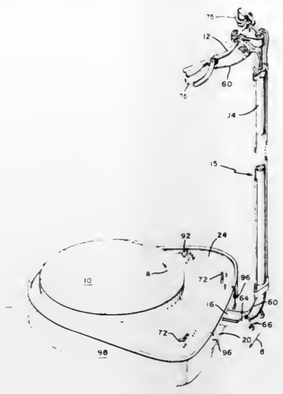
3,784,192
WHEEL SUPPORTED EXERCISING DEVICE
Donald J. Nutter, Norton, Ohio, assignor to Gordon B. Seward, Akron, Ohio; a part interest
Filed Oct. 27, 1972, Ser. No. 301,598
Int. Cl. A63b 23/04
U.S. Cl. 272—57 J 9 Claims



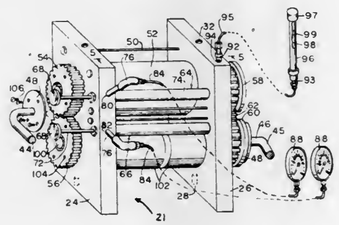
The device supports the user's feet and ankles when the user is in the prone position. The device is structured to move across a flat surface on wheels. The upper portion is shaped to receive the ankle, instep and foot of the user, with a retainer to hold the foot in place. The wheels are preferably caster wheels to provide for movement in any direction. In use, the device is a means for body-building, exercise, or play.

3,784,193
FRICTION TYPE EXERCISING DEVICE WITH SEPARATE HANDGRIP EXERCISER
Luther G. Simjian, 7 Laurel Ln., Greenwich, Conn.
Filed July 21, 1972, Ser. No. 273,467
Int. Cl. A63b 23/00, 21/22, 21/00
U.S. Cl. 272—68 20 Claims

An exercise apparatus includes a platform adapted to be mounted by a person and rotate responsove to a twisting motion executed by such person. An arm extends generally upward relative to the platform and is disposed for being grasped by the person on the platform. The platform and the arm undergo coordinated counterrotating motion in response to the twisting motion, thus providing muscle toning and exercise to a user. A latching device is provided to latch the platform after it has reached its limit of rotational excursion and to unlatch it in response to a manually supplied force whereby to obtain additional exercise for hand and arm muscles. A valve is provided to control the amount of fluid passing from a resilient fluid type hand exerciser on the arm. The apparatus has a structure for limiting the rotation of the arm and the platform. The resilient hand exerciser may have a spring substituted for the resilient fluid type hand exerciser, to require the user to exert a larger twisting force to rotate the platform against a friction brake.



3,784,194
BILATERAL RECIPROCAL ISOKINETIC EXERCISER
James J. Perrine, 8973 Kobe Pl., San Diego, Calif.
Filed Apr. 20, 1972, Ser. No. 245,742
Int. Cl. A63b 23/04, 21/00
U.S. Cl. 272—79 C 12 Claims

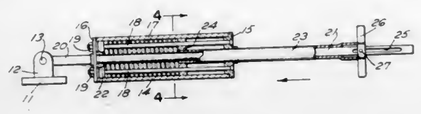


An Isokinetic Exerciser for exercising the limbs of a person bilaterally reciprocally includes an actuator means with simultaneous reciprocal force receiving input members on opposite ends of the actuator. A limb supporting lever is attached to each of the force receiving members. The actuator is coupled to a valve which adjustably controls the limit speed of rotation of the levers effectively independent of the forces applied thereto by controlling the flow of fluid through the valve.

3,784,195
PUSH PULL EXERCISER WITH SPRING RESISTANCE
James E. Johnson, 917 Major Potter Rd., East Greenwich, R.I.
Filed Nov. 15, 1972, Ser. No. 306,537
Int. Cl. A63b 21/04
U.S. Cl. 272—83 R 10 Claims

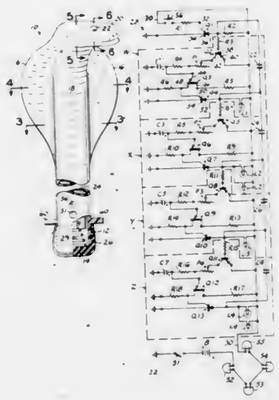
An excercise device comprising a hollow cylinder having a heavy coil spring loosely positioned therein. A rod passes through the center of the spring to the bottom of the cylinder. A cross bar is mounted on the bottom of the rod and engages the bottom end of the spring. A hollow rod is telescopically slidable at the upper end of the rod. A cross bar is mounted at the bottom end of the hollow rod and engages the top end of the spring. Above the hollow rod, the rod is provided with a vertical slot. A transverse handle is provided with a pin ex-

tending through the slot to permit vertical sliding movement of the handle along the rod. On downward movement, the handle engages the top of the hollow rod and pushes the rod and its cross bar down against the top of the spring. This movement can continue until the handle reaches the bottom of the slot. On upward movement of the handle, it engages the upper end of the slot and pulls the rod upwardly so that its cross bar is pulled against the bottom end of the spring. Both ends of the cylinder are closed to limit the movement of the spring.



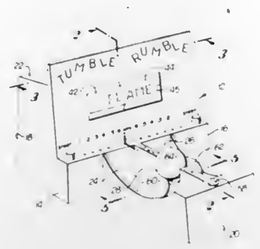
Now, when the bottom of the cylinder is pivotally mounted on a floor or base, movement of the handle up and down provides an excellent exercise for the arms, shoulders and back. To heighten the effect, a small platform may be mounted on springs in front of the device. The person stands on the platform and operates the cylinder to provide the body with a sway effect. The platform and cylinder can be mounted on a short board for easier handling and storage.

3,784,196
BALANCING SKILL GAME
Evan H. Berlin, 119 Dunn Ave., Lake City, Pa.
Filed July 24, 1972, Ser. No. 274,707
Int. Cl. A61b 5/16; A63f 9/06
U.S. Cl. 273—1 E 7 Claims



An elongated substantially cylindrical toy simulating the head end portion of a snake including a throat portion, flanges, and head having a base member opposite the head is adapted to be balanced in an upright position in the palm of a player's hand. An electrical circuit, including lamps selectively located in the toy and a time delay circuit for each lamp, a source of electrical energy and manually operated switches adjacent the base, is contained by the toy which selectively energizes the lamps in a predetermined sequence while the toy remains balanced. A plurality of mercury switches are located in the body and are connected in series between the source of electrical energy and lamps. If the toy is caused to tilt beyond a certain point the mercury switches open and deactivate the time delay circuits and lamps.

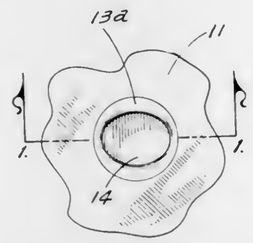
3,784,197
REACTION GAME WITH SCRAMBLING OF INDICIA
Alfred G. Massicotte, 4752 Green Ave., Los Alamitos, Calif.
Filed June 14, 1971, Ser. No. 152,885
Int. Cl. A61b 5/16
U.S. Cl. 273—1 E 10 Claims



A mechanical device that, when actuated, will randomly rotate hoops loosely carried by an axle so as to scramble indicia carried on the exterior of the hoops relative to each other.

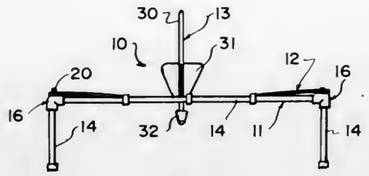
An indicating apparatus, which can be used with the indicia scrambler, includes a movable indicator member supported by two changeable-position reaction members, either of which, when moved, can cause the indicator member to move to associate with it.

3,784,198
FINGER HOLE LINER FOR BOWLING BALL
Burton E. Bach, 1661 Grand Ave., Bellflower, Calif.
Filed Aug. 21, 1972, Ser. No. 282,890
Int. Cl. A63b 37/00
U.S. Cl. 273—63 A 4 Claims



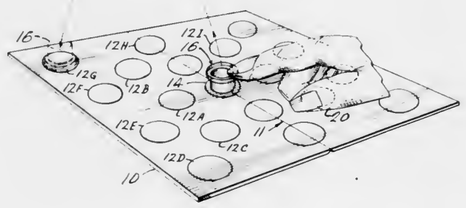
A pliable plastic liner for a finger hole in a bowling ball is described. The liner is comprised of a rubber-like material, having a Shore hardness of, for example, 65 and is formed into a tube-like member having a wall thickness of about one-eighth of an inch. Circumferentially disposed around the outside of the tube-like member is a key-like ridge that is shaped to lock into a keyway or circumferential groove formed within the finger hole of the bowling ball. To provide an elongated or elliptical hole if the bowler prefers to grip the ball with his fingertips, the liner is formed with a circular hole and the outside wall of the tube-like member has an elliptical cross-section. Then when the liner, being pliable, is inserted within the inherently round finger hole of the bowling ball, the opening in the liner becomes elliptical thereby increasing the bowler's control.

3,784,199
MESH TARGET AND DART CAPTURABLE THEREIN
John F. Chmela, 7256 W. Davis St., Morton Grove, Ill.
Filed May 10, 1971, Ser. No. 141,658
Int. Cl. A63b 71/02
U.S. Cl. 273—95 R 6 Claims



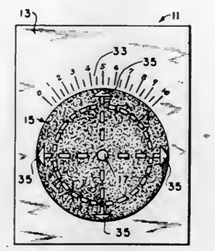
A dart game which comprises a target in the form of a net which is affixed to a frame which has legs so that the net is supported a spaced distance above a surface upon which the frame is placed. The darts used with the game preferably and advantageously are molded as integral units of plastic, and comprise a shaft having a plurality of fins affixed thereon to guide the flight of the dart and a tip portion on the end of the shaft which is correspondingly sized with the net to engage the net to resist removal of the dart after the tip has once penetrated the net. This tip also preferably has a weight disposed therein and a resilient bumper on its end. The latter and the target permits the game to be played indoors, with the resilient bumper further providing a safety feature.

3,784,200
PROJECTILE INCLUDING A CYLINDRICAL BODY WITH ONE FLANGED END AND A TARGET BOARD
Robert William Hotchkiss, 8861 W. Albain Rd., Ida, Mich.
Filed Mar. 15, 1973, Ser. No. 341,570
Int. Cl. A63b 71/00
U.S. Cl. 273—95 R 1 Claim



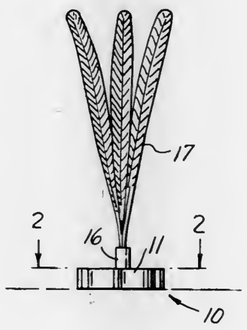
A multiplayer game for several persons which is comprised of and based around a square playing board which has on its upper playing and planar surface a plurality of circular target areas randomly distributed thereon and a centrally elevated launch area from and upon which a hollow cylindrical member, enclosed at one end, is propelled in a vertical path from a position with the open end upwards by a flip of a player's finger in order to cause the cylindrical member to land on one of the target circles in a position with its closed portion upright.

3,784,201
ROTATABLY SCORING DART BOARD
Dennis G. Wyman, Owings Mills; William J. Bichell, Phoenix, and Humber Oliveri, Randallstown, all of Md., assignors to Granta Corporation, Baltimore, Md.
Filed Jan. 12, 1972, Ser. No. 217,311
Int. Cl. A63b 71/02
U.S. Cl. 273—102.1 E 6 Claims



A dart game comprising a stand-up or hanging board having a target supported thereon for rotation about a generally horizontal axis. A plurality of darts are provided and, when thrown, the darts attach to the target. Each attaching dart tends to turn the target about its rotational axis by an amount which is a function of the radial and angular position of the dart on the target, and its relation to other darts attached thereto. Scoring means responsive to angular and/or directional target movement is provided.

3,784,202
SHUTTLECOCK
Raymond M. Pon, 71 Blake St., San Francisco, Calif.
Filed June 19, 1972, Ser. No. 264,183
Int. Cl. A63b 67/18
U.S. Cl. 273—106 A 1 Claim

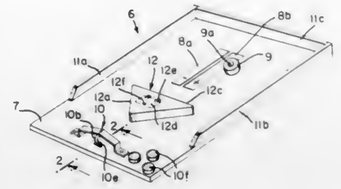


A shuttlecock for sports use in which the shuttlecock is kicked about a playing surface and into the air. The shuttlecock includes a soft plastic body of a substantially flat generally circular shape and having an axial socket for holding guiding feathers. The plastic body is generally in the form of a disk and in one form of the invention is hollow. In a second form of the invention the hollow cavity of the body has weights positioned therein. In a third form of the invention the body is solid and has vertical bores extending therethrough.

3,784,203
LIGHT-ON TARGET GAME

Albert Nathanson, 75-60 199th St., Flushing, N.Y.

Filed Feb. 5, 1973, Ser. No. 329,372
Int. Cl. A63f 3/00
U.S. Cl. 273—126 A 9 Claims

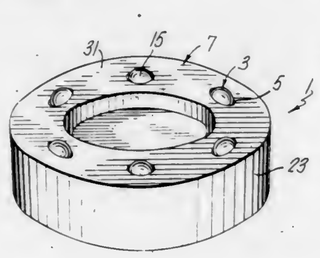


In a preferred embodiment of the invention, the game includes a playing board having an upper flat face about rectangular in shape having a fence of resilient plastic circumscribing continuously at least about three sides with two separate closely spaced-apart electrified plates about centrally spaced intermediately between two of the opposite fenced sides and having also about intermediately spaced between the two oppositely spaced fenced sides a barrier structure nearer the remaining end and at a point adjacent the remaining end a sliding-missile propelling-device for propelling a slidable missile along the flat playing board face on one or the other side of the barrier structure reboundingly against the resilient fence, the missile being typically a disk in shape, and a light-bulb-carrying slidable disk which when struck by a rebounding missile-disk becomes purposely slid toward a straddling position whereby one electrical contact of the lightbulb is in contact with one of the electrified plates while another of the oppositely charged plates is in contact with the reamining electrical terminal of the lightbulb resulting in the lightbulb becoming illuminated thereby, the propelling device preferably including an elastic strip extending vertically anchored at each of opposite ends thereof.

3,784,204
HOCKEY PUCK

Julius Felber, Montreal, Quebec, Canada, assignor to Julius Felber and Bela Szabo, Montreal, Quebec, Canada

Filed Nov. 10, 1971, Ser. No. 197,264
Int. Cl. A63b 71/00
U.S. Cl. 273—128 R 8 Claims

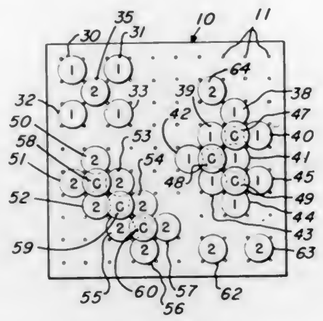


An improved hockey puck having spherical rollers mounted and retained in depressions formed on each face of the puck during the molding of the puck. The depressions on one face are laterally offset with respect to the depressions on the other face so as to obtain accurately dimensioned depressions after the molding operation.

3,784,205
BOARD GAME APPARATUS

Norton M. Cross, Jr., White Bear Lake, Minn., assignor to Reynolds W. Guyer, Jr., St. Paul, Minn.

Continuation of Ser. No. 119,673, March 1, 1971. This application Sept. 5, 1972, Ser. No. 286,057
Int. Cl. A63f 3/00
U.S. Cl. 273—131 AC 9 Claims

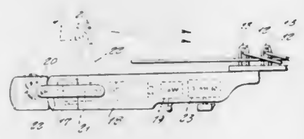


A game including a game board having a plurality of recesses preferably defined by upstanding pegs and a plurality of spherical playing pieces which are of a diameter such that they can be placed in adjacent recesses in diagonal rows but not in adjacent recesses in orthogonal rows. The purpose of the game is to form all of the playing pieces into squares with the playing pieces in the diagonal corners of the square, these squares being designated as crown squares. An alternative way of winning is to capture all but a designated number of the opponent's spherical playing pieces by enclosing them in capture squares. Capture squares are squares in which the playing pieces are arranged in alternate squares along orthogonal rows so that a captured piece will fit between the four playing pieces of the square.

3,784,206
CHINESE RING PUZZLE

Willard L. Sluss, 7616 Brush Lake Rd., North Lewisburg, Ohio

Filed Mar. 20, 1973, Ser. No. 342,951
Int. Cl. A63f 9/08
U.S. Cl. 273—158 1 Claim



A Chinese ring puzzle consisting of a series of rings, each one of which is fitted through an eyelet secured in a bottom plate, an elongated loop trapping all the eyelets with the rings on top and the plate on the other side; the loop being able to be extracted by skilful maneuvering of the rings; the puzzle being integral with a handle carrying a pen-lite battery, switch and lamp for illumination so the puzzle can be played after dark at night, and the handle also supporting a timer so to indicate the length of time competitive players take to solve the puzzle. The timer can be so arranged in the lamp circuit as to actuate the lamp when the timer is set and deactuate the lamp at the termination of the time interval set on the timer.

3,784,207
GOLF GAME

Joseph A. Gentiluomo, 1456 Belmont Ave., Schenectady, N.Y.

Filed Dec. 6, 1971, Ser. No. 204,890
Int. Cl. A63b 67/02, 69/36
U.S. Cl. 273—176 A 17 Claims

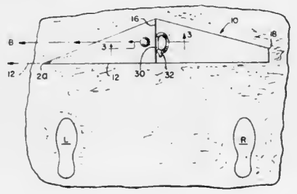


Golfing lanes constructed and equipped for the playing of a golf game which lends itself to a handicap system whereby players of varying abilities can compete on a handicap adjusted scoring basis. Each lane has a golf tee disposed at one end, an upright target disposed at the opposite end for segregating balls on a directional accuracy basis, a ball receiver for receiving and classifying balls gravitating from the upright target, and ball confining members disposed with respect to the golfing lanes for preventing ball cross-fire into adjacent targets. The upright target has ball-to-target impact sensing devices functionally associated with control apparatus for providing ball momentum classification. Since the mass of a golf ball is constant, ball momentum is representative of ball velocity or the time required for the ball to travel the fixed distance between the tee and target. The apparatus for determining ball momentum may include such components as an acoustic sensing unit, one or more inertia switches, a time sequence programmer, an operatively associated pulser, relays and a counter. Scoring of each ball hit is provided by combining numerical representations of a directional accuracy factor and a ball momentum factor. For playing the game, each player hits a predetermined number of balls with both wood and iron clubs in a prearranged sequence into the vertical target. This game can be extended to include also floor targets which can be disposed forward of each vertical target. For scoring purposes, these floor targets with associated controls have apparatus for classifying and providing a numerical representation of all balls hit therein with short range irons. Game scoring is devised to place a premium on directional accuracy with the ball momentum factor associated with balls hit to said vertical target included merely to more thoroughly scruntinize each golf shot and add a challenging distinctive quality to the game. Scores of each shot taken are displayed on a counter situated on a score table located at each golf tee area.

3,784,208
GOLF SWING IMPROVING DEVICE

Maurice E. Weygandt, 5396-4th St. North, Apt. 102, St. Petersburg, Fla.

Filed Jan. 23, 1973, Ser. No. 326,075
Int. Cl. A63b 69/36
U.S. Cl. 273—183 A 3 Claims



A pliant shape-holding mat having generally the shape of an elongated isosceles triangle for use by golfers. Indicia defining a straight line is provided to denote the relatively short height of the mat and a golf tee receiving opening is provided about midway of the line and about 1 inch normally offset therefrom.

3,784,209
GOLF BALL

Aaron Robert Berman, deceased, late of Hatfield, Pa., and Katharine D. Berman, administratrix, Valley View Apartments C-605, King of Prussia, Pa.

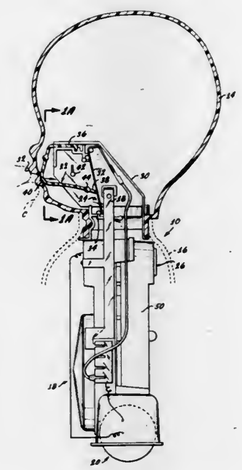
Filed June 7, 1971, Ser. No. 150,722
Int. Cl. A63b 37/00, 37/12
U.S. Cl. 273—218 1 Claim

One-piece, nonhomogeneous, molded golf ball is obtained by forming a center of an uncured elastomeric material, surrounding the center with a compatible but different uncured elastomeric material, and curing both elastomeric materials, such that when said materials are cured they become integral with each other to form an one-piece molded golf ball which is harder at its center than at its outer surface.

3,784,210
KISSING DOLL PHONOGRAPH

James H. Fox, Torrance; Han-Chung Leung, Los Angeles, and Howard R. Stern, Anaheim, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 16, 1971, Ser. No. 208,625
Int. Cl. G11b 25/04, 17/06; A63h 3/33
U.S. Cl. 274—1 A 4 Claims

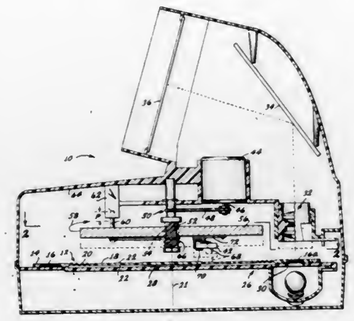


A doll with a phonograph that plays each time the lip portion is depressed, the doll being constructed to enable large dimensional tolerances in the location of the switch that is operated by depressing the lips, and the phonograph being constructed to sequentially play different recordings. An electrical switch that turns on the phonograph when the lips are depressed, includes a relaxation member extending from the lips to a switch contact to push the contact against another contact when the lips are depressed, the relaxation member constructed of an ordinary plastic that quickly loses its resilient resistance to deflection. The phonograph includes a cam for returning the tone arm to the outside of the record, and a stop pivotally mounted on the cam for positively engaging a catch on the turntable to rotate the cam with the turntable after each record groove is played.

3,784,211
PHONOGRAPH FOR PLAYING STATIONARY RECORD

William F. Summerfield, Huntington Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed May 30, 1972, Ser. No. 257,508
Int. Cl. G11b 17/06
U.S. Cl. 274—9 R 5 Claims

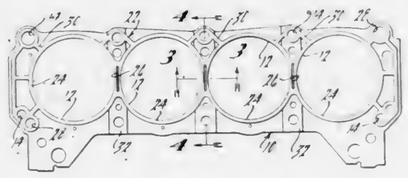


A phonograph which plays a selected one of several spiral grooves on a stationary record, including a drive shaft with a high helix angle thread which engages a tone arm carrier, so that when the drive shaft begins rotating, the carrier is urged to rotate and is also urged to move axially down towards the record. A stop on the phonograph housing prevents rotation of the carrier past the stop until the carrier has moved sufficiently towards the record for a tone arm on the carrier to engage a record groove, the carrier then lying below the stop so it can be rotated. The record has a peripheral portion containing pictures that can be viewed, a hub portion containing several spiral record grooves, and a resilient portion connecting the hub to the peripheral portion to allow up and down movement of the hub.

3,784,212
COMPOSITE GASKET

Ralph G. Doerfling, Walled Lake, Mich., assignor to Detroit Gasket Manufacturing Company, Oak Park, Mich.

Filed May 22, 1972, Ser. No. 255,812
Int. Cl. F16j 15/12
U.S. Cl. 277—22 7 Claims

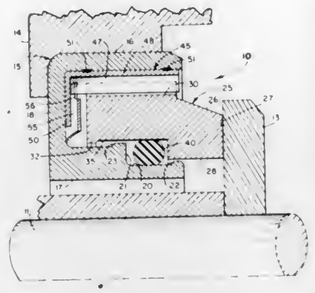


A composite gasket suitable for use as a cylinder head gasket for internal combustion engines or the like. The gasket comprises a deformable base sheet having a plurality of openings therein, the edges of which are reinforced by overlying metal grommets. Heat-conductive strips overlie the face surfaces of the base sheet and are disposed in heat conductive contact with the reinforcing grommets and are effective to rapidly conduct heat away from localized hot-spots to areas of cooler temperature, thereby substantially prolonging the useful operating life of the gasket.

3,784,213
ROTARY FACE SEAL ASSEMBLY

Robert M. Voitik, Glenview, Ill., assignor to Innovatex Corporation, Glenview, Ill.

Filed June 20, 1972, Ser. No. 264,446
Int. Cl. F16j 15/40, 15/54
U.S. Cl. 277—40 10 Claims



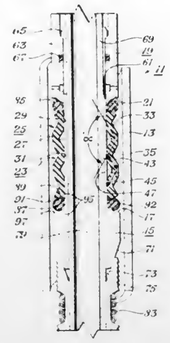
A face seal assembly for cooperation with a mating ring to provide a rotary face seal, the assembly including a stressed resilient sealing ring which provides a secondary seal and, in addition, cooperates with other structure for maintaining the parts in assembled relation during storage and handling. The assembly also includes a pair of secured anti-rotation members for a seal nose member each having a retaining tab serving to hold in the assembly the anti-rotation member in the event it becomes unsecured. A biasing annular wave spring of generous size permits yieldable axial movement of the nose member. The aforesaid secured anti-rotation members are received in diametrically opposed peripheral slots in both the nose member and biasing spring, the respective slots in the nose member and spring being aligned, the retaining tabs of the anti-rotation members lying on the side of the spring opposite the nose member. The slots in the wave spring are located midway between adjacent peaks and valleys of the spring so the retaining tabs which are aligned therewith serve as rigid stops preventing permanent deformation of the spring due to axial thrust of the nose member. The design of the parts of the assembly is such that the structural features responsible for the various functions are accommodated for the most part within an axial length of the nose member which has uniform cross-sectional size and shape, thereby providing a nose member of desirable size possessing high structural integrity.

3,784,214
SEAL THAT IS RESPONSIVE TO EITHER MECHANICAL OR PRESSURE FORCE

Jack W. Tamplen, Rural Rt. No. 2, Celina, Tex.

Filed Oct. 18, 1971, Ser. No. 190,086
Int. Cl. F16j 5/00; F16l 21/04
U.S. Cl. 277—116.8 10 Claims

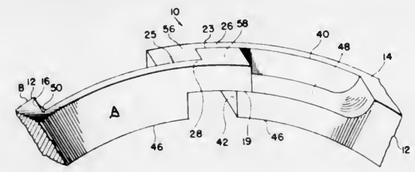
A sealing device for sealing between two concentrically disposed surfaces characterized by longitudinally movable shoulders for compressing the seal and a tubular, laterally expansible seal for effecting a seal intermediate the two surfaces in response to longitudinal compression by the shoulders; the seal being characterized by at least one annular ridge having an outer portion connected with two inner portions by two respective side walls, the side walls defining in cross section an angle α therebetween that is less than 90° in the set condition. Having an angle less than 90° in the set condition enables a relatively large compressive force to be generated in effecting a seal by engagement of the outer portion with the outer sealing surface. After setting, the seal is responsive to either mechanical force or pressure force in retaining its seal. Also disclosed are specific structural embodiments.



3,784,215
INTERLOCKING JOINT FOR SEALING RINGS

Meyer L. Ruthenberg, Owings Mills, Md., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Nov. 12, 1971, Ser. No. 198,245
Int. Cl. F16j 9/24; F16r 1/22
U.S. Cl. 277—220 2 Claims

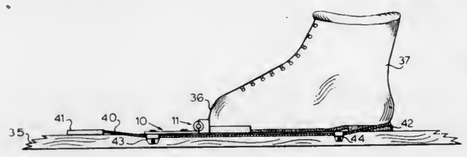


An interlocking joint assembly for annular split sealing rings where overlapping end sections form both radial and axial sealing faces; the end sections are formed with axially opposed overlapping segments creating a pair of axially overlapping radial sealing interfaces at the opposed ends of the sealing ring and a pair of axially offset axial sealing interfaces extending radially from the midportion of the ring to the outer radial face of the ring.

3,784,216
RELEASABLE SKI BINDING

Roe J. Maier, Jr., Rt. 1, Box 704A, Albuquerque, N. Mex.

Filed Mar. 2, 1972, Ser. No. 231,211
Int. Cl. A63c 9/08
U.S. Cl. 280—11.35 D 9 Claims

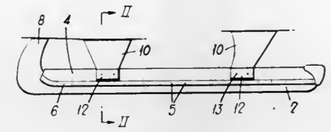


A binding to releasably attach a boot to a ski which facilitates release of the boot with the heel of the boot fastened to the ski or with the heel of the boot free to rotate above the ski about the toe of the boot above the ski. The binding includes a pin assembly mountable to the ski and a socket assembly which rotatably and releasably engages the pin assembly and which receives and carries the toe of the boot. In operation, the boot is biased into the socket assembly and when a force is applied to the boot overcoming the bias, the boot is released from the ski to prevent injury to the skier.

3,784,217
ICE SKATES

John Staples, Slough, England, assignor to Mitchel & King Skates Limited, Slough, England

Filed Apr. 21, 1972, Ser. No. 246,437
Claims priority, application Great Britain, Apr. 26, 1971, 11438/71
Int. Cl. A63c 1/38
U.S. Cl. 280—11.17 3 Claims

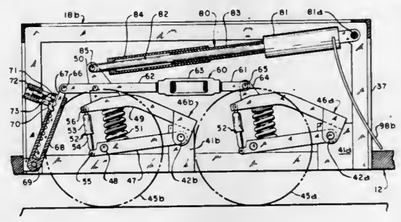


In an ice-skate of the kind having a longitudinally-extending tubular reinforcing member for the blade and a pair of cup-shaped support members extending from the tube to a bed-plate and a sole-plate for a skate boot, the lower ends of the cup shaped members are formed with flanges having a semi-cylindrical cross-section so that they wrap completely around the tubular member, up to the blade.

3,784,218
VEHICLE TRAILER

Edwin A. Stone, 1433 Wescott Rd. No. 7, Colusa, Calif.

Continuation-in-part of Ser. No. 715,696, March 25, 1968, Pat. No. 3,574,388. This application Apr. 12, 1971, Ser. No. 133,104
Int. Cl. B62d 21/18
U.S. Cl. 280—43.23 8 Claims



A trailer vehicle having frame pivotally mounted on wheels with mechanical lock to lock frame in predetermined position in relation to wheels and with fluid pressure means to release mechanical lock and to cushion lowering and to effect raising of frame.

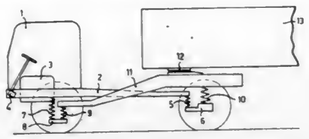
3,784,219
SUSPENSION SYSTEM FOR ROAD TRANSPORT VEHICLES

Gerrit Johan van der Burgt, Pijnacker, and Dusan Ryba, Delft, both of Netherlands, assignors to Van Doorne's Automobielfabrieken N.V., Eindhoven, Netherlands

Filed Jan. 27, 1972, Ser. No. 221,178
Claims priority, application Netherlands, Jan. 28, 1971, 7101116
Int. Cl. B60p 1/24
U.S. Cl. 280—104 7 Claims

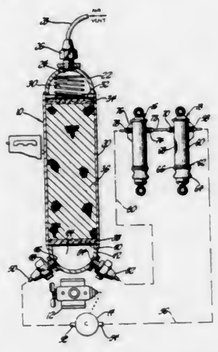
A suspension system for road transport vehicles in which the total axle pressure on at least one axle of the vehicle, or on two independent wheel suspensions positioned in a single transverse plane, is applied through two separate spring assemblies operating thereon. Each of the spring assemblies has

a pair of spaced springs having shock absorber means associated therewith. Each spring assembly supports a mass representing part of a vehicle and having a weight amounting



to at least one quarter of the total axle mass. The weight masses are free to move relative to one another and to move relative to the axle.

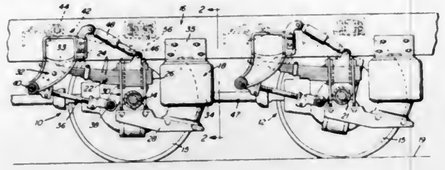
3,784,220
MOISTURE ELIMINATOR WITH REGENERATIVE PURGE CYCLE
Joseph W. Wanner, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 17, 1972, Ser. No. 307,217
Int. Cl. B60g *17/04*
U.S. Cl. 280—124 F **3 Claims**



A vehicle leveling system having an inlet cartridge with dessicant means therein for removing moisture from atmospheric air during a pump-up phase of operation wherein a compressor operated only in response to vehicle operation draws air from atmosphere through the dessicant means to remove moisture therefrom. During an exhaust phase of operation when the vehicle is stopped, the compressor no longer draws air through the dessicant means, the air is exhausted from the pressurized system back through the dessicant means for removing moisture therefrom. A vehicle component is located closely adjacent the cartridge for changing the temperature thereof from a reduced temperature during the intake phase of operation and to an elevated temperature at the exhaust phase of operation to provide an effective high temperature regenerative purge of the dessicant means during exhaust from the pressurized system when the vehicle is stopped.

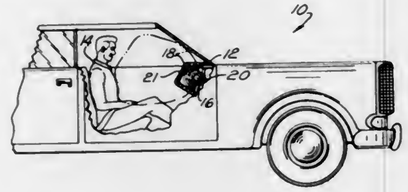
3,784,221
AIR RIDE SUSPENSION FOR TRUCKS
Van L. Frasier, Sr., 5227 Sportscraft Dr., Dayton, Ohio
Filed July 24, 1972, Ser. No. 274,405
Int. Cl. B60g *11/46*
U.S. Cl. 280—124 F **13 Claims**

An air-ride suspension system for vehicles such as trucks, tractors, trailers, and the like has a spring and an air bag attached to an axle of the vehicle and arranged outside a frame thereof for permitting the axle to be selectively moved toward the frame a distance sufficient to lift a wheel on the axle out of contact with a surface supporting the vehicle. The suspension has a pair of adjustable, pivotally mounted torque arms positioned embracing the spring and arranged in parallel so as to form a parallelogram to prevent the axle from turning over. A shock absorber is arranged in a fixed position between the axle and the frame for absorbing shocks received by the axle. A semi-cylindrical insert is provided for adapting the system to an axle having a square cross section. This insert has a planar face provided with a recess arranged to receive the axle for permitting a beam connecting the air bag to the axle to pivot



or tilt the axle and arrange its drive line at a desired angle. A system particularly suitable for use when lifting an axle off the vehicle supporting surface when the axle is not in use has an additional spring in place of the upper torque arm connected between the axle and the frame at points adjajcent ends of the first mentioned spring, and arranged in a plane substantially parallel to that spring and spaced therefrom toward the frame.

3,784,222
SAFETY APPARATUS
Richard Chute, Huntington Woods, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Division of Ser. No. 849,394, Aug. 12, 1969, Pat. No. 3,638,964. This application July 16, 1971, Ser. No. 163,189
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 AB **4 Claims**

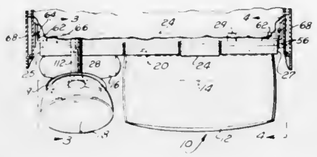


An improved safety apparatus for protecting an occupant of a vehicle during the occurrence of an accident includes an expandable confinement having a collapsed condition and an expanded condition for restraining an occupant of the vehicle during an accident. A unitary assembly for effecting expansion of the confinement includes a percussion actuated explosive valve which is impacted with an actuator in response to the occurrence of an accident to effect operation of the valve to an open condition. Opening the valve enables fluid to flow from a source of fluid to the confinement to effect expansion of the confinement. The actuator can be either a mass which is impacted against the valve in response to the occurrence of an accident or a fixed member against which the valve is impacted. The flow of fluid from the source of fluid is at least partially stabilized by a flow regulator assembly to thereby tend to eliminate "peak" or excessively high rates of expansion of the confinement.

3,784,223
SAFETY APPARATUS
David P. Hass, Detroit, and John E. Kunz, Westland, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio
Filed June 10, 1971, Ser. No. 151,665
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **19 Claims**

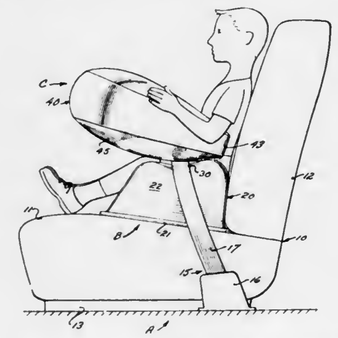
A safety apparatus for a vehicle includes a plurality of expandable confinements for protecting an occupant of the vehi-

cle during an accident, an elongate diffuser member, an elongate fluid reservior disposed concentrically with the longitudinal axis of the elongate diffuser member, and a valve for effecting fluid flow from the reservoir. The valve is mounted at one end of the reservior and engages with one end portion of the diffuser member so as to positively locate the diffuser member relative to the reservior. Mounting means are provided for supporting the ends of the diffuser member adjacent the side walls of the vehicle, and providing for relative movement of the diffuser member and the vehicle in the event an occupant impacts with the diffuser member so as to absorb and dissipate the kinetic energy of the occupant. The diffuser



member includes a first group of openings for directing fluid to a first one of the plurality of confinements and a second group of openings for directing fluid to a second one of the plurality of confinements. The first and second groups of openings each have an effective area and a location on the elongate diffuser member to control the fluid flow from the reservior so as to effect expansion of their associated confinements in a predetermined manner.

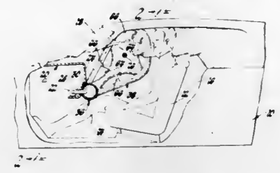
3,784,224
PASSENGER SAFETY DEVICE
Donald H. Peeler, Raleigh, N.C., assignor to Irvin Industries Inc., Greenwich, Conn.
Filed Dec. 8, 1971, Ser. No. 205,914
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 B **8 Claims**



A safety seat and safety cushion which are preferably used in combination with each other and with a safety belt as a passenger safety device for protection of a child during vehicular travel.

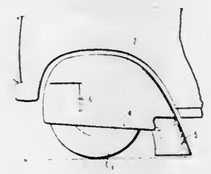
3,784,225
OCCUPANT RESTRAINT SYSTEM
Lawrence L. Fleck, Warren, and Robert Hickling, Royal Oak, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Oct. 2, 1972, Ser. No. 294,151
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **3 Claims**

An occupant restraint system for an automotive vehicle includes a cylindrical lower inflatable cushion mounted on the instrument panel of the vehicle and communicating with an inflator. The inflated lower cushion functions as a knee cushion when engaged with the knees of a seated vehicle occupant. An upper inflatable cushion includes a plurality of side-by-side interconnected fluid passageways looped to the lower cushion and having their ends opening to the lower cushion so as to be inflated by pressure fluid received therefrom. The upper cushion is provided with end walls having openings to the interior thereof. These openings are each provided with sleeve type valves permitting the induction of ambient atmosphere into the upper cushion when the fluid passageways of the upper cushion are inflated. The end walls also include



openings covered by porous material to permit the expulsion of the ambient atmosphere from within the upper cushion upon engagement with the torso of the seated occupant. The upper cushion is normally folded adjacent the lower cushion. When the lower cushion is inflated, it initially functions as a deployment cushion as it moves the upper cushion outwardly from the instrument panel. The lower cushion then inflates the fluid passageways of the upper cushion as the upper cushion is inflated to induct ambient atmosphere into the upper cushion and complete the inflation thereof.

3,784,226
DEVICE FOR REDUCTION OF SOILING OF MOTOR VEHICLES
Karl Wilfert, Gerlingen-Waldstadt, and Hans Gotz, Sindelfingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Sept. 22, 1972, Ser. No. 291,185
Claims priority, application Germany, Sept. 24, 1971, P 21 47 750.9
Int. Cl. B62b *9/16*
U.S. Cl. 280—157 **12 Claims**

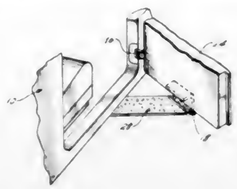


A wheel casing for reducing the self-soiling and the external soiling of motor vehicles so secured that it is able to follow the spring movements and possibly also any steering movements; on the inside of the casing, on each side thereof, is provided a water-collecting groove extending at an inclination from the front downward toward the rear and an apron consisting of elastic, coarse-porous material is arranged at the rear end of the casing, which extends down to a position very close to the road surface.

3,784,227
RETRACTABLE STEP FOR PASSENGER VEHICLES
Gail E. Rogge, 23851 Lyon St., San Jacinto, Calif.
Filed June 19, 1972, Ser. No. 263,927
Int. Cl. B60r *3/02*
U.S. Cl. 280—166 **6 Claims**

A retractable step for a pickup truck or other vehicle which includes a tread member secured at one end to a bracket

which attaches to and extends downwardly from the bottom of the door. The tread member extends inwardly beneath the car and is slidably supported by a U-shaped bracket mounted to and beneath the frame of the truck. Opening the door slides

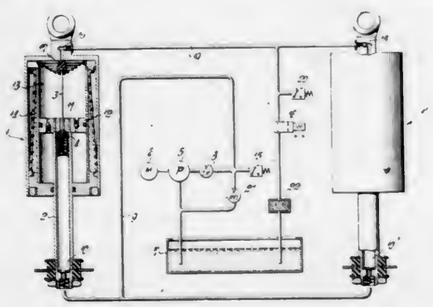


the tread member outwardly from beneath the truck, the tread member being supported, when the door is open, between the bracket attached to the door and the bracket attached to the frame to form a step.

3,784,228
REGULATING APPARATUS FOR A FLUID CONTROLLED CAR SUSPENSION

Hans-Jurgen Hoffmann, Schalksmuhle-Heedfeld, and Friedhelm Fischer, Villigst, both of Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany

Filed July 17, 1972, Ser. No. 272,657
Claims priority, application Germany, Oct. 22, 1971, 2152601
Int. Cl. B60g *17/00*
U.S. Cl. 280—6 H **12 Claims**



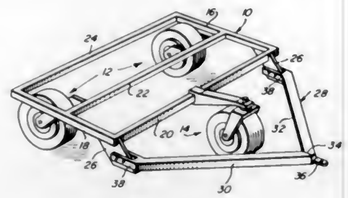
A regulating apparatus for a motor car suspension has resilient shock absorbing supporting legs, each including a cylinder and a piston forming a working chamber in the cylinder connected by conduits with a pump started by a door switch of the car otherwise used for illuminating the interior of the car. The fluid pumped into the working chamber compensates an increased load, and a decreased load causes discharge of fluid from the working chamber, for maintaining the suspension at a normal level. Instead of a pump, an other pressure fluid source can be used which is connected by an electromagnetic valve with the working chamber when the door switch, or other control switch, is operated. The control switch can also be operated by the trunk lid, or be a manual switch operated by the driver.

3,784,229
TORQUE HINGE FOR DRAFT MEMBER

Edwin A. Seifert, Jr., Route 1, Belgrade, Mont.

Filed May 23, 1972, Ser. No. 256,129
Int. Cl. B60d *1/06*
U.S. Cl. 280—446 R **5 Claims**

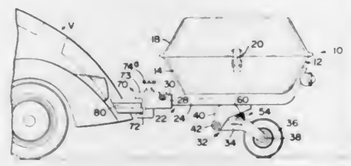
A hinge connection between a draft implement and its towing tongue allowing the forward end of the tongue to swing up and down about a horizontal transverse axis relative to the draft implement. The hinge connection further includes structural features whereby increasing downward forces are applied to the front end of the tongue in response to increasing forward pulling forces on the draft implement by the towing tongue.



3,784,230
UTILITY TRAILER

Ashton L. Worrall, Jr., 325 Edison-Furlong Rd., Doylestown, Pa.

Filed Dec. 27, 1971, Ser. No. 212,118
Int. Cl. B60d *1/04*
U.S. Cl. 280—491 **6 Claims**

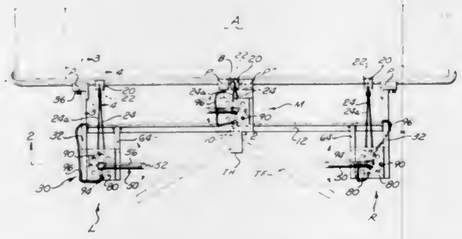


A lightweight serviceable utility trailer which can double as a wheelbarrow. The trailer includes a trailer body with a support frame therefor. A pair of support arms are provided for pivotal connection to the trailer to convert it to a wheelbarrow type of vehicle. A trunnion means pivotally connects the trailer frame to a snubber and wheel assembly for support purposes. Clamp members are provided on the frame to secure the trailer to a vehicle.

3,784,231
TOW HITCH

Donald G. Knowles, 7471 N. Meadowpark Dr., Bedford, Ohio

Filed June 21, 1972, Ser. No. 264,726
Int. Cl. B60d *1/14*
U.S. Cl. 280—502 **9 Claims**

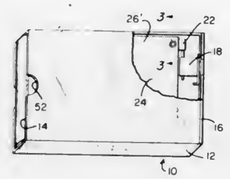


A tow hitch adapted to be releasably clamped to a vehicle bumper to effect a tow connection between two vehicles. The hitch includes a tow connection member, ball or socket, and at least one clamping mechanism for clamping the connection member to the bumper. Each clamping mechanism includes a pair of bumper clips adapted to be connected to spaced apart bumper edges. A cable interconnecting the clips is placed in tension by forces applied intermediate the length of the cable to force the frame of the tow hitch against the bumper.

3,784,232
APPARATUS FOR SECURING ARTICLES

Alan D. Greene, 19 Shirlawn Dr., Short Hills, N.J.

Filed May 25, 1972, Ser. No. 256,754
Int. Cl. B42d *3/10, 3/18*
U.S. Cl. 281—20 **2 Claims**

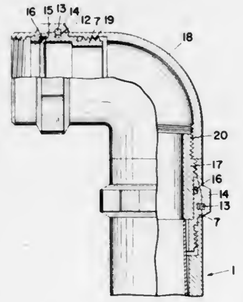


A carrier for checksheets, such as a checkbook binder, having a latch-engaging, dowel-like element extending projectingly from one of the carrier covers and in penetration of the other cover, is slidably received in a portable container. The container comprises a box having only one open end, through which the carrier is inserted thereinto, and the container has a locking mechanism fixed to the inner surface thereof, opposite the open end, which is operative for engaging the dowel-like element to secure the carrier within the container.

3,784,233
CABLE-TERMINATION ADAPTER

Wolfgang Herman Gustav Hilbert, Holzkirchen, Germany, assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Oct. 15, 1971, Ser. No. 189,628
Int. Cl. F16l *25/00*
U.S. Cl. 285—12 **2 Claims**

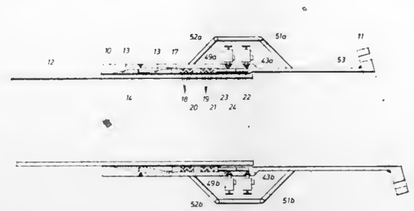


A straight-line backshell assembly providing strain relief and shield grounding for an electrical cable connector is separable between the tubular housing section which carries the cable gripping means and the rotatable-ring coupling section which is adapted to screw on the rear of the connector. For an angular backshell, an elbow section of the desired angle and an identical rotatable-ring coupling section are added to the straight-line backshell assembly.

3,784,234
HYDRAULIC CONNECTOR ACTUATING APPARATUS

Harvey O. Mohr, Houston, Tex., assignor to Hydrotech International, Inc., Houston, Tex.

Filed Oct. 18, 1971, Ser. No. 189,982
Int. Cl. F16l *35/00*
U.S. Cl. 285—18 **4 Claims**

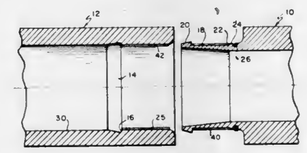


A hydraulically actuatable connector having a housing adapted for positioning about a tubular member, means carried by the housing for gripping the tubular member, and a plurality of longitudinally aligned cylinders circumferentially spaced about within the housing is provided with a plurality of coaxially aligned pistons slidably positioned in each cylinder arranged to actuate the gripping means in response to a hydraulic pressure. Means are included for selectively applying a hydraulic pressure to selected ends of the pistons in each cylinder after they have actuated the gripping means into gripping engagement with the tubular member. The method includes selectively applying hydraulic fluid and hardenable hydraulic fluid to the pistons to clamp and lock the connector to the tubular member.

3,784,235
TUBULAR ADHESIVE JOINT WITH SNAP LOCK

Hyman Kessler, Silver Spring, and Harvey L. Peritt, Beltsville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 8, 1971, Ser. No. 187,673
Int. Cl. F16l *13/10, 47/02*
U.S. Cl. 285—21 **7 Claims**

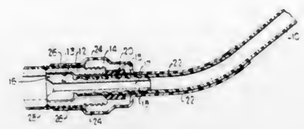


A pipe coupling including male and female attachment members connected to a pair of tubular sections which are to be coupled. The female attachment member includes a circumferential groove formed interiorly therein while the male attachment member includes a reduced diameter portion whose outer diameter is smaller than the inner diameter of the female attachment member and which has an outwardly extending lip formed at the edge thereof which will interfere with the female attachment member on assembly. Adhesive is deposited on the outer surface of the reduced diameter portion and on the inner surface of the female member and upon assembly, the male member is inserted into the female member until the lip snaps into the groove whereupon both a mechanical and adhesive connection is attained.

3,784,236
FITTING FOR FLEXIBLE CONDUITS

Fred H. Slocum, Pittsburgh, Pa., assignor to Robroy Industries, Verona, Pa.

Filed Oct. 5, 1971, Ser. No. 186,683
Int. Cl. F16l *11/12*
U.S. Cl. 285—45 **6 Claims**

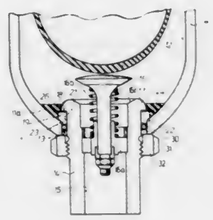


An improved fitting, especially a compression coupling, for flexible conduits, such as flexible plastic hose and the like. A coupling includes a coupling nut assembly and further includes a rigid, usually metallic, nipple having a fluid passageway therethrough. The nipple is adapted to slidably receive and mount a flexible conduit thereon whereby the conduit may pass into and be received by the coupling. The coupling nut assembly comprises male and female members adapted to be engaged, as by threading, whereby an annular gasket is urged into annular compressing contact with a conduit in the coupling. Integral sleeve means are provided extending from said coupling in operable contact with said conduit whereby crimping or breaking of the conduit near the end of the nipple on which it is mounted is substantially eliminated. Preferred sleeve means comprises a polymeric coating, especially a polyvinylchloride coating, bonded to the coupling nut assembly and terminating in a polymeric annular sleeve extending from the coupling nut assembly and terminating in a polymeric annular sleeve extending from the coupling nut and adapted to receive a flexible conduit passing into the coupling. In that fashion, crimping and breaking of the flexible conduit in the coupling is substantially prevented.

3,784,237
PRESSURE CONTAINER TUBE CONNECTION

Wilhelm Zirps, Hemmingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed June 8, 1972, Ser. No. 260,785
Claims priority, application Germany, June 12, 1971, P 71 22 754.8
Int. Cl. F16l *41/00*
U.S. Cl. 285—208 **3 Claims**

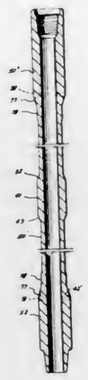


A tube is connected with a pressure container by a flange end portion located in the container pressing against the holder ring which closes the gap in the opening of the container around the tube. An elastic annular body has a slot into which a flat resilient annular hard disk is partly inserted so that an annular disk portion is clamped between the flange end portion and the holding ring, permitting easy assembly.

3,784,238
INTERMEDIATE DRILL STEM

Glenn G. Chance; Sam T. Crews, both of Houston, and Clenis E. Wilson, Spring, all of Tex., assignors to Smith International, Inc., Midland, Pa.

Filed May 17, 1971, Ser. No. 143,953
Int. Cl. F16l *13/02*
U.S. Cl. 285—286 **25 Claims**

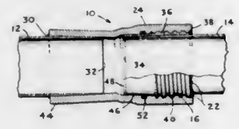


Intermediate drill stem includes an alloy steel body of smaller inner diameter than usual for drill pipe machined to drill pipe outer diameter except having one or more integral protectors of larger outer diameter at intervals along its length and except further having integral transition portions of somewhat larger than drill pipe outer diameter near its ends and portions of elevator shoulders at the ends, the ends also being built up externally and internally with weld metal to match the wall thickness of extra long alloy steel connector members rod welded to the ends of the body. Typically the body of the intermediate drill stem is made from a worn out drill collar and if the ends of the collar are not too far gone the original integral drill collar connectors can be used. New material may be used for the body and if anticipated loading is not too great carbon steel could be used instead of alloy steel. In any case, the integral protectors could be omitted.

3,784,239
SEALED, FILAMENT-WOUND PLASTIC SLEEVE

J. Warne Carter, 2206 Weeks Park Ln., Wichita Falls, Tex., and Martin Duane Neher, 900 Aztec St., Burkburnett, Tex.

Filed Sept. 7, 1971, Ser. No. 178,239
Int. Cl. F16l *47/00*
U.S. Cl. 285—293 **4 Claims**



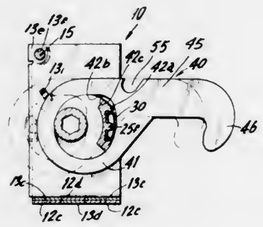
A sealing ring joint for non-ferrous pipe or tubing is formed by fixing an external engaging sleeve to the end of a section of pipe or tubing and by fixing a collar member to the end of another section of pipe or tubing. External engaging means on the sleeve coact with internal engaging means in the collar to fasten the sleeve to the collar, while mating tapered sections on the sleeve and the collar coact to position, fasten and seal the sleeve in the collar when the external engaging means is engaged with the internal engaging surface of the collar. A sealing ring groove disposed on the tapered section within the collar positions a sealing ring which coacts with the external engaging sleeve and the sealing ring groove of the collar to effectively provide a pressure seal for the joint.

The collars are made by a filament winding process in which die members, including at least one deformable die member, are arranged into collar-forming sets which are assembled in series on a mandrel.

3,784,240
PANEL FASTENER

Irving L. Berkowitz, Binghamton, N.Y., assignor to Kason Hardware Corporation, Binghamton, N.Y.

Filed June 23, 1972, Ser. No. 265,791
Int. Cl. E05c *5/00, 19/12*
U.S. Cl. 292—111 **8 Claims**



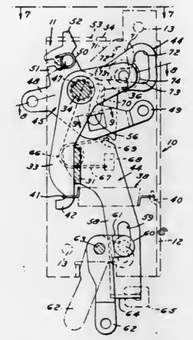
This panel fastener comprises a casing having aligned bearing openings journalling oppositely extending aligned hubs of a circular cam. The hubs are eccentrically located relative to the axis of the cam. A polygonal central hole through said hubs and cam serve to receive a wrench to turn the cam. The cam has oppositely extending wings substantially diametrically opposed to said hubs. Said wings and cam have cut away means to cradle a curved friction spring clip. On the cam is a panel latch hook having a hole to rotatably receive the cam. About 270° of the hole in the hook, contacts the cam with a rotary fit. The remaining 90° of the hole is cornered with a curved corner edge of reduced radius to facilitate the unflexed spring clip to pass into the cornered portion of the hole in the hook, so that as the cam is thereafter rotated relative to the hook, the spring clip is flexed to frictionally press against the inner edge of the hole in the hook, to prevent looseness between the cam and hook.

3,784,241
AUTOMOBILE LOCKING LATCH

Joseph Pickles, Birmingham, Mich., assignor to Ferro Manufacturing Company, Detroit, Mich.

Filed Dec. 14, 1971, Ser. No. 207,830
Int. Cl. E05c *13/00*
U.S. Cl. 292—216 **15 Claims**

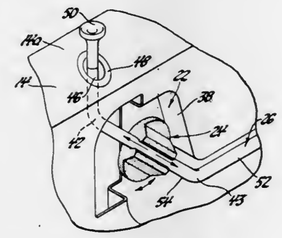
A pair of forked keeper-engaging latch members on a door edge are pivoted on parallel axes to swing toward and away from one another, respectively into and out of latching relationship to a door post-mounted keeper pin, being strongly spring-biased toward a keeper disengaging position. They are held in keeper-engaging and latching position, in which they are well overlapped in relation to one another all about the keeper pin, by a plate-like dogging pawl on a pivoted and spring biased, bell crank-shaped pawl arm. This pawl releasably engages between dogging shoulders on the respective fork members, the latter being substantially completely enclosed within an external housing formation on a door edge surface of a mounting plate, but entirely external of that plate. The pawl is undogged in opposition to its spring bias by a vertically shiftable actuator slide when the latch is in an unlocked, non-free wheeling condition; and to this end the pawl crank arm carries, on an upper, relatively short arm portion thereof, a large headed actuator pin which is received in an L-shaped opening at the top of the actuator slide. When the pin is located at one end of a substantially horizontal leg portion of this opening, a downward shift of the slide is effective to move the pin, hence swing the pawl arm, in an undogging way to free the latch forks to spring to unlatching position. In a laterally shifted position of the slide to bring the opposite end of its vertical slot leg portion into line with the pawl arm's actuator pin, the slide will free-wheel vertically relative to said pin so that the slide is ineffective to shift the pawl out of dogging engagement between the shoulders of the latching forks. The latter are subject to spring bias only in latching and unlatching, having no gear or equivalent interconnection. Vertical shifting of the slide, whether in an unlocked condition or a locked disabled or free-wheeling condition, is through the agency of an outside manually operated bell crank or lever, which has a lost motion pin and slot connection to the lower end of the actuator slide. An over-center spring-operated locking lever has an offset tab portion engageable in an elongated slot in said slide to automatically swing the latter between its locked and unlocked conditions.



3,784,242
DOOR LOCK ACTUATOR

Kim Hill, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

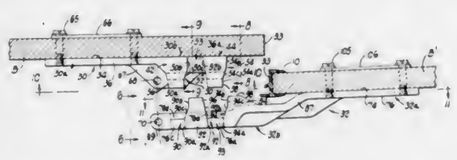
Filed Sept. 5, 1972, Ser. No. 286,255
Int. Cl. E05c *13/10*
U.S. Cl. 292—336.3 **4 Claims**



This disclosure relates to an actuator for a locking mechanism for an automobile door. The actuator comprises a support member which is pivotally supported within the door and a one-piece, flexible actuator rod. The actuator rod has a first portion that extends outwardly of the door and which is axially shiftable by manual manipulation between door lock and door unlock positions. The actuator rod has a second por-

tion that extends within the door and which is axially unaligned with the first portion. The second portion is adapted to be operably connected with the locking mechanism to effect locking and unlocking thereof in response to axial shifting of the second portion. The actuator rod also has a transverse portion between the first and second portions which is supported for axial movement by the support member. The transverse portion pivots the support member and slides axially therein, and the actuator rod deflects between the transverse portion and the first portion and between the transverse portion and the second portion in response to shifting of the first portion between its door locked and door unlocked positions for axially shifting the second portion to effect locking and unlocking of the locking mechanism.

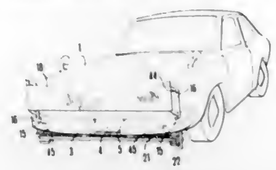
3,784,243
DOOR STABILIZER
John V. Pastva, Jr., Parma Heights, Ohio, assignor to The Eastern Company, Cleveland, Ohio
Filed Mar. 28, 1972, Ser. No. 238,849
Int. Cl. E05c *19/00*; **E06b** *3/34*
U.S. Cl. 292—300 **13 Claims**



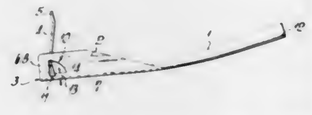
A device for restraining movement of a pivoted or hinged closure member in closed position relative to a second member at the distal edge thereof, such as an adjacent second door and/or a door frame. The restraining device is especially useful on double doors of truck trailers and cargo containers and complements the usual door latches in preventing frame racking and opening of the door in response to an internally applied force due, for example, to a load shift. The device comprises two interengageable members, one fixedly connected to a hinged closure member adjacent to the distal edge thereof and the other on an adjacent second member. Opening of the closure member is prevented by the device when both the hinged closure member and the second member, such as the second door, are moved or when forces strain the hinged closure member to cause the interengaged members to bind. Movement in the plane of the door (so-called "racking" is inhibited through a rigidifying effect from the interengagement of the members of the restraining device.

3,784,244
PEDESTRIAN PROTECTING FENDER
Tadashi Emi, No. 4-33-109, Sengoku-higashi-machi, Osaka, Japan
Filed Aug. 29, 1972, Ser. No. 284,753
Claims priority, application Japan, Feb. 28, 1972, 47/21834
Int. Cl. B60r *19/08, 21/14*; **B61f** *19/10*
U.S. Cl. 293—25 **12 Claims**

A pedestrian life saving apparatus for a motorcar. The apparatus includes a mounting frame secured to the underside of a chassis and bumper of a motorcar for mounting a mechanism of the apparatus, a panel attached to the front portion of a bumper of the car through a cushioning means, a pair of poles having pins at the lower ends thereof and perpendicular to said panel, said poles penetrating through said panel at both ends thereof, a soft net stretched between the upper portion of said poles, a slidable frame with a life net stretched thereon and slidable on said mounting frame, a spring mounted between said mounting frame and said slidable frame. The poles are pivoted at the middle portion thereof on the panel. The pins of the poles are engaged with the front portion of the slidable frame so as to keep the slidable frame under the chassis of the car against the spring, but are disengageable with the slidable frame by the rocking movement of the poles, whereby the slidable frame being projected forward of the bumper by the force of the spring.

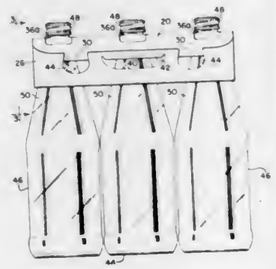


3,784,245
SHOVEL
Josef Koller, 8069 All am Aigen, Uber Pfaffenhofen/Ilm, Germany
Filed Jan. 12, 1972, Ser. No. 217,319
Claims priority, application Germany, Jan. 14, 1971, G 71 01 221.0
Int. Cl. A01b *1/02*
U.S. Cl. 294—54 **4 Claims**



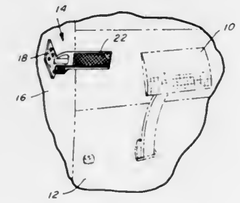
A generally rectangular flap is pivotally connected to the blade of a shovel near its front terminal edge, with the longitudinal edge of the flap opposite the pivot being slightly upturned. As the shovel is thrust forward through a media, such as snow, the flap is pivoted flush upon the shovel blade, and when the shovel is pulled rearwardly the media on the blade raises the flap to a raised locked position at right angles to the blade to entrain the media on the blade for removal, particularly from beneath an object.

3,784,246
BOTTLE CARRIER
Mindaugas Julius Klygis, Evergreen Park, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed May 1, 1972, Ser. No. 249,062
Int. Cl. B65d *71/00*
U.S. Cl. 294—87.2 **9 Claims**



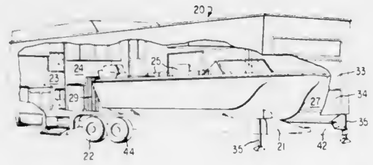
A carrier for a plurality for bottles arranged in a row. The carrier is made from a resilient deformable plastic sheet material which folds and mechanically locks into a prism-like shape in which the end faces are triangles. Aligned apertures through the base and apex of the carrier provide an interlocking relationship of the carrier with the bottles such that the side walls of the carrier are bowed outwardly to project the marginal edges of the apertures in the apex of the carrier firmly against the underside of the cap portion enlargements of the bottles with the marginal edges of the apertures in the base of the carrier being firmly circumferentially urged downwardly against the enlarging neck portions of the bottles. The bottle gripping apertures in the apex of the carrier are defined by partially lapped larger apertures in lapped sections of the carrier. Simple tabs permit the carrier to be unlocked and the larger apertures in lapped sections of the carrier may then be axially aligned to permit the carrier to be easily lifted from the bottles. The carrier may be reused by mechanically interlocking the tabs in the tab receiving apertures and projecting the carrier downwardly over the bottles until the apex apertures snap below the enlarged cap portions of the bottles.

3,784,247
FOOT REST FOR TRUCKS
Billy R. Mills, 250 East St., Wasco, Calif.
Filed Nov. 2, 1971, Ser. No. 194,932
Int. Cl. B60n *3/06*
U.S. Cl. 296—75 **1 Claim**



A driver's footrest for attachment to the interior of a vehicle including a base member having a vertical portion adapted to be affixed to a vehicle interior wall and an integral horizontal extending portion, an elongated step member pivotally affixed to the base member horizontal portion and pivotal between a horizontal position adaptable to receive the placement of the driver's foot thereon, for resting the driver, and pivotal in a vertical position wherein the foot rest is removed from interference with the driver.

3,784,248
COMBINATION MOBILE SHELTER AND SEPARABLE RECREATIONAL EQUIPMENT CARRYING TRAILER
Richard L. Neuman, Houston, Tex., assignor to The Laitram Corporation, New Orleans, La., a part interest
Filed Aug. 7, 1972, Ser. No. 278,233
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 B **5 Claims**



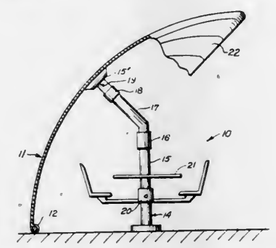
The present disclosure is directed to a load carrying trailer which is removably coupled to and transported within a shelter trailer wherein both are attached to a vehicle and pulled by a central draft beam on the first trailer, or if desired, trailered separable by means of secondary hitch; and because of their compactability, lend themselves to providing a mobile shelter for living within when arriving at a shelter site and permitting transport of a powered water-borne craft or motor vehicle on a load carrying trailer to and from the scene of recreational activity without having to disturb the shelter trailer.

3,784,249
CHAIR WITH FOLDABLE TABLET ARM
Philip J. Hendrickson, and Richard J. Resch, both of Green Bay, Wis., assignors to Krueger Metal Products, Inc., Green Bay, Wis.
Continuation of Ser. No. 886,174, Dec. 18, 1969, abandoned. This application Mar. 1, 1972, Ser. No. 230,946
Int. Cl. A47b *39/00*
U.S. Cl. 297—162 **9 Claims**



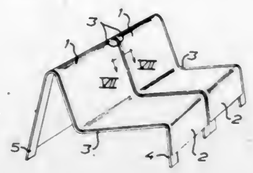
A folding chair of the Y type has an offset post fixed to its rear leg for supporting the rear end of a tablet arm. The front end of the tablet arm is collapsibly supported on a transversely fulcrumed brace. A lock holding the front of the tablet arm against collapse is released by slightly lifting the tablet arm and tilting it to an on-edge position, whereupon the front end of the tablet arm may be lowered along its brace toward storage position.

3,784,250
REVOLVABLE CANOPY HAVING TWO POINT SUSPENSION
Archie W. Beeman, P.O. Box 245, Odessa, Tex.
Filed Aug. 30, 1971, Ser. No. 175,920
Int. Cl. A47c *29/00*
U.S. Cl. 297—184 **4 Claims**



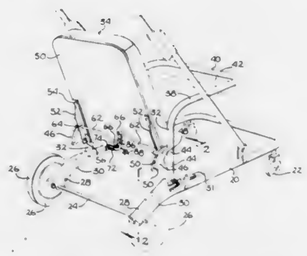
A revolvable canopy supported from a base by a two point suspension arrangement. The canopy includes an umbrella having a circumferentially extending edge portion which bears against a base while a swingable arm is attached to the central axis thereof. The swingable arm is journaled to a vertical support post with the lower end of the post being received by the base so as to form the second suspension point. The swingable arm can be swung 360° about the post while the umbrella peripheral edge portion rolls about in a manner to describe a circle upon the base.

3,784,251
FURNITURE ASSEMBLIES
Eric Sigrid Persson, Horby, and Signe Harriet Persson-Melin, Malmo, both of Sweden, assignors to Expo Nord AB, Horby, Sweden
Filed Feb. 3, 1972, Ser. No. 223,264
Claims priority, application Sweden, Feb. 4, 1971, 1376/71
Int. Cl. A47c *1/124*
U.S. Cl. 297—248 6 Claims



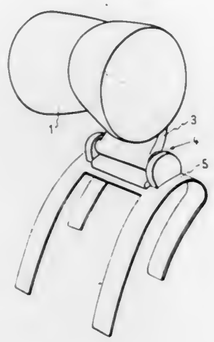
A furniture assembly comprises a piece of sitting furniture and at least one furniture part releasably coupled with said piece of furniture, said furniture part and said piece of furniture each having on confronting sides one coupling flange which is substantially L-shaped in cross section, said flanges extending in parallel and in coupling engagement along at least parts of their lengths and having within said parts of their lengths length portions directed at an angle to the horizontal plane.

3,784,252
SEAT BACK ADJUSTMENT MECHANISM FOR BABY PRODUCTS
Arnold E. Peterson, Glendale, Calif., assignor to Peterson Baby Products Co., North Hollywood, Calif.
Filed Dec. 27, 1971, Ser. No. 212,212
Int. Cl. B60n *1/02*
U.S. Cl. 297—364 4 Claims



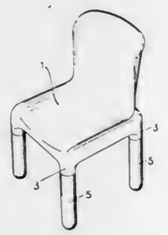
An improved seat back adjustment mechanism for baby products such as strollers and the like having a positive engagement and being easily operable even with the baby in the stroller. The mechanism is in part comprised of a sector plate mounted to the frame of the stroller at each side of the lower portion of the back of the seat, with each sector plate having a first hole therein receiving a pin coupled to the back of the seat to provide pivotal support for the back, and a plurality of additional holes distributed in an arc about the pivot hole. A lever member is pivotally attached to the lower portion of the seat back, with engaging members pivotally attached thereto and projecting outward through members attached to the seat back so as to be engageable with any of the holes in the sector members. A coil spring is connected to the lever member to encourage the lever member to a position whereby the engaging members are in an extended position, with an actuating member attached to one of the engaging members to provide a convenient means of actuating the mechanism for adjustment of the position of the back.

3,784,253
NECK SUPPORT
Hans Karl Kohler, Biel, and Fred W. Trachsel, Berne, both of Switzerland, assignors to Compagnie Industrielle Radioelectrique, Berne, Switzerland
Filed Mar. 7, 1972, Ser. No. 232,539
Claims priority, application Switzerland, Mar. 8, 1971, 3380/71
Int. Cl. A47c *1/10, 7/36*
U.S. Cl. 297—410 4 Claims



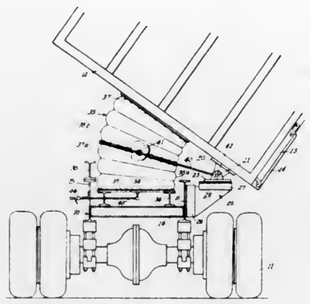
This invention relates to a neck support for car seats having a support roll in form of a support cushion, a lever and a fixing device, said lever being connected by stop devices as well to the cushion as to the fixing device, which is fixed in such a manner to the back rest of the car seat, that it can be brought and secured in several positions relatively to the back rest, in which said stop devices which connect the cushion to the lever are at least almost identical to those which connect said lever to the fixing device.

3,784,254
PRE-STAMPED SEATING DEVICE
Giuseppe Longato, Via Makalle 19, Padova, Italy
Filed May 15, 1972, Ser. No. 253,123
Claims priority, application Italy, Sept. 15, 1971, 7089 B/71
Int. Cl. A47b *3/06*
U.S. Cl. 297—445 2 Claims



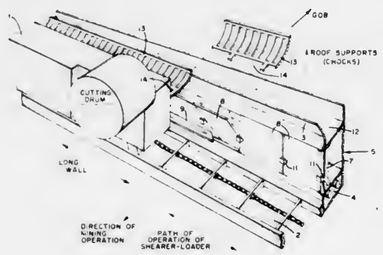
A chair made of prestamped synthetic plastic material, having underneath the seat a plurality of sleeves with frusto-conical scored or knurled regions, which accept thereon mating threaded regions provided in the upper extremities of the chair's legs. The basis of the scored or knurled region in the legs forms an annular ledge for perfect assembly due to the smaller diameter of the scored or knurled region in the leg.

3,784,255
AIR-BAG ELEVATED DUMP VEHICLE
Edmund G. Smock, 1502 August St., Zanesville, Ohio
Continuation-in-part of Ser. No. 148,783, June 1, 1971, Pat. No. 3,711,157. This application Sept. 11, 1972, Ser. No. 287,764
Int. Cl. B60p *1/16*
U.S. Cl. 298—8 T 8 Claims



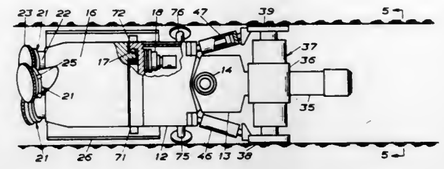
A dump vehicle comprising a dump body pivotally mounted on the vehicle chassis frame for movement between a horizontal normal position and an inclined dumping position using an air bag or air bellows assembly as a means of power to raise and lower the dump body. The dump body is so pivoted and the air bellows is so disposed between the body and the chassis frame that maximum lift is obtained with a minimum stroke of the air-bag assembly. The air-bag assembly consists of two or more air bags stacked in end-to-end relationship to obtain maximum lift. A stabilizer plate is disposed between the adjacent ends of the two bags and is hinged at the pivot point of the dump body so as to prevent undue lateral displacement of the bag assembly as the bags are expanded into an arcuate body with its axis concentric with the hinged or dump axis.

3,784,256
DUST CONTROL IN LONGWALL MINING
John E. Katlic, Madison, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Filed June 1, 1972, Ser. No. 258,563
Int. Cl. E21c *35/22*
U.S. Cl. 299—12 25 Claims



Method and apparatus for removing dust ladened air from the vicinity of a moving mining machine engaged in longwall mining, wherein a conduit maintained at reduced pressure is parallel and fixedly positioned with respect to the path of operation of the longwall mining machine, and the machine activates ports in the section of the conduit adjacent to the mining machine irrespective of the location of the machine within its field of locomotion. The air is exhausted from the conduit and directed to the fallen roof area of the mine.

3,784,257
STEERING SYSTEM FOR A TUNNEL BORING MACHINE
Ernst Abraham Lauber, and Josef Birrer, both of Thun, Switzerland, assignors to Atlas Copco Aktiebolag, Nacka, Sweden
Filed Feb. 16, 1972, Ser. No. 226,814
Int. Cl. E01g *3/04*
U.S. Cl. 299—31 8 Claims



A tunnel boring machine having a large rotary boring head carried by a main frame which consists of a forward portion and a rear portion, the two portions being hinged together so as to provide for the lateral steering. Power actuated clutches are provided for locking the hinge connection. A bar of the rear frame portion extends rearwards and it is slidably guided in an anchoring device so that the vertical steering can be effected by raising and lowering the slide in the anchoring device. The machine is advanced, and steered laterally as well, by means of two hydraulic jacks connected between the anchoring device and the forward frame portion.

3,784,258
GUIDE SYSTEM FOR MINE-PLANER BLADES
Gert Braun, and Ernst Braun, both of Essen-Heisingen, Germany, assignors to Halbach & Braun, Wuppertal-Barmen, Germany
Filed Feb. 4, 1972, Ser. No. 223,661
Claims priority, application Germany, Feb. 6, 1971, P 21 05 582.3
Int. Cl. E21c *27/34*
U.S. Cl. 299—34 14 Claims

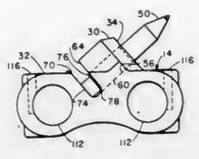


A mine excavator such as a coal planer comprising a flight-type conveyor along the periphery of the conveyer trough or rail of which planer blades are provided to remove coal from the walls and floor of the excavation and direct the mass onto the conveyer. The guiding system for the planer blades comprises articulated guide segments mounted along the rails at the sides of the conveyer trough, limitedly movable in the vertical plane and grouped to include a pair of end segments separated by a central segment whose length is twice that of the end segments. The segments are hinged for relative angular movement about horizontal axes close to the floor-engaging (stress or impact) side of the assembly while successive pairs of central segments are interconnected by high-force constant flexing rods traversing the intervening end segments of two successive sets. The segments are held in a channel of the conveyer pan with limited freedom of up and down movement and are enabled to cant in a plane parallel to the rails.

3,784,259
CUTTING CHAIN LINK FORMED AS INTEGRAL ELEMENT

Fay E. Munger, Upper Arlington; Warren E. Fife, and Alfred P. Paolini, both of Columbus, all of Ohio, assignors to Jeffrey Galion Inc., Columbus, Ohio

Filed Apr. 12, 1972, Ser. No. 243,194
Int. Cl. E21c 25/34
U.S. Cl. 299—84 7 Claims

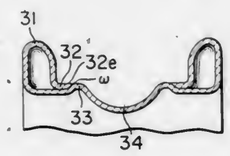


A cutting chain for mining apparatus which includes chain links with integral protruding bosses. Some of the bosses are laterally centered on the chain link bodies, and some of the bosses are laterally offset on the chain link bodies. Each boss terminates in a face that is obliquely disposed with respect to the direction of advance of the cutting chain. Each cutting chain link has a cutter bit receiving bore which extends from the oblique face into the chain link body.

3,784,260
WHEEL RIM

Kumakichi Araya, No. 2, Daishoji Seki-machi, Kaga, Japan

Filed Nov. 12, 1971, Ser. No. 198,122
Claims priority, application Japan, Feb. 2, 1971, 46/21796; Feb. 2, 1971, 46/21795
Int. Cl. B60b 21/10
U.S. Cl. 301—97 3 Claims



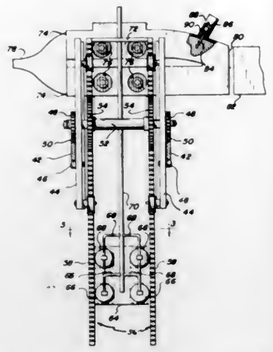
A wheel rim in which the top end of the horizontal tire carrying seat formed continuously with the curled flange portion is seam-welded to the shoulder which is bulged outwardly toward the inner tube.

3,784,261
ARTICLE TRANSFER APPARATUS

Terry C. Potter, Sylvania, and Roger R. Rhoads, Toledo, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 155,005, June 21, 1971. This application Nov. 6, 1972, Ser. No. 304,066
Int. Cl. B65g 51/02
U.S. Cl. 302—2 R 6 Claims

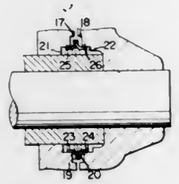
Article transfer apparatus for cyclically transferring articles from an article forming machine, such as a plastic injection molding machine, to an adjacent article receiving chute or conveyor system. The transfer apparatus is mechanically linked to and driven by relative movement of platens on the forming machine to positively interlock the forming and transfer mechanisms against interference with each other. A control system operated by mechanical elements of the transfer system is employed to control the application of pressure or vacuum to article handling elements of the system at appropriate points in the cycle to enable the elements to grip, release or convey the article being handled.



3,784,262
DEVICE FOR INTERCONNECTING TRACK SHOES OF A CRAWLER

Hiroyuki Kaizaki, and Takeshi Kato, both of Hirakata, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed June 17, 1971, Ser. No. 154,010
Claims priority, application Japan, Feb. 15, 1971, 46/7408 (utility model)
Int. Cl. B62d 25/00
U.S. Cl. 305—11 1 Claim



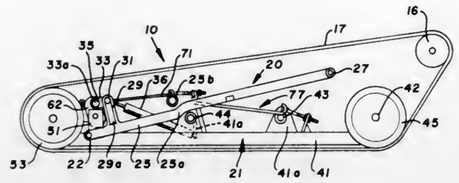
A device for interconnecting track shoes of a track shoe assembly or crawler wherein a link fixedly mounted on one of adjoining track shoes is fixedly secured to a pin, a link fixedly mounted on the other of adjoining track shoes is fixedly secured to a bush, said bush being loosely fitted to said pin, and a dished-plate spring or springs is/are interposed between the opposed faces of said adjoining links.

3,784,263
SNOWMOBILE RUNNING FRAME AND TRACK CONTROL

G. Vernon Hendrickson, and Kermit A. Hendrickson, both of c/o Hendrickson Snowmobile Sales, Lake Park, Minn.

Filed Nov. 17, 1972, Ser. No. 307,220
Int. Cl. B62m 27/02
U.S. Cl. 305—22 8 Claims

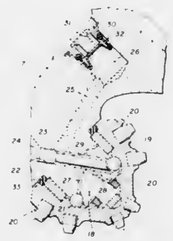
A frame device for showmobiles and other track or belt driven vehicles which includes a first frame member attachable to the vehicle with a second lower frame section arranged for supporting the lower and particularly rear track supporting elements thereon which member is pivotally attached to the first frame member and upon such pivoting, a cam element pivotally supported between the first frame member and the second frame member drives the rear track supporting member rearwardly such that the rear track supporting member will maintain proper tension on the track. Spring loading arrangements are provided to normally keep this second supporting frame member in its normal ground contacting position.



3,784,264
EARTH BORING BIT BEARING SYSTEM HAVING A PITTED BEARING SURFACE

G. C. Jackson, Jr., Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Mar. 2, 1971, Ser. No. 120,142
Int. Cl. F16c 33/12
U.S. Cl. 308—8.2 24 Claims



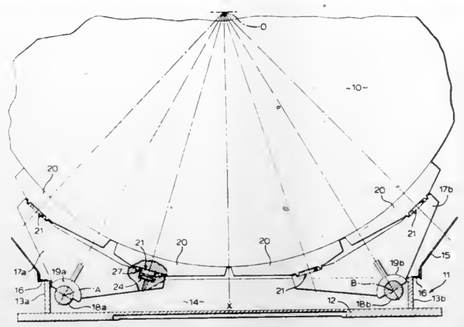
The bearing surface of one relatively rotatable member of a friction bearing is grit blasted to give it a roughened surface. A reservoir containing lubricant having entrained particles of anti-galling material is connected to the friction bearing and serves as a source of anti-galling material. Particles of the anti-galling material are picked up by the roughened surface and a film of anti-galling material formed on the bearing surface.

3,784,265
JOURNAL BEARING

Arthur Selwyn Cornford, 561 Bobolink Rd., Mississauga, Ontario, Canada

Filed Dec. 18, 1972, Ser. No. 316,135
Int. Cl. F16c 17/06
U.S. Cl. 308—73 8 Claims

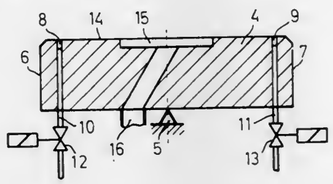
In a journal bearing for large cylindrical journals, the load is distributed equally over two pairs of bearing shoes, the shoes of each pair being mounted by spherical pivots on a respective rocker member. Each of the rocker members is pivoted about an axis extending parallel to the bearing axis, the pivotal axes being symmetrically disposed on opposite sides of a vertical plane intersecting the journal axis. Thus the load is distributed in such a way as to minimize bending stresses in the bearing support structure. Means are provided to permit removal of a bearing shoe without dismantling of the bearing assembly.



3,784,266
PIVOTED, SEGMENTAL, THRUST BEARING PROVIDING SIMULATED OFFSET SUPPORT OF CENTRALLY SUPPORTED BEARING SEGMENTS

Theodor Parlevliet, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 1, 1973, Ser. No. 337,013
Claims priority, application Germany, Mar. 6, 1972, P 22 11 414.3
Int. Cl. F16c 17/06
U.S. Cl. 308—160 4 Claims



In a hydrodynamic pivoted segmental thrust bearing, a centrally supported, pivoted bearing segment including at least one elongated lubricating fluid collection groove disposed in the bearing surface of the segment adjacent and parallel to at least one of the radial edges thereof, and at least one fluid outlet aperture disposed through the segment opening at one end into the groove and at the other end into the thrust bearing well of the bearing. The collection groove drains fluid from the bearing surface into the bearing well, and interrupts the formation of the bearing surface lubricating fluid film, thereby reducing the effective bearing surface on one side of the segment. A simulated offset support of centrally supported segments is thus achieved.

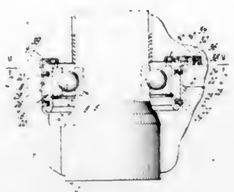
3,784,267
SQUEEZE FILM BEARING SUPPORT MOVEMENT LIMITING APPARATUS

Leonard C. Davis, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 15, 1972, Ser. No. 315,343
Int. Cl. F16c 19/14
U.S. Cl. 308—174 3 Claims

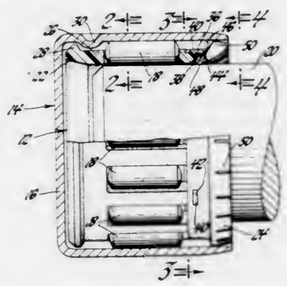
A shaft bearing assembly uses "squeeze film action" to damp vibrations in an annular bearing support member. To prevent the annular support member from rotating about its axis with the shaft but allow the freedom of movement in any

radial direction necessary for the squeeze film action, a linking member has one end pivotally connected to the housing and



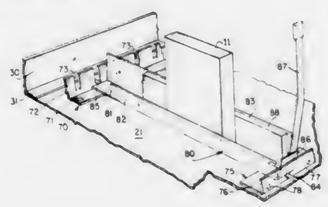
the other pivotally connected to the annular support member near its outer edge. A thrust bearing between the housing and annular support member bears axial loads.

3,784,268
BEARING SEAL
Peter A. De Gioia, Sandusky, and Charles B. Sutton, Port Clinton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 22, 1972, Ser. No. 317,373
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.2 **4 Claims**



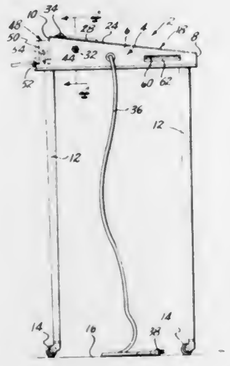
A needle roller package bearing disposed on the end of a shaft has a combined nylon separator-seal. The seal element is connected to the separator element by a thin annular web and is provided with flyweights to enhance sealing efficiency during operation of the bearing.

3,784,269
DISPLAY CASE
Marshall S. Frenkel, Des Plaines, Ill., assignor to Pan-American Records (Casa Pan Americana) Inc., Chicago, Ill.
Filed Feb. 11, 1972, Ser. No. 225,552
Int. Cl. A47f *3/08*; **A47b** *81/00*
U.S. Cl. 312—136 **3 Claims**



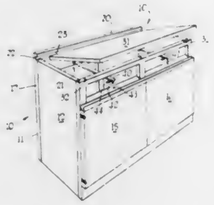
A display case having a housing and a transparent lid which can be locked in a closed position to preclude access to the housing interior. Mounted in the housing is a pair of laterally spaced-apart, generally parallel, elongated members. One of the members has a plurality of holes therein and the other member has a plurality of upwardly-open slots laterally aligned respectively with the holes. Finally, the case includes a plurality of article carriers each having two oppositely directed trunnions respectively loosely disposed in a hole and in an aligned slot, each article carrier having a handle protruding through an uncovered portion of the housing to enable pivoting of the carrier to view the articles thereon without gaining access to the interior of the housing.

3,784,270
MANICURE TABLE
Mary Eddy DeLapp, 5328 Chateau Dr., El Paso, Tex.
Filed Mar. 13, 1972, Ser. No. 234,142
Int. Cl. A47b *77/08*
U.S. Cl. 312—236 **1 Claim**



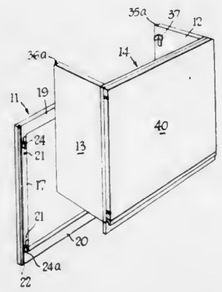
A table for use by a manicurist, and including a top member that is inclined upwardly from the customer's side. The top member has recessed cups therein for manicuring lotion, and such are heated by heating elements concealed beneath the top. The table has a tray, a drawer and a pair of cabinets on the rear or manicurist's side thereof, for the instruments and materials of the manicurist.

3,784,271
KITCHEN CABINETS
Chaim Samuel Schreiber, c/o Schreiber Furniture Limited, Harlow, England
Filed Aug. 28, 1972, Ser. No. 284,117
Claims priority, application Great Britain, June 22, 1972, 29,376/72
Int. Cl. A47f *5/08*
U.S. Cl. 312—257 R **6 Claims**



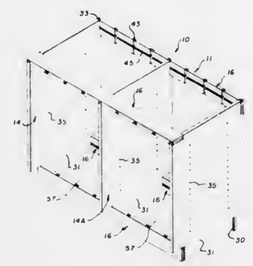
The back frame of a knock-down kitchen cabinet is provided with a horizontal abutment surface beneath which an edge of the top or working surface is inserted when positioned on the upper edges of the side panels and front frame. In a preferred form the abutment surface is the upper surface of a groove dimensioned to receive an edge of the top surface, the groove extending longitudinally of an upper, horizontal cross member of the back frame.

3,784,272
KITCHEN CABINETS
Chaim Samuel Schreiber, c/o Schreiber Furniture Limited, Harlow, England
Filed Aug. 28, 1972, Ser. No. 284,133
Claims priority, application Great Britain, June 22, 1972, 29,377/72
Int. Cl. A47f *5/08*
U.S. Cl. 312—245 **1 Claim**



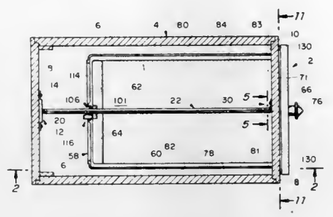
A wall-mounted cabinet the back of which is detachable and fixable to a wall or partition separately from the remainder of the cabinet. The detachable back has means engageable with other parts of the cabinet after the back has been fixed so that the cabinet can be built with the back in situ. In a preferred embodiment side panels and a front frame of the cabinet are assembled together before connecting the side panels to the wall-fixed back frame.

3,784,273
CABINET CONSTRUCTION
Gerhard Nikolai, 6080 Laurel St., Vancouver, B.C., Canada
Filed July 10, 1972, Ser. No. 269,951
Int. Cl. A47b *43/00*
U.S. Cl. 312—257 SK **8 Claims**



Prefabricated cabinet construction which can be shipped in knockdown form and assembled to provide a workbench of a predetermined length with storage compartments containing either drawers or shelves.

3,784,274
DRAWER AND SUPPORT SYSTEM
Frank Holmes, Buena Park; William A. Moore, West Los Angeles, and George Read, Glendora, all of Calif., assignors to Ajax Hardware Manufacturing Corp., City of Industry, Calif.
Filed Oct. 29, 1971, Ser. No. 193,661
Int. Cl. A47b *88/00*
U.S. Cl. 312—330 **42 Claims**



A drawer of molded plastic construction in combination with alternative support systems, as well as alternative design of the front panel of the drawer, provides storage versatility meeting a myriad of end uses. The drawer has one of two front panelled configurations; in the first case being adapted to receive a wood or other material facade carrying a drawer pull and in the other instance having an integrally molded handle or pull facility to lend itself for other end uses. The drawer may be manufactured in several sizes, but the unique design of the drawer makes each of the drawers compatible with other drawers of the same size to make them nestable or stackable. The unique configuration of the drawer permits use of the drawer in structures defining oversize drawer receiving openings or, in more economical structures, permits the use of the drawers in spaced relationship utilizing only side supports therefor. The single drawer configuration with exception of the front panel, permits the drawer to be mounted wholly on conventionally found side channelled or guides and at the same time permits alternative mounting of the drawer on a single track or rail super-positioned over the drawer by the means of a simple bracket member carrying a wheel to engage the track and which is receivable by the rear wall of the drawer. In the latter installation, the drawer is self-closing and self-aligning.

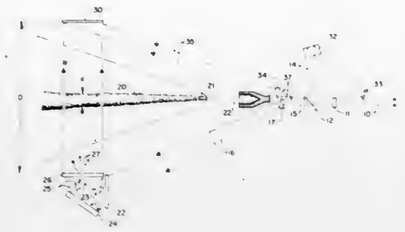
3,784,275
METHOD OF MANUFACTURING AN INCANDESCENT LAMP
Piet Wiedijk, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 18, 1972, Ser. No. 245,252
Claims priority, application Netherlands, Apr. 29, 1971, 7105839
Int. Cl. H01j *9/18*
U.S. Cl. 316—19 **1 Claims**

An incandescent lamp which comprises phosphorus as a getter obtained by decomposition of phosphrus oxynitride (PON) in the lamp.

3,784,276
HOLOGRAPHIC APPARATUS FOR LARGE FIELD OF VIEW
Ralph F. Wuerker, Palos Verdes Estates, and Leo O. Heflinger, Torrance, both of Calif., assignors to TRW Inc., Redonda Beach, Calif.
Filed Oct. 16, 1972, Ser. No. 297,783
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **9 Claims**

A holographic apparatus permitting holographing of an object in transmission to provide a viewing angle which may be

as large as substantially 180°. The apparatus is particularly suitable for taking holograms of aerodynamic phenomena such, for example, as a wake of a bullet or the perturbations created in a wind tunnel by a model plane. One form of the holocamera includes a lens for generating a virtual point source for a reference beam while the scene beam is projected



radially through the phenomenon to be recorded. Another embodiment makes use of a specially recorded hologram to diffract the reference beam onto a recording material so that the reference beam has a virtual point source along the axis of a wind tunnel or the like. This hologram serving as an optical element may be recorded in situ.

3,784,277

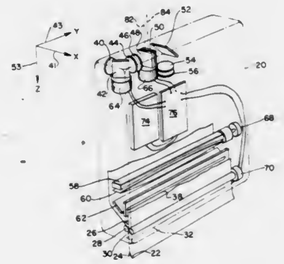
CORRECTED OPTICAL SYSTEM FOR SHALLOW CAMERA OR THE LIKE, COMPONENTS THEREOF

James G. Baker, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 680,621, Nov. 6, 1967. This application Dec. 15, 1969, Ser. No. 889,788

Int. Cl. G02b *17/00*

U.S. Cl. 350—6 **4 Claims**



A corrected optical system is provided for a shallow camera that is characterized by an extremely short dimension between the forward position of the first refracting surface and the rearward position of the final image surface. In the compact hand-held camera illustrated herein as an example, the optical system is panoramic in operation, comprising (at one end of the camera) a pivotal scanning mirror and (at the other end of the camera) a slit, past which the photosensitive film is moved at a linear rate, with which the scanning mirror rate is synchronized in order to synthesize a complete image from a continuous sequence of increments.

3,784,278

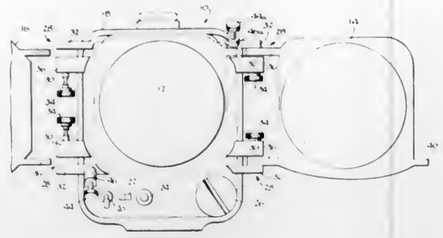
NIGHT VISION DEVICE WITH VIEWING ACCESSORIES

Alan Litman, Pittsburgh, Pa., assignor to General Ordnance Equipment Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 254,972

Int. Cl. G02b *23/16*

U.S. Cl. 350—10 **1 Claim**



This invention relates to a passive night vision device fitted with interchangeable viewing accessories such as oculars and cameras for still photography, television, or cinematography.

3,784,279

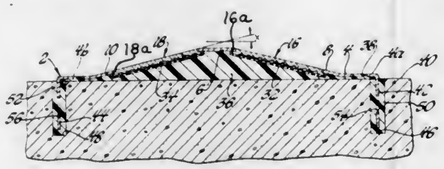
ROADWAY MARKER

Peter Hedgewick, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Ontario, Canada

Filed May 1, 1972, Ser. No. 248,875The portion of the term of this patent subsequent to Dec. 14, 1988, has been disclaimed.

Int. Cl. G02b *5/12*

U.S. Cl. 350—103 **30 Claims**



A roadway marker comprising a metal housing having a base and a plurality of walls projecting from the base including a reflector supporting wall extending from the plane of the base at an angle less than fifteen degrees. An opening is formed in the reflector supporting wall, and a reflective insert of light transmitting synthetic resin is mounted in the housing with an outer surface extending across the opening and an inner surface formed with a plurality of cube corner reflex reflector elements. In order to increase the optical efficiency of the reflective insert, a sheet of flexible plastic material covers the inner surface of the reflective insert to protect the reflector elements from moisture and chemical attack and eliminate the necessity to metalize the reflector elements. The housing is filled with a mass of resin which contacts the plastic sheet on the side thereof opposite the reflector elements, the plastic sheet protecting the reflector elements from the resin filler to isolate the reflector elements from the resin to increase the optical efficiency.

3,784,280

LIGHT-DARK REFLECTIVE LIQUID CRYSTAL DISPLAY

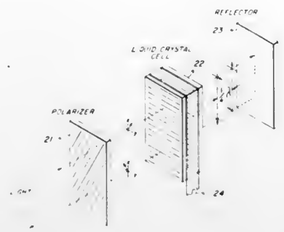
John E. Bigelow, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,466

Int. Cl. G02f *1/16*

U.S. Cl. 350—150 **5 Claims**

Described are light-dark contrasting displays comprising a liquid crystal cell including a nematic liquid crystal composition with a positive dielectric anisotropy having mutually parallel molecular alignment at opposing planar surfaces of the cell, an optical polarizer positioned on one side of the cell



and an optically reflecting member on the other side of the cell. Light-dark images are produced by controllably altering the molecular alignment of the liquid crystal composition in selected regions.

3,784,281

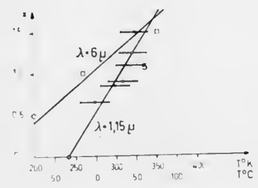
FERRIMAGNETIC GARNET CORRECTED FOR TEMPERATURE DEPENDENCE OF THE FARADAY EFFECT AND METHOD FOR MAKING THE SAME

Dieter Kuse, Niederrohrdorf, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland

Division of Ser. No. 153,740, June 16, 1971, abandoned. This application Mar. 6, 1973, Ser. No. 338,632

Int. Cl. G02f *1/22*

U.S. Cl. 350—151 **4 Claims**



A ferrimagnetic garnet having the general composition $Y_{3-x}Gd_x Fe_5O_{12}$ in which x has a value between 0 and 3 at which, for a given wavelength, the temperature dependence of the Faraday effect is corrected.

3,784,282

CORRECTING LENS USED TO FORM FLUORESCENT SCREENS OF COLOUR TELEVISION RECEIVING TUBES

Eiichi Yamazaki, Ichihara; Koichi Maruyama, and Toshio Ueda, both of Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

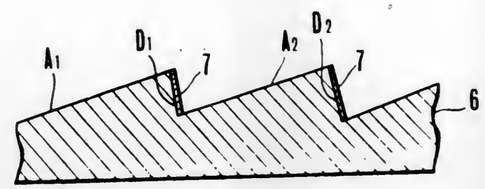
Filed Feb. 23, 1972, Ser. No. 228,639

Claims priority, application Japan, Mar. 5, 1971, 46/13665

Int. Cl. G02b *3/00*

U.S. Cl. 350—175 R **5 Claims**

In a correcting lens utilized to form the fluorescent screen of a colour television receiving tube, the lens being of the type wherein the effective surface of the lens through which the effective light beams pass is divided into a plurality of discontinuous effective regions of relatively small inclination angles with respect to the bottom surface of the lens and the adjacent effective regions are interconnected by connecting regions of larger inclination angles with respect to the bottom surface,



opaque or translucent films are applied to the connecting regions.

3,784,283

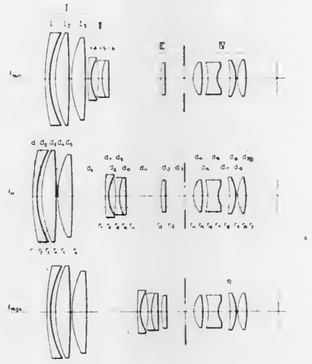
ZOOM LENS FOR SUPER-8 FILM

Trude Muszumanski, Vienna, and Helmut Gela, Maria-Enzersdorf, both of Austria, assignors to Karl Vockenhuber and Raimund Hauser, Vienna, Austria

Filed Apr. 14, 1971, Ser. No. 133,818

Int. Cl. G02b *15/16*

U.S. Cl. 350—184 **4 Claims**



A main lens unit having a fixed focal length and consisting of a positive lens member is preceded by an afocal forward lens unit having a variable magnification and consisting of a positive forward lens member, a negative intermediate lens member which is axially movable to change the magnification, and a positive rear lens member. The intermediate lens member is arranged to direct divergent bundles of rays to said rear lens member. The rear lens member is arranged to convert said divergent bundles of rays into bundles of rays which are substantially parallel to the optical axis of the lens and to direct them to said main lens unit. The forward lens member is axially movable to control the position of the image plane. The lens is designed to meet the condition

$$f_{min} - f_{II} < 6y$$

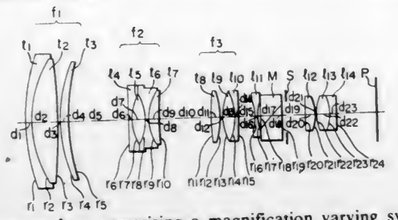
where f_{min} is the smallest focal length of the lens, f_{II} the focal length of the intermediate lens member, and $2y$ the image field diagonal.

3,784,284

ZOOM LENS SYSTEM FOR CLOSE UP PHOTOGRAPHY

Soichi Nakamura, Kamakura, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed July 22, 1971, Ser. No. 165,169
Claims priority, application Japan, July 25, 1970, 45/64707
Int. Cl. G02b *15/18*
U.S. Cl. 350—186 **1 Claim**



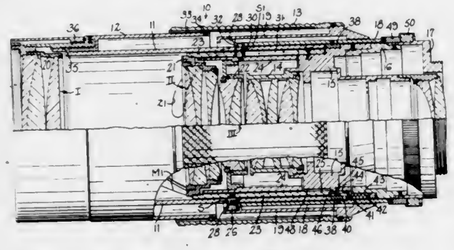
A zoom lens comprising a magnification varying system consisting of three lens groups of converging, diverging and converging types, respectively, at least one of the three lens groups being a focusing lens group, a relay lens disposed rearwardly of the magnification varying system and consisting of two lens groups. A stop and a beam splitter are both disposed between the two lens groups forming the relay lens, the third of the three lens groups in the magnification varying system being adapted to be individually advanced by a predetermined amount for its respective magnification varying positions, whereby an ultra-short shot can be accomplished.

3,784,285

ZOOM LENS

Rinzo Watanabe, and Masatoshi Shimojima, both of Tokyo, Japan, assignors to Ponder & Best, Inc., Los Angeles, Calif.

Filed June 1, 1972, Ser. No. 258,816
Int. Cl. G02b *7/10, 15/18*
U.S. Cl. 350—187 **16 Claims**



This disclosure relates to variable focal lens for a still camera having from front to rear a focusing group, a zooming group, a compensating group, and a fixed objective. In a zooming mode of operation, means are provided for moving the second and third groups in a first predetermined relation to vary the effective focal length of the lens system, while in a close focusing mode of operation means are provided for moving the second and third groups in a second predetermined relation for close-up focusing.

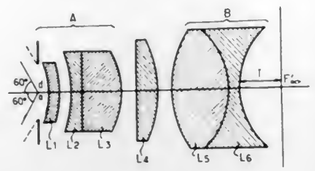
3,784,286

WIDE-ANGLE OBJECTIVE LENS

Raymond Andre Dudragne, 152 Boulevard Haussmann, Paris, France

Filed May 8, 1972, Ser. No. 251,359
Claims priority, application France, May 7, 1971, 7116725
Int. Cl. G02b *9/34*
U.S. Cl. 350—220 **4 Claims**

A wide-angle objective lens which provides good definition over a field of more than 120° at an aperture greater than 1/3.5, with a diaphragm placed outside the lens, the outer lenses being made of glass and the inner ones of plastic and protected from scratching. These lenses can be produced by



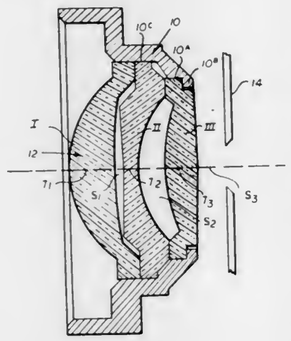
moulding, polymerization or shaping. Their surfaces can be aspheric. The lens power of the inner lenses is O when they are spherical. The choice of curves for the lenses allows a higher degree of correction.

3,784,287

PLASTIC TRIPLET OBJECTIVE LENS SYSTEM

David S. Grey, Waltham, Mass., assignor to Berkey Photo, Inc., Clifton, N.J.

Filed Dec. 13, 1972, Ser. No. 314,724
Int. Cl. G02b *1/04, 9/16*
U.S. Cl. 350—226 **6 Claims**



A three element f/5.6 objective lens system is adapted for use with still picture cameras. All three elements of the system are preferably constructed of plastic materials.

3,784,288

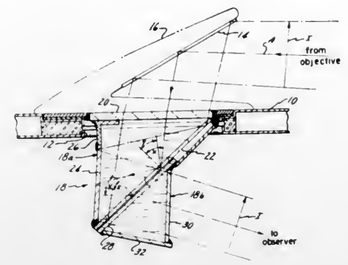
PERISCOPIC VIEWING SYSTEM

William W. Toy, 459 Henley Dr., Bloomfield Hills, Mich.

Filed Jan. 5, 1972, Ser. No. 215,498
Int. Cl. G02b *5/08*
U.S. Cl. 350—302 **29 Claims**

A periscopic rear view optical system for vehicles in which an image of a rearward objective is reflected downwardly from a rooftop mirror through a prismatic device constructed as a transparently faced housing filled with a liquid suitable for the optical path to be within the critical angle at the desired reflective faces for reflection of the image to the driver of the

vehicle. A modification of the device includes adjustable prism faces to accommodate different driver heights, with the



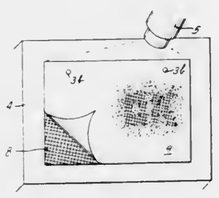
spatial dimension variations produced by the adjustment effecting a vertical movement of the device.

3,784,289

METHOD AND APPARATUS FOR HIDING AND VIEWING HALFTONE IMAGES

Ralph C. Wicker, Fairport, N.Y., assignor to American Bank Note Company, New York, N.Y.

Division of Ser. No. 856,663, Sept. 10, 1969, Pat. No. 3,675,948. This application July 26, 1971, Ser. No. 167,058
Int. Cl. G02b *27/00*
U.S. Cl. 350—321 **5 Claims**



A method of halftone printing is disclosed which permits an image to be disguised or hidden in a printed field from detection by ordinary photography or the eye of a viewer and an apparatus is presented which can be used to bring out or detect the hidden image. The printed field comprises three halftone components: an overall halftone at a given angle; a second halftone at a different angle and containing a negative of the image; and the image itself in halftone at a third angle and coincident with the negative portion of the second halftone. When each of the halftones is made up of dot figures of similar size, period and tone, the field will give a uniform appearance to the eye, obscuring the image and resisting photographic analysis except by impractical magnification.

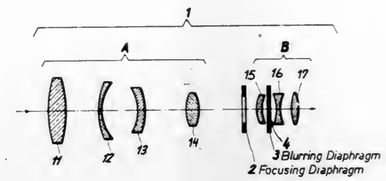
3,784,290

DEFOCUSING DEVICE FOR OPTICAL SYSTEMS

Joseph Strobel, Roxheim, and Norbert Beisiegel, Traisen, both of Germany, assignors to Jos. Schneider & Co., Optische Werke, Bad Kreuznach, Germany

Filed May 24, 1972, Ser. No. 256,246
Claims priority, application Germany, May 26, 1971, P 21 26 131.4
Int. Cl. G03b *21/36*
U.S. Cl. 352—91 **5 Claims**

To produce a totally blurred image in the dissolution of a moving-picture scene, a camera objective of the varifocal type



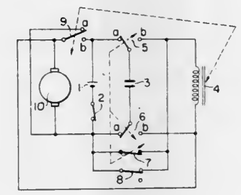
is provided with an iris diaphragm whose leaves consist of light-scattering translucent material.

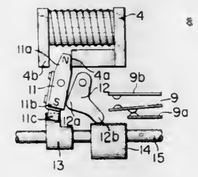
3,784,291

ELECTROMAGNETIC SHUTTER RELEASING DEVICE FOR A PHOTOGRAPHIC CAMERA

Noritsugu Hirata, Yokohama, and Tomoshi Takigawa, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1971, Ser. No. 191,609
Claims priority, application Japan, Oct. 23, 1970, 45/93807
Int. Cl. G03b *17/46*
U.S. Cl. 352—169 **14 Claims**



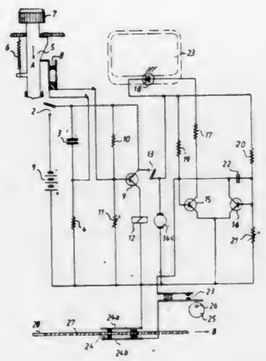


An electromagnetic shutter releasing device for a photographic camera utilizes, in combination with a permanent magnet, an electromagnet controlled by a pulse-like electric input to electromagnetically release a movable shutter blade from its normal stop position to a position for exposing a film. The polarity of the electric input to the electromagnet may be reversed so as to cause an interaction between the electromagnet and the permanent magnet and the resulting relative movement of the two magnets is detected to start and stop a shutter shaft drive motor. During a continuous shot, the drive motor may be maintained operative with the aid of the permanent magnet alone and without any electric input applied to the electromagnet.

3,784,292
BATTERY TEST ARRANGEMENT IN A MOTION PICTURE CAMERA

Alfred Winkler; Richard Pelte; Theodor Huber, all of Munich, and Helmut Mayr, Taufkirchen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 20, 1972, Ser. No. 290,995
Claims priority, application Germany, Sept. 21, 1971, P 21 47 073.5
Int. Cl. G03b 17/20
U.S. Cl. 352—170 7 Claims

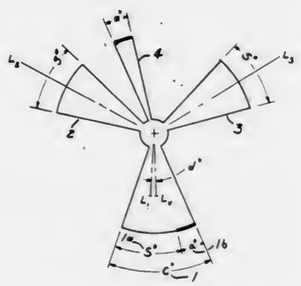


Connected in parallel with the electromotor driving the film transport is a threshold circuit which causes an indicator lamp to light when the voltage applied thereto is too low. A single switch connects both the threshold circuit and the electromotor to the battery, causing the battery to be tested under actual operation. Contacts which are closed at the end of the film can be interconnected with the threshold circuit to cause the lamp to light at film end.

3,784,293
NON-REGULAR FOUR BLADE SHUTTER

Eugene Li-Chun Yang, 710 W. Haven Dr., Arlington Heights, Ill.

Filed Jan. 4, 1973, Ser. No. 320,870
Int. Cl. G03b 9/10
U.S. Cl. 352—208 2 Claims

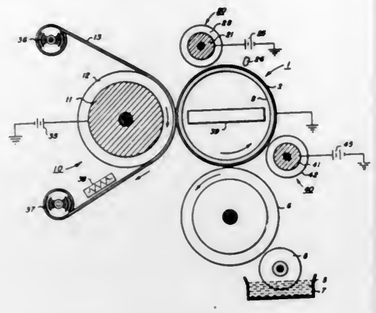


A non-regular four-blade shutter for motion picture projector which provides a composite of a two-blade shutter which gives maximum light and a three-blade shutter which provides minimum flicker. The present shutter transmits more light than a three-blade shutter without undesirable light modulation or flicker.

3,784,294
IMAGE DENSITY CONTROL

John B. Wells, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 863,506, Oct. 3, 1969, Pat. No. 3,645,874.
This application Oct. 4, 1971, Ser. No. 186,537
Int. Cl. G03g 15/22
U.S. Cl. 355—3 15 Claims

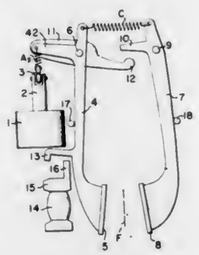


A photoelectrophoretic imaging apparatus comprising two additional electrodes for increasing the density and reducing background level of an image reproduced at high speeds.

3,784,295
PRESSURE PLATE MEANS FOR PROJECTORS AND THE LIKE

Takeshi Okano, Nishinomiya, Japan, assignor to Fuji Shashin Film Kabushiki Kaisha, Kanagawa-ken, Japan

Filed June 21, 1971, Ser. No. 154,952
Claims priority, application Japan, July 1, 1970, 45/65794
Int. Cl. G03b 1/48
U.S. Cl. 353—95 9 Claims



A pair of pressure plate members for clamping a film in the focal plane of a projector from both sides thereof are pivoted to one ends of a pair of levers for opening and closing operation. The two levers are operated by means of a solenoid in such a manner that one of them reaches the focal plane before the other one does.

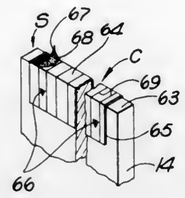
3,784,296
CODING MEANS FOR PHOTOGRAPHIC SLIDE APPARATUS

Lon R. Davis, 11116 Cumpston St., North Hollywood, Calif.

Filed June 19, 1972, Ser. No. 263,816
Int. Cl. G03b 21/11, 23/04
U.S. Cl. 353—120 5 Claims

Coding means are disclosed for use in cooperation with photographic slides and an automatic projection apparatus, whereby specific slides can be identified for selection and projection. As disclosed in one form, the coding means comprises

an adhesive tab that may be affixed either to an individual slide or to a slide magazine which carries a plurality of individual slides. The adhesive tab includes a flat base member, e.g., mylar film, with a reflective surface, carrying adhesive on one side for affixing the unit to a slide or magazine and also having adhesive on the opposed side to receive a plurality of

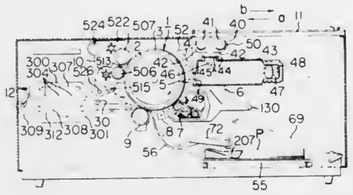


non-reflecting sheet members for selective removal to provide reflective elements of a desired code pattern. In other exemplary forms as disclosed herein, the code elements are carried by a clamp-on metallic sheet for individual slides, and are printed on the slide magazine or molded therein during initial fabrication.

3,784,297
PHOTOCOPYING MACHINE

Yoshio Ito; Hajime Katayama; Hiroshi Nitanda, all of Tokyo, and Masaru Yamaguchi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 2, 1971, Ser. No. 120,132
Claims priority, application Japan, Mar. 11, 1970, 45/20075; Apr. 15, 1970, 45/32112
Int. Cl. G03g 15/08, 15/00
U.S. Cl. 355—3 7 Claims



An electrophotographic copying machine of this invention has an original holder reciprocating on the upper surface of an electrophotographic photosensitive member which is rotatably fixed to the supporting device therefor. The charging device is arranged on one side of the photosensitive member. The copying machine further includes optical system for slit exposure, developing device, fixing device and cleaning device, which are arranged on the other side of the photosensitive member. Copy sheet feeding device, image transfer device are also arranged below the photosensitive member.

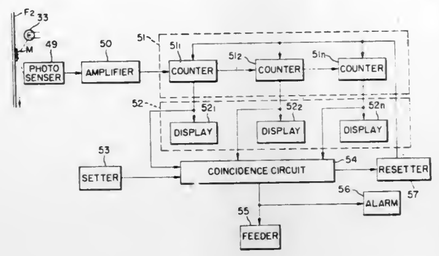
ERRATUM

For Class 355—41 see:
Patent No. 3,784,812

3,784,298
ROLL DUPLICATOR

Mitsutoshi Kanayama, and Takao Toda, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 27, 1973, Ser. No. 336,379
Claims priority, application Japan, Mar. 3, 1972, 47/26402
Int. Cl. G03b 27/12
U.S. Cl. 355—109 5 Claims

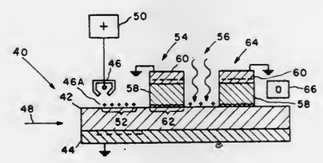


An improved roll duplicator is employed to continuously produce a predetermined number of copies from an endless original film by means of counting the number of an output signal of a photo-senser by a counter. The photosenser for generating the output signal in response to the reception of the light reflected back from a mark on the endless original film comprises a photo-electric cell having a large light intercepting surface. The counter has a plurality of first contacts and a movable contact which is stepped in response to an output signal from the photosenser. A presetting device comprises a switch having a plurality of second contacts each corresponding to each the plurality of first contacts. The transport of the endless original film and copy film is interrupted when the movable contact makes into contact with one of the first contacts corresponding to one of the second contacts which has been presetted.

3,784,299
DARK DECAY RETARDATION

Arjan T. Manghirmalani, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,366
Int. Cl. G03g 15/02
U.S. Cl. 355—3 6 Claims



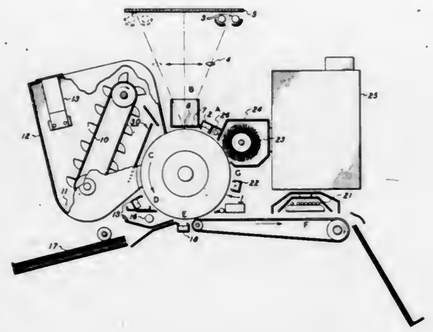
The device described herein relates to a method and apparatus for reducing the dark decay rate of a photoreceptor surface. Disclosed is a method of reducing the dark decay rate of a photoreceptor surface by a set of steps reducing the internal field intensity causing reduction in a recombination of trapped diffused hole-electron pairs, including the steps of placing a charge of a first polarity on a surface of the photoreceptor thereby creating an internal field in the photoreceptor, and applying to the photoreceptor an opposite polarity field for maintaining the surface charge but reducing the internal field intensity and thereby reducing the dark decay. Apparatus for effecting reduction of dark decay as disclosed includes a means for inductively creating an oppositely charged field in conjunction with a critical segment of the photoreceptor surface or, alternatively, for placing a negative-

ly charged electrode adjacent the critical segment of the photoreceptor surface.

3,784,300
PRE-TRANSFER STATION

Frederick W. Hudson, West Henrietta, and John E. Cranch, Penfield, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 23, 1971, Ser. No. 211,382
Int. Cl. G03g *13/14*
U.S. Cl. 355—3 **7 Claims**

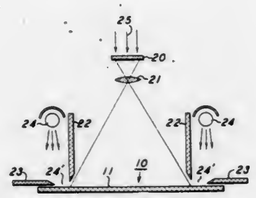


A pre-transfer station is provided in a reusable xerographic imaging system. The pre-transfer station includes a pre-transfer corotron and lamp arranged such that the exposure of the system xerographic plate is subsequent and not simultaneous with the pre-transfer corona charging.

3,784,301
ELECTROPHOTOGRAPHIC BORDER APPARATUS

Masamichi Sato, Asaka, Japan, assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 7, 1972, Ser. No. 216,004
Claims priority, application Japan, Sept. 3, 1970, 45/77456
Int. Cl. G03g *15/22*
U.S. Cl. 355—7 **5 Claims**

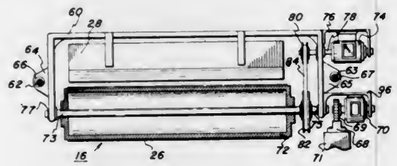


Apparatus for producing a toner-free border surrounding an image region on a charged photoconductive insulating layer comprising imagewise exposure means, electromagnetic radiation means for uniformly exposing the border portions of the photoconductive insulating layer and an electromagnetic radiation intercepting shielding plate positioned perpendicularly adjacent to the photoconductive insulating layer and a covering plate parallel and adjacent to the photoconductive insulating layer arranged to provide uniform exposure only on the desired width of the toner-free border sought while maintaining a charged surface surrounding and external to the desired toner-free border. Use of the apparatus in electrophotographic imaging results in a photoconductive insulating layer having an image region thereon, a uniformly exposed region surrounding the image region and a charged region surrounding the uniformly exposed region. Toner is thus attracted away from the intermediate, uniformly exposed region, and towards the image and charged regions on either side thereof. Upon transfer of the developing toner to a substrate, the substrate bears a toner-free border around the image region and corresponds to the uniformly exposed intermediate region of the photoconductive insulating layer.

3,784,302
ELECTROPHORETIC IMAGING APPARATUS INCLUDING APPLICATION OF DYNAMIC STRESS ON THE PARTICLE SUSPENSION

Edwin Zucker, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 746,720, Oct. 3, 1968, Pat. No. 3,616,391.
This application Apr. 16, 1971, Ser. No. 134,902
Int. Cl. G03g *9/04*
U.S. Cl. 355—10 **8 Claims**

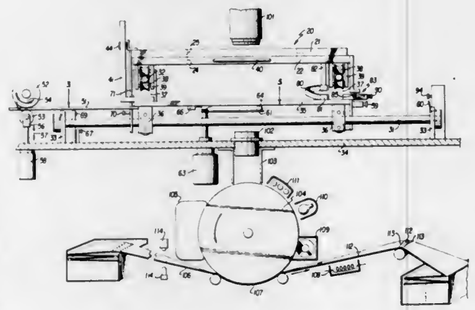


Method and apparatus for improving image density, contrast and quality and photographic speed in a photo-electrophoretic imaging system utilizing a particulate suspension for forming the image. The method and apparatus stresses an electrophoretic suspension of particles in a carrier on an electrode by applying forces across the image suspension during imaging through sliding motion between the electrodes.

3,784,303
AUTOMATIC MICROFICHE COPIER

William A. Sullivan, Jr., Webster, and Augustus W. Griswold, Rush, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 1, 1972, Ser. No. 249,232
Int. Cl. G03b *27/46*
U.S. Cl. 355—50 **13 Claims**

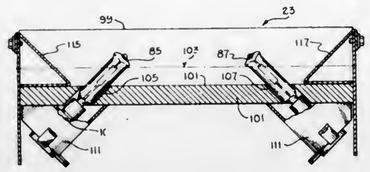


A microfiche copier automatically scans successive rows of microfiche frames and copies the scanned frames onto a fan-folded copy web, to produce a copy set which when bound on one edge provides a quasi duplex book form of copy of the successive frames. The scanning of successive microfiche frames is synchronized with the copy web to locate each frame on a separate panel of the fanfolded web.

3,784,304
PHOTOCOPYING MACHINE

Frank A. Babin, Chicago, and Kenneth E. Klein, Mount Prospect, both of Ill., assignors to SCM Corporation, New York, N.Y.

Division of Ser. No. 863,013, Sept. 26, 1969. This application Jan. 26, 1972, Ser. No. 220,921
Int. Cl. G03b *27/54*
U.S. Cl. 355—67 **9 Claims**

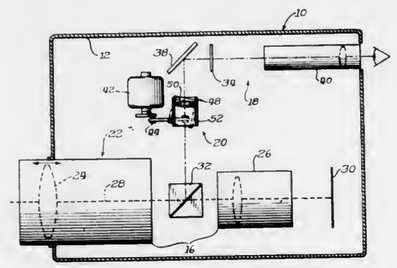


A photocopying machine produces a copy of a page of a bound book placed on a stationary window by moving an optical projection system past the window for projecting the images of successive elongated strip portions of the page onto a light-sensitive copy material. The portion of the page placed flat against the window is maximized by providing a downwardly extending wall adjacent an edge of the window to minimize the portion of the page adjacent the binding being pulled out of focus by the binding of the book. Movable past the window with the optical projection system is an illumination system for illuminating an elongated strip portion of the page for projection onto the light-sensitive copy material. The illumination system has a physical configuration substantially coextensive with the illuminated strip portion being projected onto the copy paper, and one end of the illumination system is substantially coextensive with the edge of the window adjacent the downwardly extending wall. The illumination system includes an elongated elliptical reflector having two single-ended tubular-shaped lamps extending obliquely through suitable openings in the reflector with two transverse reflectors at the opposite ends of the elongated elliptical reflector which extend transversely to the obliquely positioned lamps.

3,784,305
NODAL SLIDE RANGEFINDER

Rudolf Hartmann, Skokie, Ill., assignor to Bell & Howell Co., Chicago, Ill.

Filed Apr. 18, 1972, Ser. No. 245,220
Int. Cl. G01c *3/04*
U.S. Cl. 356—3 **7 Claims**

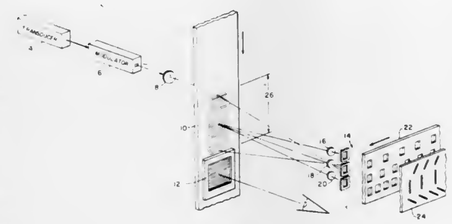


A ranging device for determining instrument-to-subject distance for focusing of an objective lens of the instrument on the subject. Located in the optical path of the objective lens, the ranging device includes a drive for cyclically displacing an optical means about the nodal point of that optical means to cause an image of the subject to remain stationary on an image plane when the objective is focused thereon and to cause the image to rotate in the image plane when the objective is not focused on the subject.

3,784,306
SIMULTANEOUS MULTIPLE STROBOSCOPIC INTERROGATION OF MEMORY

Fordyce E. Tuttle, deceased, late of Palm Beach, Fla., and by Eleanor Porter Tuttle, executrix, P.O. Box 908, Palm Beach, Fla.

Continuation of Ser. No. 861,509, Sept. 26, 1969, abandoned. This application Sept. 27, 1971, Ser. No. 184,171
Int. Cl. G01p *3/40*
U.S. Cl. 356—23 **2 Claims**

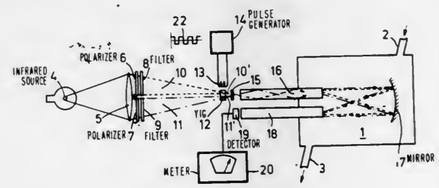


A method and apparatus for stroboscopic by interrogating information on a recording to quickly discern generally undistinguishable information. The recording has a high density of information packed therein. The recording is interrogated by a stroboscopic device that moves relative to the recording and that simultaneously strobes for a plurality of frequencies.

3,784,307
METHODS AND APPARATUS FOR DETERMINING THE RELATIVE AMOUNT OF SUBSTANCE PRESENT IN A TRANSPARENT MEDIUM

John Jackson, Haywards Heath, and Robert Fagan Donat Bradshaw, Markyate, both of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 16, 1970, Ser. No. 89,700
Claims priority, application Great Britain, Nov. 18, 1969, 56,362/69
Int. Cl. G01n *21/22*
U.S. Cl. 356—51 **10 Claims**



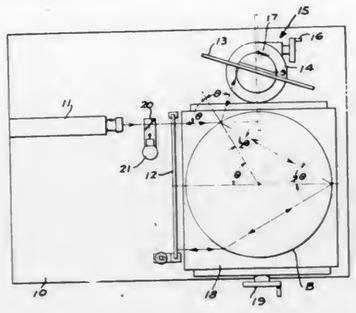
A method and apparatus for monitoring the presence of water vapor in helium features providing two narrow infrared frequency band within and outside a water vapor absorption band, alternately projecting the two bands of infrared radiation into the helium by using the polarization properties of the infrared radiation, and subsequently detecting the two infrared bands and comparing their amplitudes. Besides providing an accurate and reliable measurement, the invention is compact and requires no moving mechanical parts.

3,784,308

METHOD AND APPARATUS FOR MEASURING THE INDEX OF REFRACTION

William H. Southwell, Allison Park, and Richard M. Walters, Glenshaw, both of Pa., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Feb. 9, 1973, Ser. No. 331,055
Int. Cl. G01n *21/46*
U.S. Cl. 356—128 **12 Claims**



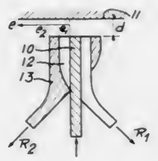
A method and apparatus for measuring the index of refraction of a cylindrical article of material wherein a beam of radiant energy is divided against a peripheral surface of said article at an acute angle to a tangent thereto, the article is moved relative to the beam in a direction transverse thereto until the transmitted light is autocollimated by a first mirror positioned with its plane at a right angle to the light beam, and thereafter a second mirror is moved until the light reflected from said article is autocollimated and the angular position of the second mirror is measured and the index of refraction is determined by the relationship $n = 2 \cos [(\frac{1}{2})\theta]$ wherein θ is the angle of incidence and $\pi - 2\theta$ is the angle of movement of the second mirror from a relationship wherein its reflective surface is perpendicular to said beam to the position wherein the reflected light is autocollimated.

3,784,309

OPTICAL COMPARATOR WITH INTEGRATED REFLECTIVITY COMPENSATION

Rene Brelot, Paris, and Jean Tourret, Montrouge, both of France, assignors to Compagnie Des Compteurs, Paris, France

Filed Aug. 5, 1971, Ser. No. 169,349
Claims priority, application France, Aug. 12, 1970, 7029725
Int. Cl. G01b *11/14*
U.S. Cl. 356—156 **4 Claims**



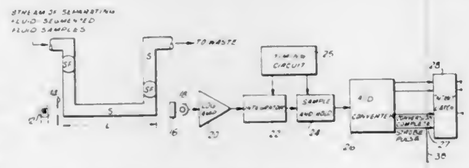
The variable relative distance d between the comparator and a test surface is measured by means of an optical system comprising a first glass-fiber bundle which directs a luminous flux to the surface and is surrounded by a second glass-fiber bundle which recieves the reflected flux and directs the flux to a receiver. The bundle of receiving fibers consists of three juxtaposed layers, namely a first layer which is adjacent to the emitting bundle and the fibers of which are directed towards a first receiver, a second intermediate layer in which 50 percent of the fibers are directed towards the first receiver and 50 percent of the fibers are directed towards a second receiver, and a third external layer of fibers directed towards the second receiver. The width of the intermediate layer is such that the value of d at which the signal of the first receiver is of maximum value is equal to the value of d at which the signal of the second receiver is located at the center at its linear range of variation.

3,784,310

SYSTEM AND METHOD FOR IMPROVED OPERATION OF A COLORIMETER OR LIKE OPTICAL ANALYSIS APPARATUS

Stephen P. Barton, New Milford, Conn., and Herman G. Diebler, North Haledon, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed June 7, 1972, Ser. No. 260,552
Int. Cl. G01j *3/46*; **G06g** *7/00*
U.S. Cl. 356—181 **14 Claims**



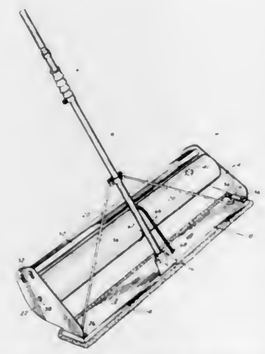
New and improved system and method for improved operation of a colorimeter or like device are provided and comprise the processing of the colorimeter output data in such manner that a separating fluid-segmented fluid sample stream may be passed through the colorimeter flow cell without adverse effect on said output data. This is accomplished by sampling said output data at periodic intervals and selecting for retention only that of the thusly sampled data which is known to have occurred when the flow cell sight path was filled with a fluid sample segment to the exclusion of the separating fluid segments.

3,784,311

LIQUID WAX DISPENSER

Jim E. Failing, 1302 Sixteenth Ave., Greeley, Colo.

Continuation-in-part of Ser. No. 218,181, Jan. 17, 1972, Pat. No. 3,729,268. This application July 21, 1972, Ser. No. 273,812
Int. Cl. A47l *13/26*; **B67d** *5/64*
U.S. Cl. 401—137 **11 Claims**



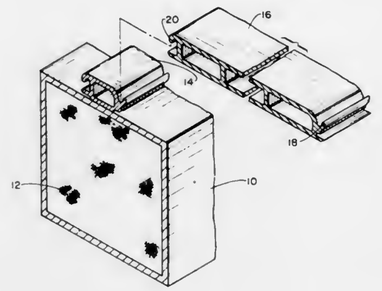
A liquid wax dispenser adapted to be mounted upon a floor type wax applicator. A cylindrical supply tank is rotatively supported on a frame mounted on the applicator pad assembly in a horizontal position above and behind the applicator pad. An axially extending housing or manifold is mounted on the exterior of the tank and provided with a row of wax discharge openings, the interior of the housing or manifold communicating with the interior of the tank through offset bores in the tank wall to minimize splashing and achieve a steady flow of wax during the dispensing operation. The supply tank is rotatable about its axis between a non-operative position in which the housing or manifold is located above the tank axis and a gravity feed dispensing position in which the manifold is located below the tank axis. A vent system is provided for venting the head space in the tank during a dispensing operation. Both the vent system and the wax dispensing openings are sealed by a frame mounted resilient web type seal when the tank is in its non-dispensing position. Positioning of the tank is accomplished by a control system which includes a sleeve slidably mounted upon the applicator handle.

3,784,312

FLOTATION BEAM FOR MATTING CONSTRUCTION

Donald T. Gordon, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 12, 1972, Ser. No. 261,761
Int. Cl. B64f *1/00*
U.S. Cl. 404—35 **2 Claims**



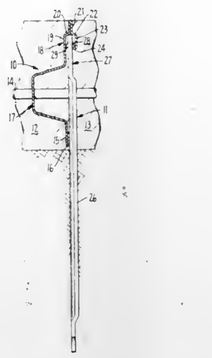
Lightweight box beams filled with a plastic foam provide buoyancy for support matting in marshy or low bearing terrain. The beams have a substantially square or rectangular shaped cross section and connectors are placed on each beam to permit facile connection to other beams and to permit paneling to be attached thereto. Landing pads would be the most common use for the beams of this invention, but they can be used for a multitude of purposes.

3,784,313

MEANS FOR ATTACHING A KEY-JOINT FORMING STRIP TO A SUPPORT STAKE

Thomas G. Collier, Jr., Houston, Tex., assignor to Burke Concrete Accessories, Inc., Burlingame, Calif.

Filed Apr. 13, 1972, Ser. No. 243,571
Int. Cl. E01c *11/04*
U.S. Cl. 404—51 **4 Claims**



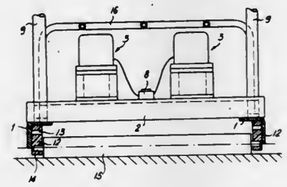
A concrete slab key joint forming strip has an upper edge construction that includes a folded-over portion which extends downwardly in spaced, parallel relationship with the upper part of the forming strip and terminates in a lip which extends inwardly toward the upper portion of the forming strip. A stake for supporting the forming strip has outwardly and downwardly sloping protrusions provided adjacent the upper end thereof whereby the upper end of the stake will snap into engagement with the forming strip between the upper and folded-over portions of the strip and the strip will be retained on the stake by the lip on the folded-over portion.

3,784,314

TAMPING MACHINE FOR SETTING FLOOR COVERING TILES

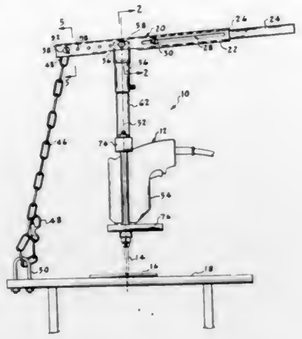
Felix Ernst Durst, Oberweningen-Schofflisdorf, Switzerland

Filed Jan. 20, 1972, Ser. No. 219,332
Claims priority, application Switzerland, Feb. 2, 1971, 1515/71; July 9, 1971, 10103/71
Int. Cl. E01c *19/28*
U.S. Cl. 404—117 **18 Claims**



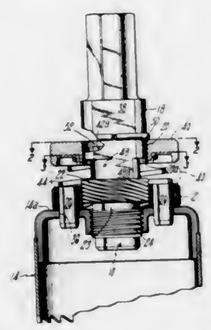
The tamping machine has a frame including rollers and vibrating means, and the frame includes two longitudinal beams interconnected by cross beams secured at their ends to the longitudinal beams. A respective bar of plastic composition material is interchangeably secured to each longitudinal frame beam and each bar has two vertically spaced rows of longitudinally spaced apertures serving as bearings for the rollers. The rollers are mounted in the lower row of apertures and, if a bar is damaged, it may be inverted so that the rollers can be rotatably mounted in the former upper row of apertures. The vibrating means comprises at least two parallel connected magnetic vibrators secured at central portions of the cross beams, and noise-reducing insulating material is associated with each vibrator. The cross beams are preferably inverted channels whose legs or flanges are secured to the longitudinal beams, and the longitudinal beams are preferably angles. The channels of the cross beams are preferably filled with a sound-absorbing material such as plastic foam. As a feature of the invention, an eccentric motor may be mounted on an intermediate cross beam with its axis extending parallel to the axes of the rotor, and one or more weights, which may be either units or multi-part weights, may be supported on the frame.

3,784,315
PORTABLE TOOL FOR DRILLING HOLES IN HARDENED STEEL
Eugene O'Brien, 5567 Wheeler St., Philadelphia, Pa.
Filed Mar. 9, 1972, Ser. No. 233,059
Int. Cl. B23b 45/14
U.S. Cl. 408—92 9 Claims



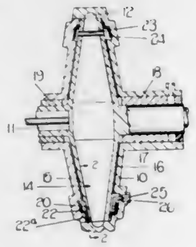
A portable tool for drilling holes in hard metal pieces, such as safe lock mounting plates, employing a high speed electric drill, a lever arm, a fulcrum at one end of the lever arm, means to adjustably attach the fulcrum to a support near the workpiece and means operatively connecting the lever arm at an intermediate position thereof to the drill body in such a manner that the force applied to the lever towards the workpiece is transmitted along the axis of the drill bit thus making it possible to drill a hole rapidly and with minimal effort and at various angular positions.

3,784,316
HOLE SAW AND REVERSIBLE QUICK DISCONNECT DRIVE THEREFOR
Joseph E. Bittern, Weatogue, Conn., assignor to Capewell Manufacturing Company, Hartford, Conn.
Filed July 12, 1972, Ser. No. 271,039
Int. Cl. B23b 51/04
U.S. Cl. 408—204 9 Claims



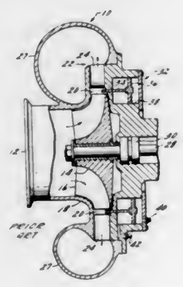
A hole saw equipped with a quick disconnect drive arbor having a pair of axially spaced threaded sections of opposite threaded direction with a non-locking included angle between the helices thereof of about 15°. A drive ring is mounted on the threads with the higher helix angle and a hole saw on the other threaded section. Rotation of the drive ring and hole saw in unison relative to the drive shaft in one direction causes the bottoming of the drive ring and the hole saw for transmitting torque. Reverse rotation quickly disconnects the hole saw from the arbor. To accommodate the use of the drive arbor with a reversible power unit, a locking ring having a non-circular aperture is slidably mounted around a mating portion of the arbor and is rotatable around a reduced cross section neck of the arbor to a locking position to prevent axial movement of the drive ring upon reverse rotation of the shaft. The neck of the arbor is provided with lobes forming stops to establish the locking and non-locking position of the lock ring. A compression spring frictionally engages the drive ring and the locking ring to resist relative rotation and to urge the locking ring away from the drive ring in the non-locking position thereof.

3,784,317
CENTRIFUGAL PUMPS
Geoffrey Arthur Lewis, Solihull, Warwickshire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Oct. 26, 1971, Ser. No. 192,265
Claims priority, application Great Britain, Oct. 27, 1970, 50,877/70
Int. Cl. F04d 1/12
U.S. Cl. 415—144 7 Claims



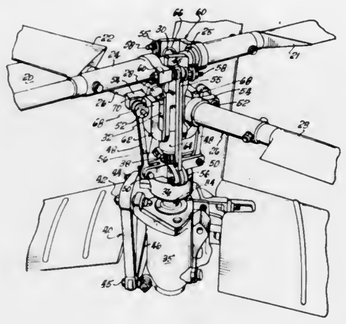
A centrifugal pump for liquid has its rotor provided with a groove which acts as a scoop to urge liquid from the periphery of the pump casing into a gutter carried by the rotor. A tubular scoop extends into the gutter to discharge liquid within the gutter from an auxiliary outlet. The pump may this be effectively purged of liquid when shut down.

3,784,318
VARIABLE DIFFUSER CENTRIFUGAL PUMP
Donald Y. Davis, Cincinnati, Ohio, assignor to General Electric Company
Filed Dec. 29, 1971, Ser. No. 213,417
Int. Cl. F04d 15/00, 29/46
U.S. Cl. 415—158 8 Claims



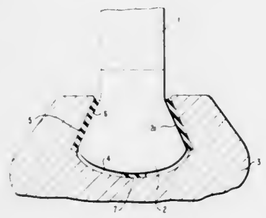
A centrifugal pump is supplied with a discharge shutter valve which provides a variable diffuser for the pump. The shutter valve includes a hollow, slotted cylinder positioned for movement into a variety of operative positions between the impeller and the diffuser vane passages. Each operative position completely closes one or more of the diffuser passages while leaving the remaining passages completely open, thereby providing a pump with high head rise over the complete operating range of the pump.

3,784,319
CORIOLIS-RELIEVING AIRCRAFT ROTOR ASSEMBLY
Kenneth B. Amer, Los Angeles, and Howard T. Lund, Playa Del Ray, both of Calif., assignors to Summa Corporation, Culver City, Calif.
Filed Apr. 17, 1972, Ser. No. 244,427
Int. Cl. B64c 27/52
U.S. Cl. 416—135 13 Claims



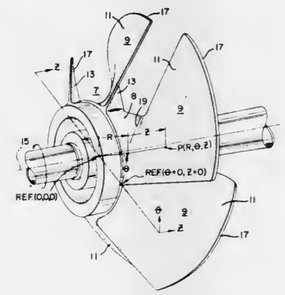
In a multiple blade tail rotor of a helicopter, cyclic Coriolis forces are cushioned by resilient stress-absorbing means interposed between the engine output member and the pairs of trunnions on the teetering axes of the blade hubs to permit the pairs of trunnions to oscillate relative to each other and relative to the engine output member.

3,784,320
METHOD AND MEANS FOR RETAINING CERAMIC TURBINE BLADES
Axel Rossmann, and Wilhelm Hoffmuller, both of Munich, Germany, assignors to Motoren-Und Turbinen-Union, Munich, Germany
Filed Feb. 22, 1972, Ser. No. 227,809
Claims priority, application Germany, Feb. 20, 1971, P 21 08 176.5
Int. Cl. F01d 5/30
U.S. Cl. 416—215 20 Claims



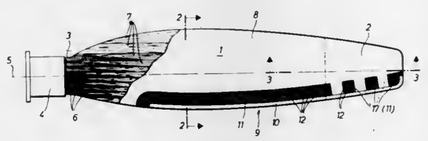
A method and means for retaining ceramic turbine blades in steel rotors using metallic felt shims interposed between the edges of the blade root and side walls of a slot formed in the rotor. The metallic felt shims are formed of very thin metallic fibers sintered together to form a thin sheet of felt material. This sintered felt sheet is then compressed beyond its first plastic limit, at which point it again becomes elastic, exhibiting favorable elastic properties for absorbing the relatively large rotative and centrifugal forces between the rotor and blade during use. Since the force between blade and rotor transfer is almost exclusively through elastic deformation of the shim means, the friction coefficients between the shim and rotor or blade structure need not be precisely controlled. The shim is fixed to the rotor structure by brazing or the like. The predeformed metal felt material also acts as a heat insulator to prevent or inhibit the transfer of high blade temperatures and heat to the rotor.

3,784,321
PUMP IMPELLERS
Fred T. Woell, Jr., Little Rock, Ark., assignor to Jacuzzi Bros. Incorporated
Filed Dec. 15, 1972, Ser. No. 315,296
Int. Cl. F04d 29/38
U.S. Cl. 416—223 2 Claims



An impeller blank of conventional design, has its blade geometry altered by trial and error to create a blank of substantially higher efficiency and one which can be trimmed to meet a wider range of power requirements without any material change in such higher efficiency. The physical requirements of the new blank are defined in the specification by empirical formulae.

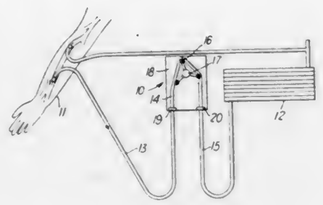
3,784,322
PROPELLER BLADE
Reinhard Erich; Hermann, both of Hoffmann, Degerndorf/Inn, and Gerd Rudiger Muhlbauer, Rosenheim/Upper Bavania, both of Germany, assignors to Firma Hoffmann GmbH & Co., KG., Rosenheim/Obb., Germany
Filed Jan. 14, 1972, Ser. No. 217,747
Claims priority, application Germany, Jan. 25, 1971, G 71 02 599.5
Int. Cl. B64c 11/26
U.S. Cl. 416—229 13 Claims



A propeller blade of the kind having a light wood body, a root of harder wood, and a metal ferrule connecting the root to the propeller hub, is reduced in bulk without loss in mechanical strength or efficiency by using a special wood/resin lamination for the root and covering the whole of the body with a skin composed of a resin reinforced by one or more layers of fiber, e.g., woven glass fiber fabric. The appli-

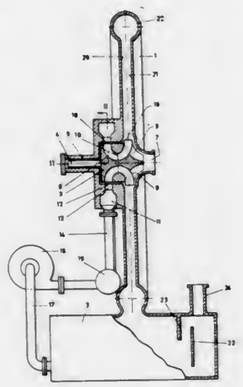
cation of a metal protection to the leading edge of the blade and the retention of this protection are also assisted by the aforesaid skin, and special forms of screw for anchoring the blade root to the ferrule, and special forms of ferrule, are also proposed.

3,784,323
PERISTALTIC PUMP
Andre Sausse, Sceaux, France, assignor to Phone-Poulenc S.A., Paris, France
Continuation of Ser. No. 83,305, Oct. 23, 1970, abandoned. This application Nov. 9, 1972, Ser. No. 304,975
Int. Cl. F04b *43/08, 43/12, 45/06*
U.S. Cl. 417—53 **2 Claims**



A peristaltic pump in which the material and thickness of the wall of the tube are chosen so that, at a predetermined pressure differential, between the exterior and interior, collapse of the tube wall to a flattened condition occurs, thereby causing restriction in the flow rate of liquid in the tube as a function of the pump inlet pressure.

3,784,324
CENTRIFUGAL FLUID VANES COMPRESSOR
Pieter Van Staveren, Pijnacker, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Ondersoik Ten Behoeve Van Nijverheid, Handel En Verkeer, The Hague, Netherlands
Filed Mar. 31, 1971, Ser. No. 129,803
Int. Cl. F04f *11/00*
U.S. Cl. 417—67 **2 Claims**



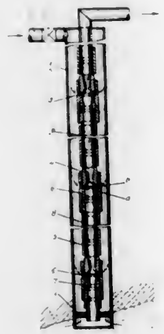
A centrifugal fluid vanes compressor for compressing an effluvium is described, which comprises a compression chamber bounded by two parallel walls between which the fluid vanes are rotating, which vanes are formed by a flowing fluid which emerges at a high velocity through jet openings in a rapidly rotating driven rotor.

The compressed effluvium is discharged and the fluid of the fluid vanes is collected in a fluid reservoir and recycled via a pump.

An improved fluid vanes compressor is described in which the fluid entrance opening of the rotor is situated substantially in the same circumferential plane of the rotor as the discharge openings of the jets.

As a result of these measures the relative rate of discharge of the fluid from the jet openings is substantially equal or little lower than the local circumferential speed of the rotor which results in a considerable improvement in efficiency.

3,784,325
METHOD OF AND APPARATUS FOR THE GAS-LIFT WITHDRAWAL OF A LIQUID FROM A SUBTERRANEAN SPACE
Henry Coanda; Gheorghe Aldea; Ion Bodea; Vasile Trulca; Valentin Hanciulescu; Radu Posirca; Cristian Lazar, and Iacob Gabor, all of Bucharest, Romania, assignors to Institutul De Cercetare Si Proiectare Tehnologica Pentru Industria Extractive De Titei Si Gaza, Cimpina, Romania
Filed May 22, 1972, Ser. No. 255,822
Claims priority, application Romania, May 28, 1971, 67059
Int. Cl. F04f *5/22, 5/48*
U.S. Cl. 417—165 **2 Claims**

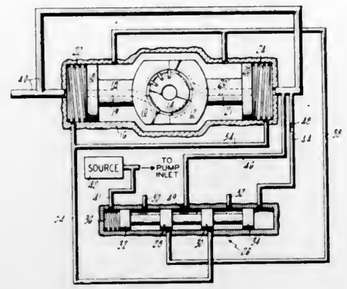


A system for the gas-lift withdrawal of liquid from a subterranean location, especially an oil well, wherein the gas is introduced into a tubing drain at axially spaced circular slot to induce the liquid to flow upwardly through respective venturi-type nozzles immediately above each slot in accordance with the Coanda effect.

3,784,326
PRESSURE COMPENSATED PUMP
Joseph A. Lagana, Meriden, and John E. Cygnor, Middletown, both of Conn., assignors to Chandler Evans Inc., West Hartford, Conn.
Filed Jan. 24, 1972, Ser. No. 220,042
Int. Cl. F04b *1/06;* **F01c** *21/16;* **F03c** *3/00*
U.S. Cl. 417—221 **9 Claims**

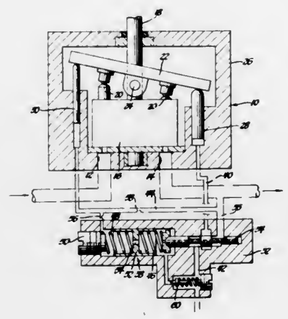
A constant pressure fluid source is provided by operating a balanced variable displacement vane pump as a pressure compensated device. The pressure differential across the pump is

sensed and employed to hydraulically and automatically control pump displacement by adjusting the position of the mova-



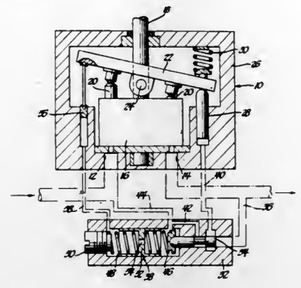
ble seal blocks with respect to the rotor to thereby regulate flow in the interest of maintaining the desired output pressure.

3,784,327
POWER TRANSMISSION
Kurt R. Lonnemo, Troy, Mich., assignor to Sperry Rand Corporation, Troy, Mich.
Filed June 13, 1972, Ser. No. 262,397
Int. Cl. F04b *1/26, 49/00*
U.S. Cl. 417—222 **4 Claims**



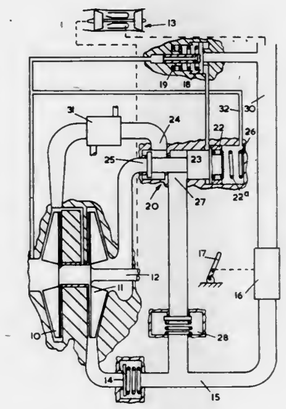
A pressure regulated variable delivery hydraulic pump includes a control for varying the pump displacement which responds not only to outlet pressure of the pump, but also to the rate of change of pressure and to the rate of change of pump delivery. Regulation is by outlet pressure opposed by two springs in back-to-back relation with a dashpot intermediate the two springs which retards rapid movements of one spring in backing up the other. The dashpot action is further modified by a feedback responsive to the rate of change of pump displacement. This is derived from pressure differentials generated by flow in the displacement varying servomotor system. The result is a servocontrol system which has high gain characteristics for small transients and lower gain for large transients and an increased damping ratio with a reduction in overshoots of pressure transients.

3,784,328
POWER TRANSMISSION
Nicholas F. Pedersen, Farmington, Mich., assignor to Sperry Rand Corporation, Troy, Mich.
Filed June 13, 1972, Ser. No. 262,398
Int. Cl. F04b *1/26*
U.S. Cl. 417—222 **8 Claims**



A pressure regulated variable delivery hydraulic pump includes a control for varying the pump displacement which responds not only to outlet pressure of the pump, but also to the rate of change of pressure and to the rate of change of pump delivery. Regulation is by outlet pressure opposed by two springs in back-to-back relation with a dashpot intermediate the two springs which retards rapid movements of one spring in backing up the other. The dashpot action is further modified by a feedback responsive to the rate of change of pump displacement. The result is a servocontrol system which has high gain characteristics for small transients and lower gain for large transients and an increased damping ratio with a reduction in overshoots of pressure transients.

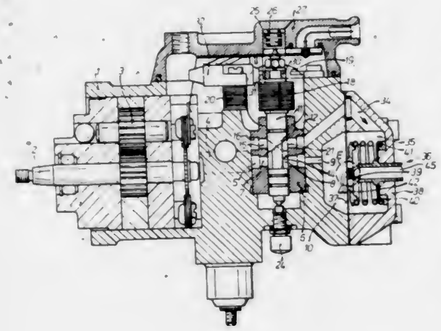
3,784,329
FUEL SUPPLY ARRANGEMENTS FOR GAS TURBINE ENGINES
Alan Arthur Crawley, Bromsgrove, England, assignor to Lucas Aerospace Limited, Birmingham, England
Filed Dec. 29, 1972, Ser. No. 319,645
Claims priority, application Great Britain, Jan. 29, 1972, 4,311/72
Int. Cl. F04c *23/00*
U.S. Cl. 417—252 **4 Claims**



A fuel supply arrangement for a gas turbine engine comprises a pair of centrifugal fuel pumps and a fuel control apparatus downstream of the pumps. A valve is responsive to the

fuel pressure downstream of the control apparatus to connect said pumps in series or to cause the fuel flow to be provided by one of the pumps.

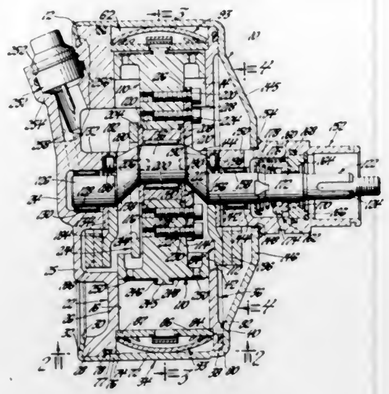
3,784,330
FUEL INJECTION APPARATUS FOR GAS TURBINE-TYPE VEHICLE POWER PLANT
Franz Eheim, and Reinhard Schwartz, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Apr. 17, 1972, Ser. No. 244,671
Claims priority, application Germany, Apr. 24, 1971, P 21 20 112.7
Int. Cl. F04b *49/08*
U.S. Cl. 417—279 **4 Claims**



In a fuel injection apparatus of the type that is associated with a gas turbine-type vehicle power plant, there is provided a differential pressure valve which is disposed in the fuel path and which ensures a constant pressure drop across a fuel metering valve regardless of the fuel quantities metered thereby. In order to reduce the back pressure effect of the fuel on the operation of the differential pressure valve, the stationary flat valve seat of the latter has, instead of one, a plurality of fuel flow openings, so that the pressure cross section for any given opening cross section is reduced with respect to known differential pressure valves.

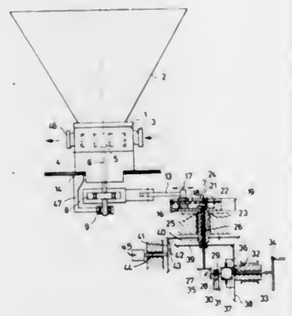
3,784,331
RADIAL COMPRESSOR WITH TWO-PIECE CYLINDER HOUSING AND SHELL
John H. Heidorn, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed May 18, 1972, Ser. No. 254,511
Int. Cl. F04b *1/04*
U.S. Cl. 417—273 **11 Claims**

A compact high capacity rotary refrigerant compressor suitable for use in automotive refrigeration systems including a cylinder housing having cross bores formed therein. Front and rear cylinder walls support a circumferentially located sheet metal shell sealed to form a continuously circumferential high pressure discharge space with enlarged discharge muffler cavities. A short shaft and bearing assembly is formed between the front and rear walls to reduce compressor length. The sheet metal shell and cylinder housing form a



sealed suction cavity located centrally of the sealed discharge space.

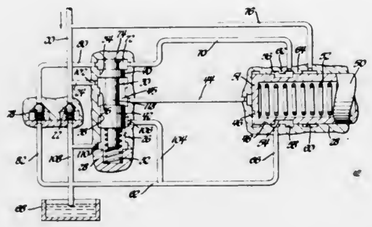
3,784,332
PORTIONING DEVICE FOR DOUGHY MATERIAL
Karl Schnell, Karlstrasse 7065, Winterbach, Germany
Filed May 3, 1971, Ser. No. 139,605
Claims priority, application Germany, May 12, 1970, P 20 23 034.6
Int. Cl. F04b *9/02*
U.S. Cl. 417—319 **8 Claims**



A hopper supplies doughy material to a rotary gear pump which may also be supplied with liquid, and the rotary gear pump pumps the supplied material through an outlet. A constantly rotating crank mechanism drives the pump through a driving mechanism including two one-way clutches or freewheeling devices, arranged to permit rotation in respective opposite directions. One one-way clutch allows driving of the gear pump in only one direction, and the other one-way clutch is interposed between the pump drive shaft and a fixed portion of the device to prevent reverse rotation and backlash of the pump. A connecting rod included in the crank mechanism is connected to a slide which is radially adjustable of a constantly rotating crank disk, and the position of the slide is adjustable by a threaded spindle which is driven, through bevel gearing, by a shaft extending through a tubular drive shaft for the crank disk. A differential gearing is interposed between the tubular shaft and the drive shaft for the threaded spindle,

and is adjustable by a manually operable adjusting wheel to set the magnitude of the portions delivered by the pump during each stroke of the crank mechanism.

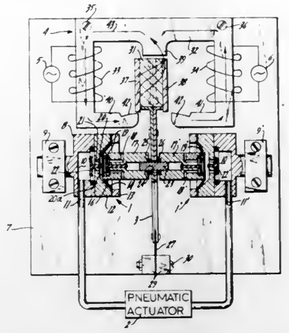
3,784,333
PISTON AIR COMPRESSOR FOR AIR ASSIST SHOCK ABSORBER
James E. Whelan, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed June 12, 1972, Ser. No. 262,086
Int. Cl. F04b *9/10*; **F01l** *25/04*; **F04b** *35/02*
U.S. Cl. 417—383 **3 Claims**



A fluid control system for a diaphragm type air compressor including a spring biased shuttle valve rapidly moved between a first position supplying pressurized fluid to the diaphragm and a second position exhausting the fluid from the diaphragm for intermittently actuating the diaphragm to compress air. The shuttle valve is spring biased to a first position and is moved against the spring to a second position intermittently directing the pressurized fluid against one end of a spring biased piston which in turn pumps fluid against one side of the air compressing diaphragm. Valve means are associated with the piston and are responsive to movement thereof to direct the pressurized fluid against one end of the shuttle valve maintaining it in the second position while the pressurized fluid is exhausted from the cylinder containing the diaphragm actuating piston and its spring then returns the shuttle to the first position. The fluid control system of this invention automatically applies the pressurized fluid to the piston to rapidly pulse the diaphragm thereby providing a source of compressed air.

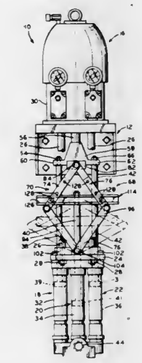
3,784,334
ELECTROMAGNETICALLY DRIVEN FLUID COMPRESSING APPARATUS
Adolph J. Hilgert, Mequon, Wis., assignor to Johnson Service company, Milwaukee, Wis.
Filed Apr. 3, 1972, Ser. No. 240,718
Int. Cl. F04b *35/04*
U.S. Cl. 417—415 **11 Claims**

A pneumatic supply includes a permanent magnet mounted to the upper end of a driven lever. An encircling rectangular member has an opening through which the lever extends to locate the permanent magnet generally centrally of the encircling magnetic frame. Coils are wound and oriented on the second frame to establish a pair of alternating current fields within the frame with corresponding polarity with respect to the permanent magnet to create oppositely directed driving forces on the permanent magnet in synchronism with the alternate polarities, thereby causing the permanent magnet to oscillate. Pole shoes are provided on opposite sides of the permanent magnet to concentrate and direct the flux. A pair of diaphragm type air compressors, each of which includes an operating piston aligned with and located to the opposite sides of the lever. The piston members are connected to each other and to the lever for simultaneous opposite corresponding directional movement. The reciprocating motion of the elec-



tromagnetic drive unit results in the opposite actuation of the compressors; the outputs of which are interconnected to a common pressure load.

3,784,335
PROPORTIONING PUMP
James C. Cevera, c/o IRC Corporation, 1363 E. 286th St., Wickliffe, Ohio
Filed Dec. 13, 1971, Ser. No. 207,123
Int. Cl. F04b *11/00*
U.S. Cl. 417—539 **13 Claims**



A proportional displacement mechanism is disclosed for imparting proportional strokes to the piston rods of a plurality of pump units. A stroke of a first length is imparted to the piston rod of at least one pump unit by reciprocable drive means connected directly to the piston rod, and a stroke of a proportional length is imparted to the piston rod of another pump unit through linkage means interconnected between the drive means and the latter piston rod. The piston rods of the pump units are reciprocable relative to fixed support means, and the linkage means is in the form of a parallelogram of link elements pivotally connected at one point to the drive means and at another point to the support means. The piston rod of the second pump unit carries a cam track component which extends transverse to the axis of the piston rod, and an adjacent pair of the link elements carry cam elements which cooperatively engage the cam track means. In response to reciprocating motion of the drive means, the link elements of the parallelogram linkage means are displaced in a manner whereby the cam elements displace the cam track means and ac-

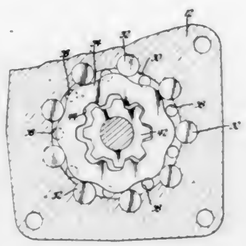
cordingly the piston rod of the second pump unit in the direction of movement of the drive means and a distance proportional to the movement of the drive means.

3,784,336

POWER TRANSMISSION

Richard Allen Schultz, St. Clair Shores, Mich., assignor to Sperry Rand Corporation, Troy, Mich.

Filed Dec. 10, 1971, Ser. No. 206,845
Int. Cl. F01c *1/22*
U.S. Cl. 418—61 **1 Claim**



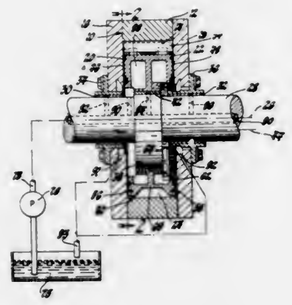
An orbital or compound displacement fluid motor has an internally lobed stator and an externally lobed rotor-orbitor with one lobe less than the number of lobes on the stator. An output shaft is journalled in the housing coaxially with the stator and a driving connection from the rotor-orbitor is provided by a single, very loose fitting spline drive providing direct driving contact from the rotor-orbitor to the shaft. This avoids the use of the inclined coupling shaft commonly used in orbital motors and provides greater durability at a lower production cost.

3,784,337

OIL SEAL ARRANGEMENT FOR ROTARY ENGINE

John G. Sebring, Arcanum, and Thomas C. Downs, Dayton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 6, 1972, Ser. No. 304,135
Int. Cl. F01c *19/08*
U.S. Cl. 418—142 **3 Claims**



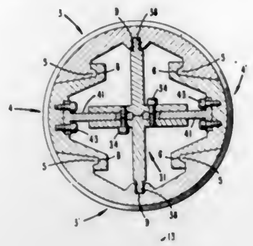
An oil seal arrangement for a rotary engine having a spring seal mounted on the engine's rotor that maintains sealing engagement with one of the engine's inner end walls and in addition an elastic seal mounted on the rotor that maintains sealing engagement with the spring seal and the rotor.

3,784,338

EXPANSIBLE SECTOR CORE FOR CURING BELTS

Augusto Previati, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Apr. 9, 1971, Ser. No. 132,687
Claims priority, application Italy, Apr. 9, 1970, 23080 A/70
Int. Cl. B29d *29/00*; **B29h** *5/18, 7/22*
U.S. Cl. 425—28 **6 Claims**



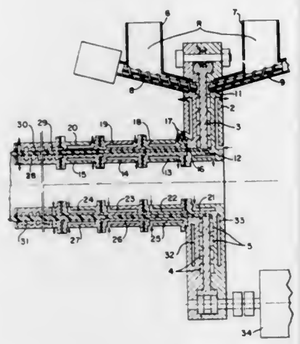
The invention relates to an expansible type core for a belt curing mold. A plurality of complementary sectors are interfitted to form a cylinder and, in addition, means are provided for interlocking the sectors in expanded position against either axial or radial displacement relative to each other. Further, the sectors are expansible symmetrically relative to the core axis.

3,784,339

DISK EXTRUDER

Artur Springfeld, Munich, Germany, assignor to Kunststoffwerk Gebruder Anger GmbH, Munich, Germany

Filed Dec. 21, 1971, Ser. No. 210,354
Int. Cl. B29f *3/00*
U.S. Cl. 425—133 **8 Claims**



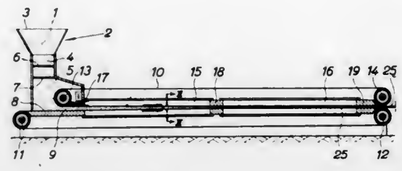
A disk extruder comprises a pair of spaced stators each having a spiral channel on its inner face and a disk-shaped rotor is rotatably mounted between the spiral channels and closely positioned to the channels so that rotation of the rotor moves a plastic molding material along the spiral channel. One stator has a central opening defining a nozzle and a cylindrical core on the other stator extends into the nozzle to define an annular gap. Hollow cylindrical sections can be attached to the outer face of the stator to extend the annular gap and a temperature controlling medium may be circulated through the sections. A cylindrical extension on the rotor is positioned within the gap and separates the plastic material flowing from each stator until this molding material reaches the cooling sections whereby a multi-ply tubular member is formed.

3,784,340

MACHINE FOR CONTINUOUS MANUFACTURING OF CHIP BOARDS

Into Isak Kerttula, Luotsikatu 16B, and Per Arno Jaatinen, Vaskisepankija 4B, both of Helsinki, Finland

Filed Aug. 15, 1972, Ser. No. 280,854
Claims priority, application Finland, Aug. 16, 1971, 2278/71
Int. Cl. B29c *3/06*; **B29j** *5/00*
U.S. Cl. 425—141 **6 Claims**



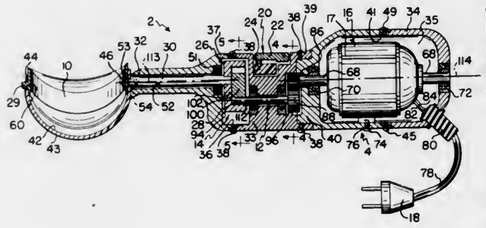
Machine for continuous manufacturing of chip boards, consisting of a strewing station for strewing chips to form a mat on a moving surface and a continuous action press for pressing the chip mat in the press gap between two moving surfaces, at least one of which consists of an endless belt, most appropriately a steel band, which is loaded by the aid of a pressure chamber to be urged in direction against the chip mat. The chip strewing station has been formed to constitute a chamber provided with a closable feed opening, which chamber directly communicates with the press gap provided with marginal seals and into which chamber pressure fluid can be introduced under a pressure which at the most equals the pressure prevailing in the pressure chamber.

3,784,341

HAND TOOL FOR DISPENSING FROZEN FOOD ITEMS

Thomas D. Magalotti, 4371 Ammon Rd., Lyndhurst, Ohio, and Ernest August, deceased, late of South Euclid, Ohio (by Eleanor J. August, executrix)

Continuation-in-part of Ser. No. 883,784, Jan. 28, 1970, abandoned. This application Apr. 6, 1972, Ser. No. 241,748
Int. Cl. A23g *5/02*
U.S. Cl. 425—280 **8 Claims**



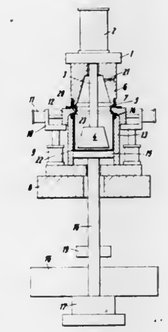
A food dispensing tool including an elongated body having a hollow semi-spherical scoop member adjacent one end and a handle portion adjacent the opposite end. The scoop member includes a circular endless peripheral edge defining an opening therefor. A semi-circular blade is mounted for oscillatory movement within the scoop member being defined by opposed, laterally extending cutting edges positionable adjacent opposed portions of the peripheral edge of the scoop member. A power means including a rotatable shaft is operably connected to the cutter blade. Rotation limiting means is connected between the cutter blade and shaft for converting rotary movement of the shaft to oscillatory movement of the cutting blade for alternately positioning the cutting edges in cutting relation adjacent the opposed portions of the peripheral edge of the scoop member.

3,784,342

APPARATUS FOR DEEP DRAWINGS CONTAINERS OF THERMOPLASTIC FILM MATERIAL

Horst Merklinghaus, Hilchenbach-Allenbach, Germany, assignor to Tedeco, N.V., Deventer, Netherlands and Tedeco Verpackung G.m.b.H., Hamburg, Germany

Continuation of Ser. No. 61,361, Aug. 5, 1970, abandoned. This application Aug. 16, 1972, Ser. No. 280,975
Claims priority, application Germany, Aug. 6, 1969, P 19 39 872.2
Int. Cl. B29c *3/00*
U.S. Cl. 425—292 **5 Claims**



An apparatus of forming containers of thermoplastic film material, said containers having back-cut portions, said apparatus comprising the means of maintaining the film material preheated into the plasticized range stressed over the opening of a mold means and of urging it into said mold means after a mechanical prestretching by a pneumatic pressurizing against the walls of said mold means until the solidification thereof, the margin of the molded article being severed to the desired dimension and said mold means divided in longitudinal direction being opened for the removal thereof, said apparatus being characterized by the fact that said mold means is opened only within the region having the back-cut portions and a region at least uninterrupted on its circumference being moved along the molded article toward a cutting plate for severing.

3,784,343

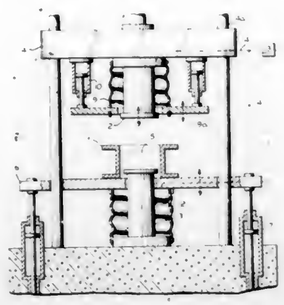
BRICK PRESS WITH MEANS FOR WITHDRAWING AIR FROM BRICK RAW MATERIAL

Shigeo Iwasaki, Okayama, Japan, assignor to Mitsuishi Fukai Tekkosho, Ltd., Wakegun, Okayama Prefecture, Japan

Filed Jan. 25, 1972, Ser. No. 220,626
Claims priority, application Japan, June 12, 1970, 45/50795
Int. Cl. B29c *3/00*
U.S. Cl. 425—352 **1 Claim**

A lower fixed frame has a lower fixed piston thereon. An upper movable frame has thereon an upper movable piston adapted to be moved toward and away from the lower frame such that the upper and lower pistons oppose each other. A mold having a cross-section corresponding to that of the pistons is positioned to support brick raw material between the upper and lower pistons. A pair of bellows surround the upper and lower pistons in an air tight manner. The upper bellows has its lower end connected to a plate which is supported by servo-cylinders. An air tight ring is fixed to the bottom of

the plate and is adapted to create an air tight seal with the top of the mold when the servo-cylinders are actuated to move the



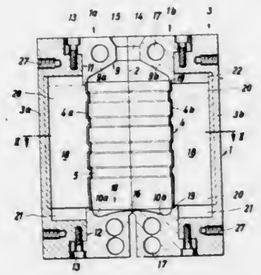
upper bellows downwardly. A suitable vacuum pump is connected by vacuum lines to the areas within each of the bellows.

3,784,344

MULTI-PART BLOW-MOLD FOR MAKING HOLLOW BODIES FROM THERMOPLASTIC MATERIAL

Gunter Korsch, Berlin, Germany, assignor to Firma Emil Korsch Spezialfabrik Fur Komprimiermaschinen, Berlin, Germany

Filed Sept. 9, 1971, Ser. No. 179,006
Int. Cl. B29d *23/03*
U.S. Cl. 425—387 **3 Claims**



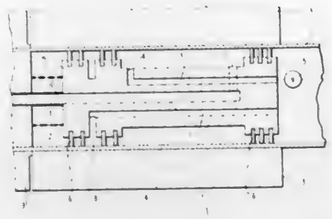
The parts of the blow-mold have cooling spaces for circulation of a coolant, and have a negative inner wall corresponding to the outer contours of the hollow body to be formed. Each blow-mold part includes a box-type metal body frame and a thin-walled insert presenting the negative contour, each insert being secured to the associated body frame and closing it off internally so that each insert and its associated body frame defines a respective cooling chamber of substantially the height of the insert. The inserts may be relatively thin sheet metal in which the contours are formed by cold working or cold shaping. The blow-mold has centering apertures, at each end, for a shoulder insert and a bottom insert both of which have recesses seating the sheet metal shell inserts. The cooling chamber is divided, for coolant circulation, by guide plates which are shorter than the height of the chamber and terminate alternately in engagement with the shoulder insert and with the bottom insert so that a zig-zag flow path is provided.

3,784,345

APPARATUS FOR THE EXTRUSION OF HOLLOW ARTICLES

Waldemar Wissinger, Siegburg; Josef Kurth, Troisdorf, and Peter Gauchel, Eitorf-Alzenbach, all of Germany, assignors to Dyamit Nobel Aktiengesellschaft

Filed Oct. 20, 1971, Ser. No. 190,772
Claims priority, application Germany, Nov. 12, 1970, P 20 55 628.9
Int. Cl. B29d *23/04*
U.S. Cl. 425—325 **19 Claims**



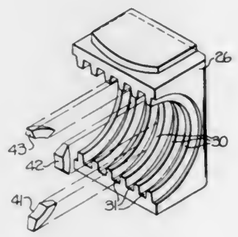
An apparatus for the extrusion of hollow articles of thermoplastic synthetic resin includes an extruded tool and a sizing device adjacent the extruding tool where the hollow article is drawn therefrom. The sizing device has a minor conicity so that the outlet opening in the sizing device is smaller than the inlet opening so that the shrinkage of the dimensions of the article is compensated for. A cooling device may be inserted within a hollow chamber of the article and in addition be externally coupled to the surface of the extruded article as it is drawn through the sizing device.

3,784,346

CONVERTED CORRUGATED PIPE MOLDING MACHINE

Ernest J. Maroschak, Roseboro, N.C., assignor to Plastic Tubing Inc., Roseboro, N.C.

Filed June 12, 1972, Ser. No. 261,780
Int. Cl. B29d *23/03*
U.S. Cl. 425—326 B **11 Claims**



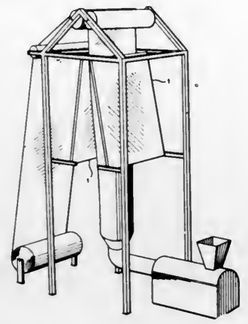
A blow-molding machine for molding corrugated plastic pipe having uninterrupted annular ribs thereon is converted for forming corrugated plastic pipe having interrupting gaps or recesses in certain annular ribs of corrugated pipe being formed. Essentially the conversion is effected by inserting and releasably securing relatively short inserts or segmental blocks in otherwise uninterrupted semicircular valleys of cooperating pairs of semitubular mold sections or dies between and against which the plastic pipe is molded.

3,784,347

BLOWN FILM TUBE COLLAPSING

Leroy E. Robinson, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 08,977, Feb. 5, 1970, Pat. No. 3,689,609.
This application Mar. 20, 1972, Ser. No. 236,112
Int. Cl. B29d *7/00*
U.S. Cl. 425—387 **5 Claims**



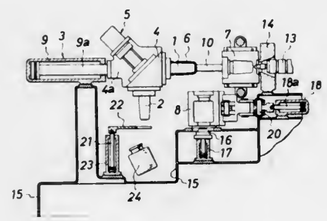
A blown film tube collapsing frame comprising two separate plenum chambers having perforate metal surfaces facing a blown film, tube, or bubble is used to force air through the perforations in said surfaces to collapse the tube or bubble. Each plenum chamber contains adjustable baffles, movable by ropes to fit any size bubble, to ensure the air egress through the perforations immediately adjacent the bubble. Magnets imbeded into the surface of the baffles ensure contact of the perforated plate and the baffles.

3,784,348

INJECTION BLOW-MOLDING APPARATUS

Katashi Aoki, 6037, Oaza Minamijo, Sakahi-machi, Sakaki, Japan

Filed Sept. 25, 1972, Ser. No. 292,222
Claims priority, application Japan, Sept. 29, 1971, 46/77631; Nov. 12, 1971, 46/90413; Nov. 13, 1971, 46/90728; Nov. 19, 1971, 46/108338
Int. Cl. B29c *5/06*
U.S. Cl. 425—324 B **8 Claims**



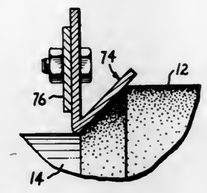
An injection blow-molding apparatus comprising a core mounting pedestal having vertically and horizontally directed surfaces for mounting molding cores each having a blowing hole therethrough, a rotating device for rotating the core mounting pedestal around a bisector of an apex angle formed by said two surfaces so that the molding cores mounted on the pedestal are thereby shifted between two symmetrical positions angularly spaced apart by 180°, a hydraulic device for shifting the core mounting pedestal forwardly and backwardly, a parison forming metal mold for receiving the horizontally disposed molding core and a blow-molding metal mold for receiving the vertically disposed molding core together with a parison formed thereon, another hydraulic device for opening, closing, and clamping said metal molds, and an injection device nozzle touching the parison forming metal mold.

3,784,349

PIPE COATING BEVELER AND SEALER

Francis L. Bickham, Dickinson, Tex., assignor to H. C. Price Co., Bartlesville, Okla.

Filed June 21, 1971, Ser. No. 154,735
Int. Cl. B28b *21/96*
U.S. Cl. 425—402 **6 Claims**



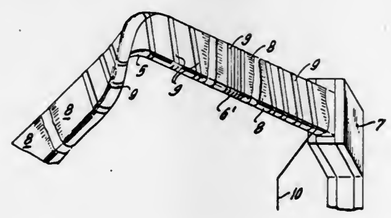
A method and apparatus for finishing the terminal coated end of a joint of pipe covered with an asphaltic, mastic coating. The joint of pipe is lifted from a supporting surface and rotated about its longitudinal axis to expose the complete diameter of the terminal edge of the coating to a heat source which partially softens the coating. A beveling iron having a configuration corresponding to that desired for the finished edge is moved into engagement with the coating edge and held stationary relative to the rotating pipe. The beveling iron is also heated to facilitate smoothing of the terminal edge and to assure sealing of the coating relative to the pipe surface. By maintaining the beveling iron stationary relative to the rotating pipe, an accurate and highly uniform terminal edge is presented. Any excess coating material which is removed during the beveling operation is prevented from adhering to the uncoated end of the pipe by a stationary scraper which continually engages the uncoated surface of the pipe as the latter rotates. The scraper is also heated to prevent the removed coating from adhering to it.

3,784,350

APPARATUS FOR HARDENING WINDING INSULATION

Knut Nylund, Zurich, Switzerland, assignor to Maschinenfabrik Oerlikon, Zurich, Switzerland

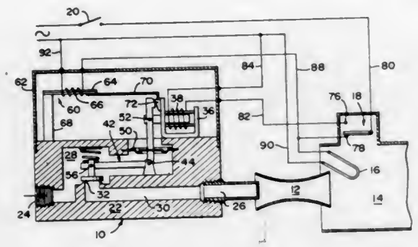
Continuation of Ser. No. 792,544, Jan. 21, 1969, abandoned.
This application Sept. 13, 1971, Ser. No. 179,978
Int. Cl. B29h *3/00*
U.S. Cl. 425—445 **5 Claims**



The hardening of winding insulation containing thermosetting plastics where deformation of the winding coil is a factor, is accomplished by variably heating the winding along its length in accordance with the different mechanical or electrical characteristics required in the winding. A portion of the

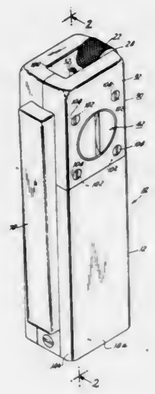
winding insulation can be hardened uniformly in a heated mold with the remainder being heated by variably spaced heater bands wrapped around aluminum foil enclosing the winding insulation.

3,784,351
ELECTRIC IGNITION SYSTEM
Denis G. Wolfe, and Hugh J. Tyler, both of Santa Ana, Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 14, 1972, Ser. No. 243,942
Int. Cl. F23h 5/00
U.S. Cl. 431—66 11 Claims



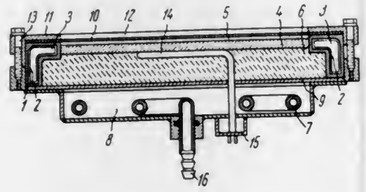
The present fuel control and ignition system senses both the temperature of an electric igniter and flame at a burner. When the system senses that the igniter has reached ignition temperature, the main fuel valve is opened and the igniter deenergized. If ignition occurs, then the main fuel valve will be held open and the igniter deenergized until there is no more demand for heat, when the fuel valve will be closed. However, if ignition does not occur or if power is lost after a flame has been established at the burner, then the main fuel valve will be closed and the ignition sequence will be automatically restarted.

3,784,352
LIGHTER AND FUEL RESERVOIR
Patrick R. J. Court, West Los Angeles, Calif., assignor to Paul G. Garrity, Stamford, Conn.
Filed Feb. 7, 1972, Ser. No. 224,051
Int. Cl. F23q 1/02
U.S. Cl. 431—277 10 Claims



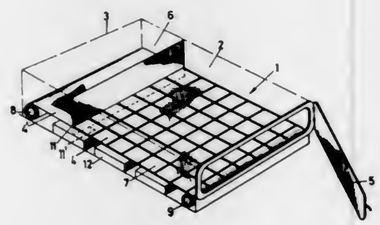
A lighter and fuel reservoir is disclosed in which the fuel utilized is a liquified gas. The lighter is characterized by a deformable valve assembly which controls the flow of gaseous fuel to a burner where it is ignited by a spark generator. In turn, the flow of fuel from the reservoir to the valve assembly is controlled by a fuel regulator which includes a compressible porous member.

3,784,353
FLAMELESS GAS CATALYTIC HEATER
Gennady Alexandrovich Chapurin, ulitsa Kadischeva 3, kv. 49, Saratov, U.S.S.R.
Filed Jan. 28, 1972, Ser. No. 221,682
Int. Cl. F23d 13/14
U.S. Cl. 431—329 4 Claims



Flameless gas catalytic heaters for local heating in explosive environments and installations whose operating principle is predicated on the catalytic oxidation of combustible gases as they pass through a porous catalytically active bed positioned in a heater housing whose side walls are hollow along the perimeter of the active bed and covered inside with a material having a high heat reflection coefficient.

3,784,354
BAKER'S OVEN
Adriaan Verhey, Katendrechtse Lagedijk 217b, Rotterdam, Netherlands
Filed Jan. 17, 1972, Ser. No. 218,425
Claims priority, application Netherlands, Jan. 19, 1971, 7100700
Int. Cl. F27b 9/14
U.S. Cl. 432—152 8 Claims



The volume of a baker's oven is rendered adjustable by the provision of a movable rear wall, preferably having sidewall screens screening the space not used from the heat source. An oven having a plurality of oven compartments, each of which is formed for independent adjustment of the volume thereof, is also disclosed.

CHEMICAL

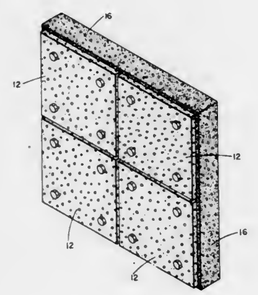
3,784,355
SOLVENT DYEING OR SOLVENT CREASEPROOFING WITH STEAM AND SOLVENT VAPOR DRYING
Brian Crosbie Fielding, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Nov. 8, 1971, Ser. No. 196,333
Claims priority, application Great Britain, Nov. 6, 1970, 52943/70
Int. Cl. D06p 1/02
U.S. Cl. 8—175 10 Claims

A process for the application of a finishing agent to a substrate which comprises treating the substrate with a solution, or a dispersion, or an emulsion of the finishing agent in an organic solvent and then treating the substrate with steam for a time sufficient to remove a major proportion of the organic solvent, and subsequently finally treating the substrate with superheated steam or with the vapor of an organic solvent.

3,784,356
CELLULOSIC FLAME RETARDANT SYSTEM
George M. Wagner, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
Filed Nov. 10, 1971, Ser. No. 197,479
Int. Cl. D06m 13/44
U.S. Cl. 8—196 11 Claims

A process for imparting flame retardant character to cellulosic containing materials has been devised in which the cellulosic material is treated with an aqueous solution of further polymerizable methylol-phosphorus compound obtained by reacting a tetrakis(hydroxymethyl)phosphonium acid salt e.g., tetrakis(hydroxymethyl)phosphonium chloride with about 0.5 to 1.5 mol proportion of ammonia, in the presence of a carbamic acid derivative, e.g., urea, and the treated material is contacted with an aqueous solution of ammonia thereby curing the methylol-phosphorus-compound in and on the cellulosic material.

3,784,357
PROTECTIVE SURFACES OR LINERS FOR SUBAQUEOUS STRUCTURES
James S. Muraoka, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jan. 13, 1972, Ser. No. 217,501
Int. Cl. A61l 13/00; C04b 31/12
U.S. Cl. 21—61 6 Claims

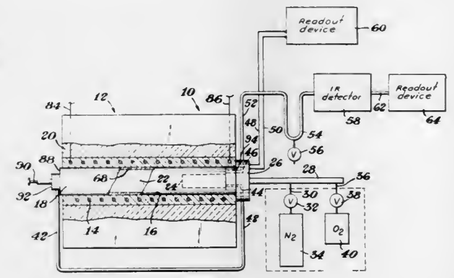


A concrete slab or a tubular concrete pipe is provided with a wall surface or liner to protect the concrete member from marine-fouling organisms. The surface or liner incorporates an expanded shale aggregate, which aggregate has been impregnated with chemicals toxic to marine organisms. The toxic material will leach out very slowly over a long period to provide the desired protection. Such protective surfaces or liners are readily removable and can easily be replaced when the toxic chemicals are completely leached out.

3,784,358
SUPPORT FOR CHROMOGENIC GLYCOL TEST REAGENT
Harry N. Drake, Jr., Fairless Hills, Pa., assignor to Cities Service Oil Company, Tulsa, Okla.
Filed Sept. 24, 1971, Ser. No. 183,697
Int. Cl. G01n 31/22
U.S. Cl. 23—253 TP 11 Claims

An improved supporting medium for a chromogenic reagent for use in an aldehyde detection test. The chromogenic reagent, preferably 3-methyl-2-benzothiazolinone hydrazone hydrochloride monohydrate (MBTH), is absorbed on a porous polymeric material. The preferred polymeric supporting medium is a film of porous polyethylene. The chromogenic reagent supported on the porous polymer finds particular utility in a test for determining the presence of glycol in engine oil.

3,784,359
ANALYTICAL APPARATUS
William H. Parth, Saginaw, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Nov. 3, 1971, Ser. No. 195,387
Int. Cl. G01n 31/12
U.S. Cl. 23—253 PC 9 Claims

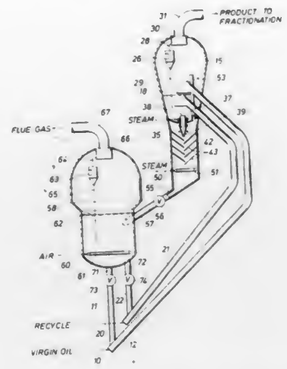


Apparatus for determining the oxygen demand of combustible materials in aqueous dispersions and for determining the total carbon content of aqueous systems. The apparatus comprises a combustion tube surrounded by controlled heating means. The combustion tube has sample insertion means and reference gas including oxygen inlet means at an entry end, sample expansion zone and catalyst disposed within the tube, an oxygen detector cell disposed within the tube and gas outlet means coupled to the exit end of the tube. The gas outlet means is coupled to carbon dioxide detection means. Readout means are coupled to both detectors. The reference gas passes through a closed path in the oxygen detector prior to its insertion at the entry end of said combustion tube.

3,784,360
FLUID CATALYTIC CRACKING

Dorrance P. Bunn, and Henry E. Jones, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Sept. 20, 1971, Ser. No. 182,030
Int. Cl. B01j *9/20*
U.S. Cl. 23—288 S **3 Claims**

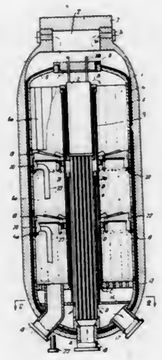


A fluid catalytic cracking apparatus wherein the reaction zone comprises one or more risers and a reaction vessel. A constant inventory of catalyst is maintained in a fluidized state in the reaction vessel and catalyst is continuously withdrawn from the reaction at a rate equal to the rate catalyst enters the reaction vessel. An improved catalyst check valve connecting the reaction vessel and stripping zone controls the catalyst inventory and catalyst withdrawal rate.

3,784,361
CONVERTER FOR HIGH PRESSURE SYNTHESIS

Jiri Kubec, Hlavni, and Vladimir Saroch, Brno, both of Czechoslovakia, assignors to Kralonopolska Strojirna narodni Podnik, Brno, Czechoslovakia

Continuation-in-part of Ser. No. 31,124, April 23, 1970, abandoned. This application June 24, 1971, Ser. No. 156,310
Claims priority, application Czechoslovakia, Apr. 23, 1969, 2887/69
Int. Cl. B01j *9/04*
U.S. Cl. 23—289 **12 Claims**



A converter for high-pressure synthesis of ammonia or methanol having an upright outer pressure shell consisting of a cylindrical middle body and two hemisphere-like heads, a thin walled conforming liner in the shell, an upright conduit axially centered in the shell which extends along the whole length of the cylindrical middle body, from a built in grating in the lower hemisphere like head close to a manhole atop the upper head, the manhole being just large enough for insertion of the conduit therethrough. A body of particulate catalyst material fills the annular space between the liner and the conduit and extends from the grating almost to the top end of the conduit. Cooling means are axially spaced through the bed. An electric heater and a shell and tube heat exchanger are arranged one above the other in the conduit, both adapted for preheating of the main portion of the gaseous reactants before the reactants enter the catalyst body. The remainder of the reactants is injected into the catalyst body through the cooling means which comprise at least one system of gas permeable coffers extending radially over the entire flow section of the catalyst bed.

3,784,362
ANTI-STATIC FUEL COMPOSITION

William R. Siegart, Poughkeepsie, N.Y.; William D. Blackley, Lake Elmo, Minn., and Harry Chafetz, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y.

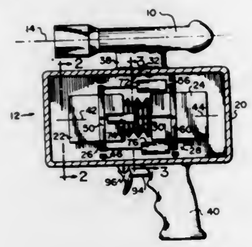
Filed June 21, 1972, Ser. No. 265,030
Int. Cl. C10l *1/16*
U.S. Cl. 44—62 **10 Claims**

Anti-static fuel composition containing the reaction product of an organic hydroxy compound having the formula ROH in which R is a hydrocarbyl radical having from 2 to 30 carbon atoms and a fluorinated polymer from the group consisting of fluorinated polystyrene and fluorinated polypropylene.

3,784,363
DAMPED GYROSCOPIC STABILIZER

William G. Flannelly, South Windsor, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn.

Filed Apr. 28, 1971, Ser. No. 138,259
Int. Cl. G01c *19/00*
U.S. Cl. 74—5.34 **13 Claims**

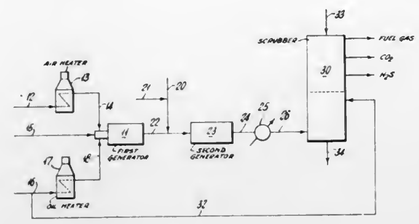


A damped gyroscopic stabilizer employs two gyroscopes, each having a gyroscopic mass and a drive motor for rotating the mass about a spin axis to generate gyroscopic stabilizing moments. The gyroscopes are universally pivotally mounted on a support frame so that the spin axes of the gyroscopic masses may assume a generally aligned relationship in a normally stable or steady-state condition. A coupling connected between the two gyroscopes constrains the gyroscopes to pivotal motions with respect to the support frame which are equal in magnitude but are opposite in sense. With the pivotal motions so constrained, stabilizing moments generated by the gyroscopes are applied additively to the support frame and stabilize the frame about axes perpendicular to the normally aligned spin axes. A damping mechanism is connected between the two gyroscopes to limit or damp the universal pivoting motions of the gyroscopes and the associated stabilizing effect of the gyroscopes on the support frame. The damping mechanism is adjustable and can eliminate all universal pivoting motion and the stabilizing effect of the two gyroscopes.

3,784,364
PRODUCTION OF FUEL GAS

William L. Slater, La Habra; Warren G. Schlinger, Pasadena, and William B. Crouch, Whittier, all of Calif., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 4, 1971, Ser. No. 195,771
Int. Cl. C01b *2/14*; **C07c** *9/04*
U.S. Cl. 48—215 **13 Claims**



Fuel gas suitable for use in conjunction with a gas turbine is prepared by subjecting a hydrocarbon oil to partial combustion using air as the oxidizing medium and injecting additional hydrocarbon oil into the hot partial combustion products.

3,784,365
ORGANIC-BONDED ABRASIVE CONTAINING OCTACHLORONAPHTHALENE FILLER

Richard T. Caserta, Lansdale, and Merrill Ellendman, Philadelphia, both of Pa., assignors to Red Hill Grinding Wheel Corporation, Pennsburgh, Pa.

Filed Apr. 6, 1971, Ser. No. 131,778
Int. Cl. C08g *51/12*
U.S. Cl. 51—298 **2 Claims**

In an organic-bonded abrasive product comprising abrasive material and an organic binder, the improvement comprising adding to said abrasive material and binder an effective amount of a completely chlorinated hydrocarbon whose carbon skeleton consists only of aromatic carbon atoms.

3,784,366
METHOD FOR PROMOTING FORMATION OF FRUIT ABSCISING LAYER

Shogo Takahashi, Tokyo; Takayasu Yamada, Fujisawa, and Hiromi Okudaira, Soka, all of Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Filed Dec. 17, 1971, Ser. No. 209,403
Claims priority, application Japan, Dec. 27, 1970, 45/127181
Int. Cl. A01n *9/12*
U.S. Cl. 71—90 **1 Claim**

Fruit abscising compositions for facilitating the harvest of fruits, especially citrus fruits, which comprises as an active ingredient at least one thiamine derivative selected from the group consisting of

thiamine esters and their salts with inorganic acids; and

S-acyl and disulfide derivatives of thiol-type thiamines, their esters and their salts with inorganic acids

and an agriculturally-acceptable carrier.

3,784,367
PRODUCTION OF POTASSIUM POLYPHOSPHATES

William Percy Moore, Chester, Va., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Aug. 10, 1971, Ser. No. 170,641
Int. Cl. C05b *7/00*
U.S. Cl. 71—36 **1 Claim**

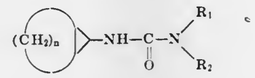
A process for producing a potassium polyphosphate fertilizer solution wherein the available amount of phosphoric anhydride is totally water soluble and is, therefore, suitable for the manufacture of liquid fertilizers. Concentrated wet-process phosphoric acid containing polyphosphoric acids is reacted with potassium chloride at a reaction temperature of 150°–500°C. in the presence of a dehydrochlorination catalyst. Hydrogen chloride is vaporized from the reaction melt and the melt is quenched in aqueous alkaline solution to produce the potassium polyphosphate fertilizer solution.

3,784,368
BICYCLO(N.1.0)ALKYL UREAS AS HERBICIDES

Elmar Sturm, Arlesheim, and Christian Vogel, Binningen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 886,356, Dec. 18, 1969, Pat. No. 3,714,217. This application Aug. 31, 1972, Ser. No. 285,364
Int. Cl. A01n *9/20*
U.S. Cl. 71—119 **6 Claims**

Bicyclo[n.1.0]alkyl-ureas of the formula



wherein

R_1 represents hydrogen, a lower alkyl or alkoxy radical,

R_2 represents a lower alkyl, alkenyl or alkynyl radical, and

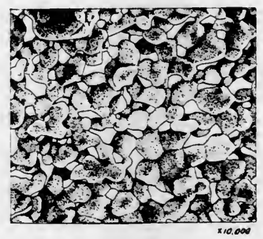
n represents an integer of from 3 to 6

are disclosed as herbicidally active compounds. Herbicidal compositions and a method of controlling undesirable plant growth with the aid of such compounds are also described.

3,784,369
METHOD FOR PRODUCING REFRACTORY METAL POWDER

Kjell A. Svanstrom, Sandhamnsvagen 27, Nynashamn, Sweden

Continuation of Ser. No. 813,746, April 4, 1969, Pat. No. 3,701,649. This application Aug. 24, 1972, Ser. No. 283,575
Int. Cl. C22b *57/00, 49/00, 51/00*
U.S. Cl. 75—0.5 BB **6 Claims**

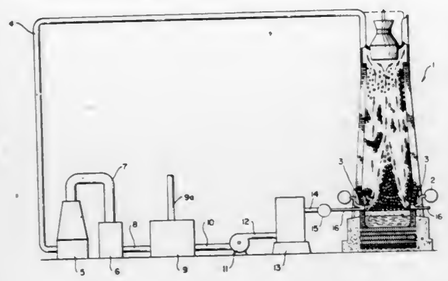


A method is provided for producing refractory metal powder from a refractory metal ferro-alloy containing a refractory metal selected from the group consisting of tungsten, molybdenum, niobium and tantalum and containing at least about 8 percent total of iron plus silicon, the silicon constituting at least one halidizable metal in addition to iron as an impurity. The alloy is crushed and then subjected to dissolution at a temperature of at least about 900° C with a gaseous hydrogen halide selected from the group HCl and HF for a time at least sufficient to effect substantial removal of said iron and said at least one other metal impurity as halide vapor, whereby to provide a finely divided refractory metal powder low in said impurities.

3,784,370
PROCESS OF MANUFACTURING PIG IRON

Edward Stephenson, Jr., Lathrup Village, Mich., assignor to Stephenson Papesch Processes, Inc., Lathrup, Mich.

Filed Sept. 27, 1971, Ser. No. 183,999
Int. Cl. C21b 5/06
U.S. Cl. 75—42 4 Claims

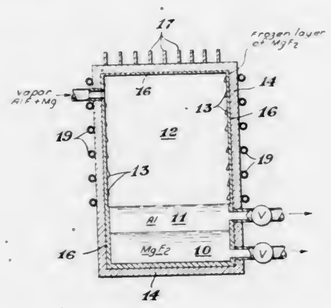


A method of operating a blast furnace in which the blast furnace gas is stripped of nitrogen by the use of a molecular sieve and recycled.

3,784,371
CORROSION RESISTANT FROZEN WALL

Leigh B. Bangs; James O. Huml, and Gilbert S. Layne, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 159, Jan. 2, 1970, abandoned. This application Dec. 27, 1971, Ser. No. 212,367
Int. Cl. C22b 21/04
U.S. Cl. 75—68 R 4 Claims



Highly corrosive molten or vaporous halometaliferous systems comprising metals and metal halides are confined by heat transferring walls on which a frozen layer of the highest melting component of the system is maintained as a protective coating. The confining walls are in essence composites which, in transverse cross-section, consist of a thermally conductive structural wall member having an adherent solid layer of the highest melting component of the confined system. The structural member is continuously cooled sufficiently to maintain its temperature below the melting point of the adhering solid layer. In one embodiment of the invention, the protected walls are employed as heat exchanging surfaces on which vaporous mixtures of metal halides and metal vapors are condensed.

3,784,372
PRODUCTION OF ALUMINUM

Herbert M. Scull, Jr., Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 50,878, June 29, 1970, abandoned. This application Jan. 6, 1972, Ser. No. 215,804
Int. Cl. C22b 21/00
U.S. Cl. 75—68 C 20 Claims

In the production of aluminum by thermally decomposing an alkylaluminum compound with the aid of suitable apparatus, a problem arises with the fouling of such apparatus by the adherence of aluminum particles. Such fouling is reduced by conducting the decomposition within a neutral liquid solvent which is non-reactive with the alkylaluminum compound and is at a high temperature well above the temperature at which the compound normally decomposes in the pure state. In a commercial operation heated surfaces would normally be used to supply heat to the solvent and these surfaces would be highly susceptible to fouling. To further minimize this fouling a continuous process is envisaged where the decomposition occurs in a series of stirred reactors, the solvent in the last reactor being depleted of alkylaluminum compound. This depleted solvent is passed through a heat exchanger and then back to the first reactor. This depleted solvent would not cause fouling of the heat exchanger.

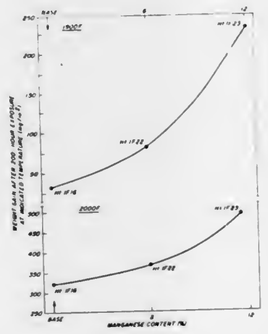
ERRATUM

For Class 75—84 see:
Patent No. 3,784,593

3,784,373
AUSTENITIC STAINLESS STEEL

Martin N. Ornitz, Pittsburgh; Arthur Moskowitz, New Brighton Twsp., Beaver County, and Jerome P. Bressanelli, Pittsburgh, all of Pa., assignors to Crucible Inc., Pittsburgh, Pa.

Filed Mar. 13, 1972, Ser. No. 234,305
Int. Cl. C22c 39/28
U.S. Cl. 75—128 F 3 Claims



An austenitic stainless steel and a thermal reactor constructed therefrom consisting essentially of, in weight percent, carbon 0.15 max., manganese 3.0 max., phosphorus 0.04 max., sulfur 0.04 max., silicon 1.0 max., nickel 22 to 32, chromium 20 to 30, nitrogen 0.10 max., boron 0.01 max., and the balance iron.

3,784,374
METHOD OF IMPROVING THE MACHINABILITY AND MECHANICAL PROPERTIES OF A STEEL

Edouard Almand, Dunkerque, France, assignor to Creusot-Loire, Paris, France

Filed May 7, 1971, Ser. No. 141,414
Claims priority, application France, May 8, 1970, 7016776
Int. Cl. C22c 37/00; B22d 27/20
U.S. Cl. 75—129 6 Claims

The machinability and mechanical properties of a steel are simultaneously improved by adding to the molten steel a sodium oxysulphide and one or more of selenium, tellurium and bismuth. The oxysulphide is suitably introduced into the ladle and the selenium, tellurium and bismuth into the molten steel when it is in the ingot mould.

3,784,375
LATENT ELECTROSTATIC IMAGE FORMS A DEVELOPABLE IMAGE IN A SILVER SALT

Paul B. Gilman, Jr., and Joseph Y. Kaukeinen, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 887,411, Dec. 22, 1969. This application , Ser. No. 264,214
Int. Cl. G03g 13/22; G03c 5/00
U.S. Cl. 96—1 R 14 Claims

A process of rendering visible electrostatic charge patterns is described. The process involves the formation of a charge pattern on a charge-retaining member which is then placed in contact with an unexposed silver salt-containing element to form a latent image on the element which is then processed by standard photographic techniques to form a visible silver image. The process eliminates detrimental solvent and abrasive action which occur in standard electrophotographic development techniques.

3,784,376
PHOTOCONDUCTIVE ELEMENT CONTAINING FURANS, INDOLES, OR THIOPHENES

Charles J. Fox, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 73,257, Sept. 16, 1970, abandoned. This application Feb. 4, 1972, Ser. No. 223,770
Int. Cl. G03g 5/00
U.S. Cl. 96—1.5 10 Claims

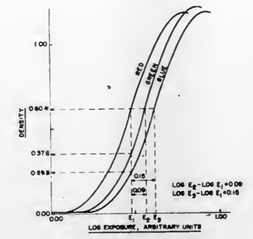
Organic photoconductive elements of improved electrophotographic speed are prepared by coating on an electrically conducting support a photoconductive layer containing a 1,3-diarylisobenzofuran or 1,3-diaryl-4,7-dihydroisobenzofuran or the corresponding isoindole or isobenzothiophene derivatives.

3,784,377
CURVE ANALYSIS METHOD IN COLOR PRINTING

Marilyn Levy, Red Bank, and Richard G. LeSchander, Trenton, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 10, 1972, Ser. No. 242,602
Int. Cl. G03c 7/16
U.S. Cl. 96—23 4 Claims

The proper color balance to be used in making a color print in color photography from a color negative is determined from analysis of the characteristic curves generated from a test print of a continuous wedge or a stepped density tablet exposed through the unexposed processed portion of the emulsion to be balanced.



This invention relates to the use of a curve analysis method in determining the proper color balance necessary to make a color print from a color negative.

3,784,378
DOUBLE-EXPOSURE METHOD FOR PRODUCING REVERSE IMAGES IN PHOTOPOLYMERS

John Vincent Gramas, Middletown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 18, 1971, Ser. No. 189,835
Int. Cl. G03c 5/04, 5/24
U.S. Cl. 96—27 E 11 Claims

For the production of reverse images, a photosensitive element comprising a polymerizable (or crosslinkable) material and two photoinitiators responsive to different wavelengths of actinic radiation is exposed successively to actinic radiation of wavelengths appropriate for the two photoinitiators. The first exposure is imagewise and the second is nonimagewise. A polymerization inhibitor is present during both exposures. The method is useful in the graphic arts where a positive-working system is required, e.g., for relief or planographic printing plates, direct positive copying films, and the like.

3,784,379
METHOD OF LAMINATING ONE OR MORE MATERIALS WITH A BASE STRUCTURE FOR USE IN A HIGH VACUUM ELECTRON TUBE AND METHOD OF MASKING THE BASE PREPARATORY TO LAMINATION

Richard Kaspar Orthuber, Sepulveda, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 2, 1971, Ser. No. 204,158
Int. Cl. G03c 5/00
U.S. Cl. 96—36.2 7 Claims

A method of making a structure for use in a black and white or color Kinescope or the like, the structure being called a multichannel array and including a perforated channel type electrón multiplier with two perpendicular sets of insulated conductive strips extending over rows and columns of the multiplier holes. The strips have holes in registration with the multiplier holes. Conductive strips and glass insulating layers are

deposited using a photoresist layer with or without a transparent photographic film. The photoresist is exposed to light through the multiplier holes.

3,784,380
METHOD FOR MANUFACTURING ARTWORK FOR PRINTED CIRCUIT BOARDS
Giampiero Compare, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy
Filed Oct. 28, 1971, Ser. No. 193,481
Claims priority, application Italy, Nov. 11, 1970, 31569/70
Int. Cl. G03c *5/06*
U.S. Cl. 96—44 **11 Claims**

A method is provided for manufacturing matrix artworks for use in fabricating printed circuit boards which includes submitting a photographic plate to subsequent exposures through different masking means, to obtain latent images whose superposition, after development, results in the final artwork. Optical reference means, for ensuring the exact superposition of the latent images, are obtained by partial development of the plate in well defined marginal areas of the same.

3,784,381
HIGH SPEED SILVER CHLOROIODIDE EMULSIONS
Philippe Perignon, Vincennes, France, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 3, 1971, Ser. No. 195,465
Claims priority, application France, Nov. 13, 1970, 70.40564
Int. Cl. G03c *1/02*
U.S. Cl. 96—94 **5 Claims**

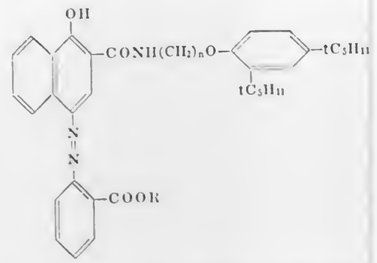
In a process for the preparation of a silver halide photographic emulsion containing a major proportion of chloride, about 0.1 mole to about 5 mole percent of iodide and up to about 10 mole percent of bromide comprising precipitating said silver halide in the presence of a hydrophilic colloid, the improvement which comprises precipitating said silver halide into a medium having a pH in the range 5–9 and a pAg of at least about 7.8 by adding to the precipitation mixture, no later than at the end of said precipitation, a weak solvent for silver halide selected from the group consisting of ammonium chloride, ammonium nitrate and magnesium chloride in a quantity in stoichiometric excess with respect to the quantity of alkali metal chloride necessary for the precipitation of the silver halide, this excess being between 4 moles and 180 moles per 100 moles of formed silver halide.

3,784,382
INTERNAL SUPPORT FOR DIFFUSION TRANSFER ELEMENT
Kai Liang, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,096
Int. Cl. G03c *1/76, 5/54, 7/00*
U.S. Cl. 96—77 **11 Claims**

An internal support for a photographic element and film unit is described comprising a porous, polymeric material with pore diameters ranging from about 0.5 to about 12 microns and a porosity of from about 1 to about 25 percent. The transfer image has an improved image quality and sharpness and postprocess retention of processing fluid is minimized.

3,784,383
LIGHT SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL
Masakuni Iwama; Mitsuto Fujiwara; Tamotsu Kojima, and Toshihiko Yamamoto, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 28,083, April 13, 1970, abandoned. This application May 23, 1972, Ser. No. 256,010
Claims priority, application Japan, Apr. 14, 1969, 44-28287
Int. Cl. G03c *1/40*
U.S. Cl. 96—100 **8 Claims**

A compound of the formula:



wherein *n* is an integer of 1 to 4 and R is a lower alkyl group is found to be useful as a cyan coupler providing auto-masking mechanism for light-sensitive color photographic materials so as to compensate for the deficient color reproductivity of said materials.

3,784,384
HIGH TEMPERATURE CERAMIC COMPOSITION FOR HYDROGEN RETENTION
Ronald W. Webb, Canoga Park, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Mar. 17, 1964, Ser. No. 353,024
Int. Cl. C03c *3/04*
U.S. Cl. 106—39 **4 Claims**

1. A ceramic coating composition consisting essentially of about, by mole percent:
SiO_2 — 60–70
Na_2O — 1–4
Li_2O — 1–6
CaO — up to 6
TiO_2 — 6–14
MgO — up to 3
BaO — 10–20
SrO — up to 2
ZrO_2 — 3–5
MnO_2 — up to 3.

3,784,385
METHOD OF PREPARING MIX FOR PRODUCING REFRACTORY GAS CONCRETE AND THE PRODUCT OBTAINED THEREBY
Konstantin Dmitrievich Nekrasov, Bronitsky pereulock, 2, kv. 26; Alexandra Petrovna Tarasova, Bronitsky pereulok, 2, kv. 9; Alfred Avgustovich Bljusin, ulitsa Borisa Galushkina, 17, kv. 397; Tamara Petrovna Avdeeva, 4 Veshnyakovsky proezd, 5, korpus 1, kv. 48, all of Moscow; Vyacheslav Alexandrovich Elin, ultisa Lomonosova, 10, kv. 27, Moscow-Zhukovsky; Pavel Aronovich Roizman, ulitsa Bljukhera, 33/1, kv. 55, Temirtau Karagandinskaya Oblast, and Alexandr Panteleevich Denisenko, ulitsa Mendeleeva, 10, kv. 4, Magnitogorsk, all of U.S.S.R.
Filed Feb. 18, 1972, Ser. No. 227,623
Int. Cl. C04b *33/00, 33/02, 33/12*
U.S. Cl. 106—40 R **4 Claims**

Method of preparing a mix for producing refractory gas concrete containing powdered chrome-alumina slag and a high-alumina refractory material as fillers, comprising the mixing of constituents followed by adding a gas-developing agent. The resulting concrete is also subject of the invention.

3,784,386
CLADDING GLASSES FOR PHOTOCHROMIC OPTICAL FIBERS
Roger J. Araujo, and Loris G. Sawchuk, both of Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Feb. 16, 1971, Ser. No. 115,370
Int. Cl. C03c *13/00, 3/08;* **G02b** *5/14*
U.S. Cl. 106—50 **2 Claims**

This invention relates to the discovery of glass compositions suitable for cladding photochromic optical fibers. Such glasses consist essentially, in weight percent on the oxide basis as calculated from the batch, of about 50–67 percent SiO_2, 5–15 percent Al_2O_3, 5–25 percent B_2O_3, 0–5 percent P_2O_5, 0–5 percent RO wherein RO is one or more oxides selected from the group consisting of CaO, SrO, MgO, ZnO, BaO and NiO, 0–5 percent Li_2O, 0–12 percent Na_2O, 0–10 percent K_2O and 0–5 percent Cs_2O, wherein $[2Li_2O + Na_2O + K_2O + 1/2Cs_2O]$ is at least about 10 percent, 0–10 percent TiO_2 and 0–10 percent CeO_2, wherein $[TiO_2 + CeO_2]$ does not exceed about 10 percent, 0–0.5 percent Sb_2O_3 and 0–0.5 percent As_2O_3, to which may be added 0–15 percent F, as calculated in excess of the weight of the other glass constituents. These glasses are particularly useful because, in addition to combining proper thermal expansion and refractive index with good ultraviolet light absorption, they do not deleteriously effect the natural fading rate of the photochromic core glass during the fabrication of the cladded fiber optic.

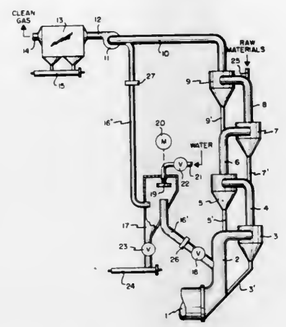
3,784,387
GLASS COMPOSITIONS OF LOW INHERENT RADIOACTIVITY
Werener Sack, Mainz-Gonsenheim, Germany, assignor to JENAer Glaswerk Schott & Gen., Mainz, Germany
Filed Mar. 4, 1971, Ser. No. 121,166
Claims priority, application Germany, Mar. 6, 1970, P 20 10 683.6
Int. Cl. C03c *3/08, 3/10, 3/30*
U.S. Cl. 106—54 **9 Claims**

Borosilicate glass of low inherent radioactivity, free of potassium oxide.

3,784,388
WEAR RESISTANT ALUMINOUS CERAMIC ARTICLES
Alan G. King, Aurora, Ohio, and John C. Logan, Leicester, Mass., assignors to Norton Company, Worcester, Mass.
Division of Ser. No. 764,582, Oct. 2, 1968, abandoned. This application Aug. 2, 1971, Ser. No. 168,461
Int. Cl. C04b *35/10*
U.S. Cl. 106—73.4 **1 Claim**

This invention relates to low cost, strong, highly wear resistant ceramic articles, the wear resistance being comparable to that of cemented carbides. The ceramic articles are hot-pressed bauxite compositions, 78–94 percent Al_2O_3, less than 9 percent SiO_2, 2–8 percent Fe_2O_3, 2–4 percent TiO_2 and a total of less than 3 percent CaO, MgO, Na_2O.

3,784,389
METHOD OF AND APPARATUS FOR BURNING CEMENT INCLUDING ATOMIZING DRYER IN CYCLONE PREHEATER BYPASS
Niels Erik Hastrup, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J. and Atkieselskabet Niro Atomizer, Copenhagen, Denmark, part interest to each
Filed Jan. 21, 1972, Ser. No. 219,758
Claims priority, application Great Britain, Feb. 22, 1971, 5124/71
Int. Cl. C04b *7/02*
U.S. Cl. 106—100 **22 Claims**



In the manufacture of cement clinker from cement raw materials containing an undesirably high amount of alkalis, a rotary kiln having a preheater for the raw materials is employed. A portion of the effluent gases from the kiln is caused to bypass the preheater as a separate divisional flow. Water is atomized into this flow in such amounts that substantially all of the alkalis entrained therein in the form of solids, liquid or vapor are struck by the atomized fine drops of water. All of the water is vaporized in the hot flow of gas so that a substantial part of the alkalis is precipitated in the form of a fine dry powder, and the gas is simultaneously cooled.

3,784,390
SHAPED BODIES OF PULLULAN AND THEIR USE
Hiromi Hijiya, and Makoto Shiosaka, both of Okayama, Japan, assignors to Hayashibara Biochemical Laboratories, Incorporated, Okayama-ken, Japan
Filed July 13, 1972, Ser. No. 271,378
Claims priority, application Japan, July 23, 1971, 46/54579; Oct. 30, 1971, 46/85960
Int. Cl. C08h *1/00, 7/00*
U.S. Cl. 106—139 **14 Claims**

Pullulan, a water-soluble polysaccharide produced by Pullularia pullulans from conventional culture media and consisting of repeating units of maltotriose linked by α-1,6 bonds, can be shaped by compression molding or extrusion at elevated temperature or by evaporation of water from its aqueous solutions to form shaped bodies, such as films or coatings which are practically impermeable to atmospheric oxygen in thin layers and unaffected by oils and fats so as to provide valuable packing materials for food, pharmaceuticals, and other oxygen sensitive materials. Pullulan is edible and biodegradable.

3,784,391
FINELY DIVIDED HOLLOW MICROCAPSULES OF POLYMERIC RESINS
Uno Kruse, Neptune, and Daniel F. Herman, Princeton, both of N.J., assignors to N L Industries, Inc., New York, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,685
Int. Cl. C08b *27/22, 21/06;* **C08f** *47/16*
U.S. Cl. 106—170 **12 Claims**

Spheroidal shaped, hollow microcapsules of thermoplastic polymeric resins have been prepared which have an average

diameter of from 0.1μ to 1.0μ. Each of the microcapsules are filled with air and have an average wall thickness of from about 3 percent to 30 percent of the diameter of the microcapsules.

These microcapsules are obtained from an emulsion comprising water and microcapsules of the polymeric resin containing a non-solvent for the resin. The microcapsules are suspended in the water and the non-solvent is present inside the microcapsules.

Either one of these products, i.e. the microcapsules themselves or the water emulsion containing the microcapsules described above, may be used as an opacifier in paint or other systems.

3,784,392

PRODUCTION OF FINELY DIVIDED AMORPHOUS ALUMINO-SILICATE PIGMENTS FROM KAOLIN

Orlando Leonard Bertorelli, Havre de Grace, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Filed Apr. 29, 1971, Ser. No. 138,791

Int. Cl. C09c *1/00*

U.S. Cl. 106—288 B **4 Claims**

A method for preparing finely divided alumino silicate pigments of increased brightness from refined kaolinic materials is disclosed. The method involves the hydrothermal treatment of an aqueous dispersion of refined kaolins or kaolinic pigments and an alkaline earth metal hydroxide. The products have particular utility as high grade paper coating pigments.

3,784,393

PIGMENTED PLASTICS

George Frank Sonn, Edison, and Frank Michael McGonigle, South Plainfield, both of N.J., assignors to Inmont Corporation, New York, N.Y.

Filed June 1, 1971, Ser. No. 148,979

Int. Cl. C08h *17/02*

U.S. Cl. 106—288 Q **7 Claims**

Compositions containing pigment, cellulose triacetate, and small amounts of high boiling solvents are prepared for use as concentrates for coloring cellulose triacetate solutions prior to spinning of yarns and filaments from the solution.

3,784,394

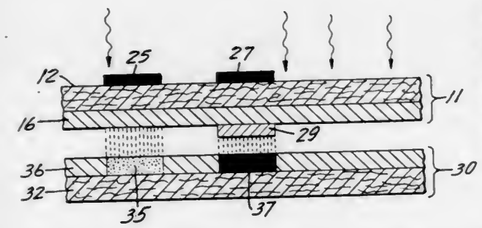
LATENT IMAGE COMPOSITE MASTER AND METHOD

Leonas L. Bildusas, Wheaton, Ill., and Wendell J. Manske, Village of Birchwood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 6, 1971, Ser. No. 140,925

Int. Cl. B41m *5/18*

U.S. Cl. 117—1.7 **7 Claims**



In the disclosed method for making a composite master capable of producing both visible and invisible images on a copy or receptor sheet, a first and second set of infrared absorptive images are entered on the obverse, uncoated surface of the master and mirror image deposits of dithiooxamide (DTO) or a derivative thereof corresponding to the second set of images are entered on the reverse surface of the master. The reverse surface is coated with a dye precursor such as a gallate. A wax transfer sheet or the like is used for providing the DTO deposits. The resulting master is capable of providing both visible and invisible entries on a nickel or copper salt-coated receptor sheet by passing the master and receptor through an infrared copying machine.

3,784,395

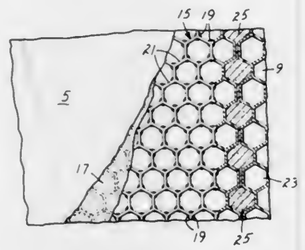
PROCESS FOR COATING PARTICULATE ADHESIVE

Alan G. McKown, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 768,675, Oct. 18, 1968, Pat. No. 3,655,818. This application Oct. 20, 1971, Ser. No. 191,104

Int. Cl. B05b *5/02*; **B44d** *1/095*

U.S. Cl. 117—17 **3 Claims**



Processes are provided for applying flowable, particulate, powdered, curable adhesive to a substrate (e.g., a metallic honeycomb structure).

3,784,396

A PROCESS FOR TREATING A SUBSTRATE WITH ETHYLENE-MALEIC ANHYDRIDE COPOLYMER POWDER

Marie-Claude Gloriod Nee Fourment, Bully-Les-Mines, and Adrien Nicco, Bethune, both of France, assignors to Ethylene Plastique, Courbevoie, France

Filed Mar. 24, 1972, Ser. No. 237,915

Claims priority, application Great Britain, Mar. 25, 1971, 7853/71

Int. Cl. B44d *1/02*, *1/44*

U.S. Cl. 117—21 **11 Claims**

A process for treating the surface of a material is provided which comprises treating the surface with a powder of a statistical copolymer of ethylene and maleic anhydride having a particle size of between 0.5μ and 400μ and possessing, in the dispersed state, on its particles, at least one crosslinking agent for the copolymer, which contains as reactive groups one, two, three or four alcoholic-OH groups and at least one amino or amido group, in an amount from 0.05 to 6 reactive groups per anhydride group present in the copolymer, and then bringing the powder to a temperature of between 110° and 300°C.

3,784,397

IMAGING SYSTEM

Masamichi Sato, Asaka, and Osamu Fukushima, Tokyo, both of Japan, assignors to Xerox Corporation, Stamford, Conn.

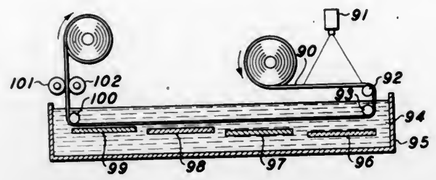
Filed Jan. 29, 1971, Ser. No. 110,921

Claims priority, application Japan, Feb. 4, 1970, 45-9841

Int. Cl. G03g *13/10*, *15/10*

U.S. Cl. 117—37 LE **16 Claims**

Method for forming images by providing an electrostatographic imaging member bearing an electrostatic latent image on a recording surface, positioning the recording surface spaced from and facing a development electrode, contacting the recording surface with toner particles whereby at least a portion of the toner particles deposit on the recording surface to form at least a partially imaged recording surface, and



maintaining the field strength of the development electrode weak during the initial period of development and then increasing the field strength of the development electrode during the latter period of development to form a substantially uniform developed image substantially free of streak, halo, edge effect, and background deposits.

3,784,398

TRANSFERRING RECORDED SIGNALS AND LATENT ELECTROSTATIC IMAGES BEFORE DEVELOPMENT

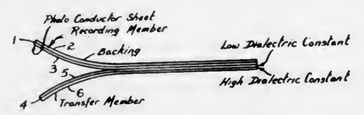
Kenneth A. Metcalfe, Lockleys, and Alwin Spencer Clements, Largs Bay, both of Australia, assignors to The Commonwealth of Australia, care of the Secretary, Department of Supply, Parkes, Canberra, Australia

Filed Aug. 16, 1971, Ser. No. 172,085

Claims priority, application Australia, Aug. 17, 1970, 2214/70

Int. Cl. G03g *13/08*, *13/10*, *13/16*

U.S. Cl. 117—17.5 **3 Claims**



The invention relates to a method of and means for transferring recorded signals and latent electrostatic images before development. The insulating medium which is placed over the photoconductor surface is so constructed that the dielectric constant or permittivity on one side is lower than the dielectric constant on the other side. This can be achieved by forming the insulating medium of a laminate of two differing materials of differing dielectric constants.

3,784,399

FILMS OF FLUORINATED POLYMER CONTAINING SULFONYL GROUPS WITH ONE SURFACE IN THE SULFONAMIDE OR SULFONAMIDE SALT FORM AND A PROCESS FOR PREPARING SUCH

Walther Gustav Grot, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 8, 1971, Ser. No. 178,782

Int. Cl. C08h *19/00*

U.S. Cl. 117—62.1 **17 Claims**

A film useful as an ion exchange membrane of fluorinated polymer containing pendant side chains containing sulfonyl groups which are attached to carbon atoms which have at least one fluorine atom attached thereto; one surface of the film having a majority of the sulfonyl groups of the polymer in the $-(SO_2NH)_mQ$ form wherein Q is H, NH_4 cation of an alkali metal and/or cation of alkaline earth metal and m is the valence of Q and the other surface of the film having the sulfonyl groups in the $-(SO_3)_nMe$ form wherein Me is a cation and n is the valence of the cation and processes for preparing the film.

3,784,400

METHOD OF PREPARING DRY-CLEANABLE SOIL-RESISTANT LEATHERS

Vincent Joseph Cassella, Jr., Audubon, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Division of Ser. No. 37,019, May 13, 1970, Pat. No. 3,668,124. This application Mar. 22, 1972, Ser. No. 237,217

Int. Cl. C14c *9/02*; **B44d** *1/32*

U.S. Cl. 117—62.2 **6 Claims**

A fatliquor composition useful for leather treatment comprises a mixture of alkenyl substituted succinic acid or succinic acid anhydride, sulfated fatty oil, and an amine or amide. The leather is treated with an aqueous emulsion of the fatliquor composition and then with an aqueous solution of the chromium coordination complex of perfluoroalkyl-containing carboxylic acid to provide a soil and water-repellent leather that is resistant to loss of lubricity when drycleaned.

3,784,401

PROCESS FOR IMPREGNATING NON-WOVENS WITH BUTADIENE CARBOXYL POLYMER LATICES

George L. Wheelock, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Continuation-in-part of Ser. No. 739,584, May 20, 1968, abandoned. This application July 14, 1972, Ser. No. 272,006

Int. Cl. B44d *1/48*

U.S. Cl. 117—62.2 **10 Claims**

A process for obtaining nonwoven materials having improved physical properties, especially internal bond strength and resistance to delamination is provided. Nonwoven fabrics and papers impregnated with carboxyl-containing butadiene polymer latices, especially carboxylated butadienestyrene and carboxylated butadiene-acrylonitrile copolymer, are exposed to ammonia or amine vapors prior to the drying and curing operations to obtain the improved properties. Papers treated in this manner have shown a marked increase in internal bond strength.

3,784,402

CHEMICAL VAPOR DEPOSITION COATINGS ON TITANIUM

Carl D. Reedy, Jr., Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 821,506, May 2, 1969, Pat. No. 3,656,995. This application Aug. 9, 1971, Ser. No. 170,383

Int. Cl. C23c *11/00*

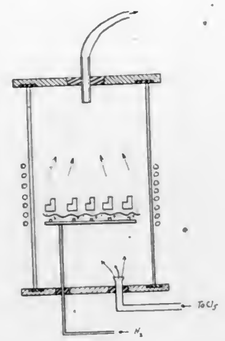
U.S. Cl. 117—69 **5 Claims**

A process for coating titanium-containing substrates with a dense, adherent, chemically vapor deposited coating by initially effecting a protective, adhesion-promoting, intermediate layer on the titanium surface and subsequently depositing from the vapor phase a metal nitride, carbide, or carbonitride coating on the intermediate film. For example, a titanium article may be initially nitrided to provide a titanium nitride protective layer and titanium nitride, titanium carbide, or titanium carbonitride may subsequently be deposited from the vapor phase onto this film to provide a dense, adherent, protective coating on the titanium article. The barrier layer serves to promote adhesion between the titanium substrate and the final overlay and to prevent reaction between the substrate and such a reaction ingredient as titanium tetrachloride, which is a preferred constituent for supplying titanium in the titanium carbide, nitride, or carbonitride final coating.

3,784,403
PROCESS FOR CLADDING STEEL

Frederick A. Glaski, Torrance, Calif., assignor to Fansteel Inc., North Chicago, Ill.

Continuation-in-part of Ser. No. 117,929, Sept. 7, 1971. This application Aug. 29, 1972, Ser. No. 284,639
Int. Cl. C23c *11/00*
U.S. Cl. 117—71 M 3 Claims



A process for cladding of steels and the resulting product. A consistent and acceptable bond is obtained by providing a containment coating to prevent diffusion of the ingredients of the sub-strate into the cladding material. A desirable containment coating is one in which one of the constituents is provided by the sub-strate to provide a composite which is more stable than similar compounds of the cladding coat such as tantalum or columbium. This permits a chemical vapor deposition of the cladding without adverse reaction with surface ingredients. A further step in the process is available in the localizing of flow of gas in the deposition to bring them together just prior to contact with the shape to be coated.

3,784,404
METHOD FOR PROTECTING PAINTED WORK-PIECES IN A BAKE OVEN

Robert E. Cavanaugh, Jr., Detroit, Mich., assignor to Amchem Products, Inc., Ambler, Pa.

Filed Jan. 12, 1972, Ser. No. 217,219
Int. Cl. B44d *1/46*; F26b *3/00*
U.S. Cl. 117—97 4 Claims

A polysiloxane oven coating for use in paint baking ovens to trap undesirable solid particulate matter and thereby prevent its deposition on the baking paint film. The coating can be employed effectively without causing paint defects in the finished paint film.

3,784,405
OXYBENZOYL POLYESTER COATED ARTICLES

James Economy, Buffalo; Steve G. Cottis, Amherst, and Bernard E. Norwalk, Lancaster, all of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

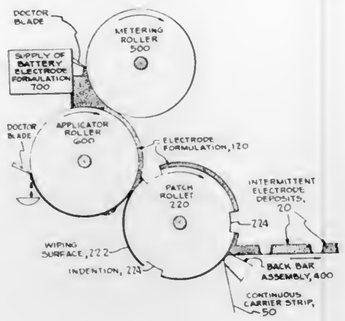
Division of Ser. No. 828,693, May 28, 1969, Pat. No. 3,656,994. This application Oct. 8, 1971, Ser. No. 187,713. The portion of the term of this patent subsequent to Jan. 25, 1989, has been disclaimed.
Int. Cl. B32b *15/08*; C09d *3/68*
U.S. Cl. 117—132 C 9 Claims

A substrate coated with an impervious film of an oxybenzoyl polyester having a molecular weight of at least about 3,500.

3,784,406
METHOD OF APPLYING BATTERY ELECTRODES ONTO CONTINUOUS CARRIER STRIP

Geza F. Kosta, Plainfield, and Anthony W. Pomper, Edison, both of N.J., assignors to ESB Incorporated, Philadelphia, Pa.

Filed Jan. 24, 1972, Ser. No. 220,136
Int. Cl. H01r *3/08*
U.S. Cl. 117—212 1 Claim



Intermittent deposits of battery electrodes are applied onto a continuous carrier strip by a rotating patch roller which has an outer wiping surface and at least one indention recessed from and interrupting the continuity of the wiping surface. The electrode formulation is wiped from the wiping surface of the patch roller onto the carrier strip to produce the electrode deposits, and the indention in the patch roller causes the electrode deposits to be intermittent. A back bar assembly causes the carrier strip to undergo a sharp change in direction at the point where the electrode formulation is wiped onto the carrier strip. The battery electrode formulation comprises a plurality of electrochemically active particles contained in and dispersed throughout a binder matrix.

3,784,407
BAKED-RESISTANCE MEMBER AND THE PROCESS OF MANUFACTURE THEREOF

Hajime Shiio, Nishi, and Masami Yamaguchi, Kozakai, both of Japan, assignors to Ceramic Kagaku Yugen Kaisha, Toukai-shi, Aichi-ken, Japan

Filed May 25, 1971, Ser. No. 146,788
Claims priority, application Japan, May 26, 1970, 45/45059
Int. Cl. B44d *1/02*, *1/18*
U.S. Cl. 117—227 14 Claims

A resistance member is produced by forming a paste of zinc metal powder and synthetic resin paint, applying the paste as a film on a base and heating the base to remove the paint component and leave a baked film of zinc on the base. The zinc film is substantially non-oxidized and has a determinate resistance value. Glass powder and other metal powders may be mixed with the zinc to control the final resistance value, but the zinc must be initially present in an amount of at least 20 percent by weight.

3,784,408
PROCESS FOR PRODUCING XYLOSE

Gerald Myer Jaffe; William Szkrybalo, both of Verona, and Peter Hans Weinert, Wayne, all of N.J., assignors to Hoffmann-LaRoche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 863,358, Oct. 29, 1969, abandoned. This application Sept. 16, 1970, Ser. No. 72,898
Int. Cl. C13k *9/00*
U.S. Cl. 127—37 5 Claims

Material containing cellulose, lignins and xylan is hydrolyzed and the resulting aqueous solution is extracted with methanol to obtain crystalline xylose. The xylose may be hydrogenated to produce xylitol.

3,784,409
PROCESS FOR PURIFYING GLUCOSE SYRUPS CONTAINING FRUCTOSE

William Junior Nelson, Camanche, Iowa, and Charles William Hinman, deceased, late of Fort Madison, Iowa (Roy W. Deitchler, administrator), assignors to Standard Brands Incorporated, New York, N.Y.

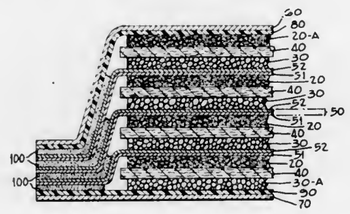
Continuation-in-part of Ser. No. 705,318, Feb. 14, 1968, abandoned. This application June 1, 1971, Ser. No. 148,915
Int. Cl. C13k *9/00*
U.S. Cl. 127—46 A 10 Claims

A method of purifying enzymatically isomerized glucose syrups containing fructose. These syrups contain salts which contribute to the ash content, colored bodies, odoriferous materials, and other impurities. To remove these impurities, the isomerized, glucose syrups are treated with a strong acid cation exchange resin in the hydrogen form which removes therefrom a portion of the colored bodies and appreciable quantities of the metallic constituents of the salts. Following this treatment, the syrups are subjected to a carbon treatment which removes the major portion of the colored bodies and odoriferous materials. The syrups are then treated with a weak base anion exchange resin in the free base form, a strong acid cation exchange resin in the hydrogen form, and with a strong base anion exchange resin in the hydroxyl form.

3,784,410
BATTERY WITH DUPLEX ELECTRODE CONSTRUCTION USING CONTINUOUS METAL CARRIER STRIP HAVING AT LEAST ONE NONREACTIVE METAL SIDE

Bernard C. Bergum, Monona, and John A. Youngquist, Madison, both of Wis., assignors to ESB Incorporated, Philadelphia, Pa.

Division of Ser. No. 100,237, Dec. 21, 1970, Pat. No. 3,706,616. This application May 15, 1972, Ser. No. 253,650
Int. Cl. H01m *39/06*
U.S. Cl. 136—10 4 Claims



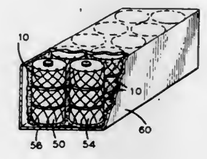
Duplex electrodes are constructed by placing intermittent deposits of positive and negative electrodes on opposite sides of a continuous metal carrier strip having two nonreactive metal sides. In another embodiment, duplex electrodes are constructed by placing intermittent deposits of positive electrodes on the only nonreactive side of the bimetal carrier strip, with the reactive side of the bimetal strip functioning as the negative electrode in the duplex electrode. The duplex electrodes are assembled into multicell batteries. The assembly preferably occurs while the duplex electrodes are structurally and electrically connected by the continuous metal carrier strip; the carrier strip is then subsequently cut between duplex electrodes to obtain structurally and electrically unconnected batteries. Alternatively, the carrier strip may be cut between duplex electrodes before those electrodes are assembled into multicell batteries.

The metal carrier strip may comprise: (1) a unimetal which is nonreactive to the positive and negative electrodes and to the electrolyte within the battery; (2) a bimetal in which the metal adjacent the positive electrode is nonreactive with respect to that electrode and the metal adjacent the negative electrode is nonreactive with respect to that electrode; (3) a trimetal whose outer two layers are nonreactive as in (2); and, (4) a bimetal or trimetal in which the metal adjacent the positive electrode is nonreactive with respect to that electrode and in which the other metal functions as the negative electrode in the battery. The particular metals employed will depend upon the electrochemical system used in the battery.

3,784,411
ELECTRIC CELL BATTERY WITH PLASTIC WEBBING SPACER FOR FAST AND COMPLETE EPOXY ENCAPSULATION

Frank Leonard Ciliberti, Jr., Ossining, N.Y., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed July 6, 1971, Ser. No. 159,933
Int. Cl. H01m *23/00*, *21/00*
U.S. Cl. 136—87 15 Claims



A cell spacer consisting of a grid of polypropylene filaments, providing a non-friction, non-wetting spacer for cells in a container, with free runways in spacer, and three-dimensional adjustability of spacer to permit epoxy flow along, around and under spacer to form complete epoxy closure, and battery made with such spacers, and method of epoxy flow control.

3,784,412
METHOD FOR THE MANUFACTURE OF POWDERED TUNGSTEN CONTAINING ELECTRODE MATERIAL

Konrad Mund; Gerhard Richter, and Magdalena Wenzel, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Munchen, Germany

Filed Feb. 17, 1972, Ser. No. 227,309
Claims priority, application Germany, Feb. 22, 1971, 2108457
Int. Cl. H01m *13/04*
U.S. Cl. 136—122 18 Claims

Method for making electrode material containing tungsten in powdered form. A tungsten compound selected from a halide or oxide, a tungstic acid, a tungstate, a thiotungstate is mixed with a solid or liquid cokable substance. A solution of such organic substance may also be used. The organic substance in the mixture is precoked and the tungsten carburized or sulfidized.

3,784,413
DRY CELLS

Jun Watanabe, Osaka; Susumu Hosoi, Neyagawa; Masahiro Kuwazaki, Osaka; Akira Ota, Osaka; Toshikatsu Takata, and Junichi Asaoka, both of Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 843,598, July 22, 1969, Pat. No. 3,647,552. This application Aug. 13, 1971, Ser. No. 171,594. The portion of the term of this patent subsequent to Mar. 7, 1989, has been disclaimed.
Int. Cl. H01m *3/00*
U.S. Cl. 136—131 7 Claims

A dry cell of excellent performances, particularly in discharge characteristics, in which an ion-permeable barrier

membrane is interposed between a cathode mixture and a negative electrode-consistuting zinc casing and more specifically between the cathode mixture and a paste layer, said membrane being of such a character that it blocks the transfer of water and a paste from the paste layer side to the cathode



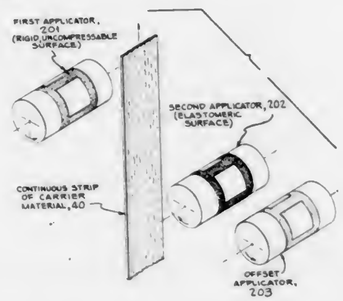
mixture side without being dissolved during storage and in the earlier stages of discharge of the cell, whereas it is dissolved to prevent a sharp increase of the zinc ion concentration in the vicinity of the paste layer in the latter stage of discharge of the cell when the zinc ion concentration in the electrolyte is increased.

3,784,414

BATTERY SEALANT CARRIER HAVING ADHESIVE PATCHES IMPREGNATED THEREIN AND A METHOD FOR MAKING IT

William R. Macaulay, Madison; Ralph H. Feldhake, Verona, both of Wis.; Dale G. Higgins, East Brunswick, and Richard C. Santa Maria, Edison, both of N.J., assignors to ESB Incorporated, Philadelphia, Pa.

Filed June 1, 1972, Ser. No. 258,663
Int. Cl. H01m *3/04*
U.S. Cl. 136—175 **22 Claims**



A battery sealant carrier is impregnated with adhesive patches each of which is in the form of a closed loop. The surfaces of the adhesive patches rise above the surfaces of the carrier on at least one and preferably both sides of the carrier. The patches are produced by passing the carrier between a pair of applicators, the first of which has a surface that is sufficiently rigid and uncompressible so that it does not deform and the second of which has a surface that is sufficiently elastomeric so that it deforms during adhesive application. Preferably the two applicators apply adhesive to the carrier simultaneously. The adhesive patches applied by the second applicator are preferably applied at a higher viscosity than those applied by the first applicator. Preferably the sealant carrier is also the battery separator material, in which case there is an area of separator material inside each adhesive patch into which the adhesive has not been impregnated; alternatively, the sealant carrier may have a void area inside each adhesive patch, with the void area being provided to receive a piece of battery separator material.

3,784,415

METHOD OF MAKING A HIGH VOLTAGE DEPOSITED FUEL CELL COMPONENT

Ralph E. Hopkins, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 110,499, Jan. 28, 1971, Pat. No. 3,717,506. This application Aug. 3, 1972, Ser. No. 277,546
Int. Cl. H01m *27/02*
U.S. Cl. 136—175 **1 Claim**

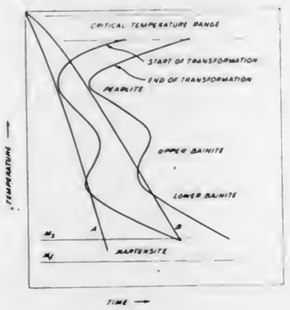
This invention pertains to a method of making an improved high voltage deposited fuel cell component. The improved fuel cell component is especially adaptable to high voltage, high power applications in that a large number of planar cell assemblies may be stacked in a compact manner to afford a relatively high power density.

3,784,416

MANUFACTURE OF WHITE CAST IRON

Barry John Davies, Burlington, Ontario, Canada, assignor to Canron Limited, Montreal, Quebec, Canada

Continuation-in-part of Ser. No. 93,754, Nov. 30, 1970, abandoned. This application Sept. 29, 1972, Ser. No. 293,339
Int. Cl. C21d *5/04*; **B22d** *25/00*
U.S. Cl. 148—3 **6 Claims**



An improved method for the production of martensitic and/or lower bainitic white cast iron. The method of this invention includes the steps of preparing a melt of molten cast iron having a chromium content in the range of 0.5 percent to 15 percent, a total additional content of hardenability increasing alloying elements in the range of trace to 3 percent, casting into a mold having a maximum cavity thickness of about 2.5 inches and retaining the casting in the mold until it cools to a shake-out temperature in the range of 1,700°F. to 1,950°F.. The casting is then cooled after shake-out in still air to a temperature in the range of 1,325°F. to 1,650°F. and thereafter the casting is quenched when at a temperature within the range of 1,325°F. to 1,650°F. by immersing it in the liquid quenching medium at a temperature above 80°F. so as to cool the casting at a rate of cooling sufficient to prevent the formation of pearlite without cracking or distorting the casting.

3,784,417

SURFACE CONVERSION TREATMENT FOR MAGNESIUM ALLOYS

James A. Brown, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 89,130, Nov. 12, 1970, abandoned. This application Oct. 26, 1971, Ser. No. 192,558
Int. Cl. C23f *7/16*
U.S. Cl. 148—6.15 R **59 Claims**

An aqueous composition for surface conversion treatment of magnesium and magnesium alloys prior to application of a

painted or photoresist coating is described. The composition comprises a water solution of about 9.4 to about 19.5 grams per liter NH_4^+; about 50 to about 103 grams per liter PO_4^{---}; about 1.0 to about 2.8 grams per liter Ca^{++}; and a total of about 1.9 to about 4.8 grams per liter of ions selected from the group consisting of Cl^-, NO_3^-, and SO_4^{--}, and is characterized by having a pH of about 3.0 to about 4.5.

3,784,418

PROCESS FOR THE MANUFACTURE OF COLD-ROLLED SHEETS FROM A RUST-RESISTANT, FERRITIC STEEL ALLOY CONTAINING CHROMIUM AND MOLYBDENUM

Alfred Randak, and Karl Michel, both of Huttental-Geisweid, Germany, assignors to Stahlwerke Sudwestfalen AG, Huttental-Geisweid, Germany

Filed Nov. 3, 1970, Ser. No. 86,610
Claims priority, application Germany, Nov. 3, 1969, P 19 55 026.6
Int. Cl. C21d *9/48*
U.S. Cl. 148—12 **13 Claims**

Cold-rolled strip and sheets are made from a special steel alloy containing chromium and molybdenum by subjecting hot-rolled strip formed from the alloy to multi-stage annealing at controlled temperatures and thereafter cold rolling and annealing after each cold rolling step.

3,784,419

PROPELLANT COMPOSITION CONTAINING A NICKLE-SILVER COMPOSITE

Robert P. Baumann, Dover; Eugene F. Bozza, Rockaway, both of N.J., and Gardner S. Hunt, Freeport, Maine, assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 120,683, March 3, 1971, abandoned. This application June 30, 1972, Ser. No. 267,737
Int. Cl. C06b *19/00*
U.S. Cl. 149—2 **4 Claims**

Solid propellants compositions and method for the preparation thereof, comprising the addition of a staple to a wetted propellant composition, casting, subjecting the casting to a magnetic force in order to radially orient the staples therein, solidifying and recovering the product.

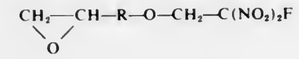
3,784,420

THERMALLY STABLE HIGH DENSITY-IMPULSE ENERGETIC COMPOSITION OF MATTER

Milton B. Frankel, Tarzana, and George A. Lo, Canoga Park, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 9, 1968, Ser. No. 785,024
Int. Cl. C06b *15/00*
U.S. Cl. 149—22 **18 Claims**

This invention is concerned with a novel, energetic, thermally stable, dense binder system suitable for formulating energetic compositions of matter wherein said binder system comprises the energetic prepolymer of a compound of the formula



in which R is alkylene of 1 to 4 carbon atoms and the energetic plasticizer bis-(dinitrofluoroethyl)-formal. The energetic composition also contains at least one fuel and at least one oxidizer homogeneously dispersed in and held together by said binder system.

3,784,421

SLURRY EXPLOSIVES CROSS-LINKED WITH A COMPOUND OF TELLURIUM VI

William Allan Craig, Glasgow, Scotland, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 196,797, Nov. 8, 1971, Pat. No. 3,734,864. This application Sept. 18, 1972, Ser. No. 289,637
Claims priority, application Great Britain, Nov. 30, 1970, 56694/70
Int. Cl. C06d *5/06, 5/10*
U.S. Cl. 149—29 **7 Claims**

Slurry explosives and aqueous gels therefor containing, as thickener, a macromolecular compound containing vicinal cis-hydroxyl group (e.g., guar gum) cross-linked with compound of tellurium VI.

3,784,422

2,3-BIS(DIFLUOROAMINO) PROPYL 2,2-DINITROPROPYL CARBONATE, USEFUL IN PROPELLANTS

Albert L. Rocklin, Walnut Creek, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Oct. 12, 1970, Ser. No. 81,637
Int. Cl. C06b *15/00*; **C06c** *69/00*
U.S. Cl. 149—88 **5 Claims**

The novel allyl 2,2-dinitropropyl carbonate and the conversion thereof to the novel 2,3-bis(difluoroamino)propyl 2,2-dinitropropyl carbonate useful as a high energy plasticizer of polymeric binders for solid propellant systems.

3,784,423

CRYSTALLINE BERYLLIUM HYDRIDE

Paul Kobetz, Baton Rouge, La., and Leonard M. Niebylaski, Birmingham, Mich., assignors to Ethyl Corporation, New York, N.Y.

Filed Aug. 24, 1964, Ser. No. 392,677
Int. Cl. C06b *15/00*; **C01b** *6/04*; **C01l** *6/24*
U.S. Cl. 149—109 **8 Claims**

1. A crystalline beryllium hydride-containing composite which consists essentially of from about 99.5 to about 80.0 mole percent of beryllium hydride and from about 0.5 to about 20.0 mole percent of lithium hydride.

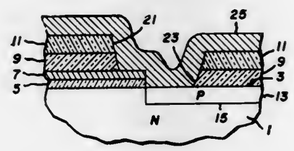
4. A crystalline beryllium hydride-containing composite which consists essentially of from about 0.5 to about 20.0 mole percent of a compound selected from the group consisting of lithium hydride and lithium aluminum hydride and from about 99.5 to about 80.0 mole percent of beryllium hydride and which is characterized by a density exceeding 0.75 gram per cc and by intense X-ray diffraction lines at $d = 3.78$ and $d = 2.95$.

3,784,424

PROCESS FOR BORON CONTAINING GLASSES USEFUL WITH SEMICONDUCTOR DEVICES

Shao-Yuen S. Chang, Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Sept. 27, 1971, Ser. No. 184,093
Int. Cl. C03c *15/00*; **H01l** *7/50*
U.S. Cl. 156—15 **4 Claims**



A glass containing about 5 percent or more by weight boron oxide may be etched using fluoroboric acid as an etchant. The

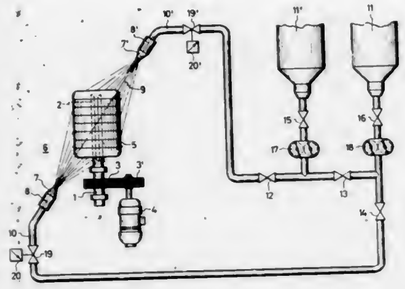
fluoroboric acid etchant is advantageously employed becuase of its comparatively low acidity. The boron oxide containing glass may be utilized as a boron diffusion source in the fabrication of semiconductor devices and may be covered by a barrier layer, such as phosphosilicate glass.

3,784,425

PROCESS AND APPARATUS FOR THE PRODUCTION OF PLASTIC-SHEATHED TAMPONS

Wilhelm Schuster, Frankfurt, Germany, assignor to Vereinigte Papierwerke Schickedanz & Co., Nurnberg, Postfach, Germany

Filed Nov. 8, 1971, Ser. No. 196,537
Int. Cl. B32b *31/14*; **B65h** *81/06*; **A61f** *13/20*
U.S. Cl. 156—83 **3 Claims**



A process is disclosed for the production of plastic-sheathed or covered tampons of fibrous organic materials, especially for feminine hygiene, wherein a fiberbody is made selected from the group consisting of unpressed and prepressed fiberbodies, a porous coating of water-insoluble plastic is sprayed or spun around the fiberbody, and the fiberbody and covering are pressed to form the tampon.

3,784,426

METHOD OF BUILDING TIRES

Edwin S. Woodhall; Paul E. Appleby, both of Cuyahoga Falls, and John W. Touchette, North Canton, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 99,428, Dec. 18, 1970, Pat. No. 3,698,987.
This application June 26, 1972, Ser. No. 266,025
Int. Cl. B29h *17/12, 17/14, 17/16*
U.S. Cl. 156—132 **4 Claims**



A tire building machine comprising an expansible drum on which tires are built. The drum includes a pair of sets of segments movable radially of the drum axis and which are covered with a rubber sleeve and are disposed between two sets of fingers which are also movable radially of the drum axis. The fingers are designed to hold a pair of wire beads concentrically of the longitudinal axis of the building drum in equidistant spaced relation from the centerplane of the drum. The segments are movable radially outwardly of the drum to form shoulders in the carcass plies on which the beads may be seated, after which the turn-up of the plies and tie-in of the wire beads are made, and tread and sidewall are applied to complete the uncured tire. The fingers and segments have rigid material engaging surfaces. The center section of the building drum intermediate the segments has a substantially rigid material supporting surface and, together with the segments, provides a firm working surface for building the tire.

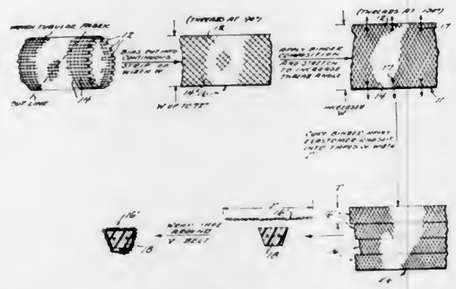
The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,784,427

METHOD OF MAKING AND TREATING BIAS CUT FABRIC

Thomas Franklin Griffin, Kernersville, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed June 3, 1970, Ser. No. 42,914
Int. Cl. B29h *7/22*
U.S. Cl. 156—139 **6 Claims**



A fabric suitable for V-belt covers and hose reinforcing is made by bias-cutting a tubular woven fabric into a continuous strip, stretching the continuous strip in the width direction as with a pin tenter frame to increase the angle between warp and filling to greater than 90°, applying an elastomeric coating, and longitudinally slitting the strip into a plurality of narrower tapes which are then wrapped around a V-belt core in a conventional manner or used as hose reinforcing.

3,784,428

METHOD FOR MAKING CARBON FILAMENT TAPES

Donald James Willats, Fillongley, and Peter Ernest Morgan, Coventry, both of England, assignors to Courtaulds Limited, London, England

Filed May 7, 1971, Ser. No. 141,391
Claims priority, application Great Britain, May 12, 1970, 22.856/70
Int. Cl. B31c ; B65h *81/00*
U.S. Cl. 156—174 **4 Claims**

A process for making a tape of filaments which comprises winding at least one bundle of filaments, for example carbon filaments, helically on a mandrel to produce a multilayer structure of filaments of even thickness, and helically cutting the filaments in the same sense as they are wound to produce a tape of filaments. Apparatus for performing the process is also described.

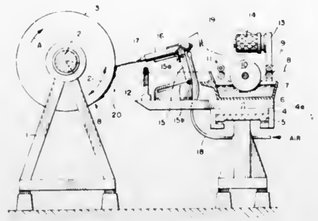
3,784,429

METHOD FOR PRODUCING ROTATIONALLY SYMMETRICAL GLASS FIBER REINFORCED LAMINATED HOLLOW STRUCTURES

Manfred Muller, Wuppertal-Barmen, Germany, assignor to Akzona Incorporated, Asheville, N.C.

Filed July 22, 1971, Ser. No. 165,127
Claims priority, application Germany, July 23, 1970, P 20 36 513.3
Int. Cl. B65h *81/00*
U.S. Cl. 156—175 **8 Claims**

Method and apparatus for producing laminated hollow structures having at least one glass fiber reinforced resinous layer wherein there are simultaneously applied to a winding core or rotationally symmetrical form (a) a filamentary fleece or web of a fibrous organic polymer such as continuous polyester filaments, and (b) a winding layer of glass fiber roving or rovings impregnated with a curable thermosetting synthetic resin such as unsaturated polyester resins or epoxy resins. The apparatus includes, in addition to means for



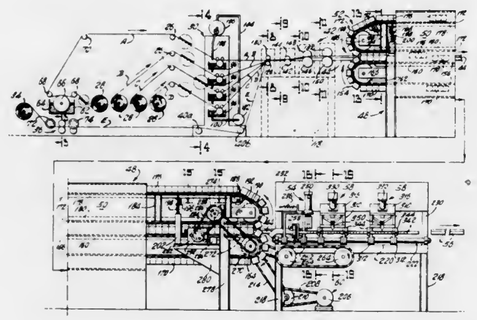
wrapping the roving or rovings of glass fibers, a blowing nozzle means for the continuous deposition of the fibrous fleece or web at a displaced angle with reference to the winding application of the glass fiber roving material. The products of the invention are useful as storage vessels, pipes, tubes, cylinders, fittings and the like, e.g. as frequently required in the petrochemical industry.

3,784,430

METHOD FOR MANUFACTURING CORRUGATED ANGLE MEMBERS

Jack A. Gilbert, and Stanley Franklyn, both of Clifton, N.J., assignors to Container Company of New York, Irvington, N.J.

Division of Ser. No. 782,209, Dec. 9, 1968, Pat. No. 3,652,367.
This application Dec. 2, 1970, Ser. No. 94,327
Int. Cl. B31f *7/00*
U.S. Cl. 156—200 **4 Claims**



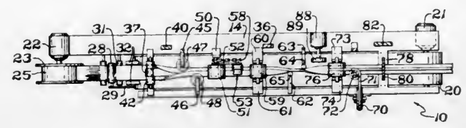
A method for manufacturing corrugated angle members. These members are made of heavy paper, for example, and serve as protective reinforcements in relatively large packages containing appliances and the like, so that the corrugated angle members by engaging the appliances within the container of the package will protect the appliances against damage. A plurality of corrugated plies are glued to each other while being longitudinally angled to a gradually increasing extent by a forming means which provides the glued-together corrugated plies with a preselected angular cross section. Then the angled corrugated structure is dried while conveyed by a conveyer means through a heat tunnel. Thereafter, the corrugated structure is cut by a cutting means to preselected lengths.

3,784,431

MANUFACTURE OF WINDSHIELD WIPER BLADES

Mathew Kuts, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Division of Ser. No. 135,092, April 19, 1971, Pat. No. 3,697,356. This application June 26, 1972, Ser. No. 266,149
Int. Cl. B31f *7/00*
U.S. Cl. 156—201 **5 Claims**



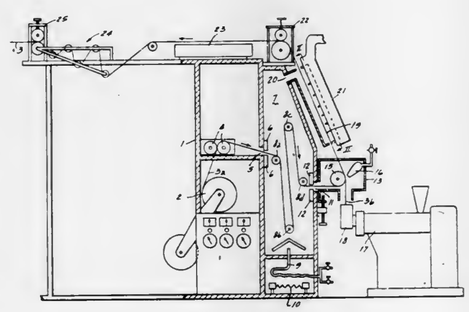
The method of making a distendable stationary window wiper blade which is suitable for cleaning a movable window as in station wagons. The blade is distendable by fluid pressure to simultaneously press the wiper blade against the window and spray liquid against the window to provide means for lubricating and wetting the window. Such wiper blade is made by encasing a tube with fabric reinforced material, folding such fabric material over the tube to cover such tube completely, adhering a thin bead along the central length thereof and cutting such blade into predetermined lengths.

3,784,432

METHOD OF MAKING A FLEXIBLE CLOSURE

Takashi Noguchi, Seisan Nippon Sha, Ltd. New Kohjim-achi Bldg. 3, 5-Chome, Tokyo, Japan

Filed Sept. 7, 1971, Ser. No. 178,087
Int. Cl. B29c *23/00*
U.S. Cl. 156—244 **11 Claims**



A mechanism and method of attaching to a laminated plastic sheet a fastener profile wherein the preformed sheet is removed from a roll and passed through a heating chamber having controlled humidity and thereafter passing said sheet over a roll which forms a joining zone with an extruded plastic profile strip fed onto the sheet with a jet of air directed thereagainst, and the joined sheet and strip thereafter passing through a chamber where the strip is cooled and the heat in the sheet is maintained.

3,784,433

REINFORCED COMPOSITES

Edward William Garnish, Saffron Walden, and Barry James Hayes, Little Eversden, both of England, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation-in-part of Ser. No. 2,441, Jan. 12, 1970, abandoned. This application Mar. 30, 1972, Ser. No. 239,765
Claims priority, application Great Britain, Jan. 17, 1969, 2880/69
Int. Cl. B32b *31/12*
U.S. Cl. 156—276 11 Claims

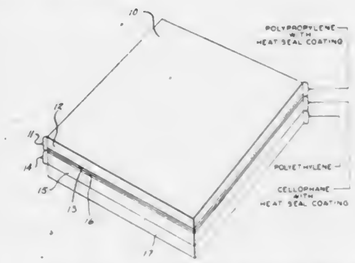
Composites of unidirectional carbon fibers and a thermosettable resin are made by applying the resin as a continuous solid film to the carbon fibers, applying heat and pressure so that the resin flows about the fibers and forms a coherent structure, and then converting the resin into its solid, fusible B-stage.

3,784,434

METHOD OF LAMINATING PACKAGING FILM

George C. Paisley, Millbrae, and Fred G. Tier, Sunnyvale, both of Calif., assignors to Milprint, Inc., Milwaukee, Wis.

Continuation of Ser. No. 717,844, March 1, 1968, abandoned. This application Mar. 8, 1971, Ser. No. 122,205
Int. Cl. B32b *31/06, 31/12*
U.S. Cl. 156—280 1 Claim



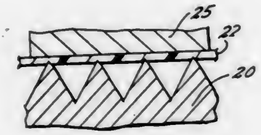
A multiple layer laminated packaging film incorporating cellophane coated on only one side with a heat sealable coating, heat sealable polyethylene applied to the uncoated side of the cellophane, and a polypropylene exterior layer joined to the coated side of the cellophane by means of a heat sealable coating on the inner surface of the polypropylene.

3,784,435

METHOD OF FORMING PATCH-TYPE SELF-LOCKING SCREW FASTENERS

Mansour A. H. Bagheri, Downey; Walter P. Fitzgerald, Jr., and Beatrix Y. Sanders, both of San Diego, all of Calif., assignors to Long-Lok Fasteners Corporation, Cincinnati, Ohio

Continuation-in-part of Ser. No. 126,882, April 19, 1971, abandoned, which is a continuation-in-part of Ser. No. 36,960, May 13, 1970, abandoned. This application Feb. 14, 1972, Ser. No. 226,147
Int. Cl. B32b *31/26*
U.S. Cl. 156—293 58 Claims



Thermoplastic polymer locking elements are formed on threaded fasteners to provide a range of self-locking torque characteristics. The thermoplastic resins are of the type that crystallize during cooling from the molten state.

The crystallizable polymers are preferably applied in film form to preheated threaded fasteners. By correlation of the preheat temperature, the length of time during which the molten polymer is allowed to melt and flow onto the thread surfaces, and the rate of cooling of the assembly, the geometry of the locking element and the degree of crystallinity of the polymer are controlled.

3,784,436

METHOD OF TREATING A WOOD SURFACE WITH LINEAR HEAT-HARDENABLE COPOLYMERIZATE

Jurgen Fock, Essen-Bredeney, and Ulrich Holtschmidt, Essen, both of Germany, assignors to Th. Goldschmidt AG, Essen, Germany

Division of Ser. No. 31,748, April 24, 1970, Pat. No. 3,694,418. This application Oct. 18, 1971, Ser. No. 190,397
Claims priority, application Germany, May 6, 1969, 1922942
Int. Cl. C09j *7/02*; B32b *27/10*
U.S. Cl. 156—334 2 Claims

This invention relates to a linear heat-hardenable copolymerizate, and to a method of treating a wood surface with a foil of the said copolymerizate, the copolymerizate having a limiting viscosity of $\eta = 0.7$ to 3.0 (100 ml · g^{-1}) measured in toluene at 20° C., and comprising

70 to 94 mole percent of a compound selected from the group consisting of styrene or at least one monomer having the formula

$$CH_2=C(R_1)-COOR_2$$

in which R_1 is selected from the group consisting of hydrogen and a methyl group, and R_2 is an alkyl group having one to four carbon atoms,

2 to 15 mole percent of at least one compound selected from the group consisting of maleic anhydride and itaconic acid anhydride, and

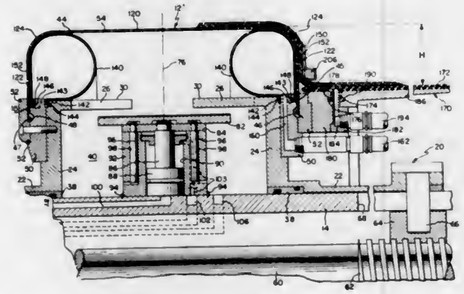
4 to 15 mole percent of at least one compound selected from the group consisting of acrylic acid glycidyl ester and methacrylic acid glycidyl ester.

3,784,437

TIRE BUILDING APPARATUS

Paul E. Appleby, Cuyahoga Falls; Denver C. Folden, Akron, and Donald C. Kubinski, Seville, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 880,522, Nov. 28, 1969, abandoned. This application Dec. 2, 1971, Ser. No. 204,167
Int. Cl. B29h *17/16, 17/22*
U.S. Cl. 156—401 37 Claims



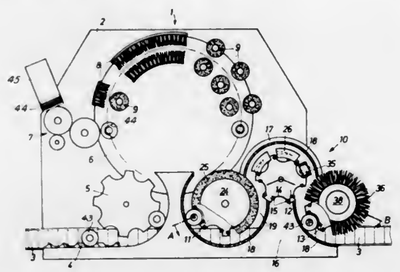
A tire building apparatus having an expandable-collapsible drum for which an elastic tubular membrane forms the drum surface, and a pair of annular members disposed for radial and axial movement on and relative to a pair of rigid axially movable end members cooperable with the membrane to expand the drum surface to a high crown and an expanded cylindrical stiffly supported building surface.

3,784,438

APPARATUS FOR WRAPPING BOTTLE NECKS

Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany

Filed Oct. 27, 1971, Ser. No. 192,955
Claims priority, application Germany, Nov. 13, 1970, 2055834
Int. Cl. B65b *61/24*; B65c *3/18*
U.S. Cl. 156—487 11 Claims



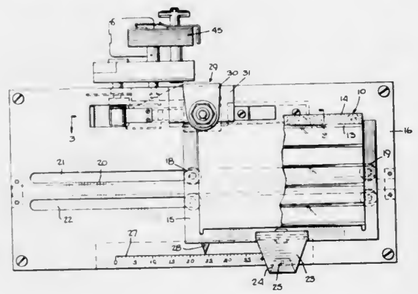
Apparatus for wrapping bottle necks, preferably with foil wrappers. The apparatus includes wrapper applying mechanism and following treatment apparatus to shape and conform the wrapper to the bottle neck and crown. The treatment apparatus includes a series of pressing and smoothing tools which are arranged on a serpentine path and conveyor means for advancing the bottles on said serpentine path past said tools. The wrapper shaping and conforming tools are desirably arranged on circular arcs and the conveyor desirably comprises star wheels which convey the bottles on said arcs for engagement with said shaping and conforming tools.

3,784,439

MACHINE FOR FORMING AND APPLYING INDEX TABS TO FILE CARDS

Isidore Dorman, Whitestone, N.Y., assignor to Bell & Howell Company, Chicago, Ill.

Filed Jan. 31, 1972, Ser. No. 221,896
Int. Cl. B32b *31/20, 31/18*
U.S. Cl. 156—518 10 Claims



A machine for automatically forming index tabs and for applying the tabs to file cards at selected points along the upper margin thereof. A file card to be tabbed is supported on a carriage, the margin of the card overhanging the carriage. The carriage is shiftable along a platform with respect to a linear scale, to align a selected point on the margin with a tab applicator station. At the station, the margin partially overlies the upper end of a hole in a die plate below which is disposed a strip of tab material. A reciprocating die punch cooperating with the die plate, acts in passing through the die hole to excise a tab from the strip and to press it against the underface of the margin whose upper face is backed by an anvil. To effect bonding of the tab to the card margin, the tab material may be provided with a pressure-sensitive layer or a hot-melt coating, in which latter event the anvil is heated to activate the coating when the margin is sandwiched between the pressed tab and the anvil.

3,784,440

ALUMINUM-CLAD PLASTIC SUBSTRATE LAMINATES

John H. Grunwald, New Haven; Eugene D. D'Ottavio, Thomaston; Harold L. Rhodenizer, Bethlehem, and Michael S. Lombardo, Waterbury, all of Conn., assignors to MacDermid, Incorporated, Waterbury, Conn.

Division of Ser. No. 889,472, Dec. 31, 1969, Pat. No. 3,620,933. This application Nov. 9, 1971, Ser. No. 197,161
Int. Cl. B32b *15/08, 15/20*; H05k *1/00*
U.S. Cl. 161—185 7 Claims

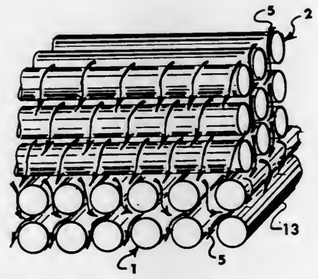
Plastic parts are formed against an anodically treated aluminum surface by molding, laminating, etc., to produce laminates useful, after removal of or separation from the aluminum, in providing a plastic surface of a high energy level promoting greater adhesion of deposited metal conductor circuits in the additive process of making printed circuit boards.

3,784,441

COMPOSITE STRUCTURE

Charles E. Kaempen, Orange, Calif., assignor to Kaempen Industries, Inc., Orange, Calif.

Filed July 12, 1971, Ser. No. 161,536
Int. Cl. B32b *5/12*
U.S. Cl. 161—58 19 Claims



A corrugated laminate comprises at least two superimposed plies of continuous filament strands bonded together by a hardened plastic resin. The plies are biaxially pre-tensioned prior to hardening of the resin which impregnates and bonds the strands together in a generally concave parabolic configuration at each corrugation. The laminate finds particular application to tubular structures, such as sewer pipe liner and underground tanks, which contribute to the control and improvement in the quality of the nation's environment.

The method and apparatus for making the laminate in the form of a desired composite structure comprises placing a first ply of unidirectional continuous filament strands upon one or more longitudinally spaced pairs of a gapped forming structure so that the ply bridges each forming gap. After the ends of the first ply are held in place, they are pressed and deflected

into the forming gaps by a superimposed second ply containing pre-tensioned, unidirectional continuous filament strands oriented approximately at right angles to the filament strands of the first ply. The parabolic configuration formed at each corrugation of the laminate results from a substantially uniform pressure which is applied to the first ply by the second or deflecting ply. The filament strands of each laminate ply are thoroughly impregnated with the liquid resin which subsequently hardens to bond and maintain the laminate in its corrugated form.

3,784,442

ALKALI METAL ALUMINO SILICATES, METHODS FOR THEIR PRODUCTION AND COMPOSITIONS THEREOF

Lowell E. Hackbarth, Bel Air, Md., and Joseph T. Crockett, Auburn, Ala., assignors to J. M. Huber Corporation, Borger, Tex.

Division of Ser. No. 112,469, Feb. 3, 1971, which is a continuation-in-part of Ser. No. 730,892, May 21, 1968, Pat. No. 3,582,379. This application July 20, 1972, Ser. No. 273,673The portion of the term of this patent subsequent to June 1, 1988, has been disclaimed.

Int. Cl. D21h *3/82*

U.S. Cl. 162—181 C **1 Claim**

The subject matter of the following specification concerns the production of finely divided materials useful as pigments, moisture conditioners, paper fillers, and in rubber reinforcement and the like. Considering present economics, perhaps the most practical embodiment of the subject matter employs the reaction of a soluble sodium silicate and aluminum sulfate in producing precipitates commonly known and identifiable as sodium alumino silicates, the precipitate being ultimately collected as a dried particulate material of sub-micron particle size. The disclosed process involves conducting this general type of reaction in the presence of calculated quantity of sodium sulfate from the outset of the reaction whereby economics are improved and highly refined modifications in the characteristic of the final materials become obtainable. The reaction may be varied according to several conditions, such as pH, temperature, concentration, manner of feeding materials and the like whereby to better adapt the new materials to highly specialized needs, such as in rubber compounding and paper production.

3,784,443

DEVICE FOR THE LEAK-TIGHT ASSEMBLY OF HEAT EXCHANGERS IN NUCLEAR REACTORS

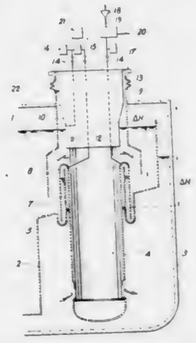
Michel Vercasson, La Celle-Saint Cloud, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 4, 1971, Ser. No. 168,924

Claims priority, application France, Aug. 7, 1970, 70.29197

Int. Cl. G21c *13/02, 13/06;* **F28d** *1/06*

U.S. Cl. 176—63 **6 Claims**



A leak-tight passage is provided for a heat-exchanger shell within an opening formed in the primary vessel wall of a fast reactor. The opening comprises a vertical cylindrical collar surmounted by an annular bell which is rigidly fixed to the heat-exchanger shell and shaped so as to constitute in conjunction with the collar an annular space between the cylindrical collar an annular bell which is maintained unprimed by injecting a gas under pressure into this space.

3,784,444

PROCESS FOR PRODUCING 2-SUBSTITUTED 6-AMINO PURINE RIBOTIDES

Kiyoshi Nakayama, Sagamihara, and Haruo Tanaka, Machida, both of Japan, assignors to Kyowa Hakko Kogyo Co. Ltd., Tokyo, Japan

Filed Oct. 21, 1971, Ser. No. 191,158

Int. Cl. C12d *13/06*

U.S. Cl. 195—28 N **7 Claims**

Ribosyl phosphates of 2-substituted 6-amino purine derivatives are produced by fermentation of an aqueous nutrient medium containing a 2-substituted 6-amino purine derivative or the riboside thereof by organisms of the genera Brevibacterium, Corynebacterium, Arthrobacter and Micrococcus.

3,784,445

CULTURE MEDIUM AND PROCESS FOR THE BIOLOGICAL PRODUCTION OF ALPHA, OMEGA-ALKANEDIOIC ACID

Robert Victor Dahlstrom, and James Herbert Jaehnig, both of Manitowoc, Wis., assignors to E. I. duPont de Nemours and Company, Wilmington, Del.

Filed Dec. 30, 1971, Ser. No. 214,379

Int. Cl. C12b *1/00*

U.S. Cl. 195—28 R **5 Claims**

An aqueous culture medium comprising (1) 3 to 35 grams per liter of alkali metal, calcium nitrate, magnesium nitrate, strontium nitrate and/or beryllium nitrate; (2) 0.3 to 10 grams per liter of alkali metal phosphate; (3) 1 to 15 grams per liter of an alkali metal acetate, calcium acetate, magnesium acetate, strontium acetate and/or beryllium acetate; and (4) a nutrient source; and a process for the production of an alpha,omega-alkanedioic acid of 10 to 16 carbon atoms comprising (1) introducing a mutated strain of Corynebacterium into a composition which has a pH of from 6 to 9 and which comprises 1 to 50 percent by volume of an n-alkane of 10 to 16 carbon atoms and a complemental amount of the culture medium above; (2) maintaining the composition at a temperature between 20° and 45°C. for 48 t0 96 hours; and (3) separating the alpha,omega-alkanedioic acid from the resulting mixture.

3,784,446

METHOD OF PRODUCING L-GLUTAMIC ACID BY FERMENTATION OF AROMATIC ORGANIC COMPOUNDS

Hiroshi Nishida, Yamato; Masao Yamamoto, Yatsushiro; Atsuo Kitai, Kamakura; Asaichiro Ozaki, Tokyo; Yukio Nishimura, Kamakura; Hiroto Takemi, and Chimo Takemi, both of Yatsushiro, all of Japan, assignors to Ajinomoto Co., Inc. and Sanraku Ocean Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 13,830, Feb. 24, 1970, abandoned. This application Mar. 8, 1972, Ser. No. 232,950

Claims priority, application Japan, Mar. 11, 1969, 44-17974; Mar. 11, 1969, 44-17975; Aug. 20, 1969, 44-65326; Dec. 10, 1969, 44-98634

Int. Cl. C12d *13/06*

U.S. Cl. 195—30 **8 Claims**

L-Glutamic acid is produced by culturing glutamic acid producing strains of Brevibacterium, Corynebacterium, Microbacterium, and Micrococcus on media which provide catechol, benzyl alcohol, benzoic acid, hydroxybenzoic acid, phenylacetic acid, protocatechuic acid, phenol and other aromatic compounds as at least 70 percent (by weight) of the carbon sources available during fermentation.

3,784,447

MYCAROSYL MACROLIDE ANTIBIOTICS

Robert John Theriault, Kenosha, Wis., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Apr. 17, 1972, Ser. No. 246,095

Int. Cl. C12k *1/00*

U.S. Cl. 195—81 **6 Claims**

Covers the desisovaleryl derivative of niddamycin. Also covers a method of performing the microbial conversion of niddamycin, magnamycin A, magnamycin B, leucomycin A_1 and leucomycin A_3 to the corresponding desisovaleryl derivatives.

3,784,448

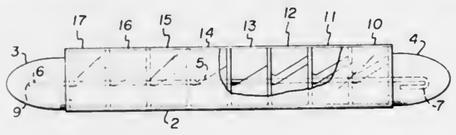
DIAGNOSTIC DEVICE

Thomas Cekoric, Jr., Hopatcong, and Patrick Michael Yananton, Garfield, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 25, 1972, Ser. No. 256,984

Int. Cl. C12k *1/10*

U.S. Cl. 195—139 **6 Claims**



Compartmented tube containing pre- prepared culture media for the differential identification of microorganisms, particularly, organisms of the family *Enterobacteriaceae*. The improvement comprises inserting a rigid member into the device after innoculation is effected, said rigid member being preferentially provided by severing a scored innoculation wire rod which extends through the tube. It further comprises the use of a material to overlay the media which biochemically reacts under anaerobic conditions.

3,784,449

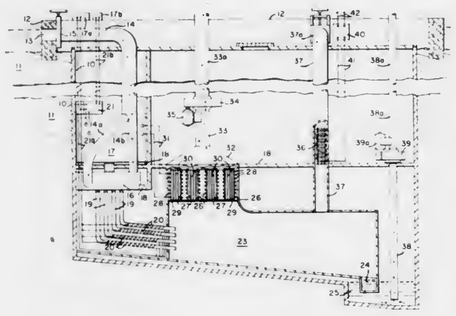
APPARATUS AND METHOD FOR GENERATING ELECTRICITY

George E. Merrill, 266 Sposito Cir., San Jose, Calif.

Filed Mar. 15, 1971, Ser. No. 124,002

Int. Cl. B01d *3/00*

U.S. Cl. 202—180 **3 Claims**



A turbine driven high frequency generator located in a chamber at the bottom of a deep hole in the earth or on the ocean floor thereby providing a natural head with respect to the turbine that is great enough to drive the generator which has a generating capacity sufficient to vaporize a substantial part of the water supplied to furnaces from the turbine. The steam produced in the furnaces is piped upward to a condenser, located at or near the surface, in which it is condensed into potable water and the water supplied to the turbine passes through the condenser to be preheated before dropping through said head to the turbine.

3,784,450

EVAPORATORS WITH MIXING CONDENSERS

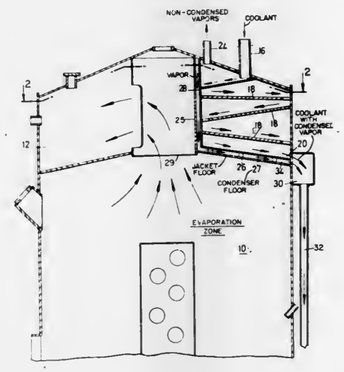
Anthonie Van Hengel, Westville, South Africa, assignor to Hulett's Sugar Corporation Limited

Filed May 17, 1971, Ser. No. 144,183

Claims priority, application South Africa, May 18, 1970, 70/3313

Int. Cl. B01d *3/00*

U.S. Cl. 202—185 **5 Claims**



A condenser zone is located inside an evaporator above an evaporation zone, the condenser zone having an inlet for coolant and an outlet for condensate, the condenser zone being insulated on those surfaces that are cooled to prevent condensed vapours falling back into the evaporation zone.

3,784,451

METHOD OF FABRICATING A COMPOSITE MOLD HAVING A RESIN-IMPREGNATED METAL MOLDING SURFACE

Paul Johnson Garner, Thorp Bay, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation-in-part of Ser. No. 886,782, Dec. 19, 1969, abandoned. This application Apr. 24, 1972, Ser. No. 246,924

Claims priority, application Great Britain, June 23, 1969, 31606/69

Int. Cl. C73b *5/60*

U.S. Cl. 204—20 **11 Claims**

Producing a mould, particularly a prototype mould by spraying a metal shell on to model; impregnating the metal shell with a curable resin so that it is no longer porous, electroplating the shell to form a moulding surface and backing the shell to produce a mould.

3,784,452
METHOD OF TREATING THE SURFACE OF SUPERCONDUCTING NIOBIUM CAVITY RESONATORS

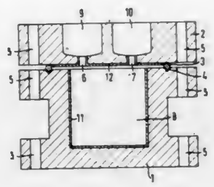
Hans Martens; Heinrich Diepers; Alfred Muller, and Rai-Ko Sun, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Feb. 10, 1972, Ser. No. 225,110

Claims priority, application Germany, Feb. 12, 1971, 2106628

Int. Cl. C23b *5/56, 5/50*

U.S. Cl. 204—26 **8 Claims**



A process for improving the surface quality of superconducting niobium cavity resonators. The process comprises at least partially providing the resonator cavity with a niobium oxide layer by anocid oxidation.

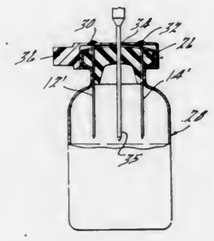
3,784,453
PROCESS AND APPARATUS FOR MAKING RADIOACTIVE LABELED PROTEIN MATERIAL

Howard J. Dworkin, 5581 Tadworth Pl., Birmingham, Mich., and Robert F. Gutkowski, 36824 Manning Ct., Sterling Heights, Mich.

Filed Dec. 16, 1970, Ser. No. 98,574

Int. Cl. B01k *1/00*

U.S. Cl. 204—131 **14 Claims**



A closed sterile electrolytic system for tagging human serum albumin and other compounds and/or substances including proteins with a radioactive isotope, such as the 99m isotope of technetium, producing a radioactive tracer material which is suitable for biological studies and medical uses.

3,784,454
ADDITIVE FOR THE ELECTRODEPOSITION OF COPPER

Derek Martin Lyde, Stourbridge, England, assignor to Albreght & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England

Division of Ser. No. 63,954, Aug. 14, 1970, Pat. No. 3,674,660, which is a continuation-in-part of Ser. No. 724,225, April 25, 1968, abandoned. This application Dec. 16, 1971, Ser. No. 209,004

Claims priority, application Great Britain, May 1, 1967, 19989/67

Int. Cl. C23b *5/46*

U.S. Cl. 204—52 R **14 Claims**

Brightener compositions for aqueous copper pyrophosphate electroplating electrolyte consisting essentially of (1) a heterocyclic brightening additive selected from the group consisting of mercaptothiazoles, mercaptobenzthiazoles, mercaptothiadiazoles, mercaptopyrimidines, and mercaptoiminazoles, and (2) an auxiliary brightener selected from the group of step plating inhibitors consisting of imino diacetic acid, malonic acid, cinammic acid, aurine tricarboxylic acid, aliphatic dicarboxylic acids having at least seven carbon atoms, salts of the aforesaid acids and hydroxyethyl cellulose, said auxiliary brightener being in a proportion of from 3:1 to 3:4 based on the weight of said heterocyclic brightener.

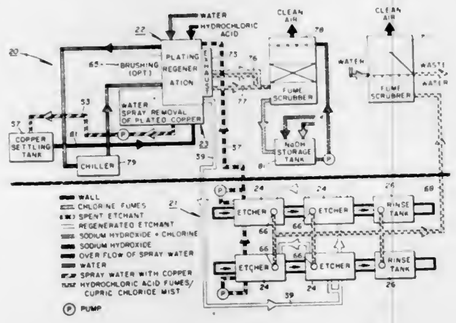
3,784,455
METHODS OF ELECTROLYTIC REGENERATIVE ETCHING AND METAL RECOVERY

Girish D. Parikh, Columbus, and William C. Willard, Reynoldsburg, both of Ohio, assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Dec. 28, 1971, Ser. No. 212,911

Int. Cl. B01k *1/00, 3/00*

U.S. Cl. 204—130 **13 Claims**



Methods and apparatus are disclosed for electrolytically recovering metal from an electrolyte and/or an etchant on specially constructed and configured cathodes. The metal deposits advantageously may be subsequently removed from the cathodes with no mechanical or chemical cathodic stripping operation being required. In a more specific application, the invention relates to a continuous cupric chloride-hydrochloric acid etching system for use in recovering etched copper from articles, such as printed circuit boards, wherein the spent etchant is continuously, or intermittently, electrolytically regenerated and etched copper simultaneously recovered as loose, spongy, fine grain deposits on elongated cathodes preferably having arcuate or curvilinear plating surface profiles. The recovered copper deposits advantageously may be readily removed from the cathodes by passing them through a water spray.

3,784,456
APPARATUS AND METHOD FOR PURIFYING ALKALI METAL HYDROXIDE SOLUTIONS

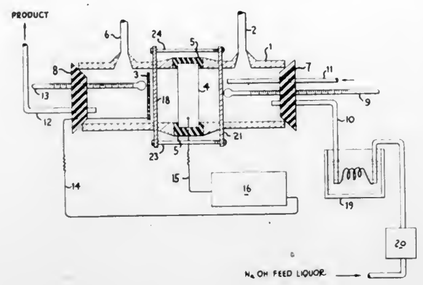
Jack M. Otto, New Martinsville, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 806,173, March 11, 1969, abandoned. This application Mar. 2, 1972, Ser. No. 231,271

Int. Cl. B01k *3/00, 3/04;* **C01d** *1/40*

U.S. Cl. 204—153 **3 Claims**

Aqueous alkali metal hydroxide solutions are purified by passage through a porous cathode of an electrolytic cell having an anode located downstream of the cathode. An electrolytic cell of special construction particularly useful is described.



3,784,457
PROCESS FOR REMOVING ELECTROLYTES FROM AQUEOUS SOLUTION

Yukio Mizutani; Toshikatsu Sata, both of Tokuyama; Ryuji Izuo, Kudamatsu, all of Japan, and Reiichi Yamane, deceased, late of Tokuyama, Japan (by Masako Yamane, heir), assignors to Tokuyama Soda Kabushiki Kaisha, Tokuyama-shi, Yamaguchi-ken, Japan

Filed Sept. 13, 1971, Ser. No. 179,992

Claims priority, application Japan, Sept. 14, 1970, 45-79992/70

Int. Cl. B01d *13/02*

U.S. Cl. 204—180 P **4 Claims**

A process for removing electrolytic substances from water which comprises electrodialyzing an aqueous solution containing electrolytic substances using an ion-exchange membrane to remove the electrolytic substances from the aqueous solution, such exchange membrance consisting of an insoluble, infusible synthetic organic polymer having dissociable ionic groups chemically bonded thereto and having pores through which ions can pass the membrane, at least one substantial surface of the ion-exchange membrane intimately retaining an electrolytic substance having an opposite electric charge to the charge of the ion-exchange group of the ion-exchange membrane and being incapable of passing through the pores of the ion-exchange membrane.

3,784,458
METHOD OF COATING A CONTINUOUS STRIP OF RIBBON RAZOR BLADE MATERIAL

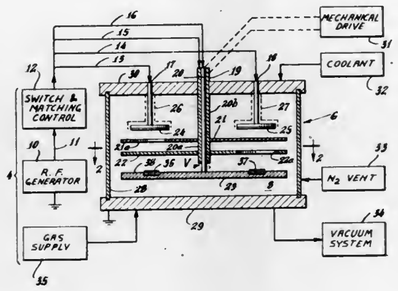
George C. Lane, Danbury, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 144,510, May 18, 1971. This application Apr. 3, 1973, Ser. No. 347,732

Int. Cl. C23c *15/00*

U.S. Cl. 204—192 **6 Claims**

A method and apparatus for placing extremely thin finish coatings on previously sharpened coils of band or ribbon type razor blade material prior to cutting such strips into shorter lengths for eventual inclusion in magazine fed ribbon blade safety razors. The method includes winding a relatively great length of ribbon blade into a helix or coil with an open center, fitting the coil within a special fixture, and placing the coil and fixture within an evacuable chamber wherein one or more coating materials are sputtered onto the blade edge in extremely thin layers under carefully controlled conditions. The chamber, in addition to conventional vacuum system components, includes at least one, and sometimes plural electrodes, each adapted to receive thereover a target plate containing a coating of the material to be sputtered therefrom and onto the blade edge. A shutter arrangement is provided to shield the blade edge against contamination during the time the target is being cleaned in vacuo prior to coating, and to protect the target from contamination when the blade edge is being sputter etched in order to clean it before coating. Means are provided for indexing the shutter to desired positions for these operations and for rotating the fixture so as to cause portions of the blade coil to be passed successively adjacent the target in facing relation thereto when the shutter is indexed so as to provide a generally perpendicular line of sight between the target and the portion of the blade coil facing the target.



The fixture is preferably in the form of a disc with an annular groove therein for receiving the blade coil and for providing controlled exposure of the edge portion thereof, while the shutter preferably is in the form of one or more rotatably mounted apertured plates. The sputtering process includes the formation of a plasma within the evacuated chamber by the ionization of an otherwise inert or non-reactive gas; the coating materials may be metals or alloys as well as dielectric materials such as organic plastics applied to the edge for imparting lubricity thereto. Coating thicknesses range from about 50 Angstroms or less up to several hundred Angstroms or more, but, in any case, are insufficiently thick to dull the previously sharpened blade edge.

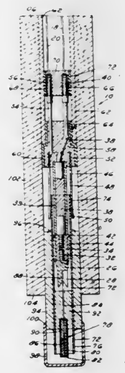
3,784,459
DEVICE FOR DETERMINING THE ACTIVITY OF OXYGEN IN MOLTEN METAL

Paul L. Jackson, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed June 12, 1972, Ser. No. 261,896

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 S **9 Claims**



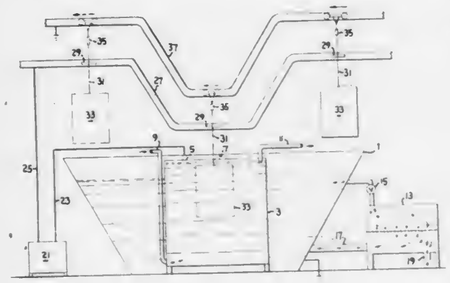
A device for determining the activity of oxygen in molten metal is disclosed. The device has a reusable portion which is

used during each oxygen determination. The device also has an expendable portion which is consumed in the molten metal during each oxygen determination. A feature of the device is that no fine wires are utilized in connecting the expendable portion to the reusable portion. In the expendable portion of the device, a half cell comprising a solid electrolyte and an oxygen reference material is protected from thermal and mechanical shock upon its immersion into the molten metal. Another feature of the device is that the expendable portion can be easily attached to the reusable portion.

3,784,460
COMBINED ELECTRODIALYSIS AND ULTRAFILTRATION OF AN ELECTRODEPOSITION BATH

Louis R. Le Bras, Gibsonia, and Robert R. Zwack, New Kensington, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 123,299, March 11, 1971, Pat. No. 3,663,406. This application Mar. 13, 1972, Ser. No. 234,007
Int. Cl. B01d *13/02*; **B01k** *5/02*; **C23b** *13/00*
U.S. Cl. 204—301 **4 Claims**



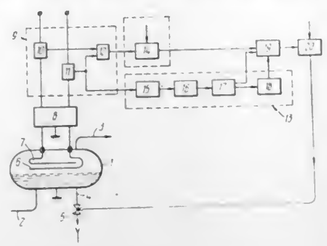
A method of controlling undesirable components in an electrodeposition bath comprising a film-forming vehicle resin in an aqueous medium, by subjecting at least a portion of the electrodepositable composition, simultaneously or at a separate time, to an electrodialysis process in conjunction with a selective separation process whereby process parameters and the properties of the deposited film are maintained.

3,784,461
DEVICE FOR CONTROLLING THE PROCESS OF DESALTING AND DEHYDRATION OF OIL IN AN ELECTRIC DEHYDRATOR

Boris Isaakovich Kusovsky, Trolleibusny pereulok, 21, kv. 32; Nikolai Ivanovich Pavlov, Oktyabrskaya ulitsa, 39, kv. 30; Anatoly Petrovich Matiichenko, Pervomaisky prospekt, 29/2, kv. 20; Sergei Alexandrovich Zakharov, Pervomaisky prospekt, 32, kv. 15, and Anatoly Fedorovich Kirilin, 3 Linia, 2, all of Ryazan, U.S.S.R.

Filed June 1, 1972, Ser. No. 258,582
Int. Cl. B01d *13/02*
U.S. Cl. 204—306 **1 Claim**

A device for controlling the process of desalting and dehydration of oil in an electric dehydrator having two electrodes comprising a current difference detector responding to the currents in the circuits of said electrodes and being connected to an error detector comparing the real value of the currents in the electrode circuits with a specified value, the output of said error detector being connected to the actuating mechanism of a valve controlling the discharge of the salt water and mud sludge from the electric dehydrator; inserted

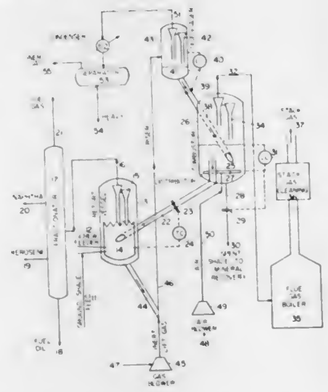


between the current difference detector and the error detector is a unit shaping a signal corresponding to the real value of the currents in the circuits of the electrodes.

3,784,462
PROCESS AND APPARATUS FOR OIL SHALE RETORTING

George W. Frick, Mercerville, N.J., assignor to Cities Service Research & Development Company, Cranbury, N.J.

Filed Feb. 25, 1971, Ser. No. 118,795
Int. Cl. C10g *1/02*
U.S. Cl. 208—11 **10 Claims**



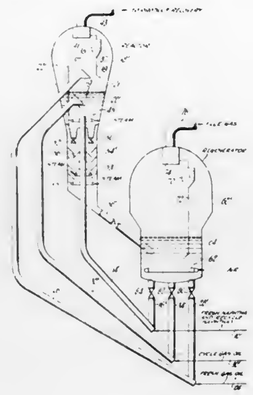
A process and apparatus are disclosed for the continuous steady state retorting of ground oil shale in the absence of air. Retorting is accomplished by countercurrently contacting heated spent oil shale with fresh ground oil shale in a vessel from which air is excluded. The spent oil shale is heated by combustion of its carbonaceous residue to form a hot heat transfer medium which, when contacted with fresh oil shale in the retorting process, provides the energy for the recovery of hydrocarbons.

3,784,463
CATALYTIC CRACKING OF NAPHTHA AND GAS OIL

David L. Reynolds, Nederland; Douglas J. Youngblood, Groves; Dorrance P. Bunn, Jr., Houston, and Roy E. Pratt, Groves, all of Tex., assignors to Texaco Inc., New York, N.Y.

Filed Oct. 2, 1970, Ser. No. 77,479
Int. Cl. C10g *11/18, 37/02*; **B01j** *9/20*
U.S. Cl. 208—74 **29 Claims**

Low octane naphtha and fresh gas oil are catalytically cracked with a zeolite catalytic cracking catalyst in separate elongated reaction zones yielding a naphtha having an increased octane rating. Recovering a naphtha fraction, particularly a heavy naphtha fraction, from the cracked product, and combining it with the fresh naphtha feed, further enhances the octane rating of the naphtha product. A cycle gas oil may be recovered from the reactor effluent and combined with the

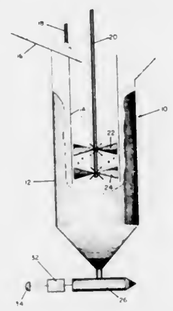


fresh naphtha feed or introduced into a separate (a third) elongated reaction zone to effect maximum recovery of naphtha and lighter stocks having improved product quality. Optionally, any of the feedstocks may be subjected to further cracking in a dense bed of the zeolite catalyst.

3,784,464
PROCESS FOR WASHING SECONDARY SEPARATOR FROTH TO RECOVER BITUMEN

Victor Paul Kaminsky, Edmonton, Alberta, Canada, assignor to Canada Cities Service Ltd.; Imperial Oil Ltd.; Atlantic Richfield Canada, Ltd. and Gulf Oil Canada, Ltd., part interest to each

Filed Dec. 23, 1971, Ser. No. 211,549
Int. Cl. C10g *1/00*
U.S. Cl. 208—11 **1 Claim**



Disclosed herein is a process for the separation of bitumen from Athabasca tar sands in which a secondary-separator froth stream is produced consisting primarily of bitumen entrained in tailings waters. The process comprises mixing the secondary-separator froth with fresh hot water and feeding the mixture downwardly through the inner zone formed by the draft tube, while preventing the mixture from rotating and forming a vortex, engaging the mixture in the tube by a downthrow impeller and then engaging the mixture in the tube by an up-throw impeller, to aid in the separation of the bitumen from the solids in the froth, passing the mixture into a lower quiescent settling zone, floating the bitumen to the surface of the liquid in the annulus formed by the draft tube, removing the floating bitumen from above the liquid level, removing the solids and water from the settling zone.

3,784,465
TREATMENT OF GASES AND LIQUIDS

Thomas Nicklin, Middleton, and Frederick Farrington, Sale, both of England, assignors to The Gas Council, London, England

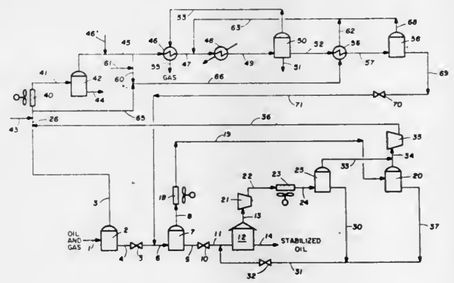
Division of Ser. No. 843,832, July 22, 1969, Pat. No. 3,714,328. This application July 27, 1972, Ser. No. 275,697
Int. Cl. C10g *27/00, 23/02*
U.S. Cl. 208—208 R **10 Claims**

Gases or liquids are steam desulphided in the presence of a catalyst containing a uranium oxide together with a thorium oxide and/or a cobalt oxide. Air may also be present. The process is useful for desulphiding inorganic gases, for example effluent gases and for desulphiding organic compounds such as oils.

3,784,466
OIL AND GAS TREATMENT

Thomas B. Arnold; Eugene B. Byrnes, both of Dallas, and Alonzo R. Castoe, Irving, all of Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Division of Ser. No. 100,905, Dec. 23, 1970, Pat. No. 3,702,296. This application July 28, 1972, Ser. No. 276,143
Int. Cl. C10g *7/00*
U.S. Cl. 208—361 **8 Claims**

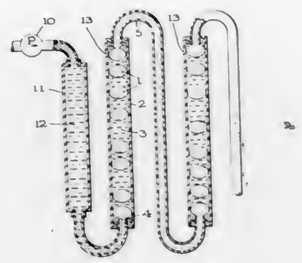


Methods for treating oil and gas to stabilize the oil by removing the gas and to make the gas meet specifications such as dew point. The oil is stabilized by subjecting same to flash conditions and the extent of flashing is controlled by adding to the oil a more volatilizeable material of varying liquid and gas content. The gas is prepared to meet specifications by cooling followed by contacting with at least one solvent which has a greater affinity for heavier hydrocarbons, carbon dioxide, hydrogen sulfide, and water than for methane, ethane, and propane.

3,784,467
DROPLET COUNTERCURRENT CHROMATOGRAPHY

Takenori Tanimura, Tokyo, Japan, and Yoichiro Ito, Chevy Chase, Md., assignors to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare

Filed May 26, 1971, Ser. No. 147,133
Int. Cl. B01d *15/08*
U.S. Cl. 210—31 C 7 Claims

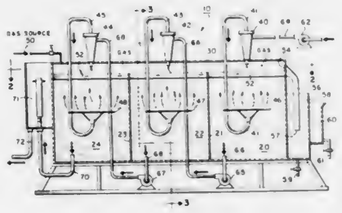


A droplet countercurrent chromatographic all-liquid separation technique for partitioning a solute between a steady stream of droplets of moving phase and a column of surrounding stationary liquid phase. Milligram quantities of biochemicals may be separated using this process.

3,784,468
SYSTEM AND METHOD FOR SEPARATING HEAVIER AND LIGHTER COMPONENTS OF LIQUID MIXTURES

Juan A. Garcia, Houston, Tex., assignor to Esso Production Research Company

Filed Sept. 20, 1971, Ser. No. 181,989
Int. Cl. B01d *17/02*
U.S. Cl. 210—44 14 Claims



A mixture of liquids capable of gravity separation, such as oil and water, is charged with gas or aerated in a cyclone. The aerated liquid mixture is then separated in a flotation chamber or cell. The lighter liquid component floats to the surface of the liquid mixture in the flotation cell aided by the rising gas in the liquid mixture. Several cyclone-flotation cells may be connected together in series in which arrangement the heavier separated component mixed with the lighter unseparated component is cycled from a particular flotation cell to the next succeeding cyclone-flotation cell.

3,784,469
PROCESS OF PREVENTING SCALE AND DEPOSIT FORMATION IN AQUEOUS SYSTEMS

Friedrich Krueger, Edingen, and Lieselotte Bauer, Bad Duerkheim, Germany, assignors to Joh. A. Benckiser GmbH, Chemische Fabrik, Ludwigshafen (Rhine), Germany

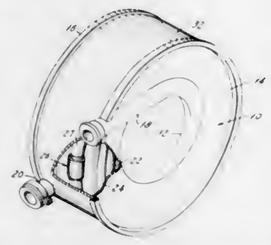
No Drawing. Filed June 16, 1972, Ser. No. 263,610
Claims priority, application Germany, July 1, 1971, P 21 32 802.9
Int. Cl. C02b *5/06*
U.S. Cl. 210—58 15 Claims

Scale and deposit formation in aqueous systems is prevented or suppressed by the addition thereto of cyclohexane-1,2,3,4,5-pentacarboxylic acid preferably in substoichiometric amounts calculated for the scale and hardness causing compounds present in such aqueous systems. A synergistic effect is achieved by the admixture of substoichiometric amounts of amino alkylene phosphonic acids or alkane phosphonic acids.

3,784,470
COMPOSITE COILED MEMBRANE ASSEMBLY

John Lloyd Richardson and Gilbert Segovia, Santa Ana, Fred Ju, Huntington Beach, and Wilfred Hugo Bachle, Long Beach, Calif., assignors to Philco-Ford Corporation, Blue Bell, Pa.

Filed Nov. 20, 1972, Ser. No. 308,120
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 5 Claims



Separate lengths of semipermeable membrane suitable for reverse osmosis and ultrafiltration are connected to each other by a short, strong connector assembly. The resulting assembly is wound onto a spool shaped housing in a helical multi-layered coil. A compressible or elastomeric pad separates the inner diameter of the coil from the hub of the housing to absorb dimensional changes caused by pressurization of the membrane during its operation in a reverse osmosis system. The connector assembly preferably includes soft elastomeric extensions on each end of an inner member which fits inside the connected ends of the membrane to dissipate stress concentrations.

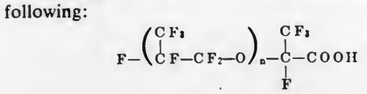
3,784,471
SOLID ADDITIVES DISPERSED IN PERFLUORINATED LIQUIDS WITH PERFLUOROALKYL ETHER DISPERSANTS

Robert Kaiser, Cambridge, Mass., assignor to Avco Corporation, Cincinnati, Ohio

No Drawing. Filed May 11, 1970, Ser. No. 36,429
Int. Cl. C10m *3/02, 3/06, 3/24*
U.S. Cl. 252—21 11 Claims

Stable dispersions of a wide variety of solids, e.g. magnetite, silica, carbon black, graphite, and the like, are provided in perfluorinated liquids. The colloids provided by the present invention can be utilized in the same fashion as hydrocarbon based colloidal dispersions,

and additionally, because of the particular characteristics of the carrier medium, have the additional advantages of immiscibility with both hydrocarbon and aqueous media. Thus, the ferrofluids formed by dispersing magnetic particles in accordance with the present invention are particularly useful as seal fluids. They can be positioned in space by a magnetic field. The stable dispersions are formed by dispersing finely divided solids of up to about one micron in the presence of a perfluorinated liquid, such as Freon E or Krytox oil and a surfactant having the following:



where n is an integer of from 3 to 50.

3,784,472
ANTI-CORROSION LUBRICATING COMPOUND

Stanley J. Caplan, Northridge, Calif., assignor to Accralube Company, Northridge, Calif.

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,576
The portion of the term of the patent subsequent to Feb. 22, 1989, has been disclaimed
Int. Cl. C10m *5/14*
U.S. Cl. 252—25 10 Claims

An improved heavy duty coating composition for protection against corrosion of metallic substrates and for lubrication of metallic parts comprises a substantially uniform mixture of at least about 40 weight percent of a selected lead compound in particulate form and an essentially homogeneous grease-containing vehicle. The vehicle comprises a major proportion of grease, preferably heavy duty grease, and a minor proportion of lubricating oil, preferably high pressure lubricating oil. The grease-containing vehicle is non-separating and preferably the grease is present in the vehicle in a weight ratio to the oil of about 3:1. The lead compound is selected from the group consisting of lead carbonate, lead subcarbonate and mixtures thereof.

3,784,473
LUBRICATING OIL COMPOSITIONS

Alphonso W. Marcellis, Boonton, and Paul M. Kerschner, Trenton, N.J., assignors to Cities Service Oil Company, Cranbury, N.J.

No Drawing. Filed Apr. 26, 1971, Ser. No. 137,668
Int. Cl. C10m *1/36*
U.S. Cl. 252—51.5 A 4 Claims

An additive having detergency properties for incorporation in lubricating oils and lubricating oil compositions containing sad additve. The addtive s the condensation product of an aliphatic polyamine and a mixture of a monocarboxylic acid and a polyhalo aliphatic acid having a terminal —CF_3 group in which at least 50% of the amino groups of the polyamine are converted to amide groups by condensation with the mixture of acids. The preferred lubricating oil composition is a 2-cycle engine oil comprising a major proportion of a hydrocarbon lubricating oil and a minor proportion of the additive of this invention.

3,784,474
LUBRICATING OIL COMPOSITION

Stuart Houston Brown, San Rafael, and Warren Lowe, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Mar. 13, 1972, Ser. No. 234,398
Int. Cl. C10m *1/32*
U.S. Cl. 252—51.5 R 9 Claims

A lubricating oil composition containing a hydrocarbyl substituted amine ashless detergent where the hydrocarbyl substituent contains at least 40 carbon atoms, a polyoxyalkylene derivative, and an alkaline earth metal carbonate dispersed in the oil to provide an alkalinity value of about 10 mg. KOH/g. These compositions are found to be highly rust and corrosion inhibitory while also possessing the ability to reduce or prevent the formation of varnish, sludge and deposits on the inner metallic surfaces of internal combustion engines. The preferred polyoxyalkylene derivatives are the polyoxyalkyene polyols or oxaalkanols.

3,784,475
DETERGENT COMPOSITIONS CONTAINING OXIDIZED POLYSACCHARIDE BUILDERS

Francis L. Diehl, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Continuation of abandoned application Ser. No. 802,255, Feb. 25, 1969. This application Nov. 17, 1971, Ser. No. 199,812
Int. Cl. C11d *3/02*
U.S. Cl. 252—89 6 Claims

Detergent and laundering compositions comprising an organic water-soluble synthetic detergent and a water-soluble oxidized polysaccharide builder in a proportion by weight of detergent to builder of 10:1 to about 1:20; the builder having a degree of carboxylation of 1.0 to 3.0, an equivalent weight of 68 to 200, a degree of polymerization, n, of 20 to 30,000 and a molecular weight of 4,000 to 5,000,000.

3,784,476
DETERGENT COMPOSITION

Daniel Marten van Kampen, Vlaardingen, and Jacobus Hendricus Marinus Weenen, Brielle, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 161,970, July 12, 1971, which is a continuation of application Ser. No. 767,511, Oct. 14, 1968, both now abandoned. This application Dec. 17, 1971, Ser. No. 209,460
Claims priority, application Luxembourg, Oct. 16, 1967, 54,673
Int. Cl. C11d *7/42*
U.S. Cl. 252—109 4 Claims

A particulate enzyme-containing detergent composition contains a detergent surface-active agent, a water-soluble builder salt and discrete, shaped inorganic solids containing proteolytic or amylolytic enzymes.

3,784,477
PAINT REMOVAL COMPOSITIONS

Raymond G. Esposito, R.F.D. 2, Union, Maine 04862

No Drawing. Continuation-in-part of application Ser. No. 5,944, Jan. 26, 1970, which is a continuation-in-part of application Ser. No. 670,428, Sept. 25, 1967, both now abandoned. This application Aug. 13, 1971, Ser. No. 171,760
Int. Cl. C09d *9/00*
U.S. Cl. 252—162 11 Claims

Paint and other finishes can be readily and safely removed from even the most delicate pieces of furniture by using a mixture of (1) xylol or aromatic naphthas with (b) at least 5 parts per hundred of either dimethylformamide, dimethylacetamide, or mixtures thereof. A preferred mixture is that of approximately 20% dimethylformamide with approximately 80% of xylol to form an azeotropic mixture. The object is immersed or sprayed in a tank with the mixture which is allowed to remain on the surface until it is softened. Then the swollen finish is removed by washing with fresh mixture and air-dried.

3,784,478
CONTROL OF NITROGEN OXIDES FROM COMBUSTION PROCESS EFFLUENTS

Elmar R. Altwicker, Elnora, and Richard E. Gibbs and Nicholas P. Kolak, Troy, N.Y., assignors to Argo Research International, Ltd., New York, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,305
Int. Cl. B01d *47/02*; C09k *3/00*
U.S. Cl. 252—192 6 Claims

A process for the removal of nitrogen containing compounds from a gas containing a mixture of the same com-

prising contacting the gas with a composition comprising an electron donor compound, water, and an alkali compound.

3,784,479
FOAM CONTROL COMPOSITION
Joseph W. Keil, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed May 15, 1972, Ser. No. 253,617
Int. Cl. B01d *17/00*
U.S. Cl. 252—358 **8 Claims**

A composition for controlling foam is disclosed which comprises a base oil of polyoxypropylene polymers, polyoxypropylene -polyoxyethylene copolymers or siloxane glycol copolymers, a foam control agent comprising a liquid polydimethylsiloxane, 88–95 parts by weight, and 0.1–10 percent by weight of a siloxane copolymer dispersing agent. Silica may also be present.

3,784,480
CEDAR POLYPHENOLS AND THIODIPROPIONIC ACID AS ANTIOXIDANTS FOR USE IN ANIMAL FATS AND VEGETABLE OILS
Arthur Karchmar, Clifton, N.J., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
No Drawing. Application Feb. 2, 1970, Ser. No. 8,054, now Patent No. 3,628,971, which is a continuation-in-part of application Ser. No. 690,755, Dec. 15, 1967, now Patent No. 3,573,936. Divided and this application Nov. 1, 1971, Ser. No. 194,602
Int. Cl. A23d *5/04;* **C11b** *5/00*
U.S. Cl. 252—404 **7 Claims**

Mixtures of cedar polyphenols and thiodipropionic acid exhibit synergistic antioxidant effects when added to animal fats and vegetable oils and foodstuffs containing these materials. The amount of the polyphenol component of the mixture should be at least equal to the amount of thiodipropionic acid therein. These cedar polyphenol-thiodipropionic acid additives greatly increase the storage life of fats and oils when added thereto in amounts of at least about 50 parts per million.

3,784,481
HYDROGENATION CATALYSTS CONTAINING A TRANSITION METAL SALT AND AN ALUMINUM HYDRIDE COMPOUND
Christian Lassau, Paris, Robert Stern, Marly-le-Roi, and Lucien Sajus, Croissy-sur-Seine, France, assignors to Institut Francais du Petrole, Des Carburants et Lubrifiants, Rueil-Malmaison, France
No Drawing. Continuation-in-part of application Ser. No. 856,251, Sept. 5, 1969, now Patent No. 3,663,635. This application Apr. 5, 1971, Ser. No. 131,495
Claims priority, application France, Apr. 6, 1970, 7012441; Dec. 23, 1970, 7046582
Int. Cl. C07c *5/02*
U.S. Cl. 252—431 C **12 Claims**

In a process of hydrogenating an unsaturated organic compound capable of being reduced, e.g., olefins, in the presence of Ziegler-type catalysts, substantial advantages are obtained by using as the organo metallic reducing agent an aluminum hydride of the formula:

$$AlH_nX_{3-n} \text{ or } Me(AlH_mX'_{4-m})_p$$

wherein

n is 1 or 2,
m is 1,2, or 3,
Me is a metal of Group Ia or IIa of the Periodic Table,
p is the valence of the metal Me,
X is OR, NR_2, NHR or SR,
X′ is R, OR, NR_2, NHR or SR,
R, taken separately, is a monovalent hydrocarbon, and when taken in pairs represents —A—Z—B— wherein A and B each is alkylene, and Z is alkylene, an oxygen or sulfur atom, a NH or N-hydrocarbyl group or a polyvalent metal.

3,784,482
HYDROCARBON SOLUBLE PHOSPHORUS-MODIFIED MOLYBDENUM CATALYSTS
Stanley Bruce Cavitt, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Dec. 28, 1970, Ser. No. 102,138
Int. Cl. C07d *1/08*
U.S. Cl. 252—431 P **8 Claims**

Stable, homogeneous phosphorus-modified molybdenum catalysts are prepared by incorporating phosphorus ligands into molybdenum compounds. The molybdenum compounds are prepared by reacting an ammonia-containing molybdate with a hydroxy compound, for example, an organic primary or secondary alcohol, a glycol or a phenol. The hydrocarbon-soluble phosphorus-modified molybdenum solutions are useful as homogeneous oxidation catalysts, particularly for the oxidation of olefins to olefin oxides. Olefin oxides are useful in the manufacture of non-toxic antifreeze, urethane-grade polyols and many other applications. The catalysts of the invention may also be used as metal-plating solutions, lubricant additives, pigments, ammoxidation catalysts, printing inks, or solution components for organic laser devices. They may also be used as catalysts or co-catalysts for various polymerization processes, such as homopolymerization of isocyanates, isocyanate-polyol reactions, or olefin oxide polymerization reactions.

3,784,483
COBALT, IRON, PHOSPHORUS AND OXYGEN CONTAINING OXIDATIVE DEHYDROGENATION CATALYST
Robert S. Cichowski, Arroyo Grande, Calif., assignor to Phillips Petroleum Company
No Drawing. Filed May 6, 1971, Ser. No. 140,969
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 **4 Claims**

Organic compounds are dehydrogenated to compounds having a higher degree of unsaturation by contacting the feedstock in the vapor phase in the presence of an oxygen-containing gas with a catalyst comprising cobalt in association with iron, phosphorus and oxygen. Representative of such conversions is the oxidative dehydrogenation of isopentane to isoprene and isoamylenes. The conversion products are valuable compounds particularly useful as intermediates for the preparation of polymeric materials such as synthetic rubbers and the like.

3,784,484
ACTIVITY AND STRENGTH PROPERTIES OF REFORMING CATALYSTS BY ALUMINUM CHLORIDE LEACHING
William B. Innes, Upland, Calif., Malden W. Michael, Norwalk, Conn., and Stephen F. Adler, Santa Claus, Ind., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 444, Jan. 2, 1970. This application Mar. 8, 1972, Ser. No. 232,932
Int. Cl. B01j *11/12*
U.S. Cl. 252—442 **4 Claims**

This invention relates to platinum-alumina reforming catalysts and particularly to a process for manufacturing such catalysts which includes the step of leaching alumina with aluminum chloride.

3,784,485
OXIDATIVE DEHYDROGENATION CATALYST
Edward S. J. Tomezsko, Media, Pa., assignor to Atlantic Richfield Company, New York, N.Y.
No Drawing. Original application Mar. 16, 1971, Ser. No. 124,979, now Patent No. 3,697,614. Divided and this application Apr. 17, 1972, Ser. No. 244,995
Int. Cl. B01j *11/06, 11/22*
U.S. Cl. 252—467 **5 Claims**

Method for the oxidative dehydrogenation of paraffins to produce olefins by contacting the paraffins with molecular oxygen in the presence of molten alkali metal hydroxides, aluminum, and a soluble transition metal oxyanion included in the molten alkali metal hydroxide.

3,784,486
α,α-CARBOXYALKOXY SUCCINIC ACID COMPOUNDS AS DETERGENT BUILDERS AND SEQUESTERING AGENTS
Gunner E. Nelson and Tillmon H. Pearson, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.
No Drawing. Filed June 16, 1971, Ser. No. 153,816
Int. Cl. C02b *5/06;* **C11d** *3/20*
U.S. Cl. 252—546 **10 Claims**

To obviate eutrophication of water, non-phosphorus detergent builders and sequestering agents are provided. These are either

(a) α,α′-carboxyalkoxy succinic acids wherein the carboxyalkoxy radicals contain from 2 to about 7 carbon atoms,
(b) water soluble salts of such acids

or mixtures of (a) and (b). Conventional detergent actives may be used with these builders.

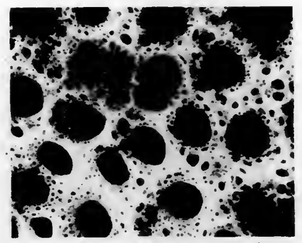
3,784,487
PROCESS FOR MAKING A FOAM FROM A COMPOSITION COMPRISING BITUMINOUS MASSES, A NOVOLAC, AND HEXAMETHYLENETETRAMINE
Heinz-Gerhard Franck and Walter Metzendorf, Duisburg-Meiderich, and Erich Schweym, Herbert Beneke, Rolf Marrett, Jozef Nijssen, and Jaafar Omran, Castrop-Rauxel, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Germany
No Drawing. Continuation of abandoned application Ser. No. 885,308, Dec. 15, 1969. This application Apr. 5, 1972, Ser. No. 241,397
Int. Cl. C08j *1/14*
U.S. Cl. 260—2.5 F **28 Claims**

Foam materials of cellular structure are prepared from mixtures of bituminous materials with novolak by expanding and hardening said mixtures in molten condition by crosslinking and propelling. The molten mixture is preferably expanded and hardened by the incorporation therein of hexamethylenetetramine which acts as a crosslinking as well as hardening and propelling agent. The resulting inexpensive materials of cellular structure have satisfactory isolating characteristics, good mechanical resistivity, high resistance to temperature changes, considerable chemical stability and are not inflammable.

The foaming and hardening process according to the invention can be favorably influenced by subjecting the molten mixture of bituminous materials and novolak to a short pretreatment consisting of adding thereto a small amount of hexamethylenetetramine at about 150°–160° C.

3,784,488
PROCESS AND COMPOSITIONS FOR PREPARING UNIQUE FILMS HAVING A MULTIPLICITY OF VOIDS AND AN ORGANIC MATERIAL CONTAINED THEREIN
Alfred F. Steinhauer and Otis R. McIntire, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of abandoned application Ser. No. 799,873, Feb. 17, 1969. This application Feb. 14, 1972, Ser. No. 225,994
Int. Cl. C08j *1/14*
U.S. Cl. 260—2.5 M **22 Claims**

Novel film forming solution compositions which contain a high level of a non-volatile liquid organic compound in proportion to the film forming polymer are capable of forming unique coherent films having a multiplicity of voids which contain therein the organic compound. Important to obtaining the unique films of the invention is the requirement that the polymer be insoluble



in the organic compound and immiscible therewith and be more soluble in the solvent than the organic compound.

3,784,489
ANION EXCHANGE RESINS FROM ALKYLATED CONDENSATION POLYMERS OF POLYETHYLENEIMINE AND DIHALOALKANES
Mark Dales, 1114 Churchill Road, Southampton, Pa. 18966, and Jong Jai Whang, 294–18 Fee-Kyong Bong, Bong-Dae-Moon-Gu, Seoul 131, South Korea
No Drawing. Filed Mar. 6, 1972, Ser. No. 232,272
Int. Cl. C08g *33/08*
U.S. Cl. 260—2.1 C **13 Claims**

Anion exchange resins are produced by (a) condensing polyethyleneimine with at least one dihaloalkane, followed by (b) reacting the product of (a) with an alkylating agent to convert substantially all of the nontertiary amine groups in (a) to tertiary or quaternary amine groups.

3,784,490
MICROPOROUS VINYL CHLORIDE POLYMERS AND METHOD OF MAKING THE SAME
Norman B. Rainer, Richmond, and Donald A. Full, Lexington, Va., assignors to Philip Morris Incorporated, New York, N.Y.
No Drawing. Filed Sept. 23, 1971, Ser. No. 183,256
Int. Cl. C08f *29/18, 47/08*
U.S. Cl. 260—2.5 M **16 Claims**

This disclosure relates to a novel process and to novel products. The products comprise shaped structures of a vinyl chloride polymer having an improved microreticulated structure and are made by a process involving the formation of a dispersion of vinyl polymer particles in certain organic liquids which are non-solvents for the polymer, reduced pressure deaeration of the dispersion and heating of the deaerated dispersion to sinter the vinyl chloride polymer particles to form a microreticulated microporous structure. The products of this invention are particularly useful as filter materials and the process of the invention is especially suited for the formation of shaped porous articles, useful as filters.

3,784,491
POLYMERIZATION OF VINYL MONOMERS USING COACERVATE STABILIZING AGENTS CONTAINING GELATIN
Roman L. Pozorski, South Holland, Ill., assignor to Wilson & Co., Inc., Oklahoma City, Okla.
No Drawing. Continuation-in-part of abandoned application Ser. No. 792,153, Jan. 17, 1969. This application May 27, 1971, Ser. No. 147,676
Int. Cl. C08f *45/60*
U.S. Cl. 260—8 **10 Claims**

Significant improvements in the process and product are achieved using a dispersion polymerization method

comprising polymerizing a vinyl monomer in an aqueous medium together with a coacervate of a water-soluble positively-charged, proteinaceous colloid and at least one negatively-charged, water-soluble colloid as a stabilizing agent.

3,784,492

N-(5-NORBORNEN-2-YLMETHYL)CARBAMATE OF CELLULOSE ACETATE

Henry Octave Colomb, Jr., and David John Trecker, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Application Sept. 15, 1970, Ser. No. 72,543, which is a division of application Ser. No. 804,279, Mar. 4, 1969, now Patent No. 3,554,886, which in turn is a continuation-in-part of abandoned application Ser. No. 697,635, Jan. 15, 1968. Divided and this application May 22, 1972, Ser. No. 255,426

Int. Cl. C08g *22/00*

U.S. Cl. 260—13 R **1 Claim**

The N-(5-norbornen-2-ylmethyl)carbamate of cellulose acetate.

3,784,493

AMINOLIGNOSULFONATE-FORMALDEHYDE REACTION PRODUCTS AND PROCESS OF PREPARATION

Jacques Giguere and Jean-Guy Landry, Quebec City, Quebec, Canada, assignors to Dryden Chemicals Limited, Oakville, Ontario, Canada

No Drawing. Original application Nov. 4, 1969, Ser. No. 874,680, now abandoned. Divided and this application Oct. 4, 1971, Ser. No. 186,543

Int. Cl. C08h *5/02, 15/00*

U.S. Cl. 260—17.5 **10 Claims**

The invention relates to the treatment of spent sulfite liquor by changing the base metal lignosulfonates therein to amine lignosulfonates which are then reacted with formaldehyde to produce products which are useful, for instance, as setting control agents in cement, as hydration shale inhibitors, and as fillers in the formation of resins.

3,784,494

PROCESS OF PRODUCING ARTIFICIAL LUMBER FROM UNTREATED SAWDUST, A POWDERED UREA-FORMALDEHYDE RESIN AND WATER

Geza Domokos, 312 Ocean Drive, Miami Beach, Fla. 33139

No Drawing. Filed Mar. 2, 1971, Ser. No. 120,343

Int. Cl. C08g *51/18*

U.S. Cl. 260—17.3 **3 Claims**

This is a process for producing a wood product from natural untreated sawdust and a binder. The binder used is a mixture of powdered incompletely cured thermosetting resin, such as urea-formaldehyde resin and a sufficient amount of a curing agent to fully cure the resin at room temperature. During the process, the binder is mixed with sufficient water to form a paste and the paste is then mixed with the sawdust to form a plastic mass. The mass is molded to the desired shape and completely cured at room temperature and low pressure. It also includes the resulting product which is at least as strong as or stronger than natural wood and is non-flammable, non-warping, non-rotting and resistant to vermin, insects and fugus. It is capable of being nailed, sawed and otherwise shaped with the usual wood working tools.

3,784,495

ROOM TEMPERATURE SOLUBLE MELT-CONDENSED POLYAMIDE INTERPOLYMERS

Jerome William Sprauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,930

The portion of the term of the patent subsequent to Jan. 25, 1989, has been disclaimed

Int. Cl. C08g *20/20*

U.S. Cl. 260—18 N **6 Claims**

Melt-condensed polyamide interpolymers consisting essentially of at least four different recurring polyamide repeat units in which (a) about 35 to 55 percent of the amide equivalents are polymethylene-ω-aminoacid repeat units of 6 to 20 carbon atoms, (b) about 10 to 30 percent of the amide equivalents are diamine diacid repeat units in which the diamine is polymethylene diamine of 6 to 20 carbon atoms and the diacid is polymethylene diacid of 6 to 20 carbon atoms, (c) about 10 to 30 percent of the amide equivalents are diamine diacid repeat units in which the diamine is polymethylene diamine of 6 to 20 carbon atoms and the diacid is polymethylene diacid of 6 to 20 carbon atoms different from the diacid of (b) above, and (d) about 10 to 30 percent of the amide equivalents are diamine diacid repeat units in which the diamine is polymethylene diamine of 6 to 20 carbon atoms and the diacid is polymethylene diacid of 6 to 20 carbon atoms different from the diacids of (b) and (c) above, or dimerized fatty acid of 16 to 48 carbon atoms, are soluble to the extent of at least about 20 percent in common solvents at room temperature.

3,784,496

RUBBER AND AMINE MODIFIED PHENOLIC RESINS

Harry A. Smith and Erwin H. Kobel, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 24, 1972, Ser. No. 229,177

Int. Cl. C08d *9/10;* **C08g** *37/18*

U.S. Cl. 260—29.3 **11 Claims**

Phenolic resin adhesives having improved impact strength are obtained by reacting a phenolic-aldehyde resole with a butadiene rubber or rubber latex and ar-hydroxyaniline or a mixture of hydroxyaniline with aniline or a substituted aniline.

3,784,497

TEXTILE STRENGTHENER

Julius F. T. Berliner, Chicago, Ill., assignor to The Hosiery Mate Company, Chicago, Ill.

No Drawing. Filed Dec. 8, 1971, Ser. No. 206,135

Int. Cl. C08f *29/12*

U.S. Cl. 260—29.6 XA **2 Claims**

An improved textile strengthening agent which renders textiles such as nylon stockings and the like, stronger and more durable. The strengthening agent consists essentially of a plastic emulsion containing polyethylene and an acrylic compound, a cationic agent and at least one soluble chelate selected from the group consisting of zinc and zirconium metal chelates. The strengthening agent is prepared and then added in controlled amounts to the water in which the textile is to be washed or otherwise treated.

3,784,498

PROCESS FOR PREPARING LOW EMULSIFIER SYNTHETIC LATEX

Gary W. Ceska, Coraopolis, Pa., assignor to Sinclair-Koppers Company, Pittsburgh, Pa.

No Drawing. Filed Apr. 21, 1972, Ser. No. 246,143

Int. Cl. C08d *1/09;* **C08f** *1/13*

U.S. Cl. 260—29.6 TA **4 Claims**

A two-step process for preparing latices containing a small amount (0.1%) or no emulsifier comprising (1) polymerizing a 20–30% portion of one or more monomers with from 1–5% by weight based on total monomers of an ethylenically unsaturated carboxylic acid in aqueous acidic emulsion, and (2) adjusting the pH to 7.0–10.0 with aqueous ammonia, adding the remaining portion of monomers and polymerizing in aqueous basic emulsion to complete conversion.

3,784,499

NONFLAMMABLE COATING COMPOSITIONS

Albert C. Krupnick, Huntsville, and Carlo F. Key, Madison, Ala., and Roger J. Harwell, Ardmore, Tenn., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

No Drawing. Continuation-in-part of abandoned application Ser. No. 84,212, Oct. 26, 1970. This application Sept. 26, 1972, Ser. No. 292,382

Int. Cl. C09d *1/04, 5/18*

U.S. Cl. 260—29.6 S **10 Claims**

Nonflammable coating compositions for use in high-oxygen environments include an aqueous suspension of synthetic mica, an alkali metal silicate gelant and a water-base "latex" resin emulsion. Inorganic white and/or color pigments and additives such as glass microballoons are employed to provide a wide range of colors and optical properties.

3,784,500

HALOGENATED EPOXIDES

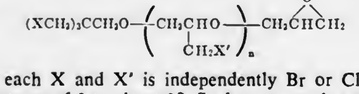
Carl L. Gibbons, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 74,205, Sept. 21, 1970, now Patent No. 3,674,812. This application Apr. 20, 1972, Ser. No. 245,751

Int. Cl. C08f *45/32, 45/60*

U.S. Cl. 260—30.4 R **10 Claims**

Trihaloneopentyl alcohol is reacted with epihalohydrin and then with base to give an adduct of the formula



where each X and X′ is independently Br or Cl and *n* is an integer of 0 to about 10. Such compounds are useful as plasticizers for polyvinyl chloride, as fire retardants for polyesters and as intermediates.

3,784,501

ACRYLIC POLYBLEND POWDER COATING COMPOSITION

Paul H. Pettit, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 1, 1972, Ser. No. 302,857

Int. Cl. C08f *29/36, 29/38, 29/46*

U.S. Cl. 260—31.6 **8 Claims**

The thermoplastic acrylic polymer powder coating composition comprises finely divided particles having a diameter of 1–75 microns wherein the powder particles are a blend of

(A) 50–74.5% by weight of polymethyl methacrylate or a copolymer of methyl methacrylate and an alkyl methacrylate having 4–12 carbon atoms in the alkyl group or a blend of polymethyl methacrylate and a copolymer of methyl methacrylate;

(B) 10–20% by weight of a hydroxy containing acrylic copolymer of methyl methacrylate, an alkyl methacrylate having 2–12 carbon atoms in the alkyl group or an alkyl acrylate having 1–12 carbon atoms in the alkyl group, a hydroxy alkyl acrylate, a methacrylate, and an α,β-ethylenically unsaturated carboxylic acid;

(C) 15–30% by weight of an organic plasticizer;

(D) 0.5–3% by weight of a cross-linking agent such as an alkylated melamine resin or a block polyisocyanate;

the polymer powder particles have a glass transition temperature of 30–60° C. and a melt viscosity of below 75,000 poises measured at 160° C. and can contain pigments and dyes; the novel acrylic polymer powder coating composition is particularly useful as an exterior finish for automobiles and trucks.

3,784,502

BLOCK COPOLYMER COMPOSITIONS

Ramsis Gobran, Roseville, Leon V. Kremer, Cottage Grove, and Dolores O. Ethier, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Application Jan. 27, 1969, Ser. No. 794,354, now Patent No. 3,649,579, which is a continuation-in-part of application Ser. No. 707,976, Feb. 26, 1968. Divided and this application Nov. 10, 1971, Ser. No. 197,506

Int. Cl. C08f *15/00, 3/08, 45/28*

U.S. Cl. 260—33.6 PQ **6 Claims**

Adhesives, inks, primers, etc., in which tackifying resins are combined with certain poly alpha-olefin block polymers, have excellent specific adhesion to low energy surfaces such as polyethylene and polypropylene as well as to such other surfaces as metal, wood, plastics, glass and rubber. The polymer is a block alpha-olefin which has the general formula $A—(B—A)_n$ wherein A blocks are at least capable of crystallization and B blocks are substantially amorphous.

3,784,503

URETHANE COATING BASED ON A SUBSTITUTED ISOCYANURATE-LACTONE ADDITION PRODUCT

John E. Pregler, Wallingford, Conn., assignor to Olin Corporation, New Haven, Conn.

No Drawing. Filed Mar. 8, 1972, Ser. No. 232,918

Int. Cl. C08g *22/06, 51/28*

U.S. Cl. 260—33.6 UB **10 Claims**

This invention relates to urethane coating compositions, comprising as a cross-linking agent, an addition product of a substituted isocyanurate with a lactone.

3,784,504

THERMOSET RESINS PREPARED FROM DIHYDRIC PHENOL, DIHALOBENZENOID COMPOUND AND POLYHALOHETEROCYCLIC COMPOUND

Ronald George Feasey, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

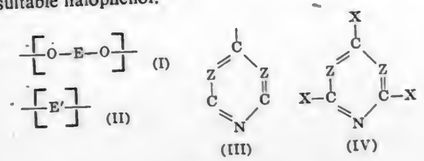
No Drawing. Continuation of application Ser. No. 801,837, Feb. 24, 1969. This application July 19, 1971, Ser. No. 164,147

Int. Cl. C08g *33/10*

U.S. Cl. 260—37 N **11 Claims**

Thermoset resins containing units of Formulae I, II and III, in such proportions that I is in molar excess of II and III is present to the extent of about two-thirds of this molar excess, may be made via a new thermosettable propolymer from a double alkali metal salt of a dihydric phenol HO—E—OH, a dihalobenzenoid compound X—E′—X and a polyhaloheterocyclic compound (IV) where Z is:N. or :C(X′). (X′ is halogen), such as pentachloropyridine or 2,4,6-trichloro-1,3,5-triazine. Some of the alkali metal phenoxide may be omitted initially and

is then added to the incomplete prepolymers for curing. The combination of the dihalobenzenoid compound with an equimolar amount of the alkali metal salt of the dihydric phenol may be replaced by an alkali metal salt of a suitable halophenol.



3,784,505
COATING COMPOSITION CONTAINING SILANE, DIKETONE, AND FILLER

Robert Wendell Lerner, Hossein Hayati, and John Robert Flasch, Adrian, Mich., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Dec. 30, 1971, Ser. No. 214,426
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 SB 14 Claims

A coating composition containing a hydrolyzed and condensed organotrihydrocarbonoxy silane, a diketone, and a particulate solid. The coating composition will impart galvanic protection to metal surfaces coated therewith.

3,784,506
POLYVINYLIDENE FLUORIDE COATING COMPOSITIONS

Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 37,064, May 13, 1970, and Ser. No. 174,280, Aug. 23, 1971, both now abandoned. This application Feb. 25, 1972, Ser. No. 229,509
Int. Cl. C08g *51/04*
U.S. Cl. 260—39 R 3 Claims

A coating composition containing polyvinylidene fluoride, an epoxy resin, an aminoplast resin, and optionally, TiO_2 or zirconium silicate and zinc, all in an organic liquid carrier, useful for lining water heater tanks and industrial containers.

3,784,507
STABILIZED POLYESTER FILM

David M. Braunstein, Edison, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Mar. 4, 1971, Ser. No. 121,157
Int. Cl. C08g *17/133, 51/58*
U.S. Cl. 260—45.7 P 3 Claims

A process is disclosed and claimed employing a catalytic system of a manganous salt and antimony trioxide in combination with di(polyoxyethylene) hydroxymethyl phosphonate to produce polyester resins which exhibit improved thermal stability and embrittlement resistance in the resultant film. The thermally stable polyester films of this invention exhibit utility as films in xerography, tape recorders and the like.

3,784,508
RAPID CURE POLYEPOXIDE OXAZINE OR OXAZOLINE SYSTEMS

Donald A. Tomalia and Robert J. Thomas, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 131,406, Apr. 5, 1971. This application Sept. 15, 1972, Ser. No. 289,324
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 EN 4 Claims

This invention relates to compositions of matter consisting essentially of (1) a latent curable prepolymer of a polyepoxide and an oxazine or oxazoline compound and (2) a polymerization accelerator which is soluble in said polymer at a temperature less than about 90° C. in an amount of from about 1 to 5 percent by weight of prepolymer and which is a compound selected from the group consisting of compounds of the formula

$$R(X)_n$$

wherein R is an aliphatic radical, X is halogen, COOH or SH and n is an integer of at least 2; and

$$R(X)_n$$

wherein R is an aromatic radical, and X is OH or SH and n is an integer of from 1 to 3.

3,784,509
FIRE RETARDANT COMPOSITIONS

Anderson O. Dotson, Jr., New Brunswick, and Jack Newcombe and Lionel T. Wolford, Freehold, N.J., assignors to Cities Service Company, New York, N.Y.

No Drawing. Filed Sept. 24, 1971, Ser. No. 183,696
Int. Cl. C09k *3/28*
U.S. Cl. 260—45.75 B 5 Claims

Fire retarding agents having the structure of substituted imides, with the imide portion derived from a halogenated Diels-Alder adduct of an unsaturated carboxylic compound such as maleic anhydride and a diene such as cyclopentadiene and the substituent group on the nitrogen being alkyl or aromatic, are useful in flame retardant plastic compositions.

3,784,510
NICKEL PYROLYZATE STABILIZERS FOR OLEFIN POLYMERS

Peter Kartschmaroff, Arlesheim, Basel-Land, Paul Moser, Basel, and Kurt Berger, Allschwil, Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application July 16, 1970, Ser. No. 55,615, now Patent No. 3,660,444, dated May 2, 1972. Divided and this application Feb. 7, 1972, Ser. No. 224,291
Claims priority, application Switzerland, July 31, 1969, 11,650/69
Int. Cl. C08f *45/62*
U.S. Cl. 260—45.75 N 6 Claims

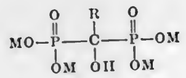
Pyrolyzates are produced by heating the nickel salts of phosphonic acid semiesters. The obtained pyrolyzates are stabilizers for synthetic high-molecular materials.

3,784,511
COLOR STABILIZATION OF FIBERS FROM ACRYLONITRILE POLYMERS

James Ray Kirby, Durham, N.C., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 28, 1972, Ser. No. 238,958
Int. Cl. C08f *45/58, 45/62*
U.S. Cl. 260—45.95 P 3 Claims

Color stabilization of acrylonitrile-containing polymers may be accomplished through treating acrylonitrile-containing polymers and articles formed therefrom with an organophosphorus compound not exceeding 5 weight percent of said polymer, said compound having the general formula:



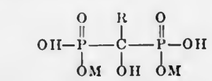
wherein M is a member selected from the group consisting of hydrogen, sodium, lithium, potassium, and R is a member selected from the group consisting of an alkyl radical having one to eleven carbon atoms, a phenyl radical, and an alkyl phenyl radical no more than eight carbon atoms.

3,784,512
COLOR STABILIZED ACID-DYEABLE ACRYLONITRILE-CONTAINING FIBERS

James C. Masson, Chapel Hill, and Albert M. Hall, Durham, N.C., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 28, 1972, Ser. No. 238,959
Int. Cl. C08f *45/58, 45/62*
U.S. Cl. 260—45.95 P 3 Claims

A method and product is herein described for imparting color stability to acid-dyeable acrylonitrile/bromine-containing polymers capable of being formed into filaments comprising forming an acid-dyeable acrylonitrile/bromine-containing polymer comprising at least 60 weight percent acrylonitrile, 1 to 15 weight percent of a bromine-containing monomer, and 1 to 8 weight percent of a basic monomer selected from the group consisting of free radical polymerizable unsaturated aliphatic amines, substituted ammonium bases, and mixtures thereof, and contacting said polymers with an organophosphorus compound in an amount not exceeding about one equivalent per equivalent of said aliphatic amines, substituted ammonium basic groups, or mixtures thereof, incorporated in said polymer, said organophosphorus compound being represented by the formula formula:



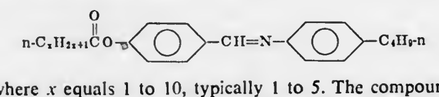
wherein M is a member selected from the group consisting of hydrogen, sodium, lithium, potassium, and R is a member selected from the group consisting of an alkyl radical having one to eleven carbon atoms, a phenyl radical, and an alkyl phenyl radical containing no more than eight carbon atoms.

3,784,513
N-(p-ALKANOYLOXYBENZYLIDENE)-p'-n-BUTYLANILINE

Edward L. Steiger and Heinz J. Dietrich, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

No Drawing. Filed Aug. 4, 1971, Ser. No. 169,094
Int. Cl. C07c *135/00*
U.S. Cl. 260—479 R 3 Claims

There is disclosed the preparation of novel liquid-crystal compositions of the structure:



where x equals 1 to 10, typically 1 to 5. The compounds are prepared by the reaction of para-n-butylaniline and para-n-alkanoyloxybenzaldehyde.

3,784,514
RAPID CURING PHENOLIC-ALDEHYDE RESIN COMPOSITION POLYMER MODIFIED WITH A HETEROCYCLIC NITROGEN-CONTAINING COMPOUND

George T. Tiedeman, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Continuation-in-part of abandoned application Ser. No. 822,868, May 5, 1969. This application May 26, 1971, Ser. No. 147,186
Int. Cl. C08g *9/00, 9/06*
U.S. Cl. 260—51.5 45 Claims

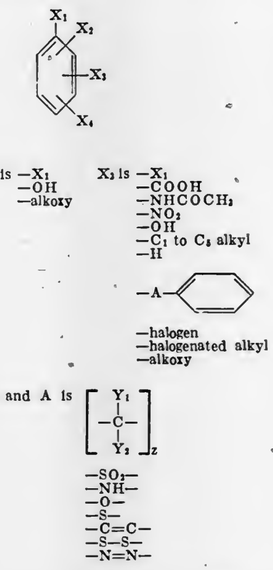
Described herein are resin products having particular utility as rapid curing adhesives for wood and other materials, and processes for making the resin compositions. The products are made by reacting an aldehyde condensation polymer containing reactive alkylol groups, such as a phenol-formaldehyde condensation polymer, with a heterocyclic nitrogen-containing compound to obtain an amine-modified polymer. When the resulting reaction product is blended with an appropriate curing agent, such as an aldehyde, the compositions cure very rapidly at ambient temperature. When pieces of wood or other materials are spread with the preferred adhesives employing the resin compositions of this invention and brought into contact with another wood surface the bond strength develops within minutes. The durability, strength and flexibility of the adhesives of this invention under adverse weathering conditions are excellent.

3,784,515
PHENOLIC-RAPID CURING RESIN COMPOSITIONS COMPRISING THE REACTION PRODUCT OF ALDEHYDE CONDENSATION POLYMER WITH A PRIMARY AROMATIC AMINE FURTHER REACTED WITH A CURING AGENT

Harlan G. Freeman, Gene F. Baxter, and George Graham Allan, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Continuation-in-part of application Ser. No. 113,681, Feb. 8, 1971, which is a continuation-in-part of application Ser. No. 821,996, May 5, 1969, both now abandoned, which in turn is a continuation-in-part of application Ser. No. 639,270, May 18, 1967, now Patent No. 3,518,159. This application Aug. 25, 1971, Ser. No. 174,942
Int. Cl. C08g *9/06, 9/32*
U.S. Cl. 260—51.5 55 Claims

This invention describes resin products having particular utility as rapid curing adhesives for wood and other materials, and processes for making the resin compositions. The reaction products are made by reacting an aldehyde condensation polymer, such as a phenol-formaldehyde condensation polymer, with a primary aromatic amine having the formula:



where Y_1 and Y_2 are hydrogen or alkyl radicals having from 1 to 3 carbon atoms and Z is an integer from 0 to 2, to obtain an amine-modified polymer. On blending an appropriate hardening agent with the amine-modified polymer, the composition cures very rapidly at ambient temperature. When pieces of wood or other materials are spread with the preferred adhesives employing the resin compositions of this invention and brought into contact with another wood or other surface the bond strength develops within minutes.

3,784,516
RAPID CURING RESIN COMPOSITIONS EMPLOYING A PHENOL-ALDEHYDE CONDENSATION POLYMER REACTED WITH A BIS-ARYL AMINE

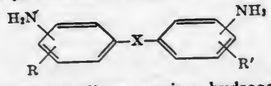
Gene F. Baxter, Harlan G. Freeman, and George T. Tiedeman, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Continuation-in-part of abandoned application Ser. No. 821,961, May 5, 1969. This application June 1, 1971, Ser. No. 148,905

Int. Cl. C08g *9/06, 9/32*

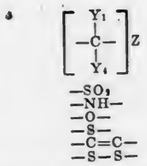
U.S. Cl. 260—51.5 **45 Claims**

Described herein are resin products having particular utility as rapid curing adhesives for wood and other materials, and processes for making the resin compositions. The products are made by reacting an aldehyde condensation polymer containing reactive alkylol groups, such as phenol-formaldehyde condensation polymer, with di-substituted bis-aryl amines having the formula:



where R and R′ are alkoxy, amino, hydrogen, hydroxyl, nitro, carboxyl or C_1 to C_4 alkyl

and X is



where Y_1 and Y_2 are hydrogen or alkyl radicals having from 1 to 3 carbon atoms and Z is an integer ranging from 0 to 2;

to obtain an amine-modified polymer. When the resulting reaction product is blended with an appropriate curing agent, such as an aldehyde, the compositions cure very rapidly at ambient temperature. When pieces of wood or other materials are spread with the preferred adhesives employing the resin compositions of this invention and brought into contact with another wood surface the bond strength develops within minutes. The durability, strength and flexibility of the adhesives of this invention under adverse weathering conditions are excellent.

3,784,517
PREPARATION OF POLYBENZIMIDAZOLES IN THE PRESENCE OF A SULFONE SOLVENT

Frederick L. Hedberg, Dayton, Ohio, and Carl S. Marvel, Tucson, Ariz., assignors to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed June 27, 1972, Ser. No. 266,814

Int. Cl. C08g *33/02*

U.S. Cl. 260—63 R **15 Claims**

A one-step process for preparing polybenzimidazoles is disclosed that comprises reacting an aromatic tetraamino compound with the diphenyl ester or anhydride of an aromatic dicarboxylic acid in the presence of an aliphatic or aromatic sulfone solvent or reaction medium. The process provides in quantitative yields high molecular weight products that are particularly suitable for use in fiber formation.

3,784,518
METHOD FOR PRODUCING ALKYL IODIDES

Frank E. Paulik, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 29, 1972, Ser. No. 293,602

Int. Cl. C07c *19/00*

U.S. Cl. 260—65 F **11 Claims**

Alkyl iodides in which the alkyl group contains from 1 to 6 carbon atoms are prepared by reacting hydrogen, iodine and the corresponding alkanol at a temperature from about 25° to about 150° C. and a pressure from about atmospheric to about 500 p.s.i.g. in contact with a catalyst composition comprising metallic rhodium, ruthenium or iridium or the iodides of these metals supported on an inert material.

3,784,519
CATALYST COMPOSITION FOR THE PRODUCTION OF TRIOXANE POLYMERS

Albrecht Hilt, Ludwigshafen, and Franz Schmidt and Erich Schwartz, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original application Apr. 15, 1970, Ser. No. 28,956, now abandoned. Divided and this application Jan. 17, 1972, Ser. No. 218,461

Claims priority, application Germany, Apr. 18, 1969, P 19 19 744.5

Int. Cl. C08g *1/20*

U.S. Cl. 260—67 FP **10 Claims**

A process for polymerizing trioxane with a special catalyst composition based on a blend of hydrofluoric acid and fluoboric acid.

3,784,520
SEGMENTED THERMOPLASTIC COPOLYESTERS

Guenther Kurt Hoeschele, Wilmington, Del., assignor to E. I. du Pont de Nemours and Co., Wilmington, Del.

No Drawing. Filed Jan. 26, 1972, Ser. No. 221,098

Int. Cl. C08g *17/08, 23/22*

U.S. Cl. 260—75 R **9 Claims**

Segmented thermoplastic copolyesters containing recurring long chain ester units derived from dicarboxylic acids and poly(alkylene oxide) glycol having a molecular weight of about 400–3500 and a carbon to oxygen ratio of about 2.0–2.4 and short chain ester units derived from dicarboxylic acids and low molecular weight diols. At least 70% of the dicarboxylic acid used is terephthalic acid and at least 70% of the low molecular weight diol is 1,4-butanediol. The short chain ester units constitute about 25–65% by weight of the polymer. Such copolyesters rapidly harden from the molten state and have outstanding physical properties over a wide range of temperatures and are especially resistant to oil swell.

3,784,521
METHOD OF ACCELERATING THE CURE OF POLYURETHANES

Anthony F. Finelli and John R. Stanley, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,044

Int. Cl. C08g *22/16, 22/34*

U.S. Cl 260—75 NB **5 Claims**

The cure of liquid polyurethane reaction mixtures containing a ketone diamine curative is accelerated by the use of polyhydroxy benzenes and polyhydroxyl carbonyl benzenes containing two to four hydroxyl groups when used in about one-tenth to two parts per hundred parts of the polyurethane.

3,784,522
SELF-BONDING ELASTOMERIC SEALANT

Basil P. Gray, Negley, Ohio, assignor to Commercial Shearing, Inc., Youngstown, Ohio

No Drawing. Filed Oct. 16, 1972, Ser. No. 297,767

Int. Cl. C08g *22/04*

U.S. Cl. 260—77.5 CR **10 Claims**

A sealant material for steel or concrete tunnel segments and the like is the product of a urethane type reaction between a hydroxy terminated polybutadiene liquid resin with a polyfunctional isocyanate incorporating a monomeric halogenated phosphate ester.

3,784,523
REACTION OF HALOMETHYLATED POLYMERS WITH QUATERNARY AMMONIUM SALTS OF PROTECTED AMINO ACIDS

Albert Loffet, Braine-le-Chateau, Belgium, assignor to UCB, Societe Anonyme, Saint-Gilles-lez-Brussels, Belgium

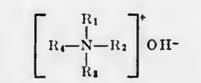
No Drawing. Filed July 21, 1970, Ser. No. 56,972

Claims priority, application Belgium, July 25, 1969, 37,542

Int. Cl. C08g *20/00;* **C07c** *103/52, 101/42*

U.S. Cl. 260—78 A **6 Claims**

The present invention relates to a process for binding an amino acid having an amine protective group fixed on the amino group to a styrene-divinylbenze polymer carrying halomethyl groups, by reacting a salt of the so protected amino acid with the said halomethylated styrene-divinylbenzene polymer in an inert solvent to form an amino acid ester useful in solid phase peptide synthesis, whereby the salt is dissolved in said solvent and the polymer is swelled in said solvent, the improvement wherein the salt of the said protected amino acid is a salt of a quaternary ammonium hydroxide of the formula:



wherein R_1, R_2, R_3 and R_4, taken separately, each represents a member selected from the group consisting of alkyl having 1 to 18 carbon atoms, cycloalkyl having 5 to 12 carbon atoms, phenyl, naphthyl, aralkyl having 7 to 16 carbon atoms, or R_1 and R_2 together with the quaternary nitrogen atom form piperidinyl or morphinyl, or R_1, R_2 and R_3 taken together form pyridyl or 2-styryl-pyridyl.

3,784,524
URETHANE/THIOETHER-CONTAINING POLYENE COMPOSITION AND THE REACTION PRODUCT THEREOF

Charles R. Morgan, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 25, 1971, Ser. No. 156,921

Int. Cl. C08g *22/04*

U.S. Cl. 260—77.5 CR **4 Claims**

A urethane/thioether-containing polyene composition is prepared and is cured in the presence of a free radical generator, such as ultraviolet irradiation, and a polythiol, forms odorless, solid, elastomeric products. The cured products may be used as sealants, coatings, adhesives, silverless photographic materials, printing plates, and molded articles.

3,784,525
LONG-CHAIN DIGLYCIDYL ESTERS

Dieter Baumann, Birsfelden, and Juergen Habermeier, Pfeffingen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,459

Int. Cl. C08f *27/00;* **C07d** *1/18*

U.S. Cl. 260—78.4 EP **6 Claims**

New diglycidyl esters are obtained by glycidylizing butadiene-acrylonitrile copolymers or butadiene polymers which have terminal carboxyl group. The new diglycidyl esters can be converted into flexible mouldings or coatings by curing with conventional epoxide resin hardeners, with the flexibility of the mouldings being to a relatively large extent independent of the temperature and being retained up to −50° C.

3,784,526
WATER SOLUBLE POLYMER COMPOSITIONS AND PROCESS FOR PREPARATION THEREOF

Alain Ribba, 16 Rue Ronsard, Chateaurenault, France

No Drawing. Filed Feb. 18, 1972, Ser. No. 227,650

Claims priority, application France, Feb. 18, 1971, 6,571

Int. Cl. C08f *15/40*

U.S. Cl. 260—78.5 R **6 Claims**

The invention provides a process for making novel water-soluble polymers which are useful as flocculating agents. These polymers are formed by polymerization of (a) itaconic acid, or the water soluble sodium or ammonium salts thereof, in proportion of from 0.2 to 15 percent by weight; (b) a monomer of an amide of unsaturated alpha-beta monocarboxylic acid, such as acrylamide or immediate derivatives thereof, in proportion of from 5 to 95 percent by weight; (c) an unsaturated water-soluble monomer, for example: acrylic acid or maleic acid, and the salts of said acids; allylalcohol, and derivatives thereof. The polymerization is carried out by dispersing the three above-described monomers (a), (b) and (c) in a water insoluble organic medium, e.g., toluene in presence of a surface-active agent such as sulphonated petroleum distillate with a molecular weight in the range of 300 to 1000, a polymerization catalyst, in proportion of 0.005 to 0.2 percent by weight, e.g., ammonium persulfate. A Redox reducing agent is preferable in this system.

3,784,527
NOVEL COMPOUNDS AND PROCESS

Adnan A. R. Sayigh and Fred A. Stuber, North Haven, and Henri Ulrich, North Branford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

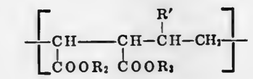
No Drawing. Continuation-in-part of abandoned application Ser. No. 15,852, Mar. 2, 1970. This application Nov. 27, 1970, Ser. No. 93,446

The portion of the term of the patent subsequent to Oct. 17, 1989, has been disclaimed

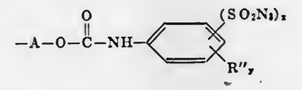
Int. Cl. C08f *27/06, 27/08*

U.S. Cl. 260—78.5 T **3 Claims**

Radiation (thermal and light)-sensitive polymers are provided which are characterized by the recurring unit of the formula:



wherein R′ is lower-alkoxy or phenyl; one of R_2 and R_3 is hydrogen and the other is



wherein A=alkylene from 2 to 10 carbon atoms having 2 to 6 carbon atoms between valencies, R″=lower-alkyl or halogen, x is 1 to 2, y is 0 to 2, and $x+y=1$ to 3. Water soluble salts also disclosed. The polymers are useful for chemically bonding basic dyestuffs to non-dyereceptive substrates (e.g. polyethylene) by coating the substrate with radiation sensitive polymer and exposing the coated substrate to irradiation. The treated substrate is then contacted with a basic dyestuff which bonds thereto via the free carboxylic groups in the coating. The irradiation can be carried out imagewise to produce an appropriate image on the substrate which image is developed by dissolving out unexposed radiation-sensitive polymer prior to application of the dye. Bonding of the radiation-sensitive

polymers of the invention to substrates in the above manner can be also be employed as a means of rendering hydrophilic a variety of substrates which are hydrophobic.

3,784,528

PREPARATION OF ALKOXYLATED RESINS

Dietrich Pirck, Reinbek, Gundolf Fuchs, Meilsen, and Gerhard Sachse, Hamburg, Germany, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Germany

No Drawing. Filed Sept. 28, 1972, Ser. No. 293,279
Claims priority, application West Germany, Oct. 4, 1971, P 21 49 471.3
Int. Cl. C08f *1/11, 15/02, 27/00*
U.S. Cl. 260—78.5 T 13 Claims

Resin products are prepared by alkoxylation of copolymers of vinyl aromatic hydrocarbons such as styrene, with alpha, beta-unsaturated dicarboxylic acid half esters such as the maleic acid-n-butyl half ester. The thus-formed resin products are useful as lacquer resin components for baking varnishes.

3,784,529

POLYMERIC QUATERNARY AMMONIUM COMPOUNDS AND METHODS FOR MAKING SAME

John W. Bayes, Perrysburg, and Edgardo Santiago, Toledo, Ohio, assignors to Owens-Illinois, Inc.

No Drawing. Original application Oct. 19, 1965, Ser. No. 498,088, now Patent No. 3,489,663, dated Jan. 13, 1970. Divided and this application May 26, 1969, Ser. No. 827,942
Int. Cl. C08g *33/02*
U.S. Cl. 260—79.3 M 14 Claims

Disclosed are new polymeric quaternary compounds and methods for making them. The quaternized atoms are in the polymer chain backbone. Also disclosed in an electrolytic method of polymerization of unsaturated monomers in the presence of a polymeric ternary or a polymeric quaternary ammonium compound as a conducting electrolyte.

3,784,530

HYDROCARBON-DERIVED RESIN

Robert A. Osborn, Stow, David R. St. Cyr, Uniontown, and Herbert L. Bullard, Norton Village, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,497
Int. Cl. C08d *9/08*; C08f *15/40*
U.S. Cl. 260—80.7 4 Claims

A resinous material characterized with a softening point in the range of about 60° C. to about 110° C. prepared by polymerizing piperylene, 2-methyl-2-butene, dicyclopentadiene and α-methyl styrene in the presence of a catalyst selected from aluminum chloride and ethyl aluminum dichloride and a solvent selected from aliphatic and aromatic hydrocarbons. The resinous material has particular utility as a tackifier for rubbery butadiene styrene copolymers.

3,784,531

PROCESSING OF RUBBER

Stanley D. Zimmerman, Morrisville, Pa., and Paul O. McCoy, Hightstown, N.J., assignors to Cities Service Company, New York, N.Y.

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,639
Int. Cl. C08d *3/04, 5/04*; C08f *15/40*
U.S. Cl. 260—85.3 H 13 Claims

A halogen is incorporated into a solution of rubber dissolved in an organic solvent to effect halogenation of the rubber. Anhydrous ammonia is then dissolved in the rubber solution and reacts with any free halogen, hydrogen halide, or hypohalide present in the solution after halogenation of the rubber. The ammonium halide reaction product is filtered or washed from the halogenated rubber solution and the organic solvent is vaporized and removed from the halogenated rubber. This invention can be employed to advantage in the neutralization of brominated or chlorinated butyl rubber.

3,784,532

BULK POLYMERIZATION PROCESS MODIFIED WITH SOLVENT TO REDUCE RESIDUAL MONOMER CONTENT

Robert P. Fellmann, Wrightstown, and Jong Jai Whang, Southampton, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 709,785, Mar. 1, 1968. This application Sept. 18, 1970, Ser. No. 73,628
Int. Cl. C08f *3/64, 3/66, 15/18*
U.S. Cl. 260—86.1 E 5 Claims

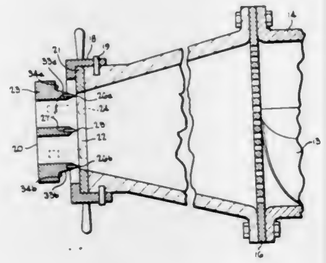
The polymerization of a monomer system is improved by the presence of 1 to 30 percent by weight based on the total weight of the system of a non-polymerizable, chemically inert, volatile solvent. The system is characterized as one which: (1) if bulk polymerized would produce a polymer product which would degrade or depolymerize upon application of conditions necessary to remove residual monomer by volatilization and which product would contain amounts of residual monomer sufficient to affect its physical properties; (2) if bulk polymerized would be limited in reaction rate by the difficulty of diffusion of monomer to reactive sites, and/or (3) if bulk polymerized would produce a polymer product which would limit reaction rate of further polymerization by inhibiting diffusion of monomer to reactive sites.

3,784,533

APPARATUS FOR IMPARTING GLOSS TO SOAP

Thomas F. Mach, 2141 Sherwood Ave., St. Paul, Minn. 55119

Filed Mar. 8, 1971, Ser. No. 121,716
Int. Cl. B28b *11/16*; B29c *17/10*
U.S. Cl. 264—146 8 Claims



A method and apparatus for improving the gloss on extruded bar soap from a plodder by using blades to cut away an unfinished surface to form a glossy face.

3,784,534

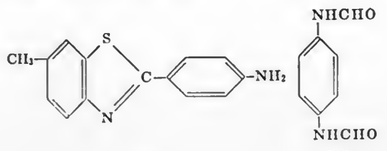
YELLOW SULFUR DYES

Satosi Yosioka, Sinobu Tokunaga, Tomoyoshi Tamenori, and Sigeru Tamura, Fukuyama, and Morio Wada, Hiroshima-ken, Japan, assignors to Nippon Kayaku Co., Ltd., Tokyo, Japan

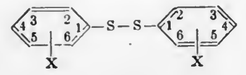
No Drawing. Filed Feb. 24, 1972, Ser. No. 229,192
Claims priority, application Japan, Feb. 26, 1971, 46/9,309
Int. Cl. C09b *49/00*
U.S. Cl. 260—128 4 Claims

This invention relates to clear and pure yellow sulfur dyes, which can be obtained by blending the compounds

represented by the following Formulas I, II, and III with an optional blending ratio and sulfurizing:



(I) (II)



(III)

(in the Formula III X is a amino, nitro, or formylamino radical substituted at 2,2' or 4,4').

3,784,535

NONAPEPTIDE INTERMEDIATE TO GONADOTROPIN RELEASING HORMONE

George Rogelio Flouret, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,159
Int. Cl. C07c *103/52*; C07g *7/00*; C08h *1/00*
U.S. Cl. 260—112.5 8 Claims

The synthesis of the nonapeptide His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-amide carrying easily removable protective groups on the Ser, Tyr, Arg and optionally on the His moieties is described. The correspondingly protected octapeptide is used as the starting material. The nonapeptide, upon removal of any N^α-protective group on the histidine moiety is an important intermediate for the preparation of the gonadotropin-releasing hormone.

3,784,536

PROCESS FOR REDUCING THE NUCLEIC ACID CONTENT OF SINGLE CELL PROTEIN AFFORDING MICROORGANISMS

Cavit Akin, Oakbrook, and Kwei C. Chao, Homewood, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Feb. 4, 1971, Ser. No. 112,779
Int. Cl. A23j *1/00, 1/18*
U.S. Cl. 260—112 10 Claims

The nucleic acid content of single-cell protein (SCP) materials is reduced to a level acceptable in food products by treatment of the whole cells with aqueous ethanolic mineral acid at elevated temperatures within the range from 60° to 125° C. Removal of nucleic acids without substantial removal of protein material is accomplished by limiting the treating time to about 5 to 30 minutes.

3,784,537

CONJUGATION OF UNSATURATED FATTY MATERIALS

Roland Pierre Franz Scharrer, Pelham, N.Y., assignor to Arizona Chemical Company, New York, N.Y.

No Drawing. Filed Dec. 17, 1971, Ser. No. 209,407
Int. Cl. C09f *7/08*; C11c *3/14*
U.S. Cl. 260—97.5 11 Claims

A process for treating unsaturated fatty materials is given whereby they are conjugated in a homogeneous system by heating in the presence of substituted aryl thiols, monosulfides, and polysulfides.

3,784,538

CONTROLLING A HIGH-PRESSURE REACTOR

Helmut Pfannmueller, Brasschaat, Antwerp, Belgium, and Friedrich Urban, Limburgerhof, and Oskar Buechner, Hans Gropper, and Wolf Sistig, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Sept. 20, 1971, Ser. No. 182,006
Claims priority, application Germany, Sept. 25, 1970, P 20 47 290.6
Int. Cl. C08f *1/60, 3/04*
U.S. Cl. 260—94.9 R 6 Claims

A process for polymerizing olefins at high pressure in tubular reactors in which the pressure is lowered at intervals for short periods, the whole of the tubular reaction zone being subdivided one or more times and the decreases in pressure being carried out in only one subdivision, and a number of examples of construction of appropriate reaction zones and control equipment for carrying out the process.

3,784,539

PROCESS FOR THE POLYMERIZATION OF OLEFINS

Morris R. Ort, Seabrook, Tex., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 7, 1971, Ser. No. 178,431
Int. Cl. B01j *11/84*; C08f *1/56, 3/06*
U.S. Cl. 260—94.9 C 11 Claims

Olefins are polymerized in the presence of hydrogen as a molecular weight control agent with a Ziegler-type catalyst composition comprising a mixture of a compound of vanadium and a reducing agent which is an organoaluminum compound and an alkylaluminum alkoxide, said composition being prepared by combining said components in such order that said aluminum alkoxide is present prior to combination of said vanadium compound with said organoaluminum compound. The catalyst so prepared enhances the ability of hydrogen to act as a chain-transfer agent in controlling molecular weight, that is, lower molecular weight polymers can be produced at a given hydrogen concentration or lesser amounts of hydrogen are required to produce polymer products having specified molecular weights.

3,784,540

PROCESS OF PREPARING SOLUBLE HEMA-BASED POLYMERS

Karel Kliment, Princeton, and John M. Rutherford, Jr., North Brunswick, N.J., assignors to National Patent Development Corporation, New York, N.Y.

No Drawing. Filed Oct. 5, 1971, Ser. No. 186,796
Int. Cl. C08f *15/16, 15/18*
U.S. Cl. 260—86.1 E 15 Claims

Solvent soluble solid hydrophilic polymers and copolymers of hydroxyethyl methacrylate and other hydroxyalkyl acrylates and methacrylates are prepared by polymerizing the monomer in an organic solvent or diluent for the monomer which is a non-solvent for the polymer having a coefficient of swelling of not over 2. preferably not over about 1.5 and a temperature of precipitation of 0 or above, preferably 30° C. or above, while maintaining

the solids content in solution below that at which the polymer is still completely soluble in dimethyl formamide at 10% concentration. Gradual feeding of monomer can be used.

3,784,541
POLYAMINE COMPOUNDS AND METHODS FOR THEIR PRODUCTION

Townley P. Culbertson and Theodore H. Haskell, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Jan. 13, 1972, Ser. No. 217,626
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 R **1 Claim**

5-O-(5-amino-5-deoxy-D-xylofuranosyl)-N¹-(4 - amino-2-hydroxybutyryl) - 4 - O - (2,6-diamino-2,6-dideoxy-D-glucopyranosyl) - 2 - deoxystreptamine, also known as aminodeoxybutirosin A. 5 - O - (5-amino-5-deoxy-D-ribofuranosyl)-N¹-(4 - amino - 2 - hydroxybutyryl)-4-O-(2,6-diamino-2,6-dideoxy - D - glucopyranosyl)-2-deoxystreptamine, also known as aminodeoxybutirosin B. These compounds can exist in free base and in acid-addition salt forms. They have a wide spectrum of antibacterial activity. They can be produced from butirosin A and butirosin B, respectively, by the sequence of reactions which comprises forming the tetra-(trifluoroacetyl) derivative, converting the primary alcohol group to an arylsulfonate ester, converting the arylsulfonate ester group to the azido group by reaction with sodium azide, reducing the azido group to the amino group by catalytic hydrogenation, and hydrolyzing the trifluoroacetyl groups.

3,784,542
BENZODIAZEPIN-2-ONES

Joseph Hellerbach, Basel, Switzerland, and Armin Walser, West Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 10,053, Feb. 9, 1970. This application Aug. 4, 1971, Ser. No. 169,564
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 D **21 Claims**

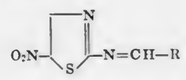
1-substituted benzodiazepin-2-ones, derivatives thereof, and processes for the preparation of same are described. These compounds are useful as anti-convulsants, muscle relaxants and sedatives.

3,784,543
4-[N-(5-NITRO-2-THIAZOLYL)-FORMIMIDOYL]-THIOMORPHOLINES AND OXIDES

Atso Ilvespaa, Neu-Allschwill, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 881,637, Dec. 2, 1969. This application June 9, 1971, Ser. No. 151,572
Claims priority, application Germany, Oct. 28, 1970, P 20 52 990.2
Int. Cl. C07d *91/34*
U.S. Cl. 260—240 G **10 Claims**

Compounds of the formula



(I)

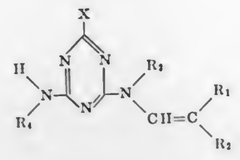
in which R represents a thiomorpholino residue which is substituted at at least one carbon atom and/or is oxidized at the sulfur atom, and their salts are useful as antiparasitary and antibacterial agents.

3,784,544
N-(1-ALKEN-1-YL)-AMINO-S-TRIAZINES

John P. Chupp, Kirkwood, and Ching C. Tung, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,881
Int. Cl. C07d *55/20*
U.S. Cl. 260—249.8 **15 Claims**

Compounds of the formula



where

X represents chloro or alkylthio of a maximum of 4 carbon atoms;
R_1 represents alkyl of a maximum of 2 carbon atoms;
R_2 represents alkyl of a maximum of 4 carbon atoms;
R_3 and R_4 each represent alkyl of a maximum of 4 carbon atoms.

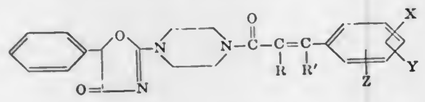
These compounds have been found to be superior herbicides.

3,784,545
1-(5-PHENYL-4-OXO-2-OXAZOLIN-2-YL)-4-CINNAMOYLPIPERAZINES

Cheuk Man Lee, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed May 31, 1972, Ser. No. 258,144
Int. Cl. C07d *51/72*
U.S. Cl. 260—240 J **8 Claims**

1-(5-phenyl-4-oxo-2-oxazolin - 2 - yl) - 4 - cinnamoylpiperazines represented by the formula



wherein: R is hydrogen or loweralkyl; R′ is hydrogen or loweralkyl; and X, Y and Z each are hydrogen, halogen or loweralkoxy. The compounds exhibit anti-depressant activity.

3,784,546
O(2-DIETHYLAMINO - 4-METHYL-6-PRIMIDINYL) O,O-DIMETHYL PHOSPHOROTHIOATE AND ITS SALTS

Stuart Peter Sharpe and Brian Kenneth Snell, Bracknell, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Original application Sept. 9, 1968, Ser. No. 758,579, now Patent No. 3,651,224. Divided and this application Sept. 30, 1971, Ser. No. 185,346
Claims priority, application Great Britain, Sept. 21, 1967, 43,133/67
Int. Cl. C07d *51/36*
U.S. Cl. 260—256.5 R **4 Claims**

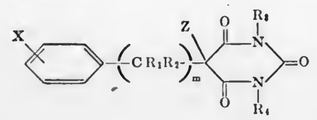
O(2-diethylamino-4-methyl - 6 - pyrimidinyl)O,O - dimethyl phosphorothioate. This compound has pesticidal properties and is characterized by its extremely low toxicity to mammals. Pesticidal compositions and methods of using the same to combat pests are also disclosed. The acid addition salts of the indicated compound may also be used.

3,784,547
SELECTED 5-SUBSTITUTED-5-PHENYLALKYL BARBITURIC ACIDS

Carlos M. Samour, Wellesley, and Julius A. Vida, Boston, Mass., assignors to The Kendall Company, Walpole, Mass.

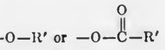
No Drawing. Continuation-in-part of abandoned application Ser. No. 88,193, Nov. 9, 1970. This application Sept. 17, 1971, Ser. No. 181,543
Int. Cl. C07d *51/20*
U.S. Cl. 260—257 **18 Claims**

Selected 5-substituted - 5 - phenylalkyl barbituric acids having the formula



(I)

wherein m is 1 or 2; R_1 and R_2 are independently selected hydrogen, methyl or ethyl, with the provisos that the radical $-(CR_1R_2)_m$ can contain no more than one ethyl group or two methyl groups, that when m is 1 said radical contains at least one hydrogen and that when m is 2 said radical contains at least two hydrogens; R_3 and R_4 are independently selected hydrogen or methyl, or R_3 and R_4 are both methoxymethyl or acetoxymethyl; X is hydrogen, chlorine, $-NO_2$ or methoxy; and Z is hydroxyl,



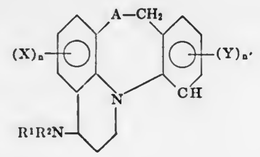
wherein R′ is alkyl having 1 to 3 carbon atoms, or $-OSi(R'')_3$ wherein R″ is methyl or ethyl. These compounds are useful as analgetics or intermediates for the preparation of analgetics.

3,784,548
3-PIPERAZINYL-QUINOBENZOXA(OR THIA) ZEPINE DERIVATIVES

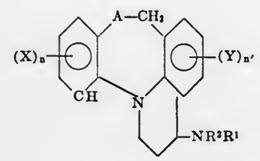
Harry L. Yale, New Brunswick, and Ramesh Petigara, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed June 24, 1971, Ser. No. 156,557
Int. Cl. C07d *39/00*
U.S. Cl. 260—268 PC **11 Claims**

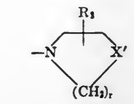
2,3-dihydroquinobenzoxa(or thia)zepine derivatives are provided having the structures



or



wherein A is O or S; X and Y are the same or different and can be halogen, trifluoromethyl, lower alkyl, cycloalkyl, lower alkylmercapto, lower alkyloxy, cyano, isocyanido or di-lower alkyl-sulfamoyl; R^1 and R^2 taken together with the nitrogen to which they are attached may form a heterocyclic group having the formula



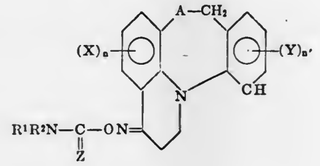
in which X′ represents NR^4, O, S or CH_2, r represents 1, 2 or 3; R^4 represents hydrogen, lower alkyl, hydroxy-lower alkyl, lower alkanoyloxy-lower alkyl, hydroxy-lower alkoxy-lower alkyl; di(lower alkyl)amino-lower alkoxy-lower alkyl, lower-alkylamino-lower alkyl, di-lower alkyl amino-lower alkyl, amino-lower alkyl; and R^3 represents any of the R^4 groups; n is 0, 1 or 2; and n' is 0, 1 or 2. These compounds are useful as central nervous system stimulants, muscle relaxants, anti-inflammatory agents, and antibacterial agents.

3,784,549
N-[2,3 - DIHYDROQUINOBENZOXAZEPIN - 3-YLIDENE]-O-(SUBSTITUTED CARBAMOYL) HYDROXYLAMINES

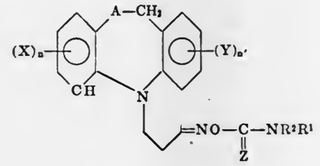
Harry L. Yale, New Brunswick, and Ramesh B. Petigara, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Aug. 13, 1971, Ser. No. 171,730
Int. Cl. C07d *39/00*
U.S. Cl. 260—287 R **9 Claims**

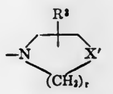
1,2-dihydroquinobenzoxa (or thia)zepine derivatives are provided having the structures



or



wherein A is O or S; Z is O or S; X and Y are the same or different and can be halogen, trifluoromethyl, lower alkyl, cycloalkyl, lower alkyl-mercapto, lower alkoxy, cyano, isocyanido, or di-lower alkysulfamoyl; R^1 and R^2 can be the same or different and are hydrogen, lower alkyl, aralkyl, aryl, arylsulfonyl or alkenyl; or R^1 and R^2 taken together with the nitrogen to which they are attached can be a heterocyclic radical having the formula



in which X′ represents NR^4, O, S or CH_2, r represents 1, 2 or 3; R^4 represents hydrogen, lower alkyl, hydroxy-lower alkyl, lower alkanoyloxy-lower alkyl, hydroxy-lower alkoxy-lower alkyl, di(lower alkyl)amino-lower alkoxy-lower alkyl, lower-alkylamino-lower alkyl, di-lower alkyl amino-lower alkyl, amino-lower alkyl; R^3 represents any of the

R^4 groups; n is 0, 1 or 2; n' is 0, 1, or 2, and pharmaceutically acceptable salts thereof. These compounds are useful as central nervous system stimulants, muscle relaxants, anti-inflammatory agents, and antibacterial agents.

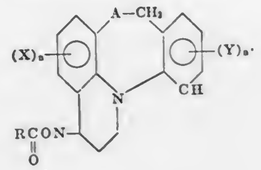
3,784,550

N-[2,3 - DIHYDROQUINOBENZOXA(OR THIA) ZEPIN - 3 - YLIDENE] - O-(SUBSTITUTED BENZOYL)HYDROXYLAMINES

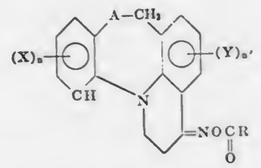
Harry L. Yale, New Brunswick, and Ramesh B. Petigara, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Aug. 13, 1971, Ser. No. 171,731
Int. Cl. C07d *39/00*
U.S. Cl. 260—287 R **8 Claims**

Esters of 1,2-dihydroquinobenzoxa(or thia)zepin-3-one, oximes are provided having the structures



or



wherein A is O or S; X and Y are the same or different and can be halogen, trifluoromethyl, lower alkyl, cycloalkyl, lower alkylmercapto, lower alkyloxy, cyano, isocyanido or di-lower alkylsulfamoyl; R is lower alkyl, aryl, arylalkyl, arylalkenyl, aminoaryl, aminoalkyl, piperidyl, furyl or pyridyl; n is 0, 1, or 2; and n' is 0, 1, or 2; and pharmaceutically acceptable acid-addition salts thereof. These compounds are useful as central nervous system stimulants, muscle relaxants, anti-inflammatory agents, and antibacterial agents.

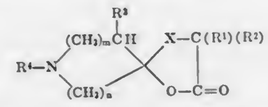
3,784,551

2-OXO-1,4-DIOXA-8-AZASPIRO (4.5) DECANES AND RELATED COMPOUNDS

Michio Nakanishi, Oita, Katsuo Arimura, Yoshitomi, and Hideki Ao, Oita, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

No Drawing. Filed July 8, 1971, Ser. No. 160,937
Int. Cl. C07d *99/04, 99/06*
U.S. Cl. 260—293.66 **11 Claims**

Spiro compounds of the formula



wherein each of R^1 and R^2 is H, CH_3 C_2H_5, phenyl, p-chlorophenyl or benzyl; X is O or S; R^3 is H and R^4 is H, alkyl of 1 to 4 carbon atoms, methoxycarbonyl, ethoxycarbonyl, acetyl, benzoyl, benzyl, phenethyl, pyridylmethyl, pyridylethyl, furfuryl, thenyl, cinnamyl, cinnamoyl, allyl or propargyl, and m plus n is 2 or 3 (m being 0 or 1 and n being 2 or 3); or R^3 and R^4 combinedly represent $—CH_2—CH_2—$, m is 2 and n is 1, and pharmaceutically acceptable acid addition and quaternary ammonium salts thereof are useful as acetylchlorine antagonistic agents and gastric juice secretion inhibiting agents.

3,784,552

METHOD FOR OBTAINING HIGH PURITY 2,3,5,6 - TETRACHLORO-4-(METHYLSULFONYL) PYRIDINE

Demetrios Kyriacou, Clayton, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 26, 1972, Ser. No. 275,269
Int. Cl. C07d *31/48*
U.S. Cl. 260—294.8 F **7 Claims**

The present disclosure is directed to a method for separating 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine from admixture with closely related chlorine and sulfur substituted pyridines. The separation is carried out by contacting a mixture of the above pyridine compounds with sulfuric acid to precipitate the 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine product, and recovering said product from the acid medium.

3,784,553

PYRIDOXINE ALPHA-KETOGLUTARATE AND ITS DERIVATIVES

Cristobal Martinez Roldan and Dario Rodrigues Devesa, Madrid, Spain, assignors to Laboratories Made, S.A., Madrid, Spain

No Drawing. Continuation of abandoned application Ser. No. 878,959, Nov. 21, 1969. This application Jan. 17, 1972, Ser. No. 218,614
Int. Cl. C07d *31/32*
U.S. Cl. 260—297.5 **2 Claims**

Pyridoxine alpha-ketoglutarate is prepared by reacting pyridoxine with alpha ketoglutaric acid or functional derivative thereof, in an organic or inorganic solvent. The compound is useful for improving neuronal metabolism, treating tremors, convulsions and nervous problems and alcoholism. It possesses an anabolic activity and affects fatty acid metabolish. It also is an anti-anemia agent and is useful for treating skin diseases.

3,784,554

PESTICIDAL PHOSPHORYLATED THIAZOLE DERIVATIVES

Michael D. Barker, Maidstone, England, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Feb. 24, 1972, Ser. No. 229,152
Claims priority, application Great Britain, Mar. 12, 1971, 6,684/71
Int. Cl. C07d *91/32*
U.S. Cl. 260—302 E **3 Claims**

Novel pesticidal phosphorylated thiazole derivatives.

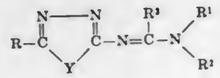
3,784,555

CERTAIN OXADIAZOLYL AND THIADIAZOLYL AMIDINES

Tony Cebalo, Indianapolis, and Robert Edward Buntrock, Munster, Ind., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Filed Nov. 5, 1970, Ser. No. 87,298
Int. Cl. C07d *85/54, 91/62*
U.S. Cl. 260—306.8 D **10 Claims**

This invention relates to novel amidines of the general formula:



wherein R, R^1, R^2, R^3 and Y are as hereinafter defined. Methods for using these compounds as agricultural chemicals, and formulations for pre- and post-emergent herbicidal applications are also disclosed.

3,784,556

CERTAIN 2-AMINO-6-PHENYL-4H-s-TRIAZOLO [1,5-a][1,4]BENZODIAZEPINES

André Gagneux, Basel, Roland Heckendorn, Arlesheim, and René Meier, Buus, Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed July 19, 1972, Ser. No. 273,072
Claims priority, application Switzerland, July 23, 1971, 10,884/71
Int. Cl. C07d *57/02*
U.S. Cl. 260—308 R **9 Claims**

Compounds of the class of 2-amino-6-phenyl-4H-s-triazolo[1,5-a][1,4]benzodiazepines, their 5-oxides and their pharmaceutically acceptable acid addition salts have valuable pharmacological properties, in particular anticonvulsant effectiveness, and are active ingredients for therapeutic preparations. Specific embodiments are 2-amino - 6 - phenyl - 8-chloro-4H-s-triazolo[1,5-a][1,4] benzodiazepine, 2-amino-6-(o-fluorophenyl)-8-chloro-4H-s-triazolo[1,5-a][1,4]benzodiazepine and 2 - amino-6-(o-chlorophenyl) - 8 - chloro - 4H-s-triazolo[1,5-a][1,4] benzodiazepine.

3,784,557

PHOTOTROPIC 2,4,5-TRIPHENYLIMIDAZOLYL RADICALS AND DIMERS THEREOF

Lawrence Anthony Cescon, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 388,010, Aug. 6, 1964, which is a continuation-in-part of application Ser. No. 181,475, Mar. 21, 1962, both now abandoned. This application Mar. 10, 1967, Ser. No. 622,085
Int. Cl. C07d *47/36*
U.S. Cl. 260—309 **33 Claims**

2,4,5-triphenylimidazolyl radicals and their dimers (2,2',4,4',5,5' - hexaphenyl biimidazoles) having on the phenyl groups from 1 to 10 substituents free from a hydrogen atom capable of reacting with methyl magnesium iodide, one such substituent being in the ortho position on the 2-phenyl group and having a sigma value below 0.7. The 2-phenyl group can contain up to four substituents, while the 4 and 5 phenyl groups can contain up to three substituents each.

The radicals and the dimers are stable and form a photochromic system, finding utility as components in sun shields or shades.

They are prepared by oxidizing the corresponding substituted 2,4,5-triphenylimidazole to form the biimidazole which is dark stable. The radical forms upon exposure of the biimidazole to a light source and is stable in the presence of the light radiation.

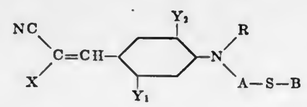
3,784,558

STYRYL DYESTUFFS

Richard Peter and Walter Jenny, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 662,313, Aug. 22, 1967. This application Oct. 13, 1970, Ser. No. 80,496
Claims priority, application Switzerland, Aug. 29, 1966, 12,485/66
Int. Cl. C07c *121/70*
U.S. Cl. 260—465 D **7 Claims**

Water-insoluble styryl dyestuffs of the formula



in which X represents a cyano, carbo-lower alkoxy or phenylsulphone group, Y_1 and Y_2 each represents a hydrogen atom, a lower alkyl or lower alkoxy or phenoxy group, R represents a lower alkyl, phenyl-lower alkyl, cyano-lower alkyl, lower alkoxyalkyl or acyloxyalkyl group or a radical of the formula —A—S—B, and A represents a lower alkylene group that may be substituted by a lower alkanoyloxy or a benzoyloxy group and B represents a phenyl group.

3,784,559

STYRYL DYESTUFFS

Nalin Binduprasad Desai and Ponnusami Jayaraman, Goregaon-Bombay, India, and Visvanathan Ramanathan, Basel, and Klaus Artz, Muttenz, Switzerland, Navnitrai Nagarji Naik, Goregaon-Bombay, India, and Walter Jenny, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 806,291, Mar. 11, 1969, now Patent No. 3,679,657, dated July 25, 1972. This application Dec. 15, 1971, Ser. No. 208,410
Claims priority, application Switzerland, Mar. 18, 1968, 3,958/68
Int. Cl. C07c *121/70*
U.S. Cl. 260—465 D **4 Claims**

Styryl dyestuffs containing at least one group of formula

$$—X—CO—NR—SO_2—aryl$$

wherein R is hydrogen, alkyl or cycloalkyl, and X is an oxygen or sulphur atom or a group of formula $—NR_1—$, wherein R_1 is hydrogen, alkyl or cycloalkyl. The dyestuffs dye polyester fibers in fast yellow shades.

3,784,560

PROCESS FOR THE PRODUCTION OF METHACRYLONITRILE

Takachika Yoshino, Yokohama, Shigeru Saito, Fuchu, Masukuni Sobukawa and Isao Nagase, Yokohama, Masao Nikura, Chigasaki, and Jun Ishikura and Yutaka Sasaki, Yokohama, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed May 20, 1971, Ser. No. 145,500
Claims priority, application Japan, May 23, 1970, 45/43,714; Aug. 7, 1970, 45/68,690; Sept. 28, 1970, 45/84,145
Int. Cl. C07c *121/02*
U.S. Cl. 260—465.3 **8 Claims**

A process for the production of methacrylonitrile in high yields by vapor-phase catalytic ammoxidation of isobutylene utilizing a catalyst comprising as the principle catalytic components at least one oxide selected from the group consisting of Fe, Mn, Co, Ni, Cd and Pb oxides together with an oxide of tungsten, and, optionally, at least one oxide of an element selected from the group consisting of P, B, S, Se and Te.

3,784,561

PROCESS FOR CARRYING OUT CHEMICAL REACTIONS IN A FLUIDIZED BED

Mikhail Gavrilovitch Slinko, Siberia, U.S.S.R., assignor of a fractional part interest to UCB Societe Anonyme, Brussels, Belgium

No Drawing. Filed Jan. 10, 1972, Ser. No. 216,774
Int. Cl. C07c *121/02*
U.S. Cl. 260—465.3 **9 Claims**

A process for carrying out chemical reactions by catalytic fluidization, in a reactor containing heat exchange means and filling elements, in which said filling elements used are windings of rigid wire, the volume of material of which represents 2 to 12% of the volume occupied by the catalyst under working conditions, and in which the speed of displacement of the gaseous constituents through the reactor is from 0.25 to 0.95 times the speed of entrainment of the fluidized particles of the catalyst.

3,784,562
METHYL ACETOACETIC ESTER ENAMINE OF D-2-(1,4-CYCLOHEXADIEN-1-YL)GLYCINE, SODIUM SALT-DIMETHYLFORMAMIDE ADDUCT

Friedrich Dürsch, Hopewell, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed June 21, 1972, Ser. No. 265,078
Int. Cl. C07c *69/74*
U.S. Cl. 260—468 J **5 Claims**

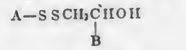
The dimethylformamide adduct of methyl acetoacetic ester enamine of D-2-(1,4-cyclohexadien-1-yl)glycine, sodium salt and its method of preparation are disclosed.

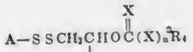
3,784,563
CARBAMIC ACID ESTERS OF POLYHALO DISULFIDE ALCOHOLS

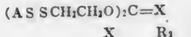
Carl D. Emerson, Kansas City, Mo., and Paul C. Aichenegg, Prairie Village, Kans., assignors to Baychem Corporation, New York, N.Y.

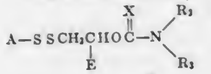
No Drawing. Application Sept. 4, 1968, Ser. No. 757,487, now Patent No. 3,641,109, dated Feb. 8, 1972, which is a continuation-in-part of application Ser. No. 560,125, June 24, 1966. Divided and this application Mar. 27, 1969, Ser. No. 811,191
Int. Cl. C07c *101/12, 101/44*
U.S. Cl. 260—471 C **24 Claims**

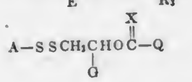
Compounds are prepared having one of the formulae

(1) 

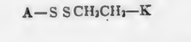
(2) 

(3) 

(4) 

(5) 

and

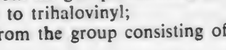
(6) 

where

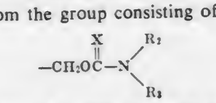
A is selected from the group consisting of di to tetrahaloethyl and di to trihalovinyl;

B is selected from the group consisting of hydrogen and $-CH_2OH$;

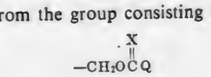
D is selected from the group consisting of hydrogen and



E is selected from the group consisting of hydrogen and



G is selected from the group consisting of hydrogen and



n is 0 or 1,

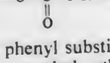
X is selected from the group consisting of oxygen and sulfur except that when *n* is 0 in Formula 2, X must be oxygen;

Q is halogen;

R_1 is selected from the group consisting of alkyl, phenyl, lower alkyl phenyl, halo lower alkyl, halophenyl, naphthyl, lower alkyl naphthyl and lower alkyl halophenyl;

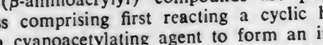
R_2 and R_3 individually are the same as R_1 or hydrogen with the proviso that not more than one of R_2 and R_3 is hydrogen and collectively together with the adjacent nitrogen atom from a 5 to 6 membered heterocyclic ring having up to 1 oxygen atom therein;

R_4 is R_1 or

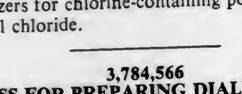


or phenyl ethylene or halophenoxymethyl having up to 3 halogens and up to 1 methyl group on the aromatic ring;

K is selected from the group consisting of



and



J is selected from the group consisting of hydrogen and $ASSCH_2CH_2-$;

m is an integer from 0 to 2 inclusive, and all halogen atoms in the compounds have an atomic weight of 35 to 80.

The compounds are useful as herbicides, fungicides, nematocides, defoliants and desiccants. 1,2,2-trichloroethyldithioethyl-2'-methyl-4'-chlorophenoxy acetate is a particularly effective herbicide.

3,784,564
ACETOACETANILIDE SUBSTITUTED BY A PHENYLCARBAMOYLOXY GROUP

Wolfgang Rohr, Mannheim, and Adolf Fischer, Mutterstadt, Germany, assignors to Badische Aniline- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 14, 1971, Ser. No. 153,003
Int. Cl. C07c *125/06*
U.S. Cl. 260—472 **5 Claims**

New and valuable substituted acetoacetanilides in which the acetoacetanilide is substituted in the meta-position by a phenylcarbamoyloxy group of the formula

where R is phenyl or phenyl substituted by chlorine, bromine, iodine, fluorine, methyl, ethyl, chloromethyl, trifluoromethyl, methoxy, ethoxy, allyloxy and propargyloxy. These compounds are useful as herbicides.

3,784,565
STABILIZERS FOR CHLORINE-CONTAINING POLYMERS

Richard G. Parker, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Oct. 29, 1971, Ser. No. 193,998
Int. Cl. C07c *101/28*
U.S. Cl. 260—482 R **4 Claims**

Bis-(β-aminoacrylyl) compounds are prepared in a process comprising first reacting a cyclic hydrocarbon with a cyanoacetylating agent to form an intermediate, and then reacting the intermediate with an alcohol and a hydrogen halide followed by the addition of sodium bicarbonate. The compounds are particularly useful as heat stabilizers for chlorine-containing polymers, especially polyvinyl chloride.

3,784,566
PROCESS FOR PREPARING DIALKYLAMINOETHYL METHACRYLATE

John A. Patterson, Fishkill, N.Y., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 21, 1970, Ser. No. 99,794
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 R **17 Claims**

Methyl methacrylate is reacted under refluxing conditions with a dialkylaminoethanol in the presence of a catalyst, such as sodium methoxide, and in the presence of an entrainer which, for example, is benzene. The methanol-benzene azeotrope, which is taken off overhead from the reaction zone, is condensed and the resulting liquid composition is passed through a molecular sieve bed for removal of the methanol. The benzene effluent free of methanol, withdrawn from the sieve bed is recycled to the reactor. A product stream removed from the reactor containing the dialkylaminoethyl methacrylate product together with unreacted dialkylaminoethanol, methyl methacrylate, catalyst and inhibitor is sent to a distillation area such as a distillation tower, or series thereof, for recovery of the product and the unreacted starting materials, i.e., the dialkylaminoethanol and the methyl methacrylate, which are recycled to the reaction zone.

3,784,567
METHOD FOR PRODUCING DERIVATIVES OF 6-HYDROXY CAPROIC ACID

Arsene Isard, St. Genis Laval, and Francis Weiss, Pierre-Benite, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed July 3, 1968, Ser. No. 742,158
Int. Cl. C07c *67/00;* **C07d** *9/00*
U.S. Cl. 260—488 F **10 Claims**

ϵ-Caprolactone and ϵ-formyloxycaproic acid are produced by contacting the peroxides of cyclohexanone, particularly the dimer or the trimer thereof, in a non-polar solvent with a solution of concentrated formic acid having therein a small amount of a mineral acid, such as sulfuric acid, hydrochloric acid or phosphoric acid, or a strong organic acid such as methanesulfonic acid, ethanesulfonic acid or p-toluenesulfonic acid, at a temperature in the range between 0° and 40° C. and for a period sufficient for the transformation of the peroxides into the derivatives of 6-hydroxy caproic acids.

3,784,568
PROCESS FOR THE PRODUCTION OF GLYCERINE DIESTERS AND GLYCERINE(II)

Axel Kleemann, Oberursel, Gerd Schreyer, Grossauheim, Otto Weiberg, Neu-Isenburg, and Wolfgang Weigert, Offenbach am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Aug. 7, 1970, Ser. No. 62,183
Claims priority, application Germany, Aug. 30, 1969, P 19 44 119.1
Int. Cl. C07c *29/02, 67/00*
U.S. Cl. 260—491 **10 Claims**

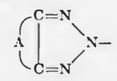
Glycerine is produced by reacting allyl acetate with peracetic acid in the presence of acetic acid at elevated temperature. The diacetin formed is converted to glycerine by alcoholysis after removal of the unreacted allyl acetate and the acetic acid. Higher peraliphatic acids can be used in a similar manner.

3,784,569
V-TRIAZOLYL COUMARINS

Rudolf Kirchmayr, Binningen, Hansjörg Heller, Riehen, and Jean Rody, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,590
Claims priority, application Switzerland, Feb. 16, 1967, 2,319/67
Int. Cl. C09d *99/04;* **C09k** *1/02*
U.S. Cl. 260—308 A **11 Claims**

3-aryl-7-(v-triazolyl)-coumarins in which the triazolyl moiety is of the formula



and A represents an optionally alkyl-substituted tetramethylene group or an optionally alkyl-substituted o,ω-phenylmethylene or o,ω-phenylethylene group the benzene ring of which may be non-chromogenically substituted, are useful as optical brighteners for a great variety of organic materials, e.g. nylon, polyethylene glycol type polyester, polyamide, cellulosic fiber materials, and the like. A method for optically brightening such organic materials, with the aid of the new compounds, and compositions, especially detergent compositions, containing them as optically brightening ingredients, are also described.

3,784,570
4-CHLOROPYRAZOLYL COMPOUNDS

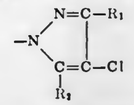
Carl-Wolfgang Schellhammer, Opladen, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 18, 1970, Ser. No. 64,828
Claims priority, application Germany, Aug. 23, 1969, P 19 42 926.6
Int. Cl. C07d *49/18, 55/04*
U.S. Cl. 260—308 B **4 Claims**

Optical brighteners on the basis of 4-chloro-pyrazolyl-(1) compounds having the formula:

P—F—Q

in which P stands for a radical which is linked to a carbon atom of the radical F and corresponds to the formula:



in which R_1 and R_2 represent hydrogen, an alkyl radical, a cycloalkyl, aralkyl or aryl radical; F represents the radical of a fluorescent system; Q represents hydrogen or a radical with the same meaning as P linked to a carbon atom of the radical F.

3,784,571
ORGANIC ACID ADDITION SALTS OF 1-(BUTYLCARBAMOYL) - 2-(METHYLAMINO)-BENZIMIDAZOLE AND METHOD FOR PREPARING THE SAME

Dale I. Dodds, 1830 S. 8th St., Alhambra, Calif. 91803

No Drawing. Filed May 15, 1972, Ser. No. 254,771
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 **18 Claims**

1 - (butylcarbamoyl) - 2 - (methylamino)-benzimidazolium salts are prepared by heating methyl 1-(butylcarbamoyl) - 2 - benzimidazolecarbamate and an organic acid having from 1 to about 6 carbon atoms, such as lactic acid, in a polar solvent, such as dimethyl sulfoxide, to a temperature between about 175 and 315 degrees F. The benzimidazolium salts are effective in the control of certain plant fungus disease.

3,784,572
PRODUCTION OF DELTA-SULTONES BY ISOMERIZATION OF ALKENESULFONIC ACIDS

Delmar D. Krehbiel and Claude D. Butler, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed May 3, 1971, Ser. No. 139,909
Int. Cl. C07d *89/06, 89/12*
U.S. Cl. 260—327 S **3 Claims**

Delta-sultones are produced by heat promoted isomerization of alkenesulfonic acids.

3,784,573
CATALYSIS OF TRANS-ACIDOLYSIS REACTION

Ellis K. Fields, River Forest, and Imre Puskas, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Aug. 13, 1970, Ser. No. 63,622
Int. Cl. C07c *69/76*
U.S. Cl. 260—346.3 **6 Claims**

This invention is directed to a trans-acidolysis reaction wherein a lower alkanoic ester of an alcohol is reacted

with trimellitic anhydride in the presence of an effective amount of a tertiary amine having a pK_b not exceeding 10.

3,784,574

HERBICIDAL N-FURFURYL SUBSTITUTED 2,6-DINITROANILINES

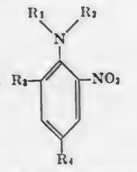
Lester L. Maravetz, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Original application Feb. 24, 1970, Ser. No. 18,407, now Patent No. 3,686,230. Divided and this application June 26, 1972, Ser. No. 268,220

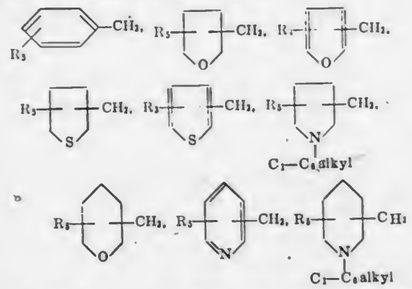
Int. Cl. C07d *5/30*

U.S. Cl. 260—347.7 **2 Claims**

The compounds of the subject invention are represented by the following generic formula



wherein R_1 is selected from the group consisting of



wherein R_5 is H; C_1–C_6 alkyl, alkenyl, haloalkyl, halogen, NO_2; R_2 is hydrogen, C_1–C_6 straight or branched chain alkyl, alkenyl, or alkynyl, C_3–C_8 cycloalkyl, C_4–C_{10} cycloalkylalkyl, C_1–C_6 alkoxyalkyl, C_1–C_6 hydroxyalkyl, C_1–C_6 haloalkyl, C_1–C_6 cyanoalkyl, C_2–C_6 acylalkyl, C_1–C_6 alkylmercaptoalkyl, and related sulfoxide and sulfone analogs; R_3 is H, NO_2 halogen, C_1–C_6 alkyl; and R_4 is H, C_1–C_6 alkyl, haloalkyl, cycloalkyl, halogen, CF_3, NO_2, C≡N, $CH_3S(O)_x$, $C_2H_5S(O)_x$, $C_3H_7S(O)_x$, wherein x is 0, 1 or 2, $SO_2NR_6R_7$ wherein R_6 and R_7 can be the same as R_2 or R_6 and R_7 when taken together with the nitrogen atom to which they are attached form a pyrrolidino, piperidino, aziridino, or morpholino ring.

3,784,575

OXIDATION OF PHENOLS

Thomas F. Rutledge, Wilmington, Del., assignor to ICI America Inc., Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 879,540, Nov. 24, 1969. This application May 5, 1972, Ser. No. 250,573

Int. Cl. C07c *43/20, 49/64*

U.S. Cl. 260—396 R **14 Claims**

An improved process for the oxidation of mono and dialkyl phenols which comprises the coupling of the phenol in the presence of an oxygen containing gas and a catalyst selected from the group consisting of manganous acetylacetonate, manganous salicyclideneimine, cerium acetylacetonate and other chelates of manganous and cerous ions. The process is solvent specific and has been found to yield the best results in a solvent which is a saturated aliphatic monohydric alcohol containing from 2 to 10 carbon atoms, a saturated aliphatic ketone containing from 4 to 12 carbon atoms, an ester of a saturated aliphatic monohydric alcohol containing from 4 to 10 carbon atoms and acetic, propionic, or butyric acid, ethylene glycol diacetate, diethylene glycol diacetate, triethylene glycol diacetate, and ether-esters characterized by the formula



wherein n is 1, 2, or 3 and R is an alkyl group containing from 1 to 4 carbon atoms.

3,784,576

HALOGENATED CHOLESTEROL

Raymond E. Counsell, Ann Arbor, Mich., assignor to The Regents of the University of Michigan, Ann Arbor, Mich.

No Drawing. Filed Sept. 24, 1970, Ser. No. 75,269

Int. Cl. C07c *169/58*

U.S. Cl. 260—397.2 **3 Claims**

Disclosed herein is a halogenated cholesterol which can be utilized as an intermediate to prepare radioactive pharmaceuticals and to increase the fat content in animals.

3,784,577

FATTY ACID AMIDE DERIVATIVES

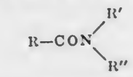
Toshitsugu Fukumaru, Kyoto, Noritaka Hamma, Nishinomiya, Hiroshi Nakatani, Toyonaka, and Hideaki Fukushima and Katsuyuki Toki, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Higashi-ku, Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 671,228, Sept. 28, 1967. This application Oct. 26, 1971, Ser. No. 192,338

Int. Cl. A61k *27/00*

U.S. Cl. 260—404 **3 Claims**

N-substituted fatty acid amides of the formula,



wherein R is a C_{13}–C_{25} aliphatic hydrocarbon chain or a C_{13}–C_{25} hydroxylated aliphatic hydrocarbon chain; R′ is racemic-, d- or l-α-benzylbenzyl; R″ is hydrogen, which are useful for cholesterol lowering agents, may be prepared by any of methods which produce carboxylic acid amides.

3,784,578

PROCESS FOR THE PRODUCTION OF ALLYL ESTERS

Wolfgang Swodenk, Odenthal-Globusch, and Gerhard Scharfe and Johann Grolig, Leverkusen, all % Farbenfabriken Bayer AG, Leverkusen, Germany

No Drawing. Filed June 26, 1970, Ser. No. 50,342

Int. Cl. C07c *67/02*

U.S. Cl. 260—410.9 N **14 Claims**

Allyl esters of carboxylic acids are prepared in high purity and yield in short reaction times by reacting allyl acetate with the methyl or ethyl ester of the carboxylic acid in the contacting presence of a Group I, II or III metal alkoxide.

3,784,579

DRILLING FLUID AGENT AND METHOD OF MAKING SAME

Raymond E. McGlothlin, Eugene R. Werlein, and Bruce E. Taylor, Houston, and Roger Lee Schultz, Tom Ball, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

No Drawing. Continuation-in-part of abandoned application Ser. No. 816,040, Apr. 14, 1969. This application Mar. 13, 1972, Ser. No. 234,381

Int. Cl. E21b *21/04*

U.S. Cl. 260—414 **12 Claims**

A fluid-loss reduction agent for drilling fluids and a method for making same by reacting fatty acids, titanium

compounds, and soap producing metals or metal oxide compounds.

3,784,580

ORGANOSULFONYLMETHYL(TRIHYDROCARBYL)TIN COMPOUNDS

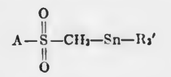
Donald J. Peterson, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 10,303, Feb. 10, 1970. This application July 21, 1971, Ser. No. 164,941

Int. Cl. C07f *7/22*

U.S. Cl. 260—429.7 **11 Claims**

Disclosed are novel organotin compounds and a process for preparing same. These organotin compounds correspond to the general formula:



where A is alkyl of from 1 to 14 carbon atoms; aryl; substituted aryl; or R_2N—, where each R is alkyl of from 1 to 14 carbon atoms; and each R′ is alkyl of from 1 to 14 carbon atoms; or aryl. The organotin compounds of the invention having insecticidal, acaricidal, bacteriostatic, fungicidal and herbicidal properties are employed in the formulation of pesticidal compositions.

3,784,581

SUBSTITUTED NORBORNENE COMPOUNDS AND THEIR APPLICATIONS IN THERMOPLASTIC POLYMER COMPOSITIONS

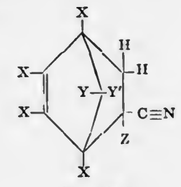
Nicodemus E. Boyer, Parkersburg, W. Va., assignor to Borg-Warner Corporation, Chicago, Ill.

No Drawing. Continuation of abandoned application Ser. No. 824,668, May 14, 1969. This application Apr. 28, 1972, Ser. No. 248,773

Int. Cl. C07c *121/02, 121/48*

U.S. Cl. 260—464 **5 Claims**

Novel compositions of matter having the following structural formula:



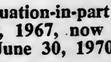
Formula I

wherein each X is selected from the group chlorine, fluorine and bromine: Y and Y′ are each selected from the group consisting of hydrogen, halogen and lower (1–4C) alkyl, alkoxy and halogen-substituted alkyl and alkoxy radicals; and Z is selected from the group consisting of halogen, (1–4C) alkyl, (1–4C) alkoxy, nitrile, thiocyanate, isocyanate, isothiocyanate and phosphono groups of the formula:



wherein R and R′ are each selected from the group consisting of lower (1–4C) alkyl, alkenyl, substituted alkyl, alkoxy, alkenoxy and substituted alkoxy groups.

The compositions of Formula I above are halogen and phosphorus derivatives of cyanonorbornene. These compositions are useful additives in thermoplastic compositions and lend flame retardant characteristics thereto. The compositions may be prepared by reacting equimolar amounts of substituted acrylonitrile of the formula:



Formula II

wherein Z is defined as in Formula I with halogenated cyclopentadiene of the formula:



Formula III

wherein each X is chlorine, fluorine or bromine and Y and Y′ are each selected from the group consisting of hydrogen: halogen, preferably chlorine, bromine or fluorine; lower (1–4C) alkyl, alkoxy and halogen-substituted alkyl and alkoxy radicals.

3,784,582

1-AMIDINO-3-(CYANOPHENYL)UREAS

Leslie Percy Walls, London, England, assignor to Burroughs Wellcome, Research Triangle Park, N.C.

No Drawing. Continuation-in-part of application Ser. No. 650,225, June 30, 1967, now Patent No. 3,539,616. This application June 30, 1970, Ser. No. 51,325

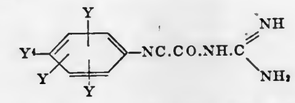
Claims priority, application Great Britain, July 7, 1966, 30,479/66; Dec. 16, 1966, 56,546/66; Feb. 3, 1967, 5,391/67; Apr. 25, 1967, 19,028/67

The portion of the term of the patent subsequent to Nov. 10, 1987, has been disclaimed

Int. Cl. C07c *121/78*

U.S. Cl. 260—465 D **8 Claims**

1-amidino - 3 - (substituted-phenyl)urea compounds of the formula



and pharmaceutically acceptable acid addition salts thereof, wherein Y^4 is halogen or cyano and Y is hydrogen, halogen, methyl or cyano; provided that one of the substituents Y^4 and Y's but not both is always cyano, and that not more than three of the substituents Y^4 and the Y's is a substituent other than hydrogen; and provided that not more than one of the substituents Y^4 and the Y's is methyl.

3,784,583

LATENT ORGANIC PHOSPHONIUM SALT CATALYSTS FOR CURING GLYCIDYL ETHER EPOXY RESINS

James D. B. Smith, Turtle Creek, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 14, 1971, Ser. No. 189,323

Int. Cl. C08g *45/06*

U.S. Cl. 260—830 TW **4 Claims**

A resinous composition, suitable for insulating electrical members, is made from a mixture containing about

90 to 120 parts of a glycidyl ether epoxy resin, about 130 to 165 parts of an acid anhydride and about 0.02 to 0.70 part of a quaternary organic phosphonium salt acting as a latent catalyst.

3,784,584

METHYLOLGLYCIDYL ETHERS

Alfred Renner, Munchenstein, and Wolfgang Seiz, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Mar. 16, 1972, Ser. No. 235,386

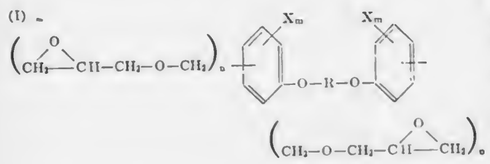
Claims priority, application Switzerland, Mar. 26, 1971, 4,515/71

Int. Cl. C08g *45/06*

U.S. Cl. 260—830 TW **10 Claims**

New polyglycidyl ethers of Formula I:

(I)



wherein R represents an alkylene or alkenylene group having a maximum mass of 2000 atomic weight units, and which can be interrupted by benzene nuclei and oxygen atoms, as well as carry halogen- or oxygen-containing substituents, X stands for an alkyl group having at most 12 carbon atoms, chlorine or bromine, *m* stands for 0, 1 or 2, and *n* stands for 1, 2 or 3, and their preparation are described. They can be cured with epoxide curing agents, and are used for the production of coatings, or as lacquer-, casting-, dipping- and impregnating-resins.

3,784,585

WATER-DEGRADABLE RESINS CONTAINING RECURRING, CONTIGUOUS, POLYMERIZED GLYCOLIDE UNITS AND PROCESS FOR PREPARING SAME

Edward Emil Schmitt, Norwalk, Tzeng Jiueq Suen, New Canaan, and Ivor Heberling Updegraff, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Oct. 21, 1971, Ser. No. 191,465

Int. Cl. C08f *21/02*

U.S. Cl. 260—861 **9 Claims**

This invention provides water-degradable or hydrolyzable thermoplastic or thermoset resins containing blocks of polyglycolic acid units and to a process for preparing the same. More particularly, the invention provides a process relating to the copolymerization of either a resinous prepolymer or a polymerizable monomer with glycolide to produce a plurality of contiguous glycolic acid units which renders the resultant polymer containing such polyglycolic acid units water-degradable. Still more particularly, the invention provides a thermoplastic or resinous polymeric material manufactured by introducing of from about 2% to about 35%, by weight, of glycolide into either a polymerizable monomer or resinous prepolymer and effecting block copolymerization so as to obtain a water-degradable polymeric material. Resultant resin containing recurring, contiguous, polymerized glycolide units finds utility as a disposable packaging material or as a slow release encapsulating material for insecticides and medicinals, thickening agents, and surfactants for food packaging.

3,784,586

COPOLYMERIZABLE COMPOSITION OF OLIGOESTERS HAVING MALEIC ACID END GROUPS AND VINYL MONOMERS

Philippe Thomas, Boulogne, Seine, and Jacques Meyer, Paris, France, assignors to Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Oct. 26, 1970, Ser. No. 84,194

Claims priority, application France, Oct. 30, 1969, 6937328

Int. Cl. C08f *21/00*

U.S. Cl. 260—861 **19 Claims**

A process for preparation of copolymerizable compositions comprising reacting maleic anhydride with one or more polyhydroxylated compounds in the ratio of 1 mole maleic anhydride per hydroxyl group of the polyhydroxylated compounds at a temperature within the range of 50–100° C. until a hydroxyl number of 20 or below is reached and thereafter adding at a temperature within the range of room temperature to 100° C. of at least one cross-linking vinyl monomer in the presence of a polymerization inhibitor.

3,784,587

ADHESIVE COMPOSITION CONTAINING AN A–B–A BLOCK COPOLYMER, POLY ALPHA-METHYL STYRENE AND A TACKIFYING RESIN

Thomas G. Chambers, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed July 31, 1972, Ser. No. 276,805

Int. Cl. C08f *19/08*

U.S. Cl. 260—876 B **8 Claims**

A pressure-sensitive adhesive composition suitable for application as a hot melt, without a solvent, which comprises a mixture of (a) an unvulcanized elastomeric block copolymer having the general configuration A—B—A, where A is a non-elastomeric styrene polymer block and B is an elastomeric diene polymer block selected from isoprene and 1,3-butadiene, (b) a compatible thermoplastic tackifying resin containing carbon-to-carbon unsaturation and derived from hydrocarbons having 5 to 8 carbon atoms and (c) a poly(α-methylstyrene) characteristically having a viscosity at 60° C. in the range of about 100 to about 900 centipoises.

3,784,588

ACRYLATE ADDITION PRODUCTS OF DIALKYL PHOSPHORODITHIOIC ACIDS

Peter Miles, Moston, England, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Jan. 19, 1971, Ser. No. 107,827

Claims priority, application Great Britain, Jan. 29, 1970, 4,296/70

Int. Cl. C07f *9/16;* **C10m** *1/78*

U.S. Cl. 260—928 **13 Claims**

Esters of S-alkylcarboxylic derivatives of O,O-dihydrocarbyl phosphorodithioic acids are used as antioxidants and extreme pressure additives for lubricants. The esters are prepared by reacting an O,O-dihydrocarbyl phosphorodithioic acid with an acrylate.

3,784,589

2-CARBOMETHOXY-1-METHYLVINYL ETHYL PHOSPHONOTHIOATES

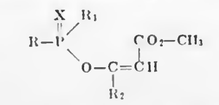
George B. Large, Pinole, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Sept. 21, 1970, Ser. No. 74,136

Int. Cl. A01n *9/36;* **C07f** *9/40*

U.S. Cl. 260—941 **9 Claims**

New compounds corresponding to the formula



wherein X can be sulfur or oxygen; R can be selected from a group consisting of alkyl, haloalkyl, alkoxy, thioalkyl and aryl; R_1 can be selected from a group consisting of thioalkyl, aminoalkyl, thioalkylnitrile, thioalkyl acetate, thioalkyl acetamide, thioalkynyl, amine, thioaryl, nitroaryl, halogenated thioaryl, thioalkylaryl, amino oxazolidine, keto oxime, aminoaryl, aminocycloalkyl, aminoalkylaryl, amino furfuryl, cycloalkylamine alkoxy, and alkenyloxy; and R_2 can be selected from a group consisting or aryl and alkyl. The compositions described herein are useful as insecticides and miticides.

3,784,590

HYDROXY AND IMINO CONTAINING PHOSPHONIC ACID DIESTERS

Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Jan. 2, 1969, Ser. No. 789,060, now Patent No. 3,637,763. Divided and this application Apr. 13, 1971, Ser. No. 133,730

Int. Cl. A01n *9/36;* **C07f** *9/48*

U.S. Cl. 260—944 **5 Claim**

This invention relates to [1-hydroxy-2-methyl-3-(substituted-imino)pentyl]phosphonic acid diesters and [1-(1-hydroxyethyl)-2-(substituted-imino)]phosphonic acid diesters which have utility as intermediates in the preparation of (cis-1,2-epoxypropyl)-phosphonic acid. The acid product thus obtained and its salts are antimicrobial agents which are useful in inhibiting the growth of gram-positive and gram-negative pathogenic bacteria.

3,784,591

BIS(α,β-DIHALOALKYL) 1-ACYLOXYALKANE PHOSPHONATES

Arthur D. F. Toy, Stamford, Conn., and Eugene A. Uhing, Ridgewood, N.J., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed June 10, 1971, Ser. No. 151,953

Int. Cl. C07f *9/40;* **C08f** *45/58*

U.S. Cl. 260—952 **7 Claims**

The new compounds, bis(α,β-dihaloalkyl) 1-acyloxyalkane-phosphonates, and particularly bis(2,3 dihalopropyl) 1-acyloxyalkanephosphonates are disclosed which have been found to be effective flame retardants in various polymer compositions such as polymethyl methacrylate and polystyrene.

3,784,592

HALOGENATED POLYHYDROXY-CONTAINING PHOSPHATE ESTERS

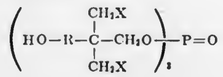
Lewis R. Leonard, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

No Drawing. Filed Feb. 25, 1971, Ser. No. 118,936

Int. Cl. C07f *9/08;* **C08g** *22/44*

U.S. Cl. 260—953 **3 Claims**

There is disclosed certain esters of phosphoric acid represented by the formula:



wherein R is a linear aliphatic hydrocarbon radical having 1–20 carbon atoms and wherein X is bromine or chlorine, preferably bromine. The use of such esters as reactive fire retardant agents for polymeric systems, especially urethane foams, is suggested; as is their use for other purposes such as light stabilizers for such systems.

3,784,593

PROCESS FOR CLASS IV–B METALS ORE REDUCTION (IMPROVEMENT)

Paul Franklin Taylor, P.O. Box 468, Crossville, Tenn. 38555

No Drawing. Continuation-in-part of application Ser. No. 117,098, Feb. 19, 1971. This application Mar. 22, 1972, Ser. No. 236,961

Int. Cl. C22b *53/00, 61/02*

U.S. Cl. 75—84 **12 Claims**

Ores containing oxides of titanium, zirconium, and hafnium are reduced by mixing them with a solution containing primarily phosphoric acid as well as zinc oxide and a sulfated surfactant. Calcium carbonate is added to the solution and it is brought to a boil, allowing the volatile materials to vaporize to form a syrupy mixture. Optionally, sodium bicarbonate and water are added and the resultant mixture is decanted. The resulting material is leached and dried. The residue is immersed in molten sodium hydroxide, diluted with water, rinsed, re-dried, and smelted to yield the pure metal.

3,784,594

CELLULAR MATERIAL PRODUCED FROM COPOLYMERS OF CYCLIC VINYL ETHERS AND CYCLIC ACETALS

Anthony Joseph Papa, St. Albans, and William Robert Proops, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed May 25, 1971, Ser. No. 146,843

Int. Cl. C08g *53/08*

U.S. Cl. 260—2.5 AM **24 Claims**

Novel copolymerization products are provided by the cationic polymerization of a di-(dihydropyranyl) compound with a substituted 1,3-dioxolane or a substituted 1,3-dioxane. The copolymerization products possess improved abrasion resistance and toughness as compared with the homopolymers of the di-(dihydropyranyl) monomers. Especially useful, particularly in providing foamed polymeric materials of improved friability resistance, are the polymerization reaction products of 3,4-dihydro-2H-pyran-2-methyl(3,4 - dihydro-2H-pyran-2-carboxylate) and a bis-dioxolanyl or a bis-dioxanyl carbamate.

3,784,595

POLYCARBONATE MOLDING COMPOSITIONS HAVING IMPROVED RELEASE PROPERTIES CONTAINING AN ESTER OF A TRIHYDRIC ALCOHOL AND A C–10 TO C–22 SATURATED ALIPHATIC CARBOXYLIC ACID

Hermann Schirmer, Krefeld, and Günter Peilstöcker, Krefeld-Bockum, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,641

Claims priority, application Germany, Dec. 28, 1970, P 20 64 095.3

Int. Cl. C08g *51/36*

U.S. Cl. 260—18 TN **10 Claims**

Polycarbonate molding compositions are provided which contain from about 0.1 to about 2% by weight based on the weight of the polycarbonate of one or more esters of trihydric alcohols and saturated aliphatic carboxylic acids containing from ten to twenty-two carbon atoms.

3,784,596
NON-AQUEOUS PAPER COATING COMPOSITIONS

Robert T. Nagler, Prairie du Sac, Wis., assignor to Bergstrom Paper Company

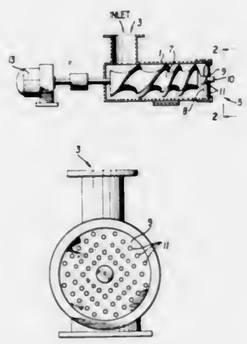
No Drawing. Filed Nov. 24, 1971, Ser. No. 202,000
Int. Cl. C08g *51/04*
U.S. Cl. 260—23 R 16 Claims

Paper coating pigment is combined with polymeric binder, organic solvent and rheological modifier to form a uniform, high-solids, water free coating composition of controllable rheology which may be applied to paper, film or web material to produce a smooth coated product with superior properties.

3,784,597
PROCESS FOR PRODUCING A PARTIALLY HYDROLYZED ACRYLAMIDE POLYMER

Takehiko Fujimoto, Masashi Okada, and Shigeo Inoue, Kyoto, Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto, Japan

Filed Dec. 16, 1971, Ser. No. 208,875
Claims priority, application Japan, Dec. 19, 1970, 45/114,562
Int. Cl. C08f *3/90, 27/14*
U.S. Cl. 260—80.3 N 8 Claims



Acrylamide polymers and copolymers are partially hydrolyzed in an extruder from high concentration gel-like aqueous medium.

3,784,598
PROCESS FOR THE CONVERSION OF A 3-HYDROXY-5,6-OXIDO GROUP OF A STEROID INTO A Δ^4-3-OXO GROUP

Percy L. Julian and Arnold Hirsch, Oak Park, Ill., and Ernst Iseli, Basel, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Continuation of abandoned application Ser. No. 818,434, Apr. 22, 1969. This application Jan. 20, 1972, Ser. No. 219,544
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 D 31 Claims

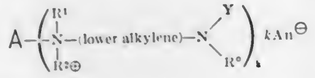
The present invention is concerned with the conversion of a 3-hydroxy-5,6-oxido group of a steroid, and more especially of a 3-hydroxy-5α,6α-oxido group of a steroid of the pregnane series, into a Δ^4-3-oxo group. A process for a conversion of this kind is of special value for the manufacture of known progestatives such as 17α-hydroxyprogesterone, corticoids such as cortexolone, cortisone, hydrocortisone, triamcinolone, dexamethasone, betamethasone and fluprednylidene and their derivatives, from starting materials of the pregnenolone type which themselves are obtained in good yield and economically from diosgenin.

3,784,599
WATER-SOLUBLE QUATERNARY AMMONIUM PHTHALOCYANINE DYESTUFFS

Patrick J. Jefferies, Erlanger, Ky., and Nathan N. Crounse, Cincinnati, Ohio, assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 51,676, July 1, 1970, now Patent No. 3,709,903, which is a continuation-in-part of application Ser. No. 777,884, Nov. 21, 1968, which in turn is a continuation-in-part of application Ser. No. 551,868, May 23, 1966, both now abandoned. This application Nov. 22, 1971, Ser. No. 201,153
Int. Cl. C09b *47/04;* D06p *1/14*
U.S. Cl. 260—242 2 Claims

Water-soluble cationic dyestuffs of the formula



wherein

R° is hydrogen, lower-alkyl or hydroxy-lower-alkyl;
R^1 is lower-alkyl, lower-alkenyl or hydroxy-lower-alkyl;
R^2 is lower-alkyl, lower-alkenyl, hydroxy-lower-alkyl or -(lower-alkylene)-NR°Y or R^1 or R^2 together with the nitrogen atom, are pyrrolidino, piperidino or 4-lower-alkanoyl piperazino;
Y is hydrogen or



wherein R is hydrogen, lower-alkyl, lower-alkenyl, phenyl or phenyl-lower alkyl;
A is a phthalocyanine dyestuff radical attached to *k* quaternary ammonium nitrogen atoms through the same number of methylene bridges;
k is a small integer whose value has a range from one to five; and
An is an anion;

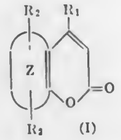
are particularly useful for coloring natural fibers, synthetic fiber-forming materials and cellulosic materials. These dyes dye cotton and paper various shades of a stable turquoise. The dyeings from these dyes on paper are less prone to bleed and have a high degree of color discharge when bleached with hypochlorite or chlorine bleaches.

3,784,600
4-SUBSTITUTED COUMARINS

Max von Strandtmann, Rockaway Township, David T. Connor, Parsippany, and John Shavel, Jr., Mendham, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

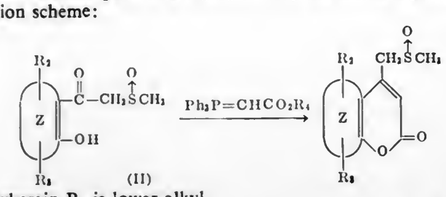
No Drawing. Filed Oct. 22, 1971, Ser. No. 191,830
Int. Cl. C07d *7/24*
U.S. Cl. 260—343.2 R 18 Claims

4-substituted coumarins having the following structural formula are disclosed:



wherein R_1 is (methylsulfinyl)methyl, (methylsulfonyl)methyl, acetyl(methylthio)methyl, dimethoxymethyl, formyl, hydroxymethyl, (arylimino)methyl, (arylamino)methyl or (oximino)methyl; Z is an aromatic or heteroaromatic nucleus; R_2 and R_3 are hydrogen, halogen, alkyl, aralkyl, aryl, alkoxy, acylamino, or hydroxy.

These compounds are prepared by the following reaction scheme:



wherein R_4 is lower alkyl.

The 4 - [(methylsulfinyl)methyl]coumarins are then converted to other 4-substituted coumarins of this invention.

The compounds of this invention are useful as gastric antiscretory agents and are indicated in conditions such as gastric hyperacidity.

3,784,601
PROCESS FOR THE PRODUCTION OF MOLDED ARTICLES OR COATINGS FROM POLYADDUCTS BY REACTION OF POLYETHERS WITH POLYISOCYANATES

Karl Jellinek, Letmathe, Udo Post, Wibmar uber Gieben, and Rudi Oellig, Duisburg-Meiderich, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt, West Germany

No Drawing. Filed Feb. 17, 1972, Ser. No. 227,256
Claims priority, application Germany, Feb. 17, 1971, P 21 07 441.9
Int. Cl. C08g *22/10, 22/14*
U.S. Cl. 260—77.5 AP 8 Claims

Process for preparing a composition of matter suitable for the production of molded articles or coatings, said process comprising preparing a polyether by reacting an unsubstituted, halogen-substituted or alkyl substituted hexahydrophthalic acid diglycidyl ester with a cycloaliphatic diol in a molar ratio of 1:0.8 to 0.8:1, and mixing the resulting polyether with a polyisocyanate.

3,784,602
ARYLOXY- AND ARYLTHIOALKANOIC ACIDS AND ESTERS AND SALTS THEREOF

Jorg Frei, Binningen, Basel, Charles J. Morel, Arlesheim, Basel, and Oskar Wacker, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,823
Claims priority, application Switzerland, Mar. 20, 1970, 4,256/70
Int. Cl. C07d *63/18, 5/44*
U.S. Cl. 260—346.2 M 13 Claims

Compounds of the class of substituted 6,7,8,9-tetrahydrodibenzofuranyloxy-, 6,7,8,9 - tetrahydrodibenzothiophenyloxy-, and the corresponding furanylthio- and thiophenylthioacetic acids, lower alkyl esters thereof and alkali and alkaline earth metal salts thereof have hypolipaemic activity; they are active ingredients of pharmaceutical compositions and are useful for treating hyperlipaemic conditions in warm-blooded animals.

3,784,603
6-AZIDO-21-OXYGENATED-STEROIDS OF THE PREGNANE SERIES, METHODS FOR THEIR MANUFACTURE AND INTERMEDIATES PRODUCED THEREBY

Elliot L. Shapiro, Cedar Grove, N.J., George J. Teutsch, Nancy, France, and Hershel L. Herzog, Glen Ridge, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Continuation of abandoned application Ser. No. 59,367, July 29, 1970. This application July 13, 1972, Ser. No. 271,463
Int. Cl. C07c *173/10*
U.S. Cl. 260—349 44 Claims

6-azido-21-oxygenated-4-pregnene-3,20-diones and the 1-dehydro-, 6-dehydro-, and 1,6-bis-dehydro-analogs thereof possess corticoid properties. Preferred are the 6-dehydro analogs, i.e. the 6-azido-21-oxygenated-4,6-pregnadiene-3,20-diones, having enhanced anti-inflammatory activity. Compounds useful as intermediates which also possess glucocorticoid properties are 6β-azido-7α-hydroxy-21-oxygenated-4-pregnene-3,20-diones and the 7α-acylates thereof.

The preferred 6-azido-21-oxygenated-4,6-pregnadiene-3,20-diones are prepared by treating a 6α,7α-oxido-4-pregnene with an alkali metal azide in an aqueous, inert organic solvent; esterifying the thereby formed 6β-azido-7α-hydroxy-4-pregnene; and treating the resulting 6β-azido-7α-acyloxy-4-pregnene with a tetraalkylammonium halide in an aprotic solvent. Alternatively, the 6-azido-4,6-pregnadienes are prepared by treating a 6β-azido-7α-hydroxy-4-pregnene or 7α-acylate thereof with concentrated hydrochloric acid in a lower alkanoic acid in an inert solvent.

The 6α-azido-21-oxygenated-4-pregnene-3,20-diones and 1-dehydro analogs thereof are prepared by treating a 6β-halogeno-(or 6β-sulfonyloxy)-21-oxygenated-4-pregnene-3,20-dione or 1-dehydro-analog thereof with an alkali metal azide in an inert solvent.

The 6-azido-21-oxygenated - 1,4,6 - pregnatriene-3,20-diones are prepared by treating a 6-azido-21-oxygenated-4,6-pregnadiene-3,20-dione with 2,3-dichloro-5,6-dicyanobenzoquinone in the presence of a strong acid and water.

3,784,604
1-p-(ω - AMINOALKOXY)PHENYL - 4,4 - DIARYLCYCLOHEXANES, CYCLOHEXENES AND CYCLOHEXANDIENES AND THE SALTS AND N-OXIDES THEREOF

Mario G. Buzzolini, Morristown, N.J., assignor to Sandoz, Inc., Hanover, N.J.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,680
Int. Cl. C07c *93/06;* C07d *27/00*
U.S. Cl. 260—570 R 12 Claims

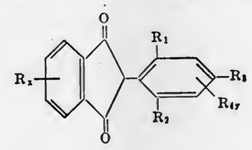
This invention relates to 1-p-(ω-aminoalkoxy)phenyl-4,4-diarylcyclohexanes and cyclohexenes. The cyclohexanes are prepared by catalytic hydrogenation of either the cyclohexenes or cyclohexan-dienes while the cyclohexenes are prepared by dehydration of a corresponding cyclohexan-1-ol and the cyclohexan-dienes are prepared by dehydration of a corresponding 2-cyclohexen-1-ol, a representative compound being 1-[4-(2-diethylaminoethoxy)phenyl]-4,4-diphenyl-cyclohexane hydrochloride. The invention also relates to intermediates and methods useful in the preparation thereof and to pharmaceutical compositions and methods utilizing said compounds.

3,784,605
2-(POLYSUBSTITUTED PHENYL)-1,3-INDANDIONE COMPOUNDS

John A. Durden, South Charleston, W. Va., and Anthony A. Sousa, Raleigh, N.C., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 816,024, Apr. 14, 1969. This application May 13, 1971, Ser. No. 143,207
Int. Cl. C07c *49/76*
U.S. Cl. 260—590 2 Claims

A new series of 2-(polysubstituted phenyl)-1,3-indandione compounds have been found to have exceptional miticidal and herbicidal activity. These compounds may be represented by the following general formula:



where R is lower alkyl, lower alkoxy or halogen; x is 0 or a positive integer from 1 to 4, R_1 is lower alkoxy; R_2 and R_3 are lower alkyl; R_4 is lower alkyl or lower alkoxy and y is 0 or a positive integer of of from 1 to 2.

3,784,606

NOVEL 2-ARYL-1,3-INDANDIONES AND 2-ARYL-2,3-DIHYDROBENZ[f]INDENE-1,3-DIONES

Gerald F. Holland, Old Lyme, and Joseph G. Lombardino, Niantic, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Original application Aug. 29, 1968, Ser. No. 756,324, now Patent No. 3,622,632. Divided and this application Jan. 28, 1971, Ser. No. 110,589

Int. Cl. C07c *49/76, 49/82*

U.S. Cl. 260—590 **3 Claims**

Novel 2 - aryl-1,3-indandiones and 2-aryl-2,3-dihydrobenz[f]indene-1,3-diones and their use in lowering the blood lipid level in mammals.

3,784,607

HALOHYDRIN THIOETHERS AND METHOD OF PREPARATION

Richard A. Hickner and Corwin J. Bredeweg, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Oct. 3, 1968, Ser. No. 764,956, now abandoned. Divided and this application Aug. 9, 1971, Ser. No. 170,302

Int. Cl. C07c *149/18*

U.S. Cl. 260—609 R **10 Claims**

Compounds of the structure $R(SCH_2CHOHCH_2X)_n$ when n=1 to 4 and R is a hydrocarbon, ether, ester, acetal, hydroxy aliphatic, hydroxy aromatic, imide or amide group or halogenated derivatives thereof are prepared by reacting 1-halo-3-mercapto-2-propanol with an aliphatically unsaturated compound using free radical initiators as catalysts. The compounds in which R is an unsaturated aliphatic hydrocarbon group of 2 to 24 carbon atoms, or an unsaturated cycloaliphatic group, and those in which the aliphatic or cycloaliphatic group is connected to two or more —S—$CH_2CHOHCHCl$ groups, and compounds where R is an alkylene substituted aromatic group and hydroxy, thioalkyl, alkoxy, aryloxy, ester, carbamidoalkyl and sulfamidoalkyl, halogenated derivatives of said groups are new compounds. The thioether halohydrins can be converted to epoxides. The process utilizing a radioactive energy source as a catalyst is new.

3,784,608

SUBSTITUTED HALOALKOXY- AND HALOALKYLTHIO-PHENOLS AND THIOPHENOLS

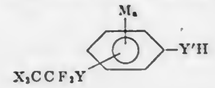
Eric R. Larsen, Midland, Bernard R. Andrejewski, Linwood, and Fred Y. Edamura, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Feb. 1, 1971, Ser. No. 111,683. Divided and this application Oct. 30, 1972, Ser. No. 301,876

Int. Cl. C07c *149/32*

U.S. Cl. 260—609 D **1 Claim**

Novel substituted haloalkoxy- or haloalkylthio-phenol or thiophenol compounds corresponding to the formula:



wherein

each X independently represents hydrogen, bromo, chloro or fluoro, with the proviso that at least one X is always bromo, chloro or fluoro;

Y and Y′ each independently represent oxygen or sulfur;

each M independently represents bromo, chloro, fluoro, iodo, nitro or loweralkyl containing from 1 to about 4 carbon atoms, both inclusive, and

a represents an integer of from 1 to 3, both inclusive.

The novel compounds of the present invention are suitable for use as herbicides, fungicides and insecticides, and are further useful as intermediates in the preparation of substituted ethyl phenoxyacetate compounds, which in turn have utility as herbicides.

3,784,609

ALLYLIC SUBSTITUTION OF OLEFINS

Robert Schwenn Neale, Ossining, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,172

Int. Cl. C07c *41/06*

U.S. Cl. 260—611 R **7 Claims**

A liquid phase process for the production of allyl ethers comprising admixing an olefin, a nucleophilic solvent (an alcohol), an organic hydroperoxide, and an exchange promoter selected from the group consisting of acids having a pKa value of less than 3 and salts formed from such acids and nitrogen bases having a pKa value greater than 5 in the presence of a catalyst compound containing copper in a +1 or +2 oxidation state, at least 1×10^{-5} mol of said catalyst compound per mol of hydroperoxide being present in the admixture in a solubilized state.

3,784,610

SUBSTITUTED PHENOXY- AND PHENYLTHIO-ALKANOLS AND ALKANETHIOLS

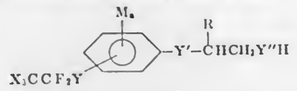
Eric R. Larsen, 314 W. Meadowbrook Drive; Lennon H. McKendry, 205 Hollybrook Drive; and Fred Y. Edamura, 509 Capitol Drive, all of Midland, Mich. 48640

No Drawing. Original application Feb. 1, 1971, Ser. No. 111,685. Divided and this application Oct. 30, 1972, Ser. No. 301,877

Int. Cl. C07c *149/32*

U.S. Cl. 260—609 D **1 Claim**

Novel substituted phenoxy- and phenylthio-alkanol and alkanethiol compounds corresponding to the formula:



wherein

each X independently represents hydrogen, bromo, chloro or fluoro, with the proviso that at least one X is always bromo, chloro or fluoro;

Y, Y′ and Y″ each independently represents oxygen or sulfur;

each M independently represents bromo, chloro, iodo, fluoro, nitro or loweralkyl containing from 1 to about 4 carbon atoms, both inclusive;

a represents an integer of from 0 to 3, both inclusive, and R is hydrogen or loweralkyl containing from 1 to about 4 carbon atoms, both inclusive.

The compounds are suitable for use as herbicides and fungicides.

3,784,611

SUBSTITUTED PHENOXY-ALKANOLS

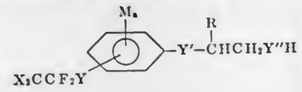
Eric R. Larsen, Lennon H. McKendry, and Fred Y. Edamura, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 1, 1971, Ser. No. 111,685

Int. Cl. C07c *43/22*

U.S. Cl. 260—613 D **7 Claims**

Novel substituted phenoxy- and phenylthio-alkanol and alkanethiol compounds corresponding to the formula:



wherein

each X independently represents hydrogen, bromo, chloro or fluoro, with the proviso that at least one X is always bromo, chloro or fluoro;

Y, Y′ and Y″ each independently represents oxygen or sulfur;

each M independently represents bromo, chloro, iodo, fluoro, nitro or loweralkyl containing from 1 to about 4 carbon atoms, both inclusive;

a represents an integer of from 0 to 3, both inclusive, and R is hydrogen or loweralkyl containing from 1 to about 4 carbon atoms, both inclusive.

The compounds are suitable for use as herbicides and fungicides.

3,784,612

METHOD FOR THE PREPARATION OF ACETALS AND KETALS OF ALPHA-CHLORINATED ALDEHYDES AND KETONES

Wilhelm Vogt, Cologne-Suelz, and Herman Richtzenhain, Post Marialinden, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, West Germany

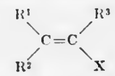
No Drawing. Continuation of abandoned application Ser. No. 774,216, Nov. 7, 1968. This application Aug. 5, 1971, Ser. No. 169,494

Claims priority, application Germany, Nov. 11, 1967, P 16 93 017.9

Int. Cl. C07c *43/30*

U.S. Cl. 260—615 A **20 Claims**

Reaction of halogenated olefins of the formula



wherein X is chlorine, fluorine or bromine; R^1 and R^2 are hydrogen, haloalkyl, alkyl alkoxy alkyl or aryl; R^2 and R^1 are the same or different radicals, and R^2 is haloalkyl or alkoxyalkyl with chlorine in the presence of monohydric alcohols to produce α-chlorinated acetals or ketals.

3,784,613

PREPARATION OF 2,6-DINITRO-4-ALKYLPHENOLS

Eddie Vi Ping Tao, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed June 28, 1971, Ser. No. 157,596

Int. Cl. C07c *79/28*

U.S. Cl. 260—622 P **7 Claims**

4-alkylphenols are converted to 2,6-dinitro-4-alkylphenols via reaction with nitrogen tetroxide. The end products are useful intermediates in the preparation of certain herbicidally active N,N-disubstituted-2,6-dinitro-4-alkylanilines disclosed in United States Pat. 3,257,190 and British Pat. No. 917,253.

3,784,614

PROCESS FOR THE MANUFACTURE OF ALCOHOLS BY THE CATALYTIC HYDRATION DF OLEFINS

Wilhelm Ester and Wilhelm Heitmann, Herne, Germany, assignors to VEBA Chemie Aktiengesellschaft, Gelsenkirchen-Buer, Germany

No Drawing. Continuation of abandoned application Ser. No. 651,945, July 7, 1967. This application Nov. 9, 1970, Ser. No. 78,722

Int. Cl. C07c *29/08, 29/04*

U.S. Cl. 260—641 **17 Claims**

An improved process for the preparation of alcohols by the catalytic hydration of olefins is disclosed. In the process the olefin and water are brought into contact with a catalyst comprising a support material such as bentonite impregnated with phosphoric acid, at a temperature not exceeding 280° C., and employing a water-to-olefin ratio of between about 0.8:1 and 1.1:1.

Under the aforesaid conditions "seepage" occurs, whereby the catalyst is continuously cleaned and accordingly undergoes no decline in activity. The preparation of the alcohols by the instant catalytic hydration of olefins can thus be effected with good results over long periods of operation.

3,784,615

HALOADAMANTANES

Robert E. Moore, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Original application Dec. 17, 1968, Ser. No. 784,486, now Patent No. 3,666,806. Divided and this application Sept. 20, 1971, Ser. No. 182,170

Int. Cl. C07c *17/00, 17/16*

U.S. Cl. 260—648 R **10 Claims**

Halogenated derivatives containing adamantane nucleus are produced by admixing, in the presence of strong sulfuric acid, adamantane or alkyl-substituted adamantane with a selected halo-yielding salt of an alkali or alkaline earth metal, or a corresponding hydrogen halide.

3,784,616

DECOMPOSITION OF OXALATES TO FORM ALDEHYDES AND ALCOHOLS

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Sept. 16, 1971, Ser. No. 181,274

The portion of the term of the patent subsequent to Sept. 22, 1987, has been disclaimed and dedicated to the Public

Int. Cl. C07c *31/02, 27/00*

U.S. Cl. 260—638 R **6 Claims**

A process for the preparation of aldehydes and alcohols comprising contacting a dihydrocarbyl oxalate with a catalyst comprising a complex of a Group VIII noble metal and a biphyllic ligand at a temperature between 150° C. and 250° C. and at a pressure sufficient to maintain liquid phase reaction conditions. Soluble complexes of zero valent iron are cocatalysts for this reaction. The products produced, chiefly alcohols with some aldehydes, formate esters and ethers are useful as intermediates for a variety of products including plasticizers, acids and resins, etc.

3,784,617

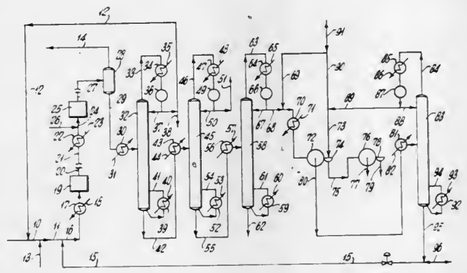
HYDROALKYLATION OF MONONUCLEAR AROMATIC HYDROCARBONS

Robert M. Suggitt, Wappingers Falls, John M. Crone, Jr., Fishkill, and Alfred Arkell, Wappingers Falls, N.Y. (all % Texaco Inc., P.O. Box 509, Beacon, N.Y. 12508)

Filed Dec. 6, 1972, Ser. No. 312,441

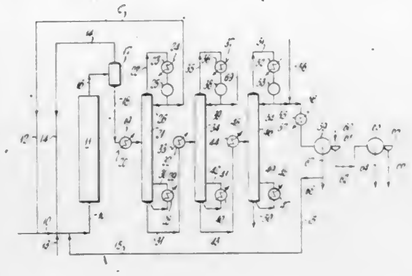
Int. Cl. C07c *5/12*

U.S. Cl. 260—668 R **14 Claims**



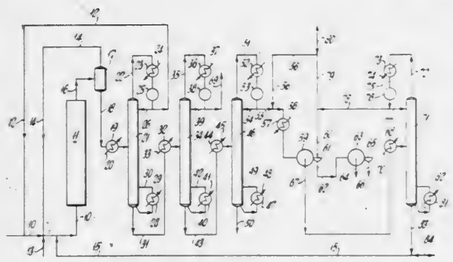
Hydroalkylation of mononuclear hydrocarbons is effected under controlled conditions to yield product hydroalkylate with minimum formation of undesired by-products.

3,784,618
HYDROALKYLATION PROCESS
Robert M. Suggitt, Wappingers Falls, and John M. Crone, Jr., Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,869
Int. Cl. C07c 5/12
U.S. Cl. 260—668 R 17 Claims



Increased yield of cyclohexyl benzene may be achieved by hydroalkylating benzene in the presence of dicyclohexyl benzene.

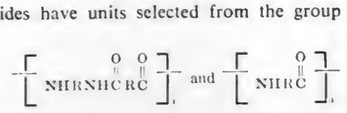
3,784,619
METHOD OF SEPARATING DICYCLOHEXYL BENZENES
John M. Crone, Jr., Fishkill, and Robert M. Suggitt, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,870
Int. Cl. C07c 5/12
U.S. Cl. 260—668 R 20 Claims



Para-dicyclohexyl benzene may be separated from non-para-dicyclohexyl benzene by cooling a mixture preferably in the presence of lower alkanols, and separating crystals of para-isomer from the mixture.

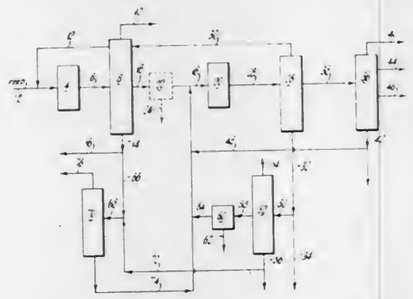
3,784,620
PROCESS FOR THE SEPARATION OF STYRENE FROM ETHYLBENZENE
Eli Perry, St. Louis, Mo., and William F. Strazik, Wilbraham, Mass., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Dec. 14, 1972, Ser. No. 315,254
Int. Cl. C07c 7/02
U.S. Cl. 260—669 A 10 Claims

Styrene is separated from organic mixtures comprising styrene and ethylbenzene by contacting the said mixture under pervaporation permeation conditions against one side of a polyamide permeation membrane and withdrawing on the other side of the membrane a vaporous mixture having an increased concentration of styrene. The polyamides have units selected from the group consisting of



wherein R and R′ are aromatic or aliphatic. Exemplary of the polyamides are nylon-6 and nylon 6, 10.

3,784,621
DISPROPORTIONATION OF ALKYLAROMATIC HYDROCARBONS
Robert M. Suggitt, Wappingers Falls, N.Y., assignor to Texaco Development Corporation, New York, N.Y.
Filed Nov. 11, 1971, Ser. No. 197,832
Int. Cl. C07c 3/62
U.S. Cl. 260—672 T 19 Claims



A process is provided for the production of methylated aromatic hydrocarbons, and in a particularly preferred embodiment tri- and tetramethylbenzenes, by the steps of disproportionating toluene in a first disproportionation reactor, separating a C_8 aromatic fraction from the products of the first reactor and disproportionating the C_8 fraction in a second disproportionation reactor and separating and recovering tri- and tetramethylbenzene fractions substantially free of ethyl-aromatic derivatives.

3,784,622
SATURATED HYDROCARBON AVERAGING
Thomas R. Hughes, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Continuation-in-part of applications Ser. No. 864,870 and Ser. No. 864,871, both Oct. 8, 1969, both now abandoned, Ser. No. 3,303 and Ser. No. 3,306, both Jan. 16, 1970. This application Sept. 14, 1972, Ser. No. 289,036
Int. Cl. C07c 5/18
U.S. Cl. 260—676 R 6 Claims

A process for producing light hydrocarbons and jet fuel boiling range paraffinic hydrocarbons which comprises averaging a raffinate rich in paraffins with another paraffinic feedstock selected from the group consisting of propane or C_4 or C_{10} to C_{20} hydrocarbons or mixtures of the foregoing hydrocarbons, to obtain at least C_5 and C_{10}+ hydrocarbons.

3,784,623
INHIBITION OF OLEFIN ISOMERIZATION IN DISPLACEMENT REACTIONS
Kaye L. Motz, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed June 1, 1972, Ser. No. 258,689
Int. Cl. C07c 3/10, 11/00
U.S. Cl. 260—677 R 7 Claims

Isomerization of alpha-olefins produced by displacement reaction from aluminum alkyl growth products may be inhibited by maintaining the displaced alpha-olefins in contact with a C_2–C_3 olefin until after deactivation of the aluminum alkyls.

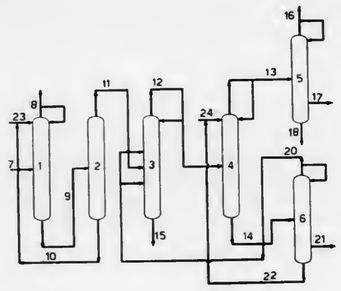
3,784,624
PROCESS FOR THE SEPARATION OF DIENE FROM ORGANIC MIXTURES
Eli Perry, St. Louis, and William F. Strazik, St. Ann, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 22, 1972, Ser. No. 291,458
Int. Cl. C07c 7/00
U.S. Cl. 260—681.5 R 16 Claims

Dienes are separated from organic mixtures comprising diene and alkene having one double bond by contacting the mixture against one side of a polymeric permeation membrane, the membrane having a transition metal molecularly dispersed therein and withdrawing on the other side of the membrane a vaporous mixture having increased diene concentration. Exemplary of the organic mixture is a mixture of butadiene and butene. Exemplary of transition metal is silver as elemental silver and as silver tetrafluoroborate.

3,784,625
PROCESS FOR THE SEPARATION OF DIENE FROM ORGANIC MIXTURES
Eli Perry, St. Louis, and William F. Strazik, St. Ann, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 22, 1972, Ser. No. 291,459
Int. Cl. C07c 7/00
U.S. Cl. 260—681.5 R 4 Claims

Dienes are separated from organic mixtures comprising diene and alkene having one double bond by contacting the mixture against one side of poly(N-vinylpyrrolidone) membrane and withdrawing at the other side a vaporous mixture having increased diene concentration. Exemplary of the organic mixtures is a mixture of butadiene and butene.

3,784,626
PROCESS FOR THE SEPARATION OF CONJUGATED DIOLEFINS FROM MIXTURES CONTAINING THEM
Alessandro Ginnasi and Carlo Rescalli, San Donato Milanese, Italy, assignors to Snam Progetti, S.p.A., San Donato Milanese, Italy
Filed Dec. 29, 1971, Ser. No. 213,485
Claims priority, application Italy, Dec. 29, 1970, 33,614/70
Int. Cl. C07c 7/08
U.S. Cl. 260—681.5 R 4 Claims

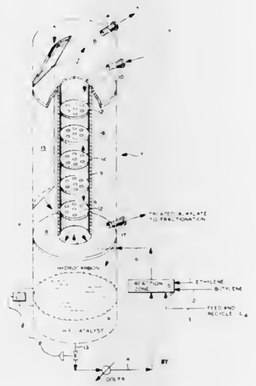


A process is disclosed whereby conjugated diolefins, such as isoprene and butadiene, are separated with high selectivity from mixtures containing them through extraction and/or extractive distillation with the aid of an agent consisting of morpholine and another solvent such as an oxygen containing derivative of morpholine and water, e.g., morpholine-water, morpholine-N-formyl morpholine and morpholine-N-formyl morpholine-water.

3,784,627
CATALYSTS AND PROCESS FOR DEHYDROGENATION
Brent J. Bertus, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Feb. 28, 1972, Ser. No. 230,077
Int. Cl. C07c 3/28
U.S. Cl. 260—683.3 9 Claims

Compositions prepared from (I) a transition metal compound of the iron group, (II) a Group II–A metal-containing compound, and (III) Group VI–A element-containing compound, are effective in a process to convert paraffins or monoolefins to a greater degree of unsaturation.

3,784,628
REMOVING ALKYL FLUORIDE WITH HF ACID FROM AN ALKYLATION HYDROCARBON EFFLUENT
Charles C. Chapman, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed July 6, 1971, Ser. No. 159,884
Int. Cl. C07c 3/50
U.S. Cl. 260—683.42 1 Claim



Method and apparatus are described wherein alkylate containing alkyl fluoride is passed upwardly through a series of contacting zones or members in contact with downflowing high purity HF acid, acid is settled below the contacting zone and returned to alkylation while hydrocarbon phase formed above the contacting zone is recovered substantially free from fluoride.

3,784,629
DIMERIZATION OR CODIMERIZATION OF α-OLEFINS
Neil A. Maly, Tallmadge, Henry R. Menapace, Stow, and Gerald S. Benner, Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Mar. 9, 1972, Ser. No. 233,279
Int. Cl. C07c 3/10
U.S. Cl. 260—683.15 D 7 Claims

There is disclosed a process for the dimerization or codimerization of α-olefins by means of a catalyst system

comprising (A) an organometallic compound (B) a nitrogen containing ligand and (C) the reaction product of a tungsten halide and a monocarboxylic acid or a semiester of a dicarboxylic acid.

3,784,630
DIMERIZATION OR CODIMERIZATION OF α-OLEFINS
Neil A. Maly, Tallmadge, Henry R. Menapace, Stow, and Gerald S. Benner, Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Mar. 9, 1972, Ser. No. 233,363
Int. Cl. C07c *3/10*
U.S. Cl. 260—683.15 D **9 Claims**

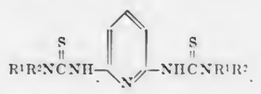
There is disclosed a process for the dimerization or codimerization of α-olefins by means of a catalyst system comprising (A) an organometallic compound, (B) a nitrogen-containing ligand and (C) the reaction product of a tungsten halide and a phenolic compound.

3,784,631
DIMERIZATION OR CODIMERIZATION OF α-OLEFINS
Henry R. Menapace, Stow, and Gerald S. Benner and Neil A. Maly, Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Mar. 9, 1972, Ser. No. 233,364
Int. Cl. C07c *3/10*
U.S. Cl. 260—683.15 D **7 Claims**

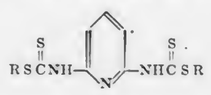
There is disclosed a process for the dimerization or codimerization of α-olefins by means of a catalyst system comprising (A) an organometallic compound, (B) a nitrogen-containing ligand and (C) the reaction product of a tungsten halide and a diketone.

3,784,632
2,6-BIS(THIOUREA) DERIVATIVES OF PYRIDINE
Ikuo Matsumoto and Masao Okazawa, Tokyo, Japan, assignors to Banyu Pharmaceutical Co., Ltd., and Hiroyoshi Hidaka, both of Tokyo, Japan
No Drawing. Filed May 19, 1972, Ser. No. 254,941
Claims priority, application Japan, July 1, 1971, 46/47,700
Int. Cl. C07d *31/50*
U.S. Cl. 260—293.69 **6 Claims**

Pyridyl thiourea derivatives having the formula:



wherein R^1 and R^2, respectively, represent a hydrogen atom, a lower alkyl group or an hydroxyalkyl group or R^1 and R^2 together can form a heterocyclic ring with the nitrogen atom, can be prepared by reacting bis(alkyldithiocarbamate) derivatives having the formula:



wherein R represents a lower alkyl group, with an ammonium hydroxide or amine having the formula:

$$R^1R^2NH$$

wherein R^1 and R^2 are as defined above. Alternatively, the compounds can be prepared by reacting 2,6-di(isothiocyanato)pyridine with a dialkylamine of the formula:

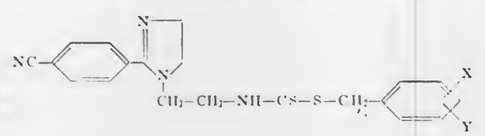
$$R^1R^2NH$$

wherein R^1 and R^2 are as defined above.

The compounds of this invention may be used as agents having physiological activity toward the circulatory system, or as anti-inflammation agents.

3,784,633
IMIDAZOLINYL-ETHYL-DITHIOCARBAMIC ACID ESTERS
Manfred Schorr, Frankfurt am Main, and Dieter Duwel, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed May 16, 1972, Ser. No. 253,730
Claims priority, application Germany, May 18, 1971, P 21 24 572.7
Int. Cl. C07d *49/34*
U.S. Cl. 260—309.6 **5 Claims**

Imidazolinyl-ethyl-dithiocarbamic acid esters and their physiologically compatible salts are described as well as the process of their manufacture and their anthelmintic action. The novel compounds correspond to Formula I



(I)

in which X and Y stands for hydrogen or halogen.

3,784,634
PROCESS FOR PRODUCING PROSTAGLANDINS
George F. Just, 499 Mount Pleasant Ave., Westmont, Quebec, Canada, and Chaim Simonovitch, Rishon-le-Zion, Israel; said Simonovitch assignor to said Just
No Drawing. Continuation-in-part of abandoned application Ser. No. 657,085, July 31, 1967. This application Dec. 31, 1970, Ser. No. 103,315
Claims priority, application Great Britain, Aug. 9, 1966, 35,550/66; Jan. 24, 1967, 3,588/67
Int. Cl. C07c *61/32, 69/74*
U.S. Cl. 260—468 D **19 Claims**

Prostaglandin F_{1a}, prostaglandin $F_{1\beta}$, and analogs of those are produced from bicyclo[3.1.0]hexane intermediates.

3,784,635
SUBSTITUTED PHENOXYBENZOIC ACIDS AND ESTERS THEREOF
Robert J. Theissen, Westfield, N.J., assignor to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 819,412, Apr. 25, 1969, now Patent No. 3,652,645. This application Feb. 11, 1971, Ser. No. 114,712
Int. Cl. C07c *69/78*
U.S. Cl. 260—471 R **6 Claims**

2-nitro-5-(substituted-phenoxy)benzoic acids and esters salts, amides, and acyl halides thereof comprise a class of compounds that are highly effective herbicides.

3,784,636
PROCESS FOR PRODUCING PROSTAGLANDINS
George E. Just, 499 Mount Pleasant Ave., Westmount, Quebec, Canada, and Chaim Simonovitch, Rishon-le-Zion, Israel; said Simonovitch assignor to said Just
No Drawing. Continuation-in-part of abandoned application Ser. No. 657,085, July 31, 1967. This application Dec. 31, 1970, Ser. No. 103,336
Int. Cl. C07c *61/32, 69/74*
U.S. Cl. 260—468 D **18 Claims**

Prostaglandin F_{1a}, prostaglandin $F_{1\beta}$, and analogs of those are produced from bicyclo[3.1.0]hexane intermediates.

3,784,637
MULTIFUNCTIONAL POLYMERIZATION INITIATORS FROM VINYLSILANES OR VINYLPHOSPHINES AND ORGANOMONOLITHIUM COMPOUNDS
Ralph C. Farrar, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Original application Jan. 30, 1969, Ser. No. 795,364, now Patent No. 3,624,057, dated Nov. 30, 1971. Divided and this application Sept. 1, 1971, Ser. No. 177,155
Int. Cl. C07f *7/08, 9/50*
U.S. Cl. 260—448.2 Q **9 Claims**

Multifunctional polymerization initiators are prepared by reacting an organomonolithium compound with a polyvinylsilane compound or polyvinylphosphine compound.

3,784,638
PREPARATION OF TERTIARY ORGANOPHOSPHINE OXIDES
Ronald F. Lambert, Melrose, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
No Drawing. Filed Dec. 24, 1969, Ser. No. 888,023
Int. Cl. C07f *9/28, 9/30*
U.S. Cl. 260—526 S **7 Claims**

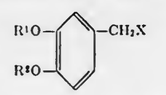
Organophosphines are converted to their final phosphorus oxidation products by the addition of 1, 2 or 3 atom equivalents of oxygen by treating the primary, secondary or tertiary organophosphine starting material with aqueous alkali.

3,784,639
DISPROPORTIONATION OF ALKALI METAL SALTS OF AROMATIC CARBOXYLIC ACIDS
Donald K. Kuper, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed July 19, 1971, Ser. No. 164,099
The portion of the term of the patent subsequent to Feb. 8, 1989, has been disclaimed
Int. Cl. C07c *63/26*
U.S. Cl. 260—515 P **9 Claims**

A slurry comprised of an alkali metal salt of an aromatic carboxylic acid, a disproportionation catalyst, an aryloxy compound and an inert high-boiling organic dispersant is subjected to heating at an elevated temperature in the presence of a compatible gas atmosphere to form a polycarboxylate having at least one additional carboxyl group.

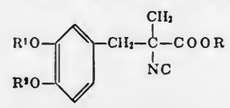
3,784,640
PROCESS FOR PREPARING α-METHYL-β-(3,4-DIHYDROXYPHENYL)-ALANINE
Kentaro Okumura, Kobe, and Kazuo Matsumoto and Mamoru Suzuki, Osaka, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan
No Drawing. Filed Dec. 14, 1971, Ser. No. 207,950
Claims priority, application Japan, Dec. 29, 1970, 46/129,807
Int. Cl. C07c *101/72*
U.S. Cl. 260—519 **11 Claims**

A lower alkyl ester of α-isocyano-propionic acid is condensed with a compound of the formula:



(I)

wherein each of R^1 and R^2 is lower alkyl, or R^1 and R^2 are combined together to form a methylene radical and X is halogen, to produce a compound of the formula:

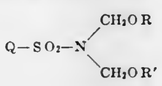


(II)

wherein R is lower alkyl, and R^1 and R^2 are as defined above. α-Methyl-β-(3,4-dihydroxyphenyl)-alanine is obtained by hydrolyzing the compound (II) with concentrated mineral acid. Alternatively, α-methyl-β-(3,4-dihydroxyphenyl)-alanine may be obtained by hydrolyzing compound (II) with dilute mineral acid to produce the corresponding α-methyl-β-phenylalanine ester, hydrolyzing the alanine ester with an alkali metal hydroxide to produce the corresponding α-methyl-β-phenylalanine, and then hydrolyzing some with concentrated mineral acid.

3,784,641
N,N-BIS ALKOXYMETHYL AND N,N-DIMETHYLOL SULFONAMIDES
Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.
No Drawing. Original application Nov. 16, 1965, Ser. No. 508,149, now Patent No. 3,617,190. Divided and this application Aug. 20, 1971, Ser. No. 173,637
Int. Cl. C07c *143/74, 143/78*
U.S. Cl. 260—556 A **6 Claims**

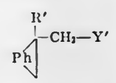
Compounds of the structure:



wherein R and R^1 are hydrogen or lower alkyl and Q is an aliphatic or aromatic group useful as crosslinking agents.

3,784,642
1-AMINE-CYCLOBUTENE
Erwin F. Jenny, Rudolf Wackernagelstrasse 14, Riehen, Switzerland, and Karl Schenker, Rottmannsbodenstrasse 99, Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 535,368, Mar. 18, 1966, which is a continuation-in-part of application Ser. No. 297,675, July 25, 1963. This application Nov. 3, 1967, Ser. No. 680,324
Int. Cl. C07c *103/28*
U.S. Cl. 260—558 A **5 Claims**

Compounds of the formula



in which Ph represent an optionally substituted orthophenylene radical, R' hydrogen or a substituted or unsubstituted alkyl radical and Y' an acylamino group optionally further substituted at the nitrogen atom, e.g. 1-(acetyl-aminomethyl)-benzocyclobutene. Use: intermediates for the corresponding N-substituted 1-(aminomethyl)-benzocyclobutenes which possess analgesic, particularly antimorphine activity and also antitussive activity

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3,784,643
ARYLOXYALKYLGUANIDINES
John T. Suh, Mequon, and Joseph A. Skorcz, Milwaukee, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 755,744, Aug. 27, 1968. This application Dec. 11, 1970, Ser. No. 97,312
Int. Cl. C07c *129/00*
U.S. Cl. 260—564 A **2 Claims**

The compounds are aryloxyalkylguanidines which are useful as central nervous system depressants and antihypertensive agents. A compound disclosed in the application is 1-methyl-2-(2-methoxy-5-fluorophenoxy)-ethylguanidine nitrate.

3,784,644
PROCESS FOR PREPARING FLUOROPERHALOALKYLIDENE IMINES

Bryce C. Oxenrider, Florham Park, Wilhelmus M. Beyleveld, Whippany, and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 26, 1970, Ser. No. 14,653
Int. Cl. C07c *119/00*
U.S. Cl. 260—566 R 9 Claims

Fluoroperhaloalkylidene imines having the formula $Y_1Y_2C{=}NH$, wherein Y_1 and Y_2 are fluorine or fluoroperhaloalkyl radicals, are prepared by hydrolyzing the corresponding fluoroperhaloalkyl isocyanate having the formula Y_1Y_2FCNCO with water in the form of a hydrate such as hexafluoroacetone monohydrate. The fluoroperhaloalkylidene imines are useful as intermediates in the preparation of other fluorinated compounds.

3,784,645
METHOD FOR TREATING NITROGEN-CONTAINING POLYMERIC DISPERSANTS

Harry Chafetz, Poughkeepsie, William P. Cullen, Fishkill, and Edward F. Miller, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Nov. 12, 1971, Ser. No. 198,467
Int. Cl. C07c *87/20*
U.S. Cl. 260—583 N 13 Claims

Method for treating nitrogen-containing polymeric dispersants for mineral lubricating oil compositions comprising admixing the dispersant with a particulate metal reactive with the unstable materials present in the dispersant, heating the mixture at a temperature in the range from about 200 to 400° C., separating a metal-containing layer, extracting the treated dispersant with a lower aliphatic alcohol and recovering a dispersant of improved thermal stability.

3,784,646
REACTIONS OF HALOGEN-SUBSTITUTED OLEFINS WITH ALKENES AND ALCOHOLS

John M. Holovka, Albuquerque, N. Mex., and Edward Hurley, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Filed Aug. 18, 1970, Ser. No. 64,813
Int. Cl. C07c *49/08*
U.S. Cl. 260—593 12 Claims

In reactions involving the oxidation of olefins by rhodium trichloride in alcohol solutions, vinyl halides or allylic halides can be incorporated into the system to regenerate the catalyst. The products of both oxidation and regeneration reactions comprise olefins and/or acetals and/or ketones, e.g. 1-methoxy-1-phenyl ethane, 1,1-dimethoxyethane which are useful for octane improvers.

3,784,647
CURING EPOXIDE RESIN WITH BORON TRICHLORIDE-AMINE COMPLEX

George Latto Fleming, Saffron Walden, and Richard John Martin, Linton, England, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Aug. 9, 1971, Ser. No. 170,388
Claims priority, application Great Britain, Aug. 11, 1970, 38,647/70
Int. Cl. C08g *45/06*
U.S. Cl. 260—830 TW 9 Claims

Curable compositions comprise an epoxide resin and a complex of formula $BCl_3{\cdot}NR^4R^5R^6$ where R^4, R^5 and R^6 together with the nitrogen atom form a heterocyclic ring, or R^4 and R^5 both represent methyl groups and R^6 denotes an alkyl or aralkyl group of at least 6 and at most 18 carbon atoms.

Preferred compositions contain complexes in which $NR^4R^5R^6$ denotes pyridine, and those in which R^6 denotes an alkyl hydrocarbon group of 6–18 carbon atoms or a benzyl group.

The complexes act as latent hardeners.

3,784,648
PROCESS FOR THE PREPARATION OF FREE-FLOWING, LUMP-FREE, REDISPERSIBLE, SYNTHETIC RESIN POWDERS

Eduard Bergmeister, Paul-Gerhard Kirst, and Heinz Winkler, Burghausen, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,807
Int. Cl. C08g *37/32*
U.S. Cl. 260—856 7 Claims

This invention relates to a process for the preparation of free-flowing, lump-free, redispersible synthetic resin powders by spray-drying aqueous dispersions of synthetic resins containing an added amount of a water-soluble condensation product from melamine, formaldehyde and containing sulfonate groups.

3,784,649
HIGH MOLECULAR WEIGHT IONENE POLYMERIC COMPOSITIONS

Stanley J. Buckman, John D. Pera, Fred W. Raths, and Gerald D. Mercer, Memphis, Tenn., assignors to Buckman Laboratories, Inc., Memphis, Tenn.

No Drawing. Filed Mar. 30, 1971, Ser. No. 129,593
Int. Cl. C08f *3/24, 29/34*
U.S. Cl. 260—874 31 Claims

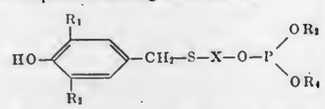
High molecular weight ionene polymeric compositions are prepared by reacting a dihalo organic compound with a secondary or a ditertiary amine and then reacting the resultant product with a polymeric backbone composition and a coupling agent. The resulting polymers have utility in many diverse applications.

3,784,650
3,5-DIALKYL-4-HYDROXYBENZYL MERCAPTO (ACETIC ACID ESTER) CONTAINING PHOSPHITES

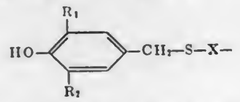
Heinz Eggensperger, Gadernheim uber Bensheim, Volker Franzen, Heidelberg, and Hans Stephan, Bensheim, Bergstrasse, Germany, assignors to Ciba-Geigy Marienberg GmbH, Lautern-Odenwald, Germany

No Drawing. Continuation-in-part of application Ser. No. 748,619, July 30, 1968, now Patent No. 3,655,833. This application June 22, 1971, Ser. No. 155,623
Claims priority, application Germany, Aug. 12, 1967, P 16 43 880.5
The portion of the term of the patent subsequent to Apr. 11, 1989, has been disclaimed
Int. Cl. C07f *9/08*; C08f *45/58*
U.S. Cl. 260—948 23 Claims

Novel compounds having the formula



wherein R_1 is selected from the group consisting of hydrogen and alkyl radicals having 1 to 6 carbon atoms, R_2 is an alkyl radical having 1 to 6 carbon atoms, X is selected from the group consisting of alkylene radicals having 1 to 6 carbon atoms are carboxyl interrupted alkylene radicals having 1 to 6 carbon atoms, when R_1 or R_2 is other than tert. butyl R_3 and R_4 are selected from the group consisting of alkyl, aryl, alkaryl, arylalkyl, alkoxyalkyl, aryloxyalkyl, chloroalkyl, and chloroarylalkyl all having 1 to 30 carbon atoms and



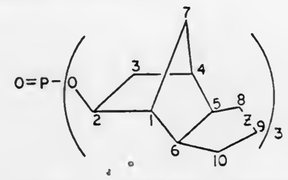
and, when R_1 and R_2 are tert. butyl, R_3 is selected from the group consisting of alkyl, aryl, alkaryl, arylalkyl, alkoxyalkyl, where R_1, R_2 and X are as defined above and are useful as stabilizers for polymeric compositions.

3,784,651
TERTIARY PHOSPHORIC ESTERS OF TRICYCLIC ALIPHATIC ALCOHOLS

Yoshiaki Inamoto, Wakayama, and Takeji Kadono, Kainan, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed June 22, 1971, Ser. No. 155,610
Claims priority, application Japan, June 24, 1970, 45/54,978
Int. Cl. C07f *9/08*
U.S. Cl. 260—956 1 Claim

A compound of the formula



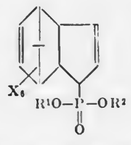
wherein Z is a single or double bond, is prepared by reacting 2-exo-hydroxy-exo-trimethylenenorbornane or 2-exo-hydroxy-2,3-dihydro-exo-dicyclopentadiene with phosphorus oxyhalide, in the presence of heterocyclic aromatic tertiary amine having a nitrogen atom as a member of the heterocyclic ring. The compounds are useful as additives for synthetic lubricants and hydraulic oils.

3,784,652
INDENYLPHOSPHONATES

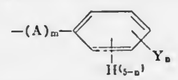
Jerome A. Gourse, Chicago, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,631
Int. Cl. C07f *9/40*
U.S. Cl. 260—956 6 Claims

This invention discloses new chemical compounds of the formula



wherein X is halogen; and R^1 and R^2 are independently selected from the group consisting of alkyl and



wherein A is an alkylene group of up to 4 carbon atoms; *m* is an integer from 0 to 1; Y is halogen or alkyl; and *n* is an integer from 0 to 5. The compounds of the above description are useful as fire retardants.

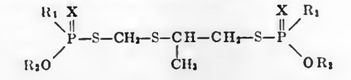
3,784,653
THIOL- OR THIONOTHIOL-PHOSPHORIC OR -PHOSPHONIC ACID ESTERS

Gerhard Schrader, Wuppertal-Cronenberg, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,323
Claims priority, application Germany, Sept. 10, 1969, P 19 45 700.2
Int. Cl. A01n *9/36*; C07f *9/16, 9/40*
U.S. Cl. 260—929 5 Claims

Thiol- or thionothiolphosphoric or phosphonic acid esters, e.g. bis-O,O-dialkyl thiolphosphoric or bis-O-alkyl-alkanethiol phosphonic acid esters of halomethyl-1-halo-isopropylthioether and their thiono analogues, wherein the alkyl groups are lower alkyl and are optionally halogen-substituted, which possess arthropodicidal, especially acaricidal and insecticidal, properties and which may be produced by conventional methods.

The compounds have the formula



wherein

R_1 is an optionally halogen-substituted lower alkyl or alkoxy radical,

R_2 is an optionally halogen-substituted lower alkyl radical, and

X is an oxygen or sulfur atom.

3,784,654
O-ALKYL(-CYCLOALKYL)-S-ALKYL-S-PHENYL-PHOSPHORODITHIOLATES

Toyohiko Kume and Kazuomi Yasui, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 3, 1969, Ser. No. 830,153
Claims priority, application Japan, June 18, 1968, 43/41,618
Int. Cl. A01n *9/36*; C07f *9/16*
U.S. Cl. 260—958 11 Claims

O-alkyl(-cycloalkyl)-S-alkyl - S - phenyl-phosphorodithiolates, i.e. O-alkyl and cycloalkyl-S-alkyl-S-(optionally chloro and methyl-substituted)-phenyl - phosphorodithiolates or -dithiolphosphates, which possess fungicidal properties.

3,784,655
PRESS POLISHING CURVED TRANSPARENT POLYCARBONATE SHEET MATERIAL

Richard R. Lewchuk, Allison Park, and Norman Shorr, Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

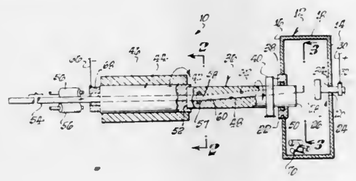
No Drawing. Filed Mar. 16, 1971, Ser. No. 124,928
Int. Cl. B29d *11/00*
U.S. Cl. 264—1 5 Claims

An improved method of press polishing transparent polycarbonate sheet material between complementary shaped, optically smooth surfaces of press polishing members that have shapes conforming to the shape desired for the transparent polycarbonate sheet involving timely separation.

3,784,656
METHOD OF PRODUCING SPHERICAL POWDER BY ECCENTRIC ELECTRODE ROTATION

Albert R. Kaufmann, Lexington, Mass., assignor to Whittaker Corporation

Filed Dec. 3, 1971, Ser. No. 204,493
Int. Cl. B01j *2/02*
U.S. Cl. 264—8 14 Claims



A method for producing generally spherical particles from materials, e.g., metals, initially in rod form. The preferred method comprises feeding a consumable rod from which the particles are to be formed into a heating zone while orbiting the leading end of the rod about its longitudinal axis and, simultaneously, rotating the rod

about the same axis. The leading end of the rod is heated to cause melting of the rod material. Due to the spinning of the rod and the melted form of the rod material, liquid droplets are formed around, and spun off from, the periphery of the heated end of the rod. The droplets are allowed to cool below their melting temperature before contacting any surfaces to preserve their shape and are thereafter collected as solid, generally-spherical particles.

The method is preferably carried out in apparatus comprising a chamber with wall openings to receive one end of a rotatable shaft and a conventional electrode in opposing relationship. The shaft has a bore extending therethrough which is angled with respect to the longitudinal axis of the shaft and which is sized to slidably receive a consumable rod which, in turn, forms a consumable electrode. Power sources are provided (a) to rotate the shaft about its own axis to produce orbiting of the consumable electrode, (b) to rotate the latter about its own axis, and (c) to feed the consumable electrode through the shaft and into the chamber. An electrical energy source sufficient to establish an arc between the electrodes within the chamber to heat and melt the consumable electrode is provided. The chamber may be evacuated and then filled with an inert gas to provide a non-oxidizing atmosphere and is provided with seals necessary for this purpose.

3,784,657

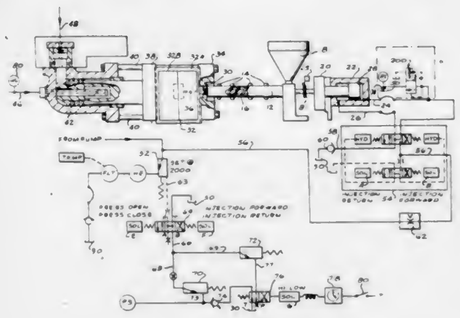
TIME MONITORED PROCESS FOR CONTROLLING INJECTION MOLDING CYCLE

Herman R. Hutchinson, Wyncote, Vasken F. Arpajian, Huntingdon Valley, and Robert S. Malcomson, Lansdale, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Division of application Ser. No. 59,499, July 30, 1970, now Patent No. 3,695,800, dated Oct. 3, 1972. Continuation-in-part of application Ser. No. 18,142, Mar. 10, 1970, now Patent No. 3,642,402, dated Feb. 15, 1972. Divided and this application May 24, 1972, Ser. No. 256,607

Int. Cl. B29f *1/08*

U.S. Cl. 264—40 **4 Claims**



Process control for injection molding machines in which the viscosity of the plasticized material in a shot being prepared is monitored as a function of ram injection speed (rate of melt flow) at constant hydraulic pressure. The interval is measured during ram advancement between the time at which a pressure relief valve opens and the time that the mold cavities are substantially filled (when the ram is at end of stroke). If the time period exceeds or falls below predetermined limits, either (1) the heat input to subsequent shots being prepared may be respectively raised or lowered in increments, (2) high pressure injection time may be respectively added or subtracted in increments to increase or decrease the point in time at which lower secondary hydraulic pressure is applied, or (3) injection pressure may be respectively raised or lowered.

3,784,658

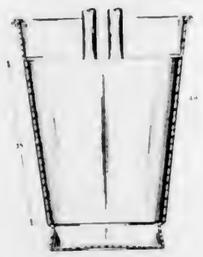
METHOD FOR THE SELECTIVE ABSORPTION OF A VOLATILE LIQUID FOAMING AGENT BY HEATING IN FORMING PLASTIC ARTICLES

James R. Studer, Woodridge, Ill., assignor to Monsanto Company, St. Louis, Mo.

Filed June 9, 1971, Ser. No. 151,457

Int. Cl. B29d *7/22, 27/00*

U.S. Cl. 264—45 **4 Claims**



Improvements in forming an integral foam layer on the outer surface of the sidewall of a thin walled thermoplastic container which involves contacting the inner surface of the container opposite the outer surface portion to be foamed, prior to exposure to the foaming agent, with an elevated temperature surface to preheat the wall portion of the cup which is to be foamed, thereby increasing the rate of penetration of the foaming agent into the thermoplastic during its subsequent exposure and preferably avoiding the necessity of a period of aging the container after its removal from exposure to the foaming agent and prior to foaming. The elevated temperature surface is preferably that of a mandrel conforming in shape to the inner surface of the container and which may have relieved areas thereon which do not contact and therefore, do not heat the wall of the container, thereby leaving unfoamed, indicia bearing or patterned portions within the foam boundary after vaporization of the foaming agent. An additive may be incorporated into the foaming agent to decrease the rate of generation of the foam cells during foaming and to improve the uniformity of cell size or, when the relieved surface mandrel is used, a dye which vaporizes at substantially the temperature of the foaming agent may be employed to generate a foam layer of one color having an indicia bearing or patterned area of another color. The thermoplastic of the container preferably has a coloring pigment incorporated therein which has been found to act as an effective nucleating agent.

3,784,659

METHOD OF PRODUCING CONTINUOUS PLASTIC SHAPES

Rosemarie Lupert, Eggli 1040, CH-9030 Abtwil, Switzerland

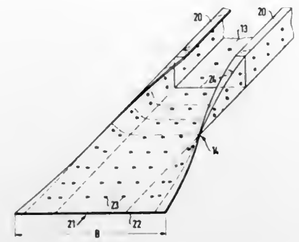
Filed Jan. 13, 1972, Ser. No. 217,504

Int. Cl. B29d *27/03*

U.S. Cl. 264—47 **11 Claims**

Continuous plastic shapes, such as channels or tubes are made from a laminate of curable, fluid, synthetic resin composition and a filamentous reinforcing material laid up on a continuously moving carrier foil by gradually deforming the laminate transversely to the direction of elongation. The laminate is held by suction or pressure

in conforming engagement with a rigid shaping face whose cross section changes gradually in the direction of lami-



nate movement, and the resin in the deformed laminate is cured thereafter.

3,784,660

METHOD OF EXTRUDING MATERIAL FROM A PARTICULATE MASS USING A ROTATING EXTRUSION DIE

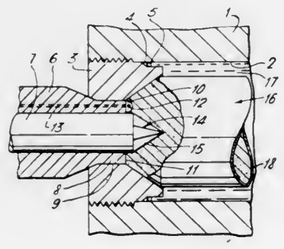
Harold Kenyon Hardy, Southport, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Dec. 7, 1971, Ser. No. 205,549

Claims priority, application Great Britain, Dec. 18, 1970, 60,364/70

Int. Cl. B29b *3/00*

U.S. Cl. 264—88 **5 Claims**



An extrusion process in which hydraulic pressure is exerted about a mass of particulate material to force it against a die member having a minor face carrying the extrusion orifice disposed so as to exert additional compressive stress against the particulate material to force it through the extrusion orifice.

3,784,661

PROCESS OF BLOW MOLDING CONTAINERS FROM PARTICLE FORM POLYETHYLENE RESINS

Jerome Sandel Schaul, Bloomfield, Kurt Falke Wissbrun, Short Hills, and Martin John Hannon, Plainfield, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 102,554, Dec. 29, 1970. This application Aug. 30, 1972, Ser. No. 284,806

Int. Cl. B29c *17/07;* **C08f** *3/04, 45/08*

U.S. Cl. 264—98 **8 Claims**

The present invention relates to a process of blow molding liquid containers from a specific class of all-particle form polyethylene resins; the process being carried out on blow molding machines operating at a pressure in the hydraulic system of less than about 1600 p.s.i. and generating an apparent shear rate, as the resin is extruded through the die gap, of between about 10,000 to about 100,000 reciprocal seconds. The particular type of all-particle form polyethylene resins are those having a density of from about 0.94 to about 0.97, a melt index of from about 0.1 to about 2.0 decigrams per minute, a die swell of from about 3.5 to about 4.5 and a critical stress for melt fracture of between about 1.0×10^5 to about 4.0×10^6 dynes per square centimeter.

3,784,662

PROCESS AND APPARATUS FOR PRODUCING UNIAXIALLY STRETCHED ARTICLES DIFFICULT TO SPLIT LONGITUDINALLY

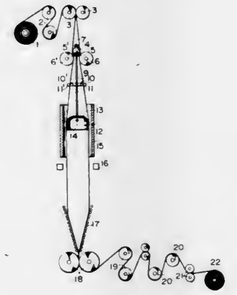
Hiroyuki Hino, Hiroyoshi Asakuno, and Tetsuya Yamada, Ichiharashi, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Oct. 6, 1971, Ser. No. 186,891

Claims priority, application Japan, Oct. 13, 1970, 45/89,882

Int. Cl. B29d *7/24;* **D06c** *5/00*

U.S. Cl. 264—95 **7 Claims**



A uniaxially stretched tubular film of thermoplastic resin difficult to split in the longitudinal direction is produced from an unstretched tubular film of thermoplastic resin, by a process in which said unstretched tubular film is passed through a nip of feeding roll means, then passed vertically downwards the outside surface of a mandrel while enveloping the latter and while being heated from the outside, said mandrel being suspended by the nip of two parallel sets of mutually abutting roll means, and then the resultant film is drawn out by a roll means whose peripheral speed is greater than that of feeding roll means to effect longitudinal stretching, and in which said mandrel has a peripheral length equal to or slightly smaller than the peripheral length of the unstretched tubular film, the inside of said tubular film between the mandrel and the drawn out roll means is filled with a gas under pressure.

3,784,663

METHOD FOR MAKING ELECTRICAL CONNECTOR

Ralph G. D'Ascoli and Leon L. Alleva, Yonkers, N.Y., assignors to The Anaconda Company

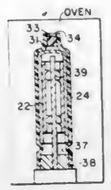
Continuation of abandoned application Ser. No. 24,952, Mar. 6, 1970, which is a division of application Ser. No. 710,944, Mar. 6, 1968, now Patent No. 3,539,708. This application Mar. 31, 1972, Ser. No. 240,314

Int. Cl. B29c *27/20*

U.S. Cl. 264—230 **1 Claim**

Moisture-tight connectors are made from cut lengths of heat-shrinkable plastic tubing by shrinking one end of

the tubing around a plastic pellet that softens and bonds to it thus forming a seal. An inward constriction is formed in the other end of the tubing by shrinking it over a



block that is spaced away from an internal metal sleeve. The constriction is needed to retain a dielectric paste with which the connector is filled.

3,784,664

MOULDING PROCESS

Norman Brian Nicklin, Halesowen, England, assignor to British Industrial Plastics Limited, Manchester, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 20,407, Mar. 17, 1970. This application Apr. 13, 1972, Ser. No. 243,833

Claims priority, application Great Britain, Mar. 24, 1969, 15,311/69

Int. Cl. B29c *9/00*

U.S. Cl. 264—246 **10 Claims**

A method of producing decorated thermoset polyester mouldings by a two-step process, wherein the first step comprises shaping, in a mould and under heat and low pressure, a thermosetting unsaturated polyester moulding composition, preferably a nil or low-shrinkage type, having applied thereto an unimpregnated decoration sheet of paper-like material whereby the decoration sheet is partly impregnated with polyester resin from the moulding composition and the moulding composition is at least partially cured so that the decoration sheet adheres to the surface of the moulding, and wherein the second step comprises applying thermosetting resinous material to the surface of the decoration sheet and reapplying heat and pressure to cause the resinous material to flow over the surface, complete impregnation of the decoration sheet and cure, and to complete curing of the moulding composition; the thermosetting resinous material preferably is a polyester resin or a surface finishing material such as melamine-formaldehyde resin.

3,784,665

METHOD OF FABRICATING AN INTEGRATED PISTON AND CYLINDER MECHANISM AND VALVE ASSEMBLY

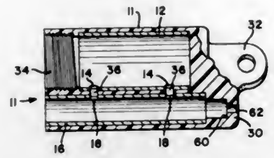
Jack D. Keefe, Dayton, and Eugene W. Finke, Miamisburg, Ohio, assignors to The Monarch Marking System Company, Dayton, Ohio

Filed Jan. 8, 1971, Ser. No. 104,873

Int. Cl. B29d *3/00;* **B32b** *31/06*

U.S. Cl. 264—261 **9 Claims**

A method and apparatus for fabricating the housing of an integrated piston and cylinder mechanism and control valve. The housing is formed by placing in a cavity defined by complementary mold sections a cylinder tube, a control valve tube and an inlet tube, with the three tubes properly positioned in the mold cavity and with respect to each other by means of removable mandrels. Openings through the tubes, which serve as fluid passages in the completed assembly, are kept open as a hardenable material is injected into the mold cavity by means of core pins or lugs projecting from the mandrels and extending



through the openings in one tube into the the corresponding openings in an adjacent tube.

3,784,666

PROCESS FOR PRODUCING ACRYLIC FIBERS

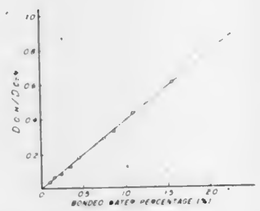
Hideto Sekiguchi, Yasuo Matsumura, Kojiro Aral, Kunio Maruyama, and Mitsuru Wakitani, Okayama, Japan, assignors to American Cyanamid Company, Stamford, Conn.

Filed June 8, 1971, Ser. No. 151,040

Claims priority, application Japan, Aug. 8, 1970, 45/69,481

Int. Cl. B29c *25/00;* **D01f** *7/00*

U.S. Cl. 264—234 **10 Claims**



An improvement in conventional wet-spinning procedure for acrylic fibers wherein the fibers are heated under high humidity conditions to obtain an increase in bonded water and a resulting increase in elastic recovery properties.

3,784,667

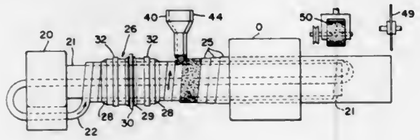
METHOD FOR MANUFACTURING PIPES

Frede Hilmar Drostholm, 2950 Vedbaek, Denmark, and Leonard S. Meyer, Columbia, S.C.; said Meyer assignor to said Drostholm

Filed Mar. 22, 1972, Ser. No. 237,120

Int. Cl. B29d *23/08*

U.S. Cl. 264—145 **9 Claims**



The method and apparatus provide for production of pipe lengths having bell and spigot ends adapted to cooperate with each other serially in laying pipeline. The technique provides for continuous production of pipe, with bell portions spaced at intervals, the bell portions being divided or severed in order to provide a bell end on the adjacent ends of the pipe lengths formed by the division. At points intermediate to the bell portions the pipe is also divided or severed in order to provide pipe lengths having spigot ends at one end and bell ends at the other end.

3,784,668

MELT BLENDED POLYETHYLENE-ETHYLENE COPOLYMER POLYBLENDS

William K. Neldinger, Columbus, Ind., assignor to Amos-Thompson Corporation, Edinburg, Ind.

No Drawing. Original application June 4, 1970, Ser. No. 43,591, now abandoned. Divided and this application July 23, 1971, Ser. No. 165,726

Int. Cl. B29c *5/04;* **B29b** *5/04*

U.S. Cl. 264—310 **2 Claims**

Claimed is a process of rotational molding of high density polyethylene and ethylene-polar monomer polyblends produced by a melt blend technique. Such polyblends have a high density polyethylene content of from about 50 to 95 percent by weight and an ethylene-polar monomer content of from about 50 to 5 percent by weight. These melt blended polyblends substantially retain the beneficial properties of high density polyethylene with the ethylene-polar monomer enhancing the stress-crack resistance and, unexpectedly, their improved stress-crack resistance is retained in rotational mold processing of the blends.

3,784,669

RECOVERY OF METAL VALUES FROM CHROME ETCHING SOLUTIONS

Carl H. Elges III, Philip R. Haskett, Donald J. Bauer, and Roald E. Lindstrom, Reno, Nev., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Oct. 3, 1972, Ser. No. 292,232

Int. Cl. C01g *3/02, 37/02*

U.S. Cl. 423—43 **5 Claims**

Chromium and copper are recovered, as oxides, from spent chrome etching solutions by means of a process comprising the steps of: (1) addition of a reducing sugar to reduce Cr(VI) to Cr(III) and to complex Cr(III) and Cu values in solution, (2) addition of base to raise the pH to a value of about 10 to 12, to reduce the copper and precipitate it as Cu_2O, (3) separating the precipitated Cu_2O, (4) heating the remaining solution at a temperature of about 50 to 70° C. for a period sufficient to break the Cr(III) complex, and (5) adjusting the pH of the solution to a value of about 6 to 9 to precipitate the chromium as hydrous chromium oxide.

3,784,670

TITANIUM DIOXIDE CONCENTRATE AND ITS MANUFACTURING PROCESS

Shigeki Yamada, Kyoto, and Kokichi Miyazawa, Hideaki Naka, and Yoshio Yoshida, Kusatsu, Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 68,555, Aug. 31, 1970. This application Apr. 10, 1972, Ser. No. 242,772

Claims priority, application Japan, Sept. 12, 1969, 44/72,016, 44/72,017; Sept. 22, 1969, 44/74,672

Int. Cl. C01g *23/00;* **C22b** *1/00*

U.S. Cl. 423—80 **16 Claims**

An improved process for leaching a titaniferous iron ore with an acid to remove iron and concentrate the titanium valve. The ore is leached with a mineral acid and the intermediate concentrate during the process of acid-leaching is magnetically separated into a fraction which is sufficiently concentrated and a fraction which is not sufficiently concentrated and only the latter is continuously leached. The concentration is effectively and economically carried out to give a high grade concentrate which has a coarse grain and a good fluidity.

3,784,671

PROCESS FOR THE RECOVERY OF ANTIMONY PENTACHLORIDE FROM CATALYST SOLUTIONS

Egon Joerchel and Rudolf Kohlhaas, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Nov. 16, 1971, Ser. No. 199,301

Claims priority, application Germany, Mar. 6, 1971, P 21 10 797.1

Int. Cl. C01b *29/00*

U.S. Cl. 423—88 **7 Claims**

The invention relates to a process of recovering antimony pentachloride from catalyst solutions used for the fluorination of chlorine containing hydrocarbons. The process is based upon a thermal decomposition of antimony pentachloride into antimony trichloride and chlorine at a temperature of 60° to 300° C. The organic impurities are extracted from the precipitated antimony trichloride by means of halogenated hydrocarbons. The remaining antimony trichloride is reoxidized with chlorine—which may be recycled from the step of the thermal decomposition—at a temperature of from 60° to 150° C. and a pressure of zero to five atmospheres to yield antimony pentachloride which is refined by distillation.

3,784,672

PROCESS FOR REDUCING THE TRIVALENT CHROMIUM CONTENT OF ALKALI METAL BISULFATE SOLUTIONS

Thomas R. Morgan and William W. Low, Syracuse, Christian A. Wamser, Camillus, and Charles P. Bruen, Fayetteville, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Original application Oct. 19, 1972, Ser. No. 82,024, now Patent No. 3,715,425. Divided and this application Sept. 21, 1972, Ser. No. 290,911

Int. Cl. C01d *5/02, 5/16*

U.S. Cl. 423—202 **3 Claims**

Chrome chemicals such as chromic acid (CrO_3) and alkali metal chromates and bichromates are prepared by a process which avoids the formation and treatment of "brown muds" which includes the processing steps of reacting an alkali metal bisulfate solution substantially free of trivalent chromium values with an aqueous solution of an alkaline roasted chrome ore mixture containing dissolved chrome ore values to convert the roasted mixture's chrome ore values at least in part to an alkali metal bichromate and separating said bichromate values. The alkali metal bichromate values may be reacted with a sulfuric acid to produce chromic acid. Also covered by the present invention is the removal of the chloride impurity from the bichromate values.

3,784,673

PROCESS FOR TREATING SODIUM BISULFATE

Wilson Stewart Cathcart, Cleveland, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

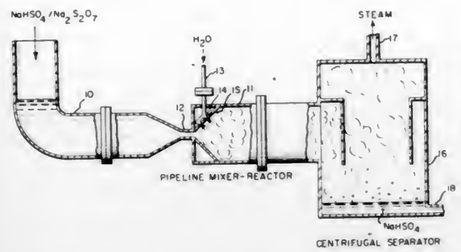
Filed May 25, 1972, Ser. No. 256,971

Int. Cl. C01d *5/02*

U.S. Cl. 423—203 **5 Claims**

An improved process to cool and rehydrolyze a melt mixture of sodium bisulfate and sodium pyrosulfate to sodium bisulfate is provided. The process comprises feeding water and the melt into a pipeline mixer having a reaction zone, the water fed at a pressure sufficient to atomize the water in the mixer and attain mixing of the water and melt, and the melt mixture fed through a venturi into the mixer at a temperature of at least 220° C. and at a pressure sufficient to seal the venturi throat against

back pressure of steam formed in the reaction zone within the mixer. Thus, rehydrolyzation of the sodium pyrosulfate to sodium bisulfate occurs and sodium bisulfate is withdrawn from the reaction zone for further processing.



3,784,674

ATMOSPHERE PURIFICATION OF RADON AND RADON DAUGHTER ELEMENTS

Lawrence Stein, Downers Grove, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Sept. 9, 1971, Ser. No. 179,229

Int. Cl. C01b *23/00*

U.S. Cl. 423—249 **5 Claims**

A method of removing radon and radon daughter elements from an atmosphere containing these elements by passing the atmosphere through a bed of fluorinating compound whereby the radon and radon daughters are oxidized to their respective fluorides. These fluorides adhere to the fluorinating compound and are thus removed from the atmosphere which may then be recirculated. A method for recovering radon and separating radon from its daughter elements is also described.

3,784,675

PROCESS FOR REDUCING THE CONTENT OF NITROGEN OXIDES IN THE EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

Tadeusz P. Kobylinski, Cheswick, and Brian W. Taylor, Richland Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 168,430, Aug. 2, 1971. This application Dec. 13, 1971, Ser. No. 207,545

Int. Cl. B01d *53/34*

U.S. Cl. 423—213.5 **19 Claims**

A method is proposed for the reduction of nitrogen oxides in exhaust gases from internal combustion engines to selectively form nitrogen as substantially the only nitrogen-containing product. The method comprises contacting an exhaust gas from an internal combustion engine at an elevated temperature in a reducing atmosphere with about 0.003 to about 0.5 troy ounce of ruthenium per 1000 cubic feet of exhaust gas per hour.

3,784,676

REMOVING SULPHUR FROM HYDROCARBONS

Gerald Moss, Oxford, England, assignor to Esso Research and Engineering Company

Original application June 5, 1968, Ser. No. 734,816, now abandoned. Divided and this application Apr. 30, 1971, Ser. No. 138,883

Int. Cl. C01b *17/60*

U.S. Cl. 423—242 **10 Claims**

Production of an SO_2 free gas by oxidation of sulfur containing materials in a fluidized bed of calcium or magnesium oxide with regeneration of the oxides from sulfates formed in the oxidation.

3,784,677

METHOD FOR THE PREPARATION OF METAL BORIDES

Geert Versteeg, Petten, and Albertus J. G. Engel, Heiloo, Netherlands, assignors to Reactor Centrum Nederland, The Hague, Netherlands

No Drawing. Filed Mar. 25, 1969, Ser. No. 810,375

Claims priority, application Netherlands, Mar. 26, 1968, 6804216; Belgium, Mar. 10, 1969, 71,113

Int. Cl. C01f *13/00*

U.S. Cl. 423—252 **13 Claims**

A method for the preparation of metal borides by heating metal halides or metal oxyhalides of the actinide group, the lanthanide group and the alkaline earth metals with boron.

3,784,678

PROCESS FOR REMOVING IRON FROM PHOSPHORIC ACID

Klaus Beltz, Budenheim (Rhine), Klaus Frankenfeld, Kirberg, Taunus, and Karl Gotzmann, Budenheim (Rhine), Germany, assignors to Chemische Fabrik Budenheim

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,240

Claims priority, application Germany, Sept. 25, 1970, P 20 47 261.1

Int. Cl. C01b *25/16*

U.S. Cl. 423—321 **6 Claims**

A process for removing iron from phosphoric acid. A barium compound is added to the phosphoric acid including sulfate ions to precipitate barium sulfate whereby the iron content of the phosphoric acid is substantially reduced.

3,784,679

PROCESS FOR PRODUCING CARBON FIBRES

Pierre Chiche, Verneuil-en-Halatte, France, assignors to Charbonnages de France, Paris, France

No Drawing. Filed Apr. 27, 1971, Ser. No. 137,976

Claims priority, application France, May 19, 1970, 7018171

Int. Cl. C01b *31/07*

U.S. Cl. 423—447 **11 Claims**

A process for the production of carbon fibres from coal tar pitch or from other strongly aromatic distillation residues subjected to heat treatment at a moderate temperature wherein a hydrocarbon polymer is added to the starting material before or during said heat treatment which is followed by spinning, oxidizing, and carbonizing. Polyethylene, polypropylene, polystyrene, polybicyclo[2,2,1]-heptene-2, and rubber are preferred polymers.

3,784,680

CYCLICAL PROCESS FOR RECOVERY OF ELEMENTAL SULFUR FROM WASTE GASES

Herbert W. Strong, Shaker Heights, Jerrold E. Radway, Westlake, and Henry A. Cook, Fremont, Ohio, assignors to Basic Incorporated, Cleveland, Ohio

Filed Dec. 1, 1971, Ser. No. 203,772

Int. Cl. C01b *17/04*

U.S. Cl. 423—571 **4 Claims**

A process for removing sulfur dioxide (SO_2) from gases and recovering elemental sulfur comprising scrubbing the gases with a slurry containing a metal sulfide under conditions to react the sulfur dioxide with the sulfide to form a precipitate which is predominantly metal sulfite and elemental sulfur. A portion of the slurry is withdrawn and the precipitate is separated therefrom. The remaining slurry is recycled for reaction with additional sulfur dioxide and the precipitate is heated under conditions to remove water therefrom and convert any metal thiosulfate therein to additional sulfite and elemental sulfur. Some metal sulfate may be present. The elemental sulfur is separated, and the sulfite and sulfate are then reduced to the sulfide which is recycled to the scrubbing slurry. Preferably, the metal sulfide is an alkali sulfide or alkaline earth sulfide.

3,784,681

X-RAY CONTRAST COMPOSITION CONTAINING BARIUM SULPHATE

Max Fischler, Enskede, Sweden, assignor to Astra Lakemedel Aktiebolag, Sodertalje, Sweden

No Drawing. Filed Dec. 8, 1971, Ser. No. 206,169

Claims priority, application Sweden, Dec. 18, 1970, 17,187/70

Int. Cl. A61k *27/08*

U.S. Cl. 424—4 **4 Claims**

X-ray contrast composition containing barium sulphate and an acid stable protective colloid which is an anionic heteropolysaccharide formed by fermentation of *Xanthohomonas campestris* in a carbohydrate containing nutrient solution. The composition has improved stability during storage and during freezing and thawing.

3,784,682

DENSIFYING METAL HYDRIDES WITH HIGH TEMPERATURE AND PRESSURE

Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Continuation-in-part of abandoned application Ser. No. 392,370, Aug. 24, 1964. This application Apr. 9, 1968, Ser. No. 721,135

Int. Cl. C01b *6/00, 6/06*

U.S. Cl. 423—645 **8 Claims**

A method of increasing the density of a hydride of a metal of Groups II-A, II-B, III-A and III-B of the Periodic Table which comprises subjecting a hydride to a pressure of from about 50,000 p.s.i. to about 900,000 p.s.i. at or above the fusion temperature of the hydride; i.e., between about 65° C. to about 325° C. Beryllium hydride obtained from this process has a density of at least 0.69 g./cc.

ERRATUM

For Class 424—4 see:
Patent No. 3,784,681

3,784,683

TABLET PREPARATION

Elliott Benjamin Prillig and Alexander Hing Chinn Chun, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Continuation of abandoned application Ser. No. 661,600, Aug. 18, 1967. This application Mar. 29, 1971, Ser. No. 129,225

Int. Cl. A61k *27/12*

U.S. Cl. 424—19 **2 Claims**

A pharmaceutical dosage form for oral administration is provided which travels substantially intact through the stomach and the small intestines and exposes the active ingredient erythromycin stearate in the large intestines where it is particularly useful in combatting amebiasis, a parasitic infestation. The new dosage form is prepared in such a manner to substantially prevent the active drug from being absorbed by the gastro-intestinal tract.

3,784,684

CORONARY DILATOR IN A PHARMACEUTICAL DOSAGE UNIT FORM

Friedrich Bossert, Wuppertal-Elberfeld, Wulf Vater, Opladen, Kurt Bauer, Opladen-Lutzenkirchen, and Karl-Heinz Adams, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 21, 1972, Ser. No. 282,476

Claims priority, application Germany, Aug. 24, 1971, P 21 42 316.5; Feb. 29, 1972, P 22 09 526.7

Int. Cl. A61j *3/07*

U.S. Cl. 424—37 **16 Claims**

An instant oral-release capsule is produced having a shell of gelatine which contains a mixture of

(a) 1 part by weight of 4-(2'-nitrophenyl)-2,6-dimethyl-3,5-dicarbomethoxy-1,4-dihydropyridine;
(b) 6 to 50 parts by weight of at least one polyalkylene glycol of 2 or 3 carbon atoms in the alkylene moiety and a mean molecular weight of 200 to 4000; and
(c) 0 to 10 parts by weight of at least one alcohol of 2 to 8 carbon atoms and 1, 2 or 3 hydroxy groups.

3,784,685

COSMETIC COMPOSITIONS TO REDUCE GREASY APPEARANCE OF THE HAIR AND SKIN

Gregoire Kalopissis, Paris, Claude Bouillon, Eaubonne, and Georges Manoussos and Claudine Berrebi, Paris, France, assignors to Société Anonyme dite: L'Oreal, Paris, France

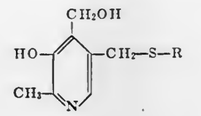
No Drawing. Filed July 21, 1970, Ser. No. 56,962

Claims priority, application Luxembourg, July 23, 1969, 59,150

Int. Cl. A61k *7/06*

U.S. Cl. 424—70 **4 Claims**

The active ingredient in a cosmetic preparation to reduce the greasy appearance of hair and skin has the formula:



in which R is an organic radical having at least one amine function and can include a carboxylic acid function, the latter can be esterified or amidified. The amine function can be salified by a mineral or organic acid and be substituted with an acyl or sulfonyl group, or substituted with one or two alkyl radicals which, in turn, can include an acid, acid ester, amide, amine, alcohol or quanide substituent or the amine function can be quaternized. The active ingredient can be administered in a conventional medium both orally and as a topical remedy by applying same to the skin.

3,784,686

METHOD OF INHIBITING THE ACTION OF RENIN IN HYPERTENSIVE MAMMALS

Richard P. Miller, Zionsville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Feb. 16, 1972, Ser. No. 226,744

Int. Cl. A61k *27/00*

U.S. Cl. 424—94 **1 Claim**

Method of inhibiting the action of resin by pepstatin both in vivo and in vitro, useful in determining presence of renin-associated hypertension.

3,784,687

PHOSPHINE OR PHOSPHITE GOLD COMPLEXES OF THIOETHANOL AND DERIVATIVES THEREOF TO TREAT ARTHRITIS

Elizabeth R. McGusty, Philadelphia, and Blaine M. Sutton, Hatboro, Pa., assignors to Smithkline Corporation, Philadelphia, Pa.

No Drawing. Original application June 7, 1971, Ser. No. 150,734, now Patent No. 3,718,680. Divided and this application Nov. 13, 1972, Ser. No. 306,961

Int. Cl. A61k 27/00

U.S. Cl. 424—212 8 Claims

Phosphine or phosphite gold complexes of thioethanol and derivatives thereof, such as ether or ester derivatives, having anti-arthritic activity are prepared by reaction of an appropriate phosphine or phosphite gold halide with thioethanol or its corresponding derivative.

3,784,688

ANTI-ANXIETY COMBINATION

Bernard Beer, Princeton, Donald E. Clody, Somerset, John R. Vogel, South Bound Brook, and Zola P. Horovitz, Princeton, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Oct. 19, 1971, Ser. No. 190,691

Int. Cl. A61k 27/00

U.S. Cl. 424—244 1 Claim

An anti-anxiety combination is provided having substantially no sedative side effects and comprising a chlordiazepoxide-type compound or pyrazolopyridine carboxylic acid or ester and a xanthine-type compound.

3,784,689

IMIDAZOLIDINONE DERIVATIVES AS CENTRAL NERVOUS SYSTEM DEPRESSANTS

Walter Schindler, Riehen, Basel-Land, Erich Schmid, Basel, and Armin Zuest, Birsfelden, Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Aug. 5, 1970, Ser. No. 61,511, now Patent No. 3,720,677. Divided and this application Aug. 23, 1972, Ser. No. 283,008

Claims priority, application Switzerland, Aug. 11, 1969, 12,125/69

Int. Cl. A61k 27/00

U.S. Cl. 424—250 3 Claims

Compounds of the class of 1-[2-[4-(thieno[2,3-b][1,5]benzothiazepin-4-yl] - 1 - piperazinyl]-alkyl]-3-alkyl-2-imidazolidinones and their pharmaceutically acceptable acid addition salts have a depressant effect on the central nervous system; pharmaceutical compositions comprising such compounds and methods of producing a central nervous system depressant effect therewith are provided; a typical embodiment is 1-[2-[4-(thieno[2,3-b][1,5]benzothiazepin - 4 - yl)-1-piperazinyl]ethyl]-3-methyl - 2 - imidazolidinone.

3,784,690

CONTROL OF PHYTOPATHOGENIC FUNGI WITH AMIDINE COMPOUNDS

Karl Gätzi, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

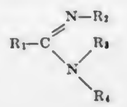
No Drawing. Original application May 22, 1968, Ser. No. 731,255, now Patent No. 3,598,800. Divided and this application Feb. 5, 1971, Ser. No. 113,108

Claims priority, application Switzerland, May 30, 1967, 7,615/67

Int. Cl. A01n 9/20, 9/22

U.S. Cl. 424—244 12 Claims

Antifungal compositions are disclosed which contain as active ingredients amidines of the formula



wherein R_1, R_2, R_3 and R_4 represent certain organic substituents, or salts of such amidines with inorganic or organic acids; these compositions are particularly useful for the protection of plants against phytopathogenic fungi; and also for combatting acarinae such as ticks. Methods for controlling such fungi on the one hand, and acarinae, on the other hand, with the aid of the aforesaid amidine derivatives are also described.

3,784,691

IMIDAZOLE DERIVATIVES FOR TREATING PAIN, INFLAMMATION AND FEVER

Konrad Fitzi, Neuallschwil, Basel-Land, and Rudolf Pfister, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Dec. 28, 1970, Ser. No. 102,131. Divided and this application Aug. 23, 1972, Ser. No. 283,135

Claims priority, application Switzerland, Dec. 31, 1969, 19,401/69

Int. Cl. A61k 27/00

U.S. Cl. 424—273 9 Claims

Compounds of the class of 2-alkyl- and 2-cycloalkyl-4,5-bis-phenyl-imidazoles, the phenyl groups of which being substituted by methoxy, methyl, hydroxy, methylsulfonyl and/or chloro, and pharmaceutically acceptable acid addition salts thereof have analgesic, antiphlogistic and antipyretic activity; they are active ingredients of pharmaceutical compositions and can be used for the relief and removal of pain as well as for the treatment of rheumatic, arthritic and other inflammatory diseases.

3,784,692

17-PROPIONATE, 21-ESTER DERIVATIVES OF 6α,9α-DIFLUOROPREDNISOLONE, COMPOSITIONS AND USE

Alberto Ercoli, Milan, and Rinaldo Gardi, Carate Brianza, Italy, assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Continuation-in-part of application Ser. No. 880,962, Nov. 28, 1969, which is a continuation-in-part of application Ser. No. 735,536, June 10, 1968, both now abandoned. This application Dec. 9, 1971, Ser. No. 206,523

Claims priority, application Italy, June 16, 1967, 17,273/67

Int. Cl. A61k 27/00

U.S. Cl. 424—243 15 Claims

There have been prepared the new 17-propionate, 21-acetate, 17-propionate, 21-isobutyrate and 17,21-dipropionate of 6α,9α-difluoroprednisolone useful as anti-inflammatory agents. They may be incorporated in a suitable pharmaceutical carrier to obtain pharmaceutical compositions for the systemic and local treatment of inflammatory conditions and diseases.

3,784,693

3-SUBSTITUTED PHENYL-QUINAZOLINE-4(3H)-ONES AS SEDATIVE HYPNOTICS

Dietmar A. Habeck, Heidelberg, Germany, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 78,164, Oct. 5, 1970, which is a continuation-in-part of application Ser. No. 16,603, Mar. 4, 1970, both now abandoned. This application Oct. 18, 1972, Ser. No. 298,603

Int. Cl. A61k 27/00

U.S. Cl. 424—250 5 Claims

2-alkoxy and substituted alkoxy-3-substituted phenyl-quinazoline-4(3H)-ones, e.g., 2-ethoxy-3-(o-tolyl)-quinazoline-4(3H)-one are useful as central nervous system depressants.

3,784,694

HALOGENATED 2-ACYLOXY-DIPHENYLETHERS AS BACTERICIDES AND FUNGICIDES

Ernst Model, Basel, and Jakob Bindler, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Application Aug. 16, 1967, Ser. No. 660,926, now Patent No. 3,576,843, which is a continuation-in-part of application Ser. No. 570,742, Aug. 8, 1966, now Patent No. 3,506,720, which in turn is a continuation-in-part of abandoned application Ser. No. 345,080, Feb. 17, 1964. Divided and this application Dec. 28, 1970, Ser. No. 102,053

Int. Cl. A01n 9/20, 9/24

U.S. Cl. 424—304 9 Claims

Diesters of organic dicarboxylic acids and certain halogenated hydroxy-diphenylethers wherein the acyl radical is linked to the benzene nucleus of the diphenylether in 2-position to the ether bridge inhibit microbial growth and are suitable for disinfection and the like purposes, and especially those of the aforesaid diesters wherein at least one diphenyl ether moiety is substituted at least in 4-position and preferably in 4- and 4'-position by halogen are particularly useful for the protection of cellulosic materials against bacteria and fungi, and for the treatment of infections of the intestinal system and the urinal tract of warm-blooded animals caused by pathogenic microorganisms; compositions containing the aforesaid esters in combination with a carrier therefor; and process of using the aforesaid compositions for the described purposes.

3,784,695

PRODUCTION OF AN HYPOTENSIVE EFFECT WITH ESTERS OF GALLIC ACID

William D. Cash, Riverside, Conn., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed May 27, 1971, Ser. No. 147,695

Int. Cl. A61k 27/00

U.S. Cl. 424—308 2 Claims

Method for producing an hypotensive effect and hypotensive agents containing as active compound a gallic acid ester. An illustrative embodiment of the active compound is butyl gallate.

3,784,696

CONTROL OF INSECTS AND ACARINAE WITH 4,4' - DIBROMO- AND 4 - CHLORO-4'-BROMO-BENZILIC ACID ESTERS

Kurt Gubler, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Application Jan. 26, 1968, Ser. No. 700,750, now Patent No. 3,639,446, which is a continuation-in-part of abandoned application Ser. No. 589,530, Oct. 26, 1966. Divided and this application June 7, 1971, Ser. No. 150,718

Claims priority, application Switzerland, Dec. 13, 1965, 17,135/65; Feb. 2, 1967, 1,566/67; May 17, 1967, 6,921/67

Int. Cl. A01n 9/24

U.S. Cl. 424—308 9 Claims

Certain esters of 4,4'-dibromo- and 4-chloro-4'-bromobenzilic acids are disclosed as having useful acaricidal, and in the case of certain esters, also insecticidal activities superior to those of the corresponding esters of 4,4'-dichloro-benzilic acid. The preparation of the new esters, and compositions containing them as active ingredients as well as a method of controlling, in particular, Acarinae with the aid of the new esters, and a method of controlling certain insects, in particular the Colorado beetle on potato plants, with the aid of isopropyl 4,4'-dibromo-benzilate are also described.

3,784,697

PHARMACEUTICAL COMPOSITION CONTAINING PHENOXYALKANE-CARBOXYLIC ACIDS, SALTS AND ESTERS THEREOF

Helmut Nahm, Kelkheim, Taunus, Germany, and Walter Siedel, deceased, late of Bad Soden, Taunus, Germany, by Helene Elise Siedel, nee Graf, heiress, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Original application Jan. 9, 1969, Ser. No. 790,897, now Patent No. 3,721,703. Divided and this application Nov. 28, 1972, Ser. No. 310,162

Claims priority, application Germany, Jan. 11, 1968, P 16 68 896.3

Int. Cl. A61k 27/00

U.S. Cl. 424—309 13 Claims

Phenoxyalkane-carboxylic acids with a 4-substituted phenoxy group in para position of the benzene ring, their esters with aliphatic, cycloaliphatic or araliphatic alcohols and their salts with non-toxic bases having a decreasing effect on the serum cholesterol level and a process for their manufacture.

3,784,698

HALOGENATED DIPHENYLETHER-CONTAINING COMPOSITIONS AND CONTROL OF PESTS THEREWITH

Ernst Model, Basel, and Jakob Bindler, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Application Apr. 3, 1967, Ser. No. 627,603, now Patent No. 3,629,477, which is a continuation-in-part of appplication Ser. No. 570,742, Aug. 8, 1966, now Patent No. 3,506,720, which in turn is a continuation-in-part of abandoned application Ser. No. 345,080, Feb. 17, 1964. Divided and this application Sept. 8, 1970, Ser. No. 70,190

Int. Cl. A01n 9/24; A61k 27/00

U.S. Cl. 424—311 16 Claims

Halogenated 2-hydroxy or 2-acyloxy-diphenylether-containing compositions which inhibit microbial growth and are suitable for disinfection and the like purposes, and especially those containing 2-hydroxy-diphenylethers or 2-acyloxy-diphenylethers substituted at least in 4-position and preferably in 4- and 4'-position by halogen, which are particularly suitable for the protection of cellulosic materials against bacteria and fungi, for the treatment of the infections of the intestinal system and the urinal tract of warm-blooded animals caused by pathogenic microorganisms, and the protection of polyamide fiber materials against attack by certain insects; furthermore processes of using the aforesaid compositions for the described purposes.

3,784,699

METHOD FOR INHIBITING MICROBIAL GROWTH EMPLOYING 2,6 - DIHYDROXY - 3,5-DITERT-BUTYL BENZOIC ACID

Togo Yamano, Nara, Kumiko Jono and Shigehiko Sato, Osaka, and Michio Nakanishi, Oita, Japan, assignors to Takeda Chemical Industries, Ltd., and Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,261

Claims priority, application Japan, Aug. 20, 1969, 44/65,873

Int. Cl. A01n 9/24

U.S. Cl. 424—317 1 Claim

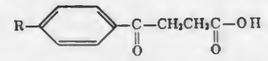
2,6-dihydroxy-3,5-di-tert.butylbenzoic acid and salts thereof have an antimicrobial activity and are applied to, for example, foodstuffs, detergents, cosmetics and the like.

3,784,700
AMINO BENZYL ALCOHOL DERIVATIVES FOR TREATING HYPERTENSION AND INHIBITING GASTRIC SECRETION
Walfred S. Saari, Lansdale, and Charles S. Miller, deceased, by Ruth A. Miller, executrix, Norristown, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Original application July 10, 1969, Ser. No. 845,120, now Patent No. 3,714,229. Divided and this application Nov. 9, 1970, Ser. No. 88,140
Int. Cl. A61k *27/00*
U.S. Cl. 424—311 **6 Claims**

Novel derivatives of 3-hydroxy-α-(1-aminoethyl)-benzyl alcohol, particularly ester derivatives of erythro or threo 3-hydroxy-α-(1 - aminoethyl) - benzyl alcohol and the corresponding 3-ether and 3-ester derivatives thereof, are described. Processes for preparing such novel compounds are also described. The novel compounds are useful as antihypertensive agents and inhibitors of gastric secretion.

3,784,701
COMPOSITIONS CONTAINING SUBSTITUTED BENZOYLPROPIONIC ACIDS AND METHOD OF USE TO TREAT INFLAMMATION AND PAIN
Andrew Stephen Tomcufcik, Old Tappan, N.J., and Ralph Grassing Child, Pearl River, and Adolph Edward Sloboda, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Sept. 21, 1970, Ser. No. 74,108
Int. Cl. A61k *27/00*
U.S. Cl. 424—317 **3 Claims**

Compositions of matter and method of use of compounds of the formula:



wherein R is phenyl, phenoxy, lower alkoxyphenyl, phenylmercapto or benzoyl. These compounds are useful for meliorating inflammation and pain in warm-blooded animals.

3,784,702
ANTI-TUSSIVE COMPOSITIONS
Eugene Tatsuru Kimura, Morton Grove, and David John Anderson, Mundelein, Ill., assignors to Abbott Laboratories, North Chicago, Ill.
No Drawing. Filed Jan. 14, 1972, Ser. No. 217,944
Int. Cl. A61k *27/00*
U.S. Cl. 424—317 **9 Claims**

Covers a method of treating patients requiring antitussive therapy by administering to said patient an effective dose of a composition selected from the group consisting of 2-phenylbutyric acid, diethylaminoethoxyethanol, mixtures of 2-phenylbutyric acid, and diethylaminoethoxy-ethanol, and medicinally acceptable acid or base addition salts of the foregoing; and a pharmaceutical carrier.

3,784,703
METHOD OF TREATING HYPERTENSION
Clement A. Stone, Blue Bell, Pa., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Continuation of abandoned application Ser. No. 89,104, Nov. 12, 1970. This application Feb. 29, 1972, Ser. No. 230,534
Int. Cl. A61u *27/00*
U.S. Cl. 424—317 **9 Claims**

A method of treating hyptertension in an animal by administering to the animal L-dopa or its salts in conjunction with L-α-hydrazino-α-lower alkyl-3,4-dihydroxyphenylpropionic acid or α-hydrazino-3,4-dihydroxyphenylpropionic acid, the esters of each compound and the pharmaceutically acceptable non-toxic salts thereof.

3,784,704
COMPOSITIONS OF 4-BIPHENYL ACETIC ACID AND METHOD OF USE
Elliott Cohen, Pearl River, Adolph Edward Sloboda, New City, and Arnold Curtis Osterberg and Ralph Grassing Child, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Oct. 13, 1972, Ser. No. 297,540
Int. Cl. A61k *27/00*
U.S. Cl. 424—317 **4 Claims**

The compound 4-biphenylacetic acid, its use and method of preparation is described. It is useful for the long lasting amelioration of pain in warm-blooded animals.

3,784,705
THERAPEUTICALLY ACTIVE PHENYLALKANE DERIVATIVES
Stewart Sanders Adams, Bernard John Armitage, and John Stuart Nicholson, Nottingham, England, and Antonio Ribera Blancafort, Madrid, Spain, assignors to Boots Pure Drug Company Limited, Nottingham, England
No Drawing. Application Dec. 15, 1969, Ser. No. 885,280, which is a continuation-in-part of abandoned application Ser. No. 425,624, Jan. 14, 1965. Divided and this application Nov. 21, 1972, Ser. No. 308,557
Int. Cl. A61k *27/00*
U.S. Cl. 424—317 **6 Claims**

2-(4'-chloro-4-biphenyl)propionic acid possessing valuable anti-inflammatory activity. It also exhibits analgesic and antipyretic properties.

3,784,706
INHALANT ANESTHETIC COMPOSITION AND METHOD
Ross C. Terrell, Plainfield, N.J., assignor to Airco, Inc., New York, N.Y.
No Drawing. Filed Oct. 7, 1971, Ser. No. 187,582
Int. Cl. A61k *27/00*
U.S. Cl. 424—342 **2 Claims**

1-chloro-1-hydroperfluoropropyl difluoromethyl ether of the fomula

$$CF_3—CF_2—CHCl—O—CHF_2$$

is useful as an inhalation anesthetic.

3,784,707
TREATMENT AND CONTROL OF MILK FAT DEPRESSION IN LACTATING COWS
Jerry W. Young, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
No Drawing. Filed Mar. 3, 1972, Ser. No. 231,728
Int. Cl. A61k *27/00*
U.S. Cl. 424—343 **8 Claims**

A method of treatment or control of milk-fat depression in lactating cows wherein 1,3-butanediol is orally administered to the cows. The method is particularly useful where the lactating cows are being fed a high energy, low roughage ration.

3,784,708
DIRECTLY COMPRESSIBLE MONOCALCIUM PHOSPHATE
Joseph Anthony Ranucci, Bloomfield, N.J., and Prabhakar Ranchhordas Sheth, Nanuet, N.Y., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Feb. 28, 1972, Ser. No. 230,068
Int. Cl. A61k *9/00*
U.S. Cl. 424—357 **1 Claim**

Directly compressible monocalcium phosphate (MCP) having a particle size distribution such that not less than 70% is below 74 microns, not less than about 98% is below 105 microns and not more than about 1% is larger than 150 microns as well as its use in directly compressible tablet formulations are disclosed.

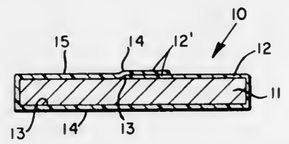
3,784,709
POLYOXYALKYLENE DERIVATIVES OF POLYGLYCEROL ESTERS AS DOUGH CONDITIONERS
Antal G. Oszlanyi, Brook Park, and Richard J. Zielinski, Middleburg Heights, Ohio, assignors to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 18, 1971, Ser. No. 107,513
Int. Cl. A21d *2/16*
U.S. Cl. 99—91 **5 Claims**

Yeast-raised bakery products are shown containing as a portion of the dough conditioner therefor a polyoxyalkylene derivative of a polyglycerol higher fatty acid ester.

3,784,710
READY-TO-USE BATTER PRODUCT
Roland D. Earle, 749 N. Southlake Drive, and Morton S. Baum, 1131 Washington St., both of Hollywood, Fla. 33020
No Drawing. Filed Oct. 28, 1971, Ser. No. 193,586
Int. Cl. A21d *13/08*
U.S. Cl. 426—128 **19 Claims**

A liquid, ready-to-use batter mixture which is stable chemically and bacteriologically. In addition to conventional batter components such as flour, water, shortening and flavoring, the batters of this invention contain effective amounts of ethyl alcohol to prohibit bacterial growth in the mixture at room temperature. The amounts of ethyl alcohol are also effective to prevent an increase of viscosity of the mixture by controlling the swelling of the flour by the water. The batter also contains effective amounts of heat coagulatable binding agent having the capability of forming a texture around the flour upon the application of heat to the batter.

3,784,711
SURFACE TREATED CHEESE PACKAGE AND METHOD
William P. Kane, Bon Air, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Sept. 2, 1971, Ser. No. 177,368
Int. Cl. B65b *25/06*
U.S. Cl. 426—130 **2 Claims**



A cheese package comprising a piece of cheese wrapped in a polyester film. The inner surface of such film, which contacts the cheese, is uncoated and the outer surface thereof, which does not contact the cheese, is coated with a vinylidene chloride copolymer containing at least an ester wax and a solid particulate. The uncoated inner surface of the film is treated, by electrical discharge, to improve adhesion between such inner surface and the cheese which is extruded onto, or positioned in contact with, this film surface in molten form.

3,784,712
GUM GELLING SYSTEM XANTHAN-TARA DESSERT GEL
Martin Glicksman, Valley Cottage, and Elizabeth H. Farkas, Yonkers, N.Y., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed Dec. 23, 1970, Ser. No. 101,151
Int. Cl. A23l *1/04*
U.S. Cl. 426—167 **2 Claims**

A thermally-reversible, room-temperature setting gel resistant to either acid degradation or syneresis upon lengthy heating is prepared from a mixture of xanthan gum and tara gum.

3,784,713
MOISTURE BARRIER COATING COMPOSITION
Frank P. Colten, Dover, Del., and Morton Kaplan, Battle Creek, Mich., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed Jan. 4, 1971, Ser. No. 103,863
Int. Cl. A23g *1/00, 3/00*
U.S. Cl. 426—171 **6 Claims**

A chocolate coating with improved moisture barrier properties is obtained by the incorporation of a minor amount of an alkali or alkaline earth metal derivative of isolated soy protein into the composition.

3,784,714
PROTECTIVE COATINGS FOR CONFECTIONERIES AND BAKERY PRODUCTS
James L. McReynolds and Harry H. Topalian, Dover, Del., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed Jan. 11, 1971, Ser. No. 105,697
Int. Cl. A23g *3/00*
U.S. Cl. 426—171 **4 Claims**

Improved moisture and oxygen protection is obtained in a chocolate or imitation chocolate coating by the addition of a minor amount of calcium stearate to the composition. This type of coating prevents the moisture loss from coated candy centers or bakery products with high moisture and vapor pressure. The candy center, cookie filling or bakery product consequently remains soft in texture and of stable flavor quality over extended periods of time.

3,784,715
CHOCOLATE FLAVORED LIQUID CONFECTIONS AND METHODS OF MAKING THE SAME
Sidney Arden, Forest Hills, N.Y., assignor to Consolidated Foods Corporation, doing business as Popsicle Industries, Englewood, N.J.
No Drawing. Filed Oct. 4, 1972, Ser. No. 295,058
Int. Cl. A23g *1/00*
U.S. Cl. 426—172 **11 Claims**

Chocolate flavored liquid confections in which the cocoa or chocolate particles are uniformly suspended and which possess excellent storage properties may be produced by combining a solution of about 1 to 5 weight percent cocoa or equivalent in chocolate liquor or bittersweet chocolate, about 15–25 weight percent of a sweetener, about 0.05 to 0.75 weight percent xanthan gun, about 0.05 to 0.20 weight percent preservatives, with added food acid, optional salt and artificial flavoring and sufficient water to achieve a solution solids content of 15–30 weight percent solids. The food acid is added in sufficient quantity to maintain a solution pH of about 4.7 to 5.6. The solution mixture is heated to about 180° F. for 30 minutes then cooled to 40–45° F. and filled in plastic film paks.

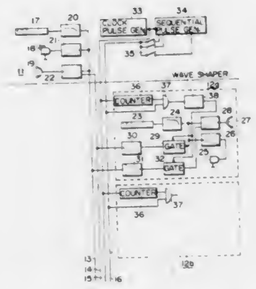
3,784,716
CEREALS CONTAINING DISCRETE NUTRIENT PARTICLES ON THE SURFACE
Herbert D. Spangler, Philadelphia, Pa., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Jan. 28, 1970, Ser. No. 6,577
Int. Cl. A23l *1/30*
U.S. Cl. 426—289 **2 Claims**

Cereals are dry coated with a coating composition containing nutrient particles precoated with a fatty acid, the coating composition having been applied when the cereal and the coating composition are at a temperature at which said fatty acid is tacky.

3,784,717
GROUP TEACHING SYSTEM FOR MUSICAL INSTRUMENTS INCORPORATED WITH INFORMATION EXCHANGING ARRANGEMENT BETWEEN A TEACHER STATION AND A PLURALITY OF STUDENT STATIONS

Eisaku Okamoto, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Mar. 13, 1973, Ser. No. 340,656
Claims priority, application Japan, Mar. 14, 1972, 47-25889
Int. Cl. G09b *15/00*
U.S. Cl. 84—470 **4 Claims**
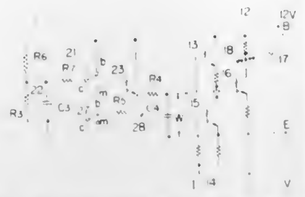


A group teaching system for musical instruments includes with an information-exchange circuit arrangement provided between a teacher station and a plurality of student stations. The teacher station comprises a clock pulse generator, a ring counter for generating the same number of sequential pulses as the student stations upon receipt of clock pulses from said generator and a switch assembly for selectively supplying as selection pulses one or more pulses from the ring counter to the student stations. Each student station comprises a ring counter and a circuit for detecting the corresponding selection pulse in synchronization with a clock pulse from the clock pulse generator, the detected selection pulse being used in producing a gating signal. The student station, further has gate circuits or switches included in the information-exchange circuit arrangement so as to establish a communication path between the teacher station and one or more selected student stations in response to the gating signal thereby permitting information exchange therebetween.

3,784,718
TOUCH-RESPONSIVE KEYING CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENTS

Yasuji Uchiyama, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed July 20, 1972, Ser. No. 273,608
Claims priority, application Japan, July 20, 1971, 46/53580; July 20, 1971, 46/63475; July 20, 1971, 46/63476
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.13 **5 Claims**

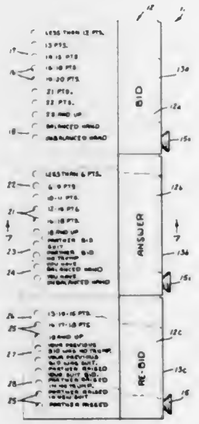
In an electronic musical instrument, tone keyer circuits are respectively controlled by touch-responsive keying circuits. The touch-responsive keying circuit comprises: a key switch having a break contact, a make contact and a movable contact; a first charge-discharge circuit having a charging capacitor and a discharging resistor both connected between the movable contact and the ground; an electrical source +B connected to the break contact; a switching transistor with its base connected to the make contact; and a second charge-discharge circuit being provided between the emitter of the transistor and the ground with a second capacitor and with a series circuit of a second resistor and an normally closed switch which is ganged with the key switch, the capacitor being connected to the keyer circuit. While the movable contact of the key switch travels from the break contact to the make contact, the first charge-discharge circuit is discharged with a predetermined time constant. The switching transistor is brought conductive to the extent responsive to a charged voltage remaining in the first charge-discharge circuit at the time the movable contact touches the make contact. The second charge-discharge circuit is charged through the transistor to establish a keying voltage.



3,784,719
BRIDGE BIDDING INDICATOR

James A. Mentzer, 3821 Bassett Creek Dr., Minneapolis, Minn.

Filed Aug. 10, 1972, Ser. No. 279,678
Int. Cl. G09b *19/22*
U.S. Cl. 35—8 B **8 Claims**

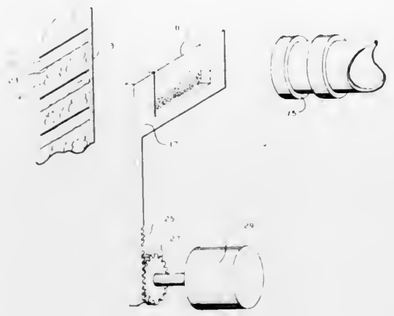


A bridge bidding indicator having a plurality of magnetically attractable instruction cards each of which includes an apertured information field representative of a bridge hand of particular evaluation, and a bidding instruction corresponding to such evaluation. The instruction card deck is placed in a box housing having a hinged closure member, and pegs are selectively inserted through one face of the housing into the apertured information fields to represent a particular hand evaluation and to retain all but the appropriate instruction card. The chosen card is removed from the deck by opening the closure member, a portion of which is magnetized and engages the deck when closed.

3,784,720
VARIABLE VISIBILITY SIMULATOR

Melvain Oliphant, Binghamton, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,983
Int. Cl. G09b *9/08*; **B64g** *7/00*
U.S. Cl. 35—12 N **3 Claims**



Apparatus to simulate the effects of fog or the like in a film projection visual system. The effects are obtained by placing a fog mask mounted on a moveable holder in the path of the projected image between the film and projection lens. By controlling the vertical position of the mask and holder various degrees of visibility may be simulated.

ERRATA

For Classes 84—470 and 84—1 see:
Patents Nos. 3,784,717 and 3,784,718

ERRATUM

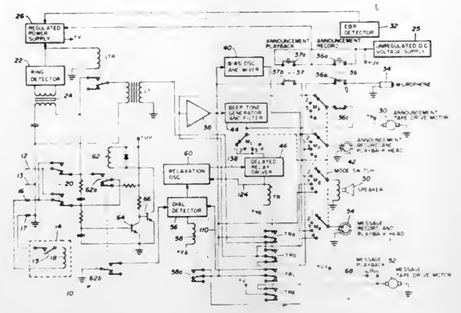
For Class 179—6 see:
Patent No. 3,784,721

3,784,721
SYSTEM FOR SCREENING TELEPHONE CALLS

Jack S. Kilby, 7723 Midburg, Dallas, Tex.

Filed Nov. 22, 1971, Ser. No. 200,804
Int. Cl. H04m *1/64*
U.S. Cl. 179—6 R **15 Claims**

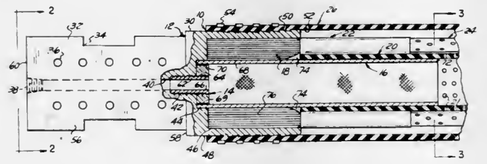
A system for screening telephone calls is described which intercepts an incoming ring signal to prevent disturbing the called party. The system produces an off-hook condition and responds with a recorded announcement specifying the activity in which the called party is involved and indicating that he would prefer not to be interrupted, and also gives instructions as to how the calling party may nevertheless continue the call by initiating an additional dialed signal if he wishes. When the calling party initiates the additional signal identified by the instruction, such as by dialing one or more digits, or when an additional prearranged signal is transmitted, the called party is summoned to the telephone. As an alternative to interrupting the called party, the calling party may record a message. The recorded announcement may be modified by the subscriber at any time to tailor the announcement to the occasion to enable the calling party to better use his judgment as to when to interrupt. Other telephone answering functions are also described.



3,784,722
WATER-COOLED ELECTRIC FURNACE CABLE

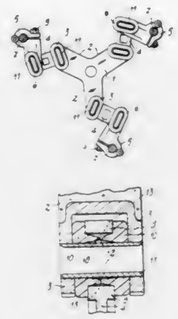
Daniel J. Goodman, 32326 Westbury Dr., St. Clair Shores, Mich.

Filed July 17, 1972, Ser. No. 272,579
Int. Cl. H01b *7/34*
U.S. Cl. 174—15 C **9 Claims**



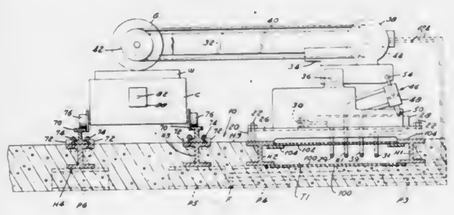
To prevent wear and cutting of the hair-like wires of the stranded conductor wire ropes of a flexible water-cooled electric furnace conductor cable and its tubular jackets and core by their flexing against the end of the riser tubes in the terminals thereof, the riser tube of each terminal is flexible and is constructed from non-ferrous flexible non-magnetic metal such as phosphor bronze, as a short hose portion or as a short tightly-wound coil spring, either of which flexes with the bending of the cable as the furnace is tilted and the cable is consequently stretched while suspended between the furnace and the transformer. The flexible riser tube extends from the cable conductor rope pocket of the terminal head into the interior of the cable so as to prevent the solder used in securing the conductor ropes in the pocket from flowing into the interior of the cable and plugging up the water holes through which the cooling water flows from the terminal end through the riser tube by way of the perforated tubular core into the interior of the cable and into the flexible elastomeric perforated tubular jackets surrounding the cable conductor ropes. The connection between the terminal and the flexible riser tube is made by means of a tubular coupling including a threaded tubular stem or nipple threaded into the inner end of the terminal cooling water bore and carrying a correspondingly internally-threaded annular disc the periphery of which is joined to the inner end of the flexible riser tube by an annular layer of solder. The coupling and disc are of non-magnetic metal such as brass.

3,784,723
SPACING MEMBER FOR WIRE GROUPS IN ELECTRICAL OVERHEAD LINES
Lorenzo Cantamessa, via del Tonale e della Mendola 58, Endine, Italy
Filed May 23, 1973, Ser. No. 363,014
Claims priority, application Italy, Aug. 3, 1972, 2943/72
Int. Cl. H02g 7/14, 7/12
U.S. Cl. 174—42 4 Claims



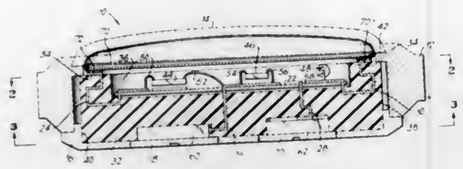
Spacing member for wire group in electrical overhead lines capable of ensuring a constant rate of damp for the vibrations of wires connected thereto. The spacing member includes a central body to which a plurality of anchoring clips for the electrical wires are connected. The connection between the clips and central body is provided by movable arms rockingly carried on pins of ovoidal cross-section with the interposition of cores made of resilient material.

3,784,724
SUBFLOOR SYSTEM FOR GRINDING APPARATUS
Richard G. Hopkins, 5160 Lake Dr., Rt. No. 1, Bennington Twp., Shiawasse County, Mich.
Filed Dec. 18, 1972, Ser. No. 316,101
Int. Cl. H02g 3/26
U.S. Cl. 174—48 12 Claims



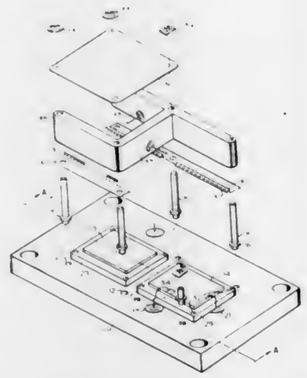
A subfloor system for supporting machinery having hydraulically and electrically operated components. The system comprises a framework of horizontal beams some of which define trenches for hydraulic piping. The beams are raised on stools or pedestals to allow electric conduits to pass beneath. Anchor bolts are rigidly secured to the beams to anchor the machinery. At final installation, concrete is poured up to the level of the tops of the beams to embed the beams and the electrical conduits, but without filling the trenches so that the hydraulic piping remains accessible.

3,784,725
ELECTRONIC HYBRID PACKAGE
Carroll R. Perkins, San Diego, and Irwin A. Lucks, Garden Grove, both of Calif., assignors to Solitron Devices, Inc., San Diego, Calif.
Filed July 24, 1972, Ser. No. 274,627
Int. Cl. H02g 13/08; H05k 5/00
U.S. Cl. 174—52 R 5 Claims



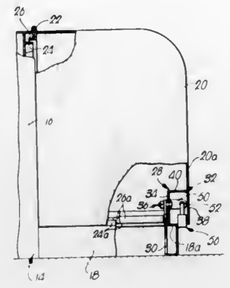
An electronic package in which semiconductor technology is bonded to a lead-frame and thereafter encapsulated and formed to be functional of its self.

3,784,726
MICROCIRCUIT PACKAGE ASSEMBLY
James M. Smith, San Jose, and George A. Drennan, Mountain View, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed May 20, 1971, Ser. No. 145,457
Int. Cl. H03k 5/00
U.S. Cl. 174—52 S 15 Claims



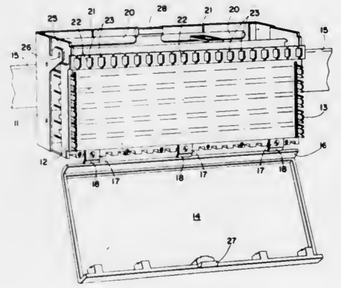
A hermetically sealed package for microcircuits employs a base plate on which one or more microcircuits may be mounted by, for example, soldering thereto or by means of studs, the studs being positioned in the base plate so as to accommodate the microcircuits which are held down on the base plate, for example, by spring fasteners mounted on the studs. The microcircuits may be mounted on a heat conductive carrier base. Electrical feedthroughs are hermetically sealed in the base plate. In certain forms of the package, an isolation wall structure is employed to isolate one microcircuit from another, the wall being secured to the base plate via studs and stud fasteners. A cover is hermetically sealed to the base plate over the microcircuits, carrier, isolation wall and feedthroughs. A novel diffusion weld technique is used to seal the studs and feedthroughs in the base plate.

3,784,727
TAMPER RESISTANT, LOCKABLE ENCLOSURE APPARATUS FOR TRANSFORMERS AND THE LIKE
Harold Dennis Haubein, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.
Filed Sept. 1, 1972, Ser. No. 285,725
Int. Cl. H05k 5/04
U.S. Cl. 174—52 R 14 Claims



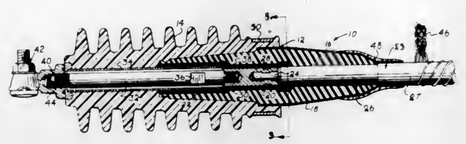
Enclosure apparatus has one member, such as the swingable access hood of an electrical transformer, which may be secured tightly against another member, such as the body of the transformer, and locked in that position without exposing the locking means to tampering. A closed overhang on one member has an inset receptacle which both conceals and protects a threaded fastener interconnecting the member, and a padlock, also removably disposed in the receptacle, blocks an access hole in the overhang for the fastener when the padlock is locked.

3,784,728
CONNECTING BLOCK WITH HINGED TERMINAL MEANS
George De Bortoli, Ottawa, and Helmut Hans Lukas, Carleton Place, Ontario, both of Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Nov. 20, 1972, Ser. No. 308,054
Int. Cl. H01r 9/02
U.S. Cl. 174—60 7 Claims



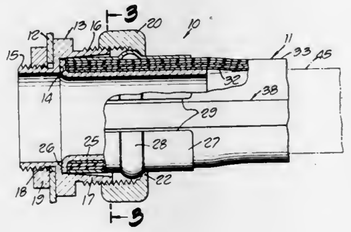
A connecting block in which a support member has a large number of terminal clips extending through the member, for connection of wires to both ends, the support member pivotally mounted in a housing so that one or other side of the support member, and related ends of terminal clips, can be selectively presented for wiring. A hinged cover attached to the support member can be utilized to retain the support member in one selected position, the support member normally positioned in the other position, as by gravity.

3,784,729
ELECTRICAL CABLE CONNECTOR
John P. Davis, Hallsville; Robert W. Harmon, Centralia, and James T. Odom, Glasgow, all of Mo., assignors to A. B. Chance Company, Centralia, Mo.
Continuation-in-part of Ser. No. 20,640, March 18, 1970, abandoned. This application Aug. 23, 1971, Ser. No. 173,837
Int. Cl. H02g 3/00
U.S. Cl. 174—73 R 6 Claims



An electrical connector unit has a unitary insulating housing provided with an epoxy resin wheathershed portion integrally united with an elastomeric cable-receiving portion. One embodiment utilizes a polyolefin type solvent dispersed polymer bonding agent to join the two housing portions, while a second embodiment utilizes an epoxy resin band integrally joined with the elastomeric portion during molding of the latter, and an adhesive to bond the weathershed portion to the outer surface of the band. Each embodiment utilizes a retaining ring embedded within the housing to firmly retain components of the connecting structure within the housing once connection has been effected, thereby precluding axial movement of the cable relative to the housing.

3,784,730
COUPLING ASSEMBLY FOR SHIELDED TUBULAR JACKETING
Hans E. Bannies, Laguna Beach, Calif., assignor to Walter A. Plummer, Sherman Oaks, Calif.
Filed Oct. 6, 1972, Ser. No. 295,570
Int. Cl. H02g 15/00
U.S. Cl. 174—75 C 7 Claims

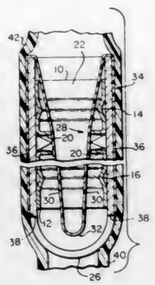


A coupling for connecting a shielded tubular jacket equipped with a re-openable seam to another shielding assembly in a mechanically strong inexpensive and electrically efficient manner. The metal lined jacket is clamped between the tubular metal insert at the end of the jacket and a surrounding annularly beaded sleeve having a split sufficiently wide to accommodate the jacket seam and forcibly contractable about the jacket as the coupling clamping nut is cammed against the annular bead during tightening of the clamping nut. The clamping nut also compresses the tubular insert axially against a threaded metal bushing to complete an electrical bond between the jacket shield and other shielding means for the contents of the jacket.

3,784,731
CONNECTOR FOR INSULATED CONDUCTORS

Thomas Newbold, Lincoln, Mass., assignor to TRW Inc., Cleveland, Ohio

Filed Dec. 4, 1972, Ser. No. 312,008
Int. Cl. H02g 15/08
U.S. Cl. 174—87 3 Claims

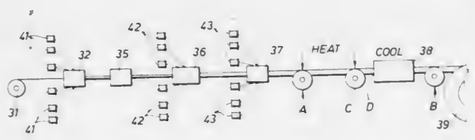


An electrical connector of the composite sleeve type having an inner sleeve carrying a plurality of tangs for piercing insulation and engaging the metal wires of a plurality of electrical conductors inserted into the inner bore in the sleeve to interconnect the conductors responsive to a crimping of the connector includes a liner of thin, filmlike material disposed within the bore in the inner sleeve opposite the distal ends of the tangs. The liner is retained in assembly with the connector by a reversely bent extension thereof which is sandwiched between the outer surface of the outermost metallic sleeve of the connector and the inner surface of the outer insulative jacket of the composite sleeve forming the connector.

3,784,732
METHOD FOR PRE-STRESSING ARMORED WELL LOGGING CABLE

William A. Whitfill, Jr., Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 809,357, March 21, 1969, abandoned. This application Mar. 16, 1971, Ser. No. 124,689
Int. Cl. B29d 23/12; H01b 13/00, 7/22
U.S. Cl. 174—108 9 Claims

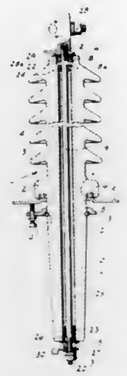


The particular embodiment described herein as illustrative of the invention relates to method and apparatus for use in manufacturing pre-stressed well logging cables. By use of the present invention, the occurrence of undesirable permanent stretch while the cable is in use will be reduced. The method includes the steps of heating the finished cable to a point substantially less than the melting point of the visco elastic, thermoplastic inner conductor insulators but high enough to make the insulators very pliable, and placing the cable under tension sufficient to deform the conductor insulators. The cable is then cooled to a normal ambient temperature while still under tension. Apparatus capable of performing this method is also disclosed.

3,784,733
BUSHING FOR TRANSFORMERS AND THE LIKE

Donald J. Farmer; Charles J. Carlson, both of Pine Bluff, Ark., and Peter W. Muschong, St. Louis, Mo., assignors to Central Moloney Inc., Pine Bluff, Ark.

Filed Mar. 6, 1973, Ser. No. 338,559
Int. Cl. H01b 17/26
U.S. Cl. 174—153 R 11 Claims

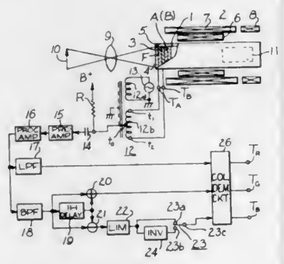


A bushing for a transformer or the like comprising an insulating member having a bore therethrough and an opening adjacent one end thereof intersecting with the bore and including at least one substantially flat side wall portion. The insulating member has a shoulder between said bore and opening. A rigid conductor member extends through the bore and opening and has a pair of threaded ends extending exteriorly of the bore and opening. The conductor member has a flange for abutting engagement with the shoulder and a retainer in threaded engagement between one of the threaded ends thereof and the other end of the bushing urging the flange into engagement with the shoulder. The conductor member carries a pair of spaced seals sealably engaged between the conductor member and the bore and defining therein an isolated chamber.

3,784,734
COLOR IMAGE PICKUP DEVICE

Toshiro Watanabe, and Yasuharu Kubota, both of Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 12, 1971, Ser. No. 188,029
Claims priority, application Japan, Oct. 14, 1970, 45/90214
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 ST 10 Claims



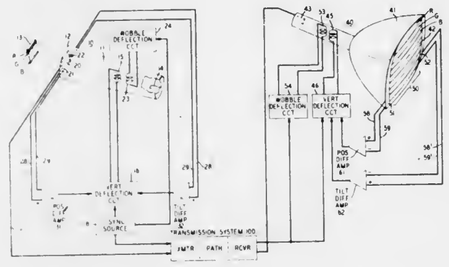
A color image pickup device of the type in which the image is separated into individual colors by a striped filter and is

focused on the photoelectric conversion layer of a camera tube. To avoid moire patterns in the reproduced television image, means are provided between the filter and the object being televised to form multiple images of the object spaced apart by an integral multiple of p/N in which $1/N$ is the duty cycle of the color component stripes and p is the pitch of the stripes.

3,784,735
COLOR TELEVISION WITH CONTROL OF A WOBBLING BEAM

Earl Franklin Brown, Piscataway, and William Kaminski, West Portal, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 29, 1972, Ser. No. 239,269
Int. Cl. H04n 9/24
U.S. Cl. 178—5.4 6 Claims



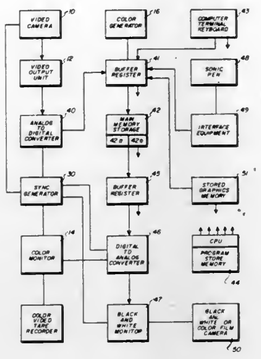
An electron beam is used to scan a striped color pattern arranged parallel to the scan line and the beam is caused to wobble transversely to the scan line so as to impinge on a number of the color stripes during each pass. Sensors located at an edge of the raster but outside the image portion are positioned in pairs — one above and the other below a preselected scan line. Impingement of the scanning beam upon a sensor produces an index signal and the signals from each pair of sensors are applied to opposite inputs of a differential circuit. The resultant difference signal is used to modify the beam deflection system to align the mean scan line with the preselected line so that the proper color information is generated during the entire pass. The technique is useful both in cameras and displays.

3,784,736
METHOD AND APPARATUS FOR CONVERTING MONOCHROME PICTURES TO MULTI-COLOR PICTURES ELECTRONICALLY

Joseph F. Novak, 447 Ridge Ct., Roselle, Ill.

Continuation-in-part of Ser. No. 181,425, Sept. 17, 1971, Pat. No. 3,706,841. This application Oct. 26, 1972, Ser. No. 300,972
Int. Cl. H04n 9/02
U.S. Cl. 178—5.4 R 8 Claims

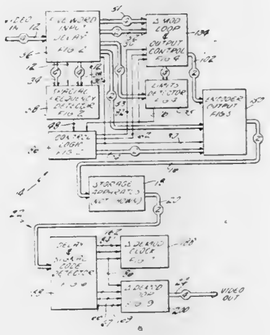
This invention relates to improved methods and apparatus for the conversion of black and white or monochrome pictures to retouched black and white pictures, multicolor video pictures and multicolor film pictures, using high speed and large capacity storage memory units.



3,784,737
HYBRID DATA COMPRESSION

Glenn C. Waehner, Riverside, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 12, 1973, Ser. No. 323,155
Int. Cl. H04b 1/66; H04n 1/40, 7/12
U.S. Cl. 178—6 7 Claims



A digital video data compression system compresses digital words as small as four-bits into two-bit words by means of a combination of coarse data compression and delta modulation data compression. In response to the two most significant bits being the same for five contiguous words, the apparatus switches into delta modulation mode in which the digital word representing the video brightness (sixteen shades of gray in the four-bit embodiment herein) is incremented or decremented by one level or left unchanged. In the encoder section, a delta modulation loop responds to the delta modulation commands to maintain a digital word of the same value which is created by the same command in the decoder section, and that value is compared with incoming words so as to cause the operation to shift into a coarse mode when the delta-modulated word varies from the incoming word by more than three levels, the two-bit compressed word representing, in the coarse mode, the two most significant bits of the video data word. When in the delta modulation mode, one of the four combinations representable by the two bits is a command to

shift into the coarse mode; when in the coarse mode, a return to the delta mode is effected by sending the signal for pure black (ZERO, ZERO) followed by a signal for pure white (ONE, ONE), since this is a least-likely signal combination to occur. When this combination naturally occurs, it is automatically changed to a lesser shift by sending ZERO, ZERO followed by ONE, ZERO, in order to avoid ambiguity. Clocking, switching, comparing and other functions are disclosed.

3,784,738

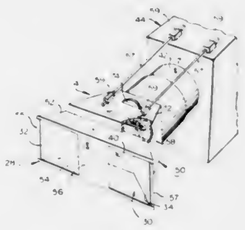
IMAGE REPRODUCTION SYSTEM FOR DIMENSIONAL STEREOPTIC PERCEPTION

Howard Natter, 185 Grandview Blvd., Yonkers, N.Y.

Filed Dec. 21, 1971, Ser. No. 210,348

Int. Cl. H04n *9/56, 9/58*

U.S. Cl. 178—6.5 **5 Claims**



Dual images of the same scene are registered through two viewing stations, the geometric centers of which are spaced apart the average interpupillary distance. An image tube camera receives the images and produces corresponding video signals. In one embodiment, the images are optically juxtaposed to side by side relationship and focused on a photoconductor surface of a single image tube to produce video signals. Receiving stations convert the video signals into two visual side by side images on a CRT. The receiving stations include headgear having spaced apart observation windows, magnifying lenses and means which preclude peripheral visual distraction. An accompanying stereophone acoustical system includes equipment in the headgear to stereophonically reproduce audible sounds in simulation of the sounds associated with the scene. Optionally, the image registered through each viewing station may be focused on the photoconductor surface of an individual image tube to provide separately generated video signals for each viewing station. In this embodiment, the receiving stations include a CRT for each of the generated signals.

3,784,739

APPARATUS FOR ENGRAVING A CYLINDER WITH REPEATED OVERLAPPING PATTERNS

Ferdinand Allard de Vos, Castricum, and Jan Hendrik ter Steege, Breukelen, both of Netherlands, assignors to N.V. Werkspoor-Amsterdam, Amsterdam, Netherlands

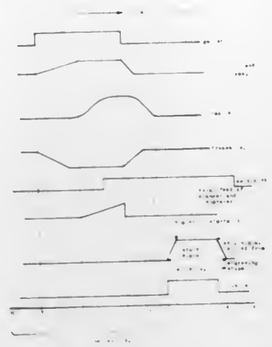
Continuation-in-part of Ser. No. 809,643, March 24, 1969, abandoned. This application Oct. 4, 1971, Ser. No. 185,947

Claims priority, application Netherlands, Apr. 2, 1968, 6804633

Int. Cl. H04n *1/04*

U.S. Cl. 178—6.6 B **17 Claims**

Method and apparatus for controlling the scanning and engraving heads associated respectively with a rotating cylinder having a master pattern thereon and a rotating cylinder on which a half-tone screen printing form pattern of the master is to be produced. The control is such that the heads are intermittently stepped so that the scanning and engraving paths each are in the form of a series of axially spaced incomplete circumferential lines with the end of each such line being joined to the beginning of the next line by a short helical line. Preparation for the subsequent generation of a control signal to stop engraving is effected in response to stepping movement of the heads and the actual stop signal is generated after the stepping movement so that engraving will always actually stop at some point along the next circumferential line while



neither head is moving. Thereafter, further stepping of the engraving head is suspended until the engraving is to be restarted so that the engraving head "idles" along the path on which engraving ceased. The signal to restart engraving is timed to occur immediately prior to the point at which the stop engraving signal occurred so that there is always the slight overlap between stop and restart, and no non-engraved gaps occur between stop and restart.

3,784,740

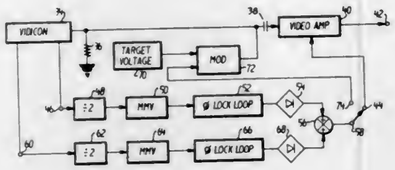
PIPELINE INSPECTION SYSTEM

George V. Copland, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Aug. 23, 1972, Ser. No. 282,906

Int. Cl. H04n *5/19, 7/18*

U.S. Cl. 178—6.8 **6 Claims**



A television inspection system for pipelines wherein the gain of the television camera and/or the camera target voltage is varied in a predetermined manner in synchronism with the scan of the television camera to compensate for nonlinear illumination of the pipeline interior.

3,784,741

CATHODE RAY TUBE DEVICE

Hiroshi Minami; Masao Ando, both of Yokohama, and Yoshiharu Obata, Tokyo, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed July 19, 1971, Ser. No. 165,420

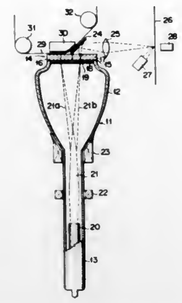
Claims priority, application Japan, July 24, 1970, 45/73478; July 24, 1970, 45/73479

Int. Cl. H04n *5/36*

U.S. Cl. 178—7.88 **5 Claims**

A cathode ray tube device comprising a face plate having a picture transmission glass plate and a picture reception fiber

plate, and a reflector disposed slantwise in front of the glass plate. In picture reception, the medium is traveling in front of the face plate. In picture reading or transmission, however, the



graphic medium is traveling along the side of the face plate. These media are traveling in front and on the side of the face plate in their respective positions independent of each other.

3,784,742

GROUND-BASED FLIGHT SIMULATING APPARATUS

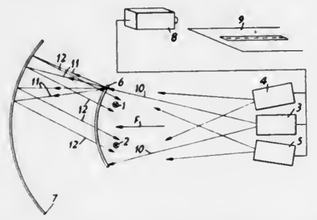
Donald Burnham, Bletchley; Samuel Walter Honeyball, Aylesbury; Archer Michael Spooner, Henley, and Daniel Richard Lobb, Farnborough, all of England, assignors to Redifon Limited, London, England

Filed May 8, 1972, Ser. No. 251,258

Claims priority, application Great Britain, May 12, 1971, 14494/71

Int. Cl. G02b *17/00, 27/10;* **G03b** *21/56*

U.S. Cl. 178—7.88 **11 Claims**



An infinity visual display for a ground-based vehicle or craft simulator. A view of terrain passed over is obtained by a television camera controlled in simulated motion over a terrain model. The view is projected by a television projector onto a back-projection screen, the front of which screen is viewed by trainee crew by way of a collimating mirror. The television projector and back-projection screen are located overhead of the trainee crew and the collimating mirror in front, facing upwards. To provide for this inclined viewing axis of the screen relative to the projector axis to the screen, the screen must have a diffusing transmission characteristic and preferably a ray-deflecting characteristic also.

3,784,743

PARALLEL DATA SCRAMBLER

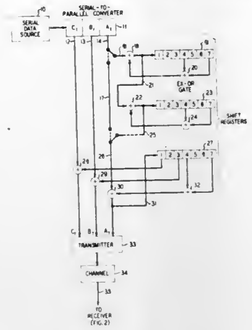
Henry Charles Schroeder, East Brunswick, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 23, 1972, Ser. No. 283,159

Int. Cl. H04l *9/02*

U.S. Cl. 178—22 **10 Claims**

Parallel streams of synchronous binary digital data are scrambled and descrambled with the aid of single complementary pseudorandom key signal generators at the respective transmitting and receiving terminals of a data transmission system. The key signal constructed from a selected one of the parallel streams is applied to the remaining streams after



predetermined differential delays. Where the key signal is generated in a multistage binary shift register, the required differentially delayed signals are readily obtained from different stages thereof.

3,784,744

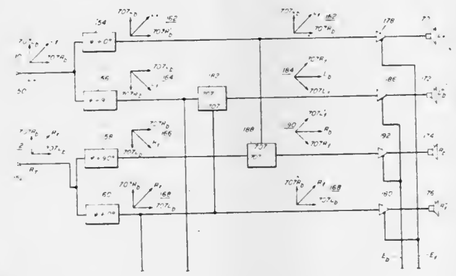
DECODERS FOR QUADRUPHONIC SOUND UTILIZING WAVE MATCHING LOGIC

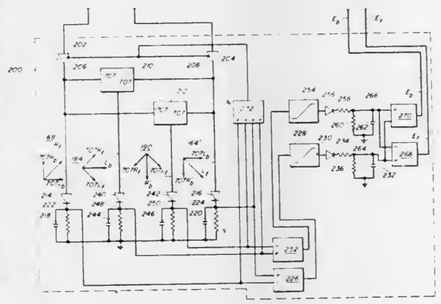
Benjamin B. Bauer, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Feb. 24, 1971, Ser. No. 118,271

Int. Cl. H04r *5/00*

U.S. Cl. 179—1 GQ **20 Claims**





Apparatus for decoding four separate channels of information transduced from a medium having only two separate tracks and presenting it on four loudspeakers to give the

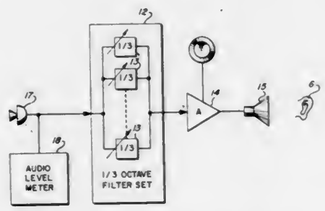
listener the illusion of sound coming from a corresponding number of separate sources. The realism is enhanced by a decoding system which accepts the two outputs from the medium, which may be a disc record, one for each track, separates them into four independent channels each carrying predominantly the information contained in the originally recorded sound signals, and, utilizing a novel wave-matching technique, derives control signals for controlling the gains of amplifiers associated with the four loudspeakers. The use of the wave-matching technique improves the separation of the four independent channels, particularly the generally "front" from the generally "back" signals, thereby to enhance the realism of four-channel simulation.

3,784,745

METHOD AND APPARATUS FOR PROVIDING ELECTRONIC SOUND CLARIFICATION FOR AURALLY HANDICAPPED PERSONS

William P. Stearns, Scottsdale, Ariz., assignor to Shalako Resource Systems, Inc., Scottsdale, Ariz.

Filed Apr. 12, 1971, Ser. No. 133,229
Int. Cl. A61b *5/12*; **H04r** *25/00*
U.S. Cl. 179—1 N **27 Claims**



A method is described for determining the frequency response curve or characteristic to be incorporated into sound amplification apparatus utilized by aurally handicapped persons. An auditory threshold is first determined as a function of frequency utilizing pink or white noise passed through ⅓ octave bandpass filters. Subsequently, comfort level response is determined (in the same manner) with the loudness increased for each nominal frequency band until the patient indicates distinct discomfort, the loudness being then decreased until the patient considers the level to be comfortable. Examination of the curves thus obtained may reveal one or more ⅓ octave frequency bands at which dynamic range, the difference between the threshold and comfort levels, is abnormally reduced. Playback apparatus is then adjusted generally to conform to the comfort level curve. Preferably, these tests and the playback apparatus comprehend a broad frequency range on the order of 100 hz to 10 kHz. The adjustment of the playback apparatus may subsequently be altered in accordance with predetermined principles in order to enhance the aurally handicapped person's capacity to understand the spoken language.

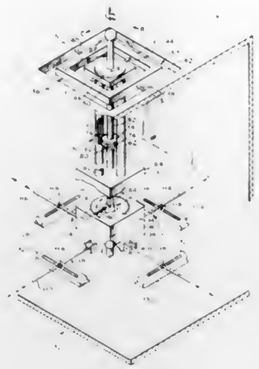
3,784,746

SINGLE ACTUATOR FOR EFFECTING MULTIPLE CONTROLS

Richard L. Hess, 111-31 78th Ave., Forest Hills, N.Y.

Filed July 6, 1971, Ser. No. 159,988
Int. Cl. H04r *5/00*
U.S. Cl. 179—1 GQ **12 Claims**

A control actuator in a first mode of displacement is shifted longitudinally along a predetermined axis to effect a first form of control to blend the sound for a stereo high fidelity sound system. In a second mode of displacement the actuator is rotated about the predetermined axis to effect a second form of control to vary the volume or loudness level of the stereo high fidelity sound system. In a third mode of displacement the actuator is either shifted to a position wherein it is inclined with respect to the predetermined axis, or as that its axis is shifted so as to be parallel with the predetermined axis, to effect a third form of control to arrange the stereo image or balance presented by the high fidelity sound system. The actuator is furthermore displaceable in a multiple mode including any two or even all three of the aforementioned modes to simultaneously effect the forms of control.

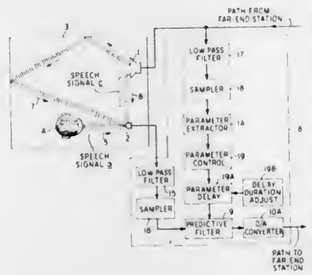


3,784,747

SPEECH SUPPRESSION BY PREDICTIVE FILTERING

David Arthur Berkley, New York, N.Y., and Olga Mary Mracek Mitchell, Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 3, 1971, Ser. No. 204,509
Int. Cl. H04m *1/20*; **H04b** *15/00*
U.S. Cl. 179—1 HF **11 Claims**



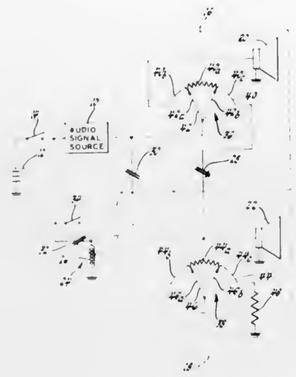
Speech signal energy from an undesired source is suppressed by extracting from the undesired signal a delay parameter and a gain parameter. These parameters control a delay and gain network through which both the desired and undesired signals are routed. The delayed, amplified signal, when applied to a subtractor along with the undelayed signal, suppresses the undesired signal. The invention is applied to several hands-free telephony situations and to the suppression of one of two speakers in a room.

3,784,748

AUTOMOTIVE VEHICLE SOUND DISTRIBUTION SYSTEM

Donald E. Brinkerhoff, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 19, 1972, Ser. No. 218,975
Int. Cl. H04r *5/02*
U.S. Cl. 179—1 VE **1 Claim**



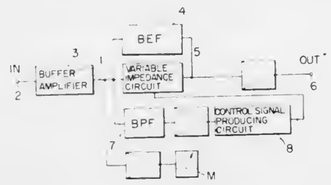
In a sound distribution system for an automotive vehicle, a relay is manually operable to shift control over the sound level of a rear seat speaker from a front seat fader exclusively to a rear seat fader exclusively. Further, a limiting resistor is connected to the rear seat fader to prohibit unloading of the audio signal source of the sound distribution system.

3,784,749

NOISE ELIMINATING DEVICE

Shogo Shigeyama, Kawasaki; Yoichiro Yamada, Yokohama, and Kunihiro Kondo, Urawa, all of Japan, assignors to Trio Kabushiki Kaisha, Tokyo-To, Japan

Filed Feb. 9, 1972, Ser. No. 224,790
Claims priority, application Japan, Feb. 10, 1971, 46/5361
Int. Cl. H04b *15/00*
U.S. Cl. 179—1 P **8 Claims**



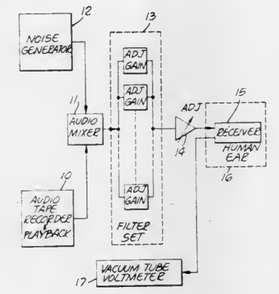
In a noise reducing device for reducing noises contained in audio signals, a frequency band wherein noises contained in audio signals are highly sensible to an auditor, but the frequency of appearance therein of the audio signals is substantially low is blocked by a required number of band-elimination filters provided in series in a transmission line for transmitting the audio signals, each of the band-elimination filters being bypassed by a corresponding variable impedance circuit, while the same frequency band is passed through a corresponding number of band-pass filters, the outputs of said band-pass filters being supplied respectively to corresponding control signal producing circuits to produce control signals, whereby said variable impedance circuits bypassing the band-elimination filters are controlled respectively by said control signals, and the band-elimination filters are thereby brought into a state effectively blocking the frequency band when the input audio signal level in said frequency band is lower than a predetermined value and vice versa.

3,784,750

APPARATUS AND PROSTHETIC DEVICE FOR PROVIDING ELECTRONIC CORRECTION OF AUDITORY DEFICIENCIES FOR AURALLY HANDICAPPED PERSONS

William P. Stearns, Scottsdale, and John K. Lauchner, Phoenix, both of Ariz., assignors to Shalako Resource Systems, Inc., Scottsdale, Ariz.

Filed Feb. 25, 1972, Ser. No. 229,322
Int. Cl. H04r *29/00*
U.S. Cl. 179—1 N **6 Claims**



There is disclosed herein improved methods and apparatus for measuring and describing auditory deficiencies for purposes of prescribing compensatory amplification, and improved methods and apparatus for providing such compensatory amplification in a prosthetic device in practical wearable form, and particularly electronic circuits which may be used both in measuring and correcting such deficiencies.

ERRATA

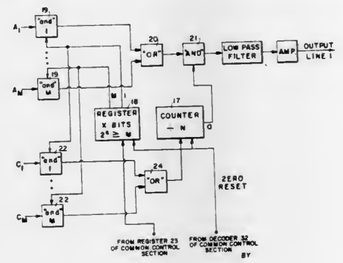
For Classes 235—61 and 235—88 see:
Patents Nos. 3,784,789 thru 3,784,797

3,784,751

PDM-TDM SWITCHING MATRIX

Robert C. Arndt, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 16, 1971, Ser. No. 199,177
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 A **7 Claims**



A switching matrix for making electrical connection between any one of a number of input lines and any one of a

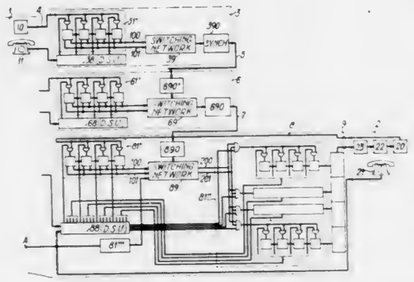
number of output lines. The signal to be switched will be on one of the input lines. This signal first modulates a carrier signal and then is multiplexed with the other input signals in an input subsection into a single signal stream. Several streams may be present, dependent on the total number of inputs, as the number of inputs in a subsection is limited. These signal streams are then fed to each output subsection. Each output subsection has one output line. The desired output line is first selected, thus selecting an associated output subsection. At the output subsection, that particular signal stream containing the desired input signal is first selected from all the streams available. The one desired input signal is then selected from all the signals available in the stream, and subsequently appears on the desired output line.

3,784,752

TIME DIVISION DATA TRANSMISSION SYSTEM

Roger J. Peron, Z.U.P. Batiment 63, Lannion, France

Filed Oct. 30, 1972, Ser. No. 301,995
Int. Cl. H04j *3/16*
U.S. Cl. 179—15 AQ **2 Claims**



Data transmission system over routes composed of a chain of cascaded time division switching networks and through a number of time slots depending upon the data flow and selected by the data transmitter station. The message data to be transmitted are chopped into as many words as there are transmission time slots. The transmitting routes are defined by the incoming slots in the home time division exchange of the transmitter station and the outgoing slots in the home time division exchange of the receiver station. The slot numbers of the incoming and outgoing slots are stored together with the chronological numbers of establishment of the routes through said slots. Reception of the message words takes place in groups of shift registers whose number is equal to the number of time slots and selectively in a particular shift register of said register groups depending upon the delay encountered in the transmission by the word considered.

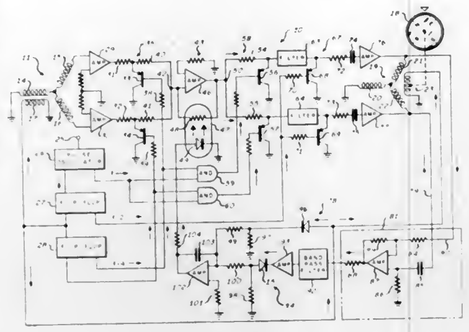
3,784,753

MULTIPLEXED GAIN CONTROL FOR A SYNCHRO DATA TRANSMISSION SYSTEM

James R. Erspamer, and George W. Snyder, both of Phoenix, Ariz., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed Dec. 26, 1972, Ser. No. 318,144
Int. Cl. H04j *7/00*
U.S. Cl. 179—15 FE **10 Claims**

A synchro data repeater system is provided with a proportional gain control for compensating for undesirable transmitter signal amplitude variations, the system being particularly adapted for application in magnetic compass systems to



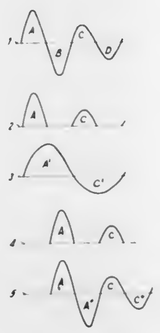
compensate for changes in the field strength of the horizontal component of the earth's magnetic field, especially in high latitude navigation.

3,784,754

APPARATUS AND METHOD FOR TRANSMITTING AND RECEIVING SIGNALS BASED UPON HALF CYCLES

Isamu Hagiwara, 3-1-17, Katamachi, Fuchi-shi, Tokyo, and Shiro Okamura, 1494 Jindaijimachi, Chofu-shi, Tokyo, both of Japan

Filed Feb. 23, 1972, Ser. No. 228,643
Claims priority, application Japan, Feb. 23, 1971, 46/8831
Int. Cl. H04b *1/66*
U.S. Cl. 179—15.55 R **19 Claims**



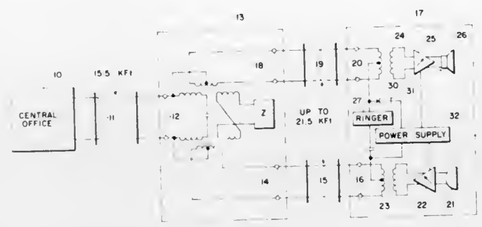
Selected portions of an input signal are sampled. Preferably, the portions not sampled are redundant with respect to the sampled portions. This is true if, for instance, the sampled portions are half cycles of a sound wave. The sampled information can be distributed over the time intervals occupied by the sampled and the not sampled portions of the input wave to produce a coded signal having a lower frequency than the original wave. This process can be reversed to substantially reproduce the original wave.

3,784,755

LONG-LINE TELEPHONE CIRCUIT

Ronan M. Cambridge, and Milan Chytil, both of Ottawa, Ontario, Canada, assignors to Bell Canada-Northern Electric Research Limited, Ottawa, Ontario, Canada

Filed Sept. 7, 1971, Ser. No. 178,198
Int. Cl. H04b *1/52*; **H04m** *1/60*
U.S. Cl. 179—16 F **4 Claims**



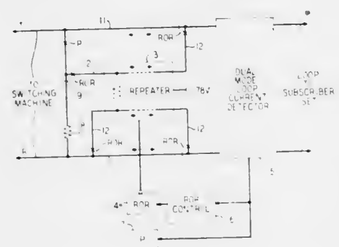
A long-line telephone circuit which utilizes a combination of two-wire and four-wire transmission to advantage in order to achieve subscriber loop lengths of up to 36,000 feet from a central office with less overall conductive material (i.e. finer gauge wire) than is currently used and without the necessity of employing loading coils in the lines.

3,784,756

SUBSCRIBER LOOP RANGE EXTENDER

Joseph Michael Nemchik, Lake Hiawatha, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 15, 1972, Ser. No. 315,489
Int. Cl. H04g *1/30*
U.S. Cl. 179—16 F **7 Claims**



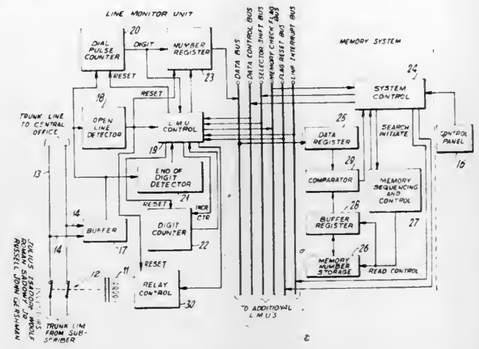
This disclosure relates to a range extender having a through transmission path, a voice transmission path including a repeater, a relay for transferring back and forth between paths and a dual mode, loop current detector. In the idle state, the current detector is in a "slow" mode for the purpose of preventing (spurious) operation of the detector, except in response to an off-hook current flow. The transfer relay connects the repeater to the loop immediately after an off-hook is detected and the current detector is switched to its "fast" mode in preparation for dialing pulsing. The repeater normally remains connected to the loop for the duration of the call, even over dial pulsing. Dial pulsing is therefore repeated via the repeater, and not shunt aided. The dial pulses are detected by the fast current detector and the office loop is opened and closed through the repeater, which, from the office side, looks like a low resistance (1K) to low frequencies.

3,784,757

LIMITED ACCESS DIALING SYSTEM

Julius Isadore Woolf, Teaneck, N.J.; Roman Sadowy, Jr., New York, N.Y., and Russell John Gershman, Englewood Cliffs, N.J., assignors to Information Flow Incorporated, in care of Ocean & Atmospheric Science Inc., Dobbs Ferry, N.Y.

Filed June 14, 1971, Ser. No. 152,538
Int. Cl. H04m *1/66*
U.S. Cl. 179—18 DA **38 Claims**



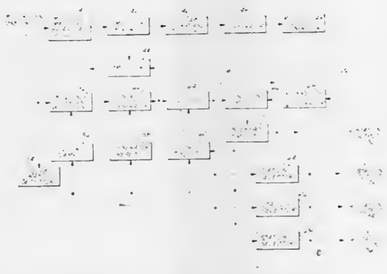
A limited access dialing system having a plurality of line monitors each connected in parallel to a separate trunk line to be monitored and communicating through parallel lines to a central memory system containing a list of authorized telephone numbers. The line monitor unit counts the pulses of each digit and stores the digits in a number register. It determines if an area code has been dialed and if a leading "1" has been dialed and accommodates for them. The central memory system sequentially interrogates the line monitors until it finds one which is storing a number in its registers. It then stops interrogating and checks the number stored against the authorized list. If the number is authorized the line monitor is reset and the sequential interrogating is resumed. If the number is not authorized, the trunk line is interrupted before resetting. The numbers in the list can be updated by entering or removing numbers through a control panel.

3,784,758

PULSE RATIO DETECTOR

Alexander Charles McIntosh, Redmond, and Maurice Irvin Smith, Kirkland, both of Wash., assignors to Tel-Tone Corporation, Kirkland, Wash.

Division of Ser. No. 867,788, Oct. 20, 1969, Pat. No. 3,636,270. This application May 27, 1971, Ser. No. 147,621
Int. Cl. H04b *1/10*
U.S. Cl. 179—84 VF **3 Claims**



A frequency detection system provides a distinct output for each sinusoidal input signal represented by a selected frequen-

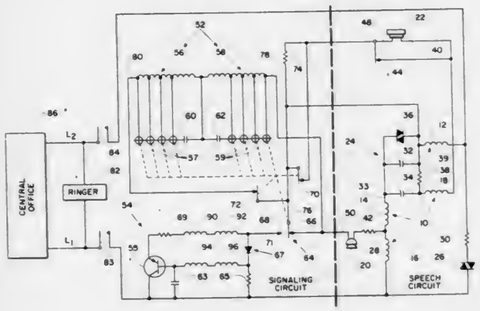
cy or combination of frequencies appearing on a common transmission line. Included are a frequency detector and a plurality of station selectors. The frequency detector comprises circuitry converting any input signal into a rectangular wave whose frequency and wave shape are related to that of the input signal. The rectangular wave is applied to a pulse ratio detector whose output normally blocks the rectangular wave from the frequency detector's output. When a legitimate sinusoidal input signal is being received, as distinguished from noise, the rectangular wave has a unity ratio of positive-negative pulse widths and the pulse ratio detector is operative to allow the frequency detector to produce a pulse waveform whose pulse width is directly related to the input frequency. Each station selector initiates a reference pulse in synchronism with one of the output pulses from the frequency detector. The pulse waveform and the reference pulse are coupled to a coincidence circuit. The duration of the reference pulse is chosen to correspond with that of the pulse waveform, if an input signal having a frequency corresponding to that established for the particular station selector is being received. If the termination of the reference pulse and the pulse from the frequency detector coincide within narrow limits, an output signal is provided to station output device and additionally to a lock circuit in the frequency detector which blocks further operation until the input signal has been removed.

3,784,759

TELEPHONE SUBSTATION APPARATUS

William John Haight, and John Edward Critchley, both of London, Ontario, Canada, assignors to Bell Canada-Northern Electric Research Limited, Ottawa, Ontario, Canada

Filed Apr. 17, 1972, Ser. No. 244,528
Int. Cl. H04m *1/50*
U.S. Cl. 179—84 VF **8 Claims**



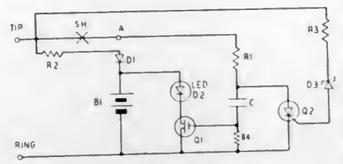
A multifrequency signalling arrangement for a subscriber telephone set or other telephone substation circuit. In this arrangement a resonant circuit, comprising a pair of tapped inductors and associated capacitors, is energized with a direct current by connecting said resonant circuit in series with the voice transmitter unit after a selected digit button is actuated. Other contacts, linked to the digit buttons, subsequently enable an amplifier which forms part of the multifrequency oscillator, and still later interrupt the flow of direct current through the resonant circuit to initiate oscillations in said resonant circuit at the selected frequency.

3,784,760

TELEPHONE SET ILLUMINATION CIRCUIT

Richard Michael Rickert, Indianapolis, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 15, 1972, Ser. No. 253,501
Int. Cl. H04m *1/22*
U.S. Cl. 179—90 L **10 Claims**



Illumination for the dial of a telephone set is provided by one or more light-emitting diodes powered from a local battery. Battery power is maintained at an operative level by applying a constant trickle charge from the line. To conserve the battery, the light source is energized only when the set goes off-hook – and then, only for a timed interval.

3,784,761

TAPE AUTO-LOADING RECORDING AND REPRODUCING APPARATUS

Norishige Moritan, Sagamihara; Ikuro Moriya, Zushi; Junichi Ura, and Makoto Koono, both of Yokohama, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama City, Japan

Filed Apr. 21, 1972, Ser. No. 246,301
Claims priority, application Japan, Apr. 24, 1971, 46/26438; June 5, 1971, 46/39558; June 6, 1971, 46/39559; June 5, 1971, 46/47217 (utility model)
Int. Cl. G11b *15/66, 23/04*
U.S. Cl. 179—100.2 ZA **8 Claims**



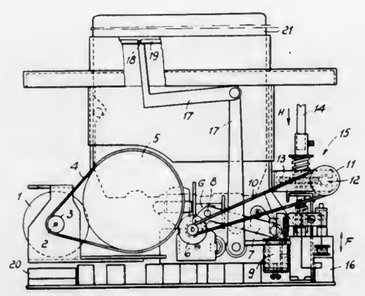
A tape auto-loading recording and reproducing apparatus comprises means for drawing tape from the interior of a cassette to the outside, through a tape guide member which enters the loop of the tape thus drawn out. As the guide is about to pass through this loop, it engages the tape and pulls it around. A rotating ring-shaped member provided with this tape guide member is adapted to rotate while surrounding a guide drum and, moreover, with an inclination. The tape drawn out of the cassette is pulled around by the tape guide member together with the rotation of the ring-shaped member and is loaded in a predetermined tape travel path, including a passage wherein the tape is caused to contact the guide drum over a specific range of angle.

3,784,762

AUTOMATIC TUNER DRIVE DEVICE APPLICABLE TO RADIO RECEIVERS WITH AN INCORPORATED MAGNETIC TAPE OR WIRE RECORDER AND/OR PLAYER

Renato Seregni, Cascina Emanuela, Solaro, Italy

Filed Sept. 18, 1972, Ser. No. 290,054
Claims priority, application Italy, Sept. 28, 1971, 29194 A/71
Int. Cl. G11b *31/00;* **H04b** *1/32;* **H03j** *3/00*
U.S. Cl. 179—100.11 **1 Claim**



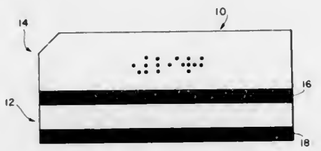
An automatic tuner drive device applicable to radio receivers with an incorporated magnetic tape or wire recorder and/or player comprising pulleys arranged to cause the movement or rotation of the tuner unit, and connected to a a roller by means of an elastic endless belt. The roller is driven by any rotating member of the recorder and/or player unit.

3,784,763

UNIVERSAL RECORDING CARD

Charles R. Budrose, Melrose, Mass., assignor to Bio-Dynamics, Inc., Cambridge, Mass.

Filed Apr. 26, 1971, Ser. No. 137,319
Int. Cl. G11b *5/80, 21/04, 23/18*
U.S. Cl. 179—100.2 MD **5 Claims**



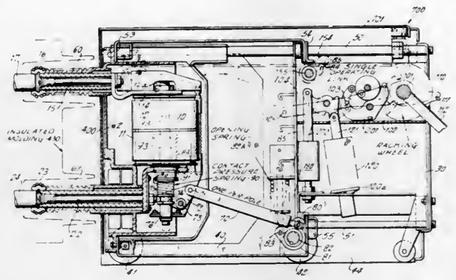
A card is provided with at least two recording sections on which an audio generated signal is recorded. The audio generated signal is recorded on one section in a first direction at a first rate and is recorded on the other section in a second direction at a second rate. The audio generated signal is recorded simultaneously on each section by means of a recording device having at least two recording heads. Each recording head is mounted on a slidable platform and each platform is operatively connected to a driver in such a way that one head is driven in the first direction at the first rate and the other head is driven in the second direction at the second rate.

3,784,764

RACKING MECHANISM FOR DRAW-OUT TYPE MINIATURE HIGH VOLTAGE CIRCUIT BREAKER

George A. Wilson, Pineville, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 21, 1972, Ser. No. 282,319
Int. Cl. H01h *9/20, 33/42*
U.S. Cl. 200—50 AA **23 Claims**



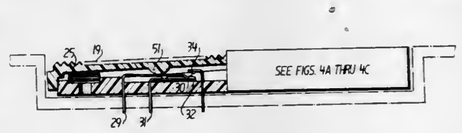
Miniaturized modular high voltage truck mounted switchgear in which circuit interrupter elements on a frame are movable with respect to a truck frame and the truck frame is itself removably mounted in a cubicle in a switchboard. The circuit interrupter elements may then be racked into a connected position with respect to busses in the switchboard and may also be racked out. The circuit interrupter elements, when racked out, telescope with the operating elements of the truck mounted frame; the connection between the operating elements of the truck mounted frame and the circuit interrupter elements includes a link which is pivotally mounted on a driving member carried by the truck and hingedly connected to the circuit breaker elements. This link may swing into the region of the operating members mounted on the truck and may swing away therefrom, to permit the telescoping of the frame which carries the circuit interrupter elements into the truck frame. Racking mechanism is provided which will move the frame carrying the circuit interrupter elements with respect to the truck. The racking mechanism may be motor driven or manually driven and is mounted on the truck frame. Interlocks are provided between the truck frame and the cubicle in the switchboard not only to anchor the truck frame in the switchboard but to ensure that racking out will occur only under an open condition of the interrupter breakers and that auxiliary contacts will be disengaged before any removal of the truck.

3,784,765

MANUALLY ADJUSTABLE MULTIPOSITION SWITCH

John Patrick Daly, Maitland, Fla., assignor to Scope Incorporated, Reston, Va.

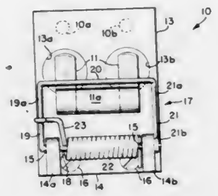
Filed Sept. 20, 1972, Ser. No. 290,571
Int. Cl. H01h *3/20*
U.S. Cl. 200—5 R **10 Claims**



A switch within a housing having a plurality of fixed contacts within the housing. A plurality of movable contacts are located within the housing and are spring biased away from the one set of fixed contacts and in contact with another set of

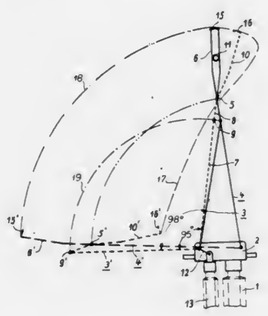
fixed contacts. The movable contacts may be selectively positioned manually. Manual pressure exerted to overcome the spring bias causes mating of selected movable contacts with the fixed contacts. Terminals extend from the fixed contacts outwardly of said housing so as to provide means for connecting the switch to various electrical circuits.

3,784,766
POSITIVE LOCK TOGGLE GUARD
Norman F. Johnson, San Diego, and Elmer R. Smith, La Mesa, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Feb. 9, 1973, Ser. No. 330,939
Int. Cl. H01h *27/00*
U.S. Cl. 200—42 T **4 Claims**



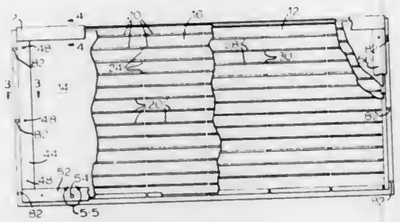
A toggle switch has a uniquely configured bail spring-biased in-place which allows one-handed operation while positively preventing the accidental actuation of the switch. Separate, oppositely directed motions by an operator to remove the bail and to displace the toggle lever ensure against the accidental actuation of the switch. By its simplicity of design the toggle lock guard is capable of being mass produced at minimal cost to provide a markedly high degree of reliability.

3,784,767
DISCONNECT SWITCH
Winfried Oltersdorf, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munchen, Germany
Continuation of Ser. No. 117,928, Feb. 24, 1971, abandoned. This application Dec. 29, 1972, Ser. No. 319,785
Int. Cl. H01h *31/34*
U.S. Cl. 200—48 V **4 Claims**



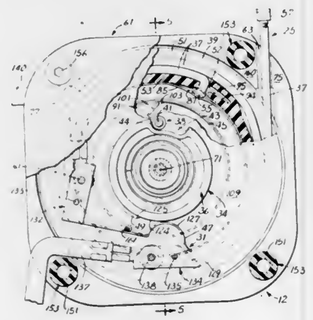
A disconnect switch has a stationary switching portion and a movable switching portion movable between open and closed positions. The movable switching portion has a rigid first member and a second member joined to the first member at a first pivot. The second member has two rigid parts mutually joined at a second pivot. These pivots permit the members of the movable switching portion to be foldable to one side of the stationary switching portion when the movable switching portion is in the open position. The members have respective contact jaws for grasping the stationary switching part when the movable switching portion is in the closed position. The contact jaws have a length approximately half the length of the members and the second pivot divides the two parts of the second member in a length ratio in the range of 1 : 3 to 1 : 6.

3,784,768
SUBMERSIBLE TOUCH-OPERATED SIGNALER WITH FLUID DRAINAGE PASSAGES
Theodore R. Hunt, Aloha, Oreg., assignor to Data Time, Inc., Portland, Oreg.
Filed Feb. 28, 1972, Ser. No. 229,782
Int. Cl. H01h *35/00*; **A63k** *3/00*
U.S. Cl. 200—52 R **6 Claims**



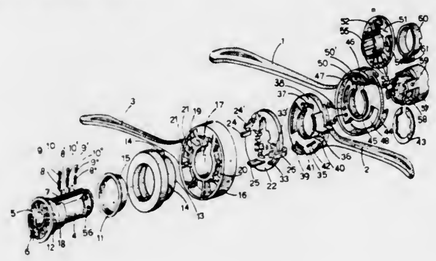
A submersible, touch-operated signaler including at least a pair of facially confronting, electrically conductive plates. Strips of resilient, non-conductive material are interposed between the plates to maintain a substantially preset spacing therebetween and yieldably resist movement of the plates toward each other. The strips are disposed in a plurality of spaced rows with vertical fluid-draining passages therebetween. Rigid strips along adjacent margins of the plates secure the edges of the plates against movement away from each other. These rigid strips have openings extending therethrough which align with the vertical passages between the resilient strips to provide free fluid flow into and out of the space between the plates.

3,784,769
SEAT SENSOR SAFETY SYSTEM WITH IMPROVED SWITCH SENSOR CONTAINING SLIP CLUTCH COUPLING MEANS
Medard Z. Bryll, Palos Park, Ill., assignor to Gateway Industries, Inc., Chicago, Ill.
Filed Dec. 7, 1972, Ser. No. 312,818
Int. Cl. H01h *35/00*
U.S. Cl. 200—52 R **12 Claims**



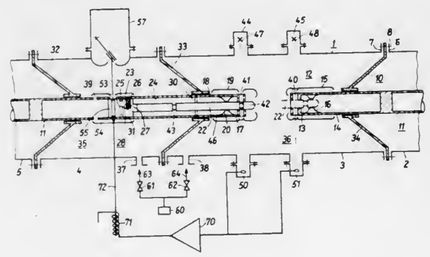
A seat sensor detects occupancy of a vehicle seat upon initial deflection of a portion of the seat caused by seating or removal of a predetermined weight. A seat follower is operable through a coupling means which comprises a slip clutch to operate a switch actuator means in the form of a turnable cam to actuate a switch means after a predetermined extent of seat deflection in either the upward or downward directions irrespective of the total deflection or the initial reference point for the deflection. The cam is limited to a short turning movement and the slip clutch allows the seat follower to continue to travel with additional seat deflection. The preferred seat follower is a cable wound on a reel, and the slip clutch comprises one clutch face on the reel and another clutch face on the cam.

3,784,770
CONTROL UNIT FOR LIGHTS, DIRECTION INDICATORS, AND WINDSHIELD-WIPER
Giuseppe Codrino, Viale Stazione, Quattordio, Italy
Filed June 20, 1972, Ser. No. 264,542
Int. Cl. H01h *3/18*
U.S. Cl. 200—61.36 **8 Claims**



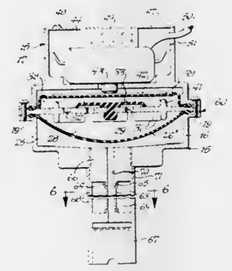
An improved control unit for lights-direction indicator-windshield wiper for a motor car wherein the direction indicator is constructed to maintain, after acutation of the indicator, the respective indicator light turned on to indicate the turn the car will make, even if the steering wheel should be turned slightly in opposite direction, until the wheels of the car are moved back to the normal driving position.

3,784,771
HIGH-VOLTAGE PISTON ACTUATED SWITCH WITH ROTATIONAL SYMMETRY AND LIGHT BEAM INDICATING MEANS
Willi Olsen, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed July 20, 1972, Ser. No. 273,611
Claims priority, application Germany, July 29, 1971, P 21 38 456.5
Int. Cl. H01h *35/38, 33/30, 33/64*
U.S. Cl. 200—82 B **15 Claims**



A metal-clad, high-voltage switchgear assembly is disclosed for an electrical conductor wherein the rotational symmetry of the electric field of the conductor is maintained. The switchgear assembly has a metal enclosure containing the conductor arranged to extend along the axis of the enclosure. The conductor is supported with respect to the enclosure by disc-shaped insulators that partition the enclosure into fluid-tight compartments separated from each other. A disconnect switch is arranged at a gap in the line of the conductor , the gap being defined by mutually adjacent end portions of the conductor. The switch includes a cylinder formed in one of the end portions of the conductor so as to define a cylinder chamber that communicates with the compartments. A piston switching member is slideably mounted in the cylinder and moves to mutually connect and disconnect the end portions of the conductor in response to changes in fluid pressure in the compartments.

3,784,772
FLUID PRESSURE ACTUATED SWITCH WITH PRESTRESSED DIAPHRAGM
James E. Nelson, 36 Lehn Springs Dr., Williamsville, N.Y.
Continuation-in-part of Ser. No. 18,673, March 11, 1970, abandoned. This application Oct. 7, 1971, Ser. No. 187,391
Int. Cl. H01h *35/34*
U.S. Cl. 200—83 Y **8 Claims**



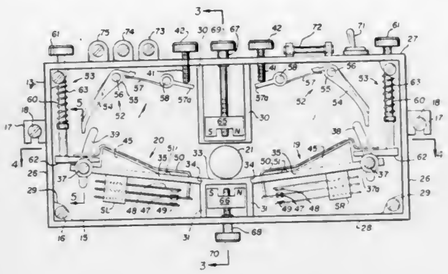
A fluid pressure responsive switch including a housing, a fluid inlet in the housing, a partition member in the housing, a first diaphragm effectively positioned between the fluid inlet and the partition member to define a first chamber between the partition member and the first diaphragm, a switch member on the housing, a second diaphragm effectively positioned between the partition member and the switch member and defining a second chamber between the partition member and the second diaphragm, a plurality of apertures in the partition member for effecting communication between the first and second chambers, a single flapper valve member attached to the partition for normally preventing communication between the first and second chambers, said first diaphragm being deflected upon the sensing of fluid pressure from an external source by said first diaphragm to cause fluid to be moved from said first chamber to said second chamber through said plurality of apertures, and bleed aperture means in the partition member for permitting bleeding of fluid from the second chamber to said first chamber after said external fluid pressure is no longer sensed and said flapper valve member is closed, said second diaphragm actuating said switch means upon the movement of fluid into said second chamber. The first diaphragm can be prestressed as desired during fabrication so as to vary the sensitivity of the switch.

The present invention relates to an improved fluid pressure actuated switch and more particularly to a switch of this type for use in conjunction with laundry tubs which are located below sewer line level, and also for use in other applications where fluid pressures are to be measured.

3,784,773
TRAILER ANTI-FISHTAIL ACCELERATION RESPONSIVE SWITCH ASSEMBLY WITH ACTUATOR MAGNETIC HOLDING STRUCTURE

Arthur R. Jubenville, deceased, late of 20 Grist Mill Ln., Halesite, N.Y., by Irene L. Jubenville, Administratrix

Division of Ser. No. 80,834, Oct. 15, 1970, Pat. No. 3,715,003.
This application Nov. 28, 1972, Ser. No. 310,171
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.45 M **5 Claims**

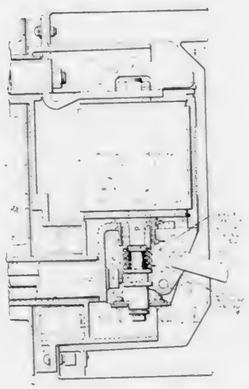


A towed vehicle anti-fishtail control system in which a ferromagnetic ball functions as an acceleration sensing body and is movable in response to lateral acceleration of the towed vehicle, from a central rest position to either side relative to the inclined branches of a path provided by ramp assembles which preferably are movably mounted. Magnetic apparatus is providd for adjustably biasing the ball to hold it in its rest position. Movement of the ball along either path branch results first in actuation of a warning device and then actuation of the towed vehicle's brakes. Apparatus is also disclosed for releasably trapping the ball at either extremity of its path.

3,784,774
VACUUM CIRCUIT BREAKER CURRENT TRANSFER AND ACTUATION

George A. Wilson, Pineville, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 21, 1972, Ser. No. 282,339
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **5 Claims**



A vacuum circuit breaker having a movable contact carrying rod extending outside the circuit breaker through a vacuum tight seal. The rod is positioned in a pair of spaced bearings with a bushing floatingly mounted on the rod between the bearings. The contact rod is driven by the bushing through a spring connected between the bushing and a spring bearing element on the rod in order to provide for overtravel of the drive mechanism connected to the bushing after the movable contact engages a complementary contact. Additional elements may be connected to said contact rod.

3,784,775
ARC RUNNER BETWEEN STATIONARY CONTACTS

Carl E. Gryctko, Haddon Heights, N.J., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed July 27, 1972, Ser. No. 275,523
Int. Cl. H01h *33/12*
U.S. Cl. 200—146 R **9 Claims**

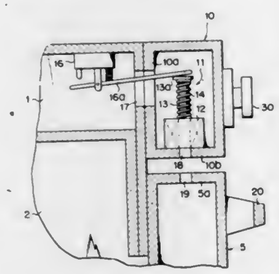


A high current capacity molded case circuit breaker having arcing and main contacts and an arc chute to receive and extinguish arcs drawn between the arcing contacts is provided with a magnetic arc runner disposed between the stationary sections of the main and arcing contacts to direct arcs that initiate at the stationary main contact onto the stationary arcing contact.

3,784,776
ELECTROMAGNETIC LOCKING MECHANISM FOR A MICROWAVE OVEN

Kazuyoshi Asanuma, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Apr. 14, 1971, Ser. No. 133,840
Claims priority, application Japan, Apr. 20, 1970, 45/37606 (utility model); Apr. 20, 1970, 45/37607 (utility model)
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **8 Claims**

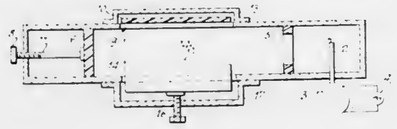


In a high frequency heating apparatus comprising a cabinet defining a heating chamber, a door for closing the heating chamber, a high frequency oscillator, and a timer for presetting the operating time of the oscillator, there are provided an electromagnetic locking mechanism which is energized together with the timer for locking the door in the closed position. Also provided is a switch operated by the locking mechanism for controlling the operation of the high frequency oscillator to deenergize the high frequency oscillator when the door is unlocked.

3,784,777
MICROWAVE FURNACE FOR THE TREATMENT OF SHEETS OR PLATES MADE OF A MATERIAL ABSORBING SAID WAVES

Joel Henri Auguste Soulier, 66 Chaussee Jules Cesar, Eaubonne, France

Filed Dec. 22, 1971, Ser. No. 210,801
Claims priority, application France, Dec. 31, 1970, 7047567
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **21 Claims**

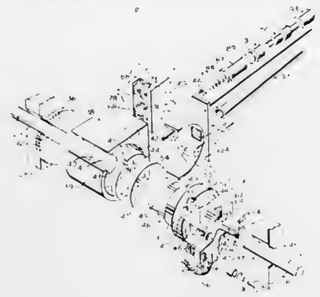


A microwave furnace comprises a guide with a slot of a length corresponding to the width of a sheet which is to be treated by being continuously moved through the guide. A microwave generator is electrically connected to said guide and at least one metal plate is placed in front of said slot.

3,784,778
METHOD AND APPARATUS FOR T. I. G. TUBE WELDING

Neil Freeman McPherson, Oakville, Ontario, and Nils Hanssmann, Ancaster, Ontario, both of Canada, assignors to Atomic Energy of Canada Limited, Ontario, Canada

Division of Ser. No. 782,370, Dec. 9, 1968, Pat. No. 3,621,177.
This application Mar. 29, 1971, Ser. No. 128,984
Int. Cl. B23k *9/02*
U.S. Cl. 219—60 A **18 Claims**



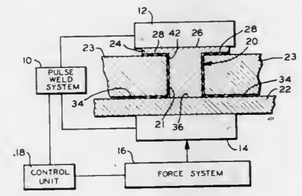
A method and apparatus for fully automatically weldjoining lengths of metal instrument tubing employs the TIG welding process to advance a weld puddle about the periphery of the junction of butted aligned ends of straight tubing, respective end portions of which are held in a closed chamber rigidly clamped in spaced seats of a robust metal head to compel elongation into the junction as heat flows into the tubing ends; the unit comprises a handle portion axially separably joined with the head, providing drive to rotate an electrode carrier spool about the work angular interval marking signals being transmitted to a remote control unit from which welding current is supplied to the refractory electrode and gas to the head chamber and tubing interior.

A welding cycle commences with a stationary arc developing a weld pool, causing expansion sealing the junction, followed by advance at uniform speed with controlled current levels, the arc being sustained beyond 360° and the complete cycle spanning two revolutions and terminating with a bead-cooling gas flow. Repeatable welds of high quality on a production basis may be obtained, characterized by minimal fall-in of bead, full area fusion of faces, and constant internal diameter.

3,784,779
ARTICLE INCLUDING A WELD JOINT IN CLOSE PROXIMITY TO A FRAGILE OR THERMALLY SENSITIVE ELEMENT AND METHOD OF MAKING THE SAME

Daniel A. Schaitberger, Grosse Pointe Park, Mich., assignor to Quanta Welding Company, Troy, Mich.

Filed Jan. 17, 1972, Ser. No. 218,091
Int. Cl. B23k *9/00*
U.S. Cl. 219—117 **22 Claims**

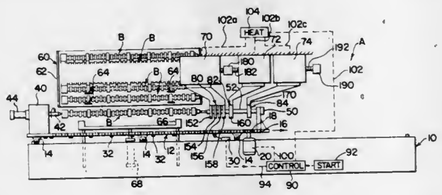


An assembly of at least two metal elements and at least a third fragile and/or heat sensitive elements utilizing a solid state resistance weld between the metal elements made in close proximity to the third element in a manner to avoid mechanical and thermal deterioration or stresses. Typicaly a hinge mounting for a glass window is comprised of a piece of tempered glass having a hole containing an elastomeric bushing through which is passed a headed metal rod which is solid state resistance welded to a metal plate abutting the glass and bushing. Such welds are made by a short duration pulse of high current density programmed in time relation with a pressure pulse to effect the bond with very little temperature increase of the mass of the elements and essentially no change in their form.

3,784,780
APPARATUS AND METHOD OF INDUCTIVELY HEATING SPACED SURFACES ON AN ELONGATED WORKPIECE

John R. Laughlin, Brecksville, and George M. Mucha, Parma Heights, both of Ohio, assignors to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Jan. 8, 1973, Ser. No. 321,928
Int. Cl. H05b *5/02*
U.S. Cl. 219—10.43 **14 Claims**



There is provided an apparatus and method of heating a number of axially spaced, wear surfaces on a camshaft

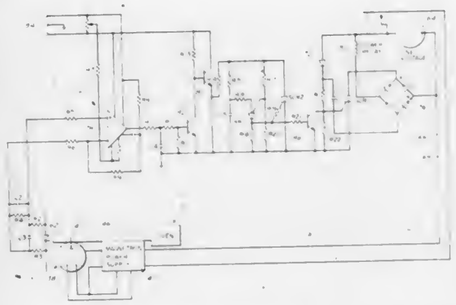
preparatory to quench hardening the surfaces. At least two fixed inductors surrounding the camshaft simultaneously heat two or more axially spaced surfaces. The workpiece is moved successively through the two inductors until all of the wear surfaces have been inductively heated for quench hardening.

3,784,781

MAGNETRON MODING INTERRUPTER CONTROL CIRCUIT

Richard A. Foerstner, Iowa City, and Rex E. Fritts, Cedar Rapids, both of Iowa, assignors to Amana Refrigeration, Inc., Amana, Iowa

Filed Apr. 11, 1973, Ser. No. 350,270
Int. Cl. H05b 9/06; H01j 29/00; H03b 9/10
U.S. Cl. 219—10.55 **8 Claims**



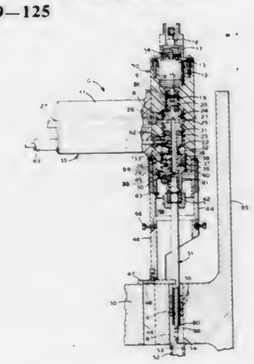
A magnetron operating control circuit is disclosed including means for sensing the commencement of electromagnetic energy radiation and means derived from the sensing means to interrupt the application of line voltages to the magnetron power supply and allow the voltages to decrease for a sufficient time to shift to desired normal operating mode conditions when the supply is reenergized. The circuit incorporates a flexible sensing feature which accommodates the time of the interruption cycle to variations in tubes, line voltages and other circuit parameters, particularly in microwave oven apparatus to substantially reduce the magnetron moding problems.

3,784,782

WELDING GUN

Michel Chazles Lochen, 23, Boulevard de Magnan, Nice, France

Continuation of Ser. No. 60,005, July 31, 1970, abandoned.
This application May 16, 1972, Ser. No. 253,903
Int. Cl. B23k 9/12
U.S. Cl. 219—125 **4 Claims**



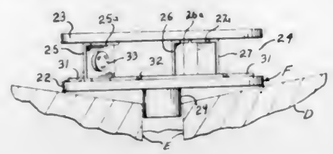
A welding gun for performing shielded arc welding of tubes to tubesheets, and having a rotatable electrode holder assembly which delivers both the welding current and the shielding gas to the electrode that travels in a circular path and arcs to the grounded workpiece.

3,784,783

DE-ICING STRUCTURE FOR ROOFS

Guy Gordon Gray, 1654 Pine Rd., Terrebonne Heights, Quebec, Canada

Filed Mar. 26, 1973, Ser. No. 344,646
Int. Cl. H05b 1/00
U.S. Cl. 219—213 **8 Claims**



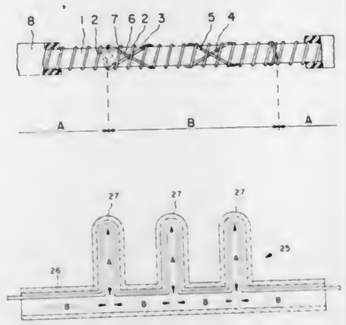
A device and method for melting ice and snow on a roof structure; the device comprises upper and lower portions with heating means, for example, a heating cable supported on said lower portion; the device is supported on a sloping portion of a roof and the melted and melting ice and snow flows downwardly under gravity.

3,784,784

HAIR CURLER HEATING DEVICE WITH ELECTRIC RESISTANCE CABLE

Louis Joseph Henri Geominy; Hubertus Johannes Josephus Gommans; Leonardus Frans Helene Mans, and Silvester Marie Ruytenbeek, all of Venlo, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Division of Ser. No. 52,801, July 7, 1970, Pat. No. 3,621,203.
This application Nov. 8, 1971, Ser. No. 196,275
Claims priority, application Netherlands, July 10, 1969, 6910582; June 26, 1970, 7009422
Int. Cl. H05b 1/00; A45d 4/06
U.S. Cl. 219—222 **2 Claims**



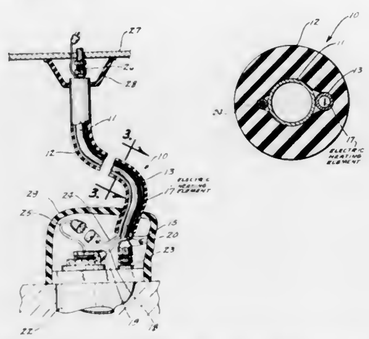
A hair curler heater device having a base plate and a plurality of hollow cylindrical fingers mounted on and projecting from the base plate for receiving a hair curler to be heated. An electric resistance heating cable having high and low temperature sectors is arranged for heating the fingers. The high temperature sectors are accommodated within the fingers and the low temperature sectors are provided in the base plate. The heating cable has a core of flexible non-conducting material and a heating wire helically wound about the core so as to form the high and low temperature sectors. The low temperature sectors are formed by an odd number of layers of heating wire wound around the core in electrical contact with each other to form a plurality of partial resistors electrically connected in parallel. Alternate layers of the cold sectors are wound about the core in the same direction as the heating wire is wound about the core in the high temperature sectors and the number of layers in each of the low temperature sectors exceeds the number of layers in each high temperature sector by at least two.

3,784,785

ELECTRICALLY HEATED FLUID CONDUIT COUPLER

Wayne B. Noland, 155 Jefferson, Carlisle, Iowa

Filed Sept. 20, 1971, Ser. No. 181,790
Int. Cl. H05b 3/58; F16l 53/00
U.S. Cl. 219—301 **1 Claim**



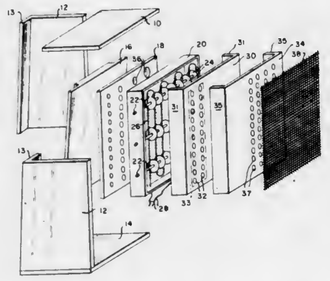
A flexible conduit coupler for connecting a water source to a point of use, such as a house trailer, in conditions where the fluid is subjected to freezing temperatures. The coupler includes an elongated flexible heating conduit secured in side-by-side heat exchange contact with the major portion of the length of a flexible fluid conduit by spaced tape strips. A thermal insulation jacket surrounds the conduits. An electric resistance heating element is removable inserted into the heating conduit and is substantially coextensive in length therewith and can be replaced without disturbing the thermal insulation jacket. The ends of the coupler are provided with flexible protective boots to cover fittings and other hardware not protected by the thermal insulation jacket. An electric power supply cord having connectors on both ends can also be incorporated in the coupler.

3,784,786

HEAT AND MASS FLOW FORCED CIRCULATION ELECTRIC AIR HEATER

Willard R. Calvert, Sr., 809 Teakwood Dr., Severna Park, Md.

Filed Jan. 25, 1971, Ser. No. 109,348
Int. Cl. F24h 3/04
U.S. Cl. 219—368 **5 Claims**



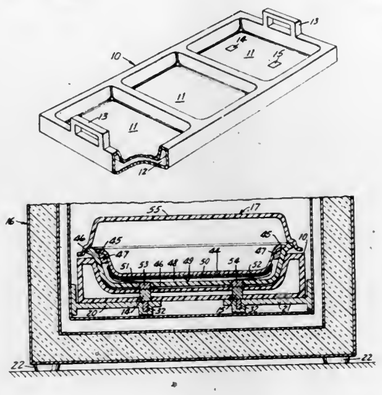
Apparatus for distributing uniformly a mass flow of air to a heater, for distributing heat from the heater uniformly into the air flow thereby uniformly cooling the heater surfaces and for redistributing the mixed and heated air flow over a wide area at the location where the heated air enters a reactor.

3,784,787

DEVICE FOR STORING AND COOKING FOOD

Thomas S. Shevlin, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 173,414, Aug. 20, 1971, Pat. No. 3,736,981. This application Mar. 26, 1973, Ser. No. 344,830
Int. Cl. F27d 11/02; F24c 7/10
U.S. Cl. 219—386 **8 Claims**



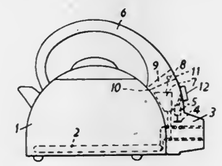
A tray supporting individual thermally insulated casseroles of food portions for serving complete meals such as entree food to be cooked and frozen and chilled side dish food. The entree and individual side dish food portions are each placed in separate casseroles in chilled or frozen condition. Each casserole thermally encloses the separate food portions and the thermal insulation of the casserole and the initial low temperature levels of the chilled or frozen food retains the food in the casseroles without degradation or pathogenic effects for storage periods up through several hours and retains the side dish food without pathogenic degeneration during the time the entree food is cooked in separate casseroles.

3,784,788

ELECTRIC LIQUID BOILING APPARATUS HAVING AN ELECTRONIC TEMPERATURE SENSOR CONTROL

Denise Gisele Josette Fourny, Monte Carlo, Monaco, assignor to Belling & Co., Limited, Enfield, Middlesex, England

Filed May 4, 1972, Ser. No. 250,349
Claims priority, application France, May 4, 1971, 7115967
Int. Cl. F27d 11/02
U.S. Cl. 219—441 **8 Claims**

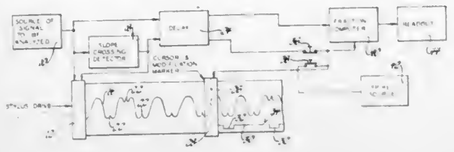


An electric liquid boiling apparatus, particularly an electric kettle, having an automatic cut-out operated by an electronic temperature sensor, e.g. a thermistor which is subjected to vapour when the liquid boils.

3,784,789
FRACTION COMPUTER FOR MULTI-COMPONENT TRACE

Jan A. Vanden Broek, Ann Arbor, Mich., assignor to Transidyne General Corporation, Ann Arbor, Mich.

Filed June 22, 1972, Ser. No. 265,419
Int. Cl. G06k 11/02; G06f 7/48, 15/20; G06g 7/12
U.S. Cl. 235—61.6 A 17 Claims

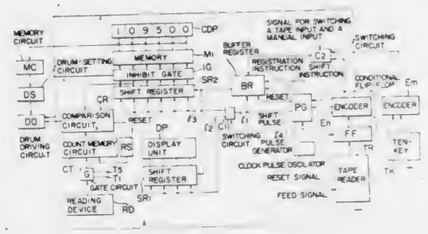


An electronic system for computing the integrals of various fractions of the time varying electrical output of a scanning densitometer provides that output to a graphic recorder, an analog-to-digital converter and to a slope detector which generates signals representing the boundaries of various fractions of the signal. This detector output is also provided to the recorder to produce a curve representing the amplitude variations of a densitometer signal with marks at the boundaries. The outputs of the analog to digital converter and the slope detector are provided to a shift register. An operator generates correction signals based on an observation of the recorder trace representing desired changes in the boundaries as determined by the slope detector. The densitometer output of the shift register is integrated over time periods controlled by the boundary output of the shift register as manually corrected.

3,784,790
AUTOMATIC MONEY-ISSUING APPARATUS

Yoshihiro Hatanaka; Hideto Shigemori, and Akio Ueba, all of Himeji, Japan, assignors to Kabushiki Kaisha Kobuei Kikai Seisakusho, Himeji-shi, Hyogo-ken, Japan

Filed Sept. 9, 1971, Ser. No. 179,045
Claims priority, application Japan, Sept. 11, 1970, 45/79763
Int. Cl. G06k 17/00
U.S. Cl. 235—61.7 B 4 Claims

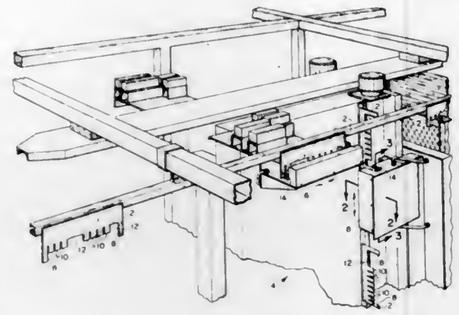


An automatic money-issuing system adapted to automatically issue bank notes and a necessary amount of money of predetermined denominations with the aid of a tape information input or a manual input, which comprises a device adapted to indicate an amount of money to be paid, a circuit storing a signal from the device, a means to issue bank notes or coins, a circuit adapted to compare the amount of money issued with the amount of money indicated, and a device adapted to stop the operation of the device issuing money by a coincidence signal issued from a comparison circuit.

3,784,791
OPTICAL ADDRESSING SYSTEM

Logan L. Pease, Bountiful, Utah, assignor to Eaton Corporation, Cleveland, Ohio

Filed July 29, 1971, Ser. No. 167,315
Int. Cl. G06k 19/04; B65g 43/08; H01h 43/08; G06k 7/14
U.S. Cl. 235—61.11 E 5 Claims

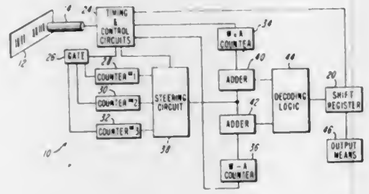


An optical addressing system for an automatically controlled vehicle comprising a plurality of opaque address plates mounted at appropriate locations along possible paths of movement of the vehicle, the plates each being formed with a pair of elongated strobe-indicating bars located at respective ends of the plate to provide optically readable strobe signals and a plurality of shorter bars and spaces disposed intermediate the strobe-indicating bars cooperating to provide an optically readable address signal, and photoelectric means carried by the vehicle for sensing the optically readable signals provided by the address plates.

3,784,792
CODED RECORD AND METHODS OF AND APPARATUS FOR ENCODING AND DECODING RECORDS

Bruce W. Dobras, Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Mar. 29, 1972, Ser. No. 239,168
Int. Cl. G06k 7/10
U.S. Cl. 235—61.11 E 20 Claims

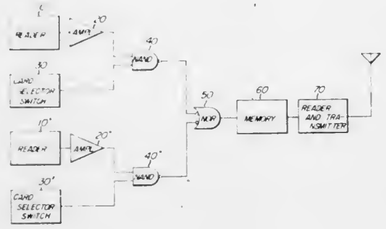


A novel record with alternate width modulated bars and spaces is decoded by comparing the width of each bar or space with a pair of reference values based on the product and quotient of a constant and the width of another bar or space to establish bit value. When the width value is greater or less than the reference value, the bit value is established. When the width values lie between the reference values, a state of equality is established which is resolved into a bit value by reference to the results of a prior or subsequent comparison. A system embodying the method includes storage means for storing width values, reference registers for establishing successive different sets of product and quotient reference values, and comparators controlled by the stored width and reference values for establishing the greater and less than and equality status conditions. In one embodiment, a shift register and logic circuits controlled by the status conditions provide dynamic interpretation of the status conditions into code bits as the character is read. In another embodiment, the status conditions are stored and then translated into code bits after a complete character has been read. In one code set, each character code of seven bits formed by four bars and three spaces uses five bits to define the character and the remaining two bits to provide separate bar and space parity bits. This and the fact that only one space "1" and one bar "1" are included in a proper code results in a code with an extremely low expected rate of undetected error. The system also includes separate parity check circuits for the decoded bar and space bits.

3,784,793
CARD READER DEVICE

Katsunori Ito, and Shinichiro Imai, both of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Dec. 20, 1971, Ser. No. 209,656
Claims priority, application Japan, Dec. 25, 1970, 45/125613
Int. Cl. H04j 3/08; H04m 1/48; G06k 7/08
U.S. Cl. 235—61.11 D 8 Claims



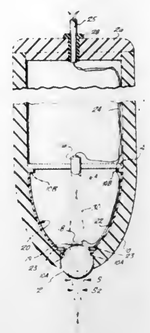
A card reader device for use in a data communication apparatus such as a wire telephone or a radiotelephony equipment, which device can have one or more number cards storing subscribers' numbers set therein, select a desired number card optionally, and read out the number code of the selected card, the data communication apparatus being furnished with no particular number code which identifies the apparatus so that the apparatus may be utilized by many unspecified subscribers.

3,784,794
ELECTRO-OPTICAL READER FOR BAR CODES OR THE LIKE

David C. Allais, Edmonds, Wash., assignor to National Bank of Commerce of Seattle, Seattle, Wash.

Filed Oct. 10, 1972, Ser. No. 296,310
Int. Cl. G06k 7/10; G08c 9/06
U.S. Cl. 235—61.11 E 18 Claims

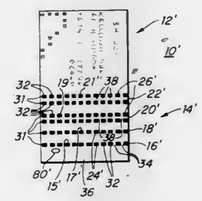
An improved hand-held electro-optical reader includes a housing supporting at one end a transparent, substantially spherical member for conducting light to and from the surface of a record on which coded data in the form of a bar code or the like appears. A first element, which may comprise either a light source or a light detector, is disposed within the housing at some distance from the upper surface of the spherical member. A second element, which also may comprise either a light source or detector, is located adjacent the spherical member's upper surface. Various embodiments of this basic reader are described and illustrated, including a finger grip design.



3,784,795
LABEL READER

Richard H. Tuhro, Norwood, Mass., assignor to Computer Identics Corporation, Westwood, Mass.

Filed June 20, 1972, Ser. No. 264,485
Int. Cl. G06k 7/10
U.S. Cl. 235—61.11 E 2 Claims



In a label reading system for reading marks formed of at least two segments the improvement including circuit means for excepting a signal derived from a contrasting gap between two such segments including a capacitor and a charging circuit for charging said capacitor; gating means for discharging said capacitor in response to a signal derived from a gap and enabling the charging circuit to charge the circuit in response to a signal derived from a segment; a comparator having a first input connected to the capacitor and a second input connected to a reference voltage; and a clipping circuit connected to the first input to limit the voltage to which the capacitor can be charged to a value greater than the reference voltage for standardizing the initial level at which discharge of the capacitor begins at the end of each segment.

3,784,796
MAGNETIC CARD

Mamoru Namikawa, and Kaneyoshi Arai, both of Tokyo, Japan, assignors to Tokyo Magnetic Printing Company, Ltd., Tokyo, Japan

Filed Mar. 28, 1972, Ser. No. 238,832
Int. Cl. G06k 19/04; G11b 5/80
U.S. Cl. 235—61.12 M 2 Claims

A magnetic card having modified edges is disclosed having a magnetic layer on at least a part of a substrate. The magnetic

layer has a surface formed without pronounced edges on the peripheral portions of the magnetic layer. Illustratively, the



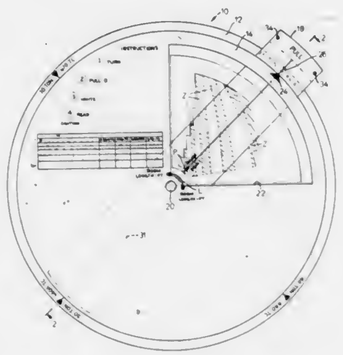
peripheral portions of the magnetic layer are inclined or curved surfaces. Thus, the magnetic card can move smoothly across a gap surface of a magnetic head.

3,784,797

CALCULATOR FOR DETERMINING SPECIFICATION OF CRANES

Joseph G. Kroll, Wauwatosa, Wis., assignor to Harnischfeger Corporation, Milwaukee, Wis.

Filed Oct. 30, 1972, Ser. No. 302,247
Int. Cl. G06c *27/00, 3/00*
U.S. Cl. 235—88 **4 Claims**



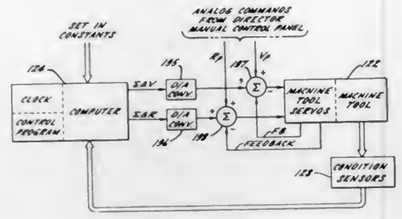
A calculator for determining specifications of various models or types of cranes comprises a first plate or disc having four separate graphs or charts radially arranged on each side. Each graph plots the operating radius, elevation, angle and capacity for a known type or model of a specific crane. Second and third plates or discs are rotatably mounted on opposite sides of the first plate by mounting means such as a cylindrical pin or grommet and each of the second and third discs comprises a window or hole through which one selected graph is visible. Movable indicator means calibrated for various boom lengths are provided for use with the selected graph to provide information relative to a particular crane having a boom of particular length. The indicator means are pivotably and linearly movable with respect to the selected graph. The indicator means comprise a first elongated flat transparent member with appropriate indicators thereon and disposed between the first and second discs and having a slot therein for accommodating the aforesaid grommet which movably secures the indicator means relative to the first disc. The indicator means further comprises a second member, similar to the first member, which is disposed between the first and third discs. The ends of the two members of the indicator means project beyond the edges of the discs and are joined together.

3,784,798

ADAPTIVE MACHINING

Bruce R. Beadle, Fond du Lac, and John G. Bollinger, Madison, both of Wis., assignors to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed July 3, 1972, Ser. No. 268,648
Claims priority, application Great Britain, Nov. 9, 1971, 51917/71
Int. Cl. G05b *13/02*; **G06f** *15/46*
U.S. Cl. 235—151.11 **41 Claims**



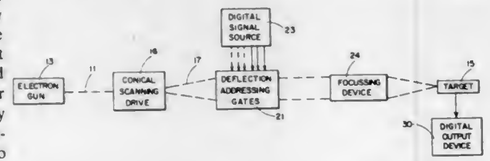
Methods and apparatus for adaptively controlling a machine tool to provide optimized instantaneous performance as unforeseen or unforeseeable changes in cutting conditions occur; —characterized by a continuous search out of and back into a permissible area defined by constraint boundaries in the cutter speed vs. feed rate (V vs. R) plane. The method and apparatus always adjust the cutter speed and feed rate to conditions of optimized economic operation (e.g., minimum cost or minimum time)—but subject to other limitations of the machine tool, the cutter and the workpiece material—because one such boundary defines the optimum values of cutter speeds and feeds representing minimum cost or minimum time per unit length of machining. The latter boundary is established by straightforward use of empirical contants, available in the literature or readily determined by known techniques, associated with the well known modified Taylor equation. By sensing machine tool variable and signaling actual values of a plurality of operating parameters, the output rate of the machine tool is increased until the economic restraint, or some other inherent limitation restraint, is reached. The corrective action to remove any constraint violation is based upon a grouping of the several signaled parameters according to the shapes of the respective boundary lines corresponding thereto in the V, R plane, so that the method steps for effecting correction of any constraint boundary violation are relatively few in number and may be carried out by novel apparatus which is simple and practical.

3,784,799

HIGH SPEED DEFLECTION MODULATOR ELECTRON BEAM SIGNAL PROCESSOR

Walter E. Crandall, Malibu, and Orlie L. Curtis, Jr., Rolling Hills Estates, both of Calif., assignors to Northrop Corporation, Los Angeles, Calif.

Filed May 8, 1972, Ser. No. 251,018
Int. Cl. H04b *3/52*; **H03c** *3/34*
U.S. Cl. 325—130 **10 Claims**



A high-speed electron beam signal processor suitable for time-multiplexing a plurality of digital signals is disclosed. A

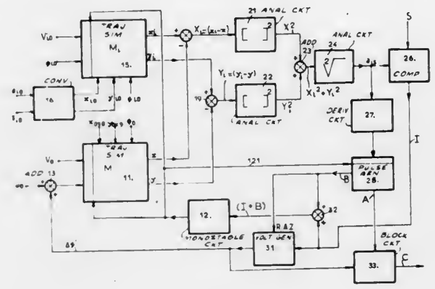
focused electron beam, which may be developed by an electron gun, is conically scanned. The conical beam is passed through an addressing plate structure which includes a plurality of plate electrode members, each for receiving a separate digital input signal. The beam is deflected in accordance with the signals addressed to the addressing plates as it travels past these plates in succession. The beam passes from the addressing plates through an electrostatic lens which focus it onto a target. The target which may comprise a target diode provides a multiplexed output signal in accordance with the digital inputs fed to the addressing plates.

3,784,800

SYSTEMS FOR SURVEYING AND CORRECTING TRAJECTORIES

Guy Claude Willoteaux, Saint-Germain-en-Laye, France, assignor to Societe Francaise d'Equipments pour la Navigation Aerodrome de Villacoublay

Filed May 26, 1972, Ser. No. 257,345
Claims priority, application France, May 27, 1971, 7119184; May 27, 1971, 7119185
Int. Cl. G06g *7/78*
U.S. Cl. 235—150.27 **7 Claims**



A system for controlling the trajectory of a moving body such as an aircraft or missile moving in the vicinity of one or more relevant objects which may be moving or stationary. The trajectory is required to fulfil certain imperatives such that the body following it either avoids the relevant object by at least a specified distance or the imperatives may require the body to hit or come within at least a specified distance of the object. The system calculates the distance between the body and object and by taking account of the speeds and direction of each simulates a series of hypothetical trajectories diverging on either side of the actual trajectory until a hypothetical trajectory is determined which satisfies the imperatives, the system then instructs the body's controls to change the linear and/or angular speed thereof so that the aircraft follows the latter trajectory.

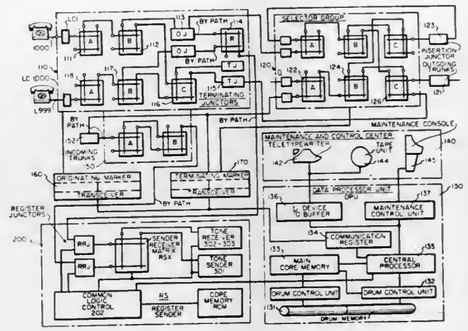
3,784,801

DATA HANDLING SYSTEM ERROR AND FAULT DETECTING AND DISCRIMINATING MAINTENANCE ARRANGEMENT

James P. Caputo, Chicago, and Fred A. Weber, Glen Ellyn, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 12, 1972, Ser. No. 270,909
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **15 Claims**

A maintenance arrangement responds to a false signal condition, produced by a data handling system, by recycling the timing generator controlling the data handling system to cause the signals in question to be repeated. In order to determine whether the false signal condition occurred only momentarily or remains present during the recycle operation, two types of detecting circuits are provided. Error detecting circuits respond if the false signal condition has a single occurrence, and does not remain present during the recycle operation and thus is interpreted as an error condition caused by the spurious introduction of noise pulses or the like, and fault detecting circuits respond if the false signal condition continues to be present or reappearing during the recycle operation to indicate a fault condition and to request other equipment to service the data handling system. Also, the maintenance arrangement designates the group of signals resulting in the false signal condition by storing group-identifying information in the memory of the data handling system so that the servicing equipment can determine the source of the problem. A register of the data handling system storing information relating to the group of signals resulting in the false condition is inhibited from being altered by the maintenance arrangement, which sets a freeze indicator in such a register so that all other information stored therein is preserved for use by the servicing equipment.

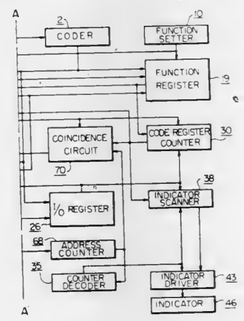


3,784,802

INVENTORY CONTROL DEVICE

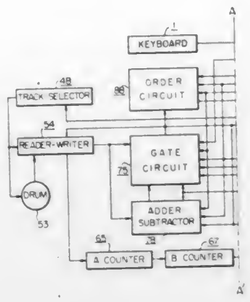
Masataro Imai; Hiroshi Ishizawa, and Takehiko Kanbayashi, all of Ise, Japan, assignors to Shinko Electric Co., Ltd., Tokyo, Japan

Filed July 14, 1971, Ser. No. 162,586
Claims priority, application Japan, May 20, 1971, 46/34595
Int. Cl. G06f *15/24*
U.S. Cl. 235—168 **7 Claims**

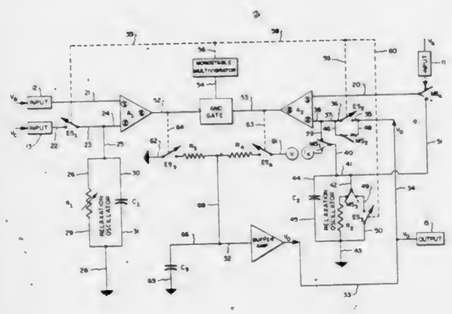


A comparatively small electronic inventory control device for indicating the current stocks of goods, individually or in succession. The item numbers of the goods are selectively entered by push-button switches. New information for updating the stocks is entered by the same switches. Numerals for item

number and the information are differentiated by separate manual switch means. A rotary memory means having addresses corresponding to the item numbers of the goods is used for storing and updating the stock information of the goods.



3,784,803
MULTI-MODE COMPUTING CIRCUIT
Thomas A. Brendle, Hamburg, N.Y., assignor to Audn Corporation, Hamburg, N.Y.
Filed Jan. 30, 1973, Ser. No. 328,001
Int. Cl. G06g 7/16
U.S. Cl. 235—195 32 Claims

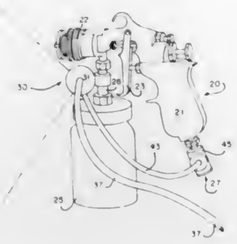


A single electrical circuit is capable of alternatively calculating an output voltage V_0 according to the general formula,

$$V_0 = V_A (V_C/V_B)^n \text{ or } V_0 = K \ln (V_C/V_B)^T$$

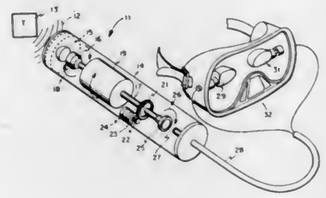
where V_A, V_B and V_C are circuit input voltages and n, K, and T_1 are determinable values of the circuit. A first relaxation oscillator may be selectively coupled to a second relaxation oscillator or to a chargeable capacitor supplied with constant current. The value of V_0 is repeatedly adjusted as a function of decaying response time. V_0 is computed when two response times are driven into equality.

3,784,804
SPRAY GUN LIGHT ASSEMBLY
Leo C. Sabatelli, 318 S. Church St., Clifton Heights, and William L. Jesse, 524 Elm St., Upper Darby, both of Pa.
Filed May 3, 1973, Ser. No. 356,920
Int. Cl. F21v 33/00
U.S. Cl. 240—2 FD 3 Claims



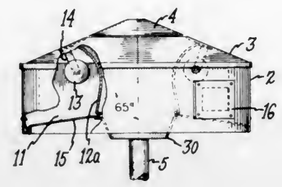
A light for attachment to a paint spray gun wherein a high intensity halogen lamp is forced air cooled from the source of air that is used in spray painting. The lamp has a flame retardant screen to prevent ignition of a combustible mixture within the spray area.

3,784,805
SONAR IMAGE CONVERTER
Albert L. Rolle, Lynn Haven, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 4, 1972, Ser. No. 296,500
Int. Cl. G01s 9/66
U.S. Cl. 340—3 R 17 Claims



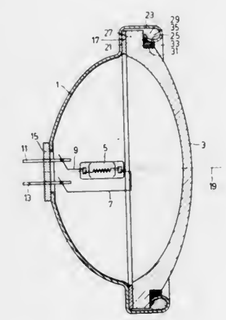
A sonar system is disclosed as having a rotatable shaft with an electroacoustical transducer array mounted on one end thereof, a light output diode readout array mounted on the other end thereof, a receiver mounted on said shaft and connected between said transducer and readout arrays. A transmitter is also connected to said electroacoustical array. An electric motor rotates said shaft through a pair of gears, and a programmed function generator causes sonar target search and echo signals to be timely broadcast by said transmitter and received by said receiver during the rotation of said arrays. An objective lens views the outputs from the light diode output array and transmits it via a bundle of optical fibers to a pair of readout prisms located in a diver's face mask. With the exception of a large portion of the optical fibers and readout prisms, the entire sonar system may be encased in a waterproof housing to facilitate its being used as a visual aid to underwater swimmers and divers working in turbid water.

3,784,806
LUMINAIRE
Lewis W. Kenyon, Flat Rock, and Jerry R. Plemmons, West Asheville, both of N.C., assignors to General Electric Company
Filed May 4, 1972, Ser. No. 250,444
Int. Cl. F21s 1/10, 3/10
U.S. Cl. 240—25 9 Claims



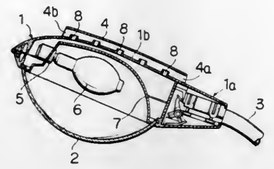
Post top luminaire has a plurality of gaseous discharge lamps arranged in a sealed annular optical enclosure formed by an inner assembly of reflectors, an outer cylindrical housing, and a bottom transparent panel. An axially extending support formed of four elongated angle members attached at the bottom to a slipfitter is provided at its lower portion with quick-disconnect means for detachably securing a ballast assembly selectively to the sides of the central support. The arrangement provides for light ray distribution with effective light sheilding cutoff without crossing of the light beams from the lamps, while the central mounting of the ballast assemblies permits cooler operation of the latter as well as ready access for servicing.

3,784,807
ELECTRIC LAMP
Anton Boekkooi, and Andreas Maria Heeman, both of Emmasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 13, 1972, Ser. No. 288,596
Claims priority, application Netherlands, Sept. 17, 1971, 7112768
Int. Cl. F21v 17/02
U.S. Cl. 240—41.5 4 Claims



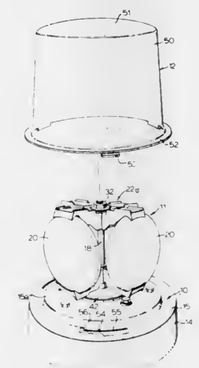
A lamp in which the reflector which is provided with a halogen incandescent lamp is beaded, on its widened circumference, around the edge of a cover glass and an epoxy glue is present between said flanged part and a more central part of the cover glass. The flanged edge serves to secure the cover glass and the epoxy resin serves for a substantially completely diffusion-tight seal against water vapour from the atmosphere.

3,784,808
HEAT RADIATING DEVICE FOR ILLUMINATING APPARATUS
Shinjiro Mori, Tokyo, Japan, assignor to Mori Denki Manufacturing Co., Ltd., Tokyo, Japan
Filed Aug. 21, 1972, Ser. No. 282,011
Claims priority, application Japan, Mar. 21, 1972, 47/27398
Int. Cl. F21v 29/00
U.S. Cl. 240—47 6 Claims



A heat radiating device for use in an illuminating apparatus comprising a heat radiating member secured to a wall of a body of said apparatus and formed with end openings at the opposite ends thereof. Air vent means adapted to establish air communication between the inside of said body and the atmosphere pass through the inside of the heat radiating member. As a result the temperature rise of the apparatus which is caused by a lamp bulb therein can be kept below a certain value and the life of the bulb can be increased. Additionally, stainless steel which has not been used in the past in the construction of the apparatus because of its relatively low heat conductivity may now be used so that the painting process applied to said body may be eliminated and the durability of said body may be increased.

3,784,809
EMERGENCY ROTATING WARNING LAMP
John Smith, 505 Cummer Ave., Willowdale, Ontario, Canada
Filed July 26, 1972, Ser. No. 275,217
Int. Cl. F21m 7/00
U.S. Cl. 240—49 8 Claims

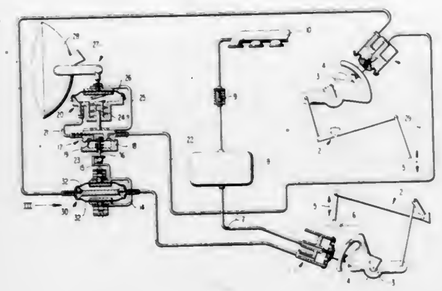


An emergency rotating warning lamp comprising a base, a plurality of sealed beam bulbs, an electric motor mounted on the base and having a shaft on which the bulbs are supported by pairs of modular brackets, and a lens telescoped over the lamps and fixed to the base.

3,784,810
PNEUMATICALLY OPERATING CONTROL INSTALLATION FOR THE AUTOMATIC ALIGNMENT OF MOTOR VEHICLE HEADLIGHTS

Rudolf Andres, Sindelfingen; Hermann Moller, Aidlingen, and Franz Seyfried, Sindelfingen, all of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Filed Nov. 5, 1971, Ser. No. 195,984
Claims priority, application Germany, Nov. 6, 1970, P 20 54 644.5
Int. Cl. B60g 1/06
U.S. Cl. 240—7.1 LJ 20 Claims

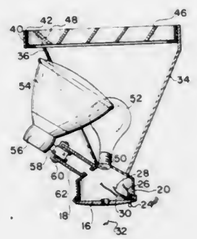


A pneumatically operating control installation for the automatic alignment of motor vehicle headlights, in which the control members coordinated to one or two axles of the motor vehicle which align the headlights to a constant light range as a function of changes of the distance of the respective axle to the superstructure of the motor vehicle by way of adjusting motors and a control device, are constructed as pressure modulators while a vacuum, available at all times, is fed to the control installation.

3,784,811
LAMP WITH INDIRECT AND DIRECT LIGHTING FIXTURES

Abe Hyman Feder, 15 W. 38 St., New York, N.Y.

Filed Dec. 20, 1972, Ser. No. 316,782
Int. Cl. F21s 1/12, 3/10
U.S. Cl. 240—81 LD 10 Claims

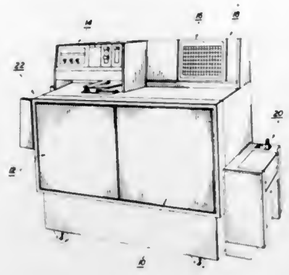


Lamps embodying a shade together with a bulb and a reflector lamp element which provides both indirect lighting through the top of the shade and direct lighting through the bottom of the shade. The lamp is characterized by an especial baffle which directs the indirect lighting upwardly and outwardly of the shade and simultaneously downwardly through the sides of the shade.

3,784,812
DATA INSERTION APPARATUS

Melvin E. Swanberg, Claremont, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed May 22, 1972, Ser. No. 255,739
Int. Cl. G03b 27/52
U.S. Cl. 355—41 11 Claims



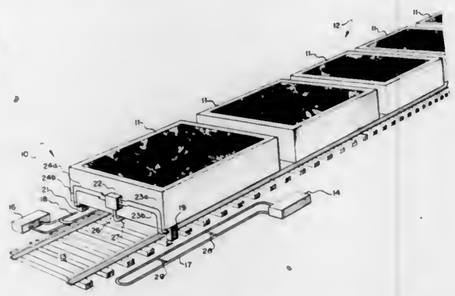
Microfiche enlarger printer apparatus which includes random frame selection circuitry wherein the frame selection input data is inserted via a novel panel, the front panel surface having positions for data entry corresponding to the microimage format on a microfiche card. The apparatus further includes logic and storage components for allowing entry of the frame selection data for one microfiche card prior to the completion of the reproduction cycle of the selected frames on another microfiche card and which is responsive to only the first and last panel positions actuated by an operator.

The panel further includes display means at each panel position, for providing the operator a visual indication of the panel positions which have been actuated.

3,784,813
TEST APPARATUS FOR PNEUMATIC BRAKE SYSTEM

Paul T. Ryan, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Filed June 6, 1972, Ser. No. 260,123
Int. Cl. B61l 1/20
U.S. Cl. 246—169 R 9 Claims

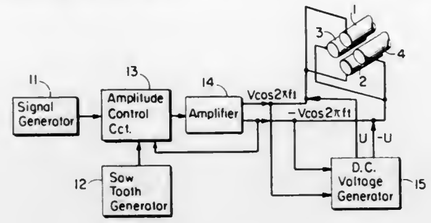


An apparatus for cyclical testing in integrity of a railway pneumatic brake system. A transmitter and receiver with associated induction loops are situated on opposite sides of the track, and are magnetically coupled to respective inductive coils located on opposite sides of a rearward track car. A switch electrically couples the inductive coils in response to the pneumatic pressure in the brake system, the signal reception from the transmitter to receiver thereby providing an indication of system integrity. In an automatic railroad operation the test can be made by a single person at the remote operation station, or be programmed as part of the control cycle.

3,784,814
QUADRUPOLE MASS SPECTROMETER HAVING RESOLUTION VARIATION CAPABILITY

Tadashi Sakai; Masahiko Sakimura, and Yoichi Ino, all of Tokyo, Japan, assignors to Nippon Electric Varian, Ltd., Tokyo, Japan

Filed Mar. 12, 1971, Ser. No. 123,687
Claims priority, application Japan, Mar. 14, 1970, 45/21704; July 18, 1970, 45/63410
Int. Cl. H01j 39/34
U.S. Cl. 250—41.9 DS 5 Claims



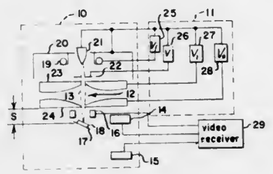
A quadrupole mass spectrometer includes an ionization chamber, an ion detector, and a quadrupole structure having four electrodes extending therebetween. A d.c. voltage U and a high frequency voltage of amplitude V are linearly superimposed and are applied to the electrodes while maintaining the relationship $U=\alpha_M V - K$, where α M denotes a critical U/V ratio. This constrains the mass peaks of a spectrum to be of substantially uniform shape. Variation of the parameter K permits the spectrometer resolution to be varied.

In accordance with one aspect of the present invention, the d.c. voltage is maintained constant at values lower than the peak value of the stability curve for atomic hydrogen in a range of smaller values of the voltage amplitude V. The spectrum for atomic hydrogen can thereby be isolated.

3,784,815
LOW VOLTAGE FIELD EMISSION SCANNING ELECTRON MICROSCOPE

Vincent J. Coates, Los Altos, and Leonard M. Welter, Saratoga, both of Calif., assignors to American Optical Corporation, Southbridge, Mass.

Filed Aug. 16, 1971, Ser. No. 171,815
Int. Cl. H01j 37/26
U.S. Cl. 250—49.5 C 16 Claims

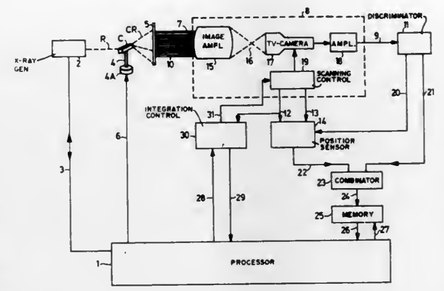


A Field Emission Scanning Electron Microscope having a field emission tip for generating charged particles and being axially aligned with an electrode and with an intermediate electrode interposed there between. The electrode and the intermediate electrode forming a field lens for focusing the charged particles from the field emission tip. Appropriate voltages are applied for providing extraction, acceleration and focus fields. The electrode potential being lower than the intermediate electrode potential with respect to the charged particles and selected to provide a real focus of the charged particles at a position outside the lens field and distal of the field emission tip thereby producing an intense beam of low energy particles.

3,784,816
METHOD FOR EXECUTING TIME-DETERMINED ANALYSIS IN PHYSICAL OR CHEMICAL EXAMINATION OF SUBSTANCES AND AN APPARATUS FOR EXECUTING THE METHOD

Sixten Abrahamsson, 31, Sodermalmsgatan, Molndal, Sweden

Filed June 1, 1970, Ser. No. 42,258
Claims priority, application Sweden, May 30, 1969, 7700/69; Feb. 13, 1970, 1892/70
Int. Cl. G01n 21/00
U.S. Cl. 250—273 12 Claims

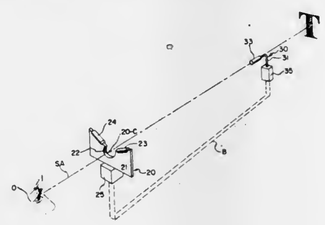


The invention concerns a method for measuring the magnitudes of a great number of quantities which may vary very rapidly within wide limits. Each of the magnitudes to be measured is converted into a light signal having an intensity corresponding to the magnitude of the respective quantity. All such light signals are individually integrated during successive, accurately defined time intervals. At the end of each interval it is determined which integrals having reached at least one of a plurality of predetermined levels.

3,784,817
RADIO LUMINESCENT SIGHTING ARRANGEMENT

Dean B. James, Delmont; Seymour H. Smiley, Pittsburgh, and Ralph E. Whittaker, Jr., Upper St. Clair, all of Pa., assignors to Atlantic Richfield Company, Glenolden, Pa.

Filed May 11, 1971, Ser. No. 142,190
Int. Cl. F21k 2/02
U.S. Cl. 250—467 4 Claims

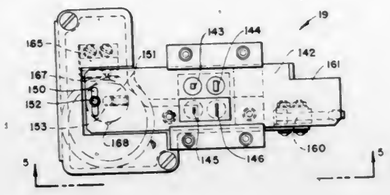


An illuminating arrangement is disclosed which, in one particular embodiment, includes a pair of optically-alignable "sight markings", the markings being illuminated and defined, at least in part, by a "radio-luminescent" segment, especially suited for a dimly-lit field of view, these segments including a phosphorescent material and a "matched" radio-isotope adapted to induce prescribed phosphorescence.

3,784,818
SCINTILLATION SCANNER WITH REMOTE CONTROL APERTURE

Albert L. Stoeckel, Euclid; Walter F. Mog, Willowick, and Carl J. Brunnett, Mayfield Heights, all of Ohio, assignors to Picker Corporation, Cleveland, Ohio

Filed June 3, 1971, Ser. No. 149,736
Int. Cl. G01t 1/20
U.S. Cl. 250—71.5 S 11 Claims

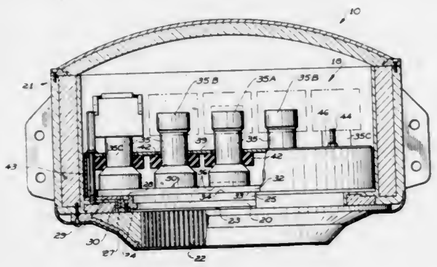


A scintillation scanner having a visual image producing means coupled to the boom which supports the scintillation detector. The image producing means includes a light source for producing a beam of light along a path. An adjustable aperture controls the size of the image produced.

3,784,819
SCINTILLATION CAMERA WITH LIGHT DIFFUSION SYSTEM

Ronald J. Martone, Cheshire; Samuel C. Goldman, Bethany, and Clifford C. Heaton, Meriden, all of Conn., assignors to Picker Corporation, Cleveland, Ohio

Filed Mar. 5, 1971, Ser. No. 121,445
Int. Cl. G01t 1/20
U.S. Cl. 250—366 37 Claims



A scintillation camera of the multiple phototube type. A thin light pipe and masks are employed to diffuse the light so that the camera operates on a principle of light diffusion rather than phototube "viewing" as described in the prior art.

3,784,820
TOMOGRAPHIC SCANNING PROCESS

Floro D. Miraldi, Cleveland Heights, Ohio, assignor to Case Western Reserve University, Cleveland, Ohio

Division of Ser. No. 48,166, June 22, 1970, Pat. No. 3,688,113.
This application June 25, 1971, Ser. No. 156,951
Int. Cl. G01j 39/18
U.S. Cl. 250—362 10 Claims

A radioisotope device having a collimator delimits radiation from a source. A scintillation crystal having a rectangular cross-section and a generally elongated shape receives radiation after it passes through the collimator and changes it to visible light at each point by a process known as scintillation. Photomultiplier tubes at each end of the scintillation crystal convert the light to electrical pulses. The amplitudes of electrical pulses are converted to logarithms of the amplitudes and summed. A pulse height selector chooses only the sums of those logarithms desired for observation. The logarithms of the amplitudes are also subtracted to find the location of the scintillation in the scintillation crystal.



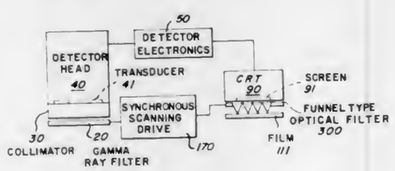
Means are also provided for moving the source of radiation relative to the collimator. A recording means stores information concerning the relative positions of the source and the collimator during the time radiation is received. Information from a plurality of scans allows a determination of a pattern of the radiation at different depths and areas within the source.

It is also possible to use a plurality of collimators and scintillation crystals and a single scan to determine radiation patterns at multiple depths within the source.

3,784,821
SCINTILLATION CAMERA WITH IMPROVED RESOLUTION

Ronald J. Jaszczak, Arlington Heights, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Nov. 22, 1971, Ser. No. 200,700
Int. Cl. G01t 1/20
U.S. Cl. 250—368 8 Claims



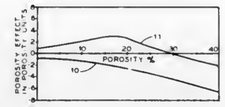
An Anger-type scintillation camera system fitted with a gamma ray filter between the object under study and the detector and a signal funneling type of output signal filter, in mechanical or electrical form, associated with an image recording film. The gamma ray filter and signal funneling type of output signal filter scan in synchronism so that the total radioactivity distribution in the object is documented on the film with improved resolution.

3,784,822
RADIOACTIVITY WELL LOGGING METHODS AND APPARATUS

Nick A. Schuster, Darien, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed July 13, 1971, Ser. No. 162,068
Int. Cl. G01v 5/00
U.S. Cl. 250—260 8 Claims

An illustrative embodiment of the invention compensates neutron measurements of the porosity of an earth formation for sudden changes in borehole diameter. Typically, a sidewall porosity logging tool for transport through a borehole is equipped with two neutron detectors spaced at different distances from the neutron source. In order to improve the vertical resolution of the tool, a circuit stores the signal from the longspaced detector until the shorter spaced detector has traversed a distance along the borehole wall that is equal to the separation between the two detectors. This memory feature adjusts the porosity signals to a common zone of observation. These apparent porosity signals then are combined with borehole caliper signals to compensate for the effect of changes in borehole diameter.



3,784,823
METHOD AND DEVICE FOR THE DETECTION OF FISSION PRODUCTS

Svetislav Kostic, Paris, and Roger Le Meur, Verrieres-le-Buisson, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Jan. 19, 1972, Ser. No. 218,861
Claims priority, application France, Jan. 22, 1971, 7102218
Int. Cl. G01j 1/18
U.S. Cl. 250—83.6 FT 14 Claims



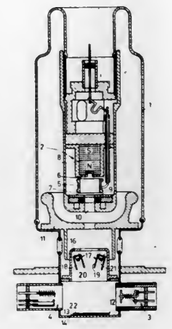
The method consists in carrying out the electrical collection of fission products on both sides of very thin metallized discs of polyester insulating material which are placed at the center of a spherical chamber and in measuring the radioactivity with a set of two electron detectors mounted to detect activity of the discs in all directions.

The device for carrying out the method comprises a magazine constituted by a rotary circular ring provided with spaced openings each intended to accommodate a disc, a spherical ion-collection chamber, two parallel semiconductor detectors and a unit for conveying each disc from the magazine into an opening formed in a transfer plate. The disc is transferred by the plate to an ion-collection chamber, then passed between the two detectors in order to measure the activity and energy spectrum of the beta radiation of the collected ions then returned to the magazine.

3,784,824
TRITIUM TARGET WITH COMPENSATED SPUTTERING

Otto Reifenschweiler, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 18, 1970, Ser. No. 99,550
Claims priority, application Netherlands, Jan. 23, 1970, 7000938
Int. Cl. G21g 3/00
U.S. Cl. 250—84.5 3 Claims

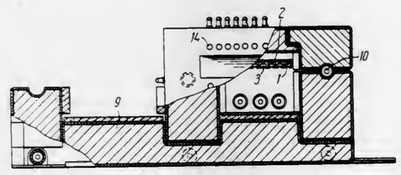


A neutron generator comprising a vaporiser or an atomizer to vapour-deposit or sputter on the target plate during operation a layer which consists of a material which cannot take up, or takes up very little, hydrogen.

3,784,825
BETA-IRRADIATION APPARATUS

Evgeny Borisovich Mamin, Tokmakov pereulok, 3-5, kv. 69; Viktor Alexeevich Makarov, Kropotkinskaya ulitsa, 40, kv. 154; Galina Petrovna Korneeva, prospekt Bernadskogo, 111, kv. 148; Boris Safronovich Poppel, ulitsa Nametkina, 11, kv. 21, and Vyacheslav Ivanovich Ivanov, Checersky pereulok, 4, korpus 2, kv. 29, all of Moscow, U.S.S.R.

Filed Nov. 18, 1970, Ser. No. 90,523
Int. Cl. G21h 5/00
U.S. Cl. 250—106 S 5 Claims



A beta-irradiation apparatus in which an irradiator is divided into at least two compartments which accommodate holders each of which is filled with a substance containing a beta-emitting radioisotope enclosed in a plurality of separate hermetic capsules arranged in a matrix. The holders in the compartments and the capsules in the holders are disposed so that by a suitable arrangement of the capsules, the desired intensity and geometry of the beta-radiation field is secured.

3,784,826
APPARATUS FOR ANALYSING CONTINUOUSLY DISCRETE BIOLOGICAL LIQUID SAMPLES

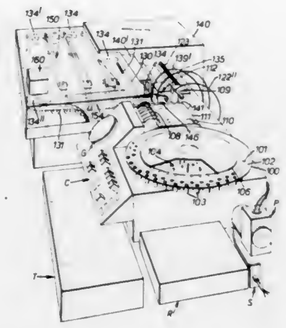
Kenneth D. Bagshawe, London, and Derek N. Marchant, Hassocks, both of England, assignors to The Hayward Foundation, London, England

Filed Feb. 24, 1971, Ser. No. 118,426

Claims priority, application Great Britain, Mar. 3, 1970, 10,023/70

Int. Cl. G01t *1/16*

U.S. Cl. 250—106 SC **26 Claims**



Analysis apparatus primarily for carrying out biological analyses using radioimmunoassay techniques includes a turntable disc for carrying a plurality of specimens. A delivery arm delivers successive samples to a row of dilution containers and simultaneously supplies a diluent. A transfer arm controlled by a code on the turntable disc picks a selected diluted sample and transfers it to one of a long series of incubation chambers each of which contains a reagent. A second reagent is added at the time of transfer and the mixture is incubated prior to removal by an appropriate device. After removal the active constituents are filtered and measured quantitatively by a counter.

The pumps for transfer of liquids are peristaltic and where a sample has to be drawn up incorporate an integral bellows.

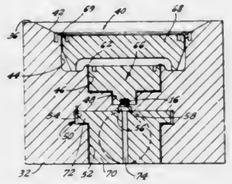
3,784,827
CONTAINER INSPECTION SYSTEM AND METHOD

Fredrick L. Calhoun, Torrance, Calif., assignor to Industrial Dynamics Company, Ltd., Torrance, Calif.

Filed Mar. 5, 1971, Ser. No. 121,321

Int. Cl. G21f *5/02*

U.S. Cl. 250—106 S **11 Claims**



An apparatus for inspecting a container to determine whether such container has properties different from a particular standard by utilizing a long life radioactive isotope source that emits low energy gamma radiation. The invention also relates to a method of making a very compact but safe housing to encapsulate the low energy gamma radiation source used in the apparatus.

The housing utilized to encapsulate the radioactive source can provide adequate shielding to protect nearby personnel by using a metal such as stainless steel because of the low energy output of the source. A thin window, formed as an integral part of the housing, freely passes a portion of the source radiation that is used for inspection purposes. The housing is constructed from standard metal bar stock in a particular manner that minimizes the possibility that the thin window will include defects or impurities contained within the metal bar stock.

A collimation means is utilized in front of the source housing window to confine the beam of radiation that emanates from the source through the window. This collimated radiation beam is directed at the area of the container to be examined and the amount of radiation passing through the container provides an indication as to whether or not the container has properties different from a particular standard.

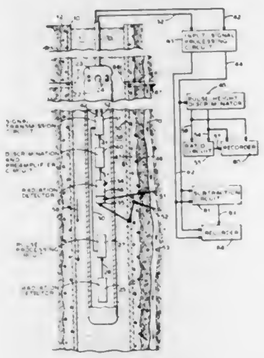
3,784,828
DETERMINING THE LOCATION OF VERTICAL CHANNELS IN A WELLBORE

Donald A. Hayes, Midland, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Mar. 25, 1971, Ser. No. 127,907

Int. Cl. G01v *5/00*

U.S. Cl. 250—106 L **9 Claims**



An illustrative embodiment of the invention shows a radioactive tracer technique for distinguishing vertically flowing liquids in formation fractures from flows through passageways in the cement annulus between the steel casing and the borehole wall. Typically, two radiation detectors of different sensitivities respond to a radioactive tracer that has been discharged into the formation at the well depth of interest. If the tracer material moves in a vertical direction with respect to the injection depth, relatively high count rates from both of the detectors indicate that the tracer is flowing vertically through a fracture in the cement. A relatively low count rate in the less sensitive detector, however, indicates that the vertical flow is taking place away from the casing and at some depth within the formation.

3,784,829
RADIANT ENERGY SELECTION MEANS

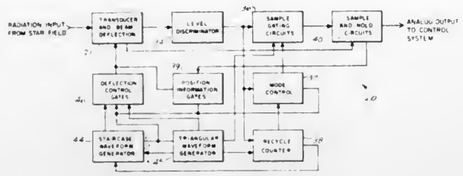
James R. Bancroft; Richard L. Cleavinger, both of Boulder, Colo.; James M. Hall, Bethesda, and Mark Harris, Wheaton, both of Md., assignors to Ball Brothers Research Corporation, Boulder, Colo.

Division of Ser. No. 705,442, Feb. 14, 1968. This application Sept. 3, 1971, Ser. No. 170,727

Int. Cl. G01j *1/20*

U.S. Cl. 250—203 CT **13 Claims**

An apparatus and method for conducting a search of a predetermined area for radiant energy utilizing a raster type scan and responsive to receipt of radiant energy automatically shifting the operational mode from search to track after which that portion of the predetermined area within which the radiant energy was located is repeatedly unidirectionally swept with each succeeding sweep being in quadrature relationship to the previous sweep. A pulse indicative of received radiant energy is produced during each sweep and if of sufficient magnitude, the leading and trailing edges are utilized to cause sam-



pling of deflection currents at the time of occurrence of said leading and trailing edges. The thus sampled currents are averaged to produce an analog output signal indicative of the angular position of the source of the radiant energy within the predetermined area along the particular axis established by the sampled sweep currents. Also provided is a selection circuit whereby a particular source of radiant energy can be selected to the exclusion of other sources within the predetermined area.

3,784,830
IMAGE MAGNIFIER

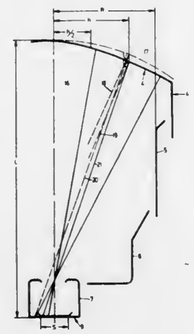
Gunter Schwierz, Erlangen, and Peter Wulff, Frauenaurach, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Oct. 4, 1971, Ser. No. 186,123

Claims priority, application Germany, Oct. 7, 1970, P 20 49 127.4

Int. Cl. H01j *39/12*

U.S. Cl. 250—213 VT **2 Claims**



An image magnifier and intensifier has a vacuum flask upon one end of which lies a photo-cathode. The image-producing ray bundle releases at its surface electrons depending upon the intensity distribution in its cross-section. They are represented electronically-optically at high acceleration voltage upon a screen located upon the other end of the flask. The photocathode represents a calotte having a curvature which differs from the middle to the edge and an opening directed toward the screen. The invention is particularly characterized in that the cross-section of the cathode has a meridianal curvature radius which increases greater than linearly from the center to the edge.

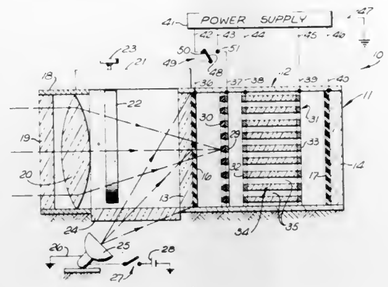
3,784,831
ELECTROOPTICAL SYSTEM

Philip George Reif, Chatsworth, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 4, 1971, Ser. No. 195,745

Int. Cl. H01j *31/50*

U.S. Cl. 250—213 VT **26 Claims**



A direct view infrared monitoring system including a storage tube having a storage mesh with a photoconductive storage surface thereon sensitive only to infrared radiation, the tube having a photocathode to flood the photoconductive surface with electrons. The photocathode is made of a material which is sensitive only to ultraviolet radiation and is transparent to the infrared. A shutter is employed to allow illumination of the photoconductive surface with the infrared or to stop such illumination during reading and erasing steps. The shutter is opened for writing. According to one or more embodiments of the invention, a luminescent screen is supplied with an increased number of electrons by the use of a channel type electron multiplier positioned between the storage mesh and the screen.

3,784,832
OPTICAL SCANNING APPARATUS FOR AVOIDING AMBIGUITY IN A QUANTISED SIGNAL

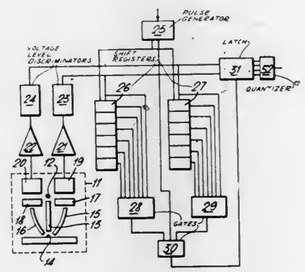
Brian Constantine Sewell, Teddington, England, assignor to The Rank Organization Limited, London, England

Filed Jan. 19, 1973, Ser. No. 325,159

Claims priority, application Great Britain, Jan. 19, 1972, 2,531/72

Int. Cl. G01j *3/34*

U.S. Cl. 250—226 **8 Claims**



Apparatus for avoiding ambiguity in a quantised signal representing a pattern which is scanned by an optical detector. The apparatus operates to scan the pattern to be represented and to produce a quantised signal each quantum of which represents the major colour in each scanning element of the

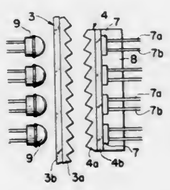
pattern scanned. Sampling means are provided which sample the binary signal produced by the scanning means at a rate higher than the rate at which the signal is ultimately to be quantised and the output from the sampling means controls a gating circuit which operates to prevent the signal representing the pattern from changing from a representation of one colour to a representation of another unless a predetermined number of the samples all represent one colour. This avoids any indeterminacy in the quantised signal at colour junctions where there are two or more colours present in an element being scanned, and no colour is sufficiently predominant for the detectors to unambiguously provide an output representing only that colour.

3,784,833

APPARATUS FOR DERIVING DIFFRACTIVE RAYS BY DIFFRACTION GRATINGS

Katsuhiko Kimura, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo-to, Japan

Filed July 11, 1972, Ser. No. 270,688
Claims priority, application Japan, July 17, 1971, 46/73584
Int. Cl. H01j *39/02*
U.S. Cl. 250—237 G **1 Claim**



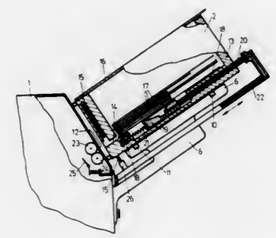
Apparatus for deriving diffractive rays by diffraction gratings which enables light measurement to be effected with high accuracy in addition to the feasibility of making the whole apparatus in a compact size. These features of the apparatus are obtained by the provision of a photoelectric element on the rear side of an index grating at a position in which it faces a movable scale grating with a small distance from this latter grating.

3,784,834

AUTOMATIC FILM DEVELOPING MACHINE WITH MEANS TO SEQUENTIALLY REMOVE FILM SHEETS FROM A MAGAZINE

Helmut Berger, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Mar. 16, 1972, Ser. No. 235,218
Claims priority, application Germany, Apr. 22, 1971, P 21 19 598.2
Int. Cl. G03b *17/26*
U.S. Cl. 250—477 **4 Claims**



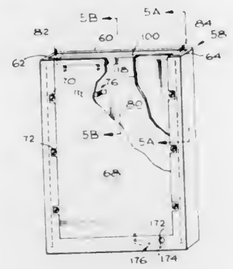
A developing automat with an inner transportation device for sheet films, is provided with a device consisting of at least one store magazine and a holder for the magazine fixed to the automat. The invention is particularly characterized in that the supply magazine is provided with a device for removing individually film sheets located in the magazine as a pile of sheets lying directly one upon the other. The supply magazine is also provided with means actuating the film removing device by the transportation device of the automat.

3,784,835

FILM SHEET CASSETTE

Gunter Schmidt, Malibu, Calif., assignor to Productron, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 104,652, Jan. 7, 1971, abandoned, which is a continuation-in-part of Ser. No. 52,848, July 7, 1970. This application Feb. 14, 1972, Ser. No. 226,105
Int. Cl. G03b *41/16*
U.S. Cl. 250—480 **12 Claims**



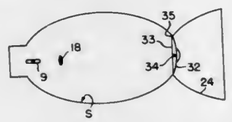
A film sheet cassette useful in medical X-ray applications and particularly in daylight film handling systems which include a dispenser for dispensing film sheets one at a time into the cassette. In use, the loaded cassette is first exposed to an X-ray source to photograph a patient after which it may be positioned in operative relationship with respect to a film processor for releasing the exposed film sheet into the processor. The cassette is comprised of a housing including a back plate and a cover plate fixed thereto in parallel spaced relationship. A pressure plate is disposed between the back plate and cover plate and spring urged against the back plate in light tight relationship therewith. The cassette housing defines channels along opposite edges thereof for slidably receiving cam rods. The pressure plate is provided with follower studs along the edges thereof which ride on cam surfaces of the rods. Actuating pins are provided on both the dispenser and processor for protruding into the channels when the cassette is positioned in operative light tight relationship with respect thereto. The pins engage the cam rods and slide them within the channels thus causing the cam surfaces to lift the follower studs and space the pressure plate from the back plate to thus allow film sheets to enter or exit from the cassette.

3,784,836

IR GENERATOR HAVING ELLIPSOIDAL AND PARABOLOIDAL REFLECTORS

Peter Marvin Tolliver, Brighton, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Oct. 6, 1972, Ser. No. 295,421
Int. Cl. G21h *3/00*
U.S. Cl. 250—495 **10 Claims**



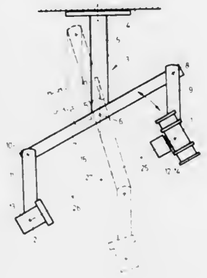
An infrared generator wherein an ellipsoidal reflector has a source rich in infra red at one focus thereof. The end of the reflector at the other focus merges with a paraboloidal reflector positioned so that the focus of the latter reflector coincides with the said other focus of the former. A second ellipsoidal reflector may be inserted between the former said reflectors with one of its foci coinciding with the said other focus of the former said ellipsoidal reflector, and its other focus coinciding with the focus of the paraboloidal reflector. The axes of the reflectors are coincident, and a lens and plug or equivalent may be provided to recover radiation that might otherwise be lost.

3,784,837

X-RAY DEVICE WITH A STAND

Lars Olof Holmstrom, Solna, Sweden, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed May 8, 1972, Ser. No. 251,376
Int. Cl. H05g *1/00*
U.S. Cl. 250—523 **2 Claims**



An X-ray device has a stand and an X-ray tube mounted upon a bracket which is supported rotatably about a support axis extending perpendicularly to its longitudinal axis. The invention is particularly characterized in that a carrying arm is rotatably mounted upon the free end of the bracket and that the X-ray tube is mounted upon the free end of this arm for rotation about further axes extending parallel to the support axis of the bracket. Driving means are provided which keep constant in space and independently from the swinging location of the bracket the position of the carrying arm relatively to the X-ray tube, whereby the central ray of the X-ray tube is always maintained parallel to the longitudinal axis of the bracket.

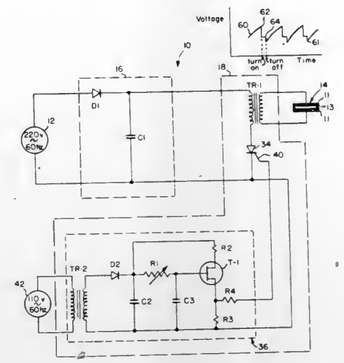
3,784,838

SOLID STATE FREQUENCY CONVERTER FOR CORONA GENERATOR

Frank E. Lowther, Phelps, N.Y., assignor to Purification Sciences, Inc., Geneva, N.Y.

Continuation-in-part of Ser. No. 141,148, May 7, 1971, which is a continuation-in-part of Ser. Nos. 830,248, June 4, 1969, and Ser. No. 709,485, Feb. 29, 1968, abandoned, which is a continuation-in-part of Ser. No. 612,751, Jan. 4, 1967, abandoned. This application Aug. 25, 1971, Ser. No. 174,691
Int. Cl. C01b *13/10, 13/12*
U.S. Cl. 250—536 **22 Claims**

A method and apparatus for converting low frequency current to high frequency current and for applying the high frequency current to the electrodes of a corona generator. The frequency converter includes a rectifier circuit, and a chopping circuit. The chopping circuit includes an SCR and a firing circuit connected to the SCR. The chopping circuit does



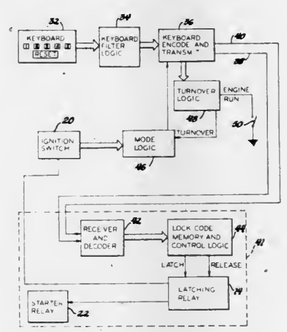
not require a conventional shut-off circuit. The SCR is connected to an ozone generator through a transformer and automatically shuts off.

3,784,839

ANTI-THEFT APPARATUS INCLUDING TURNOVER MODE OF OPERATION

John A. Weber, Franklin, Wis., assignor to General Motors Corporation, Detroit, Mich.

Filed July 12, 1972, Ser. No. 271,141
Int. Cl. B60r *25/00*
U.S. Cl. 307—10 AT **2 Claims**



Starting of a motor vehicle is controlled from electronic combination lock circuitry which may be placed in a turnover mode of operation after the engine has been started to thereafter permit a predetermined number of engine starts without the entering of the lock combination.

3,784,840

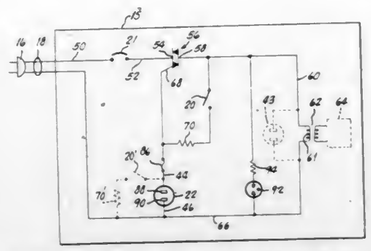
SOLID STATE REMOTE POWER SWITCH

Richard A. Kirkpatrick, Peabody, Mass., assignor to KLH Research & Development Corp., Cambridge, Mass.

Filed Dec. 21, 1972, Ser. No. 317,240
Int. Cl. H03k *17/00*
U.S. Cl. 307—11 **6 Claims**

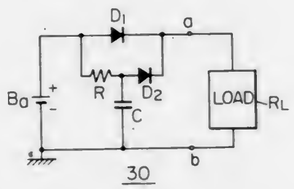
A solid state remote power switch is provided, e.g., in an amplifier system having a remotely located phonograph turntable or tape deck. Turning on the phonograph turntable or tape deck ensures that the amplifier is energized at the same time. When the phonograph turntable or tape deck turns off it simultaneously removes power from the amplifier. The

solid state remote power switch includes a semiconductor bidirectional current passing device of the triac type coupled in series between the AC power source and the energization circuitry of the amplifier unit. The phonograph turntable or tape



deck is adapted to be connected to the amplifier unit and, when turned on, provides the control signal which activates or turns on the triac device, thereby simultaneously providing power to the amplifier unit.

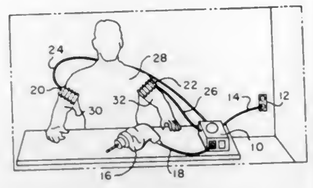
3,784,841
ELECTRIC POWER SUPPLY SYSTEM
Akio Hosaka, Yokohama City, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan
Filed Nov. 28, 1972, Ser. No. 310,098
Claims priority, application Japan, Feb. 19, 1972, 47/19983
Int. Cl. H02j *9/06*
U.S. Cl. 307—64 **4 Claims**



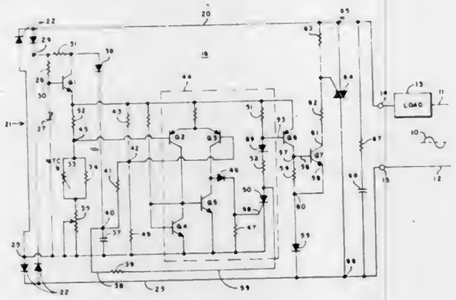
An electric power supply system having a capacitor as an auxiliary power source in addition to a DC battery as a main power source. In this power supply system, the capacitor is charged only through a resistor by a source voltage of the DC battery to a voltage approximately equal to the source voltage. The resistor has a value of resistance considerably higher than that of a load to be connected with the power supply system. The DC battery is grounded at its positive or negative terminal. The power supply system is adapted for energizing an actuator of a safety device for a motor vehicle.

3,784,842
BODY CURRENT ACTIVATED CIRCUIT BREAKER
Frederic B. Kremer, 1600 Garrett Rd., Apt. B204, Upper Darby, Pa.
Continuation-in-part of Ser. No. 223,096, Feb. 3, 1972, Pat. No. 3,706,008. This application Dec. 11, 1972, Ser. No. 314,162
Int. Cl. H02h *3/16*
U.S. Cl. 307—92 **9 Claims**

A body current activated circuit breaker responsive to the blow of current through the human body including at least one body encircling sensor to monitor the flow of electrical current in a human being. A circuit breaker is interposed between the source of electrical power supply and an electrical appliance being operated by the human being which causes the current flow, the circuit breaker being responsive to the flow of electrical current monitored by the sensor to automatically and rapidly interrupt the current supply to the electrical appliance upon detecting current flow through the body that exceeds a predetermined, safe level.



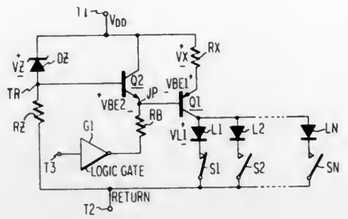
3,784,843
CONDITION RESPONSIVE CIRCUIT WITH CAPACITIVE DIFFERENTIAL VOLTAGE
C. Douglas Gustus, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed July 21, 1972, Ser. No. 274,125
Int. Cl. H02h *5/04*
U.S. Cl. 307—117 **6 Claims**



A condition responsive circuit, disclosed as including a temperature responsive element, is adapted to be connected to by a pair of terminals by an alternating current load and to a source of alternating current voltage. The condition responsive circuit operates through a differential amplifier to control a solid state switch, shown as a silicon controlled rectifier. This solid state switch in turn operates further solid state switching to control the load. A capacitor for creating a differential voltage in the input circuit of the differential amplifier is connected by a discharge circuit to the silicon controlled rectifier so that the voltage on the capacitor is discharged every time the silicon controlled rectifier is conductive.

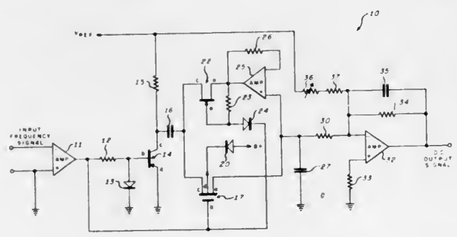
3,784,844
CONSTANT CURRENT CIRCUIT
Ellwood Patrick McGrogan, Jr., Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 27, 1972, Ser. No. 319,006
Int. Cl. H03k *1/04*
U.S. Cl. 307—270 **17 Claims**

A constant current circuit is disclosed which is useful, for example, in a system in which a constant current is supplied to one selected light emitting diode in an array of diodes. The constant current circuit, when energized, supplies a constant current through an output transistor to terminals of a row of light emitting diodes. The current flows through a selected one of the diodes having a closed return-path switch. The constant current is generated by coupling a constant reference voltage developed across a reference voltage diode through a semiconductor device to input electrodes of the output transistor. The coupling is constructed so that changes in the



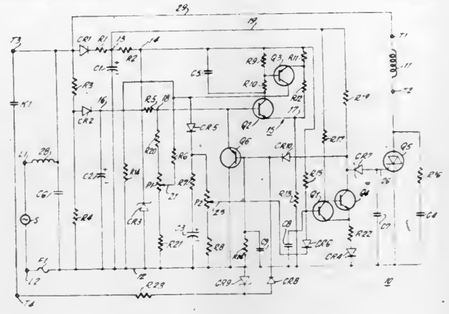
junction voltage drop of the semiconductor device, due to temperature, balance changes in the base-emitter voltage drop in the output transistor, when both are rendered conductive by a logic signal applied thereto.

3,784,845
LINEAR FREQUENCY TO VOLTAGE CONVERTER CIRCUIT
George C. Haas, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Feb. 6, 1973, Ser. No. 330,129
Int. Cl. H03k *5/20*
U.S. Cl. 307—233 **6 Claims**



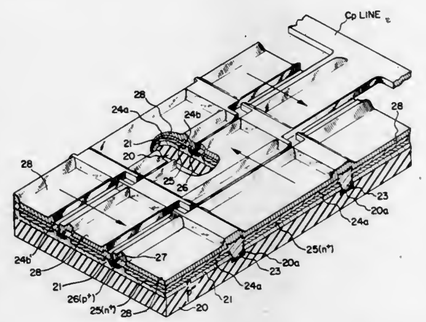
A device which includes a squaring amplifier responsive to an applied input frequency signal for producing constant amplitude square waves at the same frequency as the applied input signal. A switch coupled to the amplifier enables a capacitor to be rapidly charged from a reference voltage and a voltage due to an accumulated charge on a second capacitor during the first half cycle of each square wave. The charge accumulated on the first capacitor is rapidly transferred to the second capacitor during the second half cycle of each square wave through a second switch. The voltage due to the accumulated charge on the second capacitor is coupled through a long time constant discharge circuit to a buffer amplifier including a feedback ripple filter whereby the amplifier provides an output D.C. voltage which is linearly proportional to the frequency of the input signal.

3,784,846
SOLID STATE MOTOR CONTROLLER FOR DISCONNECTING A MOTOR FROM A POWER SOURCE WHEN A PREDETERMINED UNDERVOLTAGE CONDITION PERSISTS FOR A PREDETERMINED TIME
John B. Krick, Joppa, and Bernard Coleman, Westminster, both of Md., assignors to Rowan Controller, Inc., Westminster, Md.
Filed Apr. 24, 1972, Ser. No. 246,610
Int. Cl. H03k *17/26*; **H01h** *47/18*
U.S. Cl. 307—293 **7 Claims**



A combination solid state voltage sensing and timing relay employed for disconnecting equipment from a line source when the line voltage drops below a preset voltage for a preset time period. Whereas the pick up voltage of the voltage sensor is fixed at a first level, the drop out voltage is adjustable by means of a variable resistance element to be at a value lying within a range which is just slightly below the pick up voltage at the top of the range to a value which is significantly below the pick up voltage. The time delay interval is adjustable by way of a second variable resistance over a range of the order of from 0.5 to 10 seconds. The output of the undervoltage timer is a single pole normally open solid state switch for selectively connecting or disconnecting the line source from the load, depending upon the condition from the source and the length of time during which this condition persists.

3,784,847
DIELECTRIC STRIP ISOLATION FOR JFET OR MESFET DEPLETION-MODE BUCKET-BRIGADE CIRCUIT
Bruno Kurz, Schenectady; Mark B. Barron, and Walter J. Butler, both of Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Oct. 10, 1972, Ser. No. 295,835
Int. Cl. H01l *19/00*
U.S. Cl. 307—304 **20 Claims**



Undesired coupling of JFET or MESFET bucket-brigade stages through the epitaxial layer in a monolithic integrated

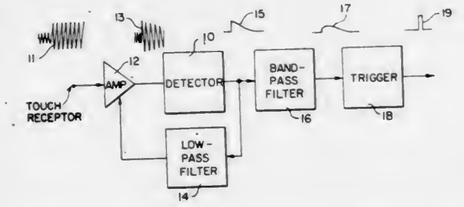
bucket-brigade circuit is prevented by isolating adjacent stages by strips of thick oxide dielectric material such as SiO_2. The dielectric strips are formed by selective oxidation to obtain local conversion of the n-type silicon epitaxial layer to SiO_2. In a second embodiment, elongated spaced-apart mesas of the SiO_2 are formed on the substrate prior to forming the patterned n-type silicon epitaxial layer. The storage capacitors of the bucket-brigade stages are MOS devices formed by metal layers overlapping the drain electrode regions of the JFETs or MESFETs diffused in the epitaxial layer with the dielectric material being a SiO_2 layer therebetween.

3,784,848

DETECTOR CIRCUIT WITH AUTOMATIC SENSITIVITY CONTROL AND POST DETECTION FILTERING FOR TOUCH CONTROL CIRCUITRY

William F. Hamilton, II, 1528 C. Miramar Beach, Santa Barbara, Calif.

Filed June 22, 1972, Ser. No. 265,311
Int. Cl. H04f 1/10; H03d 1/20
U.S. Cl. 307—308 **12 Claims**



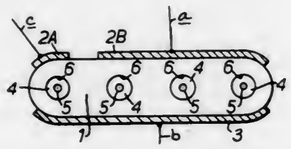
A detector circuit for use in connection with touch control circuitry incorporates automatic sensitivity control and post detection filtering. The detector circuit includes a touch receptor operable by electrical contact with a human body for producing an oscillating signal which increases in amplitude in response to a touch input, detecting means responsive to the oscillating signal for producing an output to indicate the increase in the amplitude of the oscillating signal, a feedback path including a low pass filter responsive to the output of the detecting means for controlling the sensitivity of the detecting means to the oscillating signal, and means responsive to the output of the detecting means for eliminating undesired frequency components from the output of the detecting means.

3,784,849

DEVICES INCORPORATING CAVITY RESONATORS

Brian Frederick Cooper, Chelmsford, England, assignor to English Electric Valve Company Limited, Chelmsford, England

Filed July 28, 1972, Ser. No. 276,093
Claims priority, application Great Britain, Aug. 26, 1971, 40,034/71
Int. Cl. H04r 17/00
U.S. Cl. 310—8.2 **4 Claims**



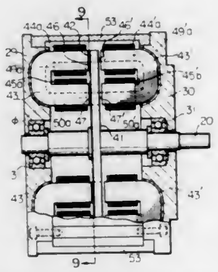
A device incorporating a cavity resonator and in which there is employed a transducer for controlling a conductive member and a further transducer subject to the same strain as the controlling transducer whereby the further transducer produces on an external terminal or lead a low frequency signal representative of the deflection of the controlling transducer.

3,784,850

ELECTRIC PULSE MOTOR

Seiuemon Inaba, Kawasaki; Yo Ikebe, and Sakae Yamamura, both of Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki-shi, Japan

Filed Dec. 27, 1971, Ser. No. 212,156
Claims priority, application Japan, Dec. 28, 1970, 45/132283; Dec. 28, 1970, 45/132285; Dec. 30, 1971, 46/134169
Int. Cl. H02k 37/00
U.S. Cl. 310—49 **10 Claims**



The disclosure relates to an improved electric pulse motor having an arrangement wherein, with respect to a rotor element having a number of rotor-teeth, a stator assembly including a number of geometrically and electrically paired laminated U-shape stator elements is assembled based upon the conventional arrangement, but, the rotor element is provided with a specific construction for strengthening the rotor-teeth, so that radially extended rotor-teeth are reduced in axial thicknesses so as not to increase moment of inertia, making it possible to obtain a large magnetic attractice force from the stator elements so as to provide a large output torque.

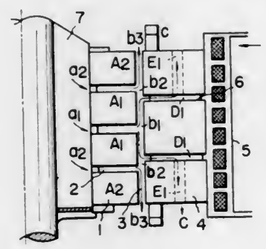
The stator elements are also provided with a structure and members to provide a large magnetic attractice force so that a large output torque is obtainable from the electric pulse motor.

3,784,851

VENTILLATING ARRANGEMENT FOR DYNAMO-ELECTRIC MACHINES

Hisashi Fujii, Kawasaki, Japan, assignor to Fuji Denki Seizo Kabushiki Kaisha, Kawasaki-shi, Japan

Filed Feb. 24, 1972, Ser. No. 228,875
Claims priority, application Japan, Mar. 3, 1971, 46/11187
Int. Cl. H02k 9/00
U.S. Cl. 310—58 **1 Claim**



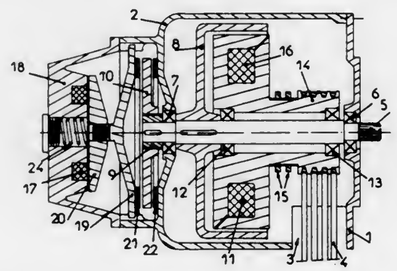
A dynamo-electric machine of the natural ventillation type having no forced cooling nor any fan means to increase cooling of the machine utilizes fan-action caused by the rotation of the rotor whereby cooling air sucked into the rotor space provided by a rotor-spider is generally discharged, through radial ducts in the rotor into the machine air gap and finally axially through the machine air gap. Where very high rotational speeds are involved such as in high frequency generators, in order to reduce excessive windage losses caused by all the cooling air discharging axially through the machine air gap, the dynamo-electric machine stator is provided with independent duct systems comprising stator radial ducts in communication with the rotor radial ducts and stator axial ducts in communication with the stator radial ducts so as to substantially divert the cooling air discharge from the machine air gap into and through the stator, thereby reducing windage losses. The stator may be provided with an additional annularly surrounding cooling arrangement.

3,784,852

SPEED SELECTOR, IN PARTICULAR FOR CRANES OR HOISTING GEARS

Jean Noly, La Clayette, France, assignor to Potain, Val de Marne, France

Filed Aug. 1, 1972, Ser. No. 276,953
Claims priority, application France, Aug. 5, 1971, 7129485
Int. Cl. H02k 49/02
U.S. Cl. 310—105 **5 Claims**



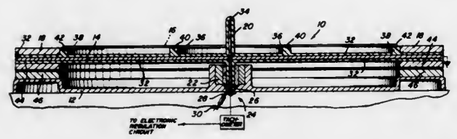
The invention relates to a speed selector. The belts drive the inductor of an eddy-current clutch. When the latter is energized together with the yoke, which puts off the brake against the action of the spring, the shaft is caused to rotate. The speed variation is obtained by varying the current intensity in the inductor.

3,784,853

HOMOPOLAR MOTOR FORMING A SOUND RECORD SUPPORT

Peter A. A. Wangsness, 5035 E. Scarlett, Tucson, Ariz.

Filed May 3, 1972, Ser. No. 250,019
Int. Cl. H02k 31/00
U.S. Cl. 310—178 **7 Claims**



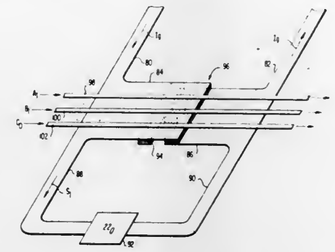
A sound record moving device for a sound recording and reproducing apparatus has a base member and a turntable mounted for rotation on the base member. The turntable is constructed from an electrically conductive material. A magnet is arranged near the periphery of the turntable, and a device in contact with the turntable feeds a current thereto. The turntable, magnet, and current feeding device are arranged cooperatively to form a homopolar motor, with the turntable functioning as the armature of such motor.

3,784,854

BINARY ADDER USING JOSEPHSON DEVICES

Dennis J. Herrell, Somers, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,812
Int. Cl. H03k 17/80, 19/10
U.S. Cl. 307—212 **9 Claims**



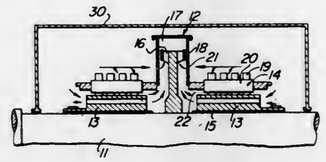
A binary adder using Josephson devices for the sum and carry gates is disclosed. A gating current I_{g1} is applied to a Josephson device operating as a sum gate, and a gating current I_{g2} is applied to a Josephson device operating as a carry gate. Each of said Josephson devices switches from $v = 0$ to $v \neq 0$ when the control current applied thereto lowers the critical gating current below the applied gating currents i_{g1} and I_{g2} respectively. The binary bits to be added, A, B, and Carry, C, from the prior stage, are applied to the Josephson devices as control currents I_x. The sum gate switches to $v \neq 0$, corresponding to a sum bit output, S, when the total control current is I_x or $3I_x$. The carry gate switches to $v \neq 0$, corresponding to a carry bit output, C, when the total control current is $2I_x$ or $3I_x$.

3,784,855

DEVICE FOR COOLING THE COLLECTOR PORTION OF A ROTARY ELECTRIC MACHINE

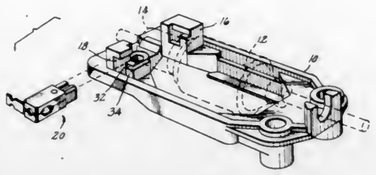
Shoji Motegi, Hitachi; Norihiro Oki, Katsuta, and Sadao Mito, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 1, 1971, Ser. No. 185,744
Claims priority, application Japan, Oct. 5, 1970, 45/86633
Int. Cl. H02k 9/28
U.S. Cl. 310—227 **2 Claims**



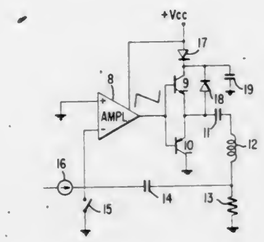
A device for cooling the collector portion of a rotary electric machine, including a brush adapted to be pressed with a predetermined pressure against a collector ring which is provided on a rotor shaft in such a manner as to rotate with the rotor while being in sliding engagement with the brush, the sliding portion being adapted to be cooled with a forced flow of cooling air, wherein the cooling air is made to flow in substantially the same direction as that in which the brush is compressed, whereby improved current flow characteristics can be established between the collector ring and the brush.

3,784,856
BRUSH HOLDER ASSEMBLY
Charles F. Preston, Brockport, N.Y., assignor to General Electric Company, Bridgeport, Conn.
Filed July 31, 1972, Ser. No. 276,675
Int. Cl. H02k *13/00*
U.S. Cl. 310—239 **10 Claims**



The invention is a motor brush holder assembly including a tubular holder member and a brush member freely slidable in the holder with spring means between the two biasing them apart. One of the members, generally the brush, has longitudinal surface groove means part of its length and terminating short of the brush end to form a stop. The other holder member has a fixed projecting means for slidable reception in the groove and the holder is deformable so the brush can be inserted past the stop so the brush is freely slidable in the holder and the stop prevents separation from the holder unless it is deformed. Thus, the entire assembly is preassembled for later use in the motor frame and only the actual functional parts alone form the preassembly.

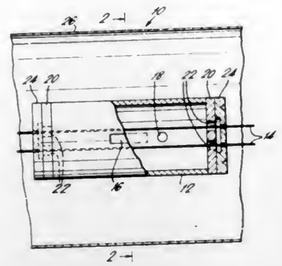
3,784,857
TELEVISION DEFLECTION CIRCUIT WITH LOW POWER REQUIREMENT
Todd J. Christopher, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Aug. 16, 1972, Ser. No. 281,191
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **9 Claims**



A deflection circuit in which the retrace pulse rises above the circuit supply voltage and which pulse is recovered for providing energy for the deflection circuit.

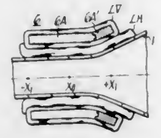
3,784,858
ION SOURCES
Joseph Franks, 26 Hamilton Rd., Ealing, London, England
Filed Nov. 24, 1972, Ser. No. 309,179
Int. Cl. H01g *17/16*
U.S. Cl. 313—63 **13 Claims**

An ion source comprising a right-circular cylindrical cathode having two anode rods extending through the cylinder and symmetrically disposed about its axis. An ion beam outlet aperture is formed in the cylindrical wall of the cathode, and



an inlet is provided in the cathode for introducing a gas therein.

3,784,859
DEFLECTION YOKE FOR USE ON CATHODE RAY TUBE
Minoru Morio, and Yoriyoshi Awata, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Apr. 18, 1972, Ser. No. 245,231
Claims priority, application Japan, Apr. 20, 1971, 46/30640
Int. Cl. H01j *29/70*
U.S. Cl. 313—75 **3 Claims**



A color picture tube deflection yoke having a core made in part from a material whose magnetic permeability is temperature sensitive to shift the deflection center of the yoke and thereby compensate for beam mislanding resulting from thermal expansion of the screen mask.

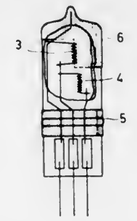
3,784,860
IMPROVEMENTS IN AND MOUNTINGS FOR RADIATION DETECTING DEVICES
Franklin H. Cocks, Waltham, and Herbert E. Bates, Sudbury, both of Mass., assignors to Tyco Laboratories Inc., Waltham, Mass.
Filed Sept. 29, 1971, Ser. No. 184,704
Int. Cl. H01j *39/30*
U.S. Cl. 313—93 **21 Claims**



Improved gas discharge radiation detecting devices have long life spans under severe environmental conditions and

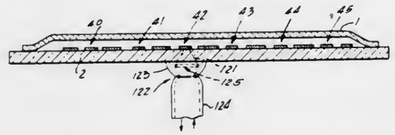
under high vibration. A first, tubular electrode surrounds a second, elongated wire electrode with a hermetically sealed gas ionization chamber therebetween. A pair of electrode mounting means mount and tension the wire electrode through friction joints to provide sufficient tension to prevent electrical failure under severe vibration conditions. It has been found that electrical failure of such devices can be caused by vibration conditions which damage a protective surface oxide of the wire electrode and that proper mounting can eliminate such damage thereby greatly prolonging useful life.

3,784,861
LAMP WITH OPAQUE SCREEN
Victor Rosallie Notelteirs, and Jan Goorissen, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Division of Ser. No. 805,309, March 7, 1969, abandoned. This application Feb. 25, 1971, Ser. No. 119,021
Int. Cl. H01j *5/08, 61/40;* **H01k** *1/26*
U.S. Cl. 313—117 **5 Claims**



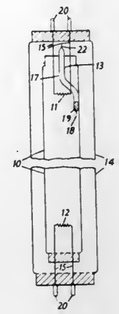
A halogen incandescent lamp having on a portion of the bulb a black opaque coating of silicon and silicon dioxide.

3,784,862
METHOD AND APPARATUS FOR ELECTRON TUBES
Araki Yoshitoshi, Yokohama; Yzuru Yanagisawa, Fujisawa, and Akira Nakayama, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Sept. 7, 1971, Ser. No. 178,089
Claims priority, application Japan, Sept. 11, 1970, 45/91099
Int. Cl. H01k *1/52;* **H01j** *7/18, 17/26*
U.S. Cl. 313—174 **4 Claims**



Method and apparatus for accomplishing the getter treatment in an electron tube which has a small volume and wherein the getter holder and material is mounted in the tip-off tube through which the envelope of the electron tube is evacuated thus utilizing the volume of the getter tube rather than the volume of the electron tube to contain the getter holder and the getter material. The method and apparatus is particularly useful with indicator display tubes which utilize conductive segments of the cathodes and anodes mounted in a common plane and which are covered by a cover envelope such that the volume within the tube is relatively small. The air is removed from the tube through the tip-off tube and the ionized gas is inserted into the tube through the tip-off tube and the getter treatment is performed in the tip-off tube so as to absorb molecules of the non-noble and residual gases within the electron tube.

3,784,863
VAPOUR DISCHARGE LAMPS
Kenneth Scott, Lane, England, assignor to Thorn Electrical Industries Limited, London, England
Filed Jan. 11, 1973, Ser. No. 322,745
Int. Cl. H01j *61/24*
U.S. Cl. 313—174 **4 Claims**

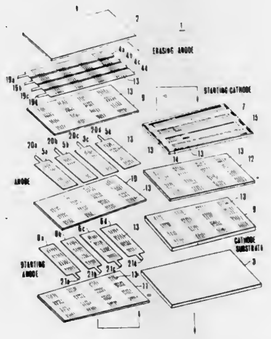


The invention relates to improvements in low-pressure vapour discharge lamps, for example sodium vapour discharge lamps.

According to the invention a discharge tube for such a lamp is provided with an exhaust tube which extends into the discharge tube. The exhaust tube is closed at its tip within the discharge tube and is adapted to constitute a reservoir for vapourisable substance, such as sodium. Communication between the reservoir and interior of the discharge tube is provided by an aperture in the wall of the exhaust tube.

In lamps made with such discharge tubes, the reservoir helps to ensure even distribution of vapour within the discharge tube, thereby improving the intensity and uniformity of light emitted by the lamp.

3,784,864
COLD CATHODE DISCHARGE DISPLAY APPARATUS MANIFESTING MEMORY ACTION
Rentaro Sasaki; Akinori Watanabe, both of Takasaki; Tatsuo Ogasawara, Tokyo; Satoshi Watanabe, and Hidetoshi Sogabe, both of Gyoda, all of Japan, assignors to Oki Electric Industry Company Ltd., Minato-ku, Tokyo, Japan
Filed Sept. 29, 1972, Ser. No. 293,574
Claims priority, application Japan, Sept. 30, 1971, 46-76702
Int. Cl. H01j *61/06*
U.S. Cl. 313—217 **5 Claims**



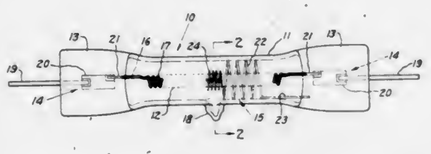
In a cold cathode display apparatus of the class comprising a plurality of opposed electrodes and a transparent envelope

containing the electrodes and filled with a luminous inert gas, there are provided a plurality of display units in the envelope. Each display unit comprises a plurality of first electrodes, a plurality of second electrodes, insulator spacer means disposed between the first and second electrodes, the spacer means being provided with a plurality of perforations which define independent discharge cells between the first and second electrodes, a plurality of starting anode electrodes respectively contained in the discharge cells, a plurality of starting cathode electrodes respectively contained in the discharge cells, a plurality of resistors respectively connected to the second electrodes and a plurality of erasing electrodes disposed near the first electrodes. The plurality of display units are arranged in the direction of lines, the erasing electrodes of respective display units are arranged in the direction of lines, and the first electrodes and the starting anode electrodes of respective display units are arranged in the direction of columns. The starting cathode electrodes and the second electrodes of respective display units are arranged in the direction of both lines and columns.

3,784,865
FILAMENT SUPPORT

Bruce E. Shanks, Wickliffe, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 4, 1972, Ser. No. 223,433
Int. Cl. H01j *1/98, 19/52;* **H01k** *1/24*
U.S. Cl. 313—274 **1 Claim**



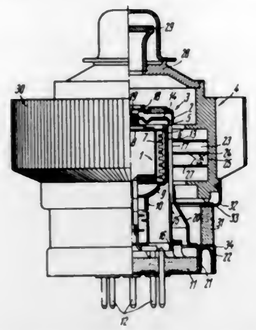
A wire support for the coiled-coil filament of a tubular incandescent lamp having a pinch seal in which the wire support is formed with two transverse helical sections of several turns each with the sections having different diameters, the one of smaller diameter receiving the filament and the one of larger diameter engaging the inner wall of the envelope, the support being provided with a longitudinal tail section sealed in the press. In assembly, the helical section of larger diameter is twisted to reduce its diameter to enable passing the envelope over the wire support.

3,784,866
ELECTRON TUBE HAVING CHAMBER ANODE STRUCTURE

Valery Nikolaevich Manyafov, Grazhdansky prospekt, 15 korpus 4, kv. 93; Anatoly Ivanovich Busheev, Kolomenskaya ulitsa, 27, kv. 14; Roman Lvovich Semenov, prospekt Engelsa, 60, kv. 7, and Valery Alexeevich Klevtsov, Apraxin pereulok, 21, kv. 69, all of Leningrad, U.S.S.R.

Filed July 7, 1972, Ser. No. 269,818
Int. Cl. H01j *21/14*
U.S. Cl. 313—299 **1 Claim**

An electron tube is disclosed having at least one grid positioned between the cathode and the chamber anode with the chambers thereof formed by fins arranged parallel to one another and perpendicularly to the anode surface opposite the



cathode. Each chamber is of a width given by the following formula:

$$b = 2\sqrt{\frac{\Delta U_{min}}{U_a}}\,(U_a)^{3/4}\cdot\frac{1}{\sqrt{j\left[1-\frac{1}{ch\left(1.58\frac{a}{b}\right)}\right]}},$$

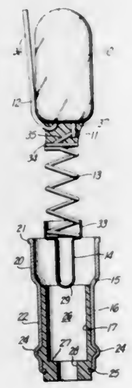
where

b = width of the chamber,
U_a = anode voltage other than zero,
ΔU_{min} = a difference between anode voltage U_a and the minimum chamber potential, i.e., a potential drop in the chamber,
j = average density of the maximum anode current which flows via a surface passing through the centre of the chamber perpendicularly to its lateral inserts,
ch = hyperbolic cosine,
a = depth of the chamber.

3,784,867
LAMP

James N. Dupree, Los Angeles, Calif., assignor to Dupree, Inc., South El Monte, Calif.

Filed Oct. 6, 1972, Ser. No. 295,669
Int. Cl. H01j *5/45, 5/50*
U.S. Cl. 313—318 **2 Claims**



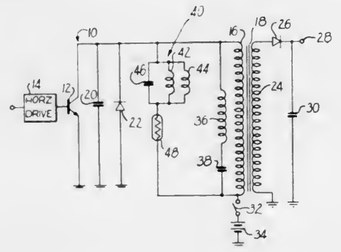
A lamp having a bulb fixed in the housing and a moving socket engaging pin spring loaded to an extended position. A

housing with an inner insulating sleeve molded in place in an outer metal sleeve with a cup-shaped conductor pin retained by the housing and receiving a spring welded to a bulb lead, with the spring-bulb lead connection encapsulated and with the bulb cemented in the housing with the other lead spot welded to the outer sleeve.

3,784,868
DEGAUSSING CIRCUIT FOR PORTABLE TELEVISION COLOR PICTURE TUBE

Kinya Shinkai, Yokohama; Yoshitaka Abe, Tokyo, and Masato Izumisawa, Yokosuka, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 20, 1972, Ser. No. 299,435
Claims priority, application Japan, Oct. 28, 1971, 46/100456 (utility model)
Int. Cl. H01f *13/00*
U.S. Cl. 315—8 **6 Claims**

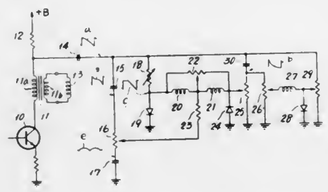


A degaussing circuit for demagnetizing a color video tube in a portable television receiver in which the degaussing coil current is supplied through a thermistor from the horizontal output circuit of the portable television receiver.

3,784,869
VERTICAL CONVERGENCE CIRCUIT

Michiaki Takahashi, Iwai, Japan, assignor to Victor Company of Japan, Ltd., Karagawa-ken, Japan

Filed Mar. 24, 1972, Ser. No. 237,679
Claims priority, application Japan, May 29, 1971, 45-18596; June 3, 1971, 45-39124; July 8, 1971, 45-50464; July 8, 1971, 45-50465; July 19, 1971, 45-53736
Int. Cl. H01j *29/50*
U.S. Cl. 315—13 C **13 Claims**

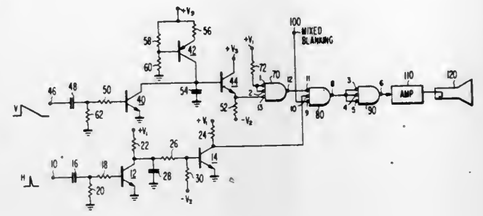


A vertical convergence circuit comprises a single saw-tooth waveform voltage source in a vertical deflection circuit, a variable resistor for regulation of the amplitude of a parabolic current which applies a saw-tooth waveform voltage to one terminal of a convergence coil circuit, and a variable resistor for tilt regulation of a parabolic current which applies a pulsive voltage obtained by differentiating a saw-tooth waveform voltage to the other terminal of the convergence coil circuit.

3,784,870
PROTECTION CIRCUIT

Denis Peter Dorsey, Levittown, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,280
Claims priority, application Great Britain, Apr. 24, 1972, 19,017/72
Int. Cl. H01j *29/70*
U.S. Cl. 315—20 **6 Claims**

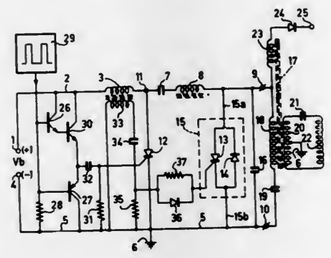


The circuit of the invention operates in conjunction with an imaging transducer to sense the loss of applied horizontal or vertical deflection signals, and to respond to such loss by changing the bias voltage on the transducer in a direction to turn "off" its electron beam.

3,784,871
CIRCUIT ARRANGEMENT FOR GENERATING A SAWTOOTH CURRENT THROUGH A DEFLECTION COIL

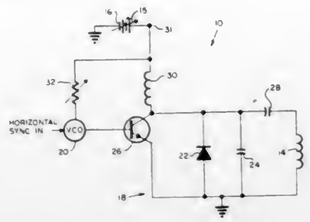
Pierre Vacher, St-Germain-en-Laye, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 13, 1972, Ser. No. 243,639
Claims priority, application France, May 4, 1971, 7116044
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **6 Claims**



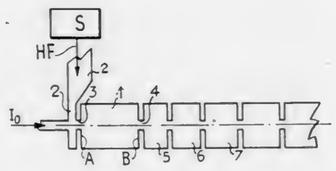
A circuit arrangement for generating a sawtooth current through a deflection coil including two switches. The series network of an inductor and a capacitor is arranged between the two switches, while a second inductor is arranged between the supply source and a junction of one switch and the series network. The network constituted by the two inductors and the capacitor has a resonant frequency which is preferably between 0.5 and 0.8 times the repetition frequency of the saw-tooth current (the line frequency) and the said switch is a unipolar switch (a thyristor).

3,784,872
SCAN DEFLECTION CIRCUIT DEVICE
Donald N. James, St. Paul, Minn., assignor to Ball Brothers Research Corporation, Boulder, Colo.
Filed Sept. 2, 1971, Ser. No. 177,242
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **9 Claims**



A circuit device for use in a multi-line rate image reproducing assembly such as, for example, a video monitor is disclosed herein. The device, which permits changing the line rate of the assembly without changing the horizontal dimensions of the reproduced image and which in normal operation requires only a single adjustment control for acheiving this end, includes circuitry connected with the adjustment control and responsive to a selected voltage level supplied from a source for producing, across the horizontal deflection coil of the image reproducing assembly, a scan deflection signal having both its peak amplitude and frequency of occurrence dependent upon the selected voltage level. A linear voltage controlled oscillator is provided and cooperates with the voltage source and single adjustment control for changing the deflection signal's frequency of occurrence without changing it peak-to-peak amplitude.

3,784,873
DEVICE FOR BUNCHING THE PARTICLES OF A BEAM, AND LINEAR ACCELERATOR COMPRISING SAID DEVICE
Dominique Tronc, and Hubert Leboutet, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Oct. 22, 1971, Ser. No. 191,763
Claims priority, application France, Oct. 30, 1970, 70.39261
Int. Cl. H01j *25/10*
U.S. Cl. 315—5.41 **5 Claims**

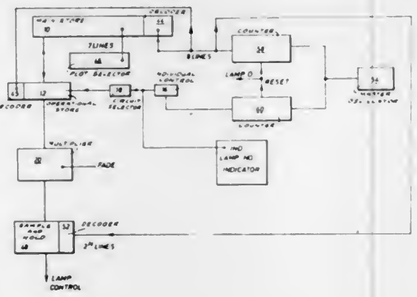


The bunching device in accordance with the invention is essentially constituted by a cylindrical cavity resonator, which advantageously replaces the conventional device encountered in linear accelerators, including a velocity-modulation cavity for modulating the particles and a drift space for bunching said particles.

The length of this bunching cavity is associated with the velocity of the particles in said cavity and with the operating frequency of the accelerator.

A device of this kind, which is of small size and low cost, renders unnecessary the conventional control of amplitude and phase of the signals which are injected into the bunching device and the accelerator structure, which are coupled in a direct manner. Furthermore, it enables operation to be carried out under conditions of heavy current, whilst achieving good efficiency.

3,784,874
LIGHTING CONTROL SYSTEMS
James Howard Barrett, London, and Jack Kelleher, Wembley, both of England, assignors to Dynamic Technology Limited, Wembley, England
Filed Dec. 23, 1971, Ser. No. 211,509
Int. Cl. H05b *37/02, 39/06*
U.S. Cl. 315—294 **16 Claims**



Lighting control apparatus for controlling the brightness of a group of (typically 256) lamps in which a number of (typically 128) lighting plots comprising brightness control information are transferred in turn from a main store to an operational store and which includes time-division-multiplex means for controlling the brightness of the lamps in the group in accordance with a lighting plot in the operational store. Embodiments are described which include an "action" operational store and a "standby" operational store and means which may be manual or automatic for cross-fading control of the brightness of lamps from the action to the standby store, which is then designated the action store.

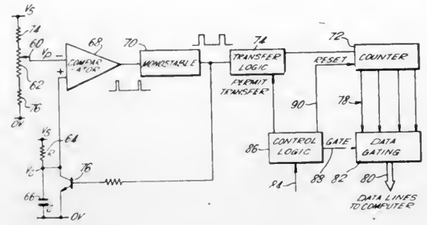
Lighting plots are built up in an operational store by storing brightness information for each individual lamp and transferring light plots to the main store.

3,784,875
STAGE LIGHTING CONTROL UNITS
David Keith Baker, Farnham; Ronald Charles Eason, East Ewell; Richard Melville Gascoigne, Kingston-upon-Thames, and Andrew Schryver, Hartley Wintney, all of England, assignors to The Rank Organisation, Limited, London, England
Filed May 8, 1972, Ser. No. 251,272
Claims priority, application Great Britain, May 7, 1971, 13748/71
Int. Cl. H05b *37/00*
U.S. Cl. 315—294 **9 Claims**

A lighting control apparatus for stage lighting and the like in which lighting values are stored and handled entirely by digital techniques, the apparatus being based on a general-purpose digital computer.

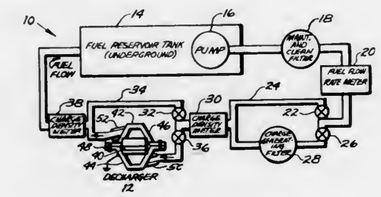
The invention also provides a novel method of controlling crossfades from one lighting state to another which is

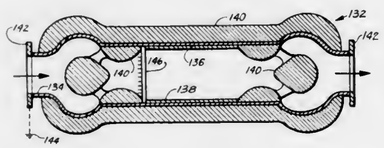
economical in its demands on data handling capacity, since it operates by defining the required changes as a given number



of increments thus permitting further control to be by means of addition and subtraction only. A novel clock circuit for use in this incremental cross-fading is described.

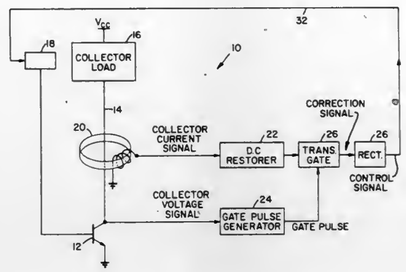
3,784,876
STATIC DECHARGER
Alexis Neal De Gaston, Orange, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Apr. 17, 1972, Ser. No. 244,698
Int. Cl. H05f *3/02*
U.S. Cl. 317—2 R **18 Claims**





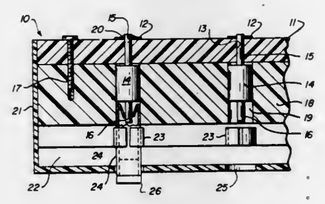
Electrostatically charged nonconducting fluid is rendered temporarily conductive by subjecting the fluid to ionizing radiation of selected radioactive material. Ion pairs are created by the radiation and a predetermined density of ions is produced whereby the fluid is made sufficiently conductive so that it practically cannot hold a charge. While conductive, any acquired charge is free to drain to ground. A volume ionizing embodiment of the invention includes radioactive material disposed in a grounded grating configuration through which the fluid flows and is ionized, and any fluid charge is largely drained to ground through the grating. In another version of the invention, a laminar ionizing embodiment includes radioactive material disposed in a sleeve configuration through which the fluid flows and an adjacent layer of fluid having an opposite charge to its fluid core is produced, and charge neutralization is achieved by subsequent mixing of the fluid layer and core.

3,784,877
RF POWER TRANSISTOR SECONDARY BREAKDOWN PROTECTION CIRCUIT
David Cowell, Webster, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed June 5, 1972, Ser. No. 259,564
Int. Cl. H02h *7/20*
U.S. Cl. 317—33 R **10 Claims**



A protection circuit for RF power transistors to prevent secondary breakdown includes gate means to monitor both the collector current and collector voltage. A gate pulse generated each time the collector voltage exceeds a preset value is used to gate a wave form derived from the transistor collector current. When the current wave form is in phase with the gate pulse and is of sufficient amplitude, the gate means provides a controlled voltage to bias off the transistor power supply for purposes of reducing the output power to safe operating levels.

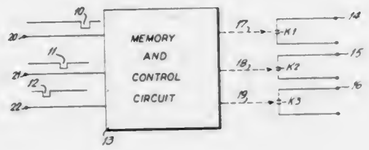
3,784,878
MATRIX ASSEMBLY
John P. Neu, Berkeley, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed July 6, 1972, Ser. No. 269,346
Int. Cl. H05k *1/04*
U.S. Cl. 317—101 CE **10 Claims**



A matrix assembly comprised of a plurality of electrical components (diodes) having one lead or electrical connector thereof permanently or semi-permanently attached to a printed circuit board and in electrical contact with the printed circuit conductors on it. The electrical components are disposed and retained within openings extending through a spacer, in a fashion such that the other lead or electrical connector thereof functions as a plug to receive a contact pin receptacle. The openings in the spacer function to support the electrical components and to guide the contact pin receptacles into engagement with the electrical connectors of the electrical components. In this fashion, an electrical path may be readily made, or interrupted, to program or encode the matrix circuit, by simply affixing an electrical component into

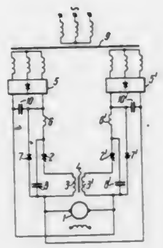
the appropriate ones of the openings in the spacer and electrically connecting the one lead thereof. Upon being plugged into the contact pin receptacles, the electrical interconnections are established. The contact pin receptacles can be affixed to another support member such as, for example, another printed circuit board.

3,784,879
RELAY MEMORY CIRCUIT
William J. Dukette, Washington Township, N.J., assignor to American Associated Cybernetics, Inc., New York, N.Y.
Filed July 27, 1972, Ser. No. 275,527
Int. Cl. H01h 47/00
U.S. Cl. 317—136 11 Claims



A circuit comprised of a plurality of relays, all of which are connected in parallel. The energization of any one relay automatically deenergizes and unlatches any previously latched relay.

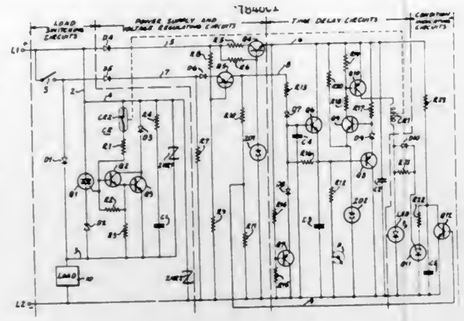
3,784,880
APPARATUS FOR EFFECTING PULSE-WISE CONTROL OVER A DIRECT CURRENT MOTOR
Vladimir Ivanovich Stakhno, Dnepropetrovsk, U.S.S.R.
Filed Aug. 2, 1971, Ser. No. 168,127
Int. Cl. H02k 29/00
U.S. Cl. 318—138 4 Claims



Systems for effecting control over direct-current electric drives, and, more particularly, to pulse-type control means included into the circuits of the armature windings of motors.

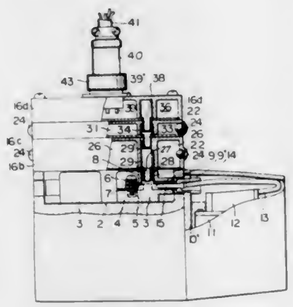
Apparatus for effecting pulse-wise control over a direct-current motor, consists in connecting the winding of the armature of the motor in parallel with two opposing rectifiers through limiting saturation chokes, thyristors and power diodes, the thyristors being electrically connected to each other through a two-windings transformer and capacitor means, the inputs of the recrifiers being connected to the secondary windings of the supply transformer.

3,784,881
OFF-DELAY TIMING APPARATUS
Lawrence E. Van Horn, Greendale; William H. Elliot, Whitefish Bay, and Russell P. Schuchmann, Racine, all of Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.
Filed Oct. 10, 1972, Ser. No. 298,429
Int. Cl. H03k 17/28, 17/66, 17/74
U.S. Cl. 317—141 S 10 Claims



A device for supplying current to a load from a relatively wide range of D.C. and A.C. voltage sources, and affording time delay-OFF mode of deenergization upon opening of a selector switch. An electric illuminous indicating device provides indication of steady state and time delay-OFF modes of operation by steady and blinking illumination conditions. Provision is made to prevent improper operation of the device when the leakage current resistance shunting the open selector switch circuit exceeds, for example, 40,000 ohms. Unwanted operation due to transient voltage and current conditions is provided by extensive use of suppression and blocking devices.

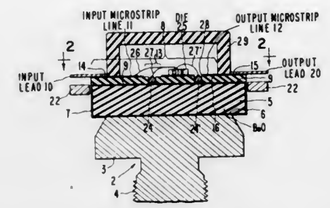
3,784,882
SOLENOID ASSEMBLY
Hideo Niwa, Nagoya, Japan, assignor to Yuken Kogyo Limited, Kanagawa-ken, Japan
Filed Sept. 27, 1972, Ser. No. 292,512
Claims priority, application Japan, Sept. 30, 1971, 46/76680
Int. Cl. H01h 47/02
U.S. Cl. 317—157 8 Claims



In a solenoid assembly of the type wherein a solenoid coil is connected to an external conductor, through a terminal connector there are provided an insulation substrate including a connector connected to the external conductor and a contact piece spaced apart therefrom and connected to the coil, and a plurality of contact plates adapted to be selectively combined with the insulation substrate. The contact plates are provided

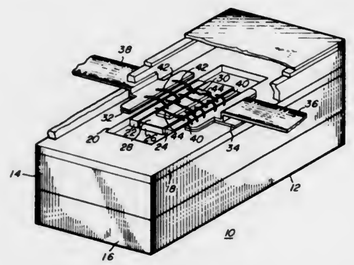
with circuit elements of different type, each circuit element bridging the connector and the contact piece when a selected contact plate carrying the circuit element is combined with the insulation substrate.

3,784,883
TRANSISTOR PACKAGE
David M. Duncan, San Francisco and Joseph H. Johnson, Sunnyvale, both of Calif., assignors to Communications Transistor Corporation, San Carlos, Calif.
Filed July 19, 1971, Ser. No. 163,981
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 6 Claims



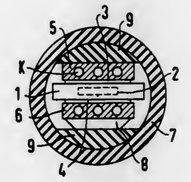
In a transistor packaging having an input, an output and a common lead, the common lead includes a pair of terminal strip portions disposed on opposite sides of the transistor die. An array of generally parallel common connector wires interconnect both of the common lead terminal strip portions and one of the base or emitter electrode structures on the transistor die. The other one of the emitter or base electrode structures is connected to the input lead via the intermediary of an array of wires interdigitated with the array of common connector wires. In this manner, the common lead inductance of the transistor package is reduced resulting in improved gain and/or r.f. stability of the transistor.

3,784,884
LOW PARASITIC MICROWAVE PACKAGE
Demir S. Zoroglu, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Nov. 3, 1972, Ser. No. 303,466
Int. Cl. H01l 5/00
U.S. Cl. 317—234 R 14 Claims



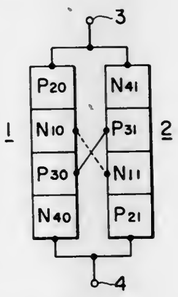
A low parasitic microwave transistor package is provided with a pair of parallel rectangular bonding rails extending from the metal header. A first insulating body having a metal film thereon is positioned closely between the two rails and is attached to the header. A microwave transistor die may be attached to the metal film on the insulating body. A second insulating body having an aperture therein is attached to the metal base, the aperture accommodating the two bonding rails and the first insulating body positioned therebetween. The alumina disk has two metal bonding pads formed thereon. A very low inductance, low resistance connection from the emitter of a transistor to the metal base may be provided by means of a plurality of parallel stitch bonds from the emitter bonding pads on the transistor die to the bonding rails. Balanced feeding may be provided to the emitter, base and collector.

3,784,885
SEMICONDUCTOR ASSEMBLY HAVING SEMICONDUCTOR HOUSING AND CONTACT DISCS DISPOSED WITHIN A TUBE
Erwin Weidemann, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany
Filed Nov. 30, 1972, Ser. No. 310,876
Claims priority, application Germany, Dec. 3, 1971, P 21 60 001.1
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R 10 Claims



A semiconductor arrangement is disclosed for use particularly with thyristors and in which the semiconductor bodies are arranged in disc-shaped housings having cooled electrical connecting elements. The housings and connecting elements are inserted into a tube, which may serve as a protective enclosure to establish a pressure connection and partially to conduct the coolant. By arranging flat contacts at the outside wall of the tube a plug-in component of compact design is obtained.

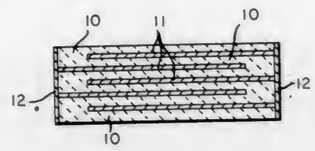
3,784,886
BIDIRECTIONAL SWITCHING SEMICONDUCTOR DEVICE
Kenji Miyata, and Masahiro Okamura, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 25,119, April 2, 1970, abandoned. This application Oct. 3, 1972, Ser. No. 294,577
Claims priority, application Japan, Apr. 4, 1969, 44/25562
Int. Cl. H01l 9/12, 11/10, 19/00
U.S. Cl. 317—235 R 8 Claims



A bidirectional switching semiconductor device comprising a pair of four layer switching semiconductor devices which are

connected in reverse parallel with each other; the base layers of respective devices being electrically connected to each other, thereby improving the turn-on characteristics of the device.

3,784,887
PROCESS FOR MAKING CAPACITORS AND CAPACITORS MADE THEREBY
John Leo Sheard, Williamsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 26, 1973, Ser. No. 354,840
Int. Cl. H01g *1/01*
U.S. Cl. 317—258 **8 Claims**

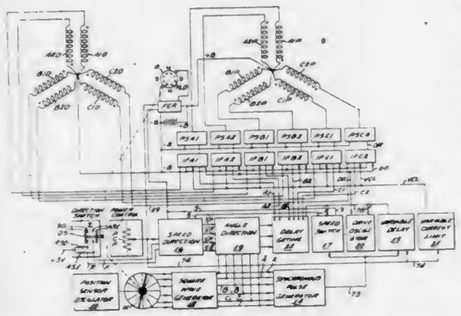


An improved process for making multilayer monolithic capacitors, using metallizations which can be cofired with reactive dielectric materials at elevated temperatures. The metallizations contain critical proportionate amounts of Pt and/or Au and Pd, and optionally Ag. Also the resultant capacitors.

ERRATUM

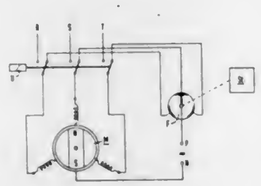
For Class 318—138 see:
Patent No. 3,784,880

3,784,888
CONTROL FOR COMMUTATORLESS MOTOR
Allois F. Geiersbach, Milwaukee, and Frederick A. Stich, Hales Corners, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed June 26, 1972, Ser. No. 266,286
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **52 Claims**



Three stator phase windings of a commutatorless motor are energized from a battery through power transistors. A capacitive rotor position sensor coupled to the motor rotor derives three phase square wave rotor position signals displaced 120° apart at a frequency proportional to motor speed. Three sets of logic gates receive rotor position signals as inputs and control the conduction interval of the transistors. When a motor direction switch is actuated forward, first gates of the three logic sets are opened to enable the transistors during first rotor position signals displaced 120° to generate a clockwise rotating stator field, and when the direction switch is actuated to the reverse position, second gates are opened to enable the transistors during second rotor position signals displaced 180° from the first signals to thereby shift the stator field 180° and thus reverse rotor direction. Third gates of the logic sets are opened when the motor attains a predetermined speed to enable the transistors during rotor position signals shifted 60° from the first signals to thereby vary the motor torque angle. A plurality of timing pulses are generated during each rotor position signal, variable delay means generate delay pulses from the timing pulses after a selectively adjustable time delays the delay pulses open delay gates disposed between the logic gates and the power transistors, and motor speed controlling means vary the time delay between the timing and delay pulses to thereby change the power duty cycle of the power transistors and thus control motor speed and torque.

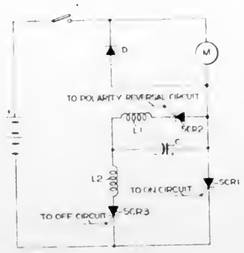
3,784,889
MOTORIZED CONTROL ROD DRIVE
Ulrich Michael, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Continuation-in-part of Ser. No. 870,575, Nov. 20, 1969, abandoned. This application Oct. 1, 1970, Ser. No. 77,097
Claims priority, application Germany, Oct. 4, 1969, P 18 09 845.8
Int. Cl. H02p *1/52*
U.S. Cl. 318—171 **3 Claims**



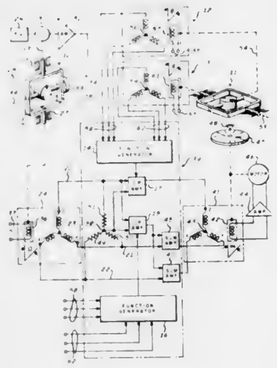
A variable speed drive for nuclear reactor control rods includes a synchronous motor having a permanent magnet rotor and stator pole windings, and means for selectively connecting the stator pole windings to a multiphase rotating current source for relatively rapidly moving the control rod and to a direct current source for stepwise and relatively slowly moving the control rod, the stator pole windings being connectible to the direct current source by the connecting means in a selective sequence and direction and at a selective winding-switching frequency. A blocking device prevents inadvertent upward travel of the control rods at the rapid operating speed.

3,784,890
PULSE CONTROL CIRCUIT FOR A DC LOAD
Allois F. Geiersbach, Milwaukee, and Raymond G. Price, Franklin, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 12, 1972, Ser. No. 314,341
Int. Cl. H02p *5/16*
U.S. Cl. 318—345 **4 Claims**

A circuit for providing controlled pulses of direct current to vary the speed of a direct current motor. A main controlled rectifier applies current to the motor. A commutation circuit consisting of an inductor, a capacitor and another controlled rectifier turns off the main controlled rectifier by reversing its polarity. Another circuit, referred to as a "ring-around" circuit, consisting of another inductor and controlled rectifier reverses the polarity of the commutating capacitor preparatory to the commutation of the main controlled rectifier.

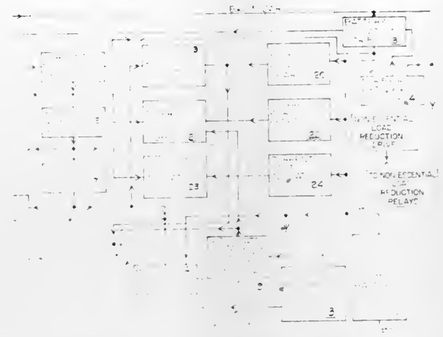


3,784,891
MULTIAXES TWO CYCLE GIMBAL ERROR CORRECTOR
William W. Burmeister, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Jan. 25, 1971, Ser. No. 109,422
Int. Cl. G05b *11/01*
U.S. Cl. 318—633 **23 Claims**



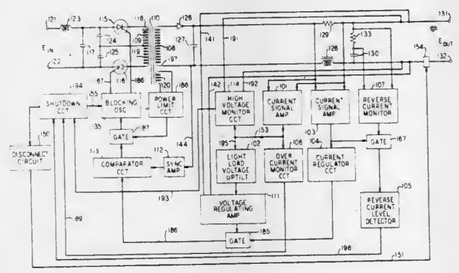
Apparatus for compensating for gimbal error occurring in a directional gyroscopic data transmission system under simultaneous conditions of pitch and roll attitude of the aircraft by the provision of an electrical circuit connected in a three-branch line coupling the gyro transmitter to an electrical receiver at which the output data is produced. The compensating circuit includes a pair of amplifiers connected across one branch of the three-branch line. The signals provided at the outputs of the respective amplifiers are modified in accordance with discrete functions of aircraft pitch and roll attitude, the one amplifier output being connected into the one branch of the line across which the amplifiers are connected while the other amplifier output is coupled into the two additional branches of the line thereby providing the receiver with electrical heading signals compensated for the gimbal error.

3,784,892
BATTERY CHARGING SYSTEM FOR EMERGENCY BATTERY SYSTEMS
William B. Zelina, Edinboro, Pa., assignor to General Systems, Inc., Erie, Pa.
Filed May 20, 1971, Ser. No. 145,388
Int. Cl. H02j *7/06, 7/34*
U.S. Cl. 320—40 **19 Claims**



A completely static battery charging system which recognizes the battery charged state and also the battery operating temperature where a solid state valve is used to isolate the battery from the load; said valve rendered conductive instantly when the load voltage drops below a predetermined value. Means is included for decreasing the charge rate to the float voltage that will maintain full charge on the battery at all temperatures after it has been fully charged. Protective means is included to prevent either battery or system damage should an abnormal battery condition develop, said protective means including individual shorted cells, improper solution level, abnormal battery impedance, and poor electrical connections either in the individual cells or the interconnecting electrical connections.

3,784,893
HIGH VOLTAGE SHUTDOWN PROTECTION CIRCUIT WITH BIAS ARRANGEMENT TO DECREASE THE VOLTAGE SHUTDOWN POINT WITH INCREASING LOAD
Robert Rando, Brooklyn, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jan. 10, 1973, Ser. No. 322,406
Int. Cl. H02m *1/18*
U.S. Cl. 321—11 **6 Claims**



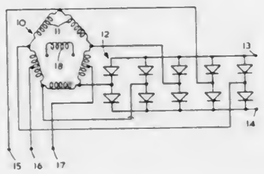
A current and voltage regulated DC to DC converter is designed with protection features to permit its operation in parallel with like DC to DC converters. The features are

designed to assure shutdown protection against overcurrent and overvoltage conditions and to assure that each converter will contribute a current to the common load. The protection features include a selective high voltage shutdown to shut down only the converter causing an overvoltage and an overcurrent protection circuit to supersede the normal current regulation in response to a fault condition. A reverse current shutdown circuit protects the common load from faults and short circuits internal to the converter circuit. These protection features permit the converters to operate in parallel without shutting down the entire system should an individual converter malfunction.

3,784,894
ALTERNATORS

Cyril Silvertown, London, England, assignor to Rotax Limited, Birmingham, England

Filed June 5, 1972, Ser. No. 259,795
Claims priority, application Great Britain, June 11, 1971, 27411/71
Int. Cl. H02m 7/44
U.S. Cl. 321—47 **3 Claims**

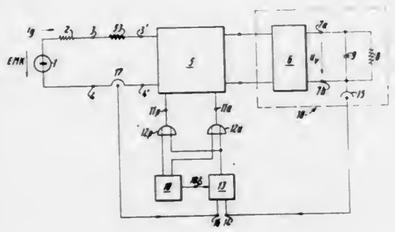


An electrical power supply system comprising an alternator having a closed output winding divided into at least five phase windings and including an equal number of pairs of diode rectifiers for producing a d.c. output. Tappings are provided on the winding for additionally providing a balanced multiphase alternating current output.

3,784,895
DEVICE FOR CONVERTING THE ELECTRICAL ENERGY OF A THERMIONIC GENERATOR

Manfred Depenbrock, Bochum-Stiepel, Germany, assignor to Brown, Boveri & Cie AG, Mannheim, Germany

Filed Aug. 21, 1972, Ser. No. 282,039
Claims priority, application Germany, Aug. 21, 1971, P 21 42 059.7
Int. Cl. H02p 13/04
U.S. Cl. 322—2 R **4 Claims**

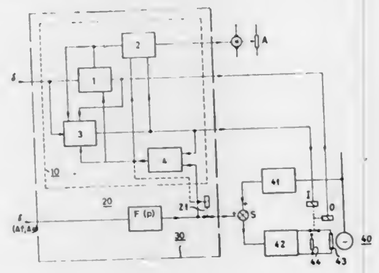


Device for converting electrical energy of a thermionic generator includes a load and a choke for smoothing current produced by the generator, a p-pulse inverter electrically connected between the load and the smoothing choke, the load being of such value that the generator voltage (u_g), is determined by the load voltage (u_r), the inverter includes semiconductor rectifiers, control means electrically connected to the inverter and adapted to cut off the same, at least two of the semiconductor rectifiers being series connected in the current path and being feedable with control signals p times during one period of the inverter output voltage simultaneously for a time interval respectively dependent upon the generator current (i_g) and on the load voltage (re_r).

3,784,896
EQUIPMENT FOR THE AUTOMATIC RESYNCHRONIZATION OF A SYNCHRONOUS GENERATOR

Josip Lakota, Luzern, Switzerland, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland

Continuation of Ser. No. 134,741, April 16, 1971, abandoned.
This application Dec. 22, 1972, Ser. No. 317,766
Claims priority, application Switzerland, Apr. 20, 1970, 5853/70
Int. Cl. H02p 9/44
U.S. Cl. 322—20 **4 Claims**

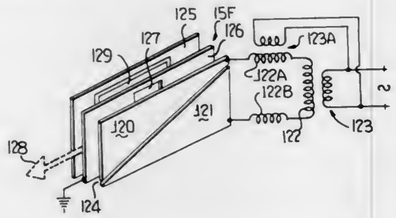


Apparatus for effecting automatic resynchronization of a synchronous generator in the event that it falls out of synchronism includes a stabilization circuit which produces an output signal that correspondingly influences the excitation voltage whenever the slip lies within a range determined by a given relationship between the rated frequency of the generator, the inertia constant of the machine group that includes the generator and the maximum value of the synchronous moment.

3,784,897
CAPACITOR TRANSDUCER

George Ogilvie Norrie, Bromham, England, assignor to Landis Tool Company, Waynesboro, Pa.

Continuation-in-part of Ser. No. 7,187, Jan. 30, 1970, abandoned. This application Feb. 17, 1972, Ser. No. 227,156
Int. Cl. H01g 5/06, 5/12, 5/14
U.S. Cl. 323—93 **19 Claims**



A capacitive transducer in which a pair of exciter electrodes connected to an AC source are disposed in common planes to present a gap. A pick-off electrode is disposed in another plane and extends on either side of the gap. A conductive

screen is interposed between the exciter electrodes and the pick-off electrode and is connected to ground potential so as to block capacitive coupling between the exciter electrodes and the pick-off electrode except as between discrete areas of the exciter electrodes and an opposite area of the pick-off electrode exposed or coupled through an aperture in the screen.

3,784,898
METHOD FOR REDUCING BOREHOLE SIGNALS IN NUCLEAR MAGNETIC LOGGING

Henry C. H. Darley, and Joseph D. Robinson, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

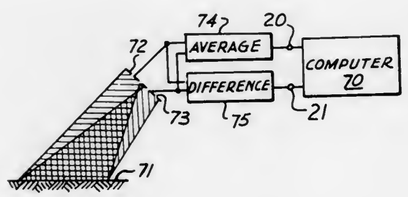
Filed Feb. 16, 1972, Ser. No. 226,988
Int. Cl. G01n 27/78
U.S. Cl. 324—0.5 R **6 Claims**

In a nuclear magnetic logging system a method for reducing the proton free-precession signal emanating from the borehole fluids by replacing the borehole fluid with a fluid containing at least 0.10 lbs/bbl of fluid of magnetized magnetite. The magnetite is first mixed with a fluid to form a concentrated mixture or slurry and the slurry passed through a magnetic field to magnetize the magnetite. The concentrated slurry is then mixed with additional fluid to provide a fluid for use in displacing the borehole fluid.

3,784,899
METAL DETECTION SYSTEM

Gregory T. Chalfin, Pasadena, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed Feb. 26, 1970, Ser. No. 17,986
Int. Cl. G01v 3/12
U.S. Cl. 324—6 **14 Claims**

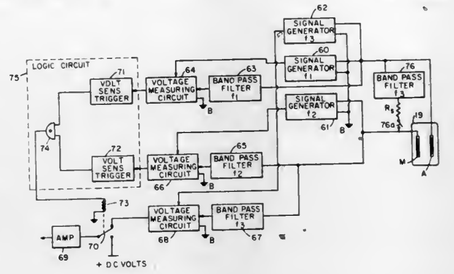


In accordance with the present disclosure, the probability of the presence of metal in a predetermined region is determined by deriving representations of first and second antenna temperatures, each representative of the strength of received microwave signals of different polarizations. The probability of the presence of metal is determined by ascertaining the existance of a change in the antenna temperature of one polarization which is not coincident, in time, with a change in the antenna temperature of the other polarization. One method for ascertaining the probability of the presence of metal resides in deriving a representation of the average of the first and second antenna temperatures and a representation of the difference of the first and second antenna temperatures. A ratio is obtained by dividing the representation of the average of the first and second antenna temperatures by the representation of the difference between the first and second antenna temperatures to determine a representation of the probability of the presence of metal. One feature of the present invention resides in the provision of analog computer means for carrying out the process in accordance with the present invention.

3,784,900
PLURAL FREQUENCY BOREHOLE METHODS AND APPARATUS FOR INVESTIGATING EARTH FORMATIONS

Nick A. Schuster, Darien, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Division of Ser. No. 824,981, May 15, 1969, Pat. No. 3,601,692. This application Jan. 11, 1971, Ser. No. 105,682
Int. Cl. G01v 3/18
U.S. Cl. 324—10 **10 Claims**

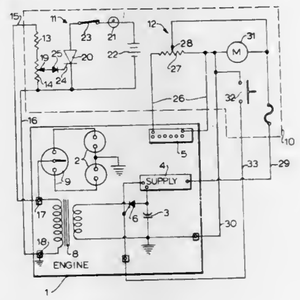


In accordance with illustrative embodiments of the present invention, a well tool having wall-engaging pad members is moved through a borehole. Current is supplied to a current electrode A on each pad member and the resulting potential on a nearby electrode M on each pad member is measured to provide a measure of formation resistivity. A shunt resistor is connected between the A and M electrodes of each pad member and has a resistance value suitable to enable the system to provide reasonably accurate measurements when the A and/or M electrodes fail to make reasonably good electrical contact with the formation. However, when the contact resistance between the A and M electrodes is so bad that genuine resistivity measurements cannot be made, the measuring system will produce very high, off-scale measurement values to indicate such an occurrence. In another embodiment of the invention, the electrodes are energized with current at a plurality of frequencies to enable separate measurements to be made. These measurements when utilized in a desirable manner, can enable a relatively authentic resistivity measurement to be obtained.

3,784,901
CAPACITOR DISCHARGE IGNITION SYSTEM TESTING APPARATUS

Arnold W. Miller, New Berlin, and William D. Larson, Jr., Franksville, both of Wis., assignors to Electro-Specialties, Inc., New Berlin, Wis.

Filed Dec. 22, 1972, Ser. No. 210,842
Int. Cl. G01m 15/00
U.S. Cl. 324—16 R **8 Claims**



A potentiometer with leads interconnects to the conventional 12 volt battery. The potentiometer tap is connected to

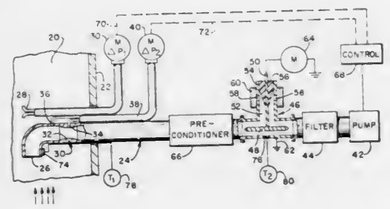
the capacitor charging terminals of a capacitor discharge ignition system with a meter for setting to a selected charging level. A test switch grounds connects the controlled rectifier gate for discharging of the capacitor through the ignition system pulse transformer. A relatively large dropping resistor in series with a low voltage selection potentiometer is connected to the transformer. A self-controlled rectifier has its gate connected to the selection potentiometer tap in series with a diode. An output circuit including a lamp and a low voltage battery responds to the selective triggering of the test rectifier.

3,784,902

APPARATUS FOR SENSING PARTICULATE MATTER

Henry J. Huber, Newton Highlands, Mass., assignor to Ikor Incorporated, Burlington, Mass.

Filed Dec. 8, 1971, Ser. No. 206,084
Int. Cl. G01r 5/28
U.S. Cl. 324—32 2 Claims



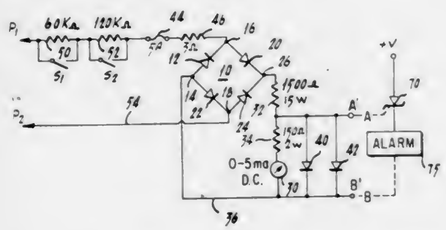
Apparatus for sensing particulate matter in a gas stream and having a sampling probe tube with a Pitot tube for measuring the velocity of the gas stream. A Venturi arrangement is provided inside the probe tube for measuring the velocity of the sample stream taken by the probe, so that the two velocities can be matched to provide isokinetic sampling. The sensor used is a pair of coaxial electrodes and the sensor includes an arrangement for mixing air into the sample stream adjacent the electrodes to minimize deposition of the particulate matter from stagnant volumes of gas.

3,784,903

LEAKAGE DETECTOR FOR DETERMINING POSSIBLE SHOCK HAZARDS TO HUMANS

Lucius Ponder Thomas, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 10, 1970, Ser. No. 88,362
Int. Cl. G01r 31/02, 19/16
U.S. Cl. 324—51 4 Claims



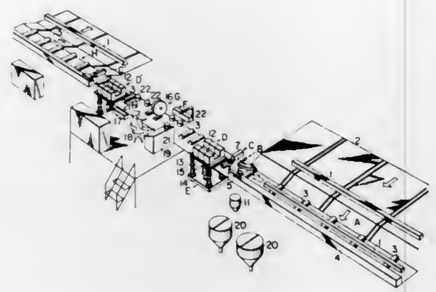
A full-wave rectifier bridge circuit is coupled to a current reading meter by a resistor approximating the body load resistance of a human being. The meter provides an "up scale" indication for electrical sources supplying alternating power or direct current powers of either polarity, and is useful in performing leakage current tests on electrical appliances.

3,784,904

A.C. ENERGIZED MAGNETIC PARTICLE FLAW DETECTOR WITH MEANS TO RAISE AND LOWER ELECTROMAGNETS FROM PATH OF WORKPIECE

Takenobu Suzuki; Buemon Nagashima, both of Tokyo; Masayoshi Inoue, and Yoji Ito, both of Yokosuka City, all of Japan, assignors to Tokushu Toryo Co. Ltd., Tokyo, Japan

Filed Sept. 1, 1970, Ser. No. 68,621
Int. Cl. G01r 33/12
U.S. Cl. 324—38 2 Claims



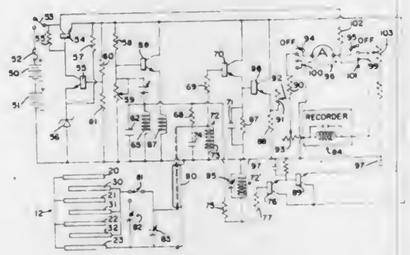
An arrangement for continuous magnetic flaw detection for steel materials comprising spraying magnetic particles suspended in a liquid over a steel material under inspection such as a long square billet while said material is moved just before being magnetized, and magnetizing the particle-sprayed material according to by an alternating magnetic field of a magnetizing device including an alternating current electromagnet without bringing the inspected material into contact with the magnetizing system.

3,784,905

APPARATUS FOR DETERMINATION OF THE DENSITY OF IN-PLACE MATERIALS BY MEASUREMENT OF THEIR DIELECTRIC STRENGTH

Lyman L. Blackwell, Denver, Colo., assignor to Soiltest, Inc., Evanston, Ill.

Continuation-in-part of Ser. No. 110,074, Jan. 27, 1971, abandoned. This application Nov. 29, 1972, Ser. No. 310,588
Int. Cl. G01r 27/26
U.S. Cl. 324—61 QS 3 Claims



An apparatus for measuring the dielectric properties of materials to thereby determine density, weight per unit of volume, thickness or the like. A special application is shown to determine the thickness, weight, roughness and density of bituminous pavement. The instrument includes a plurality of

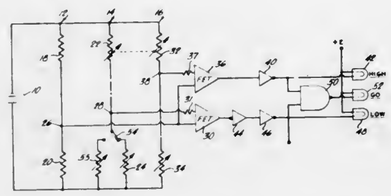
runners, some of which are vertically displaced relative to the others to form a capacitor in a tuned circuit. The instrument is slowly drawn across the surface of the material to be tested and variations in the detuning of the circuit are amplified and recorded whereby the density, thickness or the like can be instantly determined.

3,784,906

BRIDGE HAVING MULTIPLE NULLS

Donald S. Ironside, King of Prussia, Pa., assignor to James G. Biddle Company, Plymouth Meeting, Pa.

Filed Nov. 1, 1971, Ser. No. 194,400
Int. Cl. G01r 27/02
U.S. Cl. 324—62 9 Claims



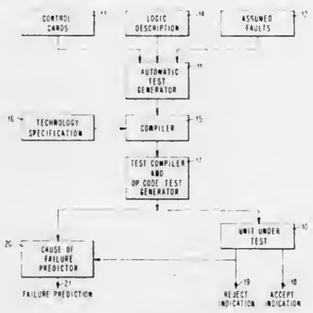
A multiple null bridge has more than two parallel branches, all of the branches being divided into two series portions of predetermined resistance ratio, except the first branch which contains a known resistance and means for connecting an unknown resistance in series with the known resistance. High input impedance d.c. null-detecting amplifiers all have one input terminal connected between the known and unknown resistance in the first branch with the other input terminal of each amplifier being connected between the respective series portions of different ones of the other parallel branches. The amplifiers are of high input impedance type so that they will not load the voltage divider branches in off-null condition.

3,784,907

METHOD OF PROPAGATION DELAY TESTING A FUNCTIONAL LOGIC SYSTEM

Edward Baxter Eichelberger, Purdy Station, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 16, 1972, Ser. No. 298,071
Int. Cl. G01r 27/00
U.S. Cl. 324—57 DE 9 Claims



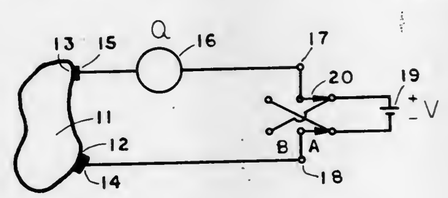
Propagation delay testing is performed on a generalized and modular logic system that is utilized as an arithmetic/logical unit in a digital computer. Each arithmetic/logical unit of a computer is formed of arrangements of combinational logic networks and storage circuitry. The storage circuitry has the capability for performing scan-in/scan-out operations independently of the system input/output and controls. Using this scan capability, the method of the invention provides for the state of the storage circuitry to be preconditioned and independent of its prior history. Selected propagation paths through the system circuitry are sensitized by test patterns from an automatic test generator. By altering selected inputs and cycling controls applied to the networks of combinational logic and their respective associated storage circuitry, propagation delay indications through the selected paths are obtained to determine the status of these path delays through the logic system.

3,784,908

ELECTRICAL CONDUCTIVITY MEASUREMENT METHOD AND APPARATUS

Weston Arthur Anderson, 763 La Para Ave., Palo Alto, Calif.

Filed Apr. 9, 1973, Ser. No. 348,913
Int. Cl. G01r 27/02
U.S. Cl. 324—62 11 Claims



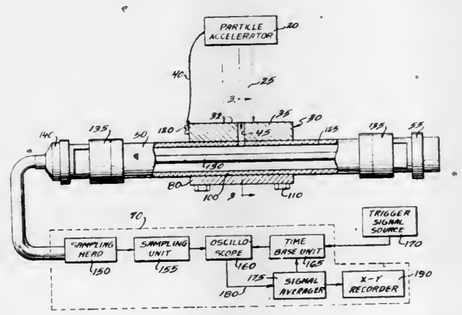
A method and apparatus is disclosed for minimization of the effect of contact potential and polarization at the electrodes while making electrical conductivity measurements of animal tissue samples. A current driven by an alternating polarity voltage source is passed through the sample. The polarity of the voltage source is reversed after a predetermined amount of charge has passed through the sample such that in one complete cycle equal amounts of charge have passed through the sample in opposite directions. The value of the sample conductivity is determined by the frequency of the alternating polarity voltage source.

3,784,909

PICOSECOND BEAM MONITOR

Dale W. Schutt, South Bend, Ind., and Gerhard O. Beck, Berlin, Germany, assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 23, 1973, Ser. No. 325,961
Int. Cl. G01n 27/00
U.S. Cl. 324—71 EB 7 Claims



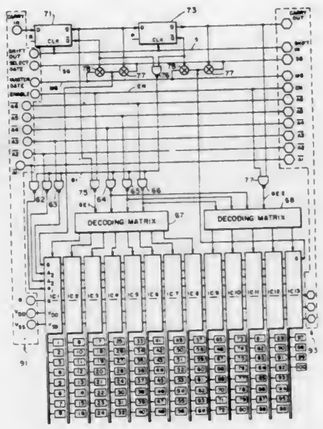
Current in the beam of a particle accelerator is monitored with picosecond resolution by causing the beam to impinge

upon the center conductor of a coaxial line, generating a pulse of electromagnetic energy in response thereto. This pulse is detected by means such as a sampling oscilloscope.

3,784,910
SEQUENTIAL ADDRESSING NETWORK TESTING SYSTEM

Tage Peter Sylvan, Milton, Mass., assignor to Teradyne, Inc., Boston, Mass.

Filed July 13, 1972, Ser. No. 271,268
Int. Cl. G01r *15/12*
U.S. Cl. 324—73 AT **4 Claims**



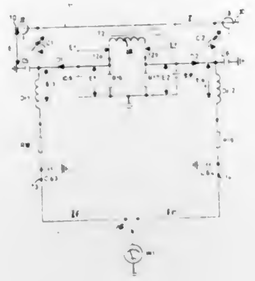
The testing apparatus disclosed herein is adapted to test backplane wiring so as to determine if all desired connections exist and whether any undesired connections may be present. Such backplanes typically comprise a multiplicity of terminal points which may be interconnected in arbitrary manner to form a plurality of networks of connected points. The tester employs an addressable switching and memory unit for each terminal point. When addressed, each point is first connected to a first bus and, when the addressing is terminated, is thereafter connected to a second bus, this second connection being maintained under the control of the memory or latch associated with each switching unit. Prior to being addressed, each point is in effect isolated by the switching unit and allowed to float in potential. As the successive points in a given network are addressed, the system tests for continuity between the first and second buses to determine if the desired connections exist. After all terminal points which should be in the selected network have been latched into connection with the second bus, all remaining points are commonly switched into connection with the first bus. Testing for isolation at this time determines whether any undesired connections affecting the selected network are present.

3,784,911
DIRECTIONAL COUPLER FOR MEASURING FORWARD AND REFLECTED POWER COMPRISING A BORED METAL BLOCK

Sven Ramstrom, Lyckeby, Sweden, assignor to Karlskronavarnet AB, Karlskrona, Sweden

Filed Sept. 20, 1971, Ser. No. 181,775
Claims priority, application Sweden, Sept. 21, 1970, 12806/70
Int. Cl. G01r *21/12*
U.S. Cl. 324—95 **4 Claims**

A directional coupler for measuring forward and reflected power in a high frequency transmission line, said coupler comprising a number of components arranged and fixed in a metal

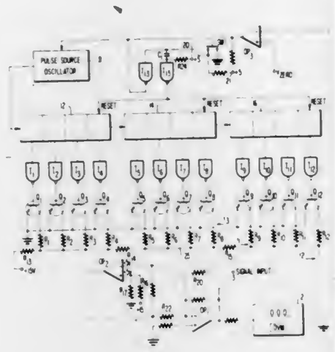


component block provided with bores for the separate components.

3,784,912
AUTOMATIC ZERO DEVICE

Harold R. Van Aken, Livingston Manor, N.Y., assignor to Kollmorgen Corporation, Hartford, Conn.

Filed Aug. 11, 1972, Ser. No. 279,960
Int. Cl. G01r *1/02, 17/06*
U.S. Cl. 324—130 **2 Claims**

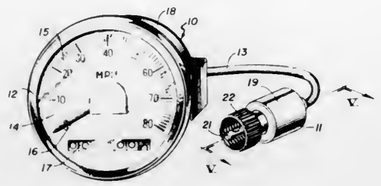


An automatic zeroing device for use with a measuring instrument is described. The device automatically causes the instrument to read a predetermined value, termed the zero value, in response to an input signal, regardless of the value of the input signal. The device is based on a modification of a digital to analog converter in a feedback loop which also includes a summing amplifier, receiving the input signal and a zeroing signal, and a comparator. The digital to analog converter produces the zeroing signal in response to the comparator output.

3,784,913
SPEEDOMETER

Edward Ralph Maass, Auburn, Mass., assignor to Curtis & Marble Machine Co., Worcester, Mass.

Continuation of Ser. No. 171,502, Aug. 13, 1971, abandoned.
This application Apr. 2, 1973, Ser. No. 347,054
Int. Cl. G01p *3/48*
U.S. Cl. 324—173 **3 Claims**

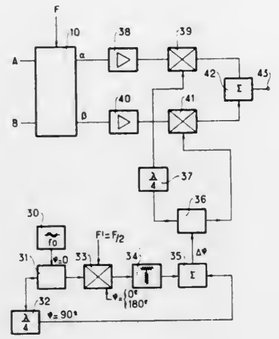


A speedometer having a transmitter to emit electrical pulses and a receiver to receive the pulses, the meter and a motor being connected to the receiver to indicate speed and distance of travel.

3,784,914
MULTI-STEP PHASE SHIFT MODULATOR DEMODULATOR

Claude Aillet, Lannion, France, assignor to Societe Lannionnaise D'Electroniques, Lannion, France

Filed Apr. 28, 1972, Ser. No. 248,729
Claims priority, application France, Apr. 30, 1971, 7115675; Mar. 15, 1972, 7209028
Int. Cl. H04l *27/18;* **G08c** *19/12*
U.S. Cl. 325—30 **18 Claims**



A multi-phase shift modulator-demodulator system employs a pair of pulse trains as the information source for phase modulating a carrier wave. The phase differences between selected bit positions of the pulse trains are employed to modulate the carrier wave through the use of typical ring modulators. In the demodulator phase comparison and delay circuitry is employed to extract the clock frequency for removing the information pulse trains.

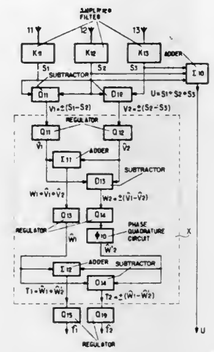
ERRATUM

For Class 325—130 see:
Patent No. 3,784,799

3,784,915
APPARATUS FOR IMPROVING THE SIGNAL-TO-NOISE RATIO OF A RECEIVED SIGNAL

Jacques Oswald, Versailles, and Yves Rainsard, Antony, both of France, assignors to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

Filed June 16, 1971, Ser. No. 153,620
Claims priority, application France, June 16, 1970, 7022111
Int. Cl. H04b *1/06*
U.S. Cl. 325—367 **4 Claims**

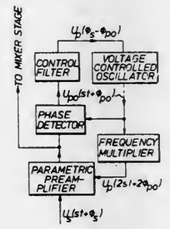


Device for improving the signal/noise ratio of a common signal received on three aerials utilizing correlation between the sum and difference values of combinations of the signals from the three aerials to eliminate or substantially suppress the noise received with the common signal.

3,784,916
COHERENT PHASE RECEIVER CIRCUIT

Robert Maurer, Neureut near Karlsruhe, Germany, assignor to LICENTIA Patent - Verwaltungs - GmbH, Frankfurt am Main, Germany

Filed July 21, 1971, Ser. No. 164,673
Claims priority, application Germany, July 23, 1970, P 20 36 475.4
Int. Cl. H03f *7/00*
U.S. Cl. 325—419 **1 Claim**

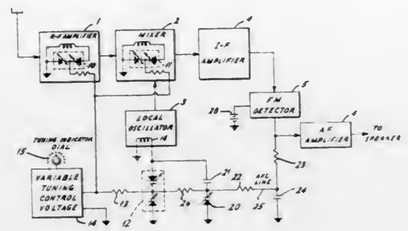


In a coherent phase receiver circuit consisting of a parametric preamplifier, phase detector, voltage-controlled reference oscillator, control filter and a frequency multiplier, the signal-to-noise ratio of the circuit is improved by constructing the preamplifier to be nonreciprocal, preferably in the form of a chain connection of an upconverter and a downconverter with neutralization of the feedback admittance, and by constructing the multiplier to act as a frequency doubler serving to produce the required pump frequency.

3,784,917
CONSTANT LOCK-IN RANGE AUTOMATIC FREQUENCY CONTROL

Roger Y. Kenyon, Hatfield, Pa., assignor to Philco-Ford Corporation, Blue Bell, Pa.

Filed Dec. 15, 1972, Ser. No. 315,493
Int. Cl. H04b *1/16*
U.S. Cl. 325—422 **7 Claims**

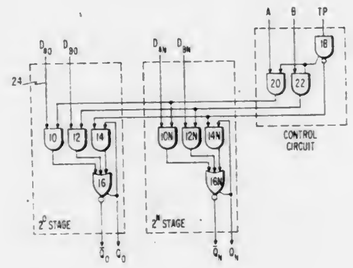


In a voltage variable capacitor tuned superheterodyne receiver, the manual tuning voltage and the automatic frequency control voltage are ordinarily applied to separate voltage variable capacitor diodes connected to the local oscillator tuned circuit. Constant automatic frequency control lock-in range over the tuning band is achieved by applying a small fraction of the automatic frequency control voltage to the manual tuning capacitor.

3,784,918
STORAGE CIRCUITS

Charles Joseph Fassbender, San Diego, Calif., assignor to RCA Corporation, Princeton, N.J.

Filed Oct. 20, 1972, Ser. No. 299,312
Int. Cl. H03k *17/04, 17/28, 19/20*
U.S. Cl. 328—97 **6 Claims**

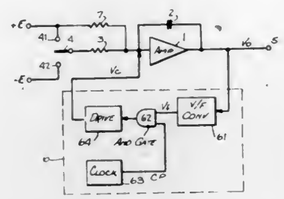


Each stage of a register includes first and second logical product gates, a logical sum gate receptive of the signals produced by the logical product gates and a feedback connection from the logical sum gate to the second logical product gate. A data signal is applied to the first logical product gate. In response to one binary value of a timing pulse, the first logical product gate is primed and the second disabled and in response to the other binary value of the timing pulse, the first logical product gate is disabled and the other primed.

3,784,919
DRIFT-COMPENSATED ANALOG HOLD CIRCUIT

Tadashi Azegami, Tokyo, Japan, assignor to Fisher & Porter Company, Warminster, Pa.

Filed Aug. 14, 1972, Ser. No. 280,672
Claims priority, application Japan, Aug. 31, 1971, 46/66328
Int. Cl. G06g *7/18*; **H03k** *5/00*
U.S. Cl. 328—127 **1 Claim**

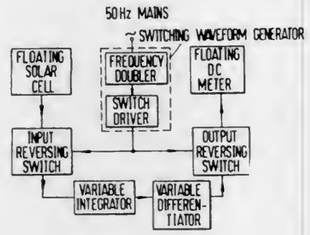


A drift-compensated analog hold circuit in which the output of the analog hold circuit is converted into a pulse train signal which is compared with reference clock pulses to detect the amount of drift in terms of a time-based signal. An analog drive circuit responsive to this time-based signal supplies a drift compensation signal to the analog hold circuit.

3,784,920
DIRECT CURRENT AMPLIFIERS

Phillip Harvey Jilbert, Tadley, England, assignor to National Research Development Corporation, London, England

Filed Oct. 3, 1972, Ser. No. 294,545
Claims priority, application Great Britain, Oct. 18, 1971, 48,379/71
Int. Cl. G06g *7/18, 7/12*
U.S. Cl. 328—127 **10 Claims**

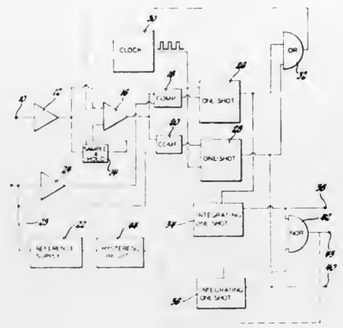


A direct current amplifier comprises a low impedance reversing switch having a pair of input terminals for connection to an input source and an integrating circuit connected to the output from said reversing switch. The integrating circuit comprises an amplifier having an integrating capacitor connected between its input and output. A differentiating circuit is connected to the output of the integrating circuit, said differentiating circuit comprising an amplifier having a capacitor in series with its input and a resistor connected between its input and output. Also provided are means for indicating the direct-current output of the differentiating circuit, said indicating means being connected to the output of the differentiating circuit via a second reversing switch; and a waveform generator connected to drive said two reversing switches in synchronism and providing a waveform which causes said switches to conduct synchronously in alternate directions, preferably for substantially equal periods.

3,784,921
CIRCUIT INDICATING CHANGE AND STEADY STATE OF A DC SIGNAL

Rene M. Iadipaolo, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 23, 1973, Ser. No. 344,071
Int. Cl. H03k *5/20, 5/153*
U.S. Cl. 328—135 **3 Claims**

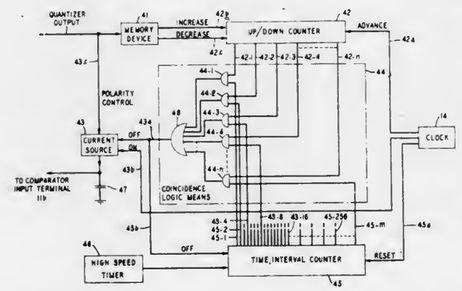


An input signal is applied to the subject circuit for determination of when the signal changes or reaches a steady state condition. Initially the input signal is stored in a sample and hold circuit and that stored value is compared with the input to determine when a preset difference has occurred. Then either of two one-shot multivibrators produces a short pulse depending on whether the difference is caused by positive or negative input change. The short pulse is used to reset the sample and hold circuit to the new value of the input signal and the same pulse is used to trigger either of two integrating one-shot multivibrators having long time constants providing long pulses indicative of positive or negative change. A gate responsive to the long pulses from both integrating multivibrators produces a steady state signal in the absence of both pulses.

3,784,922
ADAPTIVE DELTA MODULATION DECODER

Donald Edgar Blahut, Bloomfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 22, 1971, Ser. No. 155,582
Claims priority, application Sweden, Mar. 20, 1972, 236315/72
Int. Cl. H03k *13/22*
U.S. Cl. 329—104 **11 Claims**

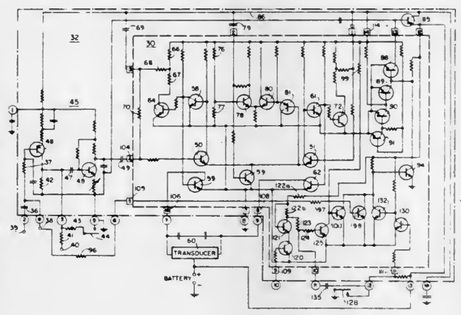


In an adaptive delta modulation system, step sizes are instantaneously companded by digital logic which controls the charging or discharging time interval of an integrating capacitor. A high speed timer divides each frame period into a plurality of equal time segments. A constant current source arranged to charge or discharge the capacitor is actuated simultaneously with the first timing pulse during each frame period. Current source ON time is determined by coincidence logic which associates with each possible step size a given number of time segments. Syllabic companding is simultaneously achieved by varying the magnitude of the current source output in accordance with the input signal envelope.

3,784,923
CONTROLLABLE AUDIO AMPLIFIER FOR MINIATURE RECEIVER PROVIDED BY A THICK FILM MODULE INCLUDING AN INTEGRATED CIRCUIT

John R. Rezek, Coral Springs, Fla., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 9, 1971, Ser. No. 151,461
Int. Cl. H03f *3/04*
U.S. Cl. 330—22 **14 Claims**



Controllable audio amplifier for miniature radio receiver, such as paging receiver, provided as a hybrid module which includes a monolithic circuit chip on a circuit providing base. A pre-amplifier on the thick film applies signals to a differential power amplifier on the integrated circuit. The differential amplifier has two balanced sides, each having a plurality of stages and a direct current feedback loop with a voltage reference for providing bias stability for the class B output stages. A voltage regulator on the thick film is controlled by transistors on the integrated circuit to provide operating voltage to the amplifier only when the proper control signal is received. A control circuit turns on the regulator in response to various control signals, and includes a latching circuit for holding the amplifier on subject to reset by multiple means. This can be responsive to a voltage from a decoder or a receiver squelch circuit. Manual on and off operation is also provided.

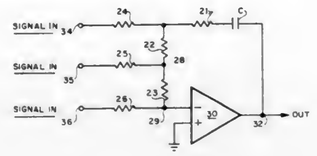
3,784,924
MULTI-INPUT LOOP FILTER WITH INDEPENDENT BANDWIDTH AND RESPONSE CHARACTERISTICS

Harlan H. Mansnerus, Newbury Park, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 31, 1972, Ser. No. 222,249
Int. Cl. H03f *3/68*
U.S. Cl. 330—30 R **2 Claims**

A single loop filter with multiple inputs and separate signal paths for each input using an operational amplifier with feedback capacitor connected in series with one or more damping

resistors and having an input resistor associated with each damping resistor; the multiple input resistors achieving more



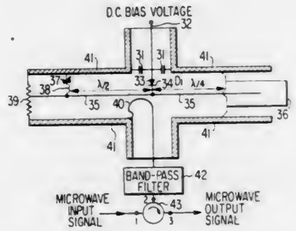
than one bandwidth while the damping resistors maintain a desired damping factor for each input respectively.

3,784,925

BROADBAND APPARATUS USING HIGH EFFICIENCY AVALANCHE DIODES OPERATIVE IN THE ANOMALOUS MODE

Kern Ko Nan Chang, Princeton; Hans John Prager, Belle Mead, both of N.J., and Sherman Weisbrod, Morrisville, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 8, 1971, Ser. No. 187,742
Int. Cl. H03f *3/10*
U.S. Cl. 330—34 **8 Claims**



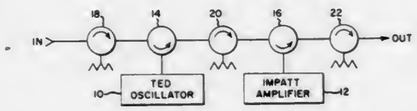
The frequency bandwidth of a microwave apparatus using an avalanche diode operating in the anomalous mode is increased by providing a frequency insensitive current path at frequencies harmonically related to the desired frequency bandwidth.

3,784,926

MICROWAVE POWER AMPLIFIER

James A. Hall, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed May 10, 1972, Ser. No. 251,913
Int. Cl. H03f *3/60*
U.S. Cl. 330—53 **7 Claims**



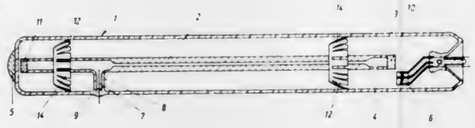
A relatively high power, good quality microwave power amplifier is provided by a transferred-electron device (TED) oscillator and a negative resistance power amplifier having an IMPATT diode. The oscillator and amplifier are coupled together by circulators, and low power, frequency modulated input signals are injected into the oscillator to vary the oscillator frequency. Signals from the oscillator are applied to the amplifier and amplified. High quality signals at frequencies above 6–18 gigahertz and at power levels greater than 1 watt can be obtained with this amplifier.

3,784,927

GAS LASER

Joseph Rudolph, Augsburg, Germany, assignor to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH, Munich, Germany

Filed June 6, 1972, Ser. No. 260,193
Claims priority, application Germany, June 11, 1971, P 21 29 142.9
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 **8 Claims**



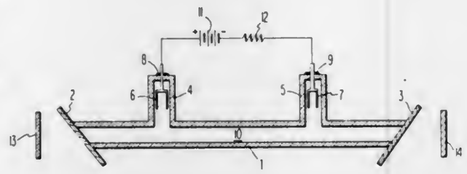
A discharge tube is located coaxially within an outer envelope and in pressure balance communication with the latter. Resonator mirrors are fastened to its respective ends. The discharge tube is elastically supported at several points relative to the outer envelope but rigidly supported at only one point, to permit differential thermal expansion of the tube within the envelope.

3,784,928

GAS DISCHARGE DEVICE AND ELECTRODE FOR USE THEREIN

Robert Anthony Crane, Lachine, Quebec, Canada, assignor to RCA Limited, Montreal, Quebec, Canada

Filed June 4, 1971, Ser. No. 149,915
Int. Cl. H01s *3/02, 3/22*
U.S. Cl. 331—94.5 **11 Claims**



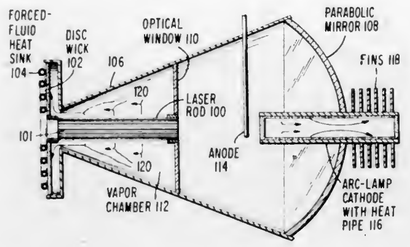
A carbon dioxide laser having a dense ceramic casing of high thermal conductivity which is non-reactive with the gas mixture. The anode and cathode electrodes of the laser comprise a rhodium-platinum alloy, which exhibits a low sputtering rate and which is also non-reactive with the gas mixture. The resulting device exhibits a lifetime of 8,000 hours or more under sealed conditions.

3,784,929

THERMALLY-CONTROLLED CRYSTALLINE LASERS

Patrick Francis Joy, Jr., Turnersville, and Donald George Herzog, Collingswood, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 302,298
Int. Cl. H01s *3/04*
U.S. Cl. 331—94.5 **7 Claims**



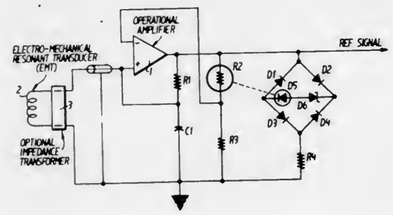
The use of a crystalline laser element itself as the evaporator of a heat-pipe is achieved by fluting a surface of the element with capillary grooves for the heat-pipe working fluid. This maintains the surface at a substantially uniform temperature.

3,784,930

AMPLITUDE STABILIZED OSCILLATOR

Robert E. Vosteen, 315 W. Center St., and Alan J. Werner, Jr., 304 W. Center St., both of Medina, N.Y.

Filed July 6, 1972, Ser. No. 269,454
Int. Cl. H03b *3/02*
U.S. Cl. 331—183 **12 Claims**



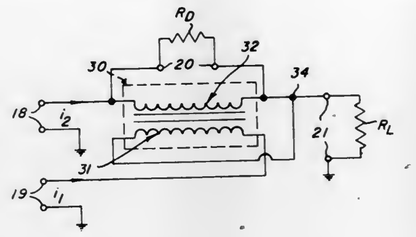
An electrometer apparatus having an amplitude stabilized oscillator circuit with an electromechanical resonant transducer connected to the input of the oscillator active stage. The transducer has first and second terminals. A differentially connected operational amplifier is also provided having plus and minus inputs, the first terminal of the electromechanical resonant transducer being connected to the plus terminal of the operational amplifier, and the second terminal being connected to ground. A light emitting source is connected between the output of the operational amplifier and ground, and is responsive to the output of the operational amplifier to supply a corresponding amount of energy to a light responsive element connected to the output of the operational amplifier. A negative feedback path connected between the light responsive element and the minus terminal of the operational amplifier is also provided. The electrometer may be used to measure unknowns such as the electrostatic potential of a surface in non-contacting manner or an electrostatic field.

3,784,931

FOUR PORT COMBINER UTILIZING SINGLE TRANSFORMER

Dennis H. Covill, Nova Scotia, Canada, assignor to Nautical Electronic Laboratories Limited, Hackett's Cove, Halifax County, Nova Scotia, Canada

Continuation-in-part of Ser. No. 194,985, Nov. 2, 1971, Pat. No. 3,747,026. This application May 23, 1973, Ser. No. 363,112
Int. Cl. H03h *7/48*
U.S. Cl. 333—6 **7 Claims**



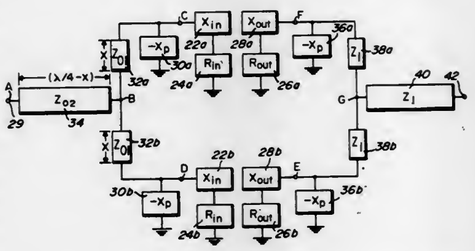
A combiner network for combining two synchronous, coherent AC signals each having differing power levels to form a single relatively high power output. The combiner network is comprised of an output port for supplying a load, a first and a second input port and a single transformer having a first and a second winding. One end of each winding is mutually connected to a terminal of the output port. The other end of the first winding is connected to one terminal of the first input port and the other end of the second winding is connected to one terminal of the second input port. The windings are connected and the windings have a turns ratio so that under rated operating conditions net flux attributable to current flow through the windings is substantially zero and the output currents from the first and second windings additively combine at the output port. The combiner network further comprises dissipative means connected across the windings, the dissipative means having an impedance selected to balance rated load impedance and responsive to non-zero net flux in the transformer to dissipate a portion of the energy supplied by the input ports so as to maintain an impedance balance between the input ports.

3,784,932

PARALLEL TRANSMISSION LINE MATCHING NETWORK FOR CONNECTING TOGETHER A PLURALITY OF R.F. AMPLIFIER TRANSISTORS

David S. Wisherd, Hoffman Estates, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 11, 1972, Ser. No. 313,899
Int. Cl. H01p *5/12;* **H03h** *7/38*
U.S. Cl. 333—9 **11 Claims**



A transmission line matching network for connecting a plurality of RF amplifier transistors together in parallel in a

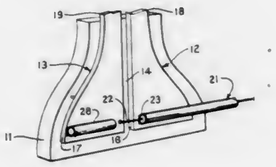
manner to assure substantially symmetrical division of power between the amplifier transistors includes a first plurality of similar transmission line matching networks each connected to one of the amplifier transistors to transform the impedance of each transistor to a predetermined level and a second transmission line matching network connected to each of the first matching networks for matching the impedances of the individual matching networks to that of another transmission line.

3,784,933

BROADBAND BALUN

James P. Scherer, Sunnyvale, and John A. Koerner, Belmont, both of Calif., assignors to Textron, Inc., Belmont, Calif.

Filed May 3, 1971, Ser. No. 139,570
Int. Cl. H01p *5/08*; **H03h** *7/38, 7/42*
U.S. Cl. 333—26 **5 Claims**



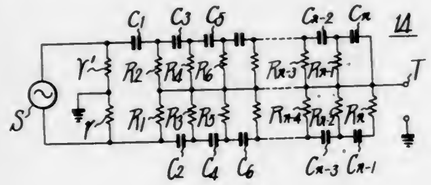
A balun comprised as electrical leads forming a slot line and having a tapered configuration to provide a matching impedance to an asymmetrical conducting system such as coaxial cable, strip-line, microstrip, etc. Broadband impedance matching is achieved between symmetrical and asymmetrical electrical transmission systems.

3,784,934

ALL-PASS PHASE-SHIFT CIRCUIT

Mitsuo Ohsawa, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 10, 1972, Ser. No. 305,530
Claims priority, application Japan, Nov. 19, 1971, 46/92800
Int. Cl. H03h *7/30*
U.S. Cl. 333—29 **8 Claims**



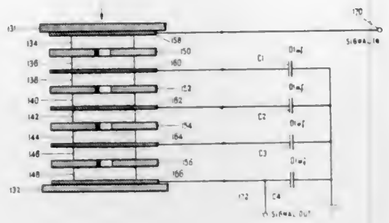
An all-pass phase-shift circuit having an input circuit for supplying signals with reversed phases at first and second terminals, and a phase-shifter bridge circuit with a first capacitor connected in series with a first resistor between the first and second terminals, a second resistor connected in series between the first capacitor and the first resistor, a series connection of a third resistor and a second capacitor connected in parallel with the first resistor, a third capacitor and means for connecting the third capacitor in parallel with the second resistor. A signal applied to the input circuit of the phase-shift circuit is linearly phase-shifted with respect to frequency.

3,784,935

TOUCH SENSITIVE POLYPHONIC MUSICAL INSTRUMENT

Alan R. Pearlman, Newton Highlands, and Dennis P. Colin, Beverly, both of Mass., assignors to ARP Instruments, Inc., Newton Highlands, Mass.

Filed June 15, 1972, Ser. No. 263,178
Int. Cl. H03h *7/10*
U.S. Cl. 333—70 CR **6 Claims**



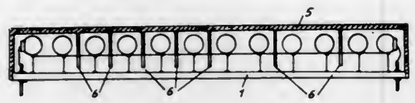
A touch sensitive device is associated with at least one key of an electronic musical instrument such as an electronic organ, inclues a layer of a pressure responsive, variable conductance material, and exhibits a switching action when subjected to pressure beyond a threshold pressure, any increase in pressure thereafter providing an increase in conductance up to a saturation pressure. The device may be used either as a combined switch and amplitude control or may be used in associated with one or more capacitors to provide either a high pass or low pass touch-control audio filter. In a totally polyphonic instrument a tone generator and touch-control filter are respectively associated with and responsive to each key depression, the output signal from each activated filter being coupled preferably to audio mixer circuitry.

3,784,936

ELECTROMECHANICAL FILTER

Dagobert Klein, Ludwigsburg, and Gunter Schneider, Renningen, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,250
Claims priority, application Germany, Dec. 22, 1972, P 22 02 948.7
Int. Cl. H03h *9/10, 9/26*
U.S. Cl. 333—71 **5 Claims**



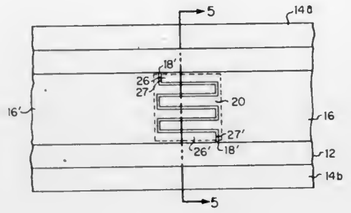
In this electromechanical filter arrangement having a plurality of resonators vibrating in the first flexural mode, with each coupled to the adjacent resonators at the antinodal line, acoustic coupling between resonators not adjacent to one another is prevented by means of partitions or walls between each resonator or between a group of resonators and the adjacent group. The partitions are mounted on the inside of the filter cover or on the filter base plate.

3,784,937

BLOCKING CAPACITOR FOR A THIN-FILM RF TRANSMISSION LINE

Weldon H. Jackson, Sunnyvale, and John C. Lamy, Palo Alto, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 25, 1972, Ser. No. 300,634
Int. Cl. H01p *5/02, 3/08*
U.S. Cl. 333—84 M **2 Claims**



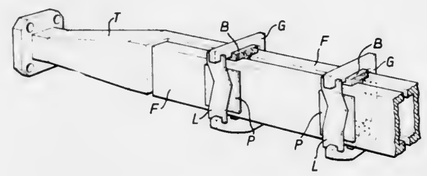
A blocking capacitor is formed in the center conductor of a thin-film RF transmission line which is situated over a metal conductor and insulated from the center conductor and outer conductors of the transmission line. The distributed capacitor so formed couples RF signals over a broad frequency range while blocking DC and very low frequency signals on the transmission line.

3,784,938

MICROWAVE SPECTROSCOPY

John Cuthbert, Bottisham, and James Albert Stow, Ely, both of England, assignors to Cambridge Scientific Instruments Limited, Cambridge, England

Filed Jan. 7, 1972, Ser. No. 216,207
Claims priority, application Great Britain, Jan. 12, 1971, 1,343/71
Int. Cl. H01p *3/12*
U.S. Cl. 333—95 **9 Claims**



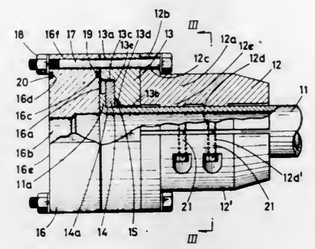
In a Lide type of absorption cell for use in Stark modulation microwave spectroscopy the cell is in two mutually insulated halves which are secured together by longitudinally spaced releasable clamps allowing the cell to be taken apart readily for cleaning but holding the halves accurately in their correct relative positions when assembled. The clamps can be of C-shape with disengageable leaf springs fitting in their open sides.

3,784,939

APPARATUS FOR CONNECTING WAVEGUIDE AND METHOD THEREFOR

Tsutomu Maeda, Itami, and Yoshikazu Sato, Amagasaki, both of Japan, assignors to Dainichi-Nippon Cables, Ltd., Amagasaki-shi, Hyogo-ken, Japan

Filed July 8, 1971, Ser. No. 160,728
Claims priority, application Japan, July 10, 1970, 45/69418
Int. Cl. H01p *1/04*
U.S. Cl. 333—98 R **11 Claims**



A waveguide flared at its end is connected to a waveguiding connector means by so positioning a pressure member loosely encompassing the waveguide as to press the flared end of the waveguide against the connector means with the pressure edge of the pressure member so that both waveguiding paths of the waveguide and the connector means are precisely aligned, fixing a pair of half shells onto the surface of the waveguide thereby sandwiching the pressure member between the flared end and paired half shells, and securing the connector means, pressure member and paired half shells together by means of bolts and nuts.

In assembling such connecting apparatus, a jig having structure for adaptability to the bolt apertures and the waveguiding path of the connector means is prepared in advance. The pressure member is so placed as to encompass the waveguide by using the jig so that the bolt apertures of the pressure member are precisely but tentatively positioned with respect to the waveguiding path of the waveguide and then the paired half shells are fixed to the waveguide with the pressure member keeping the said position by being sandwiched between the flared end of the waveguide and the half shells. Then the jig is removed and instead, the connector means is secured to the pressure member as well as half shells by means of the bolts and nuts with the result that the bolt apertures of the connector means are precisely positioned with respect to those of the pressure member. As a result the waveguiding paths of these are precisely aligned.

3,784,940

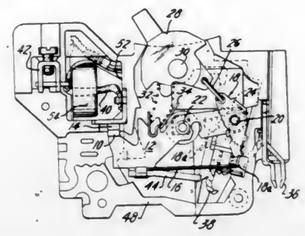
CIRCUIT BREAKER WITH OVERCURRENT AND AUXILIARY RELEASES

John De Torre, Albemsrle, N.C., assignor to Federal Pacific Electric Company, Newark, N.J.

Filed Sept. 15, 1972, Ser. No. 289,763
Int. Cl. H01h *73/48*
U.S. Cl. 335—18 **6 Claims**

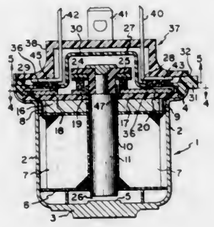
An automatic circuit breaker here includes a mechanism for manual opening and closing of the contacts, and an overcurrent release. Auxiliary release means is also included for opening of the contacts, as in response to a detected ground fault. The overcurrent release includes a latch that is caused to deflect laterally in response to an overcurrent, and the mechanism includes a shiftable latch part having a lateral surface that engages an abutment part of the overcurrent latch. Deflection of the latch, or retraction of the latch part effects release of the circuit breaker. An electromagnet has an arma-

ture for operating the shiftable latch part. The armature is located close to the shiftable latch part in the closed configu-



ration of the mechanism, but there is no possible interference by the armature with any of the operating paths of the circuit breaker mechanism.

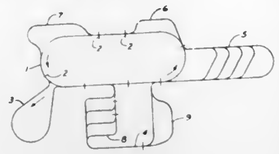
3,784,941
RELAY CONSTRUCTION
Gideon A. Du Rocher, Mt. Clemens, Mich., assignor to Essex International Inc., Fort Wayne, Ind.
Filed Mar. 6, 1972, Ser. No. 232,145
Int. Cl. H01h *1/02*
U.S. Cl. 335—196 **18 Claims**



A relay construction having an energizable and deenergizable electrical winding operable to effect movements of an armature to and from a switch-closing position and wherein a non-conductive, elastomeric pad is interposed between the switch contacts, the elastomeric pad containing discrete, normally separated, electrically conductive particles dispersed therein in such quantity as to render the pad electrically conductive in response to compression thereof. The pad is mounted in such position as to be compressed in response to movement of the armature toward its switch-closing position. The elastomeric pad may be impregnated with or immersed in a lubricant and may form part of an electrically non-conductive, oil impervious seal or gasket for effect an environmental seal for the operating parts of the relay.

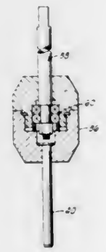
3,784,942
TERNARY ESCORT MEMORY SYSTEM
Glenn J. Eggert, Milwaukee, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Nov. 17, 1972, Ser. No. 307,600
Int. Cl. H01h *27/00, 36/00*
U.S. Cl. 335—206 **8 Claims**

In an addressing system of a transportation facility an array of magnetically operated sensors, reed switches, Hall devices, etc. are arranged to operate on a ternary system, as contrasted to a binary system, by providing each sensor with a selectively magnetized bias magnet, either a permanent magnet or an electromagnet, so that each sensor is responsive to the polarity as well as field strength of a corresponding permanent or electromagnetic operate magnet of an array of operate magnets movable into juxtaposition to the array of sensors. The sensors are connected either all in series to complete a controlled circuit or all in parallel to open a controlled circuit and each sensor is arranged to respond to magnetic fields of a bias and an operate magnet and is therefore in a first state unless both magnets are demagnetized or have polarities that neutralize each other in the region of the sensor. When remanent magnets, i.e. magnets having high retentivity, are employed as



operate magnets a corresponding array of electromagnets is provided to selectively magnetize with selected polarity or demagnetize each magnet of the array of magnets to impress an address code on the operate magnet array. A similar array of electromagnets, when juxtaposed to the array of sensors selectively magnetizes the array of bias magnets to condition the array to respond to a particular address code.

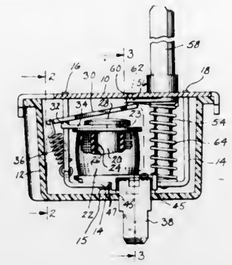
3,784,943
SOLENOID ACTUATOR
Ivan N. Markowitz, Oklahoma City, and Darby A. Gray, Norman, both of Okla., assignors to Honeywell Information Systems Inc., Waltham, Mass.
Filed July 19, 1972, Ser. No. 273,092
Int. Cl. H01f *7/08*
U.S. Cl. 335—266 **2 Claims**



A solenoid actuator having a core which can be attracted to either of two extreme positions in a housing by separately energized, longitudinally spaced coils and at least one relatively rotatable shaft protruding from the core. Springs mounted between the core and interior walls of the housing are compressed when the core is attracted to an extreme position. When an adjacent coil is de-energized, the compressed spring pushes the core toward the other extreme position. An electromagnetic field established by simultaneously energizing the other coil attracts the spring-propelled core to the other extreme position. Spring forces and electromagnetic forces complement one another, resulting in a high speed, long throw actuator with low electrical power requirements.

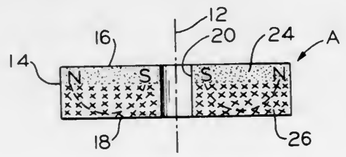
3,784,944
ADJUSTABLE ELECTRIC BUZZER
Spencer C. Schantz, New Berlin, and William R. Berry, Menomonee Falls, both of Wis., assignors to Spencer C. Schantz, New Berlin, Wis.
Filed June 21, 1972, Ser. No. 264,899
Int. Cl. H01f *7/14*
U.S. Cl. 335—276 **9 Claims**

A ferromagnetic pole piece with a coil therearound is attached at one end to a ferromagnetic frame and a ferromagnetic armature is pivoted to the frame for vibratory movement toward and away from the other end of the pole piece to form a buzzer. The pivotal attachment of the armature includes non-magnetic pivot bearings which are so positioned as to direct the flow of magnetic flux between the frame and armature into a path which enters the armature transversely and thus eliminates undesirable vibration of the armature at the



pivot bearings when the armature is pivoted on a conical end face of the pole piece in the "off" position. The intensity of the buzzing sound is controlled by a variable abutment member which varies the maximum air gap between the free end of the armature and the pole piece, which abutment member includes a rotatable shaft with a cam member positioned to vary the limit of movement of the armature away from the pole piece.

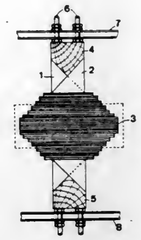
3,784,945
PERMANENT MAGNET FOR SUSPENSION BEARINGS
Max Baermann, 506 Bensberg, Bezerk Cologne, Germany
Filed Feb. 7, 1973, Ser. No. 330,247
Claims priority, application Germany, June 28, 1972, P 22 31 591.9
Int. Cl. H01f *7/02*
U.S. Cl. 335—302 **14 Claims**



A permanent magnet is formed from a mixture of powdered permanent magnet material and a synthetic resin binder. The magnet includes first and second layers. One layer has a coercivity substantially greater than the second layer.

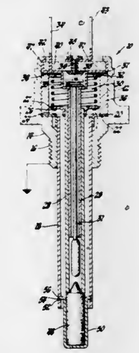
3,784,946
SMOOTHING CHOKE
Roald Bingen, Marcinelle, and Jacques Van Hulse, De Pinte, both of Belgium, assignors to ACEC Cateliers DE Constructions Electriques de Charierol, Charleroi, Belgium
Filed Feb. 26, 1973, Ser. No. 335,930
Claims priority, application Belgium, Feb. 25, 1972, P 3822; Mar. 7, 1972, P 3823
Int. Cl. H01f *27/02*
U.S. Cl. 336—59 **10 Claims**

This invention concerns a smoothing choke of a highly reduced weight. The smoothing choke consists of a magnetic core made up of a stock of trapezoidal metal sheets having the two parallel sides thereof alternately reversed so as to obtain a core of general parallepipedal shape having, at each end thereof, a groove in the shape of a triangular prism. A coil is wound around the core and has outer turns the perimeter of



which is successively reduced by step-like winding, from the turns around the central part of the core, symmetrically, to the turns around the ends of the latter.

3,784,947
TEMPERATURE RESPONSIVE SWITCH
Donald J. Zelenka, Flushing, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 4, 1972, Ser. No. 311,933
Int. Cl. H01h *37/40*
U.S. Cl. 337—320 **2 Claims**

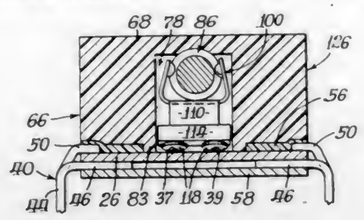


This invention relates to a temperature switch and more particularly to a temperature responsive switch used in a catalytic converter generally found in internal combustion engine exhaust systems. The temperature switch is an independent self-contained unit that is mounted directly on the converter and has a sensing element that extends into the converter to activate switch contacts to provide an initial signal, as well as a second signal that the catalyst within the converter may become ineffective due to deterioration of the catalyst and therefore maintenance of the converter is required. The signal could also be used to activate bypass means in or adjacent to the converter.

3,784,948
INTEGRATED CIRCUIT PACKAGE OF UNIFIED STRUCTURE WITH VARIABLE RESISTOR
Samuel A. Johnston, Fontana; John G. Lyons, Janesville, and Henry J. Riedmayer, Fort Atkinson, all of Wis., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.
Continuation of Ser. No. 58,372, July 27, 1970, abandoned. This application Dec. 23, 1971, Ser. No. 211,655
Int. Cl. H01c *9/02*
U.S. Cl. 338—183 **11 Claims**

An integrated circuit-type component including a ceramic substrate having conductive and resistive paths, including

both variable and fixed resistances; a pair of terminal strips each having a plurality of terminal elements, secured to the substrate on opposite sides thereof by clinching and soldering in electrical engagement with respective ones of the paths and forming a unitary, rigid and mechanically strong assembly; the terminal strips forming in-line pin elements; flat bonding elements on opposite surfaces of the substrate enclosing the clinching elements; a case having a hollow interior; and a lead screw and carrier in the case, the lead screw being exposed to the exterior for adjusting manipulations, the carrier being moved by the lead screw and having a contact member engaging the variable resistance paths, to form a potentiometer.

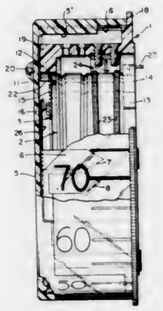


3,784,949

SET-POINT ASSEMBLY WITH SPIRAL RESISTOR TO REDUCE RESISTOR WEAR

Matthew A. Jankowski, Stratford, and Simeon J. Donahue, Cheshire, both of Conn., assignors to American Chain & Cable Company, Inc., New York, N.Y.

Filed May 28, 1971, Ser. No. 148,112
Int. Cl. H01c *5/02*
U.S. Cl. 338—196 **20 Claims**



A set-point assembly for use in monitoring a process variable and generating an input reference signal to a controller unit used for controlling the process variable. The set-point assembly includes a housing drum with a scale, a set-point device rotatably mounted within the drum and having a set pointer for cooperating with the scale, a meter movement unit disposed within the drum and having an indicating pointer cooperating with the scale, and a slide wire mechanism for generating a signal corresponding to the position of the set pointer along the scale.

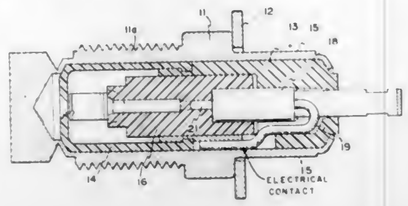
3,784,950

COAXIAL CONNECTOR WITH INTEGRAL SWITCHED TERMINATING RESISTOR

Rudleigh G. Coffman, 769 Bay Tree Ln., El Cerrito, Calif.

Filed Oct. 26, 1972, Ser. No. 301,237
Int. Cl. H01c *13/00*
U.S. Cl. 338—220 **6 Claims**

A coaxial connector which is especially suitable for use in CATV systems in which the connector contains an integral terminating resistor. The connector includes a hollow body surrounding an insulator assembly within which is disposed a spring contact assembly. The spring contact assembly includes two spring contact fingers normally biased to a first position, but which are adapted to be displaced to a second position upon the insertion of a coaxial cable center conductor therebetween. The terminating resistor has one of its leads connected to the connector body. The other lead of the terminating resistor makes direct electrical and mechanical contact to one of the spring contact fingers when the fingers are in the first position but the terminating resistor is mechanically and electrically disconnected therefrom when the spring contact fingers are displaced to the second position.

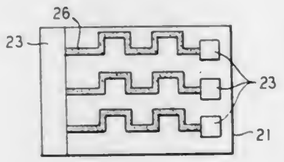


3,784,951

THIN FILM RESISTORS

Charles A. Steidel, Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 731,183, May 22, 1968, Pat. No. 3,627,577. This application Dec. 16, 1970, Ser. No. 98,723
Int. Cl. H01c *7/00*
U.S. Cl. 338—262 **1 Claim**



Thin film resistors may be obtained by depositing tantalum-aluminum films containing from 25–60 atom per cent aluminum upon an insulating substrate member by conventional condensation techniques and on anodizing the deposited film.

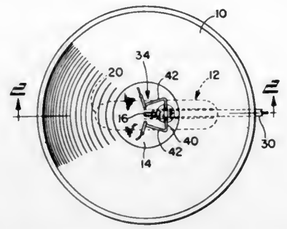
3,784,952

HIGH VOLTAGE ANODE CUP

Myles N. Murray, Chagrin Falls, Ohio, assignor to Industrial Electronic Rubber Company, Twinsburg, Ohio

Filed Apr. 20, 1972, Ser. No. 245,816
Int. Cl. H01r *11/30*
U.S. Cl. 339—12 V **7 Claims**

A suction type of high voltage lead connection comprising a molded elastomeric body having a bottom receptor portion of appreciable length with rounded exterior corners at its ends. There is a T-shape slot in the bottom of the cup which intersects an axial passage in the receptor part, with a power lead interiorly connected to a spring clip which extends upwardly through the slot to make the energy available for connection within the interior of the cup. The slot is filled with insulating material, such as silicone gel, and the exit end of the power lead passage is formed of a relatively reduced diameter which acts as a wiper to contain the sealant and provide a watertight joint for the lead.

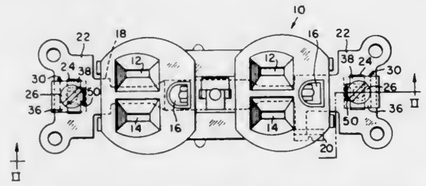


3,784,953

GROUNDING CONNECTION FOR ELECTRICAL UNIT

Bhartoor Lingaraju, Allentown, Pa., assignor to Rodale Manufacturing Co., Inc., Emmaus, Pa.

Filed Apr. 28, 1972, Ser. No. 248,448
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R **5 Claims**



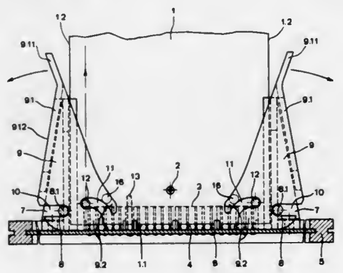
Clips are carried by an electrical unit in such manner that when the unit is mounted in a flush box a reliable electrical circuit connection between the unit and the flush box is assured.

3,784,954

APPARATUS FOR PLUG CONNECTION OF PRINTED CIRCUIT BOARDS

Hans-Ueli Grimm, Ebikon; Daniel Zufferey, Luzern, and Antonio Messina, Emmenbrucke, all of Switzerland, assignors to Inventio Aktiengesellschaft, Hergiswil, Switzerland

No Drawing. Filed Apr. 28, 1972, Ser. No. 248,395
Claims priority, application Switzerland, May 6, 1971, 6734/71
Int. Cl. H01r *13/54*
U.S. Cl. 339—17 LM **10 Claims**



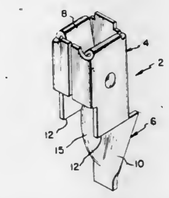
An apparatus for establishing a plug connection at printed circuit boards wherein the circuit boards can be plug connected with a contact element secured to a support, the circuit boards sliding in guides secured to the support at their edges which are in parallelism with the direction of insertion of the circuit boards. According to the invention a respective double-arm lever having an actuation arm and an engagement arm is rotatably mounted in mirror-image fashion at the narrow sides of the fixed contact element. The engagement arm possesses a slot at its end removed from the axis of rotation for receiving a bolt secured to the circuit board and by means of the actuation arm the circuit board through the agency of the engagement arm and the bolt can be selectively inserted into and removed from the fixed contact element.

3,784,955

CONNECTING DEVICE FOR PRINTED CIRCUIT BOARD

Charles Edward Reynolds, Camp Hill, and Eugene Leonard Gombar, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 111,402, Feb. 1, 1971, Pat. No. 3,718,895. This application Feb. 23, 1973, Ser. No. 335,203
Int. Cl. H01r *5/04, 9/12;* **H05k** *1/02*
U.S. Cl. 339—17 R **5 Claims**



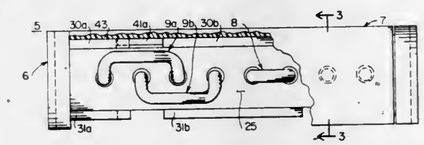
Printed circuit board has connecting device mounted thereon and soldered to a conductor on the board. The connecting device has a mounting portion which extends into a hole in the PC board and a receptacle portion which extends above the surface in the board. The receptacle portion is offset from the hole in the PC board and the mounting portion is hemi-ellipsoidal and faces away from the receptacle portion. Solidified solder is in the hole and bonded to an external side of the receptacle portion but is not flowed into the receptacle portion.

3,784,956

PROGRAMMABLE ELECTRICAL CONNECTOR

Gerald R. Gassman, Sunnyvale, Calif., assignor to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed June 5, 1972, Ser. No. 259,617
Int. Cl. H01r *9/00*
U.S. Cl. 339—18 R **11 Claims**



This solderless connector comprises a rigid dielectric base having a plurality of holes therethrough with longitudinal axes that are parallel and in a common plane; a resilient channel-shaped dielectric cover; a straight strapping pin that is U-shaped; and a crossover strapping pin with parallel legs and a U-shaped head having a crossbar that is offset from adjacent ends of the legs of the second pin. A particular connector is assembled by inserting the legs of a first strapping pin into selected holes in the base through which electrical connection is desired. Connection through selected holes on either side of

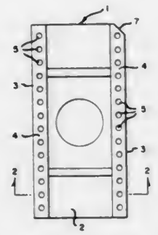
one leg of the first pin, without making electrical connection thereto, is provided by inserting legs of a crossover pin into the selected holes with the offset crossbar bypassing the one leg. The base and cover have complementary locking surfaces for holding the assembled connector together. In a connector for making more complex interconnections, the dielectric base and cover comprise complementary body halves that are hinged together. A plurality of complementary grooves having longitudinal axes parallel to each other and in a common plane are formed in one surface of each body half for receiving the legs of strapping pins. A pair of complementary troughs with longitudinal axes perpendicular to the axes of the grooves are formed in the one surface of each body half for receiving the offset crossbars of strapping pins. Mating locking surfaces are formed on both body halves for holding an assembled connector together.

3,784,957

CONDUCTIVE SHUNT FOR DUAL-IN-LINE TERMINAL INTEGRATED CIRCUIT

Richard J. Bailey, Tonawanda, N.Y., assignor to GTI Corporation, Tonawanda, N.Y.

Filed June 29, 1972, Ser. No. 267,400
Int. Cl. H01r *31/08*
U.S. Cl. 339—19 **3 Claims**



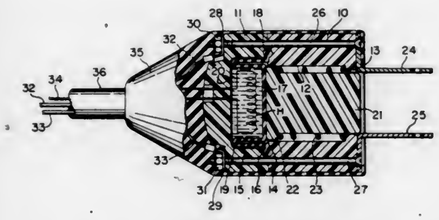
A shunt for dual-in-line terminal integrated circuits has a channel-shaped body of a conductive elastomer, the upstanding flanges of the channel being provided with a plurality of holes extending therethrough perpendicular to the web.

3,784,958

SELF-EJECTING ELECTRIC PLUG

Lee M. Harris, Dayton, Ohio, assignor to Gould Inc., Chicago, Ill.

Division of Ser. No. 754,188, Aug. 21, 1968, Pat. No. 3,609,635. This application Apr. 5, 1971, Ser. No. 131,511
Int. Cl. H01r *13/62*
U.S. Cl. 339—45 R **9 Claims**



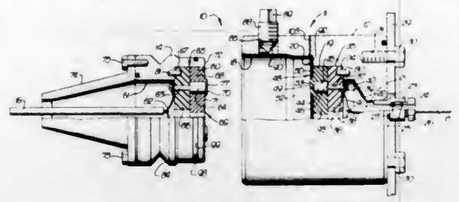
The plug includes a plunger normally spring retracted between the prongs and a chamber containing thermally expansible material and an electric heater which is the plug cord circuit, a remote switch closure energizing the heater to expand the material against the plunger to drive it outwardly and eject the plug from the receptacle.

3,784,959

SELF-HEALING ELECTRICAL CONNECTOR MEANS

Edward E. Horton, Portuguese Bend, Calif., assignor to Deep Oil Technology, Inc., Long Beach, Calif.

Filed Nov. 10, 1971, Ser. No. 197,324
Int. Cl. H01r *11/20, 11/02, 13/54*
U.S. Cl. 339—60 M **8 Claims**



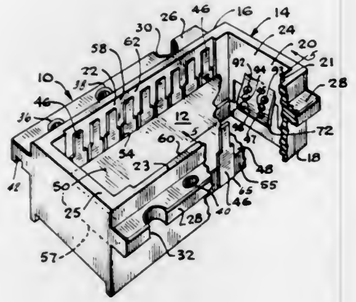
An electrical connector means for use in an adverse hostile fluid environment such as a subsea installation, and comprising electrical contact members embedded in and normally covered by a dielectric material having a relatively soft deformable resilient surface means having raised portions which under pressure engagement are adapted to be penetrated by one of the contact members which includes a hard contact point while the other contact member includes a relatively soft contact portion to make full electrical contact under pressure. Shims between housing portions are also provided to limit and control the depth of penetration thereby permitting repeated use of the connector means with full electrical contact.

3,784,960

CARRIER FOR INTEGRATED CIRCUIT PACKAGES

Richard Bruckner, West Chester, Pa., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed May 1, 1972, Ser. No. 248,980
Int. Cl. H01r *13/54*
U.S. Cl. 339—91 R **5 Claims**



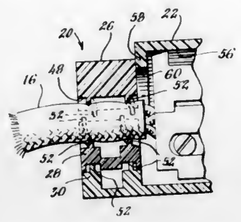
A carrier for dual-in-line integrated circuit package having a rigid flat body is provided with retention means including an opposite pair of cantilever fingers integrally formed in opposite walls of the carrier and rearwardly extending therefrom in elongated form and at an acute angle with body-engaging surfaces provided with a plurality of rearwardly spaced-apart detents to accommodate bodies of differing thicknesses. The cantilever fingers are adapted to be deflected toward the walls by insertion of the body with at least one of the detents engaging a side of the body in a finger-force releasing relationship. The carrier also is provided with guide shoulders and rearwardly positioned support shoulders for predetermined positioning of the packages.

3,784,961

CABLE CLAMP

Albert J. Gartland, Jr., Trumbull, Conn., assignor to Harvey Hubbel Incorporated, Bridgeport, Conn.

Filed Apr. 24, 1972, Ser. No. 246,933
Int. Cl. H01r *13/58*
U.S. Cl. 339—107 **9 Claims**



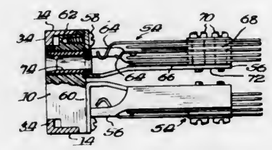
An apparatus for clamping electrical cables, particularly where cables of widely varying diameter are clamped. Cables of relatively greater diameter are accommodated by utilizing clamping jaws with criss-cross gripping ribs to reduce elliptical distortion through a multi-mode distribution of the clamping forces. Cables of relatively lesser diameter are accommodated by extending the gripping ribs to overlap the interface between the clamping jaws and enfold the cable within a conduit. The overlapping and crisscrossed ribs also provide for a more even distribution of the clamping forces to prevent cable ruptures.

3,784,962

MODULAR JACK PANEL

Lucid L. Byrd, Mt. Prospect, Ill., assignor to Carter Precision Electric Company, Skokie, Ill.

Filed Oct. 12, 1971, Ser. No. 188,079
Int. Cl. H01r *13/60*
U.S. Cl. 339—121 **13 Claims**



Electrical connectors or jacks are fastened to the rear face of synthetic resin modules in alignment with access openings therethrough for jack plugs, the modules being grouped in juxtaposed relation and removably secured within a supporting channel frame for mounting between the uprights of a rack, cabinet or other structure.

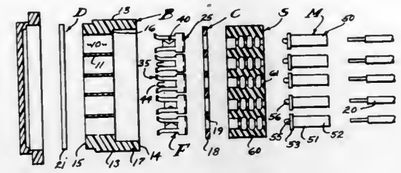
3,784,963

CONNECTOR ASSEMBLY FOR TERMINAL JUNCTION SYSTEM

Herbert A. DeCenzo, 17901 Yorba Linda Blvd., Apt. 20, Yorba Linda, Calif.

Filed Aug. 20, 1971, Ser. No. 173,422
Int. Cl. H01r *9/00*
U.S. Cl. 339—198 P **25 Claims**

Terminal block assemblies for establishing selective continuity through a multiplicity of electrical conductors, wherein female contact and retension units are included in a predetermined circuitry that receive and anchor male contacts at the terminal ends of said conductors. The completed assemblies are qualified as high reliability electrical equipment and are both vibration and moisture proof; while the total volumetric displacement of the assemblies is in each instance considerably less than comparable assemblies heretofore employed. It is a terminal junction system comprised of coopera-



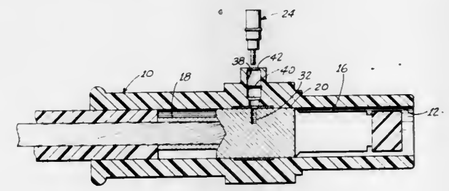
tive components which are assembled as circumstances require in order to establish selectively predetermined electrical continuity through one or more circuits.

3,784,964

ELECTRICAL CONNECTOR WITH RETAINER MEANS

Albert P. Newman, and Clem Edward Haun, both of Cincinnati, Ohio, assignors to Empire Products, Inc., Cincinnati, Ohio

Filed Mar. 27, 1972, Ser. No. 238,174
Int. Cl. H01r *9/16*
U.S. Cl. 339—219 R **11 Claims**



An electrical connector for terminating an electric cable, and an insulating sleeve therefor, said sleeve containing a central bore for receiving a male or female connector therein, and means securing said male or female connector against axial movement and rotation within said bore, said means comprising an insulated elongated member having major and minor body portions, wherein said minor portion engages said male or female connector and said major portion engages said sleeve in a manner to provide a seal against intrusion by moisture for said engaged connector.

3,784,965

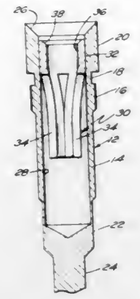
TERMINAL CONSTRUCTION

James V. Murphy, Warwick, R.I., assignor to Electronic Molding Corporation, Woonsocket, R.I.

Filed Mar. 13, 1972, Ser. No. 234,260
Int. Cl. H01r *13/12*
U.S. Cl. 339—258 R **1 Claim**

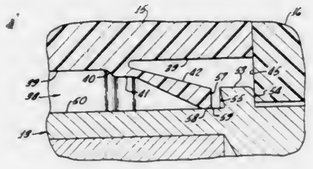
A terminal for insertion into an integrated circuit panel board including an upper barrel portion in which a bore is formed, the outermost end of the upper barrel portion being countersunk to define a tapered entry for the bore; an inner member defining an interior contact member being located

within the bore adjacent to the tapered entry of the outer member, wherein the tapered entry forms an enlarged opening



for leading a male element into the inner contact member for electrical engagement therein.

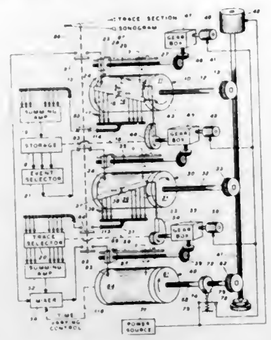
3,784,966
CONTACT FOR ELECTRICAL CONNECTOR
Kenneth M. Clark, Beaumont, Calif., assignor to The Deutsch Company Electronic Components Division, Banning, Calif.
Division of Ser. No. 167,317, July 29, 1971, Pat. No. 3,727,172, which is a continuation-in-part of Ser. No. 83,782, Oct. 26, 1970, abandoned. This application Apr. 4, 1973, Ser. No. 347,803
Int. Cl. H01r *11/08*
U.S. Cl. 339—276 T **4 Claims**



An electrical connector that includes an insert having continuous openings between the forward and rearward ends, each of the openings receiving a contact which is retained between a rearwardly facing shoulder in each opening and integral resilient fingers on the insert, which incline forwardly and inwardly from the circumferential wall of the opening to engage the rear contact shoulder, which is undercut to stabilize the ends of the fingers and improve contact retention.

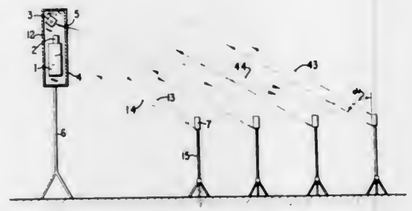
3,784,967
SEISMIC RECORD PROCESSING METHOD
John Michael Graul, Houston, Tex., assignor to Chevron Research Company, San Francisco, Calif.
Continuation-in-part of Ser. No. 797,844, Feb. 10, 1969, abandoned. This application July 2, 1971, Ser. No. 163,526
Int. Cl. G01v *1/32*
U.S. Cl. 340—15.5 TC **11 Claims**

A seismic record processing method is described wherein groups of traces comprising the original record are sonogrammed and events selected to identify, within each group of sonogram traces, coherent energy at specified record moveouts wherein the aforementioned coherencies are advantageously enhanced; after the picked sonogram traces are again sonogrammed to produce traces of a simulated record, the simulated traces are combined ("mixed"), with corresponding traces of the original record whereby both trace-



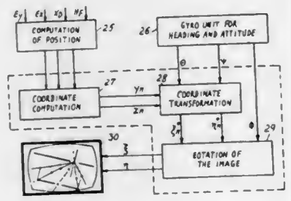
to-trace coherency and across-the-section continuity of the resulting final display, are surprisingly improved.

3,784,968
NAVIGATION SYSTEM
Jorgen Brosow, Hackspettragen 13, Bromma, Sweden
Filed May 27, 1971, Ser. No. 147,410
Claims priority, application Sweden, May 29, 1970, 7415/70
Int. Cl. G08g *5/00*
U.S. Cl. 340—25 **2 Claims**



A navigation system for determining on board a moving craft the position of the moving craft in relation to a fixed station which is provided with visual means for guiding said moving craft wherein there are means on said station for visible said visual means to the navigator of said moving craft by means of laser beams.

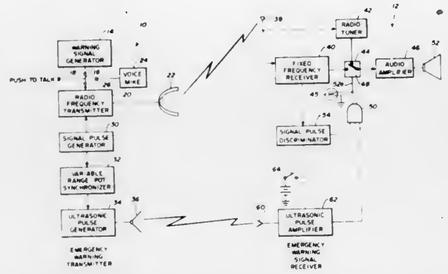
3,784,969
AIRCRAFT LANDING DISPLAY APPARATUS
Volkmar Wilckens, 2 Nebeler Str., Unterpfaffenhofer 8034, and Wolfram Schattenmann, No. 62 Memekrstrasse, Munich, both of Germany
Continuation-in-part of Ser. No. 772,511, Nov. 1, 1968, abandoned. This application Dec. 29, 1971, Ser. No. 213,593
Int. Cl. G08g *5/02*
U.S. Cl. 340—27 NA **17 Claims**



Display apparatus for use on aircraft is designed to present all the required guidance information in pictorial form for use

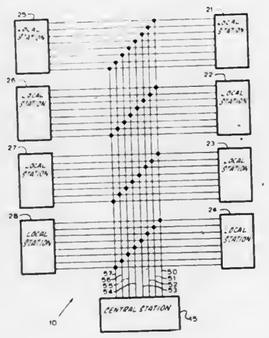
by a pilot permitting him to land an aircraft on the basis of the pictorially presented information even under the worst visual conditions.

3,784,970
EMERGENCY WARNING SYSTEM WITH RANGE CONTROL
William E. Simpkin, 4435 Fairfax, Dallas, Tex.
Filed Feb. 17, 1971, Ser. No. 116,007
Int. Cl. G08g *1/01*
U.S. Cl. 340—33 **7 Claims**



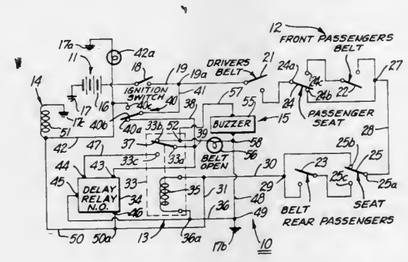
A range controlled emergency vehicle warning system wherein a directional radio frequency transmission has pulses superimposed thereon at a predetermined rate are concomitantly transmitted with ultrasonic pulses at the same rate. At a receiving station in a vehicle or a traffic signal controller the radio frequency signals and the ultrasonic pulse signals are received. A gate at the receiving station responsive either to the simultaneous reception, or a preselected time phasing, of the radio frequency carried pulses and an ultrasonic pulse signal generates an enable signal to cause any radio frequency carried warning advisory signal to produce a intelligible alarm such as a visual display and/or an audible alarm in the vehicle and/or to control traffic signals during approach to a given intersection. The difference in propagation velocities of the radio frequency and ultrasonic pulses fixes a time length window to limit the range of the warning zone.

3,784,971
DIGITAL SYSTEM FOR CONTROLLING TRAFFIC SIGNALS
John J. May, 1398 Flicker Way, Sunnyvale, Calif.
Filed Feb. 16, 1972, Ser. No. 226,919
Int. Cl. G08g *1/07*
U.S. Cl. 340—40 **2 Claims**



System for controlling traffic signals in which a local controller is located at each controlled intersection, respectively, to control the operation of a traffic signal at its associated intersection. A central controller is connected to the local controllers for the transmission of signals thereto. The central controller is programmed to provide output data which activate the local controllers. The data includes two digital words. One digital word selects the local controller to be activated and the other digital word selects the phase to which the selected local controller is to be advanced. The selected local controllers are operated by the central controller for controlling the traffic lights at their associated intersections. Each local controller includes a set of timers for controlling intervals that are program invariants. The local controllers will continue to operate in a fixed time mode in the absence of an overriding signal for the local controllers. When a local controller is activated by the central controller to advance to a designated light phase, the local controller will advance to the appropriate vehicle clearance interval and to time-out this interval independently before advancing the intersection lights to the phase designated by the central controller.

3,784,972
SEAT BELT SYSTEM
Arthur E. Hults, 11019 Reichling Ln., Whittier, Calif.
Filed Jan. 24, 1972, Ser. No. 220,254
Int. Cl. B60r *21/10*
U.S. Cl. 340—52 E **6 Claims**

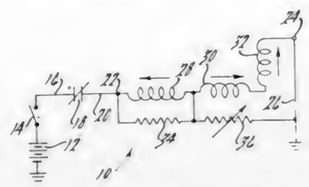


A vehicle seat belt system for use in automobiles, buses, airplanes, boats and the like. A seat system responsive to the occupancy of a seat by a passenger and use of the seat belt for that seat. A switch system actuated by said seat system. A signal system controlled by the switch system for signaling non-use of a seat belt of an occupied seat. A vehicle power system controlled by the switch system. The vehicle power system being inoperative when the seat belt of an occupied seat is not in use. A delay cut-off switch in said switch system which delays for a predetermined time interval the rendering of the vehicle power system inoperative when a seat belt is disengaged during operation of the vehicle.

3,784,973
LIQUID LEVEL MAGNETIC GAUGE CIRCUITRY
James F. Burgett, Garden City; Lawrence J. Vanderberg, and Gary F. Woodward, both of Ann Arbor, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed May 22, 1972, Ser. No. 255,608
Int. Cl. G08b *21/00*
U.S. Cl. 340—59 **4 Claims**

Magnetic gauge circuitry in which a magnetic gauge has a plurality of coils and has indicating means responsive to current in the coils is provided with switching means for interrupting the current flowing to the coils. The gauge may be constructed to maintain its reading even though its input current has been interrupted. Current interruption to the gauge occurs when the switching means undergoes accelerations or

decelerations or a change in its orientation with respect to the earth's gravitational field. The magnetic gauge circuitry is particularly advantageous when used in the measurement of the liquid level in a fuel tank of a motor vehicle.

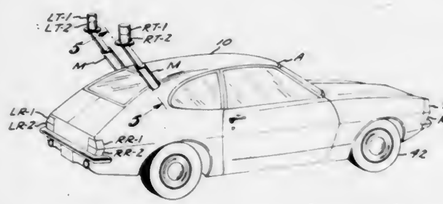


3,784,974

DRIVER'S COMMUNICATING SIGNAL LIGHTS FOR ACCELERATING, BRAKING AND TURNING OPERATIONS

Carl H. Hamashige, 1445½ Lime Ave., Long Beach, Calif.

Filed May 14, 1971, Ser. No. 143,432
Int. Cl. B60q 1/38
U.S. Cl. 340—67 4 Claims



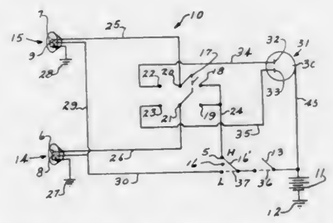
An electrically operated communicating signal light assembly that is mounted on an automotive vehicle, and is automatically actuated to visually indicate from either the rear, front or side thereof that the vehicle is being accelerated, braked or turned, and if turning whether the same is at a steady or accelerated rate of speed.

3,784,975

ALTERNATELY FLASHING WARNING SYSTEM

Richard W. Ward, Westchester, Ohio, assignor to KD Lamp Co., Cincinnati, Ohio

Continuation of Ser. No. 103,427, Jan. 4, 1971, abandoned.
This application Dec. 12, 1972, Ser. No. 314,372
Int.0032B60q 1/52
U.S. Cl. 340—76 1 Claim



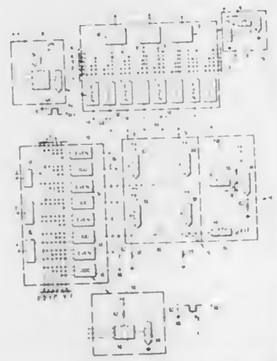
The high beam filaments of a vehicle's headlights are controlled to flash in order to provide a warning signal. A double-pole, double-throw flasher swtich, in one position, completes a circuit from a battery through a flasher to the high beam filaments of the headlight to flash the high beams. In the other flasher switch position, the high beams are connected to the battery via the dimmer and main "on-off" switches. Flashing of the high beams in response to activation of the flasher switch is independent of the position of the conventional "on-off" headlight switch and dimmer switch by virtue of the fact that these two switches are not in the flasher circuit. Steady low beam operation may be maintained during the high beam flashing operation, and independently of it, by the dimmer and "on-off" switches, which are connected between the low beams and the battery.

3,784,976

MONOLITHIC ARRAY ERROR DETECTION SYSTEM

Irving T. Ho, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 101,680, Dec. 28, 1970, abandoned.
This application Apr. 10, 1972, Ser. No. 242,667
Int. Cl. G06f 11/10
U.S. Cl. 340—146.1 AG 5 Claims



An error detection system of n inputs is adaptable for fabrication in large scale integrated circuit form. An integrated circuit logic array provides a parity check in response to digital signals received via X and Y decoders. Reduction in the number of array cells and the X and Y driving decoder circuits is obtained by interconnecting even parity subgroups and odd parity subgroups of lines from the X and Y decoders to provide even master parity lines and odd master parity lines. A logic array having less than 2^n operative cells compares the signals on the master lines and generates an error parity signal. The improvement described herein specifically separates the decoder driver circuits into independent subgroups, each having their own array comparators for handling a large number of inputs.

3,784,977

SELF-TESTING CHECKING CIRCUIT

William C. Carter, Ridgefield, Conn., and Aspi B. Wadia, Shrub Oak, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 20, 1972, Ser. No. 264,693
Int. Cl. G06f 11/12
U.S. Cl. 340—146.1 AB 4 Claims

There is disclosed a self-testing checking circuit which checks that greater than or equal to k out of n input variables are 1. This circuit has the output (1,0) or (0,1) if the $\geq k$ condition is satisfied and the output (0,0) or (1,1) if it is not. The circuit is self-testing, i.e., every line other than the primary inputs is tested during normal operation. The logical equation representing this circuit is

$(c_{k,n},d_{k,n}) = (\bar{a}_n.e_{k,n-1}(a_1,a_2,\ldots,a_{n-1}),a_n.e_{k-1,n-1}(a_1,a_2,\ldots,a_{n-1}))$

wherein $a_1,\ldots,a_n$ are the n input variables, $e_{k,n}(a_1,a_2,\ldots,a_n)$ denotes the function with the threshold k, the function being 1

if greater than or equal to k of the n input variables $a_1,a_2,\ldots,a_n$ are 1. It is suitably implemented as an OR circuit of $\binom{n}{k}$ AND circuits, each of the latter AND circuits being a conjunct constituted by k of the n input variables. The function $(c_{k,n}d_{k,n})$ is a two-output threshold k function, i.e., it is (0,1) or (1,0) if greater than or equal to k out of the n input variable are 1 and (0,0) otherwise. Logical equations representing the two output k threshold function are

$c_{k,n}=\bar{a}_n a_1 a_2 \ldots a_k \vee \bar{a}_n a_1 a_2 \ldots a_{k-1}a_{k+1} \vee \ldots \vee \bar{a}_n a_{n-k} \ldots a_{n-1}$

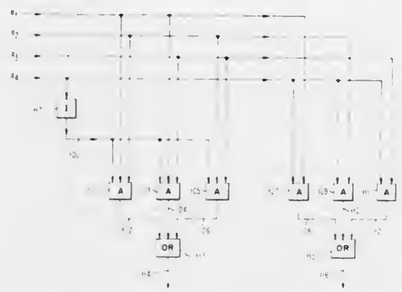
$d_{k,n}=a_n a_1 a_2 \ldots a_{k-1} \vee a_n a_1 a_2 \ldots a_{k-2}a_k \vee \ldots \vee a_n a_{n-k+1} \ldots a_{n-1}$

wherein $\vee$ represents the OR function.

A two-output self-testing circuit which checks for less than or equal to k out of n input variables equal to 1 is represented by the following logical equation

$(g_{k,n},h_{k,n})=(a_n \vee f_{n-k,n-1}(a_1,\ldots,a_{n-1}),a_n \vee f_{n-k-1,n-1}(a_1,\ldots,a_{n-1}))$

wherein $(g_{k,n}, h_{k,n})$ is the two output threshold which is (0,1)



or (1,0) if less than or equal to k out of n input variables are 1, $a_1,\ldots,a_n$ are the input variables, $f_{k,n}$ is the function with the threshold k, i.e., it is 0 if greater than or equal to k out of n inputs are 0. The function $f_{k,n}$ is represented by the following equation

$f_{k,n}=(a \vee a_2 \vee a_2 \vee \ldots \vee a_k)(a_1 \vee a_2 \vee \ldots \vee a_{k-1} \vee a_{k+1}) \ldots (a_{n-k+1} \vee \ldots \vee a_n)$

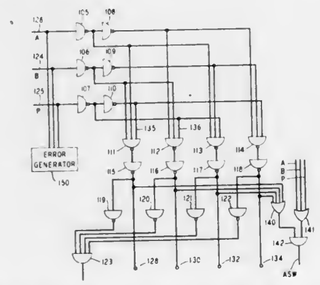
which comprises $\binom{n}{k}$ OR circuits providing inputs to an AND circuit, each OR circuit being constituted by a disjunct of k input variables. By providing the outputs of both of the two-output circuits mentioned above to a morphic AND circuit, there is provided a circuit which indicates whether greater than or equal to i of the input variables and less than or equal to k of the input variables are 1. When this condition is obtained, the output of the morphic AND circuit is either (0,1) or (1,0).

3,784,978

SELF-CHECKING DECODER

Meyer Joseph Zola, Columbus, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 14, 1973, Ser. No. 332,349
Int. Cl. H03k 13/34
U.S. Cl. 340—146.1 AB 11 Claims



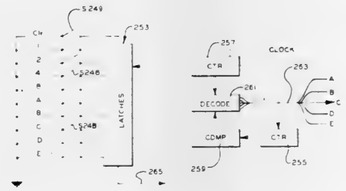
The self-checking decoder of the present invention includes a number of logic NAND gates arranged to process input address and parity signals in such a manner that if a fault exists in the input codes or the decoder, the decoder will either properly decode the input address or will signal the presence of the defect. In addition, if invalid code combinations are applied to the circuit on a regular or selective basis, the circuit is arranged to signal the existence of faults of which the circuit was tolerant.

3,784,979

RESPONSE SYSTEM WITH IMPROVED COMPUTATIONAL METHODS AND APPARATUS

David Friedman, Framingham, Mass., and Bernard Mortimer Segal, Binghamton, N.Y., assignors to The Singer Company, Binghamton, N.Y.

Division of Ser. No. 62,382, Aug. 10, 1970, Pat. No. 3,658,243.
This application Sept. 20, 1971, Ser. No. 182,117
U.S. Cl. 340—146.2 8 Claims



An improved classroom response system of the type wherein a number of students are provided with individual responders each having a plurality of switches selectively operable to indicate the student's choice of response to a question or other stimulus. The invention is directed to novel methods and apparatus for performing arithmetic operations and displays which make available to the instructor information helpful in conducting the class and otherwise simplify instructional tasks. Included are means for automatically indicating which of several responses is "correct" by determining the response to which the highest weight has been assigned by the instructor. Also disclosed are novel means to calculate each individual student's cumulative score and to indicate automatically the students whose scores fall below a preselected acceptable percentage of the maximum possible score. Displays of the total number of students responding to a given question, and the percent of the class which has responded with any of the possible choices are provided.

3,784,980

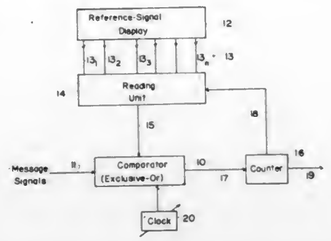
SERIALLY OPERATED COMPARISON SYSTEM WITH DISCONTINUANCE OF COMPARISON ON FIRST MISMATCH

Michel Geesen, Boulogne, France, assignor to Societe dite: Electroniques Marcel Dassault, Paris, France

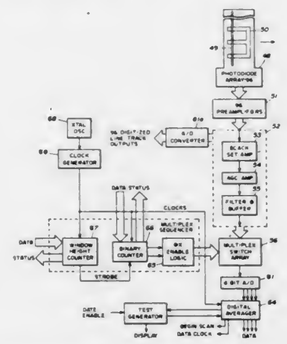
Filed June 8, 1972, Ser. No. 260,812
Claims priority, application France, June 10, 1971, 7121091
Int. Cl. G06f 7/02; H03d 13/00
U.S. Cl. 340—146.2 6 Claims

The components of a message signal to be identified are serially fed to a comparator which compares them, one at a time, with like-ranking components of a reference signal registered in a display unit. Upon detecting a match between the first components of the two signals, the comparator steps a counter to call out from the display unit the second component of the reference signal for comparison with that of the incoming message signal, and so forth. In the event of a

mismatch, the counter is reset; if all components match, an output signal is given. If the signals are in binary code, the comparator is a logic circuit; if they are composed of a series of different frequencies, the comparator is a mixer.



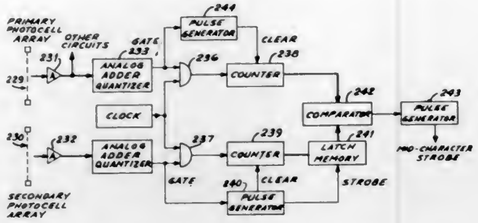
3,784,981
NORMALIZER FOR OPTICAL CHARACTER RECOGNITION SYSTEM
Chester Joseph Borowski, Jr., Garland, and Dale Rodney Du Vall, Fort Worth, both of Tex., assignors to Recognition Equipment Incorporated, Irving, Tex.
Filed July 28, 1971, Ser. No. 166,811
Int. Cl. G06k *9/04*
U.S. Cl. 340—146.3 H **8 Claims**



Signals produced by optically scanning different sizes and fonts of characters are normalized into a single format of data as an input to a character recognition unit. The signals are obtained by optically scanning characters with a single columnar retina and are used to produce a train of digital signals. Data derived from characters which are larger in size than a selected nominal are normalized by electronically weighting output signals from various photocells in the columnar array, summing the weighted signals and then averaging. The normalized output is delivered to a recognition unit to identify each character.

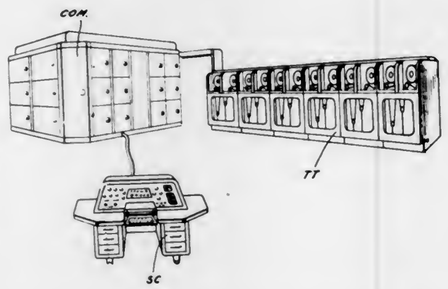
3,784,982
ELECTRO-OPTICAL HANDWRITTEN CHARACTER READER
Arthur Schlang, Woodbury, N.Y., assignor to Isotec Incorporated, Woodbury, N.Y.
Continuation-in-part of Ser. No. 152,104, June 11, 1971. This application Aug. 16, 1971, Ser. No. 172,138
Int. Cl. G06k *9/12*
U.S. Cl. 340—146.3 J **8 Claims**

An electro-optical character reader for handwritten characters includes a linear primary array of scanning cells and circuit means to generate pulses corresponding to the edges of characters scanned, to the number of strokes in the direction of movement of each character, and to the particular character and part thereof being scanned and means to generate stroke termination pulses corresponding to start and end of each character in the direction of character movement. A secondary array of scanning cells is effective in combination



with appropriate circuit means to generate mid-character strobe pulses corresponding to character height, pulses corresponding to vertical stroke components of scanned characters, pulses corresponding to top and bottom points of scanned characters, points of inflection of severely distorted scanned characters.

3,784,983
INFORMATION HANDLING SYSTEM
John Presper Eckert, Jr., Gladwyne; James R. Weiner, Philadelphia, both of Pa.; Robert F. Shaw, Brooklyn, N.Y., and Herbert Frazer Welsh, Philadelphia, Pa., assignors to Sperry Rand Corp., New York, N.Y.
Filed Mar. 31, 1952, Ser. No. 279,710
Int. Cl. G06f *15/00*
U.S. Cl. 340—172.5 **43 Claims**

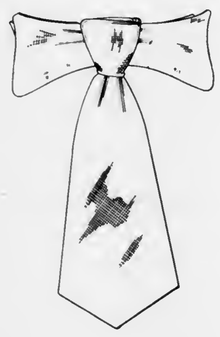


1. In an information handling system wherein information is represented by electrical impulse trains having the same number of impulse positions in each train, each train representing an item of information and containing impulses which are present and absent in and from said positions in a coded arrangement which varies with the item of information represented by each train, an information transfer network, means to supply impulse trains to the input to said transfer network, and checking means coupled to said transfer network, said checking means including a first counter means indicating the count of the individual trains supplied to said network, a second counter means responsive to the individual impulses contained within the trains supplied to said network, and means for periodically indicating when said first and second counter means do or do not tally.

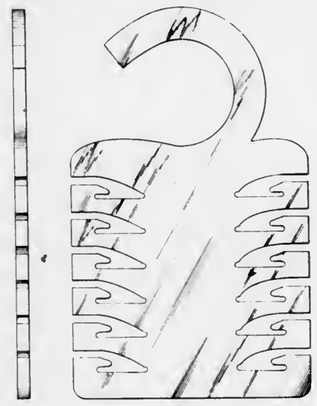
DESIGNS

JANUARY 8, 1974

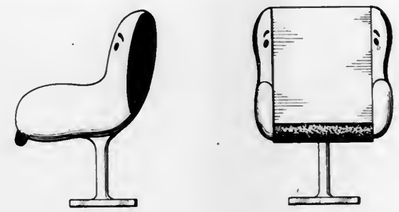
229,796
NECKTIE
Roman A. Eckstein, Albuquerque, N. Mex., assignor of a fractional part interest to Jerome J. Fischer
Filed May 13, 1971, Ser. No. 143,298
Term of patent 14 years
Int. Cl. D2— *05*
U.S. Cl. D2—343



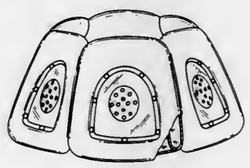
229,797
HANGER FOR NECKTIES OR THE LIKE
Sam Patasnik, 12 Harcourt Road, Plainview, N.Y. 11803
Filed Feb. 14, 1972, Ser. No. 226,382
Term of patent 14 years
Int. Cl. D6— *08*
U.S. Cl. D6—251



229,798
CHAIR
Jerry E. Howard, 1091 S. Towne, Pomona, Calif. 91767
Filed Mar. 1, 1972, Ser. No. 231,060
Term of patent 14 years
Int. Cl. D6— *01*
U.S. Cl. D6—26



229,799
PNEUMATIC PLAY PEN
Shoji Suzuki, 6–11, 3-chome, Higashi-Mukojima, Sumida-ku, Tokyo, Japan
Filed Apr. 6, 1972, Ser. No. 241,888
Claims priority, application Japan Jan. 27, 1972
Term of patent 14 years
Int. Cl. D6— *06*
U.S. Cl. D6—13



229,800
ROCKING EXERCISE STOOL
Joseph J. Jones, 2212 Longview, Austin, Tex. 78705
Filed Apr. 19, 1971, Ser. No. 135,530
Term of patent 14 years
Int. Cl. D6— *02*
U.S. Cl. D6—32



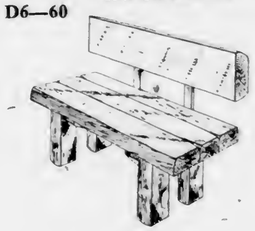
229,801
BAR STOOL
Roy Bruce Lindvall, St. Peter, Minn., assignor to Beam Furniture, Inc., St. Peter, Minn.
Filed July 17, 1972, Ser. No. 272,169
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47



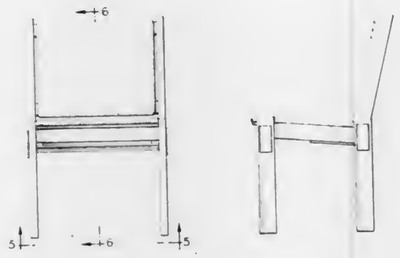
229,802
CHAIR
Roy Bruce Lindvall, St. Peter, Minn., assignor to Beam Furniture, Inc., St. Peter, Minn.
Filed July 17, 1972, Ser. No. 272,455
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47



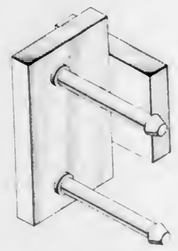
229,803
BENCH
Roy Bruce Lindvall, St. Peter, Minn., assignor to Beam Furniture, Inc., St. Peter, Minn.
Filed July 17, 1972, Ser. No. 272,168
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—60



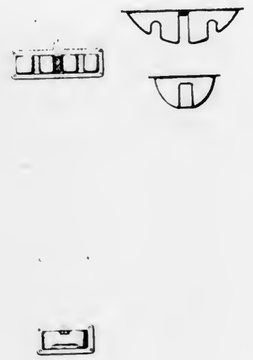
229,804
CHAIR
Herman A. Hassinger, Moorestown, N.J., assignor to Hassinger & Schwam Associates, Inc., Philadelphia, Pa.
Filed May 30, 1972, Ser. No. 258,189
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



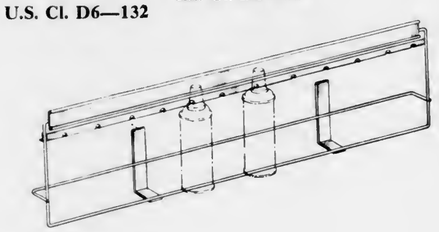
229,805
TISSUE ROLL HOLDER
Curtis G. James, 65 Puritan Place, Hamburg, N.Y. 14075
Filed June 1, 1973, Ser. No. 366,188
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—97



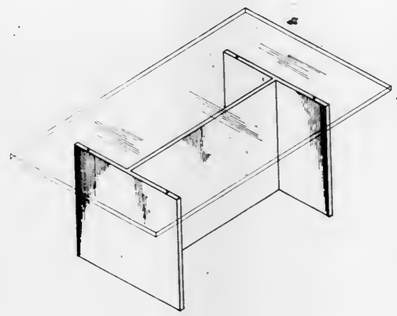
229,806
SKI RACK OR SIMILAR ARTICLE
Walter L. Hasser, 3 Loma Linda Drive, Colorado Springs, Colo. 80906
Filed Nov. 22, 1971, Ser. No. 201,263
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—125



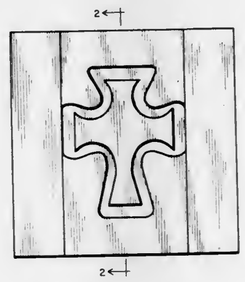
229,807
DISPLAY RACK
Donald E. Greenberg, 3163 Beaudry Terrace Glendale, Calif. 91208
Filed Jan. 21, 1972, Ser. No. 219,926
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—132



229,808
TABLE OR THE LIKE
Ronald J. McDonald, 201 E. 61st St., New Rochelle, N.Y. 10021
Continuation of design applications Ser. No. 18,144 and Ser. No. 18,152, both June 18, 1969, and Ser. No. 20,723, Dec. 31, 1969. This application Apr. 20, 1970, Ser. No. 22,536
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



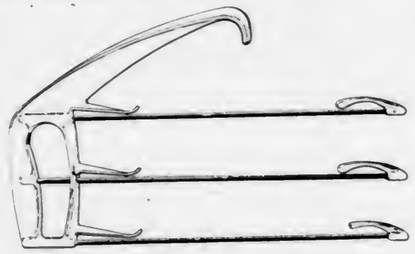
229,809
FURNITURE PANEL
James A. Snowden, Okemah, Okla. (Rte. 1, Carnegie, Okla. 73015)
Filed Feb. 24, 1972, Ser. No. 229,257
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—192



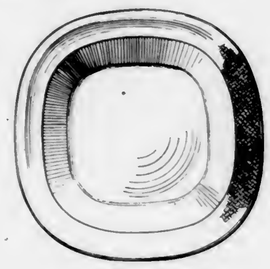
229,810
DISPLAY HANGER FOR BOOTS
Michael Wahl, Searington, N.Y., assignor to Wahl Associates, Inc., Long Island City, N.Y.
Filed Mar. 28, 1972, Ser. No. 239,002
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—252



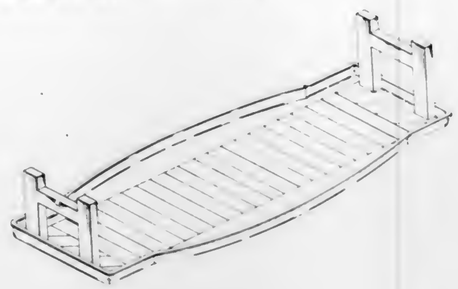
229,811
CLOTHES HANGER
Malcolm Laughton, Birmingham, England, assignor to Laughton & Sons Limited, Birmingham, England
Filed Sept. 21, 1972, Ser. No. 291,037
Claims priority, application Great Britain Mar. 21, 1972
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—252



229,812
DISPOSABLE PLASTIC DISH
Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.
Filed Jan. 31, 1972, Ser. No. 222,428
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—1



229,813
BEVERAGE TRAY
Allan Robinson, 25 Kilsyth Road, Brookline, Mass. 02146
Filed Apr. 14, 1972, Ser. No. 244,322
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—21



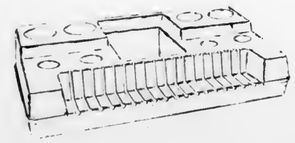
229,814
PLATE OR THE LIKE
Keith D. Popovich, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Sept. 21, 1971, Ser. No. 182,569
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—36



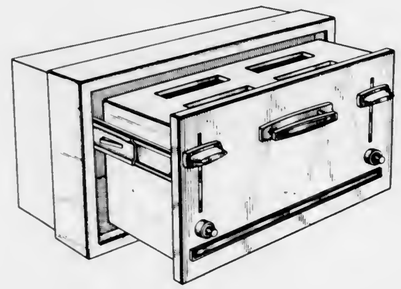
229,815
POWER-DRIVEN JUICE EXTRACTOR
Brian Scott Smith, High Wycombe, England, assignor to Tower Housewares Limited, Wolverhampton, Staffordshire, England
Claims priority, application Great Britain Aug. 25, 1972
Filed Nov. 15, 1972, Ser. No. 306,809
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—48



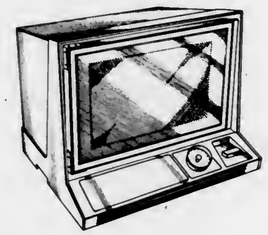
229,816
PORTABLE SERVING BAR
Larry N. Wynveen, Sheboygan, and Stephen J. Jambretz, Jackson, Wis., assignors to Thanco, Inc.
Filed Dec. 23, 1971, Ser. No. 211,833
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—71



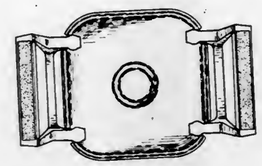
229,817
BUILT-IN ELECTRIC TOASTER
Norman A. Beam, Boonville, Mo., assignor to McGraw-Edison Company, Milwaukee, Wis.
Filed Sept. 21, 1972, Ser. No. 290,943
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—93



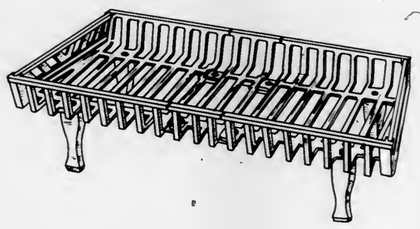
229,818
MICROWAVE OVEN
Eldon J. Klemp, Mayer, and Vernon E. Cassibo, New Hope, Minn., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed Feb. 16, 1973, Ser. No. 333,195
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—128



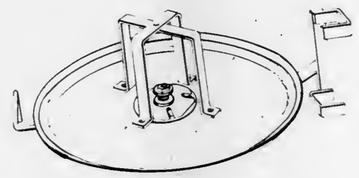
229,819
HANDLED SUPPORT STAND FOR A COOKING VESSEL
Richard B. Hall, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed July 10, 1972, Ser. No. 270,497
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—130



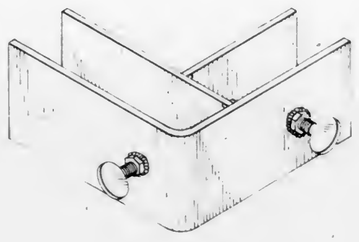
229,820
FIREPLACE GRATE
Richard W. Mellow, Jr., Ladue, Mo., assignor to Liberty Foundry Co., St. Louis, Mo.
Filed Mar. 16, 1972, Ser. No. 235,462
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D7—207



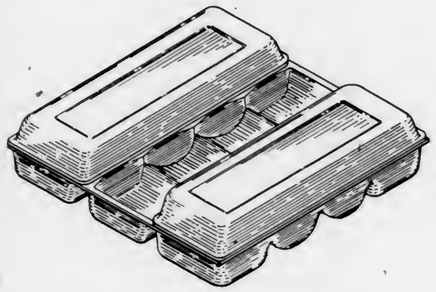
229,821
COILED WIRE DISPENSER
Francis Kurt Bourhenne, 1308½ Anaheim St., Harbor City, Calif. 90710
Filed Feb. 5, 1973, Ser. No. 329,658
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—220



229,822
SCAFFOLD BRACKET
John H. Born, 2002 W. 31st N., Wichita, Kans. 67204
Filed Feb. 23, 1972, Ser. No. 228,789
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—236



229,823
CONTAINER FOR BAKERY PRODUCTS
William Henry Day, Brantford, Ontario, Canada, assignor to W. R. Grace & Co., Duncan, S.C.
Filed Feb. 8, 1972, Ser. No. 224,649
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—183



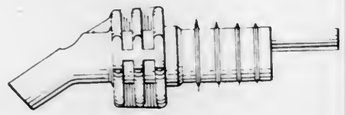
229,824
BASE FOR A CONTAINER
Herbert R. Erickson, Denver, Colo., assignor to Best Quality Plastics, Inc., Denver, Colo.
Filed Feb. 3, 1972, Ser. No. 223,400
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—219



229,825
ACTUATOR CAP FOR A PRESSURIZED CONTAINER
Thomas H. Hayes, Westport, Conn., assignor to VCA Corporation, Greenwich, Conn.
Filed Apr. 24, 1972, Ser. No. 247,225
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—258



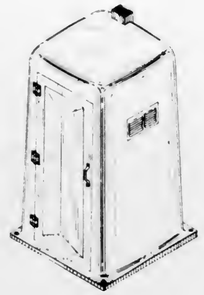
229,826
POURING SPOUT
George M. Raptis, 17866 Vicino Way, Pacific Palisades, Calif. 90272
Filed Sept. 15, 1972, Ser. No. 289,295
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—277



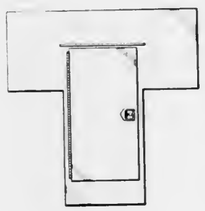
229,827
TIRE
Claude Albert Hart, Sutton Coldfield, and Eric Willlam Haycock, Alrewast, England, assignors to Dunlop Holdings Limited, London, England
Filed Jan. 5, 1971, Ser. No. 104,194
Term of patent 7 years
Claims priority, application Great Britain July 23, 1970
Int. Cl. D12—*15*
U.S. Cl. D12—152

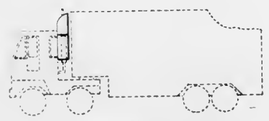


229,828
PORTABLE CHEMICAL TOILET
William J. Hinkley, 106 E. Washburn, La Crosse, Wis. 54601
Filed June 12, 1972, Ser. No. 261,741
Term of patent 14 years
Int. Cl. D25—*99*
U.S. Cl. D13—1 L

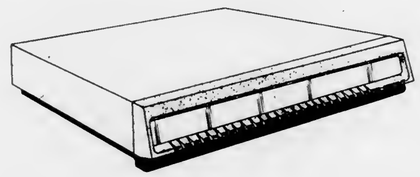


229,829
AIRFOIL CABINET FOR A TRUCK
Leo G. Arnold, Jr., 801 St. Louis St., Joplin, Mo. 63031
Filed Oct. 12, 1972, Ser. No. 297,075
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—6 A

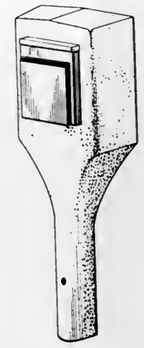




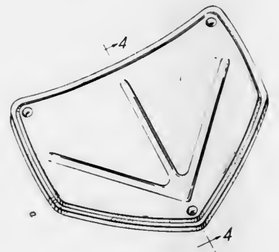
229,830
DIGITAL COMPUTER
John W. Carroll, Pepperell, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed Apr. 27, 1972, Ser. No. 248,355
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C

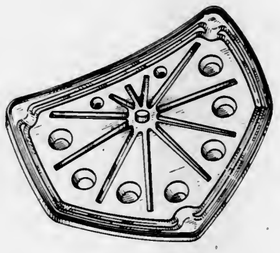


229,831
UTILITIES POST
Donald F. Sparling, 425 NE. 32nd St., Boca Raton, Fla. 33432
Filed July 19, 1971, Ser. No. 164,203
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—12

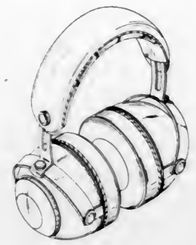


229,832
ANTENNA HOUSING
Edward Finkel, New York, N.Y., assignor to JFD Electronics Corporation, Brooklyn, N.Y.
Filed June 15, 1971, Ser. No. 153,487
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 F

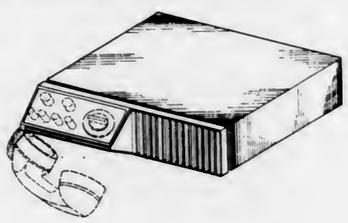




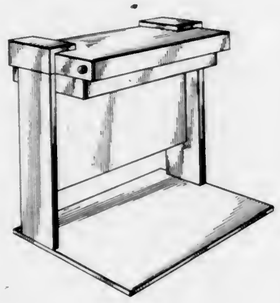
229,833
STEREOPHONIC HEAD SET
Sidney Becker, Woodbury, N.Y., assignor to Stanton Magnetics, Inc., Plainview, N.Y.
Filed Sept. 30, 1971, Ser. No. 185,468
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D26—14 H



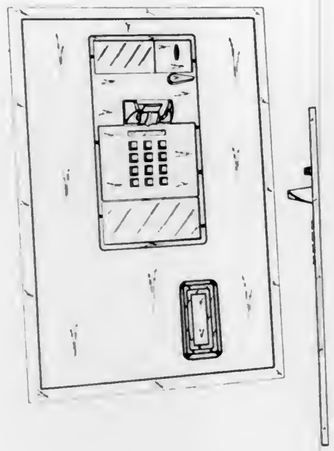
229,834
TWO-WAY RADIO HOUSING OR SIMILAR ARTICLE
Terrance N. Taylor, Cary, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Dec. 15, 1971, Ser. No. 208,528
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 K



229,835
TELEPRINTER
Forrest H. Dahl, General Delivery, Fergus Falls, Minn. 56537
Filed Oct. 13, 1971, Ser. No. 188,630
(Filed under Rule 47(b) and 35 U.S.C. 118)
Term of patent 7 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 R



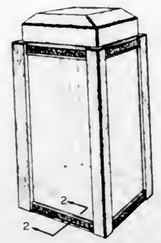
229,836
TELEPHONE PANEL ENCLOSURE
William M. Wollet, Huntsville, Ala., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed June 30, 1972, Ser. No. 267,836
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



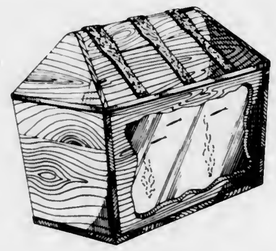
229,837
TELEPHONE HANDSET
Donald Michael Genaro, Haworth, N.J., and John Niel McGarvey, Drexel Hill, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 13, 1973, Ser. No. 351,081
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



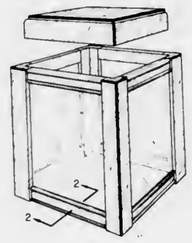
229,838
COMBINED FRAMED AQUARIUM AND COVER THEREFOR
Boyd R. Johnson, 519 C St., Salt Lake City, Utah 84103
Filed Oct. 4, 1971, Ser. No. 186,580
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—8



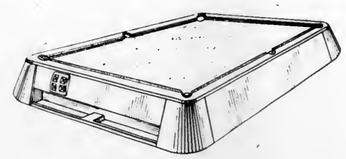
229,839
AQUARIUM
Irving Schlesinger, Laguna Niguel, and Charles Fleenor, Laguna Beach, Calif., assignors to South Bay Treasure, Inc., doing business as Treasure Industries, Hawthorne, Calif.
Filed Mar. 27, 1972, Ser. No. 238,732
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—9



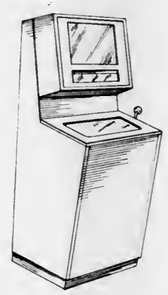
229,840
COMBINED FRAMED AQUARIUM AND COVER THEREFOR
Boyd R. Johnson, 519 C St., Salt Lake City, Utah 84103
Filed June 14, 1971, Ser. No. 153,151
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—12



229,841
BILLIARD TABLE TOP
Phillip E. Crossman, Green Bay, Wis., assignor to The Brunswick Corporation
Filed Mar. 8, 1972, Ser. No. 232,995
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—3



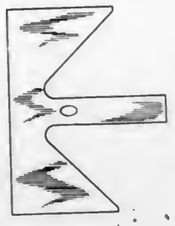
229,842
CABINET FOR A COIN-CONTROLLED AMUSEMENT MACHINE
Joseph E. Lally, McHenry, and Terrence A. Reedy, Jr., Skokie, Ill., assignors to Bally Manufacturing Corporation, Chicago, Ill.
Filed July 14, 1971, Ser. No. 162,737
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



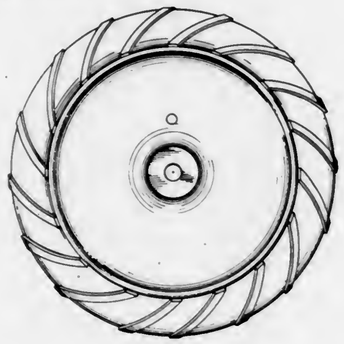
229,843
GOLF TEACHING AID
Leroy Goans, 6217 Fairhurst Ave., Cincinnati, Ohio 45213
Filed Feb. 16, 1972, Ser. No. 227,010
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GC



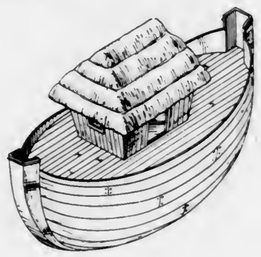
229,844
GOLF CLUB HEAD
Richard Pavelle, 756 N. Country Club Drive, Tucson, Ariz. 85716
Filed Feb. 17, 1972, Ser. No. 227,315
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GH



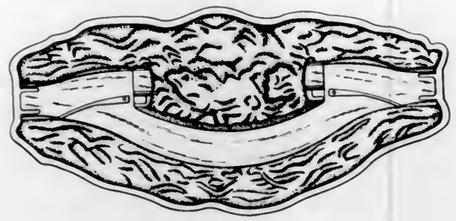
229,845
WHEEL FOR A JUVENILE VEHICLE
Viktor Schreckengost, Cleveland Heights, Ohio, assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.
Filed Sept. 22, 1971, Ser. No. 182,927
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



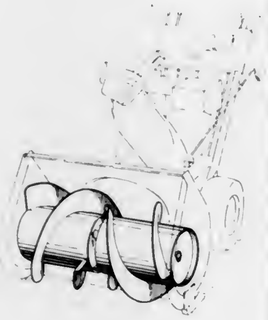
229,846
TOY ARK
Donald A. Rae and Madalene B. Ray, both of Box 51, Jenkintown, Pa. 19046
Filed Dec. 8, 1971, Ser. No. 206,231
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 JJ



229,847
TOY ROADWAY SECTION
Russell C. Edmisson and LC J. Kingsbury, Manhattan Beach, and George Soulakis, North Hollywood, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 13, 1971, Ser. No. 207,726
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 MM



229,848
SNOW AUGER
Robert A. Mittelstadt, Burnsville, and John M. Berner, Minneapolis, Minn., assignors to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Sept. 23, 1971, Ser. No. 183,302
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D35—2 B



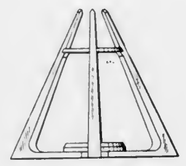
229,849
EXPANDABLE GEM SETTING
Walter H. Glaser, Kaufbeuren-Neugablonz, Germany, assignor to E. H. Ashley & Company, Inc., Providence, R.I.
Filed July 6, 1971, Ser. No. 160,249
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 B



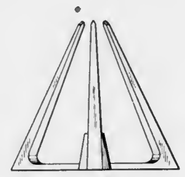
229,850
PENDANT OR THE LIKE
Albert F. Loertz, 5825 Guilford Ave., Indianapolis, Ind. 46220
Filed June 21, 1972, Ser. No. 264,904
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—15



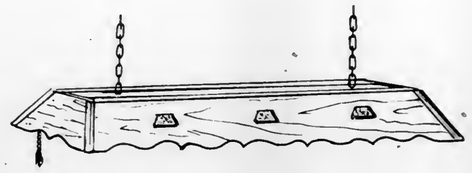
229,851
CANDLESTICK
Frederick W. Lindblad, 7 Hatherbury Court, Prestbury Subdivision, Aurora, Ill. 60504
Filed Nov. 29, 1972, Ser. No. 310,381
Term of patent 14 years
Int. Cl. D26—*01*
U.S. Cl. D48—2



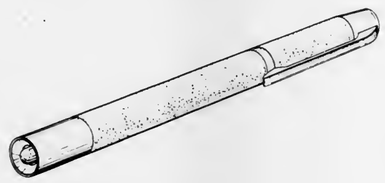
229,852
CANDLESTICK
Frederick W. Lindblad, 7 Hatherbury Court, Prestbury Subdivision, Aurora, Ill. 60504
Filed Nov. 29, 1972, Ser. No. 310,382
Term of patent 14 years
Int. Cl. D26—*01*
U.S. Cl. D48—2



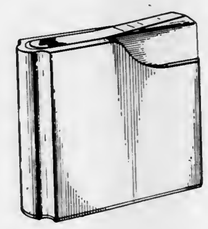
229,853
LIGHT FIXTURE
Harry Taormina, 8427 Dacosta, Downey, Calif. 90240
Filed May 8, 1972, Ser. No. 251,581
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—23 A



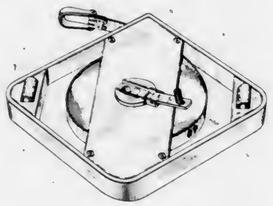
229,854
FLASHLIGHT
Harold F. Bajusz, Woodridge, N.J., assignor to Accutec, Inc., Wallington, N.J.
Filed June 5, 1972, Ser. No. 260,053
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 A



229,855
GAS LIGHTER
Kenjiro Goto, Tokyo, Japan, assignor to Mansei Kogyo Kabushiki Kaishya, Saitama, Japan
Filed Feb. 16, 1972, Ser. No. 227,002
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R



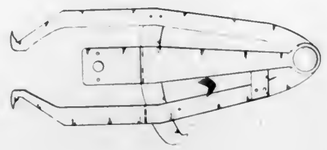
229,856
TAPE MEASURE
Michel Quenot, Besancon, France, assignor to Stanley Mabo, Besancon, France
Filed Jan. 5, 1972, Ser. No. 215,709
Claims priority, application France July 12, 1971
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—1 R

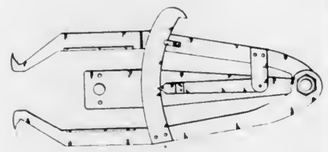


229,857
HEIGHT GAGE
James L. Taylor, 12319 Woodruff Ave., Downey, Calif. 90024
Filed Nov. 20, 1972, Ser. No. 308,052
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 R

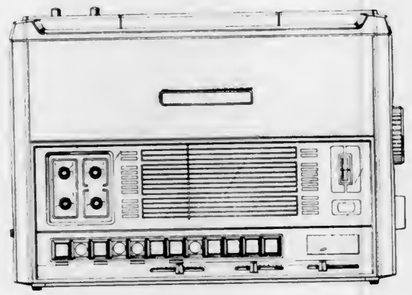


229,858
SPECTACLE FRAME CALIBRATOR
Joseph Santinelli, 36 Bucknell Drive, Plainview, N.Y. 13137
Filed Feb. 15, 1973, Ser. No. 332,901
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D52—6 B

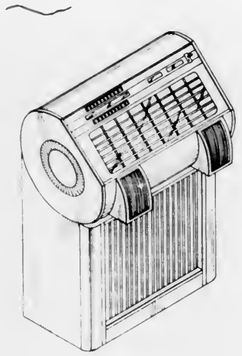




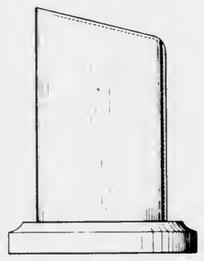
229,859
MULTI-BAND PORTABLE RADIO
Richard Culbertson, Manlius, and Cornelius W. Christie, Fulton, N.Y., assignors to General Electric Company
Filed Feb. 16, 1972, Ser. No. 226,996
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



229,860
PHONOGRAPH CABINET
Robert A. O'Neil and Michael C. Wilson, Glen Ellyn, Ill., assignors to The Seeburg Corporation of Delaware, Chicago, Ill.
Filed Apr. 12, 1972, Ser. No. 243,536
Term of patent 14 years
Int. Cl. D19—*01*
U.S. Cl. D56—4 R



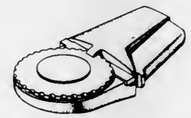
229,861
EYEGLASS HOLDER
Jerome Mende, 109 Roman Ave., Staten Island, N.Y. 10314
Filed Feb. 12, 1973, Ser. No. 331,469
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D57—1 C



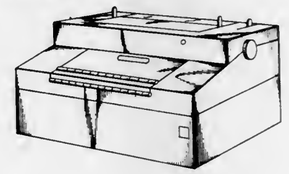
229,862
STILL CAMERA
David E. Hansen, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 13, 1972, Ser. No. 217,722
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 B



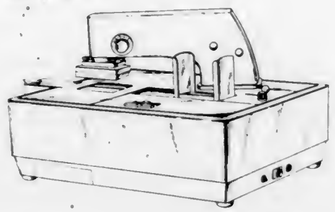
229,863
TAPE EMBOSSING TOOL
Andrew Graybeal, Mountain View, Calif., assignor to Dymo Industries, Inc., Emeryville, Calif.
Filed Apr. 19, 1972, Ser. No. 245,690
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D64—10



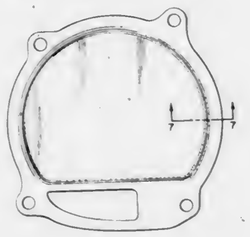
229,864
CABINET FOR TELEPRINTER OR THE LIKE
Berndt Ebbe Frick, 9 Herrgardsvagen, 13500 Tyreso, Sweden
Filed Dec. 22, 1971, Ser. No. 211,169
Claims priority, application Sweden June 23, 1971
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 R



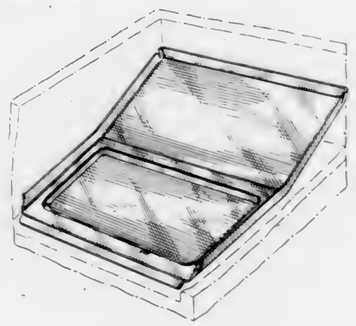
229,865
ELECTRIC PRINTING MACHINE OR SIMILAR ARTICLE
Robert E. Schmeck, Greenwich, Conn., assignor to Adrema Pitney-Bowes GmbH, Heppenheim-Bergstrasse, Germany
Filed Oct. 6, 1972, Ser. No. 295,544
Claims priority, application Germany Apr. 8, 1972
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D64—11 B



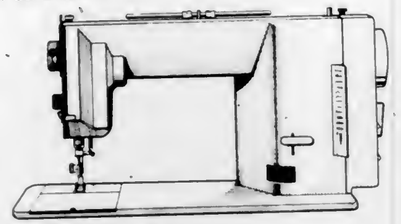
229,866
WATER PUMP BAFFLE
Arthur Marr, 589 Wesley Ave., Oakland, Calif. 94606
Filed Nov. 10, 1971, Ser. No. 197,634
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D65—1 R



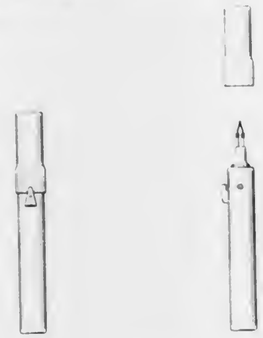
229,867
DRIP PAN FOR REFRIGERATORS OR THE LIKE
Harry R. Shanks, Glen Ellyn, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed June 12, 1972, Ser. No. 261,744
Term of patent 14 years
Int. Cl. D15—*07*
U.S. Cl. D67—3 B



229,868
SEWING MACHINE
Marco Zanuso, Milan, Italy, and Richard Sapper, Stuttgart-Degerloch, Germany, assignors to Necchi S.p.A., Pavia, Italy
Filed July 9, 1971, Ser. No. 161,421
Claims priority, application Italy Jan. 26, 1971
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D70—1



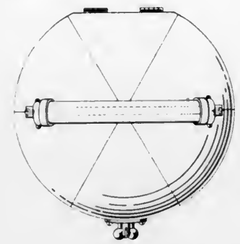
229,869
CAPPED BATTERY OPERATED CAUTERY
David E. Staub, Clearwater, Fla., assignor to Concept, Inc., St. Petersburg, Fla.
Filed June 9, 1971, Ser. No. 151,622
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12 R



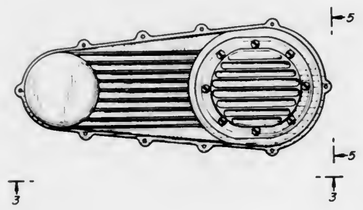
229,870
PORTABLE HANGER FOR LADY'S PURSE
Jane M. Czarny, 5919 Larkins, Detroit, Mich. 48210
Filed Aug. 30, 1972, Ser. No. 284,747
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—2 R



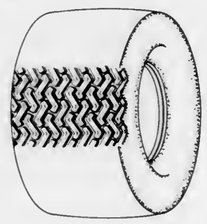
229,871
HANDBAG
Clarence V. Tibbs, 7119 Kingston Pike, Knoxville, Tenn. 37919
Filed Jan. 12, 1973, Ser. No. 323,143
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



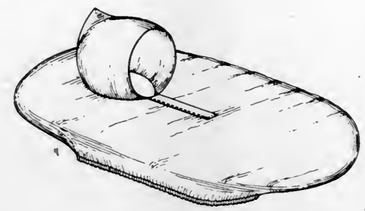
229,872
COVER FOR PRIMARY CHAIN FOR MOTORCYCLE
Larry L. Ziegler, 1918 5th St., San Fernando, Calif. 91340
Filed Jan. 14, 1972, Ser. No. 218,048
Term of patent 14 years
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U.S. Cl. D90—5



229,873
TIRE
Eugene E. McMannis, Cuyahoga Falls, Ohio, assignor to Max-Trac Tire Co., Inc.
Filed Feb. 17, 1972, Ser. No. 227,344
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D90—20 R



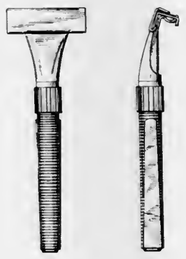
229,874
BABY BUNTING
Zeev Scharf, 138 Galloway Ave., Staten Island, N.Y. 10302
Filed Mar. 22, 1972, Ser. No. 237,230
Term of patent 14 years
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U.S. Cl. D92—2 R



229,875
SAFETY RAZOR
Martin Glaberson, Ardsley, N.Y., assignor to Warner-Lambert Company, Morris Plains, N.J.
Continuation-in-part of abandoned design application Ser. No. 191,958, Oct. 22, 1971. This application May 3, 1972, Ser. No. 250,100
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



229,876
SAFETY RAZOR
Martin Glaberson, Stratford, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.
Filed Sept. 11, 1972, Ser. No. 288,189
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



LIST OF PATENTEES

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Backstein, Gunter, and Petzsch, Lothar, to Rheinmetall G.m.b.H. Switch for electrical impact detonators. 3,783,791, Cl. 102-70.200.

Badger Company, Inc., The. *See—*
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Baermann, Max. Permanent magnet for suspension bearings. 3,784,945, Cl. 335-302.000.

Bagheri, Mansour A. H.; Fitzgerald, Walter P., Jr.; and Sanders, Beatrix Y., to Long-Lok Fasteners Corporation. Method of forming patch-type self-locking screw fasteners. 3,784,435, Cl. 156-293.000.

Bagshawe, Kenneth D.; and Marchant, Derek N., to Hayward Foundation, The. Apparatus for analysing continuously discrete biological liquid samples. 3,784,826, Cl. 250-100.0sc.

Bailey, Rex Edward. Automatic egg turner. 3,783,833, Cl. 119-44.000.

Bailey, Richard J., to GTI Corporation. Conductive shunt for dual-in-line terminal integrated circuit. 3,784,957, Cl. 339-19.000.

Baker, David Keith; Eason, Ronald Charles; Gascoigne, Richard Melville; and Schryver, Andrew, to Rank Organisation Limited, The. Stage lighting control units. 3,784,875, Cl. 315-294.000.

Baker, James G., to Polaroid Corporation. Reflex camera and viewing device. 3,783,764, Cl. 95-42.000.

Baker, James G., to Polaroid Corporation. Corrected optical system for shallow camera or the like, components thereof. 3,784,277, Cl. 350-6.000.

Ball, Allan: *See—*
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Baltimore and Ohio Railroad Company, The: *See—*
Christian, Frank Gordon, Jr., 3,783,798.

Bancroft, James R.; Cleavinger, Richard L.; and Hall, James M., to Ball Brothers Research Corporation. Radiant energy selection means. 3,784,829, Cl. 250-203.0ct.

Bangs, Leigh B.; Huml, James O.; and Layne, Gilbert S., to Dow Chemical Company, The. Corrosion resistant frozen wall. 3,784,371, Cl. 75-68.00r.

Banner, Philip M. Mechanical trim tab means for marine craft. 3,783,817, Cl. 114-66.50p.

Bannies, Hans E., to Plummer, Walter A. Coupling assembly for shielded tubular jacketing. 3,784,730, Cl. 174-75.00c.

Banyu Pharmaceutical Co., Ltd.: *See—*
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Barclay, Roger, to Pierre, Naquet and Societe Anonyme Laboservice. Viewing apparatus. 3,783,540, Cl. 40-78.070.

Barker, Michael D., to Shell Oil Company. Pesticidal phosphorylated thiazole derivatives. 3,784,554, Cl. 260-302.00e.

Barnhart, Bruce R.; and Hill, David C., to General Motors Corporation. Internal combustion engine ignition spark vacuum advance system. 3,783,846, Cl. 123-117.00a.

Barra, Frank J.; and Murrell, Kenneth R., to Black, Sivalls & Bryson, Inc. Apparatus for separating oil and solids from water. 3,784,010, Cl. 210-114.000.

Barrett, James Howard; and Kelleher, Jack, to Dynamic Technology Limited. Lighting control systems. 3,784,874, Cl. 315-294.000.

Barron, Mark B.: *See—*
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Barth, Gerhard: *See—*
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Barton, Stephen R.; and Diebler, Herman G., to Technicon Instruments Corporation. System and method for improved operation of a colorimeter or like optical analysis apparatus. 3,784,310, Cl. 356-181.000.

Basic Incorporated: *See—*
Strong, Herbert W.; Radway, Jerrold E.; and Cook, Henry A., 3,784,680.

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Battcock, Whalley Vowe: *See—*
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Bauer, Benjamin B., to Columbia Broadcasting System, Inc. Decoders for quadruphonic sound utilizing wave mathing logic. 3,784,744, Cl. 179-1.0gq.

Bauer, Donald J.: *See—*
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Baumann, Dieter; and Habermeier, Juergen, to Ciba-Geigy Corporation. Long-chain diglycidyl esters. 3,784,525, Cl. 260-78.4ep.

Baumann, Robert F.; Bozza, Eugene F.; and Hunt, Gardner S., to United States of America, Army. Propellant composition containing a nickle silver composite. 3,784,419, Cl. 149-2.000.

Baxter, Gene F.: *See—*
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Baxter, Gene F.; Freeman, Harlan G.; and Tiedeman, George T., to Weyerhaeuser Company. Rapid curing resin compositions employing a phenol-aldehyde condensation polymer reacted with bis-aryl amine. 3,784,516, Cl. 260-51.500.

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Bayer, John W.; and Santiago, Edgardo, to Owens-Illinois, Inc. Polymeric quaternary ammonium compounds and methods for making same. 3,784,529, Cl. 260-79.30m.

Beadle, Bruce R.; and Bollinger, John G., to Giddings & Lewis, Inc. Adaptive machining. 3,784,798, Cl. 235-151.110.

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Beeman, Archie W. Revolvable canopy having two point suspension. 3,784,250, Cl. 297-184.000.

Beer, Bernard; Clody, Donald E.; Vogel, John R.; and Horovitz, Zola P., to Squibb, E. R., & Sons, Inc. Anti-anxiety combination. 3,784,688, Cl. 424-244.000.
Beesley, William N., Jr. Portable and disposable dispensing packages. 3,784,022, Cl. 211-49.00d.
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Menapace, Henry R.; Benner, Gerald S.; and Maly, Neil A., 3,784,631.
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Benson, Alden P.; Foster, Kenneth J.; and Quellette, Alfred R., to United States of America, Navy. Removable goggles for helmet 3,783,452, Cl. 2-6.000.
Benson, Carl P.: *See—*
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Berger, Helmut, to Siemens Aktiengesellschaft. Automatic film developing machine with means to sequentially remove film sheets from a magazine. 3,784,834, Cl. 250-477.000.
Berger, Kurt: *See—*
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Bergmeister, Eduard; Kirst, Paul-Gerhard; and Winkler, Heinz, to Wacker-Chemie GmbH. Process for the preparation of free-flowing, lump-free, redispersible, synthetic resin powders. 3,784,648, Cl. 260-856.000.
Bergstrom Paper Company: *See—*
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Bergum, Bernard C.; and Youngquist, John A., to ESB Incorporated. Battery with duplex electrode construction using continuous metal carrier strip having at least one nonreactive metal side. 3,784,410, Cl. 136-10.000.
Berkey Photo, Inc.: *See—*
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Berkley, David Arthur; and Mitchell, Olga Mary Mracek, to Bell Telephone Laboratories, Incorporated. Speech suppression by predictive filtering. 3,784,747, Cl. 179-1.0hf.
Berkowitz, Irving L., to Kason Hardware Corporation. Panel fastener 3,784,240, Cl. 292-111.000.
Berlin, Evan H. Balancing skill game. 3,784,196, Cl. 273-1.00e.
Berliner, Julius F. T., to Hosiery Mate Company, The. Textile strengthener. 3,784,497, Cl. 260-29.6xa.
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Berman, Aaron Robert; deceased (by Berman, Katharine D.; administratrix). Golf ball. 3,784,209, Cl. 273-218.000.
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Bertorelli, Orlando Leonard, to Huber, J. M., Corporation. Production of finely divided amorphous alumino-silicate pigments from kaolin 3,784,392, Cl. 106-288.00b
Bertus; Brent J., to Phillips Petroleum Company. Catalysts and process for dehydrogenation 3,784,627, Cl. 260-683.300.
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Bildusas, Leonas L., and Manske, Wendell J., to Minnesota Mining and Manufacturing Company. Latent image composite master and method. 3,784,394, Cl. 117-1.700
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Blahut, Donald Edgar, to Bell Telephone Laboratories, Incorporated Adaptive delta modulation decoder. 3,784,922, Cl. 329-104.000.
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Blum, Julius A. Knockdown winch assembly for mounting upon a power driven vehicle wheel. 3,784,164, Cl. 254-166.000.
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Boileau, Jacques, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Tire having bi-based carcass. 3,783,925, Cl. .
Bojas, Edward J., to Eaton Corporation. Hydrostatic transmission control system. 3,783,611, Cl. 60-19.000.
Bokros, Jack C., to Gulf Oil Corporation. Percutaneous implant. 3,783,868, Cl. 128-260.000.
Bolen, Waldo B., to Northwestern Corporation, The. Vending machine with counting mechanism 3,783,986, Cl. 194-2.000.
Bolie, Victor W. Self-regulating artificial heart. 3,783,453, Cl. 3-1.000.
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Bookless, George W., to Bell & Howell Company. Margin control means for duplicator drum. 3,783,784, Cl. 101-248.000.
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Bosworth, Clive James Arthur, to British Steel Corporation. Internal bead trimmers 3,783,722, Cl. 83-1.000.
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Bourgeois, Norbert Paul, to Etudes et Bonneterie S.A. Alternate winding and unwinding of a two-ended program tape. 3,784,129, Cl. 242-201.000
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Brelot, Rene; and Tourret, Jean, to Compagnie des Compteurs. Optical comparator with integrated reflectivity compensation. 3,784,309, Cl. 356-156.000.
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Brignard, Francois C.; and Lefranc, Jean E. Vegetable cutting and slicing machine. 3,783,727, Cl. 83-592.000.
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Brock, Jan A. Vanden, to Transidyne General Corporation. Fraction computer for multi-component trace. 3,784,789, Cl. 235-61.60a.
Brooks, William R. Mixing and dispensing gun having a replaceable nozzle. 3,784,110, Cl. 239-304.000.
Brosow, Jorgen. Navigation system. 3,784,968, Cl. 340-25.000.
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Brown Boveri & Company Limited: *See—*
Kuse, Dieter, 3,784,281.
Brown, Earl Franklin; and Kaminski, William, to Bell Telephone Laboratories, Incorporated. Color television with control of a wobbling beam. 3,784,735, Cl. 178-5.400.
Brown, James A., to Dow Chemical Company, The. Surface conversion treatment for magnesium alloys. 3,784,417, Cl. 148-6.15r.
Brown, Norman Joseph; Packham, Charles Christopher; and Parsonage, Raymond Graham, to Gillette Company, The. Electric shavers. 3,783,508, Cl. 30-43.920.
Brown, Stuart; and Lowe, Warren, to Chevron Research Company. Lubrication oil composition. 3,784,474, Cl. 252-51.50r.
Brown, William M., to Federal Paper Board Company, Inc. Multiple unit container package with consumer tool divider assembly. 3,784,000, Cl. 206-47.00r.
Bruckner, Richard, to Bunker Ramo Corporation. Carrier for integrated circuit packages. 3,784,960, Cl. 339-91.00r.
Bruderer AG: *See—*
Portmann, August Thomas, 3,783,699.
Portmann, August Thomas, 3,784,075.
Brudy, Peter E., to Dominion Auto Accessories, Limited. Retractable truck mirror. 3,784,149, Cl. 248-478.000.
Bruen, Charles P.: *See—*
Morgan, Thomas R.; Low, William W.; Wamser, Christian A.; and Bruen, Charles P., 3,784,672.
Bruggeman, Frans; and Smit, Jacobus C., to N.V. Bekaert S.A. Wire box or crate. 3,784,044, Cl. 220-19.000.
Brush, Donald C.; and Oswald, Robert D., to Sherwood Medical Industries Inc. Sampling syringe. 3,783,998, Cl. 206-43.000.
Bryden, Norman E. Router overarm attachment. 3,783,915, Cl. 144-134.00b.
Bryll, Medard Z., to Gateway Industries, Inc. Seat sensor safety system with improved switch sensor containing slip clutch coupling means. 3,784,769, Cl. 200-52.00r.
Buchtel, Dean H. Dispenser. 3,784,058, Cl. 222-57.000.
Bucker, Franz, to Keller, C., u. Co. Drying trolleys for bricks and other articles. 3,783,800, Cl. 108-53.000.
Buckman Laboratories, Inc.: *See—*
Buckman, Stanley J.; Pera, John D.; Raths, Fred W.; and Mercer, Gerald D., 3,784,649.
Buckman, Stanley J.; Pera, John D.; Raths, Fred W.; and Mercer, Gerald D., to Buckman Laboratories, Inc. High molecular weight ionene polymeric compositions. 3,784,649, Cl. 260-874.000.
Buckman, Wayne T.; Miller, Blaine Monroe; and Lewis, Thomas Robert, to Wascon Systems, Incorporated. Pulping system with jet assist for pulper discharge. 3,784,116, Cl. 241-46.170.

Budrose, Charles R., to Bio-Dynamics, Inc. Universal recording card. 3,784,763, Cl. 179-100.2md.

Buechner, Oskar: *See—*
Pfannmueller, Helmut; Urban, Friedrich; Buechner, Oskar; Gropper, Hans; and Sistig, Wolf, 3,784,538.

Bullard, Herbert L.: *See—*
Osborn, Robert A.; St. Cyr, David R.; and Bullard, Herbert L., 3,784,530.

Bunker Ramo Corporation: *See—*
Bruckner, Richard, 3,784,960.
Hilbert, Wolfgang Herman Gustav, 3,784,233.

Bunker-Ramo Corporation, The: *See—*
Johnston, Samuel A.; Lyons, John G.; and Riedmayer, Henry J., 3,784,948.

Bunn, Dorrance P., Jr.: *See—*
Reynolds, David L.; Youngblood, Douglas J.; Bunn, Dorrance P., Jr.; and Pratt, Roy E., 3,784,463.

Bunn, Dorrance P., Jr.; and Jones, Henry E., to Texaco Inc. Fluid catalytic cracking. 3,784,360, Cl. 23-288.00s.

Buntrock, Robert Edward: *See—*
Cebalo, Tony; and Buntrock, Robert Edward, 3,784,555

Burgdorf, Jochen, to ITT Industries, Inc. Self-adjusting device for brakes. 3,783,981, Cl. 188-106.00f.

Burger, Jacobus J.: *See—*
Krijger, Willem; and Burger, Jacobus J., 3,784,115.

Burgett, James F.; Vanderberg, Lawrence J.; and Woodward, Gary F., to Ford Motor Company. Liquid level magnetic gauge circuitry 3,784,973, Cl. 340-59.000.

Burke Concrete Accessories, Inc.: *See—*
Collier, Thomas G., Jr., 3,784,313.
Steffan, William J., 3,783,462.

Burke, George E., Jr.; Lemos, Walter G.; and Shippee, Dennis M., to Textron, Inc. Portable pneumatic fastener driving device with improved actuating mechanism. 3,784,077, Cl. 227-8.000.

Burlington Industries, Inc.: *See—*
Griffin, Thomas Franklin, 3,784,427.

Burmeister, William W., to Sperry Rand Corporation. Multiaxes two cycle gimbal error corrector. 3,784,891, Cl. 318-633.000.

Burnham, Donald; Honeyball, Samuel Walter; Spooner, Michael, and Lobb, Daniel Richard, to Redifon Limited. Ground-based flight simulating apparatus. 3,784,742, Cl. 178-7.880.

Burroughs Wellcome: *See—*
Walls, Leslie Percy, 3,784,582.

Burstein, Albert H., and Allen, William C., to Sampson Corporation, The. Intramedullary rod. 3,783,860, Cl. 128-92.0bc.

Busheev, Anatoly Ivanovich: *See—*
Manyafov, Valery Nikolaevich; Busheev, Anatoly Ivanovich, Semenov, Roman Lvovich, and Klevtsov, Valery Alexeevich, 3,784,866.

Bushnell, Clifford B.; Sheffer, Edward J., and Sutliff, Robert C., to Eastman Kodak Company. Anticlockspring connector. 3,784,001, Cl. 206-52.00f.

Buss A.G.: *See—*
Wisz, Edward, 3,783,936.

Butler, Claude D.: *See—*
Krehbiel, Delmar D., and Butler, Claude D., 3,784,572.

Butler, Walter J.: *See—*
Kurz, Bruno; Barron, Mark B., and Butler, Walter J., 3,784,847

Buttermist, Inc.: *See—*
Hautly, Harry B.; and Echols, Samuel T., Jr., 3,783,820.

Buzzolini, Mario G., to Sandoz, Inc. 1-p-(ω-Aminoalkoxy)phenyl-4,4-diaryl-cyclohexanes, cyclohexenes and cyclohexandienes and the salts and N-oxides thereof. 3,784,604, Cl. 260-870.00r.

Byrd, Lucid L., to Carter Precision Electric Company. Modular jack panel. 3,784,962, Cl. 339-121.000.

Byrne, William J.: *See—*
McGahon, John O.; and Byrne, William J., 3,783,991.

Byrnes, Eugene B.: *See—*
Arnold, Thomas B.; Byrnes, Eugene B.; and Castoe, Alonzo R., 3,784,466.

Bystrom, Andrew G. C.; and Bystrom, Mikeal G. Fishing rod holder. 3,783,547, Cl. 43-21.200.

Bystrom, Mikeal G.: *See—*
Bystrom, Andrew G. C.; and Bystrom, Mikeal G., 3,783,547.

Calhoun, Fredrick L., to Industrial Dynamics Company, Ltd. Container inspection system and method. 3,784,827, Cl. 250-498.000.

Calvert, Williard R., Sr. Heat and mass flow forced circulation electric air heater. 3,784,786, Cl. 219-368.000.

Cambridge, Ronan M.; and Chytil, Milan, to Bell Canada-Northern Electric Research, Limited. Long-line telephone circuit. 3,784,755, Cl. 179-16.00f.

Cambridge Scientific Instruments Limited: *See—*
Cuthbert, John; and Stow, James Albert, 3,784,938.

Caming, Lionel P.; and Fromwiller, Frank J., to Imperial Damper Co., Inc. Damper assembly. 3,783,768, Cl. 98-110.000.

Campbell, John J.; and Hart, Cullen P., to Caterpillar Tractor Company. Steering system for vehicles. 3,783,966, Cl. 180-79.20r.

Canada Cities Service, Ltd.: *See—*
Kaminsky, Victor Paul, 3,784,464.

Canavan, Thomas E. Off-road vehicle. 3,783,958, Cl. 180-5.00r.

Canon Kabushiki Kaisha: *See—*
Hirata, Noritsugu; and Takigawa, Tomishi, 3,784,291.
Ito, Yoshio; Katayama, Hajime; Nitanda, Hiroshi; and Yamaguchi, Masaru, 3,784,297.
Kanayama, Mitsutoshi, and Toda, Takao, 3,784,298.

Canron Limited: *See—*
Davies, Harry John, 3,784,416.

Cantamessa, Lorenzo. Spacing member for wire groups in electrical overhead lines. 3,784,723, Cl. 174-42.000.

Cantwell, Hugh Francis, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Fluidic pressure ratio control 3,783,903, Cl. 137-805.000

Capdeboscq, Andre: *See—*
de Chassy, Christian, and Capdeboscq, Andre, 3,783,816.

Capewell Manufacturing Company: *See—*
Bittern, Joseph E., 3,784,316.

Capital Cubicle, Inc.: *See—*
Lawrie, Raymond William, 3,784,145

Caplan, Stanley J., to Acheson Colloids Company. Anti-corrosion lubricating compound. 3,784,472, Cl. 252-25.000

Caputo, James P., and Weber, Fred A., to GTE Automatic Electric Laboratories, Incorporated. Data handling system error and fault detecting and discriminating maintenance arrangement. 3,784,801, Cl. 235-153.0ak.

Carborundum Company, The: *See—*
Economy, James; Cottis, Steve G.; and Nowak, Bernard E., 3,784,405

Carlberg, Edwin W., 507 to Simpson, Dale O. and Secure money changing and money receiving system. 3,783,884, Cl. 133-1.00r

Carlson, Charles J.: *See—*
Farmer, Donald J.; Carlson, Charles J.; and Muschong, Peter W., 3,784,733

Carlson, Henry B. Septic tank construction. 3,784,012, Cl. 210-170.000.

Carrier Corporation: *See—*
Miller, Charlie D., 3,783,721

Carter, J. Warne, and Meher, Martin Duane. Sealed, filament-wound plastic sleeve. 3,784,239, Cl. 285-293.000

Carter Precision Electric Company: *See—*
Byrd, Lucid L., 3,784,962

CArter, William A.: *See—*
Sievert, William C.; CArter, William A.; and Munson, James L., 3,783,823

Carter, William C.; and Wadia, Aspi B., to International Business Machines Corporation. Self-testing checking circuit. 3,784,977, Cl. 340-146.1ah

Casapopol, Gherasim, and Iaru, Napoleon, to Intreprinderea Judetana de Morarit si Panificatie. Apparatus for washing packing cases 3,783,560, Cl. 51-5.000

Case Westen Reserve University: *See—*
Mihaldi, Floro D., 3,784,820

Caserta, Richard T.; and Ellendman, Merrill, to Red Hill Grinding Wheel Corporation. Organic-bonded abrasive containing octachloronaphthalene filler. 3,784,365, Cl. 51-298.000

Cash, William D., to Ciba-Geigy Corporation. Production of an hypotensive effect with esters of gallic acid. 3,784,695, Cl. 424-308.000

Cassella, Vincent Joseph, Jr., to Pennwalt Corporation. Method of preparing dry-cleanable soil-resistant leathers. 3,784,400, Cl. 117-62.200.

Castoe, Alonzo R.: *See—*
Arnold, Thomas B.; Byrnes, Eugene B.; and Castoe, Alonzo R., 3,784,466

Castro, Rodolfo; Toscano, Estehan J.; and Sioseca, Felix Jerome, to Hughes Aircraft Company. Holding and smoke removal system for a laser cutter. 3,784,183, Cl. 269-20.000

Cata, Nicolas G. Prefected case. 3,784,046, Cl. 220-35.000

Caterpillar Tractor Company: *See—*
Campbell, John J.; and Hart, Cullen P., 3,783,966.

Cathcart, Wilson Stewart, to Du Pont de Nemours, E. I., and Company. Process for treating sodium bisulfate. 3,784,673, Cl. 423-203.000.

Cavanaugh, Robert E., Jr., to Amchem Products, Inc. Method for protecting painted workpieces in a bake oven. 3,784,404, Cl. 117-97.000.

Cave, Gordon Milford, to Coplastix Limited. Fluid-flow control valves and sealing means therefor. 3,784,158, Cl. 251-327.000.

Cavitt, Stanley Bruce, to Jefferson Chemical Company, Inc. Hydrocarbon soluble phosphorus-modified molybdenum catalysts. 3,784,482, Cl. 252-431.00p.

Cebalo, Tony; and Buntrock, Robert Edward, to Air Products and Chemicals, Inc. Certain oxadiazolyl and thiadiazolyl amidines. 3,784,555, Cl. 260-306.80d.

Cekorie, Thomas, Jr.; and Yananton, Patrick Michael, to Hoffmann-La Roche Inc. Diagnostic device. 3,784,448, Cl. 195-139.000.

Celanese Corporation: *See—*
Braunstein, David M., 3,784,507.
Schaul, Jerome Sandel; Wissbrun, Kurt Falke; and Hannon, Martin John, 3,784,661.

Cennerelli, Giuseppe. Centering block for positioning reinforcement iron pieces. 3,783,574, Cl. 52-687.000.

Central Moloney Inc.: *See—*
Farmer, Donald J.; Carlson, Charles J.; and Muschong, Peter W., 3,784,733.

Centre d'Etudes Techniques des Industries de l'Habillement: *See—*
Guichard, Jean, 3,783,805.

Ceramic Kagaku Yugen Kaisha: *See—*
Shiio, Hajime; and Yamaguchi, Masami, 3,784,407.

Cescon, Lawrence Anthony, to Du Pont de Nemours, E. I., and Company. Phototropic 2,4,5-triphenylimidazolyl radicals and dimers thereof. 3,784,557, Cl. 260-309.000.

Ceska, Gary W., to Sinclair-Koppers Company. Process for preparing low emulsifier synthetic latex. 3,784,498, Cl. 260-29.6ta.

Cevera, James C. Proportioning pump. 3,784,335, Cl. 417-539.000.

Chafetz, Harry: *See—*
Siegart, William R.; Blackley, William D.; and Chafetz, Harry, 3,784,362.

Chafetz, Harry; Cullen, William P.; and Miller, Edward F., to Texaco Inc. Method for treating nitrogen-containing polymeric dispersants. 3,784,645, Cl. 260-583.00p.

Chalfin, Gregory T., to Aerojet-General Corporation. Metal detection system. 3,784,899, Cl. 356-5.000.

Chambers, Thomas G., to Goodyear Tire & Rubber Company, The. Adhesive composition containing an A-B-A block copolymer, poly alpha-methyl styrene and a tackifying resin. 3,784,587, Cl. 260-876.00b.

Chance, A. B., Company: *See—*
Davis, John P.; Harmon, Robert W.; and Woom, James T., 3,784,729.
Haubein, Harold Denis, 3,784,727.

Chance, Glenn G.; Crews, Sam T.; and Wilson, Clenis E., to Smith International, Inc. Intermediate drill stem. 3,784,238, Cl. 285-286.000.

Chandler Evans Inc.: *See—*
Lagana, Joseph A.; and Cygnor, John E., 3,784,326.

Chang, Kern Ko Nan, Prager, Hans John; and Weisbrod, Sherman, to RCA Corporation. Broadband apparatus using high efficiency avalanche diodes operative in the anomalous mode. 3,784,925, Cl. 330-34.000.

Chang, Shao-Yuen S., to General Electric Company. Process for boron containing glasses useful with semiconductor devices. 3,784,424, Cl. 156-15.000

Channell, Glenn L.; Fuller, Blaine W.; and Davisson, Kenneth R., to Hydraulics Unlimited Mfg. Co. Scissor hoist. 3,784,162, Cl. 254-124.000

Chao, Kwei C.: *See—*
Akin, Cavit; and Chao, Kwei C., 3,784,536.

Chapman, Charles C., to Phillips Petroleum Company. Removing alkyl fluoride with HF acid from an alkylation hydrocarbon effluent. 3,784,628, Cl. 260-683.420.

Chapurin, Gennady Alexandrovich. Flameless gas catalytic heater. 3,784,353, Cl. 431-329.000.

Charbonnages de France: *See—*
Chiche, Pierre, 3,784,679

Charmoli, Arthur J.: *See—*
Knutson, Orlie E.; Gernandt, Louis E.; and Charmoli, Arthur J., 3,783,577.

Chartet, Andre, to Societe Anonyme des Usines Chaussen. Distributing device and heat exchanger embodying the same. 3,783,938, Cl. 165-166.000.

Chemische Fabrik Budenheim: *See—*
Beltz, Klaus, Frankenfeld, Klaus; and Gotzmann, Karl, 3,784,678.

Chesapeake and Ohio Railway Company, The: *See—*
Christian, Frank Gordon, Jr., 3,783,798.

Chevron Research Company: *See—*
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Graul, John Michael, 3,784,967
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Chicago Bridge & Iron Company: *See—*
Reich, Robert Frederick, 3,783,628.
Simpson, Arthur R.; and Egloff, Frank S., 3,783,918.

Chiche, Pierre, to Charbonnages de France. Process for producing carbon fibres. 3,784,679, Cl. 423-447.000.

Chierici, Osvaldo F., to Holland Company. Air hose support for cushion cars. 3,784,030, Cl. 213-76.000.

Child, Ralph Grassing: *See—*
Cohen, Elliott; Sloboda, Adolph Edward; Osterberg, Arnold Curtis; and Child, Ralph Grassing, 3,784,704.
Tomcufcik, Andrew Stephen; Child, Ralph Grassing; and Sloboda, Adolph Edward, 3,784,701.

Chisso Corporation: *See—*
Hino, Horoyuki; Asakuno, Hiroyoshi; and Yamada, Tetsuya, 3,784,662

Chmela, John F. Mesh target and dart capturable therein. 3,784,199, Cl. 273-95.00r.

Christian, Frank Gordon, Jr., to Chesapeake and Ohio Railway Company, The and Baltimore and Ohio Railroad Company, The. Railroad car for hauling flat stacks of material. 3,783,798, Cl. 105-369.00a

Christianson, Raymond A., to Under Sea Industries, Inc. Balanced regulator second stage. 3,783,891, Cl. 137-491.000.

Christopher, Todd J., to RCA Corporation. Television deflection circuit with low power requirement. 3,784,857, Cl. 315-27.0td.

Chubb Industries, Limited: *See—*
Markham, Michael H., 3,784,090.

Chun, Alexander Hing Chinn: *See—*
Prillig, Elliott Benjamin; and Chun, Alexander Hing Chinn, 3,784,683.

Chupp, John P.; and Tung, Ching C., to Monsanto Company. (1-Alken-1-yl)-amino-s-triazines. 3,784,544, Cl. 260-249.800.

Chute, Richard, to Eaton Corporation. Safety apparatus. 3,784,222, Cl. 280-150.0ah.

Chytil, Milan: *See—*
Cambridge, Ronan M.; and Chytil, Milan, 3,784,755.

Ciani, John B.; and Luthy, Richard G., to United States of America, Navy. Underwater angle measuring device. 3,783,524, Cl. 33-285.000.

Ciba Corporation: *See—*
Julian, Percy L.; Hirsch, Arnold; and Iseli, Ernst, 3,784,598.

Ciba Limited: *See—*
Weber, Hans-Peter; Litzler, Alfred; Hertig, Jean; Milicevic, Branimir; Fuhring, Heinrich; Sieber, Johannes-Helmut; and 042818, 3,783,650.

Ciba-Geigy AG: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,784,559.
Fleming, George Latto; and Martin, Richard John, 3,784,647.
Garnish, Edward William; and Hayes, Barry James, 3,784,433.
Kirchmayr, Rudolf; Heller, Hansjorg; and Rody, Jean, 3,784,569.
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Ciba-Geigy Corporation: *See—*
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Cash, William D., 3,784,695.
Fitzi, Konrad; and Pfister, Rudolf, 3,784,691.
Frei, Jorg; Morel, Charles J.; and Wacker, Oskar, 3,784,602.
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Gatzi, Karl, 3,784,690.
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Kartschmaroff, Peter; Moser, Paul; and Berger, Kurt, 3,784,510.
Model, Ernst; and Bindler, Jakob, 3,784,694.
Model, Ernst; and Dindler, Jakob, 3,784,698.
Renner, Alfred; and Seiz, Wolfgang, 3,784,584.
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Sturm, Elmar; and Vogel, Christian, 3,784,368.

Ciba-Geigy Marienberg GmbH: *See—*
Eggenspepger, Heinz; Franzen, Volker; and Stephan, Hans, 3,784,650.

Cichowski, Robert S., to Phillips Petroleum Company. Cobalt, iron, phosphorus and oxygen containing oxidative dehydrogenation catalyst. 3,784,483, Cl. 252-437.000.

Cilberti, Frank Leonard, Jr., to Mallory, P. R., & Co., Inc. Electric cell battery with plastic webbing spacer for fast and complete epoxy encapsulation. 3,784,411, Cl. 136-87.000.

Cina, Saverio J.: *See—*
Blurton, Leon C.; and Cina, Saverio J., 3,783,627.

Cinnasi, Alexsandro; and Rescalli, Carlo, to Snam Progetti, S.p.A. Process for the separation of conjugated diolefins from mixtures containing them. 3,784,626, Cl. 260-681.50r.

Cities Service Company: *See—*
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., 3,784,509.
Zimmerman, Stanley D.; and McCoy, Paul O., 3,784,531.

Cities Service Oil Company: *See—*
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Marcellis, Alphanso W.; and Kerschner, Paul M., 3,784,473.

Cities Service Research & Development Company: *See—*
Frick, George W., 3,784,462.

Citizen Watch Co., Ltd.: *See—*
Yasuda, Tetuya, 3,783,605.

Citizen Watch Company Limited: *See—*
Tanaka, Kazuo, 3,783,599.

Claghorn, Frederic S.: *See—*
Kenworthy, Samuel P.; and Hall, Marcus A., 3,784,119.

Clark, Kenneth M., to Duetsch-Company Electronic Components Division, The. Contact for electrical connector. 3,784,966, Cl. 339-276.00t.

Claus, Gunter; and Doring, Friedrich, to Krupp Huttenwerke AG. Switch for rail vehicles. 3,784,134, Cl. 246-446.000.

Cleavinger, Richard L.: *See—*
Bancroft, James R.; Cleavinger, Richard L.; and Hall, James M., 3,784,829.

Clements, Alwin Spencer: *See—*
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Cleveland Trencher Company, The: *See—*
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Clevepak Corporation: *See—*
Stump, Paul W.; Huber, James A.; and Lipinski, John M., 3,783,908.

Clody, Donald E.: *See—*
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Coach and Car Equipment Corporation: *See—*
Harder, Arthur J., Jr., 3,784,147.

Coal Industry (Patents), Limited: *See—*
Hoy, Herbert Raymond; Johnson, Ronald Leslie; and Battcock, Whalley Vowe, 3,784,108.

Coanda, Henry; Aldea, Gheorghe; Bodea, Ion; Truica, Vasile; Hanciulescu, Valentin; Posirca, Radu; Lazar, Cristian; and Gabor, Iacob, to Institutul de Cercetare si Proiectare Tehnologica Pentru Industria Extractiva de Titei si Gaza. Method of and apparatus or the gas-light withdrawal of a liquid from a subterranean space. 3,784,325, Cl. 417-163.000.

Coates, Vincent J.; and Welter, Leonard M., to American Optical Corporation. Low voltage field emission scanning electron microscope 3,784,815, Cl. 250-307.000.

Cocks, Franklin H.; and Bates, Herbert E., to Tyco Laboratories, Inc. Improvements in and morintings for radiation detecting devices. 3,784,860, Cl. 313-93.000.

Codrino, Giuseppe. Control unit for lights, direction indicators, and windshield wiper. 3,784,770, Cl. 200-61.360.

Coffman, Rudleigh G. Coaxial connector with integral switched terminating resistor. 3,784,950, Cl. 338-200.000.

Cohen, Elliott; Sloboda, Adolph Edward; Osterberg, Arnold Curtis; and Child, Ralph Grassing, to American Cyanamid Company. Compositions of 4-biphenyl acetic acid and method of use. 3,784,704, Cl 424-317.000.

Coleman, Bernard: *See*—
Krick, John B.; and Coleman, Bernard, 3,784,846.

Coleman, Charles M. Automatic volume control pipet. 3,783,696, Cl 73-425.40p.

Colgate-Palmolive Company: *See*—
Douglas, Livingston C., 3,784,040.
Suh, John T.; and Skorcz, Joseph A., 3,784,643.

Colin, Dennis P.: *See*—
Pearlman, Alan R.; and Colin, Dennis P., 3,784,935.

Colinet, Rene D. High ratio frictionless speed reductor. 3,783,712. Cl 74-805.000.

Collier, Thomas G., Jr., to Burke Concrete Accessories, Inc. Means for attaching a key-joint forming strip to a support stake. 3,784,313, Cl 404-51.000.

Collignon, Jean. Nozzle. 3,784,112, Cl. 239-443.000.

Collins, Lloyd O.: *See*—
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Collins, Thomas Robert Stephen: *See*—
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Collision Devices, Inc.: *See*—
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Colman, John M.: *See*—
Sauer, Harold S.; Hagopian, Nubar D.; and Colman, John M., 3,783,859.

Colten, Frank P.; and Kaplan, Morton, to General Foods Corporation Moisture barrier coating composition. 3,784,713, Cl. 426-171.000.

Columb, Henry Octave, Jr.; and Trecker, David John, to Union Carbide Corporation. N-(5-norbornen-2-ylmethyl) carbamate of cellulose acetate. 3,784,492, Cl. 260-13.00r.

Columbia Broadcasting System, Inc.: *See*—
Bauer, Benjamin B., 3,784,744.

Commercial Shearing, Inc.: *See*—
Gray, Basil P., 3,784,522.

Commissariat a l'Energie Atomique. *See*—
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Commissariat a l'Energie Atomiqut exchangers in nuclear reactors. *See*—
Vergasson, Michel, 3,784,443.

Commissariat a l'Energy Atomique: *See*—
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Commonwealth of Australia, The; care of the Secretary, Department of Supply: *See*—
Metcalfe, Kenneth A.; and Clements, Alwin Spencer, 3,784,398.

Compagnie des Compteurs: *See*—
Brelot, Rene; and Tourret, Jean, 3,784,309.

Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See*—
Boileau, Jacques, 3,783,925.
De Zarauz, Yves Jacques, 3,783,926.
Verdier, Henri, 3,783,927.

Compagnie Industrielle des Telecommunications Cit-Alcatel. *See*—
Oswald, Jacques; and Rainsard, Yves, 3,784,915.

Compagnie Industrielle Radioelectrique: *See*—
Kohler, Hans Karl; and Trachsel, Fred W., 3,784,253.

Compare, Giampiero, to Honeywell Information Systems Italia. Method for manufacturing artwork for printed circuit boards. 3,784,380, Cl. 96-44.000.

Compo Industries Inc.: *See*—
Von Schoppe, Bertram A., 3,783,463.

Compteurs-Schlumberger: *See*—
Jacquemard, Raymond, 3,783,896.

Computer Identics Corporation: *See*—
Ruhro, Richard H., 3,784,795.

Connor, David T.: *See*—
Strandtmann, Max Von, Connor, David T.; and Shavel, John, Jr., 3,784,600.

Consolidated Foods Corporation; d/b/a Popsicle Industries: *See*—
Arden, Sidney, 3,784,715.

Consolidation Coal Company: *See*—
May, Francis A., 3,783,487.
Petry, Eston, 3,784,126.

Construction Specialties Inc.: *See*—
McGeary, Frank L.; and Zampetti, Patrick L., 3,783,471.

Container Company of New York: *See*—
Gilbert, Jack A.; and Franklyn, Stanley, 3,784,430.

Continental Oil Company: *See*—
Krehbiel, Delmar D.; and Butler, Claude D., 3,784,572.
Motz, Kaye L., 3,784,623.

Controle Bailey (Societe Anonyme): *See*—
De Livois, Guy Baudelet, 3,783,684.

Controls Company of America: *See*—
Ostrowski, Edwin A.; and De Lew, Charles A., 3,784,154.

Cook, Charles W., to Ball Corporation. Apparatus for positioning articles. 3,783,992, Cl. 198-33.0ab.

Cook, Henry A.: *See*—
Strong, Herbert W.; Radway, Jerrold E.; and Cook, Henry A., 3,784,680.

Cook, John F., to Telectron, Inc. Door control system providing automatic delayed door reversal. 3,783,556, Cl. 49-25.000.

Cooley, William C. Pulsed liquid jet device. 3,784,103, Cl. 239-101.000.

Cooper, Alfred. Safety closure cap. 3,784,047, Cl. 220-40.00r.

Cooper, Brian Frederick, to English Electric Valve Company, Limited Devices incorporating cavity resonators. 3,784,849, Cl 310-8.200.

Copland, George V., to Halliburton Company. Pipeline inspection system. 3,784,740, Cl. 178-6.800.

Coplastix Limited. *See*—
Cave, Gordon Milford, 3,784,158.

Corbin, Marcel Pierre Ernest Marie: *See*—
Kuhn, Karl Walter, and Corbin, Marcel Pierre Ernest Marie, 3,783,842.

Corley, William P.: *See*—
Eddens, Fletcher C.; Corley, William P., Salling, Jack Ronald; and McDonald, Ralph E., 3,784,137.

Cornford, Arthur Selwyn. Journal bearing. 3,784,265, Cl. 308-73.000.

Corning Glass Works. *See*—
Araujo, Roger J.; and Sawchuk, Loris G., 3,784,386.

Cote, Raymond A.: *See*—
Shea, John V.; and Cote, Raymond A., 3,784,088.

Cottis, Steve G.: *See*—
Economy, James; Cottis, Steve G.; and Nowak, Bernard E., 3,784,405.

Counsell, Raymond, to University of Michigan, The Regents of the Halogenated cholesterol. 3,784,576, Cl. 260-397.200.

Court, Patrick R. J., to Garrity, Paul G. Lighter and fuel reservoir. 3,784,352, Cl. 431-277.000.

Courtaulds Limited. *See*—
Willats, Donald James, and Morgan, Peter Ernest, 3,784,428.

Covill, Dennis H., to Nautical Electronic Laboratories Limited. Four port combiner utilizing single transformer. 3,784,931, Cl. 333-6.000.

Cowell, David, to Sybron Corporation. RF power transistor secondary breakdown protection circuit. 3,784,877, Cl. 317-33.00r.

Craig, William Allan, to Imperial Chemical Industries Limited. Slurry explosives cross-linked with a compound of tellurium VI. 3,784,421, Cl. 149-29.000.

Cranch, John F.: *See*—
Hudson, Frederick W.; and Cranch, John F., 3,784,300.

Crandall, Walter E., and Curtis, Orlie L., Jr., to Northrop Corporation High speed deflection modulator electron beam signal processor. 3,784,799, Cl. 325-130.000.

Crane, Robert Anthony, to RCA Limited. Gas discharge device and electrode for use therein. 3,784,928, Cl. 331-94.500.

Crawford, Allan H., to Mohasco Industries, Inc. Printing apparatus. 3,783,654, Cl. 68-200.000.

Crawford, Roy P., to International Business Machines Corporation Sheet removing apparatus. 3,784,190, Cl. 271-80.000.

Crawley, Alan Arthur, to Lucas Aerospace Limited. Fuel supply arrangements for gas turbine engines. 3,784,329, Cl. 417-252.000.

Creusot-Laire: *See*—
Almand, Edouard, 3,784,374.

Crews, Sam T.: *See*—
Chance, Glenn G.; Crews, Sam T.; and Wilson, Clenis E., 3,784,238.

Critchley, John Edward: *See*—
Haight, William John; and Critchley, John Edward, 3,784,759.

Crockett, Joseph T.: *See*—
Hackbarth, Lowell E.; and Crockett, Joseph T., 3,784,442.

Crone, John M., Jr.: *See*—
Suggitt, Robert M.; Crone, John M., Jr., and Arkell, Alfred, 3,784,617.
Suggitt, Robert M.; and Crone, John M., Jr., 3,784,618.

Crone, John M., Jr.; and Suggitt, Robert M., to Texaco Inc. Method of separating dicyclohexyl benzenes. 3,784,619, Cl. 260-668.00r.

Cross, Norton M., Jr., to Guyer, Reynolds W., Jr.; d/b/a Winsor Concepts. Board game apparatus. 3,784,205, Cl. 273-131.0ae.

Croston, David H.: *See*—
Kohler, John B.; and Croston, David H., 3,783,824.

Crouch, William B.: *See*—
Slater, William L.; Schlinger, Warren G.; and Crouch, William B., 3,784,364.

Crounse, Nathan N.: *See*—
Jefferies, Patrick J.; and Crounse, Nathan N., 3,784,599.

Crowell, Jack R.; Tomashek, James R.; and Ward, Donald H., to Borg-Warner Corporation Method of controlling molten metal height in continuous casting. 3,783,932, Cl. 164-4.000.

Crown Metal Manufacturing Company: *See*—
Varon, Albert S.; and Siegal, Burton L., 3,784,023.

Crucible Inc.: *See*—
Ornitz, Martin N.; Moskowitz, Arthur; and Bressanelli, Jerome P., 3,784,373.

Culbertson, Townley P.; and Haskell, Theodore H., to Parke, Davis & Company. Polyamine compounds and methods for their production. 3,784,541, Cl. 260-210.00r.

Cullen, William P.: *See*—
Chafetz, Harry; Cullen, William P.; and Miller, Edward F., 3,784,645.

Cullom, John T. Repair facility for overhead crane. 3,783,792, Cl. 104-128.000.

Cunningham, M. E., Company: *See*—
Noble, Arthur J.; Speicher, Edwin W.; and Speicher, Walter J., 3,783,776.

Cunningham, Sinclair Upton, to National Research Development Corporation. Cam follower piston. 3,783,748, Cl. 92-249.000.

Cunningham, Sinclair Upton; and Wells, James Rutherford, to National Research Development Corporation. Cam follower piston. 3,783,749, Cl. 92-249.000.

Curran, Samuel Crowe. Pendulum switch assembly for clocks or the like with electromagnetic impulse means. 3,783,601, Cl. 58-30.000.

Curtis & Marble Machine Co.: *See*—
Maass, Edward Ralph, 3,784,913.

Curtis, Orlie L., Jr.: *See*—
Crandall, Walter E.; and Curtis, Orlie L., Jr., 3,784,799.

Curwood, Inc.: *See*—
Lamborn, Homer C., 3,783,671.

Cuthbert, John; and Stow, James Albert, to Cambridge Scientific Instruments Limited. Microwave spectroscopy. 3,784,938, Cl. 333-95.000.

Cutler-Hammer, Inc.: *See*—
Van Horn, Lawrence E., Elliot, William H.; and Schuchmann, Russell P., 3,784,881.

Cygnor, John E.: *See*—
Lagana, Joseph A.; and Cygnor, John E., 3,784,326.

D J Incorporated. *See*—
Allen, Bobby H., 3,784,066.

Dahlstrom, Robert Victor, and Jaehnig, James Herbert, to Du Pont de Nemours, E. I., and Company. Culture medium and process for the biological production of alpha-omega-alkanedioic acid. 3,784,445, Cl. 195-28.00r.

Daimler-Benz Aktiengesellschaft: *See*—
Andres, Rudolf, Moller, Hermann, and Seyfried, Franz, 3,784,810.
Wilfert, Karl; and Gotz, Hans, 3,784,226.

Daiichi-Nippon Cables, Ltd. *See*—
Maeda, Tsutomu, and Sato, Yoshikazu, 3,784,939.

Dales, Mark, and Whang, Jong Jai. Anion exchange resins from alkylated condensation polymers of polyethylene-imine and dihaloalkanes. 3,784,489, Cl. 260-2.10c.

Daly, John Patrick, to Scope Incorporated. Manually adjustable multiposition switch. 3,784,765, Cl. 200-5.00r.

Daniel, William H. Multi-unit apparatus for collecting oil from the surface of a body of water. 3,784,013, Cl. 210-242.000.

Danielson, Irvin R., to Thor Power Tool Company. Sound attenuating device for a work steel or the like. 3,783,970, Cl. 181-33.00a.

Darley, Henry C. H.; and Robinson, Joseph D., to Shell Oil Company. Method for reducing borehole signals in nuclear magnetic logging. 3,784,898, Cl. 324-.50r.

Dart Industries Inc., mesne: *See*—
Pierce, Joseph E., 3,783,581.

Das Khandelwal B.; and Strobelt, William E., to Boeing Company, The. Vacuum guage calibrator. 3,783,678, Cl. 73-42.000.

D'Ascoli, Ralph G.; and Alleva, Leon L., to Anaconda Company, The, mesne. Method for making electrical connector. 3,784,663, Cl. 264-230.000.

Data Time, Inc.: *See*—
Hunt, Theodore R., 3,784,768.

Dauben, Dwight L.; and Froning, H. R., to Amoco Production Company. Removing water from oil-producing formations. 3,783,945, Cl. 166-305.000.

Daugherty, James T.; and Baber, James J., Jr. Stump cutter. 3,783,914, Cl. 144-2 00n.

Davies, Harry John, to Canron Limited. Manufacture of white cast iron. 3,784,416, Cl. 148-3.000.

Davis, Donald Y., to General Electric Company. Variable diffuser centrifugal pump. 3,784,318, Cl. 415-158.000.

Davis, John P.; Harmon, Robert W.; and Woom, James T., to Chance, A. B., Company. Electrical cable connector. 3,784,729, Cl. 174-73.00r.

Davis, Leonard C., to General Motors Corporation. Squeeze film bearing support movement limiting apparatus. 3,784,267, Cl. 308-174.000.

Davis, Lon R. Coding means for photographic slide apparatus. 3,784,296, Cl. 353-120.000.

Davis, Richard C. Bullet-proof protective armor and method of making same. 3,783,449, Cl. 2-2.005.

Davison, George Robert, to Donkin, Bryan, Company Limited, The. Pivoted weight biased valve. 3,783,893, Cl. 137-527.800.

Davison, George Robert, to Donkin, Bryan, Company Limited, The. Non-return valves. 3,783,894, Cl. 137-535.000.

Davisson, Kenneth R.: *See*—
Channell, Glenn L.; Fuller, Blaine W.; and Davisson, Kenneth R., 3,784,162.

Dawidowicz, Jan; and Ferraro, Frank A., to Warner-Lambet Company. Method for dispensing razor blade cartridge. 3,783,493, Cl. 29-400.000.

Dawidowicz, Jan; and Ferraro, Frank A., to Warner-Lambert Company. Razor having tandemly mounted blades bonded in a disposable cartridge. 3,783,510, Cl. 30-32.00r.

Dawson, Robert Graham; and Sansome, Dennis Hugh, to National Research Development Corporation. Vibratory forming. 3,783,668, Cl. 72-283.000.

Dayco Corporation: *See*—
Duckett, John C.; Gaster, Ivan; and Ensley, Rufus Neal, 3,783,492.

Daynard, Richard E.: *See*—
Thaler, Sherwood S.; and Daynard, Richard E., 3,783,878.

de Chassy, Christian; and Capdeboscq, Andre, to Entreprise de Recherches et d'Activites Petrolieres (ELF). System for mooring ships to structures. 3,783,816, Cl. 114-230.000.

De Gioia, Peter A.; and Sutton, Charles B., to General Motors Corporation. Bearing seal. 3,784,268, Cl. 308-187.200.

De Lew, Charles A.: *See*—
Ostrowski, Edwin A.; and De Lew, Charles A., 3,784,154.

De Ligt, John, to Westvaco Corporation. Accordion, folding and cutting apparatus. 3,784,188, Cl. 270-79.000.

De Livois, Guy Baudelet, to Controle Bailey (Societe Anonyme). Fuel gas flow-meter corrector equipment for gases having variable characteristics. 3,783,684, Cl. 73-190.000.

De Torre, John, to Federal Pacific Electric Company. Circuit breaker with overcurrent and auxiliary releases. 3,784,940, Cl. 335-18.000.

De Wilde De Ligny, Johan Herman; De Wit, Cornelis Leendert; and Van Rooij, Petrus Johannes Cornelius, to U.S. Philips Corporation. Hot-gas piston engine. 3,783,612, Cl. 60-24.000.

De Wit, Cornelis Leendert: *See*—
De Wilde De Ligny, Johan Herman; De Wit, Cornelis Leendert; and Van Rooij, Petrus Johannes Cornelius, 3,783,612.

De Zarauz, Yves Jacques, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Tire having two-ply carcass merging into one ply. 3,783,926, Cl. 152-356.000.

Dean, Harrison Martin. Stop gauges with handle mounted indicator and lockout means. 3,783,720, Cl. 82-34.00a.

DeBortoli, George; and Lukas, Helmut Hans, to Northern Electric Company Limited. Connecting block with hinged terminal means. 3,784,728, Cl. 174-60.000.

DeCenzo, Herbert A. Connector assembly for terminal junction system. 3,784,963, Cl. 339-198.0pt.

Decubber, Maurice: *See*—
Serafin, Marian; and Decubber, Maurice, 3,784,098.

Deep Oil Technology, Inc.: *See*—
Horton, Edward E., 3,784,959.

DeGaston, Alexis Neal, to McDonnell Douglas Corporation. Static decharger. 3,784,876, Cl. 317-2.00r.

Dehler, Bernard, to Metallwerk Max Brose & Co. Electric window operating mechanism. 3,783,702, Cl. 74-89.000.

Deitchler, Roy W.: *See*—
Nelson, William Junior; and Hinman, Charles William, 3,784,409.

DeLimon Fluhme & Co.: *See*—
Kurten, Fritz; and Saretzky, Horst, 3,783,973.

Denisenko, Alexandr Panteleevich: *See*—
Nekrasov, Konstantin Dmitrievich; Tarasova, Alexandra Petrovna; Bljusin, Alfred Avgustovich; Avdeeva, Tamara Petrovna; Elin, Vyacheslav Alexandrovich; Roizman, Pavel Aronovich; and Denisenko, Alexandr Panteleevich, 3,784,385.

Depenbrock, Manfred, to Brown, Boveri & Cie AG. Device for converting the electrical energy of a thermionic generator. 3,784,895, Cl. 322-2.00r.

Derrer, Carson E. Cable de-lashing tool. 3,783,495, Cl. 29-426.000.

Derry, Carl E. Sound barrier. 3,783,968, Cl. 181-33.00g.

Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, to Ciba-Geigy AG. Styralyl dyestuffs. 3,784,559, Cl. 260-465.00d.

Detroit Gasket and Manufacturing Company: *See*—
Doerfling, Ralph G., 3,784,212.

Deutsche Gold- und Silber-Schneideanstalt vormals Roessler: *See*—
Kleemann, Axel; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,784,568.

Deutsche Texaco Aktiengesellschaft: *See*—
Pirck, Dietrich; Fuchs, Gundolf; and Sachse, Gerhard, 3,784,528.

DeVos, Ferdinand Allard; and Ter Steege, Jan Hendrik, to N.V. Werkspoor. Apparatus for engraving a cylinder with repeated overlapping patterns. 3,784,739, Cl. 178-6.60b.

DeWitt, John H.; d/b/a Cezoma International: *See*—
Kenworthy, Samuel P.; and Hall, Marcus A., 3,784,119.

Diamond International Corporation: *See*—
Siciliano, Anthony J., 3,783,829.
Siciliano, Anthony J., 3,783,990.

Diebler, Herman G.: *See*—
Barton, Stephen R.; and Diebler, Herman G., 3,784,310.

Diehl, Francis L., to Procter & Gamble Company, The. Detergent compositions containing oxidized polysaccharide builders. 3,784,475, Cl. 252-89.000.

Diepers, Heinrich: *See*—
Martens, Hans; Diepers, Heinrich; and Muller, Alfred, 3,784,452.

Dills, Raymond L.: *See*—
Hurko, Bohdan; and Dills, Raymond L., 3,783,854.

Dills, Raymond L., to General Electric Company. Textured continuous cleaning surface for cooking ovens. 3,783,853, Cl. 126-19.00r.

Dilpers, Heinrich; and Musebeck, Horst, to Siemens Aktiengesellschaft. Method of producing a composite conductor band for use in making a tubular superconductor. 3,783,503, Cl. 29-599.000.

Dindler, Jakob: *See*—

Model, Ernst; and Dindler, Jakob, 3,784,698.
Dinger, Horst: *See*—
Ganter, Wolfgang; and Dinger, Horst, 3,783,600.
Ditto, Edwin D. Apparatus for friction welding. 3,784,080, Cl. 228-2.000.
Dix, Keith M.; and Bonbrake, Bert, Jr., to Fire Protection Company. Automatic sprinkler head. 3,783,947, Cl. 169-40.000.
Doan, Troy L. Bathing facility. 3,783,456, Cl. 4-149.000.
Dobbert, Arnold E., to Rheem Manufacturing Company. Gathering means for clippers. 3,783,583, Cl. 53-138.00a.
Dobras, Bruce W., to Monarch Marking Systems, Inc. Coded record and methods of and apparatus for encoding and decoding records. 3,784,792, Cl. 235-61.11e.
Dobson, Christopher D., and Willmott, Kenneth Nash Knight. Planetary workholders. 3,783,821, Cl. 118-48.000.
Dodd, Vaal Ray. Method and apparatus for shaft alignment. 3,783,522, Cl. 33-181.00r.
Dodds, Dale I. Organic acid addition salts of 1-(butylcarbamoyl)-2-(methylamino)-benzimidazole and method for preparing the same. 3,784,571, Cl. 260-309.200.
Doerfling, Ralph G., to Detroit Gasket and Manufacturing Company. Composite gasket. 3,784,212, Cl. 277-22.000.
Dohmeier, Hans Otto. Protective chains. 3,783,923, Cl. 152-243.000.
Dominion Auto Accessories, Limited: *See*—
Brudy, Peter E., 3,784,149.
Domokos, Geza. Process of producing artificial lumber from untreated sawdust, a powdered urea-formaldehyde resin and water. 3,784,494, Cl. 260-17.300.
Donahue, Simeon J.: *See*—
Jankowski, Matthew A.; and Donahue, Simeon J., 3,784,949.
Donkin, Bryan, Company Limited, The: *See*—
Davison, George Robert, 3,783,893.
Davison, George Robert, 3,783,894.
Donnaker, Clarence W.: *See*—
Biddison, John M.; and Donnaker, Clarence W., 3,783,501.
Doran, E. James; and Berliner, Wallace H., to Waldes Kohinoor, Inc. Dual retaining ring device for facilitating the assembly of universal joints. 3,783,638, Cl. 64-17.00a.
Doring, Friedrich. *See*—
Claus, Gunter, and Doring, Friedrich, 3,784,134.
Dorman, Isidore, to Bell & Howell Company. Machine for forming and applying index tabs to file cards. 3,784,439, Cl. 156-518.000.
Dorman, Patrick Steven. Coin wrapping device. 3,783,586, Cl. 73-213.000.
Dorsey, Denis Peter, to RCA Corporation. Protection circuit 3,784,870, Cl. 315-20.000.
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., to Cities Service Company. Fire retardant compositions. 3,784,509, Cl. 260-45.75b.
D'Ottavio, Eugene D.: *See*—
Grunwald, John J.; D'Ottavio, Eugene D.; Rhodenizer, Harold L.; and Lombardo, Michael S., 3,784,440.
Douglas, Livingston C., to Colgate-Palmolive Company. Container 3,784,040, Cl. 215-31.000.
Dow Chemical Company, The: *See*—
Bangs, Leigh B.; Huml, James O., and Layne, Gilbert S., 3,784,371.
Brown, James A., 3,784,417.
Gibbons, Carl L., 3,784,500.
Hickner, Richard A.; and Bredeweg, Corwin J., 3,784,607.
Jennings, Robert R.; and Thornton, William M., 3,783,944.
Kyriacou, Demetrios, 3,784,552.
Larsen, Eric R.; Andrejewski, Bernard R.; and Edamura, Fred Y., 3,784,608.
Larsen, Eric R.; McKendry, Lennon H.; and Edamura, Fred Y., 3,784,611.
Parth, William H., 3,784,359.
Smith, Harry A.; and Kobel, Erwin H., 3,784,496.
Steinhauer, Alfred F.; and McIntire, Otis R., 3,784,488.
Tomalia, Donald A.; and Thomas, Robert J., 3,784,508.
Dow Corning Corporation: *See*—
Keil, Joseph W., 3,784,479.
Downs, Thomas C.: *See*—
Sebring, John G.; and Downs, Thomas C., 3,784,337.
Dowty Fuel Systems, Limited: *See*—
Robinson, Keith, 3,784,130.
Drake, Harry N., Jr., to Cities Service Oil Company. Support for chromogenic glycol test reagent. 3,784,358, Cl. 23-253.0tp.
Drennan, George A.: *See*—
Smith, James M.; and Drennan, George A., 3,784,726.
Dresser Industries, Inc.: *See*—
Jackson, G. C., Jr., 3,784,264.
McGlothlin, Raymond E.; Werlein, Eugene R.; Taylor, Bruce F.; and Schultz, Roger Lee, 3,784,579.
Stewart, Kenneth James, 3,784,028.
Driscoll, Gerald Jon; and Wellborn, James Larkin, to Du Pont de Nemours, E. I., and Company. Drying apparatus with feed and humidity control. 3,783,527, Cl. 34-56.000.
Drostholm, Frede Hilmar: *See*—
Drostholm, Frede Hilmar; and Meyer, Leonard S. (said Meyer assor. to said), 3,784,667.
Drostholm, Frede Hilmar; and Meyer, Leonard S., said Meyer assor. to said Drostholm, Frede Hilmar. Method for manufacturing pipes. 3,784,667, Cl. 264-145.000.
Dryden Chemicals, Limited: *See*—
Giguere, Jacques; and Landry, Jean-Guy, 3,784,493.
Du Pont de Nemours, E. I., and Company: *See*—
Cathcart, Wilson Stewart, 3,784,673.
Cescon, Lawrence Anthony, 3,784,557.
Dahlstrom, Robert Victor; and Jaehnig, James Herbert, 3,784,445.
Driscoll, Gerald Jon; and Wellborn, James Larkin, 3,783,527.
Gramas, John Vincent, 3,784,378.
Grot, Walther Gustav, 3,784,399.
Hoeschele, Guenther Kurt, 3,784,520.
Kane, William P., 3,784,711.
Pettit, Paul H., Jr., 3,784,501.
Sheard, John Leo, 3,784,887.
Sprauer, Jerome William, 3,784,495.
Vasta, Joseph A., 3,784,506.
Waldkirch, Richard B., 3,783,596.
Du Rocher, Gideon A., to Essex International Inc. Relay construction. 3,784,941, Cl. 335-196.000.
Dual-Wide, Inc.: *See*—
Eysenring, Edward M., 3,783,562.
Dubois, Gerald, and Berthoud, Francois, to Ebauches S.A. Mechanism for coupling and locking a rotatable member of a timepiece and of a small mechanism. 3,783,606, Cl. 58-74.000.
Ducellier & Cie: *See*—
Mabert, Roger Jean, 3,783,850.
Duckett, John C., Gaster, Ivan, and Ensley, Rufus Neal, to Dayco Corporation. Tool for installing locking pin used to hold a die-cutting mat on a rotary anvil. 3,783,492, Cl. 29-278.000.
Dudragne, Raymond Andre. Wide-angle objective lens. 3,784,286, Cl. 350-220.000.
Dueringer, John Wilbur, to Textron, Inc. Deployable nozzle extension for rocket engines. 3,784,109, Cl. 239-265.10g.
Duetsch-Company Electronic Components Division, The: *See*—
Clark, Kenneth M., 3,784,966.
Duffner, Josef, to Bosch, Robert, G.m.b.H. Apparatus for firing ceramic sparkplug insulators. 3,783,489, Cl. 29-203.00p.
Dukette, William J., to American Associated Cybernetics, Inc. Relay memory circuit. 3,784,879, Cl. 317-136.000.
Dullinger, Karl, to Kronseder, Hermann. Apparatus for wrapping bottle necks. 3,784,438, Cl. 156-487.000.
Dumit, Joseph P., to Atco Corporation. Shelf support leg lock bracket. 3,784,025, Cl. 211-148.000.
Dunbar, Glenn G. Vehicle mounted loading hoist. 3,784,035, Cl. 214-75.00b.
Duncan, David M., and Johnson, Joseph H. Transistor package. 3,784,883, Cl. 317-234.00r.
Dunham-Bush, Inc.: *See*—
Perez, John L., 3,783,635.
Dunlop Limited: *See*—
Lawson, Neil, 3,783,704.
Dunn, R. S., and Rife, William J. Roof lock assembly with eave structure. 3,783,564, Cl. 52-96.000.
Dupree, Inc.: *See*—
Dupree, James N., 3,784,867.
Dupree, James N., to Dupree, Inc. Lamp. 3,784,867, Cl. 313-318.000.
DuPuis, Emanuel F. Folding two-level table, bench or the like. 3,783,799, Cl. 108-19.000.
Durden, John A., and Sousa, Anthony A., to Union Carbide Corporation. 2-(Polysubstituted phenyl)-1,3-indandione compounds. 3,784,605, Cl. 260-590.000.
Dursch, Friedrich, to Squibb, E. R., & Sons, Inc. Methylacetoacetic ester enamine of D-2-(1,4-cyclohexadien-1-yl)glycine, sodium salt-dimethylformamide adduct. 3,784,562, Cl. 260-468.00j.
Durst, Felix Ernst. Tamping machine for setting floor covering tiles. 3,784,314, Cl. 404-117.000.
Duval, Bruce, to T. P. I. Limited. Training devices. 3,783,530, Cl. 35-11.000.
DuVall, Dale Rodney: *See*—
Borowski, Chester Joseph, Jr.; and DuVall, Dale Rodney, 3,784,981.
Duwel, Dieter: *See*—
Schorr, Manfred; and Duwel, Dieter, 3,784,633.
Dworkin, Howard J.; and Gutkowski, Robert F. Process and apparatus for making radioactive labeled protein material. 3,784,453, Cl. 204-131.000.
Dye, John F., to Kendall Company, The. Tabbed eccentric locking device. 3,783,876, Cl. 128-347.000.
Dymo Industries, Inc.: *See*—
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Vogt, Wilhem; and Richtzenhain, Herman, 3,784,612.
Wissinger, Waldemar; Kurth, Josef; and Gauchel, Peter, 3,784,345.
Earle, Roland D.; and Baum, Morton S. Ready-to-use batter product. 3,784,710, Cl. 426-128.000.
Eason, Ronald Charles: *See*—
Baker, David Keith; Eason, Ronald Charles; Gascoigne, Richard Melville; and Schryver, Andrew, 3,784,875.
Eastern Company, The: *See*—
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Echols, Samuel T., Jr.: *See*—
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Eckels, Robert E.: *See*—
Law, Richard D.; and Eckels, Robert E., 3,784,125.
Eckert, John Presper, Jr.; Weiner, James R.; Shaw, Robert F.; and Weiss, Herbert Frazer, to Sperry Rand Corporation. Information handling system. 3,784,983, Cl. 340-172.005.
Economy, James, Cottis, Steve G.; and Nowak, Bernard E., to Carborundum Company, The. Oxybenzoyl polyester coated articles. 3,784,405, Cl. 117-132.00e.
Edamura, Fred Y.: *See*—
Larsen, Eric R.; Andrejewski, Bernard R.; and Edamura, Fred Y., 3,784,608.
Larsen, Eric R.; McKendry, Lennon H.; and Edamura, Fred Y., 3,784,610.
Larsen, Eric R.; McKendry, Lennon H.; and Edamura, Fred Y., 3,784,611.
Eddens, Fletcher C.; Corley, William P.; Salling, Jack Ronald; and McDonald, Ralph E., to Anderson Electric Corporation. Transmission line cable clamp. 3,784,137, Cl. 248-63.000.
Edge, Billy J.; and Collins, Lloyd O. Spray shield for oil wells. 3,783,939, Cl. 166-81.000.
Edmond, Marmound: *See*—
Florent, Brigliano, Ernest, Vogt, and Edmond, Marmound, 3,783,604.
Edwards, Bryant, to Illinois Tool Works Inc. Stackable container. 3,784,052, Cl. 220-97.00c.
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Eggenspeger, Heinz, Franzen, Volker; and Stephan, Hans, to Ciba-Geigy Marienberg GmbH. 3,5-Diallayl-4-hydrorgbenzylmercapto (acetic acid ester) containing phosphites. 3,784,650, Cl. 260-948.000.
Eggert, Glenn J., to Rex Chainbelt Inc. Ternary escort memory system. 3,784,942, Cl. 335-206.000.
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Eheim, Franz; and Schwartz, Reinhard, to Bosch, Robert, G.m.b.H. Fuel injection apparatus for gas turbine-type vehicle power plant. 3,784,330, Cl. 417-279.000.
Ehrenfried, Albert D.; and Pierce, Norton T., to Metritape, Inc. Discrete level detector. 3,783,689, Cl. 73-301.000.
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Elges, Carl H., III; Hasket, Philip R.; Bauer, Donald J.; and Lindstrom, Roald E., to United States of America, Interior. Recovery of metal values from chrome etching solutions. 3,784,669, Cl. 423-43.000.
Elin, Vyacheslav Alexandrovich: *See*—
Nekrasov, Konstantin Dmitrievich; Tarasova, Alexandra Petrovna; Bljusin, Alfred Avgustovich; Avdeeva, Tamara Petrovna; Elin, Vyacheslav Alexandrovich; Roizman, Pavel Aronovich; and Denisenko, Alexandr Panteleevich, 3,784,385.
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Ellis, Carter D. Article support and ladder attachment. 3,784,139, Cl. 248-210.000.
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Emerson, Carl D.; and Aichenegg, Paul C., to Baychem Corporation. Carbamic acid esters of polyhalo disulfide alcohols. 3,784,563, Cl. 260-471.00c.
Emi, Tadashi. Pedestrian protecting fender. 3,784,244, Cl. 293-25.000.
Emil und Adolf Becker KG: *See*—
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Newman, Albert P.; and Haun, Clem Edward, 3,784,964.
Engalitcheff, John, Jr.; Facius, Thomas F.; Bradley, Wilson E., Jr.; and Anderson, Axel F. L., to Baltimore Aircoil Company, Inc., mesne. Evaporative heat exchange apparatus. 3,784,171, Cl. 261-29.000.
Engel, Albertus J. G.: *See*—
Versteeg, Geert; and Engel, Albertus J. G., 3,784,677.
English Electric Valve Company, Limited: *See*—
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Engman, Gerald, to Emco Industries, Inc. Article of furniture. 3,783,801, Cl. 108-60.000.
Engquist, Jan-Eric, to Forenade Fabriksverken. Washing device. 3,783,473, Cl. 15-322.000.
Ensley, Rufus Neal: *See*—
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Entreprise de Recherches et d'Activites Petrolieres (ELF): *See*—
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Ercoli, Alberto; and Gardi, Rinaldo, to Warner-Lambert Company. 17-Propionate, 21-ester derivatives of 6α,9α-difluoroprednisolone, compositions and use. 3,784,692, Cl. 424-243.000.
Erich, Reinhard; Hoffmann, Hermann; and Muhlbauer, Gerd Rudiger, to Hoffmann GmbH & Co., KG., Firma: Propeller blade. 3,784,322, Cl. 416-229.000.
Ernest, Vogt: *See*—
Florent, Brigliano; Ernest, Vogt; and Edmond, Marmound, 3,783,604.
Ernst, Arnold E. Plant cutting apparatus. 3,783,593, Cl. 56-14.400.
Erspamer, James R.; and Snyder, George W., to Sperry Rand Corporation. Multiplexed gain control for a synchro data transmission system. 3,784,753, Cl. 179-15.0fe.
Ertl, Dietrich; Eishold, Horst-Gunter; Gilles, Helmut; Schmolling, Gunther; Steuernagel, Walter; and Nitz, Jurgen, to Metallgesellschaft Aktiengesellschaft. Corona-discharge electrode system. 3,783,589, Cl. 55-146.000.
Erwin, Louis R., to Bendix Corporation, The. Linkage angle steering control from powered in-tandem vehicles. 3,783,963, Cl. 180-6.300.
ESB Incorporated: *See*—
Bergum, Bernard C.; and Youngquist, John A., 3,784,410.
Kosta, Geza F.; and Pomper, Anthony W., 3,784,406.
Macaulay, William R.; Feldhake, Ralph H.; Higgins, Dale G.; and Santa Maria, Richard C., 3,784,414.
Escoe, James L. Carpet cutter. 3,783,513, Cl. 30-273.000.
Escoe, James L. Carpet stretcher and kicker. 3,784,078, Cl. 227-13.000.
Esposito, Raymond G. Paint removal compositions. 3,784,477, Cl. 252-162.000.
Essex International Inc.: *See*—
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Esso Production Research Company: *See*—
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Estabrook, Frederick C., to Mitchell Industrial Tire Co., Inc. Method of making built-up tire with butt welded internal band iron. 3,783,484, Cl. 29-159.001.
Ester, Wilhelm; and Heitmann, Wilhelm, to VEBA Chemie Aktiengesellschaft. Process for the manufacture of alcohols by the catalytic hydration of olefins. 3,784,614, Cl. 260-641.000.
Etablissement Radiator: *See*—
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Ethier, Dolores O.: *See*—
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Nelson, Gunner E.; and Pearson, Tillmon H., 3,784,486.
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Eukumaru, Toshitsugu; Hamma, Noritaka; Nakatani, Hiroshi; Fukushima, Hideaki; and Toki, Katsuyuki, to Sumitoma Chemical Company, Limited. Fatty acid amide derivatives. 3,784,577, Cl. 260-404.000.

Eumuco Aktiengesellschaft fur Maschinenbau: *See*—
Nickrawietz, Kurt, 3,783,670.

Everbrite Electric Signs, Inc.: *See*—
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Ex-Cell-O Corporation: *See*—
Hurlock, Arthur C., 3,784,082.

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Engalitcheff, John, Jr.; Facius, Thomas F.; Bradley, Wilson E., Jr.; and Anderson, Axel F. L., 3,784,171.

Faggetter, Francis Edward, to Bettor Packages (V.K.) Limited. Tape dispensing apparatus. 3,784,073, Cl. 226-47.000.

Failing, Jim E. Liquid wax dispenser. 3,784,311, Cl. 401-137.000.

Fairaizl, Max L.; and Martinec, Eugene F., to Health-Mor Inc. Shag rug attachment for suction cleaner nozzle. 3,783,474, Cl. 15-369.000.

Fansteel Inc.: *See*—
Glaski, Frederick A., 3,784,403.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See*—
Joerchel, Egon; and Kohlhaas, Rudolf, 3,784,671.
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Fargo Machine & Tool Company: *See*—
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Farkas, Elizabeth H.: *See*—
Glicksman, Martin; and Farkas, Elizabeth H., 3,784,712.

Farmer, Donald J.; Carlson, Charles J.; and Muschong, Peter W., to Central Moloney Inc. Bushing for transformers and the like. 3,784,733, Cl. 174-153.00r.

Farr, Gerald N.: *See*—
Goodman, Derek J., and Farr, Gerald N., 3,783,639.

Farrar, Ralph C., to Phillips Petroleum Company. Multifunctional polymerization initiators from vinylsilanes or vinylphosphines and organomonolithium compounds. 3,784,637, Cl. 260-498.20q

Farrington, Frederick: *See*—
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Fasshender, Charles Joseph, to RCA Corporation. Storage circuits. 3,784,918, Cl. 328-97.000.

Faustel Incorporated: *See*—
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Fay, Rudolph J. Sandwich machine. 3,783,772, Cl. 99-450.400.

Feasey, Ronald George, to Imperial Chemical Industries, Limited. Thermoset resins prepared from dihydric phenol, dihalobenzenoid compound and polyhaloheterocyclic compound. 3,784,504, Cl. 260-37.000n.

Feder, Abe Hyman. Lamp with indirect and direct lighting fixtures. 3,784,811, Cl. 240-81.01d

Federal Pacific Electric Company: *See*—
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Federal Paper Board Company, Inc.: *See*—
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Federal Screw Works. *See*—
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Felber, Julius, to Felber, Julius and Szabo, Bela. Hockey puck. 3,784,204, Cl. 273-128.00r.

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Feldmann, Hans-Helmut: *See*—
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Feliz, Jack M. Trailer maneuvering jack. 3,783,960, Cl. 180-14.00a.

Fellmann, Robert P.; and Whang, Jong Jai, to Rohm & Haas Company. Bulk polymerization process modified with solvent to reduce residual monomer content. 3,784,532, Cl. 260-86.10c.

Fenton, Donald M., to Union Oil Company of California. Decomposition of oxalates to form aldehydes and alcohols. 3,784,616, Cl. 260-638.00f.

Fernandes, Joseph F.: *See*—
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Ferraro, Frank A.: *See*—
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Dawidowicz, Jan; and Ferraro, Frank A., 3,783,510.

Ferro Manufacturing Company: *See*—
Pickles, Joseph, 3,784,241.

Fersch, Harry; and Kopido, Walter Heinz, to Singer Company, The. Sewing machine with a printed circuit switch and variable speed control means. 3,783,812, Cl. 112-220.000.

Feurer Bros., Inc.: *See*—
Feurer, Walter Alphonse, 3,783,607.

Feurer, Walter Alphonse, to Feurer Bros., Inc. Pusher for electronic digital watch. 3,783,607, Cl. 58-90.00b.

Fichelberger, Edward Baxter, to International Business Machines Corporation. Method of propagation delay testing a functional logic system. 3,784,907, Cl. 324-57.0de.

Fielding, Brian Grosble, to Imperial Chemical Industries Limited. Solvent dyeing or solvent creaseproofing with steam and solvent vapor drying. 3,784,355, Cl. 8-175.000.

Fields, Ellis K.; and Puskas, Imre, to Standard Oil Company. Catalysis of trans-acidolysis reaction. 3,784,573, Cl. 260-346.300.

Fife, Warren E.: *See*—
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Finelli, Anthony F.; and Stanley, John R., to Goodyear Tire & Rubber Company, The. Method of accelerating the cure of polyurethanes 3,784,521, Cl. 260-75.0nb.

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Fire Protection Company: *See*—
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Firestone, Raymond A., to Merck & Company, Inc. Hydroxy and imino containing phosphonic acid diesters. 3,784,590, Cl. 260-944.000.

Fischer & Porter Company: *See*—
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Fischler, Max, to Astra Lakemedel Aktiebolag. X-ray contrast composition containing barium sulphate. 3,784,681, Cl. 424-4.000

Fishcer & Porter Company: *See*—
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Fisher, Frank W. Fish catch keeper. 3,783,548, Cl. 43-21.200

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Fitzi, Konrad; and Pfister, Rudolf, to Ciba-Geigy Corporation. Imidazole derivatives for treating pain, inflammation and fever 3,784,691, Cl. 424-273.000.

Flannelly, William G., to Kaman Aerospace Corporation. Damped gyroscopic stabilizer. 3,784,363, Cl. 74-5.340.

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Fleck, Lawrence L., and Hickling, Robert, to General Motors Corporation. Occupant restraint system. 3,784,225, Cl. 280-150.0ab

Fleissner, Heinz, to Vepa AG. Process for the treatment of material lengths. 3,783,526, Cl. 34-12.000.

Fleming, George Latto; and Martin, Richard John, to Ciba-Geigy AG. Curing epoxide resin with boran trichloride-amine complex. 3,784,647, Cl. 260-830.0tw

Florent, Brigliano; Ernest, Vogt, and Edmond, Marmound, to PR Societe de Revision, Traitement de l'Information et Recouvrement SA. Wrist watch with a dial-illuminating device. 3,783,604, Cl. 58-50.00r.

Flouret, George Rogelio, to Abbott Laboratories. Nonapeptide intermediate to gonadotrogin releasing hormone. 3,784,535, Cl. 260-112.500.

Fluharty, Gordon S.: *See*—
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FMC Corporation. *See*—
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Fock, Jurgen; and Holtschmidt, Ulrich, to Goldschmidt, Th., AG. Method of treating a wood surface with linear heat-hardenable copolymerizate. 3,784,436, Cl. 156-334.000.

Foederer, Antonius Franciscus; Franken, Andrianus Jacobus Jozef; and Van Noord, Jacobus Andrianus Johannes Maria, to U.S. Philips Corporation. Crosstable for articles. 3,783,707, Cl. 74-470.000.

Foerstner, Richard A.; and Fritts, Rex E., to Amana Refrigeration, Inc. Magnetron moding interrupter control circuit. 3,784,781, Cl. 219-10.550.

Folden, Denver C.: *See*—
Appleby, Paul E.; Folden, Denver C.; and Kubinski, Donald C., 3,784,437.

Foote, Daniel J., to Master Lock Company. Looped cable end clamp. 3,783,656, Cl. 70-18.000.

Foote, Daniel J., to Master Lock Company. Padlock body affixed shackle enveloping guard. 3,783,657, Cl. 70-52.000.

Forano Limitee: *See*—
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Forbes, Hampton E., Jr., to Westvaco Corporation. Display package. 3,784,086, Cl. 229-55.000.

Ford Motor Company: *See*—
Burgett, James F.; Vanderberg, Lawrence J.; and Woodward, Gary F., 3,784,973.
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Forenade Fabriksverken: *See*—
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Forgo, Gabor; Meyer, Erwin; and Schilter, Josef, to Zellweger AG. Apparatus for developing latent electrostatic charge images. 3,783,828, Cl. 118-637.000.

Fortunski, Anthony C., to Fargo Machine & Tool Company. Constant surface speed grinder. 3,783,561, Cl. 51-134.50r.

Foster, Kenneth J.: *See*—
Benson, Alden P.; Foster, Kenneth J.; and Quellette, Alfred R., 3,783,452.

Fourment, Marie-Claude Gloriod; and Nicco, Adrien, to Ethylene Plastique. Process for treating a substrate with ethylene-maleic anhydride copolymer powder. 3,784,396, Cl. 117-21.000.

Fourny, Denise Gisele Josette, to Belling & Co., Limited. Electric liquid boiling apparatus having an electronic temperature sensor control. 3,784,788, Cl. 219-441.000.

Fowler, John H.; and Johnson, Charles F., to Rockwell International Corporation. Valve operator. 3,783,899, Cl. 137-624.200.

Fox, Charles J., to Eastman Kodak Company. Photoconductive element containing furans, indoles, or thiophenes. 3,784,376, Cl. 96-1.500.

Fox, James H.; Leung, Han-Chung; and Stern, Howard R., to Mattel, Inc. Kissing doll phonograph. 3,784,210, Cl. 274-1.00a.

Foxboro Company, The: *See*—
Hansen, Peter D., 3,783,692.

Franck, Heinz-Gerhard; Metzendorf, Walter; Schweym, Erich; Beneke, Herbert; Marrett, Rolf; Nijssen, Jozef, and Omran, Jaafar, to Rutgerswerke Aktiengesellschaft. Process for making a foam from a composition comprising bituminous masses, a novolac, and hexaethylenetetramine. 3,784,487, Cl. 260-2.50f.

Frank, William; and Lindgren, Frank E. Layout marking wheel. 3,783,785, Cl. 101-328.000.

Frankel, Milton B.; and Lo, George A., to Rockwell International Corporation. Thermally stable high density-impulse energetic composition of matter. 3,784,420, Cl. 149-22.000.

Franken, Andrianus Jacobus Jozef: *See*—
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Frankenfeld, Klaus. *See*—
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Franklin Manufacturing Company: *See*—
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Franklyn, Stanley: *See*—
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Franks, Joseph. Ion sources. 3,784,858, Cl. 313-63.000.

Franzen, Volker: *See*—
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Frazier, Van L., Sr. Air ride suspension for trucks. 3,784,221, Cl. 280-124.00f

Freeman, Harlan G.: *See*—
Baxter, Gene F.; Freeman, Harlan G.; and Tiedeman, George T., 3,784,516.

Freeman, Harlan G.; Baxter, Gene F.; and Graham, George, to Weyerhaeuser Company. Rapid curing resin compositions comprising the reaction product of aldehyde condensation polymer with a primary aromatic amine further reacted with. 3,784,515, Cl. 260-51.500

Frel, Jorg; Morel, Charles J.; and Wacker, Oskar, to Ciba-Geigy Corporation. Aryloxy- and arylthioalkanoic acids and esters and salts thereof. 3,784,602, Cl. 260-346.02m.

Frempter, Wayne W., to Rain Jet Corporation. Liquid discharge nozzle having cylindrical internal liquid flow director means. 3,784,101, Cl. 239-17.000.

Frenkel, Marshall S., to Pan-American Records (Casa Pan Americana) Inc. Display case. 3,784,269, Cl. 312-136.000.

Frese, Ralph L. Wheel removal safety device. 3,784,161, Cl. 254-88.000.

Frick, George W., to Cities Service Research & Development Company. Process and apparatus for oil shale retorting. 3,784,462, Cl. 208-11.000.

Friedel, Murray, to Visual Graphics Corporation. Exposing and developing apparatus for photographic composing device. 3,783,756, Cl. 95-4.500.

Friedman, David; and Segal, Bernard Mortimer, to Singer Company, The. Response system with improved computational methods and apparatus. 3,784,979, Cl. 340-146.200.

Friendship, Kenneth F., to A-T-O Inc. Beverage container filling head. 3,783,912, Cl. 141-46.000.

Fritts, Rex E.: *See*—
Foerstner, Richard A.; and Fritts, Rex E., 3,784,781.

Frohlich, Alfons, to Opti-Holding AG. Slide fastener stringer with stitched coupling element. 3,783,476, Cl. 24-205.16c.

Fromwiller, Frank J.: *See*—
Caming, Lionel P.; and Fromwiller, Frank J., 3,783,768.

Froning, H. R.: *See*—
Dauben, Dwight L.; and Froning, H. R., 3,783,945.

Fuchs, Gundolf: *See*—
Pirck, Dietrich; Fuchs, Gundolf; and Sachse, Gerhard, 3,784,528.

Fuhring, Heinrich: *See*—
Weber, Hans-Peter; Litzler, Alfred; Hertig, Jean; Milicevic, Branimir; Fuhring, Heinrich; Sieber, Johannes-Helmut; and 042818, 3,783,650.

Fuji Denki Seizo Kabushiki Kaisha: *See*—
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Fuji Photo Film Co., Ltd.: *See*—
Fukushima, Osamu; Sato, Masamichi; and Honjo, Satoru, 3,783,827.

Fuji Shashin Film Kabushiki Kaisha: *See*—
Okano, Takeshi, 3,784,295.

Fuji Toyuki Co., Ltd.: *See*—
Miyake, Susumu, 3,783,971.

Fuji Xerox Co., Ltd.: *See*—
Makino, Katsuo; Joh, Seiji; and Takeda, Kouzou, 3,783,818.

Fujii, Hisashi, to Fuji Denki Seizo Kabushiki Kaisha. Ventillating arrangement for dynamo-electric machines. 3,784,851, Cl. 310-58.000.

Fujitsu Limited: *See*—
Inaba, Sciuemon; Ikebe, Yo; and Yamamura, Sakae, 3,784,850.

Fujiwara, Mitsuto: *See*—
Iwama, Masakuni; Fujiwara, Mitsuto; Kojima, Tamotsu; and Yamaoto, Toshihiko, 3,784,383.

Fukushima, Hideaki: *See*—
Eukumaru, Toshitsugu; Hamma, Noritaka; Nakatani, Hiroshi; Fukushima, Hideaki; and Toki, Katsuyuki, 3,784,577.

Fukushima, Osamu: *See*—
Sato, Masamichi; and Fukushima, Osamu, 3,784,397.

Fukushima, Osamu; Sato, Masamichi; and Honjo, Satoru, to Fuji Photo Film Co., Ltd. Liquid development apparatus for electrophotography. 3,783,827, Cl. 118-637.000.

Fukushima, Yoshio: *See*—
Ogawa, Kiyoshi; Yokoyama, Yoshiaki; and Fukushima, Yoshio, 3,783,706.

Full, Donald A.: *See*—
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Fuller, Blaine W.: *See*—
Channell, Glenn L.; Fuller, Blaine W.; and Davisson, Kenneth R., 3,784,162.

Furney, Charles P., Jr., to Aluminum Company. Underfired forging die heater. 3,783,669, Cl. 72-342.000.

Gabor, Iacob: *See*—
Coanda, Henry; Aldea, Gheorghe; Bodea, Ion; Truica, Vasile; Hanciulescu, Valentin; Posirca, Radu; Lazar, Cristian; and Gabor, Iacob, 3,784,325.

Gagneux, Vandre; Heckendorn, Roland; and Meier, Rene, to Ciba-Geigy Corporation. Certain 2-amino-6-phenyl-4H-s-triazolo[1,5-a][1,4]benzodiazepines. 3,784,556, Cl. 260-308.00r.

Gallagher, John J.: *See*—
Preus, Paul; and Gallagher, John J., 3,783,621.

Gallant, James O., to Mount Hope Machinery Company. Curved roll. 3,783,481, Cl. 29-116.0ad.

Gambell, Charles L. Method and system for the containment and salvage of chemicals and oils at sea. 3,783,622, Cl. 61-1.00f.

Gano, Orville. Anti-pollution internal combustion engine. 3,783,610, Cl. 60-16.000.

Ganter, Wolfgang; and Dinger, Horst, to Gebruder Junghans G.m.b.H., Firma. Electromechanic driving mechanism for the hands of a timepiece. 3,783,600, Cl. 58-28.00b.

Gantre, Franz; Zywietz, Walter; Seiz, Rudolf; and Eickhoff, Heinz, to Hoesch AG and Bochumer Eisenhutte Heintzmann & Co. Lining system for tunnels and like passages. 3,783,625, Cl. 61-45.00r.

Garcia, Juan A., to Esso Production Research Company. System and method for separating heavier and lighter components of liquid mixtures. 3,784,468, Cl. 210-44.000.

Gardi, Rinaldo: *See*—
Ercoli, Alberto; and Gardi, Rinaldo, 3,784,692.

Garfinkel, Jack, to Genstape, Inc. Apparatus for splicing wires. 3,783,490, Cl. 29-203.00d.

Garner, Paul Johnson; and Collins, Thomas Robert Stephen, to Imperial Chemical Industries, Limited. Process of producing a composite mold having cooling pipes embedded therein. 3,784,152, Cl. 249-80.000.

Garner, Paul Johnson, to Imperial Chemical Industries Limited. Method of fabricating a composite mold having a resin-impregnated metal molding surface. 3,784,451, Cl. 204-20.000.

Garnish, Edward William; and Hayes, Barry James, to Ciba-Geigy AG. Reinforced composites. 3,784,433, Cl. 156-276.000.

Garrett Corporation, The: *See*—
Norman, Leslie W.; Hunter, Skillman C.; and Russell, George A., 3,783,616.

Garrity, Paul G.: *See*—
Court, Patrick R. J., 3,784,352.

Gartland, Albert J., Jr., to Hubbell, Harvey, Incorporated. Cable clamp. 3,784,961, Cl. 339-107.000.

Gas Council, The: *See*—
Nicklin, Thomas; and Farrington, Frederick, 3,784,465.

Gascoigne, Richard Melville: *See*—
Baker, David Keith; Eason, Ronald Charles; Gascoigne, Richard Melville; and Schryver, Andrew, 3,784,875.

Gaster, Ivan: *See*—
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Gateway Industries, Inc.: *See*—
Bryll, Medard Z., 3,784,769.

Gatzi, Karl, to Ciba-Geigy Corporation. Control of phytopathogenic fungi with amidine compounds. 3,784,690, Cl. 424-244.000.

Gauchel, Peter: *See*—
Wissinger, Waldemar; Kurth, Josef; and Gauchel, Peter, 3,784,345.

Gaunt, Dennis: *See*—

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Gebhardt, Rudolf: *See*—
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Gebruder Junghans G.m.b.H., Firma: *See*—
Ganter, Wolfgang; and Dinger, Horst, 3,783,600.
Geesen, Michel, to Societe dite: Electronique Marcel Dassault. Serially operated comparison system with discontinuance of comparison on first mismatch. 3,784,980, Cl. 340-146.200.
Geiersbach, Allois F.; and Stich, Frederick A., to Allis-Chalmers Corporation. Control for commutatorless motor. 3,784,888, Cl. 318-138.000.
Geiersbach, Allois F.; and Price, Raymond G., to Allis-Chalmers Corporation. Pulse control circuit for a DC load. 3,784,890, Cl. 318-345.000.
Gela, Helmut: *See*—
Muszumanski, Trude; and Gela, Helmut, 3,784,283.
General Dynamics Corporation: *See*—
Vaughan, Desmond H., 3,783,573.
General Electric Company: *See*—
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Bigelow, John E., 3,784,280.
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General Foods Corporation. *See*—
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General Ordnance Equipment Corporation: *See*—
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General Systems, Inc.: *See*—
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General Tire & Rubber Company, The: *See*—
Nemec, John E., 3,784,181.
Genstape, Inc.: *See*—
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Gentiluomo, Joseph A. Golf game. 3,784,207, Cl. 273-176.00a.
Geominy, Louis Joseph Henri; Gommans, Hubertus Johannes Josephus; Mans, Leonardus Frans Helene; and Ruytenbeek, Silvester Marie, to U.S. Philips Corporation. Hair curler heating device with electric resistance cable. 3,784,784, Cl. 219-222.000.
Georgia-Pacific Corporation: *See*—
Howe, William J., 3,783,579.
Gerard, William L.; and Ruck, John D., to Sherwood Medical Industries Inc. Syringe package. 3,783,996, Cl. 206-17.500.
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Gerhard, Scharfe: *See*—
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Geurts, Cletus J., to Geurts Inc. Semi-mounted plow. 3,783,950, Cl. 172-285.000.
Geurts Inc.: *See*—
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Giannetoo, Salvatore. Automobile trunk lock safety adapter. 3,783,655, Cl. 70-1.500.
Gibbons, Carl L., to Dow Chemical Company, The. Halogenated epoxides. 3,784,500, Cl. 260-30.40r.
Gibbs, Richard E.: *See*—
Altwicker, Elmar R.; Gibbs, Richard E.; and Kolak, Nicholas P., 3,784,478.
Gibson, Roland Richard, to Glacier Metal Company, Limited, The. Centrifugal separator. 3,784,092, Cl. 233-20.00r.
Giddings & Lewis, Inc.: *See*—
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Gieben, Wibmar Uber: *See*—
Jellinek, Karl, Post, Udo; Gieben, Wibmar Uber; and Oellig, Rudi, 3,784,601.
Giguere, Jacques; and Landry, Jean-Guy, to Dryden Chemicals, Limited. Aminolignosulfonate-formaldehyde reaction products and process of preparation. 3,784,493, Cl. 260-17.500.
Gilbert, Edward O., and Gilbert, Elmer G., to Reliance Electric Company. Predictive drive control. 3,783,974, Cl. 187-29.00r.
Gilbert, Elmer G.: *See*—
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Gilbert, Jack A.; and Franklyn, Stanley, to Container Company of New York. Method for manufacturing corrugated angle members. 3,784,430, Cl. 156-200.000.
Gill, Peter John, to G.K.N. Screws & Fasteners Limited. Power tool. 3,783,955, Cl. 173-50.000.
Gill, Vincent A., to Unican Security Systems, Ltd. Pick resistant lock. 3,783,660, Cl. 70-363.000.
Gilles, Helmut: *See*—
Ertl, Dietrich, Eishold, Horst-Gunter, Gilles, Helmut, Schnolling, Gunther, Steuernagel, Walter, and Nitz, Jurgen, 3,783,589.
Gillette Company, The: *See*—
Brown, Norman Joseph, Packham, Charles Christopher, and Parsonage, Raymond Graham, 3,783,508.
Perry, Roger L., 3,783,507.
Gilman, Paul B., Jr., and Kaukeinen, Joseph Y., to Eastman Kodak Company. Latent electrostatic image forms a developable image in a silver salt. 3,784,375, Cl. 96-1.00r.
Ginsburgh, Irwin: *See*—
Husa, Howard W., and Ginsburgh, Irwin, 3,783,911.
Girling Limited: *See*—
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Gjoerloff, H. Eric, to Redy-Tow, Inc. Tow trailer for vehicle. 3,784,036, Cl. 214-86.00a.
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Glaesener, Ernest, to ARBED-Acieries Reunies de Burbach-Eich-Dudelange. Guard-rail assembly with pivotal support posts. 3,784,167, Cl. 256-13.100.
Glaski, Frederick A., to Fansteel Inc. Process for cladding steel. 3,784,403, Cl. 117-71.00m.
Glasman, Leon, and Prioux, Jean O. Needle table for padding of pattern fabrics. 3,783,728, Cl. 83-620.000.
Gleason Corporation. *See*—
Westrich, James L., 3,783,458.
Glicksman, Martin, and Farkas, Elizabeth H., to General Foods Corporation. Gum gelling system xanthan-tara dessert gel. 3,784,712, Cl. 426-167.000.
Global Marine Inc.: *See*—
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Globe Tool and Engineering Company, The. *See*—
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Glynn, Emmett P.; and Hsu, Howard L., to Liquid Carbonic Corporation. CO_2 refrigeration system. 3,783,633, Cl. 62-168.000.
Gobran, Ramsis, Kremer, Leon V.; and Ethier, Dolores O., to Minnesota Mining and Manufacturing Company. Block copolymer compositions. 3,784,502, Cl. 260-33.6pq.
Goff, Thurman E. Honeycomb foundation installing device. 3,783,460, Cl. 6-10.000.
Golbs, Christian: *See*—
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Gold, Ronald J., to Uni-Systems, Inc. Display device and method of merchandising and inventory control. 3,784,027, Cl. 211-184.000.
Goldbach, Erika: *See*—
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Goldbach, Wend, to Goldbach, Erika. Driving apparatus, especially for a floating toy. 3,783,552, Cl. 46-92.000.
Golde, Karl-Heinz; and Schuler, Ernst. Apparatus for replacing the roller guide sections of the strand guiding assemblies of continuous casting plants. 3,783,934, Cl. 164-282.000.
Goldman, Samuel C.: *See*—
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Goodhouse, Carl J.; and Strachan, Robert, to Robertshaw Controls Company. Cooking computer means. 3,783,769, Cl. 99-332.000.
Goodinge, Mark Wallinger; and Moss, Norman, to Plessey Handel und Investments A.G. Atomizing devices for liquid fuel. 3,784,105, Cl. 239-102.000.
Goodman, Daniel J. Water-cooled electric furnace cable. 3,784,722, Cl. 174-15.00c.
Goodman, Derek J.; and Farr, Gerald N., to Ingersoll Machine and Tool Company Limited. Resilient joint. 3,783,639, Cl. 64-27.0nm.
Goodrich, B. F., Company, The: *See*—
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Parker, Richard G., 3,784,565.
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Goodwin, Ralph C. Modulating heat control. 3,784,094, Cl. 236-68.00c.
Goodyear Tire & Rubber Company, The: *See*—
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Chambers, Thomas G., 3,784,587.
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Maly, Neil A., Menapace, Henry R.; and Benner, Gerald S., 3,784,630.
Menapace, Henry R., Benner, Gerald S.; and Maly, Neil A., 3,784,631.
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Goozner, Murray. Blank-faced childs doll. 3,783,553, Cl. 46-116.000.
Gopfert, Max; and Gebhardt, Rudolf, to Krauss-Maffei AG. Magnetic suspension system for vehicles and the like with non-controlled suspending magnets. 3,783,794, Cl. 104-148.0ms.
Gopman, Martin D.: *See*—
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Gordon, Donald T., to United States of America, Navy. Flotation beam for matting construction. 3,784,312, Cl. 404-35.000.
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Gramas, John Vincent, to Du Pont de Nemours, E. I., and Company. Double-exposure method for producing reverse images in photopolymers. 3,784,378, Cl. 96-27.00e.
Granta Corporation: *See*—
Wyman, Dennis G.; Bichell, William J.; and Oliveri, Humber, 3,784,201.
Grasse, Hans Jochen: *See*—
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Gray, Basil P., to Commercial Shearing, Inc. Self-bonding elastomeric sealant. 3,784,522, Cl. 260-77.5cr.
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Markowitz, Ivan N.; and Gray, Darby A., 3,784,943.
Gray, Guy Gordon. De-icing structure for roofs. 3,784,783, Cl. 219-213.000.
Greene, Alan D. Apparatus for securing articles. 3,784,232, Cl. 281-20.000.
Greenwald, Harry, to Kidde, Walter, & Company, Inc. Anti-pick lock assembly. 3,783,661, Cl. 70-419.000.
Greenwood, Aaron O.; Magee, Ramon J.; and Otto, Stanley W., to Hallmark Cards, Incorporated. Rotary screen printing cylinder. 3,783,779, Cl. 101-127.000.
Greer Hydraulic, Inc.: *See*—
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Greive, Aloys; and Treus, Aloys, to Hamel GmbH, Zwirnmaschinen. Thread-twisting apparatus with dual thread guide. 3,783,597, Cl. 57-58.520.
Grey, David S., to Berkey Photo, Inc. Plastic triplet objective lens system. 3,784,287, Cl. 350-226.000.
Griesinger, Wolfram, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Method for making thin walled metal tubing. 3,783,497, Cl. 29-460.000.
Griffin, Thomas Franklin, to Burlington Industries, Inc. Method of making and treating bias cut fabric. 3,784,427, Cl. 156-139.000.
Griffiths, Peter John: *See*—
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Griggs, W. Kenneth, to Lee, Raymond, Organization, Inc., The. Anti-snagging fishing gear. 3,783,549, Cl. 43-42.400.
Grimm, Hans-Ueli; Zufferey, Daniel; and Messina, Antonio, to Inventio Aktiengesellschaft. Apparatus for plug connection of printed circuit boards. 3,784,954, Cl. 339-17.01m.
Griswold, Augustus W.: *See*—
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Grolig, Johann: *See*—
Wolfgang, Swodenk; Gerhard, Scharfe; and Grolig, Johann, 3,784,578.
Grommek, Siegfried. Doctor blade control mechanism, particularly for use in printing presses. 3,783,781, Cl. 101-157.000.
Groos, Horst Hans; and Zander, Walter, to Schloemann Aktiengesellschaft. Pre-stressed press frame. 3,783,774, Cl. 100-214.000.
Gropper, Hans: *See*—
Pfannmueller, Helmut; Urban, Friedrich; Buechner, Oskar; Gropper, Hans; and Sistig, Wolf, 3,784,538.
Grosse, Wolfgang C. F. Connecting elements for wire frames. 3,784,026, Cl. 211-181.000.
Grossman, Harry. Combined scouring device holder and scraper. 3,783,467, Cl. 15-105.000.
Grot, Walther Gustav, to Du Pont de Nemours, E. I., and Company. Films of fluorinated polymer containing sulfonyl groups with one surface in the sulfonamide or sulfonamide salt form and a process for preparing such. 3,784,399, Cl. 117-62.100.
Grothe, John; and Osborne, Brian Frank, to Milltronics Limited. Fluid sampling apparatus. 3,783,695, Cl. 73-422.000.
Grunwald, John J.; D'Ottavio, Eugene D.; Rhodenizer, Harold L.; and Lombardo, Michael S., to MacDermid, Incorporated. Aluminum-clad plastic substrate laminates. 3,784,440, Cl. 161-185.000.
Gryczko, Carl E., to I-T-E Imperial Corporation. Arc runner between stationary contacts. 3,784,775, Cl. 200-146.00r.
GTE Automatic Electric Laboratories, Incorporated: *See*—
Caputo, James P.; and Weber, Fred A., 3,784,801.
Jassman, Gerald R., 3,784,956.
Neu, John P., 3,784,878.
GTI Corporation: *See*—
Bailey, Richard J., 3,784,957.
Gubler, Kurt, to Ciba-Geigy Corporation. Control of insects and acarinae with 4,4-dibromo and 4-chloro-4-bromo-benzilic acid esters. 3,784,696, Cl. 424-308.000.
Gugin, Robert J. Harrow assembly with rock frame tubes. 3,783,951, Cl. 172-311.000.
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Gulf Oil Canada Limited: *See*—
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Gulf Oil Corporation: *See*—
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Gural, John A., to General Motors Corporation. Fuel injection system. 3,783,844, Cl. 123-52.0mv.
Gustus, C. Douglas, to Honeywell Inc. Condition responsive circuit with capacitive differential voltage. 3,784,843, Cl. 307-117.000.
Gutkowski, Robert F.: *See*—
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Guyer, Reynolds W., Jr.; d/b/a Winsor Concepts: *See*—
Cross, Norton M., Jr., 3,784,205.
Haas, George C., to Sperry Rand Corporation. Linear frequency to voltage converter circuit. 3,784,845, Cl. 307-233.000.
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Hackbarth, Lowell E.; and Crockett, Joseph T., to Huber, J. M., Corporation. Alkali metal alumino silicates, methods for their production and compositions thereof. 3,784,442, Cl. 162-181.00c.
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Hadfield, Robert W.; and Harding, William H., to Textron, Inc. Underfloor boxes. 3,784,042, Cl. 220-3.300.
Haerick, Jan Armand, to Em. D'Hooge N. V. Locking device for washing machine drums. 3,783,653, Cl. 68-145.000.

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Haight, William John; and Critchley, John Edward, to Bell Canada-Northern Electric Research, Limited. Telephone substation apparatus. 3,784,759, Cl. 179-84.0vf.

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Hall, James M.: *See*—
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Hallmark Cards, Incorporated: *See*—
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Hamashige, Carl H. Driver's communicating signal lights for accelerating, braking and turning operations. 3,784,974, Cl. 340-67.000.

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Hamilton, Douglas, to Elevator Safety Company. Stop control for elevators. 3,783,978, Cl. 187-73.000.

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Hamilton, William F., II. Detector circuit with automatic sensitivity control and post detection filtering for touch control circuitry 3,784,848, Cl. 307-308.000.

Hamisch, Paul H., Sr., to Monarch Marking System Company, The Method of making web of record members. 3,783,783, Cl. 101-226.000.

Hamma, Noritaka: *See*—
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Hammelmann, Paul. Movement of a working station with reference to a substantially vertical surface. 3,783,819, Cl. 118-4.000.

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Hanert, John A.; and Seversen, Gordon F., to Televiso Electronics, Division of Domain Industries, Inc. Product release control for a vending machine. 3,783,987, Cl. 194-10.000.

Hanks, Fletcher. Apparatus for collecting specimens. 3,783,535, Cl. 37-55.000.

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Hannon, Martin John: *See*—
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Hansen, Frode Johan, to Redpath Dorman Long (Contracting) Limited. Structure and method and apparatus for founding a structure. 3,783,626, Cl. 61-46.500.

Hansen, Peter D., to Foxboro Company, The. Resistance bulb compensation circuits. 3,783,692, Cl. 73-362.0ar.

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Hardt, Jean, to Aluminium Suisse S.A. Pressurized fluid dispensing devices. 3,784,064, Cl. 222-397.000.

Hardy, Harold Kenyon, to United Kingdom Atomic Energy Authority. Method of extruding material from a particulate mass using a rotating extrusion die. 3,784,660, Cl. 264-88.000.

Harlin, Walter: *See*—
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Hartung, Charles A., to Kennecott Copper Corporation. Gas cooler and atomizing spray nozzle thereof. 3,784,104, Cl. 239-102.000.

Hartzell, Lyndon G., and Ollinger, James C., to Armstrong Cork Company. Spacer for a fire-rated air bar. 3,783,771, Cl. 98-400.000.

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Hastrup, Niels Erik, 1/2 to Smidth, F. L., & Co. and 1/2 to Aktieselskabet Niro Atomizer. Method of and apparatus for burning cement including atomizing dryer in cyclone preheater bypass. 3,784,389, Cl. 106-100.000.

Hatanaka, Yoshihiro, Shigemori, Hideto, and Ueba, Akio, to Kabushiki Kaisha Kokuei Kikai Seisakusho. Automatic money-issuing apparatus. 3,784,790, Cl. 235-61.70b.

Haubein, Harold Denis, to Chance, A. B., Company. Tamper resistant, lockable enclosure apparatus for transformers and the like 3,784,727, Cl. 174-52.00r.

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Hawk, Bob R., to Loma Corporation. Container with bag-liner locking rim. 3,784,049, Cl. 220-63.000.

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Hedberg, Frederick L.; and Marvel, Carl S., to United States of America, Air Force. Preparation of polybenzimidazoles in the presence of a sulfone solvent. 3,784,517, Cl. 260-63.00r.

Hedgewick, Peter, to Reflex Corporation of Canada Limited. Roadway marker. 3,784,279, Cl. 350-103.000.

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Heidorn, John H., to General Motors Corporation. Radial compressor with two-piece cylinder housing and shell. 3,784,331, Cl. 417-269.000.

Heijmeijer, Carolus Lambertus Josephus Antonius Maria, to Verenigde Fabrieken Van L. J. Heijmeijer N.V. Method and apparatus for forming packages of bags made from plastics material. 3,783,750, Cl. 93-32.000.

Heiland, Manfred, to Schenck, Carl, Firma. Closure means for vacuum chambers. 3,783,557, Cl. 49-221.000.

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Helmer, Robert. Propulsion systems using squirrel cage induction motors to operate from an AC or DC source. 3,783,795, Cl. 105-61.000.

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Hirao, Shoichi; Ihara, Satoshi; and Ulda, Kanji, to Seitetsu Kagaku Co., Ltd. Downcomer for fluid contactor apparatus. 3,784,175, Cl. 261-114.00r.

Hirata, Noritsugu; and Takigawa, Tomishi, to Canon Kabushiki Kaisha. Electromagnetic shutter releasing device for a photographic camera. 3,784,291, Cl. 352-169.000.

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Hoy, Herbert Raymond; Johnson, Ronald Leslie; and Batteock, Whalley Vowe, to Coal Industry (Patents), Limited. Fludised bed apparatus. 3,784,108, Cl. 239-264.000.
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Jackson, John; and Bradshaw, Robert Fagan Donat, to U.S. Philips Corporation. Methods and apparatus for determining the relative amount of substance present in a transparent medium. 3,784,307, Cl. 356-51.000.
Jackson, Paul L., to Ford Motor Company. Device for determining the activity of oxygen in molten metal. 3,784,459, Cl. 204-195.00s.
Jackson, Weldon H.; and Lamy, John C., to Hewlett-Packard Company. Blocking capacitor for a thin-film RF transmission line. 3,784,937, Cl. 333-84.00m.
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Julian, Percy L.; Hirsch, Arnold; and Iseli, Ernst, to Ciba Corporation. Process for the conversion of a 3-hydroxy-5,6-oxide-group of a steroid into a delta 4-3-oxo group. 3,784,598, Cl. 260-239.55d.

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Kaiser, Francis T.; and Schanen, Robert R., to Modern Equipment Company. Vibratory furnace charging apparatuses. 3,784,033, Cl. 214-19.000.

Kaiser, Robert, to Avco Corporation. Solid additives dispersed in perfluorinated liquids with perfluoroalkyl ether dispersants. 3,784,471, Cl. 252-21.000.

Kaizaki, Hiroyuki, and Kato, Takeshi, to Kabushiki Kaisha Komatsu Seisakusho. Device for interconnecting track shoes of a crawler 3,784,262, Cl. 305-11.000.

Kallmeyer, Werner, to ITT Industries, Inc. Brake lining holding arrangement for spot-type disc brakes. 3,783,980, Cl. 188-73.500.

Kalopissis, Gregoire, Bouillon, Claude; Manoussos, Georges, and Berrebi, Claudine, to Societe Anonyme dite L'Oreal Cosmetic compositions to reduce greasy appearance of the hair and skin 3,784,685, Cl. 424-70.000.

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Kaminsky, Victor Paul, 30% to Canada Cities Service, Ltd., 30% to Imperial Oil Limited, 30% to Atlantic Richfield Canada Ltd. and 10% to Gulf Oil Canada Limited. Process for washing secondary separator froth to recover bitumen. 3,784,464, Cl. 208-11.000.

Kanagawa Kiki Kogyo Company, Ltd *See*—
Akiyama, Jiro, 3,784,016.

Kanayama, Mitsutoshi, and Toda, Takao, to Canon Kabushiki Kaisha Roll duplicator. 3,784,298, Cl. 355-109.000.

Kanbayashi: *See*—
Imai, Masataro; Ishizawa, Hiroshi, and Kanbayashi, 3,784,802.

Kane, William P., to Du Pont de Nemours, E. I., and Company. Surface treated cheese package and method. 3,784,711, Cl. 426-130.000.

Kao Soap Co. Ltd.: *See*—
Inamoto, Yoshiaki, and Kadono, Takeji, 3,784,651.

Kaplan, Morton: *See*—
Colten, Frank P., and Kaplan, Morton, 3,784,713.

Karchmar, Arthur, to International Telephone and Telegraph Corporation. Cedar polyphenols and thiodipropionic acid as anti-oxidants for use in animal fats and vegetable oils. 3,784,480, Cl. 252-404.000.

Karklys, Joseph, to Whirlpool Corporation Digital logic control for automatic washer. 3,783,651, Cl. 68-12.00r.

Karlskronavarvet AB: *See*—
Ramstrom, Sven, 3,784,911.

Karmann, Thomas R.; and Adams, Alton A., to Valmont Industries Inc. Apparatus for and welding of tapered pipe. 3,784,081, Cl. 228-17.000.

Karp, Stewart: *See*—
Lowell, Seymour; and Karp, Stewart, 3,783,697.

Kartschmaroff, Peter; Moser, Paul; and Berger, Kurt, to Ciba-Geigy Corporation. Nickel pyrolysate stabilizers for olefin polymers 3,784,510, Cl. 260-45.75n.

Kason Hardware Corporation: *See*—
Berkowitz, Irving L., 3,784,240.

Kasten, Walter, to Bendix Corporation, The. Filter. 3,784,015, Cl. 210-322.000.

Kataoka, Hiroshi. Sheet rewinder. 3,784,122, Cl. 242-56.00a.

Katayama, Hajime. *See*—
Ito, Yoshio; Katayama, Hajime; Nitanda, Hiroshi; and Yamaguchi, Masaru, 3,784,297.

Katlic, John E., to Allied Chemical Corporation. Dust control in longwall mining. 3,784,256, Cl. 299-12.000.

Kato, Takeshi: *See*—
Kaizaki, Hiroyuki, and Kato, Takeshi, 3,784,262.

Kattenhorn, Marion R. Teaching aid device. 3,783,531, Cl. 35-35.00b.

Katz, Robert E., to Webcraft Packaging, Inc. Cross folded envelope pamphlet. 3,784,185, Cl. 270-37.000.

Katzakian, John. Beverage can drinking holder. 3,784,059, Cl. 222-86.000.

Kaufmann, Albert R., to Whittaker Corporation. Method of producing spherical powder by eccentric electrode rotation. 3,784,656, Cl. 264-8.000.

Kaukeinen, Joseph Y.: *See*—
Gilman, Paul B., Jr.; and Kaukeinen, Joseph Y., 3,784,375.

Kawai, Isamu; Uchida, Tadao; and Ishima, Kenji, to Hitachi, Ltd. Air valve type carburetor and method of construction. 3,784,173, Cl. 261-44.00r.

Kawamura, Osamo. Aerodynamic engine system. 3,783,618, Cl. 60-226.00r.

KD Lamp Co.: *See*—
Ward, Richard W., 3,784,975.

Keator, Frederic R., to Auto Parks, Inc. Directional traffic control devices. 3,783,558, Cl. 49-49.000.

Keefe, Jack D.; and Finke, Eugene W., to Monarch Marking System Company, The. Method of fabricating an integrated piston and cylinder mechanism and valve assembly. 3,784,665, Cl. 264-261.000.

Keil, Joseph W., to Dow Corning Corporation. Foam control composition. 3,784,479, Cl. 252-358.000.

Kelleher, Jack: *See*—
Barrett, James Howard; and Kelleher, Jack, 3,784,874.

Keller, C., u. Co.: *See*—
Bucker, Franz, 3,783,800.

Keller, Joseph Richard; and Longenecker, Bruce Cameron, to AMP Incorporated. Control curcuit for magnetic actuator. 3,783,662, Cl 72-1.000.

Kendall Company, The: *See*—
Dye, John F., 3,783,876.

Kendall Company, The, mesne: *See*—
Samour, Carlos M., and Vida, Julius A., 3,784,547.

Kennecott Copper Corporation. *See*—
Hartung, Charles A., 3,784,104

Kenworthy, Samuel P.; and Hall, Marcus A., to Claghorn, Frederic S. and DeWitt, John H.; d/b/a Cezoma International. Apparatus for fastening yarn winding tails. 3,784,119, Cl. 242-18.00r.

Kenyon, Lewis W.; and Plemmons, Jerry R., to General Electric Company, Luminaire. 3,784,806, Cl. 240-25.000.

Kenyon, Roger Y., to Philco-Ford Corporation. Constant lock-in range automatic frequency control. 3,784,917, Cl. 325-422.000.

Keptro, Joseph Animal leash. 3,783,835, Cl. 119-109.000.

Kerr, James W. Safety device for hydraulically operated lift. 3,783,976, Cl. 187-8.450

Kerschner, Paul M.: *See*—
Marcellis, Alphanso W., and Kerschner, Paul M., 3,784,473.

Kersten, Daniel D. Structures for use in creating artificial dentures. 3,783,514, Cl. 32-2.000.

Kerttula, Into Isak; and Jaatinen, Per Arno. Machine for continuous manufacturing of chip boards. 3,784,340, Cl. 425-141.000.

Kertzscher, Klaus *See*—
Mutze, Heinz, Barth, Gerhard; and Kertzscher, Klaus, 3,783,644.

Kessler, Hyman, and Peritt, Harvey I., to United States of America, Navy. Tubular adhesive joint with snap lock. 3,784,235, Cl. 285-21.000.

Keuerleber, Rudi *See*—
Bockmann, Alfred, and Keuerleber, Rudi, 3,784,169.

Key, Carlo F.. *See*—
Krupnick, Albert C.; Key, Carlo F.; and Harwell, Roger J., 3,784,499.

Kidde, Walter, & Company, Inc.: *See*—
Greenwald, Harry, 3,783,661.

Kilby, Jack S. System for screening telephone calls. 3,784,721, Cl. 179-6.00r.

Kilgore, William E., to Hudson Pulp & Paper Corporation. Multiwall bag construction. 3,784,085, Cl. 229-55.000.

Killen, Richard J.; and Jones, Robert G., to Liberty Glass Company. Apparatus for imprinting objects such as bottles and the like. 3,783,777, Cl. 101-40.000.

Kimberly-Clark Corporation. *See*—
Schrading, Mark S.; and Arps, Marion T., 3,783,862.

Kimura, Eugene Tatsuru; and Anderson, David John, to Abbott Laboratories. Anti-tussive compositions. 3,784,702, Cl. 424-317.000.

Kimura, Katsuhiko, to Olympus Optical Co., Ltd. Apparatus for deriving diffractive rays by diffraction gratings. 3,784,833, Cl. 250-237.00g.

Kinemura, Masao, 1/2 to Arita, Koshei. Automatic power supply control apparatus for flat rate electric service systems. 3,783,988, Cl. 194-11.000.

King, Alan G.; and Logan, John C., to Norton Company. Wear resistant aluminous ceramic articles. 3,784,388, Cl. 106-73.400.

King, Michael Charles, to Bell Telephone Laboratories, Incorporated. High accuracy alignment procedure utilizing moire patterns. 3,783,520, Cl. 33-180.00r.

King, Paul A., to Union Carbide Corporation. Disposable absorbent pads containing insoluble hydrogels. 3,783,872, Cl. 128-290.00r.

Kirby, James Ray, to Monsanto Company. Color stabilization of fibers from acrylonitrile polymers. 3,784,511, Cl. 260-45.95p.

Kirchmayr, Rudolf; Heller, Hansjorg; and Rody, Jean, to Ciba-Geigy AG. V-triazolyl coumarins. 3,784,569, Cl. 260-308.00a.

Kirilin, Anatoly Fedorovich: *See*—
Kusovsky, Boris Isaakovich; Pavlov, Nikolai Ivanovich; Mattichenko, Anatoly Petrovich; Zakharov, Sergei Alexandrovich; and Kirilin, Anatoly Fedorovich, 3,784,461.

Kirkman, Douglas Frederick, to I. V. Pressure Controllers Limited. Fluid flow control devices. 3,783,898, Cl. 137-596.200.

Kirkpatrick, Richard A., to KLH Research and Development Corporation. Solid state remote power switch. 3,784,840, Cl. 307-11.000.

Kirschmann, John D. Flow control device for liquid applicators and process of operating same. 3,784,100, Cl. 239-11.000.

Kirst, Paul-Gerhard: *See*—
Bergmeister, Eduard; Kirst, Paul-Gerhard; and Winkler, Heinz, 3,784,648.

Kisling, James W., III, to Schlumberger Technology Corporation. Anchoring mechanism for a well tool. 3,783,941, Cl. 166-217.000.

Kitai, Atsuo: *See*—
Nishida, Hiroshi; Yamamoto, Masao; Kitai, Atsuo; Ozaki, Asaichiro; Nishimura, Yokio; Takemi, Hiroto; and Takemi, Chimo, 3,784,446.

Kitazawa, Hiroshi, to Brother Kogyo Kabushiki Kaisha. Knitting machine. 3,783,641, Cl. 66-60.00r.

Klebba, Horst: *See*—
Adler, Jurgen; Erck, Karl; Klebba, Horst; Kramer, Wolfgang; Maneck, Ernst; Mueller-Eckhardt, Hans; and Schwenk, Kurt, 3,783,568.

Kleemann, Axel; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, to Deutsche Gold- und Silber-Schneideanstalt vormals Roessler. Process for the production of glycerine diesters and glycerine (II). 3,784,568, Cl. 260-491.000.

Klein, Dagobert; and Schneider, Gunter, to International Standard Electric Corporation. Electromechanical filter. 3,784,936, Cl. 333-71.000.

Klein, Herbert H.: *See*—
Moyer, Harris P.; and Klein, Herbert H., 3,783,498.

Klein, Kenneth E.: *See*—
Babin, Frank A.; and Klein, Kenneth E., 3,784,304.

Klevtsov, Valery Alexeevich: *See*—
Manyafov, Valery Nikolaevich; Busheev, Anatoly Ivanovich; Semenov, Roman Lvovich; and Klevtsov, Valery Alexeevich, 3,784,866.

KLH Research and Development Corporation: *See*—
Kirkpatrick, Richard A., 3,784,840.

Kliever, Waldo H. Method and apparatus for immobilizing a patient and conducting an X-ray examination. 3,783,863, Cl. 128-134.000.

Kliment, Karel; and Rutherford, John M., Jr., to National Patent Development Corporation. Process of preparing soluble hema based polymers. 3,784,540, Cl. 260-86.10e.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See*—
May, Oswald, 3,783,985.

Kloz-Seal Products Co., Inc.: *See*—
Styers, Henry H., 3,784,087.

Klygis, Minduagas Julius, to Illinois Tool Works Inc. Bottle carrier. 3,784,246, Cl. 294-87.200.

Knapp, Wilhelm; and Ohmayer, Siegfried, to ITT Industries, Inc. Self-adjusting device for disc brakes. 3,783,984, Cl. 188-196.0ba.

Knauth, Berthold A., to Rotron Incorporated. Flow metering device. 3,783,688, Cl. 73-194.00r.

Knowles, Donald G. Tow hitch. 3,784,231, Cl. 280-502.000.

Knutson, Orlie E.; Gernandt, Louis E.; and Charmoli, Arthur J., to Armour and Company. System for packing food patties. 3,783,577, Cl. 53-24.000.

Kobayasi, Hiroyuki; and Akasaki, Isamu, to Matsushita Electric Industrial Company, Limited. Apparatus for the liquid-phase epitaxial growth of multi-layer wafers. 3,783,825, Cl. 118-422.000.

Kobel, Erwin H.: *See*—
Smith, Harry A.; and Kobel, Erwin H., 3,784,496.

Kobetz, Paul; and Niebylaski, Leonard M., to Ethyl Corporation. Crystalline beryllium hydride. 3,784,423, Cl. 149-109.000.

Koblet, Jack R. Remote rotary control. 3,783,742, Cl. 91-413.000.

Kobylinski, Tadeusz P.; and Taylor, Brian W., to Gulf Research & Development Company. Process for reducing the content of nitrogen oxides in the exhaust gases from internal combustion engines. 3,784,675, Cl. 423-213.500.

Koch, Byron W., to NL Industries, Inc. Postal box. 3,784,089, Cl. 232-24.000.

Koenig, Rolf; and Hemesath, Gerhard, to Hazemag Hartzerkleinerungs und Zement-Maschinenbau Gesellschaft mbH. Rotor for use in impact crushers. 3,784,117, Cl. 241-191.000.

Koerner, John A.: *See*—
Scherer, James P.; and Koerner, John A., 3,784,933.

Koester, Charles J.; and Snitzer, Elias, to American Optical Company. Method and apparatus for effecting photo-coagulation. 3,783,874, Cl. 128-303.100.

Kohler Coating Machinery Corporation, The: *See*—
Kohler, John B.; and Croston, David H., 3,783,824.

Kohler, Hans Karl; and Trachsel, Fred W., to Compagnie Industrielle Radioelectrique. Neck support. 3,784,253, Cl. 297-410.000.

Kohler, John B.; and Croston, David H., to Kohler Coating Machinery Corporation, The. Elevator construction for coating control equipment. 3,783,824, Cl. 118-23.000.

Kohlhaas, Rudolf: *See*—
Joerchel, Egon; and Kohlhaas, Rudolf, 3,784,671.

Kohlhepp, Dean H.: *See*—
Herbert, William; and Kohlhepp, Dean H., 3,783,993.

Kojima, Tamotsu: *See*—
Iwama, Masakuni; Fujiwara, Mitsuto; Kojima, Tamotsu; and Yamaoto, Toshihiko, 3,784,383.

Kolak, Nicholas P.: *See*—

Altwicker, Elmar R.; Gibbs, Richard E.; and Kolak, Nicholas P., 3,784,478.

Koller, Josef. Shovel. 3,784,245, Cl. 294-54.000.

Kollmorgen Corporation: *See*—
Van Aken, Harold R., 3,784,912.

Kolody, Dale A., to Ford Motor Company. Engine spark control and exhaust gas recirculation vacuum signal selector. 3,783,847, Cl. 123-119.00a.

Komendowski, Henry, to Automatic Liquid Packaging, Inc. Permanently sealed containers and end caps therefor. 3,784,045, Cl. 220-27.000.

Kondo, Kunihiro: *See*—
Shigeyama, Shogo; Yamada, Yoichiro, and Kondo, Kunihiro, 3,784,749.

Konig, Gerhard: *See*—
Schwarz, Arnulf; Konig, Gerhard, and Pieloth, Manfred, 3,783,902.

Konig, Karl-Heinz; and Huntrup, Antonius, to Vissers, H., N.V. Mowing machine. 3,783,533, Cl. 56-6.000.

Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V. *See*—
Krijger, Willem; and Burger, Jacobus J., 3,784,115.

Konishiroku Photo Industry Company, Ltd.: *See*—
Iwama, Masakuni; Fujiwara, Mitsuto, Kojima, Tamotsu, and Yamaoto, Toshihiko, 3,784,383.

Kononenko, Vadim Grigorievich: *See*—
Morgolenko, Anatoly Sergeevich, Kononenko, Vadim Grigorievich, Fedosenko, Igor Grigorievich, Selivanov, Gennady Dmitrievich, Kushnarenko, Sergei Grigorievich, and Lepetjukha, Vladimir Semenovich, 3,783,672.

Koono, Makoto: *See*—
Moritan, Norishige, Moriya, Ikuro, Ura, Junichi, and Koono, Makoto, 3,784,761.

Kopaska, Arnold F. Post driving apparatus. 3,783,953, Cl. 173-23.000.

Kopczynski, John F. Bending machine for straightening elongated workpieces. 3,783,910, Cl. 140-147.000.

Kopido, Walter Heinz: *See*—
Fersch, Harry, and Kopido, Walter Heinz, 3,783,812.

Koppers Company, Inc.: *See*—
Ruthenberg, Meyer L., 3,784,215.

Korneeva, Calina Petrovna: *See*—
Mamin, Evgeny Borisovich, Makarov, Viktor Alexeevich, Korneeva, Calina Petrovna, Poppel, Boris Safronovich, and Ivanov, Vyacheslav Ivanovich, 3,784,825.

Korsch, Emil, Spezialfabrik fur Komprimiermaschinen, Firma: *See*—
Korsch, Gunter, 3,784,344.

Korsch, Gunter, to Korsch, Emil, Spezialfabrik fur Komprimiermaschinen, Firma. Multi-part blow-mold for making hollow bodies from thermoplastic material. 3,784,344, Cl. 425-387.000.

Kosta, Geza F., and Pomper, Anthony W., to ESB Incorporated. Method of applying battery electrodes onto continuous carrier strip. 3,784,406, Cl. 117-212.000.

Kostic, Svetislav; and Le Meur, Roger, to Commissariat a l'Energie Atomique. Method and device for the detection of fission products. 3,784,823, Cl. 250-370.000.

Kozalla, Herbert: *See*—
Kunert, Karlheinz, and Kozalla, Herbert, 3,783,482.

Kraloropolska Strojirna, narodni podnik: *See*—
Kubec, Jiri, and Saroch, Vladimir, 3,784,361.

Kramer, Wolfgang: *See*—
Adler, Jurgen, Erck, Karl, Klebba, Horst, Kramer, Wolfgang, Maneck, Ernst, Mueller-Eckhardt, Hans, and Schwenk, Kurt, 3,783,568.

Kraus, Werner. Method for aiding formation of bone forming material. 3,783,880, Cl. 128-82.100.

Krauss-Maffei AG: *See*—
Bockmann, Alfred; and Keuerleber, Rudi, 3,784,169
Gopfert, Max; and Gebhardt, Rudolf, 3,783,794.

Krehbiel, Delmar D., and Butler, Claude D., to Continental Oil Company. Production of delta-sultones by isomerization of alkenesulfonic acids. 3,784,572, Cl. 260-327.008.

Kreissig, Ernst Florian, to Sulzer Brothers Limited. Laterally shiftable railway car spring suspension. 3,783,796, Cl. 105-199.00r.

Kremer, Frederic B. Body current activated circuit breaker. 3,784,842, Cl. 307-92.000.

Kremer, Leon V.: *See*—
Gobran, Ramsis; Kremer, Leon V.; and Ethier, Dolores O., 3,784,502.

Kreps, Emmett E., to Robertshaw Controls Company. Automatic water heater control temperature calibration means. 3,783,675, Cl. 73-1.00f.

Krick, John B.; and Coleman, Bernard, to Rowan Controller, Inc. Solid state motor controller for disconnecting a motor from a power source when a predetermined undervoltage condition persists for a predetermined time. 3,784,846, Cl. 307-293.000.

Krijger, Willem; and Burger, Jacobus J., to Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V. 3,784,115, Cl. 241-30.000.

Kristy, Joseph. Rotasary buffet wheel. 3,784,024, Cl. 211-131.000.

Kroll, Gunter, to Singer Company, The, mesne. Underbed thread trimming device for sewing machines. 3,783,813, Cl. 112-252.000.

Kroll, Joseph G., to Harnischfeger Corporation. Calculator for determining specification of cranes. 3,784,797, Cl. 235-88.000.

Kronseder, Hermann: *See*—
Dullinger, Karl, 3,784,438.

Krueger, Friedrich, and Bauer, Lieselotte, to Benckiser, Joh. A., GmbH, Chemische Fabrik. Process of preventing scale and deposit formation in aqueous systems. 3,784,469, Cl. 210-58.000.

Krueger Metal Products, Inc.: *See*—
Hendrickson, Philip J.; and Resch, Richard J., 3,784,249.

Krume, Robert E. Ski Vehicle with improved front support means. 3,783,959, Cl. 180-6.00a.

Krupnick, Albert C., Key, Carlo F.; and Harwell, Roger J., to United States of America, National Aeronautics and Space Administration. Nonflammable coating compositions. 3,784,499, Cl. 260-29.60s.

Krupp Huttenwerke AG: *See*—
Claus, Gunter; and Doring, Friedrich, 3,784,134.

Kruse, Uno, and Herman, Daniel E., to NL Industries, Inc. Finely divided hollow microcapsules of polymeric resins. 3,784,391, Cl. 106-170.000.

Kubec, Jiri, and Saroch, Vladimir, to Kraloropolska Strojirna, narodni podnik. Converter for high pressure synthesis. 3,784,361, Cl. 23-289.000.

Kubinski, Donald C.: *See*—
Appleby, Paul E., Folden, Denver C., and Kubinski, Donald C., 3,784,437.

Kubota, Hirosuke: *See*—
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Kubota, Yasuharu: *See*—
Watanabe, Toshiro, and Kubota, Yasuharu, 3,784,734.

Kuck, Lloyd L., to General Motors Corporation. Windshield washer pump assembly. 3,783,700, Cl. 74-55.000.

Kuhn, Karl Walter, and Corbin, Marcel Pierre Ernest Marie, to Societe d'Etudes Machines Thermiques. Leak-fuel collecting and detecting device for an internal combustion engine. 3,783,842, Cl. 123-32.00r.

Kuhne, Wolfgang, and Goletz, Hubert, to Hoesch Maschinenfabrik Deutschland AG. Machine for rough- and/or finish-turning of heavy workpieces. 3,783,718, Cl. 82-2.00r.

Kulicke, Barbara. Picture support. 3,784,150, Cl. 248-496.000.

Kume, Toyohiko, and Yasun, Kazuomi, to Bayer Aktiengesellschaft. O-alkyl-(-cycloalkyl)-S-alkyl-S-phenyl-phosphorodithiolates. 3,784,654, Cl. 260-958.000.

Kunert, Karlheinz, and Kozalla, Herbert, to Schafer, Kugelfischer Georg, & Co. Method of filling antifriction bearings. 3,783,482, Cl. 29-148.04a.

Kunststoffwerke Gebruder Anger GmbH: *See*—
Springfeld, Artur, 3,784,339.

Kunz, John E.: *See*—
Hass, David P., and Kunz, John E., 3,784,223.

Kuper, Donald G., to Phillips Petroleum Company. Disproportionation of alkali metal salts of aromatic carboxylic acids. 3,784,639, Cl. 260-515.00p.

Kurten, Fritz, and Saretzky, Horst, to DeLimon Fluhme & Co. Central lubricating system. 3,783,973, Cl. 184-7.00e.

Kurtenbach, Willi, to Holstein & Kappert Maschinenfabrik Phonix GmbH. Transfer of discrete articles between two paths. 3,783,587, Cl. 53-247.000.

Kurth, Josef: *See*—
Wissinger, Waldemar, Kurth, Josef, and Gauchel, Peter, 3,784,345.

Kurz, Bruno; Barron, Mark B., and Butler, Walter J., to General Electric Company. Dielectric strip isolation for JFET or MESFET depletion-mode bucket-brigade circuit. 3,784,847, Cl. 307-304.000.

Kurzrok, Nathan. Navigation device. 3,783,516, Cl. 33-1.08d.

Kuse, Dieter, to Brown Boveri & Company Limited. Ferrimagnetic garnet corrected for temperature dependence of the Faraday effect and method for making the same. 3,784,281, Cl. 350-151.000.

Kushnarenko, Sergei Grigorievich: *See*—
Morgolenko, Anatoly Sergeevich; Kononenko, Vadim Grigorievich, Fedosenko, Igor Grigorievich, Selivanov, Gennady Dmitrievich, Kushnarenko, Sergei Grigorievich, and Lepetjukha, Vladimir Semenovich, 3,783,672.

Kusovsky, Boris Isaakovich, Pavlov, Nikolai Ivanovich, Mattichenko, Anatoly Petrovich, Zakharov, Sergei Alexandrovich, and Kirilin, Anatoly Fedorovich. Device for controlling the process of desalting and dehydration of oil in an electric dehydrator. 3,784,61, Cl. 204-306.000.

Kuts, Mathew, to Goodrich, B. F., Company, The. Manufacture of windshield wiper blades. 3,784,431, Cl. 156-201.000.

Kuwazaki, Masahiro: *See*—
Watanabe, Jun; Hosoi, Susmu; Kuwazaki, Masahiro; Ota, Akira; Takata, Toshikatsu; and Asaoka, Junichi, 3,784,413.

Kwikform, Limited: *See*—
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Kyowa Hakko Kogyo Co., Ltd.: *See*—
Nakayama, Kiyoshi; and Tanaka, Haruo, 3,784,444.

Kyriacou, Demetrios, to Dow Chemical Company, The. Method for obtaining high purity 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine. 3,784,552, Cl. 260-294.80f.

Laboratories Made, S.A.: *See*—
Martinez, Cristobal; and Rodriguez, Dario, 3,784,553.

Laczkovich, Rudy A.: *See*—
Bridegum, James Earl; and Laczkovich, Rudy A., 3,783,690.

Ladyman, Francis Peter; and Gaunt, Dennis, to Stibbe-Monk Developments, Limited. Knitting machines having linearly arranged needles. 3,783,643, Cl. 66-89.000.

Lagana, Joseph A.; and Cygnor, John E., to Chandler Evans Inc. Pressure compensated pump. 3,784,326, Cl. 417-221.000.

Lagin, Herbert. Apparatus for applying indicias to sheets. 3,783,755, Cl. 95-1.000.

Laitram Corporation, The: *See*—
Neuman, Richard L., 3,784,248.

Lake, Ronald W. Folding knife. 3,783,509, Cl. 30-161.000.

Lakos, Georg, to Hauni Werke Koerber and Co. K.G. Method and machine for making a continuous cigarette rod. 3,783,881, Cl. 131-21.00d.

Lakota, Josip, to Aktiengesellschaft Brown, Boveri & Cie. Equipment for the automatic resynchronization of a synchronous generator. 3,784,896, Cl. 322-20.000.

Lambert, Ronald R., to Polaroid Corporation. Preparation of tertiary organophosphine oxides. 3,784,638, Cl. 260-526.00s.

Lamborn, Homer C., to Curwood, Inc. Apparatus for sizing joint rings for cylindrical pipes. 3,783,671, Cl. 72-392.000.

Lamy, John C.: *See*—
Jackson, Weldon H., and Lamy, John C., 3,784,937.

Landis, Robert L., to Landis Sales Company, The. Direct fixation rail fastener. 3,784,097, Cl. 238-310.000.

Landis Sales Company, The: *See*—
Landis, Robert L., 3,784,097.

Landis Tool Company: *See*—
Norrie, George Ogilvie, 3,784,897.

Landry, Jean-Guy: *See*—
Giguere, Jacques; and Landry, Jean-Guy, 3,784,493.

Lane, George C., to Warner-Lambert Company. Method of coating a continuous strip of ribbon razor blade material. 3,784,458, Cl. 204-192.000.

Langen, H. J. & Sons Ltd: *See*—
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McGeary, Frank L.; and Zampetti, Patrick L., to Construction Specialties Inc. Foot grilles and mats. 3,783,471, Cl. 15-215.000.
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McKown, Alan G., to Minnesota Mining and Manufacturing Company. Process for coating particulate adhesive. 3,784,395, Cl. 117-17.000.
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McReynolds, James L.; and Topalian, Harry H., to General Foods Corporation. Protective coatings for confectioneries and bakery products. 3,784,714, Cl. 426-171.000.
McVay, Malcolm Scott C., to U.S. Chemicals and Plastics, Inc., A Div. of Alco Standard Corporation. Additive package and method of compounding resins therewith. 3,784,005, Cl. 206-84.000.
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azaspiro(4.5)decanes and related compounds. 3,784,551, Cl. 260-293.660.

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Nastasi, Gaetano. Device for extracting and for inserting bearings in a roller skate wheel. 3,783,485, Cl. 29-201.000.

Nathanson, Albert. Light-on target game. 3,784,203, Cl. 273-126.00a.

National Bank of Commerce of Seattle, mesne: *See—*
Allais, David C., 3,784,794.

National Patent Development Corporation: *See—*
Kliment, Karel; and Rutherford, John M., Jr., 3,784,540.

National Research Development Corporation: *See—*
Cunningham, Sinclair Upton, 3,783,748.
Cunningham, Sinclair Upton, and Wells, James Rutherford, 3,783,749.
Dawson, Robert Graham; and Sansome, Dennis Hugh, 3,783,668.
Jilbert, Phillip Harvey, 3,784,920.

Natter, Howard. Image reproduction system for dimensional stereoptic perception. 3,784,738, Cl. 178-6.500.

Naumann, Siegfried; Lauchner, Manfred; Golbs, Christian; and Schubert, Harry, to Veb Wirkmaschinenbau Karl-Marx-Stadt. Holder having slide needles mounted therein for knitting machines. 3,783,646, Cl. 66-120.000.

Nautical Electronic Laboratories Limited: *See—*
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Nawa, Motoyuki: *See—*
Amagami, Keizo; Nishijyo, Masaru; Takahashi, Yutaka; and Nawa, Motoyuki, 3,783,904.

Neale, Robert Schwenn, to Union Carbide Corporation. Allylic substitution of olefins. 3,784,609, Cl. 260-611.00r.

Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer: *See—*
Van Staveren, Pieter, 3,784,324.

Neidinger, William K., to Amos-Thompson Corporation. Melt blended polyethylene-ethylene copolymer polyblends. 3,784,668, Cl. 264-310.000.

Nekrasov, Konstantin Dmitrievich; Tarasova, Alexandra Petrovna, Bljusin, Alfred Avgustovich, Avdeeva, Tamara Petrovna, Elin, Vyacheslav Alexandrovich; Roizman, Pavel Aronovich, and Denisenko, Alexandr Panteleevich. Method of preparing mix for producing refactory gas concrete and the product obtained thereby. 3,784,385, Cl. 106-40.00r.

Nelson, Gunner E.; and Pearson, Tillmon H., to Ethyl Corporation. α,α' Carboxyalkoxy succinic acid compounds as detergent builders and sequestering agents. 3,784,486, Cl. 252-546.000.

Nelson, James E. Fluid pressure actuated switch with prestressed diaphragm. 3,784,772, Cl. 200-83.00y.

Nelson, William Junior; and Hinman, Charles William; deceased (by Deitchler, Roy W.; administrator), to Standard Brands Incorporated. Process for purifying glucose syrups containing fructose. 3,784,409, Cl. 127-46.00a.

Nemchik, Joseph Michael, to Bell Telephone Laboratories, Incorporated. Subscriber loop range extender. 3,784,756, Cl. 179-16.00f.

Nemec, John E., to General Tire & Rubber Company, The. Energy absorbing buckling box. 3,784,181, Cl. 267-140.000.

Neu, John P., to GTE Automatic Electric Laboratories Incorporated. Matrix assembly. 3,784,878, Cl. 317-101.0ce.

Neudek, Rudolph Otto: *See—*
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Neuman, Richard L., 1/2 to Laitram Corporation, The. Combination mobile shelter and separable recreational equipment carrying trailer. 3,784,248, Cl. 296-23.00b.

Neumann, Henry O.: *See—*
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Newbold, Thomas, to TRW Inc. Connector for insulated conductors and method for manufacturing said connector. 3,784,731, Cl. 174-87.000.

Newcombe, Jack: *See—*
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., 3,784,509.

Newell, Cyril, to United Kingdom of Great Britain & Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Ejector release units. 3,784,132, Cl. 244-137.00r.

Newinger, Vann O. Heating device. 3,783,855, Cl. 126-25.00r.

Newman, Albert P.; and Haun, Clem Edward, to Empire Products, Inc. Electrical connector with retainer means. 3,784,964, Cl. 339-219.00r.

Nicco, Adrien: *See—*
Fourment, Marie-Claude Gloriod; and Nicco, Adrien, 3,784,396.

Nicholson, John Stuart: *See—*
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Nicholson Manufacturing Company: *See—*
Nicholson, Thomas W.; Jorgensen, Ray B.; and Vanek, Stanley Donald, 3,783,916.

Nicholson, Thomas W.; Jorgensen, Ray B.; and Vanek, Stanley Donald, to Nicholson Manufacturing Company. Chipper chip-removing structure. 3,783,916, Cl. 144-172.000.

Nicklin, Norman Brian, to British Industrial Plastics, Limited. Moulding process. 3,784,664, Cl. 264-246.000.

Nicklin, Thomas; and Farrington, Frederick, to Gas Council, The. Treatment of gases and liquids. 3,784,465, Cl. 208-208.00r.

Nickrawietz, Kurt, to Eumuco Aktiengesellschaft fur Maschinenbau. Apparatus for the transfer of workpieces in a multipage press for the cold deformation by means of cold extrusion and the like. 3,783,670, Cl. 72-346.000.

Nicolay, Klaus: *See—*
Wagner, Karl; and Nicolay, Klaus, 3,783,759.

Niconchuk, Alec W. Tire repair tools. 3,783,715, Cl. 81-15.700.

Niebylaski, Leonard M.: *See—*
Kobetz, Paul; and Niebylaski, Leonard M., 3,784,423.

Niebylski, Leonard M., to Ethyl Corporation. Densifying metal hydrides with high temperature and pressure. 3,784,682, Cl. 423-645.000.

Nielson, Richard P. Wall construction blocks and mortarless method of construction. 3,783,566, Cl. 52-232.000.

Niikura, Masao. *See—*
Yoshino, Takachika; Saito, Shigeru; Sobukawa, Masukuni; Nagase, Isao; Niikura, Masao; Ishikura, Jun; and Sasaki, Yutaka, 3,784,560.

Niitu, Moritada; and Ide, Toshio, to Tokyo Shibaura Electric Company, Ltd. Machine for performing work. 3,784,031, Cl. 214-1.0bc.

Nijssen, Jozef: *See—*
Franck, Heinz-Gerhard, Metzendorf, Walter, Schweym, Erich, Beneke, Herbert, Marrett, Rolf; Nijssen, Jozef, and Omran, Jaafar, 3,784,487.

Nikolai, Gerhard. Cabinet construction. 3,784,273, Cl. 312-257.0sk.

Nimoda, Toyoo. *See—*
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Nippon Automation Kiki Co., Ltd.: *See—*
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Nippon Electric Varian, Ltd.: *See—*
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Nippon Gakki Seizo Kabushiki Kaisha: *See—*
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Nippon Kayaku Co., Ltd.: *See—*
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Nippondenso Co., Ltd.: *See—*
Ito, Katsunori; and Imai, Shinichiro, 3,784,793.

Nishida, Hiroshi; Yamamoto, Masao; Kitai, Atsuo; Ozaki, Asaichiro, Nishimura, Yokio, Takemi, Hiroto, and Takemi, Chimo, to Ajinomoto Co., Inc. and Sansaku Ocean Co., Ltd. Method of producing L-glutamic acid by fermentation of aromatic organic compounds. 3,84,446, Cl. 195-30.000.

Nishijyo, Masaru: *See—*
Amagami, Keizo, Nishijyo, Masaru, Takahashi, Yutaka; and Nawa, Motoyuki, 3,783,904.

Nishimura, Yokio: *See—*
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Nishina, Rintaro: *See—*
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Sato, Takakazu; and Masago, Takaya, 3,784,172.

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Nitto Chemical Industry Co., Ltd.: *See—*
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Nitz, Jurgen: *See—*
Ertl, Dietrich; Eishold, Horst-Gunter; Gilles, Helmut; Schmolling, Gunther; Steuernagel, Walter; and Nitz, Jurgen, 3,783,589.

Niwa, Hideo, to Yuken Kogyo Limited. Solenoid assembly. 3,784,882, Cl. 317-157.000.

NL Industries, Inc.: *See—*
Koch, Byron W., 3,784,089.
Kruse, Uno; and Herman, Daniel F., 3,784,391.

Noble, Arthur J.; Speicher, Edwin W.; and Speicher, Walter J., to Cunningham, M. E., Company. Automatic marking device for metal objects. 3,783,776, Cl. 101-7.000.

Noguchi, Takashi. Method of making a flexible closure. 3,784,432, Cl. 156-244.000.

Noland, Wayne B. Electrically heated fluid conduit coupler. 3,784,785, Cl. 219-301.000.

Noly, Jean, to Potain, Chevilly, Larue (val de Marne). Speed selector, in particular for cranes or hoisting gears. 3,784,852, Cl. 310-105.000.

Nomura, Katsuhiko: *See—*
Uno, Naoyuki; Nomura, Katsuhiko; Sakazaki, Tadazumi; Watanabe, Koichiro; Miyata, Katsuhiko; and Urano, Fumio, 3,783,765.

Norman, Leslie W.; Hunter, Skillman C.; and Russell, George A., to Garrett Corporation, The. Control method for detonation combustion engines. 3,783,616, Cl. 60-204.000.

Norrie, George Ogilvie, to Landis Tool Company. Capacitor transducer. 3,784,897, Cl. 323-93.000.

Northern Electric Company Limited: *See—*
DeBortoli, George; and Lukas, Helmut Hans, 3,784,728.

Northrop Corporation: *See—*
Crandall, Walter E.; and Curtis, Orlie L., Jr., 3,784,799.

Northwestern Corporation, The: *See—*
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Norton Company: *See—*
King, Alan G.; and Logan, John C., 3,784,388.

Norton Villiers Limited: *See—*
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Notelteirs, Victor Rosallie; and Goorissen, Jan, to U.S. Philips Corporation. Lamp with opaque screen. 3,784,861, Cl. 313-117.000.

Novak, Joseph F. Method and apparatus for converting monochrome pictures to multi-color pictures electronically. 3,784,736, Cl. 178-5.40r.

Nowak, Bernard E.: *See—*
Economy, James; Cottis, Steve G.; and Nowak, Bernard E., 3,784,405.

Nutter, Donald J., 25% to Seward, Gordon B. Wheel supported exercising device. 3,784,192, Cl. 272-57.00j.

N.V. Bekaert S.A.: *See—*
Bruggeman, Frans, and Smit, Jacobus C., 3,784,044.

N.V. Werkspoor: *See—*
DeVos, Ferdinand Allard, and Ter Steege, Jan Hendrik, 3,784,739.

Nylund, Knut, to Maschinenfabrik Oerlikon. Apparatus for hardening winding insulation. 3,784,350, Cl. 425-445.000.

Obata, Yoshiharu. *See—*
Minami, Hiroshi; Ando, Masao; and Obata, Yoshiharu, 3,784,741.

O'Brien, Edward M. Extensible and retractable support. 3,784,142, Cl. 248-311.000.

O'Brien, Eugene. Portable tool for drilling holes in hardened steel. 3,784,315, Cl. 408-92.000.

Ochiai, Jiru; and Nishina, Rintaro, to Tamura Electric Works, Ltd. Optical time display device having intermittent drive. 3,783,602, Cl. 58-50.00r.

O'Connor, William Raymond. Hockey helmet. 3,783,450, Cl. 2-3.00r.

Oellig, Rudi. *See—*
Jellinek, Karl; Post, Udo; Giehen, Wibmar Uber; and Oellig, Rudi, 3,784,601.

Ogasawara, Shoji; Tamate, Teruzo; and Sonobe, Toshimitsu, to Alps Electric Co. Ltd. Preset device for UHF tuner. 3,783,698, Cl. 74-10.200.

Ogasawara, Tatsuo. *See—*
Sasaki, Rentaro; Watanabe, Akinori; Ogasawara, Tatsuo; Watanabe, Satosh; and Sogabe, Hidetoshi, 3,784,864.

Ogawa, Kiyoshi; Yokoyama, Yoshiaki; and Fukushima, Yoshio, to Kabushiki Kaisha Ricoh. Six-bar linkage having symmetrical displacement curve. 3,783,706, Cl. 74-469.000.

Ogden, Stanley E. Fish escalator. 3,783,623, Cl. 61-21.000.

Ohmayer, Siegfried: *See—*
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Ohsawa, Mitsuo, to Sony Corporation. All-pass phase-shift circuit. 3,784,934, Cl. 333-29.000.

Okada, Masashi: *See—*
Hijimoto, Takehiki; Okada, Masashi; and Inque, Higashiyama, 3,784,597.

Okamoto, Eisaku, to Nippon Gakki Seizo Kabushiki Kaisha. Group teaching system for musical instruments incorporated with information exchanging arrangement between a teacher station and a plurality of student stations. 3,784,717, Cl. 84-470.000.

Okamura, Masahiro: *See—*
Miyata, Kenji; and Okamura, Masahiro, 3,784,886.

Okamura, Shiro: *See—*
Hagiwara, Isamu; and Okamura, Shiro, 3,784,754.

Okano, Takeshi, to Fuji Shashin Film Kabushiki Kaisha. Pressure plate means for projectors and the like. 3,784,295, Cl. 353-95.000.

Okaya Electric Industry Company: *See—*
Sasaki, Rentaro; Watanabe, Akinori; Ogasawara, Tatsuo; Watanabe, Satosh; and Sogabe, Hidetoshi, 3,784,864.

Okazawa, Masao: *See—*
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Sasaki, Rentaro; Watanabe, Akinori; Ogasawara, Tatsuo; Watanabe, Satosh; and Sogabe, Hidetoshi, 3,784,864.

Oklahoma State University: *See—*
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Okudaira, Hiromi: *See—*
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Okumura, Kentaro; Matsumoto, Kazuo; and Suzuki, Mamoru, to Tanabe Seiyaku Co., Ltd. Process for preparing alpha-methyl-beta-(3,4-dihydroxyphenyl-alanine. 3,784,640, Cl. 260-519.000.

Olander, Karl Erik, to Alfa-Laval AB. Milking machine. 3,783,837, Cl. 119-14.080.

Olin Corporation: *See—*
Pregler, John E., 3,784,503.

Oliphant, Melvain, to Singer Company, The, mesne. Variable visibility simulator. 3,784,720, Cl. 35-12.00n.

Oliveri, Humber: *See—*
Wyman, Dennis G.; Bichell, William J.; and Oliveri, Humber, 3,784,201.

Ollinger, James C.: *See—*
Hartzell, Lyndon G.; and Ollinger, James C., 3,783,771.

Ollinger, James C.; and Shenk, John W., to Armstrong Cork Company. Ceiling system suspension clip. 3,784,144, Cl. 248-317.000.

Ollis, William J. B., to Timber Research and Development Association. Glazing strip. 3,783,567, Cl. 52-232.000.

Olsen, Willi, to Siemens Aktiengesellschaft. High-voltage piston actuated switch with rotational symmetry and light beam indicating means. 3,784,771, Cl. 200-82.00b.

Oltersdorf, Winfried, to Siemens Aktiengesellschaft. Disconnect switch. 3,784,767, Cl. 200-48.00v.

Olympus Optical Co., Ltd.: *See—*
Kimura, Katsuhiko, 3,784,833.

Omran, Jaafar: *See—*
Franck, Heinz-Gerhard; Metzendorf, Walter; Schweym, Erich; Beneke, Herbert; Marrett, Rolf; Nijssen, Jozef; and Omran, Jaafar, 3,784,487.

Ooyama, Noboru: *See—*
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Opti-Holding AG: *See—*
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Ornitz, Martin N.; Moskowitz, Arthur; and Bressanelli, Jerome P., to Crucible Inc. Austenitic stainless steel. 3,784,373, Cl. 75-128.00f.

Orshansky, Elias, Jr., to Orshansky Transmission Corporation, mesne. Plural range transmission. 3,783,711, Cl. 74-687.000.

Orshansky Transmission Corporation, mesne: *See—*
Orshansky, Elias, Jr., 3,783,711.

Ort, Morris R., to Monsanto Company. Process for the polymerization of olefins. 3,784,539, Cl. 260-94.90c.

Orthuber, Richard Kaspar, to International Telephone and Telegraph Corporation. Method of laminating one or more materials with a base structure for use in a high vacuum electron tube and method of masking the ease preparatory to lamination. 3,784,379, Cl.96-36.200.

Osborn, Robert A.; St. Cyr, David R.; and Bullard, Herbert L., to Goodyear Tire & Rubber Company, The. Hydrocarbon-derived resin. 3,784,530, Cl. 260-80.700.

Osborne, Brian Frank: *See—*
Grothe, John; and Osborne, Brian Frank, 3,783,695.

Oshita, Toshiyuki: *See—*
Nakade, Sadao; Kubota, Hirosuke; Oshita, Toshiyuki; and Sakane, Kuniyoshi, 3,783,624.

Osterberg, Arnold Curtis: *See—*
Cohen, Elliott; Sloboda, Adolph Edward; Osterberg, Arnold Curtis; and Child, Ralph Grassing, 3,784,704.

Osterhout, Florence. Hand tool for use in making tufted yard goods. 3,783,478, Cl. 28-2.000.

Ostrowski, Edwin A.; and De Lew, Charles A., to Controls Company of America. Water valve disphragm. 3,784,154, Cl. 251-30.000.

Oswald, Jacques; and Rainsard, Yves, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Apparatus for improving the signal-to-noise ratio of a received signal. 3,784,915, Cl. 325-367.000.

Oswald, Robert D.: *See—*
Brush, Donald C.; and Oswald, Robert D., 3,783,998.

Oszlanyi, Anial G.; and Zielinski, Richard J., to SCM Corporation. Polyoxyalkylene derivatives of polyglycerol esters as dough conditioners. 3,784,709, Cl. 99-91.000.

Ota, Akira: *See—*
Watanabe, Jun; Hosoi, Susmu; Kuwazaki, Masahiro; Ota, Akira; Takata, Toshikatsu; and Asaoka, Junichi, 3,784,413.

Otis, George A.; and Gores, Kenneth W. Apparatus for facilitating application of fluids. 3,784,063, Cl. 222-394.000.

Otte, Eginhart; and Jentzsch, Dietrich, to Bodenseewerk Perkin-Elmer & Co., GmbH. Punch for piercing sample capsules. 3,783,694, Cl. 73-422.0gc.

Otto, Jack M., to PPG Industries, Inc. Apparatus and method for purifying alkali metal hydroxide solutions. 3,784,456, Cl. 204-153.000.

Otto, Stanley W.: *See—*
Greenwood, Aaron O.; Magee, Ramon J.; and Otto, Stanley W., 3,783,779.

Owen, Ronald Charles, to Illinois Tool Works Inc. Multiple container carrier and individual container lid arrangement. 3,784,002, Cl: 206-65.00c.

Owen, Willaim S., Jr., to Eastman Kodak Company. Elevation mechanism. 3,784,135, Cl. 248-11.000.

Owens-Illinois, Inc.: *See—*
Bayer, John W.; and Santiago, Edgardo, 3,784,529.
Potter, Terry C.; and Rhoads, Roger R., 3,784,261.
Southwell, William H.; and Walters, Richard M., 3,784,308.
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Uhlig, Albert R., 3,784,038.

Oxenrider, Bryce C.; Beyleveld, Wilhelmus M.; and Woolf, Cyril, to Allied Chemical Corporation. Process for preparing fluoroperhaloalkylidene imines. 3,784,644, Cl. 260-566.00r.

Ozaki, Asaichiro: *See—*

Nishida, Hiroshi; Yamamoto, Masao, Kitai, Atsuo; Ozaki, Asaichiro; Nishimura, Yokio; Takemi, Hiroto; and Takemi, Chimo, 3,784,446.

Pabst, Wolfgang: *See*—
Schadebrodt, Gerhard; Altzschner, Gustav; Feldmann, Hans-Helmut; Graichen, Bernhard; and Pabst, Wolfgang, 3,783,741

Packham, Charles Christopher: *See*—
Brown, Norman Joseph; Packham, Charles Christopher; and Parsonage, Raymond Graham, 3,783,508.

Paetzel, Herbert; and Pfeiffer, Horst, to Masoneilan International, Inc. Valve. 3,784,156, Cl. 251-250.000.

Paisley, George C.; and Tier, Fred G., to Milprint, Inc. Method of laminating packaging film. 3,784,434, Cl. 156-280.000.

Pall Corporation: *See*—
Pall, David B., 3,783,969.

Pall, David B., to Pall Corporation. Acoustic insulation comprising anisometric compressed and bonded multilayer knitted wire mesh composites. 3,783,969, Cl. 181-33.00g

Pan-American Records (Casa Pan Americana) Inc.: *See*—
Frenkel, Marshall S., 3,784,269

Paolini, Alfred P.. *See*—
Munger, Fay E.; Fife, Warren E., and Paolini, Alfred P., 3,784,259.

Papa, Anthony Joseph, and Proops, William Robert, to Union Carbide Corporation. Cellular material produced from copolymers of cyclic vinyl ethers and cyclic acetals. 3,784,594, Cl. 260-2.5am

Parikh, Girish D.; and Willard, William C., to Western Electric Company, Incorporated. Methods of electrolytic regenerative etching and metal recovery. 3,784,455, Cl. 204-130.000.

Park-Ohio Industries, Inc.: *See*—
Laughlin, John R.; and Mucha, George M., 3,784,780.

Parke, Davis & Company: *See*—
Culbertson, Townley P.; and Haskell, Theodore H., 3,784,541

Parker, Richard G., to Goodrich, B. F., Company, The. Stabilizers for chlorine-containing polymers. 3,784,565, Cl. 260-482.00r.

Parlevliet, Theodor, to Siemens Aktiengesellschaft. Pivoted, segmental, thrust bearing providing simulated offset support of centrally supported bearing segments. 3,784,266, Cl. 308-160.000.

Paros, Jerome M. Absolute pressure transducer. 3,783,693, Cl. 73-398.00c.

Parr, Edward L. Instrument for indicating time. 3,783,598, Cl. 58-2.000.

Parr, Edward L., to Thompson, Wendell L. Tool holder. 3,783,729, Cl. 83-666.000.

Parsonage, Raymond Graham. *See*—
Brown, Norman Joseph; Packham, Charles Christopher, and Parsonage, Raymond Graham, 3,783,508

Parth, William H., to Dow Chemical Company, The. Analytical apparatus. 3,784,359, Cl. 23-253.0pc

Pash, James E. Chromatic multiple stringed musical instrument. 3,783,731, Cl. 84-173.000

Pass, Roger D. Lather dispensing shaving instrument. 3,783,511, Cl. 30-41.000.

Pastva, John V., Jr., to Eastern Company, The. Door stabilizer. 3,784,243, Cl. 292-300.000

Patent-Freuhand-Gesellschaft fur elektrische Gluhlampen mbH. *See*—
Rudolph, Joseph, 3,784,927.

Patfoort, George Arthur Rodolf. Injection. 3,784,065, Cl. 222-413.000

Patliff, Edmond Lewis. Nesting place for purple martin. 3,783,831, Cl. 119-23.000.

Paton, Jim. *See*—
Ragard, Phillip A.; and Paton, Jim, 3,783,488.

Patterson, John A., to Texaco Inc. Process for preparing dialkylaminoethyl methacrylate. 3,784,566, Cl. 260-486.00r.

Paulik, Frank E., to Monsanto Company. Method for producing alkyl iodides. 3,784,518, Cl. 260-65.00f

Pavlov, Nikolai Ivanovich: *See*—
Kusovsky, Boris Isaakovich; Pavlov, Nikolai Ivanovich; Mattichenko, Anatoly Petrovich, Zakharov, Sergei Alexandrovich; and Kirilin, Anatoly Fedorovich, 3,784,461.

Payeur, Marcel, to Forano Limitee. Mechanical shears. 3,783,725, Cl. 83-326.000.

Peabody Engineering Corporation. *See*—
Arnold, Orlan M.; and Vancini, Carlo A., 3,784,017.
Gordon, George, 3,784,019.

Pearl, Curt Charles, to APL Corporation. Bag with bail handle. 3,784,084, Cl. 229-54.00r.

Pearlman, Alan R.; and Colin, Dennis P., to ARP Instruments, Inc. Touch sensitive polyphonic musical instrument. 3,784,935, Cl. 333-70.0er.

Pearson, Tillmon H.: *See*—
Nelson, Gunner E.; and Pearson, Tillmon H., 3,784,486.

Pease, Logan L., to Eaton Corporation, mesne. Optical addressing system. 3,784,791, Cl. 235-61.11e.

Pechiney-Saint-Gobain: *See*—
Thomas, Philippe; and Meyer, Jacques, 3,784,586.

Pedersen, Nicholas F., to Sperry Rand Corporation. Power transmission. 3,784,328, Cl. 417-222.000.

Peeler, Donald H., to Irvin Industries Inc. Passenger safety device. 3,784,224, Cl. 280-150.00b.

Pegg, Claude L.: *See*—
Pegg, Claude L.; and Pegg, John L. (said Pegg, John L., assor to said), 3,783,897.

Pegg, Claude L., and Pegg, John L., said Pegg, John L., assor to said Pegg, Claude L. Warm liquid supply system for reservoir and mixing valve therefor. 3,783,897, Cl. 137-564.000.

Pegg, John L.: *See*—
Pegg, Claude L.; and Pegg, John L., 3,783,897.

Peilstocker, Gunter. *See*—
Schirmer, Hermann; and Peilstocker, Gunter, 3,784,595.

Pelat, Patrice, to International Vibration Engineering and Avions Marcel Dassault. Recoil absorber. 3,783,738, Cl. 89-44.00r.

Pelletier, Guy, to Rockland Industries Ltd. Replacement tread band for retreading a worn tire. 3,783,924, Cl. 152-330.000.

Pelorex Corporation. *See*—
Riesenberg, James H.; and Rait, Joseph M., 3,783,576.

Pelte, Richard: *See*—
Winkler, Alfred; Pelte, Richard; Huber, Theodor, and Mayr, Helmut, 3,784,292.

Pelts, Cecil A. Fluid actuated jacking frame. 3,784,029, Cl. 212-14.000.

Pennwalt Corporation. *See*—
Cassella, Vincent Joseph, Jr., 3,784,400
Hutchinson, Herman R., Arpajian, Vasken F., and Malcomson, Robert S., 3,784,657.

Penote, Vincent S.; and Rear Melvin K., to Cleveland Trencher Company, The. Plow assembly for excavating machine. 3,783,537, Cl. 37-94.000.

Pera, John D.. *See*—
Buckman, Stanley J., Pera, John D., Raths, Fred W.; and Mercer, Gerald D., 3,784,649.

Perez, John L., to Dunham-Bush, Inc. Replaceable defrost heater for fin and tube evaporator and spring retaining clip for same. 3,783,635, Cl. 62-276.000.

Perignon, Philippe, to Eastman Kodak Company. High speed silver chloroiodide emulsions. 3,784,381, Cl. 96-94.000

Peritt, Harvey L.: *See*—
Kessler, Hyman; and Peritt, Harvey L., 3,784,235.

Perkins, Carroll R.; and Lucks, Irwin A., to Solitron Devices Inc. Electronic hybrid package. 3,784,725, Cl. 174-52.00r

Peron, Roger J. Time division data transmission system. 3,784,752, Cl. 179-15.0aq.

Perrine, James J. Bilateral reciprical isokinetic exerciser. 3,784,194, Cl. 272-79.00e.

Perrine, Walter E. Gun toggle mechanism with biasing means positioned in predetermined area on toggle to absorb shell explosive reactive forces. 3,783,739, Cl. 89-189.000.

Perrott, Francis Cyric. *See*—
Perrott, Francis Cyric; and Aitkey, Ian Miller Edington (said Aitken assor. to said), 3,783,793.

Perrott, Francis Cyric; and Aitkey, Ian Miller Edington, said Aitken assor. to said Perrott, Francis Cyric. Track system having non-load bearing track switch. 3,783,793, Cl. 104-130.000.

Perry, Eli; and Strazik, William F., to Monsanto Company. Process for the separation of styrene from ethylbenzene. 3,784,620, Cl. 260-669.00a.

Perry, Eli; and Strazik, William F., to Monsanto Company. Process for the separation of diene from organic mixtures. 3,784,624, Cl. 260-681.50r.

Perry, Eli; and Strazik, William F., to Monsanto Company. Process for the separation of diene from organic mixtures. 3,784,625, Cl. 260-681.50r.

Perry, Roger L., to Gillette Company, The. Strip feed safety razor. 3,783,507, Cl. 30-40.100.

Persson, Eric Sigrid; and Persson-Melin, Signe Harriet, to Expo Nord AB. Furniture assemblies. 3,784,251, Cl. 297-248.000

Persson-Melin, Signe Harriet. *See*—
Persson, Eric Sigrid; and Persson-Melin, Signe Harriet, 3,784,251.

Peter, Richard; and Jenny, Walter, to Ciba-Geigy AG. Styralyl dyestuffs. 3,784,558, Cl. 260-465.00d.

Peters, James R., to Universal Product Development Corporation. Self-watering flower pot. 3,783,555, Cl. 47-38.000.

Peterson, Arnie J.; and Hoffa, Jack L., to Beckman Instruments, Inc. Sample cell and stirrer therefor. 3,784,170, Cl. 259-65.000.

Peterson, Arnold E., to Peterson Baby Products Co. Seat back adjustment mechanism for baby products. 3,784,252, Cl. 297-364.000.

Peterson Baby Products Co.. *See*—
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Peterson, Donald J., to Procter & Gamble Company, The. Organosulfonylmethyl(trihydrocarbyl) tin compounds. 3,784,580, Cl. 260-429.700.

Petigara, Ramesh. *See*—
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Petigara, Ramesh B.: *See*—
Yale, Harry L.; and Petigara, Ramesh B., 3,784,549.
Yale, Harry L.; and Petigara, Ramesh B., 3,784,550.

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Petrinec, Robert G.; and Petrinec, Joan A., 3,783,946.

Petrinec, Robert G.; and Petrinec, Joan A. Self-contained automatic sequencing fire extinguishing system. 3,783,946, Cl. 169-2.00a.

Petrus, Stephen, to Eaton Corporation. Blind mounting fastener. 3,783,922, Cl. 151-41.740.

Petry, Eston, to Consolidation Coal Company. Level wind spooling device with a stabilizing housing. 3,784,126, Cl. 242-158.300.

Pettit, Paul H., Jr., to Du Pont de Nemours, E. I., and Company. Acrylic polyblend powder coating composition. 3,784,501, Cl. 260-31.600.

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Petzsch, Lothar: *See*—
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Pfaffendorf, James L.; and Johnson, Marlyn D., to Liberty Carton Co. Tote tray. 3,784,083, Cl. 229-34.00r.

Pfannmueller, Helmut; Urban, Friedrich; Buechner, Oskar; Gropper, Hans; and Sistig, Wolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Controlling a high-pressure reactor. 3,784,538, Cl. 260-94.90r.

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Pfiefer, Ernest L.. *See*—
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Richardson, John Lloyd; Segovia, Gilbert; Ju, Fred; and Bachle, Wilfred Hugo, 3,784,470.

Phillips, Clyde G. Refrigeration system. 3,783,629, Cl. 62-85.000.

Phillips, David P., to Wildwood Products, Inc. Vehicle support system. 3,784,160, Cl. 254-86.00r.

Phillips Petroleum Company: *See*—
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Piggott, Richard G., to Spraying Systems Co. Foam producing nozzle. 3,784,111, Cl. 239-427.300.

Pilero, James. Coil spring anchor assembly. 3,783,459, Cl. 5-259.00b.

Pihpovich, Donald, to Rockwell International Corporation. Process for producing energy in a gas generator system. 3,783,617, Cl. 60-218.000.

Pillsbury Company, The. *See*—
Rejsa, Jack J., 3,783,753.

Pirck, Dietrich; Fuchs, Gundolf, and Sachse, Gerhard, to Deutsche Texaco Aktiengesellschaft. Preparation of alkoxylated resins. 3,784,528, Cl. 260-78.50t.

Pistilli, Henry L. Vibration dampener support for lenticular devices. 3,784,068, Cl. 224-5.00v.

Plastic Tubing Inc.: *See*—
Maroschak, Ernest J., 3,784,346.

Platz, Edward A. Sub-surface root fertilizer and probe. 3,783,804, Cl. 111-7.400.

Plemmons, Jerry R.: *See*—
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Baker, James G., 3,783,764.
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Lambert, Ronald R., 3,784,638.

Polcha, Raymond J., to United States of America, Navy. Controlled fragmentation warhead. 3,783,790, Cl. 102-67.000.

Pollack, Melvin, to Apeco Corporation. Floating baffle system for fuel tanks. 3,784,050, Cl. 220-85.000.

Polytop Corporation: *See*—
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Pomper, Anthony W.: *See*—
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Ponder & Best, Inc.: *See*—
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Popov, Vladimir Ivanovich: *See*—
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Portmann, August Thomas, to Bruderer AG. Apparatus for balancing masses at a punch press. 3,783,699, Cl. 74-40.000.

Portmann, August Thomas, to Bruderer AG. Apparatus for the stepwise feed of workpieces. 3,784,075, Cl. 226-143.000.

Posirca, Radu: *See*—
Coanda, Henry; Aldea, Gheorghe; Bodea, Ion; Truica, Vasile; Hanciulescu, Valentin; Posirca, Radu; Lazar, Cristian; and Gabor, Iacob, 3,784,325.

Post, David. Pattern grading machine. 3,783,517, Cl. 33-17.00a.

Post, Udo: *See*—
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Prajsnar, Tadeusz; Rulinski, Jozef; Zglobicki, Edward; and Sojka, Bronislaw, to Instytut Metalurgii Zelaza. Method of and device for the drawing of tubular workpieces. 3,783,663, Cl. 72-41.000.

Pratt, Roy E.: *See*—
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Pregler, John E., to Olin Corporation. Urethane coating based on a substituted isocyanurate-lactone addition product. 3,784,503, Cl. 260-33.6ub.

Presnick, Michael C. Lightweight collapsible structures. 3,784,043, Cl. 220-4.00f.

Preston, Charles F., to General Electric Company. Brush holder assembly. 3,784,856, Cl. 310-239.000.

Preus, Paul; and Gallagher, John J. Convertible barrier for substances floating on water. 3,783,621, Cl. 61-1.00f.

Previati, Augusto, to Industrie Pirelli S.p.A. Expansible sector core for curing belts. 3,784,338, Cl. 425-28.000.

Price, H. C., Co.: *See*—
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Price, Raymond G.: *See*—
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Prieur, Robert: *See*—
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Prillig, Elliott Benjamin; and Chun, Alexander Hing Chinn, to Abbott Laboratories. Tablet preparation. 3,784,683, Cl. 424-19.000.

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Procter & Gamble Company, The: *See*—
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Rachlin, Joel R.; and Neudek, Rudolph Otto. Ventilating air distributing channel fastening and supporting bracket. 3,784,141, Cl. 248-214.000.

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Rainer, Norman B.; and Full, Donald A., to Morris, Philip, Incorporated. Microporous vinyl chloride polymers and method of making the same. 3,784,490, Cl. 260-2.50m
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Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,784,559.
Ramge, Ronald T. Alignment and installation tool for threaded male members. 3,783,717, Cl. 81-119.000.
Ramstrom, Sven, to Karlskronavarvet AB. Directional coupler for measuring forward and reflected power comprising a bored metal block. 3,784,911, Cl. 324-95.000.
Randak, Alfred; and Michel, Karl, to Stahlwerke Sudwestfalen AG. Process for the manufacture of cold-rolled sheets from a rust-resistant, ferritiesteel alloy containing chromium and molybdenum. 3,784,418, Cl. 148-12.000.
Rando, Robert, to Bell Telephone Laboratories, Incorporated. High voltage shutdown protection circuit with bias arrangement to decrease the voltage shutdown point with increasing. 3,784,893, Cl 321-11.000.
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Raudys, Vytas Andrew, to Union Carbide Corporation. Close fitting article packaging system. 3,783,580, Cl. 53-29.000
Rauser, Jan Axel Ingemar, to Tetra Pak International AB. Device for the placing of packages into a collecting carton. 3,783,584, Cl 53-160.000.
Raymond, David G.; Smith, Gary C., Jr.; and Viles, Alan H., to Abex Corporation. Axial piston hydraulic transducer shoe retainer structure. 3,783,743, Cl. 91-499.000
RCA Corporation: *See—*
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Reich, Robert Frederick, to Chicago Bridge & Iron Company. Method and apparatus for transporting liquefied natural gas. 3,783,628, Cl. 62-55.000.
Reif, Philip George, to International Telephone and Telegraph Corporation. Electrooptical system. 3,784,831, Cl. 250-213.0vt.
Reifenschweiler, Otto, to U.S. Philips Corporation. Tritium target with compensated sputtering. 3,784,824, Cl. 250-501.000.
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Rezek, John R., to Motorola, Inc. Controllable audio amplifier for miniature receiver provided by a thick film module including an integrated circuit. 3,784,923, Cl. 330-22.000.
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Richter, Eike, and Brissey, George E., to General Electric Company. Method of making high speed homopolar generator with straight winding construction. 3,783,502, Cl. 29-598.000
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Kirchmayr, Rudolf; Heller, Hansjorg; and Rody, Jean, 3,784,569.
Rogge, Gail E. Retractable step for passenger vehicles. 3,784,227, Cl. 280-166.000
Rohm & Haas Company: *See—*
Fellmann, Robert P.; and Whang, Jong Jai, 3,784,532.
Rohr, Wolfgang; and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Acetoacetanilide substituted by a phenylcarbamazloxy group. 3,784,564, Cl. 260-472.000.
Roizman, Pavel Aronovich: *See—*
Nekrasov, Konstantin Dmitrievich; Tarasova, Alexandra Petrovna; Bljusin, Alfred Avgustovich; Avdeeva, Tamara Petrovna; Elin, Vyacheslav Alexandrovich; Roizman, Pavel Aronovich, and Denisenko, Alexandr Panteleevich, 3,784,385.
Rolle, Albert L., to United States of America, Navy. Sonar image converter. 3,784,805, Cl. 340-3.00r.
Rosansky, Martin G.; and Jagid, Bruce E., to Power Conversion, Inc. Apparatus for fabricating lithium anodes. 3,783,666, Cl. 72-199.000.
Rose, Nathaniel G. Blasting operations. 3,783,789, Cl. 102-28.00a.
Rosenberg, Otto: *See—*
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Ross, Hugh MacDonald; and Ball, Allan, to Robertson, Loewy, Engineering Company, Limited. Rolling mill roll coolant control. 3,784,153, Cl. 281-25.000.
Ross, Warren N. Irrigation center pivot structure. 3,784,106, Cl. 239-177.000.
Ross-Holm Division Holm Tractor & Equipment Company: *See—*
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Rossi, Eugene F., to Allis-Chalmers Corporation. Nozzle for rotary kiln. 3,784,107, Cl. 239-208.000.
Rossi, Gerald F. Bicycle securing apparatus. 3,783,659, Cl. 70-234.000.
Rossmann, Axel; and Hoffmuller, Wilhelm, to Motoren- und Turbine-Union. Method and means for retaining ceramic turbine blades. 3,784,320, Cl. 416-215.000.
Rotax Limited. *See—*
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Knauth, Berthold A., 3,783,688.
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Sabatelli, Leo C.; and Jesse, William L. Spray gun light assembly. 3,784,804, Cl. 240-2.0fd.
Sabee, Reinhardt N. Diaper with thickened fastening areas. 3,783,871, Cl. 128-287.000.
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Sankyo Company, Limited: *See—*
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Sasaki, Rentaro; Watanabe, Akinori; Ogasawara, Tatsuo; Watanabe, Satosh; and Sogabe, Hidetoshi, to Oki Electric Industry Company Ltd. and Okaya Electric Industry Company. Cold cathode discharge display apparatus manifesting memory action. 3,784,864, Cl. 31-217.000.
Sasaki, Yutaka: *See—*
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Sato, Masamichi, to Xerox Corporation. Electrophotographic method. 3,784,301, Cl. 355-7.000.

Sato, Masamichi; and Fukushima, Osamu, to Xerox Corporation. Imaging system. 3,784,397, Cl. 117-37.01e.

Sato, Shigehiko: *See*—
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Sato, Takakazu; and Masago, Takaya, to Nissan Motor Company, Limited. Carburetor for internal combustion engines. 3,784,172, Cl. 261-44.00r.

Sato, Yoshikazu: *See*—
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Sauer, Harold S.; Hagopian, Nubar D.; and Colman, John M., to Medical Innovations, Inc. Novel external circulatory assist device. 3,783,859, Cl. 128-24.00r.

Saueressig, Johann Heinrich. Intaglio print machine with novel roll mounting mandrel and bushing assembly. 3,783,780, Cl. 101-153.000

Sausse, Andre; and Stern, Andre, to Rhone-Poulenc S.A. Surgically implantable prosthetic duct for the removal of biological liquids. 3,783,454, Cl. 3-1.000.

Sausse, Andre, to Rhone-Poulenc S.A. Peristaltic pump. 3,784,323, Cl. 417-53.000.

Sawchuk, Loris G.: *See*—
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Sayigh, Adnan A. R.; Stuber, Fred A.; and Ulrich, Henri, to Upjohn Company, The. Novel compounds and process. 3,784,527, Cl. 260-78.0st

Schachet, Eli, to Sherwood Medical Industries, Inc. Suction drainage device. 3,783,870, Cl. 128-276.000.

Schadebrodt, Gerhard, Altzschner, Gustav; Feldmann, Hans-Helmut, Graichen, Bernhard; and Pabst, Wolfgang, to Licenta Patent-Verwaltung-G.m.b.H. Program controlled coordinate machine 3,783,741, Cl. 90-13.00c.

Schafer, Kugelfischer Georg, & Co.: *See*—
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Schattberger, Daniel A., to Quanta Welding Company. Article including a weld joint in close proximity to a fragile or thermally sensitive element and method of making the same. 3,784,779, Cl. 219-117.000.

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Schantz, Spencer C.: *See*—
Schantz, Spencer C.; and Berry, William R. (said Berry assor. to said), 3,784,944.

Schantz, Spencer C.; and Berry, William R., said Berry assor. to said Schantz, Spencer C. Adjustable electric buzzer. 3,784,944, Cl. 335-276.000.

Schatenberg, Robert T.: *See*—
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Scharrer, Roland Pierre Franz, to Arizona Chemical Company. Conjugation of unsaturated fatty materials. 3,784,537, Cl. 260-97.500.

Schattenmann, Wolfram: *See*—
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Schaul, Jerome Sandel; Wissbrun, Kurt Falke; and Hannon, Martin John, to Celanese Corporation. Process of blow molding containers from particle form polyethylene resins. 3,784,661, Cl. 264-98.000

Schellhammer, Carl-Wolfgang, to Bayer Aktiengesellschaft. 4-Chloropyrazolyl compounds. 3,784,570, Cl. 260-308.00b.

Schenck, Carl, Firma: *See*—
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Schenker, Karl: *See*—
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Scherer, James P.; and Koerner, John A., to Textron, Inc. Broadband balun. 3,784,933, Cl. 333-26.000.

Schering Corporation: *See*—
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Schievelbein, Vernon H.; Shankle, Leonard A.; and Wade, Herbert N., to Texaco Inc. Secondary recovery process utilizing brine electrolyzed to remove hydrogen sulfide. 3,783,943, Cl. 166-266.000.

Schild, Josef, and Wessner, Harald, to Vockenhuber, Karl and Hauser, Raimund. Exposure control device for photographic cameras. 3,783,761, Cl. 95-11.00r.

Schilter, Josef: *See*—
Forgo, Gabor; Meyer, Erwin; and Schilter, Josef, 3,783,828.

Schindler, Walter; Schmid, Erich; and Zuest, Armin, to Ciba-Geigy Corporation. Imidazolidinone derivatives as central nervous system depressants. 3,784,689, Cl. 424-250.000.

Schirmer, Hermann; and Peilstocker, Gunter, to Bayer Aktiengesellschaft. Polycarbonate molding compositions having improved release properties containing an ester of a trihydric alcohol and a C-10 to C-22 saturated aliphatic carboxylic acid. 3,784,595, Cl. 260-18.0tn.

Schlang, Arthur, to Isotec Incorporated. Electro-optical handwritten character reader. 3,784,982, Cl. 340-146.30j.

Schlinger, Warren G.: *See*—
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Schloemann Aktiengesellschaft: *See*—
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Schlumberger Technology Corporation: *See*—
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Kisling, James W., III, 3,783,941.
Schuster, Nick A., 3,784,822.
Schuster, Nick A., 3,784,900.
Urbanosky, Harold J., 3,783,940.
Whitfill, William A., Jr., 3,784,732

Schmedding, Albert A.; and Pfiefer, Ernest L., to Bergenfield Development Co., Inc. Sewing machine. 3,783,811, Cl. 112-218.00r.

Schmid, Erich: *See*—
Schindler, Walter; Schmid, Erich; and Zuest, Armin, 3,784,689.

Schmidt, Franz: *See*—
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Schmidt, Gunter, to Production, Inc. Film sheet cassette. 3,784,835, Cl. 250-480.000.

Schmidt, Raymond H., to Royal Industries, Inc. Vehicle torsion bar setting gauge. 3,783,521, Cl. 33-181.0at.

Schmitt, Edward Emil, Suen, Tzeng Jiueq, and Updegraff, Ivor Heberling, to American Cyanamid Company. Water-degradable resins containing recurring, contiguous, polymerized glycolide units and process for preparing same. 3,784,585, Cl. 260-861.000

Schmolling, Gunther: *See*—
Ertl, Dietrich, Eisbold, Horst-Gunter; Gilles, Helmut; Schmolling, Gunther, Steuernagel, Walter; and Nitz, Jurgen, 3,783,589.

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Schneider, Jos., & Co. Optische Werke: *See*—
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Schneider, Klaus; and Flaschar, Heinz, to Bosch, Robert, G.m.b.H. Electro hydraulic control unit. 3,783,901, Cl. 137-625.640.

Schneider, Wolfgang; Strohbeck, Gotthilf, Harlin, Walter, Ruckert, Friedrich, and Stahle, Eugen, to Bosch, Robert, G.m.b.H. Vibratory device. 3,784,168, Cl. 259-1.00r

Schnell, Karl. Portioning device for doughy material. 3,784,332, Cl. 417-319.000.

Schnipper, Leonard B. Combined sanitary napkin and medicated bandage. 3,783,869, Cl. 128-261.000.

Schoen, Oscar W., Jr., to United States of America, Navy. Method for electrically insulating magnetostrictive material. 3,783,505, Cl. 29-609.000.

Schon, Werner. Scissors. 3,783,512, Cl. 30-254.000.

Schorr, Manfred; and Duwel, Dieter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Imidazolinyl-ethyl-dithiocarbamic acid esters. 3,784,633, Cl. 260-302.600.

Schrader, Gerhard, and Hammann, Ingeborg, to Bayer Aktiengesellschaft. Thiol- or thionothiol-phosphoric or -phosphonic acid esters. 3,784,653, Cl. 260-929.000.

Schrading, Mark S; and Arps, Marion T., to Kimberly-Clark Corporation. Surgical towel. 3,783,862, Cl. 128-132.00d.

Schrage, Donald J., to Aqua-Chem, Inc. Grate structure for incinerator. 3,783,802, Cl. 110-14.000

Schraut, Karl. Garden grooming machine and rotor therefor. 3,783,592, Cl. 56-13.300.

Schreiber, Chaim Samuel. Kitchen cabinets. 3,784,271, Cl. 312-257.00r.

Schreiber, Chaim Samuel. Kitchen cabinets. 3,784,272, Cl. 312-245.000.

Schreyer, Gerd: *See*—
Kleemann, Axel; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,784,568.

Schroeder, Henry Charles, to Bell Telephone Laboratories, Incorporated. Parallel data scrambler. 3,784,743, Cl. 178-22.000.

Schryver, Andrew: *See*—
Baker, David Keith; Eason, Ronald Charles; Gascoigne, Richard Melville; and Schryver, Andrew, 3,784,875.

Schubert, Harry: *See*—
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Schuchmann, Russell P.: *See*—
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Schuler, Ernst: *See*—
Golde, Karl-Heinz; and Schuler, Ernst, 3,783,934.

Schultz, Donald J. Automatic driver. 3,783,956, Cl. 173-93.700.

Schultz, Richard Allen, to Sperry Rand Corporation. Power transmission. 3,784,336, Cl. 418-61.000.

Schultz, Roger Lee: *See*—
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Schuster, Nick A., to Schlumberger Technology Corporation. Radioactivity well logging methods and apparatus. 3,784,822, Cl. 250-266.000.

Schuster, Nick A., to Schlumberger Technology Corporation. Plural frequency borehole methods and apparatus for investigating earth formations. 3,784,900, Cl. 324-10.000.

Schuster, Wilhelm, to Vereinigte Papierwerke Schickedanz & Co. Process and apparatus for the production of plastic-sheathed tampons. 3,784,425, Cl. 156-83.000.

Schutt, Dale W.; and Beck, Gerhard O., to United States of America, Atomic Energy Commission. Picosecond beam monitor. 3,784,909, Cl. 324-71.0eb.

Schwartz, Erich: *See*—
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Schwartz, Reinhard: *See*—
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Schwarz, Arnulf; Konig, Gerhard; and Pieloth, Manfred, to VEB Kombinat Mess-und Regelungstechnik Dessau. Fluidic surface device and nozzle system for the formation of jets in the device. 3,783,902, Cl. 137-803.000.

Schwenk, George B. Fireplace accessory for burning newspapers. 3,783,857, Cl. 126-164.000

Schwenk, Kurt: *See*—
Adler, Jurgen; Erck, Karl; Klebba, Horst; Kramer, Wolfgang; Maneck, Ernst; Mueller-Eckhardt, Hans; and Schwenk, Kurt, 3,783,568.

Schweym, Erich: *See*—
Franck, Heinz-Gerhard; Metzendorf, Walter; Schweym, Erich; Beneke, Herbert; Marrett, Rolf; Nijssen, Jozef; and Omran, Jaafar, 3,784,487.

Schwierz, Gunter; and Wulff, Peter, to Siemens Aktiengesellschaft. Image magnifier. 3,784,830, Cl. 250-213.0vt.

SCM Corporation: *See*—
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Oszlanyi, Anial G.; and Zielinski, Richard J., 3,784,709.

Scope Incorporated: *See*—
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Scott, Kenneth, to Thorn Electrical Industries Limited. Vapour discharge lamps. 3,784,863, Cl. 313-174.000.

Scott Paper Company. *See*—
Spruyt, Harry; and Hoffman, Louis S., 3,784,056.

Scott, Robert E. Machine guard. 3,783,709, Cl. 74-612.000.

Scull, Herbert M., Jr., to Ethyl Corporation. Production of aluminum. 3,784,372, Cl. 75-68.00c.

Searle, G. D., & Co.: *See*—
Jaszczak, Ronald J., 3,784,821.

Searle, G. D., & Co., mesne: *See*—
Abramson, Harvey J., 3,783,861.

Sebring, John G.; and Downs, Thomas C., to General Motors Corporation. Oil seal arrangement for rotary engine. 3,784,337, Cl. 418-142.000

Secure money changing and money receiving system: *See*—
Carlberg, Edwin W., 3,783,884

Seeburg Corporation, The. *See*—
Jensen, Herman George, 3,783,989.

Sefried, Harry H., II, to Ruger, Sturm & Co., Inc. Loading lever arrangement for muzzle loading revolver. 3,783,545, Cl. 42-61.000.

Segal, Bernard Mortimer. *See*—
Friedman, David; and Segal, Bernard Mortimer, 3,784,979.

Segovia, Gilbert: *See*—
Richardson, John Lloyd; Segovia, Gilbert; Ju, Fred; and Bachle, Wilfred Hugo, 3,784,470.

Seiberlich, Walter, to Maschinenfabrik Lorenz Aktiengesellschaft. Gear shaping apparatus with improved cutter retraction arrangement. 3,783,740, Cl. 90-7.000.

Seifert, Edwin A., Jr. Torque hinge for draft member. 3,784,229, Cl. 280-446.000.

Seitetsu Kagaku Co., Ltd.: *See*—
Hirao, Shoichi; Ihara, Satoshi; and Ulda, Kanji, 3,784,175.

Seiz, Rudolf: *See*—
Gantre, Franz; Zywietz, Walter; Seiz, Rudolf; and Eickhoff, Heinz, 3,783,625.

Seiz, Wolfgang: *See*—
Renner, Alfred; and Seiz, Wolfgang, 3,784,584.

Sekiguchi, Hideto; Matsumura, Yasuo; Arai, Kojiro; Haruyama, Kunio; and Wakitani, Mitsuru, to American Cyanamid Company. Process for producing acrylic fibers. 3,784,666, Cl. 264-234.000.

Selivanov, Gennady Dmitrievich: *See*—
Morgolenko, Anatoly Sergeevich; Kononenko, Vadim Grigorievich; Fedosenko, Igor Grigorievich; Selivanov, Gennady Dmitrievich; Kushnarenko, Sergei Grigorievich; and Lepetjukha, Vladimir Semenovich, 3,783,672.

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Manyafov, Valery Nikolaevich; Busheev, Anatoly Ivanovich; Semenov, Roman Lvovich; and Klevtsov, Valery Alexeevich, 3,784,866.

Serafin, Marian; and Decubber, Maurice, to Societe Anonyme de Traverses en Beton Arme Systeme Vagneux. Rail fastening. 3,784,098, Cl. 238-349.000.

Seregni, Renato. Automatic tuner drive device applicable to radio receivers with an incorporated magnetic tape or wire recorder and/or player. 3,784,762, Cl. 179-100.110.

Seversen, Gordon F.: *See*—
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Seward, Gordon B.: *See*—
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Seyfried, Franz: *See*—
Andres, Rudolf; Moller, Hermann; and Seyfried, Franz, 3,784,810.

Shaffer, Walter M., to Towmotor Corporation. Mechanical linkage for auxiliary drive control in vehicles. 3,783,962, Cl. 180-44.00f.

Shalako Resource Systems, Inc.: *See*—
Stearns, William P., 3,784,745.
Stearns, William P.; and Lauchner, John K., 3,784,750.

Shankle, Leonard A.: *See*—
Schievelbein, Vernon H.; Shankle, Leonard A.; and Wade, Herbert N., 3,783,943.

Shanks, Bruce E., to General Electric Company. Filament support. 3,784,865, Cl. 313-274.000.

Shapero, Wallace H., to Mattel, Inc. Appliable doll decorations. 3,783,554, Cl. 46-116.000.

Shapiro, Elliot L.; Teutsch, George J.; and Herzog, Hershel L., to Schering Corporation. 6-Azide-21-oxygenated-steroids of the pregnane series, methods for their manufacture and intermediates produces thereby. 3,784,603, Cl. 260-349.000.

Sharpe, Stuart Peter; and Snell, Brian Kenneth, to Imperial Chemical Industries Limited. O(2-Diethylamino-4-methyl-6-pyrimidinyl)O,O-dimethyl phosphorothioate and its salts. 3,784,546, Cl. 260-256.50r.

Shavel, John, Jr.: *See*—
Strandtmann, Max Von; Connor, David T.; and Shavel, John, Jr., 3,784,600.

Shaver, William R., to Pullman Incorporated. Hooper door actuating mechanism and auxiliary lock. 3,783,797, Cl. 105-251.000.

Shaw, Eva: *See*—
Shaw, James Anthony Carpenter; and Shaw, Eva, 3,784,051.

Shaw, James Anthony Carpenter; and Shaw, Eva. Container. 3,784,051, Cl. 220-93.000.

Shaw, Robert F.: *See*—
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Shea, John V.; and Cote, Raymond A., to Rexham Corporation. Convertible hosiery package. 3,784,088, Cl. 229-68.000.

Sheard, John Leo, to Du Pont de Nemours, E. I., and Company. Process for making capacitors and capacitors made thereby. 3,784,887, Cl. 317-258.000.

Sheely, Harold R., to Badger Company, Inc., The. Reactor staging. 3,783,528, Cl. 34-57.00a.

Sheffer, Edward J.: *See*—
Bushnell, Clifford B.; Sheffer, Edward J.; and Sutliff, Robert C., 3,784,001.

Shell Oil Company: *See*—
Barker, Michael D., 3,784,554.
Darley, Henry C. H.; and Robinson, Joseph D., 3,784,898.
Rocklin, Albert L.; and Petty, Walter L., 3,784,422.

Shenk, John W.: *See*—
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Shepherd, Robert G. Elastic type arrow projecting gun. 3,783,852, Cl. 124-22.000.

Sherwood Medical Industries Inc.: *See*—
Brown, Alexander M., 3,783,997.
Brush, Donald C.; and Oswald, Robert D., 3,783,998.
Gerard, William L.; and Ruck, John D., 3,783,996.
Schachet, Eli, 3,783,870.
Weichselbaum, Theodore E., 3,783,895.

Sherwood, Noble; and Lombard, Ralph, to Textron, Inc. Rewind starter. 3,783,851, Cl. 123-185.0ba.

Sheth, Prabhakar Ranchhordas: *See*—
Ranucci, Joseph Anthony; and Sheth, Prabhakar Ranchhordas, 3,784,708.

Shevlin, Thomas S., to Minnesota Mining and Manufacturing Company. Device for storing and cooking food. 3,784,787,. Cl. 219-386.000.

Shigemori, Hideto: *See*—
Hatanaka, Yoshihiro; Shigemori, Hideto; and Ueba, Akio, 3,784,790.

Shigeyama, Shogo; Yamada, Yoichiro; and Kondo, Kunihiro, to Trio Kabushiki Kaisha; a/t/a Trio Electronics, Inc. Noise eliminating device. 3,784,749, Cl. 179-1.00p.

Shiio, Hajime; and Yamaguchi, Masami, to Ceramic Kagaku Yugen Kaisha. Baked resistance member and the process of manufacture thereof. 3,784,407, Cl. 117-227.000.

Shimizu, Hiroshi, to Toyo Kogyo Co., Ltd. Rotary piston engine with exhaust recirculating device. 3,783,839, Cl. 123-8.450.

Shimojima, Masatoshi: *See*—
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Shinkai, Kinya; Ahe, Yoshitaka; and Izumisawa, Masato, to Sony Corporation. Degaussing circuit for portable television color picture tube. 3,784,868, Cl. 315-8.000.

Shinko Electric Co., Ltd.: *See*—
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Shiosaka, Makoto: *See*—
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Shippee, Dennis M.: *See*—
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Shoji, Akira, to Nippon Automation Kiki Co., Ltd. Self-closing valve device in a piping system of fluids. 3,783,887, Cl. 137-38.000.

Shorr, Norman: *See*—
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Shumate, Marvin T.; and Williams, Bobby G. Fishing reel. 3,784,124, Cl. 242-84.10r.

Siciliano, Anthony J., to Diamond International Corporation. Manure sheds and joist cleaner arrangement. 3,783,829, Cl. 119-17.000.

Siciliano, Anthony J., to Diamond International Corporation. End to end egg transfer mechanism. 3,783,990, Cl. 198-20.00r.

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Siedel, Walter: *See*—

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Michael, Ulrich, 3,784,889.
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Mund, Konrad; Richter, Gerhard; and Wenzel, Magdalena, 3,784,412.
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Schwierz, Gunter; and Wulff, Peter, 3,784,830.
Weidemann, Erwin, 3,784,885.
Siemund, Herbert A. Combination window washer, scraper and squeegee. 3,783,469, Cl. 15-209.00r.
Sievert, William C.; CArter, William A.; and Munson, James L., to Inland Steel Company. Film thickness control apparatus. 3,783,823, Cl. 118-63.000.
Siler, Joseph T. Method of assembling members having misaligned holes. 3,783,496, Cl. 29-464.000.
Silvertown, Cyril, to Rotax Limited. Alternators. 3,784,894, Cl. 313-47.000.
Simjian, Luther G. Friction type exercising device with separate handgrip exerciser. 3,784,193, Cl. 272-68.000.
Simmons, Carl E.; and Fernandes, Joseph F., to United Aircraft Products, Inc. Surface cooler. 3,783,935, Cl. 165-44.000.
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Simpson, Arthur R.; and Egloff, Frank S., to Chicago Bridge & Iron Company. Rotating drum with elastomeric pad-mounted supporting rings. 3,783,918, Cl. 144-208.00b.
Simpson, Dale O.: *See—*
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Singer Company, The, mesne: *See—*
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Sironi, Francesco. Facing panel. 3,783,572, Cl. 52-599.000.
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Skattman, Rune Carl Valfrid, and Bjork, Olov Richard. Mobile, rock drill supporting rig. 3,784,159, Cl. 254-45.000.
Skinner, Harvey G., to Westmoreland Plastics Company. Pipe spacers. 3,783,907, Cl. 138-106.000.
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Slater, William L.; Schlinger, Warren G.; and Crouch, William B., to Texaco Inc. Production of fuel gas. 3,784,364, Cl. 48-215.000.
Slinko, Mikhail Gavrilovitch, 1/2 to UCB Societe Anonyme. Process for carrying out chemical reactions in a fluidized bed. 3,784,561, Cl. 260-465.300.
Sloboda, Adolph Edward: *See—*
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Tomcufcik, Andrew Stephen; Child, Ralph Grassing; and Sloboda, Adolph Edward, 3,784,701.
Slocum, Fred H., to Robray Industries. Fitting for flexible conduits. 3,784,236, Cl. 285-45.000.
Sluss, Willard L. Chinese ring puzzle. 3,784,206, Cl. 273-158.000.
Smidth, F. L., & Co.: *See—*
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Smiley, Seymour H.: *See—*
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Smith, Gary C., Jr.: *See—*
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Smith, Harry A.; and Kobel, Erwin H., to Dow Chemical Company, The. Rubber and amine modified phenolic resins. 3,784,496, Cl. 260-29.300.
Smith International, Inc.: *See—*
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Smith, Ivan O. Tire caliper. 3,783,523, Cl. 33-203.130.
Smith, James D. B., to Westinghouse Electric Corporation. Latent organic phosphonium salt catalysts for curing glycidyl ether epoxy resins. 3,784,583, Cl. 260-830.0tw.
Smith, James M.; and Drennan, George A., to Hewlett-Packard Company. Microcircuit package assembly. 3,784,726, Cl. 174-52.00s.
Smith, John. Emergency rotating warning lamp. 3,784,809, Cl. 240-49.000.
Smith, Leonard Richard, to Smith, S. K., Company, The. Display box with an attachable lid movable relative to the box. 3,783,999, Cl. 206-45.230.
Smith, Maurice Irvin: *See—*
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Smyth Manufacturing Company, mesne: *See—*
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Marforio, Nerino, 3,783,810.
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Spanjer, Keith G., to Motorola, Inc. Ultrasonic bond control apparatus. 3,784,079, Cl. 228-1.000.
Specht, Glenn E., to American La France, Inc. Nozzle. 3,784,113, Cl. 239-460.000.
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Stearns, William P.; and Lauchner, John K., to Shalako Resource Systems, Inc. Apparatus and prosthetic device for providing electronic correction of auditory deficiencies for aurally handicapped persons. 3,784,750, Cl. 179-1.00n.
Steele, Raymond Ernest, to Kwikform, Limited. Formwork for use in supporting shuttering. 3,784,151, Cl. 249-18.000.
Steffan, William J., to Burke Concrete Accessories, Inc. Concrete form snap-tie rod and method of forming the head therefor. 3,783,462, Cl. 10-27.00h.
Steidel, Charles A., to Bell Telephone Laboratories, Incorporated. Thin film resistors. 3,784,951, Cl. 338-262.000.
Stein, Lawrence, to United States of America, Atomic Energy Commission. Atmosphere purification of radon and radon daughter elements. 3,784,674, Cl. 423-249.000.
Steiner, Walter. Telescoping clothes dryer structure. 3,784,020, Cl. 211-1.300.
Steinhagen, Horst G., to Twin Disc, Incorporated. Power transmitting drive apparatus. 3,783,710, Cl. 74-665.0ga.
Steinhauer, Alfred F.; and McIntire, Otis R., to Dow Chemical Company, The. Process and compositions for preparing unique films having a multiplicity of voids and an organic material contained therein. 3,784,488, Cl. 260-2.50m.
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Stoffel, John F., to Stoffel Seals Corporation. Turkey and roast lifter sling. 3,784,069, Cl. 224-49.000.
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Storch, Harold A. Roofing system. 3,783,570, Cl. 52-520.000.
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Strohbeck, Gotthilf: *See—*
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Strong, Herbert W.; Radway, Jerrold E.; and Cook, Henry A., to Basic Incorporated. Cyclical process for recovery of elemental sulfur from waste gases. 3,784,680, Cl. 423-571.000.
Stuber, Fred A.: *See—*
Sayigh, Adnan A. R.; Stuber, Fred A.; and Ulrich, Henri, 3,784,527.

Studer, James R., to Monsanto Company. Method for the selective absorption of a volatile liquid foaming agent by heating in forming plastic articles. 3,784,658, Cl. 264-45.000.

Stults, Allan C. Pendant capable of exposing different areas of a volatile tablet. 3,784,102, Cl. 239-36.000.

Stump, Paul W.; Huber, James A.; and Lipinski, John M., to Clevepak Corporation. Helically wound tubes. 3,783,908, Cl. 138-144.000.

Stumpf, Gunter. Cloth folding machine having means for control of the edges of cloth unwound from a roll. 3,784,184, Cl. 270-31.000.

Sturm, Elmar; and Vogel, Christian, to Ciba-Geigy Corporation. Bicyclo(N.1.0)alkyl ureas as herbicides. 3,784,368, Cl. 71-119.000.

Styers, Henry H., to Kloz-Seal Products Co., Inc. Tamperproof, recloseable package and closure therefor. 3,784,087, Cl. 229-62.000.

Suen, Tzeng Jiueq: *See—*
Schmitt, Edward Emil; Suen, Tzeng Jiueq; and Updegraff, Ivor Heberling, 3,784,585.

Sugden, Dave Charles. Pleasure boat construction. 3,783,461, Cl. 9-1.00r.

Suggitt, Robert M.: *See—*
Crone, John M., Jr.; and Suggitt, Robert M., 3,784,619.

Suggitt, Robert M.; Crone, John M., Jr.; and Arkell, Alfred. Hydroalkylation of mononuclear aromatic hydrocarbons. 3,784,617, Cl. 260-668.00r.

Suggitt, Robert M.; and Crone, John M., Jr., to Texaco Inc. Hydroalkylation process. 3,784,618, Cl. 260-668.00r.

Suggitt, Robert M., to Texaco Development Corporation. Disproportionation of alkaromatic hydrocarbons. 3,784,621, Cl. 260-672.00t.

Sugimori, Shiro, to Nippon Kagaku K.K. Motor drive for a camera. 3,783,762, Cl. 95-31.0el.

Sugiura, Toshihiro, to Aisin Seiki Kabushiki Kaisha. Cushioning device. 3,784,179, Cl. 267-35.000.

Suh, John T.; and Skorcz, Joseph A., to Colgate-Palmolive Company. Aryloxyalkylguanidines. 3,784,643, Cl. 260-564.00a.

Sullivan, William A., Jr.; and Griswold, Augustus W., to Xerox Corporation. Automatic microfiche copier. 3,784,303, Cl. 355-50.000.

Sulzer Brothers Limited: *See—*
Kreissig, Ernst Florian, 3,783,796.

Sumitoma Chemical Company, Limited: *See—*
Eukumaru, Toshitsugu; Hamma, Noritaka; Nakatani, Hiroshi; Fukushima, Hideaki; and Toki, Katsuyuki, 3,784,577.

Summa Corporation: *See—*
Amer, Kenneth B.; and Lund, Herbert T., 3,784,319.

Summerfield, William F., to Mattel, Inc. Phonograph for playing stationary record. 3,784,211, Cl. 274-9.00r.

Summersby, E. John; and Nagel, Dietmar, to Beverly Enterprises. Woman's hygiene apparatus. 3,783,867, Cl. 128-230.000.

Sun Research and Development Co.: *See—*
Moore, Robert E., 3,784,615.

Superior Industries, Inc.: *See—*
Yocum, Norman E.; and Mc Intyre, Frank H., Jr., 3,783,559.

Sutliff, Robert C.: *See—*
Bushnell, Clifford B.; Sheffer, Edward J.; and Sutliff, Robert C., 3,784,001.

Sutton, Blaine M.: *See—*
McGusty, Elizabeth R.; and Sutton, Blaine M., 3,784,687.

Sutton, Charles B.: *See—*
De Gioia, Peter A.; and Sutton, Charles B., 3,784,268.

Suzuki, Mamoru: *See—*
Okumura, Kentaro; Matsumoto, Kazuo; and Suzuki, Mamoru, 3,784,640.

Suzuki, Takenobu; Nagashima, Buemon; Inoue, Masayoshi; and Ito, Yoji, to Tokushu Toryo Co. Ltd. A.C. energized magnetic particle flaw detector with means to raise and lower electromagnets from path of workpiece. 3,784,904, Cl. 324-38.000.

Svanstrom, Kjell A. Method of producing refractory metal powder. 3,784,369, Cl. 75-.5bb.

Swanberg, Melvin E., to Xerox Corporation. Data insertion apparatus. 3,784,812, Cl. 355-41.000.

Swanson, Paul A.; and Wiele, Robert W., to Werner, Frank D. Wheel winch with universal hub. 3,784,163, Cl. 254-166.000.

Sybron Corporation: *See—*
Cowell, David, 3,784,877.
Tolliver, Peter Marvin, 3,784,836.

Sylvan, Tage Peter, to Teradyne, Inc. Sequential addressing network testing system. 3,784,910, Cl. 324-73.0at.

Szabo, Bela: *See—*
Felber, Julius, 3,784,204.

Szkrybalo, William: *See—*
Jaffe, Gerald Myer; Szkrybalo, William; and Weinert, Peter Hans, 3,784,408.

T. P. I. Limited: *See—*
Duval, Bruce, 3,783,530.

Takahashi, Michiaki, to Victor Company of Japan, Ltd. Vertical convergence circuit. 3,784,869, Cl. 315-13.00c.

Takahashi, Shogo; Yamada, Takayasu; and Okudaira, Hiromi, to Sankyo Company, Limited. Method for promoting formation of fruit abscising layer. 3,784,366, Cl. 71-90.000.

Takahashi, Yutaka: *See—*
Amagami, Keizo; Nishijyo, Masaru; Takahashi, Yutaka; and Nawa, Motoyuki, 3,783,904.

Takata, Toshikatsu: *See—*
Watanabe, Jun; Hosoi, Susmu; Kuwazaki, Masahiro; Ota, Akira; Takata, Toshikatsu; and Asaoka, Junichi, 3,784,413.

Takayanagi, Shigenao; and Nimoda, Toyoo, to Mitsubishi Jukogyo Kabushiki Kaisha. Folding apparatus. 3,784,187, Cl. 270-64.000.

Takeda Chemical Industries, Ltd.: *See—*
Yamano, Togo; Jono, Kumiko; Sato, Shigehiko; and Nakanishi, Michio, 3,784,699.

Takeda, Kouzou: *See—*
Makino, Katsuo; Joh, Seiji; and Takeda, Kouzou, 3,783,818.

Takemi, Chimo: *See—*
Nishida, Hiroshi; Yamamoto, Masao; Kitai, Atsuo; Ozaki, Asaichiro; Nishimura, Yokio, Takemi, Hiroto; and Takemi, Chimo, 3,784,446.

Takemi, Hiroto: *See—*
Nishida, Hiroshi; Yamamoto, Masao; Kitai, Atsuo; Ozaki, Asaichiro; Nishimura, Yokio; Takemi, Hiroto; and Takemi, Chimo, 3,784,446.

Takemoto, Takeo; Yamazaki, Eiich, Maruyama, Koichi; and Ueda, Toshio, to Hitachi, Ltd. Method and apparatus for manufacturing colour picture tubes. 3,783,754, Cl. 95-1.00r.

Takeuchi, Shigeo, to Takeuchi Tekko Kabushiki Kaisha. Car wheel washing apparatus. 3,783,465, Cl. 15-2.00e.

Takeuchi Tekko Kabushiki Kaisha: *See—*
Takeuchi, Shigeo, 3,783,465.

Takigawa, Tomishi: *See—*
Hirata, Noritsugu, and Takigawa, Tomishi, 3,784,291.

Tamate, Teruzo. *See—*
Ogasawara, Shoji, Tamate, Teruzo; and Sonobe, Toshimitsu, 3,783,698.

Tamenori, Tomoyoshi. *See—*
Yosioka, Satosi; Tokunaga, Sinobu; Tamenori, Tomoyoshi; Tamura, Sigeru; and Wada, Morio, 3,784,534.

Tamplen, Jack W. Seal that is responsive to either mechanical or pressure force. 3,784,214, Cl. 277-116.800.

Tamura Electric Works, Ltd.: *See—*
Ochiai, Jiru; and Nishina, Rintaro, 3,783,602.

Tamura, Sigeru: *See—*
Yosioka, Satosi; Tokunaga, Sinobu; Tamenori, Tomoyoshi; Tamura, Sigeru; and Wada, Morio, 3,784,534.

Tanabe Seiyaku Co., Ltd.: *See—*
Okumura, Kentaro, Matsumoto, Kazuo, and Suzuki, Mamoru, 3,784,640.

Tanaka, Haruo: *See—*
Nakayama, Kiyoshi, and Tanaka, Haruo, 3,784,444

Tanaka, Kazuo, to Citizen Watch Company Limited. Alarm timepiece 3,783,599, Cl. 58-16.500.

Tanimura, Takenori, and Ito, Yoichiro, to United States of America, Health, Education, and Welfare. Droplet counter current chromatography. 3,784,467, Cl. 210-31.00e

Tanney, John W. Method and apparatus for measuring the density of a fluid. 3,783,676, Cl. 73-32.000.

Tao, Eddie Yi Ping, to Lilly, Eli, and Company. Preparation of 2,6-dinitro-4-alkylphenols. 3,784,613, Cl. 260-622.00p.

Tarasova, Alexandra Petrovna: *See—*
Nekrasov, Konstantin Dmitrievich, Tarasova, Alexandra Petrovna; Bljusin, Alfred Avgustovich, Avdeeva, Tamara Petrovna; Elin, Vyacheslav Alexandrovich, Roizman, Pavel Aronovich, and Denisenko, Alexandr Panteleevich, 3,784,385.

Tarnofsky, Benjamin. Carburetor for model aircraft. 3,784,174, Cl. 261-65.000.

Taylor, Brian W.: *See—*
Kobylinski, Tadeusz P.; and Taylor, Brian W., 3,784,675.

Taylor, Bruce F.: *See—*
McGlothlin, Raymond E.; Werlein, Eugene R.; Taylor, Bruce F.; and Schultz, Roger Lee, 3,784,579.

Taylor, Paul Franklin. Process for class IV B metals ore reduction (improvement). 3,784,593, Cl. 75-84.000.

Technicon Instruments Corporation. *See—*
Barton, Stephen R.; and Diebler, Herman G., 3,784,310.

Tedeco, N.V.: *See—*
Merklinghaus, Horst, 3,784,342.

Tedeco Verpachung G.m.b.H.: *See—*
Merklinghaus, Horst, 3,784,342.

Tel-Tone Corporation: *See—*
McIntosh, Alexander Charles; and Smith, Maurice Irvin, 3,784,758.

Telectron, Inc.: *See—*
Cook, John F., 3,783,556.

Telesio, George O. Vehicle with quick-disconnect engine module. 3,783,964, Cl. 180-64.001.

Televiso Electronics, Division of Domain Industries, Inc.: *See—*
Hanert, John A.; and Seversen, Gordon F., 3,783,987.

Ter Steege, Jan Hendrik: *See—*
DeVos, Ferdinand Allard; and Ter Steege, Jan Hendrik, 3,784,739.

Teradyne, Inc.: *See—*
Sylvan, Tage Peter, 3,784,910.

Terra Marine Scoop Company, Inc.: *See—*
Renfroe, Walter D., 3,784,166.

Terrell, Ross C., to Airco, Inc. Inhalant anesthetic composition and method. 3,784,706, Cl. 424-342.000.

Terry, Claude E., to Southern Mills, Inc. Method of preparing a non-woven fabric. 3,783,479, Cl. 28-72.02r.

Tesoro, Giuliana C., to Stevens, J. P., & Co., Inc. N,N-bis alkoxymethyl and N,N-dimethylol sulfonamides. 3,784,641, Cl. 260-556.00a.

Tetra Pak International AB: *See—*

Rauser, Jan Axel Ingemar, 3,783,584.

Teutsch, George J.: *See—*
Shapiro, Elliot L.; Teutsch, George J.; and Herzog, Hershel L., 3,784,603.

Texaco Development Corporation: *See—*
Suggitt, Robert M., 3,784,621.

Texaco Inc.: *See—*
Bunn, Dorrance P., Jr.; and Jones, Henry E., 3,784,360.
Chafetz, Harry; Cullen, William P.; and Miller, Edward F., 3,784,645.
Crone, John M., Jr.; and Suggitt, Robert M., 3,784,619.
Patterson, John A., 3,784,566.
Reynolds, David L.; Youngblood, Douglas J.; Bunn, Dorrance P., Jr.; and Pratt, Roy E., 3,784,463.
Schievelbein, Vernon H.; Shankle, Leonard A.; and Wade, Herbert N., 3,783,943.
Siegart, William R.; Blackley, William D.; and Chafetz, Harry, 3,784,362.
Slater, William L.; Schlinger, Warren G.; and Crouch, William B., 3,784,364.
Suggitt, Robert M.; and Crone, John M., Jr., 3,784,618.

Texas Instruments, Incorporated: *See—*
Reedy, Carl D., Jr., 3,784,402.

Textron, Inc.: *See—*
Burke, George E., Jr.; Lemos, Walter G.; and Shippee, Dennis M., 3,784,077.
Dueringer, John Wilbur, 3,784,109.
Hadfield, Robert W.; and Harding, William H., 3,784,042.
Scherer, James P.; and Koerner, John A., 3,784,933.
Sherwood, Noble; and Lombard, Ralph, 3,783,851.
Wright, Raymond Grenville Whitehead, 3,783,965.

Thaler, Sherwood S.; and Daynard, Richard E., to American Optical Corporation. Atrial and ventricular pacer having independent rate and AV delay controls. 3,783,878, Cl. 128-419.00p.

Theissen, Robert J., to Mobil Oil Corporation. Substituted phenoxybenzoic acids and ester thereof. 3,784,635, Cl. 260-471.00r.

Theriault, Robert John, to Abbott Laboratories. Mycarosyl macrolide antibiotics. 3,784,447, Cl. 195-81.000.

Thiel, John A., to Bell & Howell Company. Paper edge transport system. 3,784,189, Cl. 271-45.000.

Thiel, John A., to Bell & Howell Company. Convertible power stacker. 3,784,191, Cl. 271-80.000.

Thomas, Lucius Ponder, to RCA Corporation. Leakage detector for determining possible shock hazards to humans. 3,784,903, Cl. 324-51.000.

Thomas, Morton I. Folding walker. 3,783,886, Cl. 135-45.00a.

Thomas, Philippe; and Meyer, Jacques, to Pechiney-Saint-Gobain. Copolymerizable composition of oligoesters having maleic acid end groups and vinyl monomers. 3,784,586, Cl. 260-861.000.

Thomas, Robert J.: *See—*
Tomalia, Donald A.; and Thomas, Robert J., 3,784,508.

Thompson, Buster Ray. Coke oven pushing and charging machine and method. 3,784,034, Cl. 214-21.000.

Thompson, Wendell L.: *See—*
Parr, Edward L., 3,783,729.

Thomson-CSF: *See—*
Tronc, Dominique; and Leboutet, Hubert, 3,784,873.

Thor Power Tool Company: *See—*
Danielson, Irvin R., 3,783,970.

Thorn Electrical Industries Limited: *See—*
Scott, Kenneth, 3,784,863.

Thornburgh, William F.: *See—*
Ranft, Ernst L.; and Thornburgh, William F., 3,783,848.

Thornley, Gary M.; and Stokes, Robert C., to Ireco Chemicals. Blasting charge and container therefor. 3,783,787, Cl. 102-24.00r.

Thornton, William M.: *See—*
Jennings, Robert R.; and Thornton, William M., 3,783,944.

Thurne Engineering Company Limited: *See—*
Hoyland, Trevor, 3,783,585.

Tiedeman, George T.: *See—*
Baxter, Gene F.; Freeman, Harlan G.; and Tiedeman, George T., 3,784,516.

Tiedeman, George T., to Weyerhaeuser Company. Rapid curing phenolic-aldehyde resin composition polymer modified with a heterocyclic nitrogen-containing compound. 3,784,514, Cl. 260-51.500.

Tier, Fred G.: *See—*
Paisley, George C.; and Tier, Fred G., 3,784,434.

Timber Research and Development Association: *See—*
Ollis, William J. B., 3,783,567.

Tirkkonen, Erkki Tapio. Dosing device utilizing an electronic scale and regulating means. 3,783,866, Cl. 128-213.000.

Tobin, Robert A. Tie rack. 3,783,995, Cl. 206-7.000.

Toda, Takao: *See—*
Kanayama, Mitsutoshi; and Toda, Takao, 3,784,298.

Toki, Katsuyuki: *See—*
Eukumaru, Toshitsugu; Hamma, Noritaka; Nakatani, Hiroshi; Fukushima, Hideaki; and Toki, Katsuyuki, 3,784,577.

Tokunaga, Sinobu: *See—*
Yosioka, Satosi; Tokunaga, Sinobu; Tamenori, Tomoyoshi; Tamura, Sigeru; and Wada, Morio, 3,784,534.

Tokushu Toryo Co. Ltd.: *See—*
Suzuki, Takenobu; Nagashima, Buemon; Inoue, Masayoshi; and Ito, Yoji, 3,784,904.

Tokuyama Soda Kabushiki Kaisha: *See—*
Mizutani, Yukio; Sata, Toshikatsu; Izuo, Ryuji; and Yamane, Reiichi, 3,784,457.

Tokuyama, Takashi; and Mori, Takaaki, to Hitachi, Ltd. Method of producing semiconductor devices. 3,783,500, Cl. 29-577.000.

Tokyo Ferrite Manufacturing Company, Ltd.: *See—*
Saito, Susumu, 3,783,716.

Tokyo Magnetic Printing Company, Ltd.: *See—*
Namikawa, Mamoru; and Arai, Kaneyoshi, 3,784,796.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Asanuma, Kazuyoshi, 3,784,776.
Minami, Hiroshi; Ando, Masao; and Obata, Yoshiharu, 3,784,741.

Tokyo Shibaura Electric Company, Ltd.: *See—*
Niitu, Moritada; and Ide, Toshio, 3,784,031.

Tolle, Gunter. Work clamp mechanism for sewing machines. 3,783,807, Cl. 112-76.000.

Tolliver, Peter Marvin, to Sybron Corporation. IR generator having ellipsoidal and paraboloidal reflectors. 3,784,836, Cl. 250-495.000.

Tolochko, Cheslav Stanislavovich; Popov, Vladimir Ivanovich; Tsitsiv, Miron Vasilievich; Varfolomeev, Alexandr Nikolaevich; and Gervolsky, Marlen Mikhailovich. Grape harvester. 3,783,595, Cl. 56-331.000.

Tomalia, Donald A.; and Thomas, Robert J., to Dow Chemical Company, The. Rapid cure polyepoxide oxazine or oxazoline systems. 3,784,508, Cl. 260-47.0en.

Tomalty, Donald Ernest. Clip structure and conveying means. 3,783,994, Cl. 198-179.000.

Tomashek, James R.: *See—*
Crowell, Jack R.; Tomashek, James R.; and Ward, Donald H., 3,783,932.

Tomcufcik, Andrew Stephen; Child, Ralph Grassing; and Sloboda, Adolph Edward, to American Cyanamid Company. Compositions containing substituted benzoylpropionic acids and method of use to treat inflammation and pain. 3,784,701, Cl. 424-317.000.

Tomezsko, Edward S. J., to Atlantic Richfield Company. Oxidative dehydrogenation catalyst. 3,784,485, Cl. 252-467.000.

Tomlin, Jerry B., to ACF Industries, Incorporated. Ball and seat arrangement for ball valve. 3,784,155, Cl. 251-181.000.

Topalian, Harry H.: *See—*
McReynolds, James L.; and Topalian, Harry H., 3,784,714.

Tornabene, Salvatore J. Drain cleaner. 3,783,457, Cl. 4-225.000.

Torrant, James Peter; and Benson, Carl P., to Torrington Company, The. Knitting machine needle. 3,783,647, Cl. 66-123.000.

Torres, Julian. Glazier's point holder. 3,783,919, Cl. 145-46.000.

Torrington Company, The: *See—*
Torrant, James Peter; and Benson, Carl P., 3,783,647.

Toscano, Esteban J.: *See—*
Castro, Rodolfo; Toscano, Esteban J.; and Siosca, Felix Jerome, 3,784,183.

Toshiba Kakai Kabushiki Kaisha: *See—*
Ashizawa, Yoshimi, 3,783,665.

Touchette, John W.: *See—*
Woodhall, Edwin S.; Appleby, Paul E.; and Touchette, John W., 3,784,426.

Tourret, Jean: *See—*
Brelot, Rene; and Tourret, Jean, 3,784,309.

Towmotor Corporation: *See—*
Shaffer, Walter M., 3,783,962.

Towne, Richard C.; and Stalcup, Johnnie V. Heavy duty marine anchor. 3,783,815, Cl. 114-208.00r.

Toy, Arthur D. F.; and Uhing, Eugene A., to Stauffer Chemical Company. Bis (α,beta-dihaloalkyl) 1-acyloxyalkane phosphonates. 3,784,591, Cl. 260-952.000.

Toy, William W. Periscopic viewing system. 3,784,288, Cl. 350-301.000.

Toyo Kogyo Co., Ltd.: *See—*
Shimizu, Hiroshi, 3,783,839.

Trachsel, Fred W.: *See—*
Kohler, Hans Karl; and Trachsel, Fred W., 3,784,253.

Trame, Charles E., to Everbrite Electric Signs, Inc. Digital clock display. 3,783,539, Cl. 40-28.00c.

Trane Company, The: *See—*
Modahl, Robert J.; and Lynch, Paul J., 3,783,631.

Transidyne General Corporation: *See—*
Broek, Jan A. Vanden, 3,784,789.

Trecker, David John: *See—*
Columb, Henry Octave, Jr.; and Trecker, David John, 3,784,492.

Treus, Aloys: *See—*
Greive, Aloys; and Treus, Aloys, 3,783,597.

Trimble, Lester B.; and Sopinski, Zygmunt J., to Jo-Line Tools, Inc. Ratchet mechanism. 3,783,703, Cl. 74-157.000.

Trio Kabushiki Kaisha; a/t/a Trio Electronics, Inc.: *See—*
Shigeyama, Shogo; Yamada, Yoichiro; and Kondo, Kunihiro, 3,784,749.

Tripathi, Krishna Chandra, to Alcan Research and Development Limited. Process for control of lubricants in an aluminum rolling mill. 3,783,664, Cl. 72-42.000.

Troglione, Vincent R., to Moody Aquamatic Systems, Inc. Ozonating apparatus for drinking water. 3,784,008, Cl. 210-104.000.

Trolle, Sten: *See—*
Von Platen, Baltzar; Jonsson, Einn Lennart; and Trolle, Sten, 3,783,775.

Tronc, Dominique; and Leboutet, Hubert, to Thomson-CSF. Device for bunching the particles of a beam, and linear accelerator comprising said device. 3,784,873, Cl. 315-541.000.

Truica, Vasile: *See—*

Coanda, Henry; Aldea, Gheorghe; Bodea, Ion; Truica, Vasile; Hanciulescu, Valentin; Posirca, Radu; Lazar, Cristian; and Gabor, Iacob, 3,784,325.

Trusselle, William H., to Pneumatic Scale Corporation. Control for container filling machine. 3,783,913, Cl. 141-46.000.

TRW Inc.: *See—*
Newbold, Thomas, 3,784,731.
Wuerker, Ralph F.; and Heflinger, Leo O., 3,784,276.

Tsitsiv, Miron Vasilievich: *See—*
Tolochko, Cheslav Stanislavovich; Popov, Vladimir Ivanovich; Tsitsiv, Miron Vasilievich; Varfolomeev, Alexandr Nikolaevich; and Gervolsky, Marlen Mikhailovich, 3,783,595.

Tsujimoto, Kayoshi; Yata, Kotaro; and Matsuda, Motonobu, to Minolta Camera Kabushiki Kaisha. Compound light receiving elements for exposure meters. 3,783,758, Cl. 95-10.00c.

Tung, Ching C.: *See—*
Chupp, John P.; and Tung, Ching C., 3,784,544.

Turner, Abner B., to Westinghouse Electric Corporation. Waste and water treatment system. 3,784,014, Cl. 210-263.000.

Tuttle, Eleanor Porter: *See—*
Tuttle, Fordyce E., 3,784,306.

Tuttle, Fordyce E.; deceased (by Tuttle, Eleanor Porter; executrix). Simultaneous multiple stroboscopic interrogation of memory. 3,784,306, Cl. 356-23.000.

Tuttle, Louis P. Primer feeder for hand loading operations. 3,784,057, Cl. 221-196.000.

Twin Disc, Incorporated: *See—*
Steinhagen, Horst G., 3,783,710.

Tyco Laboratories, Inc.: *See—*
Cocks, Franklin H.; and Bates, Herbert E., 3,784,860.

Tyler, Hugh J.: *See—*
Wolfe, Denis G.; and Tyler, Hugh J., 3,784,351

UCB Societe Anonyme: *See—*
Loffet, Albert, 3,784,523.
Slinko, Mikhail Gavrilovitch, 3,784,561.

Uchida, Tadao: *See—*
Kawai, Isamu; Uchida, Tadao; and Ishima, Kenji, 3,784,173.

Uchiyama, Yasuji, to Nippon Gakki Seizo Kabushiki Kaisha. Touch-responsive keying circuit for electronic musical instruments. 3,784,718, Cl. 84-1.130.

Udy, Lex L.: *See—*
Murphy, Charles H.; and Udy, Lex L., 3,783,735.

Ueba, Akio: *See—*
Hatanaka, Yoshihiro; Shigemori, Hideto; and Ueba, Akio, 3,784,790.

Ueda, Toshio: *See—*
Takemoto, Takeo; Yamazaki, Eiichi; Maruyama, Koichi; and Ueda, Toshio, 3,783,754.
Yamazaki, Eiichi; Maruyama, Koichi; and Ueda, Toshio, 3,784,282.

Ugine Kuhlmann: *See—*
Isard, Arsene; and Weiss, Francis, 3,784,567.

Uhing, Eugene A.: *See—*
Toy, Arthur D. F.; and Uhing, Eugene A., 3,784,591.

Uhlig, Albert R., to Owens-Illinois, Inc. Plastic bottle manufacture. 3,783,724, Cl. 83-140.000.

Uhlig, Albert R., to Owens-Illinois, Inc. Plastic bottle manufacture. 3,784,038, Cl. 215-1.00c.

Uki, Northiro: *See—*
Motegi, Shoji; Uki, Northiro; and Mito, Sadao, 3,784,855.

Ulda, Kanji: *See—*
Hirao, Shoichi; Ihara, Satoshi; and Ulda, Kanji, 3,784,175.

Ulrich, Henri: *See—*
Sayigh, Adnan A. R.; Stuber, Fred A.; and Ulrich, Henri, 3,784,527.

Unarco Industries, Inc.: *See—*
Moyer, Harris P.; and Klein, Herbert H., 3,783,498.

Under Sea Industries, Inc.: *See—*
Christianson, Raymond A., 3,783,891.

Ungerer, Irma: *See—*
Munchbach, Curt, 3,783,667.

Uni-Systems, Inc.: *See—*
Gold, Ronald J., 3,784,027.

Unican Security Systems, Ltd.: *See—*
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van der Lely, Ary; and Gerardus Bom, Cornelis Johannes. Cultivators. 3,783,948, Cl. 172-49.000.

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Varon, Albert S.; and Siegal, Burton L., to Crown Metal Manufacturing Company. Hang rail support structure. 3,784,023, Cl. 211-105.100.

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Vergasson, Michel, to Commissariat a l'Energie Atomiqut exchangers in nuclear reactors. 3,784,443, Cl. 176-63.000.

Verhey, Adriaan. Baker's oven. 3,784,354, Cl. 432-152.000.

Versteeg, Geert; and Engel, Albertus J.G., to Reactor Centrum Nederland. Method for the preparation of metal borides. 3,784,677, Cl. 423-252.000.

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Vogt, Wilhem; and Richtzenhain, Herman, to Dynamit Nobel Aktiengesellschaft. Method for the preparation of acetals and ketals of alpha-chlorinated aldehydes and ketones. 3,784,612, Cl. 260-615.00a.

Voitik, Robert M., to Innovatex Corporation. Rotary face seal assembly. 3,784,213, Cl. 277-40.000.

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Von Schoppe, Bertram A., to Compo Industries Inc. Matrix for supporting a unit sole for roughing or the application of adhesive. 3,783,463, Cl. 12-17.00r.

Voser, Albert, to Inventio AG. Door actuation apparatus with locking mechanism for elevators. 3,783,977, Cl. 187-52.000.

Vossen, George Manfred. Method and device for breaking away prestamped pieces of material in sheet-like. 3,784,070, Cl. 225-1.000.

Vosteen, Robert E.; and Werner, Alan J., Jr. Amplitude stabilized oscillator. 3,784,930, Cl. 331-183.000.

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Wagner, George M., to Hooker Chemical Corporation. Cellulosic flame retardant system. 3,784,356, Cl. 8-196.000.

Wagner, Harry M., Jr., to Western Electric Company, Incorporated. Terminal ejector device. 3,783,486, Cl. 29-203.00p.

Wagner, Karl; Rosenberg, Otto; and Hummel, Adam, to Agfa-Gevaert Aktiengesellschaft. Photographic apparatus for the making of exposures in artificial light. 3,783,757, Cl. 95-10.0ce.

Wagner, Karl; and Nicolay, Klaus, to Agfa-Gevaert Aktiengesellschaft. Electronic exposure control arrangement in photographic apparatus. 3,783,759, Cl. 95-10.0ct.
Wakitani, Mitsuru: *See—*
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Walker Forge, Inc.: *See—*
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Walker, Harold L. Turbine engine. 3,783,614, Cl. 60-39.18r.
Walls, Leslie Percy, to Burroughs Wellcome. 1-Amidino-3-(cyanophenyl)-ureas. 3,784,582, Cl. 260-465.00d.
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Ward, Richard W., to KD Lamp Co. Alternately flashing warning system. 3,784,975, Cl. 340-76.000.
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Weygandt, Maurice E. Golf swing improving device. 3,784,208, Cl. 273-183.00a.
Whalen, Mark E.; and Malleck, Joseph W., to Republic Steel Corporation. Method of repetitively impacting small pieces of metal in order to produce a densified continuous body. 3,783,494, Cl. 29-403.000.
Whang, Jong Jai: *See—*
Dales, Mark; and Whang, Jong Jai, 3,784,489.
Fellmann, Robert P.; and Whang, Jong Jai, 3,784,532.
Wheelock, George L., to Goodrich, B. F., Company, The. Process for impregnating non-wovens with butadiene carboxyl polymer latices. 3,784,401, Cl. 117-62.200.
Whelan, James E., to General Motors Corporation. Piston air compressor for air assist shock absorber. 3,784,333, Cl. 417-383.000.

Whirlpool Corporation: *See—*
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Whitfill, William A., Jr., to Schlumberger Technology Corporation. Method for pre-stressing armored well logging cable. 3,784,732, Cl. 174-108.000.
Whitley, Ernest M.; Beaman, Don L.; and McCombie, William S., to Redlake Corporation. Data recording camera. 3,783,763, Cl. .
Whittaker Corporation: *See—*
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Wicker, Ralph C., to American Bank Note Company, mesne. Method and apparatus for hiding and viewing halftone images. 3,784,289, Cl. 350-321.000.
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Wiele, Robert W.: *See—*
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Wildwood Products, Inc.: *See—*
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Wilfert, Karl; and Gotz, Hans, to Daimler-Benz Aktiengesellschaft. Device for reduction of soiling of motor vehicles. 3,784,226, Cl. 280-157.000.
Will, Gerhard, to Bosch, Robert, G.m.b.H. Kickdown arrangement for a hydraulic transmission. 3,783,713, Cl. 74-865.000.
Willard, Edwin J.; and Elmore, James, to Stanley Works, The. Apparatus for assembling a battern mounted package. 3,783,773, Cl. 100-7.000.
Willard, William C.: *See—*
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Willats, Donald James; and Morgan, Peter Ernest, to Courtaulds Limited. Method for making carbon filament tapes. 3,784,428, Cl. 156-174.000.
Williams, Albert E. Timer controlled feeder apparatus. 3,783,836, Cl. 119-51.140.
Williams, Beverly E. Treating skinned animal carcasses. 3,783,909, Cl. 139-426.000.
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Willmott, Kenneth Nash Knight: *See—*
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Willoteaux, Guy Claude, to Societe Francaise d'Equipements pour la Navigation Aerienne Aerodrome de Villacoublay. Systems for surveying and correcting trajectories. 3,784,800, Cl. 235-150.270.
Willvonseder, Ernest. Shrink-film capping machine. 3,783,582, Cl. 53-67.000.
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Wilson, George A., to I-T-E Imperial Corporation. Vacuum circuit breaker current transfer and actuation. 3,784,774, Cl. 200-144.00b.
Windmoller & Holscher: *See—*
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Winkler, Alfred; Pelte, Richard; Huber, Theodor; and Mayr, Helmut, to Agfa-Gevaert Aktiengesellschaft. Battery test arrangement in a motion picture camera. 3,784,292, Cl. 352-170.000.
Winkler, Heinz: *See—*
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Wisherd, David S., to Motorola, Inc. Parallel transmission line matching network for connecting together a plurality of R.F. amplifier transistors. 3,784,932, Cl. 333-9.000.
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Wissinger, Waldemar; Kurth, Josef; and Gauchel, Peter, to Dynamit Nobel Aktiengesellschaft. Apparatus for the extrusion of hollow articles. 3,784,345, Cl. 425-325.000.
Wisz, Edward, to Buss A.G. and Eisenbau Wghlen AG. Method and apparatus for carrying out a heat exchange between a heat carrier medium and a drum reactor. 3,783,936, Cl. 165-90.000.
Witkowski, Henry J. Knob for electronic control shaft. 3,783,708, Cl. 74-553.000.
Woell, Fred T., Jr., to Jacuzzi Bros. Incorporated. Pump impellers. 3,784,321, Cl. 416-223.000.
Wolfe, Denis G.; and Tyler, Hugh J., to Robertshaw Controls Company. Electric ignition system. 3,784,351, Cl. 431-66.000.
Wolff, Ivan A.; and Stringfellow, Arthur G., to United States of America, Agriculture. Protein-enriched whey fractions. 3,784,114, Cl. 241-24.000.
Wolfgang, Swodenk; Gerhard, Scharfe; and Grolig, Johann. Process for the production of allyl esters. 3,784,578, Cl. 260-410.09n.
Wolford, Lionel T.: *See—*
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Wollam, John S. Apparatus for use in deposition of films from a vapor phase. 3,783,822, Cl. 118-49.100.
Woodall, Leslie. Golf ball retriever. 3,784,037, Cl. 214-356.000.
Woodhall, Edwin S.; Appleby, Paul E.; and Touchette, John W., to Goodyear Tire & Rubber Company, The. Method of building tires. 3,784,426, Cl. 156-132.000.
Woods, Norman. Room air conditioner. 3,783,637, Cl. 62-427.000.
Woodward, Gary F.: *See—*
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Wright, Raymond Grenville Whitehead, to Textron, Inc. Air cushion vehicle seal system. 3,783,965, Cl. 180-128.000.
Wuerker, Ralph F.; and Heflinger, Leo O., to TRW Inc. Holographic apparatus for large field of view. 3,784,276, Cl. 350-3.500.
Wuest, Toni, to Meyer, Roth & Pastor, Maschienefabrik GmbH. Method and apparatus for removing the burr of chain-links. 3,783,609, Cl. 59-35.000.
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Wyman, Dennis G.; Bichell, William J.; and Oliveri, Humber, to Granta Corporation. Rotatably scoring dart board. 3,784,201, Cl: 273-102.10c.
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Yale, Harry L.; and Petigara, Ramesh, to Squibb, E. R., & Sons, Inc. 3-Piperazinyl-quinobenzoxa (or thia) zepine derivatives. 3,784,548, Cl. 260-268.0pc.
Yale, Harry L.; and Petigara, Ramesh B., to Squibb, E. R., & Sons, Inc. N-[2,3-dihydroquinobenzoxazepin-3-ylidene]-O-(substituted carbamoyl) hydroxylamines. 3,784,549, Cl. 260-287.00r.
Yale, Harry L.; and Petigara, Ramesh B., to Squibb, E. R., & Sons, Inc. N-[2,3-dihydroquinobenzoxa(or thia) zedin-3-ylidene]-O-substituted benzoyl) hydroxylamines. 3,784,550, Cl. 260-287.00r.
Yamada, Shigeki; Miyazawa, Kokichi; Naka, Hideaki; and Yoshida, Yoshio, to Ishihara Sangyo Kaisha, Ltd. Titanium dioxide concentrate and its manufacturing process. 3,784,670, Cl. 423-80.000.
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Yamamoto, Katsuo; Sato, Hideo; Iwasa, Toshio; Nakamura, Hisao; and Adachi, Katsuhiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Apparatus for continuously treating fibrous materials under pressure. 3,783,649, Cl. 68-5.00e.

Yamamoto, Masao: *See*—
Nishida, Hiroshi; Yamamoto, Masao; Kitai, Atsuo; Ozaki, Asaichiro; Nishimura, Yokio; Takemi, Hiroto; and Takemi, Chimo, 3,784,446.

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Yamazaki, Eiichi; Maruyama, Koichi; and Ueda, Toshio, to Hitachi, Ltd. Correcting lens used to form fluorescent screens of colour television receiving tubes. 3,784,282, Cl. 350-175.00r.

Yanagisawa, Yuzuru: *See*—
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Yang, Eugene Li-Chun. Non-regular four blade shutter. 3,784,293, Cl. 352-208.000.

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Yoshino, Takachika; Saito, Shigeru; Sobukawa, Masukuni; Nagase, Isao; Niikura, Masao; Ishikura, Jun; and Sasaki, Yutaka, to Nitto Chemical Industry Co., Ltd. Process for the production of methylacrylonitrile. 3,784,560, Cl. 260-465.300.

Yoshitomi Pharmaceutical Industries, Ltd.: *See*—
Nakanishi, Michio; Arimura, Katsuo; and Ao, Hideki, 3,784,551.

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Zeiders, Glenn W., Jr.; and Bella, Richard A., to Avco Corporation. High power laser energy measuring device. 3,783,685, Cl. 73-190.00r.

Zeidman, Gordon G.: *See*—
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Zelenka, Donald J., to General Motors Corporation. Temperature responsive switch. 3,784,947, Cl. 337-320.000.

Zelina, William B., to General Systems, Inc. Battery charging system for emergency battery systems. 3,784,892, Cl. 320-40.000.

Zellweger AG: *See*—
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Zirps, Wilhelm, to Bosch, Robert, G.m.b.H. Pressure container tube connection. 3,784,237, Cl. 285-208.000.

Zola, Meyer Joseph, to Bell Telephone Laboratories, Incorporated Self-checking decoder. 3,784,978, Cl. 340-146.1ab.

Zoroglu, Demir S., to Motorola, Inc. Low parasitic microwave package. 3,784,884, Cl. 317-234.00r.

Zovko, Carl T. Thrust augmenting expansion engine. 3,783,814, Cl 114-20.00a.

Zucker, Edwin, to Xerox Corporation. Electrophoretic imaging apparatus including application of dynamic stress on the particle suspension. 3,784,302, Cl. 355-10.000.

Zuest, Armin: *See*—
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Zufferey, Daniel. *See*—
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Zwack, Robert R.: *See*—
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Zweifel, Fritz, 20% to Lee, Raymond, Organization, Inc., The. Hydrogen heating system. 3,784,096, Cl. 237-1.00r.

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LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AAA Pipe Cleaning Corp.: *See*—
Fisco, Benjamin P., Jr. Re. 27,874.

AB Ahlen & Akerlund Forpackning: *See*—
Persson, Karl R. Re. 27,870.

Adler, Fred: *See*—
Welsh, James W., and Adler. Re. 27,877.

Collins, Neil E., and I. E. Halt, to General Electric Co. Ohmic contact for Group III–V P-type semiconductors. Re. 27,879, 1–8–74. Cl. 317—234 R.

Emerson, William C.: *See*
Hudson, Frederick W., and Emerson. Re. 27,876.

Esty, Joseph J. assignor of a fractional part interest to Oberlin J. Evenson. Carton. Re. 27,872, 1–8–74, Cl. 229—14 B.

Evenson, Oberlin J.: *See*
Esty, Joseph J. Re. 27,872.

Fisco, Benjamin P., Jr., to AAA Pipe Cleaning Corp. Shroud for sewer cleaning truck. Re. 27,874, 1–8–74, Cl. 137—340.

Gallagher, John P., R. M. Meyers, E. H. Song, and C. M. Willitis, to Thiokol Chemical Corp. Liquid polysulfide polymeric glass-to metal sealant composition. Re. 27,880, 1–8–74, Cl. 260—33.80 R.

General Electric Co.: *See*—
Collins, Neil E., and Halt. Re. 27,879.

Halasa, Adel F.: *See*—
Sommers, Gary L., and Halasa. Re. 27,878.

Halt, Ira E.: *See*—
Collins, Neil E., and Halt. Re. 27,879.

Hudson, Frederick W., and W. C. Emerson, to Xerox Corp. Dispensing apparatus. Re. 27,876, 1–8–74, Cl. 222—181.

Lummus Co., The: *See*—
O'Connor, Ward F. Re. 27,871.

Meyers, Robert M.: *See*—
Gallagher, John P., Meyers, Song, and Willitis. Re. 27,880.

O'Connor, Ward F., to The Lummus Co. Position control systems for an article handling apparatus. Re. 27,871, 1–8–74, Cl. 214—16.40 A.

Persson, Karl R., to AB Ahlen & Akerlund Forpackning. Foldable blanks and cartons, boxes, trays or packing cases made therefrom. Re. 27,870, 1–8–74, Cl. 229—39 R.

Prince Mfg. Co.: *See*—
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Sommers, Gary L., and A. F. Halasa. Process. Re. 27,878, 1–8–74, Cl. 260—94.20 T.

Song, Earl H.: *See*—
Gallagher, John P., Meyers, Song, and Willitis. Re. 27,880.

Standard Motor Products, Inc.: *See*—
Welsh, James W., and Adler. Re. 27,877.

Swift, Gilbert. Method and apparatus for determining deflection of a structure. Re. 27,875, 1–8–74, Cl. 73—67.1.

Thiokol Chemical Corp.: *See*—
Gallagher, John P., Meyers, Song, and Willitis. Re. 27,880.

Welts, Ferdinand, and T. C. Zwiep, to Prince Mfg. Co. Debonding apparatus. Re. 27,873, 1–8–74, Cl. 17—1 G.

Welsh, James W., and F. Adler, to Standard Motor Products, Inc. Heating device for electrical actuation. Re. 27,877, 1–8–74, Cl. 219—536.

Willitis, Clark M.: *See*—
Gallagher, John P., Meyers, Song, and Willitis. Re. 27,880.

Xerox Corp.: *See*—
Hudson, Frederick W., and Emerson. Re. 27,876.

Zwiep, Theodore C.: *See*—
Welts, Ferdinand, and Zwiep. Re. 27,873.

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Ball, Geo. J.: *See*—
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Fischer, Arnold W. 3,427.
Fischer, Arnold W. 3,428.
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Fischer, Arnold W., to Geo. J. Ball. African violet plant. 3,426, 1–8–74, Cl. 69.

Fischer, Arnold W., to Geo. J. Ball. African violet plant. 3,427, 1–8–74, Cl. 69.

Fischer, Arnold W., to Geo. J. Ball. African violet plant. 3,428, 1–8–74, Cl. 69.

Fischer, Arnold W., to Geo. J. Ball. African violet plant. 3,429, 1–8–74, Cl. 69.

Frampton's Nurseries Ltd.: *See*—
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Graust, Bent E. Carnation plant. 3,430, 1–8–74, Cl. 73.

Jackson & Perkins Co.: *See*—
Warriner, William A. 3,423.
Warriner, William A. 3,431.
Warriner, William A. 3,432.

Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,424, 1–8–74, Cl. 78.

Machin, Barrie J., to Frampton's Nurseries Ltd. Chrysanthemum plant. 3,425, 1–8–74, Cl. 74.

Warriner, William A. to Jackson & Perkins Co. Rose plant. 3,423, 1–8–74, Cl. 18.

Warriner, William A., to Jackson & Perkins Co. Rose plant. 3,431, 1–8–74, Cl. 11.

Warriner, William A., to Jackson & Perkins Co. Rose plant. 3,432, 1–8–74, Cl. 14.

Yoder Brothers, Inc.: *See*—
Jessel, Walter H., Jr., and Duffett. 3,424.

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Arnold, Leo G., Jr. Airfoil cabinet for a truck. 229,829, 1–8–74, Cl. D14—6.

Ashley, E. H., & Co.: *See*—
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Becker, Sidney, to Stanton Magnetics, Inc. Stereophonic head set. 229,833, 1–8–74, Cl. D26—14.

Bell Telephone Laboratories, Inc.: *See*—
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Bourhenne, Francis K. Coiled wire dispenser. 229,821, 1–8–74, Cl. D8—220.

Brunswick Corp., The: *See*—
Crossman, Phillip E. 229,841.

Carroll, John W., to Digital Equipment Corp. Digital computer. 229,830, 1–8–74, Cl. D26—5.

Cassibo, Vernon E.: *See*—
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109 3,783,835

CLASS 122

34 3,783,838

CLASS 123

8.45 3,783,839
32R 3,783,842
52MV 3,783,843
3,783,844
55VE 3,783,845
65B 3,783,840
117A 3,783,846
119A 3,783,847
3,783,848
127 3,783,841
3,783,849
146.5A 3,783,850
185BA 3,783,851

CLASS 124

22 3,783,852

CLASS 126

19R 3,783,853
21R 3,783,854
25R 3,783,855
38 3,783,856
164 3,783,857
247 3,783,858

CLASS 127

37 3,784,408
46A 3,784,409

CLASS 128

2.06E 3,783,865
24R 3,783,859
82.1 3,783,880
92BC 3,783,860
127 3,783,861
132D 3,783,862
134 3,783,863
152 3,783,864
213 3,783,866
230 3,783,867
260 3,783,868
261 3,783,869
276 3,783,870
287 3,783,871
290R 3,783,872
303R 3,783,873
303.1 3,783,874
318 3,783,875
347 3,783,876
419P 3,783,877
3,783,878
570 3,783,879

CLASS 131

21D 3,783,881
70 3,783,882

CLASS 132

91 3,783,883

CLASS 133

1R 3,783,884
5 3,783,885

CLASS 135

45A 3,783,886

CLASS 136

10 3,784,410
87 3,784,411
122 3,784,412
131 3,784,413
175 3,784,414
3,784,415

CLASS 137

38 3,783,887
145 3,783,888
204 3,783,889
315 3,783,890
340 Re.27,874
491 3,783,891
493 3,783,892
527.8 3,783,893
535 3,783,894
564 3,783,897
588 3,783,895
596.2 3,783,898
624.2 3,783,899
625.47 3,783,900
625.64 3,783,901
630.14 3,783,896
803 3,783,902
805 3,783,903
811 3,783,904

CLASS 138

30 3,783,905
103 3,783,906
106 3,783,907
144 3,783,908

CLASS 139

426 3,783,909

CLASS 140

147 3,783,910

CLASS 141

11 3,783,911
46 3,783,912
3,783,913

CLASS 144

2N 3,783,914
134B 3,783,915
172 3,783,916
175 3,783,917
208B 3,783,918

CLASS 145

46 3,783,919

CLASS 148

3 3,784,416
6.15R 3,784,417
12 3,784,418

CLASS 149

2 3,784,419
22 3,784,420
29 3,784,421
88 3,784,422
109 3,784,423

CLASS 150

8 3,783,920

CLASS 151

41.7 3,783,921
41.74 3,783,922

CLASS 152

243 3,783,923
330 3,783,924
356 3,783,925
3,783,926
409 3,783,927

CLASS 156

15 3,784,424
83 3,784,425
132 3,784,426
139 3,784,427
174 3,784,428
175 3,784,429
200 3,784,430
201 3,784,431
244 3,784,432
276 3,784,433
280 3,784,434
293 3,784,435
334 3,784,436
401 3,784,437
487 3,784,438
518 3,784,439

CLASS 157

1.1 3,783,928

CLASS 160

168 3,783,929
199 3,783,930
327 3,783,931

CLASS 161

58 3,784,441
185 3,784,440

CLASS 162

181C 3,784,442

CLASS 164

4 3,783,932
58 3,783,933
282 3,783,934

CLASS 165

44 3,783,935
90 3,783,936
107 3,783,937
166 3,783,938

CLASS 166

81 3,783,939
181 3,783,940
217 3,783,941
244 3,783,942
266 3,783,943
274 3,783,944
305 3,783,945

CLASS 169

2A 3,783,946
40 3,783,947

CLASS 172

49 3,783,948
133 3,783,949
285 3,783,950
311 3,783,951
540 3,783,952

CLASS 173

23 3,783,953
49 3,783,954
50 3,783,955
93.7 3,783,956

CLASS 174

15C 3,784,722
42 3,784,723
48 3,784,724
52R 3,784,725
3,784,727
52 3,784,726
60 3,784,728
73R 3,784,729
75C 3,784,730
87 3,784,731
108 3,784,732
153R 3,784,733

CLASS 176

63 3,784,443

CLASS 177

54 3,783,957

CLASS 178

5.4ST 3,784,734
5.4R 3,784,736
5.4 3,784,735
6 3,784,737
6.5 3,784,738
6.6B 3,784,739
6.8 3,784,740
7.88 3,784,741
3,784,742
22 3,784,743

CLASS 179

1GQ 3,784,744
3,784,746
1HF 3,784,747
1VE 3,784,748
1N 3,784,745
3,784,750
JP 3,784,749
6R 3,784,721
15AQ 3,784,752
15FE 3,784,753
15A 3,784,751
15.55R 3,784,754
16F 3,784,755
3,784,756
18DA 3,784,757
84VF 3,784,758
3,784,759
90L 3,784,760
100.11 3,784,762
100.2MD 3,784,763
100.2ZA 3,784,761

CLASS 180

5R 3,783,958
6A 3,783,959
6.3 3,783,963
14A 3,783,960
33A 3,783,961
44F 3,783,962
64L 3,783,964
79.2R 3,783,966
128 3,783,965

CLASS 181

.5ED 3,783,967
33A 3,783,970
33G 3,783,968
3,783,969

CLASS 184

3R 3,783,971
7E 3,783,973
15R 3,783,972

CLASS 187

8.45 3,783,976
29R 3,783,974
3,783,975
52 3,783,977
73 3,783,978

CLASS 188

1A 3,783,979
73.5 3,783,980
106F 3,783,981
112 3,783,982
189 3,783,983
196BA 3,783,984

CLASS 192

3.54 3,783,985

CLASS 194

2 3,783,986
4G 3,783,989
10 3,783,987
11 3,783,988

CLASS 195

28N 3,784,444
28R 3,784,445
30 3,784,446
81 3,784,447
139 3,784,448

CLASS 198

20R 3,783,990
33AB 3,783,991
3,783,992
140 3,783,993
179 3,783,994

CLASS 200

5R 3,784,765
42T 3,784,766
48V 3,784,767
50AA 3,784,764
52R 3,784,768
3,784,769
61.36 3,784,770
61.45M 3,784,773
82B 3,784,771
83Y 3,784,772
144B 3,784,774
146R 3,784,775

CLASS 202

180 3,784,449
185 3,784,450

CLASS 204

20 3,784,451
26 3,784,452
52R 3,784,454
130 3,784,455
131 3,784,453
153 3,784,456
180P 3,784,457
192 3,784,458
195S 3,784,459
301 3,784,460
306 3,784,461

CLASS 206

7D 3,783,995
17.5 3,783,996
43 3,783,997
3,783,998
45.23 3,783,999
47R 3,784,000
52F 3,784,001
65C 3,784,002
65E 3,784,003
80A 3,784,004
84 3,784,005

CLASS 208

11 3,784,462
3,784,464
74 3,784,463
208R 3,784,465
361 3,784,466

CLASS 209

73 3,784,006
85 3,784,007

CLASS 210

31C 3,784,467
44 3,784,468
58 3,784,469
104 3,784,008
114 3,784,009
3,784,010
168 3,784,011
170 3,784,012
242 3,784,013
263 3,784,014
321 3,784,470
322 3,784,015
333 3,784,016
354 3,784,017
393 3,784,018
486 3,784,019

CLASS 211

1.3 3,784,020
43 3,784,021
49D 3,784,022
105.1 3,784,023
131 3,784,024
148 3,784,025
181 3,784,026
184 3,784,027

CLASS 212

11 3,784,028
14 3,784,029

CLASS 213

76 3,784,030

CLASS 214

1BC 3,784,031
15R 3,784,032
16.4A Re.27,871
19 3,784,033
21 3,784,034
75H 3,784,035
86A 3,784,036
356 3,784,037

CLASS 215

1C 3,784,038
11E 3,784,039
31 3,784,040
40 3,784,041

CLASS 219

10.43 3,784,780
10.55 3,784,776
3,784,777
3,784,781
60A 3,784,778
117 3,784,779
125 3,784,782
213 3,784,783
222 3,784,784
301 3,784,785
368 3,784,786
386 3,784,787
441 3,784,788
536 Re.27,877

CLASS 220

3.3 3,784,042
4F 3,784,043
19 3,784,044
22.3 3,784,054
27 3,784,045
35 3,784,046
40R 3,784,047
54 3,784,048
63 3,784,049
85 3,784,050
93 3,784,051
97C 3,784,052
113 3,784,053

CLASS 221

46 3,784,055
63 3,784,056
196 3,784,057

CLASS 222

57 3,784,058
86 3,784,059
153 3,784,060
181 Re.27,876
200 3,784,061
377 3,784,062
394 3,784,063
397 3,784,064
413 3,784,065
514 3,784,066

CLASS 223

114 3,784,067

CLASS 224

5V 3,784,068
49 3,784,069

CLASS 225

1 3,784,070

CLASS 226

3,784,071
3,784,072
47 3,784,073
127 3,784,074
143 3,784,075
179 3,784,076

CLASS 227

8 3,784,077
13 3,784,078

CLASS 228

1 3,784,079
2 3,784,080
17 3,784,081

CLASS 229

14B Re.27,872
30 3,784,082
34R 3,784,083
39R Re.27,870
54R 3,784,084
55 3,784,085
3,784,086
62 3,784,087
68 3,784,088

CLASS 232

24 3,784,089
44 3,784,090

CLASS 233

7 3,784,091
20R 3,784,092

CLASS 235

61.11D 3,784,793
61.11E 3,784,791
3,784,792
3,784,794
3,784,795
61.12M 3,784,796
61.6A 3,784,789
61.7B 3,784,790
70R 3,784,093
88 3,784,797
150.27 3,784,800
151.11 3,784,798
153AK 3,784,801
168 3,784,802
195 3,784,803

CLASS 236

68C 3,784,094
101 3,784,095

CLASS 237

1R 3,784,096

CLASS 238

310 3,784,097
349 3,784,098

CLASS 239

2R 3,784,099
11 3,784,100
17 3,784,101
36 3,784,102
101 3,784,103
102 3,784,104
3,784,105
177 3,784,106
208 3,784,107
264 3,784,108
265.19 3,784,109
304 3,784,110
427.3 3,784,111
443 3,784,112
460 3,784,113

CLASS 240

2FD 3,784,804
7.1LJ 3,784,810
25 3,784,806
41.5 3,784,807
47 3,784,808
49 3,784,809
81LD 3,784,811

CLASS 241

24 3,784,114
30 3,784,115
46.17 3,784,116
191 3,784,117
282.1 3,784,118

CLASS 242

18DD 3,784,120
18R 3,784,119
43 3,784,121
56A 3,784,122
75.53 3,784,123
84.1R 3,784,124
96 3,784,125
158.3 3,784,126
199 3,784,127
201 3,784,128
3,784,129

CLASS 244

76J 3,784,130
102R 3,784,131
137R 3,784,132

CLASS 245

10 3,784,133

CLASS 246

169R 3,784,813
446 3,784,134

CLASS 248

11 3,784,135
44 3,784,136
63 3,784,137
96 3,784,138
210 3,784,139
214 3,784,140
3,784,141
311 3,784,142
316R 3,784,143
317 3,784,144
334 3,784,145
358R 3,784,146
371 3,784,147
382 3,784,148
478 3,784,149
496 3,784,150

CLASS 249

18 3,784,151
80 3,784,152

CLASS 250

203CT 3,784,829
213VT 3,784,830
3,784,831
226 3,784,832
237G 3,784,833
260 3,784,828
266 3,784,822
273 3,784,816
290 3,784,814
307 3,784,815
328 3,784,826
362 3,784,820
366 3,784,819
368 3,784,818
3,784,821
370 3,784,823
467 3,784,817
477 3,784,834
480 3,784,835
495 3,784,836
496 3,784,825

498 3,784,827
501 3,784,824
523 3,784,837
536 3,784,838

CLASS 251

25 3,784,153
30 3,784,154
181 3,784,155
250 3,784,156
306 3,784,157
327 3,784,158

CLASS 252

21 3,784,471
25 3,784,472
51.5A 3,784,473
51.5R 3,784,474
89 3,784,475
109 3,784,476
162 3,784,477
192 3,784,478
358 3,784,479
404 3,784,480
431C 3,784,481
431P 3,784,482
437 3,784,483
442 3,784,484
467 3,784,485
546 3,784,486

CLASS 254

45 3,784,159
86R 3,784,160
88 3,784,161
124 3,784,162
166 3,784,163
3,784,164
168 3,784,165
186 3,784,166

CLASS 256

13.1 3,784,167

CLASS 259

1R 3,784,168
4 3,784,169
65 3,784,170

CLASS 260

2.1C 3,784,489
2.5AM 3,784,594
2.5F 3,784,487
2.5M 3,784,488
3,784,490
8 3,784,491
13R 3,784,492
17.3 3,784,494
17.5 3,784,493
18TN 3,784,595
18N 3,784,495
23R 3,784,596
29.3 3,784,496
29.6TA 3,784,498
29.6XA 3,784,497
29.6S 3,784,499
30.4R 3,784,500
31.6 3,784,501
33.6PQ 3,784,502
33.6UB 3,784,503
33.8R Re.27,880
37SB 3,784,505
37N 3,784,504
39R 3,784,506
45.7P 3,784,507
45.75B 3,784,509
45.75N 3,784,510
45.95P 3,784,511
3,784,512
47EM 3,784,508
51.5 3,784,514
3,784,515
3,784,516
63R 3,784,517
67FP 3,784,519
75NB 3,784,521
75R 3,784,520
77.5AP 3,784,601
77.5CR 3,784,522
3,784,524
78A 3,784,523
78.4EP 3,784,525
78.5R 3,784,526
78.5T 3,784,527
3,784,528
79.3M 3,784,529
80.3N 3,784,597
80.7 3,784,530
85.3H 3,784,531
86.1E 3,784,532
3,784,540
94.2T Re.27,878
94.9C 3,784,539
94.9R 3,784,538
97.5 3,784,537
112 3,784,536
112.5 3,784,535
128 3,784,534
210R 3,784,541
239.3D 3,784,542
239.55D 3,784,598
240G 3,784,543
240J 3,784,545
242 3,784,599
249.8 3,784,544
256.5R 3,784,546
257 3,784,547
268PC 3,784,548
287R 3,784,549
3,784,550
293.66 3,784,551
293.69 3,784,632
294.8F 3,784,552
297.5 3,784,553
302E 3,784,554
306.8D 3,784,555
308A 3,784,569
308B 3,784,570
308R 3,784,556
309 3,784,557
309.2 3,784,571
309.6 3,784,633
327S 3,784,572
343.2R 3,784,600
346.2M 3,784,602
346.3 3,784,573
347.7 3,784,574
349 3,784,603
396R 3,784,575
397.2 3,784,576
404 3,784,577
410.9N 3,784,578
414 3,784,579
429.7 3,784,580
448.2Q 3,784,637
464 3,784,581
465D 3,784,558
3,784,559
3,784,582
465.3 3,784,560
3,784,561
468D 3,784,634
3,784,636
468J 3,784,562
471C 3,784,563
471R 3,784,635
472 3,784,564
479R 3,784,513
482R 3,784,565
486R 3,784,566
488F 3,784,567
491 3,784,568
515P 3,784,639
519 3,784,640
526S 3,784,638
556A 3,784,641
558A 3,784,642
564A 3,784,643
566R 3,784,644
570R 3,784,604
583N 3,784,645
590 3,784,605
3,784,606
593R 3,784,646
609D 3,784,608
3,784,610
609R 3,784,607
611R 3,784,609
613D 3,784,611
615A 3,784,612
622P 3,784,613
638R 3,784,616
641 3,784,614
648R 3,784,615
652R 3,784,518
668R 3,784,617
3,784,618
3,784,619
669A 3,784,620
672T 3,784,621
676R 3,784,622
677R 3,784,623
681.5R 3,784,624
3,784,625
3,784,626
683.15D 3,784,629
3,784,630
3,784,631
683.3 3,784,627
683.42 3,784,628
830TW 3,784,583
3,784,584
3,784,647
856 3,784,648
861 3,784,585
3,784,586
874 3,784,649
876B 3,784,587
928 3,784,588
929 3,784,653
941 3,784,589
944 3,784,590
948 3,784,650
952 3,784,591
953 3,784,592
956 3,784,651
958 3,784,652
3,784,654

CLASS 261

29 3,784,171
44R 3,784,172
3,784,173
65 3,784,174
114R 3,784,175

CLASS 264

1 3,784,655
8 3,784,656
40 3,784,657
45 3,784,658
47 3,784,659
88 3,784,660
95 3,784,662
98 3,784,661
145 3,784,667
146 3,784,533
230 3,784,663
234 3,784,666
246 3,784,664
261 3,784,665
310 3,784,668

CLASS 266

1R 3,784,176
34T 3,784,177
38 3,784,178

CLASS 267

35 3,784,179
66 3,784,180
140 3,784,181
3,784,182

CLASS 270

31 3,784,184
37 3,784,185
64 3,784,186
3,784,187
79 3,784,188

CLASS 271

45 3,784,189
80 3,784,190
3,784,191

CLASS 272

57J 3,784,192
68 3,784,193
79C 3,784,194
83R 3,784,195

CLASS 273

1E 3,784,196
3,784,197
63A 3,784,198
95R 3,784,199
3,784,200
102.1E 3,784,201
106A 3,784,202
126A 3,784,203
128R 3,784,204
131AC 3,784,205
158 3,784,206
176A 3,784,207
183A 3,784,208
218 3,784,209

CLASS 274

1A 3,784,210
9R 3,784,211

CLASS 277

22 3,784,212
40 3,784,213
116.8 3,784,214
220 3,784,215

CLASS 280

6H 3,784,228
11.17 3,784,217
11.35D 3,784,216
43.23 3,784,218
104 3,784,219
124F 3,784,220
3,784,221
150AB 3,784,222
3,784,223
3,784,225
150B 3,784,224
157 3,784,226
166 3,784,227
446R 3,784,229
491 3,784,230
502 3,784,231

CLASS 281

20 3,784,232

CLASS 285

12 3,784,233
18 3,784,234
21 3,784,235
45 3,784,236
208 3,784,237
286 3,784,238
293 3,784,239

CLASS 292

111 3,784,240
216 3,784,241
300 3,784,243
336.3 3,784,242

CLASS 293

25 3,784,244

CLASS 294

54 3,784,245
87.2 3,784,246

CLASS 296

20 3,784,183
23B 3,784,248
75 3,784,247

CLASS 297

162 3,784,249
184 3,784,250
248 3,784,251
364 3,784,252
410 3,784,253
445 3,784,254

CLASS 298

8T 3,784,255

CLASS 299

12 3,784,256
31 3,784,257
34 3,784,258
84 3,784,259

CLASS 301

97 3,784,260

CLASS 302

2R 3,784,261

CLASS 305

11 3,784,262
22 3,784,263

CLASS 307

10AT 3,784,839
11 3,784,840
64 3,784,841
92 3,784,842
117 3,784,843
212 3,784,854
233 3,784,845
270 3,784,844
293 3,784,846
304 3,784,847
308 3,784,848

CLASS 308

8.2 3,784,264
73 3,784,265
160 3,784,266
174 3,784,267
187.2 3,784,268

CLASS 310

8.2 3,784,849
49 3,784,850
58 3,784,851
105 3,784,852
178 3,784,853
227 3,784,855
239 3,784,856

CLASS 312

136 3,784,269
236 3,784,270
245 3,784,272
257SK 3,784,273
257R 3,784,271
330 3,784,274

CLASS 313

63 3,784,858
75 3,784,859
93 3,784,860
117 3,784,861
174 3,784,862
3,784,863
217 3,784,864
274 3,784,865
299 3,784,866
318 3,784,867

CLASS 315

5.41 3,784,873
8 3,784,868
13C 3,784,869
20 3,784,870
27TD 3,784,857
3,784,871
3,784,872
294 3,784,874
3,784,875

CLASS 316

19 3,784,275

CLASS 317

2R 3,784,876
33R 3,784,877
101CE 3,784,878
136 3,784,879
141S 3,784,881
157 3,784,882
234R Re.27,879
3,784,883
3,784,884
3,784,885
235R 3,784,886
258 3,784,887

CLASS 318

138 3,784,880
3,784,888
171 3,784,889
345 3,784,890
633 3,784,891

CLASS 320

40 3,784,892

CLASS 321

11 3,784,893
47 3,784,894

CLASS 322

2R 3,784,895
20 3,784,896

CLASS 323

93 3,784,897

CLASS 324

.5R 3,784,898
6 3,784,899
10 3,784,900
16R 3,784,901
32 3,784,902
38 3,784,904
51 3,784,903
57DE 3,784,907
61QS 3,784,905
62 3,784,906
3,784,908
71EB 3,784,909
73AT 3,784,910
95 3,784,911
130 3,784,912
173 3,784,913

CLASS 325

30 3,784,914
130 3,784,799
367 3,784,915
419 3,784,916
422 3,784,917

CLASS 328

97 3,784,918
127 3,784,919
3,784,920
135 3,784,921

CLASS 329

104 3,784,922

CLASS 330

22 3,784,923
30R 3,784,924
34 3,784,925
53 3,784,926

CLASS 331

94.5 3,784,927
3,784,928
3,784,929
183 3,784,930

CLASS 333

6 3,784,931
9 3,784,932
26 3,784,933
29 3,784,934
70CR 3,784,935
71 3,784,936
84M 3,784,937
95 3,784,938
98R 3,784,939

CLASS 335

18 3,784,940
196 3,784,941
206 3,784,942
266 3,784,943
276 3,784,944
302 3,784,945

CLASS 336

59 3,784,946

CLASS 337

320 3,784,947

CLASS 338

183 3,784,948
196 3,784,949
200 3,784,950
262 3,784,951

CLASS 339

12V 3,784,952
14R 3,784,953
17LM 3,784,954
17R 3,784,955
18R 3,784,956
19 3,784,957
45R 3,784,958
60M 3,784,959
91R 3,784,960
107 3,784,961
121 3,784,962
198P 3,784,963
219R 3,784,964
258R 3,784,965
276T 3,784,966

CLASS 340

3R 3,784,805
15.5TC 3,784,967
25 3,784,968
27NA 3,784,969
33 3,784,970
40 3,784,971
52E 3,784,972
59 3,784,973
67 3,784,974
76 3,784,975
146.1AB 3,784,977
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146.1AG 3,784,976
146.2 3,784,979
3,784,980
146.3H 3,784,981
146.3J 3,784,982
172.5 3,784,983

CLASS 350

3.5 3,784,276
6 3,784,277
.10 3,784,278
103 3,784,279
150 3,784,280
151 3,784,281
175R 3,784,282
184 3,784,283
186 3,784,284
187 3,784,285
220 3,784,286
226 3,784,287
302 3,784,288
321 3,784,289

CLASS 352

91 3,784,290
169 3,784,291
170 3,784,292
208 3,784,293

CLASS 353

95 3,784,295
120 3,784,296

CLASS 355

3 3,784,294
3,784,297
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3,784,300
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10 3,784,302
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CLASS 356

3 3,784,305
23 3,784,306
51 3,784,307
128 3,784,308
156 3,784,309
181 3,784,310

CLASS 401

137 3,784,311

CLASS 404

35 3,784,312
51 3,784,313
117 3,784,314

CLASS 408

92 3,784,315
204 3,784,316

CLASS 415

144 3,784,317
158 3,784,318

CLASS 416

135 3,784,319
215 3,784,320
223 3,784,321
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CLASS 417

53 3,784,323
67 3,784,324
165 3,784,325
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252 3,784,329
273 3,784,331
279 3,784,330
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383 3,784,333
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142 3,784,337

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43 3,784,669
80 3,784,670
88 3,784,671
202 3,784,672
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252 3,784,677
321 3,784,678

CLASSIFICATION OF PATENTS

447	3,784,679	243	3,784,692	311	3,784,698	357	3,784,708	352	3,784,343	171	3,784,713
571	3,784,680	244	3,784,688		3,784,700		CLASS 425	387	3,784,344		3,784,714
645	3,784,682	250	3,784,689	317	3,784,699	28B	3,784,338		3,784,347	172	3,784,715
	CLASS 424		3,784,693		3,784,701	133	3,784,339	402	3,784,349	289	3,784,716
4	3,784,681	267	3,784,690		3,784,702	141	3,784,340	445	3,784,350		CLASS 431
19	3,784,683	273	3,784,691		3,784,703	280	3,784,341		CLASS 426	66	3,784,351
37	3,784,684	304	3,784,694		3,784,704	292	3,784,342	24	3,784,709	277	3,784,352
70	3,784,685	308	3,784,695		3,784,705	324B	3,784,348	128	3,784,710	329	3,784,353
94	3,784,686		3,784,696	342	3,784,706	325	3,784,345	130	3,784,711		CLASS 432
212	3,784,687	309	3,784,697	343	3,784,707	326B	3,784,346	167	3,784,712	152	3,784,354

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D02—	343 229,796		252 229,810		219 229,824	D30—	8 229,838	D48—	2 229,851		11B 229,865
D06—	13 229,799		229,811		258 229,825		9 229,839		229,852		R 229,864
	26 229,798	D07—	1 229,812		277 229,826		12 229,840		23A 229,853	D65—	1 229,866
	32 229,800		21 229,813	D12—	15 229,827	D34—	3 229,841		24 229,854	D67—	3B 229,867
	47 229,801		36 229,814	D13—	1L 229,828		5GC 229,843		27R 229,855	D70—	1 229,868
	229,802		48 229,815	D14—	6A 229,829		GH 229,844	D52—	1 229,856	D83—	12R 229,869
	60 229,803		71 229,816	D26—	5C 229,830		229,842		6B 229,858	D87—	2 229,870
	78 229,804		93 229,817		12 229,831		15AJ 229,845		R 229,857		3F 229,871
	97 229,805		128 229,818		14A 229,836		JJ 229,846	D56—	4B 229,859	D90—	5 229,872
	125 229,806		130 229,819		229,837		MM 229,847		R 229,860		20R 229,873
	132 229,807		207 229,820		F 229,832	D35—	2B 229,848	D57—	1C 229,861	D92—	2 229,874
	177 229,808	D08—	220 229,821		H 229,833	D45—	1 229,849	D61—	B 229,862	D95—	3A 229,875
	192 229,809		236 229,822		K 229,834		15 229,850	D64—	10 229,863		229,876
	251 229,797	D09—	183 229,823		R 229,835						

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P. —	11 3,431	P. —	18 3,423	P. —	3,427	P. —	3,429	P. —	74 3,425	P. —	78 3,424
P. —	14 3,432	P. —	69 3,426	P. —	3,428	P. —	73 3,430				

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PATENTS

1 :	3,783,522		3,783,746		3,784,352		3,784,099		3,783,688		3,783,999
4 :	3,783,616		3,783,763		3,784,357		3,784,125		3,783,756		3,784,002
	3,783,792		3,783,815		3,784,364		3,784,162		3,783,808		3,784,003
	3,783,928		3,783,830		3,784,379		3,784,164		3,783,883		3,784,004
	3,784,029		3,783,832		3,784,384		3,784,311		3,784,036		3,784,011
	3,784,079		3,783,843		3,784,403		3,784,829		3,784,050		3,784,021
	3,784,104		3,783,855		3,784,420		3,784,905		3,784,085		3,784,023
	3,784,745		3,783,856		3,784,422	9 :	3,783,493		3,784,208		3,784,025
	3,784,750		3,783,857		3,784,434		3,783,510		3,784,306		3,784,030
	3,784,753		3,783,867		3,784,435		3,783,545		3,784,494		3,784,039
	3,784,845		3,783,868		3,784,441		3,783,546		3,784,710		3,784,045
	3,784,853		3,783,891		3,784,449		3,783,647		3,784,765		3,784,052
	3,784,884		3,783,909		3,784,470		3,783,723		3,784,805		3,784,055
	3,784,891		3,783,944		3,784,472		3,783,769		3,784,923		3,784,087
5 :	3,784,013		3,783,954		3,784,474		3,783,851	13 :	3,783,479		3,784,110
	3,784,067		3,783,959		3,784,483		3,783,874		3,783,513		3,784,111
	3,784,321		3,783,960		3,784,484		3,783,991		3,784,053		3,784,127
	3,784,733		3,783,964		3,784,552		3,784,000		3,784,078		3,784,147
6 :	Re.27,872		3,783,968		3,784,571		3,784,019	14 :	3,783,997		3,784,154
	3,783,456		3,784,047		3,784,589		3,784,193	15 :	3,784,093		3,784,189
	3,783,462		3,784,057		3,784,616		3,784,316	17 :	3,783,469		3,784,191
	3,783,478		3,784,059		3,784,622		3,784,326		3,783,485		3,784,199
	3,783,496		3,784,062		3,784,725		3,784,363		3,783,491		3,784,213
	3,783,505		3,784,063		3,784,726		3,784,440		3,783,498		3,784,246
	3,783,514		3,784,076		3,784,730		3,784,458		3,783,509		3,784,269
	3,783,523		3,784,095		3,784,766		3,784,503		3,783,549		3,784,293
	3,783,524		3,784,097		3,784,799		3,784,527		3,783,551		3,784,304
	3,783,525		3,784,101		3,784,812		3,784,585		3,783,571		3,784,305
	3,783,531		3,784,102		3,784,815		3,784,591		3,783,577		3,784,394
	3,783,544		3,784,136		3,784,827		3,784,606		3,783,578		3,784,491
	3,783,548		3,784,140		3,784,831		3,784,695		3,783,580		3,784,497
	3,783,554		3,784,146		3,784,835		3,784,737		3,783,628		3,784,535
	3,783,562		3,784,161		3,784,848		3,784,744		3,783,633		3,784,536
	3,783,564		3,784,170		3,784,867		3,784,819		3,783,784		3,784,545
	3,783,573		3,784,183		3,784,876		3,784,822		3,783,785		3,784,573
	3,783,579		3,784,190		3,784,883		3,784,900		3,783,786		3,784,598
	3,783,583		3,784,197		3,784,899		3,784,949		3,783,876		3,784,652
	3,783,592		3,784,198		3,784,908		3,784,961		3,783,892		3,784,658
	3,783,598		3,784,202		3,784,918		3,784,977		3,783,911		3,784,674
	3,783,610		3,784,210		3,784,924	10 :	3,783,629		3,783,915		3,784,683
	3,783,617	4	3,784,211		3,784,933		3,784,086		3,783,918		3,784,702
	3,783,627		3,784,218		3,784,937		3,784,495		3,783,921		3,784,736
	3,783,659		3,784,227		3,784,950		3,784,501		3,783,933		3,784,769
	3,783,671		3,784,247		3,784,956		3,784,520		3,783,946		3,784,801
	3,783,675		3,784,252		3,784,959		3,784,557		3,783,947		3,784,821
	3,783,690		3,784,274		3,784,963		3,784,575		3,783,962		3,784,878
	3,783,703		3,784,276		3,784,966		3,784,615		3,783,966		3,784,932
	3,783,711		3,784,296		3,784,971		3,784,713		3,783,970		3,784,962
	3,783,729		3,784,312		3,784,972		3,784,714		3,783,986	18 :	3,783,480
	3,783,731		3,784,319		3,784,974	12 :	3,783,451		3,783,987		3,783,797
	3,783,739		3,784,351	8 :	3,783,949		3,783,475		3,783,989		3,783,823

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3,784,165
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20 : 3,783,541
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21 : 3,783,680
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26 : Re.27,873
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U. S. GOVERNMENT PRINTING OFFICE : O - 1974

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PATENT NOTICES

Certificates of Correction for the Week of Jan. 15, 1974

D. 227,903	3,726,761	3,754,715	3,759,807
3,529,441	3,730,746	3,755,072	3,761,110
3,577,168	3,737,334	3,755,348	3,761,750
3,627,515	3,740,135	3,755,563	3,761,871
3,658,905	3,741,861	3,756,183	3,761,972
3,676,252	3,742,291	3,756,556	3,762,290
3,676,560	3,743,674	3,756,572	3,762,535
3,678,157	3,744,070	3,756,771	3,762,670
3,687,997	3,745,150	3,756,798	3,762,825
3,694,637	3,746,765	3,757,164	3,762,958
3,696,254	3,747,743	3,757,237	3,763,199
3,705,748	3,751,201	3,758,089	3,765,214
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3,719,722	3,751,637	3,758,563	
3,723,518	3,753,110	3,758,971	
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National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the GSA Patent Licensing Regulations.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title. Requests for licensing information should be directed to the address cited with each copy of the patent application.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

Patent 3,766,020. Steam Jet Ejectors To Reduce Pressure in and Produce Stripping Steam for Deaerator. Filed Oct. 27, 1971. Patented Oct. 16, 1973. Not available NTIS.

DEPARTMENT OF THE NAVY

Assistant Chief for Patents, Office of Naval Research, Code 302, Arlington, Va. 22217

Patent 3,489,318. Buoyancy System. Filed Dec. 11, 1967. Patented Jan. 13, 1970. Not available NTIS.

Patent 3,489,591. Method of Making Radiation Resistant Fabric. Filed Feb. 16, 1967. Patented Jan. 13, 1970. Not available NTIS.

Patent 3,489,988. In-Line Cable Connectors. Filed Sept. 22, 1967. Patented Jan. 13, 1970. Not available NTIS.

Patent 3,490,230. Combustion Air Control Shutter. Filed Mar. 22, 1968. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,490,268. Nondestructive Testing of Hull Stiffeners. Filed Jan. 22, 1968. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,490,924. Method of Electroless Nickel Plating and Plating Baths Therefor. Filed May 13, 1966. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,491,027. Composition and Method for Cleaning Salt Residues From Metal Surfaces. Filed Feb. 28, 1966. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,491,355. Automatic Data Sequencer. Filed Jan. 24, 1966. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,491,358. Atmospheric Turbulence Detection System. Filed Feb. 2, 1968. Patented Jan. 20, 1970. Not available NTIS.

Patent 3,492,149. Surface Modified Hard Inorganic Solid and Method of Making Same. Filed Oct. 31, 1967. Patented Jan. 27, 1970. Not available NTIS.

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Patent 3,493,220. Furnace for Treating Material in a Gas Atmosphere. Filed Mar. 7, 1968. Patented Feb. 3, 1970. Not available NTIS.

Patent 3,495,158. Harmonic Generator System. Filed May 23, 1968. Patented Feb. 10, 1970. Not available NTIS.

Patent 3,496,609. Universal Vulcanizing Mold. Filed Oct. 3, 1967. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,496,906. Day/Night Bidirectional Marine Marker. Filed Feb. 2, 1968. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,497,312. Atmosphere Regeneration Method for Closed Environmental Vehicles. Filed Jan. 23, 1964. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,497,393. Sea Water Activated Battery. Filed Aug. 3, 1967. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,497,846. Magnetic Anchor for Curved and Irregular Surfaces. Filed Dec. 27, 1967. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,497,889. Inflatable Life Preserver. Filed Mar. 21, 1968. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,497,962. Method and Means for Minimizing Horizontal Accelerations In Ship-Board Vertical Pendula. Filed Nov. 6, 1967. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,497,962. Method and Means for Minimizing Horizontal Accelerations In Ship-Board Vertical Pendula. Filed Nov. 6, 1967. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,498,112. Microwave System for Determining Water Content In Fuel Oil. Filed Apr. 30, 1968. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,498,124. Apparatus for Measuring Tension in a Running Line of Magnetic Material. Filed Dec. 26, 1967. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,498,768. Rust-Inhibitive Abrasive Blasting. Filed Oct. 18, 1967. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,498,922. Method of Displacing Liquid Organic Films From Solid Surfaces. Filed Oct. 18, 1966. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,498,923. Surface-Active Compositions and Method for Displacing Liquid Organic Films from Solid Surfaces. Filed Oct. 18, 1966. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,499,058. Mixture of Two Polyesters With Pyromellitic Dianhydride. Filed Apr. 22, 1966. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,499,240. Illuminated Grid for Backlighted Plotting Boards. Filed Feb. 21, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,499,315. Contamination Determination in a Fluid System. Filed Aug. 31, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,500,067. Symmetrical Waveform Rate-of-Rise Clipper Amplifier. Filed July 11, 1966. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,500,191. Microcircuit Test Probe With Grappler. Filed Dec. 7, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,512,493. Adjustable Buoyancy Lift Device. Filed Apr. 23, 1968. Patented May 19, 1970. Not available NTIS.

Patent 3,520,218. Transistor Cap Remover. Filed Apr. 10, 1968. Patented July 14, 1970. Not available NTIS.

Patent 3,521,443. Hook for Cargo Tie-Down. Filed May 23, 1968. Patented July 21, 1970. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters, NASA—Code GP–2, Washington, D.C. 20546

Patent application 174,684. Stored Charged Device. Filed Aug. 25, 1971. PC $3.50/MF $1.45.

Patent application 177,985. Recorder/Processor Apparatus. Filed Sept. 7, 1971. PC $4.75/MF $1.45.

Patent application 187,143. Laser Beam Intensity Control for Thermomagnetic Recording and Magneto Optic Playback Systems. Filed Oct. 6, 1971. PC $3.50/MF $1.45.

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Patent application 394,898. Dual Cycle Aircraft Turbine Engine. Filed Sept. 6, 1973. PC $3/MF $1.45.

Patent 3,394,286. Ultrahigh Vacuum Measuring Ionization Gauge. Patented July 23, 1968. Not available NTIS.

[FR Doc. 73–26622; Filed 12–18–73; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 22, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-02-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo, Sulfur; Misc. Esters, Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-12-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-11-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	1-02-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-01-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-16-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	9-01-72[2]
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	4-02-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-17-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring	1-15-73
DESIGNS, GROUP 290—R L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-17-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	3-08-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-10-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters, Stationery; Information Dissemination	3-02-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors: Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	3-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners, Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes. Sewing Machines	9-28-72

Expiration of patents: The patents within the range of numbers indicated below expire during December 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 2,772,415 to 2,775,761, inclusive
Plant Patents ..... Numbers 1,532 to 1,542, inclusive

REISSUES

JANUARY 15, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,881

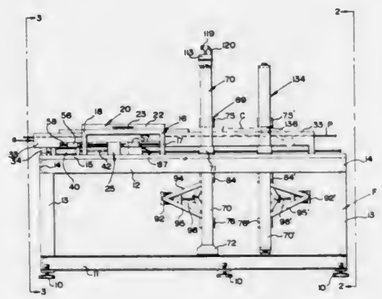
COMPACT DIFFERENTIAL PRESSURE FORMING MACHINE

Gaylord W. Brown and Bradley A. Schnepp, Beaverton, Mich., assignors to Koehring Company, Milwaukee, Wis.

Original No. 3,513,505, dated May 26, 1970, Ser. No. 584,436, Oct. 5, 1966. Application for reissue May 11, 1972, Ser. No. 252,500

Int. Cl. B29c *11/00;* **B29d** *7/22*

U.S. Cl. 425—155 **11 Claims**



A differential pressure forming machine for forming shapes in a sheet of deformable thermoplastic material including: molds on opposite sides of the sheet; at least one of the molds having a mold cavity and one mold being movable relative to the other to substantially engage and separate the molds; wherein an advancing chain grips the sheet for moving it in increments and a reciprocating drive for the chain has a clamp member clamping to the advancing chain during a forwarding stroke.

The chain at each side of the machine has pins extending laterally outwardly of the outer side of the chain which ride along the undersurface of a laterally extending guide.

27,882

METHOD AND APPARATUS FOR THE DEGASIFICATION OF DRILLING MUDS

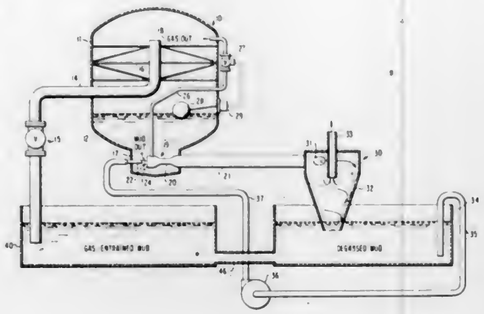
Gerald E. Burnham, Sr., Lafayette, La., assignor to Thermotics, Inc., Houston, Tex.

Original No. 3,616,599, dated Nov. 2, 1971, Ser. No. 12,543, Feb. 19, 1970. Application for reissue Sept. 6, 1972, Ser. No. 286,723

Int. Cl. B01d *19/00*

U.S. Cl. 55—41 **40 Claims**

Drilling mud degasification apparatus having baffle plates in a vacuum tank over which thin films of mud are degassed as they flow downward to a receiving area of the tank. Venturi-type dual ejector apparatus is located



in a sump in the tank to remove degassed mud and to draw a vacuum on the upper portion of the tank.

27,883

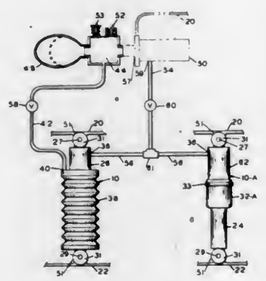
SUSPENSION SYSTEM FOR VEHICLES

Arthur E. Vogel, 1860 E. Cherry St. 43205, and Palmer Fultz, 4280 Hayden Run Road 43221, both of Columbus, Ohio

Original No. 3,480,288, dated Nov. 25, 1969, Ser. No. 529,328, Feb. 23, 1966, which is a continuation-in-part of abandoned Ser. No. 479,225, Aug. 12, 1965. Application for reissue Nov. 25, 1970, Ser. No. 92,959

Int. Cl. B62d *37/00;* **B60s** *9/00*

U.S. Cl. 280—6.1 **35 Claims**



A controlled suspension system for a vehicle having unsprung and sprung weight portions including a vertically expansible and contractable chamber disposed between those portions, together with a compressor connected with the chamber, the chamber having an outlet

orifice which is at least partially opened and closed as the static load on the unsprung portion decreases and increases, respectively.

Preferably, the compressor inlet and the outlet orifice are connected directly with atmosphere. Also, preferably, the control system is embodied as a part of the shock absorbing apparatus for the sprung weight of the vehicle.

27,884

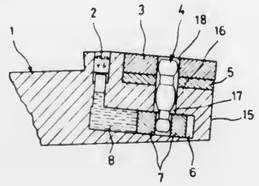
TOOLHOLDER ASSEMBLIES

Wlajko Mihic, Tegnervagen 9, 802 28, Gavle, Sweden

Original No. 3,579,776, dated May 25, 1971, Ser. No. 776,443, Nov. 18, 1968. Application for reissue July 3, 1972, Ser. No. 268,757

Int. Cl. B26d *1/00*

U.S. Cl. 29—96 **5 Claims**



A toolholder assembly incorporates a body which at one end has a recess for receiving an indexable cutting insert. A bore for a two-armed lever which is pivotally connected to the body extends from the recess in the toolholder body, and one end of the lever cooperates with the cutting insert, while the other end of the lever cooperates with a piston which is movable in the body. The piston is under the action of a pressure medium which is contained in a hollow space in the body and acted upon by a pressure actuating member movable into and out of the space.

27,885

MAGNETIC TAPE CARTRIDGE PLAYER SYSTEM

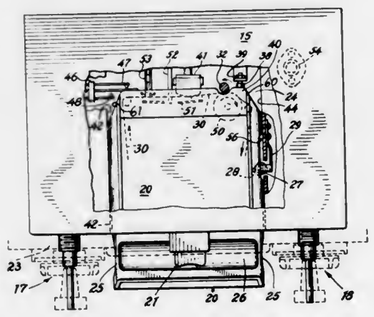
William P. Lear, Verdi, Nev., assignor to The Gates Rubber Company, Denver, Colo.

Original No. 3,560,126, dated Feb. 2, 1971, Ser. No. 712,648, Mar. 13, 1968, which is a continuation-in-part of Ser. No. 494,645, Oct. 11, 1965, now Patent No. 3,403,868, which is a division of Ser. No. 393,083, Aug. 31, 1964, now Patent No. 3,350,025. Application for reissue June 27, 1972, Ser. No. 268,183

The portion of the term of the patent subsequent to Oct. 1, 1985, has been disclaimed

Int. Cl. B65h *17/48;* **G11b** *23/06*

U.S. Cl. 242—55.19 A **12 Claims**



The player accommodates magnetic tape cartridges with the tape arranged in endless array. The cartridge is in rectangular form, and is inserted in an opening of the player for direct engagement in the play mode. A recess or V-notch in one side of the cartridge coacts with a prepositioned retention member biased into the opening. The member engages the notch to provide a substantial forward force component that presses an exposed tape portion against the drive capstan and for transcription by a pick-up head, and simultaneously provides a lateral force component that presses the cartridge against an opposite side guide that holds the certridge in stable play position.

27,886

KNIT GARMENT AND METHOD OF MANUFACTURE

Martin Robert Johnson, Broughton Astley, England, assignor to Prenihan A.G., Chur, Switzerland

Original No. 3,673,821, dated July 4, 1972, Ser. No. 790,363, Jan. 10, 1969. Application for reissue Jan. 31, 1973, Ser. No. 328,449

Claims priority, application Great Britain, Jan. 16, 1968, 2,414/68; Feb. 26, 1968, 9,278/68

Int. Cl. A41b *9/02*

U.S. Cl. 66—177 **37 Claims**



A two legged lower-body garment of the class comprising panti-hose, body stockings, leotards, tights, pantaloons, and pants, is made from a single blank of essentially seamless tubular form throughout knitted on a circular knitting machine and comprising two leg portions and an intermediate pant-forming portion. A waist opening is made in the waist portion; toes may be formed by cutting and seaming, or automatically on the knitting machine. At least the intermediate portion and preferably each portion is knitted of stretchable yarn which may be stretch yarn of elastomeric yarn. If of stretch yarn, the garment may be unboarded but may be given a relaxing treatment.

27,887

ESTERS OF PHOSPHORUS-CONTAINING ACID, EPOXIDE AND DICARBOXYLIC ACID AND PROCESS FOR PRODUCING SAME

Charles W. McGary, Jr., Charleston, and Percy L. Smith, Dunbar, W. Va., assignors to Union Carbide Corporation

No Drawing. Original No. 3,419,642, dated Dec. 31, 1968, Ser. No. 198,729, May 31, 1962. Application for reissue Aug. 28, 1970, Ser. No. 68,059

Int. Cl. C08f *9/08, 9/38;* **C08g** *22/44*

U.S. Cl. 260—952 **26 Claims**

Phosphorus-containing esters are provided comprising the reaction products of (a) orthophosphoric acid, orthophosphorous acid and epoxide adducts thereof, (b) vicinal epoxides including alkylene oxides and halogen-substituted alkylene oxides, and (c) dicarboxylic acid anhydrides including aliphatic and aromatic acid anhydrides and halogen-substituted derivatives thereof.

27,888

SEPARATING HYDROCARBONS WITH LIQUID MEMBRANES

Norman N. Li, Edison, N.J., assignor to Esso Research and Engineering Company

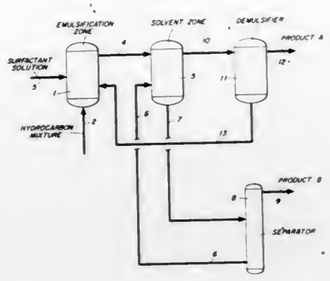
Original No. 3,410,794, dated Nov. 12, 1968, Ser. No. 533,933, Mar. 14, 1966. Application for reissue Nov. 6, 1970, Ser. No. 87,641

Int. Cl. B01d *13/00*

U.S. Cl. 208—308 **15 Claims**

A process for separating mixtures into their component parts by means of selective permeation through liquid

(surfactant) membranes. The mixture to be separated is first emulsified in aqueous medium containing a selected surfactant. The emulsified mixture droplets which are coated with surfactant are then contacted with a selected solvent. The more permeable component(s) of the mix-



ture permeate the membrane coating and pass into the solvent phase. The less permeable component(s) remain in the droplets in the emulsion phase. The separated components are then separated from the respective phases by conventional means.

27,889

PORTABLE, ONE-HAND-OPERABLE LABELING MACHINE

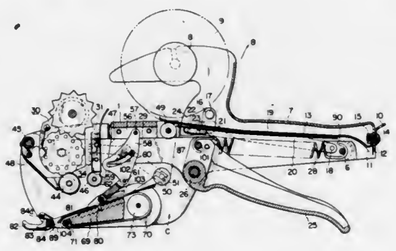
Yo Sato, Tokyo, Kiyoji Nagashima, Ageo, Yoshio Murata, Omiya, Kazunosuke Makino, Ageo, Eiichi Matsushima, Omiya, and Sozo Izumihara, Kawaguchi, Japan, assignors to Sato Kiko Kabushiki Kaisha, Tokyo, Japan

Original No. 3,551,251, dated Dec. 29, 1970, Ser. No. 738,176, June 19, 1968. Application for reissue July 17, 1972, Ser. No. 272,136

Claims priority, application Japan, June 26, 1967, 42/40,906; Aug. 17, 1967, 42/52,452; Sept. 16, 1967, 42/59,244; Sept. 22, 1967, 42/80,476; Nov. 11, 1967, 42/72,485; Feb. 20, 1968, 43/10,474

Int. Cl. B32b *31/00;* **B44c** *7/00*

U.S. Cl. 156—384 **6 Claims**



An improved portable, one-hand operable labeling machine comprising a machine frame having a palm-grip handle integrally joined thereto, a grip lever operated by manual squeezing thereof, a roll holder holding rotatably a roll of label tape coated on one surface thereof with an adhesive material and having partial cuts aligned in the tape transverse direction and spaced at equal intervals in the tape longitudinal direction, a tape advancing means driven by movements of said grip lever to engage successively said cuts to advance said label tape step by step toward a dispensing opening of the machine frame, a tape cutting device driven by movement of said grip lever to cut successively the label tape at said cuts, a printing device driven by movement of said grip lever to imprint inscriptions on each of said cut pieces of the label tape, and a tape applying device disposing in the vicinity of the dispensing opening of the machine and operating to press each label piece onto an article to cause said adhesive material to stick the cut piece to the article. The tape advancing means has at least one pawl tooth for engaging at least one of the cuts of the label tape, said pawl tooth undergoing an intermittent reciprocating motion resulting from one cycle of the squeezing and releasing the grip lever. The tape advancing means may be a tape advancing roller provided around its cylindrical surface with projecting pawl teeth spaced at constant circumferential intervals equal to the spacing intervals of the cuts of the label tape, and may be a conveyer type mechanism. Disclosed also are various kinds of the cutting mechanism adapted to carry out improved and effective cutting of the cuts of the label tape. The adhesive material may be provided with a moisture applying device for applying moisture thereto.

27,890

PROTECTIVE COATING FOR METAL SURFACES

Edward Holbus, 6108 Greenleaf Blvd., Racine, Wis. 53406

No Drawing. Original No. 3,518,099, dated June 30, 1970, Ser. No. 792,862, Jan. 21, 1969, which is a continuation-in-part of abandoned Ser. No. 469,309, July 22, 1965. Application for reissue June 22, 1972, Ser. No. 265,263

Int. Cl. C08h *9/06;* **C09g** *1/08*

U.S. Cl. 106—10 **9 Claims**

For applying a self-polishing coating to an automobile body in a car wash as a separate application following wash and rinse:

Ranges of ingredients in preferred composition

3–10 parts by weight of carnauba wax
11–14 parts by weight of mineral oil
7–14 parts by weight of a cationic emulsifier
1–4 parts by weight of non-ionic emulsifier having 1–3 parts water soluble portion and ¼–1 part oil soluble portion
Sufficient water to bring 40 pounds of the foregoing ingredients to a total of 30 gallons in volume.

Procedure

The composition is emulsified by stirring the heated ingredients to make a concentrate. At the point of use the concentrate is usually diluted. Water is added and stirred. It is then sprayed on the surface to be protected at a temperature usually 120° F. or higher. The spraying is normally done with a vehicle of additional hot water.

When excess moisture is wiped off, a self-polishing glossy and protective coating is left on the surface. In a typical car wash using forty to fifty pounds pressure, the application may involve twelve to sixteen ounces of the dilute solution applied in about thirty seconds with about five to eight gallons of water.

PLANT PATENTS

GRANTED JANUARY 15, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,433

CHRYSANTHEMUM PLANT

Barrie John Machin, East Broyle Estate, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Dec. 27, 1971, Ser. No. 212,829

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—82 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey (pot type), substantially as herein shown and described, characterized particularly as to novelty by its unique combination of a year round response period of approximately eight weeks, its stability as to type, and its red bronze color.

3,434

PECAN TREE

Allie Bohls, Austin, Tex., assignor to O. S. Gray, Arlington, Tex.

Filed May 4, 1972, Ser. No. 250,446

Int. Cl. A01h *5/03*

U.S. Cl. Plt.—31 **1 Claim**

A new variety of pecan tree distinguished by its vigorous, spreading and twiggy growth habit and by its precocious and prolific production of thin shelled nuts having a high weight ratio of kernel to shell.

3,435

CHRYSANTHEMUM PLANT

Barrie John Machin, East Broyle Estate, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Dec. 27, 1971, Ser. No. 212,830

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—81 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, pot type, substantially as herein shown and described characterized particularly as to novelty by its unique combination of an intense purple color, luxuriant foliage, an increased number of flowers per plant, and uniform response under poor winter light conditions.

3,436

AFRICAN VIOLET PLANT

Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.

Filed Jan. 24, 1972, Ser. No. 220,504

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by the very deep violet color of its blossoms, which bloom recurrently the year around, its uniform and heavy flowering habit and its very abundant foliage.

3,437

CARNATION PLANT

Marion M. Dropinski, Colorado Springs, Colo., assignor to Broadmoor Hotel, Inc., Colorado Springs, Colo.

Filed Mar. 22, 1972, Ser. No. 237,210

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—70 **1 Claim**

1. A new and distinctive variety of carnation plant of the Littlefield variety, substantially as herein shown and described, characterized particularly as to novelty by its large blossoms of pure white with no variegation, longer and stronger stems, with the flowers lasting longer.

3,438

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Mar. 21, 1972, Ser. No. 236,798

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—20 **1 Claim**

A bush seedling rose of the hybrid tea class, asexually reproduced by budding in Ontario, Calif. Flowers are of a light red color, range up to 5½" in diameter, and consist of 30 to 36 large petals with between 5 and 12 petaloids. The fragrance is moderate and mixed. The plant has large dark green foliage which is generally glossy and usually flat, though sometimes slightly troughed. The habit of growth is vigorous, moderately upright, and well-branched. The flowers usually are borne singly on peduncles and stems which are medium to large in length and caliper. Steady bloomer. Wet weather may delay or prevent opening of buds or cause peduncles to bend under weight of flowers.

3,439

CARNATION PLANT

Marion M. Dropinski, Colorado Springs, Colo., assignor to Broadmoor Hotel, Inc., Colorado Springs, Colo.

Filed Mar. 22, 1972, Ser. No. 237,209

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—70 **1 Claim**

1. A new and distinctive variety of carnation plant of the Littlefield variety, substantially as herein shown and described, characterized particularly as to novelty by its large blossoms of very deep orange with no variegation, longer and stronger stems, with the flowers lasting longer.

3,440

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Mar. 8, 1972, Ser. No. 232,984

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—11 **1 Claim**

A new variety of asexually reproduced grandiflora rose characterized primarily in the color transition of its bloom, from yellow overlaid with red as the calyx breaks, then through purplish red petals streaked with yellow, after which the petals of the cup-shaped bloom are progressively light yellow with some petals almost white and others sometimes tipped with purplish pink, then deepen to a purplish pink intermixed with yellow, and when full blown, the flower is purplish red with little if any yellow showing. The plant is of a very tall bush type with a tendency to develop pendant tips of the initial canes. The leaves are large, dark green and glossy, and leathery in texture. Initial primary stems tend to bear clusters of five or more flowers; on later growth there are some clusters of from five to two blooms, and occasionally a flower is borne singly.

3,441
AFRICAN VIOLET PLANT
Arnold W. Fischer, Isernhagen, Germany, assignor to Geo. J. Ball, West Chicago, Ill.
Filed Jan. 24, 1972, Ser. No. 220,509
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—69 **1 Claim**

A new variety of African violet plant distinguished by the deep violet color of its blossoms, which bloom recurrently the year around, its sturdy and relatively long upright flower stalks which display the flowers high above the foliage, and its abundant production of plantlets during cut leaf propagation.

3,442
GLADIOLUS PLANT
Carl H. Fischer, St. Charles, Minn., assignor to Selected Glads, Inc., New Albany, Ind.
Filed Nov. 15, 1971, Ser. No. 199,049
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—85 **1 Claim**

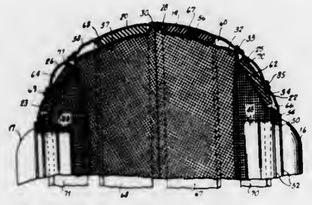
1. A new and distinct variety of gladiolus plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its unique color, which is an unusual blend of the pink blush of ripe peach into yellow, and its strong and healthy growth.

PATENTS

GRANTED JANUARY 15, 1974

GENERAL AND MECHANICAL

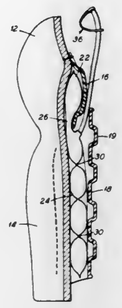
3,784,984
HEADGEAR STRUCTURE
Jackson Anthony Aileo, Carbondale, Pa., assignor to Gentex Corporation, Lackawanna, Pa.
Division of Ser. No. 88,823, Nov. 12, 1970. This application Mar. 20, 1972, Ser. No. 236,456
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 R **10 Claims**



A flexible helmet having plural inner and outer panels of woven fabric cut and assembled so as to conform closely to heads of different shapes and sizes, and plural pads for protecting the wearer's head against impacts, the pads being removably carried in separate pockets formed by the inner and outer panels. The pads may be fabricated of resilient energy-absorbing material and/or may include a layer of flexible ballistic material for protection against blows from sharp objects. The helmet panels may be made of open mesh fabric, and the pads may be perforated for ventilation of the helmet; also, the inner surfaces of the pad may be so shaped or lined as to provide ventilation spaced between the pads and the wearer's head. Sound-attenuating earcups are carried by the helmet in position for close-fitting engagement with the head. Size adjustment of the helmet is effected by means of a variable length nape strap at the rear of the helmet. In addition, the helmet may carry communications equipment, including earphones within the earcups, and a microphone, with a switch for the microphone sealed in a watertight enclosure within one of the earcups. An elongated flap extending across the lower inner margin of the rear of the helmet may be folded over and fastened to provide a passage for holding the wiring of the communications equipment. For further protection of the head, a rigid outer shell may be placed over and detachably secured to the flexible helmet, being stabilized in position relative thereto by means of cooperating, complementary pressure-actuable surface contact fastening elements respectively carried on the crown portions of the outer surface of the flexible helmet and the inner surface of the rigid shell.

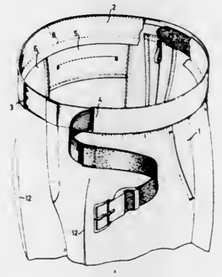
3,784,985
ATHLETIC ARMOR AND INFLATABLE BAG ASSEMBLY
Robert E. Conroy, Park Ridge, Ill., assignor to Air Guard Industries, Rosemont, Ill.
Filed May 2, 1972, Ser. No. 249,668
Int. Cl. A41d *13/06*
U.S. Cl. 2—22 **10 Claims**

An inflatable bag for use with curvilinear athletic plate to protect anatomical parts of the torso, arms and legs. The curved athletic plate has a soft base material mounted to one side, and an opening is used to insert and withdraw an inflatable bag into the space between the athletic armor and the soft



base material. The bag is inflated through air-fill means so that the assembly absorbs shocks in an improved manner.

3,784,986
TROUSERS
Rolf Klaproth, Friedrich-Bach-Str. 25-26, Buckenburg, Germany
Filed Sept. 5, 1972, Ser. No. 286,325
Claims priority, application Germany, Sept. 8, 1971, 7134248
Int. Cl. A41d *1/06*
U.S. Cl. 2—237 **6 Claims**

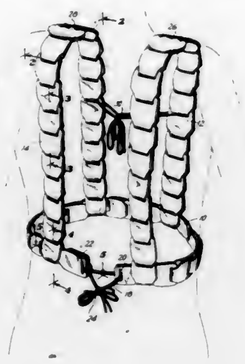


The trousers comprise a waistband defining a belt tunnel and a belt extending through said belt tunnel in the longitudinal direction thereof. The belt comprises an intermediate belt portion consisting of a rubber band and contained in said belt tunnel, a first belt end portion connected to one end of said rubber band and extending out of said belt tunnel at one end thereof, a second belt portion connected to the other end of said rubber band and extending out of said belt tunnel at the other end thereof, and a belt buckle connected to said second belt end portion and disposed outside said belt tunnel and adapted to be fixed to said first belt end portion at a selected portion of the length of said first belt end portion.

3,784,987
ARTICLE OF CLOTHING INCLUDING A COMBINED BELT AND SUSPENDER ARRANGEMENT

Delores Bryant, 936 West End Ave., New York, N.Y.

Filed Jan. 17, 1972, Ser. No. 218,426
Int. Cl. A41f 19/00
U.S. Cl. 2—310 1 Claim

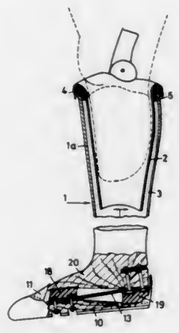


An article of clothing is provided including a belt portion with suspender parts connected thereto. The suspender parts are of such length as to maintain the belt portion above the waist of the wearer. The different elements of the article may be of different material such as interengaged leather loops or cloth or the like. The belt may be closed by a thong and the suspender parts may be interconnected. In one arrangement, the suspender parts are connected at the front of the body of the wearer to the belt by a part which interconnects the open ends of the belt.

3,784,988
LEG PROSTHESIS WITH RESILIENTLY MOUNTED STUMP SOCKET

Theodor Trumpler, Haydnstrasse 2a, Heidelberg, Germany

Filed May 15, 1972, Ser. No. 253,468
Claims priority, application Germany, May 18, 1971, 2124564
Int. Cl. A61f 1/02, 1/04, 1/08
U.S. Cl. 3—18 9 Claims

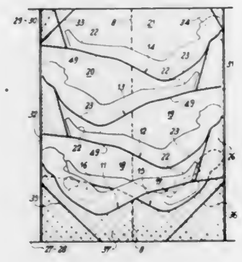


A leg prosthesis comprises a stiff upright leather casing, a sleeve freely suspended from the upper rim thereof and extending into the casing with free elastic play in all directions, and a foot affixed to the lower end of the casing. The foot includes a sole and a separate ankle part, a leaf spring extending through the foot in a horizontally inclined plane and connecting the foot parts, and a rubber cushion mounting the ends of the leaf spring.

3,784,989
HIGH-DENSITY RELAX-TRANSPORT SYSTEM

Pierre LeGrand, 98 Rue de Rennes, Paris, France

Filed July 10, 1972, Ser. No. 270,164
Claims priority, application France, July 20, 1971, 71.26437; Oct. 25, 1971, 71.38309
Int. Cl. A47c 19/20; B61d 31/00; B64d 11/00
U.S. Cl. 5—9 R 5 Claims

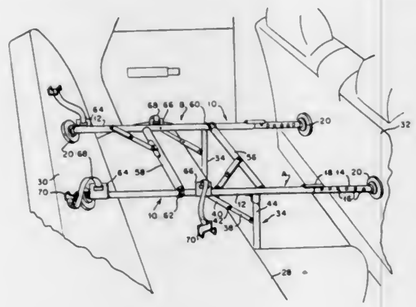


A high-density relax-transport system, intended especially to equip the useful space of means of transit and transport, fundamentally characterized by its arrangement in this space, in a compact interlocking structure, of a certain number of individual berths. These berths are formed of couchettes whose flexible and/or rigid bottoms have an at least transversally concave general shape and whose widths decrease advantageously toward the extremities, particularly from the hips to the feet. The said interlocking is so conceived that each couchette berth is limited to the functional volume required to permit the occupant's movements, with a generous space allowance in the torso and head region.

3,784,990
CHILD'S BED SUPPORT FOR MOTOR VEHICLES

Barry A. Elisofon, and Judith Elisofon, both of 2010 Newkirk Ave., Brooklyn, N.Y.

Filed May 11, 1972, Ser. No. 252,281
Int. Cl. A47c 27/08; A47d 7/00
U.S. Cl. 5—94 8 Claims

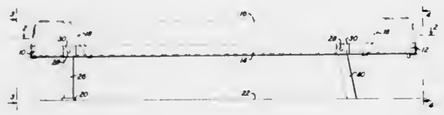


A stand for supporting a baby's bed within a motor vehicle which consists of two individual, interengageable, foldable units. Each unit consists of a telescoping rod capable of being braced against opposed surfaces of a car interior. Each rod is adapted to be rested on the seat of the vehicle and has a foldable leg erectable to support it on the floor of the vehicle. Each rod also has a foldable spacing member capable of being moved into normal relation thereto and having at its free end means for engaging the rod of the other unit, to thereby both space and connect the units into a platform; the two spacing rods being connected to their rods in relatively different positions, intermediate the ends of the rod.

3,784,991
COT FRAME MOVABLE BETWEEN A PRONE POSITION AND AN UPRIGHT POSITION

Robert E. Watson, and Claude L. Pitts, both of Meridian, Miss., assignors to Hoscot Limited, Meridian, Miss.

Filed Feb. 23, 1972, Ser. No. 228,504
Int. Cl. A47k 19/06
U.S. Cl. 5—136 1 Claim

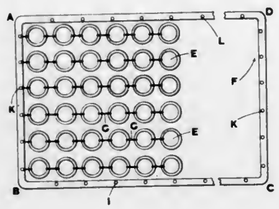


A cot frame movable between a prone position and an upright position. Back and front legs are respectively pivotally mounted to the back and front portions of the frame. The back legs are so mounted to the frame that the frame, in its upright position, is constrained to extend upwardly and rearwardly of the back legs. The front legs are so mounted to the frame that the front legs, when the frame is in its prone position, extend downwardly and forwardly of the frame.

3,784,992
ELASTIC SUPPORTING SURFACE AND METHOD FOR ITS PRODUCTION

Roberto Galiani, Piazzale Brunelleschi 15, Napoli, Italy

Filed Nov. 23, 1970, Ser. No. 91,883
Claims priority, application Italy, Nov. 29, 1969, 62117 A/69
Int. Cl. A47c 19/00
U.S. Cl. 5—186 R 3 Claims



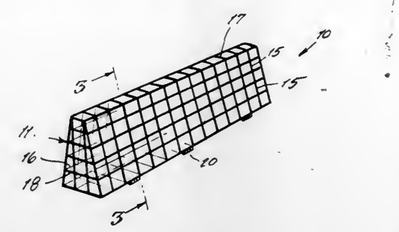
An elastic supporting surface for beds, divans, arm-chairs and the like, and a method of producing such surface, comprising preparing a particular chemical composition suitable to form rubber-like elastic elements, connecting these elements in perpendicular rows by hooks, and connecting the elements at the ends of the rows under tension to a peripheral frame so as to form a plane elastic surface.

3,784,993
WEDGE BOLSTER BEDDING HOLDER

Florence Berkowitz, 2182 Barnes Ave., Bronx, N.Y.

Filed Mar. 7, 1972, Ser. No. 232,556
Int. Cl. A47c 17/00, 21/00
U.S. Cl. 5—308 1 Claim

A wedge bolster for a "hi-riser" or day couch which is convertible for night time use as a bed, the wedge bolster at day time serving as a back rest for the couch, and wherein the wedge bolster is hollow with a central compartment within

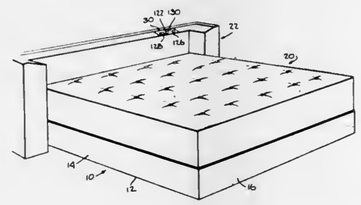


which the bedding used for sleeping, is stored during the day time so to form a convenient storage for the same.

3,784,994
AIR BED

Edmund Kery, 908 E. 55th St., New York, N.Y.

Filed Nov. 27, 1972, Ser. No. 309,734
Int. Cl. A47c 27/08
U.S. Cl. 5—348 7 Claims



An air bed comprising an air spring unit disposed on a support platform and comprising a plurality of parallel, uniformly spaced and vertically aligned inflatable bellows having closed tops and open ends, the tops interlocked and the ends fixed through the platform, and an elastic expandable member coupled to the open end of each bellows and disposed within an expansion-limiting frame. An air tube is coupled to each elastic member and leads into an enclosed distributor by engagement with a valve mounted therethrough. Inflation of the combined bellows and elastic member is effected by air pumped from a compressor having an air line leading into the distributor. Closing and opening of the valves is effected by a table within the distributor selectively moveable against the valve release pins.

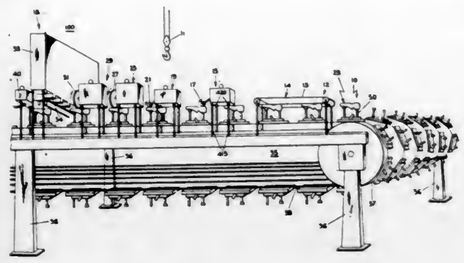
3,784,995
SHOE MANUFACTURING APPARATUS

Robert B. Egtvedt, Comstock Park, and William M. Booth, Grand Haven, both of Mich., assignors to Wolverine World Wide, Inc., Rockford, Mich.

Filed Feb. 9, 1972, Ser. No. 224,766
Int. Cl. A43d 3/00
U.S. Cl. 12—1 A 41 Claims

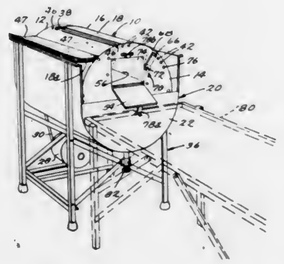
Herein is disclosed a carrier for securely holding, at a fixed reference plane, an inverted shoe last upon which a shoe upper is mounted during the manufacturing of the shoe. The carrier includes two vertically movable posts to which the inverted shoe and last are mounted and which are movable to hold the bottom of the shoe against a horizontal reference plane during a gauging step for establishing the reference plane for the shoe last during manufacture. Gauging and locking apparatus along the side of the carrier advancing conveyor cooperates with each carrier.

The gauged and locked carrier, with its shoe last having a shoe upper thereon is transported along various stages of an automated assembly line held in the fixed predetermined reference plane.



Unique roughing apparatus cooperates with the shoe last and shoe upper to sequentially controllably roughen selected portions of the shoe upper for subsequent sole adhesion thereto.

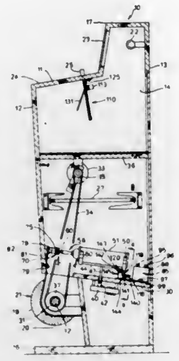
3,784,996
GOLF BALL CLEANING MACHINE
Karl J. Ambrose, 9009 Bag Cove Ln., Jacksonville, Fla.
Filed Nov. 7, 1972, Ser. No. 304,344
Int. Cl. A63b *47/04*
U.S. Cl. 15—21 A **7 Claims**



A washing machine for washing small articles comprising a generally horizontal drum having a circumferential wall and end walls; means mounting said drum for rotation about its axis so that the articles to be cleaned are tumbled within the lower part of the drum during rotation thereof; an adjustable scoop device within said drum and rotatable therewith, said scoop device being selectively adjustable between a first position in which it forms a surface projecting inwardly from the circumferential wall of the drum for gathering articles from the lower portion of the drum and for retaining such articles during a portion of any given revolution of said drum and a second position in which it is inoperative to gather and retain articles; and outlet means including a movable closure member in a wall of said drum through which articles retained by said scoop device may be removed when said drum is not rotating.

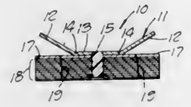
3,784,997
AUTOMATIC SHOE POLISHER
William A. Beck, River Hills, Wis., assignor to Beck, Inc., Grafton, Wis.
Filed Sept. 27, 1972, Ser. No. 292,669
Int. Cl. A47l *23/02*
U.S. Cl. 15—31 **10 Claims**

A coin-operated automatic electric shoe polisher comprises a motor-driven rotatable two-section polishing brush and two independently selectively operable polish dispensing assemblies for repeatedly dispensing a spray of appropriately colored liquid polish to a brush section during one cycle of operation. Each polish dispensing assembly comprises a motor driven rotatable container support for holding an aerosol can of polish, a dispensing adapter removably attachable to the can, and a spray rail actuator for operating the adapter one or more times during each revolution of the can. Control means



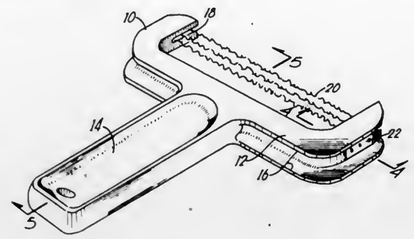
for initiating and maintaining energization of the brush motor and the gear motor for each dispensing assembly during one cycle of operation comprise a coin-operated mechanism, a starter switch momentarily actuated thereby, and a cam-operated time responsive to rotation of the container support to actuate a timer switch which initiates operation of the brush motor and maintains operation of the gear motor until the cycle is complete.

3,784,998
COMPOSITION APPLICATOR
John Leslie Jones, Sr., 1070 Glen Oaks Blvd., Pasadena, Calif.
Filed July 3, 1972, Ser. No. 268,804
Int. Cl. A47k *7/03*; **A47l** *23/05*
U.S. Cl. 15—209 R **3 Claims**



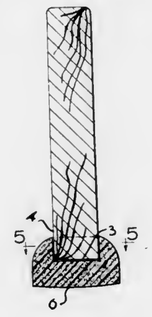
A pair of coplanarly disposed support sheets, suitably having co-extensive areas, have multiple ply solvent-resistent, thin, flexible sheets disposed in a coplanar stack adjacent to one planar face of the pair of coplanar support sheets. The pair of support sheets and the multiple ply applicator composition sheets are preferably co-extensive in area and are secured contiguously together by a central securing means. A multiplicity of incised slit apertures extend from the exterior perimeter of the toilet applicator inward to the perimeter of a central applicator support area, the slit apertures extending completely through the pair of coplanar support sheets and the multiple ply solvent-resistent applicator sheets. Multiple toilet applicator leaves are disposed between the multiple slit apertures. Multiple handle flaps are formed by the first impermeable applicator sheet, which can be folded to form a finger tip grip oppositely disposed to the multiple ply of solvent-resistent flexible sheets. The toilet applicator can be impregnated with solid or liquid chemical compositions suitable for a single use application. The applicator can be used also to apply chemical compositions such as beauty toilet preparations, shoe polish, and other paste and liquid compositions from a commercial storage container.

3,784,999
CLEANER FOR FORKS
Gerald Preston, Saint Catherines, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed July 17, 1972, Ser. No. 272,423
Int. Cl. A47l *21/04*
U.S. Cl. 15—218.1 **3 Claims**



A device for cleaning forks employing a U shaped member with a handle extending outward from the cross piece. A plurality of spaced parallel cleaning elements essentially coplanar with member and handle extend transversely and taut between the two legs of the member.

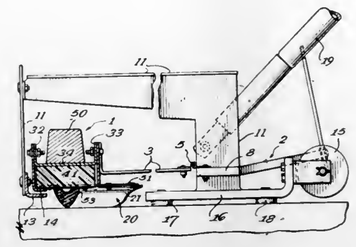
3,785,000
SPONGE BRUSH
Russell S. Zacha, and Bonnie D. Zacha, both of c/o Bon-Del Ceramics, Corvallis, Mont.
Filed June 15, 1972, Ser. No. 263,005
Int. Cl. A47l *13/16*; **B44d** *3/28*
U.S. Cl. 15—244 R **1 Claim**



A sponge brush is made of a cylinder of open cell resilient synthetic resin foam, for example, foamed polyurethane and a cylindrical stick of hardwood having a planar end face and of a diameter about one half the diameter of the open cell foamed resilient resin cylinder. A known type contact cement secures the end of the stick to the sponge. The remaining area of the sponge end surface is secured by the contact cement to the cylindrical surface of the stick immediately adjacent to its planar end face by gathering the upper part of the sponge cylinder inward.

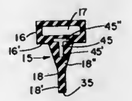
3,785,001
BOWLING LANE FINISH APPLICATOR
Arvi E. Niemi, and John R. Marecek, both of Muskegon, Mich., assignors to Brunswick Corporation, Skokie, Ill.
Filed Mar. 27, 1972, Ser. No. 238,298
Int. Cl. B05c *11/04*
U.S. Cl. 15—245 **7 Claims**

The invention is a device for applying high viscosity finishes upon bowling lanes. A rubber billiard cushion used as the applicator blade is mounted to a flexible acrylic plate backed by a heavy layer of resilient plastic or rubber foam. The mounting plate and its resilient backing ride freely within an inverted



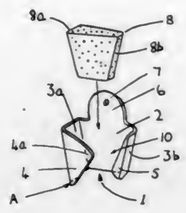
"U"-shaped channel member. Downward pressure on the blade is maintained by weight placed on top of the channel member and distributed through the resilient layer of foam.

3,785,002
WINDSHIELD WIPER ASSEMBLY
William J. Quinlan, and Lawrence L. Huver, both of Hastings, Mich., assignors to Hastings Manufacturing Company, Hastings, Mich.
Division of Ser. No. 259,672, June 5, 1973, Pat. No. 3,751,754, Continuation-in-part of Ser. No. 190,067, Oct. 18, 1971, Pat. No. 3,725,971, which is a continuation-in-part of Ser. No. 90,987, Nov. 19, 1970, Pat. No. 3,717,900. This application Dec. 6, 1972, Ser. No. 312,743
Int. Cl. B60s *1/38*
U.S. Cl. 15—250.36 **6 Claims**



A wiper blade unit has fasteners extending through clearance apertures in an arm connector so that the blade unit may become laterally canted within limits relative to the arm connector in both wiping directions. The blade unit includes a resilient blade body having a crown portion with a cavity containing metallic leaf springs and a wiping portion beneath the crown portion including a narrow wiping lip and an intermediate body portion which is progressively narrower in cross section from the base of the crown portion in the direction of the wiping lip. A longitudinally extending hollow core which is capable of cross sectional deformation to correspondingly deform and vary the resiliency of the body portions surrounding the core as a function of changes in direction and pressure of wiping forces at the wiping lip is provided in the blade body spaced below the spring cavity and extending into the progressively narrower intermediate portion. Straps inserted into end portions of the cavity are provided with closure caps which abuttingly engage the leaf springs and prevent longitudinal movement of the springs relative to the blade body.

3,785,003
CURTAIN HANGING
Gwendoline May Thomson, P.O. Box 49017, Rosettenville, Johannesburg, South Africa
Filed Oct. 4, 1971, Ser. No. 186,063
Claims priority, application South Africa, Oct. 13, 1970, 70/6975
Int. Cl. A47h 13/00
U.S. Cl. 16—87.2 3 Claims



A curtain or drapery hanger is provided which includes a body having a vertical dovetailed slot with forwardly extending side walls, one of which is wider than the other, each of the forward edges of the side walls having a flange extending towards the other wall. The hanger includes a keeper or tongue element complimentary in shape to the space defined by the walls of the body member and adapted to engage drapery material which is slid into the slot by sideways insertion of the tongue towards the wider side wall.

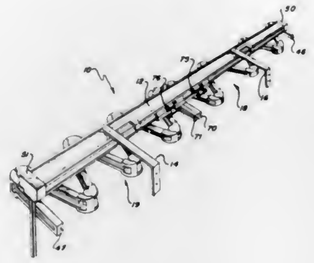
3,785,004
DOOR CHECK ATTACHMENT
Gunter Stoffregen, 16 Davis Downs Pl., Westhill, Ontario, Canada
Filed Jan. 27, 1972, Ser. No. 221,300
Int. Cl. E05f 3/00
U.S. Cl. 16—49 1 Claim



A device adaptable for attachment to a pneumatic or hydraulic door check unit, which serves to keep a fully opened door in that position, until subsequently released. The device consists of a latching mechanism in which a pivotably mounted hooked member is directed by lateral pressure of a trigger member responsive to the motion of the door into the position in which the hooked member will latch on the initial return stroke to retain the door in the open position. The latching effect on the hooked member creates lateral motion, such that upon further opening motion of the opened door, the trigger member acts to move the hooked member away from the latching position so that on the second return stroke, the hooked member is free of latching engagement, and permits the door to close.

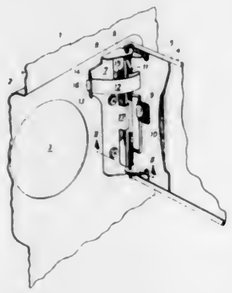
3,785,005
DRAPERY SUPPORT
George H. Baker, Sr., Dunlap, Ill., assignor to Baker Drapery Corporation, Peoria, Ill.
Continuation-in-part of Ser. No. 152,879, June 14, 1971. This application Aug. 2, 1972, Ser. No. 277,304
Int. Cl. A47h 13/12, 5/032
U.S. Cl. 16—87.4 R 7 Claims

A traverse rod assembly including a horizontally disposed traverse rod with a track therein having end carrier members with slides perpendicular to the traverse rod at each end of the rod, and movable carrier members slidable in the traverse rod track also having slides perpendicular to the traverse rod, there being provided a first set of pivotally interconnected drapery support links including an end link having a projection slidable in one of the end carrier slides and a butt link having a projection slidable in one of the movable carrier member slides, the projection on the end link being square and the end carrier member slide being sized to maintain the



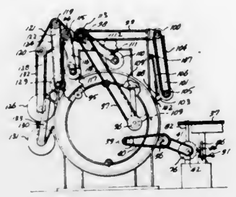
end link perpendicular to the traverse rod; there also being provided a second set of pivotally interconnected drapery supporting links including an end link and a butt link, with the second set butt link being identical to the first set end link and the first set butt link being identical to the second set end link to reduce the number of dies required to make the first and second set end links and butt links, with the slides associated with the movable carrier members being larger than the slides associated with the end carrier members so that the butt links may freely pivot with respect thereto.

3,785,006
HINGE FOR A COVER
Helmut Metz, Neuberg, Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Ingolstadt, Germany
Filed Nov. 8, 1971, Ser. No. 196,693
Int. Cl. E05f 1/12
U.S. Cl. 16—184 3 Claims



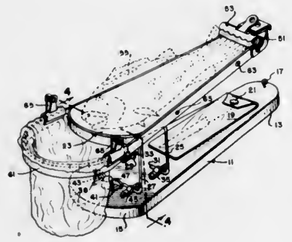
A hinge is provided for a cover preferably used for a tank closure in the body of a motor vehicle. The invention is characterized in that the cover is rotatably mounted upon a crankshaft having a crank pin which is engaged by a sheet spring supported on a ground plate. The other crank pin of the shaft is fixed to the cover.

3,785,007
FISH-CLEANING APPARATUS
Elmer R. Hogan, Bellevue, and John I. Simpson, Seattle, both of Wash., assignors to Smith-Berger Manufacturing Corporation, Seattle, Wash.
Division of Ser. No. 19,162, March 13, 1970, Pat. No. 3,670,363. This application Mar. 27, 1972, Ser. No. 238,270
Int. Cl. A22c 25/14
U.S. Cl. 17—59 2 Claims



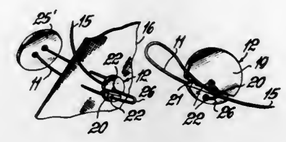
Tail-impaling pins on the bull ring of fish-cleaning mechanism hold fish to the periphery of the bull ring in moving them past cleaning implements located in positions spaced circumferentially around the bull ring. A parallel-link control maintains the belly-fin cutter in proper angular relationship to the bull ring and a more direct and simplified drive arrangement is provided for the rotary cleaning scrapers and brushes alongside the bull ring.

3,785,008
FISH SCALER
Amelia Mary Parker, 16 Memorial Dr., Pittsfield, Mass.
Filed Dec. 13, 1971, Ser. No. 207,392
Int. Cl. A22c 25/00
U.S. Cl. 17—70 8 Claims



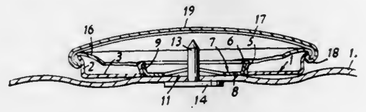
A collapsible fish scaler having a base support plate to which a scaling board having a roughened surface is collapsibly attached. The scaling board has a tail end with a clamp rotatably attached thereto for holding the tail of the fish. The head portion of the scaling board includes a rail extension which defines an aperture about which a container, such as a plastic bag, is attached so that the scales of the fish can drop into the bag during the scaling process. A pair of wire supports are rotatably secured to the bottom of the scaling board and to the top of the base plate with at least one wire support having its respective ends aligned in parallel and positioned under the wing portions of a wing nut when the scaling board is in position for scaling. The wing portions of the nut restrain the movement of the wire supports. When the scaling board is to be stored, the wing nut is rotated approximately 90° to free the ends of the wire supports thereby permitting the wire supports to rotate downwardly toward the base support. The scaling board therefore collapses onto the top of the support board for compact storage.

3,785,009
ATTACHING OF BUTTONS AND THE LIKE WITHOUT SEWING
Bernhard P. Nysten, Aachen, Germany, assignor to Firma William Prym-Werke K.G., Stolberg/Rhineland, Germany
Filed Oct. 28, 1971, Ser. No. 193,369
Claims priority, application Germany, Oct. 29, 1970, P 20 53 091.0
Int. Cl. A44b 1/18
U.S. Cl. 24—90 TA 7 Claims



A plate element has extending from one major surface thereof a filament portion; it is provided with two passages extending between the two major surfaces, and on the major surface remote from the filament portion with an open groove extending between the two passages at right angles to the elongation thereof. The filament portion is pushed through a web and from the remote side of the web pushed through again, thus forming at the side of the web remote from the plate a loop in which a button or the like may be engaged. The filament is then pushed successively through the two passages in the plate forming at the side of the plate which is remote from the carrier web a loop through which the free end portion of the filament is then pulled so that it is located in the groove. Instead of the plate, the filament portion may also be provided on the bottom or on a section of a snap fastener which can thus be connected with a carrier web without sewing.

3,785,010
PIN-BACK BUTTONS
Cyril Howard Owen, Hockley, England, assignor to A. Ornstin Limited, London, England
Filed Feb. 4, 1972, Ser. No. 223,573
Int. Cl. A44b 1/18
U.S. Cl. 24—90 PR 12 Claims



"Pin-back" buttons, as commonly used on clothing, shoes, handbags and other articles of flexible carrier material are distinguished by their method of securing to the carrier material. The button has an opening in its rear face to receive a pin having a head. The pin is pushed through the carrier material and into the opening of the button. In the button there are gripping means, to engage the pin, consisting of one or more elements formed at an inward inclination adjacent the opening and so arranged as to permit easy insertion of the pin but prevent any withdrawing movement of the pin. The invention provides an improved arrangement of gripping means incorporated in an insert, the insert being engaged in an undercut seating formed at the rear wall of the button and being locked against inward movement by a flange and against outward movement by the undercut seating.

3,785,011
FISHING LINE

William J. Marks, 5348 W. Lazy Heart St., Tucson, Ariz.

Continuation-in-part of Ser. No. 853,241, Aug. 27, 1969, abandoned. This application June 10, 1971, Ser. No. 151,980
Int. Cl. F16g *11/00*; A01k *91/00, 91/04*
U.S. Cl. 24—115 H 1 Claim

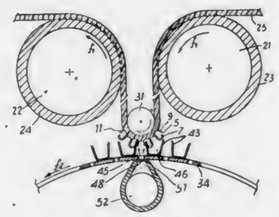


A novel device for fastening flexible line to inflexible articles. The primary application is in sport fishing for tying fishing line to fishing tackle. Fishing line can be conveniently and securely fastened and unfastened to fishing tackle in a matter of seconds without knotting the line. In the device, a hook is formed at one end of an elongate shank as a means for attachment to the eye of a fish hook, snap swivel, lure or similar apparatus. The end of the device's hook is formed to provide an anchor for a fishing line bight whose ends wind around the shank to means at its upper end for engaging the bight ends.

3,785,012
FLEXIBLE BANDS FITTED WITH HOOKS FOR THE FABRICATION OF SEPARABLE FASTENING DEVICES

Patrick Billarant, Nantes, France, assignor to Velco France, Paris, France

Division of Ser. No. 881,533, Dec. 2, 1969, Pat. No. 3,673,301. This application Sept. 1, 1971, Ser. No. 177,118
Claims priority, application France, Dec. 13, 1968, 68.176343
Int. Cl. D03d *39/24*; A44b *17/00*
U.S. Cl. 24—204 4 Claims

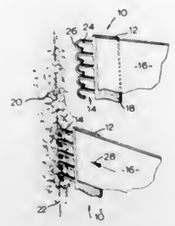


A flexible band having hooks formed of threads of thermoplastic material for engagement with a similar flexible band having elements adapted to cooperate with said hooks so as to constitute a separable fastening device, in which the hooks are obtained by cutting one of the two loop arms of thermoplastic threads, the cutting operation being carried out at a predetermined distance from the crest of each loop. A terminal enlargement is essentially formed on at least one of the two thread extremities which result from the cutting operation.

3,785,013
FASTENER

Walter Stone Nugent, 1048 Cedargrove Blvd., Oakville, Ontario, Canada

Filed Sept. 1, 1971, Ser. No. 141,130
Int. Cl. A44b *17/00*
U.S. Cl. 24—204 3 Claims

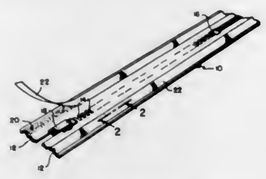


A two-dimensional object is one which has substantially no depth relative to its length and width, e.g., a sheet of paper or a fabric sample. A fastener therefor, comprising a substantially two-dimensional row of hook-like clasping means is attached to a two-dimensional object, and may be releasably engaged with a matted surface for hinging relationship of the substantially two-dimensional article therewith. The fastening locus, i.e., the locus defined by the engagement of discrete ones of the hook-like fastening means with the material of the matted surface, is substantially one-dimensional, as is the hinging locus.

3,785,014
ADHESIVE SLIDE FASTENER PRODUCT

William P. Canepa, Forest Hills, N.Y., assignor to Kay-Cee Industrial Products, Inc., New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,040
Int. Cl. A44b *19/00*
U.S. Cl. 24—205.16 R 9 Claims



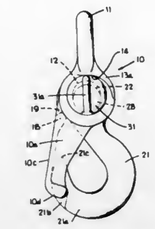
An improved adhesive slide fastener construction is disclosd wherein at least one surface of a slide fastener stringer has coated thereon a thermoplastic adhesive film layer and a relatively thin pressure sensitive adhesive layer in intimate contact with said thermoplastic adhesive. The thermoplastic adhesive film firmly secures said pressure sensitive adhesive layer to the slide fastener stringer and isolates the stringer fabric and an underlying fabric surface from said pressure sensitive adhesive composition. The pressure sensitive adhesive composition enables rapid alignment and positioning of the slide fastener stringer on a garment surface prior to permanent installation of the slide fastener into the garment.

3,785,015
SAFETY HOOK

Robert H. Dorton, P.O. Box 122, Eaton, Ind.

Filed July 26, 1972, Ser. No. 275,223
Int. Cl. A44b *13/00*
U.S. Cl. 24—241 PP 3 Claims

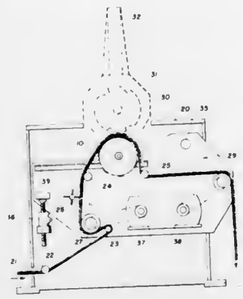
Disclosed is a load carrying hook for hoisting apparatus or the like in which the clevis portion is provided with registering elongated apertures and the eyelet for the hook portion has a registering circular aperture through which a pivot pin extends. The hook and pin can thus move rectilinearly within the elongated slots in the clevis and cooperating abutments are provided on the clevis and the hook. When these abutments are engaged, as occurs when the pin and hook are at one limiting position in the elongated slots, a closure arm carried by the clevis locks closed the open side of the hook.



3,785,016
APPARATUS FOR PRODUCING PATTERNED PILE FABRICS

Heinz Hergert, Frankfurt, Germany, assignor to Polrotor Inc., East Farmingdale, N.Y.

Filed May 27, 1971, Ser. No. 147,585
Int. Cl. D06c *15/00, 23/00*
U.S. Cl. 26—2 R 10 Claims



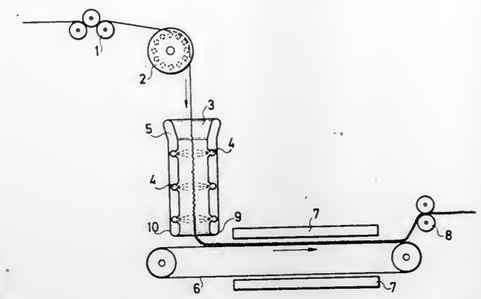
A universal fabric conveying unit for processing synthetic pile fabrics, wherein portions of the fabric are selectively presented to the processing equipment to process the various portions differently. The equipment uses a driven pattern roll having profile blocks which can be selectively positioned to control the presentation of a fabric to any one of a plurality of processing elements. The pattern roll assembly is pivotally mounted to adjust its proximity to the processing elements, and means are provided for its withdrawal and re-assembly with new patterns.

3,785,017
EQUIPMENT FOR THE CONTINUOUS CRIMP DEVELOPMENT OF THREE-DIMENSIONALLY CRIMPED SYNTHETIC FIBERS AND FILAMENTS

Ingolf Jacob; Gert Buttner, and Karl Heinrich, all of Bobingen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed , Ser. No. 248,853
Claims priority, application Germany, May 3, 1971, P 21 21 674.0
Int. Cl. D02g *1/00*
U.S. Cl. 28—1.2 8 Claims

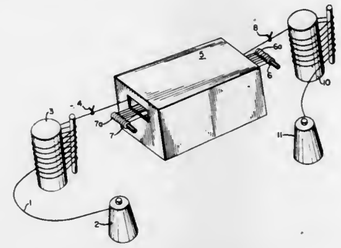
An equipment for the continuous crimp development of latently crimped fiber tows made from synthetic linear high molecular weight polymers is described, which contains a drawoff device, a guide device, a heating box having slit nozzles and heated walls, which box is mounted at a distance of at least 50 cm in the line of fall below the guide device. By means of the steam used for the crimp development flowing through the walls of the heating box, condensation of steam is avoided. The equipment furthermore contains a horizontally moving conveyor belt, another heating box for the after-setting of the crimped fiber tow, as well as a draw-off device.



3,785,018
HOT STEPWISE DRAWING WITH INDEPENDENT FREE-WHEELING IDLER ROLLS

Thomas Carl Bohrer, Charlotte, N.C.; George Franklin Ecker, Toms River, N.J., and David Hsiao Tsung Chen, Wilmington, Del., assignors to Celanese Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 769,893, Oct. 23, 1968, abandoned. This application Nov. 10, 1970, Ser. No. 88,461
Int. Cl. D02j *1/22*
U.S. Cl. 28—71.3 5 Claims



By using at least three independent, free-wheeling idler rolls, high speed hot drawing of orientable synthetic strand material such as polybenzimidazole yarn is accomplished in a more favorable and improved manner as stepwise drawing is permitted in each of the passes through the heating zone; the strand material being drawn wherever the yield point occurs, rather than at a predetermined location for a fixed amount which might not be optimum.

3,785,019
PROCESS FOR PRODUCING LAMPS

Vincent Chiola; James S. Smith, and Clarence D. Vanderpool, all of Towanda, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Division of Ser. No. 3,937, Jan. 19, 1970, which is a continuation-in-part of Ser. No. 647,106, June 19, 1967, abandoned. This application Jan. 12, 1972, Ser. No. 217,154
Int. Cl. H01j *9/18*
U.S. Cl. 29—25.13 3 Claims

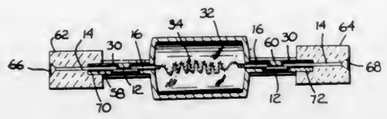
Lamps operating at high temperatures, and more particularly incandescent or arc lamps having sealed-in lead-in elec-

trical conductors with improved service characteristics and longer service life are fabricated with a "coating" on the aforesaid leads comprising at least one of the following: a phosphate or phosphide of tungsten, or a phosphate or phosphide of molybdenum.

Illustrative of the results obtained upon service testing 400-W, 120-V quartz-iodine lamps, at operating temperatures of 500°–600°C., using

A. untreated, uncoated, molybdenum electrode assemblies,

B. platinum-clad, molybdenum electrode assemblies (exemplary of the prior-art techniques), and



C. tungsten phosphate-coated molybdenum electrode assemblies,

are as follows:

A. failed through oxidation and subsequent disintegration, with accompanying seal and lamp failure at 100 hours' operation,

B. failed at approximately 150 hours of life testing,

C. was still operating on a life test after 200 hours.

Processes for forming metal phosphides from metal phosphates and process for coating leads with refractory metal phosphates and phosphides are also disclosed.

3,785,020

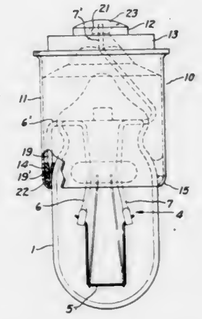
METHOD OF BASING ELECTRICAL DEVICES

Steve Boros, Memphis, Tenn., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,662

Int. Cl. H01j *9/18*

U.S. Cl. 29—25.13 **3 Claims**



A method of electrically connecting an outer wire lead of an electric lamp to the metal shell of the base thereof by flattening a section of the wire lead and soldering the flattened section flatwise to the inner side of the base shell rim.

3,785,021

THIN CHIP CUTTING TOOL

Lars Erik Norgren, Sandviken, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden

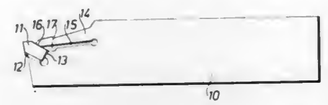
Filed Feb. 18, 1972, Ser. No. 227,422

Claims priority, application Sweden, Mar. 1, 1971, 2547/71

Int. Cl. B26d *1/00*

U.S. Cl. 29—96 **2 Claims**

A thin cutting tool comprises a plate-shaped holder having an insert site and an insert secured in said insert site by means of a somewhat resilient clamping arm. One end of the clamping arm is fixed to the holder whilst with its free other end it clamps the insert in the insert site. The clamping force is supplied by bending the clamping arm. Preferably, the clamping arm is tapered from its fixed end to its opposite or free end, with a gradient selected to provide a substantially constant bending stress.



3,785,022

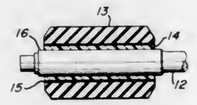
TEXTILE WORKING UNIT

Glenn W. Bowling, Greenville, S.C., and Donald D. Kidd, Waynesville, N.C., assignors to Dayco Corporation, Dayton, Ohio

Continuation-in-part of Ser. No. 876,410, Nov. 13, 1969, abandoned. This application May 20, 1971, Ser. No. 145,357

Int. Cl. B21b *31/08*

U.S. Cl. 29—132 **5 Claims**



A textile working unit having a central shaft with raised bosses having fiber drafting cots adapted for mounting on the bosses. The cot has a rigid core and an outer elastomeric working surface, which may be bonded to the core by means of an adhesive.

3,785,023

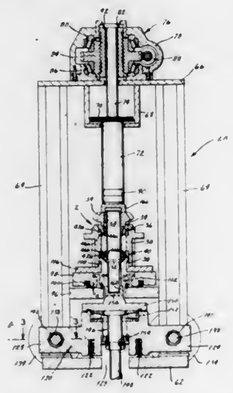
METHOD FOR ADJUSTING TAPERED ROLLER BEARINGS AND FOR ASSEMBLING DEVICES EMPLOYING SUCH BEARINGS AS JOURNALS

William E. Harbottle, Canton, Ohio, assignor to The Timken Company, Canton, Ohio

Filed Mar. 23, 1972, Ser. No. 237,462

Int. Cl. B23p *11/00*; **B23q** *17/00*

U.S. Cl. 29—148.4 A **16 Claims**



A shaft is journaled in a shaft housing by means of a pair of tapered roller bearings, and the assembly of the foregoing

structure, including the adjustment of the tapered roller bearings, is performed on an assembly tool having a fixed anvil and a shiftable pilot base which moves against a spring load toward the anvil. In addition, the tool includes a carriage which shifts axially relative to the anvil against a spring bias and may be locked in a fixed axial position. To assemble the foregoing structure the cone assembly of one of the bearings is fitted against an abutment on the shaft, while the cup of that bearing is seated in the housing. Next the shaft is supported on the shiftable carriage of the tool and thereafter the housing is fitted over the shaft and supported on the pilot base, with its cup receiving the cone assembly. Next an axial force is applied to the housing in the direction which seats the rollers of the bearing, so that the force is transmitted to the shaft through the bearing. The force depresses the pilot base against the anvil while depressing the carriage in opposition to the spring load thereon. Once the pilot base engages the anvil, the carriage is locked in position, and the housing is allowed to return to its initial position so that a prescribed or working point clearance exists between the anvil and pilot base and likewise in the bearing. With the other cup seated in the housing, the remaining cone assembly, which is shiftable along the shaft to effect adjustment of the two bearings, is advanced along the shaft toward its cup, and when the rollers of that bearing seat, a portion of the axial force is transmitted to the housing, and the housing is again depressed along with the pilot base. The advancement is continued until the clearance in the first installed bearing reaches a prescribed value, and that clearance is ascertained by measuring the distance between the pilot base and the anvil. The shaft is rotated slowly as the rollers of the two bearings are seated against their respective cups and cones to insure proper seating.

3,785,024

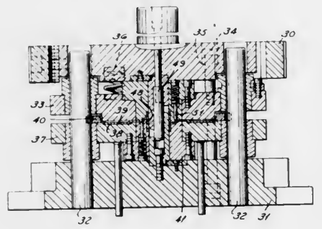
METHOD FOR FORMING SELF-ALIGNING BEARING STRUCTURES

Benjamin Phillips, Owosso, Mich., assignor to Universal Electric Company, Owosso, Mich.

Filed May 1, 1972, Ser. No. 249,191

Int. Cl. B23p *11/00*

U.S. Cl. 29—149.5 B **4 Claims**



A method for forming self-aligning bearing structures from a workpiece having radially extending fingers to form a bearing having cantilever mounted segments. Each segment has a first portion extending generally radially and a second portion forming a free end extending generally axially so that the segment is yieldable axially. The ends of the segments define a cylindrical supporting surface that engages a spherical contacting surface of a bearing member which has a bore therein for receiving the shaft of the rotor. Alternate segments have their free ends extending generally axially in opposite directions from adjacent segments. Portions of the fingers are engaged to form the free end portions into the second portions extending axially in opposite directions.

3,785,025

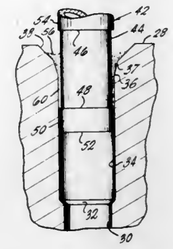
METHOD OF CONSTRUCTING A HERMETIC COMPRESSOR DISCHARGE TUBE JOINT

Rudolf Herman Wolf, Adrian, Mich., assignor to Tecumseh Products Company, Tecumsch, Mich.

Division of Ser. No. 31,503, April 24, 1970, Pat. No. 3,687,019. This application Feb. 22, 1972, Ser. No. 228,065

Int. Cl. B23p *25/00*

U.S. Cl. 29—156.4 R. **7 Claims**



A hermetic compressor discharge line construction wherein the discharge chamber in the cylinder head of the compressor is connected to an external high side outlet by a discharge passageway which includes a discharge muffler and inlet and outlet tubes connected thereto. The muffler inlet tube is joined to the cylinder head by spaced portions of the inlet tube engaging with an interference fit the wall of a bore in the cylinder head. A reduced diameter portion of the inlet tube disposed between the spaced portions defines a clearance space with the bore which is filled with an anaerobic curing adhesive sealant composition. The muffler outlet tube is joined to a discharge conduit by a telescopic connection wherein a male tube end is engaged mechanically at two spaced points in the bore of the female member, the space between the two engagement points likewise being filled with an anaerobic curing sealant composition. These joints are made by outwardly flaring the mouth of the female member, partially inserting the male end in the mouth, placing liquid adhesive in the well defined by the space between the mouth and male tube, and then further inserting the male member until it engages an internal shoulder in the female member.

3,785,026

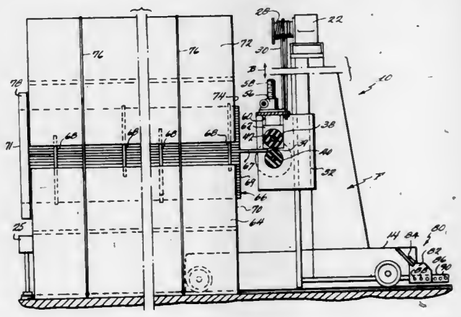
METHOD OF DISMANTLING TUBE BUNDLES

Gene E. Ohmstede, Beaumont, Tex., assignor to Ohmstede Machine Works, Inc., Beaumont, Tex.

Filed June 7, 1972, Ser. No. 260,443

Int. Cl. B23p *15/26*, *19/02*, *13/04*

U.S. Cl. 29—157.4 **3 Claims**



This invention is related to an improved method for dismantling tube bundles in a manner more efficient than has hereto-

fore been known in the prior art. The tube dismantling method is capable of effectively removing a plurality of tubes at a single time. The improvement is directed towards locating a tube bundle end that has been cut-off to remove a tube sheet, adjacent and in operative relation to a pair of cooperating parallel rollers. An operator is used to feed successive tubes toward the rollers until they are frictionally engaged thereby. The rollers are rotated in a direction to continue the movement of the tubes from the bundle. After a particular row of tubes has been removed, the rollers are remotely controlled so as to move in a plane perpendicular to the axes of the tubes, and thereby position the rollers in operative relation with another row of tubes to be removed.

3,785,027

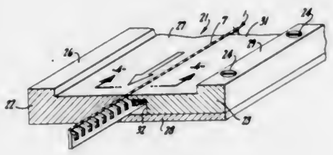
METHOD OF PRODUCING FLUID BEARING TRACK STRUCTURE

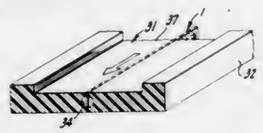
Cecil A. Lasch, Jr., Cupertino, Calif., assignor to Industrial Modular Systems Corporatio, Santa Claro, Calif.

Division of Ser. No. 174,808, Aug. 25, 1971, Pat. No. 3,718,371. This application Aug. 14, 1972, Ser. No. 280,273

Int. Cl. B21d *53/00*

U.S. Cl. 29—157 C **8 Claims**





An improved fluid bearing track structure for supporting and transporting articles on a fluid bearing, components of such track structure, and a method for fabricating such track structure. The track structure includes as a novel component thereof a flexible insert strip having directional fluid passages therein for directing a supporting fluid against an article to be transported over the upper surface of the track structure. The insert strip is frictionally or otherwise held in place in the track structure with its upper edge flush with the upper surface of the track structure so that support fluid emanating from the fluid passages therein may support and move successive articles along the track.

The flexible characteristics of the insert strip permit the track structure to be formed with curved or other non-straight configurations. The track also has bi-directional article movement capability. In its preferred embodiment the insert strip is produced by a chemical etching procedure which allows elongated lengths of insert strips to be inexpensively and accurately produced from various materials.

3,785,028

PROCESS FOR THE PRODUCTION OF HUBS FOR SPIRAL SPRINGS OF TIMEPIECES

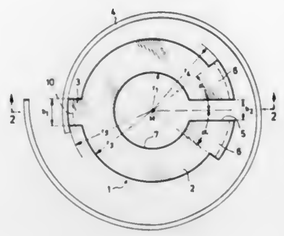
Wolfgang Muller, Schramberg, Germany, assignor to Firma Carl Haas, Schramberg, Germany

Filed Feb. 9, 1972, Ser. No. 224,887

Claims priority, application Germany, Feb. 10, 1971, 2106188

Int. Cl. B23p *13/00*

U.S. Cl. 29—177 **5 Claims**



Hubs for supporting the spiral springs used in timepieces are produced in rough-finished condition by extruding an elongated piece of metal having a cross-section determined by empirical formula which corresponds substantially to the cross-section of the desired fine-finished hub, from which a series of individual hubs, in practically finished condition, is produced by transversely sectioning the extruded material.

3,785,029

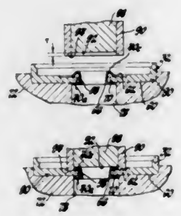
METHOD OF ASSEMBLING INSERTS WITH PRECISION LOOSENESS

Alan J. McClellan, Germantown, Ohio, and Harold R. Dutton, deceased, late of Dayton, Ohio (by Edna M. Dutton, executrix), assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 28, 1972, Ser. No. 284,164

Int. Cl. B21k *25/00*

U.S. Cl. 29—157.1 R **4 Claims**



In an illustrative embodiment, a limitedly radially slidable orifice element or insert is assembled within an aperture of a piston end cap of a hydraulic dashpot type of mounting unit for automotive vehicle bumpers. The orifice insert is assembled in the end cap by a method involving the forming of at least one radial flange in a crimping-like operation to tightly engage it and an opposite preformed flange with respective surfaces of the end cap, and subsequently reforming one of the flanges to displace the other a predetermined distance from its respective end cap surface affording precision clearance for relatively free sliding movement of the insert within the end cap.

3,785,030

HYDRAULIC JIG FOR CORRECTION OF MISALIGNMENT BETWEEN JOINTS OF PLATES

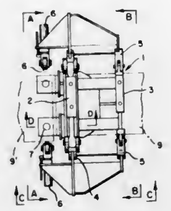
Tatuyuki Une, Hiroshima-ken, and Akira Kamata, Tokyo, both of Japan, assignors to Ishikawajima-Harima Jokogyo Kabushiki Kaisha, Tokyo and Kabushiki Kaisha Osaka Jack Seisakusho, Osaka-shi, Osaka-fu, Japan

Filed Feb. 22, 1972, Ser. No. 227,917

Claims priority, application Japan, Feb. 23, 1971, 46/10804[U]

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 P **2 Claims**



A hydraulic jig for aligning plates edge-to-edge prior to welding provided with a first hydraulic jack for clamping a first plate having a width within a predetermined range in the direction of its width and thickness and also provided with hydraulic jacks for exerting pressure to a second plate in the direction of its width and thickness.

3,785,031

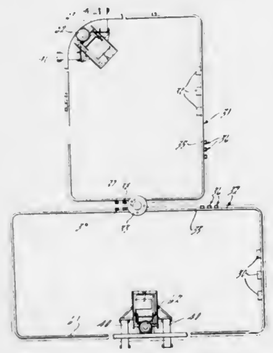
NONSYNCHRONOUS CONVEYOR SYSTEM

Lyman K. Shepard, Upper Saddle River, and Zoltan E. Zilahy, Nutley, both of N.J., assignors to Standard Tool & Manufacturing Co., Lyndhurst, N.J.

Filed July 19, 1972, Ser. No. 273,321

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 A **28 Claims**



The machine has vertical tracks forming one or more continuous loops with or without transfer mechanism therebetween which permits sub-assemblies on fixture mounted pallets on carriers of one loop to be progressively worked upon at stations and transferred to sub-assemblies on pallets of carriers on one or more other loops to continue the assembly operations until the product is completed. The carriers are stopped in a collecting area ahead of the stations and are positively advanced out of and into the stations where the pallet is accurately located and clamped. The work performed at the station is checked to make certain a correct operation was performed and if an indicating flag shows that it was not, the carrier is passed through the stations thereahead. If the station is defective and continues to perform its operation badly, a carrier stop mechanism may be attached to the track ahead of the station to have the operation performed on the workpiece manually until the defect in the station has been corrected.

3,785,032

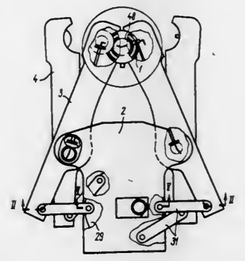
DEVICE FOR PILING ROTOR SHEETS FOR MAGNETIC CIRCUITS OF ELECTRICAL MACHINES

Isaak Yakovlevich Feldshtein, ulitsa Rymarskaya 23, kv. 5; Valery Sergeevich Epifanov, 605 Mikroraion, 20, kv. 22; Vladimir Fedorovich Isygankov, prospekt Pravdy, 7, kv. 160; Alexandr Nikitovich Pashkov, pereulok Rubezhansky, 24; Dmitry Gavrilovich Mogilny, ulitsa Sumskaya, 7/9, kv. 23, and Mikhail Vasilievich Yakovlev, ulitsa Plekhanovskaya, 41/43, kv. 6, all of Kharkov, U.S.S.R.

Filed Feb. 24, 1972, Ser. No. 229,061

Int. Cl. H05k *13/00*; **H02k** *15/00*

U.S. Cl. 29—203 L **3 Claims**



Device for piling rotor sheets for magnetic circuits of electrical machines comprising, a stationary mandrel provided with at least five grooves along its generating line which ensures orientation and lamination of the sheets; wherein at least one of said grooves houses driven rolls, two other grooves house chain conveyers with rollers for catching the sheets, and the last two grooves house, respectively, squeezing rolls to rotate the sheets and orienting means in the form of elastic spring-loaded keys, consisting of strips which are fixed in a row on a flat spring; said stationary mandrel being mounted in a support assembly provided with successively operating pairs of hollow rotating levers whose cavities contain gear trains to link kinematically said driven rolls and said conveyers of the mandrel.

3,785,033

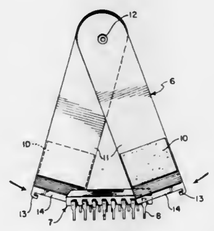
DUAL INLINE PACKAGE HANDLING TOOL

Leonard J. Lynch, 939 S. Seventh St., De Kalb, Ill.

Filed Sept. 28, 1972, Ser. No. 293,061

Int. Cl. H05k *13/04*

U.S. Cl. 29—203 H **8 Claims**



This tool is especially designed for handling dual inline package components as in removal from sockets and circuit

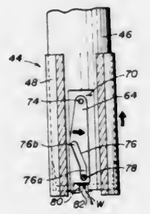
boards, where the terminals are solder connected. The salient feature of this tool is the provision of a pair of flat blades of elongated form, disposed in face-to-face abutting relationship so as to be operable between the thumb and forefinger of one hand, the blades being pivotally connected together at their upper ends and having finger grip surfaces on their outer sides at the lower end above outwardly projecting extensions that carry downwardly reaching vertical jaw portions between which the package to be handled fits, these jaw portions each having on the outer end a downwardly and inwardly extending hook to hook under the end terminals at diagonally opposite corners of the dual inline package, so that the component can be pulled out of the socket or circuit board when the leads are free. The hooks, by virtue of their having contact only with diagonally opposite corners of the component, cannot apply pressure on the center terminals that are close to the integrated circuit chip, and it is a simple matter to open and close the tool between the thumb and forefinger of one hand. In view of the smallness of the tool the operator always has a good view of the entire operation. One size tool will remove several sizes of dual inline packages; for example, the eight, 10, 14, 16, and 18 terminal types. The finger grips enable holding the component quite securely. Closely spaced dual inline packages can be operated upon easily.

3,785,034

WIRE LEAD CUTTER FOR ARMATURE WINDING MACHINE

Glen E. Bucholtz, Tipp City, Ohio, assignor to The Globe Tool and Engineering Company, Dayton, Ohio

Filed Sept. 7, 1972, Ser. No. 286,954
Int. Cl. H02k *15/00*
U.S. Cl. 29—205 C **4 Claims**



Cutters are mounted for movement within the assembly of commutator shields used in a double flier armature winding machine. The cutters are drivingly connected to a moving shield.

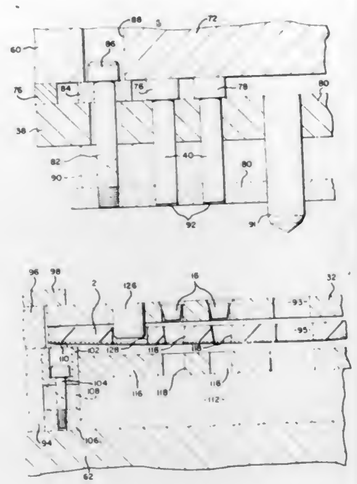
3,785,035

INSERTION OF LINERS INTO HOLES IN PRINTED CIRCUIT BOARDS

Willard Leroy Busler; Milton Dean Ross, both of Harrisburg, and Thomas Edward Schwartzer, York, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of Ser. No. 741,760, July 1, 1968, abandoned. This application Feb. 12, 1969, Ser. No. 811,269
Int. Cl. H05k *3/00*
U.S. Cl. 29—203 B **4 Claims**

Liners are inserted into holes in printed circuit boards by means of a templet having holes therein at locations corresponding to the holes in the printed circuit board. An excess of liners are placed on top of the templet and the templet is vibrated until one liner enters each hole in the templet.



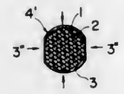
Thereafter, the templet is placed on top of the printed circuit board and the individual liners are punched from the templet holes into the printed circuit board holes.

3,785,036

METHOD OF MANUFACTURING FINE METALLIC FILAMENTS

Yoshiyuki Tada; Hideo Ogita, and Takeshi Yoda, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Higashi-ku, Osaka, Japan

Filed May 17, 1972, Ser. No. 254,124
Claims priority, application Japan, May 17, 1971, 46-33080
Int. Cl. B23p *17/00, 19/00*
U.S. Cl. 29—419 **2 Claims**



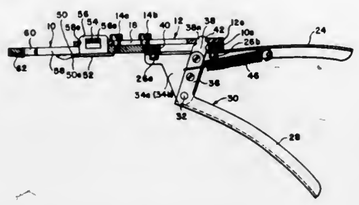
A method of producing fine metallic filaments by covering a bundle of a plurality of metallic wires with an outer tube metal and drawing the resultant composite wire, wherein the outer tube metal on both sides of the final composite wire obtained after said drawing step is cut near to the core filaments present inside the outer tube and then both uncut surfaces of the composite wire are slightly rolled, thereby to divide the outer tube metal of the composite wire continuously and thus separating the outer tube metal from fine metallic filaments. The separation treatment can be effected by a simple apparatus within short time. This reduces the cost of production, and enables the outer tube metal to be recovered in situ.

3,785,037

HAND TOOL FOR ASSEMBLING OPEN, BOWED-BODY RETAINING RINGS HAVING LOCKING PRONGS IN SHAFT OR SPINDLE GROOVES

Hans Erdmann, Maplewood, N.J., assignor to Waldes Kohinoor, Inc., Long Island, N.Y.

Filed Sept. 25, 1972, Ser. No. 292,100
Int. Cl. B23p *19/00, 19/04*
U.S. Cl. 29—200 H **6 Claims**



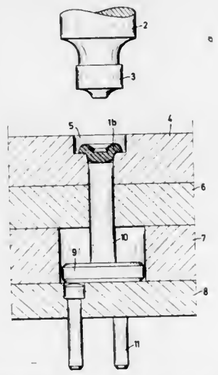
A hand tool mounts plier-like handles at one end of its elongated body member operative through a force-multiplying leverage system to actuate a reciprocatory slide member throughout a working stroke. Said slide member mounts at its relatively forward end ring-grip means effective to spring-grip an open, bowed-body, spring retaining ring having locking prongs projecting from the convex side or face thereof, against the relatively under-face or side of the tool body member, then acting as an extended-length fixed grip jaw. Thus, as the slide member is actuated throughout its working stroke the gripped ring is correspondingly projected (thrust) along a straight-line path terminating in the groove of a shaft or spindle in which said ring is to be assembled. Means are provided for preventing any uncontrolled turning of the ring about its axis during the course of its aforesaid movement with the slide member, and the body member is further provided in its relatively forward end portion with an eye-form shaft or spindle receiving opening. Groove-locating means affixed to the under side of the body member extend into said opening.

3,785,038

PROCESS OF WORKING A SINTERED POWDER METAL COMPACT

Gerhard Zapf, Krebsoge/Rhld., Germany, assignor to Sintermetallwerk Krebsoge GmbH, Krebsoge/Rhld., Germany

Continuation-in-part of Ser. No. 849,354, Aug. 12, 1969, abandoned. This application Jan. 13, 1972, Ser. No. 217,510
Claims priority, application Germany, Aug. 20, 1968, 1758849
Int. Cl. B22f *3/24*
U.S. Cl. 29—420.5 **5 Claims**



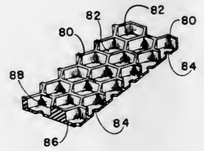
A process of manufacturing articles by means of powder metallurgy, including the conventional steps of forming a blank out of metal powder compressing the blank and sintering it. Pursuant to the disclosure, an additional step is provided, wherein the sintered blank is subjected in a die to one or more further press operations in which the material of the blank is allowed to flow freely in the direction transverse to the direction in which pressure is applied. In this manner the density of the product is increased. Preferably the article is sintered again or annealed after the further press operation or operations to provide it with the required strength characteristics. The additional step is advantageously carried out at room temperature.

3,785,039

METHOD OF FABRICATING CONTINUOUS PRODUCT FROM MOLDED SECTIONS

James E. Huffaker, Kingsport, Tenn.; Ernest L. Myers, Hiltons, Va.; Brian D. Dillon, and Cecil W. Dolen, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 42,106, June 1, 1970, Pat. No. 3,695,573. This application June 27, 1972, Ser. No. 266,581
Int. Cl. B23p *19/00*
U.S. Cl. 29—428 **1 Claim**



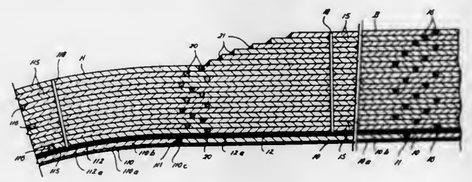
A mold for casting solidifiable materials and method of fabricating a continuous belt from molded sections is disclosed. In the mold, a plurality of apertures are provided in a special pattern, each of which is adapted to receive a core member. The core members are easily removable. Removable end plates are provided which enable the pattern to be continued to the very edge of the mold. A continuous belt mold is fabricated by butting and connecting edges of molded sections.

3,785,040

MULTILAYER PRESSURE VESSEL METHOD

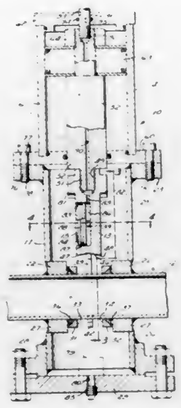
Raymond E. Pechacek, Houston, Tex., assignor to Hahn & Clay, Houston, Tex.

Division of Ser. No. 814,126, April 7, 1969, Pat. No. 3,604,587. This application Apr. 15, 1971, Ser. No. 134,294
Int. Cl. B23p *11/02*
U.S. Cl. 29—447 **3 Claims**



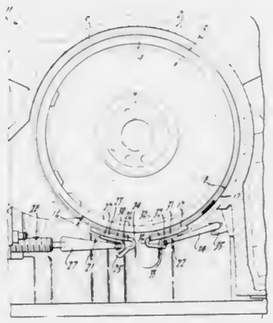
A multilayer pressure vessel method wherein the vessel has both a multilayer cylindrical body and at least one multilayer head, with an inner shell being formed of stainless steel or other metal resistant to hydrogen embrittlement and with the multilayer body and multilayer head being provided with means for relieving hydrogen pressure in the layers externally of the inner shell, whereby the outer layers may be ordinary carbon steel for both the body and the head without danger of hydrogen embrittlement.

3,785,041
METHOD FOR PLUGGING PIPE
Joseph B. Smith, Cleveland, Ohio, assignor to The Pipe Line Development Company, Cleveland, Ohio
Division of Ser. No. 13,295, Feb. 24, 1970, abandoned. This application Nov. 8, 1971, Ser. No. 196,368
Int. Cl. B23k 31/02
U.S. Cl. 29—471.3 4 Claims



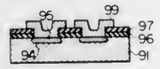
An apparatus and method for blocking a conduit or pipe carrying fluid under pressure. The apparatus comprises a fluid-tight housing adapted to be secured to the exterior of an intermediate portion of the pipe, a cutter or shear within the housing, an actuator for moving the shear through the wall of the pipe, and a sealing surface engageable with a portion of the pipe while the shear extends into the pipe.

3,785,042
BRAKE BAND END CONNECTION AND METHOD OF MANUFACTURE
Thomas J. Victory, 25167 Harcourt, Farmington, Mich.
Filed May 24, 1972, Ser. No. 256,447
Int. Cl. B23k 31/02
U.S. Cl. 29—480 5 Claims



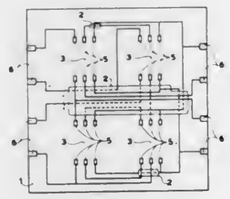
An end connection for a brake band used in automatic transmission housings which permits installation of a replacement band without the necessity of removing and dismantling the transmission. The end connection comprises a curved end plate welded to the strap and a low profile strut seat welded to the end plate. A bent back extension on the strap reinforces the strut seat. The construction is such that a popular conventional end connection may be converted to the connection of this invention without new parts being required.

3,785,043
METHOD OF PRODUCING SEMICONDUCTOR DEVICES
Takashi Tokuyama, Hoya, and Takaaki Mori, Kokubunji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Division of Ser. No. 716,033, March 26, 1968, Pat. No. 3,632,433. This application Apr. 23, 1971, Ser. No. 136,815
Claims priority, application Japan, Mar. 29, 1967, 42-19093
Int. Cl. B01j 17/00
U.S. Cl. 29—578 2 Claims



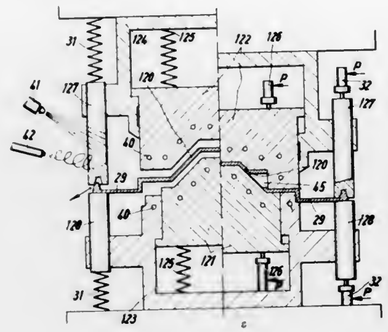
A first insulating film of silicon dioxide is provided on the surface of a semiconductor device, and a second silicon dioxide layer containing uniformly a small amount of phosphorus is deposited from the vapor phase on said first insulating film, thereby realizing stable passivation of the electrical characteristics of said semiconductor device. The water-proof property and accurate etching of said films are also accomplished.

3,785,044
METHOD FOR MOUNTING INTEGRATED CIRCUIT CHIPS ON INTERCONNECTION SUPPORTS
Franco Forlani, Monza, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy
Filed Nov. 2, 1971, Ser. No. 194,829
Claims priority, application Italy, Nov. 17. 1970, 31828A/70
Int. Cl. B01j 17/00
U.S. Cl. 29—591 3 Claims



A method for obtaining the precise positioning of semiconductor chips on a ceramic support which employs an auxiliary support comprising an insulating sheet having openings provided therein and on which portions of conductors forming the beam leads for all the chips are etched from an adherent aluminum sheet. Portions of the conductors extend over the opening, and are subsequently welded to the chip and the terminal pads on the ceramic support prior to being severed from the auxiliary support.

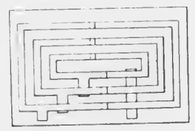
3,785,045
METHOD OF CASTING AND SUBSEQUENTLY DEBURRING OF WORKPIECES AND A DEVICE FOR CARRYING OUT THE METHOD
Walter Reis, Frankenstrasse 1, Obernburg, Germany
Filed Apr. 27, 1972, Ser. No. 248,051
Claims priority, application Germany, May 14, 1971, P 21 24 142.9; Jan. 12, 1972, P 22 01 353.2
Int. Cl. B23p 17/00, 23/04
U.S. Cl. 29—527.6 10 Claims



A method of producing castings and subsequently deburring and also machining the castings if necessary. According to this method, the castings are removed from a casting machine while still in a hot state and conveyed by a gripper assembly to a deburring machine. This machine includes a pattern device into which the hot casting is placed. The device is slowly closed as the casting cools thereby shrinking the casting upon the pattern. As a result, appreciable deformation of the casting is effectively prevented. When the casting is substantially cooled and has thus reached its final configuration it is deburred in the deburring machine and if necessary surface finished.

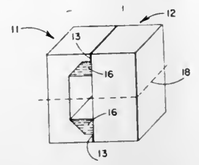
There is also disclosed a device for carrying out the aforedescribed casting and deburring steps in automated sequence.

3,785,046
THIN FILM COILS AND METHOD AND APPARATUS FOR MAKING THE SAME
Thomas A. Jennings, Sutton, Coldfield, England, assignor to Hull Corporation, Hatboro, Pa.
Filed Mar. 6, 1970, Ser. No. 17,157
Int. Cl. H01f 19/00
U.S. Cl. 29—602 7 Claims



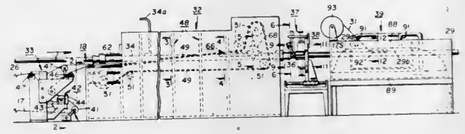
Thin film inductance coils, separately or in transformer combinations, are made by depositing on a substrate from vapor sources directed through selected apertured masks, superimposed layers of alternate films of electrically conductive metal and electrical insulating material in successive segments of each of a plurality of coil turns.

3,785,047
METHOD OF MANUFACTURING MAGNETIC READ-WRITE HEADS
Donald M. Ackley, Torrance, Calif., assignor to Computer Communications, Inc., Culver City, Calif.
Filed Oct. 27, 1970, Ser. No. 84,383
Int. Cl. G11b 5/42; H01f 7/06
U.S. Cl. 29—603 4 Claims



A magnetic head has a thin magnetic gap in which there is a highly conductive non-magnetic material which is deposited on the gap face portion of at least one of the two magnetic pole pieces of the head. This head is fabricated by depositing thin conductive layers of equal thickness on spaced surface portions of one of the pole pieces and by joining together the two pole piece members to form an integral unit, with the deposited conductive layer portions of one pole piece abutting against opposed parallel flat surfaces of the mating pole piece so as to form a thin uniform magnetic gap therebetween. The unit is then cut crosswise to provide an open ended arm portion over which a prewound coil is placed, and finally a wide gap which appears opposite the narrow gap is bridged with a magnetic member to complete the magnetic circuit.

3,785,048
METHOD AND APPARATUS FOR FORMING AN UNSOLDERED SHEATH ABOUT A STRAND
Warren Eugene Petersen, Omaha, Nebr., assignor to Western Electric Company Incorporated, New York, N.Y.
Filed Feb. 28, 1972, Ser. No. 230,021
Int. Cl. H01b 13/26, 13/16
U.S. Cl. 29—624 14 Claims



In the forming of an unsoldered sheath about a strand, such as a cable core assembly, in which the strand is advanced longitudinally through an elongated tube and in which a corrugated metal tape for sheathing the strand is advanced therewith and folded about the periphery of the tube so as to envelop the strand as the strand exits from the tube, edge portions of the metal tape are overformed into a relatively sharp curved configuration. Subsequently, the edge portions are reverse-formed to a curved configuration similar to that of an intermediate portion of the tape and are overlapped. Radial inward pressure then is applied to an edge section of the advancing tape to form it inward and to cold-work the edge section so that it achieves a permanent set. At the same time, the inner edge portion of the tape is deflected radially inward to facilitate this forming of the edge section, and then is permitted to return into tight-fitting engagement with the edge section whereby the overlapped edge portions form a tight seam. Preferably, the strand is sheathed in two corrugated metal tapes, and a non-adhesive corrosion inhibitor is initially coated on one side of a first tape while air jets preclude flow of the inhibitor onto the opposite side of the tape. The coated side of the first tape then is brought into meshing engagement

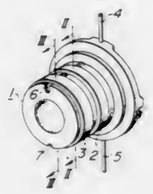
with a second tape and the two tapes are formed about the strand with the uncoated side of the first tape facing outward. Subsequently, the outer side of the first tape is coated with a corrosion inhibitor having adhesive qualities, to facilitate bonding of an extruded plastic jacket to the tape. An overlay tape also may be embedded in the second corrosion inhibitor over the seam formed by the overlapped edge portions of the tape.

3,785,049

SLIP RING ASSEMBLY AND METHOD OF MAKING SAME

Hisanobu Kanamaru; Yasushi Ohuchi, and Hideo Tatsumi, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 10, 1971, Ser. No. 141,923
Claims priority, application Japan, May 15, 1970, 45-40942
Int. Cl. H02g *15/00*
U.S. Cl. 29—629 **13 Claims**



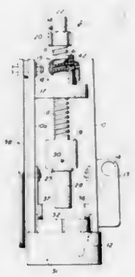
A slip ring assembly in which principal components, a molded cylindrical base, conductive rings and terminals are separately manufactured and assembled together. In assembling, the terminals are fitted in diametrically spaced grooves formed on the cylindrical base and the conductive rings are press-fitted on the cylindrical base thereby to bring the conductive rings into pressure contact with the respective terminals and to ensure satisfactory engagement of the conductive rings with the cylindrical base.

3,785,050

COUPLING ATTACHMENT DEVICE

Jon K. Whitledge, Mantua, and Edward M. Kavick, Chardon, both of Ohio, assignors to Samuel Moore & Company, Mantua, Ohio

Filed Jan. 7, 1972, Ser. No. 216,093.
Int. Cl. B23p *19/02*
U.S. Cl. 29—237 **6 Claims**



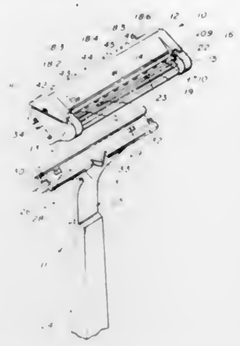
An apparatus is provided for fastening a fitting to the end of a hose having a ball nut and ball screw carrying a pusher means for pressing a fitting and hose assembly into a swaging die, the pusher means comprising a bearing which transfers the force of the rotating screw to the non-rotating pusher means.

3,785,051

DISPENSING SYSTEM FOR BONDED RAZOR BLADE CARTRIDGES

Jan Dawidowicz, Fairfield, and Frank A. Ferraro, Trumbull, both of Conn., assignors to Warner-Lambert Company, Morris-Plaines, N.J.

Continuation-in-part of Ser. No. 191,665, Oct. 22, 1971. This application Mar. 21, 1972, Ser. No. 236,723
Int. Cl. B26b *21/24*; **A45d** *27/24*
U.S. Cl. 30—40.2 **17 Claims**



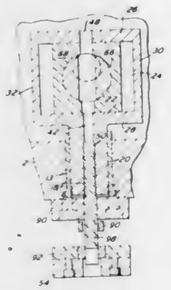
The specific disclosure provides a dispensing system for bonded razor blade cartridges comprising a dispenser, a plurality of disposable cartridges in the dispenser, and a holder. Each of the cartridges has a T-shaped channel formed transversely thereof, and the holder has a plurality of supporting surfaces formed transversely thereof for sliding engagement with the T-shaped channel. The dispenser has a plurality of guide surfaces for aligning the supporting surfaces of the holder with the T-shaped channel of at least one of the cartridges. Means are also provided on the dispenser for abutting stop means on the holder when the supporting surfaces are in an improper alignment and for clearing the stop means when the supporting surfaces are in a proper alignment.

3,785,052

HEAVY DUTY NIBBLER

Israel J. Yermis, Philadelphia, Pa., assignor to Fenway Machine Co., Philadelphia, Pa.

Filed June 27, 1972, Ser. No. 266,805
Int. Cl. B26b *15/00*
U.S. Cl. 30—241 **10 Claims**



A heavy duty nibbler possessing certain improvements over the nibbler tools of U. S. Pat. Nos. 2,888,744, 2,967,355 and others, including a punch that is threadedly seated in a main body part such that it is not necessary to remove any parts when the punch is threadedly withdrawn from the bottom of the main body part. The punch is of half-moon shape so that

the punch makes an initial partial cut into the work. The portions of the punch are angularly related such that the punch is divided into an extending leg having a flattened edge and a main stem with an inclined edge, the angle between the flattened edge and the inclined edge lying between 81° and 83°.

The heavy duty nibbler tool further includes a bronze guide sleeve that replaces the nosepiece of U. S. Pat. Nos. 2,888,774 and 2,967,355. The bronze guide sleeve will guide the plunger or ram, thereby preventing the punch from running off center.

In the present invention the die is provided with ripples to prevent the metal from backing out, and the die holder is provided with a concave surface.

Furthermore, the stripper mechanism is adjustable through the addition of stripper plates in 1/16 increments. Thus, the stripper can be adapted for different thicknesses of the work by simply inserting one or more plates in the top of the stripper.

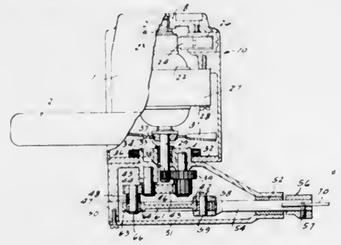
Finally, the main driven gear is provided with a series of openings to eliminate backlash.

3,785,053

COMBINATION SAW

Dennis M. Michaelson, Chicago, Ill., assignor to Pan-Technic, Inc., Chicago, Ill.

Filed July 7, 1972, Ser. No. 269,767
Int. Cl. B27b *19/08*
U.S. Cl. 30—394 **4 Claims**



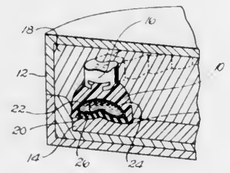
A combination saw which can be used as a saber or jig saw and which has a main body portion with a handle and a power output portion rotatable to different angular positions relative to the main body portion and handle.

3,785,054

LINING FOR ARTIFICIAL DENTURES

Ambrose B. Van Handel, 8653 Louis Ave., Northridge, Calif.

Continuation-in-part of Ser. No. 17,329, March 6, 1970, abandoned. This application Oct. 7, 1971, Ser. No. 187,263
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **9 Claims**



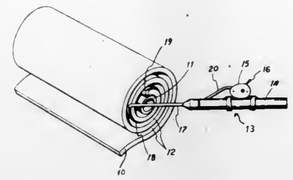
An artificial denture incorporating as resilient lining on its base, silicone rubber denture base material containing more than 2 percent and less than 10 percent by weight, based on the silicone rubber, of methylmethacrylate polymer. A vinylsilane or acryloxyalkylsilane can be added in an amount sufficient to increase the bonding of the silicone rubber to the denture base.

3,785,055

CARPET MEASURING APPARATUS

Lloyd E. Anderson, 3123 Upton Ave. North, Minneapolis, and Gilbert L. Alinder, 5312 Shoreview Ave. South, Minneapolis, Minn.

Filed Feb. 22, 1971, Ser. No. 117,429
Int. Cl. G01b *3/02*
U.S. Cl. 33—128 **3 Claims**



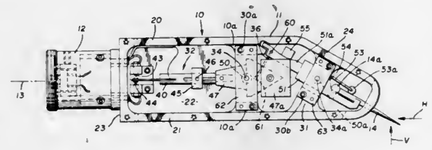
An apparatus and method for measurement of coiled material in situ is provided wherein a tube is inserted between the convolutions of the coiled material. A cord member having a means for attaching the end thereof to the inner end of the material to be measured passes through the tube. The tube is spirally passed around the convolutions of the coiled material, unwinding cord as it travels. A measure of the cord unwound gives the length of material in the coil.

3,785,056

STATICALLY BALANCED PROBE ASSEMBLY

Frederick S. Schiler, Stow, Ohio, assignor to Portage Machine Company, Akron, Ohio

Filed Mar. 26, 1971, Ser. No. 128,367
Int. Cl. G01b *5/20*
U.S. Cl. 33—169 R **4 Claims**



A probe unit for use with Layout and Inspection machines and like measuring apparatus with the improvement relating to the use of a pivoted mechanical linkage that results in a desired mechanical advantage to achieve increased sensitivity, and further relating to the use of counter-weights to statically balance the pivoted linkage components of the probe so as to permit usage in a vibratory environment without effecting the operation of the probe.

3,785,057

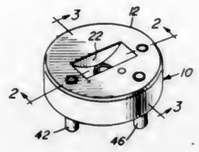
WORKPIECE EDGE AND CORNER LOCATING TOOL

George W. Streander, Alamogordo, N. Mex., assignor to Design SYSTEMS, Inc., Alamogordo, N. Mex.

Filed Oct. 21, 1971, Ser. No. 191,187
Int. Cl. G01b *5/25*
U.S. Cl. 33—169 R **12 Claims**

A gauge body defining a reference axis and including first, second and third abutments disposed in and spaced about a 180 degree sector extending about the reference axis. The first and second abutments are disposed on opposite sides of the axis and include corresponding abutment surfaces facing in the same direction disposed in a diametric plane of the reference axis and the adjacent sides of the third abutment and one of the other abutments are disposed in radial planes of

the reference axis angularly displaced 45° apart while the opposing surfaces of the third abutment and the other of the first and second abutments are disposed in radial planes of the reference axis angularly displaced 90° apart. Also, a fourth



abutment is provided and is spaced generally radially of the reference axis from the third abutment and includes remote side surfaces contained in the same radial planes of the reference axis in which the opposite side surfaces of the third abutment are disposed.

3,785,058

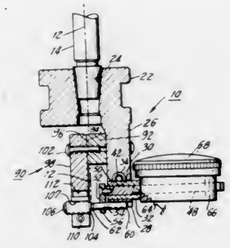
APPARATUS FOR AND METHOD OF CALIBRATING WORKPIECE SENSOR AND FOR ALIGNING SENSOR AND WORKPIECE

Henry O. Egli, 76 Riverside Dr., Sidney, N.Y.

Filed May 13, 1971, Ser. No. 143,020

Int. Cl. B23b *49/00*; **G01b** *5/02*

U.S. Cl. 33—172 D **13 Claims**



Machine tool and workpiece alignment apparatus using a sensing element connected with a sensitive indicator to align the sensing element both with the center line of the tool spindle and with a location on the workpiece. The sensing element is offset positioned to sense thin workpieces. A recalibration assembly is attached to the apparatus for being periodically moved into engagement with the sensing element to facilitate recalibration. Methods of initially calibrating and of recalibrating the apparatus are also disclosed.

3,785,059

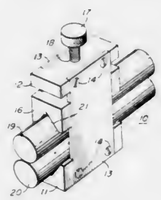
ROD GAUGE AND HOLDER

Mederic J. Breau, 236 Lincoln St., Saugus, Mass.

Filed Nov. 23, 1971, Ser. No. 201,498

Int. Cl. G01b *3/50*

U.S. Cl. 33—178 B **8 Claims**



A rod gauge and holder with rods clamped together between two V-blocks in a framework in order to use the combined diameters of the rods to form a fixed gauge of the go or no-go type for testing a dimension of an opening in a work piece.

3,785,060

WALL PANEL LAYOUT APPARATUS

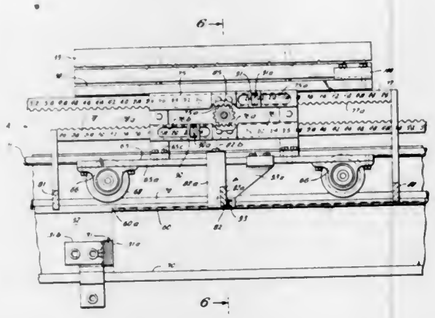
Lloyd E. Brewer, P. O. Box 8158, Corpus Christi, Tex.

Division of Ser. No. 848,634, Aug. 8, 1969, Pat. No. 3,628,232.

This application Sept. 17, 1971, Ser. No. 181,346

Int. Cl. G01b *5/00*

U.S. Cl. 33—191 **7 Claims**



A wall panel layout apparatus for laying out bottom and top plates for any size house or similar building, whereby wall panels may be assembled rapidly and accurately by relatively inexperienced personnel.

3,785,061

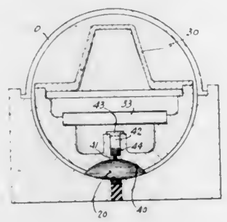
MAGNETIC COMPASS OR LIKE INDICATING INSTRUMENT

Douglas V. Carroll, Ottawa, Ontario, and Ramsis I. Attia, Winipeg, Manitoba, both of Canada, assignors to FMC (Canada) Limited, Ottawa, Ontario, Canada

Continuation-in-part of Ser. No. 827,376, May 23, 1969. This application Mar. 10, 1971, Ser. No. 122,684

Int. Cl. G01c *17/08*

U.S. Cl. 33—364 **7 Claims**



An inner indicating member immersed in a liquid can turn with three axes of rotational freedom in a spherical housing. A body of mercury at the bottom of the housing forms a captive pool in a recess of the member for holding the same erect in the housing.

3,785,062

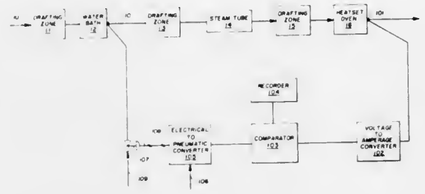
METHOD AND APPARATUS FOR CONTROLLING THE MANUFACTURE OF SYNTHETIC FIBERS

Donald L. Finley, and Edward A. Morehead, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 257,406, May 26, 1972. This application Dec. 27, 1972, Ser. No. 319,103

Int. Cl. F26h *5/00*

U.S. Cl. 34—34 **11 Claims**



Disclosed is a method of controlling the processing of a continuous length filamentary tow of synthetic fibers wherein the tow is moved through a water bath, drafted, and subsequently moved through a heatsetting chamber wherein the tow is heatset, the method of controlling the processing comprising

A. sensing the temperature of the fibers leaving the heatsetting chamber and generating a first signal reflective of the magnitude of the sensed temperature of the fibers,

B. comparing the first signal with a signal reflective of a desired temperature for the fibers leaving the heatsetting chamber and generating a second signal reflective of the magnitude of the result of the comparison, and

C. responsive to the second signal, removing water from the wet fibers entering the heatsetting chamber to allow the fibers to achieve the desired temperature.

In a preferred embodiment a thermocouple is used to sense the temperature of the fibers leaving the heatsetting chamber and water is removed from the wet fibers entering the heatsetting chamber by positioning a horizontally extending jet body member at the downstream exit from the water bath, then guiding the two from the water bath to that portion of the surface of the jet body member wherein there is located an opening through which air is blown and then removing water from the fibers by blowing air through the opening. This invention is particularly applicable to the manufacture of high tenacity poly(ethylene terephthalate).

3,785,063

PROCESS AND APPARATUS FOR DEHYDRATING MOISTURE CONTAINING MATERIAL

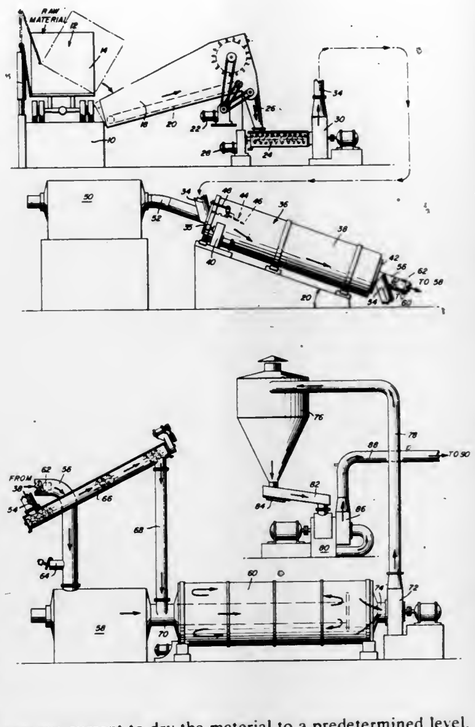
Ralph W. Bishop, 1620 S. Ocean Dr., Fort Lauderdale, Fla.

Filed Oct. 6, 1971, Ser. No. 187,087

Int. Cl. F26b *11/02*

U.S. Cl. 34—128 **6 Claims**

Apparatus for performing a process of dehydrating moisture-containing material for processing into animal feed has the steps of predrying a comminuted moisture-containing material by subjecting the material to a heated gaseous current, and drying the predried material by subjecting same to a heated gaseous current. Apparatus for carrying out this process has a conditioner for subjecting a comminuted moisture-containing material to a heated gaseous current to predry the material, and a main dryer in communication with the conditioner for further subjecting the material to a heated



gaseous current to dry the material to a predetermined level. The conditioner may be a single pass dryer, and the main dryer a multipass dryer.

3,785,064

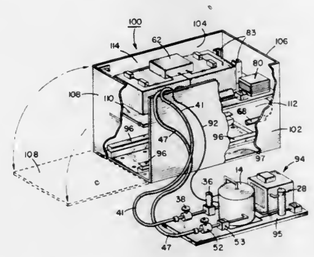
AIR-CONDITIONING SIMULATION SYSTEM AND METHOD

Sanford E. Thomas, Jr., Houston, Tex., assignor to Dyna-Kool Corporation, Houston, Tex.

Filed July 7, 1972, Ser. No. 269,640

Int. Cl. G09b *25/02*

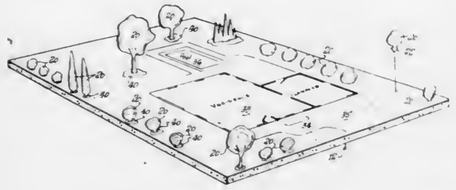
U.S. Cl. 35—13 **7 Claims**



A method and apparatus for simulating the normal and abnormal operating conditions in an air-conditioning system comprising a plurality of mechanically and electrically operated working units functionally interconnected into a thermodynamic loop, including a plurality of simulating components responsive to control signals from a central control

station for simulating desired conditions. The station includes a female receptacle for receiving a programmed plug-in board thereby automatically and simultaneously affecting the state of energization of certain of the simulating components and working units whereby certain of the working units will operate in an abnormal mode.

3,785,065
LANDSCAPE KIT
Walter E. Kamm, 514 S. College Ave., Claremont, Calif.
Filed June 21, 1972, Ser. No. 264,884
Int. Cl. G09b *25/04*
U.S. Cl. 35—16 **14 Claims**



Accurate small scale colored cardboard cutouts depicting shrubs and trees have base spikes for insertion into a base sheet of foamed plastic that is colored green to represent lawn areas. A white crayon may be used to coat the green base sheet to represent cement walks and driveways and a brown crayon may be used to represent the bare earth of planted areas. A swimming pool or a fish pond is shown by a blue crayon. The plan area of a house and garage may be depicted by a paper sheet cut to scale and adhesively bonded to the surface of the base sheet. Numerous plant cutouts are provided with individual indicia on the cutouts which refer to corresponding indicia on a descriptive list of available trees and shrubs.

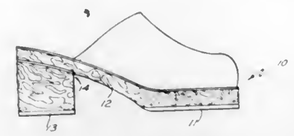
3,785,066
MODULAR PAPER SCULPTURES
Milton Tuitt, 356 Peoria St., Daly City, Calif.
Filed July 19, 1971, Ser. No. 163,670
Int. Cl. A63h *33/16*
U.S. Cl. 35—72 **5 Claims**



A construction element is constructed from a sheet of foldable material and provided with a plurality of face panels having a common apex. The element is symmetric about a line through the apex and manipulable to form three-dimensional geometric modular elements with which to construct complex geometric ornaments and sculptures.

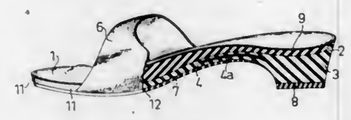
3,785,067
MOLDED SHOE AND REINFORCEMENT THEREFORE
Fernando M. Ronci, 2 Atlantic Blvd., Providence, R.I.
Filed Sept. 13, 1972, Ser. No. 288,644
Int. Cl. A43b *1/10*
U.S. Cl. 36—4 **3 Claims**

A molded woman's shoe having a thick sole and a bulky high heel. To reinforce the shank and prevent breakage at its connection with the heel, a hardened steel strip is molded into the shoe. The strip extends from the upper portion of the heel, through the shank, and partly into the sole. The strip is pro-



vided with a central, longitudinal stiffening rib and a plurality of openings adjacent the periphery. When the shoe is molded, the mold material, usually polyurethane, will pass through these openings to anchor the reinforcing strip in place.

3,785,068
INNER SOLE FOR SANDALS
Walter Bretschneider, Uerzell-Neustadt, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Jan. 19, 1972, Ser. No. 218,913
Claims priority, application Germany, Jan. 21, 1971, 2102715
Int. Cl. A43b *3/12*
U.S. Cl. 36—11.5 **9 Claims**



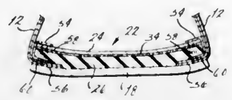
A sandal, especially for ladies, which has an inner sole made of bending and walking elastic material and also has an approximately U-shaped frame connected to and covering that peripheral portion of the inner sole which extends from the ball section of the inner sole rearwardly to the heel region of the sandal, said frame being united to the heel.

3,785,069
FOOTWEAR
John William Brown, 23, Goatstown Rd., Dublin, Ireland
Filed July 12, 1972, Ser. No. 271,112
Int. Cl. A43b *13/38*
U.S. Cl. 36—44 **24 Claims**



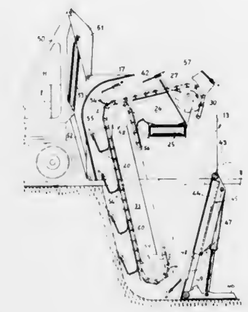
An insole for a boot or shoe which has an enclosed air containing cavity in at least the heel portion and a valving opening for the cavity. The insole is resiliently deformable to vary the internal volume of the cavity. In use, on application of the wearer's weight to the heel portion, the valving opening is closed and the air within the cavity is compressed until equilibrium is achieved. When the wearer's weight is transferred from the heel portion to the toe portion, the air can flow out of and into the cavity and the insole resumes its original shape. The invention also provides a boot or shoe which incorporates this insole as an integral portion of the sole of the boot or shoe.

3,785,070
CUSHION INSOLE FOR SHOES
Cleo Stafford, 705 W. 10th St., Corning, Ark.
Division of Ser. No. 190,497, Oct. 19, 1971, Pat. No. 3,707,784. This application Oct. 30, 1972, Ser. No. 302,145
Int. Cl. A43b *13/38, 3/12*
U.S. Cl. 36—44 **9 Claims**



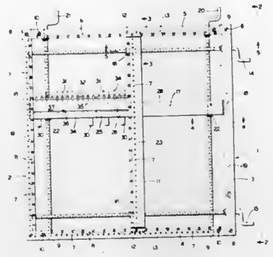
A composite insole for shoes is disclosed including a generally rigid upper layer and a resilient and compressible lower layer which underlies the upper layer throughout and is laminated thereto. Spaced upper elements of a shoe are impressed through a binding element, attached to the insole, into the resilient and compressible lower layer in order to provide a substantially uninterrupted bottom binding surface to which a shoe outsole is attached. Heel attachment, without openings, and with a smooth, sculptured appearance for the shoe upper is also disclosed.

3,785,071
MULTI-BUCKET EXCAVATING MACHINE
Hans Schaeff, 7183 Langenburg, Germany
Filed Mar. 2, 1972, Ser. No. 231,228
Claims priority, application Germany, Mar. 3, 1971, 2109993
Int. Cl. E02f *5/06*
U.S. Cl. 37—90 **16 Claims**



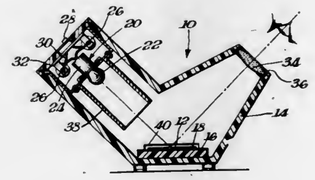
A trench-digging machine for attachment to a general-purpose carrier vehicle, the vertically moveable frame of the machine enclosing an upright bucket conveyor whose elements are carried by two separate endless chain pairs which move upwardly in a parallel path and separate on their upper reversal, the outer chain pair carrying cutting yokes, while the inner one carries buckets. The buckets may move independently at a higher speed than the cutting yokes, or they may be synchronized at the same pitch, so that the cutting yokes and the partial buckets on the inner chain pair form composite buckets which open conveniently for emptying, as the chain paths separate. The machine may further include a drag support with a hydraulically controlled glide shoe pressing against the bottom of the trench to stabilize the carrier vehicle.

3,785,072
NEEDLEPOINT BLOCKING DEVICE
Fred P. Meyer, Coral Springs, Fla., and Donald W. Meyer, Sharpsville, Pa., assignors to Meyer Enterprises, Inc., Sharpsville, Pa.
Filed Nov. 10, 1972, Ser. No. 305,560
Int. Cl. D06c *3/08*
U.S. Cl. 38—102.5 **8 Claims**



An outer rectangular frame having intermediate members adjustable between opposite outer side members to provide a canvas engaging rectangular stretching frame of any desired size having four flush canvas enagaging frame members on which a needlepoint canvas of any size may be engaged and stretched for blocking the canvas to truly rectangular shape. Canvas engaging pins project from two side and one intermediate frame members; and staple pins are hinged to the other intermediate frame member and engage over the top of and through the canvas at one edge of the canvas. Crank arm screws are journaled in opposite side members and have screw thread engagement with the intermediate members to adjust the latter toward and away from the side members. The intermediate members normally are maintained parallel with the side members between which the intermediate members are movable. The staple mounting intermediate frame member has a series of removable blocks of varying lengths to provide staple zones variable by uniform increments on said staple mounting member.

3,785,073
NEGATIVE PROOF VIEWER
George K. Van Tine, 905 Harvey Rd., Claymont, Del.
Filed Dec. 27, 1971, Ser. No. 212,608
Int. Cl. G09f *13/10*
U.S. Cl. 40—63 A **2 Claims**

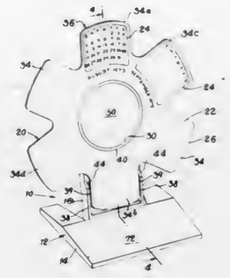


Negative proof viewer for viewing negatives and seeing them as positive pictures comprises a casing with support structure inside said casing for holding photographic negatives. A light source inside said casing is spaced from said support structure and said source is constructed and arranged to direct a beam of light onto a photographic negative on said support structure. A lens associated with said casing is located in the path of light reflected from said photographic negative on said support structure.

3,785,074
CALENDAR DISPLAY CONSTRUCTION WITH INDEXING CALENDAR BEARING MEMBER

Edward B. Halperin, Wayland, Mass., assignor to Penn Products Corporation, Randolph, Mass.

Filed Dec. 7, 1972, Ser. No. 311,704
Int. Cl. G09d 3/08
U.S. Cl. 40—113 13 Claims

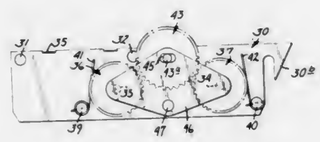


A calendar construction in which a lobed, resiliently flexible calendar-bearing annular disk is mounted for rotation upon a pedestal-supported drum and retained on the drum by a radially narrow lip which enables selective removal and replacement of the disk by forcing the disk over the lip. The disk may be indexed to a selected position where a portion of the calendar is at a predetermined viewing location, and abutments engage a lobe to retain the disk at that position. A relatively large display surface is provided at the viewable end of the drum for displaying advertising copy, other information or decorative effects.

3,785,075
MINIATURE SCROLL WINDING AND DISPLAY DEVICE

Walter G. Naylor, Jr., Sioux City, Iowa, assignor to Diane Dideer Enterprises, Inc., Sioux City, Iowa

Filed Aug. 17, 1971, Ser. No. 172,526
Int. Cl. G09f 11/24
U.S. Cl. 40—94 1 Claim



A cigarette lighter is shown having a recess in one edge thereof. A frame having a guide wall and a pair of parallel, rotatable arbors is mounted in the recess. A scroll having its ends coupled to the arbors extends over the guide wall. Gears are mounted on the arbors to control movement of the scroll. Resilient means are mounted on the frame to hold the scroll in a taut configuration. A cover member conforming to the normal configuration of the lighter is releasably secured over the recess to hold the frame in place. A window is provided in the cover member in line with the guide wall to permit viewing of the scroll, a manually actuable gear extends through a slot in the cover member to permit positioning of the scroll.

3,785,076
ADJUSTING MECHANISM FOR PERPETUAL CALENDARS

Wallin K. Swensson, Furuhajdsvagen 9, Huddinge, Sweden

Filed Nov. 5, 1971, Ser. No. 195,987
Int. Cl. G09f 9/00
U.S. Cl. 40—335 2 Claims

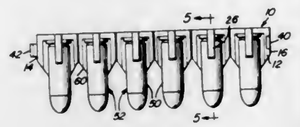


An adjusting mechanism for calendar pens comprises a pen barrel having an interior toothing near its bottom, and two hollow members, being rotatably adapted within said barrel, one of them bearing indications for years and weekdays and the other indications for dates and months, the former having at one end a toothing cooperating with the toothing of the pen barrel and at its opposite end a reversed toothing cooperating with a similar toothing of the second member, said second member having at its opposite end coupling means for cooperation with a rotatably but not displaceable adjusting member, a spring being adapted to press said first and second member against each other and towards the toothing of the pen barrel.

3,785,077
REVOLVER CYLINDER RELOADER

Joe C. Price, 4913 Princeton St., Amarillo, Tex.

Filed Feb. 7, 1972, Ser. No. 224,073
Int. Cl. F42b 39/04
U.S. Cl. 42—89 10 Claims



An elongated strap of shape retentive, resilient and deformable material which may be rolled up into position with its ends in end abutted relation to form a hollow generally cylindrical body at least substantially closed at one end and including a plurality of elongated longitudinally extending fingers arranged in a concentric circular pattern within the body. The fingers are formed integrally with the body and project from the closed end thereof toward the open end thereof. The opposing surfaces of the fingers and circumferentially spaced inner wall portions of the body define cylindrical recesses in which to endwise seatingly receive the base ends of cartridge shells. The length of the fingers from the closed end of the body to the free ends of the fingers is considerably less than the axial extent of the cylindrical body defined by the rolled strap and when the open end of the body is abutted against the rear of a revolver cylinder and forward pressure is applied to the center of the closed end of the body cartridge shells within the recesses defined by the body are at least partially ejected from the recesses whereby the cartridge shells are displaced

toward the more flexible free ends of the fingers and the friction of the fingers on the imposing inner surfaces of the body on the cartridge shells is reduced to allow the latter to fall by gravity from the recesses when the body is oriented in a downwardly opening position.

3,785,078
FISHING BAIT SINKER

Carl R. Seitz, 2806 E. Allerton, St. Francis, Wis.

Filed July 6, 1971, Ser. No. 159,877
Int. Cl. A01k 95/00
U.S. Cl. 43—43.14 6 Claims

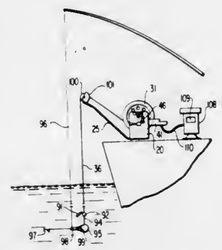


A sinker which is to be attached to a fishing line ahead of the bait and for causing the bait to sink in the water. The sinker has a tapered and pointed nose and is suspended from the line at a point forward of its midpoint length. That portion of the sinker located behind the attaching point is formed of a lighter weight, less dense material than the main body of the sinker, and the rear portion acts to maintain the sinker in a position with its pointed nose up-stream.

3,785,079
DEEP TROLLING REEL WITH TEMPERATURE MONITORING CAPABILITY

William C. Rohn, P.O. Box 288, St. Joseph, Mich.

Filed Oct. 20, 1972, Ser. No. 299,584
Int. Cl. A01k 89/00
U.S. Cl. 43—4 12 Claims



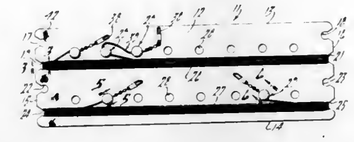
A reel for deep trolling utilizes a coaxial electrical cable as the bait positioning line in conjunction with a shielded thermistor which is connected mechanically and electrically to the cable near its weighted end. The provision of slip rings and a simple phone jack on the reel mounting bracket enables monitoring of one or more reels by means of a single thermocline meter. The reel additionally features a positive pin lock and a convenient adjustable friction brake or drag. The length of cable payed out from the reel is conveniently measured by counting reel revolutions. Other convenience features are included.

3,785,080
HOLDER FOR FISHING LEADERS

Maynard Wallace, 38172 Seaway Dr., Mt. Clemens, Mich.

Filed Nov. 22, 1972, Ser. No. 308,758
Int. Cl. A01k 97/06
U.S. Cl. 43—54.5 R 10 Claims

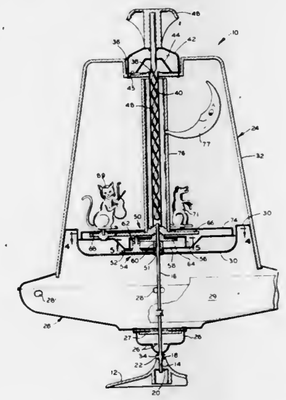
A flat rectangular panel with pairs of aligned notches in its opposite edges for winding and storing fishing leaders. Rows of holes are formed in the panel, and slotted plugs can be placed over the leader ends and snapped into the holes to hold the leaders in place. In a modified form of the invention, a third set of notches is provided for holding hooks at the ends of the leaders.



3,785,081
TOY SPINNING TOP

Larry J. Burkhart, Edon, Ohio, assignor to The Ohio Art Company, Bryan, Ohio

Filed Aug. 20, 1971, Ser. No. 173,572
Int. Cl. A63h 1/26
U.S. Cl. 46—66 11 Claims



A top having a hollow partially transparent rotating body mounted on a stationary base and driven by a vertical reciprocating screw axially located in the body, a horizontal stationary scenic plate or platform within the body, a reduction gear unit within and driven by the rotating body and disposed below the scenic plate, an object supporting tubular column around the screw within the body and rotated by the gear unit, and at least one rotating figure within the body above the stationary scenic plate having its axis of rotation parallel to the tubular column and being driven by the gear unit, whereby the object, body, column and/or figure all rotate at different speeds and/or directions to each other.

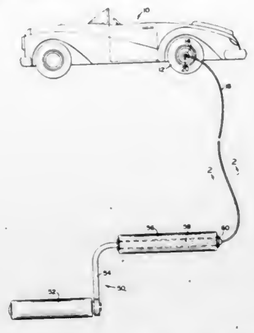
3,785,082
FILAMENT ACTUATED VEHICLE

Emanuel A. Winston, 190 A Skokie Valley Rd., Chicago, Ill.

Filed July 10, 1972, Ser. No. 269,954
Int. Cl. A63k 30/00
U.S. Cl. 46—210 7 Claims

A wheeled toy vehicle including a drive assembly which comprises a monofilament line having one extremity connected to a manually operable control means and the opposite end connected to the running gear of the vehicle. The dimensions and configuration of the monofilament line is such as to transmit rotation of the line about its own longitudinal axis, caused by activation of the control means, directly to the running gear which may comprise a drive axle and/or one or more drive wheels. Connecting means may attach the one ex-

tremity of the line to a predetermined outer portion of an axle or wheel by means of forming a socket therein correspondingly shaped to at least partially enclose a finger attached to the extremity of the line means cooperating



therewith. Alternately, a finger can be connected to the extremity of the drive axle and be disposed so as to be enclosed within a socket formed within a sleeve which is connected to the extremity of the line and comprises another embodimen. of the connecting means.

3,785,083

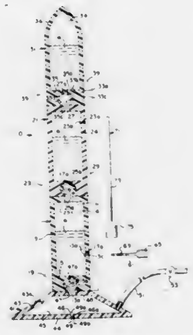
REACTION TOY ARRANGEMENT AND METHOD

Reginald F. Pippin, Jr., 7806 Ruxway Rd., Towson, Md.

Division of Ser. No. 102,294, Dec. 29, 1970, which is a division of Ser. No. 504,300, Oct. 24, 1965, Pat. No. 3,550,313. This application Aug. 15, 1972, Ser. No. 280,824

Int. Cl. A63h *27/06*

U.S. Cl. 46—74 C **39 Claims**



A fluid discharge reaction-propelled toy missile arrangement capable of formation in multiple stages or units releasably interconnected as a function of internal propulsive pressure in the succeeding stages or as a function of internal propulsive pressure in the succeeding stages or units, or capable of individual unit single stage use, if desired. A self-sealing lateral inlet valve separate and spaced from the fluid discharge propulsion orifice of an individual missile unit enables individual unit pressurization from an external fluid pressure source. Missiles are launched from a launching unit which may have a fluid pressurizing inlet and a fluid pressurizable releasable missile-holding connection, or may have other releasable missile-holding connection, and launch simulation enhancement can be provided, if desired, by controlled-release lateral liquid spray from one or more discharge orifices in the launching unit and separate from the fluid pressurizing inlet therefor.

3,785,084

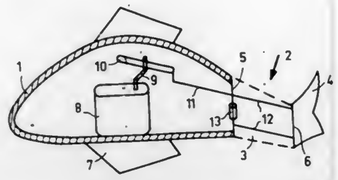
SELF-PROPELLING AQUATIC TOY

Martin W. Aenishanslin, Baluan-Strasse 42, Basel, Switzerland

Filed July 5, 1972, Ser. No. 269,179

Int. Cl. A63h *23/10*

U.S. Cl. 46—92 **10 Claims**



Self-propelling aquatic toy, for example a fish adapted to "swim" in water, having a body portion and a tail portion, the latter including a driven intermediate and a non-driven terminal member, the former being swiveled by an electric motor within the body portion, while the terminal tail member is limp and freely pivotable with respect to the intermediate tail member, so that the toy performs a life-like "swimming" movement in the water, the terminal member swiveling in a direction opposite to the movement imparted to the intermediate member.

3,785,085

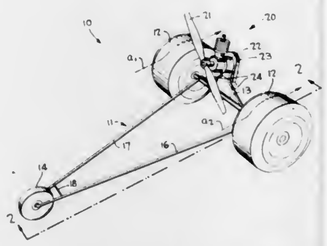
MODEL VEHICLE FOR ERRATIC ACTION

Gary J. Peroni, Key Biscayne, Fla.

Filed Nov. 18, 1971, Ser. No. 200,118

Int. Cl. A63h *17/00, 17/26*

U.S. Cl. 46—206 **9 Claims**



A self-motivating toy vehicle capable of erratic behavior comprising-relatively large main support wheels, flexible tricycle frame means, a smaller forward action wheel, and propulsion means attached so as to locate the center of gravity and the direction of the propulsion vector in positions which promote vehicle instability when moving, and especially when the influence of said action wheel moving over uneven terrain is present. The action wheel may be resilient or spongy in order to enhance bouncing.

3,785,086

SELF-STEERING BICYCLE-TYPE TOY VEHICLE

Francisco Escobedo, 23305 Ladeen Ave., Torrance, Calif.

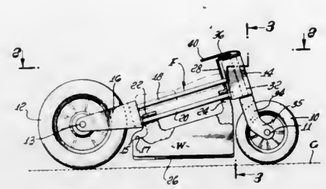
Filed Jan. 2, 1973, Ser. No. 320,084

Int. Cl. A63h *17/36, 33/26*

U.S. Cl. 46—213 **10 Claims**

A tandem-wheeled bicycle-type toy capable of self-steering so as to maintain sufficient balance as to remain upright as long as moving longitudinally. May be started by being shoved or allowed to roll down a ramp, or may contain a spring motor or a battery-operated electric motor. Rear non-swerving wheel mount is connected to upstanding post of forward wheel assembly by vertically separated pair of forwardly upslanted

rods. Mounted laterally-swingable on the lower rod is a longitudinal, weighted member which at its forward end fixedly supports a transversely upstanding alignment plate having an arcuate slot traversed by the upper rod and having a top arcuate edge formed with gear teeth. An angularly upstanding spindle is journaled in the post dependently carrying a forward guide wheel. At its top the spindle carries a generally horizontal, semicircular steering plate having gear teeth engaging those of the alignment plate. Accordingly, as the moving cycle



leans to one side or the other in response to a slanted or uneven track, the pivoted wheel(centered below the axle level of the rear wheel) swings to the "down" side and the arc of mutually engaging teeth correspondingly turns the upstanding spindle and guide wheel in the same direction so as to correct the balance of the ongoing cycle. Optionally the cycle may have a flat-faced rear wheel which additionally tends to straighten the vehicle so as to accommodate to a slanted or curved track.

3,785,087

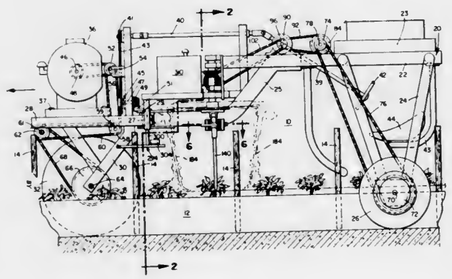
TOMATO PLANT TYING MACHINE

Robert Lewellyn Cook, Lake Worth, Fla., assignor to Flavor Pict, Inc., Del Ray Beach, Fla.

Filed Nov. 16, 1971, Ser. No. 199,292

Int. Cl. A01g *17/08*

U.S. Cl. 47—1 **11 Claims**



A machine for supporting tomato plants and like plants between lengths of twine tied to vertical stakes, to support the tomato plants during their period of growth, facilitating harvesting and increasing the plant yield. The machine utilizes a stationary needle member and a rotating needle member to feed two lengths of twine, with the strings being tied at each stake, as the machine passes a stake. The machine includes a tensioning mechanism associated with the feed roll of twine for each of the two needles, to maintain a uniform tension on the string as it unwinds from the roll, a rotating brush to brush plants out of the path of movement of the rotating needle, and means responsive to the position of a stake to initiate the tying cycle.

3,785,088

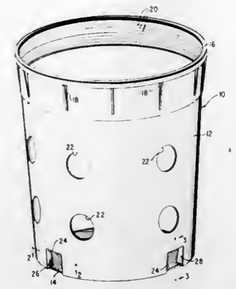
NURSERY POT

Theodore J. Guarriello, 33 Van Blarcom Ln., Wyckoff, N.J.

Filed Feb. 26, 1973, Ser. No. 335,521

Int. Cl. A01g *9/02*

U.S. Cl. 47—34 **5 Claims**



A nursery pot having a first series of vertically and circumferentially spaced, relatively large openings in the side wall of the pot, and a second series of openings at the juncture of the side wall and the bottom of the pot. Both series of openings permit drainage of excess moisture from and entry of ambient air into the pot to promote root growth, with the second series of openings being bounded by inwardly directed flanges for the purpose of directing root growth in the vicinity of the second series of openings inwardly toward the center of the pot rather than outwardly through the bottom openings.

3,785,089

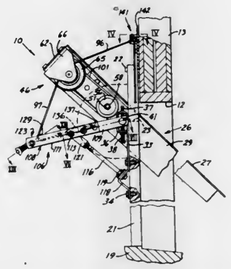
DOOR OPERATOR

Wesley A. Smith, Island of Drummond, Mich.

Filed July 14, 1972, Ser. No. 272,021

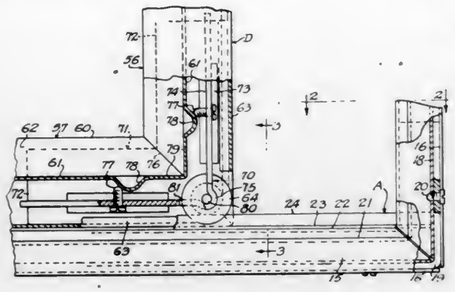
Int. Cl. E05f *15/00*

U.S. Cl. 49—139 **19 Claims**



A power operated tilting door system for opening and closing a portal in a building includes a door and pivot elements in the building mounting the door for tilting movement on a horizontal axis. A winch and a motor for rotating the winch are carried by the door adjacent the upper edge thereof. An elongate strand wraps around the winch, one end of the strand being secured by a quick release unit to the building and the other being secured to the door remotely from the winch. A strand tension member is mounted on the building and extends therefrom to a position, near the winch location when the door is open, for supporting the portion of the strand between the winch and the other end of said strand. The ends of the strand and the tension member are located to equalize the required length of the strand at all positions of the door. Limit switches are fixedly mounted with respect to the building for engagement by an actuator pivotable with the door so as to de-energize the motor at the fully open and fully closed positions of the door.

3,785,090
METAL WINDOW CONSTRUCTION WITH CLAMPED CORNER JOINTS
Donald J. MacGillis, 1821 Old Ranch Rd., Los Angeles, Calif.
Filed Mar. 20, 1972, Ser. No. 236,027
Int. Cl. E05d *13/02*
U.S. Cl. 49—425 **10 Claims**

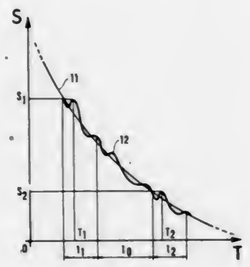


A metal window structure including frame and vent (sash) members with unwelded corner joints embodying corner brackets of dihedral L-form, secured by screw and clamping attachments of frame and vent bars. In the corner joint of a sliding vent the clamping structure includes a mounting for rollers which locates the rollers in the extreme corners of the vent. Clamping force, applied by screws on axes 90° apart, with a camming action against ramps on the sash bars, draws mitred ends of the bars together under compression to rigidify the corner.

ERRATUM

For Class 051—009 see:
Patent No. 3,785,105

3,785,091
DEVICE FOR DETECTING THE SPEED OF REMOVAL OF THE CHIPS IN A GRINDING MACHINE
Mario Pozzetti, Bologna, Italy, assignor to Finike Italiana Marposs-Soc. In Accomandita Semplice de Mario Possati & C., Bentivoglio, Italy
Filed Jan. 19, 1972, Ser. No. 219,016
Claims priority, application Italy, Jan. 20, 1971, 3312/71
Int. Cl. B24b *49/04*
U.S. Cl. 51—165 R **6 Claims**



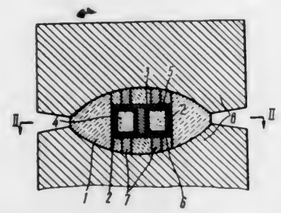
A device for detecting the speed of removal of the chip from a workpiece in a grinder comprising a measuring member adapted to detect at each moment the dimension of the part being machined, and characterized by first memory means for memorizing a first dimension of the piece being worked, second memory means for memorizing the second dimension of the piece at a predetermined period of time from the detection of said first dimension, and means for forming the difference between the two memorized values, said difference representing the quantity of material removed in said predetermined interval of time.

3,785,092
ABRADING TOOL HAVING SUCTION SYSTEM FOR COLLECTING ABRADED PARTICLES
Alma A. Hutchins, 49 N. Lotus Ave., Pasadena, Calif.
Filed Dec. 28, 1971, Ser. No. 213,018
Int. Cl. B24b *23/00, 55/06*
U.S. Cl. 51—170 MT **16 Claims**



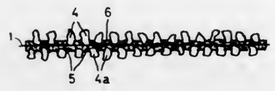
A portable tool for sanding or otherwise abrading a work surface and having an air motor which drives the abrading part or unit, with an air suction system being provided for sucking dust and other abraded particles from the work surface to prevent their escape into the surrounding air, and with the suction effect desirably being created by energy derived from the exhaust of the air motor, preferably through an aspirator action.

3,785,093
METHOD OF BONDING DIAMOND WITH REFRACTORY CERMET MATERIAL
Leonid Fedorovich Vereschagin, Kutuzousky prospekt, 10/9, kv. 231; Jury Sergeevich Konyafv, ulitsa Fersmana 11, kv. 26, both of Moscow; Alexandr Vasilievich Dovbnya, Podolskyraion, Akademgorodok, ulitsa Tsentralnaya, 10, kv. 112, Moskovskaya Oblast; Evgeny Valentinovich Polyakov, Belyaevo-Bogorodskoe, 39. kv. 73, Moscow; Novgorodov, Alexandr Stepanovich, Timviyazevskaya ulitsa, 34, korpus 1, kv. 51, Moscow; Abdulia Ogly Asan-Nuri, Naberezhnaya Shevchenko, ½ kv. 118, Moscow; Polikarp Avtonomovich Paly, ulitsa Zoi i Alexandra Kasmo-demyanskikh, 4, kv. 316, Moscow, and Grigory Sergeevich Gevorkov, Oktyabrsky propekt 365, kv. 34, Ljubertsy Moskovsko Oblasti, all of U.S.S.R.
Filed Dec. 21, 1970, Ser. No. 100,119
Int. Cl. B24d *3/06, 3/14*
U.S. Cl. 51—307 **2 Claims**



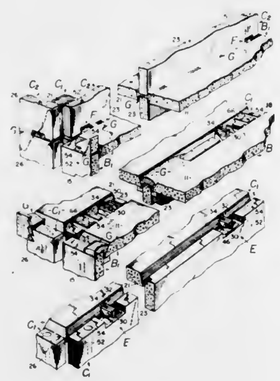
The diamond and cement materials to be sintered are placed in a hermetic graphite sheathing which is, in turn, arranged inside a sheathing of some low-melting metal. The latter is to be made from a metal whose melting point is lower than the temperature at which diamond will be sintered with the cermet material. The filled-up graphite sheathing is placed into a high-pressure reaction chamber and heated up until the low-melting metal gets soft. Thereafter the temperature and the pressure are raised until they are adequate for diamond to be sintered with cermet material. The softened sheathing of the low-melting material is a hydrostatic medium which provides for a uniform distribution of pressure and temperature over the entire volume of materials being sintered.

3,785,094
ABRASIVE MEDIUM
Rudolf Holzhauer, Marienheide/Rhld., Germany, assignor to Firma August Ruggeberg, Rhineland, Germany
Continuation-in-part of Ser. No. 115,164,, Feb. 16, 1971. This application Aug. 25, 1971, Ser. No. 174,655
Claims priority, application Germany, May 11, 1971, P 21 23 126.5
Int. Cl. B24d *11/00*
U.S. Cl. 51—401 **7 Claims**



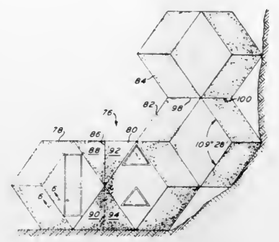
A flexible grinding tool made up a synthetic resin impregnated fiberglass mat with a layer of abrasive grains attached to both surfaces of the mat by a synthetic resin binder containing short fibers of glass, asbestos, ceramic material or graphite therein.

3,785,095
MULTI-UNIT FOLDING SLAB CONSTRUCTION
Edwin Abercrombie Verner, 2922 Derby, Berkeley, Calif.
Continuation of Ser. No. 842,322, July 16, 1969, abandoned. This application July 16, 1971, Ser. No. 163,462
Int. Cl. E04b *1/344*
U.S. Cl. 52—70 **15 Claims**



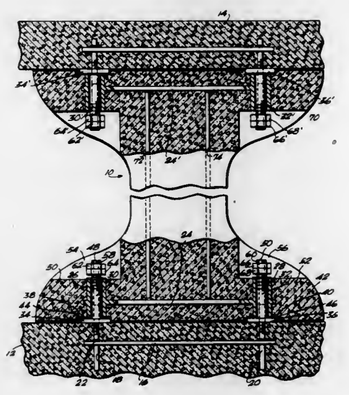
A structural support for supporting two ceiling panels upon a base wall panel. One edge of each ceiling panel has protuberances rigidly conjoined thereto which span outwardly and over the upward edge of the wall panel for supporting the ceiling panels. The protuberances of one ceiling panel are hingeably conjoined to the wall panel to allow pivotal movement therebetween during the erection procedure. The supporting interconnection provided by the protuberances and underlying supporting walls permits successive building units to be stacked in columnar relation with abutment between overlying walls, and grout to be placed between the supported panels to integrally conjoin the wall panels of the joint as erected.

3,785,096
MODULAR BUILDING
Charles P. Neuhardt, Philadelphia, Pa., assignor to Interface Systems, Limited, Philadelphia, Pa.
Filed Mar. 15, 1971, Ser. No. 124,382
Int. Cl. E04h *1/02*
U.S. Cl. 52—79 **6 Claims**



A modular building whose external shape comprises at least a major portion of a dodecahedron, the faces of the dodecahedron being rhombic and of like shape and area.

3,785,097
ADJUSTABLE ANCHOR BOLT & BLOCK BUILDING AND LEVELING MEANS
William B. Seymour, 110 N.E. 160th St., Miami, Fla.
Filed Nov. 6, 1972, Ser. No. 304,101
Int. Cl. E04g *21/10*
U.S. Cl. 52—126 **14 Claims**

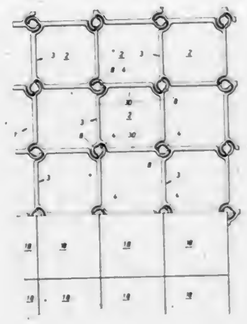


Anchor bolt means for a building whereby all vertical or horizontal structural components such as columns and floor slabs, either reinforced concrete or steel, are securely anchored and leveled by means of simple bolt adjustments. Steel anchor plates, including outwardly projecting anchor bolts, are embedded in concrete footings, floor slabs, beams or columns and when any two or more of the above components are joined, adjustment nut means are provided to perfectly align and level all of the main structural components relative to each other. Additionally, all of said components are continuously tied together by steel reinforcing members.

3,785,098
COMPOSITE PANEL STRUCTURE

Hans E. Schweitzer, and Ernst Huber, both of Wettingen, Switzerland, assignors to H. E. Schweitzer AG, Wettingen, Switzerland

Filed June 4, 1970, Ser. No. 43,385
Claims priority, application Switzerland, July 1, 1969, 10048/69. The portion of the term of this patent subsequent to Jan. 18, 1989, has been disclaimed.
Int. Cl. E04c 2/42
U.S. Cl. 52—663 17 Claims

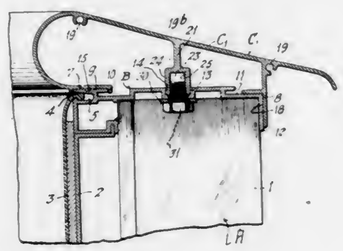


A frame of individual square elements, of which only diagonally opposite elements meet at their corners to form openings in which are held bolts having at their heads spring members that enter, and releasably lock in, recesses provided in the corners of square panels that register with the square elements.

3,785,099
SWIMMING POOL COPING

Samuel Greene, 18 Underwood Dr., West Orange, N.J.

Filed Sept. 18, 1972, Ser. No. 290,267
Int. Cl. E04h 3/18
U.S. Cl. 52—102 5 Claims

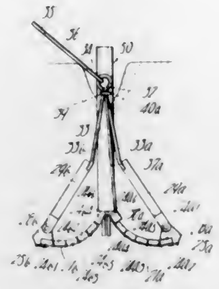


Coping structure for a swimming pool includes a plurality of sections relatively slidably adjustable on a support member with provisions at the ends of the sections for alining and holding the sections in alinement. Each section has a downwardly extending longitudinal flange intermediate its width with a channel in its edge the interior surfaces of whose side walls have ridges and grooves to coact with the screw threads of cap screws that pass through holes in the support member at the bottom of a groove of approximately the same width as said flange whereby upon driving of the screws into the channel the walls of the flange are drawn tightly into the groove.

3,785,100
GROUND ANCHOR

Hikoitsu Watanabe, No. 5-13, 1-chome, Ehara-cho, Tokyo, Japan

Continuation-in-part of Ser. No. 86,814, Nov. 4, 1970, Pat. No. 3,662,505. This application Apr. 7, 1972, Ser. No. 242,036
Claims priority, application Japan, May 10, 1971, 46/30425
Int. Cl. E02d 5/80
U.S. Cl. 52—162 4 Claims

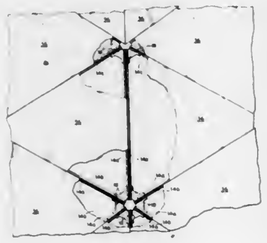


A three- or four-point support type ground anchor is provided which may be easily driven into and positively set in the ground and may provide the maximum effective earth bearing surface area. The ground anchor comprises an inverted U-shaped resisting or earth bearing plate whose leg portions or resisting members may be bent outwardly in the opposite directions from each other successively along several horizontal lines. Until the ground anchor is driven to a predetermined depth, the bending of the resisting plate, that is the resisting members are prevented by a pair of driving-control rods so that they may be straightly driven into the ground. After the ground anchor has been driven to a predetermined depth, the driving control rods are released so that the resisting members may come off the control rods and follow the curved paths in the opposite directions. The load from the structure through a guy strand may be positively supported by the resisting plate, a pair of lift plates, and a pair of lift rods joined to the lower ends of the resisting members and an auxiliary rod or rods joined to the upper end of the resisting plate.

3,785,101
CONSTRUCTION FOR SPHERICAL STRUCTURE AND COMPONENT THEREFOR

William W. Ahern, Belmont, Mass., assignor to Geometrics, Inc., Cambridge, Mass.

Filed Mar. 16, 1972, Ser. No. 235,159
Int. Cl. E04b 1/32
U.S. Cl. 52—81 1 Claim



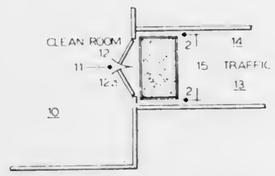
A construction for a generally spherical structure of the type commonly referred to as a "radome." The construction includes a plurality of triangular frame assemblies, each of which is made up of elongated frame members attached to

connecting devices located at the apexes of each frame assembly. The frame assemblies are covered by triangular membrane panels. One frame-membrane assembly is joined to another by means extending laterally through adjacent frame members and the connecting devices to which the adjacent frame members are attached. The invention also encompasses the individual connecting devices.

3,785,102
TACKY FLOOR PAD

Homer C. Amos, Palm Springs, Calif., assignor to Edward T. Strickland, Palm Springs, Calif., a part interest

Filed Nov. 1, 1971, Ser. No. 194,623
Int. Cl. A47l 23/22
U.S. Cl. 52—173 23 Claims

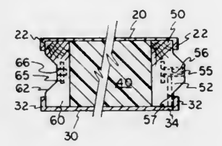


A throw-away pad, especially for use at the entrance to a clean area but not exclusively for such use. Of multiple ply construction, it comprises a plurality of very thin polyethylene or polypropylene sheets, of suitable surface size and shape to receive at least a pair of shod feet. Each sheet bears a very thin coating of pressure-sensitive adhesive on its top surface. The bottom surface of the pad, that is, the bottom of the lowermost sheet thereof, also is coated with adhesive so that the pad, when in use, is removably adhered to the floor. The pressure-sensitive adhesive has a low modulus of elasticity, a high internal viscosity and high surface free energy, so that it firmly and aggressively grabs dirt from shoes of wheels passing over it, yet each sheet can be readily peeled off after use to expose a fresh adhesive surface to further traffic. The entire pad or stack is thin to present no hazard or obstacle to foot or to wheeled vehicles, e.g., to a gurney being wheeled into an operating room.

3,785,103
BUILDING PANEL WITH LATCHING MEANS

Hamish Turner, 576 Otis Blvd., Spartanburg, S.C.

Filed Jan. 3, 1972, Ser. No. 214,538
Int. Cl. E04b 1/41
U.S. Cl. 52—309 7 Claims

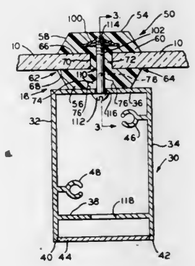


An improved building panel is disclosed comprising a foam core having bonded to opposite sides thereof an outer skin or cover plate. The outer skins are bent along the two longwise edges thereof and receive a wooden edging member therebetween, the edging member being bonded to both the outer skins and the foam core. The edging members are preferably tongue and groove, i.e., having a tongue construction along one longitudinal edge of the panel and a groove construction along the opposite longitudinal edge of the panel. The tongued edging has a plurality of latch means disposed therealong while the grooved edge has a plurality of matching latch pins disposed therealong, said tongue and groove construction and latches and latch pins enabling a rigid connection between adjacent panels. A superior panel is produced that avoids delamination under extreme conditions. The bond is produced by a two adhesive system. A first adhesive is applied to the foam core and a second adhesive is applied to the outer skins and edging members. The foam core adhesive must be compatible with the foam and the second adhesive and preferably is a water base polychloroprene adhesive. The second adhesive, applied to the outer skin and edging is a solvent based adhesive which is normally incompatible with the foam. When the two adhesives are brought together in a virtually non tacky state, however, the foam core adhesive prevents destruction of the foam by the solvent based adhesive and, upon curing, the two adhesives provide a superior laminate bond. A process for manufacturing the panel is also disclosed and claimed.

3,785,104
PANEL SEALING SYSTEM FOR INTERNAL GLAZING

John A. Dailen, Port Clinton, Ohio, assignor to The Standard Products Company, Cleveland, Ohio

Filed Nov. 15, 1971, Ser. No. 198,630
Int. Cl. E04b 2/62
U.S. Cl. 52—400 3 Claims



Means are provided for permitting internal glazing for panel mounting systems of the type wherein elastomeric gasket members which include panel receiving channels therein are disposed about openings in buildings or the like to support thin rigid construction panels in predetermined desired positions. In the subject invention, a plurality of rigid means are molded integrally into at least those gasket members used to support the edges of adjacent construction panels. These rigid means are adapted to be used in affixing the gaskets to associated rigid construction members extending around and/or spanning the opening as well as providing rigidity for the panel mounting gaskets to prevent panel roll out when high negative lateral forces are received against the construction panels.

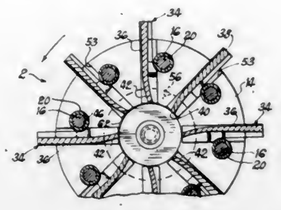
3,785,105
CENTRIFUGAL BLASTING WHEEL

Ardee H. Freeman, Granger, Ind., assignor to Wheelabrator-Frye, Inc., New York, N.Y.

Filed Apr. 5, 1972, Ser. No. 241,226
Int. Cl. B24c 5/06
U.S. Cl. 51—9 9 Claims

A centrifugal blasting wheel is provided which permits rapid and easy blade removal and replacement by providing: a control cage and impeller which can be removed from a central opening defined by the inner ends of the radially extending blades; a blade holding means which utilizes the spacers hold-

ing the wheel side plates apart to engage a holding shoulder on the blades to prevent further radial outward movement; and a



removable centering plate mounted in the central opening to prevent radial inward movement.

3,785,106

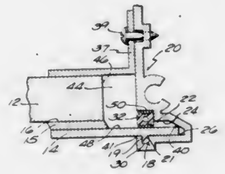
GLAZING FLANGE ATTACHMENT SYSTEM

Frederick M. Fink, McHenry, Ill., assignor to Continental Aluminum Products Company, McHenry, Ill.

Filed Oct. 6, 1971, Ser. No. 186,849

Int. Cl. E06b *3/60*

U.S. Cl. 52—476 **4 Claims**



A snap-in metal glazing flange for a window or building panel is initially separate from a supporting frame member which is provided with a longitudinal slot for receiving the side margin of the glazing flange. A notch in one of the slot walls receives a locking and locating projection or rib on the glazing flange. A compressible vinyl spline is pressed between the glazing flange and a stepped shoulder in the slot to secure the projection in the notch and lock the glazing flange in the appropriate overlapping position on the window or panel margin. The spline is removable to release the flange for replacement of the window or panel. An inclined or tapered camming abutment at the end of the slot engages the side edge of the glazing flange and moves the projection into the notch as the flange is inserted in the slot and prevents angular displacement of the glazing flange in the slot.

3,785,107

POST AND POST BASE ASSEMBLY

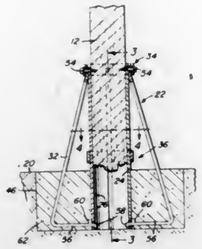
George W. Garretson, Rt. 3, Box 260, Ocala, Fla.

Division of Ser. No. 45,176, June 10, 1970, Pat. No. 3,683,739. This application Aug. 15, 1972, Ser. No. 280,891

Int. Cl. E04c *3/30*

U.S. Cl. 52—514 **5 Claims**

A repair assembly including a first post repair structure and a second repair structure for attaching horizontal fence members to fence posts. The first structure includes an upstanding split clamp sleeve with downwardly divergent bracing legs for clamping about the rotted lower end of a fence post and embedding in ground anchored concrete and the second structure includes an endless, formed and tensioned wire loop arranged to twice horizontally embrace the side of a corresponding fence post remote from the related fence boards and twice



vertically embrace the fence board side remote from the corresponding fence post.

3,785,108

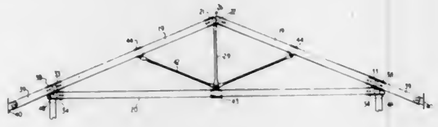
ROOF TRUSSES

Eric William Satchell, Cammeray, New South Wales, Australia, assignor to Duraframe Systems Pty. Ltd., New South Wales, Australia

Filed Jan. 6, 1972, Ser. No. 215,839

Int. Cl. E04c *3/11*

U.S. Cl. 52—645 **6 Claims**



A roof truss has two top chords and a bottom chord extending therebetween. The upper ends of the top chords are received in separate ridge sockets which are pivotally attached so as to form a ridge fitment. The lower ends of the top chords are each received in the upper socket of spaced bottom fitments, each bottom fitment also having a lower socket which respectively receive the ends of the bottom chord. The respective upper and lower sockets are arranged for pivotal movement relative to each other over a selected range of pitch angles. The respective upper and lower sockets may be maintained at any selected pitch angle within this range by inserting a bolt through any selected set of aligned holes provided therein.

3,785,109

STRUCTURAL ARRANGEMENT

Guy Letourneur, Mareil-Marly, France, assignor to Coparfi, Rueil-Malmaison, France

Filed Dec. 8, 1971, Ser. No. 205,931

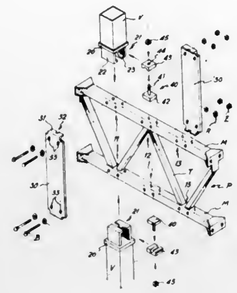
Claims priority, application France, Dec. 18, 1970, 7045779; Nov. 12, 1971, 7140572

Int. Cl. E04b *1/18, 1/343*; **E04c** *3/04*

U.S. Cl. 52—633 **9 Claims**

A structural arrangement for connecting one or more vertical posts to a horizontal girder. A connection is fixed to the end of the vertical post and designed so as to transmit the compressive forces resulting from axial loading. Two ties are mounted on the girder at opposite sides thereof and have their

ends adapted to provide bearing surfaces for the vertical post connection. Means are provided for locating the connection in



alignment with the ends of the ties to prevent lateral disengagement.

3,785,110

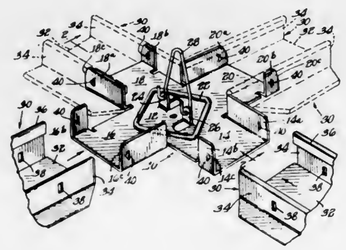
MODULAR CEILING CONNECTOR

Lawrence H. Galloway, Barrington; Leonard E. Harast, and Frank V. Pliml, Jr., both of Cicero, all of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Jan. 14, 1971, Ser. No. 106,508

Int. Cl. E04b *5/52*

U.S. Cl. 52—715 **4 Claims**



The present invention relates generally to improvements in modular connectors for horizontal runners of a ceiling grid system, and more particularly to improvements in modular connectors comprising a one piece sheet metal stamping. The embodiment of the invention disclosed in the present application includes a central sheet metal plate section having a plurality of integral arms radiating therefrom. Each arm presents a plate portion having integral flanges extending upwardly from opposite margins thereof for telescopically accommodating the extremity of a complementary grid channel member. Means is also provided for accommodating the lower extremity of a vertically disposed grid suspending member such as a wire.

ERRATUM

For Class 052—748 see:
Patent No. 3,785,114

3,785,111

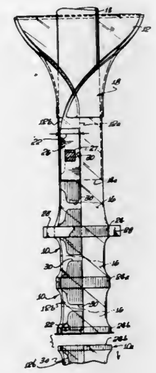
METHOD OF FORMING CONTAINERS AND PACKAGES

Brian R. Pike, Monterey Park, Calif., assignor to William S. Schneider, Glendale; Carl F. Schneider, Palos Verdes Peninsula and Mrs. V. Wayne Rogers, South Pasadena, Calif., part interest to each

Continuation-in-part of Ser. No. 39,375, May 21, 1970, abandoned. This application Feb. 4, 1972, Ser. No. 223,583

Int. Cl. B65b *9/08*

U.S. Cl. 53—14 **24 Claims**



This disclosure relates to a method of forming containers and packages wherein either an unfilled container or a partially filled package may be formed. The method basically relates to the forming of a container or package having two faces from web material wherein the web material is formed into a tubular container with the two walls closed transversely at the bottom end and open at the top end, and a wide seam joins together double overlapping thicknesses of the web material to form a filling passage between the double thicknesses with the seam extending across the full width of the overlapping thicknesses and through which filling passage a substance or an additional substance can be added to the interior of the package, the entire filling passage being positioned within the wall of one package face which under pressure from contents within the package curves outwardly to hold the passage walls in mutual contact preventing the exit of the contents of the package through the passage and in the case of a partially formed package, introducing a first substance into the tubular container through the remaining open upper end of the tube walls, and thereafter placing a closing seal across the top end of the container.

3,785,112

METHOD AND APPARATUS FOR FORMING SHAPED PACKAGE

William C. Leasure, Houston, and Luis Garcia, Bellaire, both of Tex., assignors to Mira-Pak, Inc., Houston, Tex.

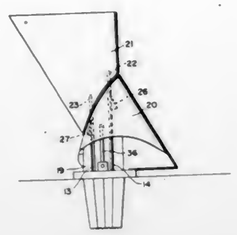
Filed Sept. 21, 1971, Ser. No. 182,415

Int. Cl. B65b *9/08, 43/10*

U.S. Cl. 53—28 **5 Claims**

The invention relates to a meothod and apparatus for forming packages on form, fill and seal package machinery wherein strip packaging film is shaped into a tube by passing over a former. The former is provided with means for shaping the package with corners so that a package with any desired configuration with side faces is provided. Means may also be in-

corporated in the former for creasing the tubular shaped packaging film to provide gussets in the side walls. Additional

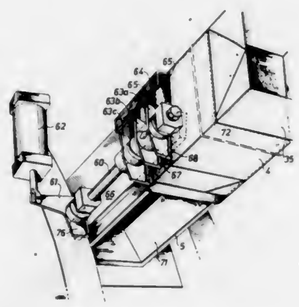


sealing means may be provided beneath the former to reenforce the corners formed by the former.

3,785,113
PACKAGING MACHINE

Kjell Halvard Martensson; Bjorn H son Linde, both of Malmo; Jan Fredrik Palsson, and Sven Torsten Jerre, both of Lund, all of Sweden, assignors to Tetra Pak International AB, Lund, Sweden

Filed Feb. 22, 1972, Ser. No. 227,812
Claims priority, application Sweden, Mar. 25, 1971, 3864/71
Int. Cl. B65b *3/02*
U.S. Cl. 53—186 **8 Claims**

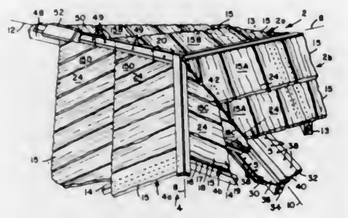


A packaging machine by which package blanks having suitable crease lines are fed onto and erected on mandrels on a rotating wheel and the crease lines for the bottom of the package are broken and then heated, folded and sealed at successive stations to form a package. When packages having different lengths for packages of different volumetric capacity are employed on one machine it is necessary to accurately position each erected blank on the mandrel so that the crease lines for the bottom of the package are at the outer end of the mandrel whereby breaking and folding thereof will take place properly. The present machine is provided with stop means for automatically cooperating with the walls of the mandrel to form an abutment for the erected blank so that it can be properly located on the mandrel for the successive operations to form the bottom of the package.

3,785,114
BUILDING PANEL ENCLOSURES FOR VALLEY AND HIP STRUCTURES

John K. Kough, Morgan Hill; Otis M. Martin, San Jose, and Silas N. Miller, Saratoga, all of Calif., assignors to Ditz-Crane, San Francisco, Calif.

Division of Ser. No. 856,235, Aug. 7, 1969, Pat. No. 3,696,570.
This application Dec. 20, 1971, Ser. No. 210,038
Int. Cl. E04b *7/06*
U.S. Cl. 52—748 **2 Claims**



Prefabricated enclosure tip panels and a method of manufacturing the tip panels for enclosing valley and/or hip areas. The tip panel at one longitudinal end is beveled at an angle *a* which angle is dependent upon the relative angle between the two sections at the valley and/or hip joint. The other longitudinal end is adapted for interengagement with a standard panel. A method of manufacturing the tips includes segmenting a standard panel at the angle *a* to form a first valley tip panel and a first hip tip panel. A second standard panel is then segmented at an angle 180°—*a*) to form a second valley tip panel complementary to the first valley tip panel and a second hip tip panel complementary to the first hip tip panel. The tip panel segments are adapted to be joined in combination along the valley line and/or hip line to form a complete valley and/or hip construction and to engage standard panels. A valley flashing may be positioned along the valley center line and extend laterally relative to the center line beneath the valley tip panels to provide a hidden run-off path for water on the roof.

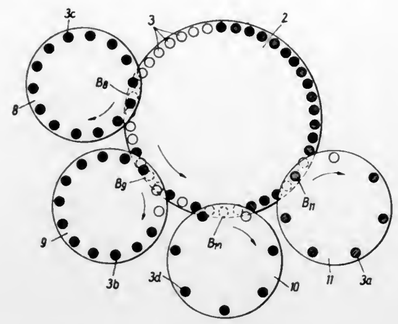
3,785,115
APPARATUS FOR PRODUCING A PACKAGED ASSORTMENT OF DIFFERENT SWEETS

Klaus Oberwelland, Steinhagen, and Siegfried Wiegratz, Halle, Westfalen, both of Germany, assignors to Firma August Storck GmbH, Halle, Westfalen, Germany

Filed Mar. 25, 1971, Ser. No. 127,935
Claims priority, application Germany, Nov. 24, 1970, P 20 57 724.6
Int. Cl. B65b *35/08, 35/26;* **B65g** *49/00*
U.S. Cl. 53—154 **6 Claims**

An apparatus for the production of a packaged assortment of sweets, in particular of different sweets, which comprises a feeding ram, and a wrapping mechanism including the feeding ram. An intermittently movable main feeder is provided which contains consecutively disposed pockets for the reception of the sweets and for delivering the same to the feeding ram of the wrapping mechanism. A plurality of supplementary, intermittently movable feeders are arranged which have pockets adapted to be fed from storage means, in which for achieving a predetermined sequence of the different kinds of sweet in the packaged assortment the main feeder is positioned adjacent to the supplementary feeders. The number and relative spacing of the pockets of both the main and supplementary feeders

and their frequency of intermittent movement are so synchronized, that each supplementary feeder fills only a

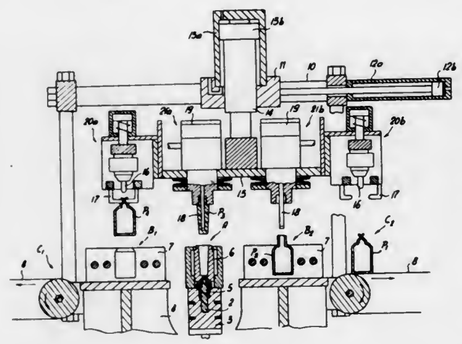


predetermined associated pocket or pockets in the main feeder.

3,785,116
DEVICE FOR THE PRODUCTION OF FILLED AND CLOSED PLASTIC CONTAINERS

Paul Munz, Netstal, and Hans Byland, Mitlodi, both of Switzerland, assignors to Maschinenfabrik und Giesserei Netstal AG, Nafels, Switzerland

Filed Aug. 31, 1971, Ser. No. 176,589
Int. Cl. B65b *1/02*
U.S. Cl. 53—194 **6 Claims**

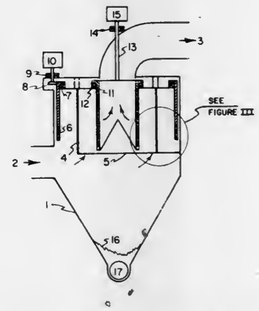


In a method of producing, filling and closing plastic containers, the steps of producing a container preform, blowing up the preform and filling the resultant container, closing the filled container and removing the filled container are performed simultaneously at different locations or stations, whereby several containers are simultaneously subjected to respective different steps. Each container is produced, filled, closed and removed in two successive steps, the removal being effected at opposite ends of a row of stations, with the production of a preform being effected, in both steps, in the same station of the row by injection molding, while the blowing up and filling of a container, the closing of a filled container and the removal of the filled container are effected in successive steps at two different stations in the row and adjoining the injection molding station. The apparatus includes at least one row of five stations arranged at equal distances from each other, with first and fifth being removal stations, the second and the fourth being blowing up, filling and closing stations, and the third or central station being an injection molding station. A runner reciprocable longitudinally of the row in steps whose length is equal to the distance between adjacent stations is arranged above stationary lower tools provided in each of the five stations. This runner carries four upper tools on a support which is vertically reciprocable into and out of operative relation with the lower tools. The runner is reciprocated through a stroke equal to the distance between two adjacent stations. In each of the two positions of the runner, the four upper tools cooperate with a respective end station and the three stations immediately succeeding the end station.

3,785,117
ROTATING CONCENTRIC HOMOGENEOUS TURBULENCE ELECTROSTATIC PRECIPITATION GAS CLEANER METHOD

William Cumming Leith, 7501 Latona N.E., Seattle, Wash.

Filed Feb. 7, 1972, Ser. No. 223,835
Int. Cl. B03c *3/74*
U.S. Cl. 55—2 **2 Claims**



This invention relates to the application of couette motion caused by centrifugal forces in a rotating concentric "-homogeneous turbulence" electrostatic precipitation gas cleaner, to provide uniform separation of gaseous, liquid, and solid particulates in a carrier fluid, by adjustable levels of imposed discrete "homogeneous turbulence" established by Taylor circular couette motion with a multiple array of double rows of secondary flow cellular vortices in the annulus between the inner perforated cylinder and the outer perforated cylinder, with the cylinders rotating at about the same velocity in opposite directions. When the outer cylinder rotates about three times faster and in the opposite direction to the inner cylinder, with the electrical power turned off, an adjustable level of imposed discrete spiral band of turbulence in a travelling wave, will move up or down in the annulus, and will clean the collected material from the surfaces of the discharge and collecting electrodes.

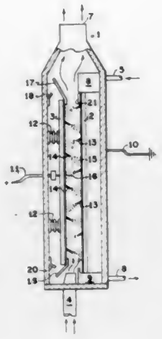
3,785,118
APPARATUS AND METHOD FOR ELECTRICAL PRECIPITATION

John A. Robertson, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Mar. 22, 1972, Ser. No. 236,851
Int. Cl. B03c *3/16*
U.S. Cl. 55—5 **10 Claims**

A liquid spraying electrical precipitator comprising a pair of electrically conductive walls and a plurality of spouts on each wall. A cleaning liquid such as water is applied to one of the walls, as by drippers at the top thereof, and flows downwardly to the spouts thereon. The liquid is caused to transit the gap between the walls by application of a strong electrical field. Preferably the wall of initial application is grounded, and the other wall is connected to a source of high positive potential. The electrical field so created causes negatively charged drops to be sprayed from the spouts on the first wall, and to follow a somewhat downwardly directed trajectory until they impinge

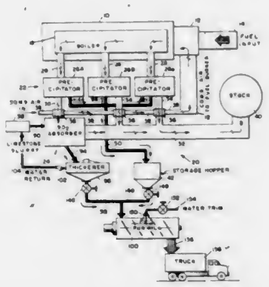
upon the second wall. Water impinging on the second wall runs downwardly to spouts thereon, and is resprayed as positively charged drops across the gap to the first wall. This process is continually repeated until the water finally exits at the bottom of the precipitator. A stream of dirty gas flows upwardly through the precipitator, and is cleansed by the action of the positively and negatively charged drops continually spraying and respraying back and forth between the walls.



3,785,119
METHOD AND APPARATUS FOR REMOVING PARTICULATES AND OXIDES OF SULPHUR FROM GAS

Robert W. McIlvaine, Northbrook, Ill., assignor to Environeering, Inc., Skokie, Ill.

Filed Oct. 4, 1972, Ser. No. 295,006
Int. Cl. B03c *3/04*
U.S. Cl. 55—7 25 Claims

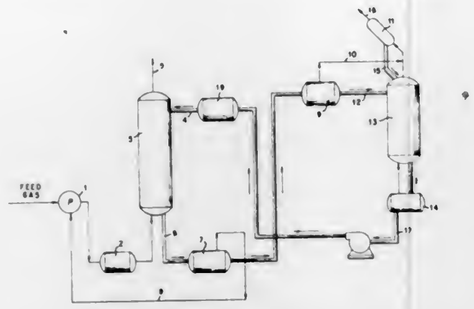


The method of removing dry particulates and oxides of sulphur from gas comprises passing said gas through a dry treatment stage for separating dry particulates therefrom, passing a portion of said gas treated in said dry treatment stage through a wet absorber stage for separating the oxides of sulphur therefrom, and intermixing said dry particulates separated in said dry treatment stage with the wet, sulphur containing materials separated from the gas in said wet absorber stage producing a semi-dry material suitable for use in land fills and the like.

3,785,120
RECOVERY OF PURIFIED HELIUM OR HYDROGEN FROM GAS MIXTURES

James R. Merriman, Kingston; John H. Pashley, Oakridge; Michael J. Stephenson, Oakridge, and David I. Dunthorn, Oakridge, all of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Oct. 15, 1971, Ser. No. 189,546
Int. Cl. B01d *53/14*
U.S. Cl. 55—44 10 Claims

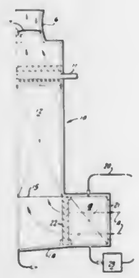


A process for the removal of a component selected from helium and hydrogen from gaseous mixtures also containing contaminants. The gaseous mixture is contacted with a liquid fluorocarbon in an absorption zone maintained at superatmospheric pressure to preferentially absorb the contaminants in the fluorocarbon. Unabsorbed gas enriched in hydrogen or helium is withdrawn from the absorption zone as product. Liquid flurocarbon enriched in contaminants is withdrawn separately from the absorption zone.

3,785,121
COMBINATION GAS STRIPPER AND COOLING TOWER

Peter M. Phelps, 15 Buckeye Way, Kentfield, Calif.

Filed Mar. 27, 1972, Ser. No. 238,307
Int. Cl. B01d *19/00*
U.S. Cl. 55—53 13 Claims



A method and apparatus for simultaneously stripping a liquid stream contaminated with a dissolved gas impurity in a stripping section and cooling a fluid (liquid or gas) in a fluid cooling section. The stripping efficiency is increased by supplying an air stream for stripping which has been warmed by heat transfer with the cooled fluid in the fluid cooling section. In one embodiment, one or more fluid cooling sections of a crossflow type are disposed below and to the sides of an upright stripping section so that a fan can draw air sequentially through both sections. In another embodiment, fluid cooling sections of crossflow type are disposed at the sides of the stripping section at the same elevation. For economy, the cooled fluid exiting from the liquid cooling section may be directed past a heat generating source for cooling the same and thereafter recycling to the fluid cooling zone.

3,785,122
PROCESS FOR PREPARING 4,5A ZEOLITE AND METHOD FOR SEPARATING MIXTURES USING SAME

Yoshifumi Yatsurugi, 6-507 7-ban, 2-chome, Tsujido, Nishikai-gun, Fujisawa; Tatsuo Kuratomi, 2-18, 4-chome, Hamatake, Chigasaki, and Tetsuo Takaishi, 1461-251, Nagae, Hayamacho, Miuragun, Kanagawa, all of Japan

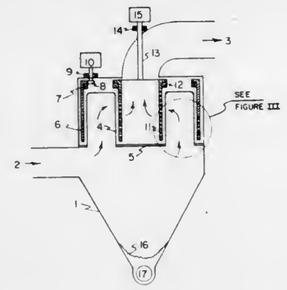
Filed Jan. 27, 1972, Ser. No. 221,431
Int. Cl. B01d *53/04*
U.S. Cl. 55—75 4 Claims

This invention is concerned to a process of preparing a novel kind of A-type zeolite having specific molecular sieving actions and a method of using said zeolite to separate a mixture of substances into substances having a different adsorption effective cross-sectional area.

3,785,123
ROTATING CONCENTRIC "HOMOGENEOUS TURBULENCE" FABRIC BAG GAS CLEANER METHOD

William Cumming Leith, 7501 Latona N.E., Seattle, Wash.

Filed Feb. 7, 1972, Ser. No. 223,851
Int. Cl. B01d *46/04*
U.S. Cl. 55—96 3 Claims



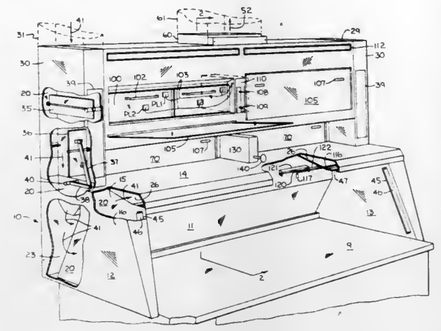
This invention relates to the application of couette motion caused by centrifugal forces in a rotating concentric "-homogeneous turbulence" fabric bag gas cleaner, to provide uniform separation of gaseous, liquid, and solid particulates in a carrier fluid, by adjustable levels of imposed discrete "-homogeneous turbulence" established by Taylor circular couette motion with a multiple array of secondary flow cellular vortices in the annulus between the inner perforated cylinder and the outer perforated cylinder, with both cylinders rotating in the same direction. When the outer cylinder rotates in the opposite direction to the inner cylinder, an adjustable level of imposed discrete spiral band of turbulence in a travelling wave, will ripple the fabric bags, will move either up or down in the annulus, and will clean the collected material from the inner surface of the fabric bags.

3,785,124
POLLUTION-FREE KITCHEN VENTILATOR

Asa K. Gaylord, Portland, Oreg., assignor to Gaylord Industries, Lake Oswego, Oreg.

Filed Aug. 2, 1971, Ser. No. 168,019
Int. Cl. B01d *50/00*
U.S. Cl. 55—118 15 Claims

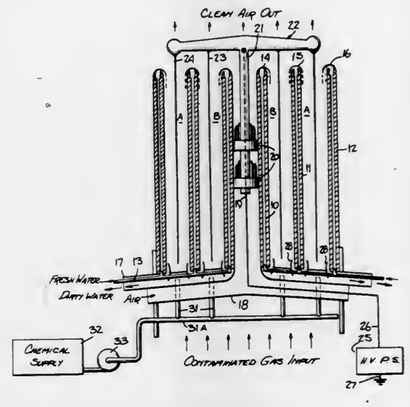
A ventilating hood has an ascending exhaust duct equipped with a series of air cleaning and purifying instrumentalities for removing grease, smoke and fumes generated by cooking equipment. Air rising through the duct passes successively through a grease extractor, an electrostatic precipitator, an activated charcoal filter and a deodorizing chemical spray. The grease extractor and precipitator are provided with hot water and detergent washing sprays. The hood has hollow walls containing air supply conduits for fresh air outlets which discharge streams of fresh air for sweeping into the exhaust duct smokey and grease-laden air from the cooking equipment. A control system provides an automatic wash and dry cycle for the grease extractor and precipitator and includes thermostatic control means for closing fire dampers and turning on the water sprays in case of fire in the ventilator.



3,785,125
MULTI-CONCENTRIC WET ELECTROSTATIC PRECIPITATOR

Alexander P. DeSeversky, Asharoken Beach, Northport, N.Y.

Continuation-in-part of Ser. No. 53,255, Aug. 31, 1960, Pat. No. 3,716,966. This application Apr. 24, 1968, Ser. No. 723,810
Int. Cl. B03c *3/78*
U.S. Cl. 55—119 1 Claim



A Multi-concentric wet electrostatic precipitator of large operating capacity, wherein concentric annular gas passages having the same radial dimensions are defined by a series of vertically-disposed, concentrically-arranged tubes of progressively increasing diameter, inner and outer surfaces of adjacent tubes which form the walls of the passages having downwardly-flowing, uniform liquid films produced thereon. A discharge-electrode structure is disposed in each annular passage, a high voltage being applied between the electrode structures in the several passages and their associated liquid films which act as collectors, thereby causing contaminants in a gaseous stream conveyed upwardly through the passages to

be ionized and to migrate toward the films to be carried downwardly thereby for disposal, gas emerging from the upper end of the passage being free of contaminants.

3,785,126
POLLUTION CONTROL APPARATUS FOR SMOKE EMITTER
John B. Smitherman, Rural Route, Box 297, Danville, Ind.
Filed Nov. 5, 1970, Ser. No. 87,160
Int. Cl. B01d *47/00*
U.S. Cl. 55—228 **1 Claim**

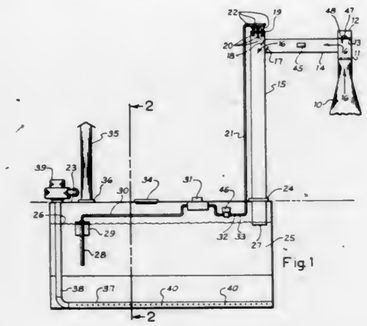
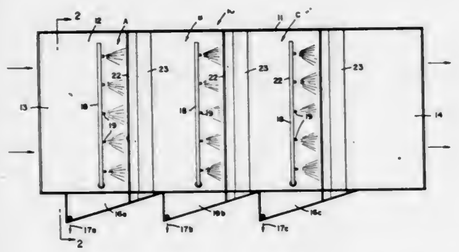


Fig. 1

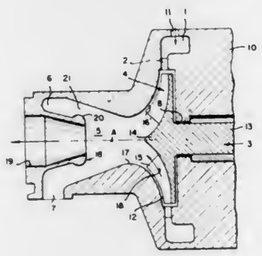
An apparatus for controlling the pollution in a smoke emitter. The apparatus is connected to the emitter by ducts which route the smoke past a smoke detector and through a water spray eventually emerging beneath water in a water-holding basin. A filter and pump arrangement circulate the water in the basin to water nozzles mounted to one of the ducts. The water spray emitted by the nozzles is directed through a duct to the basin. The water flow to the nozzles is controlled by a solenoid valve operably connected to the smoke detector. A sediment removal pipe-pump arrangement is provided in the basin. Pressure within the basin is released via a vent mounted atop the basin and opening into the atmosphere. Baffles are provided in the ducts for directing the water spray and smoke flow. An emergency escape duct is mounted atop the emitter.

3,785,127
SCRUBBING APPARATUS
Ernest Mare, Johannesburg, Transvaal, South Africa, assignor to J. Ronald Hershberger, Palo Alto, Calif.
Filed Feb. 22, 1971, Ser. No. 117,348
Int. Cl. B01d *47/06*
U.S. Cl. 55—233 **8 Claims**



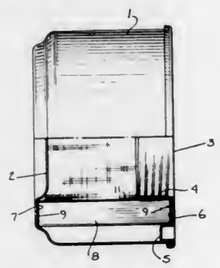
An apparatus for scrubbing a stream of air or other gas with a scrubbing liquid (e.g., water). The scrubbing is carried out in successive stages simultaneously with classification of the removed material, the removed material being withdrawn as separate fractions. Each stage is provided with means for scrubbing the gas with liquid droplets and by impingement with surfaces wet with liquid, and also with means for eliminating droplets whereby they are not delivered to the next scrubbing stage.

3,785,128
EXPANSION TURBINE SEPARATOR
Hubert Redemann, Weiss, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany
Filed July 6, 1971, Ser. No. 159,673
Claims priority, application Germany, July 15, 1970, P 20 35 138.6
Int. Cl. B01d *45/14*
U.S. Cl. 55—405 **6 Claims**



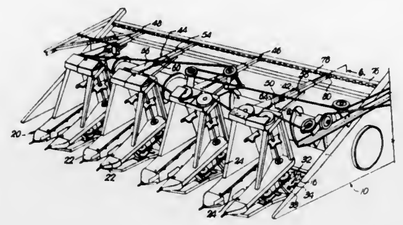
An expansion turbine, especially for the work expansion of low-temperature liquefiable gases, which comprises around the axis of the rotor a liquid-collecting chamber, communicating with the gas-outflow chamber, provided with an outlet through which the liquefied gas can be led after it is centrifugally collected along the annular walls of this chamber.

3,785,129
SPIN-ON AIR FILTER
Charles J. Szmutko, Edison, N.J., assignor to Purolator, Inc., Rahway, N.J.
Filed Nov. 1, 1971, Ser. No. 194,352
Int. Cl. B01d *27/08*
U.S. Cl. 55—419 **2 Claims**



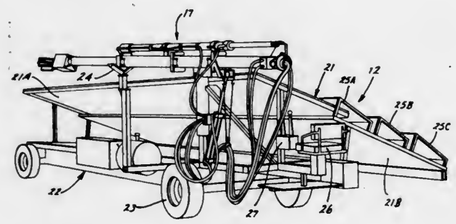
A spin-on air filter has a casing and end cap forming opposing seats, and a pleated paper annular filter element has its ends closed by these seats to provide for radial air flow through the element.

3,785,130
HEADER MOUNTING FOR ROW UNITS
Melvin V. Gaeddert, Newton, Kans., assignor to Hesston Corporation, Hesston, Kans.
Filed Dec. 15, 1972, Ser. No. 315,560
Int. Cl. A01d *45/02*
U.S. Cl. 56—98 **10 Claims**



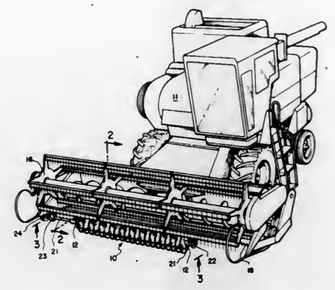
A series of spring-loaded row units are individually mounted on the header of a harvester by a hinge assembly on the cutter bar and by upper supports extending between the units and a rear frame piece of the header. The hinges have interlocking hooks which rock relatively as the row units swing up and down over uneven terrain, the hooks being of such nature as to permit relative sliding movement as the distances between the units are varied. The supports are releasably hooked at the frame piece so that the entire distance adjustment as well as unit removal and remounting may take place quickly and easily by a single operator with but a single tool to release a pair of fasteners on each unit. Adjustment of the tilt of the units is equally as rapid and easy because of the use of a hook-slot arrangement in each of the top-rear supports.

3,785,131
FRUIT HARVESTING APPARATUS
David G. Friday, and Philip L. Friday, both of R.R. No. 2, Hartford Township, Van Buren County, Mich.
Filed Sept. 15, 1972, Ser. No. 289,576
Int. Cl. A01g *19/06*
U.S. Cl. 56—328 TS **14 Claims**



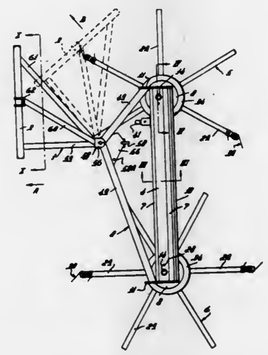
A fruit harvester having a limb shaking apparatus mounted in association with a catching structure adapted to be disposed below a tree for catching the dislodged fruit. The shaking apparatus includes a telescopic boom assembly which can be linearly extended into the tree, and which can also be horizontally and vertically swingably displaced to enable jaws mounted adjacent the end of the boom to be positioned in gripping engagement with a selected limb. A vibrator mechanism is mounted adjacent the end of the boom and is connected to the jaws for causing vibration thereof in a direction substantially perpendicular to the longitudinally extending direction of the boom. The vibrator mechanism and the jaws are mounted on a head assembly which can be angularly displaced about the longitudinal axis of the boom.

3,785,132
GRAIN PICK UP
Duane L. Wilson, 240 N. 1st East, Richfield, Utah
Filed June 1, 1972, Ser. No. 258,764
Int. Cl. A01d *89/00*
U.S. Cl. 56—364 **2 Claims**



A pick up unit mounted to and turned by a grain combine in advance of the feed reel of the combine to raise and position the grain. The pick up unit consists of a cylinder having a number of flexible fingers projecting from the outer wall thereof. The cylinder is rotated in the path of the moving combine so as to comb the flexible fingers upwardly through the stalks of a crop untangling and elevating the stalks prior to their contact with the bats of the combine feed reel. The feed reel bats in turn directs the crop stalks over a cutting blade secured to the combine.

3,785,133
HAY MAKING MACHINES
Cornelis van der Lely, 7 Bruschenrain, Zug, Switzerland
Filed Mar. 6, 1972, Ser. No. 231,899
Claims priority, application Netherlands, Mar. 5, 1971, 7102932
Int. Cl. A01d *77/06*
U.S. Cl. 56—370 **12 Claims**



A hay making machine includes at least two rotary raking members that are driven by a horizontal shaft housed in a sheet metal beam. Coupling elements are secured to opposite ends of the sheet metal beam and are pivotally joined to a hinge. The hinge is secured to tubular beams or a draw bar which can be coupled to the rear of a prime mover and by moving the tubular beams or draw bar about the hinge, different transport and working widths are arranged. The shaft is connected via pinions to rotate sleeves with horizontal spokes attached and tines are connected to the spokes. A centrally

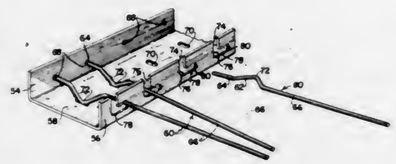
located ground wheel is adjustably mounted beneath each sleeve to support its respective raking member. All of the moving parts are easily accessible and replaced and the entire machine is economically constructed.

3,785,134

MULTIPLE USE FINGER ASSEMBLY FOR A COMBINE HARVESTER

Robert L. Francis, East Moline, and Paul L. Rouse, Moline, both of Ill., assignors to International Harvester Compay, Chicago, Ill.

Filed Feb. 8, 1973, Ser. No. 330,768
Int. Cl. A01d *77/00*
U.S. Cl. 56—400 **5 Claims**



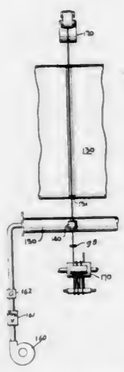
A finger assembly having various uses in connection with a combine harvester such as, for example, to provide grain pan fingers, beater grate fingers, or pick-up reel fingers. A channel member constitutes a base support for a multiplicity of fingers which are capable of quick and easy manual removal and installation in various relief areas which are provided in the channel flanges and web.

3,785,135

PRODUCING TORQUE CONTROLLED VOLUMINOUS SET YARNS

Warren A. Seem, Nassau, Bahamas; Nicholas J. Stoddard, Berwyn, and Robert W. Stoddard, Chester Springs, both of Pa., assignors to Leesona Corporation, Warwick, R.I.

Filed Apr. 5, 1971, Ser. No. 131,367
Int. Cl. D02g *1/02, 1/16*
U.S. Cl. 57—34 HS **35 Claims**



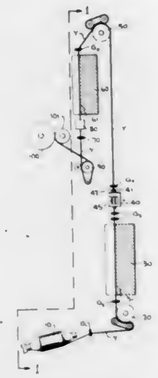
Disclosed is a method and apparatus for producing a torque-controlled voluminous set yarn. Novel false twisting means hereinafter referred to as a "whirler" is employed to impart a relatively low number of twists per inch to a torque stretch yarn by blowing air circumferentially around the yarn at a pressure and flow coordinated with the yarn tension and the amount of heat imparted to the yarn. The covering power of the yarn and the bulk or voluminosity of the yarn thus produced is enhanced and residual torque in the yarn is controlled uniformly throughout the length of the yarn which is treated. Also disclosed is a set yarn with high bulk and controlled torque characteristics, novel yarn packages, fabric produced therefrom and garments made from said fabric.

3,785,136

APPARATUS AND PROCESS FOR PRODUCING TORQUE CONTROLLED VOLUMINOUS SET YARN AND YARN AND FABRIC PRODUCED THEREBY

Frederick C. Tecce, Lafayette, Pa., and Chester J. Dudzik, Warwick, R.I., assignors to Leesona Corporation, Warwick, R.I.

Filed May 10, 1971, Ser. No. 141,622
Int. Cl. D02g *1/02*
U.S. Cl. 57—34 HS **11 Claims**



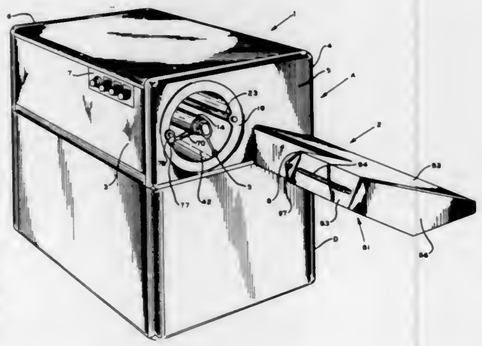
Disclosed is a method and apparatus for producing a torque-controlled voluminous set yarn. False twisting means are employed to impart a relatively low number of twists per inch to a torque stretch yarn passed under low tension in the region of a yarn heater. The covering power of the yarn, i.e., the bulk or voluminosity of the yarn, thus produced is enhanced and residual torque in the yarn is controlled. Also disclosed is a set yarn with high bulk and reduced torque characteristics and a fabric produced therefrom.

3,785,137

APPARATUS AND METHOD FOR PRODUCING NO-TWIST CENTER-PULL ROVING PACKAGES

Harald E. Karlson, Santa Monica, Calif., assignor to Goldsworthy Engineering, Inc., Torrance, Calif.

Filed Oct. 6, 1970, Ser. No. 78,723
Int. Cl. D01h *1/04*; **B65h** *54/02*
U.S. Cl. 57—71 **27 Claims**



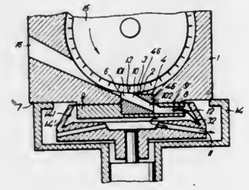
An apparatus and a method for producing a roving package by pretwisting a roving band during winding of the package to produce a one-twist per revolution band layer configuration. A roving band feeding eye is reciprocated with respect to and simultaneously orbited about a mandrel for winding filament containing roving strands thereupon. The winding is accomplished over the end of the mandrel so that a twist is incorporated in each turn of the roving strand for every revolution of the feeding eye. A device is also provided for shifting the winding eye radially outwardly as the diameter of the roving package increases during winding.

3,785,138

SPINNING UNIT FOR OPEN END SPINNING MACHINE

Jaroslav Rajnoha, Tyniste Nad Orlici, and Ladislav Bures, Usti Nad Orlici, both of Czechoslovakia, assignors to Elitex, Zavody Textilniko Strojirenstvi, Liberec, Czechoslovakia

Filed Mar. 9, 1972, Ser. No. 233,095
Claims priority, application Czechoslovakia, Mar. 26, 1971, 71/2211
Int. Cl. D01h *1/12*
U.S. Cl. 57—58.95 **12 Claims**



A spinning unit for use in textile machines, particularly open end spinning machines, comprises a carding roller and a spinning chamber. A supply channel is provided for fibers travelling from the carding roller to the spinning chamber. A yarn withdrawal channel is provided through which yarn is withdrawn from the spinning chamber. At least one detachably mounted expandable wear portion is provided, defining at least part of one of the channels.

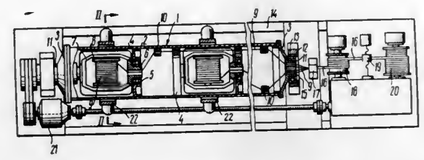
3,785,139

WIRE-ROPE WINDING MACHINE AND METHOD OF ITS OPERATION

Viktor Filimonovich Groza, ulitsa Darvina, 7, kv. 12; Nikolai Ivanovich Drozdov, ulitsa Lazareva 1; Jury Nikolaevich Sharapov, 521 mikroraion 73, kv. 16; Alexandr Iosipovich Garbovitsky-Gordon, ulitsa Darvina 19, kv. 21, all of Kharkov; Khristofor Sergeevich Shakhpazov, prospekt Mira 188, korpus 4, kv. 30, Moscow; Nikolai Grigorievich Filatov, gostinitsa Rossia, Orel; Ivan Timofeevich Skripnik, ulitsa Tikhomirova 9/3, kv. 190, Moscow; Alexei Trofimovich Semkin, ulitsa Gastello 26, Khartsyzsk Donetskoi oblasti; Vladimir Ivanovich Vasiliev, ulitsa Vokzalnaya 68, kv. 13, Khartsyzsk Donetskoi oblasti; Valentin Dmitrievich Judin, ulitsa Vokzalnaya 72a, kv. 50, Khartsyzsk Donetskoi oblasti; Evgeny Jurievich Belenky, pereulok Patarzhikskogo 7, kv. 6, Khartsyzsk Donetskoi oblasti; Anatoly Evgenievich Grigorenko, ulitsa Mira 9, Khartsyzsk Donetskoi oblasti, and Gennady Fedorovich Baryshnikov, ulitsa Suvorova 126/4, kv. 44, Magnitogorsk Chelyabinskoi oblasti, all of U.S.S.R.

Filed Oct. 24, 1972, Ser. No. 300,320
Int. Cl. D07b *3/12, 7/02*
U.S. Cl. 57—58.34 **2 Claims**

In the swinging portion of the wire-rope winding machine the holder with the reel is so positioned inside the rotor that their common centre of gravity lies on the rotor axis. The holder is restrained from rotation when the rotor is in motion by means of an electromagnet in whose magnetic field the holder is located. Deviation of the holder from the normal position is signalized by transducers disposed in the magnetic field of each electromagnet.



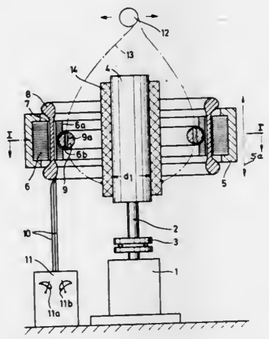
The design of the twisting portion permits the axis of the machine rotor to be located in the vertical or inclined position.

3,785,140

DEVICE FOR WINDING THREADS, PARTICULARLY TEXTILE THREADS

Artur Muller, Karlsruhe, Germany, assignor to Industrie-Werke Karlsruhe Aktiengesellschaft, Karlsruhe, Germany

Filed Dec. 14, 1970, Ser. No. 97,789
Claims priority, application Germany, Dec. 23, 1969, P 19 64 478.1
Int. Cl. D01h *7/58, 1/24*
U.S. Cl. 57—100 **12 Claims**



A device for winding textile threads with constant tension on a vertically disposed winding body with a thread guide which moves in spaced relation from the winding body concentrically around the same in a horizontal circular path. The thread guide comprises a pierced magnetizable member or a pierced member of magnetic material and moves in a circular path formed in a stator ring carrying a stator winding supplied with electrical energy by an adjustable frequency changer which produces in the stator ring a rotary magnetic field acting upon the thread guide which upon an axially reciprocable movement of the stator ring moves the thread guide in addition to its rotary movement also back and forth in axial direction of the winding body so as to cause the thread to be wound in layers on said winding body.

3,785,141

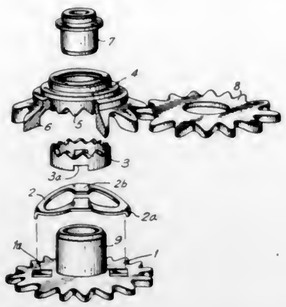
MECHANISM FOR A TIMEPIECE HAVING A PLURALITY OF TIME DISPLAY

Toshimasa Ikegami, Chino, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jan. 10, 1973, Ser. No. 322,493
Claims priority, application Japan, Jan. 13, 1972, 47/6986
Int. Cl. G04b *19/22, 27/00*
U.S. Cl. 58—42.5 **10 Claims**

A snap mechanism for a timepiece having a plurality of time displays in which either a first hour wheel or a second hour

wheel is provided with saw teeth, and between the first and second hour wheels there are interposed a sliding member having saw teeth which are engaged with the saw teeth on the



particular hour wheel and a spring pressing the sliding member so that the saw teeth are in engagement. The first and second hour wheels, sliding member and spring are assembled as a self-contained unit.

3,785,142

WATCHCASE COMPRISING AT LEAST A TWO-PIECE CASING ASSEMBLY

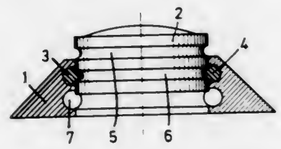
Rene Soguel, Rue de la Chapelle 10, Les Hauts-Geneveys, Switzerland

Filed Mar. 14, 1973, Ser. No. 341,055

Claims priority, application Switzerland, Mar. 16, 1972, 3880/72

Int. Cl. G04b *37/08*; **B65d** *53/00*; **F16j** *9/00*

U.S. Cl. 58—90 R **23 Claims**



A watchcase comprising generally at least a two-piece casing assembly is described. The assembly may comprise external and internal casing members. These two members are assembled with a ring of elastic material retained for the most part therebetween. Aligned grooves are formed in each of the members, and that portion of the ring projecting from the groove in the inner member penetrates a groove in the outer member. Watchcases, particularly when they are shaped and/or fluid-tight, are relatively complicated article. Furthermore, the assembly of the different component parts is relatively intricate and expensive especially to obtain a good quality watchcase presenting good fluid-tightness characteristics.

3,785,143

TRANSPARENT INSTRUMENT COVER HAVING ANTI-REFLECTION COATING ON SELECTED PORTIONS THEREOF

Yoshiaki Fujimori, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

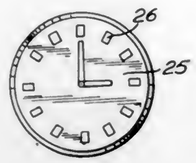
Filed Dec. 16, 1971, Ser. No. 208,867

Claims priority, application Japan, Dec. 21, 1970, 45/128083

Int. Cl. G04b *39/00*; **G02b** *5/28*

U.S. Cl. 58—91 **2 Claims**

Visibility of indicia on an instrument face and particularly on a watch face is increased by the use of an anti-reflection coating on those portions of the transparent cover through which the indicia are normally viewed. The absence of an anti-



reflection coating on the remaining portions of the transparent instrument cover results in reflection resembling that from a transparent cover , portions of which are cut at an angle.

3,785,144

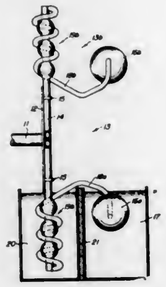
HEAT ENGINE

"EJ" L. Fairbanks, 511 S. 850 East, Orem, Utah

Filed Nov. 2, 1972, Ser. No. 303,246

Int. Cl. F03g *7/06*

U.S. Cl. 60—531 **7 Claims**



A heat engine adapted to perform work utilizing the temperature differential between hot and cold heat reservoirs as a source of energy, includes a horizontally disposed, rotatable shaft attached to one end to the center of a disc which is adapted to rotate about the longitudinal axis of the shaft. A plurality of heat exchanger sets are disposed in mutually spaced-apart relationship around the circumference of the disc. Each heat-exchanger set comprises two pairs of heat exchangers, with each pair communicatingly connected with the other pair, and respectively disposed at diametrically opposing edges of the disc. Each of the pairs of heat exchangers includes two enclosed containers acting as heat exchangers and communicatingly connected with each other and adapted to be immersed simultaneously in respective hot and cold heat reservoirs disposed preferably at the bottom edge of the disc. Each heat exchange set contains a high vapor pressure liquid. When a particular container is in the hot heat reservoir, the liquid therein is heated and the vapor pressure is increased to drive liquid from the container into the container in the cold reservoir and then across the disc into the other pair of heat exchangers. As the volume of liquid increases in the opposite pair of heat exchangers, gravity forces the disc to rotate, and energy to perform work is thereby generated. In one embodiment, all containers adapted for immersion in the cold heat reservoir are replaced by a single tube-like container disposed about the circumference of the disc and connected to all heat exchanger containers which are adapted to be immersed in a hot heat reservoir.

3,785,145

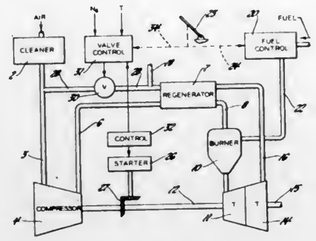
GAS TURBINE POWER PLANT

Charles A. Amann, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 10, 1971, Ser. No. 197,300

Int. Cl. F02c *7/10, 9/02*

U.S. Cl. 60—39.24 **6 Claims**



A regenerative fuel-fired gas turbine power plant includes ducting and a valve to direct some of the engine exhaust into the engine inlet where it mixes with air flowing into the compressor of the engine. This recirculation of exhaust gases is controlled so that it takes place substantially only during the warm-up period of the engine after it is started and brought up to idling speed, and until the regenerator has been brought to something like normal operating temperature. Recirculation volume is controlled by a temperature in the engine.

3,785,146

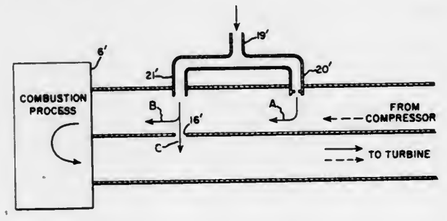
SELF COMPENSATING FLOW DIVIDER FOR A GAS TURBINE STEAM INJECTION SYSTEM

Gordon B. Bailey, Taylors, S.C., and Carl F. Wilhelm, Jr., Scotia, N.Y., assignors to General Electric Company, Schnectady, N.Y.

Filed May 1, 1972, Ser. No. 249,393

Int. Cl. F02c *7/14*

U.S. Cl. 60—39.53 **4 Claims**



In a gas turbine, steam is injected into the combustion chamber both upstream and downstream of the combustion reaction zone. A self-compensating feeding device divides the steam flows between the upstream and downstream injection points and supplies a constant percentage of steam to air to the combustion reaction zone regardless of the total rate of steam flow into the gas turbine cycle.

3,785,147

DIGITAL SYNCHRONIZING AND PHASING SYSTEM

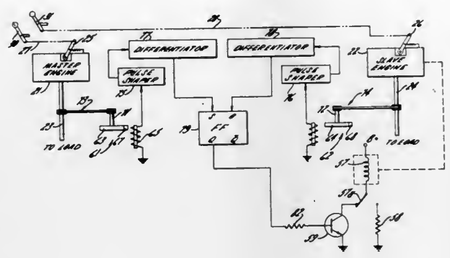
James L. Leeson, Jr., Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.

Filed June 14, 1972, Ser. No. 262,792

Int. Cl. F01b *25/06*

U.S. Cl. 60—97 S **19 Claims**

Digital systems for synchronizing prime movers equipped with magnetic ball head speed governors provide smooth and continuous synchronizing control. A plurality of prime movers may be synchronized by operating one as a "master" and the other as "slaves," in which event each "slave" is equipped with a magnetic ball head speed governor and the bias coil of each such governor is supplied with a digital control signal which is modulated in accordance with any difference between the speed of the associated "slave" and that of the "master." Alternatively, a pair of prime movers may be synchronized by equipping each of them with a magnetic ball



head speed governor and by supplying the bias coils of those governors with digital signals which are complementarily modulated in accordance with any difference between the speeds of the prime movers. The reference level of the digital control pulses may be adjusted manually or automatically to establish and maintain a desired phase relationship between the synchronized prime movers.

3,785,148

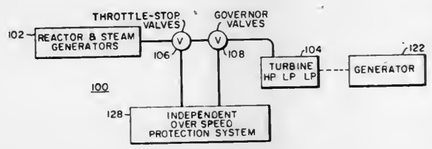
ELECTRONIC SYSTEM AND METHOD FOR OPERATING A STEAM TURBINE WITH INDEPENDENT OVERSPEED PROTECTION ESPECIALLY ADAPTED FOR A NUCLEAR REACTOR POWERED STEAM TURBINE

Michael C. Luongo, Brookhaven, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 14, 1971, Ser. No. 189,230

Int. Cl. F01k *13/02, 17/02*

U.S. Cl. 60—105 **64 Claims**



In a steam turbine an overspeed protection system and method is provided which operates completely independently of the conventional steam valve controller or governor. Existing hydraulically actuated valves such as stop valves, governor valves, interceptor valves, etc., are deactivated by draining hydraulic control fluid from the aforementioned through the action of specially provided dump valves. A pair of dump valves is provided for each of the steam flow valves.

Three turbine speed sensing transducers operating independently provide signals which are translated through three corresponding check circuits into related overspeed check signals. The three resulting check signals relating to overspeed are translated through majority switching logic into two dump valve trip signals. Each set of such trip signals operates one of the pair of dump valves on each steam control valve.

3,785,149
METHOD FOR FILLING A BAG WITH WATER VAPOR AND CARBON DIOXIDE GAS

Hubert G. Timmerman, Manhattan Beach, Calif., assignor to Specialty Products Development Corporation, Hytek Park, Medina, Ohio

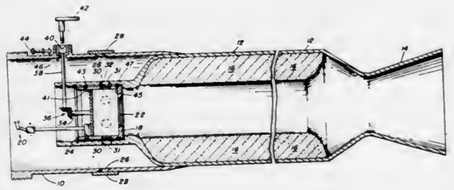
Filed June 8, 1972, Ser. No. 261,041
Int. Cl. C06d *5/00*
U.S. Cl. 60—205 **9 Claims**

A deflagration composition yielding a gas comprising principally carbon dioxide and water vapor comprises a substantially homogeneous mixture of citric acid powder in the range of from about 25 to 37 percent by weight and an oxidizer powder selected from the group consisting of potassium chlorate, potassium perchlorate, sodium chlorate, and sodium perchlorate. This composition may be used adjacent a coolant powder comprising up to about 40 percent by weight of potassium chlorate and an endothermic decomposition coolant having a thermal decomposition product selected from the class consisting of carbon dioxide and water.

3,785,150
INTEGRAL THRUST NEUTRALIZER FOR ROCKET ENGINES

Emanuel E. Katcher, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 10, 1973, Ser. No. 322,348
Int. Cl. F02k *9/04*
U.S. Cl. 60—229 **6 Claims**



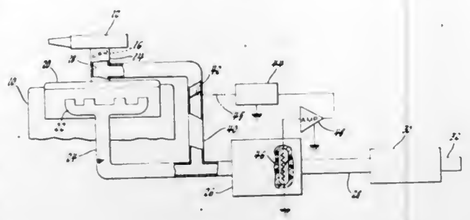
Thrust-neutralizing means for a missile having a rocket motor having igniter means, said neutralizing means compressing a set of blowout ports in the casing of said igniter and blowout discs in said ports, a similarly spaced set of ports in the neck of the combustion chamber of the rocket motor, and a similarly spaced set of ports in the body of the means which couples the motor to the missile. The igniter means is rotatable so that all sets of ports can be aligned in the "safe" position. The ports in the body of the coupling means is forwardly angled so that any gas discharge thru these ports provides backward thrust for the missile.

3,785,151
EXHAUST GAS RECIRCULATION SYSTEM

William H. Holl, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 10, 1972, Ser. No. 296,057
Int. Cl. F02m *25/06*; **F02b** *75/10*
U.S. Cl. 60—277 **2 Claims**

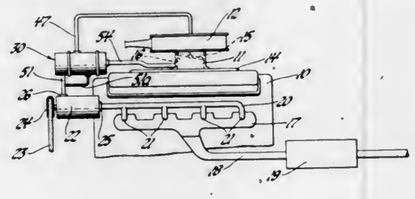
An exhuast gas recirculation system in which engine exhaust gases are recirculated to provide over-temperature protection to a catalytic converter in the exhaust system of the engine, the recirculation of a portion of the exhaust gases beginning at a predetermined converter temperature with the amount of exhaust gases being recirculated increasing with increases in converter temperature until such time as all of the exhaust gases are being recirculated back to the engine.



3,785,152
INLET THROTTLED AIR PUMP FOR EXHAUST EMISSION CONTROL

Donald J. Pozniak, Mt. Clemens, and Robert M. Siewert, Birmingham, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 13, 1972, Ser. No. 305,985
Int. Cl. F01n *3/00*; **F02b** *75/10*
U.S. Cl. 60—290 **8 Claims**

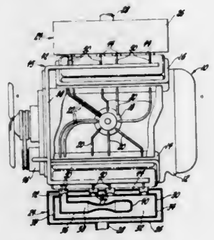


A pressure operated control valve throttles the inlet to the engine driven air pump used to supply injection air for the emission control system of an internal combustion engine of a vehicle, the inlet to the air pump being throttled in relation to engine throttling.

3,785,153
ENGINE WITH EXHAUST REACTOR ARRANGED FOR EARLY IGNITION

Richard C. Schwing, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 25, 1972, Ser. No. 300,830
Int. Cl. F02b *75/10*; **F01n** *3/10*
U.S. Cl. 60—303 **3 Claims**

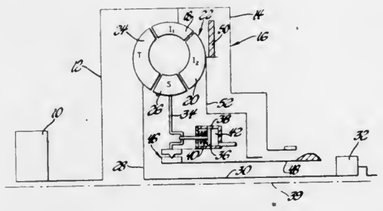


In a preferred embodiment, a V-type internal combustion engine is provided with a pair of exhaust manifold reactors, one for each bank, each manifold reactor has a main reaction chamber connected with all but one of the cylinders of its respective bank and a smaller ignition chamber inside the main chamber and connected with the remaining cylinder of each bank. During engine start-up, excess fuel is supplied to the cylinders connected with the ignition chambers forming a richer than normal exhaust to which excess secondary reaction air is added. This mixture passes through the ignition chamber where it receives heat from the surrounding exhaust gases in the main chamber and is ignited, causing combustion to propagate into the leaner mixture in the main chamber so that early start-up of the reaction process results.

3,785,154
HYDRODYNAMIC FLUID UNIT WITH ENERGY STORAGE

Marvin J. Malik, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 30, 1972, Ser. No. 302,198
Int. Cl. F16h *41/04*
U.S. Cl. 60—347 **4 Claims**

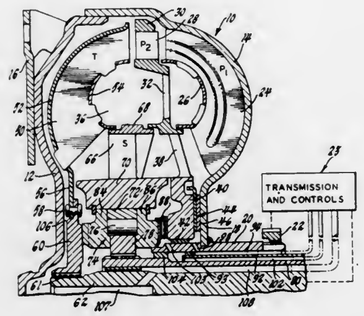


This torque converter has an auxiliary rotor which is drivingly connected to an inertia mass that stores energy during normal converter operation. When increased output torque is desired, the blades of the stator are switched to a high angle position to change the direction of flow into the auxiliary rotor. Under these conditions the inertia mass drives the auxiliary rotor causing it to act as an auxiliary pump to increase flow rate in the converter so that torque on the turbine is increased.

3,785,155
HYDRODYNAMIC UNIT WITH AUXILIARY ROTOR

Ernest W. Upton, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 28, 1972, Ser. No. 310,025
Int. Cl. F16h *41/00*
U.S. Cl. 60—347 **6 Claims**

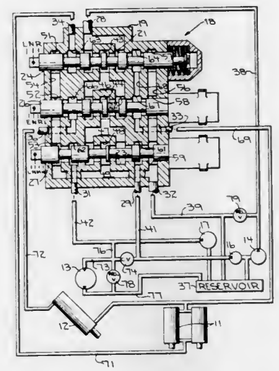


A bladed auxiliary pump, disposed adjacent to the exit of a bladed primary pump of this torque converter, is selectively connectable to the converter input by a clutch actuated by turbine and stator thrust forces. When the clutch is engaged, the blading of the auxiliary rotor changes the fluid flow from the primary pump into the turbine to decrease the torque absorption capacity of the converter. By feeding fluid to the converter through a special feed passage, the turbine and stator thrust forces can be cancelled to effect the disengagement of the clutch to release of auxiliary pump and thereby increase the capacity of the converter.

3,785,156
HYDRAULIC CONTROL FOR SELF-LOADING SCRAPER WITH THREE-SPEED ELEVATOR DRIVE

John A. Junck, Joliet, Ill., and Joseph Kokaly, Buckeye, Ariz., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 27, 1971, Ser. No. 212,136
Int. Cl. F16h *39/48*
U.S. Cl. 60—421 **3 Claims**

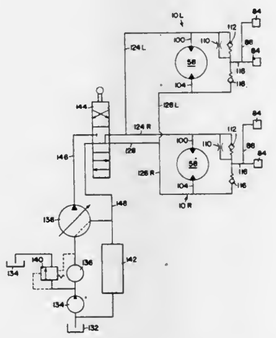


A hydraulic control system for a self-loading scraper elevator drive having a plurality of pumps for combined control of the scraper bowl, ejector, and elevator drives, the flow from the pumps being selectively combinable under the control of an operator to vary the speed of the elevator drive to accommodate different conditions of machine operation. The system permits more efficient utilization of the available engine torque which must be used for propelling the vehicle and driving the scraper bowl, ejector and elevator.

3,785,157
FLOW CONTROL DUMP VALVE

Carl Edwin Kittle; Seaton Moon, both of Cedar Falls, and Keith Louis Spencer, Waterloo, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Nov. 24, 1972, Ser. No. 309,365
Int. Cl. F16h *39/02*
U.S. Cl. 60—493 **7 Claims**



The wheel motor of a hydrostatic drive system is coupled to the wheel through a pressure responsive clutch which discon-

nects the motor from the wheel during periods when fluid under pressure is not supplied to the motor. A flow control dump valve is built into the clutch-actuator and regulates a specific rate of flow through the actuator from zero to lock-up pressure. The flow control dump valve blocks all flow through the actuator above lock-up pressure. The flow control dump valve provides a controlled bleed for purging of air and sumping of oil which leaks past the control valve below lock-up pressure. The sumping of oil below lock-up pressure ensures complete release of the clutch when fluid pressure is not supplied to the motor.

3,785,158

HYDRAULIC ENGINEERING INSTALLATIONS

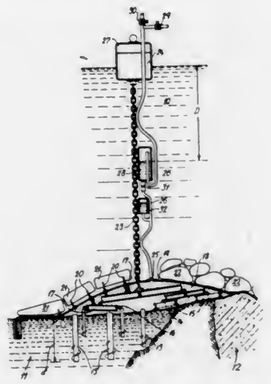
Andrew Noel Schofield, Didsbury, England, assignor to National Research Development Corporation, London, England

Filed Sept. 17, 1971, Ser. No. 181,414

Claims priority, application Great Britain, Sept. 18, 1970, 44,589/70; Sept. 18, 1970, 44,590/70; Sept. 18, 1970, 44,591/70

Int. Cl. E02b *1/00, 5/02*; **E02d** *3/10*

U.S. Cl. 61—1 **10 Claims**



A marine foundation in a pool is provided by placing a liquid impermeable sheet on the bed of the pool and locating a drain below the sheet. Then, by applying suction force to the drain, a pressure differential is set up whereby the sheet is sealed to the bed and the adjacent bed material consolidates to effectively form a solid mass embedded below and sealed to the sheet. This action affords a large capability for lateral shearing stresses. In use, anchorages, dam-form barriers, storage tanks, and other structures can be tied to the sheet.

3,785,159

ATTENUATION OF WATER WAVES AND CONTROL AND UTILIZATION OF WAVE-INDUCED WATER MOVEMENTS

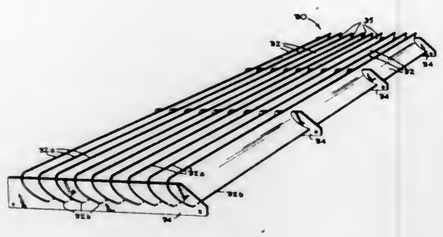
Douglas L. Hammond, San Carlos, Calif., assignor to FMC Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 113,521, Feb. 8, 1971, abandoned. This application Nov. 21, 1972, Ser. No. 308,368

Int. Cl. E02b *3/06, 15/04*

U.S. Cl. 61—5 **33 Claims**

Curved vane-like structures for positioning beneath or at the surface of a body of water to attenuate incident waves, and change the wave-induced normal orbital water movements to produce currents and other useful hydrodynamic effects or combinations thereof. The vanes in the structures are configured and oriented to intercept the water at various locations in its orbital movements, guide it into new paths defined by the shape of the vanes, and discharge it from the structure as a current flowing in a preselected direction, such as counter to or in the direction of wave movement, towards the water surface, or towards the bottom or floor of the body of water. These effects are utilized to perform useful work, including diminishing wave height, speed and period, moving subsurface and surface debris and contaminants such as spilled oil to a collecting point or facility, transportation and dispersal of waters polluted by thermal, chemical or other discharges,



transfer of sand, silt, or other solid material on the bottom from one location to another, and generation of electrical or hydraulic power. Various styles and configurations of these vaned structures, manners in which they can be arranged to perform an intended function, and methods for securing them in operating position also are described.

3,785,160

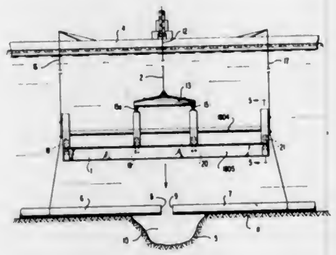
METHOD AND APPARATUS FOR WORKING ON SUBMERGED PIPELINE MEANS

Mark P. Banjavich; George R. Morrissey, both of New Orleans, and Anthony V. Gaudiano, Metairie, all of La., assignors to Taylor Diving & Salvage Co., Inc., Plaquenenes Parish, La.

Continuation-in-part of Ser. No. 841,777, July 15, 1969, Pat. No. 3,641,777. This application Feb. 1, 1972, Ser. No. 222,577. The portion of the term of this patent subsequent to Feb. 15, 1989, has been disclaimed.

Int. Cl. B23k *37/04*; **B63c** *11/00*

U.S. Cl. 61—72.3 **12 Claims**



Method and apparatus for working on submerged pipeline means where multiple forces are exerted on each of a plurality of disconnected pipeline sections to effect alignment of these sections. On at least one section one of the forces functions as a fulcrum or restraining force while another force is operable to effect alignment inducing movement of a free end of the one section.

Method and apparatus for effecting the laying of a pipeline where laying is implemented in conjunction with a transportable, submerged enclosure. The enclosure provides a gaseous environment for pipeline section joinder operations and may be at least partially flooded to facilitate the moving of the enclosure away from an already laid pipeline area.

3,785,161

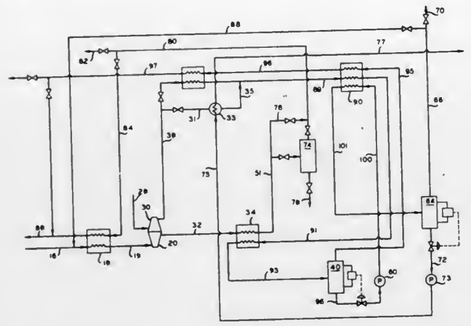
SEPARATION OF COMPONENTS OF VAPOROUS FLUIDS

Walter C. Hart, Bartlesville, and Suman P. N. Singh, Stillwater, both of Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 30, 1970, Ser. No. 23,940

Int. Cl. F25j *3/06*

U.S. Cl. 62—23 **9 Claims**



High molecular weight components are separated from lower molecular weight components of a vaporous fluid stream. A first vaporous fluid feedstock is expanded. A second vaporous fluid feedstock is compressed. Said expanded and compressed streams are then passed in indirect heat exchange relationship to cool said compressed stream. The cooled compressed stream is then passed to a separation zone to separate the more volatile lower molecular weight components from the less volatile higher molecular weight components.

3,785,162

DIFFUSION PUMP ASSEMBLY

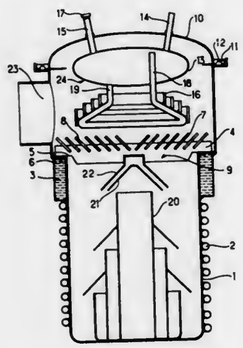
Jacques Long, Annecy, and Jean-Jacques Bessot, Arpajon, both of France, assignors to Compagnie Industrielle des Telecommunications, Paris, France

Filed Dec. 7, 1972, Ser. No. 312,891

Claims priority, application France, Dec. 7, 1971, 7143944

Int. Cl. B01d *5/00*

U.S. Cl. 62—55.5 **8 Claims**



Pumping assembly in which the condensation elements for preventing oil from entering the enclosure to be emptied consists of a baffle cooled by conduction coming from a cold source and by a liquid nitrogen trap in communication with a liquid nitrogen receptacle. The cold source of the baffle is incorporated in the wall of the pump body; the liquid nitrogen receptacle is fixed under the pump cover, so that the assembly is easy to dismantle and to clean.

3,785,163

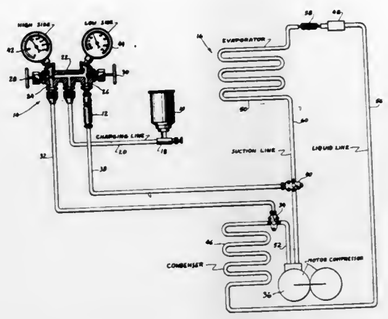
REFRIGERANT CHARGING MEANS AND METHOD

William Wagner, c/o Watsco, Inc., 1800 W. 4th Ave., Miami Beach, Fla.

Filed Sept. 13, 1971, Ser. No. 179,854

Int. Cl. F25b *45/00*

U.S. Cl. 62—77 **7 Claims**



Means and method for introducing an optimum charge of refrigerant into a refrigeration or air conditioning system. When the system is charged to optimum capacity there is a melting of frost, which indicates when the charging operation is to be stopped. This is accomplished by converting a liquid refrigerant to a saturated vapor and feeding the saturated vapor into the low side of the refrigeration or air conditioning system.

3,785,164

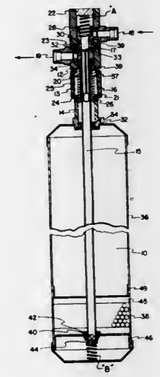
PRECHARGED RECEIVER DRIER FOR AUTOMOBILE AIR CONDITIONING SYSTEMS

George T. Wrenn, Jr., Crittenden, Va., assignor to Virginia Chemicals Inc., Portsmouth, Va.

Filed May 17, 1972, Ser. No. 254,287

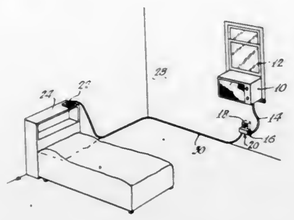
Int. Cl. F25b *43/00*

U.S. Cl. 62—129 **8 Claims**



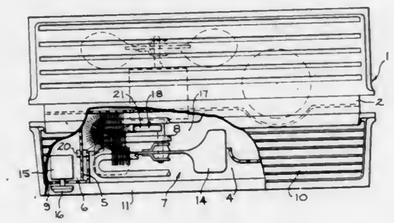
A precharged receiver drier unit for automobile air conditioning systems, including a molecular seive and an axially reciprocable valve fitting for connection to the automobile refrigerant system. The valve fitting seals the refrigerant system in one attitude as the spent receiver drier is removed and opens the refrigerant system in another attitude, as the fresh receiver drier is threadedly attached to the valve fitting.

3,785,165
AIR CONDITIONER CONTROL
Ephren Valenzuela, Jr., 1119 2nd Ave., Chula Vista, Calif.
Filed Mar. 15, 1972, Ser. No. 234,825
Int. Cl. G05d *23/32*
U.S. Cl. 62—158 **9 Claims**



A thermostatic air conditioner control for use with individual unit air conditioners having a thermostatic switch disposed at a location remote from the air conditioner. The control includes circuitry interposed between the air conditioner and a source of electrical energy operative a selected time interval after closure of said thermostatic switch to energize a socket in which the air conditioner is plugged, and operative a selected time interval after opening of said thermostatic switch to de-energize the socket.

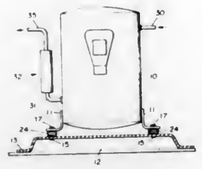
3,785,166
ROOM AIR CONDITIONER FROST PROTECTION WITH BIMETAL CONTROL THERMOSTAT
Paul D. Schrader, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed July 10, 1972, Ser. No. 270,087
Int. Cl. F25b *1/00*
U.S. Cl. 62—227 **7 Claims**



A room air conditioner comprising a refrigeration system including an evaporator, air circulating means, and a control thermostat is provided with a conduit for directing room air over the thermostat, the conduit being heat exchanged with the evaporator so that a frosting temperature of the evaporator prevents energization of the refrigeration system by the thermostat.

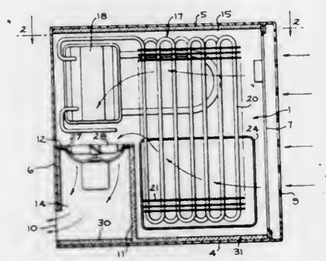
3,785,167
NOISE REDUCTION MEANS FOR CONNECTING REFRIGERANT COMPRESSORS IN AIR CONDITIONERS
Leonard J. Sahs, Cedar Rapids, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa
Continuation of Ser. No. 181,858, Sept. 20, 1971. This application Dec. 11, 1972, Ser. No. 314,149
Int. Cl. F25d *19/00*
U.S. Cl. 62—296 **6 Claims**

A refrigerant compressor in an air conditioning unit is connected to the base pan of the unit and to the refrigerant system to reduce transmission of compressor vibration to the base pan and to attenuate the dominant sound wave in the refrigerant lines produced by the pulsating refrigerant. The



means employed include coil springs and elastomeric mounts for the compressor to the base pan and a hollow cylinder connected to the compressor's outlet.

3,785,168
HOUSEHOLD REFRIGERATOR
Albert A. Domingorene, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Dec. 18, 1972, Ser. No. 316,224
Int. Cl. F25d *19/00*
U.S. Cl. 62—455 **5 Claims**

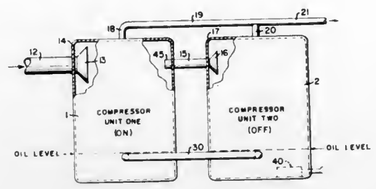


A household refrigerator cabinet comprising a condensing unit compartment at the bottom thereof includes a full width air inlet at the front of the compartment and an air outlet at a rear corner. A serpentine tube condenser mounted adjacent and substantially coextensive with the air inlet occupies the front half of the compartment while the compressor is mounted in the rear corner portion opposite the air outlet. An air circulating fan positioned between the compressor and the air outlet draws air into the compartment through the air inlet and directs air transversely of the rear portion of the compartment toward the air outlet. Partition means between the fan and the air outlet define a muffle chamber having sound absorbing walls for absorbing compressor noises.

3,785,169
MULTIPLE COMPRESSOR REFRIGERATION SYSTEM
Ernest F. Gylland, Jr., Waynesboro, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 19, 1972, Ser. No. 264,101
Int. Cl. F25b *43/02*
U.S. Cl. 62—468 **4 Claims**

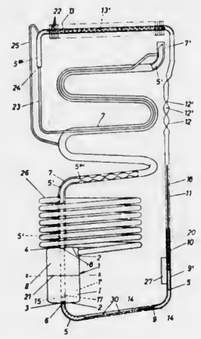
A multiple compressor refrigeration system having at least first and second hermetic shell compressors with the suction line of the system connected into the upper portion of the first compressor shell and a suction line extending from within the upper portion of the first compressor shell to within the upper portion of the shell of the second compressor and with the discharge lines of the first and second compressors connected in parallel to the high pressure line of the system. An oil equalizing conduit is connected between the crankcase por-

tions of the shells of the first and second compressors at the height of the minimum desired oil level to be maintained in the



first compressor when both compressors are running with normal quantities of oil in the system.

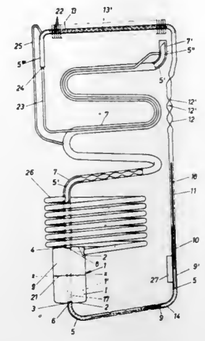
3,785,170
ABSORPTION TYPE COOLING UNIT
Miroslav Beranek, Donberg, Germany, assignor to Firma Varwerk & Co., Elektrowerke K G, Wuppertal-Barmen, Germany
Filed July 7, 1972, Ser. No. 269,745
Claims priority, application Germany, July 9, 1972, P 21 34 278.9
Int. Cl. F25b *15/10*
U.S. Cl. 62—489 **1 Claim**



An absorption cooling unit including a heat exchanger consisting of a plurality of telescoping tubes that comprises an inner tube which is adapted to feed a rich solution therethrough and that extends straight. An outer tube has an inner wall and the latter is engaged at least partly by the inner tubes. The inner tube has over its straight length a uniformly extending flat shape, to include flat walls. The outer tube has ribs on opposite sides which ribs are spaced apart from each other. The ribs extend up to the flat walls of the inner tube, and on one side in between relative to the ribs on the opposite side.

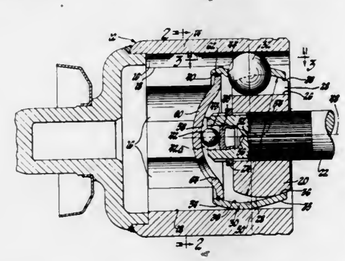
3,785,171
ABSORPTION COOLING DEVICE
Miroslav Beranek, Donberg, and Heinz G. Krumm, Ennepetal-Milspe, both of Germany, assignors to Firma Vorwerk & Co., Elektrowerke K G, Wuppertal-Barmen, Germany
Filed June 12, 1972, Ser. No. 262,078
Claims priority, application Germany, June 11, 1971, P 21 28 931.6
Int. Cl. F25b *15/10*
U.S. Cl. 62—490 **4 Claims**

An absorption-cooling unit which comprises a collector and a plurality of conduits originating from the collector and at least partly boxed into each other. A collector housing includes at least two cap parts welded together in a cross-plane



and having bottom faces. The conduits start from the bottom faces of the collector housing.

3,785,172
CONSTANT VELOCITY UNIVERSAL JOINT
Richard H. Parsons, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 6, 1972, Ser. No. 304,000
Int. Cl. F16d *3/30*
U.S. Cl. 64—21 **6 Claims**

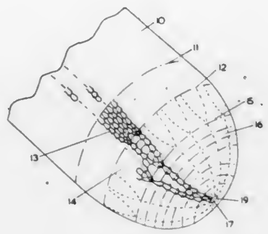


A constant velocity universal joint of the ball and groove type is provided with a double offset cage for locating the drive balls in the constant velocity plane. The cage has an interior bearing seat at one end only and an enlarged opening at the other end which facilitates the assembly of the joint by permitting the direct axial insertion of an inner drive member into the cage in the properly oriented position. The enlarged opening is closed by an end plate which cooperates with means carried by the inner drive member to maintain the inner drive member in bearing engagement with the cage. In one disclosed construction this means comprises an undersized ball carried in a cavity in the end of a shaft on which the inner drive member is mounted. In a second disclosed construction the means comprises a spring biased bearing shoe telescopingly carried by the shaft.

3,785,173
TUBULAR KNITTED FABRIC
Philip Michael Hanney; Thomas Raymond Stainforth, and William Arthur-Bland, all of Leicester, England, assignors to The Bentley Engineering Company Limited, Leicester, England
Filed Oct. 21, 1971, Ser. No. 191,230
Claims priority, application Great Britain, Oct. 23, 1970, 50,450/70
Int. Cl. D04b *9/56*
U.S. Cl. 66—9 R **7 Claims**

A tubular knitted fabric having a closed end at which loops of an end course having a reduced number of wales are drawn

together in closed condition is produced on a circular knitting machine having a circular series of independently operable needles by knitting tubular fabric on the needles, transferring needle loops from selected spaced needles to intervening needles to reduce the number of wales and the number of active needles, knitting a plurality of courses on the reduced number of active needles including an end course, passing a closure



yarn successively through needle loops of the end course while held on the machine and successively releasing the needle loops of the end course from the machine when the closure yarn has been passed through them while tensioning to draw the successively released loops together so that when the final loop of the end course has been released from the machine the loops of the end course have all been drawn together to form a closure.

3,785,174

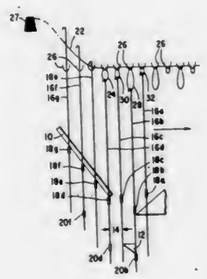
DELAYED-ACTION AUXILIARY STITCH CAMS

Lester Mishcon, Miami Beach, Fla., assignor to The Singer Company, New York, N.Y.

Filed Apr. 28, 1972, Ser. No. 248,518

Int. Cl. D04b *9/00, 15/32*

U.S. Cl. 66—57 **1 Claim**



An auxiliary stitch cam is provided for use in combination with a main stitch cam in a circular knitting machine and is spaced from the main stitch cam by at least the distance between adjacent knitting needles. The main stitch cam is used to move all needles into stitch forming positions, whereas the auxiliary stitch cam is used to actuate only selected needles after they have moved through the space separating the main and auxiliary stitch cams such that yarn instead of being pulled from a supply spool as stitches are extended by the action of the auxiliary stitch cam are instead pulled from the loops of the stitches in the cloth being knitted.

3,785,175

APPARATUS FOR INSERTING WEFT THREAD BUNCHES INTO WEFT THREAD STORAGE DEVICES IN WARP KNITTING MACHINES

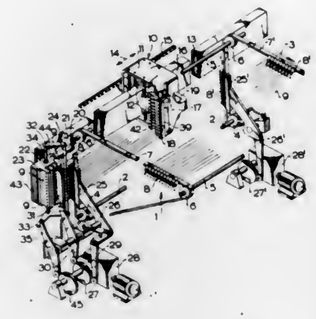
Heinz Kamp, Rickelrath, Germany, assignor to W. Schlafhorst & Co., Monchengladbach, Germany

Filed May 15, 1972, Ser. No. 253,300

Claims priority, application Germany, May 14, 1971, P 21 24 171.4

Int. Cl. D04b *23/12*

U.S. Cl. 66—84 A **6 Claims**



Apparatus for inserting bunches of weft threads into a weft thread storage device in a warp knitting machine includes means for making the weft threads ready, and a weft thread drawing-off device including a suction nozzle displaceable over the width of a fabric web being warp knitted by the machine, and means for actuating the suction nozzle to align the ends of the weft threads made ready by the readying means and to seize the weft thread ends as well as draw off the seized weft threads and insert them into the weft thread storage device.

3,785,176

THREAD SUPPLY APPARATUS FOR TEXTILE MACHINERY, PARTICULARLY CIRCULAR KNITTING MACHINES

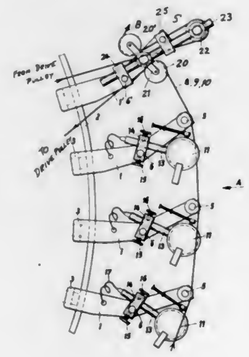
Rolf Hebbecker, Bodelshausen, and Robert Hofmann, Rottenburg, both of Germany, assignors to Fouguet-Werk Frauz & Planck, Rottenburg am Neckar, Germany

Filed June 13, 1972, Ser. No. 262,409

Claims priority, application Germany, June 21, 1971, P 21 30 697.8

Int. Cl. D04b *15/48*

U.S. Cl. 66—132 T **7 Claims**



To permit ready selective use of thread supply apparatus in textile machines, particularly circular knitting machines, a plurality of support arms, all similar, are clamped to a rail on the machine (which may be a ring for a circular knitting machine). The arms carry projecting rods which extend at right angles to the planes in which drive belts are continuously driven from the machine, to permit selective vertical adjustment of thread supply apparatus to be engaged by selected ones of the drive belts. In one form of the invention, the arms carry two vertical rods, one for idler pulleys around which the drive belts can be looped and the other for the thread supply apparatus itself, so that dismounting and re-mounting of the thread supply apparatus can be eliminated by mere selective engagement of the belts with the thread supply apparatus, or the idler pulleys, respectively, the thread supply apparatus itself being mounted for both vertical as well as radial adjustment on their mounting rods.

3,785,177

DEVICE FOR SENSING A BROKEN YARN OF A CIRCULAR KNITTING MACHINE

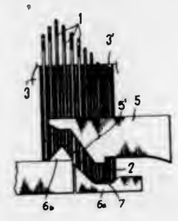
Mikuni Hino; Shozo Hanawa; Hisao Itaya; Toshihiko Okada, all of Ayabe, and Masayuki Fujiwara, Okayama, all of Japan, assignors to Gunze Company, Ltd., Kyoto, Japan

Filed July 23, 1971, Ser. No. 165,492

Claims priority, application Japan, July 29, 1970, 45/66781; July 29, 1970, 45/66782

Int. Cl. D04b *35/14*

U.S. Cl. 66—157 **7 Claims**



A device for sensing a broken yarn of a circular knitting machine of the type wherein are provided one or more latch needles which are elevationally movably positioned at the needle groove of a cylinder with one or more cam members to operate the latch needles with at least one sensing member disposed in the lower cam which is located under the latch needle butt with a means for generating an electrical signal when the latch needle falls by its own weight so that the butt touches the sensing member which is responsive thereto, and a mechanism for stopping the knitting machine, a means for feeding the electrical signal to the mechanism, and means for stopping the mechanism responsive to the transmission of the electrical signal to the mechanism.

3,785,178

WEFT KNITTED FABRIC AND METHOD OF PRODUCING THE SAME

Frantisek Machacek, Strelice U Brno; Josef Minarik, Brno; Lubomir Rossa, Brno; Zdenek Koristek, Brno, and Miroslav Brandstadter, Brno, all of Czechoslovakia, assignors to Vyzkumny Ustav Pletarsky, Brno, Czechoslovakia

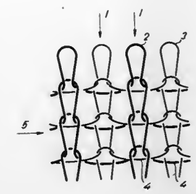
Filed Jan. 6, 1972, Ser. No. 215,899

Claims priority, application Czechoslovakia, Jan. 7, 1971, 89/71

Int. Cl. D04b *7/04, 11/04*

U.S. Cl. 66—196 **13 Claims**

Method of producing a weft knitted fabric on a rib knitting machine, and fabric produced thereby, at least a part of the fabric being a double fabric composed of two single fabrics. In the practice of the method, for the formation of connecting elements of the linking course of the double fabric, the corresponding stitches of one single fabric are formed on selected needles of one needle bed, and the corresponding stitches of the other single fabric are formed on selected second needles of a second needle bed, the second needles being opposite to the needles of the first needle bed inactive in this course, while for the laying of the sinker loops of both single fabrics in the same connecting element of the double fabric on one side of



the same, a stitch of one single fabric is transferred on to the opposite needle of the other needle bed which needle is inactive in this course, on the active needle of which needle bed the stitch of the other fabric is immediately formed. In the process of knitting the stitches of the first single fabric on the active needles of the first needle bed the stitch of the other single fabric remains on the needle of the second needle bed.

3,785,179

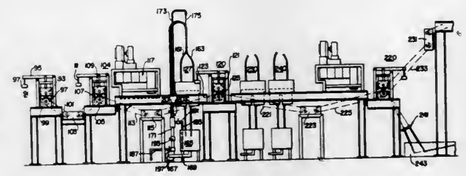
APPARATUS FOR APPLICATION OF DYES AND/OR CHEMICALS TO FABRICS, WEBS, STRANDS OF YARN, OR OTHER MATERIAL

Thomas E. Davis, and Thomas B. West, both of Burlington, N.C., assignors to Dawes Enterprises, Incorporated, Gastonia, N.C.

Filed Oct. 18, 1971, Ser. No. 189,821

Int. Cl. B05b *13/04;* **D06f** *33/02*

U.S. Cl. 68—5 D **22 Claims**

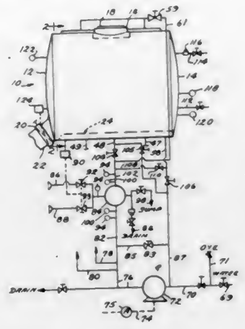


The present invention relates to apparatus and a method for space or solid dyeing yarn ends, fabrics and other materials. It comprises means for guiding the material along a predetermined path, at preferably a high continuous rate in tensioned or tensionless manner. A plurality of spraying stations are disposed along the path at spaced apart positions and are provided for transverse movement above and across the yarn ends or fabric to spray dye solutions or other chemicals into the material, with penetration being achieved due to dispersion and atomization of the dye solution emerging from the spray nozzles. The nozzles may be oriented at various angles to produce narrow or wide application. The parameters are set so that the kinetic energy of the dye solution is sufficient to penetrate the material. Steam chest (steam venturies in the case of yarn ends) are used to fix or stabilize the colors, rebulk or even enhance bulking, and wash away excess chemicals. Conventional application of background color by nip rolls or other means of conventional application, drying and other steps are incorporated in the process to achieve the overall object of space of solid dyed textile material which exhibits its original or greater bulk in a process which is repeatable.

3,785,180
DYEING APPARATUS

Roy Luckenbach, Asheboro, and John Funk, Greensboro, both of N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.

Filed Mar. 24, 1972, Ser. No. 237,683
Int. Cl. B05c 8/02
U.S. Cl. 68—15 11 Claims

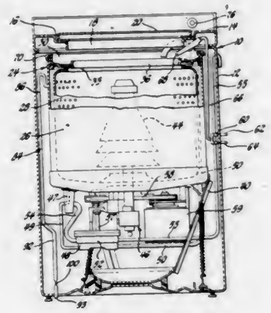


The disclosure embraces a method of dyeing and an apparatus comprising a horizontally extending generally cylindrical article dyeing vessel which is provided with a bank of nozzles extending along the interior bottom wall portion of the vessel; the nozzles are disposed to discharge liquid in a generally tangential direction with respect to the interior of the vessel; the nozzles are divided into groups each of which is connected to the out-put of a pump through one or more conduits. The conduit or conduits which deliver fluid to the nozzles are provided with a valve means so that the output of the nozzles can be controlled whereby a substantially uniform, circular fluid flow may be obtained. The vessel is provided with a suction liquid outlet slot on one side of the nozzles opposite the direction of fluid delivery and which extends the length of the vessel to enable the vessel to handle variably sized loads. A large unloading valve is provided to enable the vessel to be rapidly emptied and fluid nozzles are arranged on the interior of the vessel to flush articles out through the unloading valve.

3,785,181
CLOTHES WASHER HAVING A SIPHON-ACTUATED FLOOD CONTROL ARRANGEMENT

Melvin A. Menk, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 89,826, Nov. 16, 1970, abandoned. This application May 10, 1972, Ser. No. 252,107
Int. Cl. D06f 39/08
U.S. Cl. 68—208 3 Claims

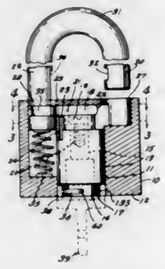


A recirculating-type domestic clothes washer has an open top water container for containing water and washing agent in which clothes are washed. A perforate spin basket is inside the water container and includes an agitator which is driven by a prime mover means beneath the water container. Water is supplied from a conduit having its terminus in an upper portion of the water container. A fluid control system prevents water from overflowing the water container in order to prevent contamination of the water supply in the upper part of the water container and the prime mover means beneath the water container. The fluid control incorporates a siphon having one portion connected to the water container at its predetermined fill level and another portion adapted for communication with a remote drain and having a bight portion at a level limiting the uppermost level of water in the water container.

3,785,182
PADLOCKS

Leo F. Van Lahr, deceased, late of Cincinnati, Ohio (by Helen F. Van Lahr, administratrix), assignor to Progress Tool and Engineering Co., Inc.

Filed Dec. 1, 1972, Ser. No. 311,390
Int. Cl. E05b 67/22
U.S. Cl. 70—38 B 4 Claims

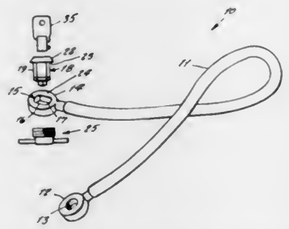


A padlock body having a key operated pin tumbler lock which turns a cam that establishes the normal locked and unlocked positions of the padlock shackle, the pin tumbler lock being operative by a second key that turns the cam to an inoperative position releasing the shackle and the pin tumbler lock from the padlock body.

3,785,183
THEFT DETERRENT FOR OFFICE MACHINES, TELEVISION SETS AND SMALL FACTORY TOOLS

Paul F. Sander, Wantagh, N.Y., assignor to I. O. Prague Corporation, Wantagh, Nassau, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,142
Int. Cl. E05b 69/00, 73/00
U.S. Cl. 70—58 6 Claims



A novel tethering device for securing appliances or other portable equipment of value, to prevent a thief from taking the same, the device consisting of a flexible cable that is resistant to being cut or otherwise severed, and one end of the cable being firmly secured to the object being protected while the other end is fixed to an anchoring stationary object, at least one of the ends including a key operated lock whereby the attachment can be disconnected.

3,785,184
LOCKING LATCH FOR A DISK-PACK STORAGE CONTAINER

Wayne M. Wirth, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 27, 1972, Ser. No. 292,488
Int. Cl. B65d 55/14
U.S. Cl. 70—63 2 Claims

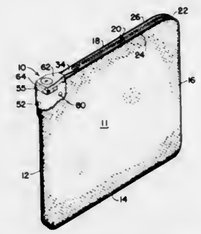


A squeeze operated mechanism for releasably attaching the bottom cover of a disk-pack storage container to a disk-pack which mechanism includes a key-operated lock.

3,785,185
KEEPER LOCK FOR A SLIDE FASTENER

William J. Kerr, Glenview, Ill., assignor to Chicago Lock Co., Chicago, Ill.

Filed May 30, 1972, Ser. No. 257,751
Int. Cl. E05b 67/38
U.S. Cl. 70—68 6 Claims

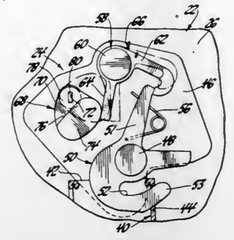


A concentric three-part, key-operated keeper lock for a slide fastener and including an outer barrel, an intermediate rotatable tubular handle disposed within the barrel and having a radial keeper flange, and an inner tumbler-type cylinder mounted in the tubular handle and having a locking bolt which releasably maintains the barrel and handle in telescoped relation. In the locked condition of the cylinder, the keeper flange closely overlies the pull tab of the slide fastener and prevents access thereto. In the unlocked condition of the cylinder, the keeper flange springs upwards under the influence of a helical compression spring and assumes a condition where it may be rotated in either direction through an angle of 360° so that no portion thereof interferes with manual access to the pull tab of the slide fastener.

3,785,186
CLOSURE LATCH ARRANGEMENT

Bruce A. James, Sterling Heights; Michael J. Lawless, Warren, and David L. Clark, Grosse Pointe Woods, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1972, Ser. No. 310,770
Int. Cl. E05c 3/24
U.S. Cl. 70—240 3 Claims

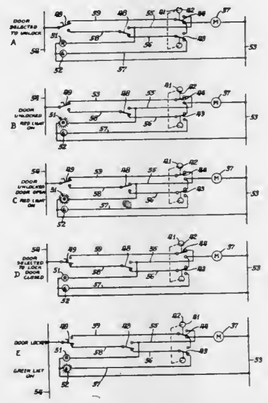


A closure latch arrangement particularly for an automobile deck lid including a latch bolt, a detent lever, an actuating cam element and a lock cylinder connected to the cam element through a disengageable connecting bar. The cam element normally rotates with the lock cylinder barrel portion to move the detent lever between a detenting and a releasing position. If the lock cylinder is forcibly removed from the deck lid the connecting bar disengages from the cam element whereupon a spring acting on the detent lever causes the latter to rotate the cam element to a remote position permitting movement of the detent lever to a dead bolt position in which the latch bolt is irreversibly maintained in a latched condition.

3,785,187
INSTITUTIONAL SECURITY SYSTEM

Francis T. Wolz, Joliet, Ill., assignor to Folger Adam Co., Division of Telkee, Inc., Joliet, Ill.

Filed June 16, 1972, Ser. No. 263,681
Int. Cl. E05b 47/02, 41/00
U.S. Cl. 70—264 10 Claims



Security system for use with a plurality of swinging doors having individual key-released locks, comprising a plurality of deadbolts with a single electrically operable power means for each door controllable by control switch means located at a remote control point, safety switch means controlled by each door to prevent operation of the associated power means unless that door is closed and operable, after actuation of the control switch means, to cause automatic locking actuation of the associated plurality of deadbolts when the door is closed,

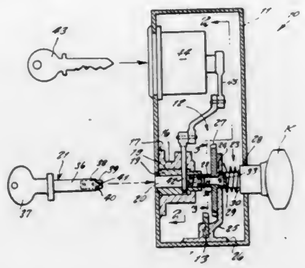
and signal means for indicating at the control point closed and open positions of each door and active or inactive positions of the deadbolts.

3,785,188

MAGNETIC CONTROLLED DOOR LOCK

Carl J. Drathschmidt, c/o Modern Annuciation, Inc., 57 Sullivan St., New York, N.Y.

Filed Mar. 21, 1972, Ser. No. 236,710
Int. Cl. E05b *19/26, 35/10*
U.S. Cl. 70—276 **2 Claims**



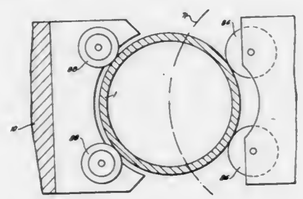
A lock for a door, the lock including a safety feature that prevents an intruder or unauthorized person from opening the lock; the safety feature consisting of a magnetically operated mechanism which is operative by a special key of unconventional design and which magnetically pulls a part of the mechanism into an operational position so it can co-operate with the remainder of the mechanism for sliding a bolt between a locked and an unlocked position.

3,785,189

TUBE CORRUGATING APPARATUS

Peter Asselborn; Werner Cramer; Bergisch Gladbach, and Heinrich Mullejans, all of Dusseldorf, Germany, assignors to Felten & Guilleaume Kabelwerke Aktiengesellschaft, Cologne, Germany

Filed Feb. 11, 1972, Ser. No. 225,420
Claims priority, application Germany, May 10, 1971, P 21 22 906.1
Int. Cl. B21d *15/06*
U.S. Cl. 72—78 **5 Claims**



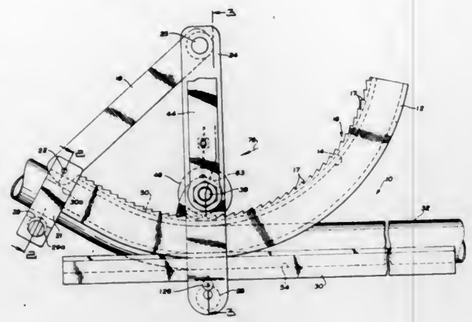
A tube is advanced lengthwise through passages provided in two longitudinally spaced universally movable bearing means of which each surrounds a portion of the path of advancement of the tube. That section of the tube which is located between the bearing means can thus flex transversely of the path without appreciable stretching of its material. A grooving unit is located between the bearing means and can orbit about the tube, engaging the same individually and successively with a plurality of grooving tools each of which comprises at least two pressure rolls, with the tools traveling about an axis at least substantially normal to the path of advancement of the tube and at such a rate of speed that the tube section is contacted by one tool at a time.

3,785,190

HIGH PRESSURE PORTABLE TUBE BENDER

Wallace J. Schall, 1101 17th St., N.W., and Richard F. Van Horn, 921 14th St., N. W., both of Canton, Ohio

Filed Oct. 13, 1972, Ser. No. 297,232
Int. Cl. B21d *7/04*
U.S. Cl. 72—149 **7 Claims**



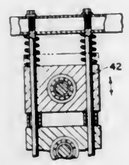
This invention relates to an improvement on U.S. Pat. No. 3,336,779 wherein a plurality of control cams are provided for progressive operative engagement of pawls carried thereon with a control rack gear to aid in obtaining high pressure bending movements in the apparatus. A pressure transmitting shoe engages with the tube to aid in retaining it in the apparatus and to aid in applying pressure to the tube as it is being bend. A handle or other drive means operatively engages a shaft on a carrier frame for cam actuation.

3,785,191

METAL STRIP ROLL FORMING STAND

Herbert F. Dewey, 1368 Mac Dr., Stow, Ohio

Filed May 26, 1972, Ser. No. 257,308
Int. Cl. B21d *5/08*
U.S. Cl. 72—181 **3 Claims**



A roll forming stand including a plurality of pairs of forming rolls for progressively shaping a light gauge metal strip, such as an aluminum metal strip to a desired shape and wherein one roll of each of the pairs of rolls is resiliently positioned for movement away from its companion roll whereby if an obstruction in rolling is met, the rolls can move apart and wherein a unitary drive system is provided for the plurality of pairs of forming rolls.

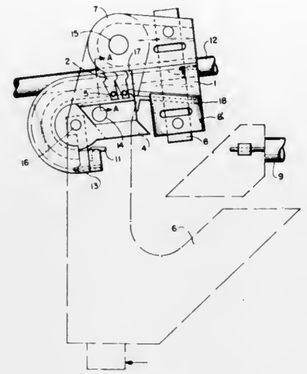
3,785,192

TUBE BENDING DEVICE

Bengt Fjellstrom, Vadsbrovagen 12, Jarna, Sweden

Filed Sept. 28, 1972, Ser. No. 293,170
Claims priority, application Sweden, Sept. 30, 1971, 12360/71
Int. Cl. B21d *11/04*
U.S. Cl. 72—319 **2 Claims**

A tube bending device for bending tubes of a circular cross-section includes a frame element and a pulley provided with a groove which is firmly attached to the frame element. A steering element for steering the tube during bending has a lever arm which is connected to the steering element and the pulley via a first joint and a second joint. A number of lamellas are arranged in a flexible chain configuration and are linkably but



not firmly connected to each other and also provided with grooves. The lammellas are connected to each other via a wire which at its one end is connected to a self-locking abutment or heel member and at its other end to a lamella holder which is pivotably connected to the steering element via a joint which is connected to a stretchable wire.

3,785,193

LINER EXPANDING APPARATUS

Myron M. Kinley, Chickasha, Okla., and Charles W. Agee, Houston, Tex., assignors to John C. Kinley, Houston, Tex.

Filed Apr. 10, 1971, Ser. No. 242,712
Int. Cl. B21d *39/08*
U.S. Cl. 72—393 **12 Claims**



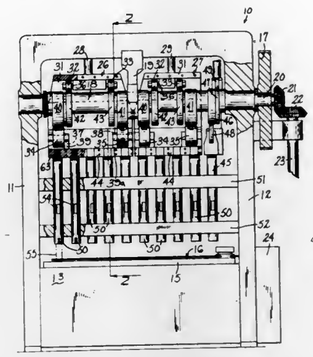
Apparatus for repairing tubular members, such as oil well casing or tubing, wherein a malleable liner is expanded into sealed engagement with the inside of such tubular member in spite of variations therein, by driving a mandrel with a collet mounted thereon through the liner, the collet having flexible fingers extending therefrom into yieldable engagement with the liner.

3,785,194

PRESS

Charles R. Bradlee, Kokomo, Ind., assignor to Textron, Inc., Providence, R.I.

Filed Sept. 29, 1972, Ser. No. 293,403
Int. Cl. B21j *9/00*
U.S. Cl. 72—405 **12 Claims**



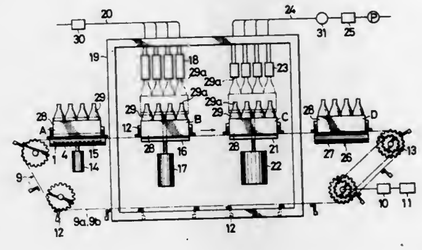
A transfer press which utilizes two rams each carrying a plurality of forming plungers which may be independently adjusted in their rams with respect to both lash and shut height.

3,785,195

APPARATUS FOR TESTING PRESSURE RESISTANCE OF BOTTLES

Tomita Yasuhiro, Nishinomiya, and Nakayama Katsutoshi, Itami, both of Japan, assignors to Yamamura Glass Kabushiki Kaisha, Hyogo, Japan

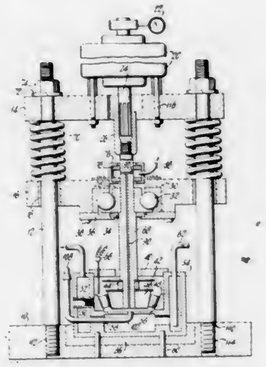
Filed Aug. 7, 1972, Ser. No. 278,485
Int. Cl. G01m *3/02*
U.S. Cl. 73—37 **9 Claims**



An apparatus comprises a cross feed conveyor to be driven intermittently by an intermittently driving mechanism for transporting bottle-containing boxes and temporarily stopping each of the boxes at a pressure fluid supply station, pressure applying heads identical in number and arrangement to the bottles in the box for supplying a pressure fluid to the bottles to conduct a pressure resistance test, a feed conveyor for supplying the bottle-containing boxes onto the cross feed conveyor in timed relation to the intermittent travel of the latter conveyor, and a delivery conveyor for receiving bottle-containing boxes from the cross feed conveyor after they have been tested and transferring the boxes to the next process. At the pressure fluid supply station, the bottle-containing box on the conveyor is raised or the pressure applying heads are lowered to associate all the bottles with all the pressure apply-

ing heads simultaneously to introduce the pressure fluid into the bottles and thereby apply pressure to the bottles in the associated state, whereby all the bottles in each of the intermittently transported boxes are subjected to the pressure resistance test.

3,785,196
APPARATUS FOR TESTING SHEAR STABILITY OF LUBRICANTS
Marvin F. Smith, Matawan, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.
Filed Apr. 3, 1972, Ser. No. 240,661
Int. Cl. G01n *11/00, 33/26*
U.S. Cl. 73—64 **1 Claim**



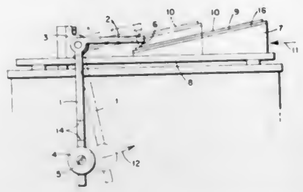
An apparatus for rapidly determining the loss in viscosity which occurs when a lubricant containing a polymeric viscosity improvement additive is subjected to high shear is characterized by a tapered roller bearing assembly, pre-loaded to a constant torque, in which one race revolves at a constant and measurable speed in a cell containing the lubricant while maintaining the lubricant at a set temperature.

3,785,197
APPARATUS AND METHOD FOR LOCATING THE CENTER OF GRAVITY OF A GOLF CLUB
Charles P. Finn, 406 Lamberton Dr., Silver Spring, Md.
Filed Aug. 4, 1972, Ser. No. 277,970
Int. Cl. G01m *1/06*
U.S. Cl. 73—65 **4 Claims**



An apparatus and method for supporting a golf club by the handle and rotating the club so that the head of the club spins about its center of gravity and marking the center of gravity of the club head to indicate the desired point of contact with a golf ball.

3,785,198
SCRATCH RESISTANCE TESTER
Jakobus Heetman, Koblenz, Switzerland, assignor to Lonza Ltd., Gampel/Valais, Switzerland
Filed June 13, 1972, Ser. No. 262,173
Claims priority, application Switzerland, June 14, 1971, 8626/71
Int. Cl. G01n *3/46*
U.S. Cl. 73—78 **11 Claims**



A scratch resistance or hardness tester is disclosed wherein a test point is guided across two flat parallel surfaces of a test specimen. The testing point is loaded in the direction of one of the surfaces of the test specimen and is disposed movably in that direction. A path or track, along which the test point and a receiving surface for the test specimen, against which the other of its two flat parallel surfaces is intended to fit, are movable relative to one another in order to guide the test point across the first mentioned surface of the test specimen. The path together with the receiving surfaces enclose or form an acute angle. The test point is loaded with the force of a pendulum which increases when there is an increased deflection from its rest position.

3,785,199
DYE PENETRANT INSPECTION PROCESS
Orlando G. Molina, Westminster, Calif., assignor to Air Products and Chemicals, Inc., Allentown, Pa.
Division of Ser. No. 852,458, Aug. 22, 1969, abandoned. This application Feb. 25, 1971, Ser. No. 118,979
Int. Cl. G01n *19/02*
U.S. Cl. 73—104 **1 Claim**

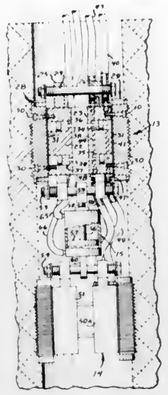
Viscous compositions of gel-like consistency are disclosed for removing excess dye penetrant from parts subjected to liquid dye penetrant inspection. The compositions comprise a cleaner, a carrier, and a viscosity increasing agent, and have a viscosity between 10 and 100 poises at 100 reciprocal seconds.

ERRATUM

For Class 073—134 see:
Patent No. 3,785,216

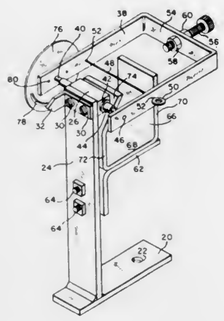
3,785,200
APPARATUS FOR IN SITU BOREHOLE TESTING
Richard L. Handy, Des Moines, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
Filed June 1, 1972, Ser. No. 258,548
Int. Cl. E21b *49/00*
U.S. Cl. 73—151 **7 Claims**

Borehole test apparatus includes upper and lower laterally expandable side pressure units joined by a vertically expandable piston and cylinder unit. The laterally expandable side units are provided with diametrically opposing gripper surfaces to exert normal pressure to the sides of the borehole at vertically spaced locations when they are expanded. After the side pressure units are expanded to exert a predetermined normal force, the vertical cylinder unit is expanded to urge the side pressure units apart. One side pressure unit acts as a reaction base and the other shears the soil surrounding the borehole. The maximum vertical separation force tolerated by the soil is a measure of its shearing strength, and is recorded as



a function of the normal pressure exerted by the expandable side pressure units to obtain the cohesion C and internal friction angle of the soil, rock, or other material tested.

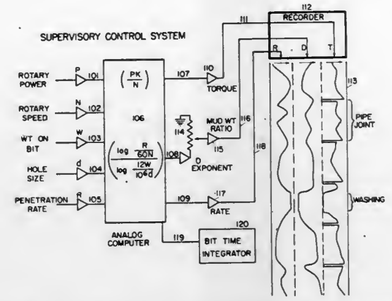
3,785,201
DETERMINING HARDNESS OF SOFT MATERIALS
Manuel Jesus Rubio, Bridgeport, Conn., and Victor Mario Leal, Monterrey, Mexico, assignors to Roberto Gonzalez Barrera, Monterrey, Mexico
Filed Nov. 3, 1971, Ser. No. 195,315
Int. Cl. G01n *33/10*
U.S. Cl. 73—169 **12 Claims**



In determining hardness of soft materials a cutting edge which is preferably blunt and preferably a wire, is pushed or pulled into the test specimen in a direction transversely to the cutting edge under a force, and the relation of the force, the length of cut and the time is determined. The force is preferably applied progressively diminishing from a maximum at the time of application to a minimum at the end of test. Either the length of cut or the time is preferably a variable. The force application is preferably tangential to the arc of a circle.

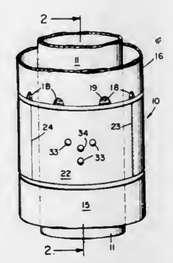
The area of the cutting edge exposed to the sample is preferably constant or substantially constant. In the preferred embodiment three faces of the sample are exposed to the cut.

3,785,202
ELECTRONIC SUPERVISORY CONTROL SYSTEM FOR DRILLING WELLS
Ray M. Kelseaux, Tulsa; Harold J. Dobbs, Bartlesville, both of Okla., and Frank D. Priebe, Houston, Tex., assignors to Cities Service Oil Company, Tulsa, Okla.
Filed June 25, 1971, Ser. No. 156,645
Int. Cl. E21b *45/00*
U.S. Cl. 73—151.5 **10 Claims**



An electronic supervisory control system is disclosed herein wherein rotary power, rotary speed, bit weight, hole size, penetration rate and mud weight ratio are utilized in conjunction with analog and electronic sensing means in order to afford drilling personnel a supervisory control system over drilling operation. Recorded information includes the rate of penetration, corrected *d* exponent and rotary torque, which may be visually recorded and electronically stored for use for both supervisory control and simultaneous understanding of the monitored drilling variables and their effect upon the drilling operation.

3,785,203
WAVE FORCE TRANSDUCER
Michael M. Mull, Van Nuys, Calif., assignor to Mechanics Research, Inc., Los Angeles, Calif.
Filed Mar. 24, 1972, Ser. No. 237,869
Int. Cl. G01p *5/02*
U.S. Cl. 73—170 A **3 Claims**

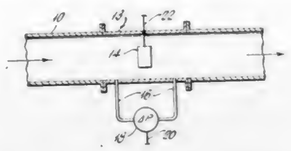


A wave force transducer, including a shell mounted around a support column by a set of flexures which permit substantially only lateral movement of said shell and a set of hydraulic load cells spaced around said shell between said shell and support column which measure the total wave force acting upon said shell.

3,785,204
MASS FLOW METER
Edward L. Lisi, Freeport, N.Y., assignor to Esso Research Engineering Company, Linden, N.J.
Filed Apr. 6, 1972, Ser. No. 241,140
Int. Cl. G01f *1/00*
U.S. Cl. 73—194 M **1 Claim**

A mass flow meter determines the weight flow of a fluid stream by combining in series a density-sensitive flow measur-

ing device and a density-insensitive flow measuring device. The density-insensitive flow measuring device is a vortex-shedding meter which requires no moving parts to determine volumetric or velocity flow. In combination with the vortex-shedding meter, the density-sensitive flow measuring device



may be an orifice meter or preferably a pressure differential instrument connected across the vortex shedding meter itself. Information obtained from the density-sensitive flow measuring device and the density-insensitive flow measuring device may be combined to obtain mass flow rate.

3,785,205

DEVICE FOR TRANSFERRING AND MEASURING THE FLOW OF PURE GAS

Andre Lambert, Gif-sur-Yvette; Jean-Pierre Soury, Igny, and Gaston Sifre, Orsay, all of France, assignors to Societe Generale de Constructions Electriques et Mecaniques (Alsthom), Paris, France

Filed June 15, 1972, Ser. No. 262,945
Claims priority, application France, June 5, 1971, 7121777
Int. Cl. G01f *1/00*
U.S. Cl. 73—198 **10 Claims**

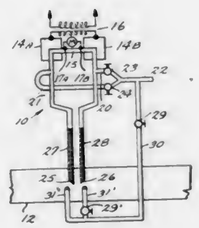
Device for transferring and measuring the flow of very pure gas, comprising a connection block, to which is linked, up stream, in the direction of flow of the gas, a flowmeter having a calibrated tube and a float, and inside which are arranged a flow regulating valve and two stop valves each ensuring communication with a gas utilization circuit. The valves and the connection pipes inside the block are arranged so that the paths followed by the gas inside the block are the same whatever the utilization circuit. The adjusting valve and the flowmeter are interchangeable.

3,785,206

FLUID FLOW MEASURING DEVICE

James M. Benson, and William C. Baker, both of Hampton, Va., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Apr. 26, 1972, Ser. No. 247,841
Int. Cl. G01f *1/00*
U.S. Cl. 73—212 **8 Claims**



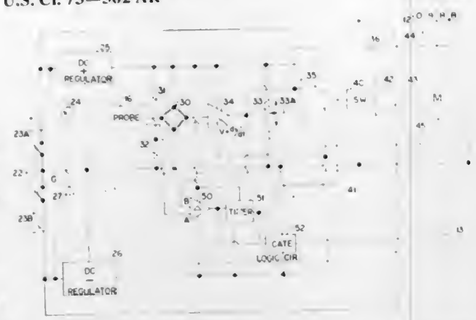
Apparatus for measuring the velocity of fluid flow includes a form of pitot tube having orifices that develop a differential pressure related to the stream velocity and a means of directing an auxiliary stream of gas at or near one of the orifices. The auxiliary stream is arranged to be deflected by the main stream so that in the range of low velocities of the main stream, wherein pitot tubes are insensitive, the sensitivity of the apparatus is enhanced. In a preferred form of the device, a purged thermal flowmeter connected to the two orifices senses the velocity of the main stream.

3,785,207

DIGITAL READOUT INSTRUMENT EMPLOYING ENABLEMENT CIRCUITS FOR SYSTEM WHEN UNDER READING CONDITIONS

Janusz Brzezinski, c/o John E. Wagner, 1041 E. Green St., Suite 202, Pasadena, Calif.

Filed June 28, 1971, Ser. No. 157,465
Int. Cl. G01k *7/24*
U.S. Cl. 73—362 AR **14 Claims**



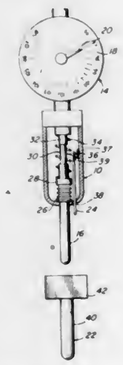
A digital readout thermometer employing a resistance bridge with a temperature sensitive element such as a thermistor in one leg of the bridge and including a motor driven adjustable resistance or potentiometer for rebalancing the bridge. A servo amplifier, d.c. motor and digital counter provide a reading indicative of the temperature. The circuit includes a differentiator for accelerating the time response of readout. It also includes timer, a comparator, logic circuit and visual indicator for enabling the readout system only when the transducer senses the temperature in the range to be read and the logic circuit is operative to enable the visual indicator when a temperature in the required range has been sensed for a period sufficient for the counter to complete its movement to the correct reading. The thermometer is automatically powered when the probe is removed from its storage tube.

3,785,208

CLINICAL THERMOMETER

Louis P. Marsilia, East Boston, and Robert J. Moran, Littleton, both of Mass., assignors to Cardinal Instruments Corporation, Cambridge, Mass.

Filed May 11, 1971, Ser. No. 142,241
Int. Cl. G01k *5/42*
U.S. Cl. 73—368.4 **8 Claims**



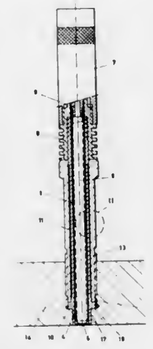
A quickly responsive, dial-type clinical thermometer is provided to give fast, accurate and easily readable clinical temperatures. A temperature sensitive liquid is sealed in a sensing probe element and expands proportionately with a rise in temperature. The liquid in the probe communicates with an attached bellows which is flexed by the expanding liquid to actuate a dial indicator drivingly connected to the bellows. The indicator dial is graduated with temperature markings. A simple locking arrangement holds the indicator needle at the highest recorded temperature until reset by replacing a disposable sterile probe cover. Placement of a new cover over the probe tip automatically resets the indicator needle.

3,785,209

PRESSURE GAUGE

Johannes Schijf, Delft, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek Ten Hehoeve Van Nijverheld, Handel en Verkeer, The Hague, Netherlands

Filed Oct. 28, 1971, Ser. No. 193,508
Claims priority, application Netherlands, Oct. 29, 1970, 7015908
Int. Cl. G01l *7/00*
U.S. Cl. 73—395 **5 Claims**



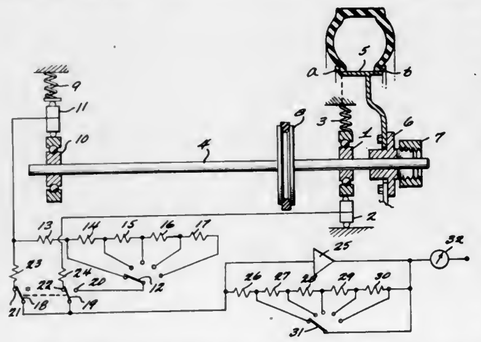
A pressure gauge for extrusion and injection moulding machines, in which a push rod connects a membrane at one end and a displacement meter at the other end of the casing. The usual thermal sensitivity of this kind of pressure gauges has been suppressed by the use of a hollow, thin-walled push rod that fits in the casing with a narrow clearance.

3,785,210

BALANCING APPARATUS FOR BALANCING OUT-OF-BALANCE BODIES

Richard Muller, Worfelden, Germany, assignor to Gebr. Hofmann KG, Damstadt, Germany

Filed Feb. 3, 1972, Ser. No. 223,213
Claims priority, application Germany, Mar. 26, 1971, P 21 14 770.6
Int. Cl. G01m *1/22*
U.S. Cl. 73—459 **10 Claims**



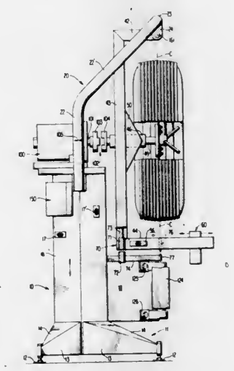
An apparatus for balancing a body such as a motor vehicle wheel in two balancing planes whereby a driving shaft is supported by two separated bearings, one movable and the other immovable and, each having a force measuring device associated with it for each measuring the force which the shaft applies to its associated bearing. The force measuring devices are connected via suitable resistances to a two position switch which in turn is connected to an indicator for displaying imbalance. The switch has a first position connecting both force measuring devices to the indicator so that, when the body is mounted with one of the planes coinciding with the immovable bearing, the indicator displays the imbalance in that plane after imbalance in the other plane has been corrected. The second switch position connects only the force measuring device associated with the movable bearing to the indicator so that, when the body is mounted with the one of the planes coinciding with the immovable bearing, the indicator displays the imbalance in that other plane.

3,785,211

METHOD AND APPARATUS FOR TRIMMING AND BALANCING VEHICLE WHEELS

Charles Earl Branick, 1601 S. 9th St., Fargo, N. Dak.

Filed Dec. 7, 1970, Ser. No. 95,717
Int. Cl. G01m *1/12*
U.S. Cl. 73—480 **11 Claims**



A method and apparatus for trimming tires and balancing wheels which includes a fixed frame structure pivotally supporting thereon a wheel-support frame that carries a rotatable wheel-mounting assembly, adapted to be selectively connected with an electric motor by a clutch; the wheel support frame includes a displaceable weight as well as a pointer to indicate any imbalance in the wheel when the clutch is disengaged and when a latch mechanism is unlatched to permit free pivotal movement of the wheel-support frame together with the wheel mounted thereon; the fixed frame structure also pivotally supports a trimming apparatus which can be manually pivoted and adjusted for removing any out-of-round conditions of the tread surface of the tire when the latter is rotated with the clutch engaged and the latch mechanism latched.

3,785,212

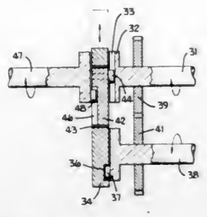
MOTION ALTERING APPARATUS

Robert J. Eminger, Fort Wayne, Ind., assignor to Windamatic Systems, Inc., Ft. Wayne, Ind.

Filed Feb. 23, 1973, Ser. No. 335,240
Int. Cl. F16h *21/00*
U.S. Cl. 74—23 **6 Claims**

Disclosed is an apparatus for changing rotary driving motion of uniform velocity into driven rotary motion whose velocity varies in a uniformly recurring pattern. The length of and number of minimum velocity or "dwell" periods is adjustable over a wide range. The apparatus can be utilized in actuating the movement of a winding head for winding wire on electric stators, or the like. An offset driving crank drives a Scotch yoke slide, the slide carrying a freely rotatable

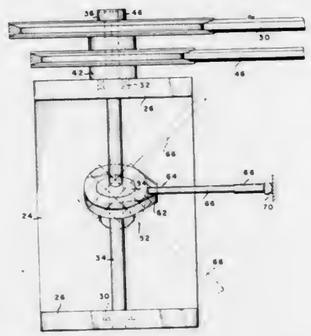
member. The rotatable member has a pin and slot connection to the driving or input shaft and this input shaft also drives the offset driving crank. The freely rotatable member has a pin and slot connection to the output or driven shaft.



3,785,213
MECHANICAL MOVEMENT

John L. Berggren, 1148 Clark Ave., Billings, Mont.

Filed Mar. 24, 1972, Ser. No. 237,633
Int. Cl. F16h *33/00*
U.S. Cl. 74—60 10 Claims



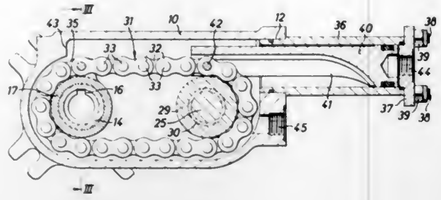
This invention is a mechanical movement for converting reciprocating linear motion to rotary motion. An arm is pivotally connected at one end to a source of reciprocating motion. The opposite end of the arm is connected to a driving member mounted on a rotatable shaft at approximately a 45° angle to the longitudinal axis of the member. As the arm moves in response to the reciprocating motion, corresponding movement of the opposite end of the arm is effected, producing actuation of the driving member to rotate the shaft on which the driving member is mounted.

3,785,214
FLUID PRESSURE OPERATED ROTARY ACTUATORS

John Cecil Ridley, Newcourt House, New St., Lymington, England

Filed Mar. 27, 1972, Ser. No. 238,221
Int. Cl. F16h *29/02*
U.S. Cl. 74—89.21 7 Claims

A fluid pressure operated rotary actuator in which rectilinear movement of a piston in a cylinder by the action of fluid pressure is converted into rotary movement of an output shaft. The piston is fixed to a closed loop pivoted link chain of the kind known as a leaf chain, which passes around the output shaft and a rotary idler member so that one run of the closed loop is substantially parallel to the line of movement of the piston. The chain is fixed to the output shaft at a point spaced from the point at which it is fixed to the piston. The output shaft, rotary idler member and the closed loop of the casing may be in communication with the cylinder or may be separated from the cylinder by a packing gland through which extends the piston rod.



3,785,215
PAWL AND RATCHET INDEXING MECHANISM FOR ON-OFF SWITCHING

Joseph P. Stefani, Warwick, R.I., assignor to General Electric Company, Providence, R.I.

Filed Mar. 31, 1972, Ser. No. 239,908
Int. Cl. F16h *27/02*
U.S. Cl. 74—142 6 Claims

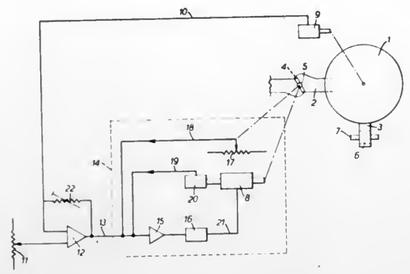
An improved indexing mechanism is provided for generating an indexed rotary motion from a reciprocating plunger motion. In the mechanism a plunger adapted for linear motion along its longitudinal axis has a pivotable actuator mounted at its end. On a plunge stroke the actuator pushes on a tooth of a set of ratchet teeth mounted about a rotor where the rotor axis is set generally at a right angle to the plunger axis. On a return stroke, under the urging of a return spring, the actuator pivots about its point of support on the plunger as the actuator passes over the ratchet.

3,785,216
CONTROL SYSTEMS FOR HYDROKINETIC DEVICES

Norman McLean; Donald Bernard Lewis, and Robert John Lawson McLaren, all of Worcester, England, assignors to Redman Heenan Froude Limited, Worcester, England

Filed Nov. 15, 1971, Ser. No. 198,564
Claims priority, application Great Britain, Nov. 27, 1970, 56410/70
Int. Cl. G01l *3/20*
U.S. Cl. 73—134 5 Claims

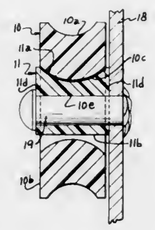
A control system for a hydrokinetic device such as a dynamometer in which an electrical signal dependent upon the difference between a desired and the measured value of an operating parameter of the device is applied to a control unit. The latter is adapted to control the position of a fluid regulating valve associated with the inlet or outlet of the device, the valve being specially characterised so that displacement thereof is directly proportional to the torque developed by the device.



3,785,217
ROLLER ASSEMBLY AND METHOD OF MAKING THE SAME

Warren A. Peura, Madison, Wis., assignor to Consolidated Foods Corporation, Chicago, Ill.

Filed July 17, 1972, Ser. No. 272,553
Int. Cl. F16h *55/36*; B32b *23/00*
U.S. Cl. 74—230.3 16 Claims



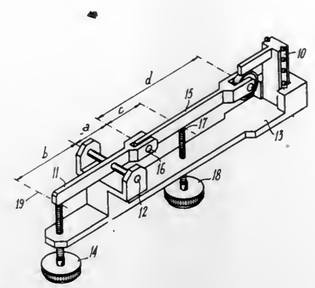
A roller assembly having an inner stator member and an outer roller member rotatably supported on the stator member and method of making the same in which the roller member is molded in an annular form with an inner bearing surface of circular cross-section extending axially through the roller member, and the inner stator member is thereafter injection molded inside the inner bearing surface, of a plastic material having a molding shrinkage characteristic such as to provide sufficient clearance between the stator and roller members for a running fit therebetween. In molding the stator member in the roller member, circumferentially spaced portions of the inner bearing surface of the roller member are preferably sealed from the mold cavity for the stator member so that the stator member is formed with a non-circular cross-section with only circumferentially spaced portions having a shape conforming to and in a running fit with the inner bearing surface on the roller member.

3,785,218
COARSE AND FINE ADJUSTMENT MEANS

Andre Louis Czapek, Le Perreux, France, assignor to Societe d'Optique, Precision Electronique et Mechanique-Sopelem, Paris, France

Filed May 9, 1972, Ser. No. 251,735
Claims priority, application France, May 24, 1971, 71.18559
Int. Cl. G05g *1/00*
U.S. Cl. 74—479 7 Claims

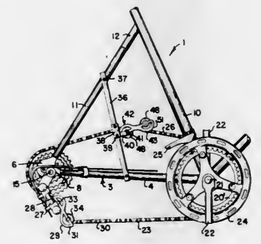
A coarse and fine adjustment device especially for focusing a lens system in which both the coarse and fine adjustment are transmitted by two levers pivotally connected together. The coarse or fine adjustment levers are moved by control means which may comprise screw-threaded pins, cam surfaces or an inclined plane acting upon the levers. Only one of the levers is in actual contact with the element to be moved.



3,785,219
COASTER BRAKE SYSTEM FOR A MULTI-SPEED BICYCLE

Joseph L. Anthamatten, Precious Blood Seminary, Ruth Ewing Rd., Liberty, Mo.

Filed June 5, 1972, Ser. No. 259,568
Int. Cl. F16h *11/04*
U.S. Cl. 74—217 B 8 Claims



A mechanism for maintaining tension in the drive chain on a multi-speed bicycle having an exposed drive ratio change device with a plurality of different sized rear sprockets and front sprockets and having a coaster brake actuated by reverse rotation of the front sprockets.

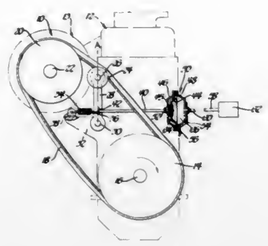
3,785,220
CLUTCH DEVICE

James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 10, 1972, Ser. No. 295,922
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.1 FP 5 Claims

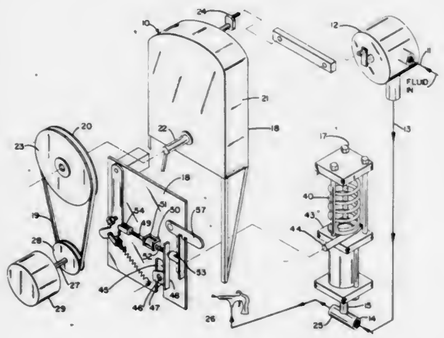
The drawings illustrate a belt-type clutch device wherein a pulley rotatably mounted on an arm pivotally mounted within the perimeter of an endless belt is urged or "teased" by a relatively small actuating force communicated thereto from any suitable power source, into a self-energizing or wedged rela-

tionship with the belt to thereafter be urged by the tractive action of the belt into an angular relationship therewith which



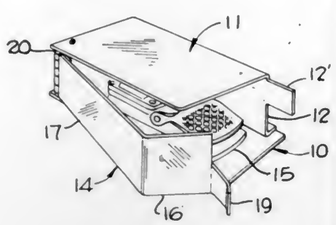
results in the belt being fully tightened about its associated driving and driven pulleys.

3,785,221
LOAD CONTROL DEVICE
Ralph R. Fifield, 49 Bonnie Brae, Novato, Calif.
Filed May 10, 1971, Ser. No. 141,506
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.11 P **4 Claims**



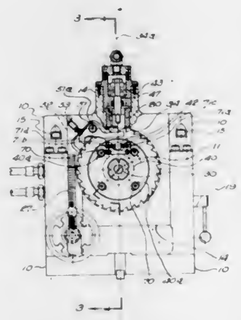
A load control device for continuously running a source of power in a hydraulically activated system is disclosed having a housing carrying an idler bearing adapted to engage a belt driven by the source of power. A fluid inlet is associated with the housing and is in fluid communication with means for disengaging the bearing from the belt under no-load or dead-end conditions in the system.

3,785,222
FOOT CONTROL GUARD
James C. Dawson, Kirkwood, Mo., assignor to Bohn and Dawson, Inc., St. Louis, Mo.
Filed Nov. 15, 1972, Ser. No. 396,704
Int. Cl. F16p *3/00*
U.S. Cl. 74—561 **10 Claims**



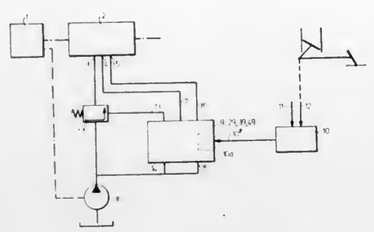
This foot control guard includes a base, mounting a cover, side guards and a front closure and provides substantially complete enclosure for the control. The front closure is provided by a side-opening gate, which is hingedly mounted to the base about a rearwardly disposed vertical hinge axis. A foot-engageable lip is provided on the front closure and the gate is substantially ell-shaped having a length greater than the width to facilitate the side opening action.

3,785,223
ROTARY INDEXING MACHINE
Richard C. Steele, Warwick, R.I., assignor to The Cleveland Twist Drill Company, Cleveland, Ohio
Filed June 5, 1972, Ser. No. 259,662
Int. Cl. B26h *29/32*
U.S. Cl. 74—815 **19 Claims**



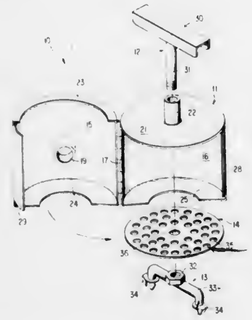
A rotary indexing machine comprising a housing, a spindle mounted for rotation in the housing, an index plate mounted on the spindle substantially coaxially therewith, means for mounting a workpiece-holding member substantially coaxially with the spindle, a fluid motor for continuously rotating the spindle in one direction about its axis, the motor being located within the housing substantially concentric with the spindle and positioned between the index plate and the means for mounting the workpiece-holding means, means for periodically arresting rotation of the spindle for a predetermined interval of time during which the workpiece may be machined, and means for periodically releasing the rotation arresting means. The means for periodically arresting rotation of the spindle for automatic step indexing, may be easily rendered inoperative so that thereafter the spindle will be rotated continuously without step indexing. The preferred embodiment also includes means for moving the spindle axis through an arc relative to a horizontal position and means for adjusting the spindle angularly about its axis and relative to the location plane of the index plate, whereby the location sides of the notches of the index plate may be accurately aligned with premachined notches existing in the workpiece.

3,785,224
ELECTROHYDRAULIC TRANSMISSION SHIFTING APPARATUS FOR A MOTOR CAR
Gerhard Will, Beutelsbach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Sept. 13, 1972, Ser. No. 288,654
Claims priority, application Germany, Sept. 13, 1971, P 21 45 666.6
Int. Cl. B60k *21/00*; **F16h** *3/74*
U.S. Cl. 74—865 **14 Claims**



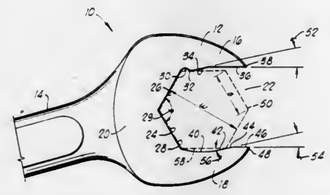
An electrohydraulic transmission shifting apparatus includes an electrohydraulic transducer with a throttle valve operated by an electromagnet and a pressure-limiting valve which effects a kick-down signal at a predetermined maximum pressure when the gas pedal is fully depressed. Fluid under pressure is supplied from a pump to the valves. A fluid-pressure control flow, limited by the pressure-limiting valve, is supplied to a main valve connecting a pump with the shifting means of a transmission so that the valve operates in accordance with the control flow. The pump is also connected with the kick-down shifting means of the transmission by a kick-down valve when the electrohydraulic transducer is operated upon a kick-down gas pedal operation.

3,785,225
SAFETY DEVICE FOR REMOVING RADIATOR CAPS
James J. McKenna, Lake Worth, Fla., and Roy Harter, late of Palm Springs, Fla., assignors to H. Elisabet Harter surviving spouse of Roy S. Harter, Palm Springs, Fla.
Filed May 25, 1972, Ser. No. 256,823
Int. Cl. B67b *7/44*; **B25b** *29/00*
U.S. Cl. 81—3.1 R **9 Claims**



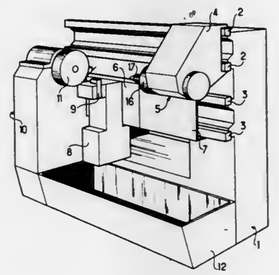
There is disclosed a radiator cap removing device which comprises a steam retainer chamber positionable over a radiator cap. The steam retainer chamber has an opening in the bottom which is at least as large as the neck of the radiator to which the radiator cap is attached but smaller then the greatest width of the radiator cap. The radiator cap projects though this opening. A shaft is slideably and rotatably positioned in the retainer chamber. This shaft includes a cap removal means secured at one end thereof within the retainer and a gripping means at the other end of the shaft outside of the retainer chamber. There is also disclosed a pressure release plate containing a number of orifices slideably positioned on the shaft above the cap removal means. When used to remove a radiator cap from a hot radiator, the device shields the person using the tool from being burned or scalded by steam or water emitting from the radiator and prevents water and the radiator cap from being blown back onto the engine or the person using the device.

3,785,226
LOCKING WRENCH
Jerry E. Ward, Star Rt. Box 222, Vian, Okla.
Filed May 18, 1972, Ser. No. 254,433
Int. Cl. B25b *13/46*
U.S. Cl. 81—119 **13 Claims**



An open ended wrench having a hexagonal-headed threaded member-engaging cavity formed in the wrench head configured such that when torque is applied through the wrench to a hexagonal-headed member engaged in the cavity the wrench is effectively locked onto the member and is prevented from slipping from engagement therewith. In one form the novel aspects of this invention are applied to an otherwise conventional open ended wrench; and in another form the novel aspects of this invention are applied to a ratchet-type open ended wrench.

3,785,227
LATHE
Paul Wolff, Illkirch Graffenstaden, France, assignor to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France
Filed Oct. 14, 1971, Ser. No. 189,421
Claims priority, application France, Oct. 14, 1970, 7037161
Int. Cl. B23b *3/00*, *19/02*, *17/00*
U.S. Cl. 82—2 **21 Claims**



A lathe has a bedplate to which is mounted a lathe bed defining first and second slideways and a fixed headstock holding a rotatable spindle. A movable tailstock slides on at

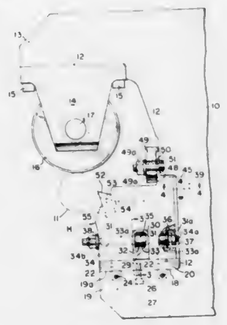
least one of the slideways such that the spindle axis lies in a first plane and the first and second slideways lie in a common second plane perpendicular to the first plane and equally spaced therefrom.

3,785,228

FRONT RELEASABLE, LATERALLY CLAMPING, QUICK-CHANGE TOOL HOLDER FOR AN ORBITING CRANKSHAFT LATHE GIRT

Thomas E. Clagett, and Martin W. Dahl, both of Saginaw, Mich., assignors to The Wickes Corporation, Saginaw, Mich.

Filed May 22, 1972, Ser. No. 255,444
Int. Cl. B23b *29/00, 5/18*; **B26d** *1/00*
U.S. Cl. 82—36 B **17 Claims**



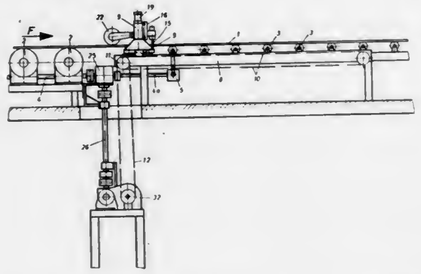
A tool holder and girt assembly wherein a tool holder is mounted for fore and aft movement perpendicular to the crankshaft axis of rotation on a girt way. It is secured in position by a laterally movable clamp member which anchors the tool holder in machining position on the girt support. The lateral clamping force is created by an accentric part, provided on a front to rear extending rotatable clamp actuator, which is manipulatable from the front of the tool holder.

3,785,229

APPARATUS AND METHOD FOR CUTTING GLASS

Friedrich Halberschmidt, Merkstein, and Josef Audi, Aachen, both of Germany, assignors to Saint-Gobain, Neuilly-sur-Seine, France

Filed Mar. 21, 1972, Ser. No. 236,601
Claims priority, application France, Mar. 22, 1971, 7109942
Int. Cl. C03b *33/02*; **B26d** *3/08, 5/38*
U.S. Cl. 83—6 **3 Claims**



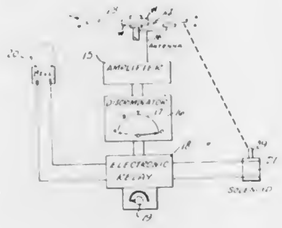
A method of scoring glass at a selected distance from the end of an advancing ribbon of glass which comprises poising scoring means in proximity to the ribbon, moving the ribbon past the scoring means and measuring the length of glass which passes the scoring means, accelerating the scoring means parallel to the moving ribbon and out of contact with it until its speed is slightly less than that of the ribbon as the end of the selected length approaches the scoring means, attaching the moving ribbon and scoring means together as the end of the length to be cut reaches the scoring means whereby they move in unison, activating the scoring means, disengaging the scoring means, and returning it to its original position.

3,785,230

AUTOMATIC SAFETY BRAKE FOR ROTARY BLADE EQUIPMENT

Robert C. Lokey, Tamal, Calif., assignor to Lokey Tool, Inc., San Leandro, Calif.

Filed Nov. 8, 1972, Ser. No. 304,726
Int. Cl. B27b *19/02, 19/04*
U.S. Cl. 83—58 **5 Claims**



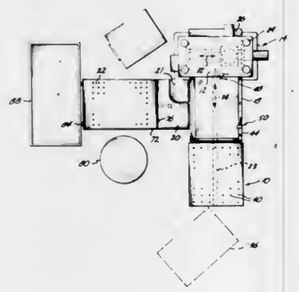
An automatic safety brake for rotary blade equipment in which a capacitance proximity sensor utilizes the spinning blade as an antenna so that when any portion of the body of the user approaches the blade to closely a cam brake will be instantaneously actuated to stop the rotation of the blade before the body of the user comes in contact with the cutting edge of the blade. In one form of the invention cam members are applied to opposite side faces of the blade to serve as a brake for the instanteous stopping of the rotation of the blade. In another form of the invention a rubber wedge is driven into the cutting edge of the blade so as to instantaneously stop the rotation of the blade. In both forms of the invention the sensitivity of the sensor may be adjusted to suit the capacitance effect of the individual user of the equipment.

3,785,231

APPARATUS FOR CUTTING BLANKS

Willett R. Lake, Jr., and James O. Ward, both of Portland, Oreg., assignors to Pak-Well Corporation, Denver, Colo.

Filed Aug. 18, 1972, Ser. No. 281,836
Int. Cl. B26d *3/00, 7/06*
U.S. Cl. 83—103 **6 Claims**



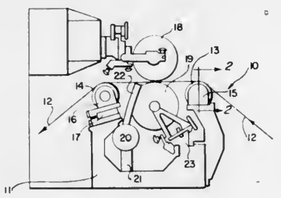
Apparatus for cutting blanks from a sheet. A method of cutting such blanks using a cutting table and cutting die which are relatively movable to position the die over different regions of a sheet to ready the die for cutting. The apparatus specifically disclosed comprises a die press having a vertically movable cutting die which is forced downwardly to cut a blank. A horizontally disposed cutting table below the die is movable in increments along a horizontal path between retracted and extended positions, to advance sheets supported on the table to different positions under the die. A sheet is supplied to the cutting table from a support table disposed at one end of the cutting table with the latter in its retracted position. Sheets are deposited on such support table from a supply. Sheets moved off the cutting table move over a drop table and thence onto an ejector table, such tables being aligned in a direction extending transversely of the path of movement of the cutting table. Clamps on the cutting table hold a side margin of a sheet, with the sheet edge bounding such side margin positioned parallel to the path of movement of the cutting table and remote from the side of the cutting table which is adjacent the drop table. Using the method of the invention, these clamps are released in succession, and the cutting of blanks is performed using a last sequence of cuts which occurs along the side margin of the sheet held by the clamps.

3,785,232

WEB SUPPORT TABLE

Kenneth G. Frye; Robert G. Lucas, both of Downingtown; Kenneth L. Seidel, Temple, all of Pa., and Soma M. Rohosy, Sterling Forest, N.Y., assignors to Beloit Corporation, Beloit, Wis.

Filed Dec. 16, 1969, Ser. No. 885,548
Int. Cl. B23d *19/06*
U.S. Cl. 83—156 **12 Claims**



A web conveying apparatus having a support "table" portion where the web is moved over two parallel rollers under tension to flatten the web between the rollers to treat the flattened portion of the web. At least one and preferably both of the rollers are made up in a plurality of longitudinally aligned sections with a spacing element, preferably of wear resistant material, located between and axially spacing adjacent sections of each roller. The two rollers are located at the top of the legs of a U-shaped frame and when the table portion is used with a slitting apparatus, the lower slitter and a trim removal pipe may be located in the space between the legs of the U.

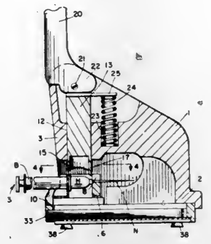
3,785,233

CUTTING PUNCHES FOR DESTROYING HYPODERMIC SYRINGES

Murry M. Robinson, 1712 I St., N.W., Washington, D.C.

Filed May 9, 1972, Ser. No. 251,695
Int. Cl. B23d *15/04*
U.S. Cl. 83—167 **8 Claims**

A cutting punch for destroying effectively the components of hypodermic syringes, after their use, in order to prevent the salvaging thereof from waste receptacles for eventual use as essential paraphernalia in the illicit drug field. An annularly shaped female cutter member is fitted with diametrally opposed slots for supporting the cannular needle and the syringe elements extending therefrom in horizontal position, and a cylindrical cutting punch is brought downwardly into engagement with the cutter member to sever the needle and another part of the syringe, to destroy the assembly rapidly in a manner rendering impossible its repeated use.

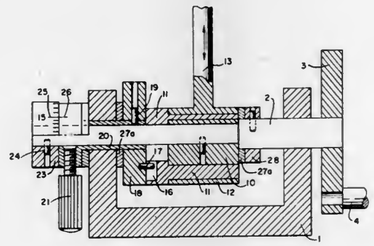


3,785,234

DEVICE FOR AN INFINITE ADJUSTMENT OF THE SPECIMEN STROKE IN MICROTOMES AND ULTRAMICROTOMES

Hellmuth Sitte, Homburg-on-Saar, Austria, assignor to C. Reichert Optische Werke AG, Vienna, Austria

Filed Dec. 11, 1972, Ser. No. 313,912
Int. Cl. B26d *7/06*
U.S. Cl. 83—414 **10 Claims**



A microtome having continuous adjustment to vary the length of the specimen cutting stroke is provided by a pair of eccentric members mounted on a drive shaft with one eccentric member selectively positionable about the periphery of the other eccentric member in order to provide a continuous range of eccentricity with a corresponding adjustment range in the specimen stroke. A cam may be also connected to the drive shaft and adjustable about the drive shaft to operate a switch for controlling the return stroke of the specimen arm. In motor driven microtomes, a means for varying the cutting and/or return stroke speed is desirable to accommodate long and short cutting strokes and provide consistent tissues.

3,785,235

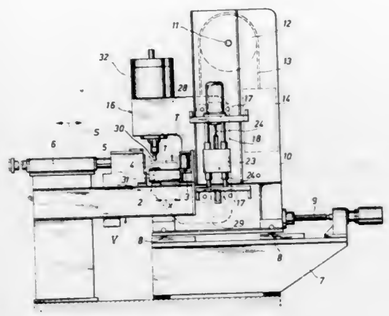
PUNCHING OR SHEARING TRAIN

Werner Peddinghaus, Sprockhovel, and Ludwig Regenbrecht, Hasslinghauser Str. 129, Gevelsberg, both of Germany, assignors to said Ludwig Regenbrecht, by said Werner Peddinghaus

Filed Sept. 24, 1971, Ser. No. 183,509
Claims priority, application Germany, Sept. 25, 1970, P 20 47 215.5
Int. Cl. B26d *5/12*
U.S. Cl. 83—557 **11 Claims**

An apparatus for punching or shearing work members by tool elements which are supported in a holder, with one of the tool elements movable toward and away from the other. The

holder is supported in a frame in which a work member is guided between the tool elements. The holder is resiliently supported in the frame so that during a work operation the actuated tool element will first engage the work member and then the holder will move to bring the other tool element into engagement with the work member and the work operation is then completed by continuing the actuation of the actuated tool element.

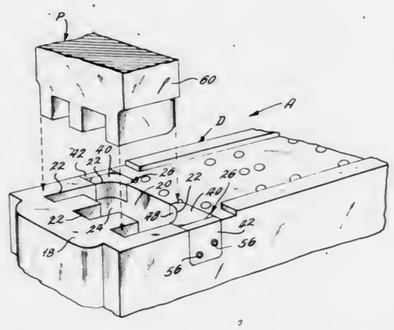


3,785,236

IMPACT DIE AND CARBIDE INSERT THEREFOR

Francis C. Peterson, Affton, Mo., assignor to C. Hager & Sons Hinge Manufacturing Company, St. Louis, Mo.

Filed May 30, 1972, Ser. No. 258,010
Int. Cl. B26f *1/14, 1/46*
U.S. Cl. 83—685 11 Claims



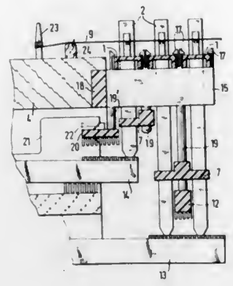
A punch and die set for blanking or otherwise shearing pieces with curved edges from flat stock has carbide inserts on the punch and die thereof. The inserts are mechanically clamped in position and cut the rounded corners as the punch descends toward the die. Those corners are disposed so that the curved surfaces thereof merge into existing straight edges on the flat stock. The greatest wear occurs at these locations on existing punches and dies and the presence of carbide inserts at these locations greatly reduces wear and thereby extends the life of the entire punch and die set.

3,785,237

HARPSICHORD MECHANISM

Rainer Schutze, Muhltalstrasse 128, Heidelberg, Germany

Filed Feb. 28, 1972, Ser. No. 229,838
Claims priority, application Germany, Apr. 15, 1971, P 21 18 322.2
Int. Cl. G10c *1/06*
U.S. Cl. 84—258 12 Claims



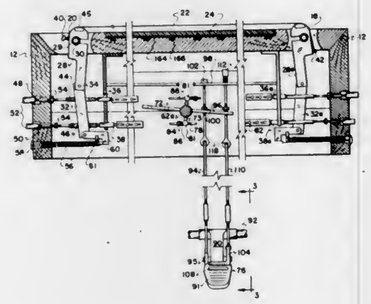
A mounting for vertically adjustably supporting the keyboard and jack guide means of a harpsichord on its wrest plank. The mounting comprises supports affixed to the plank and supporting the keyboard and jack guide means to form them into an operational unit with the plank.

3,785,238

TONE CHANGING AND TONE MARKING APPARATUS FOR GUITARS

Willard L. Wheeler, 2251 N. Watts, Portland, Oreg.

Filed June 22, 1972, Ser. No. 265,293
Int. Cl. G10d *3/14*
U.S. Cl. 84—312 10 Claims



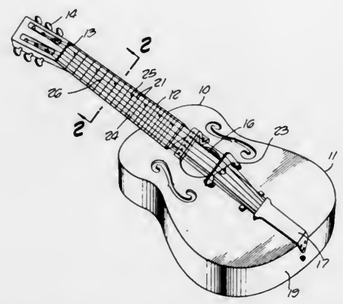
Apparatus for selectively loosening and tightening the strings of a guitar while the guitar is being played to change the tone of the strings and thereby produce different chord combinations. A series of tone changers is mounted adjacent each end of a bank of guitar strings, each tone changer engaging a respective guitar string for selectively tightening or loosening it. The tone changers are selectively actuated by pedals or knee levers, or a combination of both, through a series of tension members and rotatable axle cranks. Each pedal comprises a primary lever coupled with one or more tone changers for causing single or multiple string tension adjustments, and a secondary lever mounted on the primary lever which can be selectively actuated simultaneously with the primary lever for causing additional string tension adjustments different from those caused by actuation of the primary lever alone. Some of the pedals are mounted to rotate only about a horizontal axis, while others are universally mounted for rotation about both a horizontal and a vertical axis. Such universally mounted pedals are capable of actuation in four different modes for producing four different tone adjustment combinations. The knee lever system comprises a set of six knee levers for each knee, two of the levers being arranged horizontally with their free ends adjacent to one another, two other levers depending vertically from mounting points adjacent the journaled ends of the aforementioned pair of horizontal levers, and a third pair of horizontal levers located in a vertical plane inboard of the other four levers. The rotatable axles by which the various pedals and knee levers are coupled with their respective tone changers are mounted transversely to and beneath the bank of guitar strings, and each includes a plurality of upper and lower cranks protruding therefrom. The cranks are threaded into upper and lower rows of sockets in each axle, and can be easily removed and relocated if it is desired to alter the guitar for different tone changing combinations. Each individual tone changer is constructed of three arms pivotally connected end to end, the middle arm being engaged by a pair of tension members actuated by cranks on the rotatable axles. One of the tension members causes the tone changer to loosen its respective string and the other causes tightening of the string when pulled. The guitar also includes a tone marking panel beneath the guitar strings which is magnetically mounted to the guitar sounding board so that it may be easily detached and replaced.

3,785,239

FRET BOARD FOR GUITAR

Walter E. Smith, P.O. Box A, Payette, Idaho

Continuation-in-part of Ser. No. 202,371, Nov. 26, 1971, Pat. No. 3,739,072. This application Mar. 23, 1973, Ser. No. 344,259
Int. Cl. G10d *3/06*
U.S. Cl. 84—314 6 Claims



An acoustic guitar to be played with a slide bar aginst the strings in the manner of a Hawaiian guitar has a fret board carrying markings for the actual fret locations together with additional visual indicators for determining proper positions of the steel bar on the strings to produce desired chords. The string-contacting slide bar is provided with a retainer loop to encircle the guitar neck to facilitate manual positioning of the slide bar with respect to the tensioned strings.

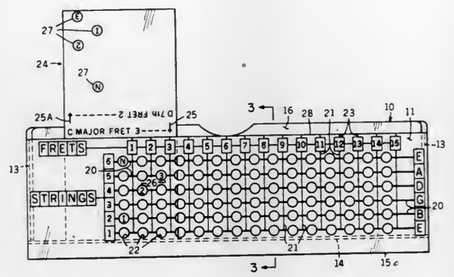
3,785,240

CHORD-TEACHING DEVICE FOR A STRINGED INSTRUMENT

Elgie E. Hill, Jost St., Bourbon, Mo.

Filed May 14, 1973, Ser. No. 360,089
Int. Cl. G10b *15/00*
U.S. Cl. 84—485 7 Claims

A device for teaching chords for a stringed instrument including a stringboard having strings and frets. The device includes an elongate box having a front stringboard wall. A plurality of parallel rows extend longitudinally on the front stringboard wall, the rows representing the strings of the instrument. A plurality of parallel rows extend transversely of the string rows and represent frets of the instrument. A plurality of apertures are provided in regularly spaced, longitudinal alignment along each string row, and in regularly spaced, transverse alignment relative to the string rows. The elongate box further includes a card-supporting wall behind and spaced from the front stringboard wall to provide a slot behind the apertures. A chord card fits in the slot. This card includes a designation of a chord and a fret, an index for alignment with a fret row, and a designation of fingers located for alignment with appropriate apertures when the index is aligned with a fret row to indicate visually through the apertures the finger placement on the strings of the instrument.

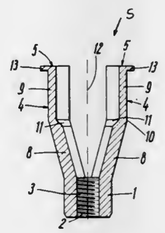


3,785,241

EXPANSION ANCHOR

Artur Fischer, Altheimer Str. 219, Tumlingen, Germany

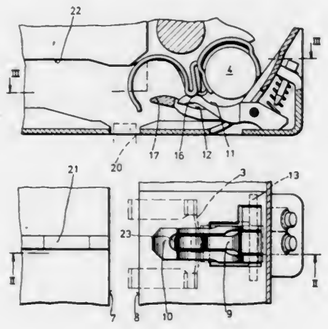
Filed Dec. 3, 1971, Ser. No. 204,512
Claims priority, application Germany, Dec. 8, 1970, P 20 60 241.9
Int. Cl. F16b *13/04*
U.S. Cl. 85—71 6 Claims



An expansion anchor sleeve has a leading portion and a circumferential wall which is circumferentially complete at the leading portion but subdivided into a plurality of longitudinal webs rearwardly of the leading portion. The webs each have two axially adjacent sections the first one of which extends rearwardly from the leading portion and has a greater radial thickness and the second one of which extends rearwardly from the first section and has a lesser radial thickness. At the juncture between the two sections of each web a buckling line is provided and the first portion extends radially outwardly from the longitudinal axis of the sleeve at an acute angle

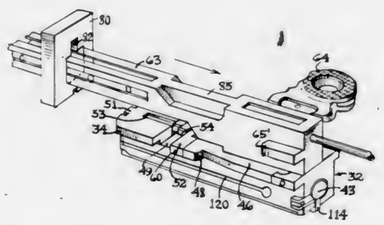
thereto, whereas the second portion extends in substantial parallelism with the longitudinal axis. A screw or similar means is provided for subjecting the sleeve to axial tensile forces to thereby effect radial outward buckling of the two sections of each web with reference to one another.

3,785,242
BELT FEEDER FOR AUTOMATIC FIREARMS
Rolf Hartmann, Dusseldorf, Germany, assignor to Rheinmetall GmbH, Dusseldorf, Germany
Filed Mar. 17, 1972, Ser. No. 235,542
Claims priority, application Germany, Mar. 19, 1971, P 21 13 319.7
Int. Cl. F41d *9/02*
U.S. Cl. 89—33 CA **23 Claims**



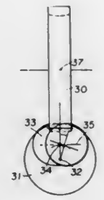
A belt feeder arrangement for automatic firearms with special spring and cam arrangements to prevent the jamming of the belt member in the ejector slot during changes in ammunition belts. Two spring biased pivotal lever members are mounted adjacent one another to engage the belt member and hold it up out of the ejector slot as it passes thereby. One lever is longer than the other so the levers engage the belt member in series. Alternative embodiments include leaf spring members in place of the pivotal lever members. Also, spacer members can be arranged at the mounting of the levers for adjusting to different size ammunition and belt members.

3,785,243
RIFLE
Nicolaos C. Christakos, 2832 N. Austin Ave., Chicago, Ill.
Filed Jan. 19, 1973, Ser. No. 325,089
Int. Cl. F41d *11/02*
U.S. Cl. 89—149 **8 Claims**



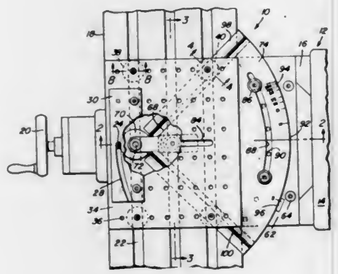
A rifle of the type which exploits pressure of the exploding gases for cocking the same, with the rifle operating in a semi or fully automatic state and including cooperating safety features which permit firing only upon correctly positioned structural parts.

3,785,244
METHOD OF AND MEANS FOR GENERATING GEAR TEETH
Ernest Wildhaber, 124 Summit Dr., Brighton, N.Y.
Filed June 5, 1972, Ser. No. 259,737
Int. Cl. B23f *11/00*
U.S. Cl. 90—4 **14 Claims**



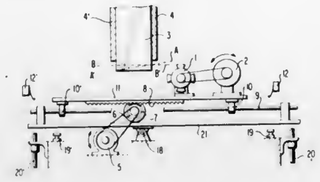
The invention relates to the generation of tooth surfaces on wormgears, especially wormgears mating with large worms, crowned teeth of gear-coupling hubs, crowned teeth in general, and others. The tool used rotates in timed relation with the work-spindle. It may be a hob with a single thread or with a smaller number of threads than the worm of a wormgear pair. Standard hobs may be used to cut wormgears rather than a hob that directly represents the mating worm.

3,785,245
MULTI-CURVE GENERATOR
George W. Streander, Alamogordo, N. Mex., assignor to Design Systems, Inc., Alamogordo, N. Mex.
Filed Sept. 3, 1971, Ser. No. 177,699
Int. Cl. B23q *1/16*
U.S. Cl. 90—11 R **9 Claims**



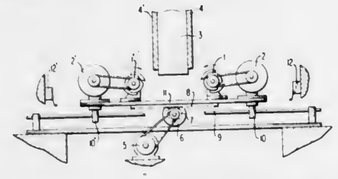
A cutting tool automatically traces a path of variable curvature on a workpiece to which movement is imparted. The motion of the workpiece relative to the tool is controlled by a pair of fixedly spaced pivots with respect to which the workpiece is slidably and pivotally constrained. The pivots lie on a circular arc of selected radius with respect to which the cutting tool is maintained in adjusted radially spaced relation.

3,785,246
RECIPROCATING CUTTING METHOD AND APPARATUS
Tadao Ohno; Namio Shimose, and Shunzi Konomi, all of Minami Ashigara-machi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 28, 1971, Ser. No. 213,148
Claims priority, application Japan, Dec. 28, 1970, 45/120334
Int. Cl. B23c *3/12, 5/00*
U.S. Cl. 90—11 C **3 Claims**



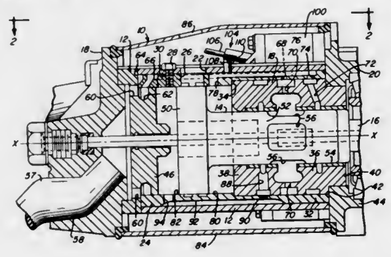
Edge cutting of a work piece is achieved by a rotary cutter which rotates in a first direction as it moves linearly across the edge of the work piece and then rotates in an opposite direction as it reverses its movement to cut off any uncut portion of the projecting edge.

3,785,247
RECIPROCATING CUTTING MACHINE
Tadao Ohno; Namio Shimose, and Shunzi Konomi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 29, 1971, Ser. No. 213,622
Claims priority, application Japan, Dec. 29, 1970, 45/133145
Int. Cl. B23c *3/12*
U.S. Cl. 90—15 **2 Claims**



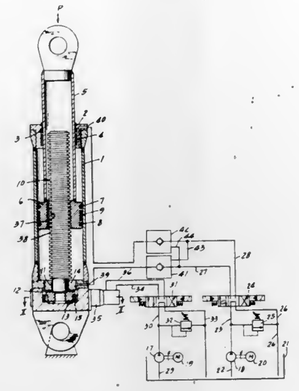
A cutting machine has the edges of two rotary side cutters rotating reversely to each other disposed at both sides of article to be cut by reciprocating cutters across the work piece.

3,785,248
ROCK DRILL
Edward A. Bailey, RFD No. 2, Box 37, Newport, N.H.
Filed Nov. 23, 1970, Ser. No. 92,028
Int. Cl. F01b *25/00*; **F01l** *21/02*
U.S. Cl. 91—6 **5 Claims**



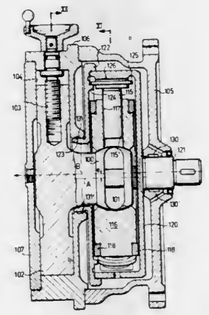
A rock drill and more particularly an independent rotation rock drill assembly having an improved method and apparatus for initiating reciprocable movement of the piston thereof.

3,785,249
POWER TRANSMISSION SYSTEM
Jozsef Piroska, Kallangsvagen 6, Lidingo, Sweden
Continuation-in-part of Ser. No. 5,204, Jan. 23, 1970, abandoned. This application Mar. 28, 1972, Ser. No. 238,863
Int. Cl. F15b *15/26*
U.S. Cl. 91—41 **10 Claims**



A power transmission system includes a linear fluid actuator having a cylinder and a piston, a screw rotatably mounted in the cylinder in an axially fixed position and having a threaded connection with the piston wherein there is some play between the threads, and means arranged to rotate the screw in either direction only when the mechanical load on the piston has counterbalance by corresponding force derived from fluid pressure for movement in both directions.

3,785,250
PISTON-TYPE MACHINE
Anton Steiger, Illnau, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed Sept. 22, 1971, Ser. No. 182,708
Claims priority, application Switzerland, July 7, 1971, 10030/71
Int. Cl. F01b *1/00*
U.S. Cl. 92—72 **3 Claims**

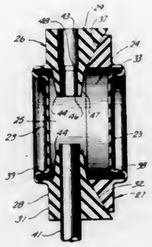


The pistons are reciprocally mounted within cylinders which are disposed to rotate about a given axis perpendicularly disposed to the longitudinal axes of the cylinders. In addition, an annular support surface or ring surrounds the piston to rotate about an axis parallel to and eccentrically spaced from the axis of rotation of the cylinders. This annular support surface includes flat sliding surfaces on which each piston can slide during rotation of the cylinders and support surface.

3,785,251
SEALING COMPOSITION FOR PNEUMATIC ACTUATOR

Walter Griffin Paige, Pasadena, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed May 13, 1971, Ser. No. 143,144
Int. Cl. F01b 16/00
U.S. Cl. 92—98 R 5 Claims

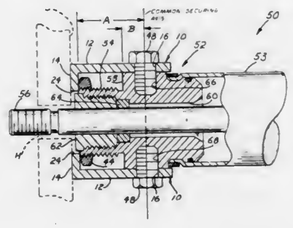


An improved pneumatic actuator for recording heads adjacent a magnetic memory disk is described. In a preferred embodiment a pair of heads are actuated toward a pair of disks by a single actuator having opposed flexible diaphragms. The diaphragms are each integral with one part of a two piece air chamber where the two elastomeric pieces are sealed together by a conical sealing surface. Air pressure within the chamber wedges the conical seal into tight engagement. A pair of rigid walled air tubes enter through the sides of the one of the pieces forming the air chamber. A flexible elastic sleeve protrudes into the chamber around each rigid walled tube and has an inside diameter smaller than the outside diameter of the tube for gripping the tube and holding it in position and so that air pressure within the chamber seals the sleeve against the tube.

3,785,252
FLUID MOTOR PRESSURE CYLINDER MOUNTING APPARATUS

Russell J. Cornair, Akron, Ohio, assignor to International Basic Economy Corporation, New York, N.Y.

Filed May 15, 1972, Ser. No. 253,169
Int. Cl. F01b 29/00
U.S. Cl. 92—161 17 Claims

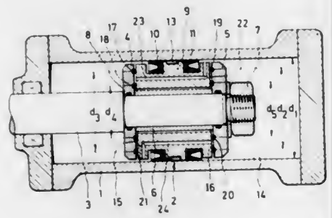


An apparatus for selectively mounting fluid motor pressure cylinders on supporting surfaces in at least three different ways. The apparatus comprises at least two novel mounting brackets each of which includes a support flange and a leg flange extending at right angles from one edge of the support flange. Four brackets are secured in pairs to both ends of the cylinder and extend laterally of the cylinder for the foot mounting position. A pair of brackets is secured along a common axis at one end of the cylinder and also extends laterally of the cylinder for the pivot mounting position. The head flange mounting position allows the cylinders to be mounted in a cantilevered position from one end thereof and utilizes two brackets secured along a common axis at one end of the cylinder and extending longitudinally of the cylinder. In the latter position, an end portion of the cylinder is received and secured in recesses formed in the leg flanges whereby two cylinder support points are provided and spaced a predetermined distance apart.

3,785,253
RADIALLY YIELDING CYLINDER AND PISTON ARRANGEMENT

Hartmut Sandau, Moglingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 14, 1972, Ser. No. 217,920
Claims priority, application Germany, Jan. 27, 1971, P 21 03 646.4
Int. Cl. F16j 1/00, 9/00
U.S. Cl. 92—181 5 Claims

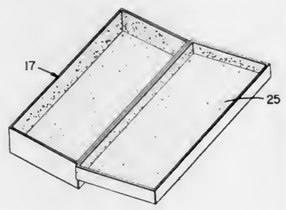


A piston structure, located in a cylinder to which pressure fluid can be supplied, includes a piston rod with a rigidly secured support piston on which a sealing piston, sliding in the cylinder, is mounted with radial play. The support piston is spaced from the cylinder surface and can move radially relative to the sealing piston and to the cylinder surface when the piston rod is radially displaced. Preferably, pressure areas balance the sealing piston in axial direction so that friction is reduced during relative radial movement between the support piston and the sealing piston due to radial displacement of the piston rod.

3,785,254
INSULATED CONTAINERS OR THE LIKE

Robert H. Mann, 7034 Via Pradera, San Jose, Calif.

Filed May 26, 1971, Ser. No. 146,931
Int. Cl. B31b 49/02
U.S. Cl. 93—36.01 1 Claim

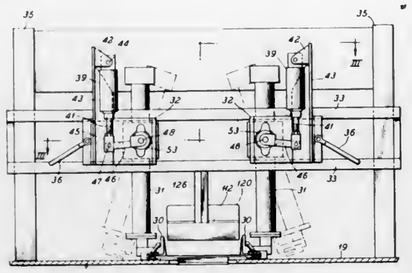


A method is disclosed for making an insulated container by spraying a cardboard surface with a resinous foam material having a wet-out time of no greater than about three seconds and a cure time of no greater than about thirty seconds. The cardboard surface may be formed into a container either before or after spraying, with the spraying forming an insulating coating on the internal surfaces of the container.

3,785,255
HOT AIR SEALING APPARATUS FOR CARTONS

Richard C. Talbot; Edward Rose, both of Skokie, and Robert A. Roth, Chicago, all of Ill., assignors to Peters Machinery Company, Chicago, Ill.

Filed Nov. 10, 1972, Ser. No. 305,353
Int. Cl. B31b 3/60, 1/44, 1/64
U.S. Cl. 93—41 19 Claims

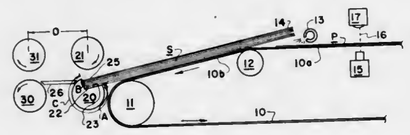


Apparatus for forming and heat sealing a flat cardboard carton blank, die cut to proper size and shape and crease scored to provide the proper lines at which forming is to take place. The inside of the blank is coated with a non-toxic coating of thermoplastic material which will bond to cardboard when liquified by heat and put under pressure. Hot air guns in the form of vertically extending cylinders are pivotally mounted at each side of the forming run of the blank for movement toward and from the forming run. Fluid pressure cylinders and pistons are provided to move the hot air guns away from the forming run when a blank is not present at the forming run, when the blanks become jammed in the apparatus and when the apparatus is turned off. The hot air guns support nozzle assemblies at their lower ends in the form of ducts extending over the end panels of the blanks and having auxiliary ducts extending upwardly along the sealing tabs of the blanks. These ducts have nozzle openings therein for supplying hot air to the insides of the end panels to liquify the thermoplastic coating and to spot heat the sealing tabs. When the end panels and sealing tabs are heated, a forming block moves into the center of the blank and forms the carton to form and applies pressure to the sealing tabs and end panels to seal the blank to carton form.

3,785,256
PANEL COUNTING, COLLECTING AND GATING APPARATUS

Willem Andre Nikkel, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed Sept. 29, 1971, Ser. No. 184,875
Int. Cl. B31b 1/98
U.S. Cl. 93—93 C 10 Claims

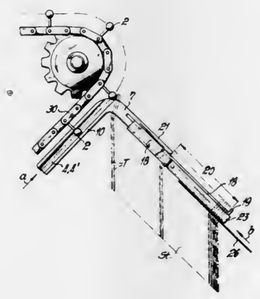


A continuously conveyed series of uniformly dimensioned panels of thin sheet material are counted and stacked from the bottom against an abutment edge of a stationary but rotatable cam plate. When a predetermined number of panels is collected in the stack, the cam plate is rotated to lift the stack into a rotating roll nip for conveyance to a second roll nip. Removal of the stack from the proximity of the collecting cam plate is completed by the second roll nip after the collecting cam has resumed a stationary, collecting position.

3,785,257
APPARATUS FOR FORMING STACKS OF FLAT, APERTURED WORKPIECES

Konrad Tetenborg, Lengerich, Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

Filed Sept. 5, 1972, Ser. No. 286,324
Claims priority, application Germany, Sept. 8, 1971, P 21 44 990.1
Int. Cl. B65h 29/40; B31b 1/98; B65h 31/30
U.S. Cl. 93—93 HT 2 Claims



The workpieces are successively threaded onto a mandrel and are removed from the same as a stack. The mandrel is carried by and freely suspended from stack flights, which are mounted on a revolving flight conveyor and engage bearing surfaces of the mandrel from below. The pitch of the flights on the flight conveyor is selected so that workpieces can be threaded on the receiving end of the mandrel between any two successive flights. The delivery end of the mandrel is angled downwardly behind the position where the flights of the flight conveyor leave the bearing surface of the mandrel. The downwardly angled portion of the mandrel is provided at its end with a stop bar, which is slidably mounted and can be fixed in position and has an upwardly directed stop nose, which defines with the delivery end of the mandrel a step in a length which can be adjusted as desired. A guide rail extending in the longitudinal direction of the stop bar is pivoted to the stop bar at that end of the guide rail which is remote from the stop nose, for an up and down movement. The stop nose protrudes over the guide rail when the same is in its lower end position. The guide rail in its upper end position extends obliquely to the stop bar and with its free end protrudes over the stop nose.

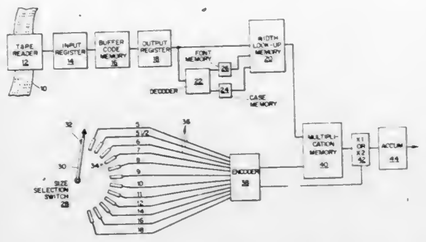
3,785,258
TYPE COMPOSING APPARATUS HAVING NOVEL CHARACTER WIDTH DERIVATION STRUCTURE

Edward A. Aron, Needham, Mass., and Louis E. Griffith, Hampstead, N.H., assignors to Graphic Systems, Inc., Lowell, Mass.

Continuation-in-part of Ser. No. 878,368, Nov. 20, 1969, and a continuation-in-part of Ser. No. 43,763, June 5, 1970. This application June 26, 1972, Ser. No. 266,473
Int. Cl. B41b 15/08
U.S. Cl. 95—4.5 9 Claims

Type composing apparatus is disclosed as including means for representing its binary code a series of characters, means for generating a relative width value for each character, means for representing a succession of point size factors, one for each character, and means for multiplying a relative width

value assigned to each character by a point size factor for that character. The means for multiplying associated pairs of relative width values and point size factors is disclosed as comprising a memory having stored therein products of relative width values and point size factors. Means are shown for addressing and extracting from the memory an adjusted width value and



point size factor. The means for generating a relative width value for each character is depicted as including a read-only integrated circuit memory having permanently stored therein at mutually exclusive addresses a relative width value for each of the characters. One embodiment of a photocomposing machine is disclosed.

3,785,259

DAYLIGHT AND FLASH PHOTOGRAPHY CHANGE-OVER ELECTRICALLY-OPERATED SHUTTER

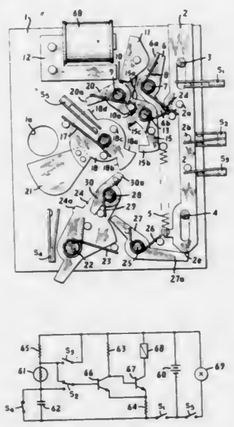
Kiyoshi Kitai, Tokyo, Japan, assignor to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 21, 1972, Ser. No. 317,710

Claims priority, application Japan, Dec. 21, 1971, 46-103815

Int. Cl. G03b *7/08*

U.S. Cl. 95—10 CT **8 Claims**



An electrically-operated shutter provided with a change-over device or arrangement for effecting daylight and flash photography automatically shifting from a daylight mode to a flash photography mode as a function of the detected brightness level of the field being photographed. One embodiment provides for manually presetting the camera for flash photography which is then automatically carried out with an automatic change-over from a daylight photography mode to a flash photography mode. When carrying out daylight photography the power source energy is used in control and in energizing an electromagnet that controls the exposure termination under control of a delay circuit. When taking flash exposure the delay circuit is not employed and a fixed exposure time is used. The power supply is then used to energize the flashbulb and the accuracy of the shutter timing is unaffected as might be the case if the power source were energizing both the flashbulb and driving or energizing the shutter. The same shutter-operating elements are used in both modes of operation and the change-over arrangement eliminates the use of the delay circuit when the brightness level is below a predetermined level so that flash photography becomes necessary.

3,785,260

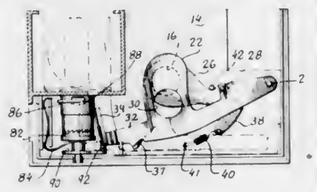
HAMMER-DRIVEN SHUTTER AND PERCUSSION IGNITION SYSTEM

Ib Penick, Wheeling, Ill., assignor to Simpro Corporation of America, Englewood Cliffs, N.Y.

Continuation-in-part of Ser. No. 229,355, Feb. 25, 1972, Pat. No. 3,747,492. This application Nov. 9, 1972, Ser. No. 305,179

Int. Cl. G03b *9/70*

U.S. Cl. 95—11.5 R **7 Claims**



A hammer-driven shutter and flashlamp igniting system for cameras adapted for use with percussion-ignitable flashlamps. The shutter system consists of two overlapping shutter-blades which co-act to open the camera exposure aperture radially outwardly from the center, and co-act to close the camera exposure radially inwardly toward the center. A flashlamp firing pin is integral with one of said shutter-blades, and it is movable into and out of percussion igniting position in synchronization with the operation of said shutterblade.

3,785,261

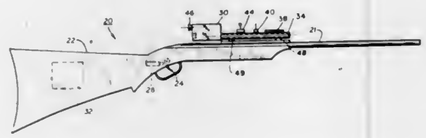
EVENT RECORDER

Robert A. Ganteaume, 676 Rutgers Pl., Paramus, N.J.

Filed Sept. 5, 1972, Ser. No. 286,023

Int. Cl. G03b *29/00*

U.S. Cl. 95—12 **5 Claims**



This invention pertains to apparatus adapted to make an immediate record as by a photograph of a theoretical hit such as in hunting wild game. There is shown both a mechanical and an electrically actuated means for causing this theoretical hit to be exposed on the film of a camera which is carried by and actuated with the pulling of the trigger of the gun. The distance, trajectory and windage factors are reflected in this photographic record. The hunter using the gun fires a blank cartridge rather than a real cartridge so that this photographic record indicates what results this hunter would have achieved had a real bullet been fired.

3,785,262

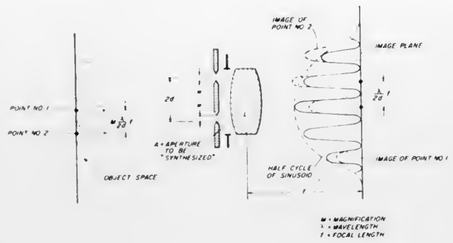
OPTICAL APERTURE SYNTHESIS

George W. Stroke, 23 Southgate Rd., Setauket, N.Y.

Filed Dec. 9, 1969, Ser. No. 883,534

Int. Cl. G03b *35/02, 35/08*

U.S. Cl. 95—18 **16 Claims**



There is disclosed a method and apparatus for synthesizing large-aperture optics by exposure of a single photographic plate either successively or simultaneously through small-aperture optics. The technique represents the extension of the "synthetic-aperture radio telescope" principle to the optical domain by the relatively simple photographic synthesis of a "-high-resolution" image in a single photograph, exposed either successively through sets of small "low-resolution" apertures sucessively placed to generate the spatial frequency components of the desired large aperture, or exposed simultaneously through a set of small "low-resolution" apertures having such optical characteristics and being so arranged as to generate the spatial frequency components of the desired large aperture.

3,785,263

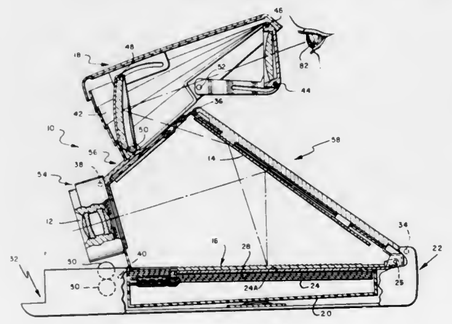
CAMERA BELLOWS TO PREVENT DUST ENTERING THROUGH AN APERTURE THEREIN

James G. Baker, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sept. 18, 1972, Ser. No. 289,995

Int. Cl. G03b *17/04*

U.S. Cl. 95—39 **21 Claims**



A thin-walled, opaque, flexible envelope for excluding light from the exposure chamber of a camera is described. It has a dielectric insert of high resistivity to prevent dust and other airborne particulate matter from entering the exposure chamber through a small open aperture in the envelope. The aperture permits communication between a viewfinder associated with the camera and a focusing screen situated within the exposure chamber.

3,785,264

SWINGING-SECTOR CAMERA SHUTTER WITH IMPROVED WARNING INDICATOR

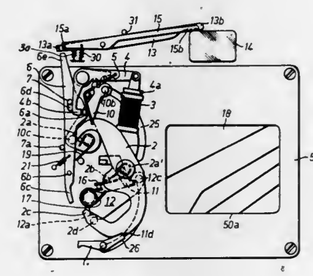
Peter Loseries, Diez, Germany, and Toshio Hayashi, Osaka, Japan, assignors to Minolta Camera Co., Ltd., Osaka, Japan and Ernst Leitz GmbH, Wetzler, Germany, part interest to each

Filed Mar. 30, 1973, Ser. No. 346,576

Claims priority, application Japan, Apr. 11, 1972, 47/36249

Int. Cl. G03b *9/36*

U.S. Cl. 95—55 **4 Claims**



A swinging-sector camera shutter having a plurality of sectors; each sector has a plurality of blades including a primary blade and a plurality of covering blades. The primary blades execute a combined rotary-sliding motion while the covering blades execute a rotary movement about a common pivot point. The shutter has a control lever which, when the shutter is cocked, seizes and moves successively the operating crank of the first rotary slide and the operating crank of the second rotary slide. The second slide is held in the initial position by a pawl under the tension of a spring which disengages this pawl and which, with its other end, is hingedly connected to the control lever and is tensioned at the beginning of the operation of this lever. The shutter has a holding magnet to which voltage is applied at least when the control lever starts operation and this magnet retains the pawl in the locking position against the force of the spring until the magnet is deenergized by a timer.

The shutter has a warning indicator comprising:

a. a warning lever which is longitudinally displaceable from a rest position into a functional position on a fixed pin by means of a slotted hole, and which is furthermore tiltable about this pin, one end of which is held, in the rest position, by means of spring force at a fixed abutment outside of the path of the operating crank of the first rotary slide;

b. the warning lever has a first pin which, in the rest position, is in the path of the disengaging armature locking lever for the second rotary slide and, when the armature drops off when the magnet is deenergized, is seized by this locking lever so that the one end of the warning lever is tilted, against spring force, into the path of the operating crank of the first rotary slide and is shifted thereby to such an extent that the armature locking lever slides off the first pin and releases the second rotary slide with a time delay with respect to the first rotary slide, for accomplishing its operating cycle; and

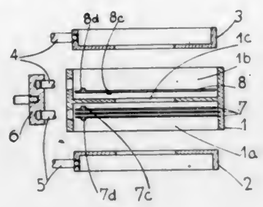
c. the warning lever has a second pin which, when the warning lever is not tilted by the armature locking lever, is in the operational path of the control lever and is longitudinally shifted by the latter so that the first pin is no longer in the path of the dropping off armature locking lever.

3,785,265

IRIS DIAPHRAGM

Jacques Lardeau, Rosny-sous-Bois, France, assignor to Societe d'Optique, Precision, Electronique et Mecanique-Sopelem, Paris, France

Filed May 25, 1973, Ser. No. 363,866
Claims priority, application France, July 6, 1972, 72.24426
Int. Cl. G03b 9/06
U.S. Cl. 95—64 R 10 Claims



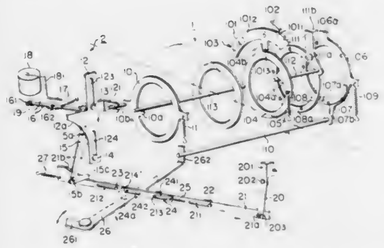
An iris diaphragm includes shutter blades moved by a conventional control member during a first phase of adjustment to reduce the aperture to a size at which diffraction effects are still unimportant. In a second phase of adjustment the shutter blades are stationary and a transparent support member is moved to introduce increasingly dense portions of a graduated filter into the optical path. Light control over a range of 1:1,000,000 may thus be obtained. There may follow a third phase in which the shutter blades again move to reduce the aperture to zero. The blades and the filter support may be placed on opposite sides of a permanent stop and actuated by respective control members coupled to a common setting ring. Alternatively the blades and filter support may be on the same side of the stop and actuated by a common control member. The filter support may be introduced into the optical path only after the first phase has ended, or a transparent portion thereof may be always in the optical path, the filter-carrying portion being brought into action only during the second phase.

3,785,266

SINGLE LENS REFLEX CAMERA CAPABLE OF OPEN APERTURE PHOTOMETRY AND APERTURE STOP PHOTOMETRY

Yoshiaki Watanabe, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 1, 1971, Ser. No. 194,410
Claims priority, application Japan, Nov. 5, 1970, 45/97330
Int. Cl. G03b 9/07
U.S. Cl. 95—64 R 7 Claims



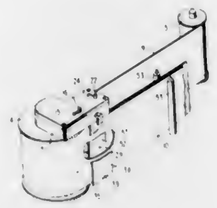
A single lens reflex camera, on which can be mounted both types of interchangeable lenses for open aperture and aperture stop photometry, is provided with a mechanism. This mechanism enables to operate open aperture photometry or aperture stop photometry selectively, even when an interchangeable lens for open aperture photometry is mounted on a camera.

3,785,267

PHOTOGRAPHIC APPARATUS HAVING BUILT-IN PROCESSOR

Yoshio Asano, Nicinomiya, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 4, 1972, Ser. No. 312,006
Claims priority, application Japan, Dec. 3, 1971, 46-98200
Int. Cl. G03d 9/00
U.S. Cl. 95—89 L 7 Claims



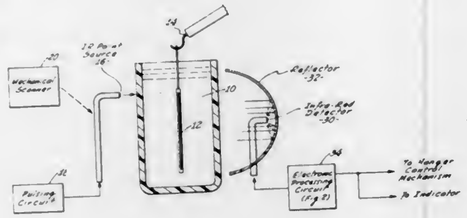
A developer solution supplying device is made independently of the camera body and integrally fixed to a spool for feeding out a positive image forming paper. The unit of the solution supplier and the posi-paper spool is demountably attached to the camera body. The developer solution supplying device is operable from outside the camera by operating two manual operating members. The posi-paper is provided with a number of solution containers for the respective images which are filled one by one with the developer solution as the paper advances by pulling the paper with the negative film out of the camera.

3,785,268

SCANNING TYPE PHOTOGRAPHIC FILM DEVELOPING SYSTEM AND APPARATUS

David P. Gregg, 1936 Kelton Ave., Los Angeles, and Charles K. Pooley, Santa Monica, both of Calif., assignors to said Gregg, by said Pooley

Continuation of Ser. No. 214,924, Jan. 3, 1972, abandoned.
This application Jan. 19, 1973, Ser. No. 325,201
Int. Cl. G03d 3/10
U.S. Cl. 95—89 R 6 Claims



A system and apparatus is provided for developing photographic film such as X-ray film, for example, in a dental office, or in any other establishment. The system is capable of causing the film to be developed with any desired density, and within known limitations, regardless of whether the film has been over-exposed or under-exposed, and regardless of the temperature of the developing bath, and the age of the developing solution. The apparatus incorporates a control system which responds to the scanning of the exposed film in a developing solution by a radiant energy beam to which the particular film is relatively insensitive, and which causes the

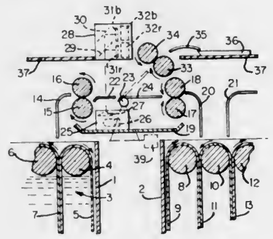
developing process to be terminated when a desired density is achieved. The system of the invention has a feature in that the very clear and very opaque areas, and other areas of no interest, are eliminated from the processing, and the desired density is established by processing the film between such minimums and maximums.

3,785,269

AUTOMATIC FILM PROCESSOR HAVING SWITCHABLE TRANSPORT PATH

Masami Morioka, Kyoto, Japan, assignor to Log Electronics Inc., Springfield, Va.

Filed May 7, 1973, Ser. No. 357,739
Claims priority, application Japan, Oct. 31, 1972, 47-108499
Int. Cl. G03d 3/12
U.S. Cl. 95—94 R 10 Claims



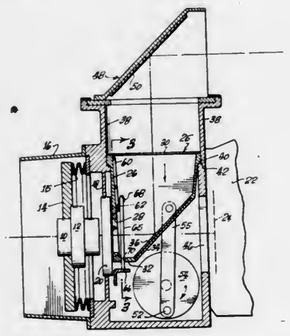
An automatic film processor having a transport system for normally transporting sheets of film to be processed through a series of treatment stations in predetermined sequence, includes a movable guide element for altering the transport path to vary the sequence of processing steps for a selected sheet of film. The selected sheet can be provided with a distinctively colored leader, the presence of which is detected by a color-sensitive control system operative to alter the transport path, e.g., to divert the selected sheet of film away from the drier in the film processor and deliver it in wet condition to a catch tray.

3,785,270

REFLEX CAMERA VIEW FINDER

Otto M. Schiff, Laguna Beach, and Vitolds Rikis, Costa Mesa, both of Calif., assignors to Coleman Systems, Irvine, Calif.

Filed Aug. 9, 1972, Ser. No. 278,955
Int. Cl. G03b 13/02
U.S. Cl. 95—11 V 8 Claims



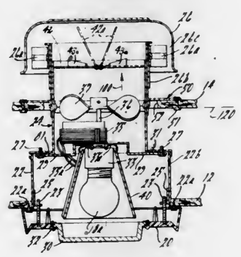
A ground glass is the upper wall of a view finder chamber that is movable bodily between a lower view finding position and an upper picture taking position. The chamber has an opening to receive the light beam from the camera lens and a mirror fixedly mounted in the chamber reflects the light beam onto the upper ground glass of the chamber. The image is erected by a second fixed mirror outside the chamber. A power-actuated crank moves the chamber and a light shield in the chamber automatically covers the chamber opening at the upper picture taking position of the chamber.

3,785,271

NEW LOW PROFILE VENTILATOR APPARATUS MEANS

Edward Joy, Owosso, Mich., assignor to Ventrola Manufacturing Company, Oswosso, Mich.

Filed Feb. 7, 1972, Ser. No. 224,052
Int. Cl. F24f 7/02
U.S. Cl. 98—40 DL 3 Claims



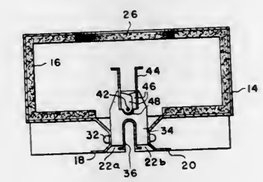
A low profile ventilator apparatus means for use in mobile homes, modular homes, and the like which includes a structural combination of lighting means or a radiant heat lamp cooperatively associated with a bathroom fan such as to permit straight through or vertical discharge of air and being uniquely constructed to fit ceiling to roof depths ranging from approximately 4 to 13 inches.

3,785,272

AIR DIFFUSER FIRE DAMPER

John C. McNabney, and Gerhard J. Hantke, both of La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Mar. 24, 1972, Ser. No. 237,786
Int. Cl. E05f 15/20; F24f 13/06
U.S. Cl. 98—40 D 4 Claims

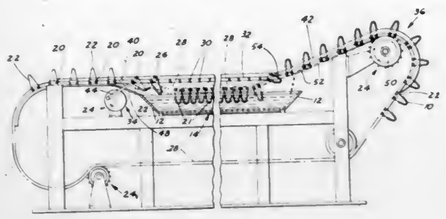


A fire damper apparatus for use with a ceiling mounted air distributor or diffuser. The fire damper is held in the inoperative position against the urging of torsion springs by fusible pins. Melting of the pins allows the damper to rotate into the operative position.

3,785,273
TACO SHELL MACHINE

Daniel T. Stickle, 310 E. 40th St., Lubbock, Tex.

Filed Feb. 1, 1972, Ser. No. 222,493
Int. Cl. A47j 37/12
U.S. Cl. 99—404 16 Claims

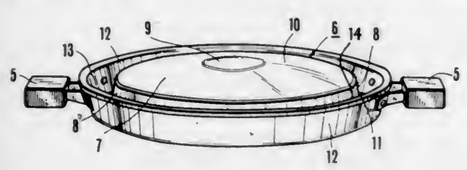


Tortillas are placed on a flexible, pliable, perforated web made of woven metal. A plunger folds over the tortilla, folding the tortilla and the metal web, and the combination wherein the tortilla is fried crisp in the folded position, thus forming it into a taco shell. Thereafter, the plunger with the taco shell thereon is unfolded from the metal web and the fat drained and shaken from the shell and the shell dropped from the plunger.

3,785,274
REVERSIBLE COOKING INSTRUMENT

Yuki Yamamoto, 1343 Ushita-machi, Hiroshima, Japan

Filed Oct. 20, 1971, Ser. No. 190,991
Int. Cl. A47j 37/10
U.S. Cl. 99—425 2 Claims



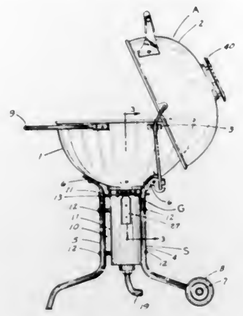
A reversible cooking instrument comprising mainly a vessel and a brim of which edge having a downward projection, and said instrument, when reversed, comprising a crown-like body corresponding to said vessel and a brim of which edge having an upward projection, wherein a head of said body having a central plane portion surrounded with an outer sloping portion extending to and connecting with a peripheral wall of said body, said peripheral wall further connecting with said brim of which edge being projected upwards to form a circular groove in combination with said peripheral wall.

3,785,275
BARBECUE COOKER

Richard L. Keats, Sands Point, Port Wash., N.Y.; Harold Glaser, and Charles Leach, both of St. Louis County, Mo., assignors to Glaser Products Corporation, Neosho, Mo.

Filed July 26, 1971, Ser. No. 166,004
Int. Cl. A47j 37/07
U.S. Cl. 99—446 6 Claims

A barbecue cooker, which may be adapted for gas operation, comprising a fire bowl, a gas burner provided in the lower portion of said fire bowl, there being an opening in the base of said fire bowl through which extends means for connecting said burner to a suitable source of gas. A grill is supported above said burner and constructed for inclination upwardly from its outer edges toward its center. An annular rib surrounds the fire bowl opening and an aperture is located

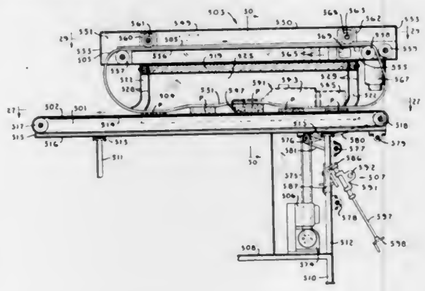


proximate said rib on the side thereof opposite said opening for communication with a receptacle mounted on said cooker downwardly of said aperture.

3,785,276
EQUIPMENT FOR CONDITIONING AND PACKAGING A PRODUCT

David A. Noor, Fort Wayne, Ind., assignor to Norr Engineering-Manufacturing Corp., Fort Wayne, Ind.

Division of Ser. No. 797,134, Feb. 6, 1969, Pat. No. 3,712,020.
This application Aug. 30, 1971, Ser. No. 175,858
Int. Cl. A23n 1/00
U.S. Cl. 99—516 7 Claims



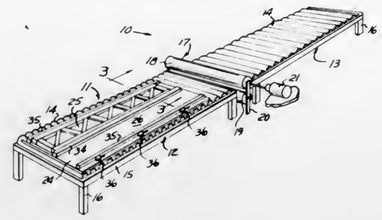
The invention is directed to a system whereby a product is sealed in a fusible plastic wrapper by shriveling and fusing portions of the latter and the product is conditioned or treated prior to packaging or wrapping.

3,785,277
APPARATUS AND METHOD FOR MAKING TRUSSES

Jack N. Schmitt, Birmingham, Mich., assignor to Truswal Systems, Inc., Troy, Mich.

Filed July 26, 1972, Ser. No. 275,147
Int. Cl. B30b 3/04
U.S. Cl. 100—41 7 Claims

Fabricating wood trusses with toothed connector plate joints upon a two-truss position support plate which is endwise slidably supported upon a roller table having a roller press arranged transversely of the middle of the table. Pre-cut chords and web members are arranged at one side of the table and are loaded upon one plate position, with connector plates loosely positioned with their teeth down over the abutted joints and then the support plate is slid through the roller press to the other side of the table for press embedding the connector plate teeth into the members. Then the truss is turned upside down upon the second plate position and connector plates are arranged over the opposite faces of the joint, while simultaneously another truss is assembled upon the first plate position.

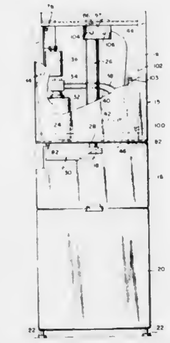


Then the plate is returned through the roller press wherein the completed truss is then removed from the second position and the cycle is repeated. Thus, all loading of truss chord and web members are on one side of the table and on opposite sides of the press and all unloading of completed trusses is at opposite sides of the table and at opposite sides of the press.

3,785,278
MACHINE FOR COMPACTING TRASH

Stephen Hopkins, Washington, D.C., assignor to Compackager Corporation, Washington, D.C.

Filed Apr. 29, 1971, Ser. No. 138,446
Int. Cl. B30b 15/16
U.S. Cl. 100—51 11 Claims



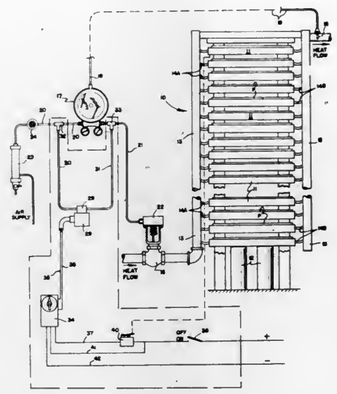
This invention is a machine for compacting trash, following which the compacted trash is removed for disposal. The trash is compacted by a ram operating within a compression chamber containing a trash receptacle, which preferably comprises a sleeve into which trash is placed. A trash-receiving bag is pulled over the lower portion of the sleeve, the sleeve and bag being removed from the machine as a unit for emptying the compacted trash from the sleeve into the bag. The compacting ram is automatically retracted by a pressure-activated or time-activated ram returning device and is provided with a load limit shut-off member.

3,785,279
PREHEATING SYSTEM FOR PLYWOOD HOT PRESS MACHINE

Julius G. Fails, 911 Fairview Dr., Springfield, Oreg.

Filed Mar. 10, 1971, Ser. No. 122,742
Int. Cl. B02c 11/08; B30b 15/34
U.S. Cl. 100—93 P 2 Claims

A system for operation in conjunction with an existing temperature controlling system for a plywood press to momentarily "override" the latter system to permit applying a higher than normal temperature to the press platens to impart initial, rapid heating to the plywood panel thereon. The temperature controller system re-assumes control of the press temperature

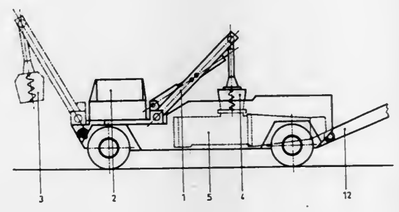


after the momentary rise of the platen temperature. Accordingly, the time required to heat and cure a plywood panel is reduced with increased productivity of the plywood press being realized.

3,785,280
MOBILE APPLIANCE FOR THE TREATMENT OF DOMESTIC GARBAGE

Gwenole Jean-Claude LeJeune, Port-Joinville, France, assignor to Societe d'Etudes, Fabrications, Installations et Manutention en abrige EFIM S.A., Ambergenville (Les Yvelines), France

Filed Mar. 16, 1972, Ser. No. 235,263
Claims priority, application France, Mar. 22, 1971, 7109972
Int. Cl. B30b 9/06
U.S. Cl. 100—100 4 Claims

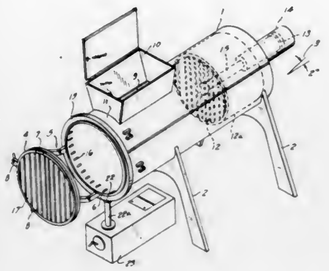


Mobile appliance for treating domestic garbage to obtain by compression, on one hand, an inert part, and on the other, a liquid, fermentable part, the appliance consisting of a motor-driven vehicle provided with a swivelling mechanical arm, fixed on a rotary turret, the arm comprising at its free end and at least two articulated jaws acting like pincers to grasp the loose garbage and discharge it into a compression chamber of a press carried by the vehicle, the chamber being provided with a plurality of radial orifices opening out into a common chamber for evacuating the liquid.

3,785,281
REFUSE COMPRESSOR

David R. Ligh, 193 Main St., Madison, N.J.

Division of Ser. No. 884,178, Dec. 11, 1969, abandoned. This application Mar. 10, 1972, Ser. No. 233,807
Int. Cl. B30b 9/06
U.S. Cl. 100—116 6 Claims

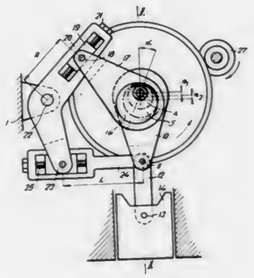


A refuse compressor has a housing provided with inlet means through which quantities of refuse to be compressed may be admitted into the interior chamber of the housing. A platen is received in this chamber for sliding forward movement towards one end wall of the chamber to thereby compress the refuse, and for return movement away from the end wall of the chamber. An operating arrangement is associated with the platen and serves to cause the latter to move forward at a first speed and under a first pressure, and to cause the platen to return to its starting position at a higher second speed but under a lower second pressure. Drain openings are provided in the region of a door of the housing, through which liquid expressed from the refuse may leave the housing.

3,785,282
MECHANICAL PRESS WITH TOGGLE LEVER CRANK DRIVE

Ivan Kamelander, Brno, Czechoslovakia, assignor to Zdarske strojirny a slevarny, narodni podnik, Zdar nad Sazavou, Czechoslovakia

Filed June 8, 1971, Ser. No. 150,982
Claims priority, application Czechoslovakia, June 10, 1970, 704061
Int. Cl. B30b 5/00
U.S. Cl. 100—257 8 Claims

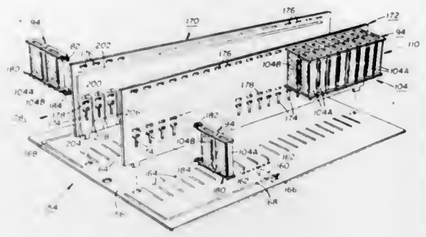


Drive mechanism for the slide of a mechanical press, especially a toggle lever crank press. In the slide driving mechanism means are provided comprising two eccentrics adjustable relative to one another for continuously changing the slide speed during its stroke, especially its slowing down close before the tool comes into contact with the stock to be worked.

3,785,283
TELEPRINTER ASSEMBLY

James F. Kearney, Oak Park, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Sept. 18, 1972, Ser. No. 290,192
Int. Cl. B41j 23/14; H02b 1/04; H05k 1/07
U.S. Cl. 101—93 C 3 Claims

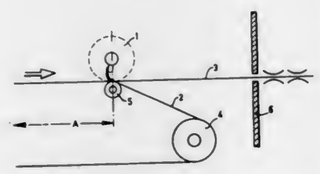


Each of a plurality of self-restoring horizontally spaced apart print hammers selectively is driven lineally toward a printing position in response to movement of the armature of an electromagnet. The electromagnets are disposed in a pair of spaced apart banks, their armatures extending inwardly and providing a plurality of aligned working inner ends as agents for application of electromagnetic energy. A circuit card is physically secured and electrically connected to the coil assembly of each of the electromagnets of each bank and has a plurality of aligned apertures enabling passage and rocking movement of the corresponding armatures. The circuit cards are vertical and are disposed in horizontally extending parallelism, the working inner ends of said armatures being disposed therebetween. A circuit board is physically secured and electrically connected to said cards with which it is orthogonally disposed.

3,785,284
SCREEN PRINTING MACHINE

Jacobus Gerardus Vertegaal, Boxmeer, Netherlands, assignor to Stork Brabant N.V., Boxmeer, Netherlands

Continuation-in-part of Ser. No. 887,977, Dec. 24, 1969, abandoned. This application May 16, 1972, Ser. No. 253,764
Claims priority, application Netherlands, Jan. 28, 1969, 6901386
Int. Cl. B41l 13/06; B65h 17/34
U.S. Cl. 101—118 3 Claims

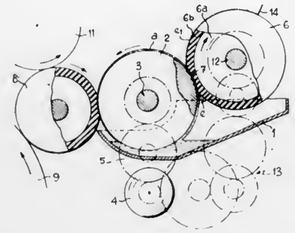


A screen printing machine comprising a plurality of cylindrical screens capable of printing a travelling web which is temporarily affixed to a supporting belt, said machine comprising means for discharging said web immediately beyond the last screen under an acute angle with said belt.

3,785,285
DAMPING DEVICE FOR ROTARY OFFSET PRESS

Louis Jean Chambon, Paris, France, assignor to Societe d'Etudes de Machines Specials S.A., Paris, France

Filed July 12, 1971, Ser. No. 161,545
Claims priority, application France, July 10, 1970, 7025901
Int. Cl. B41f 23/02
U.S. Cl. 101—148 4 Claims

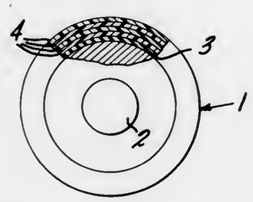


A damping device for a rotary offset printing machine comprising a trough of dampening fluid in which is partially immersed a transfer roll having a hard hydrophilic surface. A wiping roll having a flexible surface is pressed against the transfer roll. In order to prevent a build-up of sludge at the inlet to the zone of contact between the two rolls, the wiping roll is rotated very slowly at a speed between one hundreth to one tenth of the speed of the transfer roll, the sludge entrained by the wiping roll being collected by a scraper blade or other means so as to prevent it being recycled.

3,785,286
WIPING CYLINDER OF STEEL ENGRAVING PRINTING MACHINE AND METHOD OF MAKING IT

Gualtiero Giori, Lausanne, Switzerland, assignor to De La Rue Giori S.A., Lausanne, Switzerland

Continuation-in-part of Ser. No. 833,622, June 16, 1963, abandoned, which is a continuation-in-part of Ser. No. 462,355, June 8, 1965, abandoned. This application Aug. 26, 1971, Ser. No. 175,224
Claims priority, application Italy, June 18, 1964, 48397/64
Int. Cl. B41f 9/08
U.S. Cl. 101—155 6 Claims

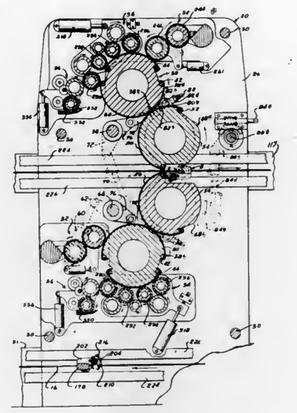


The wiping cylinder of a steel engraving printing machine is coated with a plurality of thin plastic layers over a rubber base layer. When the wiping cylinder is to be cleaned with an organic solvent, the plastic coatings are of a thermoplastic synthetic resin that is soluble in water but not in organic solvents, for example polyvinyl alcohol that is partially saponified and contains acetyl groups. When the wiping cylinder is to be cleaned by an aqueous solution, the coatings are of a synthetic resin such as polyvinyl chloride that is not soluble in water. The thin plastic layers are applied successively by means of a doctor blade assuring smoothness, uniformity and exact thickness of the layers, and each layer is hardened before the next is applied.

3,785,287
SHEET INTERRUPTER

Harold P. Dahlgren, 726 Regal Row, Dallas, Tex.

Continuation-in-part of Ser. No. 737,521, June 17, 1968, Pat. No. 3,664,261. This application May 3, 1972, Ser. No. 249,944
Int. Cl. B41f 13/24
U.S. Cl. 101—247 5 Claims

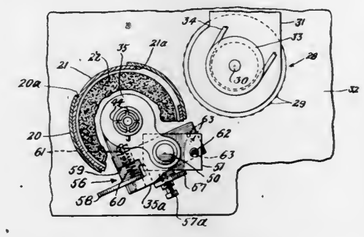


Sheet interrupter means for a sheet-fed printing press wherein upper and lower printing cylinders are supported by eccentric bearings permitting simultaneous actuation of the upper and lower cylinders between printing and "off-impression" positions. A throw-off cylinder actuates a series of links to rotate the eccentric bearings.

3,785,288
INK ROLL CARTRIDGE

Alexander Hunter, Chalfont, Pa., assignor to Decision Data Corporation, Warminster, Pa.

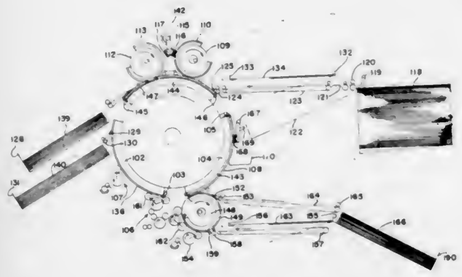
Filed July 6, 1971, Ser. No. 159,811
Int. Cl. B41f 1/46, 31/24, 31/32
U.S. Cl. 101—348 12 Claims



A cartridge for an ink roll is disclosed comprising a pair of cylindrical casing or shell elements each of which has a cylindrical side wall and end walls. The ink roll is encased within the two cylindrical elements which are nested together and mounted for limited relative rotation with respect to one another. Each cylindrical element has an opening in the side wall. The openings are out of registry with one another thereby sealing the cartridge and preventing contact with the ink roll when the cylindrical elements are in a first position. Upon relative rotation of the elements to a second position the openings are in registry so that a portion of the ink roll is exposed for contact by a printing member. A releasable fitting, for example of the bayonet type is provided on the end wall of one of the casing elements. Upon rotation of the other casing

element to lock the bayonet fitting the two casing elements are caused to rotate relative to one another to expose the ink roll. Relative rotation of the casing elements in the opposite direction effects release of the bayonet fitting and movement of the casing elements to close the cartridge. Also disclosed are mounting means for moving the cartridge toward and away from the printing members.

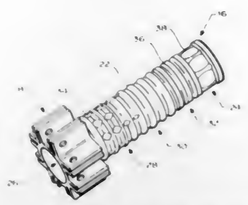
3,785,289
COPIER-DUPLICATOR
William Ward Davidson, Jr., Port Washington, N.Y., assignor to Robert C. Brown, Jr., Highwood, Ill., a part interest
Continuation-in-part of Ser. No. 115,502, Feb. 16, 1971, abandoned. This application July 31, 1972, Ser. No. 276,718
Int. Cl. B41n *1/06*; **B41f** *35/06*
U.S. Cl. 101—450 **8 Claims**



A method and apparatus for producing multiple high quality copies of each of a series of one or two sided originals on ordinary paper while obtaining maximum net production in terms of both the number of originals copied and the number of copies produced, wherein a first right reading offset lithographic master or pair of masters are produced by known means from one or both sides of a first original, processed, pre-wet and attached to the plate holding surface or surfaces of an offset lithographic duplicator which then produces the desired number of one or two sided copies of the first original, with the image or images on the master or pair of masters being dampened (if required), inked and then offset onto a first offset blanket of first pair of offset blankets from which said image or images are in turn offset onto one or both sides of ordinary copy paper. While these copies from the first original are being run, a second master or pair of masters are being produced from the second original, processed and pre-wet. When the desired number of one or two sided copies of the first original have been produced, the first master or pair of masters are ejected. The second master or pair of masters are then immediately attached to the plate holding surface or surfaces and the process repeated.

3,785,290
BOMB FIN SHOCK ABSORBER ASSEMBLY
Gary E. Castor, China Lake, Calif., and William J. De Gain, Warren, Mich., assignors to The United States of America as represented by the Scetretary of the Navy, Washington, D.C.
Filed Mar. 1, 1971, Ser. No. 119,769
Int. Cl. F42b *25/02*
U.S. Cl. 102—4 **1 Claim**

A bomb fin shock absorber assembly having a bomb fin support attached to a bomb by set screws, and a bellows type shock absorber slideably mounted on said support. A collar mounted on one end of the shock absorber is coupled to the



bomb fin by link members such that the shock absorber will reduce the shock caused by the opening bomb fin, by collapsing at least in part.

3,785,291
DEVICE FOR CLOSING OFF DEFECTIVE HEAT EXCHANGER TUBES
Axel Bergbauer; Manfred Ploger, and Gunther Seyd, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed May 16, 1972, Ser. No. 253,853
Claims priority, application Germany, May 18, 1971, P 21 24 530.7
Int. Cl. F42b *3/04*
U.S. Cl. 102—24 R **6 Claims**



The device for closing off a defective heat exchanger tube includes a metallic plug having a blind hole in which a sleeve of plastic, cardboard or the like is mounted. The plug has a cylindrical cross-section at the forward end to fit in the tube and a conically tapered outer surface at the open end. The sleeve encloses an explosive charge within the plane of the conically tapered outer surface of the plug and is provided with an enlarged end portion which projects from the plug. This end portion is conically tapered and slotted to jam in the heat exchanger tube. Upon detonation, the explosive charge expands and welds the conically tapered surface portion of the plug to the heat exchanger tube to close off the end of the tube.

3,785,292
PIEZOELECTRIC PERCUSSION FUZE
Hellmut Bendler, Nurnberg; Uwe Brede, Schweig; Heinz Gawlick, Furth, and Hans-Heinrich Rudolph, Egersdorf, all of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed June 1, 1970, Ser. No. 42,063
Claims priority, application Germany, May 30, 1969, 1927519
Int. Cl. F42c *11/02, 1/04, 19/06*
U.S. Cl. 102—70.2 R **12 Claims**

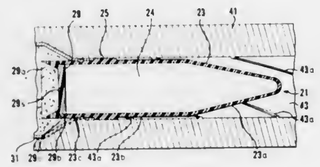
Piezoelectric percussion fuze for projectiles wherein mechanical impact energy is converted, in a piezoelectric

transducer, into an electric voltage for the detonation of a primer charge, characterized in that the piezoelectric trans-



ducer is connected to the primer charge via a semiconductor element exhibiting a threshold value breakdown characteristic.

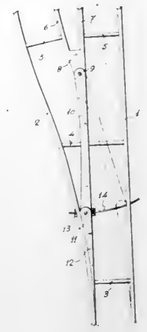
3,785,293
PRACTICE AMMUNITION
Irwin R. Barr; Nicholas J. La Costa, and William O. Davis, all of Baltimore, Md., assignors to AAI Corporation, Cockeysville, Md.
Continuation of Ser. No. 103,079, Dec. 31, 1970, abandoned. This application Jan. 19, 1973, Ser. No. 324,910
Int. Cl. F42b *9/20, 5/22*
U.S. Cl. 102—92.7 **16 Claims**



Practice ammunition including a projectile formed by a thin walled frangible plastic body casing or shell having a spin-weld interconnected rear closure element and being filled with a loose mass of finely divided particulate material of substantially higher density, and preferably of relatively low animal toxicity. The plastic body casing or shell is smooth walled and formed without longitudinal grooving, and if fragmented on exit from a rifled barrel through the combined lateral forces of set-back and centrifugal force operating to radially expand the mass of particulate filler. The particulate material is partially dispersed by these same forces and further dispersed and retarded by wind resistance after leaving the barrel so as to fall to the ground within a relatively short distance from the barrel. A key slot is formed in a rear closure element for rotational locking during spin welding assembly of the body casing or shell, and a rearwardly facing annular obturator encompasses the key slot.

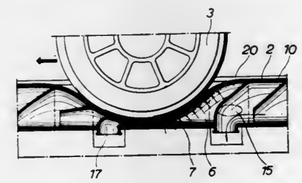
3,785,294
SWITCH FOR ELEVATED BINARY RAILWAY VEHICLES
Alejandro Goicoechea Omar, Madrid, Spain, assignor to S.A. De Trenes Vertebrados, Madrid, Spain
Filed Sept. 28, 1971, Ser. No. 184,459
Int. Cl. A63h *9/32*
U.S. Cl. 104—130 **4 Claims**

A switch for elevated binary railway vehicles, in which the outer rails are completely fixed and the only moving piece is a central articulated tongue or blade which turns through the angle necessary to allow trains to pass over one or other of the two tracks of the fork. The free end member of the tongue is articulated so that when its inner end makes contact with the



fixed track its outer end can continue turning towards the inside of the track and thereby provide a smooth path for the passage of the trains.

3,785,295
CAR CONVEYOR, IN PARTICULAR FOR A WASHING CAR MACHINE
Olli Juhani Kiukkonen, Kotka, Finland, assignor to Rateko Oy, Karhula, Finland
Filed June 27, 1972, Ser. No. 266,619
Claims priority, application Finland, Mar. 2, 1972, 776/72
Int. Cl. B65g *35/00*
U.S. Cl. 104—155 **6 Claims**

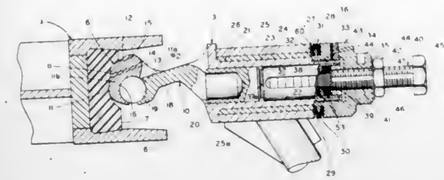


Car conveyor, in particular one intended for a car washing machine, which moves the car with the aid of stops pushing against the wheels on one side at least and which consists of an elastic tube flattening under the car wheel to full closure, into which tube a liquid or gaseous pressure medium is conducted so that the stop moving the car wheel is formed of the inflating tube. The tube has been composed of hollow wedge-like parts, which have been placed one into the other and joined at their outer rims so that within the tube chambers are formed, and that at the narrower end of the wedge-shaped part there is an aperture for conducting the pressure medium from one chamber to the other.

3,785,296
CABLE GRIP CLAMP ARRANGEMENT
Walter V. Berry, Pittsburgh, and Paul J. Hunziker, Zelienople, both of Pa., assignors to Pullman Incorporated, Chicago, Ill.
Filed Aug. 25, 1971, Ser. No. 174,754
Int. Cl. F16g *11/03, 11/00*
U.S. Cl. 104—202 **7 Claims**

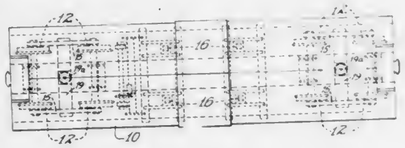
A cable grip clamp arrangement for a ski tow wherein the arrangement includes a fixed outer jaw member connected with the ski lift chair hanger bar and an inner movable jaw member and a spring cartridge within the arrangement between the fixed and movable jaws for urging the movable

jaw toward the fixed jaw for tight engagement of the clamp arrangement about the cable, the cartridge including a plurality of pairs of opposed Belleville spring washers. A further feature is to provide for a flat generally vertical shoulder on the fixed jaw for engagement with a generally flat vertical surface of the bull wheel liner to prevent the ski lift chair from swinging out-



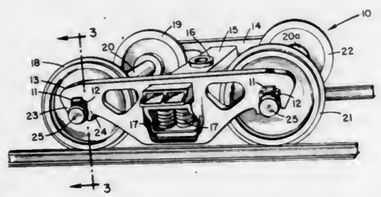
ward by centrifugal force as it comes around the bull wheel. A further feature is to provide for a spring washer installed in the outer barrel portion of the fixed jaw member for engagement with the chair clamp that is disposed peripherally about the barrel portion of the fixed jaw member to exert pressure against the end of the chair clamp in order to prevent swinging of the chair back and forth, in the line of the cable.

3,785,297
MOTORIZED RAILWAY SCALE TEST CAR
Benjamin R. Barnard, Minnetonka, and Douglas A. Puariea, St. Paul, both of Minn., assignors to The Maxson Corporation, Ramsey, Minn.
Filed July 26, 1971, Ser. No. 166,084
Int. Cl. B61c *7/00, 9/00;* **B61d** *15/00*
U.S. Cl. 105—112 **7 Claims**



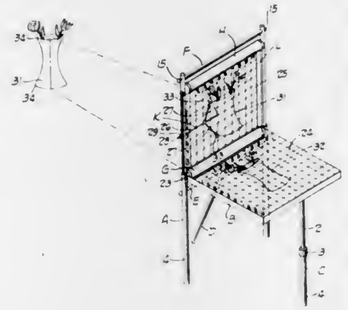
A railway scale testing car of a known weight which is self propelling and which has jacks designed to lift the entire car and truck on a short section of rail including special retaining brackets to lift the wheels and axles as well.

3,785,298
CUSHION MOUNTING BEARING ADAPTOR FOR RAILWAY TRUCKS
David J. Reynolds, Upper Arlington, Ohio, assignor to Buckeye Steel Castings, Columbus, Ohio
Filed Feb. 16, 1972, Ser. No. 226,698
Int. Cl. B61f *5/30, 5/38, 15/02*
U.S. Cl. 105—218 R **12 Claims**



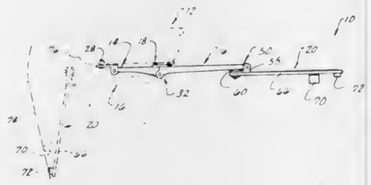
An elastomeric cushion is provided for a railway vehicle truck which allows for lateral movement between the bearing assembly and side frame of the truck only through shear of the elastomer. The cushion is disposed above the bearing assembly of a railway vehicle truck between the roof of the pedestal jaws and a novel adapter having a substantially flat upper surface and a flange extending axially along each edge thereof and about the edge of the cushion.

3,785,299
KE-EASEL
George H. Caperton, Jr., 18501 Hilliard Rd., Apt. 104, Rocky River, Ohio
Division of Ser. No. 846,312, July 28, 1969, Pat. No. 3,660,903. This application Aug. 24, 1971, Ser. No. 174,415
Int. Cl. A47b *85/00*
U.S. Cl. 108—11 **2 Claims**



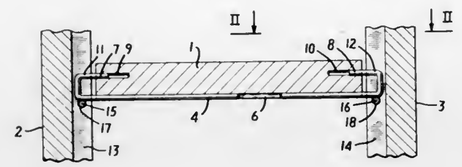
As a drawing aid, a collapsible easel is provided which may be converted to a drawing table with a removable front-supporting leg serving interchangeably as a portion of an easel brace.

3,785,300
VEHICLE SNACK TRAY
Robert K. Anderson, 638 N. Dellrose, Wichita, Kans.
Filed Apr. 10, 1972, Ser. No. 242,415
Int. Cl. A47b *37/00*
U.S. Cl. 108—44 **1 Claim**



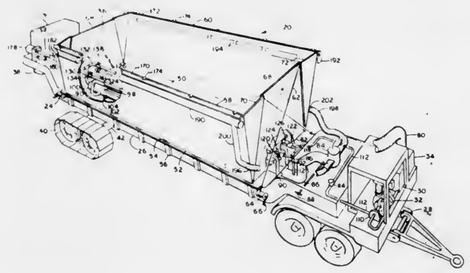
Tray apparatus has a mount with an arm pivotally secured thereto. A tray is pivotally secured to the outer end of the arm. A lock fixes the positions of the mount and the arm in the extended position. It preferably has means to secure the tray in a storage position. The tray apparatus is adapted to pivot between an extended position where it is locked for use and a folded storage position.

3,785,301
ADJUSTABLE SHELVING STRUCTURE
Harald Oskar Lundqvist, 17, rue Emile Yung, Geneva, Switzerland
Filed Apr. 16, 1973, Ser. No. 351,587
Claims priority, application Sweden, Apr. 18, 1972, 5049/72
Int. Cl. A47b *57/08*
U.S. Cl. 108—109 **7 Claims**



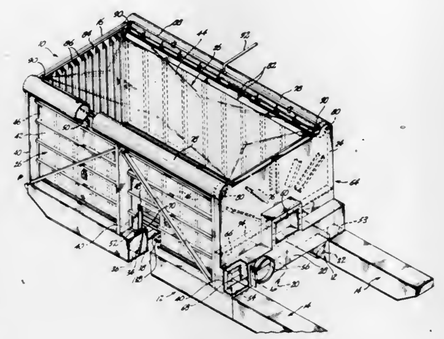
In a shelving structure comprising vertical corner posts and shelves having end portions disposed between two opposite corner posts, each end of the shelf is supported by a piece of rigid wire extending in a groove across the under-side of the end portion of the shelf and having end portions bent upwardly and inwardly and enter holes in the front and back edges of the shelf. The bent end portions of the wire form vertically disposed protruding loop portions which extend into grooves in the corner posts and are positioned and supported vertically by pins inserted in horizontal holes intersecting the grooves in the corner posts.

3,785,302
INCINERATORS FOR POLLUTION FREE BURNING OF SOLID WASTE MATERIALS AT LOW COST AND WITH REDUCED POSSIBILITY OF ACCIDENTAL FIRE SETTING, OFTEN, TRANSPORTABLE, PORTABLE, AND/OR SEMI PERMANENTLY LOCATED
Elmer H. Davis, 404 N. "D", Apt. 5W, Tacoma, Wash.
Filed Feb. 11, 1972, Ser. No. 225,540
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 C **16 Claims**



Burning of solid waste material such as: slash and small growth, resulting from logging operations to acquire merchantable timber and wood products and/or to clear right of ways for vehicles or power lines; selected debris from demolition operations; selected debris taken from transfer stations and/or deposit areas where city wastes are received; and selected debris from wastes created at dwellings; is accomplished in a manner whereby controlling the burning process in an incinerator eliminates completely or in varying degrees the amount of pollutants discharged into the atmosphere. At the same time this method reduces the direct operating costs, possibilities of setting ancillary fires and the need for extended tending and/or dousing of several fires. In some embodiments, this incinerator is completely transportable to the general area over public roads and then after arrival to specific multiple locations off public roads it is conveniently moved over unimproved land to places where the incinerator is needed.

3,785,303
PORTABLE DEBRIS INCINERATOR
Henry R. Hopkins, 7201 92nd St., S.E., Merder Island, Wash.
Filed Aug. 30, 1972, Ser. No. 285,030
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 R **23 Claims**

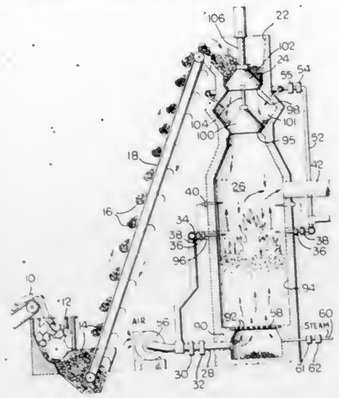


A portable incinerator for use in burning debris, for example, obtained in right-of-way clearing operations, has an incinerating region vertically enclosed by a pair of sidewalls and end walls in a rectangular configuration. The container is mounted on a pair of hollow skids which are longitudinally divided into two air channels. The longitudinal sidewalls of the container are formed from two spaced-apart plates which form an air passage. The upper end of the outer plate is open to form an air inlet. The bottom end of the air passage communicates with one of the fluid channels in the skids. Air is drawn through the sidewalls from the top into the first fluid channel in the skids by a fan operably connected to the skid channel. Feed air is supplied to the incinerator through ports in the skids adjacent the bottom of the sidewalls, which ports communicate with the second air channel in the skids. The exhaust from the fan supplies the feed air to the skid channels. The fan exhaust air is also directed to a pair of plenums mounted on top of the sidewalls. These manifolds have ports which direct a curtain of air over the top of the container to prevent smoke and ash from rising out of the container. The fan is mounted adjacent one of the end walls, which is constructed from three parallel spaced plates. The spaces between the three plates form two manifolds for the intake and exhaust from the fan.

3,785,304
METHOD AND APPARATUS FOR THE THERMAL REDUCTION OF RUBBER OR PLASTIC MATERIAL
Kenneth W. Stookey, 780 Maple Rd., Williamsville, N.Y.
Filed Mar. 13, 1972, Ser. No. 234,003
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 R **26 Claims**

A method and apparatus for thermally reducing rubber or plastic materials in which the rubber or plastic material is comminuted to a predetermined size and it is then subjected to primary combustion in the lower portion of a first chamber with the gases and distilled combustible vapors in the upper portion of the first chamber being subjected to secondary combustion and with the still only partially oxidized gases then being conducted to a second chamber and admixed with further air for tertiary combustion and the combustion thereof completed and with these last hot gases being used as the heat input for a boiler, such as a waste heat boiler. Automatic con-

trols are provided to control the temperature in the upper portion of the first mentioned chamber to within predetermined limits and a further control is provided to insure substantially

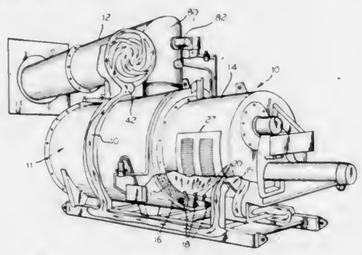


complete combustion in the second mentioned chamber, and with a bare minimum of excess air. This method and apparatus is not suitable for generally municipal waste disposal.

3,785,305
INCINERATOR

Donald J. Schrage, Germantown, Wis., assignor to Aqua-Chem, Inc., Milwaukee, Wis.

Filed May 3, 1972, Ser. No. 249,947
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 A **15 Claims**



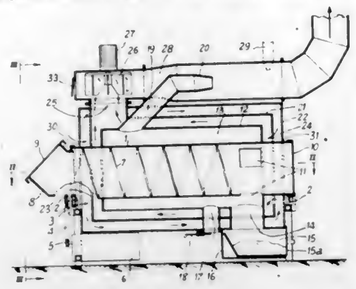
An incinerator having a support assembly structure which also conducts combustion air to a main combustion chamber and an afterburner. Refuse is fed into the main combustion chamber by a compactor which includes a refuse receiving chute having a wall which pivots for refuse compaction. The afterburner air feed system includes a first tangential set of air passages for gas mixing, a venturi section to create a positive draft, and a combustion air feed system. A temperature control regulates the air feed and afterburner temperature by adjusting air feed and fuel.

3,785,306
METHOD AND APPARATUS FOR INCINERATING REFUSE

Jean Jaget, deceased, late of 34, rue Moliere, Montreuil, France, and by Pierre Jaget, legal representative, 20 rue Ramponeau, Paris, France

Filed Feb. 15, 1972, Ser. No. 226,626
Int. Cl. F23g *5/06*
U.S. Cl. 110—14 **12 Claims**

Refuse is incinerated by advancing it longitudinally within an externally heated rotating furnace and utilizing the combustible gases emanating from the refuse to supply part of the

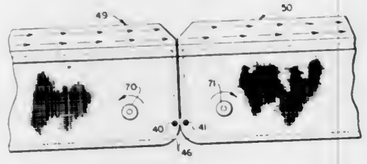


fuel used to heat the furnace. The invention includes apparatus for use in carrying out this process.

3,785,307
CUFF MAKING SYSTEM

John P. Hunter, Jr., Dunwoody; Ross Erle Norton, Dawson, and William O. Mitchell, Vidalia, all of Ga., assignors to Oxford Industries, Inc., Atlanta, Ga.

Filed Apr. 13, 1972, Ser. No. 243,683
Int. Cl. D05b *23/00*
U.S. Cl. 112—121.27 **3 Claims**



A system of making shirt cuffs wherein cuff panels are stitched to a continuous strip of lining material to form a continuous strip of substantially contiguous cuff assemblies. Detecting means determines the line between two cuff assemblies and automatically actuates a cuff corner cutter which shapes the corners of the cuff assemblies. A two needle sewing machine and cutter sews together the contiguous ends of the cuff assemblies and cuts the lining between the cuff assemblies to separate the cuff assemblies, and turning means position the cuff assemblies properly for sewing across the shaped corners.

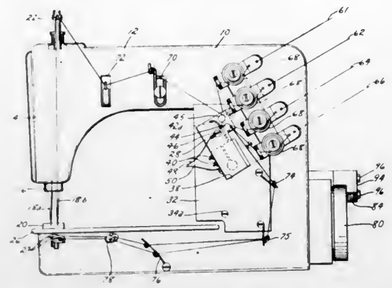
3,785,308
APPARATUS FOR MONITORING THREAD TENSION

Robert C. Brandriff, P.O. Box 95, Clarksburg, N.J., and John F. Wilcox, P.O. Box 503, Dover, N.J.

Filed Dec. 9, 1971, Ser. No. 206,432
Int. Cl. B65h *59/10*
U.S. Cl. 112—218 R **10 Claims**

Apparatus for monitoring thread tension in a plurality of threads employed in a power driven machine having at least one needle and a plurality of threads which comprises a plurality of means for sensing the tension of individual threads and operatively connected means for individually adjusting the tension of each sensor means. A preferred apparatus is an electromechanical thread tension device which further includes an electrical switch associated with the means for sensing thread tension. A particularly preferred apparatus which is suitable for monitoring chain stitches produced by sewing and like machines comprises the electromechanical thread tension device, gating assembly means for detecting

thread tension during the period when the stitch is being set, and an electrical control system designed to produce a warn-

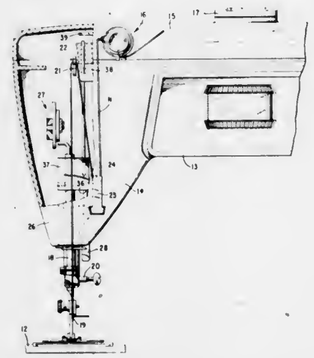


ing signal and/or mark the fabric and/or stop the machine in the event of insufficient thread tension.

3,785,309
THREAD TENSIONING MECHANISM FOR A SEWING MACHINE

Stanley J. Ketterer, Jamesburg, N.J., assignor to The Singer Company, New York, N.Y.

Filed Nov. 13, 1972, Ser. No. 306,091
Int. Cl. D05b *47/00*
U.S. Cl. 112—254 **7 Claims**



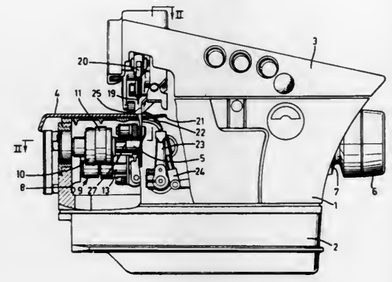
The present invention relates to a thread tensioning mechanism for a sewing machine. The mechanism is intended to obviate the problem of fatigue which normally occurs in such mechanisms, as a result of extended use of the machine. The tension regulating member of the machine is thus enabled to retain its accuracy through substantially the life of the machine. The tensioning mechanism comprises thread engaging means adapted to generate thread tension by providing resistance to the movement of a thread therethrough in proportion to a force applied to said thread engaging means and means for developing and applying said force thereto. The means for developing said force and for applying same to said thread engaging means comprises magnetically interacting elements, one of which is carried by a lever operatively connected to said thread engaging means, and the other of which is carried shiftably by operator influenced means, whereby said other element may be selectively positioned relative to the fulcrum of the lever to vary the thread tension.

The present invention relates to a thread tensioning mechanism for a sewing machine and more particularly to a tensioning mechanism for the needle thread of such sewing machine.

3,785,310
LUBRICANT SEALING DEVICE FOR A WORK FEEDING MECHANISM OF A SEWING MACHINE

Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & Co., Milan, Italy

Filed Mar. 2, 1972, Ser. No. 231,276
Claims priority, application Italy, Mar. 29, 1971, 22415 A/71
Int. Cl. D05b *71/00*
U.S. Cl. 112—256 **3 Claims**

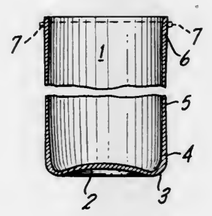


A lubricant seal member for a sewing machine carried on the feed bars that actuate the device for advancing a workpiece as it is sewn and disposed so as to prevent the leakage of lubricant from the source of drive for the feed bars to the workpiece advancing device.

3,785,311
METHOD FOR PRODUCING A METALLIC CONTAINER OR CAN

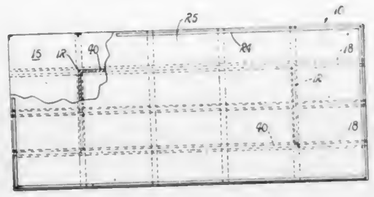
Tatsumi Yoshikawa, Tokyo, Japan, assignor to Daiwa Can Co., Ltd., Tokyo, Japan

Filed May 26, 1971, Ser. No. 147,073
Claims priority, application Japan, June 4, 1970, 45/54468
Int. Cl. B21d *22/30*
U.S. Cl. 113—120 H **1 Claim**



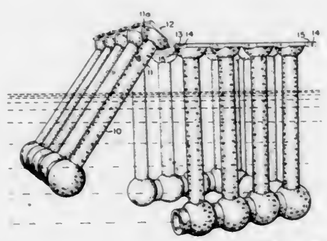
A metal blank or tin plate is drawn to form a cup, said cup is then subjected to ironing, trimming and flanging to produce a metallic container or can. However the final ironing is not effected at all on the upper part of the can body wall. For this purpose, a punch core is used which has the upper portion of smaller diameter and the rest portion of larger diameter, the latter constituting a substantial part of the core. The container thus produced has a thin walled center portion constituting a greater part of the body wall and a thick walled upper portion constituting a smaller part of the body wall.

3,785,312
MODULAR FLOATING STRUCTURE
Gordon L. Schneider, 5546 E. Donner Ave., Fresno, Calif.
Continuation-in-part of Ser. No. 793,306, Jan. 23, 1969, abandoned. This application July 26, 1971, Ser. No. 166,101
Int. Cl. B63b 35/44
U.S. Cl. 114—.5 F 19 Claims



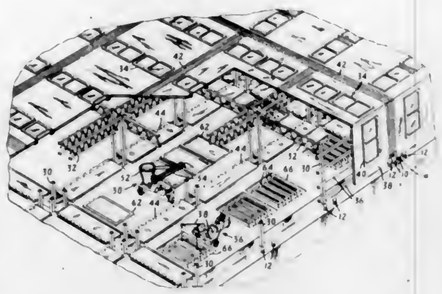
A fabricated floating structure particularly suited for use as a houseboat or the like, characterized by a repetative plurality of interchangeable, prefabricated, modular flotation units, or modules, including closed chambers selectively used to contain flotage, payload, or consumable ballast, and which are adapted to be interchangeably interconnected with beam-like members so arranged and disposed as to form a plurality of trusses extending between the modules, whereby the devices may be rapidly assembled and interconnected into laterally and longitudinally extended truss-like structural components which integrate the modules into a bouyant hull capable of supporting vertically disposed bulkheads forming living compartments and the like.

3,785,313
SPHERICAL MODULE CONNECTORS
Edgar N. Rosenberg, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 14, 1972, Ser. No. 280,699
Int. Cl. B63b 35/00
U.S. Cl. 114—0.5 T 2 Claims



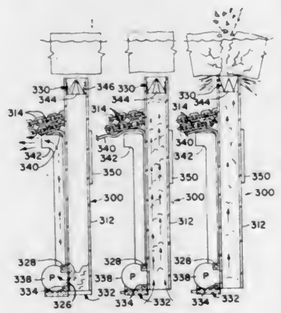
Elongate rigid flotation modules are coupled together along deck and submerged portions to provide a stable floating platform. The submerged portion on one of the floating modules is spherically shaped and a cylindrical extension from the submerged portion of an adjacent flotation module is configured to mechanically cooperate with the spherically-shaped portion in a sealed relationship. Evacuating the water from the now-sealed cylindrical extension creates a pressure differential which holds the submerged portions of the flotation modules together. This manner of seating between the cylindrical extension on the spherically-shaped surface allows precise positioning of the deck portions prior to their interconnection.

3,785,314
FLOATING FACTORY FOR THE MANUFACTURE OF BUILDING COMPONENTS
Harry J. Scanlan, Garden City, N.Y., assignor to Shoreline Precast Company, New York, N.Y.
Filed July 3, 1972, Ser. No. 268,500
Int. Cl. B63b 35/00
U.S. Cl. 114—0.5 F 27 Claims



A floating factory for the manufacture of building components comprises a multiplicity of modular floating deck barges arranged in adjacent relation to form a substantially continuous work area. The barges are ballasted or initially constructed to maintain the work area essentially level with the barges in a plane. The barges are preferably connected together to form the work area in a manner that resiliently holds them in adjacent relation while still affording a controlled relative movement under wave action, wind loads, live load transfer or other forces tending to cause relative movement of the barges. A roof and exterior walls enclose at least a part of the work area, and preferably all of the work area, and bridges connect the decks of at least some of the adjacent barges for transport of materials and products around the work area.

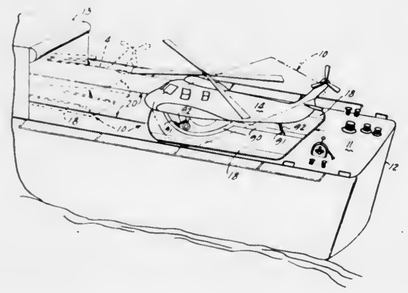
3,785,315
LIQUID-HAMMER ICEBREAKER FOR SHIPS
Jacob W. Wagner, Schuster Rd., Jarrettsville, Md.
Continuation-in-part of Ser. No. 16,516, March 4, 1970, Pat. No. 3,698,341, and a continuation-in-part of Ser. No. 120,271, March 2, 1971, Pat. No. 3,698,340. This application June 16, 1972, Ser. No. 263,554
Int. Cl. B63b 35/08
U.S. Cl. 114—40 28 Claims



Open water ice breaking means and method including in one embodiment a vertical tube for disposal beneath floating ice, valves for closing off the ends of the tube, a pump for evacuating ambient water from the tube, and a control system

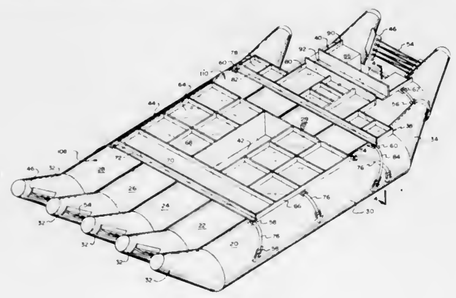
for admitting water to gush upward under ambient pressure through the lower valve, the evacuated tube and the upper tube, to break the ice through impact of the upward moving column of water against the lower face of the ice; in a second embodiment a plurality of tubes similar to that described operates in synchronism to focus the effect produced by impact of the water on the ice; alternating operation of a plurality of tubes is provided in another, similar embodiment; a further embodiment uses compressed air to displace the ambient fluid and operates without top and bottom valves; special tubes and valves are provided for the invention, as well as ship adaptions.

3,785,316
HEAVY DUTY SWIVEL PLATFORM CONVEYOR
John C. Leming, 25180 Stratford Rd., Glen Ellyn, Ill.; Donelson C. Glassie, 3810 Bradley Ln., Chevy Chase, Md., and Roy M. Jahnel, 2016 Jameson St., Washington, D.C.
Filed Apr. 21, 1972, Ser. No. 246,460
Int. Cl. B63b 35/50
U.S. Cl. 114—43.5 18 Claims



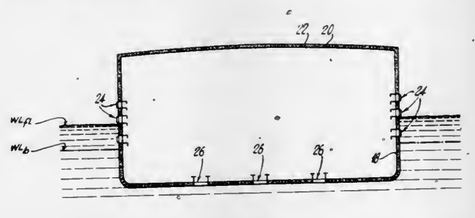
A heavy-duty swivel platform conveyor such as may serve as a helicopter landing pad on a ship deck includes a platform structure, transporting longspan screw device under the platform fixed to the deck or other base and with driving couplings with the platform enabling swiveling of the platform relative to the path along which the platform is adapted to be transported by operation of the longspan screw.

3,785,317
BOAT CONSTRUCTION AND METHOD
Jack L. Currey, 1580-A Millcreek Way, Salt Lake City, Utah
Filed Apr. 10, 1972, Ser. No. 242,559
Int. Cl. B63b 1/10
U.S. Cl. 114—61 8 Claims



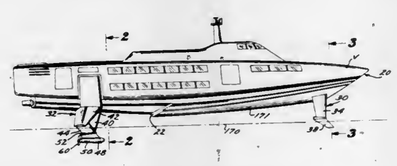
A boat construction and method for transporting passengers and cargo particularly over rough water, the boat construction comprising a plurality of elongated tubular pneumatically filled floats joined in a flexible manner. Each float has a plurality of compartmented segments with the extreme forward and rear segments projecting away from the water. A cargo carrier is lashed to the connected floats and the device is propelled by an outboard motor that has been mounted to a transom lashed between the assembled floats. The method includes lashing flat platforms to be used as cargo carriers to floats which have also been lashed together. Vacant spaces are provided between selected ones of the floats providing a recessed area for receiving cargo. Assembling the floats and cargo carrier according to this invention accommodates significant bending movements of the boat construction over obstacles encountered in the water.

3,785,318
DOCKING AND DRYDOCKING MEMBERS FOR EXTERNALLY INSULATED SHIPS
Frank J. Iarossi, Middletown, N.J., and Walter C. Cowles, Cobhan, England, assignors to Esso Research and Engineering Company, Linden, N.J.
Filed May 18, 1971, Ser. No. 144,421
Int. Cl. B63b 25/16
U.S. Cl. 114—74 A 6 Claims



An arrangement and construction for longitudinal extending bearing members disposed within the external insulation and attached to the hull of an externally insulated tanker for transferring impact loads such as may result from docking and drydocking through the insulation to the ship's structure. These longitudinal bearing members are made from a material such as balsa or hard rubber which possesses high compressive strength and are disposed along the sides and bottom of the ship's hull.

3,785,319
HYDROFOIL VESSEL
Leon J. Danforth, Long Beach, Calif., assignor to Richard B. Markus, trustee, San Francisco, Calif.
Filed June 11, 1971, Ser. No. 152,215
Int. Cl. B63b 1/26
U.S. Cl. 114—66.5 H 9 Claims

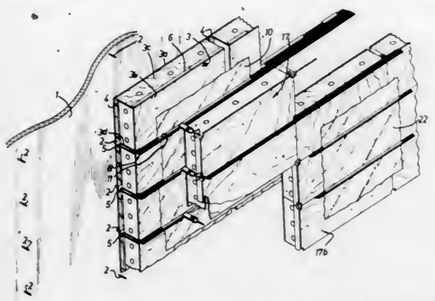


A canard type hydrofoil vessel utilizing a lightly loaded bow foil unit to act as a pitch suppressor to oncoming waves in conjunction with dual main foil units. The bow foil unit supports approximately 15 to 25 percent of the weight of the vessel and the main foil units support approximately 75 to 85 percent of the weight of the vessel when the vessel is foilborne.

3,785,320
INTEGRAL TANK FOR TRANSPORTING LIQUEFIED GAS

Michel Bourgeois, Le Havre, and Pierre Jean, Fontaine La Mallet, both of France, assignors to Gaz Transport S.A.R.L., Paris, France

Filed Aug. 30, 1971, Ser. No. 175,980
Claims priority, application France, Sept. 1, 1970, 7033789; July 21, 1971, 7126652
Int. Cl. B63b 25/08
U.S. Cl. 114—74 A 22 Claims

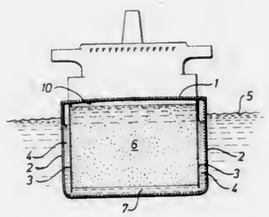


Methane tanker comprises two heat insulating barriers and two fluid-tight barriers, positioned alternately with a fluid-tight barrier innermost and the outermost insulating barrier attached to the hull of the ship. The other fluid-tight barrier is positioned between the two insulating barriers and comprises vertical plates joined together by welding to horizontal metallic strips. One edge of each strip is slidably connected to the outer insulating barrier and the other edge is resiliently connected to the inner insulating barrier.

3,785,321
SAFETY DEVICE AGAINST LEAKAGE FROM SHIPS, ESPECIALLY TANKERS

Arne L. Backstrom, Stockholm, Sweden, assignor to Svenska Entreprenad AB Sentab, Stockholm, Sweden

Filed Nov. 18, 1971, Ser. No. 199,998
Claims priority, application Sweden, Nov. 23, 1970, 15866/70
Int. Cl. B63b 25/12
U.S. Cl. 114—74 R 6 Claims

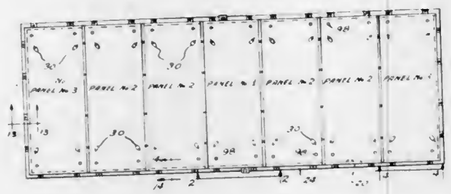


A ship such as a tanker for the transport of oil and oil products, is provided with a safety device to prevent leakage of the product being stored or transported. The safety device comprises a shield which preferably is flexible and extends along the ship's hull in spaced relation thereto so as to define vertically extending narrow spaces at the inner side of the hull. Said narrow spaces are opening in the bottom region of the ship and shall when the ship is used contain a liquid having the same or a higher density than the transported product. As an example the product may rest on a bed of water at the ship's bottom, water than also being present in the said narrow spaces. If for instance due to a collision a hole is formed in the ship's hull the liquid level in the actual narrow spaces will be adapted after the sea level whereby the level of the product in the cargo space takes a balanced position in which leakage of the product is prevented. As an alternative to water the transported product proper may be contained in the narrow spaces in which case a small leakage may occur if the hull of the ship becomes damaged.

3,785,322
HATCH COVER

Ammon W. Kersteter, Covington, La., assignor to Equitable Equipment Company, Inc., New Orleans, La.

Filed Mar. 2, 1972, Ser. No. 231,122
Int. Cl. B63b 19/14
U.S. Cl. 114—201 R 27 Claims



Sealing problems attendant dimensional variations in separate hatch cover panels arranged in side-by-side relation along the length of the hatchway are eliminated by an arrangement wherein one panel is first installed in a predetermined fixed position relative to the hatchway, preferably centrally thereof. The remaining panels are installed successively away from the first panel toward the ends of the hatchway. All panels are provided with means interengageable on installation of an adjacent panel to maintain a fixed predetermined spacing between adjacent panels. A range is provided for the sealing locus of the end panels with the ends of the hatchway, therefore compensating for cumulative dimensional variations in the panels along the length of the hatchway.

3,785,323
ANCHOR HOLD-DOWN DEVICE

William F. Lantz, 3915 N.E. 72nd Ave., Portland, Oreg.

Filed Aug. 9, 1972, Ser. No. 279,084
Int. Cl. B63b 21/22
U.S. Cl. 114—210 2 Claims

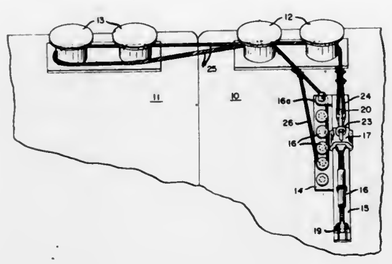


A hold-down device including a front bracket for hooking over the crown of an anchor, a cradle for receiving a rearward portion of the shank of the anchor, and a pair of deck plates serving as rests for the tips of the anchor flukes. The cradle includes a leaf spring on which the shank of the anchor rests. The shank is releasably held in the cradle by a locking bar having a laterally extending pin engageable in notches in the upper portion of the cradle. The locking bar carries a leaf spring on its underside which in an over-center locked position of the locking bar holds the shank of the anchor down on the spring in the cradle. A spring pressed catch is utilized to assist in maintaining the pin in the notches except when pulled out by the operator.

3,785,324
RATCHET HAUL DEVICES

Harold A. Guthans, Mobile, Ala., assignor to Guthans Engineering Co., Mobile, Ala.

Filed Oct. 27, 1971, Ser. No. 193,022
Int. Cl. B63b 21/58
U.S. Cl. 114—235 A 4 Claims

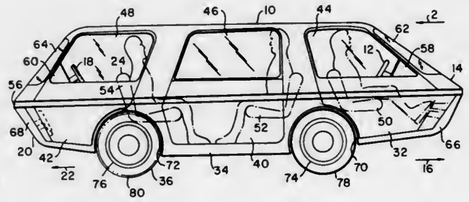


A ratchet haul device is provided for fastening two barges or like objects together which have upstanding stanchions, which device includes an elongated base member fastened to one barge, a guide rail extending lengthwise of said base, a plurality of stanchions on a line parallel to the guide rail, a crosshead movable on the guide rail having a locking hook, a ratchet means fixed at one end to the guide rail and at the other to the crosshead whereby the crosshead is movable on the guide rail, a cable having a loop at each end and a cable locking means receiving one such loop and the other loop being removably engaged in said hook means.

3,785,325
AMPHIBIOUS STRUCTURE

Leonora M. Mycroft, 1973 Campus Dr., Fairborn, Ohio

Filed June 14, 1971, Ser. No. 152,501
Int. Cl. B60f 3/00
U.S. Cl. 115—1 R 1 Claim

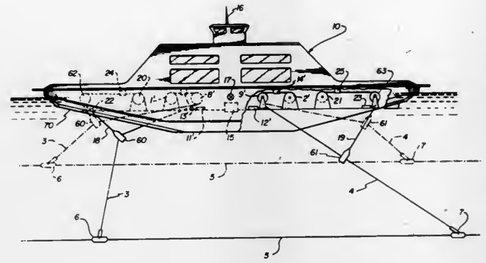


An amphibious vehicle having means for driving the vehicle on land at one end thereof and having means for driving the vehicle in the water at the other end thereof including a seat in the vehicle adapted to be pivoted about an axis transverse of the vehicle to provide a driving seat for the vehicle when it is driven from one end and a rear seat for the vehicle when it is driven from the other end.

3,785,326
WATER PROPULSION SYSTEMS USING SUBMERGED PROPULSION CABLE

Steven B. Mullerheim, 89 Edgecroft Rd., Kensington, Calif.

Filed Nov. 8, 1971, Ser. No. 196,489
Int. Cl. B63b 21/56
U.S. Cl. 115—7 9 Claims

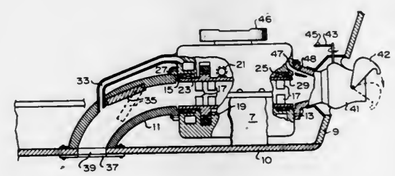


A water transportation system of the kind in which a vessel is driven by a submerged moveable propulsion cable, particularly one which may assume greatly varying depth. The vessel is connected to the propulsion cable by flexible tension members, such as connecting cables, and there are winches aboard the vessel on which the connecting cables may be wound. The winches are controlled by electronic control equipment which, in addition to radio signals received from shore, is governed by tension and declivity sensors monitoring the connecting cables. Provisions of different kind are made available for changing the effective moment arm about the vessel centroid at which the members linking the vessel to the propulsion cable are connected to the hull longitudinally thereof.

3,785,327
LIQUID PROPULSION APPARATUS AND METHOD OF FABRICATION

Albert C. Smith, Box 782, Los Altos, Calif.

Filed Sept. 28, 1971, Ser. No. 184,462
Int. Cl. B63h 25/46
U.S. Cl. 115—16 15 Claims

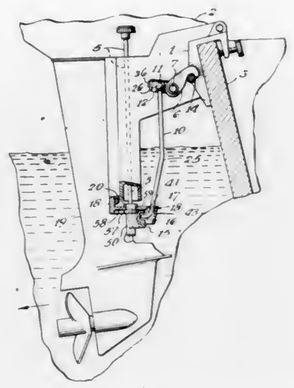


An improved liquid pumping unit for marine propulsion and the like includes as the rotatable shaft of an internal combustion engine a conduit which includes internal impeller vanes for pumping liquid therethrough at high volume and velocity and which also serves as the flywheel of the engine.

3,785,328
OUTBOARD MOTOR ANTI-TILT LOCKING MECHANISM

Robert F. Kloiber, Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Aug. 14, 1972, Ser. No. 280,272
Int. Cl. B63h 1/14
U.S. Cl. 115—17 9 Claims

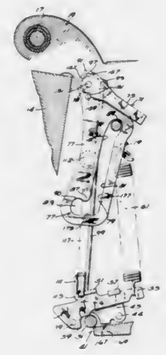


A tilt lock mechanism for an outboard motor incorporating locking fingers actuated by a flexible shaft driven by a channel cam keyed to the shift shaft of the engine. A readily disassemblable ball joint links the flexible operating shaft to a rotating mechanism carrying the locking fingers.

3,785,329
COMBINED REVERSE LOCK AND SWIVEL BRACKET HOLDING MECHANISM

William J. Shimanckas, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed July 12, 1972, Ser. No. 271,198
Int. Cl. B63h 21/26
U.S. Cl. 115—41 10 Claims

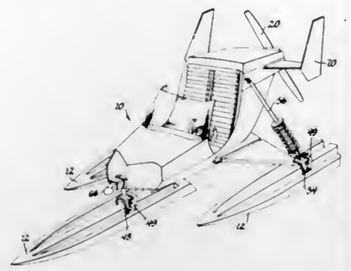


Disclosed herein is a marine propulsion device including means connected to a reverse lock and to a swivel bracket holding means for providing coordinated control of the reverse lock and of the swivel bracket holding means.

3,785,330
AIR DRIVEN VEHICLE

Robert M. Fox, 30518 Freda, Warren, Mich.

Filed Apr. 21, 1972, Ser. No. 246,298
Int. Cl. B62m 27/02
U.S. Cl. 115—70 12 Claims

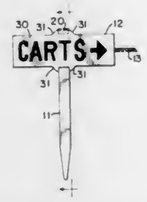


An air powered vehicle including a frame having a longitudinally extending central member which extends from the front of the vehicle rearwardly and upwardly in arcuate configuration to upper rear end. A transversly extending lower outrigger member is attached to the central member toward the front end of the central member and upper transversely extending outrigger member is disposed toward the rear of the central member. A vertical support member extends upwardly from the central member and supports the upper outrigger. A motor mounting means is disposed at the rear upper end of the central member and is defined in part by the upper outrigger member whereby a motor is supported at the rear upper end of the central member. A steerable surface engaging assembly is disposed at the front end of the central member and side surface engaging assemblies are connected to the outriggers and the frame by struts, connecting rods and pivotably interconnected links.

3,785,331
PLASTIC SIGN KIT

Robert C. Ferris, Chicago, Ill., assignor to Coursigns, Inc., Chicago, Ill.

Filed Sept. 25, 1972, Ser. No. 291,789
Int. Cl. E01f 9/10
U.S. Cl. 116—63 R 7 Claims

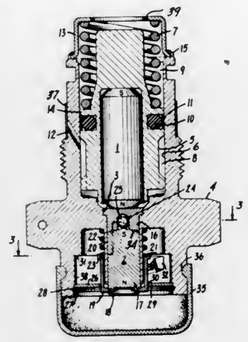


A restrictive sign designed primarily for use on golf courses to designate restricted areas comprising a signboard for containing an inscription conveying certain information or instructions and an associated mounting stake for supporting the sign and a cord adapted to be extended between two or more stakes and held in slip-free relation on each stake to define areas to be avoided. The signboard is removably mounted on the stakes for ready interchangeability and the board and stake include interengaging means maintaining their cooperative relationship while the stake has stop means to support the signboard at a desired elevation and a reinforced surface for use in pounding the stake into the golf course. The design of the signboard and mounting stake is such as to lend itself to manufacture in impact resisting molded plastic which may be of a conspicuous color.

3,785,332
MAGNETIC PRESSURE INDICATOR

Bernard F. Silverwater, Plainview, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,266
Int. Cl. G01l 19/12
U.S. Cl. 116—70 20 Claims

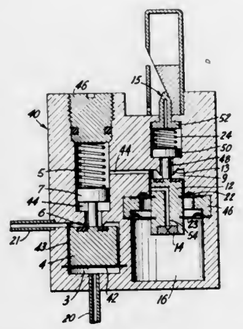


A magnetic differential pressure indicator is provided for detecting and indicating a pressure differential thereacross that is greater than a predetermined value in a fluid system. A loose nonmagnetic ball detent prevents resetting of the magnetic indicating means after actuation.

3,785,333
ALARM FOR SENSING A REDUCTION OF GAS SUPPLY PRESSURE FOR RESPIRATORS

Ernst Warncke, and Hans Haas, both of Lubeck, Germany, assignors to Dragerwerk Aktiengesellschaft, Lubeck, Germany

Filed June 2, 1972, Ser. No. 259,308
Claims priority, application Germany, June 15, 1971, P 21 29 529.4
Int. Cl. G01l 19/12
U.S. Cl. 116—70 5 Claims

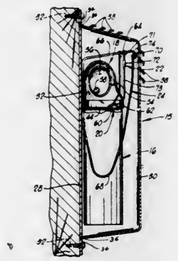


An alarm for sensing a reduction of gas supply pressure to a respirator comprises a housing having a first chamber with a gas pressure monitoring inlet connection for connection to the gas supply container and a medium pressure line for actuating fluid which is connected into the first chamber but which is divided from the monitoring gas connection by a diaphragm. A second chamber in the housing includes a diaphragm sealing arrangement dividing the chamber into a close zone and a control zone. The housing includes a first passage between the actuating fluid zone and the control zone which has a valve seat at the connection of the actuating fluid zone which is closed by a first valve body which is carried on the diaphragm and which is urged by the diaphragm under normal operating pressure to close the valve seat and close off the first passage. A monitoring spring biases the body in a direction to move off the valve seat when the monitoring pressure reduces by a predetermined amount. An alarm conduit having a fluid-operated alarm, such as a whistle, is connected to the control zone and it has a valve seat at the connection to the control zone which is sealed by a second valve body carried by the sealing diaphragm arrangement and which is normally opened by a biasing spring to permit the control medium to flow through the alarm conduit and actuate the whistle. The sealing means which carries the valve body is such that a throttle passage extends between the control zone and the closed zone in order to permit flow of the fluid from the control zone into the closed zone and a closing of the alarm conduit to, thus, cause a stopping of the flow of the medium pressure fluid.

3,785,334
GAS GENERATOR FIRE ALARM

Thomas A. Waldeck, 3517 E. Skinner, Wichita, Kans.

Filed Jan. 11, 1971, Ser. No. 105,478
Int. Cl. G08b 17/00
U.S. Cl. 116—106 4 Claims

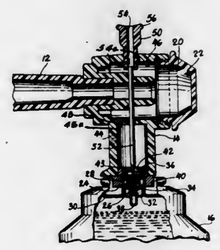


A fire alarm is contained in a housing. There is a gas generator connected to a whistle. An ignitor starts the gas generator. More particularly, a fire alarm with a gas generator operated whistle noisemaker is actuated by excessive heat in the vicinity of the fire alarm.

3,785,335
AIR HORN

William Wagner, c/o Watsco Inc., 1800 W. Fourth Ave., Hialeah, Fla.

Filed Aug. 4, 1971, Ser. No. 168,821
Int. Cl. G08b 21/00
U.S. Cl. 116—112 8 Claims



A horn which may be sounded selectively by blowing through a mouthpiece or by release of compressed gas. Valve

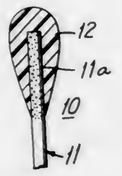
means are provided to control the release of compressed gas and valve means are provided to close the mouthpiece. The two valve means may be independent or may be joined.

In the preferred embodiment a button, which when manually depressed opens a valve permitting the compressed gas to escape via the diaphragm and sound the horn, is provided with a central hole communicating to the diaphragm and is shaped like a mouthpiece. The horn may be sounded by blowing into the mouthpiece button to provide a stream of air past the diaphragm and through the horn. By manually depressing the button, the hole therein is automatically sealed.

3,785,336
TEMPERATURE INDICATOR

Gregory J. Roszkowski, Arcadia, Calif., assignor to Bio-Medical Sciences, Inc., Fairfield, N.J.

Filed July 1, 1971, Ser. No. 158,946
Int. Cl. G01k *11/06*
U.S. Cl. 116—114.5 **7 Claims**

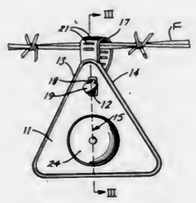


A temperature indicator to determine if a patient's temperature is above normal or feverish comprises an elongated body having a gob-like coating on one end which has a contrasting color relative to the body and which will melt at a temperature slightly above the accepted normal of 98.6° F.

3,785,337
WIRE MARKER

Carl W. Flowerday, Holland, Mich., assignor to Maes Incorporated, Holland, Mich.

Filed Sept. 18, 1972, Ser. No. 289,992
Int. Cl. G01d *21/00*
U.S. Cl. 116—114 R **7 Claims**

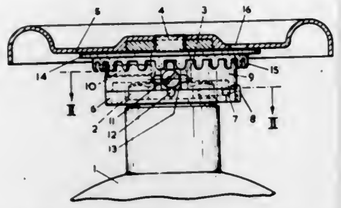


A warning device for use on fence wire, trees, posts and the like. The device has a flat base and an integral strap extending from an edge thereof. The free end of the strap has fastening means on the end thereof adapted to be coupled with the base of the device or the base of an adjacent warning device. The strap can encircle a fence wire or it can be secured, as by nails, to trees and posts for marking trails, driveway entrances and the like. A light reflector is mounted on the base.

3,785,338
SYSTEM FOR INDICATING THE POSITION OF A CONTROL MEMBER ADJUSTABLE BY MEANS OF A HANDWHEEL AND SPINDLE

Jan Cornelis Visser, Soensdrecht, Netherlands, assignor to B.V. Maschinefabrik en Ilzergietery Holland-Bergen op Zoom, Bergen op Zoom, Netherlands

Filed Nov. 8, 1971, Ser. No. 196,572
Claims priority, application Netherlands, Nov. 11, 1970, 7016473
Int. Cl. F16k *37/00*
U.S. Cl. 116—125 **7 Claims**

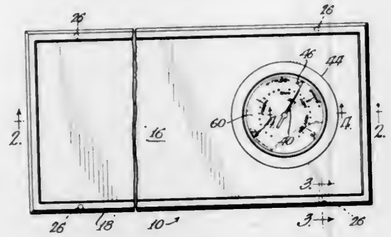


A system for indicating the position of a control member adjustable by means of a handwheel and a spindle, in which the handwheel or a part connected thereto has an aperture and a surface provided with indicia is situated behind the aperture and can perform a relative rotation with respect to the handwheel about the spindle and is coupled to the spindle via means which rotate the said surface from an initial position through a given angle with respect to the spindle in dependence on the number of spindle revolutions.

3,785,339
WEATHER INDICATING INSTRUMENT

George J. Niccoli, Chicago, Ill., assignor to Airguide Instrument Company, Chicago, Ill.

Filed Oct. 24, 1972, Ser. No. 300,423
Int. Cl. G09f *9/00*
U.S. Cl. 116—129 R **5 Claims**

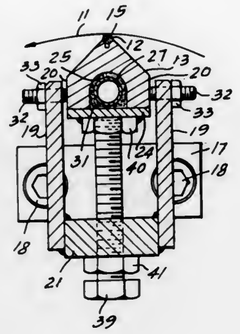


A weather instrument for indicating atmospheric pressure and expected weather conditions incident to falling and rising barometric conditions, including a stationary panel with a circular scale for indicating atmospheric pressure, an angularly adjustable transparent dial concentric with the pressure scale and having a reference line together with indicia at opposite sides thereof to indicate weather expectations, and a barometric device responsive to atmospheric pressure having an angularly movable needle over the pressure scale and the transparent dial, in an arrangement which permits the adjustable dial to be set with reference to the needle, wherever the needle is positioned, so that subsequent movement of the needle relative to the adjustable dial indicates not only atmospheric pressure but also expected weather conditions incident to falling and rising atmospheric conditions.

3,785,340
METERING BAR

Larry O. Stafford, Beloit, Wis.; William P. Wentworth, Rockford, and James J. Melead, Roscoe, both of Ill., assignors to Beloit Corporation, Beloit, Wis.

Filed Aug. 8, 1972, Ser. No. 278,710
Int. Cl. B05c *11/04*
U.S. Cl. 118—101 **18 Claims**

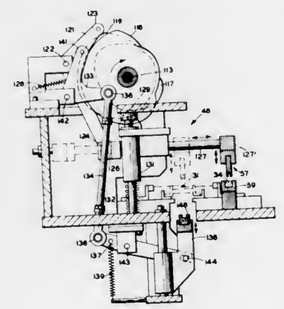


Deflection correction metering bar assembly for metering coating on a web. The assembly includes a rod holder having a recess extending along its top portion, a metering rod mounted in said recess, deflection correction bars for said rod holder, carrying jacking screws deflecting the rod holder in horizontal and vertical planes and holding the rod holder against sagging vertically or deflecting horizontally. A fluid passageway leads through the rod holder to accommodate the passage of temperature control fluid therethrough, to prevent coating from building up on the metering rod, and maintain an even coating on the web.

3,785,341
APPARATUS FOR APPLYING LIQUID TO ARTICLES WITHOUT TOUCHING THE ARTICLES

John H. Blewett, Reading, and Harry K. Naumann, Wernersville, both of Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 744,082, July 11, 1968, Pat. No. 3,589,938. This application Aug. 5, 1970, Ser. No. 61,504
Int. Cl. B05c *3/09*
U.S. Cl. 118—421 **14 Claims**

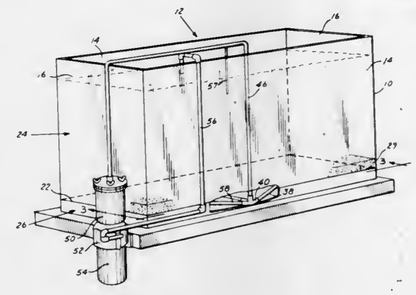


Coating fluid is applied to an article, without contacting a body of the article with means other than the fluid to be applied. An applicating member, having at least one tooth with a concavity therein, is dipped into a bath of coating fluid, retracted and fluid retained in and about the concavity by capillarity. The member is then brought into noncontacting relation with the article so that a portion of the article lies within the fluid-filled concavity. A quantity of fluid within the concavity contacts and flows about the article, coating it. Simultaneous coating of a plurality of paramagnetic-leaded electrical devices utilizes magnetic holding of the devices, luring the coating process, and an applicator with a plurality of spaced teeth arranged in a comblike array.

3,785,342
SELF-CLEANING AQUARIUM

George H. Rogers, 3160 Wright St., Denver, Colo.

Filed Mar. 31, 1972, Ser. No. 240,169
Int. Cl. A01k *63/00*
U.S. Cl. 119—5 **13 Claims**

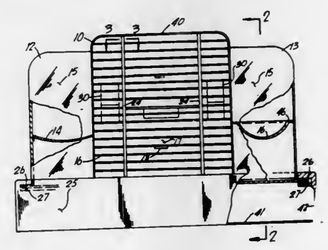


A self-cleaning aquarium includes a tank with a perforated partition spaced a small distance from the bottom of the tank to define an upper display portion and a lower drainage portion. Disposed within the drainage portion and resting on the bottom of the tank is a funneling drainage plate for receiving sedimentary material in the tank which passes through the perforated partition. The drainage plate has drain openings connected to a suction tube which draws the sedimentary material and liquid in the drainage portion of the tank out of the tank and directs it through an external filter including a pump for pumping the clarified liquid back into the tank. In the preferred form the filter is a watertight container having a removable receptacle for retaining filtering material and is designed so that the receptacle can be easily removed to periodically change the filter material.

3,785,343
BIRD CAGE

Hilda E. Baratta, Hyde Park, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

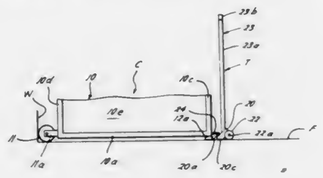
Filed Oct. 19, 1972, Ser. No. 298,927
Int. Cl. A01k *31/04*
U.S. Cl. 119—17 **1 Claim**



An improved bird cage, fabricated of transparent plastic material which provides separate connecting compartments for sleeping and bathing purposes of the caged bird. The sides and top of the bathing compartment and the sleeping com-

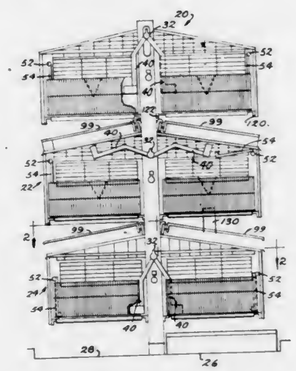
partment are formed of solid transparent plastic sheets, with each compartment being removable from the cage assembly, and with the openings in the main cage compartment to the bathing and sleeping compartments being closeable by a sliding door or grill. The base section of the cage is removable for cleaning purposes, and is located below a grill of plastic bars which may be fastened to, or removed from the cage independently of the removable base section.

3,785,344
CAGE APPARATUS
Carol M. Patterson, Bryan, Tex., assignor to Research Equipment Company, Inc., Bryan, Tex.
Filed Apr. 27, 1972, Ser. No. 248,111
Int. Cl. A01k *1/00*
U.S. Cl. 119—17 **8 Claims**



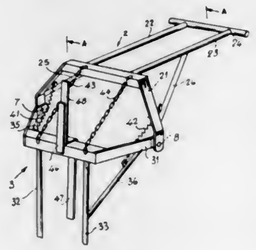
Cage apparatus for confining an animal within a cage and preventing undesired movement of the cage including an animal cage having wheels mounted at the rear thereof, resilient support means mounted at the front of the cage to support the cage and to provide reaction forces in substantially the opposite direction from forces exerted by the animal in the cage such that the cage tends to move in substantially one direction only; and, transport means for connecting to the front end of the cage to render the cage transportable.

3,785,345
AUTOMATED SYSTEMS FOR RAISING AND TRANSPORTING BROILERS
Vance E. Rhinehart, Apison; James D. Coffelt, Soddy, and Floyd G. Yother, Daisy, all of Tenn., assignors to Cumberland Corporation, Chattanooga, Tenn.
Filed Feb. 2, 1972, Ser. No. 222,821
Int. Cl. A01k *31/00*
U.S. Cl. 119—18 **17 Claims**



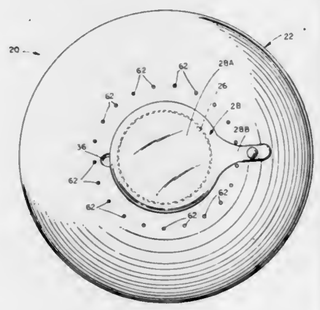
An animal raising system, particularly for fowl such as chickens, which includes a plurality of cages disposed on a frame in a plurality of rows, one row above the other. Each cage preferably has two members attached to opposing cage walls at the top thereof and movable from a first position in which the members provide a vertical extension of the walls to which they are attached, thus permitting proper grow-out and leaving the cage top open, to a second position closing the cage top for transportation at an appropriate cage height. Further, drop tubes for food and water extend into each cage through the open top and are pivotable out of the cage about a trough and water line to which they are respectively attached. The cage tops in at least one row are closed by a dropping collecting board which also collects droppings from the row of cages above. A scraper blade is movable along the board for periodically removing droppings and for pushing, with an attachment, the cages along the rails on which they rest for transportation.

3,785,346
STALLS FOR ANIMALS AND GATE ASSEMBLIES THEREFOR
James Dower, Kiladangan Dungarvan, Ireland
Filed Aug. 22, 1972, Ser. No. 282,685
Int. Cl. A01k *29/00*
U.S. Cl. 119—27 **7 Claims**



A gate assembly for fitting to a stall for animals, comprises inner and outer barrier elements which are movably mounted one behind the other at the entrance to the stall. Each barrier element is movable between an operative position in which it bars the entrance to the stall and an inoperative displaced position, and the operation of the barrier elements is so interrelated that one of the barrier elements is in the position in which it bars the entrance, when the other is in the inoperative position and vice-versa.

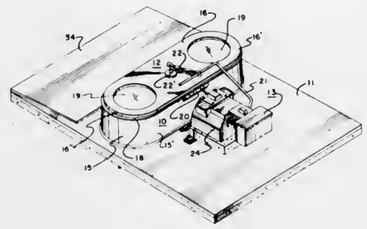
3,785,347
ANIMAL EXERCISING OBSERVATORY
Albert J. Dinnerstein, Brooklyn, N.Y., assignor to Metaframe Corporation, Maywood, N.J.
Filed Mar. 23, 1972, Ser. No. 237,355
Int. Cl. A01k *29/00*
U.S. Cl. 119—29 **16 Claims**



An animal exercising observatory which includes a hollow transparent sphere in which an animal may exercise for caus-

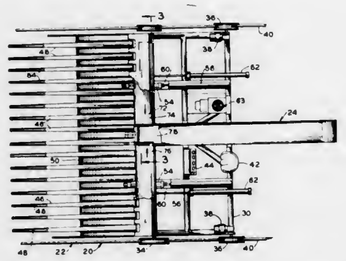
ing translatory rolling of the sphere along an external surface in contact therewith, the animal remaining continuously observable. The sphere includes a door which in contour is complemental to the sphere for permitting access into the latter.

3,785,348
AUTOMATIC PET FEEDER
Stanley J. Polidori, Sr., and Rockney A. Tope, both of P.O. Box 957, Holdersen, Nev.
Filed Sept. 20, 1972, Ser. No. 290,585
Int. Cl. A01k *05/00*
U.S. Cl. 119—62 **7 Claims**



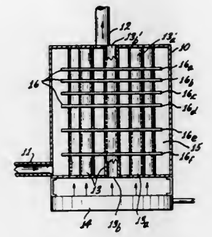
The automatic pet feeder comprises a base; a dish assembly having a dish-retaining body, dishes operable to be retained in the body, and a hingedly mounted lid; and a lid-actuating assembly having hinge drive means operable to raise and lower the lid away from the dishes, body, and control means to selectively activate the lid-actuating drive means.

3,785,349
LIVE POULTRY CATCHER
James E. Christopher, 3715 69th St., Lubbock, Tex.
Continuation of Ser. No. 48,921, June 18, 1970, abandoned, which is a continuation of Ser. No. 78,345, Dec. 5, 1968, abandoned. This application July 3, 1972, Ser. No. 268,571
Int. Cl. A01k *29/00*
U.S. Cl. 119—82 **17 Claims**



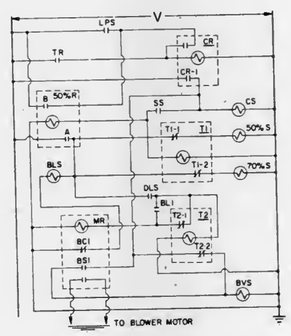
A live poultry catcher for collection of poultry in a poultry house. The poultry catcher is mounted upon wheels and is provided with extensible pickup bars, which extend horizontally under the chicken or other type of poultry. The pickup bars are adapted to be rotated upwardly with protective tip guards to lift the chickens and move them along a protective shield to deposit the chickens under a hood upon conveyor belts which feed the chickens onto a central conveyor belt. The central conveyor belt feeds the chickens in an extensible conveyor hood to deposit them into a collection crate. By means of the extensible accordion-type conveyor hood, the poultry catcher, which extends from one side wall to an opposite wall or divider fence in a chicken house, can be propelled to collect the chickens by means of the pickup bars where they are then conveyed to a collection coop or crate. The poultry catcher is operated by one attendant and can provide for complete collection of poultry with a minimum of labor.

3,785,350
HEAT TRANSFER APPARATUS
John McCormick, 1018 Beryl St., P.O. Box 9368, San Diego, Calif.
Filed Aug. 4, 1972, Ser. No. 278,045
Int. Cl. F22b *9/04*
U.S. Cl. 122—115 **4 Claims**



A heat transfer apparatus or steam boiler wherein a closed vessel of reinforced pressure resisting construction is provided with intake means for fluid or water, and exit means for heated fluid or steam. Passing through the interior of the vessel but forming a completely independent set of passages is a series of channels for intake of heat via fire, hot liquid or other means. The channels pass through and within the interior of the vessel and are physically connected to fins which extend through the interior. The fins are more closely spaced at the top and wider spaced at the bottom of the vessel. The fluid or water intake means may be provided with means to convert the fluid intake into a fine spray within the vessel. Thus a highly efficient rate of heat transfer is provided from heat source to the internally injected fluid in a relatively small vessel area suitable for small volume engines as for personal automotive vehicles and the like.

3,785,351
SOOT CLEANING METHOD
Ralph J. Hall, 161 Hoyle St., Marion, N.C.
Filed Oct. 13, 1972, Ser. No. 297,215
Int. Cl. F22b *37/48*
U.S. Cl. 122—379 **5 Claims**



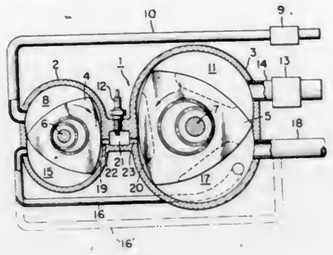
Method of cleaning soot particles from heat transfer surfaces in a boiler automatically and at predetermined intervals without the need of manual supervision.

3,785,352

ROTARY PISTON INTERNAL COMBUSTION ENGINE

Tasuku Date, Tokyo, and Junji Otani, Omiya, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 25, 1972, Ser. No. 292,167
Claims priority, application Japan, Sept. 29, 1971, 46-75388
Int. Cl. F02b 53/04
U.S. Cl. 123—8.13 4 Claims



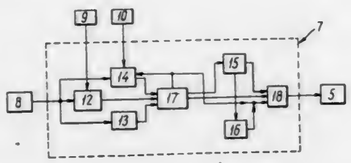
A rotary piston engine that can operate efficiently with a lean fuel-air mixture, producing clean exhaust gases. It includes two rotors arranged in respective cavities and an ignition chamber arranged in communication with the combustion chambers defined in said respective cavities. A richer mixture is fed in one of the two combustion chambers than in the other and compressed to a higher extent so that the ignition chamber is filled with such mixture and the combustion flame formed therein is used to ignite the lean mixture fed in the other, major combustion chamber.

3,785,353

FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Jury Modestovich Borisov, annikov prospekt, 21, korpus 1; Jury Ivanovich Budyko, ulitsa Petropavlovskaya, 8, kv. 66; Nikolai Borisovich Dubnitsky, ulitsa Vosstania, 19, kv. 6; Valentin Eizerovich Koganer, ulitsa Strelbischenskaya, 26, kv. 35; Alexandr Ivanovich Lisitsyn, ulitsa Sofiliskaya, 32, korpus 2, kv. 112, all of Leningrad; Nikolai Gavrilovich Mozokhin, ulitsa Avtomobilnaya, 16, kv. 16; Konstantin Mikhailovich Masenskov, ploschad Maxima Gorkago, 5, kv. 33, both of Gorky, and Jury Vasilievich Dukhnin, Leningradskoe shosse, 63, kv. 6, Poselok Strelna Leningradskoi Oblasti, all of U.S.S.R.

Filed Mar. 31, 1972, Ser. No. 240,076
Int. Cl. F02b 1/02
U.S. Cl. 123—32 EA 3 Claims



The proposed system comprises electromagnetic injectors feeding the fuel cyclically into the inlet manifold of the engine. The operation of the injectors is controlled by an electronic device having at least three driven multivibrators.

One multivibrator receives the signals from the engine speed transducer and from the pressure transducer responding to the air pressure in the inlet manifold of the engine and shaping pulses whose repetition frequency depends on the speed of the engine and whose duration depends on the pressure in the inlet manifold.

The second multivibrator receiving the signals from the engine speed transducer shapes pedestal pulses of a specified duration in synchronism with the engine speed.

The durations of the pulses of the first and second multivibrators are compared, and a signal is produced which triggers the third multivibrator when the duration of the pulse of the first multivibrator exceeds the duration of the pulse of the second multivibrator.

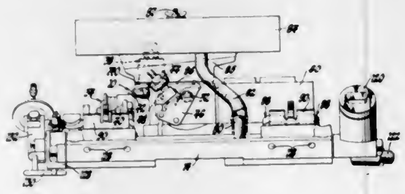
This provides for a jumpy change in the characteristic of the pulses controlling the injectors without using electromechanical transducers operating when shifting the engine to full-power operation and when cutting off the fuel supply.

3,785,354

FUEL INJECTION SYSTEM

John W. Moulds, Penfield, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 18, 1972, Ser. No. 227,461
Int. Cl. F02m 51/00
U.S. Cl. 123—32 EA 2 Claims



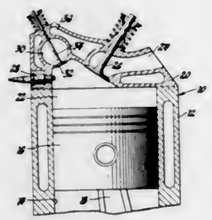
In an electronically controlled fuel injection system, the electronic package is mounted on a finned heat dissipating pad extending horizontally from the air inlet body whereby heat generated during operation of the electronic package may be dissipated through the fins to the atmosphere and to the air flow through the air inlet body.

3,785,355

ENGINE WITH INTERNAL CHARGE DILUTION AND METHOD

Richard R. Toepel, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 2, 1973, Ser. No. 337,376
Int. Cl. F02b 33/00, 75/02; F02d 39/02
U.S. Cl. 123—119 A 4 Claims



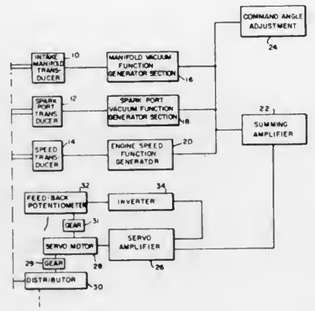
In a preferred embodiment, a spark-ignited internal combustion engine is provided with a valved receiver chamber connected with the combustion chamber adjacent the spark plug. The receiver valve is open at peak combustion pressures to admit combustion chamber gases which are retained in the receiver until discharged to the combustion chamber after ignition of the charge on the following cycle. The arrangement and method provide substantial combustion chamber charge dilution for limiting nitrogen oxide emissions without adversely affecting ignition of the air-fuel mixture.

3,785,356

ELECTRONICALLY CONTROLLED IGNITION SYSTEM

Donald E. Niemoeller, Lafayette, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Nov. 15, 1971, Ser. No. 198,598
Int. Cl. F02p 5/04
U.S. Cl. 123—148 E 10 Claims



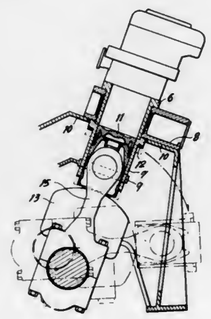
An electronically controlled ignition system for controlling the ignition timing of an internal combustion engine for accordance with engine speed and load. Three linear transducers convert the engine speed, the amount of intake manifold vacuum and the amount of carburetor spark port vacuum into electrical voltages. Three corresponding non-linear function generators generate predeterminable output voltages in accordance with the transducer output voltages. The aggregate of the generator output voltages is taken and used to alter the ignition timing angle of the engine. Any error between the actual alteration and the alteration signalled for is detected by a feedback potentiometer and used to further adjust the ignition timing in accordance therewith.

3,785,357

CYLINDER CONSTRUCTION FOR TRUNK PISTON ENGINE

Takeo Okazaki, Tokyo, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan

Filed Apr. 12, 1972, Ser. No. 243,127
Claims priority, application Japan, May 31, 1971, 46-38105
Int. Cl. F02f 7/00
U.S. Cl. 123—195 R 3 Claims



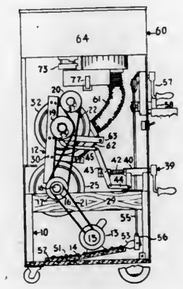
Cylinder construction for easily taking out the piston from the engine characterized by that the each cylinder liner can be removed in the crankcase and each piston can be rotated in the crankcase together with the connecting rod to a suitable position where the piston is taken from the engine.

3,785,358

TENNIS BALL PROPELLING MACHINE

Thomas J. D'Angelo; William H. Strohmeyer, and John K. Ulbrich, all of San Antonio, Tex., assignors to Meyer Machine Company, San Antonio, Tex.

Filed Jan. 17, 1972, Ser. No. 218,178
Int. Cl. F41b 3/04
U.S. Cl. 124—1 8 Claims



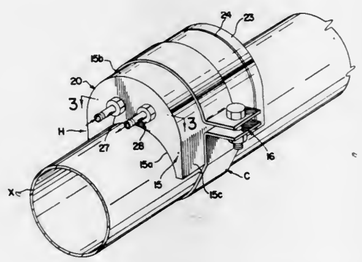
A device employing motor driven variable speed drive means rotating two spaced propelling wheels rotating in opposite direction. Balls are fed into the ball propelling wheel assembly through a hopper incorporating an agitating carrousel with an auxiliary ball agitator. A speed drive with a split drive pulley varies the rate of rotation of the carrousel and the rate of delivery of the tennis balls through a tube to a ball feed guide, first positioning the balls in contact with the upper ball propelling wheel then into the ball propelling space. The angle of projection is regulated by adjustably varying the angle of the ball wheel arm. The device is normally electric powered incorporating remote control cables, a wheel mounted cabinet is desirable for mobility.

3,785,359

WINDSHIELD WASH WATER HEATER

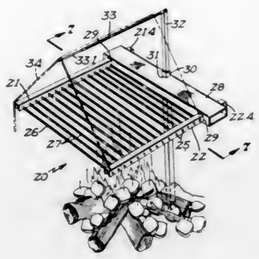
Thomas H. Whittaker, 9114 Olde Eight, Northfield, Ohio

Filed Mar. 28, 1970, Ser. No. 238,850
Int. Cl. F24b 1/00
U.S. Cl. 126—19.5 5 Claims



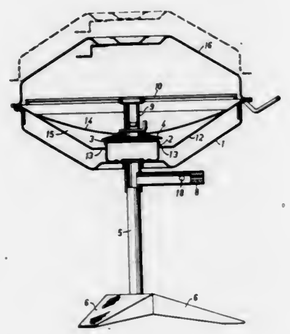
For inclusion on the line between the wash liquid supply and the discharge jets of an automotive vehicle windshield wash liquid pumping system, a liquid heater secured on the engine exhaust pipe, comprising a pipe-embracing saddle-shaped metal body with a cavity forming a liquid heating flow space provided with line connector nipples.

3,785,360
DEMOUNTABLE CAMP GRILL
Edward J. Martin, 4909 Fremont Ave., Minneapolis, Minn.
Filed Jan. 3, 1972, Ser. No. 214,658
Int. Cl. A47j *37/00*; F24b *3/00*; F24c *1/16*
U.S. Cl. 126—30 12 Claims



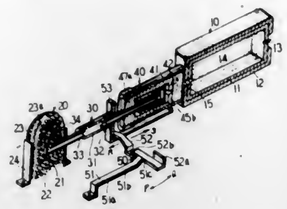
A demountable grill for use over a cooking fire and including support channels retained against separation and having grill rods insertable transversely through one channel in holes aligned but not normal to the channel and into the other channel; additional rods or support structure binding the channels to be relatively fixed, and a demountable and extendible horizontal rod spaced above the grill for supporting a reflector media to concentrate reflected heat upon items on the grill.

3,785,361
GAS BURNER DEVICE FOR FOOD GRILLING
Carl-Anker Mejyr, and Lars Eric Ledin, both of Sundbyberg, Sweden, assignors to Primus-Sievert AB, Vretenvagen, Solna, Sweden
Filed Oct. 4, 1972, Ser. No. 294,831
Claims priority, application Sweden, Oct. 15, 1971, 13094/71
Int. Cl. A47j *37/00*
U.S. Cl. 126—41 R 3 Claims



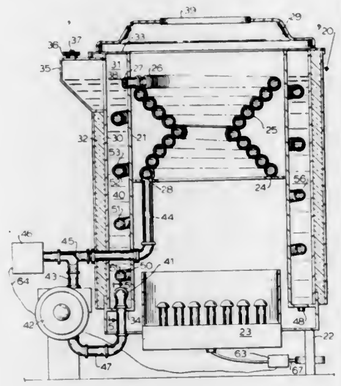
A gas burner device for food grilling and operating with LNG, said device comprising a burner body mounted on a vertical axis in a casing, which is cupshaped and open upwardly and which supports a grill grate, said device further comprising a flame holder device consisting of a flame holder wall extending from below the burner gas discharge openings and towards the casing periphery and an apertured flame holder screen located above said burner body but below the grill grate.

3,785,362
RADIATING SYSTEM FOR BODY WARMING DEVICES
Sakujiro Okui, Kyoto, Japan, assignor to Kodama Brothers Co., Ltd., Kaiso-gun, Wakayama-ken, Japan
Filed May 10, 1972, Ser. No. 251,905
Int. Cl. A61f *7/06*
U.S. Cl. 126—208 11 Claims



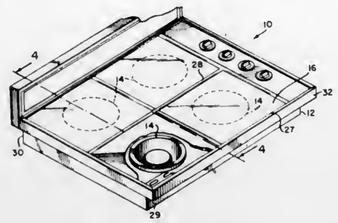
In a safety radiating system suitable for use with body warming devices, the system comprises a fuel storage tank which contains liquefied gas to be used for fuel and is adiabatically connected to the system through means of a heat-resisting, adiabatic fuel feeding pipe whereby the heat developed by the system is prevented from being conducted to the tank. The system further comprises a safety appliance provided with a bimetallic actuator adapted to thermostatically stop the radiating action of the system once over-heating takes place.

3,785,363
CLEANING APPARATUS FOR AUTOMOBILES WITH INDIRECT HEAT EXCHANGE FOR HEATING THE CLEANING FLUID
Joseph G. Machado, 3447 Railroad Ave., Ceres, Calif.
Continuation-in-part of Ser. No. 88,818, Nov. 12, 1970, abandoned. This application Apr. 7, 1972, Ser. No. 242,096
Int. Cl. F24h *1/12*
U.S. Cl. 126—350 R 7 Claims



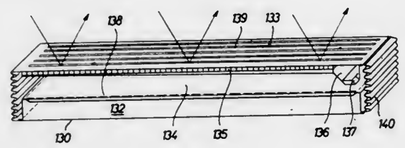
A cleaning apparatus for heating water and for delivering it at a substantially constant temperature. A pump circulates an intermediate or heat-transfer liquid through a first heat-exchange coil and an annular chamber. A burner heats the first heat-exchange coil, which delivers the hot heat-transfer liquid to the chamber with a swirling motion. The water to be heated is sent through a second heat-exchange coil in the annular chamber where it is heated by the heat-exchange liquid, giving a very good control for maintaining even temperatures. Detergent may then be injected, if desired, into the hot water.

3,785,364
SMOOTH TOP RANGE
Edward A. Reid, Jr.; Robert G. Venendaal, and George W. Myler, all of Columbus, Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.
Filed June 5, 1972, Ser. No. 259,778
Int. Cl. F24c *3/04*
U.S. Cl. 126—39 J 18 Claims



In a smooth top gas range including a shell construction defining an open top, a plate of heat resistant glass material closes the top of the shell to enclose a plurality of gas burner units therein. An air-impervious plate separates the shell into upper and lower air flow chambers and means is provided in the upper chamber to confine the products of combustion formed by each of the burners and isolate them from the upper chamber. The confining means serves to direct the products of combustion into the lower chamber of the shell construction which communicates with the atmosphere through an opening in the shell, so that the lower chamber defines a common exhaust for the products of combustion formed in each of the burner units. A blower is provided for drawing air into the upper chamber of the shell construction in order to cool the smooth top heat resistant plate during operation of the range and discharges this air into the lower chamber in order to dilute the products of combustion therein prior to their being discharged from the shell.

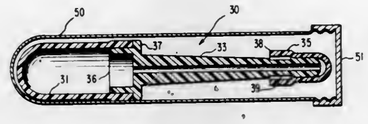
3,785,365
TEMPERATURE CONDITIONING MEANS
Ingeborg Laing, and Nikolaus Laing, both of Hofener Weg 35-37, Stuttgart, Germany
Division of Ser. No. 830,457, June 4, 1969, Pat. No. 3,720,198. This application Feb. 26, 1973, Ser. No. 335,771
Claims priority, application Austria, Jan. 8, 1969, A121/69
Int. Cl. F24h *7/06*
U.S. Cl. 126—400 26 Claims



A temperature conditioning device for controlling temperature in a room where said device has a heat source wall, a heat sink wall, and a chamber between the walls adapted to be filled with a saturated vapor of a low boiling point heat carrier whereby the vapor of the condensate serves to transfer heat between the walls. A temperature responsive condensate control valve may be included to control flow of condensate of the heat carrier from one wall on which it may condense to the other wall on which it vaporizes such that the valve serves to regulate transfer of heat between the walls.

A method of charging a temperature conditioning device with a low boiling point heat carrier which includes cooling the device, evacuating a chamber in the device, and then injecting in liquid form a low boiling point heat carrier into the chamber.

3,785,366
METHOD AND APPARATUS FOR DISEASE DIAGNOSIS
Hugh J. Davis, 507 Castle St., Baltimore, Md.
Continuation of Ser. No. 199,373, June 1, 1962, abandoned. This application Dec. 19, 1968, Ser. No. 805,064
Claims priority, application Great Britain, June 5, 1961, 20197/61
Int. Cl. A61b *10/00*
U.S. Cl. 128—2 B 34 Claims



A process and apparatus for procuring and processing cellular material, particularly for use in disease detection from body cavities in which a self-contained pipette structure is used for irrigating the body cavity with a solution, re-aspirating the solution with the samples to be collected; shipping the thus-obtained samples of cellular material to a laboratory and recovering at the laboratory by means of the pipette structure specimens of cellular material for purposes of analysis.

3,785,367
ARTERIAL BLOOD SAMPLER
Robert F. Fortin, Santa Paula, and Larry A. Sims, Hermosa Beach, both of Calif., assignors to Pharmasel Division of American Hospital Supply Corporation, Glendale, Calif.
Filed Mar. 13, 1972, Ser. No. 234,267
Int. Cl. A61b *5/14*
U.S. Cl. 128—2 F 14 Claims

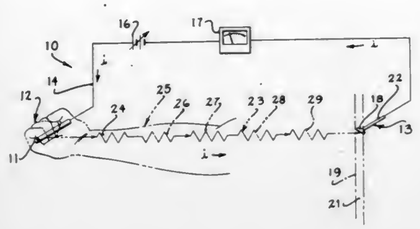


A blood sampler with an arterial needle and a collapsed flexible blood pouch that snaps into inflated condition with arterial blood pressure but not with venous blood pressure. This provides a visual indication that an artery and not a vein has been punctured.

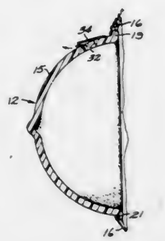
3,785,368
ABNORMAL NERVE PRESSURE LOCUS DETECTOR AND METHOD
Thomas M. McCarthy, 940 Linden Dr., No. 130, Sunnyvale, Calif., and Dale R. Lumb, 1054 Bluebird Ave., Santa Clara, Calif.
Filed Aug. 23, 1971, Ser. No. 173,935
Int. Cl. A61b *5/05*
U.S. Cl. 128—2.1 Z 5 Claims

A system, device and method for readily detecting the locus of a subluxated or pinched nerve along the spinal column and particularly for identifying which particular pair of vertebrae are pressing upon a pinched nerve has been disclosed so that a medical person can relieve the pressure as by adjusting alignment of one of the pair of vertebrae. A T-shaped scanning probe is employed to explore along the regions directly over

and also flanking the spinal column while another probe is held tightly in the patient's hand whereby a low voltage circuit can be provided which develops fluctuations in a meter reading the current or voltage through the circuit as the T-shaped probe is drawn along the back of the patient. A method for detecting nerve root pressure subluxations of the body of a patient in the regions of the spinal column in a manner which identifies the locus of the subluxation comprises a number of manipulative steps characterized by drawing the cross-piece of the probe along the back of the patient while directing the current in the circuit to emerge from the back of the patient into the T-shaped probe.

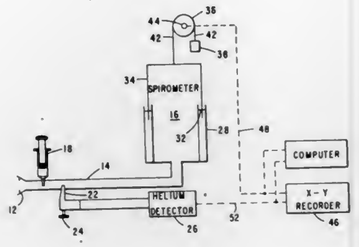


3,785,369
BUST-DEVELOPING MEANS
L. Dee Tallent, P.O. Box 136, Cabazon, Calif.
Filed Nov. 1, 1972, Ser. No. 302,845
Int. Cl. A61h *1/00*
U.S. Cl. 128—40 **10 Claims**



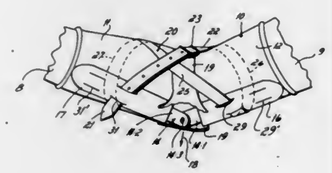
A bust developing brassiere having a pair of cups made from a stiff, semi-rigid plastic fitted with rims of a relatively soft, rubbery character, adapted to fit snugly against the chest, around the breasts, and seal the cups against substantial leakage of air when the brassiere is worn. Each of the cups has an opening in its upper side, and the opening is covered by a small piece of thin resilient material partially attached to the cup above the opening, so that the piece of material lies naturally over the opening unless forced out of this position by air pressure within the cup. The brassiere is fitted with straps over the shoulders and around the back so that it can be worn in the same way as a conventional brassiere. The brassiere cups should be sufficiently large to hold the wearer's breasts with a certain amount of room left over. When the brassiere is worn, the natural breathing of the wearer creates a massage action on the breasts. Thus, when the wearer breathes in, her chest expands and pushes some of the air out of the cups through the upper openings covered by the resilient flaps. When the wearer breathes out, her chest contracts, and the air pressure on the outside of the cups holds the flaps in position over the openings. The flaps are not held tightly over the openings, however, so that some air leaks into the cups, to repressurize them, as the wearer is breathing outward.

3,785,370
DETECTION OF IMPAIRED PULMONARY FUNCTION
Powell Richards, Bayport; Herbert Susskind, Huntington, and Louis G. Stang, Jr., Sayville, all of N.Y., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Sept. 14, 1972, Ser. No. 289,204
Int. Cl. A61b *5/08*
U.S. Cl. 128—2.08 **3 Claims**



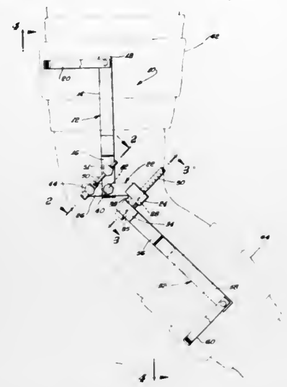
A non-radioactive tracer technique for detecting the presence of impaired pulmonary function indicating disease of the small airways at a much earlier stage than is permitted by previously used techniques, which non-radioactive technique involves the introduction of a bolus of helium at residual volume and the measurement of the concentration of helium in the expirate. The point in vital capacity where the helium concentration in the expirate increases sharply above the alveolar plateau indicates the state of pulmonary function.

3,785,371
ELBOW SLEEVE
Hector E. Lewis, Cincinnati, Ohio, assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio
Filed July 26, 1972, Ser. No. 275,143
Int. Cl. A61f *5/10*
U.S. Cl. 128—77 **3 Claims**



A surgical device including a tubular, elastic sleeve configured to snugly embrace the elbow region of the wearer and a portion of the forearm and upper arm extending therefrom, a pair of hinges secured to opposite sides of the sleeve with the hinge pins of each lying along an imaginary line defining the bending axis of the elbow, a first strap lying exteriorly of the sleeve along the elbow crease and secured at its opposite ends to the hinges for restricting the pinned portions of the hinges from moving rearwardly away from the elbow crease when the elbow is bent, and a second strap encircling the upper and lower portions of the sleeve above and below the elbow which is configured in the form of a "figure-8" to facilitate, with the wearer's other hand, adjustably restricting the elbow against straightening motion beyond a selectively variable bent position.

3,785,372
EXTENSION DESUBLUXATION HINGE APPLIANCE
William A. Craig, P.O. Box 81, Angwin, Calif.
Filed Jan. 2, 1973, Ser. No. 320,082
Int. Cl. A61f *3/00*
U.S. Cl. 128—80 C **2 Claims**

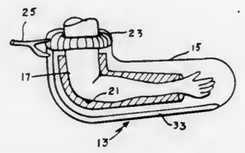


An improved hinge appliance having a pair of thigh bar members joined at their upper ends by a band and having a pair of leg bar members joined at their lower ends by a band, said thigh bar members being connected to said leg bar members by hinge bar members having one end formed into a block form and the other end formed into a shank member extending outwardly with means for controlling the extension of the hinge appliance.

3,785,373
PLASTER OF PARIS BANDAGES TO MAKE WATER-RESISTANT CASTS
David F. Smith, 60 Longview Dr., Sarasota, Fla.
Continuation-in-part of Ser. No. 42,446, June 1, 1970, Pat. No. 3,649,319. This application Aug. 20, 1970, Ser. No. 65,732
Int. Cl. A61f *05/04*
U.S. Cl. 128—91 **6 Claims**

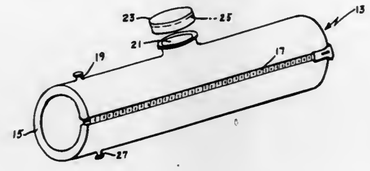
A method of forming an orthopedic case-forming bandage is disclosed. The bandaged formulation contains plaster of Paris in combination with polyvinylpyrrolidone, set accelerators, and bonding agent uniformly spread upon a backing material to yield a cast-forming bandage having increased water resistance and a weight between 38 and 48 grams per square foot.

3,785,374
SEALABLE CONTAINER FOR LIQUID FLOTATION OF CAST-BOUND LIMBS
Herbert G. Lipson, 68 Aldrich Rd., Wakefield, Mass.
Filed July 13, 1972, Ser. No. 271,334
Int. Cl. A61f *13/00*
U.S. Cl. 128—82 **5 Claims**



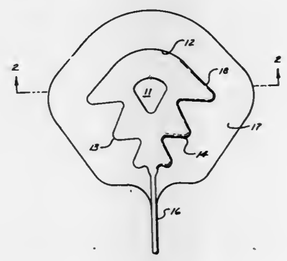
An elongated, waterproof, flexible bag having an opening at one end through which a cast-bound limb is inserted and sealing means around the opening including an inflatable cuff of substantially toroidal configuration and sufficiently wide to distribute the sealing pressure over a large enough area to prevent interference with the blood supply to the injured limb when the cuff is inflated. Longitudinally oriented flotation sections may be disposed in the wall of the bag to further aid in buoying up the cast-bound limb while swimming and/or for therapeutic water treatments.

3,785,375
TEMPORARY INFLATABLE CAST
Herbert G. Lipson, 68 Aldrich Rd., Wakefield, Mass.
Filed July 13, 1972, Ser. No. 271,466
Int. Cl. A61f *5/01*
U.S. Cl. 128—82.1 **5 Claims**



An inflatable cast for application over the injured limb of the wearer including a hollow, elongated, flexible member shaped to enclose the injured limb. After the limb is in position a releasable securing means along the longitudinal edges is closed and the cast is inflated by filling with air. A sealable opening is provided in the cast for introduction of a cooling medium prior to inflation when desired.

3,785,376
INTRAUTERINE DEVICE
Sotiris Kitrilakis, Berkeley, Calif., assignor to Tecna Corporation, Emeryville, Calif.
Filed Nov. 3, 1971, Ser. No. 195,300
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **4 Claims**

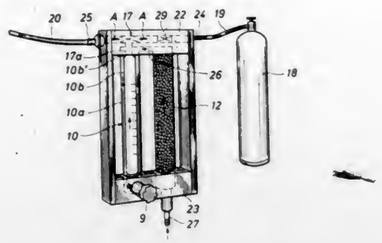


An intrauterine device has an inflatable envelope of thin, flexible, substantially non-stretchable material. A skirt of a single thickness of thin, flexible material extends outwardly from the periphery of the envelope for from one-half to one centimeter and substantially all around the envelope.

3,785,377
PLANT, PREFERABLY FOR ANAESTHESIA
Soren Jorgensen, Odense Sygehus, Sonder Boulevard 29, Odense, Denmark
Filed Nov. 9, 1971, Ser. No. 197,001
Claims priority, application Denmark, Nov. 12, 1970, 5753/70; Oct. 15, 1971, 5038/71
Int. Cl. A61m *17/00*
U.S. Cl. 128—188 **6 Claims**

Anaesthetic gas is maintained in a closed system and exhausted in an area external to the area wherein the anaesthetic

equipment is operated according to the disclosed apparatus. The apparatus for administration of anaesthesia includes a controlled source of anaesthetic gas, a mask, check valves on either side of the mask, carbon dioxide absorber, rubber bag, and means for removal of circulated anaesthetic gas from the system. Inlet and outlet from the system may be conveniently



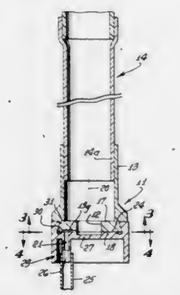
controlled thereby maintaining substantially the same pressure throughout the system. The apparatus disclosed provides that harmful anaesthetic gases exhausted from the system do not reach the ambient air surrounding the apparatus, thus the staff working in the area of the apparatus is protected from exposure to the gases.

3,785,378

FLOW CONTROL VALVE FOR INTRAVENOUS FLUIDS

Calvin R. Stewart, 471 W. Duarte Rd., Apt. 226, Arcadia, Calif.

Filed Apr. 6, 1972, Ser. No. 241,712
Int. Cl. A61m *5/16*
U.S. Cl. 128—214 C **8 Claims**



A valve operable with means to administer fluid intravenously comprises:

a. an annular member forming a central passage through which fluid is flowable and having an end face with multiple grooves therein, the grooves having inner ends communicating with said passage and being generally circularly spaced, the grooves extending outwardly relative to said passage and having different cross sectional areas, and

b. a flow control member having an end face relatively rotatable adjacent said annular member end face, the control member having a flow port successively and selectively communicating with said grooves in response to said relative rotation, said port adapted to pass fluid to administration tubing.

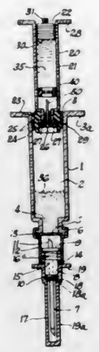
3,785,379

SYRINGE FOR INJECTION OF FRESHLY MIXED LIQUID-POWDER

Milton J. Cohen, 7111 Connecticut Ave., Chevy Chase, Md.

Filed Aug. 12, 1971, Ser. No. 171,207
Int. Cl. A61m *5/22*
U.S. Cl. 128—218 M **12 Claims**

A syringe formed of an inner tubular member adapted to contain a liquid carrier and an outer tubular member adapted to contain a dry medicament to be taken up with the carrier for injection whereby the materials are freshly mixed immediately prior to injection and wherein the dry medicament and liquid carrier are separably maintained in sealed relation one from the other until admixed immediately prior to injection, whereby the sealing means between said inner and outer



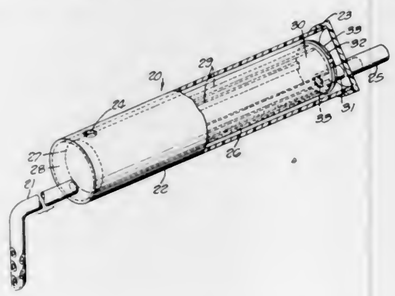
tubular members comprises a sealing ring of flexible material within said inner tubular member in sliding engagement with the inner walls thereof and a needle assembly supported at the forward end of the inner tubular member, the forward end of the needle of the needle assembly terminating a short distance from the sealing ring prior to admixture and the needle piercing through said sealing ring when in position of admixture.

3,785,380

FILTERING BLOOD SUCKER

Robert C. Brumfield, 73 Emerald Bay, Laguna Beach, Calif.

Filed Feb. 22, 1972, Ser. No. 228,033
Int. Cl. A61m *1/00*
U.S. Cl. 128—276 **8 Claims**



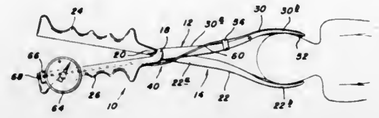
A blood sucker is connected to the suction side of a peristaltic tube pump, evacuating blood lost by a patient at a surgical site. The air evacuated through the blood sucker when in use can be filtered through a first disposable micropore filter in the sucker, prior to contacting the blood evacuated from the surgical site. The patient blood, clean air and surgical debris are also filtered through a sucker second disposable filter, whose pore apertures are sized to remove the tissue debris from the blood flowing into the sucker. Early removal of tissue debris from patient blood in the blood sucker can slow the initiation of the blood clotting mechanism. The filtered air can decrease the microscopic air contaminants in the filtered blood, which can then be returned to the patient's circulatory system. An integral plurality of flexible, parallel array blood conductive tubing provide wall stabilized, low turbulence blood flow from the sucker to a cardiotomy reservoir or the like, prior to returning the blood to the patient's circulation.

3,785,381

PRESSURE SENSING OBSTETRICAL FORCEPS

Brenton R. Lower; Kenneth E. Hughes, both of Columbus, Ohio, and Leonard E. Laufe, Pittsburgh, Pa., assignors to Leonard E. Laufe, Pittsburgh, Pa.

Filed Jan. 22, 1973, Ser. No. 325,502
Int. Cl. G01n *3/48*; **A61b** *17/44*; **A61d** *1/08*; **G01b** *5/00*
U.S. Cl. 128—323 **14 Claims**



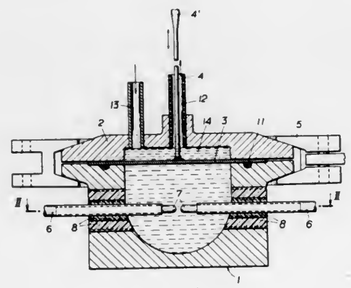
An obstetrical forceps having a pressure sensing device combined therewith is disclosed. The forceps include pivotably connectable blades, each having fetal engaging and handle portions. The pressure sensing device is constructed and arranged on the forceps to sense and indicate pressure applied to a fetus when using the forceps. The device includes a pressure sensor such as a deflectable diaphram arranged on the tip of the fetal engaging portion of the blade and a pressure indicator communicating with the diaphram through tubing or the like. The tubing is filled with an incompressible fluid, such as distilled water. When the sensor deflects as pressure is applied to a fetus, the pressure will be transmitted by the water through the tubing to the indicator.

3,785,382

DEVICE FOR DESTROYING STONES IN THE BLADDER, IN THE URETER, IN THE KIDNEYS AND THE LIKE

Heinz Schmidt-Kloiber, and Stefan Schuy, both of Graz, Austria, assignors to Richard Wolf GmbH, Knittlingen/Wurtt, Germany

Filed May 12, 1972, Ser. No. 252,752
Claims priority, application Austria, May 14, 1971, A 4187/71
Int. Cl. A61b *17/22*
U.S. Cl. 128—328 **3 Claims**



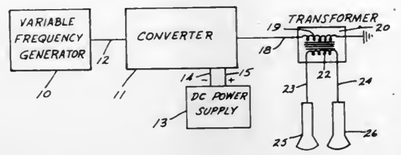
A device for destroying stones in the bladder, in the ureter, in the kidneys and the like, comprising an elongated, flexible lithotriptor insertable in conjunction with a cystoscope or a special catheter through the urethra into the interior of the body until such time when it comes into contact with the stone to be destroyed, a driving mechanism comprising a chamber filled with a liquid, a membrane closing the chamber and rigidly connected to the lithotriptor, and imparting longitudinal mechanical vibrations to same two electrodes inserted in the chamber in such a manner as to provide electrical insulation, and a means which makes electric flashovers between the electrodes possible inside the chamber.

3,785,383

ELECTROSTATIC WAND

Gianni A. Dotto, Dayton, Ohio, assignor to Alfred A. Anglemyer, Dayton, Ohio

Filed Mar. 29, 1971, Ser. No. 128,813
Int. Cl. A61n *1/06*
U.S. Cl. 128—414 **4 Claims**



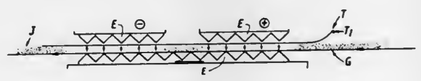
Electrostatic means radiating electrical energy at selected frequencies of the order of megacycles per second is safely and harmlessly coupled capacitively to tissue structure of a human being or of an animal with no significant flow of electrons for reducing sensitivity to pain, at least temporarily. The radiating means may comprise an evacuated glass envelope containing a selected atmosphere of inert gas and also containing an electrode that is intermittently subjected to an electropositive voltage during certain portions of the cycle to promote positive space charges within the envelope together with a controlled amount of ionization of said atmosphere and the production of selected forms of electromagnetic radiation such as infra red light, ultra violet light, visible light, and mixtures thereof.

3,785,384

METHOD OF TREATING TOBACCO

Herbert A. Sylvester, Basildon; Christopher M. Partridge, Canvey Island, and Ira D. Goss, Rayleigh, all of England, assignors to Carreras Rothmans Limited, Essex, England

Filed Nov. 8, 1971, Ser. No. 196,652
Int. Cl. A24b *3/18*
U.S. Cl. 131—121 **19 Claims**



A method of treating tobacco to cause its cellular structure to expand and/or to cause the fibres to move apart from one another which includes passing it through a high frequency field on a conveyor and beneath an overlying static sheet.

3,785,385

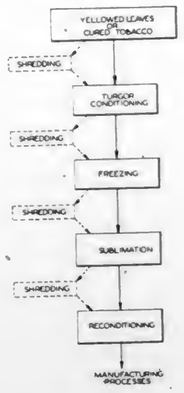
TOBACCO TREATMENT TO INCREASE VOLUME THEREOF

William H. Johnson, Raleigh, N.C., assignor to Research Corporation, New York, N.Y.

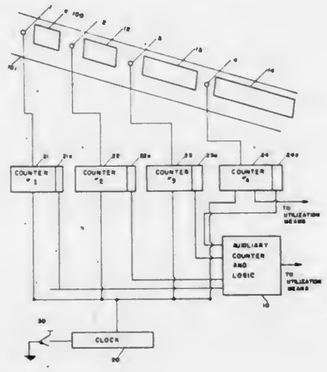
Filed Feb. 21, 1968, Ser. No. 707,064
Int. Cl. A24b *3/18*, *15/00*
U.S. Cl. 131—140 P **4 Claims**

Substantial increases in the specific volume of tobacco and other improvements of the properties thereof may be obtained by bringing the tobacco before, during or after curing to a condition of high turgidity and subjecting the turgid tobacco to low pressure sublimation of the water content thereof from

the frozen condition. The tobacco may be shredded at any stage of the process before or after the low pressure sublimation. The product typically has a specific volume at least twice that of air dried tobacco of the same moisture content.

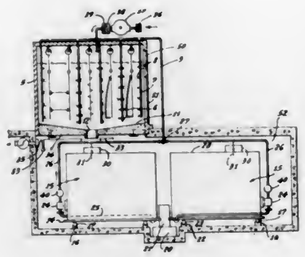


3,785,386
SORTING AND COUNTING APPARATUS
Harvey Irwin Kofsky, 3250 Ellendale Ave., Apt. 504, Montreal, Canada
Filed June 12, 1972, Ser. No. 261,797
Claims priority, application Canada, June 17, 1971, 115938
Int. Cl. G07d *3/16*
U.S. Cl. 133—3 D **4 Claims**



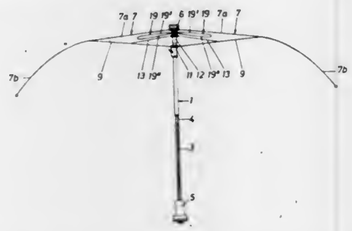
The invention relates to a novel apparatus for sorting and counting objects of different sizes and is especially applicable to the sorting of coins and to providing a money value readout of the sorted coins. In accordance with the invention, the coins are simultaneously counted and sorted by providing a channel along which the coins are directed, the channel comprising n predetermined detection points (where n is equal to the number of different sizes) with (n-1) sized exits, each exit being between two adjacent detection points. An nth exit is provided after the nth detection point. The exits are arranged such that the smallest sized exit appears at the head of the channel, the exit sizes increasing in size to the foot of the channel. Each coin which passes a detection point is detected and counted, and in order to determine the number of one type of coins, i.e., the number of coins which have exited at the ith (i=1 to n) exit, the number of coins detected at the (i+1)th exit is subtracted from the number of coins detected at the ith exit. The number of largest size coins is determined directly by the count on the nth detector point. In accordance with a preferred embodiment of the invention, the detector points comprise photoelectric devices.

3,785,387
CHEMICAL PROCESSING FACILITY
Francis D. Ross, Long Beach, Calif., assignor to Northrop Corporation, Los Angeles, Calif.
Filed July 20, 1972, Ser. No. 273,546
Int. Cl. B08b *3/02, 15/00*
U.S. Cl. 134—95 **8 Claims**



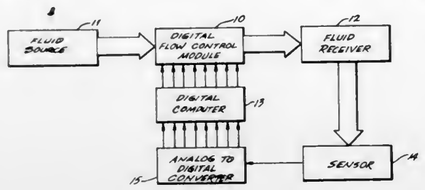
A hermetically sealed booth enclosing a quantity of parts to be chemically processed, and tanks containing the various chemical solutions being positioned below the parts booth and sequentially movable to positions below the booth whereby the solution in a single tank is pumped into the booth, sprayed over the parts and returned to the tank through a drain opening in the floor of the booth. All fumes and contaminants emanating from the solutions are passed through filters or air washers before being exhausted to atmosphere.

3,785,388
TELESCOPIC UMBRELLA
Josef Schafer, Solingen, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada
Filed Oct. 26, 1972, Ser. No. 301,061
Claims priority, application Germany, Sept. 21, 1972, P 22 46 238.0
Int. Cl. A45b *19/00*
U.S. Cl. 135—20 R **5 Claims**



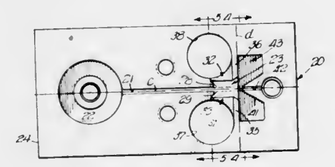
The umbrella has a frame with a telescopic stick and telescopic dome ribs. At least one runner is provided for sliding movement on the stick and mounts support members for opening and closing the dome ribs, and the runner is in a position adjacent the crown of the umbrella when the umbrella is in a closed collapsed position. Foldable spokes are hinged to the crown and to the runner such that when the umbrella is being collapsed, the spokes fold and expand outwardly normal to the axis of the stick so as to spread out the mushroom being formed by the cover material as the umbrella is being collapsed.

3,785,389
FLUID FLOW CONTROL SYSTEM
Harry Friedland, and Addison W. Langill, both of Salt Lake City, Utah, assignors to Process Systems, Inc., Salt Lake City, Utah
Continuation-in-part of Ser. No. 142,681, May 12, 1971, abandoned. This application Aug. 9, 1971, Ser. No. 169,930
Int. Cl. E03b *1/00*; **F17d** *1/00*; **F15c** *1/12*
U.S. Cl. 137—1 **19 Claims**



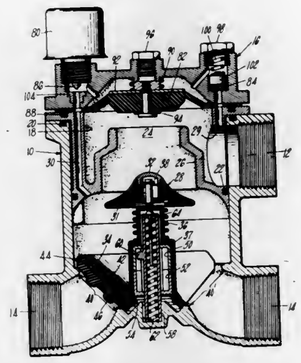
A plurality of individually actuatable, bistable digital valve elements interconnect an upstream manifold and a downstream manifold. Each valve element has a first orifice with an adjustable cross-sectional area, and a second orifice with a fixed cross-sectional area substantially larger than that of the first orifice. A bistable plug seals the second orifice in one state and clears the second orifice for fluid flow in the other state. The flow rate through the valve element is determined by the area of the first orifice, which comprises a cylindrical passage and an axially movable, tapered slug lying within the passage. The slug is integral with an externally exposed set screw that adjusts the first orifice area. The axis of the slug and screw are transverse to the direction of plug movement. The first orifice is located upstream of the second orifice near the inlet of the valve element. The individual valve elements are removably attached to a main block that houses the upstream and downstream manifold to form a module. A multicomponent mixing system is assembled by coupling the downstream and/or upstream manifolds of different modules to a central mixing block in which the interconnecting conduits and manifolds are formed.

3,785,390
PURE FLUID AMPLIFIER
Wesley L. Taylor, Glenview, Ill., assignor to The Powers Regulator Company, Skokie, Ill.
Division of Ser. No. 631,108, March 9, 1967, Pat. No. 3,545,675, which is a continuation-in-part of Ser. No. 571,829, Aug. 11, 1966, abandoned. This application July 27, 1970, Ser. No. 64,885
Int. Cl. F15c *1/14, 1/18*
U.S. Cl. 137—13 **31 Claims**



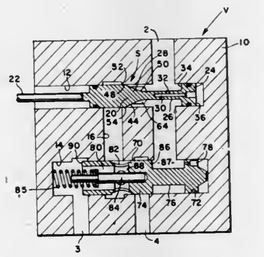
A pure fluid amplifier which projects a laminar power stream and includes a control section for developing a pressure differential across the projected laminar power stream for a substantial portion of the length of the power stream (preferably a portion of the length of the power stream at least equal to four times the width of the power stream emission orifice) so as to angularly displace the power stream while maintaining the power stream laminar at all points in advance of the receiver aperture. Preferably, there is a venting region immediately in advance of the receiver aperture which is relieved in all directions in a plane perpendicular to the plane of angular displacement. A system for biasing the laminar deflector (or other pressure-operated pure fluid amplifier) by aspirating fluid from the control section in a quantity substantially equal to the quiescent input flow to the amplifier. A unit ventilator control using a laminar deflector is shown. A proportional controller using a biased laminar deflector is shown.

3,785,391
SEQUENCING VALVE
Bob C. Miller, 272 River Dr., Tequesta, Fla.
Filed Jan. 16, 1973, Ser. No. 324,236
Int. Cl. F16k *21/00*
U.S. Cl. 137—119 **17 Claims**



A flow sequencing valve which employs separate valve elements to generate the force required for cycling and to accomplish discharge port sealing is disclosed. The valve may include an integral pilot solenoid for controlling cycling and is characterized by a force generating element, in the form of a variable resistance to flow, which is free to overtravel relative to the port sealing member whereby flow rate compensation is achieved and water hammer effects eliminated.

3,785,392
FLOW CONTROL VALVE
Charles H. Baker, Parma, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed Oct. 21, 1971, Ser. No. 191,269
Int. Cl. F16k *21/00*
U.S. Cl. 137—117 **4 Claims**



A flow control valve for providing a selected rate of fluid flow to a controlled fluid operated device. The valve includes a flow control member which is axially movable to select the

flow rate of fluid to be supplied to the fluid operated device. The flow control member is operable to establish a flow control orifice having an area linearly proportional to the axial position of the flow control member. A pressure compensating device maintains a constant pressure drop across the orifice and thus the valve provides a controlled flow rate of fluid which is linearly proportional to the axial position of the control member.

3,785,393

FLUID POWER BRAKING AND STEERING SYSTEM

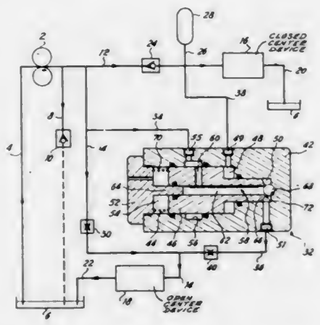
Christian Tanguy, Frepillon, France, assignor to Societe Anonyme D.B.A.

Filed May 2, 1972, Ser. No. 249,596

Claims priority, application France, May 7, 1971, 7116534

Int. Cl. G05d *11/00*

U.S. Cl. 137—110 **2 Claims**



The vehicle hydraulic system comprises a pump, an accumulator adapted to energize a closed-centre power brake booster, and a open-centre power steering mechanism, the supply line of the power steering mechanism including a throttle in parallel relationship with a control valve. The valve member of the said control valve is actuated by a stepped piston responsive to the fluid pressures in the accumulator and in the supply line downstream said throttle, both pressures acting against a spring, thereby insuring a minimum level of pressure in the accumulator.

3,785,394

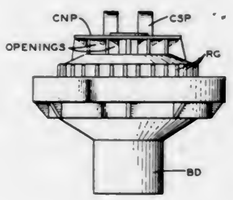
WATER CONTROL VALVE STRUCTURE

Farris E. Dixon, Louisville, Ky., and Sherwood L. Young, Monson, Mass., assignors to American Standard Inc., New York, N.Y.

Filed July 12, 1972, Ser. No. 270,897

Int. Cl. F16k *45/04*

U.S. Cl. 137—218 **9 Claims**



Covers a water control valve for the water tank of a toilet bowl in which the valve structure is constructed for better and more positive anti-siphonic action. The valve structure includes a plunger which is coupled by a lever arm to a float so that the plunger may move vertically within a chamber having a tapered wall in response to changes in the level of water in the tank. The chamber has an opening at the bottom for a valve seat which may be sealed by an elastomer affixed to the base of the plunger when the plunger reaches its lowermost position to close the valve. Near its upper end, the plunger has a collar for loosely supporting two elastomer disks of considerable elasticity to seal the upper end of the chamber for the anti-siphonic action. An additional flexible elastomer element is positioned on another collar of the plunger and is spaced from the tapered wall of the chamber throughout the stroke of the plunger in either direction. The anti-siphonic disks are located within a housing having a cap with a plurality of holes therein through which air may be admitted, and the cap is also provided with an overhanging canopy which blocks the admission of foreign matter to the chamber while permitting air to enter the chamber. The cap is joined to a body member to complete the housing, the body member providing the chamber in which the plunger is freely movable.

3,785,395

AIR VALVES

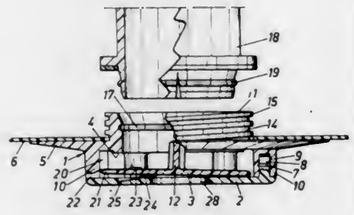
Bror Elis Andreasson, Bangatan 21, Vanersborg, Sweden

Filed Dec. 14, 1972, Ser. No. 315,227

Claims priority, application Sweden, Jan. 19, 1972, 566/72; Nov. 8, 1972, 14446/72; Nov. 8, 1972, 14442/72; Nov. 8, 1972, 14444/72

Int. Cl. F16k *15/20*

U.S. Cl. 137—223 **24 Claims**



In air valves for use in connection with large inflatable objects and of the kind comprising a valve housing having air through-flow openings at its inner end and an annular valve seat, a valve disc arranged to be pressed against said seat by the internal pressure in the object and means to releasably retain said valve disc in blocked position. The blocking means are arranged on the valve disc proper and are accessible from the outside and so arranged that no special tools are required to manipulate the valve disc. The blocking means may be formed in various ways, such as in the form of a tongue to be inserted in a recess in the valve housing wall, a fork-shaped projection of the disc engaging underneath a stud formed in the housing wall, a piston having a ball-shaped end and cooperating with spring means to exert a pressing action on the valve disc, recesses formed in the valve having bottom into which recesses projections on the valve disc are urged, possibly while bending the disc against the resiliency of the disc material itself, etc.

3,785,396

TAMPER-PROOF, FLUID FLOW CONTROL SYSTEM

Earl L. Morris, 1501 N. Cloister Rd., Whittier, Calif., and Theodore J. Sally, 7236 Friends Ave., Whittier, Calif.

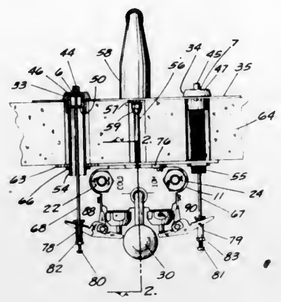
Filed July 5, 1972, Ser. No. 269,090

Int. Cl. F16k *11/10*

U.S. Cl. 137—359 **7 Claims**

A tamper-proof, pushrod-activated fluid flow control mechanism is described which incorporates a means for externally adjusting the length of the pushrod used to actuate the fluid flow control valve for varying such parameters as fluid,

flowrate and fluid flow time delay without requiring disassembly or the addition or removal of a part from the mechanism. Compactness of the mechanism assures rapid installation or removal from the pipe chase area without impairing the operation of the user controls which are typically exposed to tampering by users. Provision is made for the installation, as desired, of fluid flow control limiting and/or vacuum breaking devices.



3,785,397

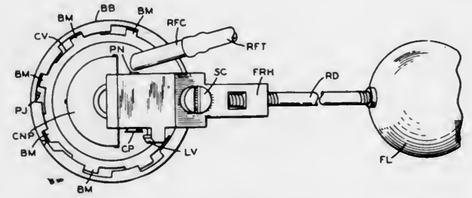
WATER CONTROL VALVE STRUCTURE

Sherwood L. Young, Monson, Mass., assignor to American Standard Inc., New York, N.Y.

Filed July 12, 1972, Ser. No. 270,898

Int. Cl. F16k *31/26*

U.S. Cl. 137—434 **13 Claims**



This application covers a water control valve for the water tank of a toilet bowl. The housing encloses a vertically movable plunger and an open-ended chamber into which water is admitted for filling the tank, together with mechanism for controlling the vertical or axial movement of the plunger. The housing includes two unitary molded sections — a body section and a cap section which can be joined together in assembling the valve structure, or they may be separated from each other. The body section has a plurality of peripherally arranged inverted L-shaped sections which are equally spaced from each other, while the cap section embodies a corresponding plurality of bayonet members. When the body and cap sections are to be interconnected to form the composite housing, the bayonet members are positioned between the corresponding L-shaped members and one of the sections is physically given a rotary twist or shift to complete the interconnection.

3,785,398

POWER TRANSMISSION

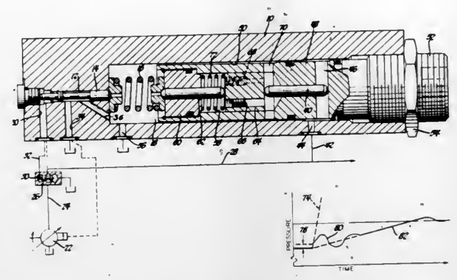
Kurt R. Lonnemo, Troy, and Jan O. Bergstedt, Birmingham, both of Mich., assignors to Sperry Rand Corporation, Troy, Mich.

Filed Aug. 9, 1972, Ser. No. 278,919

Int. Cl. G05d *16/10*

U.S. Cl. 137—488 **9 Claims**

A relief valve for hydraulic power transmission systems serves not only to limit the maximum system pressure, but also to limit the rate of pressure rise in the system when subjected to sudden transients which would otherwise cause large pressure overshoots before stabilizing at the designed pressure level. The valve is opened by system pressure reacting against a spring and has the spring normally set to permit valve opening at a small fraction of the designed maximum relief pressure. System pressure also reacts upon a spring loading piston of larger area which, when moved through its full stroke, brings the spring load up to the designed maximum limit. The rate of travel of this piston is regulated by a dashpot.



3,785,399

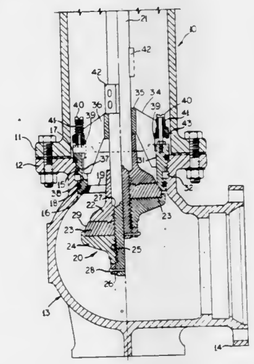
FIRE HYDRANT DRAINAGE VALVE

Rosaire Daigle, St. Lambert, Quebec, Canada, assignor to Daigle Aqua Inc., Quebec, Canada

Filed Aug. 20, 1971, Ser. No. 173,544

Int. Cl. F16k *1/00*

U.S. Cl. 137—305 **5 Claims**



A fire hydrant having a valve seat and a valve stem having a valve thereon seating on the valve seat, drain passages through the valve seat leading externally of the hydrant and spring loaded means on the valve stem closing the drain passages rapidly during the initial opening movement of the hydrant valve.

3,785,400

ALIGNMENT MONITORING SYSTEM FOR A SELF-PROPELLED IRRIGATION SYSTEM

Arthur L. Zimmerer, Lindsay, and John L. Anderson, Columbus, both of Nebr., assignors to Lindsay Manufacturing Co., Lindsay, Nebr.

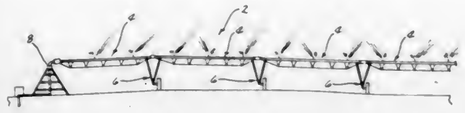
Filed July 27, 1972, Ser. No. 275,713

Int. Cl. B05b *9/02*; **E01h** *3/02*

U.S. Cl. 137—344 **7 Claims**

An alignment monitoring system for a self-propelled irrigation system of the center pivot type is disclosed herein. The

alignment monitoring system is operatively electrically connected to the electrical control circuit which deactivates the electrical power means on all of the towers if one of the towers moves out of alignment with respect to the other towers in a predetermined amount. Each of the towers has a safety switch thereon which causes the entire electrical circuit to be de-energized if the safety switch is opened by misalignment of the



associated tower. Each of the safety switches has a resistor connected thereto which is connected to ground. All of the resistors have progressively increasing resistances with respect to each other. If one of the tower safety switches is opened by misalignment of the associated tower, the operator switches a milliampmeter into the resistor circuit to determine which of the particular towers cause the control system shut down.

3,785,401

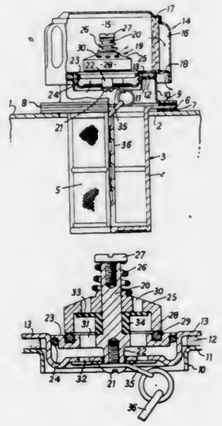
AIR BREATHER ASSEMBLY

David Button, Bury St. Edmonds, England, assignor to U.C.C Hydraulics Limited, Norfolk, England

Filed June 19, 1972, Ser. No. 263,942

Int. Cl. F16k *17/26, 45/00*

U.S. Cl. 137—493.2 **3 Claims**



An air breather for mounting on a container wall having an opening has a first loaded valve permitting outflow of air when a certain internal pressure is exceeded, and a second loaded valve permitting inflow of air when a certain lowering of internal pressure below atmospheric is exceeded, the first valve including a movable apertured housing acting as a valve member and cooperating with a valve seating, and the second valve having a movable resiliently deformable flange acting as a valve member and cooperating with the apertured housing serving as a seating.

3,785,402

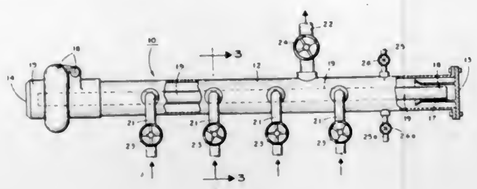
REMOVABLE TUBULAR INSERT FOR REDUCING EROSION IN HEADERS

Howard E. Collier, New Orleans, La., assignor to Esso Production Research Company, Houston, Tex.

Filed July 27, 1972, Ser. No. 275,853

Int. Cl. F16l *57/00*

U.S. Cl. 137—561 A **9 Claims**



A production header for sand carrying fluids such as petroleum hydrocarbons is provided with a removable tubular insert extending the length of the header and which is provided with an abrasion resistant surface against which the fluids impinge to absorb the shock and prevent erosion of the inner wall of the header.

3,785,403

FLUID LOGIC CIRCUIT

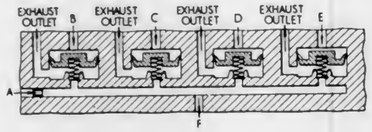
Colin John Kirk, Crowthorne, England, assignor to Martonair Limited, Middlesex, England

Filed Mar. 13, 1972, Ser. No. 233,919

Claims priority, application Great Britain, May 13, 1971, 14,747/71

Int. Cl. F15c *3/04;* **F17d** *1/00*

U.S. Cl. 137—608 **4 Claims**



A fluid logic circuit has a logic 'AND' function and utilises a plurality of valves which are operable between two conditions by fluid pressure inputs, representing logic inputs, presented to respective valve inlets for each valve, there being a common outlet to all the valves, the fluid pressure in which is controlled by the respective conditions of said valves, so that a fluid pressure representing a logic output is present at said outlet only when a fluid pressure is present at each inlet.

3,785,404

DEVICE FOR THE FLOW CONTROL OF MEDIA, PARTICULARLY CONTAMINATED LIQUIDS AND/OR GASES

Max Gappisch, Karlsruhe-Durlach; Friedrich Claus Walter, Ettlingen, Baden, and Horst Pollmacher, Malsch-Sulzbach, all of Germany, assignors to Argus Gesellschaft mbH, Etlingen/Baden, Germany

Filed June 6, 1972, Ser. No. 260,251

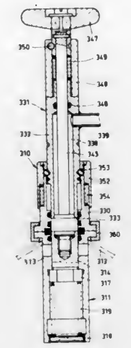
Claims priority, application Germany, June 11, 1971, P 21 28 967.8; Mar. 14, 1972, P 22 12 176.2

Int. Cl. F16l *35/00*

U.S. Cl. 137—614 **15 Claims**

A valve structure for controlling the flow of poisonous and/or contaminated media into a container, comprising two vertically aligned valve bodies releasably connected with each

other and containing each an axially slidable closure piston, whereby these two pistons are releasably and sealingly connected with each other at their opposite end faces and of which the upper piston is provided with a lengthwise extending actuating rod extending with circumferential clearance lengthwise through a tubular portion of the upper valve body which tubular portion is connected to a media supply pipe. In



one position of the sealingly connected closure pistons the path of flow through the valve structure is closed, while in another position of the connected closure pistons the path of flow is open when the actuating rod has moved the pistons downwardly so far as to connect transverse ports in the lower valve body and to connect these transverse ports at the same time with the interior of the container into which extends the lower valve body.

3,785,405

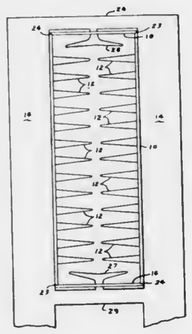
AERODYNAMIC NOZZLES IN RECTANGULAR DUCT

Brian P. Quinn, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 23, 1972, Ser. No. 228,682

Int. Cl. F15d *1/02*

U.S. Cl. 138—39 **3 Claims**



A rectangular duct having a gas flow therethrough wherein there is a tendency for the gas flow to separate from a wall of the duct having an aerodynamic nozzle positioned adjacent the wall that results in a downwash of gas which deters separation. In a duct wherein a plurality of nozzles provide a primary flow of air in a rectangular duct wherein ambient air is entrained and mixed with the primary air, the tip vortices from the aerodynamic nozzles positioned adjacent the duct end walls enhance the mixing and cancel the vortices naturally forming at the juncture of the side walls and the end walls.

3,785,406

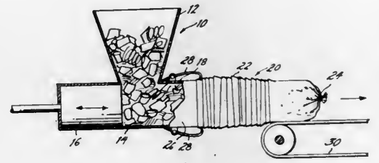
CARTRIDGE PACK FOR TRASH COMPACTION MACHINE

John Kenneth Delmar, Havertown, Pa., assignor to Crystal-X Corporation, Darby, Pa.

Division of Ser. No. 61,693, Aug. 6, 1970, Pat. No. 3,650,298. This application Dec. 29, 1971, Ser. No. 213,694The portion of the term of this patent subsequent to Mar. 21, 1989, has been disclaimed.

Int. Cl. F16l *55/00*

U.S. Cl. 138—103 **2 Claims**



A cartridge comprising a compressed plastic tube for mounting on the tapered end of a hollow cylindrical member into which solid waste or refuse is rammed so that the tube can subsequently be tied and cut into relatively small units containing slugs of compacted refuse. The plastic tube comprises elongated sections, generally about 2 ft. in length, interconnected by adhesively retained external folds, so that after a length of tube, such for example as 32 ft., is filled with slugs of compacted refuse, the folds can be readily pulled open, tied, and severed between the ties to form 2 ft. plastic containers of compacted refuse.

3,785,407

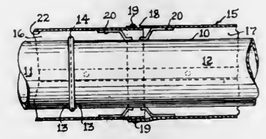
PIPE COVER SPACER AND DIAMETER COMPENSATOR

William Waite, and Victor Skuran, both of Chicago, Ill., assignors to Transco Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 40,102, May 25, 1970, Pat. No. 3,648,734. This application Dec. 27, 1971, Ser. No. 211,952

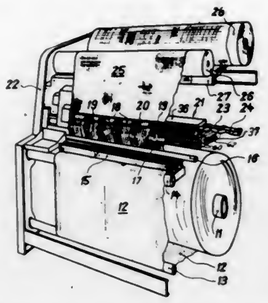
Int. Cl. F16l *55/00*

U.S. Cl. 138—108 **1 Claim**



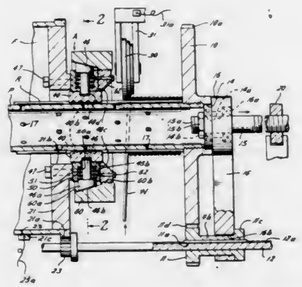
A pipe cover spacer and diameter compensator for use with extraction lagging comprising two complementary sections, the sections with the spacers mounted thereon being applied to the exterior of the pipe to completely enclose the latter, with the sections welded or otherwise fastened to each other, thus maintaining spring tension on the spacers. The pipe cover spacer and diameter compensator consists of a plurality of individual, circumferentially arranged, spacing members each having a flat mounting portion abutting and secured to the undersurface of a lagging cover and having a finger extending therefrom and terminating into a relatively flat bendable tab angularly extending from the finger to yieldably bear against the surface of a pipe to resist lateral movement between the cover and the pipe and to compensate for any variation in the space between the cover and the pipe.

3,785,408
ARRANGEMENT OF MOVABLE THREAD-CONTACTING LAMELLAE ON A WAVE-TYPE LOOM
Edgar H. Strauss, Ruti/Zurich, Switzerland, assignor to Machinery Works Ltd., Ruti/Zurich, Switzerland
Continuation of Ser. No. 86,160, Nov. 2, 1970, abandoned.
This application Aug. 23, 1972, Ser. No. 283,063
Int. Cl. D03d 47/26
U.S. Cl. 139—12 11 Claims



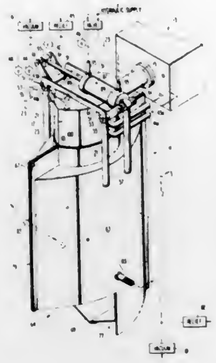
An arrangement of movable thread-contacting lamellae for use on a wave-type loom, said arrangement comprising a plurality of thread-contacting lamellae that are guided during movements therefore in open zones between plate-like guide elements, disposed side-by-side in a row over the width of the loom, said elements being assembled together to form a unitary pack, and means for directing streams of air through the zones between the guide elements in which movements of the thread-contacting lamellae occur whereby accumulation of textile fibers, produced during the operation of the loom, within said zones is prevented.

3,785,409
CLAMPING APPARATUS FOR RESISTANCE WELDING OF MULTIPLE WIRES FORMING A WELL SCREEN
Howard F. Smith, III, Houston, Tex., assignor to Howard Smith Company, Houston, Tex.
Continuation-in-part of Ser. No. 260,403, June 7, 1972, abandoned. This application Oct. 31, 1972, Ser. No. 302,424
Int. Cl. B21f 3/00
U.S. Cl. 140—92.2 10 Claims



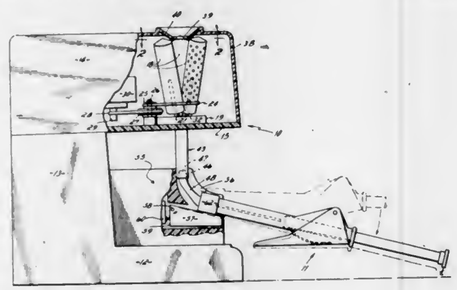
Clamping apparatus for confining and maintaining electrical contact with multiple longitudinally extending rib wires during the resistance welding thereof to wire wrapped thereon for forming a well screen or the like, wherein the clamping apparatus compensates for wear thereon. The apparatus may be automatically adjustable for wear and also variable in diameter to permit forming the welded screen on upset tubing and on other pipe having variations in the outside diameter thereof while still effecting the electrical contact required for reliable and sound resistance welding of the multiple rib wires to the wrapping wire.

3,785,410
METHOD AND APPARATUS FOR VACUUM FILLING OPEN MOUTH BAGS
Clarence F. Carter, Danville, Ill., assignor to Carter Engineering Company, Danville, Ill.
Filed June 28, 1972, Ser. No. 267,158
Int. Cl. B65b 1/26
U.S. Cl. 141—10 18 Claims



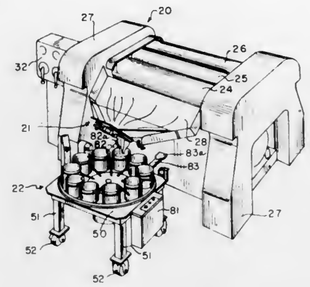
A filling assembly for vacuum filling impervious open mouth paper bags with finely divided particulate material. A filling head is provided with at least two independent vertically extending chambers through which a selective vacuum or relief may be applied. Particulate material is fed through a central opening in the filling head whereby interstitial air is withdrawn from between the particles of particulate material as the material falls downwardly into an impervious open mouth bag. Clamping jaws serve to seal the bag against the filler head during the filling operation and include clamping flanges which extend outwardly from the jaws and tightly close the outer edges of the open mouth bag. A shroud extends from the clamping jaws to provide a sealed enclosure about the bag during the vacuum filling operation. A vacuum source is selectively applied to the shroud to open the impervious bag and keep the bag open during the vacuum filling operation.

3,785,411
AMALGAM LOADER
Ronald Lee Baker, Florence, Ky., assignor to Charles J. Thiel and Louis J. Michaels, Dayton, Ky.
Filed May 19, 1972, Ser. No. 255,179
Int. Cl. A61c 5/06
U.S. Cl. 141—18 20 Claims



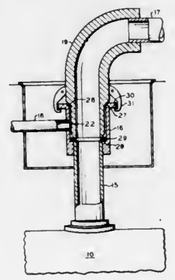
Apparatus for loading a tube with amalgam or other pastey substance in which a plurality, preferably three, rollers are equiangularly spaced close together to define among them a central passageway, the apparatus having means for locating the tube to be filled below the passageway created by the rollers. The rollers are operable to roll a charge of amalgam into a roll having a diameter slightly less than that of the tube to be filled, whereupon the amalgam passes through the passageway and into the tube.

3,785,412
MILL APRON AUTOMATIC CAN FILLING MACHINE
Leslie F. Stone, Westchester, Ill., assignor to The Richardson Company, Des Plaines, Ill.
Filed Jan. 26, 1972, Ser. No. 220,824
Int. Cl. B65b 3/28
U.S. Cl. 141—83 27 Claims



An apparatus for automatically filling containers with controlled amounts of a viscous material, such as printing ink, which is directly supplied to the containers from a viscous material discharge chute such as, for example, the apron of a roll-type dispersion mill. Viscous material from a valve assembly means mounted to the discharge chute is fed into open containers which are supplied into, and away from, a container filling station while a sensing means, for example, a weight detecting device, measures the quantity of viscous material being collected in the containers. A control means responsive to the sensing means regulates the operation of the valve assembly means and provides automatic delivery of the containers in a manner designed to accommodate a large supply rate of the viscous material from the discharge chute with minimal spillage and improved accuracy with respect to that which is presently obtained with manual filling operations.

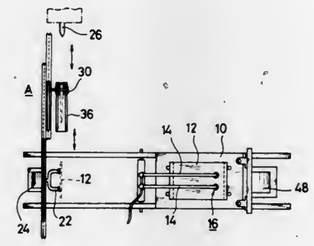
3,785,413
APPARATUS FOR REDIRECTING FLOW IN A FLUID CONVEYING SYSTEM
Clarence I. Taverner, and Earl E. Kleinmann, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Dec. 21, 1971, Ser. No. 210,328
Int. Cl. B65b 3/18
U.S. Cl. 141—84 5 Claims



An apparatus is provided for redirecting flow in a fluid conveying system. The apparatus is characterized by its simplicity of design and fewer moving parts.

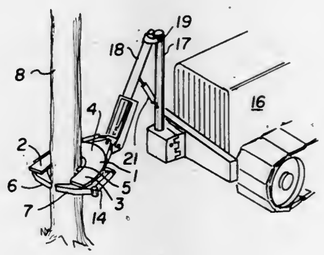
In a preferred application, the apparatus forms part of a venting system for vapors escaping from a storage container for volatile liquids. During storage the small quantity of vapors that form are vented to the atmosphere. However, during filling the apparatus readily converts the venting system to one that provides means for recovering the large quantity of vapors displaced by filling.

3,785,414
AUTOMATIC BAG FEED SYSTEM
Katsuji Obara, No. 2233-42, Minami Tsunashima-cho Kohoku-ku, Yokohama, Japan
Filed Apr. 26, 1972, Ser. No. 247,786
Claims priority, application Japan, Apr. 28, 1971, 46/27500
Int. Cl. B65b 43/44
U.S. Cl. 141—114 3 Claims



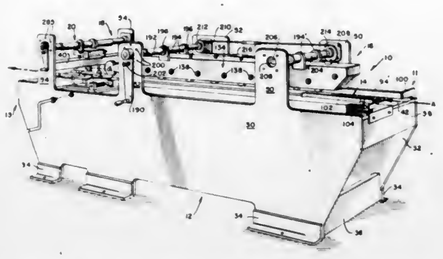
An automatic bag feeding system in which a number of bags are superposed in a bag reservoir and then one sheet of bag is raised vertically by a first pneumatic adsorption means, the raised bag is carried in suspension by a second pneumatic adsorption means to a position confronting to an outlet of a filling spout of a packaging apparatus and thereafter a bag inlet is opened by a third pneumatic adsorption means for insertion to the filling spout.

3,785,415
TREE FELLING DEVICE
Martti Taponen, Prince George, B.C., Canada, assignor to The Raymond Lee Organization Inc., New York, N.Y.
Filed June 14, 1972, Ser. No. 262,775
Int. Cl. A01g 23/08
U.S. Cl. 144—34 R 3 Claims



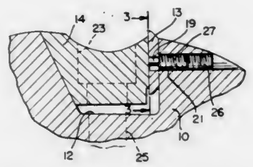
A tree cutting blade is fixedly mounted in a support member. Pressure arms pivotally mounted on the support member grapple a tree and draw the cutting blade into the tree toward the pressure arms. Hydraulic means mounted on the support member and coupled to the pressure arms rotate the pressure arms to draw the cutting blade into the tree toward the pressure arms.

3,785,416
LUMBER PLANER AND CROOK ELIMINATOR
Luther Clary Anthony, 900 Machen P.O. Box 794, Springhill, La.
Filed July 31, 1972, Ser. No. 276,900
Int. Cl. B27c *1/12*
U.S. Cl. 144—116 13 Claims



A machine for producing straight lumber from stock including crooked pieces is provided and includes a pair of laterally spaced cutters which simultaneously plane the edges of the stock lumber after the stock has been fed in a straight line with no lateral movement or squiggle into the cutter heads. The stock lumber is fed by a combination of an endless gripper chain having an active run in a grooved table and a plurality of pressure rolls which hold the lumber stock on a top surface of the gripper chain.

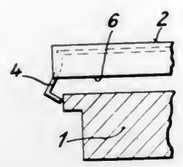
3,785,417
CUTTERHEAD WITH REPLACEABLE INSERTS
Prabodh Mohanlal Vora, Beloit, Wis., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed Feb. 18, 1972, Ser. No. 227,473
Int. Cl. B27g *13/04*
U.S. Cl. 144—221 2 Claims



A rotary cutting tool for cutting material surfaces such as wood or metal. The cutting edges comprise a plurality of replaceable inserts held in place by an improved clamping mechanism. In an extended length version such as would be used for finishing a wide surface, a plurality of straight inserts are mounted side by side in an approximation of a helical pattern.

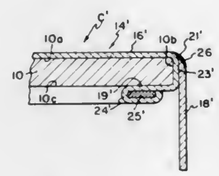
3,785,418
COVER FOR MACHINE TOOLS
Arnold Hennig, Erlenstrasse 10, Ismaning, and Kurt Hennig, Georgensteinstrasse 16, Munich, both of Germany
Filed Apr. 22, 1971, Ser. No. 136,489
Claims priority, application Germany, Apr. 24, 1970, P 20 20 109.6; Feb. 9, 1971, P 21 06 116.5
Int. Cl. B65d *65/02*
U.S. Cl. 150—52 R 10 Claims

A cover for a part, such as a guideway, of a machine tool comprises telescopic cover elements each having a cover plate and depending side and end walls having inwardly turned flanges at their lower ends so as to embrace the guideway. The walls are formed of an elastically flexible material to permit the cover to be snapped onto the guideway whereupon the walls and bent inwardly flanges engage the guideway with light



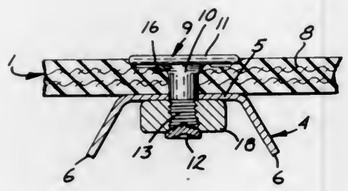
spring pressure. Wiper strips are interposed between telescoping elements to effect cleaning of the parts in response to relative telescoping movements.

3,785,419
REMOVABLE TABLE COVERING
Mary Ellen Sherlock, 232 First St., Gladwin, Mich.
Filed Dec. 1, 1971, Ser. No. 203,649
Int. Cl. A47b *97/00*
U.S. Cl. 150—52 R 2 Claims



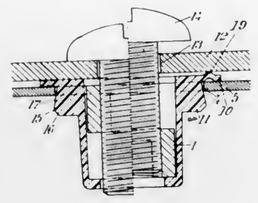
A removable cover for a table comprising an upper portion overlying the top of the table, a perimetrical skirt portion disposed on the sides of the table, and annularly extending restraining means for removably securing the cover to the top of the table.

3,785,420
RIVET AND SETTING TOOL THEREFOR
Robert H. Bradley, Rt. No. 2, Box 333, Long Lake, Minn., and William O. Bradley, 6312 Loch Moor Dr., Edina, Minn.
Filed May 26, 1972, Ser. No. 257,285
Int. Cl. F16b *39/282*
U.S. Cl. 151—37 1 Claim



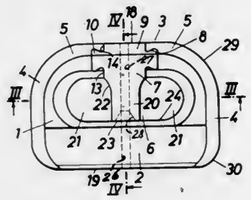
A solid metallic rivet including a diametrically enlarged head and a screw threaded shank for reception of a nut, the head defining a generally flat annular shoulder having portions projecting axially from the shoulder. The shank has an outer end provided with a recess to aid in upsetting the outer end of the shank to strengthen the bond between the shank and nut and to prevent loosening of the nut.

3,785,421
SYSTEMS CONSTITUTED BY CAGE-NUTS AND THEIR CAGES
Pierre Launay, Samois-sur-Seine, France, assignor to Compagnie de Materiel et d'Equipements Techniques C.O.M.E.T., Senlis, France
Continuation-in-part of Ser. No. 885,863, Dec. 17, 1969, abandoned. This application Mar. 30, 1972, Ser. No. 239,499
Claims priority, application France, May 5, 1971, 7116257
Int. Cl. F16b *39/00*
U.S. Cl. 151—41.75 13 Claims



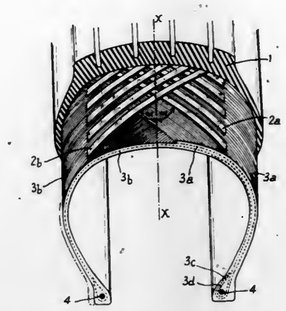
A lug nut is held and guided by a plastic cage formed by a flanged bush, whose cylindrical part has longitudinal apertures in which the lugs slide axially and bosses at right angles to the apertures adjacent the flange. This assembly can be inserted from one side of a sheet into a corresponding slotted hole in the sheet, and on turning through 90° is locked angularly by seating the bosses in the slots. The bush is of nylon and has an annular rib on a surface of the flange to seal the device against the sheet. The bush can have a radial protuberance and ramps on the bosses to prevent inadvertent extraction from the hole. The flange can overlap the cylindrical wall of the bush radially inwardly to form a guiding and sealing hole for the bolt to be engaged in the lug nut.

3,785,422
CONNECTING LINK FOR ANTISKID CHAINS FOR TIRES
Gunter Witzel, Aalen, Germany, assignor to Eisen- und Drahtwerk Erlau Aktiengesellschaft, Aalen, Germany
Filed Nov. 26, 1971, Ser. No. 202,391
Int. Cl. B60c *27/06*
U.S. Cl. 152—241 18 Claims



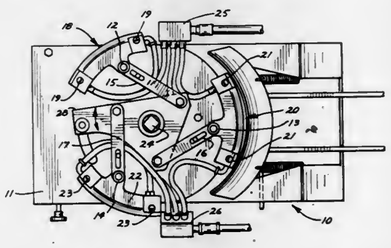
A connecting link for antiskid chains for tires with a link body located in one plane, which link body is provided with a longitudinal opening and two sections spaced from each other so as to define a passage communicating with the longitudinal opening and leading to the outside of the link body while a closure member is detachably mounted in the passage, positively engages the walls defining the passage and divides the longitudinal opening into two substantially equal smaller openings.

3,785,423
TOP REINFORCEMENT FOR PNEUMATIC TIRES
Christian M. L. L. Bourcier de Carbon, 64, boulevard Maurice Barres 92, Neuilly, France
Filed Dec. 15, 1971, Ser. No. 208,316
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 R 1 Claim



Between the tread of the tire and the body of the tire, whether of the bias filament or radial filament carcass, or having no filamentary carcass, there is embedded a reinforcement band of crossed series of flat parallel elements of metal, plastic, or the like, the angles of intersection of the series being at least 45°, and the elements of each series having a high intrinsic resistance to curvature in the plane of the contact surface. The elements being of a thickness of only a fraction of their width, say a width of the order of a millimeter and a thickness of only a fraction of a millimeter. The interstices and points of intersection of the elements being filled with a rubber composition of relatively low modulus of elasticity. Alternatively, instead of being of metal, plastic, glass fibre, or the like, the bands may be composed of impregnated stranded elements embedded in a rubber having a high modulus of elasticity.

3,785,424
TIRE BEAD SEATER
Sigurad A. Rishovd, Minneapolis, Minn., assignor to Royal Industries, Inc., Osseo, Minn.
Filed Aug. 2, 1971, Ser. No. 167,982
Int. Cl. B60c *25/06*
U.S. Cl. 157—1.1 32 Claims



A method and apparatus for mounting tubeless tires on a wheel rim.

A tire mount-demount device of the class utilizing a plurality of movable jaws to receive and grip a vehicle wheel in a generally horizontal position is provided with a means, adjacent at least two wheel gripping jaws, for directing a massive volume of air into a tire that is loosely disposed on the wheel, while additional air under pressure is supplied to the customary valve on the wheel. The air supplied at the jaws is directed

upwardly through the space between the lower bead of the tire and the lower edge of the rim of the tire.

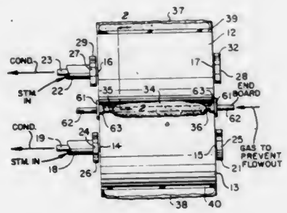
The method comprises the steps of placing a wheel, having a tubeless tire loosely disposed adjacent the rims thereof, on top of a plurality of sources of air under pressure so as to cause the tire to expand and tend to seat the beads of the tire on the rims of the wheel. Additional air provided through the customary valve on the wheel may then easily complete the inflation of the tire.

3,785,425

DOCTOR BLADE FOR CONTROLLING BULK DENSITY OF DEHYDRATED CEREAL PRODUCTS

Roy G. Hyldon, Crystal Lake, Ill., assignor to The Quaker Oats Company, Chicago, Ill.

Filed June 29, 1972, Ser. No. 267,484
Int. Cl. B01d *1/22*; **A23b** *7/03*; **F26b** *11/02*; **A23l** *1/12*; **A46b** *15/00*
U.S. Cl. 159—11 **2 Claims**



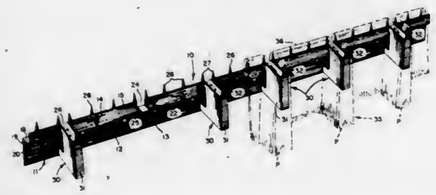
An improvement for a film type, rotary drum drier for controlling the bulk density of high sugar content dehydrated cereal products discharged from the drum drier by a doctor blade at a given angle of attack with respect to the surface of the drum drier is disclosed which comprises shaping the doctor blade substantially as showed in FIG. 4.

3,785,426

FABRIC HANGING AND PLEATING BRACKET

Phillip Sperling, 3206 Coolidge Ave., Los Angeles, Calif.

Filed Jan. 22, 1973, Ser. No. 325,831
Int. Cl. A47h *23/00, 13/14*
U.S. Cl. 160—327 **15 Claims**



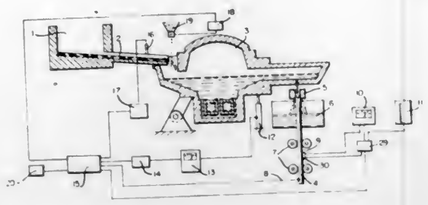
A sectional bracket for hanging drapery or other wall covering fabric has an elongated holding bar formed with retention slots to hold a plurality of separable hanger units shaped to assist in forming pleats. The hanger units may be selectively positioned in some or all of the retention slots, depending upon the regular or irregular spacing desired for the pleats. The top edge of the holding bar has prongs and the top edges of the hanger units have spikes to pierce the fabric margin and assist in supporting the fabric in place.

3,785,427

CASTING OF DEOXIDIZED COPPER

Edouard De Bie, Antwerpen, Belgium, assignor to Metallurgie Hoboken-Overpett, Brussels, Belgium

Filed Aug. 15, 1972, Ser. No. 280,917
Int. Cl. B22d *1/02*
U.S. Cl. 164—154 **8 Claims**



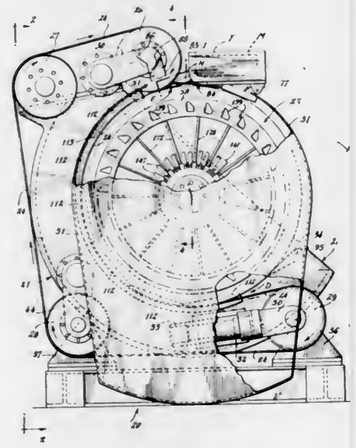
Apparatus comprising conductivity measuring probe for measuring the conductivity of copper casting, measuring apparatus for determining the difference between the measured conductivity and a predetermined conductivity, and means for producing a signal proportional to the difference and transmitting the signal to a regulator which regulates the amount of deoxidizer added to molten copper.

3,785,428

WHEEL-BELT CONTINUOUS CASTING MACHINE

Robert William Hazelett; Richard Hazelett, both of Winooski, and John Frederick Barry Wood, Burlington, all of Vt., assignors to Hazelett Strip-Casting Corporation, Malletts Bay, Winooski, Vt.

Filed Mar. 2, 1972, Ser. No. 231,128
Int. Cl. B22d *11/06*
U.S. Cl. 164—278 **27 Claims**



A wheel and belt continuous casting machine employing a thin casting rim with a pair of cooperating mold side members surrounding the thin rim and with a thin flexible belt partially encircling the wheel for defining a casting cavity and high velocity coolant flow against the thin rim and thin belt for intensive heat removal. The thin casting rim is a guided "floating" rim which together with the pair of guided "floating" unattached mold side members form three of the mold surfaces, with the partially encircling thin belt providing the fourth mold surface, and coolant is flowed longitudinally at high velocity along the concave inner face of the floating rim

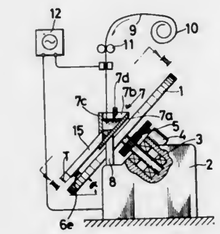
to directly cool this rim and indirectly to cool the side mold members and also high velocity coolant is applied to the thin belt. The coolant can be applied over part of the concave circumference of the thin floating rim or over the full concave circumference of the rim. The floating arrangement of the mold defining surface enables the thin casting rim and mold side members to maintain an accurate alignment without buckling while the high velocity coolant maintains the thin rim at substantially constant temperature. Thus, the thin floating casting rim, floating mold side members and encircling belt provide accurate mold surfaces in which thermal cycling is minimized and heat transfer at the mold surfaces can be appropriately controlled by coatings on the thin rim and thin belt, providing long life of the operating components and giving flexibility for casting different metals and different alloys. Resilient seals are located between the floating rim and the rotating wheel structure, and convenient changing of mold components, such as belt, floating rim and mold side members is achieved, and in addition the user can conveniently change one or both cross section dimensions of the mold cavity so that the most appropriate proportions and size of the continuously cast section can be selected.

3,785,429

APPARATUS FOR THE MANUFACTURE OF CIRCULAR PRODUCTS

Akira Ujiie, Hyogo, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 5, 1971, Ser. No. 140,326
Claims priority, application Japan, May 18, 1970, 45-42235
Int. Cl. B22d *27/02*
U.S. Cl. 164—282 **2 Claims**



An apparatus for the manufacture of circular products in which deposited metal melted by electroslag remelting process is successively drawn out of a retainer for keeping a molten slag which melts the filler metal provided at a predetermined location while being solidified and the tip thereof is fixed to a rotary table, provided in an inclined arrangement, at a position out of the center thereof and is returned into said retainer by rotating said rotary table so as to make one complete turn, thus closing a circle to form a circular product.

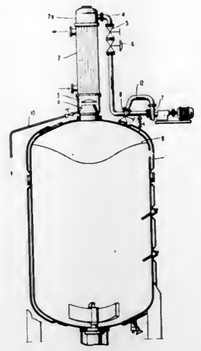
3,785,430

COOLING UNIT FOR LARGE POLYMERIZATION VESSELS

Kurt Pfeiffer; Johannes Dietrich; Gunter Beckmann, and Karl-Heinz Herkt, all of Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

Filed July 30, 1971, Ser. No. 167,568
Claims priority, application Germany, Aug. 1, 1970, P 20 38 363.5
Int. Cl. F28d *15/00*
U.S. Cl. 165—1 **5 Claims**

This invention relates to a process and apparatus for the cooling of polymerization charges in emulsion, suspension, solution, and bulk polymerizations in connection with incompletely filled polymerization reactors or vessels having capacities of 40 m^3 or greater and thermal loads of more than 500,000 kcal/h with the aid of a reflux condenser or cooler



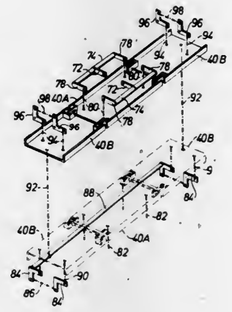
which is in communication with the gas space of a polymerization vessel.

3,785,431

ROTARY REGENERATIVE HEAT EXCHANGERS

Birger Pettersson, Alta, and Kurt Karlsson, Tyreso, both of Sweden, assignors to Svenska Rotor Maskiner Aktiebolag, Nacka, Sweden

Filed Sept. 7, 1971, Ser. No. 178,248
Claims priority, application Great Britain, Sept. 8, 1970, 42933/70
Int. Cl. F28d *19/04*
U.S. Cl. 165—9 **11 Claims**



Regenerator end sealing plates which move axially with the thermal expansion of the rotor are prevented from tilting by stabilizing means.

3,785,432

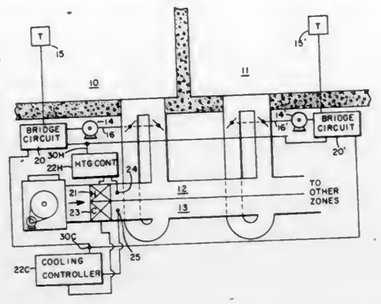
ELECTRONIC CONTROL CIRCUIT WITH TIME DELAY OF MAIN AND FEEDBACK SIGNALS

John L. Kabat, Bloomington; John L. Magnussen, New Prague; Richard B. Porter, Bloomington, and James R. Tobias, Columbia Heights, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 2, 1972, Ser. No. 294,418
Int. Cl. F24f *3/08*; **H03f** *1/34*
U.S. Cl. 165—22 **7 Claims**

An electronic control circuit particularly adaptable for use in a heating and/or cooling control system wherein signals are received from a plurality of zones to control stages of temperature conditioning apparatus. The control circuit has a first

time delay circuit for receiving a signal indicative of the need of the energization of temperature conditioning apparatus and a second time delay circuit connected to the output of the first time delay circuit for providing a signal to a control apparatus adapted to control the temperature conditioning apparatus. A



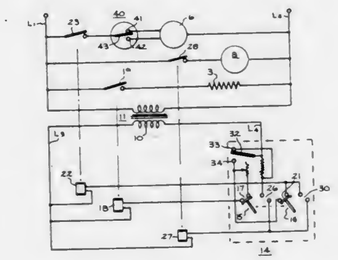
first feedback circuit is connected to the input of the second time delay circuit for providing a feedback signal indicative of the operation of the control apparatus and a second feedback circuit provides a feedback signal to the second time delay circuit indicative of the operation of the temperature conditioning apparatus.

3,785,433

AIR CONDITIONING SYSTEM INCLUDING INDOOR FAN SPEED CONTROL

James L. Ballard, Ellicott City, Md., assignor to General Electric Company

Filed May 30, 1972, Ser. No. 257,702
Int. Cl. F25b *29/00*
U.S. Cl. 165—27 **4 Claims**



An air conditioning system comprising both heating and cooling means and a motor-driven air circulating means includes control means responsive to the temperature of the air flowing from the cooling means for increasing the motor speed during operation of the cooling means.

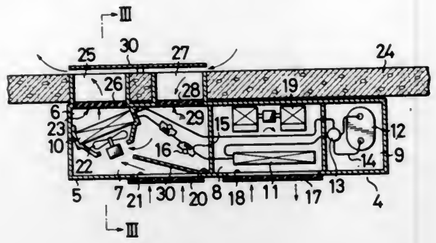
3,785,434

COOLING AND HEATING UNIT OF AIR-COOLED HEAT PUMP TYPE

Yoshiro Okuma, Toyonaka, and Keizo Inuzuka, Yokohama, both of Japan, assignors to Nihon Netsugaku Kogyo Kabushiki Kaisha, Kitaku, Osaka, Japan

Filed Dec. 27, 1971, Ser. No. 211,921
Claims priority, application Japan, Mar. 30, 1971, 46-22964
Int. Cl. F25b *24/00*
U.S. Cl. 165—29 **2 Claims**

In discharging exhaust room air through a heat exchange coil, outside air is introduced into a case housing the heat exchange coil and the exhaust room air and outside air are mixed together within the case. The mixed air is discharged out-of-doors through the heat exchange coil. Thus the outside



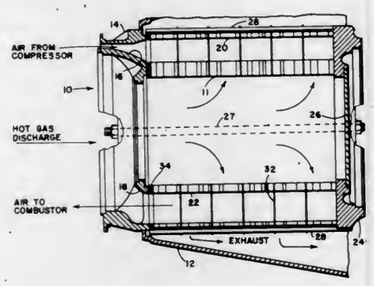
air supplied makes up for the shortage of the exhaust room air to be passed through the heat exchange coil for heat exchange.

3,785,435

THERMAL DAMPER FOR PLATE TYPE HEAT EXCHANGERS

Wolfgang J. Stein, Milford, and Salvatore Straniti, Orange, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Nov. 15, 1972, Ser. No. 306,968
Int. Cl. F28f *7/00*
U.S. Cl. 165—76 **8 Claims**



A heat exchanger is described which is particularly adapted for use with a regenerative type gas turbine engine. The heat exchanger comprises a series of annular discs which define a central flow path for the hot gas discharge of the engine. Adjacent plates define radial flow paths for the hot gas discharge which alternate with cross flow paths between plenums which are respectively connected to the engine's compressor and combustor thereby increasing the energy level of the hot gas stream generated in the combustor. This stack of plates is connected to a frame member of relatively large mass through a series of thermal damper discs which are alternately connected, by seam welding, peripherally around their inner and outer diameters and then peripherally around openings which define the plenum passageways for the flow of air from the compressor and back to the combustor.

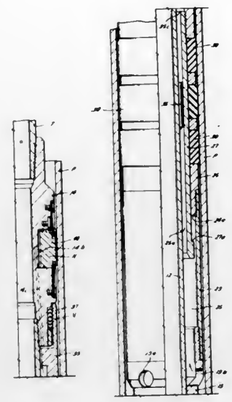
3,785,436

WELL PACKER

Philip E. Davis, Jr., P.O. Box 35729, Houston, Tex.

Filed June 23, 1972, Ser. No. 265,655
Int. Cl. E21b *23/06*
U.S. Cl. 166—120 **12 Claims**

A well packer adapted to be used for cementing operations and the like in a well, wherein the packer includes hold-down slips to hold the packer sealing means and packer slips in the set position, and such hold-down slips are actuated by fluid from the annulus so as to be isolated from the bore of the



packer mandrel to keep the hold-down slips free of cement or other fluids in such bore which might cause a malfunctioning of the hold-down slips.

3,785,437

METHOD FOR CONTROLLING FORMATION PERMEABILITY

Richard L. Clampitt, and James E. Hessert, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 4, 1972, Ser. No. 294,990
Int. Cl. E21b *33/138, 43/27*
U.S. Cl. 166—281 **18 Claims**

In the production of oil and gas, the production of undesirable fluids is inhibited by the sequential injection into the producing formation of alternating slugs of an aqueous composition containing at least one crosslinkable polymeric material and an aqueous composition containing no crosslinkable polymeric material, wherein the polymer-containing slugs have incorporated therein one component of a two-component catalyst system effective to cause in situ crosslinking of the polymeric material when contacted with a second component of such catalyst system, said second component being incorporated into the nonpolymer-containing slug.

3,785,438

METHODS FOR MINIMIZING FLUID LOSS OF WELLBORE FLUIDS

Jack M. Jackson, and Arlynn H. Hartfiel, both of Houston, Tex., assignors to Chemical Additives Company, Houston, Tex.

Filed Feb. 24, 1972, Ser. No. 228,862
Int. Cl. E21b *33/138*
U.S. Cl. 166—295 **1 Claim**

The novelty lies in the use of a group of thermoplastic resins in the form of solid particles which serve as bridging materials, i.e., they plug the pores and fissures of a porous zone of wellbore formation and form a base on which a filter cake may form. The bridging particles are incorporated in the circulating fluid, and are deposited therefrom on the porous formation. The composition of the bridging particles is best described as a saturated thermoplastic resin derived from the polymerization of hydrocarbons; the resin is preferably amorphous or crystalline, and has a relatively high melting point, considerably higher than the temperatures in the wellbore, so that in its preparation it can be mechanically crushed and in use has sufficient strength to avoid deformation. The size of the particles is essentially greater than 50 (fifty) microns. The class of resins suitable for the purpose is essentially insoluble in aqueous wellbore fluids, but is soluble in produced hydrocarbon fluids such as oil and condensate.

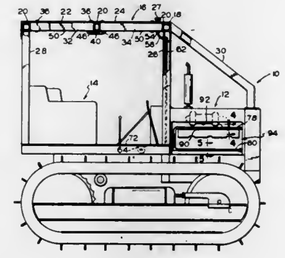
After bridging the pores and fissures with such resin, fluid loss control is established by the use of colloidal additives such as lignosulfonates complexed with a trivalent cation and a divalent base. Pressure in the wellbore fluid is maintained at a pressure exceeding the formation fluid pressure during all operations being performed, e.g., drilling through the productive zone, running in casing, cementing, etc. When the well is properly prepared for production, fluid pressure within the wellbore is reduced below the formation pressure, and oil in the formation flows toward the hole. The plug is dissolved by the oil itself, owing to the solubility of the bridging particles in the oil, and production is commenced without the need for acidizing, mechanical abrasion of the plugged zone, or the like.

3,785,439

TRACTOR CANOPY SPRINKLER SYSTEM

LeRoy A. Britt, P.O. Box 428, Pilot Rock, Oreg.

Filed Feb. 9, 1972, Ser. No. 224,827
Int. Cl. A62c *27/00*
U.S. Cl. 169—2 A **14 Claims**



A tractor canopy includes one or more water receiving tanks connected by conduit means to a sprinkler system proximate the tractor engine. A pump withdraws water from the tanks for spraying the same toward the engine in the event of fire.

3,785,440

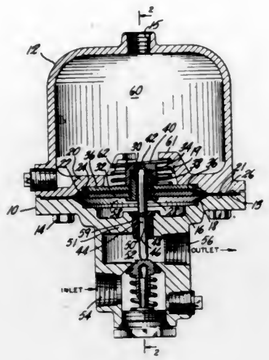
PRESSURE MONITOR AND TRANSDUCER

Edward T. Shea, Huntington, N.Y., assignor to The Reliable Automatic Sprinkler Company, Inc., Mt. Vernon, N.Y.

Filed May 25, 1972, Ser. No. 256,923
Int. Cl. A62c *37/02*
U.S. Cl. 169—20 **30 Claims**

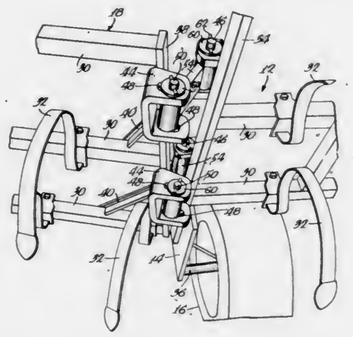
A pressure monitor and transducer, usable as an accelerator for dry pipe sprinkler systems includes a diaphragm separating a closed chamber for another chamber which communicates with the pressure system to be monitored. A controlled leakage valve is mounted centrally in the diaphragm and is linked to a poppet valve which separates the pressurized sprinkler system from the underside or intermediate chamber of a water valve to the system. The force exerted on the diaphragm

by fluid pressure in the closed chamber is concentrated in a very small area on the controlled leakage valve to prevent



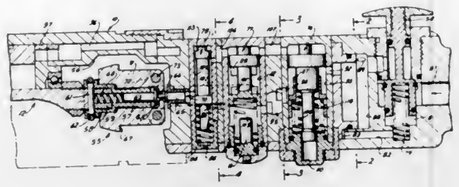
malfunctions caused by dirt and to assure consistent performance.

3,785,441
HINGE CONSTRUCTION
Harry Sosalia, Sac City, Iowa, assignor to Royal Industries, Inc., Pasadena, Calif.
Filed Nov. 1, 1971, Ser. No. 194,712
Int. Cl. A01b *19/04, 73/00*
U.S. Cl. 172—311 **5 Claims**



An improved hinge construction for interconnecting frames of an agricultural implement of the type wherein the frames may be lowered to a work performing position or elevated to a transporting position in which position they are additionally folded with respect to each other. The hinge includes two pintles, one for each frame, which pintles journal an elongated hinge member. One of the pintles is affixed to its associated frame such that the elongated member may cant as well as pivot relative to the frame to provide a relatively full range of movement of one frame relative to the other whether in work performing position or transporting position over varying types of terrain.

3,785,442
PNEUMATIC NUT RUNNING TOOL WITH GOVERNOR SHUT-OFF CONTROL
Lester A. Amtsberg, Utica, and William K. Wallace, Barneveld, both of N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y.
Filed Apr. 28, 1971, Ser. No. 138,091
Int. Cl. B25b *23/14*
U.S. Cl. 173—12 **15 Claims**

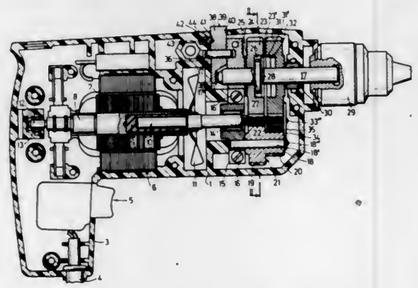


A pneumatic tool provided with combined nut setting and crimping mechanism which responds to rotation of an air motor in one direction to set a nut and responds to rotation of the motor in an opposite direction to crimp the nut. Shiftable valving mechanism is included to direct operating air flow to drive the motor in one direction or the other. A throttle valve is depressible to initiate air flow to the valving mechanism and becomes pneumatically unbalanced against the force of a spring in open condition. A centrifugal motor speed responsive governor valve controls shifting of the valving mechanism and automatic return of the throttle valve to shut-off condition.

In another embodiment, the governor valve is incorporated in a conventional pneumatic nut runner to effect automatic shut off of air flow to the motor.

The term "governor" as used herein means a mechanism having the usual governor elements, i.e., flyweights, valve means, etc.; however, the governor used in the device of the invention functions to sense and respond to a predetermined speed at which certan valves will be made operative to perform desired operational results, all as will be apparent hereinafter.

3,785,443
PORTABLE ELECTRIC IMPACT TOOL
Gerhard Armbruster, Stuttgart-Plieningen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 24, 1972, Ser. No. 308,941
Claims priority, application Germany, Nov. 24, 1971, P 21 58 118.0
Int. Cl. B25d *15/00*
U.S. Cl. 173—48 **18 Claims**



A portable electric impact drill wherein an axially reciprocable tool spindle can be driven at two speeds by a gear transmission which is installed in front of a universal electric motor. The tool spindle is movable axially by a rotary or reciprocable selector to assume one of four positions including a first position in which it receives torque from a first gear of the transmission and is driven at a relatively low speed, a second position in which it receives torque from a second gear of the transmission and is driven at a relatively high speed, a third position in which it is disengaged from both gears, and a fourth position in which it receives torque from the second gear and causes an annulus of projections on the second gear to travel along an annulus of projections in the housing of the power tool so that the tool spindle rotates at the higher speed and is caused to perform axial oscillatory movements.

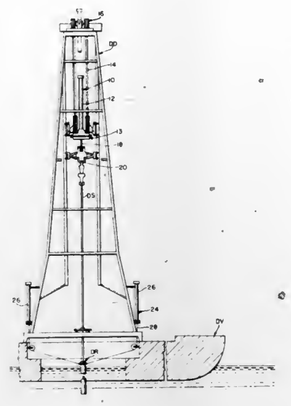
3,785,444
JACKHAMMER
Paul L. Gray, 504 N. Central Dr., Moses Lake, Wash.
Filed Oct. 10, 1972, Ser. No. 296,262
Int. Cl. E21c *7/00, 1/12*
U.S. Cl. 173—78 **5 Claims**



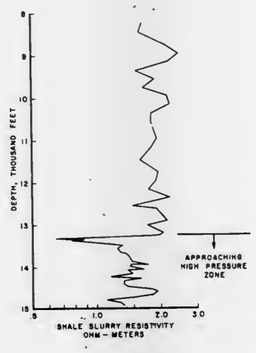
A jackhammer has a frame which supports a trip wheel and a power device for rotating the wheel. A striker bar is held by the frame against the periphery of the wheel. The striker bar has a notch in it and the wheel has peripheral trip fingers to engage the notch alternately to raise and release the striker bar. Coiled springs in the frame are operatively connected to the striker bar to be compressed when the bar is lifted and drive the bar downward when it is released. A drill stem is guided in the frame for limited vertical movement with respect to the frame. A head on the striker bar has a sleeve that strikes a shoulder on the drill stem to deliver the impact caused by the springs when the striker bar is released. When desired, a pawl and ratchet mechanism is included to use the upward movement of the striker bar to turn the drill stem.

3,785,445
COMBINED RISER TENSIONER AND DRILL STRING HEAVE COMPENSATOR
James Joseph Scozzafava, 6403 Winston Dr., Bethesda, Md.
Filed May 1, 1972, Ser. No. 249,035
Int. Cl. E21b *7/12, 19/08*
U.S. Cl. 175—5 **8 Claims**

The rod end of a heave compensator is hydraulically coupled to the head end of a riser tensioner used on a floating drilling vessel. The rod end of the riser tensioner is pressurized an amount sufficient to provide not only a tension on the riser, but in addition a lifting force on the drill string. The hydraulic fluid displaced between the heave compensator and riser tensioner accommodates rotation of the vessel due to wave action. The riser tensioner is isolated from the heave compensator and coupled to a pressurized hydraulic supply whenever the heave compensator is disconnected from the drill string.



3,785,446
PREDICTING OCCURRENCE OF GEOPRESSURED SUBTERRANEAN ZONES DURING DRILLING
Walter H. Fertl; Robert J. Cavanaugh, and John L. Hillhouse, all of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Filed Aug. 20, 1971, Ser. No. 173,533
Int. Cl. E21b *47/00, 49/00*
U.S. Cl. 175—50 **8 Claims**



An early warning detection method for predicting abnormal formation pressure in subterranean rock strata before it is drilled. The technique is to measure, on a sample removed from the well bore an electrical characteristic such as the resistivity or its reciprocal, conductivity, preferably corrected for formation temperature, while the well is being drilled, in the normally pressured rock strata existing above the abnormally pressured formations. When variations are observed in the degree of change of resistivity or conductivity with depth, drilling procedures are altered to meet the requirements of the formation which is about to be penetrated by the drill bit.

3,785,447

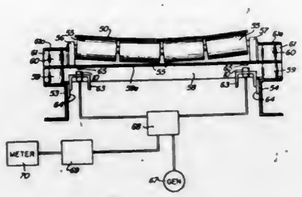
WEIGHING DEVICE FOR MOVABLE CONVEYORS

Alfred A. Blackerby, 11 Mark Dr., San Rafael, Calif.

Division of Ser. No. 92,891, Nov. 21, 1971, Pat. No. 3,659,194, which is a continuation-in-part of Ser. No. 799,322, Jan. 27, 1967, abandoned. This application Mar. 17, 1972, Ser. No. 235,840

Int. Cl. G01g 3/15, 13/02

U.S. Cl. 177—119 7 Claims



A weighing device used an eddy current sensing device wherein lines of flux are passed in one direction through a stainless steel membrane. The membrane is specially heat treated such that it collimates and permits passage of generated lines of flux yet provides an effective environmental shield that will allow operation even when the device is subjected to temperatures of up to 1,400°F. and pressures of up to 3,000 p.s.i. An impedance comparator circuit, including measuring and reference coils having virtually identical characteristics, is used to operate a meter to thereby indicate proximity and/or characteristics of conductive materials spaced along the undersurface of an endless conveyor belt. The magnetic flux of the measuring coil is shielded and collimated to provide localized sensing and reflected impedance variations between the two coils, which comprise legs of a bridge circuit, are detected and translated to weighing measurements, as represented by the output signal of the sensing device.

3,785,448

DEVICE IN CONNECTION WITH THE STEERING SKI OF A VEHICLE FOR IMPROVING ITS CONTROL

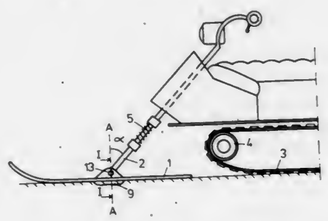
Markku Merenheimo, Oulu, and Mauno Ruuska, Muhos, both of Finland, assignors to Valmet Oy, Helsinki, Finland

Filed Apr. 7, 1972, Ser. No. 242,186

Claims priority, application Finland, Jan. 26, 1972, 202/72

Int. Cl. B62b 17/02

U.S. Cl. 180—5 R 8 Claims



Device adapted for steering a motor sleigh and for improving the control of the vehicle, having on both marginal portions of the steering ski a steering plate or plates which are positioned at a given distance from the edge of the steering ski such that the steering effect of the steering plates becomes less with increasing turning angle of the steering ski as a result of the tilting of the steering ski.

3,785,449

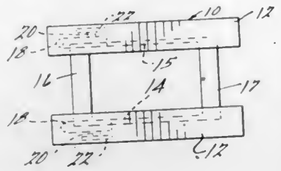
SELF-CONTAINED POWER TRANSMITTING ASSEMBLY

Donald L. Ries, Dearborn Heights, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Aug. 27, 1971, Ser. No. 175,628

Int. Cl. B62d 55/00

U.S. Cl. 180—6.48 1 Claim



A self-contained power transmitting assembly capable of being mounted as a unit in a motor vehicle having a structural frame and ground engaging propulsion means such as an endless track. Said assembly includes a rigid elongated housing secured to the frame means, a motor mounted to the housing and projecting therefrom in a direction parallel to the longitudinal axis of the housing and plural gear reduction means positioned within the housing. The motor drives the gear reduction means which in turn drive output means carried by the housing and capable of being drivingly connected to the ground engaging propulsion means.

3,785,450

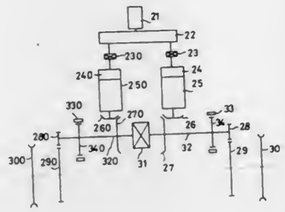
STEERING SYSTEM FOR AN ENDLESS TRACK TYPE TRACTOR

Mitsuaki Suzuki, Hirakata, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Mar. 28, 1972, Ser. No. 238,557

Int. Cl. B62d 11/12

U.S. Cl. 180—6.7 7 Claims



A steering system for an endless track type tractor having an engine which has a power distribution device for equally distributing the power of the engine to two outputs, a pair of couplings, a pair of torque converters, a pair of transmissions, a pair of bevel gear mechanisms, a pair of lateral shafts, a pair of final reduction gear mechanisms, a lateral shaft engaging clutch, and a hydraulic control device having an oil tank, a hydraulic pump, a pair of direction shifting valves, a pair of speed control valves, a pair of steering control valves, and a lateral shaft engagement control valve for travelling straight, turning right or left by braking one endless track and driving the other endless track or by inversely driving both the endless tracks. Thus, the turning performance of the tractor is improved.

3,785,451

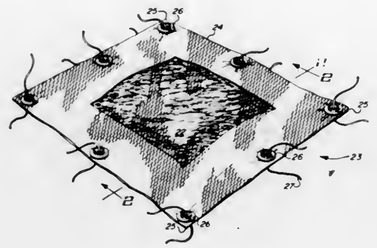
FLEXIBLE AND FIREPROOF AUTOMOBILE DIAPER

John T. McCord, Phoenix, Ariz., assignor to Andrea S. Ghigo, Glendale, Ariz., a part interest

Filed Aug. 4, 1972, Ser. No. 277,983

Int. Cl. B32b 1/04; D04h 1/14; B32b 3/04; B62d 25/20

U.S. Cl. 180—69.1 6 Claims



This specification discloses an automobile diaper that is secured in position under an automotive device which contains oil under pressure and which presents the liability of oil dripping therefrom. The diaper is rectangular is shape, fireproof, and comprises a double-layer envelope which receives a mass of absorbent material. The inner layer is plastic and one panel thereof is formed with an opening leaving a marginal portion thereabout. The outer layer is of fiberglass and covers the opening. The envelope is provided with grommets along its edges which accommodates means for securing the diaper in position.

3,785,452

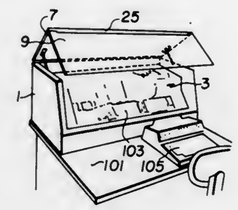
KEYPUNCH ACOUSTIC COVER

Charles Hamilton Scott, 20 Woodmount Cres., Ottawa, Ontario, Canada

Filed June 7, 1972, Ser. No. 260,353

Int. Cl. E04b 1/99

U.S. Cl. 181—33 K 15 Claims



An acoustic cover is described, suitable for use on say a keypunch machine. Box-like in form, with a sloping upper part to the front, the upper front part is transparent and is hinged to a top part, so that when desired it can be swung up to lie on top of the top part. Further, the top part can be moved upwardly through a limited angle about its rear edge. As a result, there are provided five different conditions of enclosure, which leads the operator to adopt the condition which suits the operation being performed, rather than merely leave the acoustic cover in the open position.

3,785,453

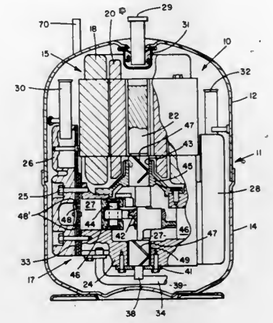
COMPRESSOR DISCHARGE MUFFLING MEANS

Salvatore Buonocore, East Syracuse; Harvey G. Stenger, Skaneateles, and George T. Privon, Camillus, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Dec. 10, 1970, Ser. No. 96,792

Int. Cl. F01n 3/06

U.S. Cl. 181—36 R 2 Claims



A hermetic motor-compressor unit including a cylinder block having integrally formed silencer chambers between the outer wall of the block and the cylinder wall, provided for attenuating the sound produced by the pulsating characteristic of the discharge gas. The integrally formed chambers include relatively restricted portions and relatively expanded portions.

3,785,454

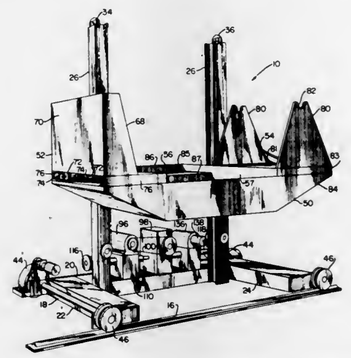
MOTORIZED SCAFFOLD

Gage B. Behunin, Arvada; Eugene A. Cole, Denver, and Charles R. Staadt, Aurora, all of Colo., assignors to Masonry Systems, Inc., Westminster, Colo.

Filed Oct. 26, 1971, Ser. No. 192,015

Int. Cl. E04g 1/18

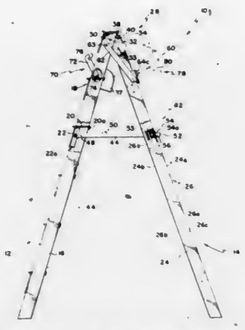
U.S. Cl. 182—14 18 Claims



A carriage adapted for industrial use, specifically for prefabricating brick panels, includes an operator supporting scaffold that is mounted for vertical movement on a frame which has power means for moving the frame linearly along a horizontal reference surface and for moving the scaffold vertically on the frame. By appropriately controlling the power means, the scaffold can be moved in a vertical direction, in a horizontal direction, or both. Storage areas and a work table are provided on the scaffold to store various working materials, such as brick and mortar, in a convenient location to the

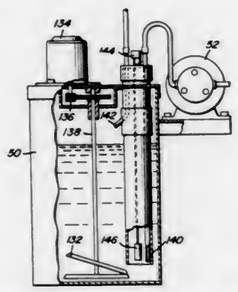
operator. Foot controls for operating the carriage are also located on the scaffold whereby the operator can control his movement both in horizontal and vertical directions while laying brick.

3,785,455
CONVERTIBLE LADDER
Noel E. Waldron, Rt. No. 1, Elwell, Mich.
Filed June 29, 1972, Ser. No. 267,551
Int. Cl. E06c *1/18*
U.S. Cl. 182—22 **21 Claims**



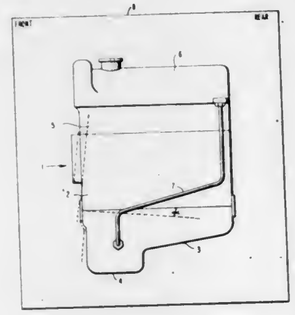
A convertible ladder including front and rear step sections each including side rails spanned by a plurality of steps, coupling members for selectively connecting the step sections for swinging movement from generally parallel, coextensive positions to relatively inclined positions to configure the step sections as a step ladder or connecting the step sections for generally parallel, sliding movement from coextensive positions to extended positions to configure the step sections as an extension ladder, and a support cradle mounted on the front step section for movement between a removed, inoperative position, which is rearward of the rear step section to permit relative movement of the step sections from the coextensive positions to either the inclined or the extended positions, and a support position underlying a step on the rear step section for supporting the rear step section on the front step section when the front and rear sections are extended.

3,785,456
AUTOMATIC LUBRICATION SYSTEM
Nathan E. McIntire, and Zelma M. Porter, both of Clarksville, Tenn., assignors to Elk Craft, Inc., Clarksville, Tenn.
Filed Mar. 21, 1972, Ser. No. 236,756
Int. Cl. F16n *7/30*
U.S. Cl. 184—6 R **5 Claims**



An automatic lubrication system for conveyors and the like, said system comprising means for initiating a lubrication cycle whereby a lubricant agitator and pump are sequentially actuated to deliver lubricant to a dispensing passageway, a timer and relay arrangement effective to open a lubrication solenoid valve to permit a quantity of lubricant to flow into the dispensing passageway and subsequently open a gas solenoid valve to blow gas through the passageway and expel substantially all of the lubricant therefrom onto the member being lubricated, in such a manner that dripping of the excess lubricant or clogging of the passageway is eliminated.

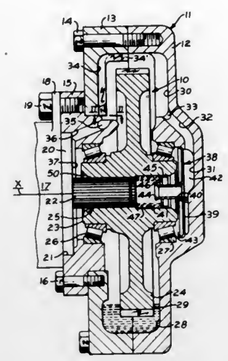
3,785,457
INTERNAL COMBUSTION ENGINE
Hans-Jurgen Strauber, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Oct. 6, 1971, Ser. No. 187,025
Claims priority, application Germany, Oct. 8, 1970, P 20 49 406.8
Int. Cl. F01m *1/00*
U.S. Cl. 184—6.5 **14 Claims**



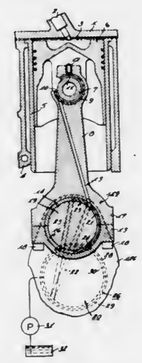
An internal combustion engine, particularly for the drive of motor vehicles, in which the lubricating oil is returned by way of a return line from one end of the cylinder head into the end of the oil sump disposed opposite to the end of the cylinder head which is provided with a collecting pot so that the lubricating oil is conducted from the cylinder head directly into the collecting pot of the oil sump.

3,785,458
LUBRICATION SYSTEM FOR A GEAR DRIVE MECHANISM
Samuel I. Caldwell, Aurora; Michael E. Cheek, and Lawrence R. Cline, both of Oswego, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 14, 1972, Ser. No. 244,213
Int. Cl. F16n *7/26*
U.S. Cl. 184—6.12 **18 Claims**

A lubrication system is adapted for continuously lubricating a loose spline connection, attaching a gear to a shaft, and axially spaced bearings rotatably mounting the gear in a closed housing. The gear rotates to centrifugally discharge lubricating oil therefrom to dynamically lubricate the gear, bearings and spline connection via suitably arranged chambers and interconnected passages.



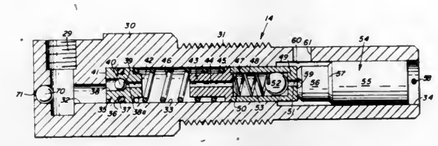
3,785,459
LUBRICATION AND COOLING SYSTEM FOR CONNECTING ROD AND PISTON
Paul J. Patchen, Chicago, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed May 11, 1972, Ser. No. 252,366
Int. Cl. F01m *1/06*
U.S. Cl. 184—6.5 **16 Claims**



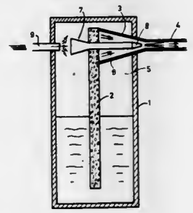
A lubricating and cooling system for lubricating a connecting rod and cooling the underside of a piston of an internal combustion engine.

3,785,460
LUBRICATOR
Roy B. Smith, Washington Court House, and Alex T. Sabo, Cuyahoga Falls, both of Ohio, assignors to Samuel Moore & Company, Mantua, Ohio
Filed Feb. 15, 1972, Ser. No. 226,452
Int. Cl. F16n *7/36*
U.S. Cl. 184—43 **10 Claims**

An apparatus for lubricating a universal joint of a vehicle combines the cavity of a hollow drive shaft as a lubricant reservoir and a passageway through a member of the universal joint to its bearings with a conduit for transmitting lubricant from the reservoir to the passageway and a novel metering valve which opens and closes to lubricant flow into the conduit in response to the speed of rotation of the drive shaft.

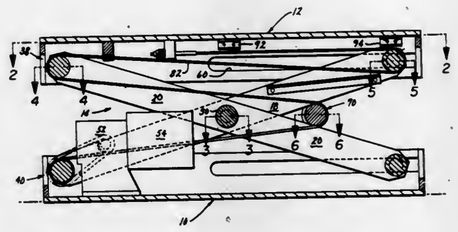


3,785,461
AIR LINE OILERS
Jozef Johannes Theresia Rompa, 14, Bredaseweg, Terheyden, Netherlands
Filed Dec. 27, 1971, Ser. No. 211,995
Claims priority, application Netherlands, Jan. 18, 1971, 7100621
Int. Cl. F16n *7/34*
U.S. Cl. 184—55 A **4 Claims**



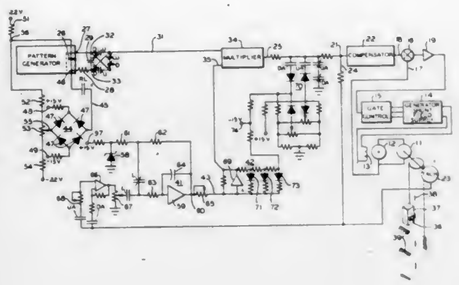
Air line oiler comprising an oil chamber into which a capillary member extends which is exposed to the air flow of the line to be oiled, the inlet of the downstream part of said air line being closed by said capillary member.

3,785,462
SCISSOR LIFT AND DRIVE MECHANISM THEREFOR
George L. Coad, Walnut Creek, and James C. Carter, San Jose, both of Calif., assignors to Applied Radiation Corporation, Walnut Creek, Calif.
Filed June 23, 1972, Ser. No. 265,704
Int. Cl. B66f *3/22*
U.S. Cl. 187—18 **3 Claims**



A scissor lift having upper and lower platforms and actuated by a cable reeved so as to pull at least one set of the ends of the scissor together at its extended position and also reeved about a cam roller interposed between the arms and working toward the pivot connection during the portion of the motion in which the lift begins to extend.

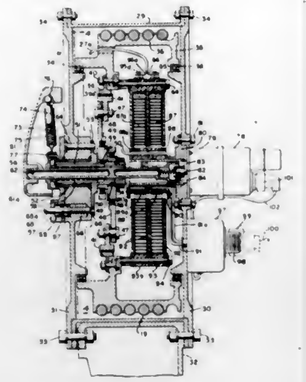
3,785,463
FINAL STOPPING CONTROL
Joseph W. Kuhl, Toledo, and Robert J. Lauer, Bowling Green, both of Ohio, assignors to Reliance Electric Company, Euclid, Ohio
Filed May 9, 1972, Ser. No. 251,801
Int. Cl. B66b *1/30*
U.S. Cl. 187—29 R 16 Claims



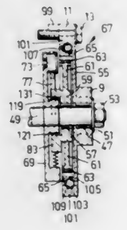
A pattern generator for controlling the terminal portion of the travel of an object along a fixed path. The pattern is a velocity signal which diminishes as the object approaches its destination whereby a smooth stop is dictated. The generator is particularly adapted to the final stopping of vehicles for passengers and is illustrated as the source of control signals for driving an elevator. As an elevator pattern generator, it integrates the pattern signal velocity as represented by voltages when the car is at a point within a given distance from a landing to provide a signal representing displacement. The required displacement to the stop is proportioned to the actual velocity of the car at that point to define a leveling pattern as the product of the proportioning factor and the velocity. As a compromise between square root function, which would afford smoothness and require a long stopping interval, and a straight line function, which would provide minimum transition time to zero velocity and impose infinite jerk at the stop position, the integrated signal is modified as a function of the integrated signal value during approach to the stop. The pattern signal upon initiation of leveling is corrected if a significant disparity with the predetermined desired speed occurs.

3,785,464
CABLE REEL STRING INSTALLATION
Leslie C. Collins, Doylestown, Pa., and Arthur W. Smith, Trenton, N.J., assignors to Eastern Rotocraft Corporation, Doylestown, Pa.
Filed Dec. 23, 1971, Ser. No. 211,581
Int. Cl. H02g *11/02*
U.S. Cl. 191—12.2 R 6 Claims

A cable stored on a reel can be reeled out to any adjusted length within its limit. Control mechanism allows locking the drum for load transfer between the cable and the reel at any adjusted position. A load indicating system is supplied to show when a predetermined load is applied at the loaded end of the cable. For this purpose a pair of electrical conductors extend through the cable and a continuing circuit is supplied from the outer rim of the rotating drum to the stationary reel housing. A clock type spiral spring is supplied to rewind the cable and this spring is split into a plurality of sections which are supported in insulated relationship to the drum and housing. In this way the spring parts are used as conductors in the electrical circuit with suitable connections at the outer end spring attachment and at the inner end spring attachment.



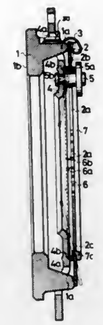
3,785,465
CENTRIFUGAL CLUTCHES IN SERIES WITH BRAKE
Rolf Anders Gunnar Johansson, Vare, S-310, Unnaryd, Sweden
Filed Feb. 22, 1972, Ser. No. 228,061
Int. Cl. F16d *21/08, 67/02*
U.S. Cl. 192—48.5 11 Claims



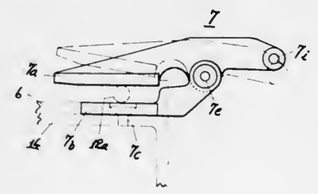
A safety device for disengaging the driving portion of a centrifugal clutch of a chain saw when a safety grip is released. A drive disc on the motor shaft has a pivotal centrifugal drive arm for driving the centrifugal clutch hub yoke which is rotatable on the motor shaft. The drive arm is held in operative position against the centrifugal force by a locking arm, which is withdrawn when the safety grip is released, thereby releasing the drive arm and disengaging the drive to the centrifugal clutch. Simultaneously, a brake stops the clutch drum and thus the chain.

3,785,466
DEVICE FOR HOLDING WIRE RINGS IN DIAPHRAGM CLUTCH
Okihiko Murai, 1-4, Horigaoka, Hirakata, and Mamoru Okubo, 28-8, Hiraikecho, Neyagawa, both of Japan
Filed Oct. 2, 1972, Ser. No. 294,290
Int. Cl. F16d *13/44, 23/00, 23/02*
U.S. Cl. 192—89 B 3 Claims

A device comprising a diaphragm spring having a peripheral portion seated on the top ends of a plurality of projections along the same circumference on a side face of a pressure plate and retained on the pressure plate by clips, a clutch cover secured to a flywheel, a pair of split wire rings disposed on the opposite side surfaces of the diaphragm spring to fulcrum the diaphragm spring, and a plurality of connecting members for holding the wire rings in pressing contact with the opposite surfaces of the diaphragm spring and securing the same to the clutch cover at the same time, the clutch cover being formed in its wire ring bearing surface with a split annular groove for receiving the side face of the wire ring.



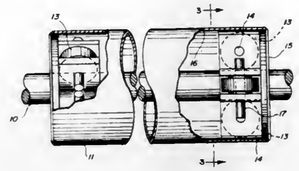
3,785,467
COOLING BED FOR STEEL BAR EQUIPPED WITH STEEL BAR AUTOMATIC STOP MOTION
Koichi Takashima, Toyonaka, Japan, assignor to Kyoei Steel Works, Ltd., Osaka City, Japan
Filed Aug. 24, 1971, Ser. No. 174,481
Int. Cl. B65g *13/075, 47/42*
U.S. Cl. 193—35 A 6 Claims



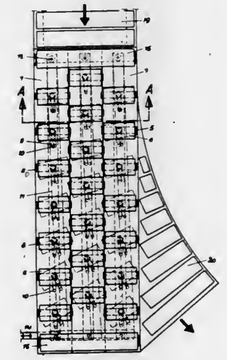
A cooling bed equipped with steel bar automatic stop motion, comprising braking apparatuses which stop by their simultaneous motion steel bars running freely into the run-in table at or around the predetermined position, one or more oscillators to operate said braking apparatuses and an automatic control board whereby signal of oscillator is converted to power control by a selective delay apparatus to work said braking apparatuses.

3,785,468
DUAL AXIS ROLL AND CONVEYOR SYSTEM USING SAME
Reid Misenheimer, Decatur, Ga., assignor to Textron Inc., Providence, R.I.
Filed Mar. 1, 1972, Ser. No. 230,747
Int. Cl. G07f *17/04*
U.S. Cl. 193—35 MD 14 Claims

A dual axis roll structure is provided that allows relative movement of a roll body axially of a shaft carrying the same while resisting relative rotation of the roll body on the shaft, and that may be employed advantageously in conveyor systems where provision is needed for lateral shifting or manipulation of material to be conveyed, as where the material is to be delivered or received from a work station at which the work to be performed requires such lateral shifting or manipulation.



3,785,469
ROLL TRAIN SWITCH
Karl Stumpf, Worringerstr. 78, Goethestrasse 7, Dusseldorf, Germany
Filed Oct. 15, 1971, Ser. No. 189,600
Claims priority, application Germany, Dec. 24, 1970, G 70 47 680.1
Int. Cl. B65g *13/10*
U.S. Cl. 193—36 4 Claims

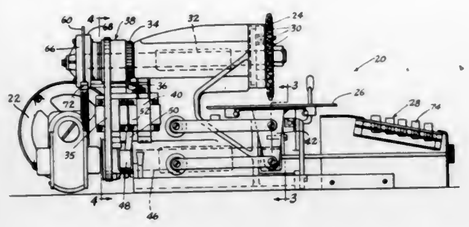


A switch for roll trains wherein goods moving along a main conveyor can be diverted by the switch onto another conveyor. The switch comprises a plurality of rolls, each roll having a length shorter than the length of the main conveyor rolls. Each of the shorter rolls is pivotally mounted above a track on a pin extending therethrough. The pins are eccentrically connected to movable roll setting levers positioned beneath the tracks. Movement of the levers is operative to turn or pivot each of the connected rolls and cause goods conveyed along the main track to be diverted onto another track.

3,785,470
SINGLE COMMUTATION VERTICAL WHEEL MARKING MACHINE
Roy Arthur Schacht, 744 Des Peres Rd., St. Louis, Mo.
Continuation of Ser. No. 148,463, June 1, 1971, abandoned.
This application May 3, 1973, Ser. No. 356,732
Int. Cl. B41j *1/22*
U.S. Cl. 197—6.4 6 Claims

A marking wheel for marking metal or plastic tags and the like employing a rotary marking wheel having marking characters on the periphery which is continuously rotated and, upon depressing of an appropriate key upon a keyboard, is caused to stop. Marking is established by the raising of a worktable driven through a magnetic clutch to engage the tag with the marking wheel. The clutch in stopping of the continu-

ously rotating marking wheel is activated by an electrical circuit which comprises a segment of a commutator stator on a printed circuit board which completes the circuit upon being contacted by a continuously driven rotor. The circuit employs a silicon control rectifier for extremely rapid completion of



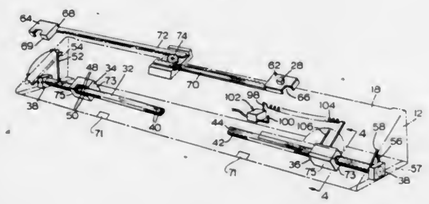
the electrical circuit upon the depression of the desired key on the keyboard. The completion of the circuit through the appropriate segment on the commutator further actuates a pawl to engage the appropriate ratchet tooth on a ratchet wheel keyed to the shaft of the marking wheel to stop the marking wheel for the marking operation.

3,785,471

LETTER PLACEMENT INDICATOR FOR TYPEWRITERS AND MEANS RESPONSIVE TO THE INDICATOR FOR SIMULTANEOUS SETTING OF MARGIN STOPS

Irvine Dodds, 1756 Ferry St., Niagara Falls, Ontario, Canada

Filed Aug. 30, 1971, Ser. No. 176,015
Int. Cl. B41j *21/02*
U.S. Cl. 197—63 **8 Claims**



A typewriter includes a mechanism for automatically positioning margin stops to correspond to a predetermined position of a letter placement indicator. A visual end-of-line arrangement, a visual envelope positioning device and visual colored tab setting indicators are provided.

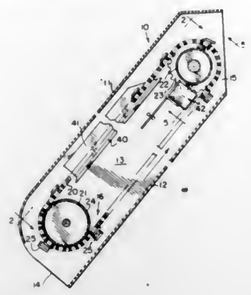
3,785,472

SLAT ELEVATORS FOR COMBINES OR THE LIKE

Bernard C. Mathews, P.O. Box 70, Crystal Lake, Ill.

Filed Feb. 17, 1972, Ser. No. 227,202
Int. Cl. B65g *19/00*
U.S. Cl. 198—171 **9 Claims**

The slat elevator includes a diagonally disposed conduit open at its upper and lower ends, and having a bottom transverse wall. An upper drum carries several sprockets which drive several chains which also pass around a lower drum. Each chain carries a separate series of flexible slats made of tire carcass, and mounted with their width parallel to the path of the chain so that the slat ends curve down toward the bottom wall and are flexed away from same by the crop to avoid packing between the slat ends and the bottom wall. Each slat trails its attachment link. A plow located beneath each sprocket removes any crop which rides on the top of the chain



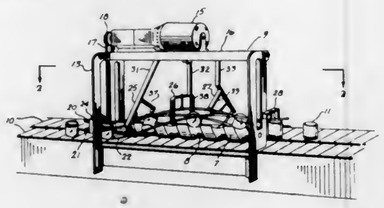
to avoid clogging the sprocket. Dividers on the upper span maintain the spacing between the separate slat series.

3,785,473

GLASS CONTAINER ANGULAR DISPLACEMENT DEVICE

Charles W. Cook, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind.

Continuation-in-part of Ser. No. 777,419, Nov. 20, 1968, abandoned. This application Sept. 18, 1970, Ser. No. 73,528
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AC **4 Claims**



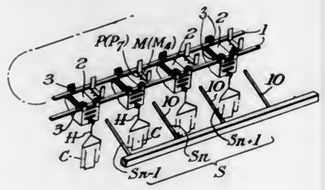
Apparatus for automatically adjusting the orientation of glass containers, including tilting and/or inverting the containers. The apparatus includes a rotatable worm conveyor and a plurality of guides partially curved about the worm conveyor so that containers received therebetween are caused to be tilted and/or inverted upon rotation of the worm conveyor.

3,785,474

APPARATUS FOR SORTING AND DISTRIBUTING CLOTHING

Taro Nakamoto, 945 Joge, Joge-machi, Konu-gun, Japan

Filed Jan. 11, 1972, Ser. No. 216,959
Int. Cl. B65g *43/00*
U.S. Cl. 198—38 **3 Claims**



Apparatus for sorting and distributing clothing on hangers to predetermined locations along path of travel comprises plu-

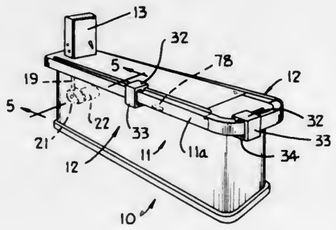
rality of spaced apart hanger holding devices arranged for movement along path of travel. Arm on each holding device releasably holds clothes hanger thereon. Releasing mechanism is associated with each holding device for releasing clothes hanger from device at predetermined location along path of travel. Another mechanism cooperates with releasing mechanism at each of plurality of predetermined locations along path of travel of holding devices for activating releasing mechanism of particular holding device at predetermined location so that clothes hanger is released from arm of particular holding device when device arrives at predetermined location.

3,785,475

MAGNETICALLY CONTROLLED NON-SYNCHRONOUS CONVEYOR SYSTEM

John F. Maynard, Chesterfield, Ind., assignor to Magna-Matic Systems, Inc., Greensburgh, Ind.

Filed Mar. 9, 1972, Ser. No. 233,109
Int. Cl. B65g *47/00*
U.S. Cl. 198—41 **15 Claims**



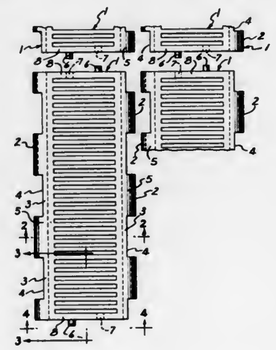
Disclosed is a conveyor system utilizing an endless, magnetically permeable chain which moves in a path adjacent a series of work stations. Pallets, carrying workpieces to be processed at the stations are fastened to the chain for movement with it and detached from the chain and braked to a positive, accurately positioned stop by the selective energization of electromagnets carried by each of the pallets. Magnetic means is provided at the trailing margin of each pallet to halt a following pallet before physical contact occurs.

3,785,476

PLATFORM CONVEYOR

Jannes Jonge Poerink, Postbus 4, Borne, Netherlands

Filed Oct. 6, 1971, Ser. No. 187,188
Claims priority, application Germany Oct. 7, 1970, P 20 49 129.6
Int. Cl. B65g *17/08*
U.S. Cl. 198—189 **2 Claims**



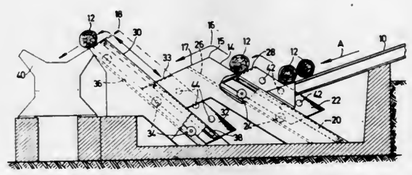
A platform conveyor is provided with a plurality of flat panels. Each of the panels has on its opposite edges closed eyes which are spaced from one another and integral with the panel. The eyes are insertable into the spaces between the eyes of an adjacent panel member and connectable by means of bars insertable through adjacent eyes.

3,785,477

CONVEYING SYSTEM

Karl Kwasnitschka, Donaueschingen, Germany, assignor to Joachim Erbprinz Zu Furstenberg, Donaueschingen, Germany

Filed Dec. 23, 1971, Ser. No. 211,409
Claims priority, application Germany, Dec. 29, 1970, P 20 64 178.5
Int. Cl. B65g *25/04*
U.S. Cl. 198—218 **7 Claims**



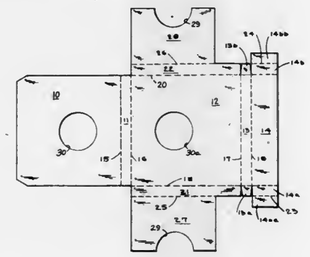
A conveying system for transversely conveying logs has two conveyors which are arranged sequentially. The first conveyor has two or more transversely spaced guides each having a first portion which is upwardly inclined in the conveying direction and a second portion downwardly inclined from the downstream end of the first portion, also in the conveying direction. A second conveyor is similar to the first conveyor and its first portion receives conveyed logs from the second portion of the first conveyor. Engaging or conveying elements are mounted on these guides for movement in the conveying direction and for return movement, and each of these elements can be individually advanced at a rate which can be selected for it and in forward or reverse direction, independently of the others.

3,785,478

RECLOSEABLE CARTON

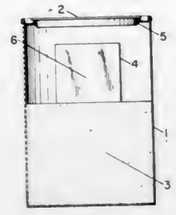
Assa Drori, 138 N. Orange Dr., Los Angeles, Calif.

Filed May 6, 1971, Ser. No. 140,920
Int. Cl. B65d *25/54, 5/00*
U.S. Cl. 206—45.31 **10 Claims**



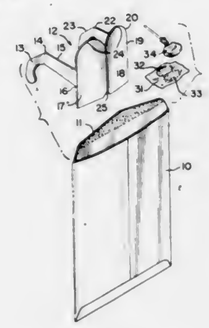
A recloseable carton adapted to retain tape reels and like items, comprises a pocket portion formed at one end thereof and a cover panel hingedly connected to an opposite end of the carton to have its free end tucked within the pocket portion. Side flaps are hingedly connected to side edges of the carton to underlie the closed cover panel to fully protect a packaged tape reel. Aligned cut-outs are provided in the back and cover panels and in the front flaps for viewing the contents.

3,785,479
PLASTER OF PARIS BANDAGES TO MAKE CASTS OF IMPROVED STRENGTH, WATER-RESISTANCE AND PHYSIOLOGICAL PROPERTIES
David F. Smith, 660 Longview Dr., Sarasota, Fla.
Division of Ser. No. 95,365, Dec. 4, 1970, Pat. No. 3,671,280. This application Jan. 21, 1972, Ser. No. 219,888
Int. Cl. B65d *81/32*
U.S. Cl. 206—47 A 5 Claims



Minor additions of polyvinyl pyrrolidone and melamine-formaldehyde resins to plaster of Paris bandages permit making casts of improved strength and water-resistance with good physiological properties.

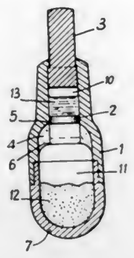
3,785,480
ENTERTAINMENT ACCESSORY PACKAGE
Stephen G. Minasian, Woburn, Mass., assignor to Hallmark Releasing Corp., Boston, Mass.
Filed July 17, 1972, Ser. No. 272,146
Int. Cl. B65d *77/04*
U.S. Cl. 206—47 R 1 Claim



An accessory package for patrons of theatres and the like, containing articles of use during portions of a performance.

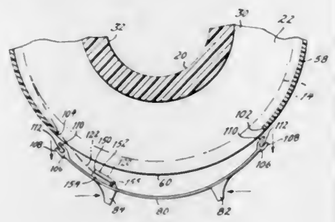
3,785,481
MULTI-CHAMBER CONTAINER
Pierre Allet-Coche, Paris, France, assignor to Jean-Jacques Goupil, Cachan, France
Continuation-in-part of Ser. No. 33,780, Jan. 5, 1970, Pat. No. 3,619,488, which is a continuation-in-part of Ser. No. 703,422, Feb. 6, 1968, abandoned. This application Aug. 12, 1971, Ser. No. 171,178
Claims priority, application France, Aug. 12, 1970, 7029647
Int. Cl. B65d *81/32*
U.S. Cl. 206—47 A 8 Claims

A container having two chambers defined by a partition member, each chamber holding a particular material, and a plunger to move the partition to a position wherein the separator permits the fluid from one chamber to flow to the other chamber and be mixed therein. Means are provided to prevent the partition member from falling into the chamber where the



mixing takes place while still permitting the material to flow from one chamber to the other.

3,785,482
MAGNETIC TAPE REEL SETUP
Larry T. Preston, 4023 Haverford Ave., Philadelphia, Pa.
Continuation-in-part of Ser. No. 792,297, Jan. 21, 1969, Pat. No. 3,601,336. This application Aug. 19, 1971, Ser. No. 173,140
Int. Cl. B65d *85/676*; G11b *23/10*
U.S. Cl. 206—53 5 Claims



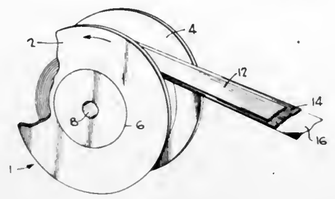
An annular teflon hub has annular grooves in surfaces toward its end in which are annular projections of a plastic reel enclosure which can remain stationary while the hub turns with computer tape on it.

Identificatory material is on the peripheral circular outside of the enclosure near an opening through which the computer tape coms into or out from the interior.

A special flexible cover which can be manipulated by the fingers against two projections and has grooved ends, which fit over the ends of the opening, covers this opening when the reel set-up is not in use, and holds the end of the tape at a point inside it convenient for the user.

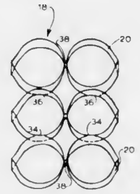
3,785,483
STABLE FIBER PACKAGE COMPRISING OVERLYING WRAPS OF A FIBROUS TAPE
Roy S. Sillay, Cumberland, Md., assignor to Celanese Corporation, New York, N.Y.
Filed June 9, 1972, Ser. No. 261,462
Int. Cl. B65d *85/67*; B32b *3/30*, *5/24*
U.S. Cl. 206—59 A 15 Claims

An improved fiber package is provided wherein a dry fibrous tape is wound upon a rigid support and each overlying wrap is separated from the previous wrap by an interlay. The interlay employed in the formation of the improved fiber package possesses a stiff backing and a resilient contact surface which engages the fibrous tape having a corrugated configuration consisting of a plurality of parallel ridges substantially coextensive with the length of the interlay. The fibrous tape preferably is composed of a carbonaceous fibrous material (e.g. a graphitic carbon fibrous material). The fiber package possesses enchanced stability, and is resistant to telescoping.



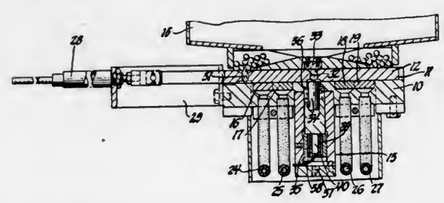
The fibrous tape may be conveniently stored within and unreeled from the package in the absence of fiber damage.

3,785,484
CONTAINER PACKAGE
Ernest R. Cunningham, Libertyville, Ill., assignor to Grip-Pak, Inc., St. Louis, Mo.
Filed Apr. 12, 1972, Ser. No. 243,357
Int. Cl. B65d *71/02*, *63/10*
U.S. Cl. 206—65 C 9 Claims



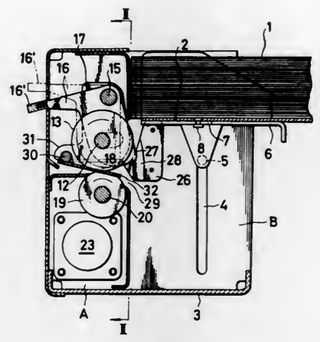
A multi-packaging device for containers is disclosed as having a plurality of flattened bands of stretchable and elastic plastic material which are interconnected to each other so as to provide a succession of material bands when opened for gripping and holding containers together as a group. The method of manufacturing multi-packaging devices from one or more elongated flattened plastic tubular elements is also disclosed.

3,785,485
ASSORTING METHOD AND APPARATUS FOR BEARING BALLS
William Blinder, Huron, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Division of Ser. No. 52,518, July 6, 1970, abandoned. This application Feb. 14, 1972, Ser. No. 226,102
Int. Cl. B07c *3/10*
U.S. Cl. 209—75 6 Claims



An assorting method and apparatus for monitoring production bearing balls for a predetermined minimum hardness in which the bearing balls are subjected to a load which stresses them to the elastic limit of a bearing ball having the predetermined minimum hardness.

3,785,486
INFORMATION CARD RETRIEVAL APPARATUS
Nobuyuki Yanagawa, Kanagawa, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Mar. 8, 1973, Ser. No. 339,437
Claims priority, application Japan, Mar. 31, 1972, 47/31602
Int. Cl. B65h *25/24*
U.S. Cl. 209—80.5 4 Claims

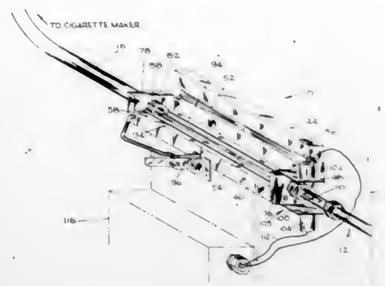


Apparatus for retrieving a selected one from a stack of information cards and for automatically returning the retrieved card to the stack, wherein each of the cards has a code edge with a magnetically permeable portion and a portion bearing code grooves. The apparatus includes means for advancing the stack of cards along a first path, a rotary magnet adjacent the first path for urging successive advancing cards out of the first path and into a second path by attracting the magnetically permeable portions of the cards, and a plurality of pivoted members individually movable to positions for engaging the code edges of the advancing cards in register with the grooves of a selected card, so as to permit only the selected card to be diverted by the magnet into the second path while directing other cards along the first path away from the magnet. A set of reversibly driven rollers advances a diverted card along the second path to a withdrawn position, and returns the card back into the stack of cards in the first path, depending on the direction of drive of the rollers. A member movable into and out of the second path separates a returning card from the magnet as the card moves toward the first path. Fixed guides engage lugs projecting from the cards to cooperate with the magnet, pivoted members, and rollers in guiding each successive card in the appropriate direction.

3,785,487
APPARATUS FOR DETECTING AND CAPTURING DEFECTIVE ARTICLES
Gilbert W. Spencer, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Feb. 14, 1973, Ser. No. 332,473
Int. Cl. B07b *13/04*
U.S. Cl. 209—82 12 Claims

A restriction die for detecting and capturing imperfect filters is carried in a pneumatic tube conveying line. The die has a bore which tapers inwardly from each end to produce a convergent-divergent passage having a restrictive orifice at its midpoint. A series of circumferentially spaced grooves extending radially outward from the bore are formed in the die so that the bottom surfaces of the grooves form an outline of a cylinder which is slightly larger than the entrance and exit diameters of the bore and which is concentric with the bore at

any cross-section through the die. The grooves permit the conveying air to by-pass any blockage which may occur in the

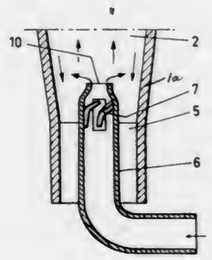


bore. Detector means is provided to indicate when a blockage has occurred.

3,785,488
FLOTATION PROCESS FOR RECOVERING MOLYBDENUM
Michael Francis Werneke, Milford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed Apr. 27, 1972, Ser. No. 248,317
Int. Cl. B03d *1/06*
U.S. Cl. 209—167 **3 Claims**

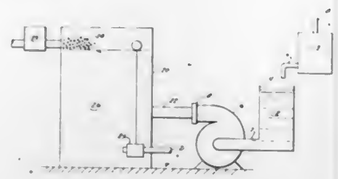
A process for recovering molybdenite from a metallurgical concentrate comprising a major proportion of copper sulfide and other sulfides and a minor portion of molybdenum sulfide is provided, in which the copper and other sulfides are selectively depressed by employing a mixed thiol-alcohol thereby enabling the molybdenite to be recovered by flotation.

3,785,489
CYCLONE SEPARATOR WITH UNDERFLOW DILUTER
Rune Frykhult, Huddinge, Switzerland, assignor to Aktiebolaget Celleco, Tumba, Sweden
Filed July 14, 1971, Ser. No. 162,447
Int. Cl. B04c *5/18*
U.S. Cl. 209—211 **7 Claims**



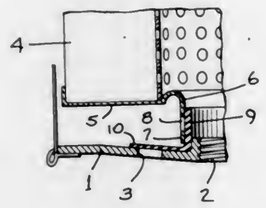
To dilute a heavy fraction separated in a cyclone separator, the latter is provided with a duct for supplying the diluent while maintaining it in rotation around the separator axis, the supply duct having a discharge orifice located at a radial distance from and within a circumferential wall surrounding the separated heavy fraction.

3,785,490
WATER PURIFICATION APPARATUS
Jack E. Ryan, Rockville, Md., and Sylvan Gollin, Claremont, Calif., assignors to Walter Dorwin Teague Associates Incorporated, New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 214,716
Int. Cl. B03d *1/14*
U.S. Cl. 210—109 **4 Claims**



In a froth flotation type of water purification system, a pump is used to deliver influent from a storage reservoir into a froth flotation tank. The pump is subject to intermittent air-binding thereby introducing air into the influent prior to its delivery to the froth flotation tank. The intermittent air-binding of the pump provides for thorough mixing of fine air bubbles with the influent thereby forming an effective froth for removal of suspended solids from the influent.

3,785,491
FILTER ANTI-DRAINBACK AND RELIEF VALVES
Emery Dudinec, Colonia, and John R. Wilhelm, Perth Amboy, both of N.J., assignors to Purolator, Inc., Rahway, N.J.
Filed Oct. 28, 1971, Ser. No. 193,477
Int. Cl. B01d *27/10*
U.S. Cl. 210—130 **3 Claims**

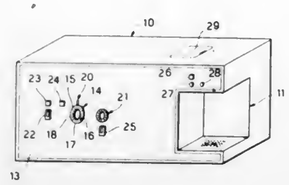


A single molded rubber element provides both the relief valve and the anti-drainback valve in an automotive-type oil filter.

3,785,492
METHOD AND APPARATUS FOR THE PREPARATION OF BEVERAGES
Lamberto Mazza, Pordenone, Italy, assignor to Industrie A. Zanuissi S.p.A., Pordenone, Italy
Filed Mar. 9, 1971, Ser. No. 122,488
Claims priority, application Italy, Mar. 9, 1970, 21657/70; Aug. 29, 1970, 29155/70; Oct. 14, 1970, 30991/70
Int. Cl. B01d *9/00, 3/42*
U.S. Cl. 210—149 **21 Claims**

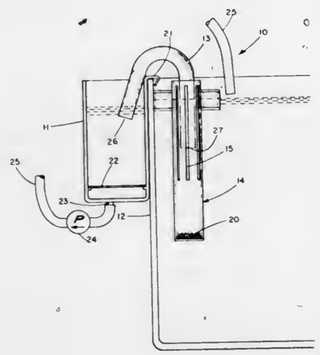
An automatic machine, also for household use, which is adapted to the automatic preparation of imitation mineral waters. The machine essentially comprises a desalting device, a mineralizing unit which introduces in the desalted (also distilled) water a dosage unit of selected mineral salts, a carbonation device for saturating the remineralized water with carbon dioxide and a programming unit for selecting both the quantity and the quality of mineral (or demineralized) water.

A programming timer defines the sequence of the several steps directed to prepare the mineral water according to



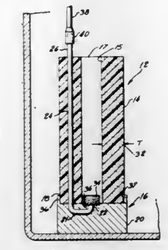
desire. Fractional crystallization of ice is a preferred procedure.

3,785,493
AQUARIUM SIPHON
William R. Harding, 6144 E. St. Joseph St., Indianapolis, Ind.
Filed June 5, 1972, Ser. No. 259,718
Int. Cl. E04h *3/20*
U.S. Cl. 210—169 **9 Claims**



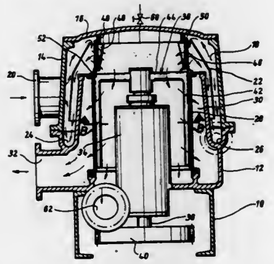
An apparatus for siphoning foreign material from the top surface of the water within an aquarium tank. A liquid receptacle is suspendedly mounted externally to the aquarium tank having filtering means for cleaning the water taken from the top portion of the tank. The receptacle has an outlet connected to a pump which returns the cleaned water to the tank. The water from the top portion of the tank is siphoned into the receptacle by means of an inner tube which extends freely into a floating outer tube having a plurality of slots which extend through the surface of the water within the tank. Foreign material from the top surface of the water within the tank enters the slots and then into the inner tube and eventually into the receptacle. The outer tube includes a pair of floats for insuring that the outer tube remains in a vertical position. The bottom end of the outer tube is sealed and closed for supporting ballast. As the elevation of the top surface of the water within the aquarium tank changes, the elevation of the outer tube will also change with the inner tube remaining stationary.

3,785,494
FILTERING DEVICE
Nicholas Sama, 4940 S. W. 95th Ave., Miami, Fla.
Continuation-in-part of Ser. No. 240,491, April 3, 1972, abandoned, Continuation-in-part of Ser. No. 28,730, April 15, 1970, abandoned, Continuation of Ser. No. 665,817, Sept. 6, 1967, abandoned. This application Mar. 30, 1973, Ser. No. 346,574
Int. Cl. E04h *3/20*
U.S. Cl. 210—169 **9 Claims**



An improved and compact filtering device especially adapted for use in aquariums which includes a tubular chimney of porous material having an internal column or bore which column constitutes a lift tube pumping means for the filter. Means are provided for introducing a stream of air bubbles into the bottom of the chimney column or lift tube to flow therethrough and to cause water to be drawn through the porous walls of the chimney from the aquarium for filtering, the water passing directly from the filtering medium into the lift tube column or pumping means, to exit therefrom through an unobstructed and free unreduced opening at the top of the chimney column or bore. The bottom of the chimney is preferably provided with means to constrain the flow of liquid through the filtering medium; and means connected to the chimney are provided to hold the device in a submerged vertical attitude.

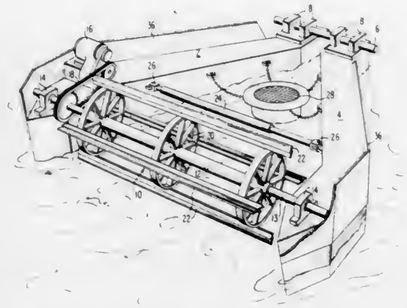
3,785,495
PRESSURE FILTER FOR FIBROUS SUSPENSIONS
Emil Holz, Eningen/Wuertt, Germany, assignor to Hermann Finckh Metalltuch- und Maschinenfabrik, Reutlingen/Wuertt, Germany
Filed Aug. 27, 1971, Ser. No. 175,446
Claims priority, application Germany, Aug. 16, 1971, 2140904
Int. Cl. B01d *33/06*
U.S. Cl. 210—210 **9 Claims**



A multiple stage pressure filter for suspensions of fibrous materials including a housing having a cover and a fixed upright filter basket, a rotor concentric thereto and a rotor drive mounted therein. The rotor is provided with at least one carrier connected to a shaft of the rotor drive, a second filter

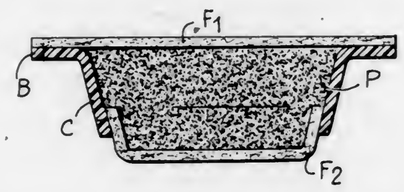
basket provided on the rotor, and at least one fixed scrubbing member associated with the second filter. In one embodiment, the carrier is arranged under the second filter basket while the scrubbing member is secured to the cover.

3,785,496
OIL RECLAIMING DEVICE FOR REMOVING OIL FROM THE SURFACE OF WATER
Raymond Peter Smith, Jr., South Williamsport, Pa., assignor to Craftmaster, Inc., Williamsport, Pa.
Filed July 28, 1972, Ser. No. 276,000
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **5 Claims**



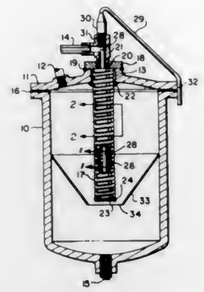
An apparatus for removing oil slicks from the surface of the water which includes two independently pivotable booms connected together to form a V. A paddle wheel is connected to the two booms across the open end of the V for skimming the oil off the surface of the water and forcing the oil towards the apex of the V. A sump is located at the apex of the V for collecting the oil forced to the apex of the V by the paddle wheel. A flexible stabilizer bar is connected between the two booms for stabilizing the booms and limiting the maximum amount that the booms may pivot with respect to each other.

3,785,497
FILTERING ELEMENT
Louis Giffard, 11, rue Houvenagle, Saint-Brieuc, France
Filed Jan. 12, 1972, Ser. No. 217,368
Claims priority, application France, Oct. 26, 1971, 7138401
Int. Cl. B01d *27/08*
U.S. Cl. 210—282 **11 Claims**



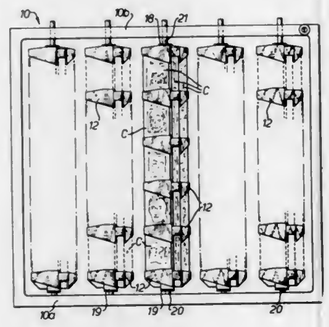
The invention relates to a filter or filtering element used alone or in juxtaposition with other elements of the same kind, for the purpose of purifying a fluid, which element constitutes an enclosure acting as a container for the pulverulent product and comprises a substantially rigid surrounding member optionally rigidly connected to a cover and base through which the fluid to be treated may pass, and is characterised in that at least one of the walls of said enclosure is made of a vinyl material which contracts under heat so as to enable the volume of the enclosure to be reduced after it has been completely filled with pulverulent product.

3,785,498
HELICAL COIL FILTER APPARATUS
John J. Fernandez, Sr., 144 Encinitaz, Monrovia, Calif.
Filed Jan. 19, 1971, Ser. No. 107,628
Int. Cl. B01d *33/00*
U.S. Cl. 210—351 **4 Claims**



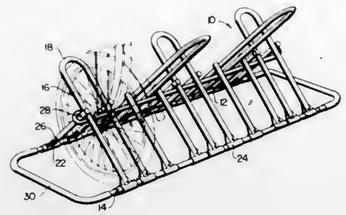
This invention relates to fluid filtering devices and more particularly to the improvement in multiple nested helical coil filters that are used to separate solid particles from fluids and gases, fluids from gases, and fluids from fluids; comprising a leeward coil of substantially smaller diameter than the adjacent main filter coil.

3,785,499
DISPLAY UNITS
Rodney Banfield Gedye, 100, Effra Parade, London, England
Filed Nov. 8, 1971, Ser. No. 196,667
Claims priority, application Great Britain, Nov. 11, 1970, 53,598/70
Int. Cl. E05b *73/00*
U.S. Cl. 211—4 **5 Claims**



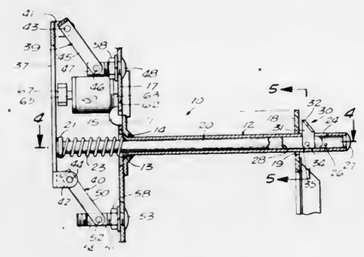
A display unit for tape cassettes, books and similar articles comprises a frame supporting at least one stack of article holders in the form of tray-like elements adapted to fit over opposite ends of the articles and movable between article-retaining and article release positions, and key-operated means on the frame for locking all holders in a stack in the article-retaining position.

3,785,500
BICYCLE RACK
Cleve F. Kennelly, 500 N. 87th Way, Scottsdale, Ariz.
Filed Apr. 27, 1972, Ser. No. 248,130
Int. Cl. B62h *5/00*
U.S. Cl. 211—5 **6 Claims**



A bicycle and the like rack including, when erected, a plurality of arcuate slots for holding bicycles in an upright side-by-side relationship with a wheel thereof engaged in the slots. The rack is foldable to a collapsed, flat condition for storage or transporting and means are provided for locking bicycles in the rack.

3,785,501
PILFER-PROOF MERCHANDISE CARD HOLDING DEVICE
Glenn R. Canning, 8318 Elmont St., Pico Rivera, Calif.
Filed Mar. 31, 1972, Ser. No. 240,131
Int. Cl. A47f *7/024*
U.S. Cl. 211—7 **4 Claims**

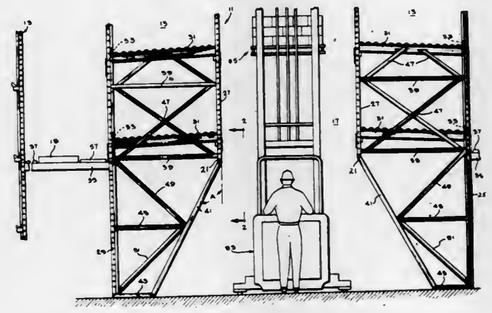


A pilfer-proof merchandise card holding device is disclosed which supports the cards by an opening formed thereon for that purpose. The device provides for preventing the removal of the cards until the merchandise is sold.

In one embodiment of the device an elongated tubular hanger for the cards is provided with a retaining post on the outer end thereof. A spring loaded actuating rod extending from the rear of the hanger maintains the retaining post in a vertical position to prevent the removal of the cards. When the actuating rod is depressed the post is adapted to be pivoted to a position aligned with the hanger to enable the removal of the cards. The device is provided with a locking mechanism which prevents the actuating rod from being depressed until unlocked by a sales clerk.

In another embodiment of the device a plurality of spaced vertical posts extend upwardly through a slot provided along the upper wall of the tubular hanger. A card is supported between each of the posts. The posts rest on a shelf within the hanger and are attached to a chain. When the actuating rod is depressed, the chain is adapted to be advanced causing the posts to be moved along the slot toward the front end of the hanger so that the forwardmost post is carried by the chain down into the hanger. The card that was being retained by that post can thus be removed from the hanger. The actuating rod is arranged to be depressed by the action of a lever which operates as a result of the insertion of a coin in a coin machine.

3,785,502
STORAGE RACKS
Anthony N. Konstant, Mt. Prospect, Ill., assignor to Speedrack Inc., Skokie, Ill.
Continuation-in-part of Ser. No. 67,124, Aug. 26, 1970, Pat. No. 3,659,723. This application May 1, 1972, Ser. No. 249,010. The portion of the term of this patent subsequent to May 2, 1989, has been disclaimed.
Int. Cl. A47f *5/00*
U.S. Cl. 211—134 **12 Claims**

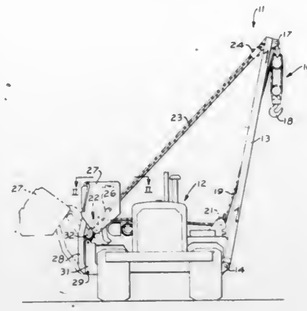


Storage racks including fore-and-aft aligned upright trusses extending upward from the floor and having vertical columns interconnected by spacers extending therebetween. A rear column extends to the floor, and a bottom member located adjacent the floor extends forward from the lower end thereof A front upright terminates short of the floor and is structurally interconnected with a depending strut which is disposed rearward thereof. Parallel vertical columns spaced laterally of the truss define a storage bay therebetween. The recessing at the front of the truss provides maneuvering room for lift trucks and thereby reduces the width requirements for service aisles.

3,785,503
BOOM CONTROL MECHANISM FOR TRACTORS OR THE LIKE
Max E. Butterfield, Peoria; Willis E. Windish, Pekin, and Morton M. Coker, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed May 30, 1972, Ser. No. 258,047
Int. Cl. B66c *23/54*
U.S. Cl. 212—8 B **5 Claims**

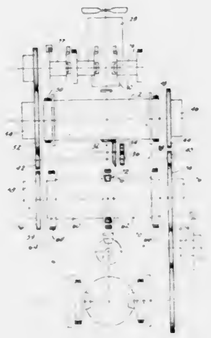
A pair of winch drums mounted on a shaft receive the load cable and boom cable of a tractor side boom for pipe laying operations and the like. Simplified, rapid and versatile control of the two winch drums is effected by coupling the shaft to the power takeoff of the tractor through a power shift drive transmission providing a plurality of drive ratios including at least one reverse drive and by transmitting drive from the shaft to each drum through planetary gearing means having fluid pressure operated drive establishing devices for causing drive to be transmitted from the shaft to one or both drums as necessary including counter rotation of one drum relative to the other to enable power driven lowering movement as well as raising motion. Normally applied brake means at each drum are released by the fluid pressure signals which actuate the drive establish-

ing devices of the planetary gearing thereby providing fail safety. The system requires fewer control levers then prior



mechanism for a similar purpose and responds more rapidly to control lever manipulations.

3,785,504
CABLE AND CARRIAGE DRIVE FOR GRAPPLE YARDER
Lyle O. Cheldelin, Bellingham, and Curth Myhre, Sedro Woolley, both of Wash., assignors to Skagit Corporation, Sedro Woolley, Wash.
Filed Feb. 23, 1972, Ser. No. 228,679
Int. Cl. B66c *21/00*
U.S. Cl. 212—84 **6 Claims**



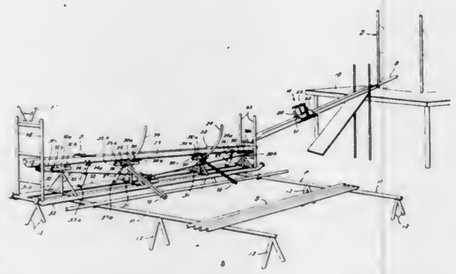
A grapple yarder is described having an engine-driven cable-reeling structure including a plurality of drums with gear drives and clutches for engaging the drive mechanism with the respective drums. The drum system includes an outhaul drum which carries the outhaul cable normally used as a running skyline whereby it both supports the grapple carriage and pulls it outwardly from the yarder; and a pair of main line drums for reeling a two-part inhaul line to move the carriage inwardly with associated drive gear, clutches and brakes such that each drum may be operated or stopped independently and a differential mechanism positioned between the main drums effective to drive them simultaneously but in opposite directions, as may be required to operate a load line or tag line attached to one part of the inhaul line.

3,785,505
SIDE STOWABLE JIB FOR CRANE BOOMS AND JIB MOUNTING
Joseph H. Keller, Jr., Hagerstown, Md., assignor to Walter Kidde & Company, Inc., Clifton, N.J.
Filed Dec. 15, 1970, Ser. No. 98,393
Int. Cl. B66c *23/66, 23/68*
U.S. Cl. 212—144 **17 Claims**



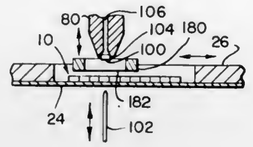
An extension jib for telescoping crane booms is stowed in a non-use position along one side of the boom when the boom is retracted. The stowed jib is held in forward and rear bracket structures on the boom base section. The forward bracket embodies a pivot for the stowed jib and the rear bracket embodies a multi-position latch. The base of the jib which faces forwardly in the stowed position is adapted to be pivoted to the nose assembly on the boom fly section but is normally spaced from the nose assembly. Pivoting of the stowed jib on the forward bracket structure while the latch on the rear bracket structure is in a safety position moves the base of the jib toward the nose assembly so that a pivotal connection with the nose assembly can be established. Subsequently, the pivotal connection between the jib and forward bracket structure is eliminated and the latch on the rear bracket structure is moved to a release position and the jib is swung 180 degrees on its pivotal connection with the nose assembly and is then locked thereto in a forwardly extending use position. The entire manipulation of the jib is accomplished by one man with safety and without the need for tools.

3,785,506
DRILL PIPE HANDLING APPARATUS
Roger A. Crocker, and Jim F. Schoolcraft, both of Wickett, Tex., assignors to Roger A. Crocker, Wickett, Tex.
Filed Sept. 10, 1971, Ser. No. 179,502
Int. Cl. E21b *19/00*
U.S. Cl. 214—1 P **9 Claims**



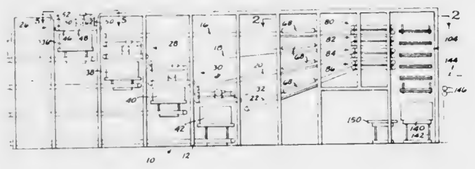
Drill pipe handling apparatus for taking pipe from a well derrick floor to a pipe rack, wherein the pipe is transferred to a lower pivotable pipe support disposed in proximity to the pipe rack, and the pipe is then gradually lowered from said pipe support onto the pipe rack by a pivoting of the pipe support, and with the pipe supported during its lowering on a pair of pipe support arms extending laterally relative to the pipe support and pivoting in response to the weight of the pipe thereon.

3,785,507
DIE SORTING SYSTEM
Mordechai Wiesler, Lexington; Virgil Martinonis, Gloucester, and John S. MacIntyre, Lynnfield, all of Mass., assignors to Teledyne, Inc., Hawthorne, Calif.
Continuation of Ser. No. 92,572, Nov. 25, 1970, abandoned, which is a continuation-in-part of Ser. No. 785,209, Dec. 19, 1968, Pat. No. 3,583,561. This application Aug. 16, 1972, Ser. No. 281,107
Int. Cl. B65b *69/00*
U.S. Cl. 214—1 BH **10 Claims**



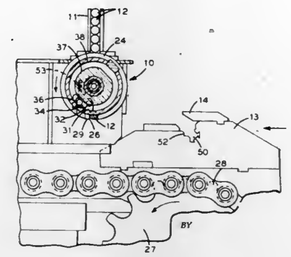
A wafer of semiconductor devices is tested to determine the quality of each device. The test data with respect to each die is electro-optically encoded and photographically recorded in a pattern corresponding to the die pattern on the wafer. Upon completion of the testing and recording operations the wafer is scored, mounted on a flexible pressure sensitive adhesive web and broken so as to separate the dies from one another while maintaining their original orientation. The dice and their respective test record are then mounted on a common frame, side by side, so that each die and its test data are readily matched. The frame is then mounted on a die sorting mechanism comprised of an XY indexing table which indexes the wafer die by die through a removal station and the film indexed through an electro optical reader where the test data is read out to designate the die to a selected delivery station.

3,785,508
APPARATUS FOR LAYING UP PLYWOOD PANELS
Roy E. Hayden, Grants Pass, Oreg., assignor to SWF Plywood Company, Albany, Oreg.
Filed Oct. 27, 1972, Ser. No. 301,342
Int. Cl. B65g *57/06*
U.S. Cl. 214—6 M **11 Claims**



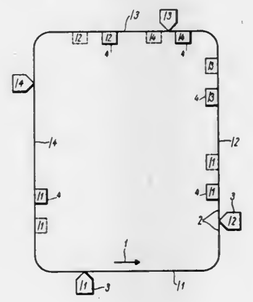
Plywood lay-up apparatus including a plurality of vertically spaced veneer sheet conveyors having an adjacent set of discharge ends, and a lay-up table below the discharge ends of the conveyors. Lowering apparatus positioned over the lay-up table and adjacent the discharge ends of the conveyors is adapted to receive veneer sheets from the conveyors, with the sheets held one above the other in the relative positions they are to have in a formed panel, and to lower the sheets onto the lay-up table. Sheet chargers are provided at the discharge ends of the conveyors for controlling the discharge of sheets onto the lowering apparatus. A core sheet supply is operable to intersperse glue-coated core sheets between selected pairs of veneer sheets as they are lowered to the table.

3,785,509
TRANSFER DEVICE
Vincent J. Girardi, Grosse Point Wood, Mich., assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Aug. 17, 1971, Ser. No. 172,382
Int. Cl. B65g *59/06*
U.S. Cl. 214—8.5 H **3 Claims**



A transfer device for use in taking fixtures or workpieces from a hopper and placing them in a transverse position for receptive engagement by a holding device moving along a longitudinal path through a broaching machine.

3,785,510
METHOD FOR THE DESTINATION CONTROL OF OBJECTS FED INTO A DISTRIBUTING CONVEYING SYSTEM AND DISTRIBUTING CONVEYING SYSTEM FOR PERFORMING SUCH METHOD
Wilhelm Grooteboer, Sinzig, Germany, assignor to Alex Linder GmbH, Nuertingen, Germany
Filed Mar. 13, 1972, Ser. No. 234,005
Claims priority, application Germany, Mar. 12, 1971, P 21 11 934.6; Switzerland, Jan. 28, 1972, 1247/72
Int. Cl. B65g *43/00*
U.S. Cl. 214—11 C **30 Claims**

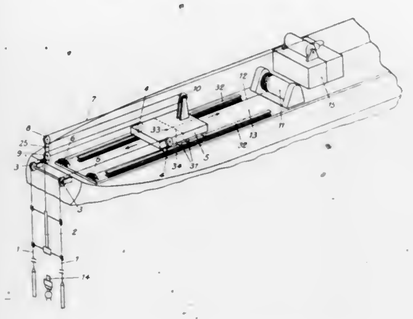


A method and apparatus for transporting items along conveyor sections to desired destination stations positioned along the conveyor sections. The system utilizes stored data for each item representing the item track section, item destination and item track section ranking.

3,785,511
ANTI-POUNDING DEVICE MOUNTED ON A BOAT FOR MAINTAINING A CABLE AT A GIVEN LEVEL ABOVE AN UNDERWATER BED

Philippe J. F. Bonnamy, Boulogne-Billancourt, and Jean A. Mugneret, Carrieres-s-Seine, both of France, assignors to Compagnie Francaise Des Petroles, Paris, France

Filed Mar. 2, 1972, Ser. No. 231,237
Claims priority, application France, Mar. 2, 1971, 7107145; Feb. 17, 1972, 7205381
Int. Cl. B65g 67/58
U.S. Cl. 214—14 22 Claims

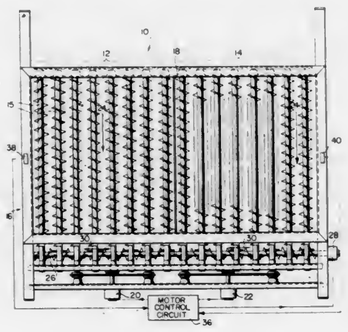


An anti-pounding device is provided to prevent the relative movement generated by waves to be transmitted to a tool. A system of pulleys is arranged on a carriage that is fixed to a guide path. A power winch is connected through a pulley to the carriage and accordingly, to a suspended tool to eliminate the relative movement of the boat. The arrangement of pulleys with a movable support can be connected to a tower or crane in a similar fashion with a compensation bar.

3,785,512
APPARATUS AND METHOD FOR FEEDING MATERIAL FROM STORAGE BINS AND THE LIKE

William L. Gatz, and Kenneth A. Rennicke, both of Paragould, Ark., assignors to Royal Industries, Pasadena, Calif.

Filed June 19, 1972, Ser. No. 264,253
Int. Cl. B65g 65/30
U.S. Cl. 214—17 D 17 Claims

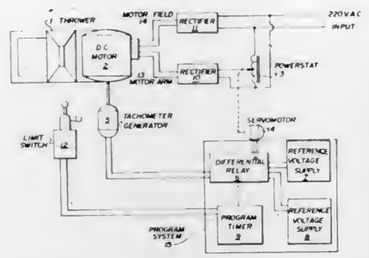


Aggregate material, such as wood chips, is metered from the bottom of a storage bin by means of two bands of screw conveyors which are operated alternately in order to overcome the effects of bridging of the aggregate stored in the bin.

3,785,513
AUTOMATIC SPEED CONTROL AND PROGRAMMING SYSTEM FOR HIGH-SPEED BELT CONVEYOR TYPE THROWERS

Frank Kitzinger, Montreal, and Peter Tarassoff, Ormeaux, Quebec, both of Canada, assignors to Noranda Mines Limited, Montreal, Quebec, Canada

Filed June 9, 1971, Ser. No. 151,198
Claims priority, application Canada, Mar. 5, 1971, 106971
Int. Cl. F27b 3/18
U.S. Cl. 214—18.22 17 Claims

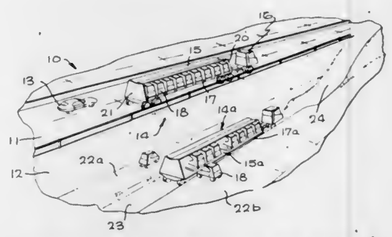


An apparatus for the controlled feeding of charge material into a metallurgical reactor or vessel is constructed and designed to distribute charge material over the surface of a molten bath in the vessel in a substantially uniform layer and in a manner to obtain high rates of efficiency in smelting and converting. An endless belt thrower is provided which is constructed and dimensioned to convey the material and feed it into the vessel in a predetermined manner. A variable speed motor is adapted to drive the thrower and a control system is adapted to regulate the voltage of the motor and the speed at which the motor drives the thrower. A program system is adapted to regulate the control system according to a predetermined program.

3,785,514
VEHICULAR TRANSPORTATION SYSTEM AND APPARATUS

John P. Forsyth, and Robert W. Forsyth, both of 1517 N. 3rd Ave., Upland, Calif.

Filed Mar. 16, 1971, Ser. No. 124,808
Int. Cl. B65g 67/02
U.S. Cl. 214—38 R 2 Claims



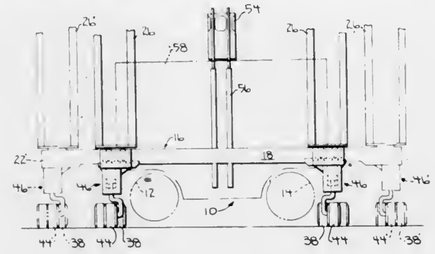
The vehicular transportation system and apparatus disclosed herein includes a main traffic course or artery extending between populated areas and communities, self-propelled transporter vehicles for operation thereon and a systematized means for their processing therealong, local surface street networks, and individual, self-propelled satellite passenger vehicles or cars for use therearound. Each transporter vehicle is adapted to carry a plurality of the satellite cars in controlled groups. The loaded transporter vehicles selectively enter and exit the main traffic artery by interchange means provided at

predetermined locations along its length. Means are selectively operable to serve as guide means for loading and unloading the plurality of satellite cars with respect to a transporter vehicle. Any one of the satellite cars can enter or leave a controlled group, a transporter vehicle can exit the main traffic artery and the satellite car, utilizing its means of self-propulsion, may return to surface streets and operate thereon independently.

3,785,515
TRANSVERSE-TRAVELING LOAD HANDLING VEHICLE

Walter M. Shaffer, Peoria, Ill., assignor to Towmotor Corporation, Cleveland, Ohio

Filed Jan. 14, 1972, Ser. No. 217,897
Int. Cl. B60p 1/54
U.S. Cl. 214—75 G 2 Claims

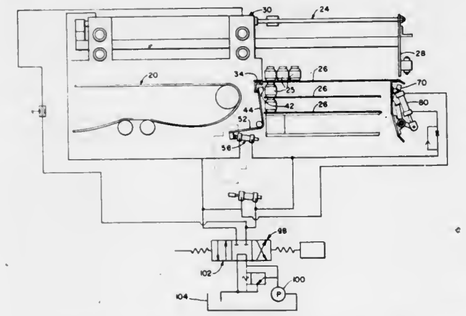


An apparatus and method in the form of a transverse-traveling load handling vehicle having transport wheels adapted to move the vehicle in a forward and reverse longitudinal direction and auxiliary sets of extendible-retractable supporting wheels mounted at right angles relative to the transport wheels for raising the vehicle and its transport wheels to a position elevationally spaced from the surface supporting the vehicle to permit the vehicle to travel transversely of its forward-reverse direction and thus require only a minimum-width aisle between the stacks of material in a storage area being serviced by the vehicle.

3,785,516
GLASS JAR HANDLING SYSTEM

Lloyd A. Nelson, Fremont, Mich., assignor to Gerber Products Company, Fremont, Mich.

Division of Ser. No. 173,887, Aug. 23, 1971, Pat. No. 3,724,686
Filed Nov. 13, 1972, Ser. No. 306,269
Int. Cl. B65g 59/02
U.S. Cl. 214—152 3 Claims

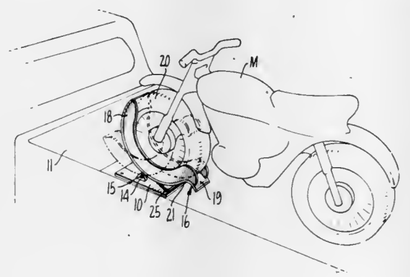


A system for use in depalletizing glass jars disposed in groups in a vertical stack wherein the groups of jars are successively moved laterally off the top of the stack and onto a lateral conveyor. The jars are supported on flat panels and a sensor is provided to sense the uppermost panel and to control the elevation of the stack, whereby the elevation will stop when the upper group of jars is aligned with the conveyor. Means is provided to push the jars away from alignment with the sensor so that it will engage the uppermost jar-supporting panel rather than the jars themselves. Means is also provided to push the upper panel laterally to assure that it will be in position to engage the sensor.

3,785,517
MOTORCYCLE CARRIER AND CHOCK

William D. Brajkovich, 4150 Del Curto Dr., Reno, Nev.

Filed Sept. 30, 1971, Ser. No. 185,296
Int. Cl. B60r 9/10
U.S. Cl. 214—450 2 Claims



A sturdy light weight means for holding a motorcycle in upright rigid position during transportation in a truck, trailer, and the like which includes a base plate secured in the truck or trailer upon which a curved channel is pivotly mounted. The channel suitably receives the size and shape of the front wheel of a motorcycle and extends in supporting contact for not less than 180°. At the entry end of this channel there is a reverse curved channel integral and continuous therewith. This channel structure is pivotly mounted offset from its mid point, on the base for pivoting in a vertical plane. When the front wheel of the motorcycle is pushed into the entry channel and rides over the hump, the weight of the motorcycle wheel in the channel causes the channel to swing about the offset pivot and rock forward to securely hold the motorcycle wheel, with contact over 180°. The reverse curve of the entry end of the channel bears against the main frame of the motorcycle and prevents any lateral movement while the front wheel is so engaged. There is a pivoted chock plate mounted underneath the channel rearwardly of the pivot for the channel, which does not come into engagement with the transverse ridges of the base plate unless and until the motorcycle wheel is in its holding position within the channel. The chock plate is moved in an upward arc to disengage the same and permit the removal of the motorcycle from its holder.

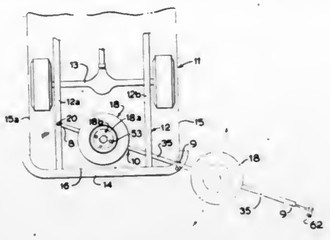
3,785,518
SPARE TIRE CARRIER

Bernard Lee Johnson, 709 Locust Ave., Coeur d'Alene, Idaho

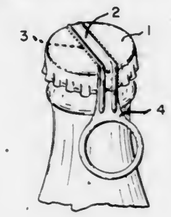
Filed Mar. 10, 1972, Ser. No. 233,615
Int. Cl. B62d 43/00
U.S. Cl. 214—454 5 Claims

A spare tire carrier for use in removably mounting the spare tire of a wheeled vehicle to the vehicle's undercarriage at a location behind the rear axle. The carrier includes a pivotable

support means and telescoping members which allow easy removal of the tire from the storage position to a variety of extended delivery positions adjacent the vehicle outer periphery rearward of the rear axle.

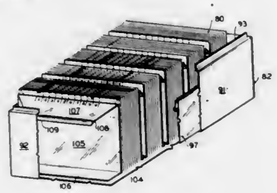


3,785,519
BOTTLE CAPS
Nam Huh, 527½ 6th St., Braddock, Pa.
Filed Apr. 6, 1972, Ser. No. 241,746
Int. Cl. B65d *41/42*
U.S. Cl. 215—46 A **3 Claims**



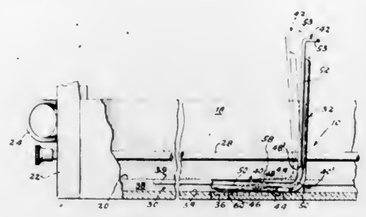
A bottle cap having an integral appendage which is pulled by hand to detach the bottle cap from the bottle.

3,785,520
FILING SYSTEM AND ELEMENTS THEREOF
Arthur T. Spees, Los Angeles, Calif., assignor to Visu-Flex Company, Los Angeles, Calif.
Continuation-in-part of Ser. No. 612,202, Jan. 27, 1967, abandoned, which is a continuation-in-part of Ser. No. 328,798, Dec. 9, 1963, Pat. No. 3,301,263. This application Dec. 8, 1969, Ser. No. 883,113
Int. Cl. B42f *17/08*
U.S. Cl. 220—22.1 **4 Claims**



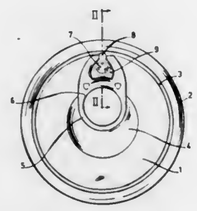
Filing cards provided with protuberances across a face designed to be disposed midway intermediate those of adjacent cards thereby spacing the cards in a file container permitting groups of cards to be manually flexed to give access to individual cards. A filing card container with card alignment members at each side, a removable compressible element at one end of the container, and compressible spacers located at intervals throughout a body of file cards, envelopes or other material, together with visual indexing indicia on the element and spacers for use in visual indexing of cards or microfiche.

3,785,521
FOLLOWER ASSEMBLY
Carl H. Little, Jamestown, N.Y., assignor to Weber-Knapp Company, Jamestown, N.Y.
Filed May 8, 1972, Ser. No. 251,471
Int. Cl. B65d
U.S. Cl. 220—22.3 **4 Claims**



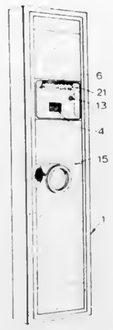
A follower assembly for use in combination with a card retaining tray including a channel portion extending longitudinally of a tray bottom wall and a follower portion. The follower portion features integrally formed guide and back-up plates; the guide plate being slideably supported within the channel portion and being punched out to define a downwardly and rearwardly extending tab normally retained in locking engagement with recesses formed in a bottom wall of the channel portion by a guide plate affixed leaf spring. The leaf spring has a cam surface adjacent its forward end, which is dimensioned for receipt within the recesses and spaced from the tab a distance corresponding to a multiple of the distance between adjacent recesses.

3,785,522
LID FOR EASY OPENING CANS
Gerard Prayer, and Jean-Marie Ferrat, both of La Fleche, France, assignors to Cebal GP, Paris, France
Filed Dec. 30, 1970, Ser. No. 102,761
Claims priority, application France, Jan. 8, 1970, 7000589
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **8 Claims**



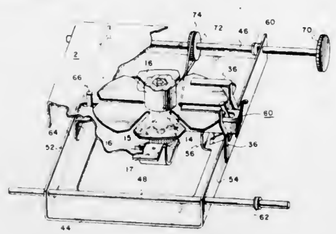
A lid for use in an easy open can including a lid panel provided with a weakened portion defining a tear line, a tab fixed to the lid panel near the tear line having an end portion adapted to cut into the lid panel and a concave rib formed in the lid panel adjacent to the tab to permit deformation of the lid panel when the tab is lifted during the opening of the can to prevent the tab from breaking off the lid panel.

3,785,523
DISPENSER FOR C-FOLDED PAPER TOWELS WITH HOT AIR DRYER
Arthur Goldstein, 375 Milton Rd., Cambridge, England
Filed Oct. 30, 1972, Ser. No. 301,880
Int. Cl. B65h *3/26*
U.S. Cl. 221—42 **3 Claims**



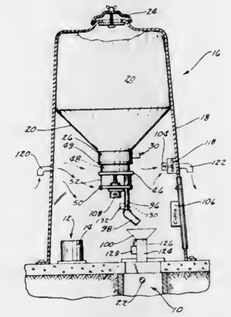
A hand drying appliance has a cabinet containing an air heating unit and a dispensing unit for individual paper towels. The cabinet has an air outlet communicating with the air heating unit so that heated air can pass to the outside of the cabinet. A magazine or holder is arranged inside the cabinet to contain a substantially vertical stack of C-folded paper towels. The cabinet also has a towel outlet through which the lowermost towel in the stack can be dispensed laterally of the stack. A dispensing member is arranged inside the cabinet beneath the magazine or holder. It engages the lowermost towel in the stack and moves it laterally through the towel outlet slot.

3,785,524
CAROUSEL ALIGNING APPARATUS
John D. Smith, Medford, N.J., assignor to Wellman Industries, Longview, Tex.
Filed May 1, 1972, Ser. No. 249,313
Int. Cl. B65g *59/00*
U.S. Cl. 221—122 **9 Claims**



Disclosed is vending apparatus which includes a rotatable carousel for holding objects to be dispensed therefrom when the carousel is in any one of a plurality of different vending positions. The apparatus further includes a substantially circular index plate having a plurality of spaced slots each corresponding to a different vending position and each extending from near the center of the plate radially outward therefrom. Each slot has a substantially uniform width from near the center of the plate to a point near the perimeter thereof from which point the slot gradually widens to define a wedge-shaped introduction to the slot. The index plate is coupled to the carousel so that as the carousel is rotated the index plate is also rotated. The apparatus further includes a dispensing mechanism manually operable to dispense an object from the carousel. This dispensing mechanism includes an arm disposed near the perimeter of the index plate and extending in a direction substantially perpendicular to the plane defined by the index plate. As the dispensing mechanism is operated, the arm is caused to move toward the center of the index plate and to either engage the perimeter of the plate and prevent the complete operation of the dispensing mechanism (if the carousel is not within a certain angular distance of a vending position) or to engage a side of the introduction to a slot to cause rotation of the index plate and carousel into a vending position and enable complete operation of the dispenser mechanism (if the carousel is within that certain angular distance of a vending position).

3,785,525
CHEMICAL TABLET DISPENSING DEVICE FOR WELLS
George A. Handeland, Ringsted, Iowa, assignor to Safe Well Manufacturing Company, Albert City, Iowa
Filed Jan. 31, 1972, Ser. No. 221,920
Int. Cl. B65g *59/06*
U.S. Cl. 221—265 **12 Claims**



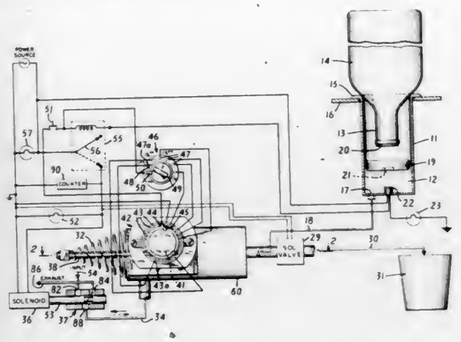
A chemical tablet dispensing device for wells is disclosed herein and generally comprises a housing positioned over the well. A sealed tablet hopper is provided at the upper end of the housing for supplying chemical tablets to a metering device which is detachably mounted on the lower end of the hopper. The metering device includes a rotatable metering plate adapted to supply a chemical tablet to a communicating tube after predetermined periods of pump operation. Means is also provided to cause the metering device to supply the tablets to the well at predetermined times even if the pump is not being used. The communicating tube deposits the chemical tablet into the well to treat the water therein. Electrical control means is provided for controlling the rotation of the metering plate so that the metering plate is rotated at a predetermined rate during actual pump operation. Means is also provided for preventing moist air from the well from damaging the componenets of the device.

3,785,526
DISPENSING APPARATUS
David M. Shinn, Red Bank, N.J., assignor to Autobar Systems Corporation, Red Bank, N.J.
Filed Aug. 7, 1972, Ser. No. 278,471
Int. Cl. B67d *5/30*
U.S. Cl. 222—14 **9 Claims**

An apparatus for dispensing pre-selected amounts of liquid includes a cylinder having at one end an inlet valve coupled to a reservoir and an outlet valve for delivery of the liquid. A piston is normally retained by a spring adjacent the other end of the cylinder. Delivery is effected by supplying a compressed gas, via a solenoid actuated valve, to the space between the other end of the cylinder and the piston to drive the piston towards the outlet valve end. At the same time, the outlet valve is opened to allow discharge of the liquid. Movement of

the piston stops after delivery of the preselected amount, the outlet valve closes, and the spring returns the piston to its normal position, the reverse movement of the piston opening the inlet valve and refilling the cylinder from the reservoir.

A manually settable selector switch and a companion servoswitch actuated by movement of the piston cooperate to meter delivery. The manual selector is set to a position corresponding to the amount desired and the compressed air sole-



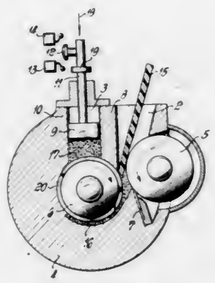
noid valve actuated by closing a switch. As the piston moves forward in the cylinder, a wiper on the servoswitch advances until it reaches a contact corresponding to the position set on the manual selector. At that point, the solenoid valve is de-energized, delivery is stopped and the piston is returned to its initial position. Various circuit features are provided to indicate the state of operation of the device, the cumulative amount of liquid dispensed and an empty reservoir.

3,785,527

APPARATUS TO CONTROL FEED OF MATERIAL TO AN EXTRUDER

Wilhelm Brand, Hannover, Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hannover-Kleefeld, Germany

Filed Apr. 10, 1973, Ser. No. 349,683
Claims priority, application Germany, Apr. 14, 1972, P 22 18 087.6
Int. Cl. G05g *9/100*
U.S. Cl. 222—56 **4 Claims**



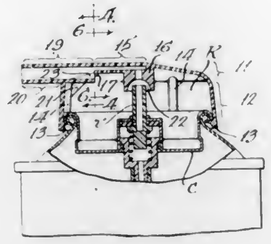
Control apparatus to control feed of material to an extruder, particularly rubber or plastics material, comprising a housing for a feed screw, a hopper formed as a material feed aperture in the housing and divided into two portions by a baffle seated with a tight seal on the feed screw, a first of the two portions receiving material to be extruded and feeding said material into said second portion, which second portion contains a piston to maintain the material in the second portion in compacted form, means feeding material to the first portion being controlled in dependence upon the position of the piston in the second portion.

3,785,528

AEROSOL DISPENSING DEVICE

Stanley T. Mandeltort, Highland Park, Ill., assignor to VCA Corporation, Greenwich, Conn.

Filed Aug. 21, 1972, Ser. No. 282,475
Int. Cl. B65d *83/14*
U.S. Cl. 222—148 **5 Claims**



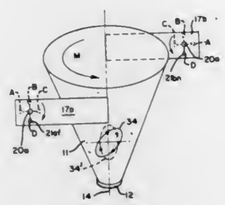
An aerosol dispensing cap unitarily formed from a flexible and elastic material to provide a dome shaped diaphragm, a central hub and discharge outlet tube, the dispensing outlet tube having an integral valve midstream which permits communication between the tube and volume beneath the cap in the unactuated position, the hub being ported to the tube and releasably chambered to engage and open the aerosol valve when depressed, the volume beneath the cap forming a reservoir of negative pressure when the cap is depressed, causing aerosol material in the tube, and valve stem to be drawn into the reservoir.

3,785,529

FLOWABLE MATERIAL STORAGE MEANS

George D. Dumbaugh, Louisville, Ky., assignor to Vibranetics, Inc., Louisville, Ky.

Filed Oct. 29, 1971, Ser. No. 193,675
Int. Cl. B65g *65/68*
U.S. Cl. 222—161 **16 Claims**



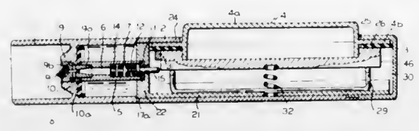
This invention provides improved means for storing a flowable material. Basically, the storage means provided by the present invention comprises container means for containing a flowable material arranged generally vertically and having a bottom opening through which the material can be discharged, in combination with mounting means for supporting the container means for limited movement relative to its generally vertical axis and drive means for independently first twisting the container means about its generally vertical axis and then moving the container means along that axis such that the material is induced to move within the container means and caused to flow through the bottom discharge opening at a generally uniform rate.

3,785,530

COMPRESSED AIR OPERATED DISPENSER WITH AIR COMPRESSION PISTON MEANS MOVABLE LATERALLY OF THE DISPENSER

Pasquale R. Riccio, Salem, N.H., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 240,025, March 31, 1972, abandoned. This application Feb. 12, 1973, Ser. No. 331,877
Int. Cl. B67d *5/54*
U.S. Cl. 222—193 **5 Claims**



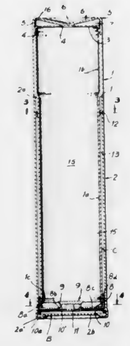
A compressed air actuated dispensing device has a valve assembly having a valve body with a compressed air flow path therethrough and a valve member movable in the valve body and obturating the compressed air flow path. Aspirating means is provided at one end of the compressed air flow path, and a product containing means in the device feeds product through a product flow path to the aspirating means. A hollow elongated compression chamber portion has one end around the other end of the compressed air flow path, and a piston means is movable into and out of the compression chamber portion transversely of the direction of elongation thereof for compressing air therein. Extension means on the valve member is engageable by the piston means when the piston means is at the extreme inward end of its movement for moving the valve member for opening the compressed air flow path only after air in the compression chamber portion has been compressed.

3,785,531

POWDER SPRAY APPLICATOR DEVICE

Jean C. Y. Brenez, 149 Avenue de General-Leclerc, Pessac, France

Filed Mar. 24, 1972, Ser. No. 237,636
Claims priority, application France, Apr. 15, 1971, 7114241
Int. Cl. B05b *7/00*
U.S. Cl. 222—193 **8 Claims**



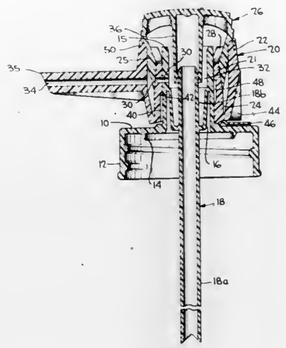
The invention relates to a powder application device having a cylindrical outer casing in which is telescoped a cylindrical inner casing. One end of the outer casing is closed by a transverse wall and the opposed end of the inner casing is also closed by a transverse wall having a central opening controlled by a valve. The other end of the inner casing has a transverse wall having a central opening which is also controlled by a valve.

3,785,532

DISPENSING PUMP

Rex C. Cooprider, Hacienda Heights, Calif., assignor to Diamond International Corporation, New York, N.Y.

Filed Nov. 27, 1972, Ser. No. 309,717
Int. Cl. B65d *37/00*
U.S. Cl. 222—207 **15 Claims**



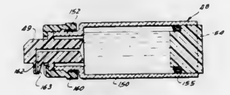
A dispensing pump for application to a container of product to be dispensed comprising an annular housing member formed with a concentric annular recess open at one axial end thereof. A flexible bulbous diaphragm has an annular skirt received in fluid-tight manner in said recess and closing said one axial end of said annular member to define therewith a variable volume pump chamber. Entering the other end of said annular member is a fluid inlet passage. Valve means integrally carried by said diaphragm within the pump chamber function to close said passage in response to axial deformation of the diaphragm. This annular skirt has a free lower edge portion within said recess normally covering a discharge port through said annular member which communicates with the pump chamber and said lower edge portion and said recess are mutually conformed to permit radial outwardly deflection of said edge portion to uncover said discharge port in response to a given fluid pressure within the pump chamber.

3,785,533

COOMBS SERUM CARTRIDGE WITH INDEXING MEANS

Joseph N. Genese, Paterson; Edward J. Rapoza; Charles F. Galanaugh, both of Butler; Harry M. Kennard, Chester; Roger A. Chevalez, Rockaway, and John A. Smith, East Orange, all of N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J.

Division of Ser. No. 32,915, April 29, 1970, Pat. No. 3,605,829. This application July 8, 1971, Ser. No. 160,868
Int. Cl. G07f *11/00*
U.S. Cl. 222—327 **6 Claims**

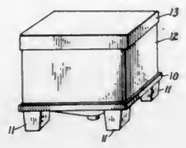


A cartridge containing Coombs serum comprises a tubular barrel which is closed at its forward end by a nozzle and at its rear end by a cylindrical piston positioned within the bore of the barrel. The nozzle includes surfaces indexing the cartridges in a Coombs serum injecting machine. The mechanism includes a plunger for driving the piston into the bore of the barrel to dispense the liquid from the forward nozzle.

3,785,534
DISPENSING SHIPPING CONTAINER WITH FUNNEL-TYPE PALLET

William R. Smith, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed July 14, 1972, Ser. No. 271,720
Int. Cl. B67c *11/00*
U.S. Cl. 222—460 4 Claims

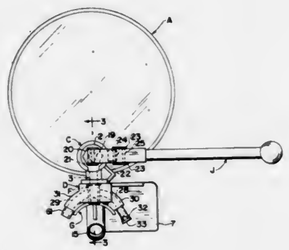


A dispensing shipping container for transporting and dispensing flowable materials in bulk quantities is provided by a base in the form of a pallet having legs and including downwardly and inwardly sloping walls which terminate in a dispensing opening. A container body is positioned on the pallet and includes a plurality of sidewalls which rest upon the pallet and which together with the pallet define the container volume. A suitable cover means is provided to prevent contamination by foreign materials of the material carried by the container. Preferably the pallet is a unitary structure and includes hollow legs which permit a multiplicity of pallets to be stacked in closely spaced relationship and in nested condition. Suitable closure means can be provided to prevent inadvertent dispensing of the material carried by the container.

3,785,535
SELECTIVE OUTLET PUMP FOR FILLING DIFFERENT TYPES OF MASTIC-APPLYING TOOLS

Robert G. Ames, Hillsborough, Calif., assignor to Bliss Laughlin Industries, Incorporated, Oak Brook, Ill.

Filed Sept. 7, 1971, Ser. No. 178,340
Int. Cl. G01f *11/42*
U.S. Cl. 222—331 4 Claims

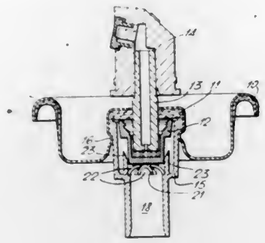


A selective outlet pump for filling different types of mastic-applying tools in which a three-way valve is mounted in the outlet of the pump for directing the mastic to issue from the desired outlet orifice. Different types of mastic-applying tools require different methods for filling the tools with mastic and this in turn requires specially designed outlet nozzles that can be used for this purpose. The three-way valve will deliver mastic to only one outlet at a time.

3,785,536
MEANS FOR SPRAYING LIQUID SUBSTANCES IN ATOMISED FORM

Cecil Robert Montgomery Graham, Lagonda Ave., Killara, New South Wales, Australia

Filed Oct. 21, 1971, Ser. No. 191,254
Int. Cl. B65d *83/14*
U.S. Cl. 222—402.21 5 Claims

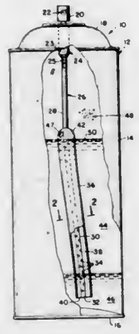


Valve means for an aerosol container in which upstanding resilient members are provided to contact a lateral wall portion of a cupped flange upon actuation of the valve means such that the cupped flange will more rapidly be returned to a position closing the aerosol container against egress of its contents.

3,785,537
DISPENSER FOR IMMISCIBLE LIQUIDS

Vernon L. Appleby, 660 Scofield Ave., and William P. McNutt, 334 Whitman Ct., Palo Alto, both of Calif.

Filed Dec. 3, 1970, Ser. No. 94,926
Int. Cl. B65d *83/00*; B67d *5/60*
U.S. Cl. 222—464 8 Claims

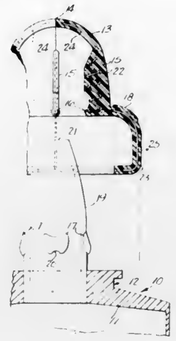


Apparatus for dispensing two immiscible liquids comprising a container having a fluid exit nozzle and a tubular stem for coupling the nozzle with the interior of the container. A lower segment of the stem is perforate and is surrounded by and spaced inwardly from an imperforate sleeve. The lower end of the sleeve is open and its upper end is closed. A valve across the path defined by the upper segment of the stem controls the flow of liquids to the nozzle and means is provided to cause a liquid flow to the nozzle when the valve is opened.

3,785,538
FINGER-ACTUATED SNAP OPEN CAPS FOR BOTTLES, COLLAPSIBLE TUBES AND THE LIKE

Anthony J. Cocozella, 26 Wyman Rd., Braintree, Mass.

Filed June 2, 1972, Ser. No. 258,980
Int. Cl. B65d *47/27*
U.S. Cl. 222—490 4 Claims

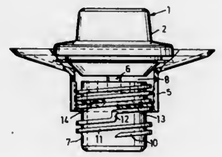


A deformable plastic dispensing cap of the snap-on type wherein a retractable dome covers a dispensing cylinder which is in communication with the interior of the container or tube. The upper portion of the dome is provided with partable lips, which expose the cylinder when parted, for dispensing the contents of the container or tube. To retain the dome lips in the retracted position, the interior of the dome is provided with ribs having projections thereon for engaging bosses provided on the outer periphery of the dispensing cylinder. The base portion of the cap which is integrally formed with the dome portion, snaps over the shoulder portion of the container or tube and is rotatable in the shoulder portion groove. The base portion of the cap is provided with finger gripping projections which enable a user of the cap to grip the projections, exert force downwardly thereon parting the dome lips and exposing the dispensing orifice of the cylinder, rotate the cap assembly until the projections in the ribs engage the bosses and release the base portion, causing the projections to snap into position in detents provided in the bosses. The cap assembly will then be retained in the open position until the base portion is again rotated, releasing the rib projections from the cylinder bosses, permitting the dome lips to snap back into their closed position.

3,785,539
THREAD ARRANGEMENT FOR CLOSURE PLUGS

Stig Johan Emanuel Wetterek, Mullsjo, Sweden, assignor to AB Mullsjo Plast, Mullsjo, Sweden

Filed May 30, 1972, Ser. No. 257,660
Int. Cl. B67d *3/00*
U.S. Cl. 222—552 2 Claims

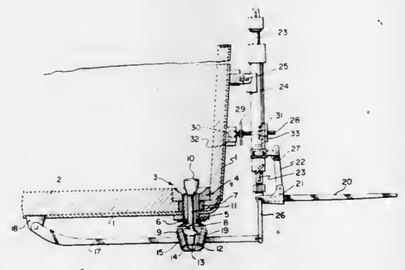


The invention relates to a thread arrangement for screw-on plugs for thermos flasks and other liquid containers, comprising a plug being in thread engagement with a sleeve connected to the neck of the flask or container. The threads of the plug have two leads, and are within a section cut-away around approximately half the circumference. At the beginning of said cut-away portion the end of one thread is connected by means of an intermediate portion with the beginning of the other, overlying thread. The threads of the sleeve comprise two thread portions extending around approximately half the circumference, and being in non-overlapping relationship to form a generally axial groove enabling the plug to be unscrewed to a stop position in which liquid can be poured from the flask, but from which position the plug must be axially displaced before being unscrewed clear of the flask or container.

3,785,540
GOLF TEE TYPE STOPPER FOR MOLTEN METAL DISCHARGING

William C. Donnithorne, and William E. Creswick, both of Sault Saint Marie, Ontario, Canada, assignors to The Algoma Steel Corporation, Limited, Sault Saint Marie, Ontario, Canada

Filed May 26, 1972, Ser. No. 257,446
Claims priority, application Canada, May 24, 1972, 142834
Int. Cl. B22d *37/00*
U.S. Cl. 222—559 25 Claims



A stopper means for use in controlling the flow of molten metal through the teeming aperture of a bottom pouring ladle, said stopper means being movable between a closed and open position when in said aperture, said stopper means comprising a neck of heat resistant material, such as zirconia, dimensioned to extend through the teeming aperture with a gap therebetween, an enlarged head attached to one end of said neck and adapted to close the teeming aperture in the closed position thereof and a dispenser attached to the other end of said neck having channels extending therethrough in a direction generally axially of said neck, said channels generally converging to a point remote from said neck whereby when said stopper means is located in said aperture, said head is located in said ladle and said dispenser is located beneath said ladle.

3,785,541
FOLDABLE JACK AND/OR BAGGAGE CARRIER FOR A SNOW MOBILE

Louis F. Sibley, Ware, Mass., assignor to Gillespie Corp., Ware, Mass., a part interest

Filed June 30, 1972, Ser. No. 267,922
Int. Cl. B60r *9/06*
U.S. Cl. 224—42.08 1 Claim

An attachment for the tail end of a snow mobile comprising a frame slidable relative to the snow mobile between a collapsed non-use position and a partially extended use position

for supporting luggage or baggage, the frame additionally being movable into a fully extended position wherein it may be



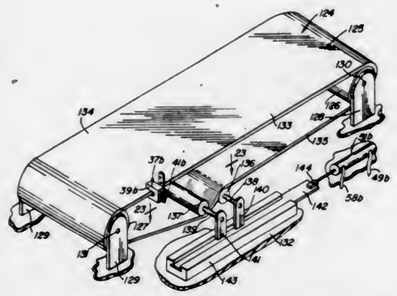
swung downwardly to function as a jack or stand for supporting the tail end of the snow mobile off of the ground.

3,785,542

WEB-GUIDING APPARATUS AND POSITION-SENSING AND CONTROL UNIT THEREFOR

Ferenc Edes, Bolingbrook, and Henry L. Gianatasio, River Forest, both of Ill., assignors to Air-Trol Systems, Inc., Addison, Ill.

Division of Ser. No. 203,594, Jan. 1, 1971.
Filed Feb. 22, 1973, Ser. No. 334,760
Int. Cl. B65h *25/26*
U.S. Cl. 226—22 **3 Claims**



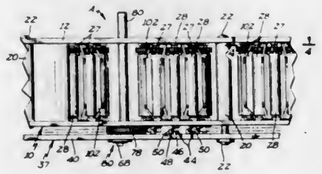
A web-guiding apparatus and position-sensing and control unit therefor for use in sensing and maintaining the proper position and alignment of a web of paper or like flexible sheet material unwound from a roll thereof mounted on a web-supporting roll or cylinder which, in turn, is mounted on a movable supporting frame or carriage for use with web-laminating or sheet-laminating apparatus for laminating a first sheet or web of flexible sheet material, such as paper, plastic resinous film, or the like, to a second sheet or web of the same or comparable flexible sheet material, and for similar purposes, such as sensing and maintaining the proper position of an endless belt conveyor. The supporting frame or carriage is movable transversely of the web of sheet material by hydraulically actuated power means which is under the control of pneumatic pressure-applying means so as to maintain proper alignment of the web and its lateral or side marginal edges during movement of the web during the operation of laminating the first web of flexible sheet material to a second web of flexible sheet material, or when the web is moved for other purposes. The pneumatic pressure-applying means is under the control of air flow control valve means which, in turn, is under the control of pneumatically controlled web-misalignment and position sensing means which senses and is responsive to the normal proper operating position of a marginal or lateral edge portion of the web of flexible sheet material, and to lateral movement thereof during lengthwise movement of the web. The position-sensing means or unit controls the operation of the air flow control valve means for the pneumatic pressure-applying means and actuates the pneumatic pressure-applying means and the hydraulically actuated power means so as to move the movable roll-supporting frame or carriage and the roll of flexible sheet material mounted thereon transversely of the long axis or direction of travel of the web to correct lateral misalignment or movement of the web and thus maintain the web of flexible sheet material in its normal and proper operating position. The position-sensing means or unit maintains the air flow control means in normally closed position and the pneumatic pressure-applying means inactive when the web of flexible sheet material is in its normal and proper operating position.

3,785,543

DRIVING MECHANISM FOR ROLLER TRANSPORTING DEVICES

Conrad E. Lee, Mound, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Feb. 1, 1972, Ser. No. 222,544
Int. Cl. B65h *17/20*
U.S. Cl. 226—188 **4 Claims**



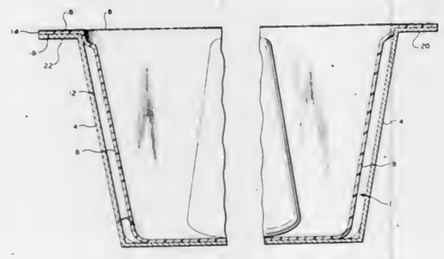
A driving mechanism for roller transporting devices in which spaced pairs of substantially contacting rollers transport material therebetween, said mechanism including a plate actuated for movement in the plane thereof to cause each point of said plate to rotate in a circle of the same diameter and about parallel axes with members on said plate cooperating with cranks on one end of one roller of each pair of rollers to effect rotation of said rollers together with intermeshing spur gears on the rollers at the other ends thereof rotating the other rollers of each pair.

3,785,544

TRAY WITH STRENGTHENING MEMBER

Ernest L. Smith, Kansas City, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 15, 1972, Ser. No. 253,004
Int. Cl. B65d *5/62*
U.S. Cl. 229—14 BE **5 Claims**



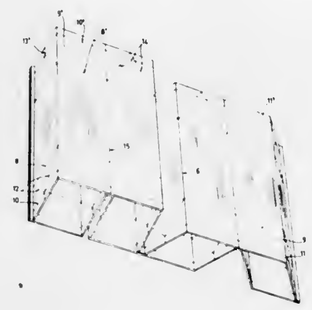
An article of manufacture comprising in combination, a rectangularly shaped tray having sloping sidewalls terminating in a flanged rim, a film closure sealed to the top of the tray rim, and a U-shaped strengthening member having a first flange portion sealed to a lower rim surface on one side of the tray, extending downwardly across the bottom of the tray and upwardly to the lower surface of the rim on a second side of the tray wherein a second flange portion of the U-shaped sheet is sealed thereto.

3,785,545

COLLAPSIBLE MULTI-COMPARTMENT CONTAINER

Jean Roussel, Caluire, France, assignor to SCAL, Societe de Conditionements en Aluminium, Paris, France

Filed Jan. 17, 1972, Ser. No. 218,416
Claims priority, application France, Jan. 18, 1971, 7101528
Int. Cl. B65d
U.S. Cl. 229—51 DB **8 Claims**



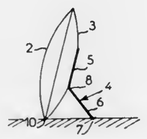
A collapsible multi-compartment container having a plurality of prismatic compartments and adapted to lie flat when empty, formed of a pair of superposed panels joined to each other along their transverse edges and at regular intervals in a direction substantially perpendicular to the longitudina edges, at least one fold line extending across the width of the panels and at least one fold line extending along at least the longitudinal edge of each panel to define continuous strip means adapted to form closure flaps for each compartment.

3,785,546

UPSTANDING FLEXIBLE PACKING AND METHOD OF MANUFACTURING SAME

Rene Kuster, Heimsbrunn, France

Filed July 27, 1971, Ser. No. 166,451
Claims priority, application France, Aug. 5, 1970, 7029609
Int. Cl. B65d *61/00*
U.S. Cl. 229—53 **12 Claims**



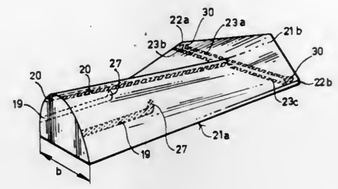
This flexible packing, notably for foods and like products, whether solid or liquid, is adapted to stand upright or substantially upright through the addition of a rigid element acting as a stand and consisting essentially of a pair of hingedly interconnected flaps, one flap being attached to one edge or wall of the packing.

3,785,547

PLASTIC BLOCK BAG WITH A VALVE

Jan Roelof Jochum Hendrik De Vries, Hardenberg, Netherlands, assignor to Industriele Onderneming Wavin N.V., Handellaan, Zwolle, Netherlands

Filed June 18, 1971, Ser. No. 153,474
Claims priority, application Netherlands, June 17, 1970, 7008908
Int. Cl. B65d *31/14*
U.S. Cl. 229—62.5 **4 Claims**



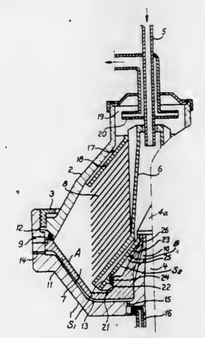
A block bag with a filling valve in which heat seals connect the flap constituting the valve with bottom flap parts such that the shortest distance between the heat seals is equal to or greater than the distance between the side edges formed by the inwardly folded bottom flap parts.

3,785,548

CENTRIFUGE WITH INTERMITTENT SLUDGE DISCHARGE

Klaus Hans Dieter Stroucken, Ronninge, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed July 7, 1972, Ser. No. 269,845
Claims priority, application Sweden, Oct. 4, 1971, 12481/71
Int. Cl. B04b *3/02*
U.S. Cl. 233—20 A **3 Claims**

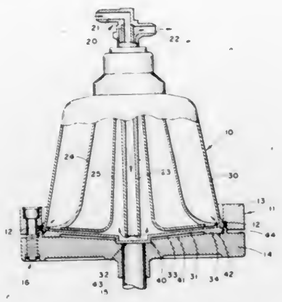


Sludge is discharged intermittently from the centrifugal rotor under control of a hydraulically actuated piston valve movable axially of the rotor. The piston valve has a radially inner area facing the rotor's separating chamber and partly defining a space within the rotor, and means are provided for maintaining this space free of liquid and thereby reducing the hydraulic pressure tending to shift the piston valve to its sludge-discharging position.

3,785,549
CENTRIFUGE CHUCK FOR DISPOSABLE, SNAP-IN CENTRIFUGE ROTOR

Allen Latham, Jr., Jamaica Plain, Mass., assignor to Haemonetics Corporation, Natick, Mass.

Filed July 31, 1972, Ser. No. 276,677
Int. Cl. B04b *9/00*
U.S. Cl. 233—23 R **8 Claims**

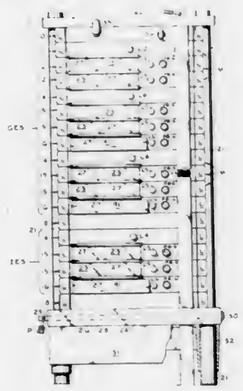


A chuck suitable for holding a disposable centrifuge rotor during centrifuging and requiring only minimum skill to place in position. Once the rotor is snapped into position on the chuck it is held by an elastomeric gripping member. The base of the rotor is designed to effect this holding. In removing the rotor, only a manual tipping action involving a modest horizontal force near the top of the rotor is required. The chuck is simple and inexpensive; and it does not require any great deal of technical skill to operate.

3,785,550
VOTING MACHINE

Roy A. Martin, and Clarence E. Pittman, both of Atlanta, Ga., assignors to Lectra Data, Inc., Atlanta, Ga.

Continuation of Ser. No. 755,688, Aug. 27, 1968, abandoned. This application Nov. 28, 1972, Ser. No. 310,127
Int. Cl. G07c *13/00*
U.S. Cl. 235—50 R **5 Claims**

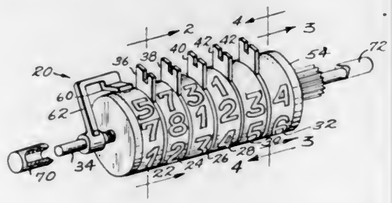


Apparatus for selectively producing electrical pulses representative of a particular selection made by the operator of the apparatus. The apparatus is disclosed in the form of a voting machine built up of modular components which fit together to form any of a plurality of different voting arrangements. The voting machine is substantially tamper-proof and has the following basic components: an input module, a frame assembly, a first control module, a first vote module, a second control module, a second vote module, a terminal module, a write-in module, a slave input module, and a third control module. The modules may be placed together in selected fashion to define a voting machine for voting in any type of political race and which will prevent overvoting. The different modules fit together in such manner that they cannot be separated without a key to unlock the same, thereby reducing the possibility of tampering with the election results. Moreover, each module is constructed in such manner that the module may be checked prior to assembly of the voting machine to insure proper functioning of the module once it is assembled.

3,785,551
TAMPER-PROOF ODOMETER

Thomas Regan, 4534 43rd Place, N.W., Washington, D.C.

Filed Nov. 10, 1972, Ser. No. 305,285
Int. Cl. G01c *22/00*
U.S. Cl. 235—95 **3 Claims**

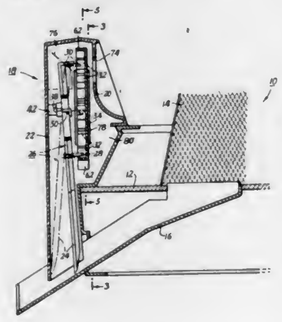


A tamperproof odometer for displaying mileage of an automobile of the type having a plurality of digit wheels driven by gears mounted on gear carrier plates, both gear plates and wheels mounted on a shaft with the plates separating adjacent wheels wherein the shaft is noncircular permitting rotation of the wheels but not the carrier plates, the wheels are prevented from being driven backward to decrement the displayed mileage, both ends of the shaft are terminated in sleeves irremovably fixed to hold the wheels in place and a marker is provided on the largest digit wheel for marking the digits on that wheel as it rotates.

3,785,552
SCORE KEEPER

Calvin L. Payne, Jr., Hastings-on-Hudson, N.Y., assignor to Tudor Metal Products Corporation, Brooklyn, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,956
Int. Cl. A63b *71/06*
U.S. Cl. 235—98 R **1 Claim**

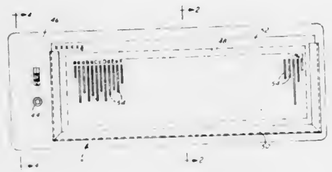


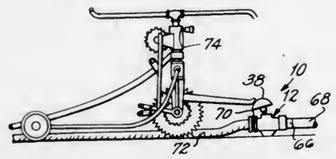
A score keeping device typically used as an accessory to parlor board games of the hockey action type. The device is actuated by a puck as it travels from a simulated cage to cause a spring powered dial to turn one increment indicative of the new score. The dial is uniquely designed whereby a light switch will be automatically operated by the dial each time a score is made to call attention to that fact as is the case in the actual arena.

3,785,553
APPARATUS FOR DETERMINING THE UNIT VALUE OF A LINE OF TYPE CHARACTERS

Willard D. Brown, 324 S. Salem, Aurora, Colo.

Filed June 8, 1973, Ser. No. 368,171
Int. Cl. G06c *27/00*
U.S. Cl. 235—80 **5 Claims**





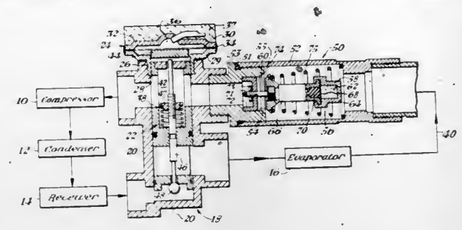
Apparatus useful for determining the proper point size of type to set for a given copy which must fit within a given line length. A perforated endless belt or screen is operatively trained about a pair of end rolls within a boxlike housing. One run of the belt passes beneath an opening in the top or cover plate of the housing, which opening extends for substantially the entire transverse width of the belt. A card having a series of parallel slots is adapted to be received within a card locating means on the cover plate with the slots of the card encompassed within the boundaries of the opening. Each slot extends longitudinally of the adjacent run of the belt and is of a length proportional to the width of a character or letter of type. Different cards are provided for different type styles. With the card in position on the housing, a stylus is inserted through a slot in the card and engaged with the perforated belt or screen. The belt is then manually advanced by the stylus for a distance corresponding to the full length of the slot. By successively inserting the stylus through a plurality of slots to advance the belt corresponding to the letters or characters of the given copy, the belt is moved a total distance representative of a total "unit value" for the copy. This distance of advancement is indicated by a counter operatively coupled to one of the belt end rolls.

The "unit value" thus obtained is then divided into a number representative of the given or required line length to obtain a number called the "set width factor." The "set width factor" thus obtained is then applied to a chart which indicates the particular point size of type required to fill the given line length with the given copy.

3,785,554
TEMPERATURE RESPONSIVE THROTTLING VALVE

Robert H. Proctor, Richmond, Ind., assignor to Jackes-Evans Manufacturing Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 75,713, Sept. 25, 1970, Pat. No. 3,691,783, which is a continuation of Ser. No. 795,828, Feb. 3, 1969. This application Dec. 4, 1970, Ser. No. 95,~~260~~
Int. Cl. F25b *41/04*
U.S. Cl. 236—34 **9 Claims**

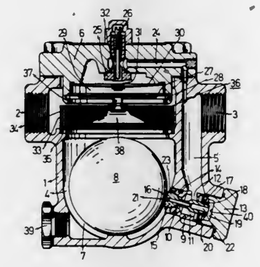


The present disclosure relates to an automotive air conditioner system which is arranged to have a throttle valve including a temperature-responsive power operating means situated in the refrigerant suction line for throttling refrigerant flow from the evaporator when the evaporator temperature drops toward a value low enough to cause ice formation on the evaporator fin surfaces. The throttle valve is preferably but not necessarily located upstream of the actuator means of the thermostatic expansion valve. The power operating temperature responsive means includes a wax filled container and a slidable piston which cooperatively move a valve member toward a valve seat when the temperature of the refrigerant in the suction line decreases to a moisture freezing level. The throttling effect prevents the compressor from pulling down the pressure and temperature within the evaporator to a level where ice or frost could form on the surfaces of the fins of the evaporator.

3,785,555
STEAM TRAP OF THE FREE FLOAT TYPE

Katsuji Fujiwara, No. 191, Nishitani, Hiraoka-cho, Kakogawa-shi, Hyogo, Japan

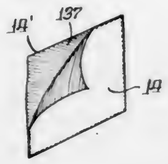
Filed Sept. 6, 1972, Ser. No. 286,817
Int. Cl. F16t *1/20*
U.S. Cl. 236—53 **6 Claims**



In a steam trap a condensate sump is located in the lower part of a chamber formed by the main body of the trap. A free float is located in the chamber and closes off a port between the sump and a discharge passage which is connected at its opposite end to an outlet from the trap. Mounted in the port is a valve seat member which forms a passageway from the port to the discharge passage and a piston valve member is located within the valve seat member for controlling flow to the discharge passage. At its opposite end from the sump, the piston valve member forms with the main body and a valve

seat holder, a pressure chamber connected to the sump through a passageway in the piston valve member. When the float is displaced from the port by the condensate, a flow of the condensate enters the pressure chamber and displaces the piston valve member axially so that the condensate passes through the valve seat member into the discharge passage.

3,785,556
PACKAGING APPARATUS, METHOD AND PRODUCT
Lucius D. Watkins, c/o Horton, Davis, McCaleb & Lucas, Suite 2040, 230 W. Monroe St., Chicago, Ill.
Filed Aug. 5, 1971, Ser. No. 169,439
Int. Cl. A61l *9/04*
U.S. Cl. 239—6 **20 Claims**



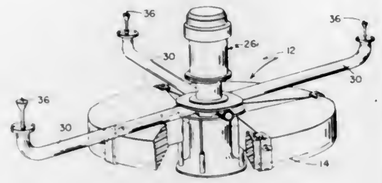
Apparatus and method of packaging liquids wherein an elongated plastic envelope, sealed at one end, is filled with liquid under predetermined static pressure and a selected liquid-filled portion thereof is then heat-sealed and severed from the remainder of the envelope; the liquid being isolated from the heat-sealing and severing zone during such operations to prevent heating the liquid to boiling or gasifying temperatures.

3,785,557
CLOUD SEEDING SYSTEM
William C. Womack, Lafayette, Colo., assignor to Colspan Environmental Systems, Inc., Boulder, Colo.
Filed Dec. 21, 1972, Ser. No. 317,174
Int. Cl. A01g *15/00*
U.S. Cl. 239—14 **11 Claims**



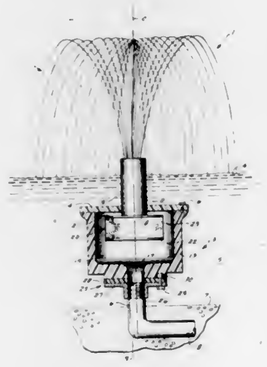
A cloud seeding system comprising a solid propellant rocket motor boosted vehicle and means for launching the vehicle for transporting cloud seeding material to clouds for increasing precipitation and/or suppressing hail growth. The vehicle comprises a pyrotechnical booster element and a seeding material carrier or dart element, automatically separable from each other, the booster element being provided with an automatically releasable parachute or other means for retarding the speed of fallout consisting of the booster motor and an interstage coupling between the two elements released after burnout of the booster and separation of the two elements. Launching means are provided for directing the trajectory of the motor boosted vehicle.

3,785,558
SINGLE FLOAT WATER COOLER
George W. Albritton, Houston, and Ronald C. Wendt, Seabrook, both of Tex., assignors to Ashbrook Corporation, Houston, Tex.
Filed Sept. 27, 1972, Ser. No. 292,721
Int. Cl. B01f *5/20*; **E03b** *9/20*
U.S. Cl. 239—16 **5 Claims**



Single float, multiple spray water coolers having a load waterline and a central cylindrical duct providing a vertical flow passage with an axial flow non-sealing impeller mounted therein and a driving motor mounted thereabove. A plurality of water conduits are mounted on the float connected at their inner ends to the duct above the impeller, and extend outwardly above the load waterline of the float with their outer ends having upwardly directed spray nozzles.

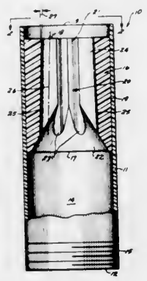
3,785,559
AXIAL FLOW FOUNTAIN BASE
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.
Continuation-in-part of Ser. No. 87,886, Nov. 9, 1970, Pat. No. 3,705,686. This application Nov. 24, 1972, Ser. No. 309,337
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **1 Claim**



A fountain base includes a housing which defines a symmetrical internal chamber. An inlet opening and an outlet opening

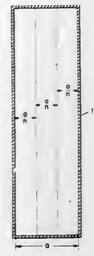
to and from the chamber are formed coaxially of the chamber through opposite ends of the chamber. Means are provided for mounting a water discharge nozzle to the housing coaxially of the chamber outlet opening. Liquid flow controlling means are operatively associated with the path of liquid flow through the chamber from the inlet opening to the outlet opening, and are proportioned and arranged for causing liquid flowing along the path at the outlet opening to have an essentially laminar flow characteristic and an essentially uniform liquid flow pattern. The flow controlling means include the proportioning of the chamber to have a mean cross-sectional area in a plane transverse to the axis of symmetry which is substantially greater than the effective area of the inlet opening.

3,785,560
NOZZLE FOR DISCHARGING LIQUIDS CONTAINING SOLID MATTER
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.
Continuation-in-part of Ser. No. 87,886, Nov. 9, 1970, Pat. No. 3,705,686, which is a continuation-in-part of Ser. No. 242,663, April 10, 1972, and a continuation-in-part of Ser. No. 304,244, Nov. 6, 1972. This application Nov. 15, 1972, Ser. No. 306,528
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **19 Claims**



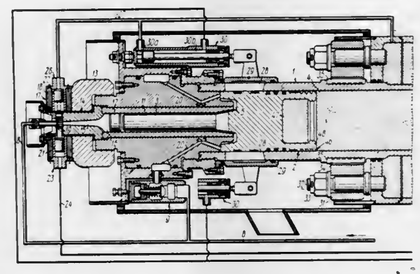
A water discharge nozzle has particular utility as a fountain nozzle in situations where the water supply to the nozzle has solid matter entrained therein. The nozzle includes an elongate tubular body which has outlet and inlet openings across opposite ends thereof. Annular plug means are disposed in the body adjacent the outlet opening and are engaged about their circumference in intimate engagement with the inner walls of the body. The plug means define a single passage therethrough, the passage being composed of a substantially circular hole which extends from the apex of substantially conical recess in that end of the plug which is located adjacent the inlet opening. The recess is concave to the inlet opening. A plurality of flutes are formed in the walls of the hole and extend with the hole from the recess to the end of the plug means located adjacent the outlet opening. Each flute has opposing wall surfaces disposed in non-diverging relation proceeding radially away from the hole axis.

3,785,561
DEVICE FOR THE EMISSION OF VOLATILE PRODUCTS
Maurice Confino, Chemin des Greffieres 69, Saint Cyr au Mont d'Or, and Gerard Godard, Route de Condrieu 38, Venissieux, both of France
Continuation-in-part of Ser. No. 883,312, Dec. 8, 1969, abandoned. This application Jan. 27, 1972, Ser. No. 221,289
Int. Cl. A24f *25/00*
U.S. Cl. 239—60 **14 Claims**



A device for diffusing an active substance such as a odorant or insecticide into the atmosphere at a substantially uniform rate. The device comprises a block impregnated with the substance. The block consists of a plurality of slabs, for example, of a gelatine or cellulose derivative, suitably held together.

3,785,562
APPARATUS FOR PRODUCING IMPULSE LIQUID JETS
Alexandr Ivanovich Petrakov, prospekt Zoi Kosmodemyanskoi, 35; Nikolai Grigorievich Vereskunov, ulitsa Universitetskaya, kv. 39, and Mikhail Mitrofanovich Galitenko, ulitsa Planovaya 2, all of Donetsk, U.S.S.R.
Filed Oct. 24, 1972, Ser. No. 300,239
Int. Cl. F02m *47/02*; **E21c** *37/12*
U.S. Cl. 239—92 **5 Claims**



The apparatus comprises a cylinder with a ram dividing the cylinder into two chambers, one admitting compressed gas and the other a liquid under pressure.

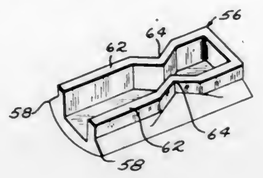
Accelerated by compressed gas, the ram delivers an impact to the liquid contained in a high-pressure chamber contiguous with the second chamber of cylinder and spouted out in a jet through a passage in this chamber.

The ram is returned into its initial position by a liquid fed into the second chamber of cylinder; secured in the first chamber of cylinder is a controllable arrangement for arresting the ram, as reset ready for operation, during the period required to discharge the liquid from the second chamber by the moment the ram starts its movement due to the action of compressed gas.

3,785,563
SHUT-OFF DEVICE FOR TRAVELING SPRINKLER

Steven E. Maple, Peoria, Ill., assignor to L. R. Nelson Corporation, Peoria, Ill.

Filed May 8, 1972, Ser. No. 251,261
Int. Cl. B05b 3/00
U.S. Cl. 239—183 10 Claims

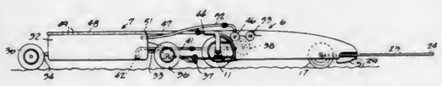


A device adapted to be connected to a source of water under pressure for communicating the water source to a hose-guided traveling sprinkler during the operative run thereof and for interrupting the communication of the water source thereto in response to the traveling sprinkler reaching the end of its operative run, the device includes a housing having a waterflow passage extending therethrough with an annular valve seat adjacent the outlet end thereof, and an actuating structure including an interior rod portion extending through an over-sized opening in offset relation with the axis of a spherical valve member, a spherical intermediate mounting portion sealingly engaged and mounted within the housing by a swivel socket assembly and an exterior portion adapted to be actuated in response to the traveling sprinkler reaching the end of its operative run, and an improved insert structure molded of resilient material such as plastic or rubber mounted within the passage in a position to engage the free end of the rod portion of the actuating structure when the latter is disposed in its open position to retain the ball valve member against water biased movement with the valve seat operable when the exterior portion of the actuating structure is actuated as aforesaid to yieldingly releasr the interior rod portion of the actuating structure to thereby permit the valve member to move into closed relation with the valve seat.

3,785,564
APPARATUS FOR TREATING ROWS OF PLANTS WITH OVERLAPPING BRANCHES

Archie Baldocchi, Edificio Rivas Cierra A Calle Arce 707, San Salvador, El Salvador

Filed July 7, 1972, Ser. No. 269,532
Int. Cl. B05b 3/18; A01g 25/00; A01c 23/00
U.S. Cl. 239—172 7 Claims

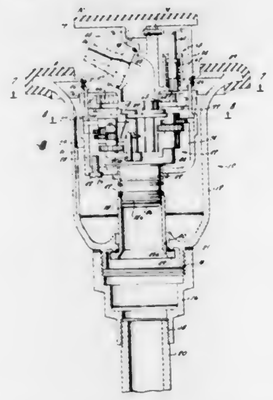


Traction equipment of limited height capable of traveling between rows of plants and under the lowermost overlapping branches of the plants in the adjacent rows carries or pulls a dispensing device also of limited height to spray under pressure a suitable substance for the treatment of the plants under sufficient pressure to reach the trunk and foliage of said plants, guiding means are provided so as to feel the opposite plants or the sides of the furrow or ditch therebetween so as to cause the turning of the wheels of the traction apparatus so as to follow the direction of the furrow or the ditch. The device has a suitable pump and conduits which are valve controlled, and has suitable servo motors for operating the driving mechanism at a desired speed and also for operating the pump and controlling the valve for the spraying liquid. Remote control devices such as selected tone transmitter from control tone generators and suitable actuating tone receiver on the tractor and the apparatus, may be provided to permit the operation of the device from a remote location such as a tower overlooking the entire field on which the rows of plants are located.

3,785,565
ROTARY SPRINKLER HEAD

Leonard T. Perry, Midway City; Donald T. Costner, Downey, and Edward F. Noggle, Tustin, all of Calif., assignors to Wet Manufacturing Co., Orange, Calif.

Filed Jan. 8, 1973, Ser. No. 321,747
Int. Cl. B05b 3/16
U.S. Cl. 239—206 19 Claims

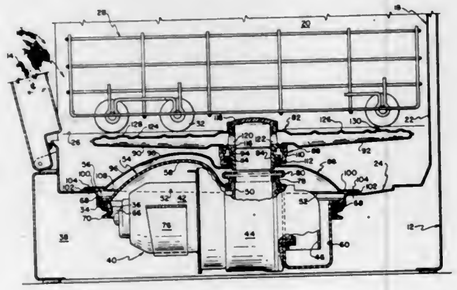


A pop-up, gear driven, rotary sprinkler head in which the arc of spray coverage may be precisely adjusted while the sprinkler head is inoperative by counting clicks of a detent and in which the drive reversal means for the nozzle is a cam actuated deflector which directs water from a single orifice in either of two directions to reversably drive the gear train.

3,785,566
SEALING SYSTEM FOR WASHING MACHINE

Thomas E. Jenkins, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 2, 1973, Ser. No. 320,616
Int. Cl. B05b 3/06
U.S. Cl. 239—259 8 Claims

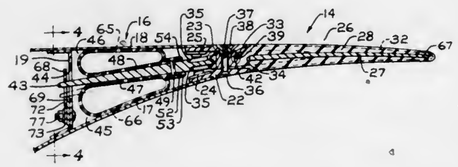


An automatic washing machine of the type having a pump-motor arrangement delivering pressurized washing liquid to a spray arm. The pump outlet is provided with a seal member which expands into sealing engagement with the spray arm in response to the delivery of pressurized washing liquid therethrough. The pump-motor arrangement is removable from the bottom of the washing tub by moving it outwardly through the tub. The spray arm is mounted in axial alignment with the pump outlet by a support spanning the pump-motor arrangement.

3,785,567
MOVABLE WALL FOR ENGINE NOZZLE

John M. Fisher, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Nov. 2, 1972, Ser. No. 303,271
Int. Cl. B64c 15/06
U.S. Cl. 239—265.39 15 Claims

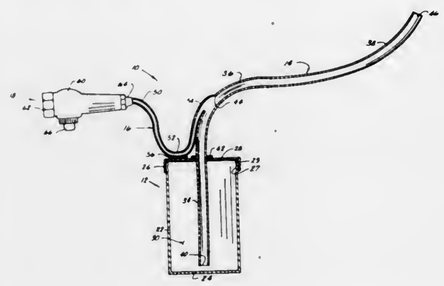


A movable wall having a plurality of side-by-side wall members connected by a web of resilient rubberlike material and swingable about different axes tangent to a ring around an engine nozzle area. A first inflatable tube is in engagement with one side of the wall members and a second inflatable tube is in engagement with the other side of the wall members for selectively swinging the wall members toward or away from the nozzle area as the fluid pressure is increased in one inflatable tube and decreased in the other.

3,785,568
PARTICULATE MATERIAL DISTRIBUTING MEANS

Eddie M. Pfingsten, and Jerry L. Travis, both of 615 Russell St., Mulvane, Kans.

Filed July 5, 1972, Ser. No. 269,199
Int. Cl. A62c 5/02
U.S. Cl. 239—310 8 Claims

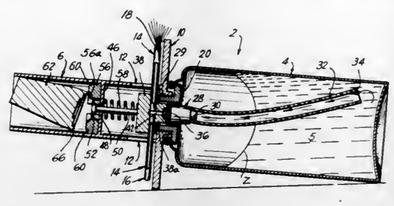


A particulate material distributing device removes particulated material from a container and disperses it in a fluid stream in a vertical direction away from the container. The device has a container for a quantity of particulate material, a particle conduit mounted with the container having an inlet in the container and an outlet outside the container, the outlet thereof being oppositely directed relative to the inlet. An operating fluid conduit is connected to the particle conduit and has a control valve connected with the operating fluid conduit to regulate the introduction of the operating fluid.

3,785,569
AEROSOL GRENADE

Ralph Helmrich, High Bridge, N.J., assignor to Diamond Aerosol Corporation, Glen Gardner, N.J.

Filed Aug. 10, 1972, Ser. No. 279,459
Int. Cl. F42b 27/06
U.S. Cl. 239—337 32 Claims

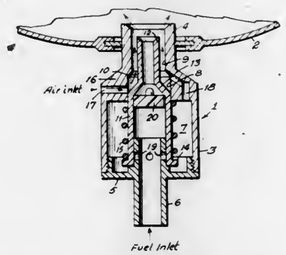


An aerosol grenade which spins at a high rate about more than one axis to discharge its fluid contents over a wide area even under windless conditions. The grenade includes a pressurized container, a plurality of discharge nozzles oriented so as to cause the grenade to spin about one of its axes upon discharge of the fluid contents. A fuse mechanism is provided which opens the closure for the pressurized container when a trigger block in the fuse mechanism is subjected to a lateral force upon impact of the grenade. The plane of the discharge nozzles is spaced along the longitudinal axis of the grenade from the center of gravity of the grenade. A spinning ring the plane of which is spaced from the center of the longitudinal axis of the grenade increases the erratic movement of the grenade upon discharge facilitating distribution of the grenade's contents. The grenade is especially useful as a means of distributing tear gas, the rapid and erratic movement preventing throw back by target personnel. A preferred lachrymatory composition employed comprises orthochlorobenzylmalononitrile dissolved in N,N-dimethyl formamide or N,N-dimethyl acetamide.

3,785,570
DUAL ORIFICE FUEL NOZZLE WITH AIR-ASSISTED PRIMARY AT LOW FLOW RATES

Stanley Krieger, Rivera Beach, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 30, 1972, Ser. No. 284,847
Int. Cl. B05b 7/00
U.S. Cl. 239—401 7 Claims



A dual orifice liquid fuel nozzle for a combustion chamber including a pressure responsive valve to help produce smaller fuel droplets at lower fuel flow for more consistent combustion. The device comprises a valve housing having a coaxial fuel inlet, an inlet for a gas such as air, a spring-loaded movable valve telescopically mounted on the fuel inlet and a secondary passage. At low pressure fuel flow the movable valve permits the gas to contact the fuel so as to atomize it.

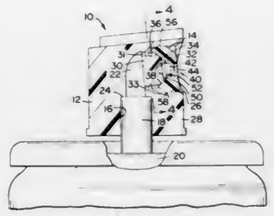
When fuel pressure increases, the valve shuts off the gas, while permitting additional liquid fuel to enter the secondary passage.

3,785,571

MECHANICAL BREAKUP AEROSOL SPRAYER BUTTON

Kevin J. Hoening, Cary, Ill., assignor to Seaquist Valve Company, Cary, Ill.

Filed May 5, 1972, Ser. No. 250,604
Int. Cl. B05b *1/34*; B65d *83/14*
U.S. Cl. 239—492 15 Claims



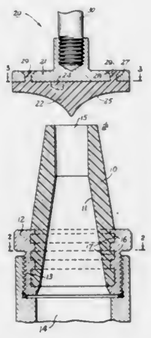
A mechanical breakup aerosol valve button or actuator with an annular feed chamber which feeds passageways leading into a central swirl chamber immediately ahead of the forward portion of a cylindrical terminal orifice feed post which includes a centrally disposed cavity formed in the face thereof and immediately behind a recessed terminal orifice contained within a terminal orifice which cooperate to produce a homogeneous spray pattern.

3,785,572

PLASTIC LINED SPRAY NOZZLE

Orlan M. Arnold, and Alfred W. Hardy, both of Norwalk, Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed May 25, 1972, Ser. No. 256,793
Int. Cl. B05b *1/26*
U.S. Cl. 239—518 9 Claims



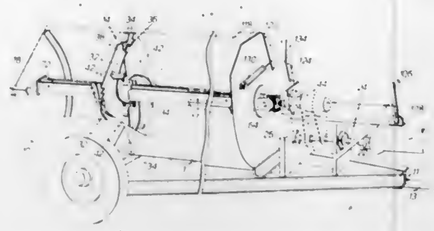
A spray nozzle adapted to eject a radial spray around its entire periphery comprising a plastic nozzle element having an axial bore adapted to produce an axial jet and secured at its base in a metal supporting ring and a transverse deflector plate disposed in the path of the jet to deflect the same radially outwardly to form a 360° spray pattern. The deflector plate is formed by a plastic disc or liner shaped to the deflector surface and carried by a metal support element.

3,785,573

MATERIAL DISCHARGE AND SPREADING APPARATUS FOR FLUENT MATERIAL

Alexander Crawford, Warwick, England, assignor to Massey-Ferguson-Perkins Limited, London, England

Filed July 24, 1972, Ser. No. 274,788
Claims priority, application Great Britain, July 23, 1971, 34,669/71
Int. Cl. A01c *3/06*
U.S. Cl. 239—658 11 Claims



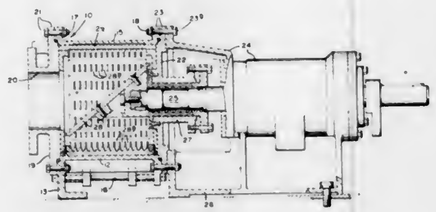
A manure spreader with a rotor mounted on a rotatable shaft which extends lengthwise of a manure container. The rotor is moved lengthwise of the shaft during rotation by a chain extending in two runs round two rotatable pocket wheels carried by the shaft. One of the pocket wheels is driven to move the rotor along the shaft.

3,785,574

SWASH-TYPE IMPELLER PUMPS

John B. Rosenquest, Jr., New Canaan, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Filed May 8, 1972, Ser. No. 250,929
Int. Cl. B02c *13/10*
U.S. Cl. 241—15 16 Claims



In a swash-type impeller shredder pump, a method and means for varying the spacing of the stationary cutter bars cooperative with the serrated swash-type impeller in a combined pumping and shredding operation.

3,785,575

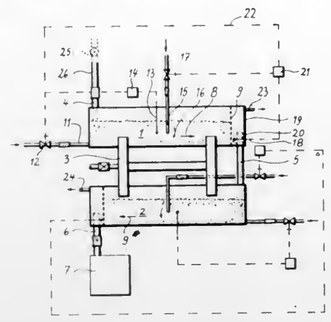
VIBRATING MILL WITH INTRODUCTION OF REFRIGERANTS INTO THE SOLID MATERIAL BEING GROUND IN THE GRINDING CHAMBER

Jurgen Langmaack, Niederkassel, and Helmut Haas, Cologne, both of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany

Filed Nov. 18, 1971, Ser. No. 199,933
Claims priority, application Germany, Nov. 21, 1970, P 20 57 428.1
Int. Cl. B02c *17/14*
U.S. Cl. 241—33 9 Claims

A vibrating mill for grinding solid materials is provided with a grinding chamber with at least one or a plurality of spaced feed pipes for refrigerants which terminate within the body of

the solid material being ground within the grinding chamber and the amount of the refrigerants introduced is controlled by



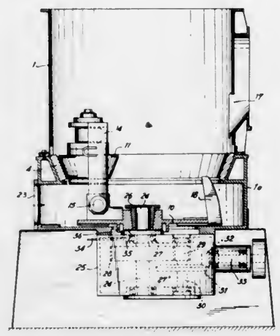
temperature probe or probes which control valves in said feed pipes.

3,785,576

GRINDING MILL

Jean Desbordes, Paris, France, assignor to Societe anonyme dite: Stein Industrie, Paris, France

Filed Dec. 8, 1969, Ser. No. 883,078
Claims priority, application France, Dec. 9, 1968, 68177181
Int. Cl. B02c *4/12*
U.S. Cl. 241—57 3 Claims



The grinding mill includes a chamber having a rolling track and a base beneath the track. A plate within the base carries a roller engaging the track, and reduction gearing secured to the base rotate the plate. The output shaft of the gear is connected directly to the plate. An air duct carries compressed air to a passage defined by an annular shoulder depending from the plate. An opening in the base admits air required for grinding.

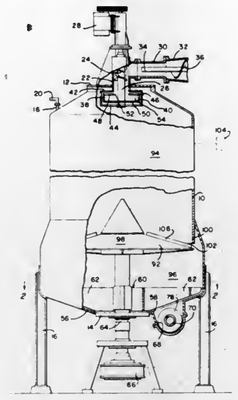
3,785,577

APPARATUS FOR THE GASEOUS REACTION OF MATERIAL

Lawrence A. Carlsmith, Amherst, N.H.; William L. Mallory, Beaconsfield, Quebec, Canada, and Joseph K. Perkins, Nashua, N.H., assignors to Improved Machinery Inc., Nashua, N.H.

Filed July 18, 1972, Ser. No. 272,960
Int. Cl. B02b *1/00*
U.S. Cl. 241—57 20 Claims

Apparatus comprising a vessel, means for compacting material and supplying the compacted material to the vessel, means for breaking-up the compacted material and spreading the broken-up material in the vessel, means for supplying gas to the vessel, and discharge means for discharging material in compacted condition, such discharge means including a discharge opening and flap means causing material to be discharged therethrough in said compacted condition. A rotatably driven platform divides the vessel into communicating retention and discharge chambers and controls the passage of material from the retention chamber to the discharge chamber; and the retention chamber is connected to the material and gas supplying means and contains the material breaking-up and spreading means, while the discharge chamber is provided with a large, offset, discharge opening and contains a scraper movable thereover.

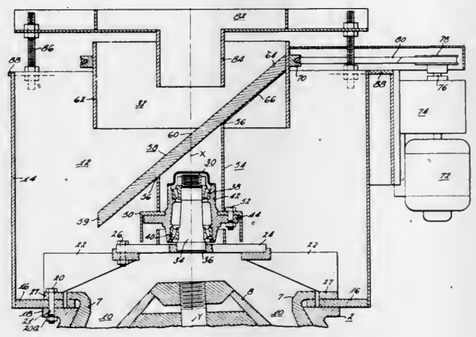


3,785,578

FEED DISTRIBUTOR FOR CRUSHER

Robert H. Kemnitz, Appleton, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

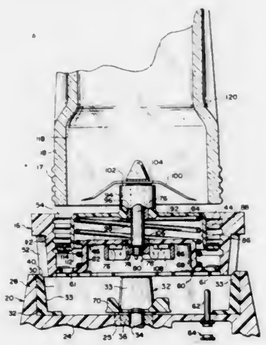
Filed Nov. 16, 1972, Ser. No. 307,051
Int. Cl. B02c *23/02*
U.S. Cl. 241—202 6 Claims



A feed distributor is shown mounted above a frame and annular crushing chamber of a gyratory crusher. The distributor has a cylindrical feed wall with an annular flange at its lower end adapted to be removably attached to the crusher frame, and a plurality of arms projecting radially inward from the feed wall to support a platform centrally located within the feed wall. A feed chute is supported on the platform for rotation about a vertical axis centrally located with regard to the feed wall and annular crushing chamber. The chute projects radially outward and downward from a point where the chute

intersects the vertical axis about which the chute rotates. A feed hopper is supported by the feed wall over the chute and the hopper has a discharge spout coaxial with the vertical axis about which the chute rotates. A driving motor is supported by the feed wall and is drivingly connected to the chute to rotate the chute and turn the lower and discharge end of the chute in a horizontal annular path above the annular crushing chamber to discharge feed falling through the discharge spout of the hopper downwardly and outwardly from the lower end of the chute into and around the annular crushing chamber of the crusher. The entire feed distributor, including the cylindrical feed wall, may be pre-assembled and mounted on top of a crusher as a single unitary assembly, and removed therefrom as a single unitary assembly, thereby providing easy assembly, disassembly and access to the top of the crusher.

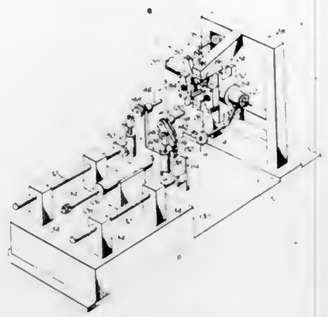
3,785,579
LIQUIDIZER SAFETY CLUTCH
Harry M. Voglesonger, Riverton, Conn., assignor to Dynamics Corporation of America, New York, N.Y.
Filed Mar. 27, 1972, Ser. No. 238,385
Int. Cl. B02c *18/12*
U.S. Cl. 241—282.1 **17 Claims**



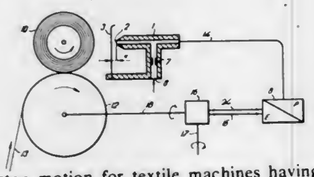
Safety release clutch for two part liquidizer container in which the cutter clutch member that is journalled in the lower part is resiliently retracted from engagement with the motor clutch member when the upper part is separated from the lower part for cleansing either one or both parts. In its retracted position the cutters may be locked against relative rotation or permitted to rotate free of the drive clutch member, but in either event there is no projection of elements below the lower part whether the two parts are assembled or not.

3,785,580
WIRE GUIDES FOR ARMATURE WINDING MACHINES
John B. Kennedy, Springfield, and Kenneth L. Pepper, Kettering, both of Ohio, assignors to The Globe Tool and Engineering Company, Dayton, Ohio
Filed Dec. 20, 1971, Ser. No. 209,644
Int. Cl. H02k *15/09*
U.S. Cl. 242—7.05 B **8 Claims**

The opposed chucks of a double flier armature winding machine are each provided with two disc-shaped rotatable wire guide members. Each of the wire guide members has four equally circumferentially spaced wire guiding surface portions which are successively positioned in the path of the wire used in winding coils for forming the coil end turns toward the armature shaft. The degree of forming depends upon the contour of the particular surface portion positioned in the path of the wire during the winding of a given coil. Further disclosed is a drive assembly for rotating the wire guide members. The drive assembly is normally positioned remote from the winding area and advanced into the winding area for rotating the wire guide members when desired during the intervals between the winding of coils.



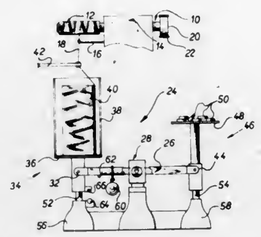
3,785,581
WINDING STOP MOTION FOR TEXTILE WINDING MACHINES
Jaroslav Sedlarik, Liberec, Czechoslovakia, assignor to ELITEX, Zavody Textilnino Strojirenstvi Generalni Reditelstvi, Liberec, Czechoslovakia
Continuation-in-part of Ser. No. 12,748, Feb. 19, 1970, abandoned. This application July 26, 1971, Ser. No. 164,800
Claims priority, application Czechoslovakia, Feb. 28, 1969, 1444-69
Int. Cl. B65h *63/04*
U.S. Cl. 242—39 **10 Claims**



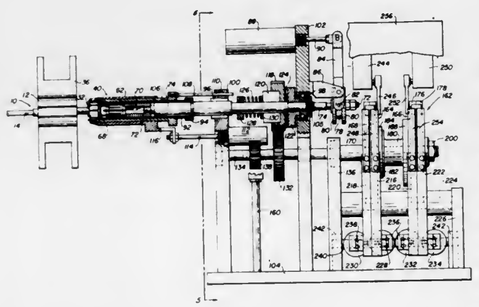
Winding stop motion for textile machines having a fluid pressure control relay mounted in the area of the yarn winding being formed. The relay is connected to a source of pressure fluid, usually air, and to a pressure responsive means. Such means is actuated, upon a predetermined approach of the surface of a winding being formed upon a bobbin, to produce a signal which stops the winding operation. The relay detects the approach of the winding surface thereto by means of a discharge nozzle which may coact directly with the surface of the winding or may coact with a feeler which itself engages the yarn winding. In a further embodiment, the discharge nozzle is provided with a valve which is actuated when the diameter of the bobbin being wound reaches a predetermined desired value.

3,785,582
APPARATUS FOR WEIGHING YARN ON A YARN WINDING MACHINE
Andre Girard, Saint-Hyacinthe, Quebec, Canada, assignor to Aronelle Textiles Limited, Mont-St-Hilaire, Quebec, Canada
Filed Sept. 9, 1971, Ser. No. 178,882
Int. Cl. R65h *63/08*
U.S. Cl. 242—39 **4 Claims**

The disclosure herein describes an improved apparatus and method for weighing the yarn wound on the rotatable shaft of a yarn winding machine; the apparatus consists of a balance beam which has at one end thereof a first deck for receiving thereon at least one yarn bobbin from which skeins or balls of yarn are to be made and which has at the opposite end thereof a second deck for receiving thereon a plurality of individual weights, each individual weight corresponding to the predetermined weight assigned to a skein or ball of yarn, or to a fraction thereof. Positioned to be responsive to the balance beam movement, an electrical switch, when closed, causes the rotation of the machine shaft on which yarn is bundled in the form of a skein or a ball; when the weight of the yarn transferred from the bobbin onto the shaft equals that of the one or more weights removed from the second deck prior to a winding operation, the balance beam returns to equilibrium thereby opening the switch and stopping the winding operation.



3,785,583
SHAFT ROTATING MECHANISM
John M. Biddison, Dayton, Ohio, assignor to The Globe Tool and Engineering Company, Dayton, Ohio
Division of Ser. No. 888,406, Dec. 29, 1969, Pat. No. 3,673,878. This application Sept. 24, 1971, Ser. No. 183,436
Int. Cl. H02k *15/09*
U.S. Cl. 242—7.05 B **10 Claims**



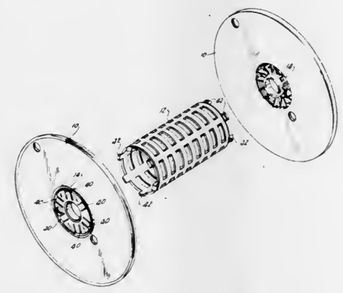
The spindle to which an armature is chucked is driven by a drive shaft stopped at plural different predetermined positions by the engagement of stop dogs with cams mounted thereon. In one embodiment there are four cams mounted on the drive shaft for stopping the drive shaft at any one of four positions for winding armatures having two coils per slot. The angular positions of the four cams are pre-adjustable on the drive shaft whereby the predetermined stopped positions thereof can be changed to accommodate different types of armatures and different patterns of wind. Two of the cams are adjustably connected by a sleeve having gear teeth meshing with gear teeth relatively fixed to one of the cams and an eccentric connection to the other of the cams. These cams are rotatable relative to other cams and locked in adjusted positions by pins projecting through apertures therein. The apertures are appropriately marked in terms of the types of armatures and winding patterns.

Two other embodiments of relatively adjustable cams are illustrated. In one embodiment, cams have radially directed slots, portions of which are aligned to obtain the desired angular relation between them. In a further embodiment cams are connected by eccentric pin means used to obtain the desired relative angular positions.

In still another embodiment, only two relatively adjustable cams are used, but with four stop dogs, two of which are angularly adjustable.

The operation of the armature rotating mechanism is described for the winding of both one and two coil per slot armatures. In all embodiments only two of the dogs are used for stopping the armature at predetermined positions for winding armatures having only one coil per slot.

3,785,584
SNAP LOCK ASSEMBLY
John R. Crellin, Jr., Spencertown, N.Y., assignor to Albany International Corp., Albany, N.Y.
Filed Nov. 17, 1971, Ser. No. 199,621
Int. Cl. B65h *75/14*
U.S. Cl. 242—118.6 **7 Claims**

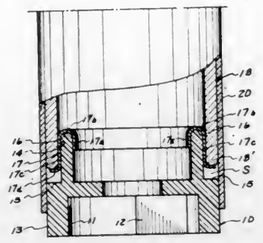


A first member has spaced openings formed therein, said openings each being defined by a rigid portion on one side and the end of a resilient tongue on the other side. Each rigid portion includes a beveled leading edge surface and an inner surface that terminates forming a gripping shoulder. A second member has yieldable projections formed and arranged for engagement with an insertion into the openings of the first member. Each projection has an enlarged end portion defined by an inclined surface formed on a side of the projection adjacent a rigid portion of the first member. The inclined surface terminates abruptly to form a lip for engaging the gripping shoulder of the first member. After insertion of the projections into the openings, the lips engage the gripping shoulders and the resilient tongues engage the projections on a side opposite the inclined surface to prevent disengagement of the lips and gripping shoulders and removal of the projections.

3,785,585
BOBBIN SOCKET
Isao Sato, 2-17, 2-chome, Tomigaoka, Nara, Japan
Filed Nov. 2, 1971, Ser. No. 194,894
Claims priority, application Japan, Dec. 4, 1970, 45/121345 [U]; Dec. 18, 1970, 45/127974 [U]
Int. Cl. B65h *75/10*
U.S. Cl. 242—118.31 **1 Claim**

In a bobbin socket having a metal ring mounted between a bobbin body and a socket body, said ring has such a substantially S shape in vertical section that it can be integrally mounted to the upper and outer periphery of the socket body

so as to protect the flange surface of the socket body from plastic deformations and damages which might otherwise be



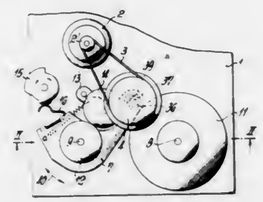
caused by the forced pressure of the lowest periphery of the bobbin body.

3,785,586

FRICTION WHEEL DRIVE ESPECIALLY FOR CASSETTE MAGNETIC TAPE RECORDERS

Heinz Engert, and Heinz-Dieter Engert, both of Dyroffstr. 4C, Munich Untermenzing, Germany

Filed Jan. 28, 1972, Ser. No. 221,692
Int. Cl. B11b *15/32*; **G03b** *1/04*
U.S. Cl. 242—201 **7 Claims**



A flywheel is driven from a motor output shaft by resilient power transmission means, and has a smaller diameter sleeve or hub rotatable therewith. A shaft secured to the flywheel extends concentrically through the hub or sleeve, and has a diameter substantially less than the internal diameter of the hub. An additional sleeve is telescoped over this shaft, and has a cutaway portion therein at a distance from the flywheel equal to the axial length of the first-mentioned hub, this cutaway exposing the shaft. The flywheel is rotatably mounted on a setting lever which is operable to set positions by means of a manually displaceable cam wheel acting through a spring. In one position of the parts, the hub engages a counterwheel driving a further friction wheel associated with a shaft mounting a rewind pulley and, in another position of the lever, a friction wheel secured to a shaft associated with the forward drive reel extends into the cutaway portion to directly engage the shaft secured to the flywheel, for low speed forward movement of the tape.

3,785,587

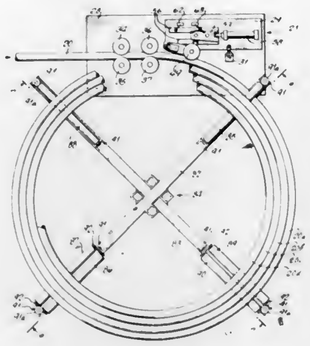
COIL OF CONTINUOUS ELONGATED MATERIAL

Herbert J. Meyfarth, Cleveland, Ohio, and John J. Crosby, Cambria Heights, N.Y., assignors to Republic Steel Corporation, Cleveland, Ohio

Division of Ser. No. 823,764, May 12, 1969. This application June 24, 1971, Ser. No. 156,457
Int. Cl. B65h *55/00*; **B21c** *47/00*
U.S. Cl. 242—159 **5 Claims**

A coil made of a continuous piece of elongated material such as tubing, prebent into pancake-like spirals called radial layers, each radial layer made up of several concentric and coplanar convolutions, with several radial layers stacked axially, and method and apparatus for making such coils.

The material is bent prior to coiling at predetermined bending radii which are different for different convolutions within a radial layer. One or more of the convolutions within each radial layer may be bent at constant bending radius; the rest may



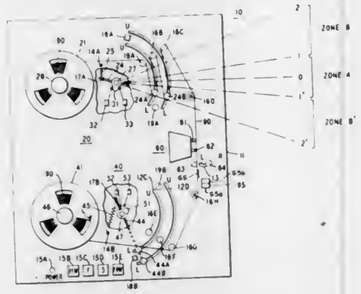
be bent at gradually changing radii. The bending radius is controlled by an electric and hydraulic network employing both timed and feedback controls. The coil may be built either upwardly, with the most recently made radial layer always at the bottom of the coil, or it can be built downwardly, with the most recently made radial layer always on the top of the coil.

3,785,588

TAPE TRANSPORT REEL SERVO SYSTEM

Eugene Charles Schramm, Boonton, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Nov. 24, 1971, Ser. No. 201,649
Int. Cl. B65h *59/38*; **G03b** *1/04*; **G11b** *1/52*
U.S. Cl. 242—188 **2 Claims**



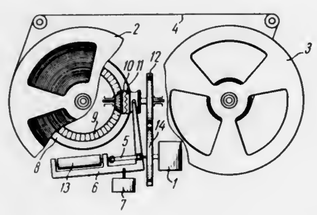
In a tape transport system including first and second rotatable tape storage reels, the nonlinear servo mechanism associated with the first reel is enabled during the fast wind mode to control the tape supply between the reels within a predetermined range, while the motor associated with the second reel is continuously energized in the forward direction to independently effect tape transfer from the first reel to the second reel, the nonlinear servo mechanism associated with the second reel being disabled during this mode. Tension means associated with the first reel maintains substantially constant tape tension independently of tape supply. It is a feature of this invention that the first and second reel motors' normal torque-speed characteristics are respectively modified to counteract the tape's dynamic tension and to provide the predetermined maximum linear tape speed.

3,785,589

MECHANISM FOR TRANSPORTATION OF AN INFORMATION CARRIER AT RESPECTIVELY DIFFERENT SPEEDS

Vladimir Valerianovich Benderovsky, ulitsa Dymerskaya, 37, kv. 1; Alexandr Ivanovich Schepotiev, Brest-Litovsky prospekt, 112, kv. 39; Igor Alexandrovich Yastrebov, 52 Delegatsky pereulik, 10, kv. 1, and Viktoria Mikhailovna Kotenko, Brest-Litovsky prospekt, 19, kv. 27, all of Kiev, U.S.S.R.

Filed July 29, 1971, Ser. No. 167,122
Int. Cl. B11b *15/32*; **G03b** *1/04*
U.S. Cl. 242—201 **4 Claims**



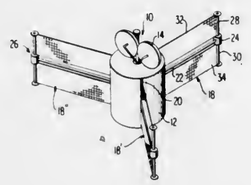
A mechanism for transportation of an information carrier from a supply reel onto a take-up reel by means of a driving motor adapted to be drivingly connected with the take-up reel through at least two independent transmissions having different transmission ratios. One transmission includes a pair of bevel gears and the other includes a worm and worm gear, and actuation of one transmission with con-current deactivation of the other is effected by a displaceable bracket member.

3,785,590

SPACECRAFT BODY WITH ROLLER MECHANISM FOR DEPLOYABLE-RETRACTABLE THIN FILM SOLAR ARRAY

Donald L. Wentworth, Braddock Heights, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Dec. 21, 1970, Ser. No. 100,016
Int. Cl. H01l *15/02*
U.S. Cl. 244—155 **7 Claims**



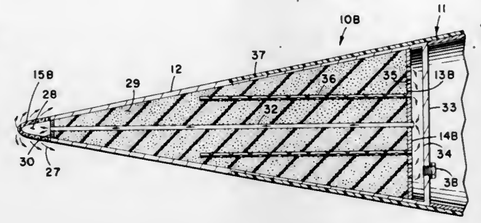
Rotatable, roller booms are carried by an extendable member which moves outward from a spacecraft body with one end of each flexible solar cell panel rigidly coupled to the spacecraft body and the other end rigidly coupled to the periphery of a rotatable roller boom. During deployment, the solar cell panels which are rolled up on the roller booms unwind. A spring-operated negator motor coupled to the rotating boom at one end and to the fixed housing at the end of the deployment member, winds up during deployment of the solar cell panel to facilitate retracting of the thin film solar array by rewinding the flexible solar panels about the periphery of the roller booms.

3,785,591

COOLING SYSTEM, EMPLOYING HEAT-EXPANDABLE MEANS, FOR AN AERODYNAMICALLY HEATED VEHICLE

Charles J. Stalmach, Jr., Grand Prairie, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.

Filed May 25, 1971, Ser. No. 146,703
Int. Cl. B64c *1/40*; **B64g** *1/00*
U.S. Cl. 244—1 SC **13 Claims**



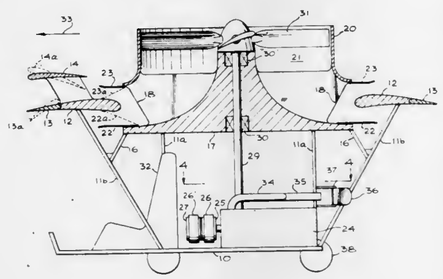
A cooling system for an aerodynamically heated vehicle includes a chamber disposed within the vehicle and containing a coolant and a heat-expandable means for increasing the pressure and reducing the volume within the chamber upon being heated during aerodynamic heating of the vehicle. Coolant under pressure exerted within the chamber by the expandable means is ejected from the chamber and conducted to the external surface of the heated, external skin of the vehicle. In one embodiment, a plurality of coolant chambers are disposed within a vehicle, each being positioned adjacent a respective portion of the outer skin of the vehicle for providing independent protection of each portion.

3,785,592

VTOL AIRCRAFT

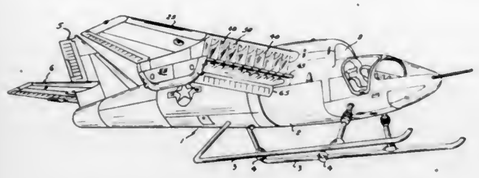
Kermit D. Kerruish, 3546 Golddust St., Phoenix, Ariz.

Filed Oct. 4, 1971, Ser. No. 186,347
Int. Cl. B64c *27/20*
U.S. Cl. 244—12 C **2 Claims**



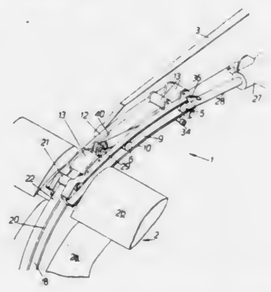
The present invention provides a vertical takeoff and landing aircraft vehicle in which a ducted downward airflow is redirected radially outward over an annular wing. The transition from the vertical to the horizontal flight mode is made by selectively closing off portions of the airflow exiting from the duct toward the wing. This is accomplished by means of flaps which are gradually closed on the forward side of the aircraft resulting in a net thrust forward due to the predominantly rearward flowing air.

3,785,593
AIRCRAFT PROPULSION SYSTEM
Hans J. P. Von Ohain; Roscoe H. Mills, and Charles A. Scolatti, all of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Sept. 10, 1971, Ser. No. 179,521
Int. Cl. B64c 29/04
U.S. Cl. 244—12 R 6 Claims



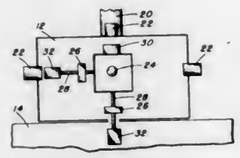
The invention relates to a propulsion system particularly adapted to VTOL and STOL type of aircraft and in which a main wing has an auxiliary wing arranged either above or below in spaced biplane relation with the space between the wings, in combination with suitable end plates, forming a rectangular propulsion duct extending spanwise on each side of a central fuselage. A gas turbine driving an air compressor has the compressed air therefrom delivered through a conduit formed in one of the wings from whence it passes to a series of injection nozzles which inject air into the duct inlet to entrain and mix with atmospheric air drawn into the inlet and which expands in a diffuser portion of the duct to generate an augmented propulsive thrust. The nozzles are housed in streamlined struts or housings extending vertically between the wings and transverse to the duct. One of the wings is provided with an adjustable trailing edge flap for varying the discharge area of the propulsive duct diffuser and the other wing is provided with a flap provided with nozzles at its leading edge and adapted to discharge over the suction surface of the flap and when the flap is depressed downward to cause additional downward deflection of the propulsive duct discharge by "Coanda" effect.

3,785,594
" AIRCRAFT FLAP SYSTEM
Norman Lee, St. Annes-on-Sea, England, assignor to British Aircraft Corporation Limited, London, England
Filed Mar. 10, 1972, Ser. No. 233,505
Claims priority, application Great Britain, Mar. 12, 1971, 8,236/71
Int. Cl. B64c 3/54
U.S. Cl. 244—42 DA 6 Claims



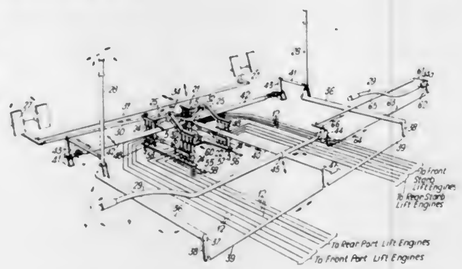
In an aircraft, a lift-increasing flap system includes a flap carried on units which each comprise two guide members which are telescopic with one another, there being provided means such that on initial extension of the flap, the guides are coupled together and extend as one, but on further extension the guides are uncoupled such that one guide can extend from the other.

3,785,595
SYSTEM FOR SENSING AND COMPENSATING FOR THE DISTURBANCE FORCES ON A SPACECRAFT
Robert E. Fischell, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 13, 1972, Ser. No. 305,749
Int. Cl. B64g 1/10
U.S. Cl. 244—1 SA 6 Claims



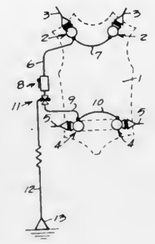
An improved system for sensing the disturbance forces on a spacecraft. An unsupported mass is shielded by the spacecraft from external non-gravitational forces, allowing the mass to travel in a purely gravitational orbit. A sensor system responds to motion of the spacecraft relative to the unsupported mass and activates thrusters which force the spacecraft to follow the unsupported mass without touching it. Movable masses or chargeable magnets on three orthogonal axes are mounted in the spacecraft to compensate for the attraction between the mass and other components located within the spacecraft.

3,785,596
IMPROVEMENTS IN OR RELATING TO AIRCRAFT CONTROLS
Ian Chinchester-Miles, Harpenden, England, assignor to Hawker Siddeley Aviation Limited, Surrey, England
Filed May 26, 1972, Ser. No. 257,077
Claims priority, application Great Britain, May 27, 1971, 17652/71
Int. Cl. B64c 19/00
U.S. Cl. 244—83 R 13 Claims



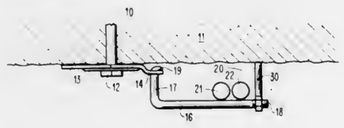
A flying control system in a VTOL or V/STOL aircraft comprises a mechanical analoque 'model' of the lift and propulsion plant of the aircraft. Vertically-disposed electromechanical transducers represent, respectively, the lift engines of the aircraft, each transducer being vertically extendible and also tiltable in the fore-and-aft direction and delivering two electrical output signals, indicating vertical extension and tilt respectively, to control respectively the throttle opening and thrust deflection of the respective engine. The transducers are actuated by a mechanical assembly that receives pilots' command and autostabiliser inputs and is caused to "yaw", "roll" and "pitch" by movement of the rudder pedals and control column, and to translate vertically and horizontally fore-and-aft by movements of a lift control lever.

3,785,597
PARACHUTE HARNESS RELEASE
John A. Gaylord, Greenbrae, Calif., assignor to H. Koch & Sons, Inc., Corte Madera, Calif.
Filed Mar. 6, 1972, Ser. No. 231,994
Int. Cl. B64d 17/30, 17/38
U.S. Cl. 244—151 A 8 Claims



A manipulable device for piercing a cartridge releases gas under pressure into conduits to release all the buckles of the harness. The buckles are also releasable manually. Between the gas connection to the buckles on the lap belt and the manipulable device or cartridge casing is a disconnect anchored to the plane which, when the pilot is ejected from the plane, disconnects the gas connection of the lap belt buckles from the gas supply or cartridge casing, so that when the crewman lands, he can manipulate the cartridge piercing device to be quickly released from the parachute harness, without releasing the lap belt buckles which latter support the survival kit in convenient position on the crew man.

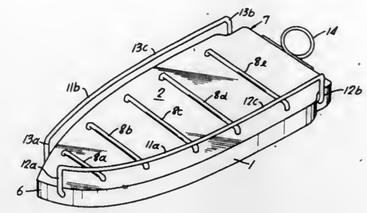
3,785,598
MEANS FOR SUSPENDING CABLES FROM MINE ROOF
Peter M. Gillstrap, 325 Walker St., Hartford, Ky.
Filed Feb. 22, 1972, Ser. No. 228,218
Int. Cl. F16l 3/00
U.S. Cl. 248—58 2 Claims



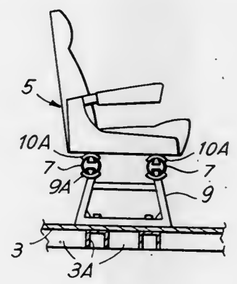
A hanger for supporting cables or the like adjacent the roof of a mine is shaped for ready attachment to a mine roof plate held by a safety bolt embedded in the roof material. The hanger is provided with an adjustable keeper serving to hold the supported cable on the hanger.

3,785,599
IRON PAD
Ramon Ramirez, Miami, Fla., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Dec. 21, 1971, Ser. No. 210,383
Int. Cl. D06f 79/02
U.S. Cl. 248—117.2 6 Claims

An iron pad comprises a base member having substantially planar upper and lower surfaces. Iron supporting components such as nickel plated steel or Teflon coated steel mounted on the upper surface of the base member supports an iron. Guard rails such as nickel plated steel or Teflon coated steel affixed to the base member prevents an iron supported on the supporting components from falling off the supporting components. A loop affixed to and extending from the base member permits hanging of the iron pad when not in use.



3,785,600
ADJUSTABLE MOUNTING ASSEMBLIES FOR GROUPS OF SEATS IN AIRCRAFT OR OTHER VEHICLES
Felix Padovano, Rome, Italy, assignor to 1P Industria Chimica per l'Arredamento S.p.A., Rome, Italy
Filed Jan. 25, 1972, Ser. No. 220,606
Int. Cl. F16m 11/20
U.S. Cl. 248—188.1 5 Claims

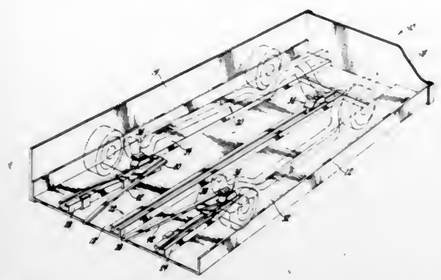


An adjustable mounting for a group of chairs or other articles comprises a pair of beams supported from a floor or other load bearing structure. The chair mountings are secured in selected positions in channels extending along the beams. The beam support are secured in selected positions in other channels extending along the beams, the positions of the floor supports being independent of the position of the floor mountings.

3,785,601
SHOCK ABSORBING SECUREMENT DEVICE
Elwyn L. Kitchen, Jr., Troy, and Gregory H. Kirk, Farmington, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 3, 1972, Ser. No. 240,356
Int. Cl. B60p 3/06, 7/08; B60d 45/00
U.S. Cl. 248—119 R 2 Claims

A securement device for maintaining a vehicle on a transporter characterized in that the securement device is formed in two parts which are bonded together by an elastomeric material. One part of the securement device is adapted to be

mounted to the underside of the vehicle, while the other part is adapted to be connected to the transporter and the



elastomeric material serves to absorb shock loads caused by movement of the vehicle due to inertial forces.

3,785,602

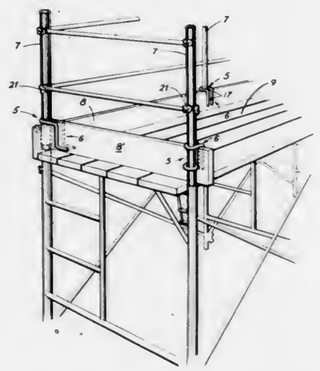
TOEBOARD CLAMP FOR STEEL SCAFFOLDING

Charles T. Juculano, Oshkosh, Wis., assignor to Symons Corporation, Des Plaines, Ill.

Filed Mar. 2, 1972, Ser. No. 231,266

Int. Cl. F16m *13/02*

U.S. Cl. 248—214 **6 Claims**



A clamp comprises a U-shaped rod with a semicircular bight portion that embraces a rear side of a post. Its legs project forwardly from the bight portion, to overlie the top edge of an edgewise upright board, thence downwardly to confine the board against the post. The bight portion can be welded to a length of tubing that encircles the post and through which a set screw extends. Or a second member having a semicircular post embracing portion can be rigidly connected to said bight portion by an elongated element that holds the semicircular portions coaxial, spaced vertically and opening forwardly.

3,785,603

ADJUSTABLE MOUNT

Ernst Apel, Gebrunn-Wurzburg, Germany, assignor to Ernst Apel Fabrik fur Feinnechanik, Gerbrunn-Wurzberg, Germany

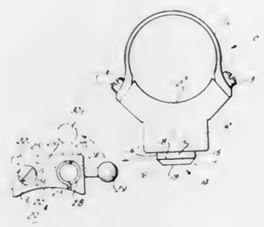
Filed Oct. 18, 1971, Ser. No. 189,852

Claims priority, application Germany, Oct. 20, 1970, P 70 38 599.8

Int. Cl. F41g *1/38*

U.S. Cl. 248—225. **4 Claims**

An adjustable mount for releasably mounting a first component on a second component, particularly for telescopic sight assemblies, includes a first element which is adapted to be mounted on the second component. The first element has a surface which is provided with an undercut securing groove having at least one open end. A second element is adapted to be fixed to the first component and has a securing stud which is shaped to mate with the securing groove to thereby provide a slidable fit therethrough. The securing stud is receivable in the securing groove through the open end thereof. A substantially circular member has a cutout portion which defines a flat surface, the circular member being mounted on the first element for rotation in the region of the open end, the circular



member being rotatable between a first position in which the surface is so positioned in relation to the securing groove that the securing stud can pass into or out of the groove and a second position in which the surface is so oriented that the securing stud can only enter but not move out of the groove. A bolt having an eccentric portion is rotatable on the first element and moves relative to the securing stud in response to rotation of the bolt, the bolt being operatively positioned in relation to the stud to force the stud against surfaces of both the groove and the circular member to effectively lock the second element to the first element.

3,785,604

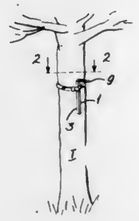
SUPPORT BRACKET FOR LANTERNS AND THE LIKE

Edward James Steck, 9017 Laurel Crest Dr., Crestwood, Mo.

Filed Jan. 21, 1972, Ser. No. 219,659

Int. Cl. F16m *13/02*

U.S. Cl. 248—231 **7 Claims**



A support bracket device for lanterns and the like consists of an elongated abutment arm, a support arm pivoted thereto and rotatable from a storage position aligned with said abutment arm to an operative position generally perpendicular to the abutment arm, and a strap secured to said abutment arm at a right angle therewith and adapted to encircle a tree or the like for securing the abutment arm in aligned abutting relation with the tree or other upright columnar member.

3,785,605

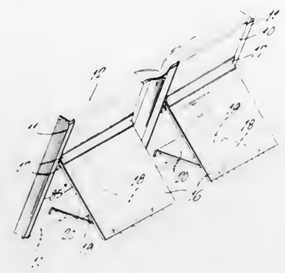
BOOK PROP

Hemant Parekh, 20 Woodcliff Ave., North Bergen, N.J.

Continuation-in-part of Ser. No. 36,228, May 11, 1970, abandoned. This application Jan. 20, 1972, Ser. No. 219,423

Int. Cl. A47b *23/00*

U.S. Cl. 248—455 **6 Claims**



A book prop is provided for holding open a book in an inclined position for reading without obscuring any of the printed subject matter and providing a steady support regardless of the distribution of the pages of the book. The book prop can be made as two separate identical elements or as an integral piece.

3,785,606

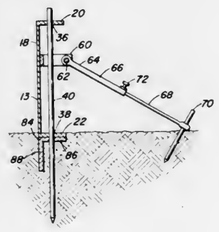
MECHANISM FOR FORMING A FOUNDATION

Melvin Perry Green, 608 N. E St., Imperial, Calif.

Filed July 31, 1972, Ser. No. 276,773

Int. Cl. E01c *7/00*

U.S. Cl. 249—3 **2 Claims**



The mechanism comprises a base having a narrow vertically extending and horizontally elongated section and a relatively wide and horizontally elongated top section. The top section supports a foundation form that, in one embodiment, is flexible for forming a curved foundation; and in another embodiment the form is a channel. The form and the top section of the base are constructed to provide a series of vertically aligned guides spaced horizontally from one another to receive stakes. The form is connected with one of the ends of each of a plurality of longitudinally extendible and contractable braces, and the other ends are held in place by stakes. In the embodiment in which the form is a channel, like channels have their adjoining ends connected with hinges that provide for longitudinal adjustment thereof. Too, when a plurality of transversely disposed channels are to be interconnected, one of the channels may abut another channel intermediate the ends of the latter. In that event, clamping mechanism is provided for connecting the channels together.

3,785,607

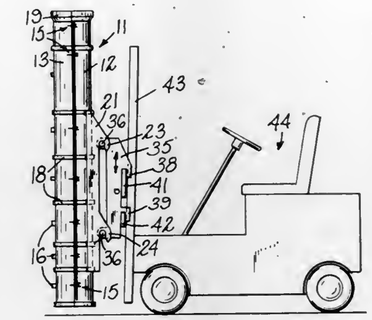
APPARATUS FOR MOLDING CONCRETE COLUMNS

George W. Worker, Hamden, and Philip L. Waddington, North Haven, both of Conn., assignors to Leonard Concrete Pipe Co., Inc., Hamden, Conn.

Filed Dec. 30, 1971, Ser. No. 214,099

Int. Cl. E04g *13/02*

U.S. Cl. 249—48 **5 Claims**



Apparatus for molding concrete columns wherein an elongated shell has a pair of longitudinal sectors which are hinged to swing between closed and open positions so that the finished concrete column may be removed from the shell. Latches are provided for temporarily locking the sectors in the closed position and the periphery of the shell is provided with hooks which enable the shell to be transported between concrete column processing stations. A supporting jig separate from the shell permits the shell to be supported on the cross members of the lifting track of a fork lift tractor.

3,785,608

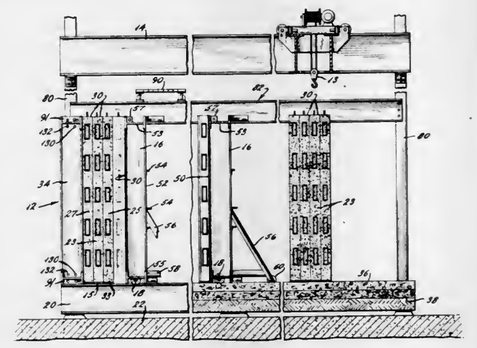
JIG FOR PRECASTING A PLURALITY OF PANELS

Arthur H. Heinzman, 1433 Laburnum St., McLean, Va.; Henry G. Clifton, Jr., 8955 Colesbury Pl., Fairax, Va., and Robert A. Theobald, 5714 Marengo Rd., Bethesda, Md.

Filed May 28, 1971, Ser. No. 147,886

Int. Cl. B28b *7/22*

U.S. Cl. 249—161 **5 Claims**



A jig for precasting a multiplicity of panels, one against another, and a demountable panel precasting plant containing a multiplicity of such jigs set in succession to form a precast wall panel plant are disclosed. Each jig comprises a fixed end wall for shaping the back face of the initial panel, a movable form in which the front face and side walls are shaped and a jig base on which the movable form reciprocates.

The jig base may be a concrete slab bounded at its side edges by a pair of beams which serve as tracks for the movable form.

A row of columns alongside each side of the jig base supports a cross beam to which the movable jig may be locked at the successive locations along the jig base corresponding to successive panel thicknesses so that each jig may cast panel against panel with the back face of all panels other than the initial panel formed against the front face of the previously cast panel. The movable jig may also be locked to the tracks.

3,785,609

DEVICE FOR THE TREATMENT OF FERROUS METAL INGOTS WHICH ARE INTENDED TO BE REMOVED FROM MOLDS WITHOUT HOLD-UP PERIODS

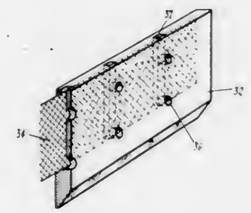
Andre Daussan; Jean Charles Daussan, and Gerard Daussan, all of 9, Avenue Leclerc de Hauteclocque, Metz, France

Filed Sept. 27, 1971, Ser. No. 183,767

Claims priority, application France, Oct. 7, 1970, 7036202

Int. Cl. B22d *7/10*

U.S. Cl. 249—197 **4 Claims**



The device is constituted by a heat-insulating and/or exothermic lining, comprising a single element or a number of juxtaposed elements, provided with a metallic reinforcement which has an extensive open structure and forms meshes. One portion of the meshes is embedded in the thickness of the lining, whilst another portion, adjacent to the volume which is filled with molten metal, is uncovered. Since the contact surfaces between the mold and the metallic portions which serve to clamp the lining to the mold are quite small, the transmission of heat from the metal to the upper portion of the mold is greatly reduced with respect to known devices. Moreover the manufacture of each element only, requires placing the corresponding portion of the reinforcement in a mold with permeable walls, wherein a slurry is fed; and the bonds between the lining, the reinforcement and the ingot are improved, which allows early displacement of the ingot after its removal from the mold.

3,785,610

CONCRETE WALL FORM TIE ROD ASSEMBLY WITH TWIST-OFF SPACER MEMBERS

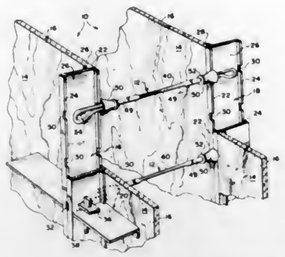
Richard T. Dagiel, Elk Grove Village, Ill., assignor to Symons Corporation, Des Plaines, N.Y.

Filed Mar. 6, 1972, Ser. No. 232,072

Int. Cl. E04g *17/06*

U.S. Cl. 249—214 **4 Claims**

A concrete wall form tie rod assembly in which the tie rod has (a) looped ends for connection to opposed and spaced apart wall form panels, (b) breakbacks by means of which the rod may be fractured in order to permit removal of the looped ends of the tie rod from the hardened concrete wall, and (c) molded torque receiving plastic spacer members which are of special construction and make such interlocking engagement with the looped ends of the tie rod that, when said looped ends are twisted, the spacer members are wrested from the



hardened concrete wall along with the looped ends of the tie rod.

3,785,611

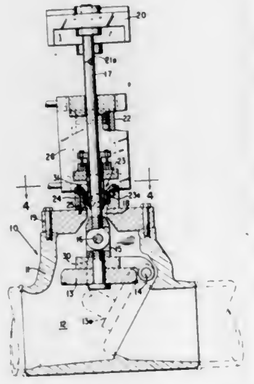
SWING DISC CHECK VALVE

Roland Di Sabatino, Jr., Collingswood, N.J., assignor to Ametek, Inc., New York, N.Y.

Filed July 13, 1972, Ser. No. 271,633

Int. Cl. F16k *31/143*

U.S. Cl. 251—25 **6 Claims**



A swing disc check valve has a closure or disc member swingably mounted within a valve body to open and close a passage therethrough. A rigid actuating member is pivotally connected to the disc member and extends outwardly of the valve body through a pivotable joint means mounted on the body. The actuating member is actuated by means positioned externally of the body and is guided by the pivotable joint means during the swinging movement of the disc member between open and closed positions.

3,785,612

QUICK-ACTING GATE VALVE

Siegfried Schertler, Haag, Switzerland, assignor to VAT Aktiengesellschaft fur Vakuum-Apparate-Technik, Haag, Switzerland

Filed Oct. 6, 1972, Ser. No. 295,642

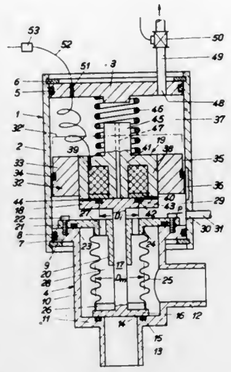
Claims priority, application Switzerland, Oct. 25, 1971, 15489/71

Int. Cl. F16k *31/12*

U.S. Cl. 251—43 **7 Claims**

A quick-acting valve having a valve closure disc connected by a spindle or stem to the holding plate of an electromagnet incorporated in a spring biased piston disposed in a pneumatic

cylinder. The face of the holding plate is partially undercut so that when the valve is open and the elctromagnet is deenergized, the fluid pressure acting on the undercut surface and on the closure disc abruptly moves the plate, spindle and disc toward the closed position. As soon as the plate separates



from the magnet its effective surface area increases, which accelerates the valve closing. The spring thereafter urges the piston against the plate to maintain the valve closed. To open the valve the pressure above the piston is vented and the magnet is energized, which forces the piston, plate, spindle and disc upwards against the spring force.

3,785,613

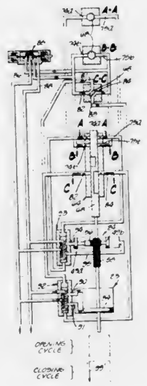
SEQUENCING VALVE CONTROL APPARATUS AND SYSTEM

Joseph A. R. Picard, 9792 La Arena Cir., Fountain Valley, Calif.

Filed Nov. 15, 1971, Ser. No. 198,745

Int. Cl. F16k *31/12*; **F01b** *21/02*; **F01l** *15/00*

U.S. Cl. 251—56 **8 Claims**



Control and power actuating means for the sequential operation of a valve component, particularly of relatively large valve units, wherein the valve component is required to be moved in going from one operating position to another through a succession of linear and rotational movements in opposite directions, in which one power actuator is selectively energizable to move a positioning member for the valve component in axially reciprocal directions, and another power actuator is selectively energizable to rotate the positioning member in opposite directions, sequential or cyclic operations of the actuators for changing the valve from one operating position to another being interlocked and determined by a sequencing valve which is responsive to movements of the valve positioning member.

3,785,614

HYDRAULIC SHIFT VALVE FOR AN AUTOMOTIVE AUTOMATIC POWER TRANSMISSION

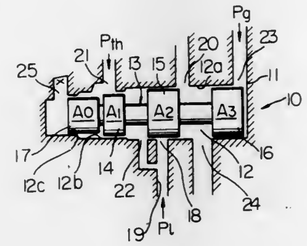
Koji Enomoto, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Oct. 27, 1971, Ser. No. 193,017

Claims priority, application Japan, Oct. 29, 1970, 45/107900 [U]

Int. Cl. F16k *31/143*

U.S. Cl. 251—63 **3 Claims**



A hydraulic shift valve for effecting a shift between a plurality of gear ratios in an automotive automatic power transmission, which shift valve includes a valve spool movable to two extreme positions and having thereon at least three spaced valve spool lands, an inlet port adapted to be opened and closed by an intermediate valve land, an outlet port selectively communicating with the inlet port, a hydraulic throttle pressure port provided at a position to cause the pressure therein to selectively act on one of remaining two valve lands, a governor pressure port provided at a position to cause the pressure therein to continuously act on the other one of the remaining valve lands, and a line pressure port provided at a position to cause the pressure therein to selectively act on the differential area between the intermediate valve land and the one of the remaining valve lands, the valve spool being shifted in response to variations in the relative magnitude of the pressures acting thereon.

3,785,615

EMERGENCY TRIP THROTTLE VALVE

John B. Haven, Lunenburg, Mass., assignor to General Electric Company, Schenectady, N.Y.

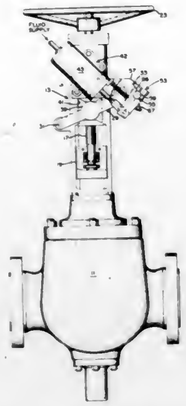
Filed Sept. 1, 1972, Ser. No. 285,750

Int. Cl. G05g *17/00*; **F16k** *31/44*

U.S. Cl. 251—74 **8 Claims**

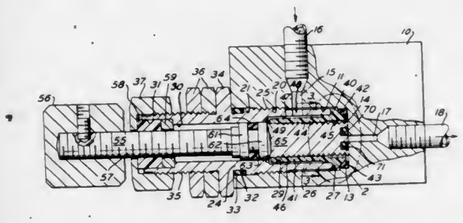
A latching mechanism for an emergency trip throttle valve of the type used to rapidly shut down the flow of steam to a steam turbine. In the reset position with the valve unseated, a latching-up lever supports the valve in an open position against the force of a valve closing spring. In turn, the latching-up lever is supported by a rotatable latch pin. The geometry of the latch pin and latching-up lever causes the valve supporting force to be transferred from the latching-up lever to the latch pin, in a direction acting through the center of rotation of the latch pin. This tends to prevent self-tripping due to vibration and reduces the friction moment required to

trip by eliminating all components of the valve supporting force, but that which acts directly through the latch pin



center. Additionally, adjustments are provided for insuring the perfect alignment of the latching-up lever and the latch pin.

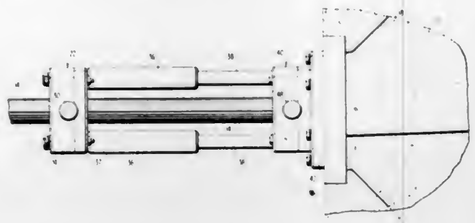
3,785,616
METERING VALVE
Coleman B. Moore, East Nantmeal Township, Chester County, Pa., assignor to Moore Products Co., Spring House, Pa.
Filed July 15, 1971, Ser. No. 162,763
Int. Cl. F16k *47/06;* **F15d** *1/10*
U.S. Cl. 251—121 **4 Claims**



A metering valve for precision flow control of fluids is shown having a body with a valve stem in threaded engagement in a valve holding member in the body for advancing and retracting movement to adjust the position of the stem. The body has a bushing or sleeve, preferably of resilient synthetic plastic material interposed between inlet and outlet fluid connections and exposed to the upstream pressure and a portion of the valve stem extends into the sleeve which portion is provided with a tapered helical thread or groove for fluid flow. The pitch of the threads on the threaded portion and the pitch of the tapered helical groove can be the same or slightly different. Provision is made for shut off of flow. The sleeve is preferably of a composition having a reduced coefficient of thermal expansion normal to its axis for use at elevated temperatures.

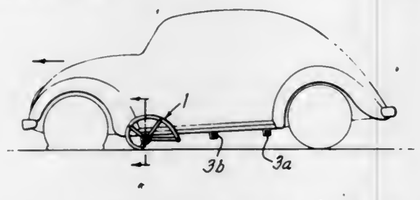
3,785,617
METHOD FOR INSERTING TENDONS INTO SHEATHING
Rene Friedrich, Saratoga, Calif., assignor to VSL Corporation, Los Gatos, Calif.
Filed Dec. 15, 1971, Ser. No. 208,129
Int. Cl. E21b *19/00*
U.S. Cl. 254—1 **1 Claim**

A reinforcing tendon is inserted axially into an elongated passage formed in concrete, soil or rock, by gripping the tendon externally of the passage with a hydraulically operated clamp and moving the clamp towards the passage by means of a pair of hydraulic rams so that the tendon is pushed in its longitudinal direction into the passage. The tendon is fully inserted in a series of steps governed by the strokes of the hydraulic rams. At the conclusion of each stroke, the clamp is released from the tendon and returned along the tendon away from the passage to its starting position where it is ready to again grip the tendon and be moved by the rams towards the



passage in the next stroke of the rams to further insert the tendon in the passage. To anchor the rams during their return stroke returning the clamp to its starting position, a second clamp is provided adjacent the mouth of the passage; one of the ends of the rams being connected to the second clamp to be anchored relative to the tendon when the second clamp grips the tendon. Any suitable control system may be provided for automatically operating the clamps and the rams in the proper sequence.

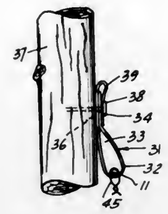
3,785,618
VEHICLE JACK
Joseph P. Medwick, 4938 St. Suzanne St., Pierrefonds, Quebec, and Marcel Thiffault, 1176 Brault Ave., St. Vincent De Paul, Quebec, both of Canada
Filed May 30, 1972, Ser. No. 257,711
Claims priority, application Canada, Dec. 21, 1971, 130776
Int. Cl. B66f *7/22*
U.S. Cl. 254—94 **6 Claims**



A vehicle jack for use with a vehicle having at least one socket mounted on the vehicle for nonrotatably receiving a shaft portion of the jack. A lifting member with a hub is rotatably mounted by its hub on the shaft portion of the jack extending out from the socket. The lifting member has a ground contacting portion extending about at least a portion of the hub and arcuately curved whereby the ground contacting surface steadily increases in radial distance from the center of the hub.

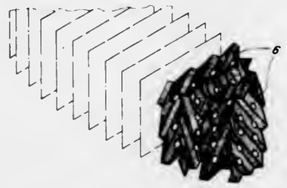
3,785,619
INSULATOR AND SUPPORT FOR ELECTRICALLY CHARGED FENCE WIRES
George F. Oltmanns, 2528 Pensacola Ave., Chicago, Ill.
Division of Ser. No. 118,406, Feb. 24, 1971, Pat. No. 3,684,247. This application May 19, 1972, Ser. No. 255,037
Int. Cl. E04h *17/24*
U.S. Cl. 256—10 **2 Claims**

A reusable insulator and support for attaching electrically charged fence wire to fence posts or rods comprises a flexible, strip-form member composed of a dielectric material. The support member has a portion deflectable into a configuration



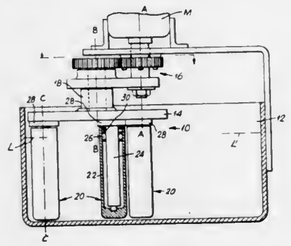
for encircling the fence wire and is attachable to the fence post in a manner to support the fence wire on the post.

3,785,620
MIXING APPARATUS AND METHOD
Max Huber, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed June 2, 1971, Ser. No. 149,230
Claims priority, application Switzerland, Apr. 29, 1971, 6303/71
Int. Cl. B01f *5/06*
U.S. Cl. 259—4 **7 Claims**



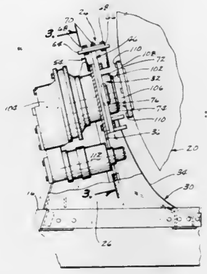
The mixable media are passed in uniflow relation through one or more packing elements composed of corrugated lamellas so that a thorough mixing takes place within the packing elements. The corrugations of adjacent lamellas are oriented in different directions while adjacent packing elements are angularly offset from each other.

3,785,621
PREPARATION OF MIXES
Leonard Maxwell Hoskins, Hughenden Valley, England, assignor to National Research Development Corporation, London, England
Filed Sept. 28, 1970, Ser. No. 76,066
Claims priority, application Great Britain, Sept. 29, 1969, 47,872/69
Int. Cl. B01f *7/26;* **B29h** *1/10*
U.S. Cl. 259—102 **5 Claims**



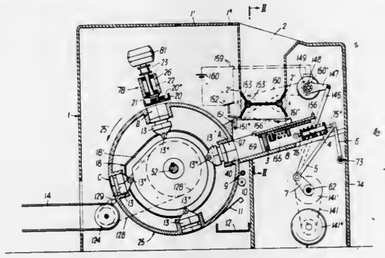
Methods and apparatus are described for discouraging the formation of unwanted lumps which tend to form when preparing mixes of certain components, especially of fibres and a slurry. A mixing agitator, which is moved relative to the mix, is arranged to have a further motion such as by being free to rotate, or by being rotated, in response to conditions within the mix.

3,785,622
MOUNTING DEVICE FOR MOBILE CONCRETE MIXING DRUM
James E. Johnson, Waterloo, Iowa, assignor to Construction Machinery Company, Waterloo, Iowa
Filed Oct. 2, 1972, Ser. No. 294,216
Int. Cl. B28c *5/18*
U.S. Cl. 259—176 **12 Claims**



The present invention comprises a mounting means for a concrete mixer drum having one end adapted to be mounted rotatably to a truck. A power shaft is fixed to the drum for rotating it and the power shaft is rotatably mounted within a power shaft housing. The mounting means comprises a collar surrounding and gripping the power shaft housing, the collar having an upper mounting member and a lower mounting member thereon. The upper mounting member is rotatably mounted to a support means for rotation about an upstanding axis, and the lower mounting member is mounted in a ball and socket joint to the support means so as to carry the weight of the concrete mixer. The support means is fixed to the truck frame so that the ball and socket joint transfers the weight of the mixing drum to the truck frame.

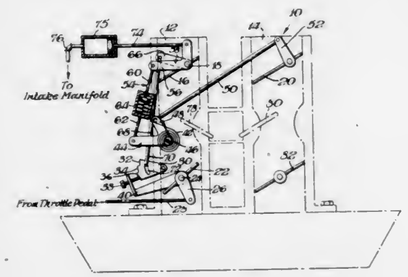
3,785,623
DOUGH PORTIONING MACHINE
Helmut Konig, Ursprungweg 70-72, Graz, Austria
Continuation-in-part of Ser. No. 232,756, March 8, 1972, Pat. No. 3,733,058. This application Sept. 11, 1972, Ser. No. 288,159
Claims priority, application Austria, Sept. 13, 1971, 7938
Int. Cl. A21c *7/06*
U.S. Cl. 259—185 **10 Claims**



Dough to be portioned is filled into a hopper, which leads to a chamber from which the dough is forced by means of a plunger into pocket openings arranged on the circumference

of a rotating drum. Two rotary members are arranged in the hopper, each of which carries three blades serving for proportioning the dough. Below the rotary members a dough sensing means is arranged responsive to the quantity of dough delivered by the rotary members to the chamber. The dough sensing means cooperate with a switch for stopping the movement of the rotary members, if too much dough is delivered to the chamber.

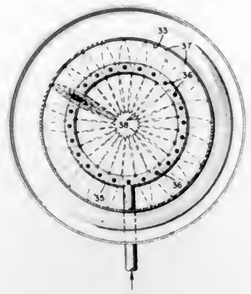
3,785,624
CARBURETOR
Frederick J. Marsee, Clawson, Mich., assignor to Ethyl Corporation, Richmond, Va.
Continuation-in-part of Ser. No. 812,519, Feb. 25, 1969, abandoned, which is a continuation-in-part of Ser. No. 700,321, Jan. 3, 1968, abandoned, which is a continuation-in-part of Ser. No. 551,463, May 19, 1966, abandoned. This application Oct. 12, 1970, Ser. No. 80,106
Int. Cl. F02m *1/10*
U.S. Cl. 261—23 A **14 Claims**



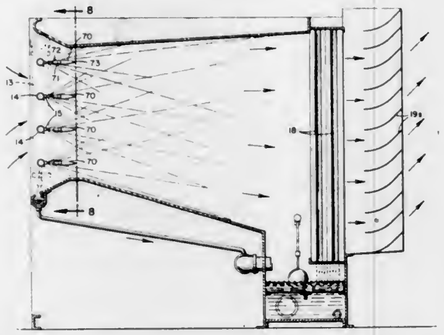
Automatic choke for primary and secondary carburetor barrels of gasoline engine has temperature-responsive means connected to primary choke plate and to secondary choke plate, connection to primary plate being yieldable to permit primary plate to be moved toward open position by intake suction and/or intake air flow while secondary choke plate stays closed. When power operation is needed during choked condition, secondary throttle opens giving proper choked operation of secondary barrel which can also have intake suction and/or intake air flow arrangements for moving secondary choke plate toward open condition. Automatic choke can have temperature-adjusted control for variably limiting opening of choke by intake suction and thus provide better performance. Primary induction passage preferably has small cross-sectional area (not more than one-eighth of the total cross-sectional area of all induction passages), and idling desirably arranged to take place on the main jet.

3,785,625
INJECTOR TYPE EVAPORATIVE HEAT EXCHANGER
John Engalitcheff, Jr., Gibson Island, Md., assignor to Baltimore Aircoil Company, Inc., Jessup, Md.
Filed May 19, 1971, Ser. No. 144,857
Int. Cl. B01f *3/04*
U.S. Cl. 261—29 **1 Claim**

This application discloses an evaporative heat exchanger of the injector type with improvements in mixing and air pumping which are specially adapted to either multiple circular venturies or large circular venturies or both.



3,785,626
CONTROL SYSTEM FOR INJECTION COOLING TOWERS
Wilson E. Bradley, Jr., Ellicott City, and Edward N. Schinner, Silver Spring, both of Md., assignors to Baltimore Aircoil Company, Inc., Jessup, Md.
Filed May 19, 1971, Ser. No. 144,855
Int. Cl. B01f *3/04*
U.S. Cl. 261—36 R **7 Claims**

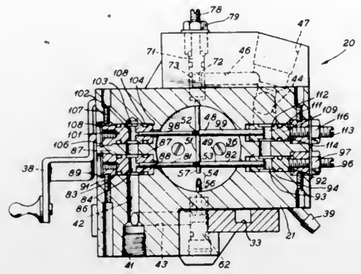


A control system for injection evaporative heat exchangers comprised of a chamber having a mouth, a throat, and a region downstream of the throat between it and the exhaust opening. Water is injected into the throat and induces air flow into the mouth and causes mixed concurrent flow downstream of the throat. Air is discharged from the exhaust opening and cooled water is collected. Controls are provided by which the amount of air pumped per unit time is controllable to accommodate the unit to variable heat load conditions.

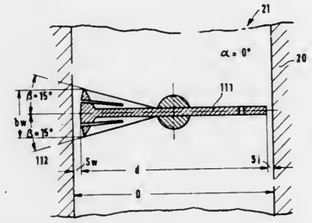
3,785,627
CHARGE FORMING APPARATUS
John J. Tuzson, Evanston; Irving H. Hallberg, and James R. Vaughn, both of Des Plaines, all of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed Aug. 18, 1972, Ser. No. 281,891
Int. Cl. F02m *7/14*
U.S. Cl. 261—36 A **14 Claims**

Charge forming apparatus for metering fuel in which a stream of induction air impinges upon a stream of liquid fuel for changing the shape thereof. Fuel is stripped from the reformed liquid stream for dispersion into the air stream. Sin-

gle or multiple fuel streams may be employed. The apparatus avoids the use of a float thereby facilitating up draft, side draft, or down draft mounting. One embodiment eliminates the choke plate providing a compact structure having a short air induction passage.



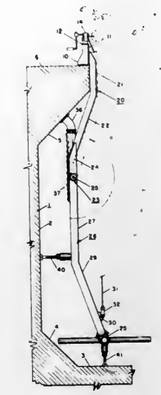
3,785,628
DEVICE FOR THE IMPLEMENTATION OF PROCEDURES FOR THE DECONTAMINATION OF INTERNAL COMBUSTION ENGINE EXHAUST GASES
Ludwig G. Lang, Zimmerstrasse 10-12, Darmstadt, Germany
Filed Aug. 14, 1972, Ser. No. 280,229
Claims priority, application Germany, Aug. 16, 1971, P 21 40 910.9
Int. Cl. F02m *29/14*
U.S. Cl. 261—65 **15 Claims**



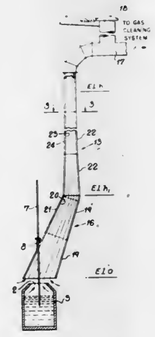
A device for the implementation of procedures for the decontamination of internal combustion engine exhaust gases by preparation of a flammable and ignitable air-fuel mixture with a variable air ratio figure λ by means of a throttle flap adjustment regulating the fuel jet hydraulic resistance, and which is adjustable such that fuel atomization is performed, using a throttle flap permitting a tolerated air gap all around the circumference in the carburetor duct for the throttle flap position $\alpha = 0°$, which has rims with bores on both sides, and which is followed by a ramjet in the carburetor duct.

3,785,629
APPARATUS FOR GAS DIFFUSION
Lawrence A. McKinney, Tucson, Ariz., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 20, 1971, Ser. No. 108,041
Int. Cl. C02c *1/12*
U.S. Cl. 261—122 **4 Claims**

A plurality of high density polyethylene or polyvinylchloride, plastic, diffuser elements are supported on a horizontal distribution header which is in turn supportedly suspended within a waste treatment basin from at least two vertically oriented elongated members. The elongated members are each provided with a hinged joint so that the diffusers can be rotated about the hinged joint to a location out of the basin for cleaning or replacement.



3,785,630
GAS COLLECTOR FOR STEEL FURNACE
Daniel E. Pike, Harrington Park, N.J., assignor to Air Pollution Industries, Inc., Englewood, N.J.
Division of Ser. No. 80,332, Oct. 13, 1970, Pat. No. 3,707,069. This application Sept. 18, 1972, Ser. No. 289,817
Int. Cl. C21c *5/40*
U.S. Cl. 266—16 **2 Claims**

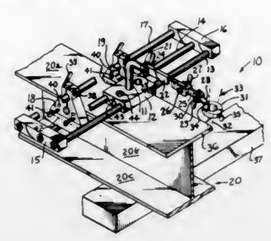


Water-cooled, panel-constructed tapered hood over mouth of steel furnace leads to water-cooled, panel-constructed stack having approximately parabolic vertical cross-section to increase velocity and velocity pressure of off-gas and to reduce static pressure of off-gas and maintain such static pressure at a negative value throughout stack. Off-gas will not leak out between panel joints. Same effect may be achieved by inserting orifice plate in bottom of conventional stack. Inner wall of hood and stack lined with ceramic to reduce cooling water requirement, only enough cooling water being required to prevent ceramic from melting, cooling of off-gases more economically being handled in gas cleaning system.

3,785,631
PARTING AND BEVEL BURNING DEVICE

Stanley Peter Prye, 2222 Brandard, Houston, Tex.

Continuation-in-part of Ser. No. 108,008, Jan. 20, 1971, abandoned. This application Oct. 24, 1972, Ser. No. 299,642
Int. Cl. B23k 7/10
U.S. Cl. 266—23 K 10 Claims

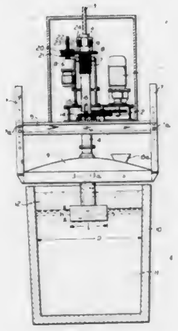


The disclosure is to a device which can be employed in combination with a welding torch fixed therein in a predetermined position and direction, the device being adapted to be moved, carrying the torth therewith, in straight line direction, or to be swung in cutting with a predetermined radius. The device, as used in straight line parting or beveling, may be fixed to a structural member that is to be beveled or parted, or otherwise cut in any predetermined manner. To cut a circle or arc, the device is adapted to be magnetically or otherwise mounted on the plate or shape thus to be cut.

3,785,632
APPARATUS FOR ACCELERATING METALLURGICAL REACTIONS

Friedrich Kraemer, Mulheim; Jorn Mandel; Siegfried Mayer, both of Gelsenkirchen; Klaus Rohrig, Essen; Hans-Peter Schulz, Hattingen; Hilmar Weidenmuller; Klaus Dieter Haverkamp, both of Gelsenkirchen, and Jurgen Motz, Ratingen, all of Germany, assignors to Rheinstahl Huttenwerke, Essen, Germany

Division of Ser. No. 843,868, March 17, 1969, Pat. No. 3,664,826. This application Mar. 9, 1972, Ser. No. 233,237
Int. Cl. C21c 7/00
U.S. Cl. 266—34 A 7 Claims

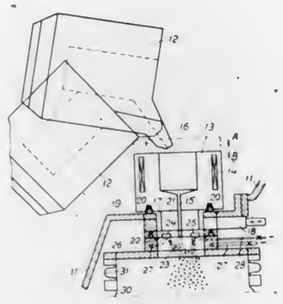


Apparatus including means for adjusting vertically the level of a mechanical stirring member with respect to the vertical level of a melt, e.g. the vertical level of the interface between the top surface of an iron melt and slagging or the like ingredients floating on such iron melt surface especially in a circular upright ladle with a discharge aperture, and method of using such stirring member, e.g. to enhance or accelerate contact and reaction between such melt and floating ingredients, to carry out metallurgical reactions, as well as tough cast iron containing spherical graphite producible thereby.

3,785,633
MEANS FOR ATOMIZING MOLTEN METAL

Gosta Karlsson, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vastras, Sweden

Filed May 8, 1972, Ser. No. 250,922
Claims priority, application Sweden, May 12, 1971, 6133/71
Int. Cl. C21c 7/10
U.S. Cl. 266—34 V 6 Claims

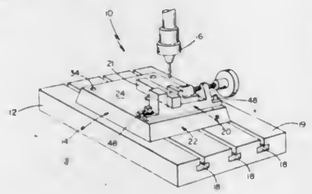


An arrangement for atomizing molten metallic material includes a furnace for tapping into a container and a cooling section. The furnace and container (crucible or ladle) are enclosed in a tank wherein they can be subjected to vacuum. The container is raisable and lowerable with respect to the cooling section, so that a closure valve can be inserted between them when suction is being applied. In the lowered position the container rests on a connecting member which contains nozzles for gas directed against the stream flowing from the container to disintegrate the stream into particles.

3,785,634
POSITIONING

James M. Denker, Scituate, Mass., assignor to Nutron Corporation, Hingham, Mass.

Filed July 21, 1972, Ser. No. 273,833
Int. Cl. B23g 3/06
U.S. Cl. 269—71 9 Claims

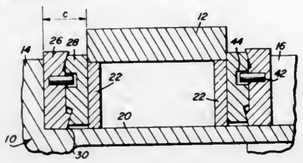


The invention features a positioning device comprising a workpiece support platform having a planar upper surface, a plurality of linkages, a linkage support member, means connected to the linkage support member for engaging a rotary tool machine, and means for supporting the platform with the upper surface thereof perpendicular to the axis of rotation of the rotary tool of the machine, each linkage being connected for pivotal motion about a first fixed axis relative to the platform and for pivotal motion about a second fixed axis relative to the linkage support, and the distance between the first and second axes being the same for each linkage.

3,785,635
WORKPIECE HOLD-DOWN JAWS WITH CONSTANT DIMENSION

Carl O. Lassy, 96 Bohemia, Bristol, Conn., and William A. Lassy, 73 Grove Ave., Forestville, Conn.

Filed Apr. 1, 1971, Ser. No. 130,394
Int. Cl. B23q 3/02
U.S. Cl. 269—136 7 Claims

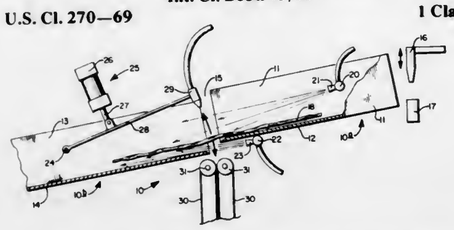


A hold-down for workpieces including a bed and a pair of upstanding opposed jaws mounted thereon with at least one jaw being movable in relation to the other with at least one jaw also including a structure which will exert a downward force on the workpiece when the jaws are moved toward each other into clamping engagement with the workpiece to assure positive contact of the workpiece with the bed of the hold-down, parallel or the like. The means exerting the downward force includes engaging inclined surfaces and engageable flat surfaces which will come into contact when the movable component of the jaw has reached a predetermined position in its downward movement thereby providing a predetermined dimension for the jaws which is necessary in many machine operations.

3,785,636
BAG FOLDING APPARATUS

James L. Bitting, Baton Rouge, La., and Robert J. Hagens, Richmond, Va., assignors to Ethyl Corporation, Richmond, Va.

Filed Sept. 20, 1971, Ser. No. 182,081
Int. Cl. B65h 45/00
U.S. Cl. 270—69 1 Claim



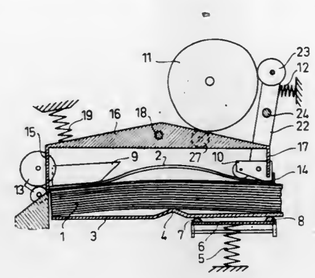
Apparatus for folding a flat, non-self-supporting, thermoplastic bag. An inclined support surface receives a plastic bag which is prevented from wrinkling or bunching by means of jets of compressed air directed against the top surface of the bag and optionally against a portion of the bottom surface of the bag. A reciprocating air nozzle creases the bag in the center and introduces the bag into the first of a series of folding belts.

3,785,637
DEVICE FOR THE DELIVERY, ONE BY ONE, OF PIECES OF FILM FROM A STACK

Lucas van der Does, Delft, Netherlands, assignor to N.V. Optische Industrie "De Oude Delft", Delft, Netherlands

Filed Dec. 17, 1971, Ser. No. 209,119
Claims priority, application Netherlands, Jan. 4, 1971, 7100002
Int. Cl. B65h 3/24, 3/54
U.S. Cl. 271—24 2 Claims

A device for the delivery, one by one, of rectangular pieces of film from a stack, the stack being incorporated in a storage magazine with a substantially flat pressure plate keeping the stack by spring pressure against retaining members acting upon the top film, at least one of the retaining members being a pressure member that can move to and fro near one side of the stack, which pressure member can push one edge of the top film toward the opposite edge, as a result of which the top film is released from the stack over a large part of its surface. The invention being that the direction of active movement of the pressure member coincides with the direction in which the films are delivered, that near the delivery end of the magazine

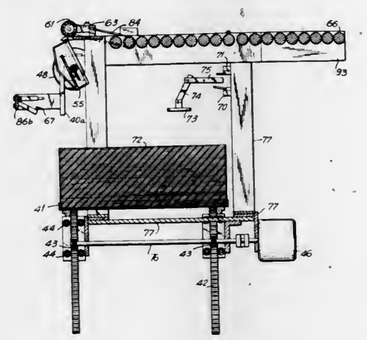


a blocking device is provided which can be moved into the path of the top film, causing it to bulge during the active movement of the pressure member, and that furthermore a second blocking device is provided which, near the end of the active movement of the pressure member, is pressed behind the pushed-up edge of the top film of the stack, and presses it back, counter to the spring force acting upon, to such an extent that the top film is released from the retaining members and after removal of the first blocking device, can extend freely in one direction of delivery.

3,785,638
FABRIC PICKUP AND TRANSFER DEVICE

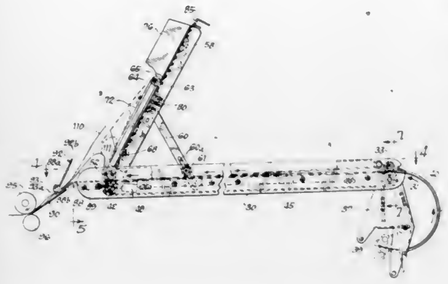
Aubrey G. Beazley, El Paso, Tex., assignor to Farah Manufacturing Company, Inc., El Paso, Tex.

Continuation-in-part of Ser. No. 5,809, Jan. 26, 1970, Pat. No. 3,611,957. This application Aug. 31, 1971, Ser. No. 176,606
Int. Cl. B65h 3/20
U.S. Cl. 271—33 6 Claims



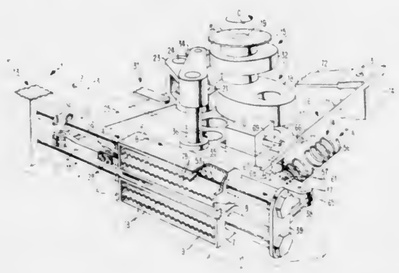
A pick-up and transfer device is provided which holds fabric workpieces in a stacked relationship, separates and picks up the workpieces individually by means of an adhesive tape, if needed in an inverted face-up or face-down relationship, transfers the workpieces from a lower position to an upper position, and advances the individual workpieces to subsequent garment forming devices.

3,785,639
SHEET STACKING APPARATUS FOR A DUPLICATING MACHINE OR THE LIKE
Bernard M. Ziebka, Morton Grove, and Paul A. Tamburrino, Hoffman Estates, both of Ill., assignors to A. B. Dick Company, Niles, Ill.
Filed June 6, 1972, Ser. No. 260,110
Int. Cl. B65h 5/02, 9/14
U.S. Cl. 271—46 10 Claims



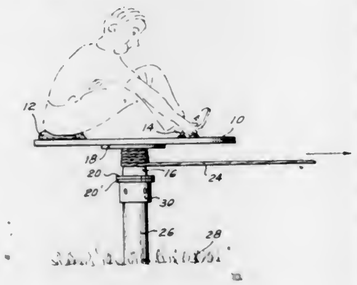
The duplicating machine includes an electrostatic copying unit, a conversion unit for converting each electrostatic copy to form a master sheet, and a duplicating unit for making a number of copies by direct contact between each master and receiving sheets. The stacking apparatus is mounted between the conversion unit and the duplicating unit and is adapted to stack masters in inclined relationship with a portion of the upper surface of each successive master in coextensive contact with a corresponding portion of the lower surface of the immediately preceding master. The stacking apparatus includes an inclined planar support with lifting means in the form of driven belts for engaging the underside of the trailing portion of each master. A control system permits the duplicating machine to operate in a continuous and fully automatic manner.

3,785,640
APPARATUS FOR SEPARATING AND FEEDING DOCUMENTS
Henry H. Delcano, Endwell; William M. Demchak, Johnson City, and Marek Jakubowski, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 1, 1972, Ser. No. 277,012
Int. Cl. B65h 3/08, 3/52
U.S. Cl. 271—90 9 Claims



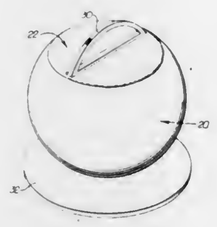
A document separating and feeding apparatus utilizes a retractable and reciprocating separator head of the suction type and is provided with selectively actuable latch means. When actuated, the latch means causes the separator head to be maintained in a retracted position without interrupting the reciprocating motion of the head. Also, mounted on the head is a member with outwardly extending serrated edges. The coaction of the serrated edges and the suction of the head is used to separate and feed the documents.

3,785,641
ROTATABLE CORD DRIVEN PASSENGER CARRYING DISC
Robert N. Muffly, Entiat, Wash., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Oct. 5, 1972, Ser. No. 295,275
Int. Cl. A63g 1/00
U.S. Cl. 272—46 1 Claim



A toy comprising a vertical shaft securable at its lower end in the ground; an axle secured to the top end of the shaft and extending upward therefrom; a horizontal circular disc having a seat and spaced handles on the top surface; a hub disposed rotatably about the axle and secured at its top end to the center of the bottom surface of the disc and a pull cord fastened at one end to the hub.

3,785,642
JOGGER BALL
Pasquale J. Sterlicchi, 611 D Oakdale Rd., Newark, Del.
Filed Aug. 17, 1970, Ser. No. 64,171
Int. Cl. A63b 23/04
U.S. Cl. 272—70 6 Claims



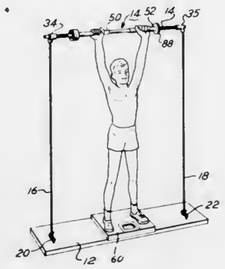
A sealed, partially inflated, flexible ball having a flap top portion and an interior disc centrally dividing the ball vertically into two separate compartments. An air passageway is formed in the disc between the two separated compartments. Thus, when a user stands on top of the flat portion of the ball and shifts his weight from one foot to the other air will flow, correspondingly, to the compartment with the lower pressure thereby inducing a jogging action.

3,785,643
ERRATIC MOVEMENT TETHERED BALL STRIKING TOY
Everett W. Rich, 424 W. Pardee Ln., Stockton, Calif.
Filed Feb. 10, 1971, Ser. No. 114,270
Int. Cl. A63b 69/20
U.S. Cl. 272—78 1 Claim



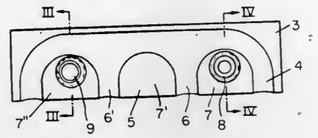
A tethered ball toy is provided wherein several balls are suspended from a line, at least one of the balls being partially filled with a liquid or solid, or being mounted off-center or attached by a short cord to the line such that when one ball is struck it produces erratic movement of the other ball or balls. The suspending line may contain a resilient spring or a shock cored portion, whereby the erratic movement of the balls is further enhanced thus requiring a high degree of agility and coordination to kick, or otherwise strike, the ball several times.

3,785,644
PULL TYPE EXERCISING DEVICE HAVING WITH FRICTIONAL RESISTANCE TO PULLING
Robert F. Bradley, and Lindell P. Bradley, both of 10792 Maudlin Rd., New Buffalo, Mich.
Filed Nov. 2, 1971, Ser. No. 194,867
Int. Cl. A63b 21/00, 21/20
U.S. Cl. 272—79 D 12 Claims



An apparatus for physical exercising in which a bar assembly having a rotatable shaft with reels at opposite ends thereof is connected to a base by ropes or other types of lines wound on the reels. The shaft is enclosed in a tubular member in which it rotates, and hand grips on the tubular member are provided. Any gripping force exerted by a user on the hand grips will be transmitted to the tubular member and to the shaft to resist the force required to rotate the shaft, when the bar assembly is being lifted. The shaft is rotatable in the direction to wind the lines on the reels by a spring mechanism which consists of a cylindrical housing and the shaft about which a spring of strip metal is wound and attached, the spring being of a type which produces essentially its entire torque force at the area where it leaves the coil on the shaft, thereby providing a substantially constant force regardless of the amount of winding of the spring on the shaft.

3,785,645
ELASTIC BAND TYPE EXERCISING DEVICE
Ouziel Yosef, 102, Aloof David St., Ramat-Chen, Israel
Filed Jan. 13, 1972, Ser. No. 217,488
Claims priority, application Israel, Feb. 12, 1971, 36178
Int. Cl. A63b 21/00, 23/04
U.S. Cl. 272—82 1 Claim



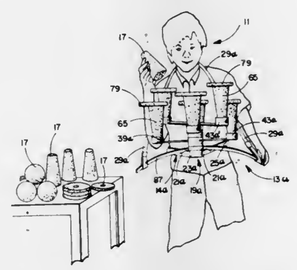
An expander to be used for gymnastic or physiotherapeutic exercises comprising an endless elastic loop and two handles each of which is constituted by two separable halves which define between them an arrangement of internal grooves in such a manner that parts of said loop can be inserted in various configurations within said grooves to adjust the length of the loop according to requirements.

3,785,646
EXERCISING DEVICE
Sol Ruskin, 11 Washington Ave., Lawrence, N.Y.
Filed Apr. 9, 1973, Ser. No. 348,929
Int. Cl. A63b 23/04
U.S. Cl. 272—57 D 5 Claims



An exercising device for attachment to the feet in the form of a shoe having weight receiving bores in the soles thereof.

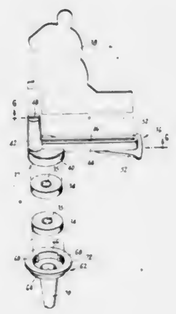
3,785,647
BALANCING DEVICE
Martin Bender, 162 N. Alta Vista Blvd., Los Angeles, Calif.
Filed Oct. 6, 1971, Ser. No. 187,105
Int. Cl. A63f 9/00
U.S. Cl. 273—1 M 14 Claims



A device utilized for balancing objects thereon which comprises a support structure in the form of a body rack having at-

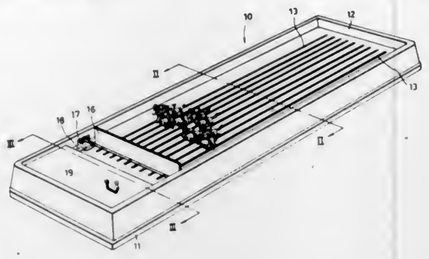
tachment means such as a waist strap for detachably securing the body rack to the body of the user so that his arms can be free for placement of objects. A plurality of transversely extending arms can be carried on the body rack, the arms having support areas or receptacles for balancing objects thereon at spaced locations such as at the ends of the arms. The arms may be rotatably mounted on the body rack, and a drive motor may be provided for causing the arms to slowly rotate in a horizontal plane to increase the difficulty of balancing the objects on the arms.

3,785,648
HOCKEY GAME WITH MAGNETIC CONTROL MEMBERS
Takanori William Kobayashi, Roxboro, Quebec, Canada, assignor to Coleco Industries, Inc., Hartford, Conn.
Filed July 26, 1971, Ser. No. 166,189
Int. Cl. A63f 9/00
U.S. Cl. 273—85 B **5 Claims**



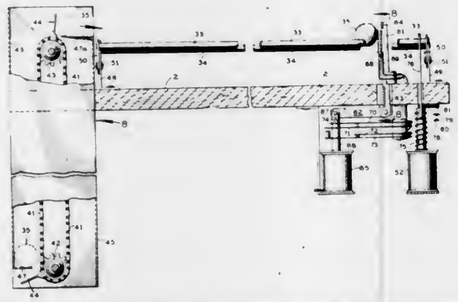
Game apparatus utilizes player pieces and control members which have disposed therein multipolar magnets of circular cross-section having at least four alternately arranged regions of opposite polarity circumferentially positioned thereabout, and which are slidably operable upon a nonferrous playing board with their axes extending perpendicular to the playing surface of the board. The magnet in the player piece is annular and the player piece has a downwardly extending contact element provided by a stud on the base portion of the player piece which extends through the central aperture of the magnet and therebelow to provide limited contact between the body of the player piece and the playing surface of the board. The striking portion of the player piece extends laterally outwardly from the base portion in contact with the upper surface of the board and the player piece is supported upon the contact element and the striking portion. The striking portion desirably comprises an elongated arm extending laterally along the upper surface of the playing board and it has a flared configuration adjacent its free end provided by wing portions which extend outwardly from each side of the arm and which define curvilinear striking surfaces diverging from one another and increasing in curvature towards the free end to control the direction of an object propelled thereby. Interaction between the magnets of a player piece and of a control member through the playing board enables sliding and sharp pivoting movement of the player piece upon the game board, upon manipulation of the control member therebelow.

3,785,649
RACING FIGURES PULLED BY LINES RANDOMLY WOUND ON SPOOLS
Ernst Albin Andersson, Kopmansplan 9, Tumba, Sweden
Filed Dec. 14, 1971, Ser. No. 207,934
Claims priority, application Sweden, Dec. 15, 1970, 16944/70
Int. Cl. A63f 9/14
U.S. Cl. 273—86 G **1 Claim**



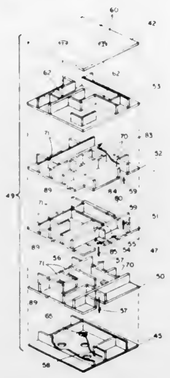
A game comprising a box-like rectangular base divided into a top and a bottom portion which are capable of being connected together and in which top portion there is disposed a number of longitudinally extending grooves along which figures are arranged to move freely under the action of pull lines attached to the figures and to associated wind-up spools musted on a driven shaft extending transversally of the grooves. The shaft on which the wind-up spools are mounted is arranged to cooperate with a spring operated clutch mechanism which is operable to lock or to release the spools for rotation relative to the shaft, while switches actuating the shaft drive means are arranged to co-act with means extending in the path of the figures moving along their respective tracks, so that engagement of one of said figures with said means causes the shaft drive means to be deactivated thereby stopping rotation of the shaft and thus also movement of the figures.

3,785,650
MANUALLY CONTROLLED ELECTRIC PINBALL GAME
Ronald D. Halliburton, Hollywood, Fla., assignor to Allied Leisure Industries, Inc., Hialeah, Fla.
Filed May 15, 1972, Ser. No. 253,289
Int. Cl. A63f 7/16
U.S. Cl. 273—110 **1 Claim**



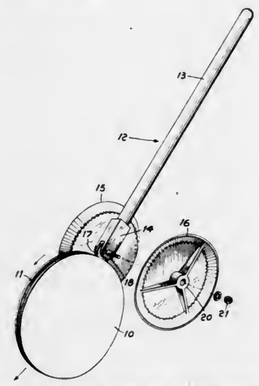
A typical electric scoring pinball game board resiliently secured within a cabinet and visible through a window as a reflected image in an upstanding mirror. Externally projecting handles move the board in strategic directions to control the path of the ball. One of several novel features includes a visible lateral trackway on which the ball is continuously reciprocated. Each handle contains a button for releasing the ball from the trackway at any desired lateral position during its reciprocation for descent onto the board for play. An elevator restores the ball on the trackway for reciprocation at the conclusion of each game.

3,785,651
DICE MAZE PUZZLE
M. Kent Smith, 5532 Radnor Rd., Indianapolis, Ind.
Filed Apr. 17, 1972, Ser. No. 244,582
Int. Cl. A63b 67/00
U.S. Cl. 273—113 **8 Claims**



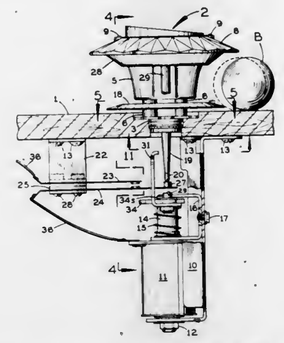
A cube having a maze contained therein through which a ball is movable. The puzzle has a transparent outer enclosure containing the maze and ball. Nontransparent intermediate walls are positioned inwardly of each transparent wall providing a space on each side of the cube in which the ball is freely movable. The nontransparent intermediate walls are provided with the holes through which the ball is passable to the maze within the intermediate walls. One hole is bisected by an inner wall thereby allowing the ball to go in one of two opposite directions. The maze extends vertically and horizontally through the cube.

3,785,652
STICK WITH PUSH ROLLER AND ROTATABLE GUIDE WHEELS FOR PUSHING A GROOVED DISC
Massud K. Ghovanloo, 241 Shoreward Dr., Great Neck, N.Y.
Filed May 15, 1972, Ser. No. 253,505
Int. Cl. A63h 33/02
U.S. Cl. 273—126 R **8 Claims**



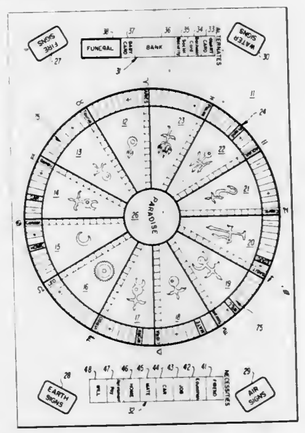
A disc game to be played between opposing players along the lines of hockey or Lacrosse comprising a disc having an annular circumferential groove in the rim thereof and a handle-guide assembly for driving and controlling the disc. One end of the handle assembly has two free-running guide wheels having inward facing opposed beveled surface portions and a pushing roller, also free-running, located in between the guide wheels. The beveled guide wheels are spaced apart an amount slightly greater than the disc thickness to facilitate the capture of the disc between the guide wheels and to enable the disc to either be passed to another player having a similar driving stick or to again set the disc into motion.

3,785,653
PINBALL GAME BUMPER ELECTRICALLY RESPONSIVE TO BALL IMPACT
Ronald D. Halliburton, Hollywood, Fla., assignor to Allied Leisure Industries, Inc., Hialeah, Fla.
Filed Feb. 2, 1973, Ser. No. 329,213
Int. Cl. A63f 7/00
U.S. Cl. 273—127 R **5 Claims**



A pinball game bumper assembly for receiving the impact of a ball from any lateral direction against a trigger element, the displacement of which element will operate and close a normally open electric switch for energizing a solenoid for restoring the bumper to its original idle position with the switch held open including a safety element for preventing successive ball impacts in a single game to operate the trigger element and switch, which also is adapted to energize a circuit to a scoring means.

3,785,654
ASTROLOGICAL BOARD GAME APPARATUS
Marian W. Chambers, 2458 Romain Way, East Point, Ga.
Filed Nov. 15, 1971, Ser. No. 198,558
Int. Cl. A63f 3/00
U.S. Cl. 273—134 C **2 Claims**



A game using principles of astrology with a game board divided into twelve "houses" of the zodiac. Each player moves

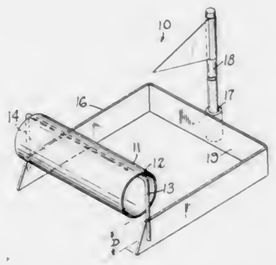
his playing piece around a circular portion of the game board in response to a thrown die and various instructions on the game board and on cards drawn by the player. The object of the game is to be the first player to ascend up "jacobs ladder" into "paradise." Landing upon the various spaces of the game board subjects the players to negative and positive reactions to either a bad or good "aspect" that may be expected from a particular planet as it traverses each house of the zodiac. The playing pieces correspond in shape to the players' houses of the Zodiac on the game board.

3,785,655
DOMINO TYPE GAME APPARATUS
Jack D. Babb, 420 Bonita, Jacksonville, Tex.
Filed July 14, 1972, Ser. No. 271,691
Int. Cl. A63f *9/20*
U.S. Cl. 273—137 C **10 Claims**



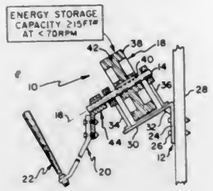
Twenty-eight pieces, as in dominoes, each have first and second indicia selected from a group of seven indicia which may be the dot groups and blank, as in dominoes, or any other selected indicia such as numerals, characters or symbols. Each of the seven indicia appears as the first or second indicia on seven of the pieces, and is therefore common to seven pieces. Additionally each piece has a third indicia, selected from the seven indicia, which is different from its first and second indicia; and each of the seven indicia appears as the third indicia on four pieces. Accordingly each of the seven indicia is common to four additional pieces, or a total of eleven pieces.

3,785,656
GAME DEVICE
Frank Gybowski, 34 Edgewood Way, New Haven, Conn.
Filed Sept. 15, 1972, Ser. No. 289,473
Int. Cl. A63b *57/00, 71/00, 69/36*
U.S. Cl. 273—177 A **4 Claims**



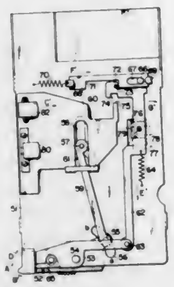
An indicating device for a target for a ball or puck in which an elongated hollow member of low mass in the shape of a cylinder is supported on a small horizontal rod and when struck by an object entering the target will revolve on the rod to give a positive indication of entry or passage through the target. A U-shaped enclosure is located rearward of the cylinder for retaining balls or pucks.

3,785,657
GOLF CLUB SWING TRAINING DEVICE
Bynum W. Moller, P.O. Box 688, Kerrville, Tex.
Continuation-in-part of Ser. No. 201,222, Nov. 22, 1971, Pat. No. 3,738,661, which is a continuation of Ser. No. 53,535, July 9, 1970, abandoned. This application Feb. 7, 1972, Ser. No. 223,937
Int. Cl. A63b *69/36*
U.S. Cl. 273—186 A **11 Claims**



There is disclosed a golf exercising device incorporating a flywheel providing resistance to downswing movement of a simulated golf club. The flywheel also acts to store energy thereby providing a realistic pull on the simulated golf club at the top of the backswing and providing self-powered follow-through movement of the simulated golf club. In one embodiment of the invention, a tachometer is operatively connected to the flywheel to provide a visual indication of how hard the golf club is being swung. Another embodiment of the invention incorporates a gear unit for increasing speed of the flywheel relative to the golf club handle. Another embodiment provides a gear ratio selector for the gear unit to change the relative speeds of the flywheel and the golf club handle.

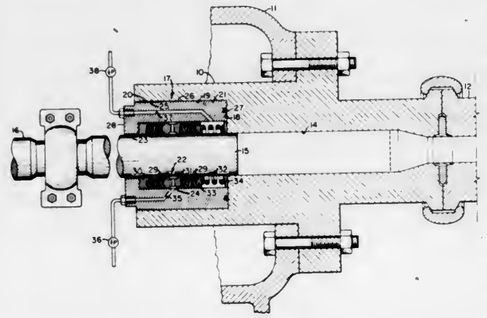
3,785,658
CASSETTE-TYPE MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS
Hisao Ikeda, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Division of Ser. No. 783,947, Dec. 16, 1968, Pat. No. 3,622,162. This application July 15, 1971, Ser. No. 165,790
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 C **3 Claims**



A double recording preventing means for use in a small-sized cassette tape recording and reproducing apparatus including a manual operation mode change-over lever and a hole sensing lever taking two different positions depending upon the presence and absence of a double recording preventing hole in a cassette to be recorded or reproduced, and a manual record lever for actuating a record switch through a switching lever in accordance with the position of the hole sensing lever in association with the operation of the change-over lever. On a base plate of the apparatus mounting a slidable plate carrying transducer heads and a pinch roller, the

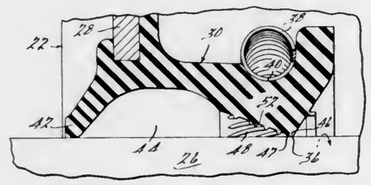
means comprises a projection in the slidable plate, a hook-like projection of the hole sensing lever, and first and second cutouts of the switching lever engageable with respectively the above-mentioned projections, the projection of the hole sensing lever being engaged with the first cutout in the presence of the double recording preventing hole to render the switching lever immovable, while in the absence of such a hole, the projection of the slidable head carrying plate being allowed to be engaged with the second cutout of the switching lever and shift the switching lever into the recording operating state of the apparatus by simultaneous actuations of the record lever and the operation mode change-over lever.

3,785,659
PACKING CARTRIDGE FOR RECIPROCATING PUMP
William C. Maurer, and Everett H. Lock, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.
Filed Mar. 17, 1972, Ser. No. 235,515
U.S. Cl. 277—35 **4 Claims**



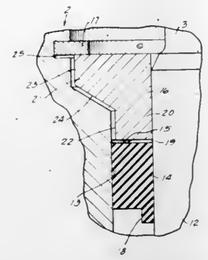
A packing cartridge for a reciprocating pump which includes a sleeve adapted to be connected to a recessed end of the fluid end housing and a packing assembly mounted in the sleeve. A lubricating port formed in the sleeve extends from an exposed end thereof to the interior of the sleeve and provides means for delivering lubricant to the packing assembly.

3,785,660
SEAL
Jack A. Bush, Livonia, Mich., assignor to Republic Industrial Corporation, New York, N.Y.
Division of Ser. No. 661,031, Aug. 10, 1967, abandoned. This application Oct. 15, 1970, Ser. No. 81,149
Int. Cl. F16j *15/54, 9/00*
U.S. Cl. 277—134 **2 Claims**



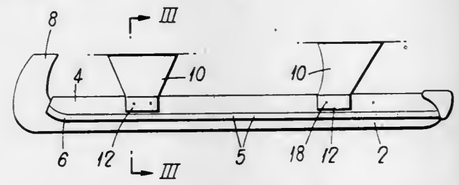
The disclosure relates to oil seals having helical fluid impellers thereon, which are known in the art as hydrodynamic seals. In such seals helical impellers on the air side of the seal converge with the direction of rotation of a shaft. Oil which leaks past the seal is deflected or "pumped" back to the oil side of the seal by the fluid impellers.

3,785,661
HIGH PRESSURE ROTARY SEAL BACKUP
Hollis N. White, Jr., Lafayette, Ind., assignor to TRW Inc., Cleveland, Ohio
Filed Sept. 21, 1972, Ser. No. 290,779
Int. Cl. F16j *15/54*
U.S. Cl. 277—188 **14 Claims**



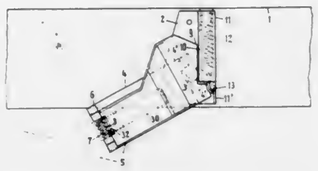
A hydraulic motor-pump assembly having an axial chamber formed therein, a pair of relatively rotationally and orbitally movable gear members disposed within the chamber, forming expanding and contracting fluid pockets between the teeth thereof and various fluid ports and passages for directing fluid, under relatively high pressure, through the housing and to and from the respective fluid pockets in synchronism with the relative movement of the gear members, and a work input-output shaft being connected by a wobble shaft, to one of the gear members for joint rotation with successive gear members, whereby the input-output shaft is subjected to operating forces tending to impart eccentric movement thereto, a fluid sealing structure being disposed at the input-output shaft and comprising a relatively resilient sealing ring, subjected at one side thereof to the relatively high fluid pressure in said chamber, with such sealing ring being backed at the low pressure side by a pair of cooperable members, one of which has a relatively minimum clearance with respect to the adjacent portion of the housing whereby said resilient sealing ring is operatively backed at the low pressure side thereof substantially through its radial area.

3,785,662
ICE SKATES
John Staples, Buckinghamshire, England, assignor to Mitchell & King Skates Limited, Slough, Buckinghamshire, England
Filed Apr. 24, 1972, Ser. No. 247,159
Claims priority, application Great Britain, Apr. 26, 1971, 1,1439/71
Int. Cl. A63c *1/38*
U.S. Cl. 280—11.17 **2 Claims**



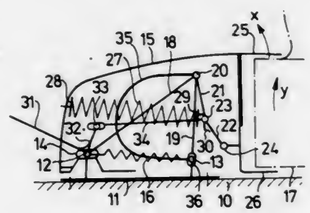
In an ice-skate of the kind having a longitudinally-extending tubular reinforcing member for the blade, and a pair of cup-shaped support members extending from the tube to a bed-support-plate and a sole-support-plate for a skate boot, lugs are formed on the upper edge of the blade, which lugs extend upwardly inside the tube to abut its inner surface, so as to transmit compressive loadings from the support members to the blade.

3,785,663
BRAKING DEVICE FOR A SKI
Reinhold Spieldiener, Vorhaldenstrase 95, CH-8045 Zurich; Alphons Saiko, Weinbergstrasse 54, CH-8802 Kilchberg, and Robert Spieldiener, Trottenstrasse 95, CH-8037 Zurich, all of Switzerland
Filed Apr. 20, 1972, Ser. No. 245,746
Claims priority, application Switzerland, Apr. 23, 1971, 5919/71
Int. Cl. A63c 7/10
U.S. Cl. 280—11.13 B 10 Claims



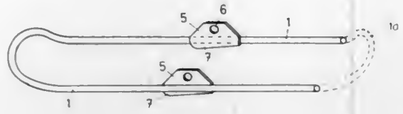
A braking device for a ski to stop its eventual escaping, comprising a braking unit adapted to be moved, due to an unexpected separation of ski and ski-boot, from a resting position flush with the ski trunk into a braking position by spring action, in which position a member of the braking unit projects beyond the sliding surface of the ski trunk in a transverse direction thereto, the braking unit being releasably held in resting position by a disengageable release element preventing the spring action only in engaged position and being disengageable by the separation of ski and ski-boot.

3,785,664
HEEL SUPPORTING DEVICE OF A SKI SAFETY BINDING
Brigitte Sittmann, Stuttgart, Germany, assignor to Vereinigte Baubeschlagfabriken Gretsch & Co. G.m.b.H., Leonberg near Stuttgart, Germany
Filed Jan. 13, 1972, Ser. No. 217,556
Claims priority, application Germany, Jan. 16, 1971, P 21 01 973.8
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 16 Claims



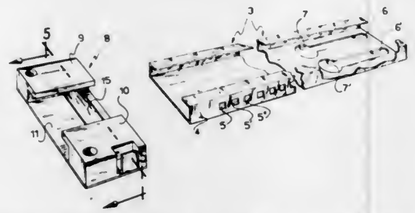
A heel supporting device of a ski safety binding of the type as disclosed in the U.S. Pat. No. 3,529,846, in which in addition to the heel depressing spring further spring means are provided which during normal skiing permit the heel of the ski boot to be slightly lifted off the ski against their spring action without, however, causing the binding to be released from the boot. These additional spring means preferably consist of at least one bow-shaped spring element which is interposed between the ski and the heel and is in parallel connection with a bracing member which limits the stroke of the additional spring element.

3,785,665
SKI FOR SNOW VEHICLE
Markku Merenheimo, Oulu, and Mauno Ruuska, Muhos, both of Finland, assignors to Valmet Oy, Helsinki, Finland
Filed Apr. 7, 1972, Ser. No. 242,187
Claims priority, application Finland, Jan. 26, 1972, 201/72
Int. Cl. B62b 17/02
U.S. Cl. 280—28 4 Claims



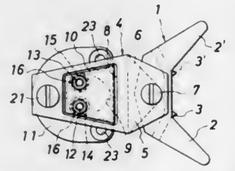
A snowmobile ski having an elongated tubular section bent into U- or O-shape with an end portion bent upwardly to form a gripping loop, and a support plate fixedly mounted on the elongated tubular section so that the elongated tubular section constitutes on hard snow or ice an exclusive sliding surface of the snowmobile ski.

3,785,666
DEVICE FOR CHANGING THE LONGITUDINAL POSITION OF A SKI BINDING
Georges Pierre, and Joseph Salomon, both of 34, Avenue de Loverchy, Annecy, France
Filed Feb. 2, 1972, Ser. No. 222,914
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 8 Claims



A device making it possible to change the longitudinal position of a binding on a ski rapidly; the device includes a clamp and slide arrangement permitting longitudinal displacement and two profiles engaging with each other under the action of a spring exerting a thrust transversely relative to the ski.

3,785,667
TOE-HOLDING DEVICE FOR SAFETY SKI BINDING
Yoichi Nagasaki, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed May 18, 1972, Ser. No. 254,366
Claims priority, application Japan, July 19, 1971, 46/63651
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 10 Claims



A toe-holding device for a safety ski binding comprising a toe-holder body laterally rotatably supported on a stationary member and having an aperture, the body being urgedly

locked, at one point, to the stationary member with a given biasing force. A pair of vertical shafts is extended through the aperture so that they can contact with the body, and is positioned symmetrically relative to the urgedly locked point of the body. The aperture has a space enough to permit the body to be rotated about the pair of shafts respectively.

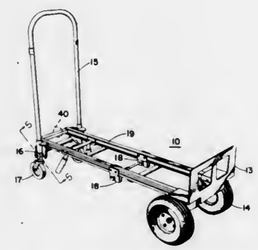
In a normal ski-operative condition, the body is prevented from its rotation by the contact of the shafts with the body and the biasing force acting on said one point of the body. When a force exceeding the given biasing force is applied to the body to tend to rotate it, the body is allowed to rotate in either lateral direction about either of the shafts.

3,785,668
SAFETY SKI BINDING SYSTEM
Hannes Marker, Garmisch-Partenkirchen, Hauptstrabe, Germany
Filed May 11, 1971, Ser. No. 142,144
Claims priority, application Germany, May 12, 1970, P 20 23 269.0; Nov. 11, 1970, P 20 55 499.8
Int. Cl. A63c 9/08
U.S. Cl. 280—11.35 R 9 Claims



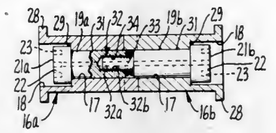
A safety ski binding comprise a heel-holding device and an abutment mounted on the ski as well as the sole of the skiing boot. The heel-holding device normally forces the sole of the boot against the abutment and in response to a vertically and/or horizontally directed overload releases the skiing boot. The abutment consists of a disc, which is secured to the ski to be at least approximately coaxial to the tibia and when the skiing boot is applied extends into a corresponding recess in the sole of the boot.

3,785,669
CONVERTIBLE BULK HAND TRUCK
William Michael Doheny, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Aug. 28, 1972, Ser. No. 284,329
Int. Cl. B62b 3/04
U.S. Cl. 280—47.18 10 Claims



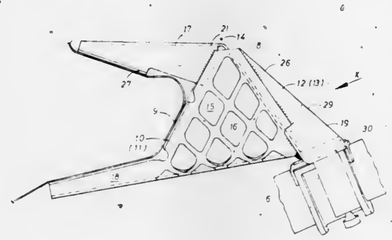
A convertible bulk hand truck is described which is capable of being adjustably positioned by virtue of a unique foldable adjustable linkage between folded and unfolded positions to define either a two wheeled dolly device or a four wheeled platform cart. The hand truck is lightweight, yet strong and rigid for dependable performance in hard, everyday service, has excellent load stability and is capable of transporting stacked products around manufacturing and sales points with maximum ease.

3,785,670
SECURITY COUPLING
Robert M. Smith, 15 Oceanside Dr., Daly City, Calif.
Filed July 29, 1971, Ser. No. 167,145
Int. Cl. B60b 35/14
U.S. Cl. 280—79.1 11 Claims



A security coupling is mounted in the wheel of a shopping cart. A pair of wheel retainers are secured together to prevent removal of the wheel from the frame of a shopping cart and include a pair of mating threaded connectors having enlarged heads carried in counterbores in the outer ends of the retainers such that only the outer faces of the connectors are accessible. To unscrew the connectors and disconnect the wheel from the frame a special wrench is provided having spaced tines which fit in corresponding lug sockets diametrically spaced across the ends of the connector heads. The connectors are releasably locked against rotation in the retainers by a spring key or spline. The key is sinuous shaped and in operative position is biased to project into confronting keyways on the connectors and retainers. One of the wrench tines is elongated to extend into the keyway and engage the slope of the spring key to retract it from its operative position so the connectors may be unscrewed with the wrench.

3,785,671
SAFETY BRACKET FOR A MOTOR CAR
Gert Salewsky, Lenting, Germany, assignor to Audi Nsu Auto Union A.G., Ingolstadt, Germany
Filed Dec. 29, 1971, Ser. No. 213,408
Claims priority, application Germany, Feb. 13, 1971, P 21 06 963.6
Int. Cl. B62d 1/18
U.S. Cl. 280—87 R 6 Claims

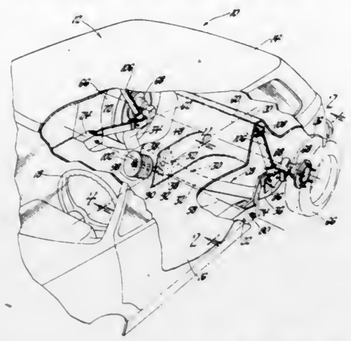


A bracket is used for carrying a body pipe for a safe steering of a motor car. The invention is characterized in that the bracket is composed of a carrying member and a shaping member.

3,785,672
VEHICLE SUSPENSION SYSTEM
Horacio Shakespear, Orchard Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed June 19, 1972, Ser. No. 263,964
Int. Cl. B60g 9/02
U.S. Cl. 280—112 A 5 Claims

A suspension system particularly adapted for the rear of automobile type vehicles and incorporating roll steer with inde-

pendent ride rate and roll stiffness, the suspension system including a solid axle centrally connected to the body for pivotal movement about a longitudinal roll axis and a transverse deflection axis, a pair of longitudinal control arms disposed between the body and the axle to control the path of motion of the axle about either of the two axes, and a coil spring



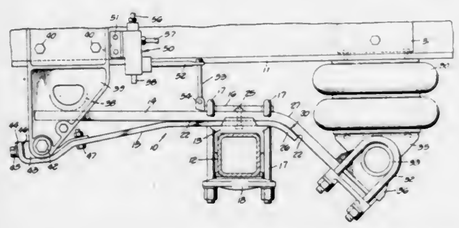
mounted on the body in the longitudinal plane of symmetry and connected to the axle at the center thereof through a bell-crank and connecting link, pivotal movement of the axle about the deflection axis corresponding to jounce deflection of the wheels being resisted by the spring and pivotal movement about the roll axis having no substantial effect on the spring so that the latter does not contribute to roll stiffness.

3,785,673

PRELOADED SPRING BEAM AND METHOD EMPLOYED ALONE OR IN COMBINATION WITH AIR BELLOWS SPRING

Henry C. Harbers, Jr., Huntington Beach, and Henry C. Harbers, Sr., Pasadena, both of Calif., assignors to Western Unit Corporation, City of Industry, Calif.

Filed Sept. 20, 1971, Ser. No. 182,014
Int. Cl. B60g *11/28*
U.S. Cl. 280—124 F **26 Claims**



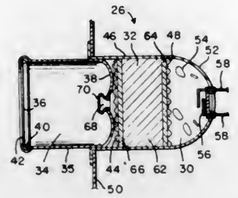
A preloaded spring beam having a short portion of its length held resiliently deformed in a manner to increase its load sustaining capabilities substantially. In one typical application the spring beam is employed in a vehicle suspension assembly, either alone or in combination with other spring means, such as regulatable air bellows spring means. The spring beam typically comprises a single spring leaf of the single or double cantilever type and preloaded in an area immediately opposite its anchorage to its fixed support utilizing a specially constructed high strength preloading device or shim between the beam and support effective to store high value preloading stresses in the beam as an incident to the clamping thereof to its support. When used in combination with a regulatable air spring, the suspension assembly provides a soft ride under both dead load and under wide range live loading conditions and, in addition, assures superior sway and stabilizing control of the associated carriage unit.

3,785,674

CRASH RESTRAINT NITROGEN GENERATING INFLATION SYSTEM

Donald R. Poole, Woodinville; Peter L. Stang, Bellevue, and James E. Mars, Vashon, all of Wash., assignors to Rocket Research Corporation, Redmond, Wash.

Filed June 14, 1971, Ser. No. 152,899
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 AB **42 Claims**



A crash restraint system for an automobile comprising an inflatable bag mounted forward of the automobile passenger seat. A bag inflating device comprising a cluster of gas generating units, each of which has a primary combustion chamber to produce the driving gas mixture, a secondary reaction chamber to react with some of the products of the gas mixture to remove them from the gas mixture, and a gas generating coolant chamber which generates additional gas by vaporization and produces a cooler gas mixture to inflate the bag.

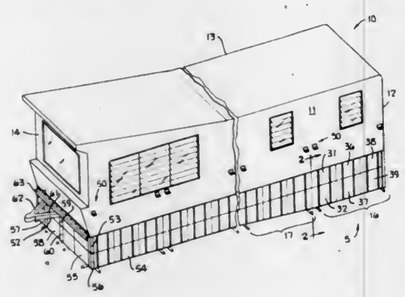
In the combustion chamber is a composition made up of an azide (e.g. sodium azide) and an oxidizer (e.g. potassium perchlorate), which upon ignition produces free nitrogen and other combustion products, such as sodium oxide, free sodium and potassium chloride. In the secondary reaction chamber is a porous composition (e.g. copper oxide and carbon) that reacts with the free sodium and sodium oxide and permits the free nitrogen to pass through to the coolant chamber. The coolant chamber contains a liquid halocarbon (e.g. Freon) which atomizes and vaporizes with the nitrogen to form an inflating gas for the bag.

3,785,675

MOBILE HOME SKIRTING

George F. Norris, 1920 Kiowa Dr., Lafayette, Ind., and Gerald K. Robbins, 101 S. 31st St., Lafayette, Ind.

Filed Mar. 20, 1972, Ser. No. 236,309
Int. Cl. B60r *27/00*
U.S. Cl. 280—150 R **5 Claims**



Skirting for attachment to a mobile home. The skirting includes a plurality of skirt assemblies each pivotally connected to the bottom edge of the trailer so as to be swingable outward and upwardly to a stored position. Each skirt assembly in-

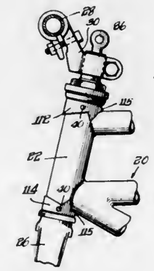
cludes a pair of telescopically constructed vertical posts having cross bars connected thereto. The lower cross bar is telescopic so as to maintain parallelism between the posts even though they are extended to different lengths. Panels are mounted to the cross bars by means of clips. The panels are connected together by interlocking slides.

3,785,676

BICYCLE STEM LOCK

Frank F. Klein, Jr., 2049 W. 63rd St., Chicago, Ill.

Division of Ser. No. 771,080, Oct. 28, 1968, Pat. No. 3,660,995, which is a continuation-in-part of Ser. No. 618,004, Feb. 23, 1967, abandoned. This application Apr. 26, 1971, Ser. No. 137,692
Int. Cl. B62k *19/32*
U.S. Cl. 280—279 **5 Claims**



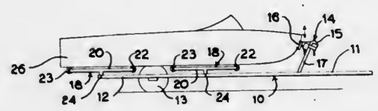
A bicycle fork stem lock installed either at the time of manufacture of a bicycle or subsequently, the lock including a slide bolt projecting from the fork stem into the upper bearing cup and preferably also into the head frame, the bicycle fork stem and upper head bearing cup being of standard size.

3,785,677

BOAT SUPPORT FOR TRAILERS

Oscar C. Calkins, Spokane, Wash., assignor to Calkins Manufacturing Company, Spokane, Wash.

Filed Jan. 3, 1972, Ser. No. 214,713
Int. Cl. B60p *3/10*
U.S. Cl. 280—414 R **11 Claims**



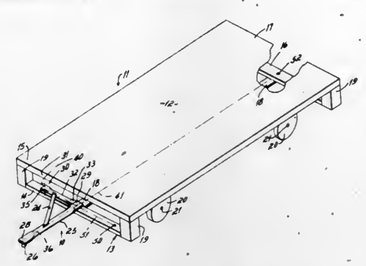
A boat support designed to accommodate changes in the load distribution on a boat trailer. Self-balancing hull support roller assemblies are combined on a supporting framework together with a bow securing assembly. Limited movement is provided on the framework between the bow securing assembly and the hull supporting assembly to permit self-balancing of the hull supporting assembly independently of the bow securing assembly. Such movement can be provided by a limited pivotal connection between the trailer framework and tongue of the trailer, by walking beam supports for multiple hull supporting assemblies or by an arrangement which allows limited elevational movement of the bow securing assembly relative to the trailer framework.

3,785,678

COUPLER DEVICE FOR A CART

John Marshal Shearer, Loveland, Ohio, assignor to Leyman Manufacturing Corporation, Cincinnati, Ohio

Filed Sept. 29, 1972, Ser. No. 293,327
Int. Cl. B60d *1/02*
U.S. Cl. 280—491 B **3 Claims**



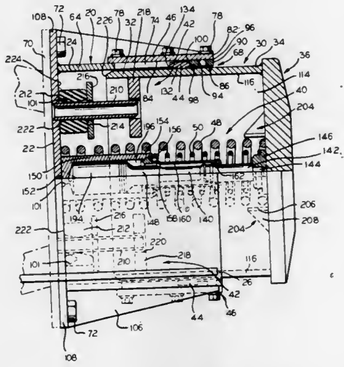
The coupler device includes a hitch bar that is movable between an extended position where same is aligned with the centerline of the cart, and a retracted position where same is skewed relative to the centerline of the cart. A hitch pin is mounted to and depends from each end of the bar. When in the extended position the front hitch pin is adapted to interconnect with a forward cart in a coupling attitude, and the rear hitch pin locks the hitch bar to the cart. When in the retracted position the front hitch pin locks the hitch bar in a storage attitude where the coupler is totally recessed beyond the leading edge of the cart. The coupler device also includes a pivot arm fixed to the hitch bar at one end and pivotally connected to the cart's frame at the other end, the pivot point being substantially removed from the cart's centerline but closely adjacent the cart's leading edge. Thus, the hitch bar may be pivoted between the extended and retracted positions about the pivot point while remaining attached to the cart at all times.

3,785,679

CUSHIONED BUMPER FOR SCRAPERS

Bertil E. Peterson, South Holland, and Richard J. Housman, Dolton, both of Ill., assignors to Cardwell Westinghouse Company, Chicago, Ill.

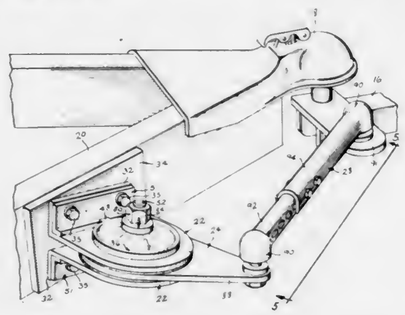
Filed Apr. 10, 1972, Ser. No. 242,329
Int. Cl. B60r *19/08*; **B60d** *3/00*
U.S. Cl. 280—481 **7 Claims**



A cushioned bumper for ground scrapers comprising a housing adapted to be mounted on the rear end of the scraper

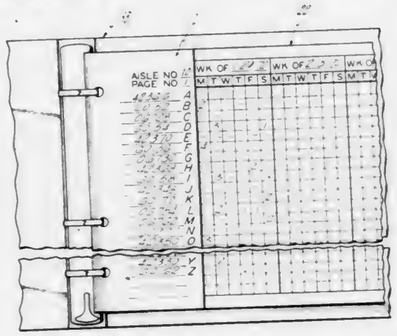
in a generally horizontal position and extending longitudinally of the scraper, a tubular plunger structure reciprocably mounted in the housing and carrying a buffer plate exposed exteriorly of the housing against which the blade of a bulldozer or the like will engage to push the scraper when stuck, and a composite cushioning arrangement interposed between the housing and the plunger including a pressure responsive variable orifice type hydraulic cushioning unit and one or more resilient pad type cushioning units for cushioning the forces applied to the scraper by the bulldozer.

3,785,680
SWAY CONTROL DEVICE FOR CONNECTION BETWEEN A TRAILER AND TOWING VEHICLES
Arthur L. Good, and Robert P. Reese, both of Elkhart, Ind., assignors to Reese Products, Inc., Elkhart, Ind.
Filed Jan. 26, 1973, Ser. No. 327,081
Int. Cl. B60d *1/00*
U.S. Cl. 280—446 B **10 Claims**



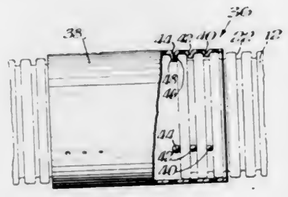
A control device usable for reducing sway between a trailer and towing vehicle. The control device includes a friction disk disposed between a bracket connected to one of the trailer and towing vehicle and a pivot arm connected to the other of the trailer and towing vehicle. The disk is compressed between the bracket and arm by means of an adjustable securement part.

3,785,681
INVENTORY CONTROL APPARATUS AND METHOD
Edward C. Jackowitz, 78 Lanning St., Southington, Conn.
Filed Feb. 8, 1972, Ser. No. 224,500
Int. Cl. B42d *15/00*
U.S. Cl. 283—55 **4 Claims**



An inventory control apparatus and method are presented wherein letter identification tags, letter conversion cards, and order sheets are employed to form a simple and easy to use system. Letter identification tags are placed on store shelves, with each letter being associated with a particular inventory item. Master letter conversion cards have letter designations keyed to the letter designation on the shelves along with word or other code designations for the particular inventory items. The letter conversion cards and disposable order sheets are retained in a binder and inventory control is maintained simply by a clerk making appropriate quantity notations on the order sheet at locations opposite to letter designations of items to be restocked.

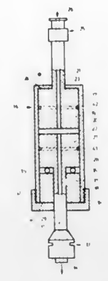
3,785,682
FLEXIBLE FITTINGS FOR CORRUGATED TUBING
Willard W. Schaller, Maumee, Ohio; Ronald C. Martin, Newark, Del., and Marty E. Sixt, Napoleon, Ohio, assignors to Advanced Drainage Systems, Inc., Newark, Del.
Continuation of Ser. No. 809,117, March 21, 1969, abandoned. This application Nov. 17, 1970, Ser. No. 90,486
Int. Cl. F16l *35/00*
U.S. Cl. 285—24 **4 Claims**



Flexible coupling for interconnecting ends of corrugated tubing comprises straight-walled tubular body section having substantially uniform thickness throughout. Each of plurality of locking lugs formed in tubular body section at one end thereof projects into interior of tubular body section and has guiding surface portion across which corrugated tubing slides when tubing is inserted into tubular body section for connection thereto. Locking lugs have abutment surface portions adjacent guiding surface portions for preventing removal of corrugated tubing from tubular body section. Each locking lug is positioned between adjacent pair of corrugations in tubing inserted into tubular body section after first corrugation of adjacent pair clears guiding surface portion. Removal of tubing is prevented by engagement between first corrugation of adjacent pair and abutment surface portions of locking lugs.

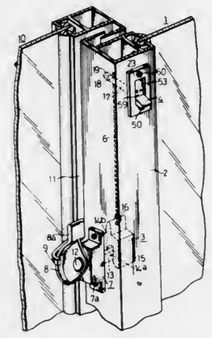
3,785,683
CONNECTING DEVICE FOR A CATHETER
Ter Je Roj Enok Adelhed, Jakobsberg, Sweden, assignor to Siemens Aktiengesellschaft, Erlangen, Germany
Filed Jan. 26, 1972, Ser. No. 220,843
Claims priority, application Sweden, Feb. 1, 1971, 1186/71
Int. Cl. A61m *5/00*; **F16l** *27/00*
U.S. Cl. 285—169 **1 Claim**

A device for connecting a catheter with a container for contrast medium which is subjected to pressure is characterized by coupling means which are liquid-tightly connected with each other, at least one of these means being mounted so as to be rotated relatively to the other means about the flow axis.



These means can be removably connected by connecting elements with the container for the contrast medium on the one hand and with the catheter on the other hand.

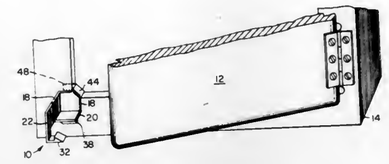
3,785,684
DOOR LOCKING MECHANISM
Yoshitaka Nakanishi, 12-9, 5-chome, Yawata, Ichikawa-shi, Japan
Filed May 24, 1971, Ser. No. 146,346
Claims priority, application Japan, May 23, 1970, 45/50039
Int. Cl. E05c *3/04*
U.S. Cl. 292—241 **1 Claim**



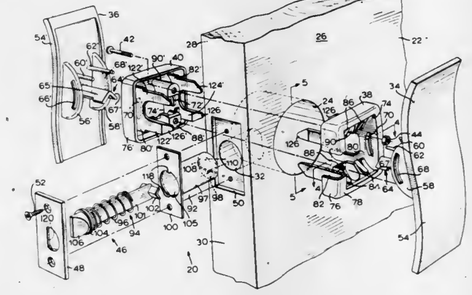
A door locking device comprising a cam latch released by a lock piece that can slide vertically in a vertical frame of a door. An actuating means is provided in the frame and slides the lock piece vertically, and a flexible and slackenable line connects the actuating means and the lock piece.

3,785,685
CABINET DOOR RESTRAINT
Francis X. MacDonald, Canton, and Paul M. MacDonald, North Abington, both of Mass., assignors to P. X. Industries, Inc., Rockland, Mass.
Filed July 21, 1972, Ser. No. 274,047
Int. Cl. E05c *19/18*
U.S. Cl. 292—288 **4 Claims**

A disposable device is provided to serve as a combination door lock, gauge and support for use in the assembly and shipping of cabinets. The device is of a semi-boxed configuration having a leg mountable at one corner of the door opening opposite the hinged side thereof. One wall of the device is articulated and latches with another wall whereby when the door of the cabinet is closed, the articulated wall is snapped into a latched position over the outside corner of the door, locking it in place. The leg may be temporarily stapled to the cabinet or may have an extension which hooks around the inside face of the cabinet.



3,785,686
DOOR LATCH
Richard James Armstrong, Toronto, Ontario, Canada, assignor to Decalock Limted, Toronto, Ontario, Canada
Filed May 5, 1972, Ser. No. 250,728
Int. Cl. E05b *3/00*
U.S. Cl. 292—336.3 **18 Claims**

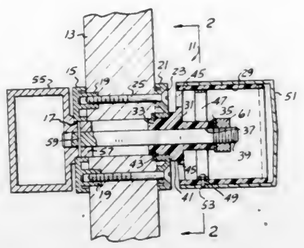


A door latch having interchangeable handles for attachment to a suitably prepared door by a pair of interchangeable handle mounting elements. A latch bolt is also adapted for positioning in the door in engagement with cam ends of the handles so that movement at the handles results in movement of a slider in the latch bolt for opening the door. Each handle is pivotally coupled to a corresponding element by a combination of curved ribs and grooves and a resilient finger on the handle rides on a stress-limiting ramp formed in the element to bias the handle into a normal position.

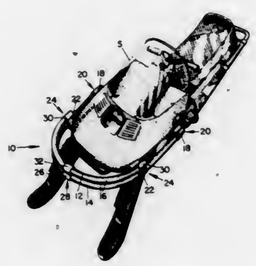
3,785,687
TWO-PIECE DOOR KNOB CONSTRUCTION
Leon Yulkowski, Pontiac, Mich., assignor to General Lock Company, Detroit, Mich.
Filed May 26, 1972, Ser. No. 257,196
Int. Cl. E05c *1/00*
U.S. Cl. 292—347 **1 Claim**

A door knob assembly which includes an inner molded

plastic cup-shaped base having an integral internal and external hub axially apertured to receive a spindle; and an outer metallic hub snugly assembled over said base and interlocked therewith.



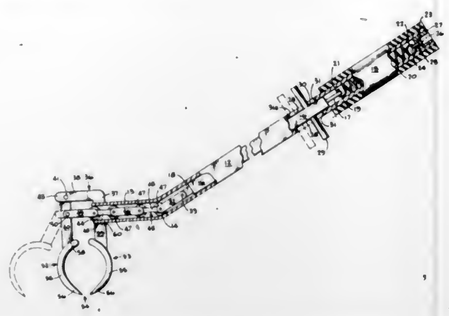
3,785,688
VEHICLE BUMPER
Louis F. Sibley, Ware, Mass., assignor to Gillespie Corp., Ware, Mass., a part interest
Filed Aug. 18, 1972, Ser. No. 281,832
Int. Cl. B60r *19/08*; **B61f** *19/04*; **B62m** *27/00*
U.S. Cl. 293—62 **2 Claims**



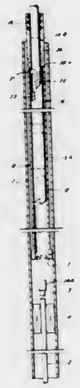
A resilient bumper for a vehicle such as a snow mobile, wherein a pair of superposed coil springs is disposed at the forward end of the vehicle, each spring being wrapped with a high-impact plastic covering, the lower spring extending forwardly from the forward end of the vehicle and along the sides of the vehicle, and the upper spring extending forwardly from the vehicle, spaced end brackets being fixed to the sides of the vehicle to which the ends of the springs are anchored, with certain of the brackets being common to both springs, wherefore the springs function unisonly.

3,785,689
LITTER GRABBLER AND HANDLING IMPLEMENT
Marcello M. Tanksley, 5700 Highland Ave., St. Louis, Mo.
Filed Feb. 22, 1973, Ser. No. 335,037
Int. Cl. A47l *13/06*
U.S. Cl. 294—19 R **4 Claims**

An implement for use in facilitating a Grounds-Keeper's chore, in the matter of collecting, handling and disposing of such litter, as a discarded palatable drink can, bottle, or scrap paper selectively, which may be strewn upon the surface of the ground, in a manner which precludes substantially the bending, stooping or touching the litter as normally would be required of the cited person.



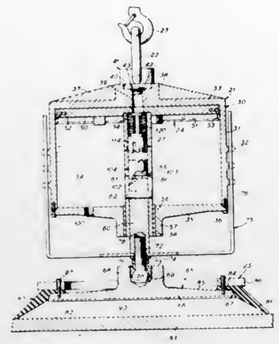
3,785,690
TOOL FOR USE IN REMOVING A FISH STUCK WITHIN A WELL BORE
Carl P. Hutchinson, Houma, La., assignor to Wilson Industries, Inc., Houston, Tex.
Filed May 5, 1972, Ser. No. 250,593
Int. Cl. E21b *31/02*
U.S. Cl. 294—86.34 **6 Claims**



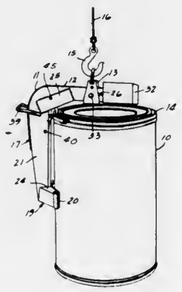
There is disclosed a tool in which a tubular body having a means on its lower end for connection to a fish stuck within the bore is adapted to be connected to a running string for suspension in a well bore, and a washpipe having a cutting surface on its lower end is supported by the tubular body for raising and lowering therewith.

3,785,691
AUTOMATIC LIFTING DEVICE
Gene Sperry, Salem, Ill., assignor to American Chain & Cable Co., Inc., Bridgeport, Conn.
Filed Aug. 7, 1972, Ser. No. 278,568
Int. Cl. B66c *1/02*
U.S. Cl. 294—64 R **3 Claims**

A vacuum actuated lifting attachment for a hoist or crane in which the functions of gripping and releasing of generally flat-surfaced objects are accomplished by means of vacuum and atmospheric pressure applied to the flat surface of the object in response to relative movement between the lifting attachment and object, to cause sequential operation of valve means controlling the evacuation and venting of a vacuum chamber communicating with an elastomeric suction cup for gripping the object.

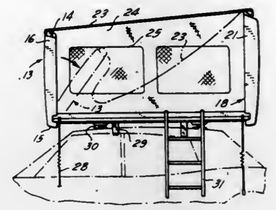


3,785,692
DRUM LIFTING ATTACHMENT
John F. E. Ericson, Seminole, Fla., assignor to Marvel Industries, Inc., Evanston, Ill.
Filed Mar. 20, 1972, Ser. No. 235,949
Int. Cl. B66c *1/42*
U.S. Cl. 294—90 **1 Claim**



Clamping attachment adapting drums to be lifted by a hoist and the like. The attachment is in the form of an inverted L-shaped frame, having a horizontal leg extending over the top of the drum and a vertical leg extending downwardly along the side of the drum. A cradle at the lower end of the vertical leg is adapted to engage the drum at circumferentially spaced points. A clevis on the horizontal leg adapts the frame for lifting by a hoist, while a counterweight on the outer end of the horizontal leg counterbalances the frame when moved into engagement with the drum. The frame contains cooperating lower and upper clamping jaws recessed in the vertical leg adjacent the top of the leg and guided manually to engage the lower jaw beneath the bead of the drum and the upper jaw within the bead of the drum and grippingly engage the bead of the drum as the attachment is raised.

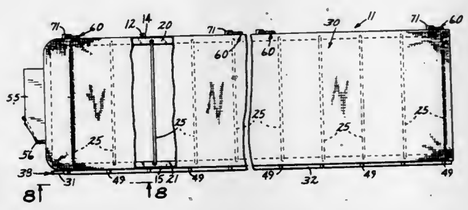
3,785,693
PORTABLE SLEEPING COMPARTMENT
James F. Fulton, Mamaroneck, N.Y., and Joseph A. Rinaldi, Oradell, N.J., assignors to Fulton & Partners, Inc., New York, N.Y.
Filed Apr. 25, 1972, Ser. No. 247,428
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 R **4 Claims**



A portable sleeping compartment is foldable into an open and closed position and forms a compact weatherproof container. In one embodiment the compartment is removably mounted on the top of a car, and in another larger embodiment the compartment is mounted on a trailer and towed behind the car. The compartment advantageously has front and rear panels readily pivoted about a hinge on a floor panel. The three panels have a highly desirable shell configuration to enhance the formation of the enclosure.

A flexible weatherproof cover is secured at the top of both the front and rear panels and conveniently folds into place when the front and rear panels are moved to the upright or open position.

3,785,694
FLEXIBLE COVER ASSEMBLY
Robert J. Sargent, St. Paul, Minn., assignor to Retsel Inc., Pension Fund, St. Paul, Minn.
Filed Dec. 13, 1971, Ser. No. 207,202
Int. Cl. B60j *11/00*
U.S. Cl. 296—98 **2 Claims**

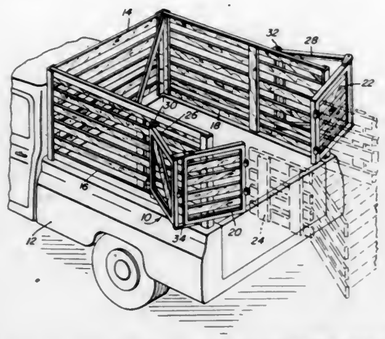


A flexible cover assembly is disclosed for use with an open-topped semi-trailer. The assembly includes means for rolling the flexible cover into a generally cylindrical roll over the top of the semi-trailer to a position adjacent one side thereof and means for storing the flexible cover in the rolled position with the flexible cover extending past the side of the trailer thus allowing the bows extending transversely across the semi-trailer to be removed providing a loading area through the open top of the semi-trailer.

3,785,695
TAILGATE ASSEMBLY

Ellsworth V. Conkle, Paonia, Colo., assignor to James A. Stratman, Cedaredge and Fred P. Morgan, Delta, both of Colo.

Filed Apr. 27, 1972, Ser. No. 248,081
Int. Cl. B60j 5/12
U.S. Cl. 296—50 7 Claims

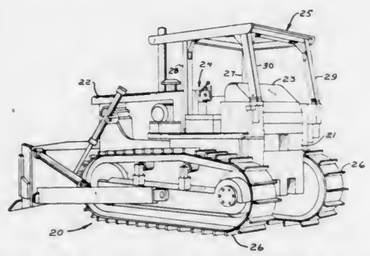


A tailgate assembly for use with rear-loading vehicles, said assembly comprising a pair of doors hingedly connected to a pair of support frames, each support frame being pivotally mounted to one of the carrying compartment side walls to permit composite transverse, pivotal movement of the doors by pivoting the support frames to achieve the desired door opening width for the convenient loading at a ramp, livestock chute, or the like.

3,785,696
ROLLOVER PROTECTIVE SYSTEMS FOR CONSTRUCTION VEHICLES

James C. Moore, Clackamas, and Milton K. Leonard, Lake Oswego, both of Oreg., assignors to Portland Wire & Iron Works, Portland, Oreg.

Filed Nov. 19, 1971, Ser. No. 200,302
Int. Cl. B60j 7/24
U.S. Cl. 296—102 7 Claims

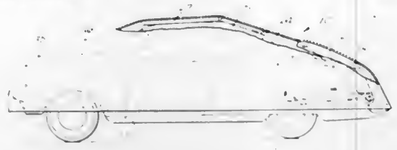


Protection against injury to an operator of a construction vehicle in the event of rollover is provided by a system which may be adapted to many different types of construction vehicles, yet which will withstand the static tests accepted as the industry standard for simulating rollover. The system includes an integral superstructure including upright corner column members joined at their upper ends by longitudinal and transverse horizontal members. At each upper corner of the superstructure there is a special gusset member interconnecting the three coincident superstructure members. The gusset members effect a smooth transition of stress applied to one member to the other members of the superstructure with minimum deflection. The bases of the superstructure upright columns are anchored by means of vibration mounts to brackets which are attached to the vehicle frame.

3,785,697
PORTABLE COLLAPSIBLE GARAGE

Robert Dabbs, 717 Clarissa St., Pittsburgh, Pa.

Filed Nov. 16, 1972, Ser. No. 307,245
Int. Cl. B60j 11/00
U.S. Cl. 296—136 5 Claims

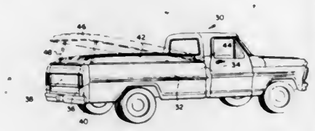


A portable collapsible garage which includes a flexible waterproof cover mounted on a framework which is foldable into the trunk of the motor vehicle with the framework carrying a reel on which the cover is wound prior to storing.

3,785,698
COVER TOP FOR PICKUP TRUCK BEDS

William H. Dean, Phoenix, Ariz., and Richard W. Henes, 5901 E. Calle Del Sud, Phoenix, Ariz., assignors to said Henes, by said Dean

Filed July 13, 1971, Ser. No. 162,149
Int. Cl. B60j 7/10
U.S. Cl. 296—137 B 10 Claims

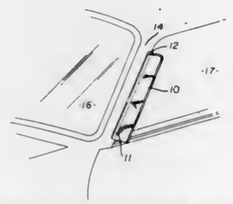


A cover for pickup truck beds, said cover releasably hinged on a horizontal axis to the forward end of a pickup truck bed; and an inverted U-shaped stand pivoted to a rearward portion of said cover and having legs with bearing means slidably operable in tracks secured in generally horizontal disposition at opposite inner sides of said pickup truck bed.

3,785,699
WIND DEFLECTOR FOR AUTOMOBILES

Charles E. Molaskey, 11408 Youngstown-Pittsburgh Rd., New Middletown, Ohio, and Charles O. Starkey, R.D. 1, Edinburg, Pa.

Filed June 26, 1972, Ser. No. 266,287
Int. Cl. B60j 1/20
U.S. Cl. 296—152 2 Claims



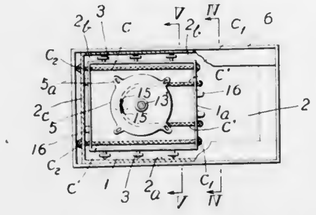
A wind deflector for automobiles comprises an elongated cross sectionally arcuate member having a longitudinally extending flange along one edge thereof and offset with respect thereto the flange having a plurality of notches cut therein

whereby the flange may be positioned between the window frame member and a trim and/or sealing piece thereon so as to mount the wind deflector thereto at the forward edge of the window opening.

3,785,700
CHAIR

Shirohei Kubo, Tokyo, Japan, assignor to Kabushiki-Kaisha Kubo Shoten, Tokyo, Japan

Filed Feb. 29, 1972, Ser. No. 230,256
Claims priority, application Japan, Mar. 26, 1971, 46/17772
Int. Cl. B60n 1/02; F16m 13/00
U.S. Cl. 297—349 2 Claims

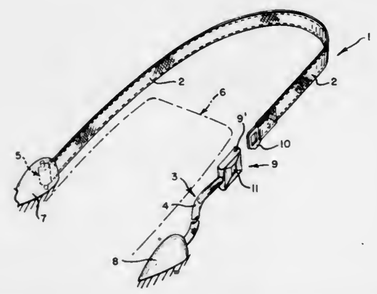


A chair seat which is connected to a support leg through connecting means and free to be moved backwardly and rotated about said support leg and designed for automatic restoration to its former position, which is characterized in that an elongated resilient means acting linearly between the seat and the connecting means operates to control the backward movement of the seat and another elongated resilient means which is adapted to act angularly between the connecting means and the support leg operates to control the rotation of the seat.

3,785,701
SAFETY BELT SYSTEM

William J. Gilmore, Manitou Beach, Mich., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,685
Int. Cl. A62b 35/60
U.S. Cl. 297—385 6 Claims

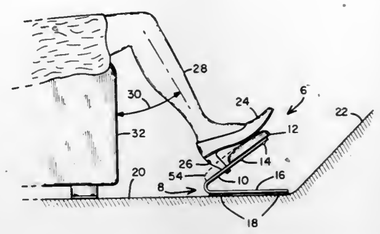


A safety belt system using a bendable cable section having a self-sustaining shape and a flexible strap section. The cable section is fixed on one side of the seat for positioning at the side of the occupant of the seat. The flexible strap section is fixed at the other side of the seat for extending across the seat and the occupant. Fastening means connected to the free ends of the cable and belt are provided for attaching the end of the belt to the cable at the one side of the occupant.

3,785,702
FOOT REST

Arnold Buehring, P.O. Box 5, Bridger, Mont.

Filed May 17, 1971, Ser. No. 144,088
Int. Cl. A47c 9/12
U.S. Cl. 297—439 1 Claim

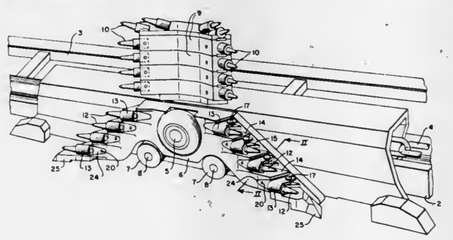


A support for resting the feet comprising a V-shaped bracket of unitary construction, one leg of said bracket including a non-slip surface for resting on a floor surface and the other leg having a foot rest element attached thereto. In the preferred embodiment, said bracket comprises first and second spaced apart, resilient, V-shaped members, preferably constructed of spring steel, a foot rest element attached to a first leg of each of said spaced apart members and non-slip surfaces attached to each of the other leg members to prevent the support from slipping on the surface on which it is sitting. In the embodiment designed for supporting feet encased in footwear having high heels, the foot rest element extends only partially along said first legs beginning at the outer end thereof whereby when the ball of the foot is resting thereon, the heel of the shoe is held clear of the floor surface on which the device is resting thereby preventing said heels from resting on said floor surface and enabling the wearer thereof to sit comfortably without any undue stress being applied to said heels.

3,785,703
COAL PLOW WITH INDIVIDUALLY PIVOTED BLADES

Pal Frenyo; Karl-Heinz Hafer; Reimund Karkutt, all of Bochum; Willi Gormann, Wanne-Eickel, and Walter Pelka, Gelsenkirchen, all of Germany, assignors to Gebr. Eickhoff Maschinenfabrik und Eisengresserei mbH, Bochum, Germany

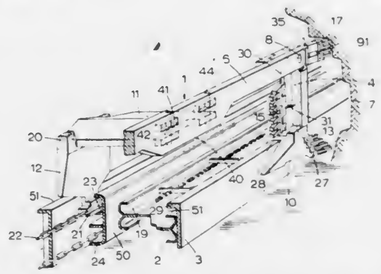
Filed Jan. 31, 1972, Ser. No. 222,076
Claims priority, application Germany, Mar. 19, 1971, 7,110,531
Int. Cl. E21c 35/12
U.S. Cl. 299—34 5 Claims



A coal plow that can be moved lengthwise in opposite directions along a coal face has an axle projecting horizontally from its mining side. A tool supporting member is mounted on the axle for rocking parallel to the guide beam of the plow. At each end of the supporting member there is a plurality of independent blade holders disposed in a row extending upwardly beside the beam. The lowest blade holder in each row supports a bottom plow blade for engagement with the foot wall

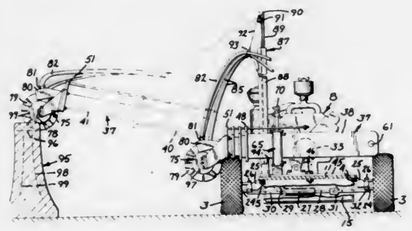
of the mine. Cutter blades have inner ends secured to the rest of the holders and have outer ends projecting toward the adjacent ends of the guide beam. Each of these holders is hinged to the supporting member on a substantially vertical axis so that the outer ends of the blades can swing laterally away from the guide beam.

3,785,704
PLANER MINING INSTALLATION
Berthold Ostrop, Selm; Christoph Rassmann, Lunen, and Alois Hauschopp, Werne an der Lippe, all of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany
Filed Apr. 14, 1972, Ser. No. 244,168
Claims priority, application Germany, Apr. 17, 1971, 2118713
Int. Cl. E21c *27/35*
U.S. Cl. 299—34 **21 Claims**



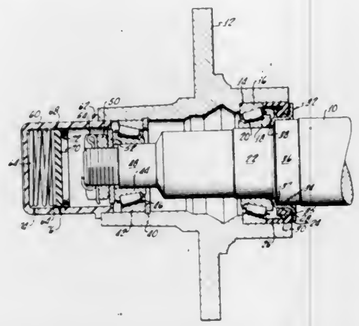
A mineral mining installation composed of a plough movable along a multi-section conveyor. The plough is constructed from an elongate beam supported in parallelism with and above the mineral face side of the conveyor. The beam is supported at its ends by means of a combination of rigid columns and cutter bit carriers pivotably attached to the beam. The cutter bit carriers engage a guide rail at the mineral face side of the conveyor and the columns are in turn supported on the carriers. The beam and carriers form a parallelogram-type linkage with the guide rail and the carriers pivot to a limited extent as the plough is moved along the conveyor. A further support means extends from the beam over the conveyor and is guided at the goaf side of the conveyor where a drive chain is provided. Sets of cutter bits are attached to the columns and the beam as well as to the cutter bit carriers.

3,785,705
CONCRETE MEDIAN AND CURB SAWING MACHINE
Wynn S. Binger; Leonard L. Shope, both of Minneapolis, and Glenn W. Moey, Big Lake, all of Minn., assignors to Construction Materials, Inc., Minneapolis, Minn.
Filed Sept. 20, 1972, Ser. No. 290,632
Int. Cl. E01c *23/09*
U.S. Cl. 299—75 **10 Claims**



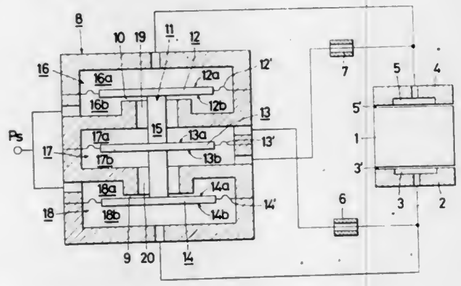
A mobile frame mounting an extensible and retractable boom for generally upward and downward swinging movements and having a rotary saw or cutter element at its outer end for cutting grooves in concrete highway median strips or curbs transversely of the longitudinal dimension of the median strips or curbs. The boom is further movable between its operative position transversely of the direction of travel of the mobile frame and a storage position generally longitudinally of the direction of frame travel.

3,785,706
PRESSURIZED HUB CAP FOR VEHICLE WHEEL
Dan P. Vangalis, 25402 Westborne, Dana Point, Calif.
Filed Mar. 6, 1972, Ser. No. 232,001
Int. Cl. B60b *5/02*
U.S. Cl. 301—108 A **4 Claims**



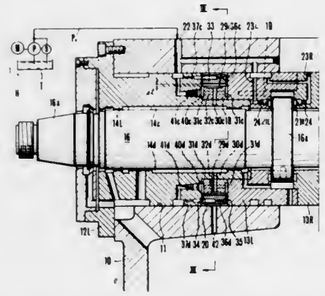
There is disclosed herein a pressurized hub cap for vehicle wheels, particularly for boat trailers the wheel hubs of which are subjected to immersion in water in the launching and retrieval of boats. The hub cap is of transparent plastic, is closed at the outer end and contains a spring-backed piston for applying pressure on lubricant grease in the hub cap and for yielding upon the occurrence of expansion of the lubricant in the hub cap. The hub cap is provided with two small vents, one for permitting lubricant to escape when expansion is excessive and the other to vent the enclosed portion of the hub behind the piston to atmospheric pressure.

3,785,707
AUTOMATICALLY CONTROLLED HYDROSTATIC BEARING
Toyokazu Mitsuoka, Miiza, Japan, assignor to Agency of Industrial Science & Technology, Tokyo, Japan
Filed Oct. 29, 1971, Ser. No. 193,869
Claims priority, application Japan, Oct. 30, 1970, 45/95680
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **8 Claims**



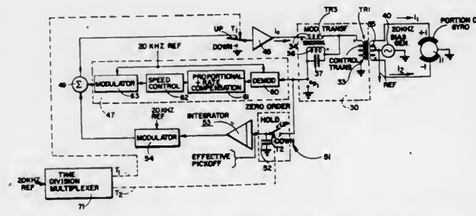
This invention is concerned with an automatically controlled hydrostatic bearing. The automatically controlled hydrostatic bearing comprises a hydrostatic bearing which has two opposite bearing recesses each communicating with a fixed linear external restrictor and a pressure-balance type control valve which has its restrictors formed with gaps of parallel plates and which functions so as to keep constant the ratio between the supply pressures to the fixed linear external restrictors and the pressures in the corresponding bearing recesses.

3,785,708
STATIC FLUID PRESSURE BEARINGS
Yasukichiro Miyasaki, 3081, Oizumi, Gakuen-cho, Nerima-ku, Tokyo, Japan
Filed Oct. 6, 1972, Ser. No. 295,578
Claims priority, application Japan, Oct. 12, 1971, 46/79891; Mar. 6, 1972, 47/22218; Mar. 6, 1972, 47/22219
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **7 Claims**



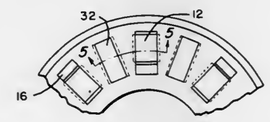
In a static fluid pressure bearing, a pressure receiving surface is formed on the outer surface of bearing metals in concentric with the bearing bore and a plurality of pressure receiving pockets of the same number as the bearing pockets are formed on the pressure receiving surface. Respective bearing pockets are communicated with pressure receiving pockets through independent passages. A floating ring is provided to surround the pressure receiving surface with a small clearance therebetween, and a plurality of variable throttle means are formed by the cooperation of the pressure receiving pockets and the floating ring. The fluid under pressure is supplied to the bearing pockets through the variable throttle means to bring back the deviated shaft to the neutral position.

3,785,709
FORCE-POSITION DECOUPLER FOR ELECTROSTATIC GYROSCOPE SUSPENSION SYSTEM
James L. Atkinson, La Mirada, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.
Filed June 7, 1972, Ser. No. 260,625
Int. Cl. F16c *39/06*
U.S. Cl. 308—10 **7 Claims**



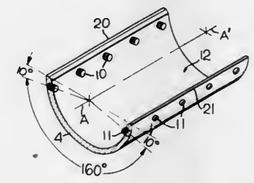
In a suspension and pickoff system for an electrostatic gyroscope, a sensing circuit substantially decouples position signal information from a control signal for utilization by two parallel feedback servomechanism paths which respectively separate the position signal into high and low frequency signal components. The composite output from the two paths is selectively disconnected from position control to allow the control signal output from an amplifier to die out. For a preselected portion of each period of time that the composite output is disconnected, the position signal information from the sensing circuit is sampled and held in one of the paths for use when the composite output is again connected into servocontrol.

3,785,710
SEPARATOR INSERT FOR THRUST BEARINGS
Richard L. Alling, Torrington, Conn., assignor to The Torrington Company, Torrington, Conn.
Continuation-in-part of Ser. No. 218,159, Jan. 17, 1972. This application Oct. 30, 1972, Ser. No. 301,771
Int. Cl. F16c *23/58*
U.S. Cl. 308—235 **3 Claims**



A thrust bearing separator insert is claimed which reduces wear due to inertial forces in high speed bearings, and prevents wedging of retainer halves in high thrust applications.

3,785,711
SUPPORT BEARING AND ASSEMBLY FOR ROTARY KILNS
Robert M. Bliemeister, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed May 12, 1972, Ser. No. 252,632
Int. Cl. F16c *11/00*
U.S. Cl. 308—237 R **3 Claims**



A support assembly is disclosed for carrying rotating machines such as kilns, grinding mills and other such equipment. A support roller is provided with axially extending trunnions journaled in a semi-cylindrical journal bearing. The semi-cylindrical journal bearing is provided with a plurality of spacing means which may be small cylindrical plugs made of a bearing material, and which project radially inward from the inner circumferential surface of the semi-cylindrical bearing and engage the trunnion. The spacing plugs are arranged in two rows parallel to the trunnion axis with the rows being in close spaced relation to terminal edges of the semi-cylindrical bearing that are parallel to the trunnion. The two rows of spacing plugs are circumferentially spaced apart at least about 140°. Between the two rows of spacing plugs the bearing is provided with a continuous smooth inner circumferential sur-

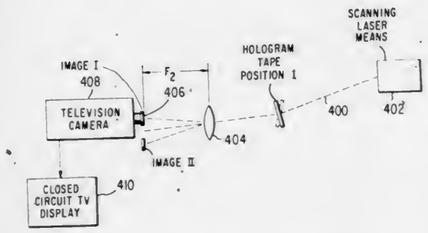
face without any such spacing means in order that a major portion thereof engages the outer circumference of the trunnion in load carrying support thereof. Each of the axially extending terminal edges of the bearing is connected to the inner circumferential bearing surface by a bevel surface which cooperates with the inner circumferential bearing surface and an adjacent portion of the outer circumferential surface of the trunnion, to define a reservoir for receiving and distributing lubricating oil on the portion of the bearing surface engaged in load carrying support of the trunnion.

3,785,712

PLAYING BACK REDUNDANT HOLOGRAMS BY SCANNING

William James Hannan, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 27, 1972, Ser. No. 238,315
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **10 Claims**



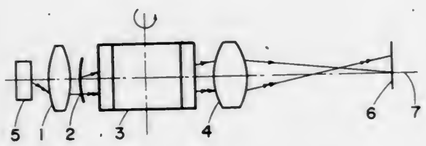
By playing back a redundant hologram composed of a predetermined periodic pattern of subholograms with a scanning laser beam no larger in size than a subhologram, a greater optical efficiency and a higher signal-to-noise ratio are achieved. Two spatially-multiplexed redundant holograms of two separated scenes or objects may be recorded on the same given area of a recording medium.

3,785,713

OPTICAL DEVICE

Sten Walles, Lidingo, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

Filed June 7, 1972, Ser. No. 260,595
Claims priority, application Sweden, June 7, 1971, 7385/71
Int. Cl. G02b *17/00*
U.S. Cl. 350—6 **3 Claims**



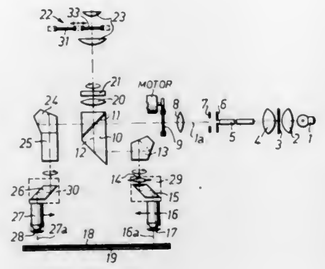
The present invention relates to a device to generate, starting from a stationary slit, an image of this slit which scans in its transverse direction, comprising a light source arranged in such a way in front of this slit, that the principal rays through the slit are parallel to the optical axis of the device, and a straight, equilateral, transmitting polygonal cylinder located behind the slit which is arranged so as to rotate about its axis of symmetry parallel to the longitudinal direction of the slit, and a system of lenses arranged between the said polygonal cylinder and the image.

3,785,714

SPLIT-FIELD MICROSCOPE

Fromund Hock, Wetzlar; Hennig Feldmann, Muenchholzhausen, and Heinz Fialkowski, Wetzlar, all of Germany, assignors to E. Leitz GmbH, Wetzlar, Germany

Filed Oct. 12, 1971, Ser. No. 188,307
Claims priority, application Germany, Oct. 19, 1970, P 20 51 174.4
Int. Cl. G02b *21/18*
U.S. Cl. 350—15 **13 Claims**



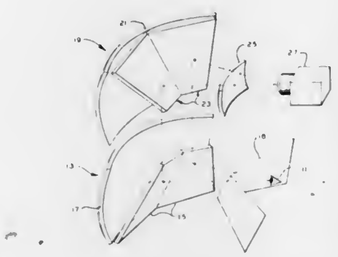
The split-field microscope of the present invention has a polarizer in the illuminator, a polarizing beam splitter for simultaneous or alternative illumination of both object fields, equal optical path lengths for the polarized split partial beams between splitting and reunion, means for deflecting the polarized partial beams in the direction toward parallel-disposed objectives and a quarter-wave plate disposed in each illuminating beam path. The imaging ray beams are passed backwards through the aforementioned components up to the central prism and a tube lens system and an ocular, connected after the central prism, are transited by the combined imaging beams.

3,785,715

PANORAMIC INFINITY IMAGE DISPLAY

Richard A. Mecklenborg, Binghamton, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed May 17, 1972, Ser. No. 254,023
Int. Cl. G02b *17/00*
U.S. Cl. 350—55 **6 Claims**



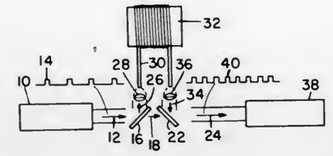
A wide angle infinity image display particularly useful in combination with flight trainers and the like is shown. A first tier of abutting mirror beam-splitter displays is arranged around a viewing point and have as an input an intermediate image from a similar tier located above the first tier. With this arrangement it is possible to use a single input screen for the image source into the upper tier and avoid the use of correcting lens.

3,785,716

OPTICAL WAVEGUIDE DELAY LINE

Robert D. Maurer, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,897
Int. Cl. G02b *5/14*
U.S. Cl. 350—96 WG **5 Claims**



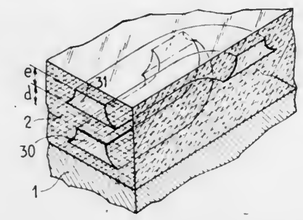
A glass optical waveguide fiber having a V value in the range of about 1.0 to 35 is coiled about a support member to form one or more layers of fiber. A layer of light absorbing material may be disposed upon the surface of the fiber to prevent cross-talk. Where two or more layers of fiber are disposed on the support member, adjacent layers of fiber may be separated by a layer of light absorbing material if the fiber is not provided with an extramural absorbing layer.

3,785,717

STEPPED INTEGRATED WAVEGUIDE STRUCTURE WITH DIRECTIONAL COUPLING AND A METHOD OF MANUFACTURING SUCH STRUCTURES

Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Aug. 10, 1972, Ser. No. 279,726
Claims priority, application France, Sept. 16, 1971, 7133391
Int. Cl. H01p *5/14, 3/16;* **G02b** *5/14*
U.S. Cl. 350—96 WG **9 Claims**



A multilayer structure of integrated optical waveguides is provided.

Each waveguide is produced by the diffusion of a doping agent into the layer into which it is integrated. This doping agent, in the zone in which it is implanted, causes a variation in the refractive index. The result is that the waveguide is formed by a region of higher refractive index than that of the layer in which it is implanted.

Thus, superimposed waveguide structures are obtained which can be used to form directional couplers.

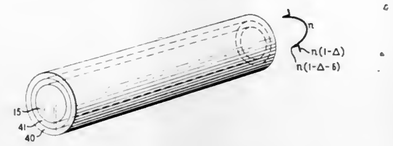
3,785,718

LOW DISPERSION OPTICAL FIBER

Detlef Christoph Gloge, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 11, 1972, Ser. No. 288,033
Int. Cl. G02b *5/14*
U.S. Cl. 350—96 WG **7 Claims**

The faster propagating, higher order modes are selectively removed from a multimode optical fiber by either attenuating said modes or by coupling the modes out of the fiber core and into the surrounding cladding. In one embodiment the fiber core is surrounded by a low-loss cladding of prescribed



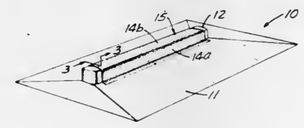
thickness, and a refractive index that is no greater than that of any portion of the core. In an alternate embodiment, the core is surrounded by a low-loss cladding whose refractive index is greater than that at the periphery of the core.

3,785,719

ROADWAY LANE DELINEATOR HAVING AN ELASTOMERIC REFLECTIVE PORTION

Nelson Jonnes, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 74,079, Sept. 21, 1970, abandoned.
This application July 21, 1972, Ser. No. 273,733
Int. Cl. G02b *5/12*
U.S. Cl. 350—105 **8 Claims**



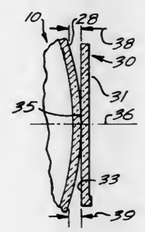
A roadway lane delineator comprising a base portion, an elastomeric reflector portion carried by the base portion, and a retro-reflective structure supported on an exterior surface of the reflector portion.

3,785,720

FILTER FOR OBTAINING A THREE-DIMENSIONAL EFFECT

William Frederick Kyryluk, 1578 W. 71st Ave., Vancouver, British Columbia, Canada

Filed May 23, 1972, Ser. No. 256,016
Int. Cl. G02b *27/22, 5/22*
U.S. Cl. 350—144 **10 Claims**



Light transmitting filter for obtaining apparent three-dimensional effect when viewing two-dimensional image on screen. Filter has tinting density so that light from image passed by filter is reduced so that two-dimensional image viewed through the filter appears as three-dimensional image. Filter has neutral grey tinting density within specified limits and is used in spectacles for viewing television or movie screens, or

as separate screen in front of television screen. For separate television screen only, outer surface of screen is textured to reduce undesirable reflections, texture being such that small portion of area of filter surface is covered by discrete raised portions projecting from surface. Textured surface produced by spraying screen with clear lacquer so that droplets of spray falling on surface do not coalesce but produce discrete raised portions closely spaced so that portion of outer surface of filter remains between adjacent droplets.

3,785,721

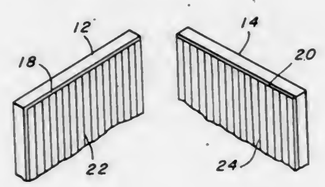
DISPLAY DEVICES UTILIZING LIQUID CRYSTAL LIGHT MODULATION WITH VARYING COLORS

Thomas B. Harsch, Stow, Ohio, assignor to International Liquid Xtal Company, Cleveland, Ohio

Filed July 15, 1971, Ser. No. 162,833

Int. Cl. G02f *1/16*

U.S. Cl. 350—150 **9 Claims**



A nematic liquid crystal device which is electrically controlled in order to produce colors which can be displayed for entertainment or advertising purposes. The liquid crystal material is sandwiched between a pair of parallel transparent plates coated with transparent conducting films. The coated plates are rubbed in the same direction such that the nematic molecules align parallel to the glass surface and point in the rubbed direction. The liquid crystal sandwich structure is then placed between linear polarizers which are oriented either parallel or crossed with respect to each other and at 45° with respect to the rubbed direction. By applying an electric field across the liquid crystal material via the aforesaid transparent conducting films, the color observed through the polarizers can be made to vary, depending upon the magnitude of the electric field. Furthermore, by applying a continually varying voltage across the conducting films, the color can be made to continually vary also.

3,785,722

USE OF SiO_2-NB_2O_5 AND/OR TA_2O_5 GLASSES AS ULTRAVIOLET FILTERS

Peter C. Schultz, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Continuation-in-part of Ser. No. 72,326, Sept. 15, 1970, abandoned. This application June 20, 1972, Ser. No. 264,426

Int. Cl. G02b *13/14*; **C03c** *3/24*; **G02b** *5/22*

U.S. Cl. 350—320 **1 Claim**

Glass filters and their use in controlling transmission of radiation is disclosed. The filters have a sharp transmission cut off within the ultraviolet region of the spectrum and also withstand high temperatures and severe heat shock. They are produced from a fused silica glass having a composition consisting essentially of silica and 1–25 percent R_2O_5 wherein the R_2O_5 consists of 0–5 percent Nb_2O_5 and/or 0–25 percent Ta_2O_5. The transmission cut off may be shifted across the ultraviolet transmission range by varying the amount of additive.

3,785,723

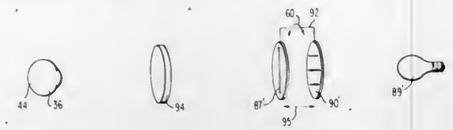
METHOD AND APPARATUS FOR LOCATING A PRINCIPAL MERIDIAN OF AN ASTIGMATIC OPTICAL SYSTEM

David L. Guyton, 5505 Huntington Pky., Bethesda, Md.

Filed Feb. 27, 1973, Ser. No. 336,323

Int. Cl. A61b *3/02*; **G01b** *9/00*

U.S. Cl. 351—34 **31 Claims**



Target means comprising a specified rotatable array of linear images of light is described for use in locating a principal meridian of an astigmatic subject optical system, where the astigmatic subject optical system comprises a patient's eye in combination with such imaging means as may be placed before it. The array of linear images of light constituting the target means is equivalent to an array of astigmatic images of point sources of light, and the array may be produced by cylindrical lens means in combination with one or more point sources of light, by slit aperture means in combination with one or more point sources of light, or entirely by slit aperture means. The target means described provides high sensitivity in locating a principal meridian even in the presence of fluctuating spherical dioptric power of the patient's eye or in the presence of minor optical irregularities of the patient's eye.

3,785,724

OPHTHALMIC LENSES WITH PROGRESSIVELY VARYING FOCAL LENGTH

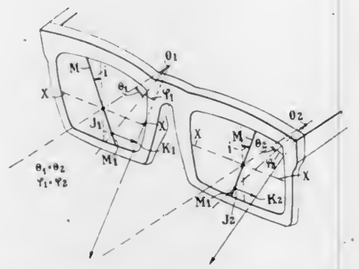
Bernard Cretin-Maitenaz, Joinville-le-Pont, France, assignor to Essilor International (Compagnie Generale d'Optique), Paris, France

Continuation-in-part of Ser. No. 19,772, March 16, 1970, abandoned, which is a continuation-in-part of Ser. No. 683,865, Nov. 17, 1967, abandoned. This application June 15, 1972, Ser. No. 263,100

Claims priority, application France, Nov. 29, 1966, 6685403

Int. Cl. G02c *7/06*

U.S. Cl. 351—169 **2 Claims**



An improved ophthalmic lens with varying focal length, said lens being made of a refractive material and having two refractive surfaces one of which is divided into first, second and third substantially horizontally extending zones intended respectively for distant vision, intermediate distance vision and near vision, said one surface having an oblique meridian passing through the optical center of the lens and traversing said zones, said meridian being inclined downwardly from the temporal side of the lens toward the nasal side of the lens

along an angled path traced by the line of sight of a wearer in going from distant vision to near vision, said first zone occupying approximately the upper half of said one surface and having a substantially constant curvature providing a substantially constant focal length for distant vision, said third zone occupying a lower portion of said one surface and having a substantially constant curvature providing a substantially constant focal length for near vision, and said second zone lying between said first and third zones and having a varying curvature providing a varying focal length, the curvature of said second zone at successive points along said meridian varying progressively from the substantially constant curvature of said first zone to the substantially constant curvature of said third zone, said second zone having at each point thereof a minimum curvature $C_{min.}$ and a maximum curvature $C_{max.}$ except along said meridian where the minimum and maximum curvatures at each point thereof are of equal value, said second zone further having on one side of said meridian a first line which is a loci of points where $C_{min.}$ and $C_{max.}$ satisfy the following relation: $[C_{max.}-C_{min.}]= N$, where N has a given value which satisfies the relation: $N \leq 1/(n-1)$, n being the refractive index of said refractive material, and on the other side of said meridian a second line which is a loci of points where $C_{min.}$ and $C_{max.}$ satisfy the above-mentioned relation, the improvement consisting in that, when the lens is in use, any horizontal line in said second zone intersects successively said first line, said meridian and said second line at respective points of intersection, the point of intersection of said horizontal line with said meridian being substantially equally spaced from the points of intersection of said horizontal line with said first and second lines.

3,785,725

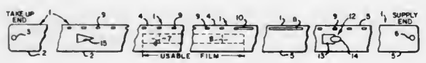
PROCESSING COMPOSITION RELEASE MECHANISM FOR FILM CASSETTE COMPRISING SELF-CONTAINED FILM PROCESSING SYSTEM

John F. Batter, Jr., Lincoln; Paul B. Mason, Magnolia; Joseph A. Stella, West Peabody; Paul W. Thomas, Jr., Duxbury, and Joseph H. Wright, Peabody, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 17, 1972, Ser. No. 227,092

Int. Cl. G03b *23/02*

U.S. Cl. 352—78 **32 Claims**



Apparatus for controlling the release of processing composition in a film cassette comprising a roll of film and containing a film processing system. A container of film processing composition within the cassette is initially sealed by a tear strip that is pulled away, to release the composition for coating on the film, by an arm initially held in an inactive position. The arm is moved to a position adapted to engage a cam formed on a spool about which the film is coiled. The cam engages the arm to detach the tear-tab and release the processing composition when the spool is rotated in a predetermined sense.

3,785,726

FILM CARTRIDGE

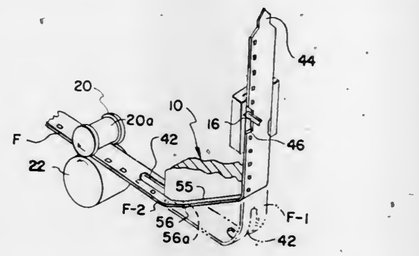
Stephen H. Miller, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 28, 1972, Ser. No. 248,514

Int. Cl. G03b *23/02*

U.S. Cl. 352—78 R **2 Claims**

A cartridge is adapted to handle a length of film or other strip material wherein the material has a portion with an opening therein between the side edges of the material and preferably near the trailing end portion of the strip. In the preferred embodiment described the cartridge is loaded with motion picture film to be exposed in a camera and includes two openings or apertures for receiving camera apparatus adapted to advance film through the cartridge. One of the apertures receives a film pull-down claw in a camera, the claw being effective to intermittently advance film past the exposure aperture in the cartridge. The other opening or aperture receives a capstan, for example, which is adapted to continuously advance film past a sound head in the camera for recording of sound onto the film during a filming sequence. During the normal filming sequences the film is advanced by the claw and the capstan along a first curved path through the cartridge



between the two apertures and, when the end of the film is reached by the film pull-down claw and it is ineffective to further pull film past the exposure aperture, the film then is advanced along a second path through the cartridge by the capstan only. A stop member in the form of a finger is provided in the cartridge along the second path and is positioned so that the finger can enter the opening in the film and be engaged by an edge of the opening, thereby securing the film against further advancement along the second path and through the cartridge by the capstan. This prevents advancement of the trailing end portion of the film completely past the apertures and into the take-up chamber of the cartridge, thereby permitting film to be extracted from the cartridge for processing by grasping the trailing end portion of the film and advancing it through the exposure aperture.

3,785,727

MOTION FILM PROJECTOR

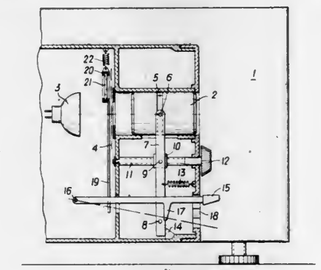
Harald Wessner, Neunkirchen, Austria, assignor to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

Filed Oct. 5, 1972, Ser. No. 295,296

Claims priority, application Austria, Oct. 12, 1971, A8824/71

Int. Cl. G03b *3/00*

U.S. Cl. 352—137 **8 Claims**



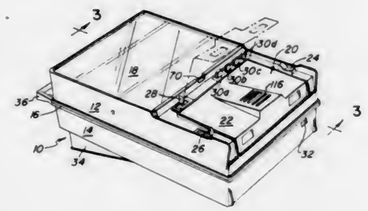
A motion film projector which comprises an image plane and a gate for holding a frame of a motion picture film to be

projected in the image plane. An optical system defines an optical axis, and the frame is located on the optical axis. A focusing device is provided for the optical system. A drive is arranged for feeding the film along a predetermined path including the image plane. The drive has at least two operating modes comprising at least one run mode and a still mode of operation for selectively providing motion picture projection and still picture projection. A focus adjuster is connected to the focusing device to provide a basic adjustment of the same for focusing the frames of the film during the run mode oepration. A mode selector controls the operating modes of the drive and has accordingly at least one run mode position and a still mode position. A coupling member is provided to connect the focusing device to the mode selector. The mode selector further has a plurality of focusing positions adjacent the still mode position. In the focusing positions the coupling member connects the focusing device to the mode selector to override the basic adjustment and to focus the frame individually during the still mode operation.

3,785,728
MICROFILM VIEWER

Arnis E. Peters, La Crosse, Wis., assignor to Gelatt Investments, Inc., La Crosse, Wis.

Continuation-in-part of Ser. No. 90,514, Nov. 18, 1970, Pat. No. 3,700,321. This application Aug. 26, 1971, Ser. No. 175,123
Int. Cl. G03b *21/11, 21/28*
U.S. Cl. 353—26 **3 Claims**



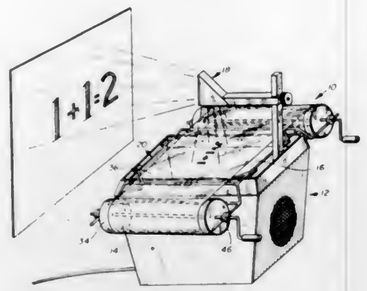
A portable, compact viewer for illuminating, enlarging and viewing individual microfilm frames which are carried on a filmstrip prepackaged in a cassette. The viewer is provided with electrical drive means for transporting the filmstrip within the cassette in a forward or reverse direction, at a high speed for traversing or at a low speed for scanning. Means integral with the drive means are provided to inhibit overrun of the transport, so as to provide accurate location and alignment of single frames and to provide substantial inching control. The viewer includes a cassette receiving compartment whose cover may be spring biased toward operative positions, and which cover aids in aligning the cassette with the optical system, and may additionally cooperate to prevent excessive heating from a heat source such as an illumination bulb. The viewer housing is of an improved construction which assures a high-contrast image under normal light conditions.

3,785,729
OVERHEAD PROJECTOR ROLLER ASSEMBLY

Kenneth R. Dasher, and Cyndia H. Dasher, both of 487 S. Allegheny, Tulsa, Okla.

Filed Mar. 1, 1971, Ser. No. 122,579
Int. Cl. G03b *21/132;* **B65h** *17/02*
U.S. Cl. 353—122 **6 Claims**

A roller device for use with an overhead projector comprises a frame having a roller mounted at each end. The frame is designed to be positionable on the horizontal ground glass optical member or lens of the typical overhead projector. The rollers are positioned on the frame at a point where the frame extends beyond the horizontal optical member of the projector, and the rollers are further positioned in a plane slightly below the plane of the horizontal member so that a sheet of



transparent writing material as described above may move from its supply position on each roller and be parallel to and in close proximity to the optical member of the projector as it passes over that member. Thus, indicia may be placed upon the transparent writing material at will.

3,785,730
METHOD AND SYSTEM FOR VARYING THE POSITIONS OF IMAGE-FORMING SURFACES ON AN ELONGATE FLEXIBLE ELECTROPHOTOGRAPHIC SUPPORT BELT FOR DIFFERENT RUNS THEREOF

Guy Paul Weber, Arques La Bataille, and Philippe Marie Deshayes, Neuville Les Dieppe, both of France, assignors to La Cellophene, Paris, France

Filed Mar. 27, 1972, Ser. No. 238,130
Int. Cl. G03g *15/00*
U.S. Cl. 355—16 **4 Claims**

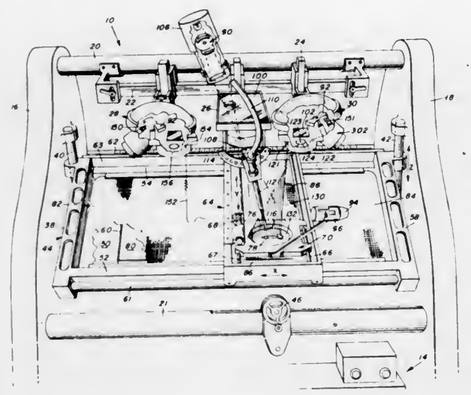


Method and system for varying the positions of image-forming surfaces on an elongate flexible electrophotographic support belt for different runs thereof wherein the belt is marked during a run of substantially the entire length thereof from a supply station to a collection station past a charging station, an exposure station, a developing station and a transfer station, and during a following run the position of the belt relative to a reproduction commencement point is varied in accordance with the mark such that image-forming surfaces for the following run are positioned in areas between image-forming surfaces for the preceding run.

3,785,731
METHOD AND APPARATUS FOR PRODUCING ORTHOPHOTOPLANS

Jack W. Knauf, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Continuation-in-part of Ser. No. 130,739, April 2, 1971, abandoned. This application June 2, 1972, Ser. No. 259,059
Int. Cl. G03b *27/32, 35/14*
U.S. Cl. 355—22 **22 Claims**



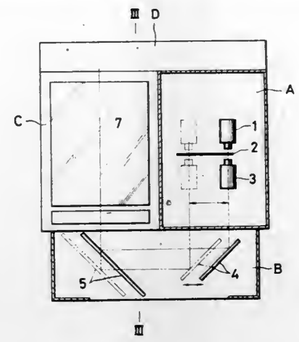
An orthophotoscope to provide color photomaps obtains a requisite stereoscopic model therein by stereoscopy wherein image separation arises from either filters or operation of a stereoimage alternator system made an integral part thereof. Recording during such system operation is accomplished by exposing photographic film very nearly continuously to light from one of the system projectors directed through a light selective shutter structure, and causing light from the other of the system projectors to be selectively obscured at all times to prevent exposure of the film sheet thereto. Continuous light for recording where filters are used is beamed unfiltered through a small uncovered area of a filter in one of the projectors.

3,785,732
MICROREADER

Nobuyuki Yanagawa, Oimachi Yamada, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan

Filed Nov. 15, 1972, Ser. No. 306,563
Claims priority, application Japan, Nov. 15, 1971, 46/90657; Nov. 17, 1971, 46/91455; Nov. 29, 1971, 46/111058
Int. Cl. G03b *27/70*
U.S. Cl. 355—45 **12 Claims**

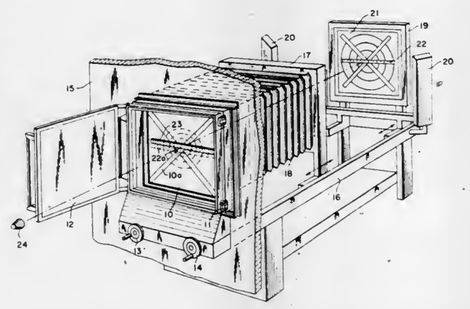
A microreader composed of a number of self-contained sections which may be assembled together in desired configurations and which sections include a projection unit containing means for automatically selecting and projecting desired information from one or a number of information cards; a screen unit for displaying the projected information; a reflector unit for appropriately transferring the projected information from the projector unit to the screen unit; and, if desired, a printer unit for reproducing the projected information. The screen unit has a surface for visually displaying the projected information and a surface for passing the projected information to the printer unit for copying and contains means for permitting the transfer of the projected information between them. The automatic information selecting system is described in detail.



3,785,733
METHOD OF CALIBRATING A GRAPHIC ARTS CAMERA

Lee C. Bender, Stone Park, Ill., assignor to Log Etronics, Inc., Springfield, Va.

Filed Jan. 29, 1973, Ser. No. 327,356
Int. Cl. G03b *27/68*
U.S. Cl. 355—77 **6 Claims**



A graphic arts camera is calibrated by first determining the effective focal length of the lens employed therein, and by thereafter positioning the lens board and copy board at approximate positions corresponding to the lens conjugate of 1:1. A target, comprising a number of concentric circles the diameters of which are empirically determined to represent off-axis locations at which the effects of lateral chromatic aberration are minimal for lenses of various different effective focal lengths, is placed on the copy board, a precision ruler is superimposed on the target, and a matching precision ruler is mounted on the ground glass at the rear of the camera. The camera lens is set to wide open aperture, whereafter the copy board is adjusted, while viewing the overall target image, to focus the camera; the lens board is adjusted, using the precision rulers, to adjust the image size; and these adjustments are repeated alternatively until proper focus at a 1:1 magnification ratio is approximately achieved. The lens board is then further adjusted while observing the magnified image of a particular portion of the target, to achieve a precise focus based upon color fringing effects in that magnified image. When op-

timum focus at wide-open aperture and at the conjugate of 1:1 have been achieved, and checked at maximum enlargement and reduction, the pointers on the camera are set to match the scaling system or, in the case of a screw drive camera, the counters are set to the exact numbers listed in the calibration charts ordinarily associated with such cameras.

3,785,734

TEST METHOD FOR HYDRAULIC FLUIDS

William C. Walters, Delmont, and Ronald A. Zabinski, Springdale, both of Pa., assignors to Schroeder Brothers Corporation, McKees Rocks, Pa.

Filed Aug. 10, 1972, Ser. No. 279,444
Int. Cl. G01n *21/22*
U.S. Cl. 356—36 **2 Claims**

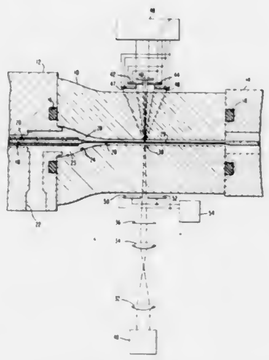
A method for testing for the contamination level of hydraulic fluids and the like, comprising passing a sample through two adjacent filter papers and comparing the light transmissivity thereof.

3,785,735

PHOTOANALYSIS METHOD

Mitchell Friedman, Yorktown Hts.; Louis A. Kamentsky, Briarcliff Manor, and Isaac Klinger, Yorktown Hts., all of N.Y., assignors to Bio/Physics Systems, Inc., Kantonah, N.Y.

Division of Ser. No. 2,750, Jan. 14, 1970, Pat. No. 3,705,771.
This application Jan. 19, 1972, Ser. No. 219,187
Int. Cl. G01r *33/16*
U.S. Cl. 356—39 **9 Claims**



A narrow beam of light is directed through an optical chamber to intersect a thin stream of small particles to be optically analyzed. At least two photoresponsive pick-up elements are positioned at different angular positions with respect to the beam to simultaneously detect different optical reactions of each particle to the beam illumination.

3,785,736

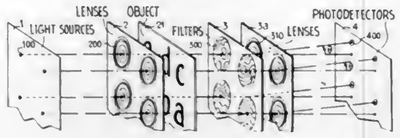
SMALL-SIZED OPTICAL CORRELATOR

Erich Spitz, and Guy Bismuth, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Jan. 13, 1972, Ser. No. 217,589
Claims priority, application France, Jan. 14, 1971, 7101146
Int. Cl. G06k *9/08*; **G02b** *27/00*; **G06k** *9/00*
U.S. Cl. 356—71 **7 Claims**

The present invention relates to double-diffraction optical correlators.

According to the invention there is provided a multi-channel optical correlator for shape recognition wherein the lenses



and the filters are all constituted by patterns of fringes ; each channel is fed from a quasi-monochromatic and quasi-punctiform light source, which may be spatially incoherent.

3,785,737

SEPARATION MEASUREMENT METHOD AND DEVICES EMPLOYING DIFFRACTION WAVES

Timothy R. Pryor, 5423 York Ln., Bethesda, Md., and Omer L. Hageniers, 357 Rosedale Ave., Windsor, Ontario, Canada

Filed May 30, 1972, Ser. No. 257,801
Int. Cl. G01b *9/02*
U.S. Cl. 356—111 **14 Claims**



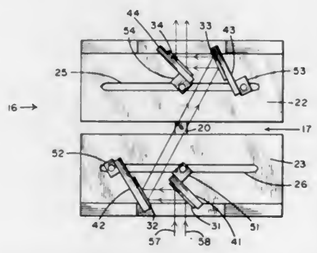
A method is disclosed for measuring the separation between a surface and a member. The member includes diffraction wave producing means such as an object boundary. Incident electromagnetic waves are directed at the diffraction wave producing means before and after reflection from the surface and an interference pattern is produced. Analysis of this interference pattern gives the separation.

3,785,738

MULTI-ANGLE BEAM DIRECTOR FOR TESTING APERTURE MASKS

Jerell B. Hoppke, Ham Lake, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.

Filed Oct. 21, 1971, Ser. No. 191,522
Int. Cl. G01n *21/16*
U.S. Cl. 356—138 **4 Claims**



A testing apparatus for television aperture masks in which four mirrors are adjustably mounted in a frame so as to be insertable in a conventional optical densitometer testing device

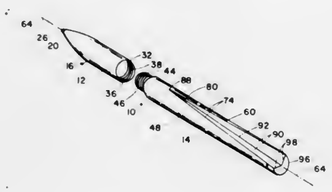
to divert transmitted light from a path generally perpendicular to the surface of the aperture mask to a path of a predetermined angle through the mask.

3,785,739

MAGNETIC WRITING INSTRUMENT

Thomas W. Hodkin, 301 N. 7th St., Council Bluffs, Iowa

Filed Apr. 14, 1972, Ser. No. 244,090
Int. Cl. B43k *29/00*
U.S. Cl. 401—52 **10 Claims**



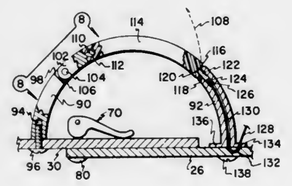
A magnetic writing instrument having an outer surface thereof magnetized, the rearward end of said instrument being magnetized, said instrument having a recess in its rearward section and extending to its rearward end in which a cylindrical portion of an automobile gear selector lever can be received.

3,785,740

EXPANDABLE BINDER

Kline D. Strong, 1726 Countryside Dr., Salt Lake City, Utah

Filed Sept. 21, 1970, Ser. No. 74,067
Int. Cl. B42f *3/04*
U.S. Cl. 402—29 **1 Claim**



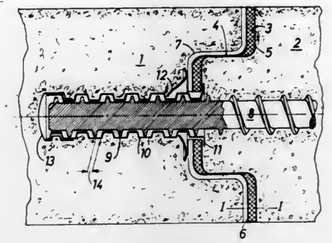
A novel binder which opens flat and allows pages therein to lie flat including substantially rigid backing members which protract when a large number of pages are used and retract when fewer pages are used. An improved clamp maintains the backing members immovable in any desired protracted position. Rigid page holders project from the backing members, the holders having free ends spaced one from another a distance determined by the relative positions of the backing members. The holders are detachably connected by a replaceable bridge having a preselected length to correspond to the relative position of the backing members. In an alternative embodiment, selected ones of the page holders have a hinged end connected to one end of the bridge and biased toward an open position and others of the page holders have a bridge-releasing mechanism accommodating simultaneous opening of all bridges at once.

3,785,741

EXPANSION JOINT CONSTRUCTION FOR CONCRETE SLABS

Alois Lodige, Frankfurter Weg. 72, Paderborn, Germany

Continuation of Ser. No. 25,205, April 2, 1970, abandoned.
This application Feb. 28, 1972, Ser. No. 229,645
Int. Cl. E04b *1/68*
U.S. Cl. 404—51 **6 Claims**



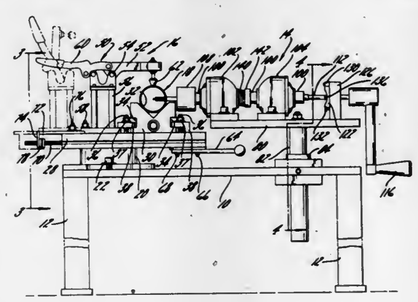
An expandable tongue and groove joint between abutting edges of reinforced concrete slabs having spaced nesting metal strips of hat-shaped cross section integrally formed with the slabs. The mantle portions of the strips are in sliding contact with each other, while the spaces between the remaining portions of the strips are filled with compressible expansible material. In another form, a threaded dowel anchored in one slab extends through the strips into a tube in the other slab. The dowel may move axially of the tube to accommodate contraction and expansion of the slabs.

3,785,742

DEBURRING AND CHAMFERING APPARATUS

Willard A. Haase, and Ingwald E. Wegenke, both of Montello, Wis., assignors to Montello Products Company, Montello, Wis.

Filed Aug. 24, 1972, Ser. No. 283,503
Int. Cl. B23b *29/26*
U.S. Cl. 408—3 **12 Claims**



Apparatus for deburring and chamfering at least one side of an opening in a contoured surface of a metal workpiece comprising a sliding platform having a clamping mechanism for holding and positioning the workpiece relative to a cutting tool which uniformly cuts the edge of the opening to deburr and chamfer it. The apparatus has an elongated spindle mounted for axial and rotational movement and a cam follower on the spindle that cooperates with a stationary cam surface having a contour corresponding to the contour of the workpiece surface. During rotation of the spindle, the cutting

tool is guided to follow the contoured surface of the workpiece opening and thereby produces a uniformly chamfered opening.

3,785,743

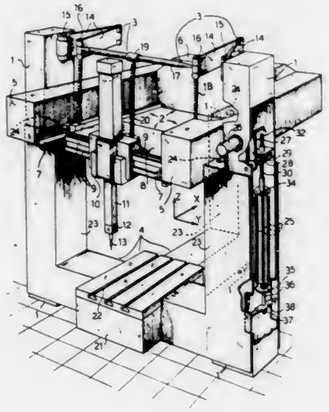
STRUCTURE FOR MEASURING MACHINES, MACHINE TOOLS AND THE LIKE IMMUNE FROM THE INFLUENCE OF VARIABLE, FIXED OR MOBILE LOADS ACTING ON IT, INCLUDING THE WEIGHT OF THE WORKPIECES AND FROM THE INFLUENCE OF THE GROUND TO WHICH IT IS CONNECTED

Franco Sartorio, Moncalieri, Italy, assignor to D.E.A. Digital Electronic Automation S.p.A., Moncalieri, Italy

Filed May 12, 1972, Ser. No. 252,685

Int. Cl. B23b *47/00*

U.S. Cl. 408—143 **13 Claims**



A structure for measuring mechines or machine tools adapted for resting on the ground by way of three columns and comprising at least one worktable adapted to support a workpiece to be machined or measured and saddles mobile with respect to said worktable is described. The structure includes a supporting substructure to which the worktable is fixed, a working substructure on which the saddles are mobile and a force substructure connected by three rigid supports to the ground. The supporting substructure is connected by three resilient supports to the ground, the working substructure restes by means of three further rigid supports on the supporting substructure and the saddles are resiliently supported by the force substructure.

3,785,744

CONDUCTION PUMP FOR CORROSIVE LIQUID METALS

Henri Carbonnel, Antony, France, assignor to Groupement Atomique Alsacienne Atlantique, Plessis Robinson, France

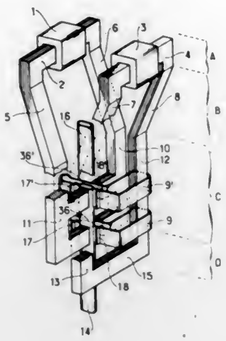
Filed Mar. 31, 1972, Ser. No. 240,215

Claims priority, application France, Mar. 31, 1971, 71.11372

Int. Cl. H02k *1/12*

U.S. Cl. 417—50 **8 Claims**

Conduction pump for corrosive liquid metals, which can be dismantled, whose body consists of modular elements made of refractory materials. Each element comprises recesses corresponding to the various detachable components of the pump: magnetic circuits, electric coil, electrodes and duct. By including in the pump body several active modular elements, it is possible to increase very greatly the discharge height of the pump.



3,785,745

SEALING BAR FOR A ROTARY PISTON INTERNAL COMBUSTION ENGINE

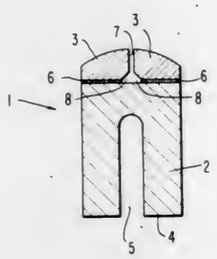
Heinz Lamm, Esslingen-St. Bernhardt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart Unterturekheim, Germany

Filed Jan. 25, 1971, Ser. No. 109,474

Claims priority, application Germany, Jan. 24, 1970, P 20 03 203.5

Int. Cl. F01c *19/02*; **F04c** *15/00, 27/00*

U.S. Cl. 418—117 **28 Claims**



A sealing bar for a rotary piston internal combustion engine, particularly of trochoidal construction, which is arranged within a piston groove so as to be movable in a radial direction, and which sealingly slides with its head portion along a contact surface in the housing case of the internal combustion engine; the sealing bar is provided with a multipartite, preferably two-partite, wear head portion subdivided substantially parallel to the longitudinal axis and having small-connecting surfaces with respect to the support portion of the sealing bar.

3,785,746

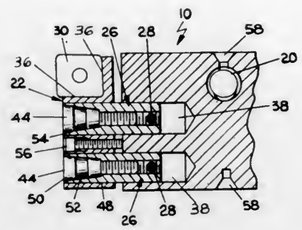
ADJUSTABLE TOOL HOLDER

Heinz K. Wolf, and Dean C. Averbeck, both of Farmington, Mich., assignors to Kysor Industrial Corporation, Cadillac, Mich.

Filed Jan. 17, 1972, Ser. No. 218,292

Int. Cl. B23b *29/034*; **B23q** *3/00*

U.S. Cl. 408—182 **17 Claims**



An adjustable tool holder having a block portion adapted for mounting on a boring bar or the like. Tool-holding means is adjustably attached to the block portion and movable with respect thereto to vary the relative spacing between the cutting edge of a tool carried thereby and the boring bar to vary the bore diameter. Adjustment means carried in the tool holder is cooperable with the block and accessible from an outer edge of the tool holder so that adjustment may be made without removal of tool holder from the boring bar.

3,785,747

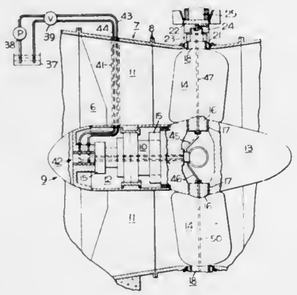
AXIAL FLOW HYDRAULIC TURBINE GENERATOR INSTALLATION

Howard A. Mayo, Jr., York, Pa., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 10, 1972, Ser. No. 305,494

Int. Cl. F01d *1/30, 15/10*

U.S. Cl. 415—33 **4 Claims**



A hydraulic turbine generator installation wherein the turbine rotor is supported centrally within a water confining tube and the generator rotor is supported by a ring connected to the radially outer ends of the turbine blades and rotates with the turbine blades. The blades are supported by the ring and a hub located in the tube to permit pivotal movement thereof. Hydraulic servomotors or the like are also supported by the ring and are connected to the blades to pivot the blades. A single power source for the servomotors is located on a stationary portion of the installation and connected by conduits through the turbine blades.

3,785,748

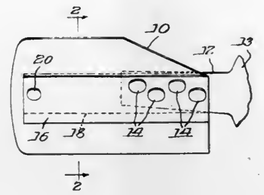
REINFORCED AUTOMOTIVE FAN

Thomas G. Gorman, Hanover, Mich., assignor to Hayes-Albion, Jackson, Mich.

Filed Feb. 3, 1972, Ser. No. 223,179

Int. Cl. F04d *29/38*

U.S. Cl. 416—132 **2 Claims**



A reinforced automotive flex-fan in which both sides of the flexible blade are reinforced by a one-piece member wrapped around the radial extremity of the blade.

3,785,749

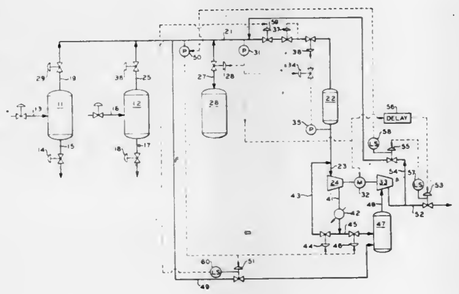
CONTROL SYSTEM FOR TWO-STAGE COMPRESSORS

Robert J. Perry, Houston, Tex., and Bobbie L. Whitson, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 24, 1972, Ser. No. 237,789

Int. Cl. F04b *49/02, 49/08*

U.S. Cl. 417—12 **6 Claims**



A control system for a first stage compressor and a second stage compressor provides for the startup of the compressors under no load conditions, and the operation of the compressors with intermittent supply of gases of widely varying pressures. The first stage is bypassed when the supply pressure is above a predetermined value.

3,785,750

WELLPOINT SYSTEM

Cameron C. Bryant, 8504 Izard Street, Omaha, Nebr.

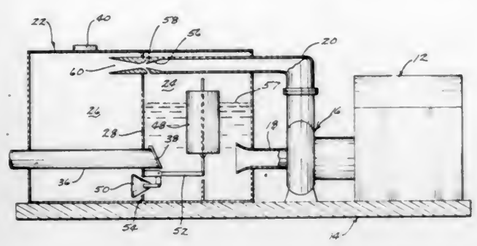
Filed Sept. 28, 1972, Ser. No. 292,985

Int. Cl. F04b *49/00*

U.S. Cl. 417—211.5 **11 Claims**

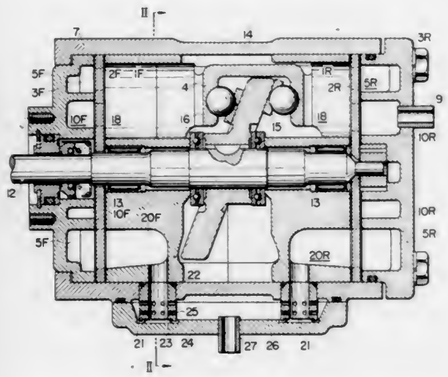
A wellpoint system for removing fluid from the earth is disclosed comprising a motor driven centrifugal pump having a pump chamber divided into a suction chamber and a discharge chamber by a bulkhead. A discharge pipe extends from the discharge side of the pump through the suction chamber and into the discharge chamber. A venturi is pro-

vided in the discharge pipe in communication with the suction chamber so that a suction is created in the suction chamber as fluid passes through the discharge pipe into the discharge chamber. A plug valve is mounted in the bulkhead and is controlled by a float positioned in the suction chamber so that the



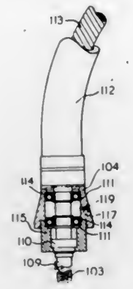
lowering of the float will open the plug valve. A suction line extends from the wellpoint header system and is in communication with the suction chamber. A normally closed flap valve is provided on the suction line within the suction chamber to permit the pump chamber to be initially filled.

3,785,751
SWASHPLATE TYPE COMPRESSOR
Mamoru Nemoto, Katsuta, and Seijiro Tani, Hitachi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 87,896, Nov. 9, 1970, abandoned. This application Apr. 24, 1972, Ser. No. 247,024
Int. Cl. F04b *1/16, 21/00*
U.S. Cl. 417—269 **25 Claims**



A swash plate type compressor comprising a cylindrical casing, a pair of cylinder blocks disposed in the cylindrical casing, and three double-acting pistons being disposed within the cylinder blocks and reciprocated by means of a swash plate. Each of the cylinder blocks is provided with a high pressure passageway and a low pressure passageway, and a silencing chamber is formed on the cylindrical casing by means of a cover member which is mounted in a gas-tight manner on the cylindrical casing. The silencing chamber communicates with the high pressure passageway through a silencing pipe. An alternative embodiment utilizes a spring member for communicating the silencing chamber with the high pressure passageway.

3,785,752
PORTABLE SUBMERSIBLE PUMP
Carlos A. Crespo, P.O. Box 906, Stamford, Conn.
Filed Sept. 15, 1971, Ser. No. 180,787
Int. Cl. F04b *35/06;* **F16c** *1/02*
U.S. Cl. 417—319 **3 Claims**



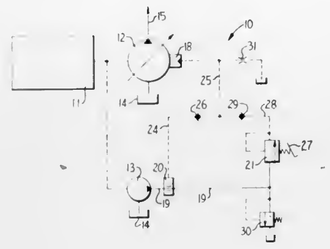
A submersible pump wherein the motor unit is removed from the liquid environment and the motive force for the pump impeller, located in the liquid to be pumped, is transmitted from the motor unit by means of a flexible power shaft. The pump is portable and may have a gear box or a clutch. In addition, the present submersible pump may take the form of an axial flow pump when low to moderate lifts are required at large capacities. A special flexible shaft terminal is provided wherein the pump and impeller are attached directly to the flexible shaft unit.

3,785,753
ELECTRIC DRIVES FOR CENTRIFUGAL PUMPS
Alexandr Antonovich Bogdanov, Strastnoi bulvar, 7, kv. 39, and Zinaida Sirafimovna Pomazkova, Starokashirskoe shosse, 2, korpus 12, kv. 96, both of Moscow, U.S.S.R.
Filed Oct. 13, 1971, Ser. No. 188,732
Int. Cl. F04b *17/00*
U.S. Cl. 417—424 **1 Claim**



An electric drive for a submergible pump employed in oil production industry has a vertical oil-filled electric motor the lower portion of which is secured to a hydraulic compensator or surge chamber, while the upper portion is secured to a protector; the protector consists of a casing hermetically divided by a diaphragm into inner and outer chambers to be filled with protective liquid; an intermediate shaft is provided for transmitting rotation from the electric motor to the pump, the shaft having a sealing device concentrically disposed within the casing of the protector; a movable portion of the sealing device is fixed in the axial direction relative to a stationary portion of the same by means of a sliding bearing and two ring pivots disposed at both sides of said bearing. A release valve disposed in the casing of the protector is provided for controlling any excessive pressure in the space above the movable portion of the sealing device.

3,785,754
MANUAL OVERRIDE SYSTEM FOR A VARIABLE VOLUME PUMP
Dean E. Miller, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 27, 1972, Ser. No. 248,060
Int. Cl. F15b *9/04*
U.S. Cl. 417—213 **7 Claims**

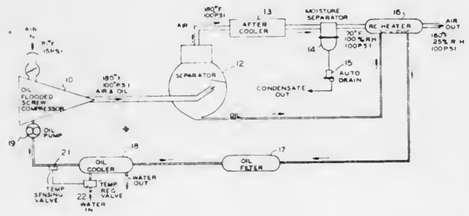


A hydraulic control system in which an engine driven variable displacement fluid pump provides a source of fluid pressure for powering work implements, and having automatically operable control means responsive to engine speed to control displacement of the variable displacement pump to correspond to engine horsepower, is provided with a manually operable control means to override the automatic control system for selectively controlling the displacement of the variable displacement pump.

ERRATA

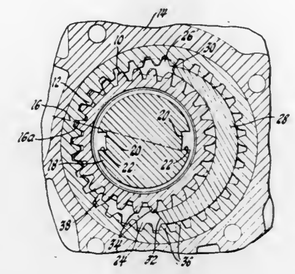
For Classes 417—050 and 418—117 see:
Patent Nos. 3,785,744 and 3,785,745

3,785,755
AIR COMPRESSOR SYSTEM
Walter M. Novak, Portland, Oreg., and Fred A. Thurmond, Jr., Eureka, Calif., assignors to Rogers Machinery Company, Inc., Portland, Oreg.
Filed Nov. 22, 1971, Ser. No. 201,076
Int. Cl. F01c *21/04;* **F25d** *17/06;* **B01d** *53/26*
U.S. Cl. 418—85 **3 Claims**



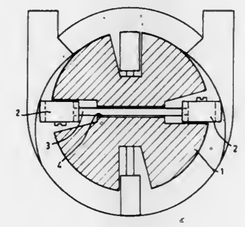
Air and oil are flowed through an oil flooded screw compressor which heats the air and oil, after which the air and oil are separated and the air is cooled to extract moisture therefrom. Then the cooled air and the hot oil are passed through a heat exchanger which heats the air to a desired temperature for use and cools the oil to a desired temperature for recirculation through the compressor.

3,785,756
GEAR PUMP
Les M. Langenderfer, Toledo, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 23, 1972, Ser. No. 282,924
Int. Cl. F01c *1/10;* **F03c** *3/00;* **F04c** *1/06*
U.S. Cl. 418—170 **2 Claims**



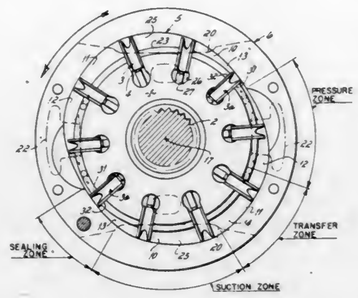
An internal-external gear pump having a crescent member opposite the mesh point of the gears for preventing direct fluid communication between the inlet and outlet ports. The crescent has a leading edge adjacent the inlet port which simultaneously seals the spaces between the gear teeth from the zero displacement interval of the inlet port as the gears rotate past the leading edge.

3,785,757
BLADE JOINT
David Paul Stamm, Hendrik-Ido-Ambacht, Netherlands, assignor to Conoflow Europa N.V., Dordrecht, Netherlands
Filed Oct. 22, 1971, Ser. No. 191,918
Claims priority, application Netherlands, Oct. 23, 1970, 7015539
Int. Cl. F01c *21/00*
U.S. Cl. 418—255 **6 Claims**



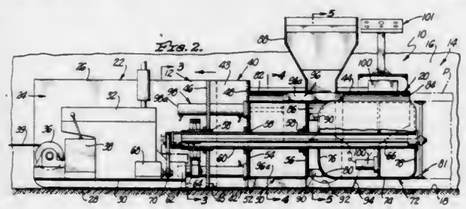
The blade joint structure disclosed, to be used in pumps, blowers, hydrometers, and the like machines, comprises a pair of spaced blades mounted on the ends of a rod extending diametrically through the rotor of machines of the type referred to. The joint structure is such that the blades have at least two degrees of freedom provided by a blade having a bore in which a clamping means is inserted which itself has a bore at right angles for receiving the end of the rod. The rotor is provided with a slot or bore through which the mounting rod extends and in which it is movable. In the illustrated embodiment the means for securing the clamping means to the rod includes a bolt carried by the clamp.

3,785,758
VANE PUMP WITH RAMP ON MINOR DIAMETER
Cecil E. Adams; James C. Swain, and Jack W. Wilcox, all of Columbus, Ohio, assignors to Abex Corporation, New York, N.Y.
Filed Apr. 24, 1972, Ser. No. 246,774
Int. Cl. F01c *1/00*
U.S. Cl. 418—260 **15 Claims**



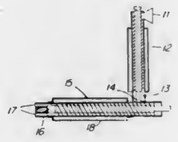
A hydraulic pump of the vane type wherein the cam surface of the stator is formed with a ramp on the minor diameter portion traversed by the vanes as they move from the pressure zone to the suction zone. When vanes of the two lip type are used, an in-ramp is especially desirable for pumps wherein the vane are spring operated, while an out-ramp is especially desirable for pumps wherein the vanes are operated by hydraulic actuators. The provision of such ramps has been found to improve radial balance of the rotor, vane tip sealing, and to reduce pressure ripple, as well as wear.

3,785,759
MACHINE FOR FORMING A CONTINUOUS SEAMLESS CONCRETE PIPE
B. Neil Johnson, 10811 Newcomb Ave., Whittier, Calif., and Robert A. Midthun, 1404 N. Tustin, Santa Ana, Calif.
Filed Jan. 24, 1972, Ser. No. 220,258
Int. Cl. E03f *3/06*
U.S. Cl. 425—59 **8 Claims**



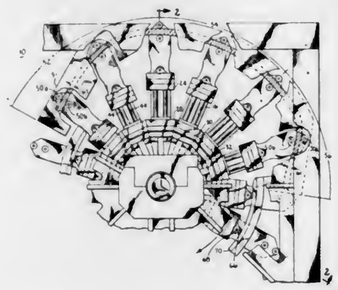
A continuous seamless pipe is formed in a trench from a cementitious mix by advancing through the trench a carriage mounting a trailing cylindrical drum with its axis parallel to the direction line of carriage movement and a diameter equal to the internal pipe diameter, and a cylindrical skirt having a diameter approximating the outer pipe diameter concentrically surrounding the drum to define an intervening rearwardly opening annular cylindrical containing an annular piston. The cementitious mix is fed into the front end of the cylinder and the piston is driven rearwardly through the cylinder to extrude the mix through the open rear end of the cylinder to form the pipe wall and exert a forward reaction force on the carriage for propelling the latter through the trench. The plunger may be segmented to obtain more uniform extrusion about the full cylinder circumference. The drum may be driven in rotary or other motion, and the drum, plunger and/or skirt may be vibrated to compact the extruding mix. A rotary trowel on the rear end of the drum smooths the inner surface of the extruded pipe. The preferred cementitious mix is a low slump concrete which may be extruded to form a seamless concrete pipe without the need to internally support the pipe.

3,785,760
APPARATUS FOR EXTRUSION OF THERMOPLASTICS
David E. Johnson, Macedon, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.
Filed July 14, 1971, Ser. No. 162,555
Int. Cl. B29b *1/06*; **B29f** *3/02*
U.S. Cl. 425—207 **1 Claim**



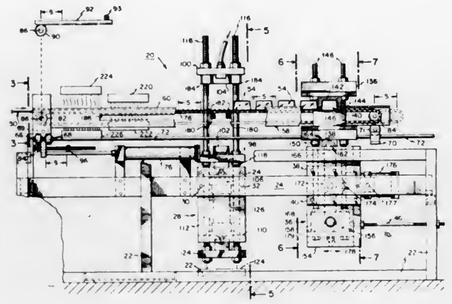
In a method and apparatus for the extrusion of thermoplastic resinous materials and, in particular, molten thermoplastic resin containing volatile blowing agent in admixture therewith, a seal is provided for an extruder to prevent escape or leakage therefrom of the molten thermoplastic resin-volatile blowing agent mixture.

3,785,761
APPARATUS IMPROVEMENTS IN A ROTARY BLOW MOLDING MACHINE
James C. Logomasini, Springfield, Mass., and Richard K. Shelby, Hinsdale, Ill., assignors to Monsanto Company, St. Louis, Mo.
Filed Sept. 20, 1971, Ser. No. 182,074
Int. Cl. B29d *23/03*
U.S. Cl. 425—387 B **4 Claims**



Improvements in a multi-station rotary blow molding machine wherein a number of partible blow molds angularly spaced from each other about a main shaft on supports extending out from the axis of the machine are opened and closed by means of a cam generally surrounding the periphery of the machine. A portion of this cam is in the form of a variable thickness rib along which roller followers associated with one section of each partible mold cammingly move on opposite sides thereof at least during closing of the molds. Spring means are preferably included between the axis of the machine and each inner mold section to absorb any unplanned movement of the molds in a direction radial to the machine axis.

3,785,762
UNIVERSAL THERMOPLASTIC SHEET FORMING APPARATUS
Robert L. Butzko, c/o Thermtrol Corp., 165 Holland Ave., Bridgeport, Conn.
Filed May 3, 1971, Ser. No. 139,632
Int. Cl. B29c *17/04*
U.S. Cl. 425—289 **22 Claims**

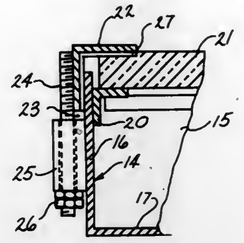


One or more heating stations, a dual action pressure-vacuum thermo-forming press, and a die-cutting press are located in line on a single machine. Thermoplastic sheet is fed from a supply roll under the heating stations and through the forming and cutting presses and then passed over a separating mechanism. Precise indexing of the thermo-formed parts from the forming press through the cutting press is provided by a pin chain carriage assembly. Pins on the chain engage the plastic sheet and hold it fixed with respect to the chain. The entire chain mechanism is mounted on a carriage which is reciprocated. When the carriage moves forward, parts are indexed from under the thermo-forming press to the first of one of more intermediate stations between it and the cutting press. When the carriage is reciprocated backwards, the chain is driven through a one-way clutch assembly such that the chain remains stationary with respect to the presses. Thus, on a subsequent reciprocation, the thermo-formed parts are precisely indexed in the cutting press. The cutting press is mounted on rails and may be positioned towards or away from the forming press to eliminate waste even when small parts are formed using single molds.

The thermo-forming press is provided with separate top and bottom platen-driving cylinders for universal adjustment of initial and final positions and strokes. The drive cylinders are mounted in a parallel battery below the top and bottom platens. Fixed parallel cold bars transverse to the carriage mechanism permit clamping of the sheet during thermo-forming. The cutting press is driven by a single cylinder through a toggle mechanism, providing a long down stroke on the top platen to engage the cutting die about the plastic parts in a self centering action prior to raising the lower platen against the parts to provide the cutting action.

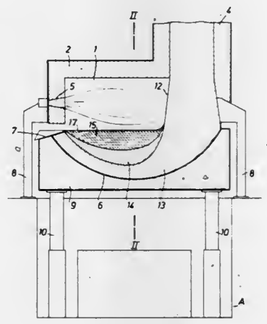
3,785,763
INFRA-RED BURNER
Rudolph S. Bratko, 10706 Harvard Ave., Cleveland, Ohio
Filed Mar. 31, 1972, Ser. No. 239,951
Int. Cl. F23d *13/12*
U.S. Cl. 431—328 **6 Claims**

There is disclosed an infra-red burner particularly suitable for process lines in which higher temperatures of the burner are possible to be attained by a material which while intended as an insulating material in its ordinary and everyday common use, in fact provides improved thermal stability when used as a burner face member, density being such that it is permeable to



a gas/air mixture and yet the flame is retained exceptionally close to the surface, without flashback, a particularly important aspect of the construction resulting in the ability to modulate heat production and in fact make possible initiation and termination of such production nearly instantaneously.

3,785,764
CONTINUOUS MELTING OF VERY HIGH MELTING POINT MATERIALS
George Delacroix, Croissy sur Seine, and Lucien Beneytout, Martigues, both of France, assignors to Societe Anonyme, Paris, France
Filed Aug. 16, 1972, Ser. No. 281,180
Int. Cl. F27b *19/00*
U.S. Cl. 432—85 **5 Claims**



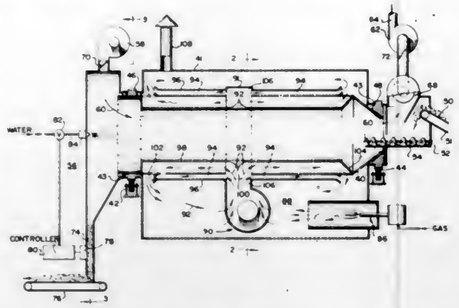
Furnace for continuous melting of very-high melting-point materials fitted with an adjustable feeding system, heated by gaseous or other fuel or electricity, and cooled such as to form on the inner side of the hearth a self-coating, and in which the said hearth is held at least partly in a bath of a liquid coolant such as water and vented to atmosphere and provided on the one hand, with means to keep the level of water constant, and on the other for feeding on the hearth the material to be processed in the shape of an evenly sloping batter, the liquid bath providing, among other things, proper cooling of the contact area between the roof of the furnace and the hearth.

3,785,765
ROTARY TOBACCO DRYER

Lorne A. Rowell, Lachine, Quebec, and James H. Cartmell, Preville, Quebec, both of Canada, assignors to Imasco Limited, Montreal, Quebec, Canada

Filed Feb. 17, 1972, Ser. No. 227,693
Int. Cl. F27b *7/08*
U.S. Cl. 432—107 **9 Claims**

A tobacco dryer is disclosed which comprises a rotating substantially cylindrical drum in which the tobacco is dried. The drum has a first end and a second end and the tobacco which is to be dried enters the first end of the drum and leaves at the second end of the drum. Process air which has a low absolute humidity is introduced into the drum at the second end and flows through the drum in the opposite direction to the flow of tobacco, so as to pick up and remove from the drum, moisture released from the tobacco. A gas fired burner located within the dryer housing produces heating air. This heating air is forced over the exterior surfaces of the rotating drum at a velocity between 500 feet per minute and 3,500 feet per minute so as to increase the heat conductance through the rotating drum. In addition, the dryer is also provided with a controlled water spray which is introduced into the second



end of the rotating drum and thereby controls the moisture content of the tobacco leaving the dryer.

CHEMICAL

3,785,766
PROCESS FOR DYEING POLYESTER TEXTILES WITH ANTHRAQUINONE DYESTUFFS BY THERMOFIXATION

Raouf Botros, Lock Haven, Pa., assignor to American Aniline Products, Inc., Paterson, N.J.

Filed Jan. 31, 1972, Ser. No. 222,361
Int. Cl. D06p *1/20, 3/82*
U.S. Cl. 8—21 C **10 Claims**

Anthraquinone dyes for dyeing polyester fabric are made by the reaction of an arylamine, such as aniline, with a dichlorochrysazin in which one of the chlorine atoms is in a non-peri position, the reaction being conducted in the presence of boric acid. This class of anthraquinone dyes, when appropriately dispersed, produces blue-green dyeings on aromatic polyester fabrics with excellent substantivity, outstanding sublimation fastness, and good fastness to light. The dyes are applied to polyesters, such as polyethylene terephthalate, preferably by thermofixation methods.

3,785,767
PROCESS FOR THE CONTINUOUS DYEING AND PRINTING OF FIBRE MATERIALS CONTAINING IONIC GROUPS

Dietrich Hildebrand, Odenthal, and Robert Kuth, Cologne, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 10, 1970, Ser. No. 62,651
Claims priority, application Germany, Aug. 16, 1969, 1941698
Int. Cl. D06p *3/14*
U.S. Cl. 8—54 **8 Claims**

Pad-steaming process for the continuous dyeing and printing of fibre materials containing ionic groups, from organic solvents, characterised in that the fibre materials are dyed or printed with chlorinated hydrocarbon dyeing baths containing ionic dyestuffs which have been rendered soluble in chlorinated hydrocarbons by the formation of salts or addition products with lipophilic compounds.

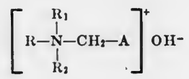
With the new process, it is possible to produce on fibre materials containing ionic groups strong, level and well developed dyeings and prints in excellent yields.

3,785,768
PROCESS FOR THE DYEING OF FIBRE MATERIAL CONSISTING OF POLYACRYLONITRILE OR ACRYLONITRILE-CONTAINING COPOLYMERS

Klaus Walz, Leverkusen; Klaus Gerlach, Cologne, and Max Schwarz, Berg.-Neukirchen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 10, 1971, Ser. No. 179,571
Claims priority, application Germany, Sept. 11, 1970, 2044990
Int. Cl. D06p *506, 3/76*
U.S. Cl. 8—169 **4 Claims**

Process for dyeing fibre materials consisting of polyacrylonitrile-containing copolymers with cationic dyestuffs in level and deep shades by using as dyeing auxiliaries quaternary ammonium salts which are derived from free ammonium bases of the formula



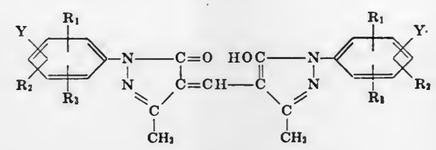
wherein the R's and A are as defined below.

3,785,769
POLYESTER FIBERS DYED WITH METHYLIDYNEBIS PYRAZOLONE DYESTUFFS

Edgar Earl Renfrew, Lock Haven, Pa., assignor to American Aniline Products, Inc., Paterson, N.J.

Filed Mar. 10, 1972, Ser. No. 233,707
Int. Cl. D06p *3/54*
U.S. Cl. 8—179 **3 Claims**

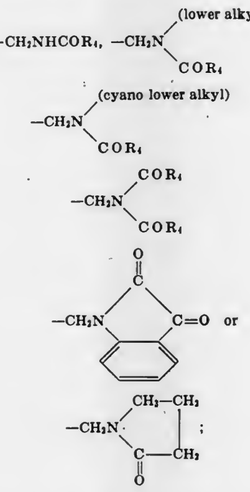
Dyestuffs for polyester and plastic substrates are provided by reacting a methylidynebis pyrazolone with an N-methylolamide. The dyestuffs have the formula



wherein

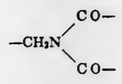
each R_1, R_2 and R_3 is independently hydrogen, lower alkyl, chloro, bromo or lower alkoxy;

one Y is hydrogen and the other Y is



each R_4 is independently lower alkyl, chloro(lower alkyl), bromo(lower alkyl), cyano(lower alkyl), phenyl, chlorophenyl, bromophenyl, lower alkylphenyl, cyano(lower alkyl)phenyl, nitrophenyl, sulfamylphenyl, N,N-di(lower alkyl)sulfamylphenyl, N-(lower alkyl)sulfamylphenyl, lower alkylsulfonylphenyl, cyanophenyl, di(lower alkyl) carbamylphenyl or lower alkoxyphenyl; or

the two R_4 groups taken together with the adjacent

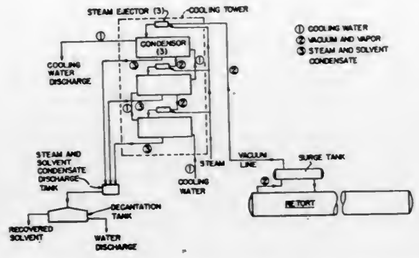


group form a heterocyclic group having five or six ring atoms.

3,785,770
PROCESS OF TREATING WOOD

Charles D. Hudson, Seattle, Wash., assignor to Wyckoff Company, Seattle, Wash.

Division of Ser. No. 41,140, May 25, 1970, Pat. No. 3,706,580.
This application Aug. 1, 1972, Ser. No. 276,932
Int. Cl. B27k *3/08, 3/40;* **B05c** *11/10*
U.S. Cl. 21—7 **6 Claims**

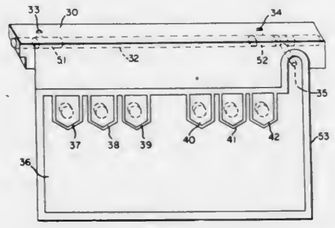


A wood preservative composition which substantially eliminates formation of pentachlorophenol crystals on the surface of the treated wood and results in increased paintability of the treated wood over compositions previously used consists of polypropylene glycol and a thermoplastic hydrocarbon resin derived from high temperature cracking of petroleum added to a solution of pentachlorophenol in a narrow boiling range mineral spirits solvent. Minor amounts of dioctylphthalate may be added which, along with the polypropylene glycol, prevent the formation of visible pentachlorophenol crystals on the surface of the treated product. Wood or other cellulosic materials are impregnated with the composition under pressure and the solvent carrier extracted and recovered from the wood before discharge of the wood from the treating chamber by a combination of heat and vacuum. The treated product, on removal from the treating chamber, is dry and clean to the touch with no "blooming" or formation of visible pentachlorophenol crystals on the surface of the wood.

3,785,771
METHOD AND APPARATUS FOR ANALYZING A LIQUID CONTAINING MACROMOLECULES THAT WOULD INTERFERE WITH THE ANALYSIS

Wayne W. Luchsinger, Tempe, Ariz., and Richard G. Nadeau, Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 19, 1969, Ser. No. 851,409
Int. Cl. G01n *31/04*
U.S. Cl. 23—230 R **12 Claims**

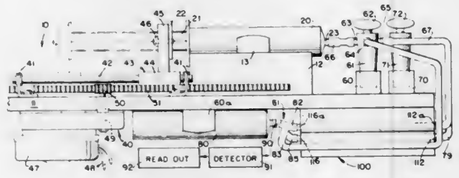


A method and apparatus for analyzing a liquid for a particular constituent when the liquid contains charged macromolecules that would interfere with the analysis. The method comprises forcing the liquid through an ion exchange medium into a reaction chamber in a manner such that substantially all of the liquid passes through the ion exchange medium and determining the presence of said particular constituent. The ion exchange medium is adapted to remove substantially all of at least one type of charged macromolecule from the liquid without removing substantially any of the particular constituent. Normally at least one reagent reactive with said particular constituent must be introduced into the liquid before the determination is made. Positively or negatively charged macromolecules, or both, can be removed from the liquid by using positive or negative ion exchange resins, or combinations thereof, as the ion exchange medium. The process is particularly effective for removal of dipolar ions, especially protein molecules, whose charge depends on the pH of the medium in which they are found. The charge on the macromolecule can then be adjusted so that the ion exchange medium can selectively remove the macromolecule without removing any of the particular constituent.

3,785,772
BLOOD ANALYZER

John C. Coggeshall, Des Plaines, Ill., assignor to Milroy R. Blowitz; Max Pastin and Magnor, Inc., Chicago, Ill., part interest to each

Continuation of Ser. No. 4,983, Jan. 22, 1970, abandoned.
This application Dec. 8, 1971, Ser. No. 206,131
Int. Cl. G01n *31/00, 33/16*
U.S. Cl. 23—253 R **4 Claims**

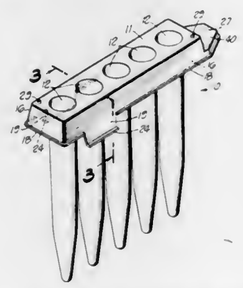


A pair of syringes respectively coupled by way of a pair of three-way valves to a source of blood and a source of reagent, so that withdrawing the plungers fills the syringes respectively with blood and reagent. The three-way valves are switched and a motor mechanism is activated simultaneously to move the plungers into the syringes to move the blood and the reagent through a pair of chambers separated by a semipermeable membrane. A selected substance in the blood is dialyzed through the membrane and reacts with the reagent to furnish a product, the concentration of which is measured to determine the concentration of the selected substance in the blood.

3,785,773
CHEMICAL ANALYSIS TUBE MODULE

Donald G. Rohrbaugh, Santa Ana, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Mar. 2, 1972, Ser. No. 231,350
Int. Cl. G01n *1/10, 1/14, 1/18*
U.S. Cl. 23—253 R **8 Claims**



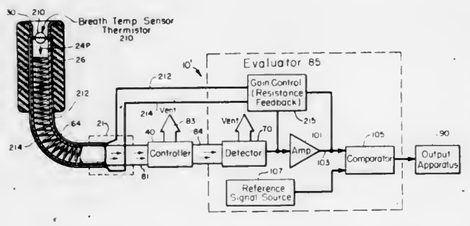
An integral, thin wall thermoplastic chemical analysis tube module has a plurality of test tubular receptacles disposed

normally to an elongated rectangular planar area and has a surrounding first wall frame segment of uniform height secured to and supportively disposed around a perimeter major segment of the planar area. A first uniform stiffener lip is integrally secured to and disposed around the first frame segment opposite the planar area. An opposed pair of second wall frame segments having a second uniform height is secured to and supportively oppositely disposed around a pair of opposed perimeter minor segments of the planar area. The second wall height is precisely greater than the first wall height. A pair of second uniform stiffener lips is secured to and disposed around the second frame segment perimeter, also opposed to the planar area. The temporary compressive displacement of the second pair of stiffener lips inside the perimeter of the first pair of stiffener lips provides an expansive precise jaw clamp on release of the clamp, which can secure the tube module combination in a configured cut out aperture in a supporting plate.

3,785,774
BREATH TESTING SYSTEM WITH BREATH TEMPERATURE SENSOR

John E. Murphy, Skokie, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 154,381, June 18, 1971, abandoned.
This application July 24, 1972, Ser. No. 274,712
Int. Cl. G01n *33/16*
U.S. Cl. 23—254 E **9 Claims**



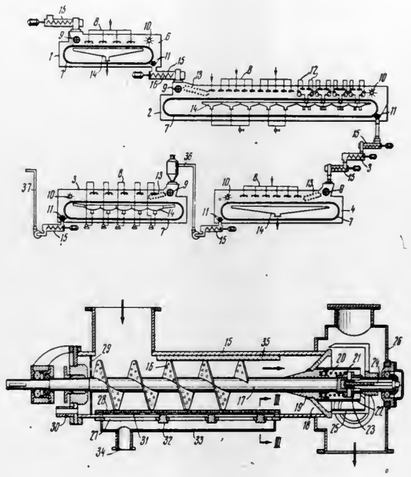
An improvement in alcohol breath testing system wherein a breath temperature sensor is included in the breath input unit and means responsive to the sensor for altering the performance of the system.

3,785,775
PLANT FOR CONTINUOUS PRODUCTION OF CELLULOSE TRIACETATE IN A HETEROGENEOUS PHASE

Fedor Mikhailovich Mikhalsky, Zanevsky prospekt, 13, kv. 8; Artemy Mikhailovich Gaspariants, ulitsa Tukhachevskogo, 37, kv. 84; Jury Nikolaevich Purlov, prospektmorisa Toreza, 108, kv. 37, all of Leningrad; Pavel Ivanovich Kulesh, ulitsa Schedrina, 2, kv. 12, Shostka Sumskoi oblasti; Pavel Petrovich Rudenko, ulitsa Krasnaya, 200, kv. 24; Alexei Nikolaevich Ryabtsev, ulitsa Zakharova, 16, kv. 7, both of Krasnodar, all of U.S.S.R.; Yakov Efimovich Levi, deceased, late of Moscow, U.S.S.R., and Mina Neukhovna Levi, administratrix, Belyaevo-Bogorodskoe, kvartal 45, korpus 22, kv. 26, Moscow, U.S.S.R.

Filed July 19, 1971, Ser. No. 163,700
Int. Cl. B01j *3/02, 4/00;* **C08l** *7/02*
U.S. Cl. 23—260 **1 Claim**

A plant for continuous production of cellulose triacetate in a heterogeneous phase, comprising consecutively arranged apparatus for activating, acetylation and benzene washings, benzene stripping, partial saponification, water washings and final product drying. The apparatus for activating, the apparatus for acetylation and benzene washings, the apparatus for benzene stripping and the partial saponification apparatus are interconnected by connecting adaptors for conveying the fibrous reaction mass from one apparatus to another and provided with means for creating therein a sealing plug from the

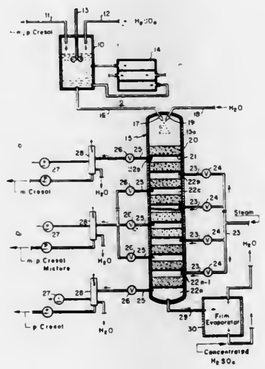


conveyed reaction mass. Said means for the creation of the sealing plug is in the form of a screw conveyer with a valve arranged at its discharge orifice and spring-loaded in the direction opposite to the direction of the fibrous reaction mass conveying.

3,785,776
APPARATUS FOR CONTINUOUS LIQUID PHASE SEPARATION

Barrymore T. Larkin, Middlesex Township, Butler County, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jan. 17, 1972, Ser. No. 218,252
Int. Cl. B01d *11/04, 3/22*
U.S. Cl. 23—267 R **4 Claims**



An apparaus for continuous liquid phase separation, particularly of meta and para cresol, having a desulfonation column in which a plurality of fixed beds are positioned along its length and separated by plenums. Alternative plenums are

connected to a source of steam and the plenums not so connected are connected with vapor withdrawal means. A sulfonator is provided to supply feedstock to the column at its top and thin film evaporator provided to concentrate sulfuric acid produced in the column for reuse in the sulfonator. The withdrawal means including condensing means for the separation of water from the volatilized fractions.

3,785,777

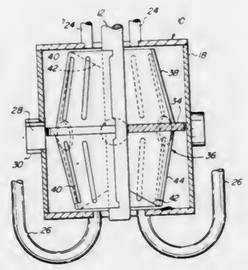
APPARATUS FOR THE UNIFORM PREPARATION OF SILVER HALIDE GRAINS

Henry D. Porter, and Benjamin A. Johnson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 876,893, Nov. 14, 1969, abandoned. This application Nov. 1, 1971, Ser. No. 194,466

Int. Cl. B01f *3/08*; **B01d** *9/02*; **C01g** *5/00*

U.S. Cl. 23—271 **4 Claims**



An apparatus for its practice are disclosed where, uniformly sized silver halide grains are precipitated in an aqueous peptizer solution by the reaction of a silver salt solution with a halide salt solution, where at least one of the solutions has been mixed with a portion of the peptizer solution prior to its reaction with the other solution within the remainder of the peptizer solution. Apparatus is disclosed for practicing the method of this invention including at least one separate mixing chamber for dilution of a salt solution with a portion of the peptizer solution prior to the precipitation reaction.

3,785,778

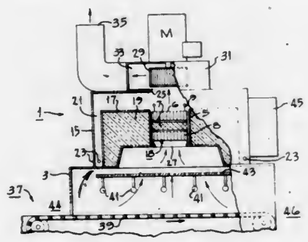
SMOKE ELIMINATING DEVICE

Norman Burstein, Cherry Hill, and Richard C. Ditzler, Cinnaminson, both of N.J., assignors to Smokontrol Corporation of America, Pennsauken, N.J.

Continuation of Ser. No. 865,002, Oct. 9, 1969, abandoned. This application Mar. 23, 1971, Ser. No. 127,349

Int. Cl. B01j *7/00, 9/04*

U.S. Cl. 23—288 F **13 Claims**



For eliminating combustible, carbon containing vapors or smoke, there is provided a device having an inlet hood capable of collecting smoke from a broiler or other cooker. The device has an outlet and a passageway between the hood and the outlet. In this passageway is a cellular, catalyst-coated refractory block threaded with high resistance electrical wire for heating the block cells. An impeller associated with the passageway draws the vapors through the heated block cells for combustion of the vapors and then forces them on through the outlet.

3,785,779

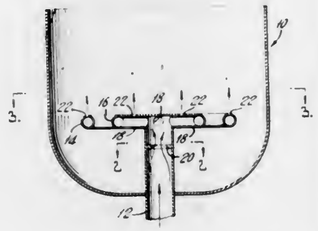
GAS LIQUID INLET DISTRIBUTOR

Sik U. Li, Morris Township, Morris County, and Robert M. Koros, Westfield, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Aug. 2, 1971, Ser. No. 168,269

Int. Cl. B05b *7/04*; **B01j** *1/00*

U.S. Cl. 23—284 **4 Claims**



A distributor for introduction of mixed gas and liquid into a vessel which provides improved mixing of the vessel's contents and intimate contact between the gas and liquid by formation of small gas bubbles. Two phase flow is baffled to assure a uniform dispersion of liquid in gas prior to sparging the mixture into the vessel. Sparging takes place at high velocities to provide a multiplicity of small gas bubbles created by the shearing action of the liquid passing through the openings in the sparger.

3,785,780

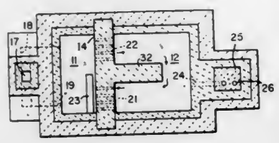
REACTION VESSEL

Newton N. Teichmann; Chancey D. McKenna, both of Bethel Park, and Albert Garrone, Canonsburg, all of Pa., assignors to Henry F. Teichmann, Inc., Pittsburgh, Pa.

Filed Oct. 5, 1972, Ser. No. 295,169

Int. Cl. B01d *53/34*

U.S. Cl. 23—285 **6 Claims**



The reaction vessel accommodates a corrosive liquid bath such as molten carbonate and a reactant such as petroleum coke and air. The vessel includes an oxidation chamber and a reduction chamber separated by a tee-shaped baffle. A liquid level control chamber cooperates with the reduction chamber and also serves as the outlet. Orifices extend through the baffle so that there is a controlled flow and recirculation of the bath through the chambers. The reactant is injected into the oxidation chamber below the level of the bath. The vessel is lined with a refractory brick or block, an insulating refractory sealant, and sections of expanded metal or metal grating.

3,785,781

APPARATUS FOR CATALYTICALLY CONVERTING FLUID

George L. Hervert, Woodstock; Robert D. Carnahan, Barrington, and Karl J. Youtsey, Chicago, all of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Oct. 4, 1971, Ser. No. 186,126

Int. Cl. B01j *9/04*

U.S. Cl. 23—288 F **3 Claims**

Method and means of catalytically converting fluids such as exhaust gases. The fluid is passed through a catalytically active first skeletal material zone having a plurality of flow paths in the direction of flow of predetermined cross-sectional dimensions. Immediately after withdrawing the fluid from the first skeletal material zone, the fluid is passed through an adjacent second skeletal zone having a plurality of flow paths in the direction of flow of larger cross-sectional dimensions than the flow paths of the first skeletal material zone. Immediately after withdrawing the fluid from the second zone the fluid is passed through an adjacent catalytically active third zone of skeletal material having flow paths in the direction of flow of smaller cross-sectional dimensions than the flow paths of the second zone.

3,785,782

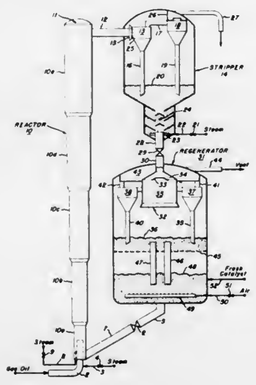
CATALYTIC PETROLEUM CONVERSION APPARATUS

Robert R. Cartmell, Crown Point, Ind., assignor to Standard Oil Company, Chicago, Ill.

Division of Ser. No. 5,777, Jan. 26, 1970, Pat. No. 3,661,799. This application Dec. 8, 1971, Ser. No. 206,214

Int. Cl. B01j *9/20*

U.S. Cl. 23—288 S **3 Claims**



Catalytic conversion of petroleum feedstocks, such as the cracking of a gas oil in a vertical transport reactor, is improved by effecting rapid separation of catalyst from reactor effluent and re-generating catalyst in a multi-stage fluid-bed system. A higher yield of desirable petroleum products and a lower carbon level on spent catalyst are realized. Partial regeneration of spent catalyst is effected in a first dilute-phase regeneration state, permitting subsequent use of a high regeneration temperature in order to reach an acceptably low carbon level on regenerated catalyst without harm to sensitive con-version catalysts.

3,785,783

RUTHENIUM OR OSMIUM ON HARD METAL

Brian Arthur Mynard, Bromsgrove; Bryan Jones; Victor Allen Tracey, both of Solihull, and Walter Betteridge, Beckenham, all of England, assignors to International Nickel Company, Inc., New York, N.Y.

Filed May 25, 1972, Ser. No. 256,889

Int. Cl. B22f *1/00*

U.S. Cl. 29—182.7 **5 Claims**

Bodies having osmium or ruthenium at the surface are found to give improved service as cutting tools, dies, bearings and the like. Best results are obtained when the body consists of a hard metal consisting of a carbide and a cobalt binder, and osmium or ruthenium is caused to combine with the bonding metal by interdiffusion of a surface coating of the precious metal and underlying bonding metal or by using mixtures of cobalt and osmium or ruthenium or both as the bonding metal.

3,785,784

SCRAP BLOCKS FOR ELECTRIC FURNACES

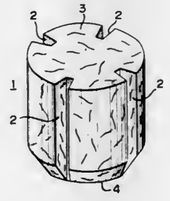
Kunitoshi Tezuka, 34 7-chome, Minamisuna-machi, Koto-ku, Tokyo, Japan

Filed Dec. 12, 1966, Ser. No. 601,034

Claims priority, application Japan, Sept. 3, 1966, 41/57944; Sept. 10, 1966, 41/59632; Sept. 30, 1966, 41/64315

Int. Cl. B21c *37/00*

U.S. Cl. 29—186 **11 Claims**



A metal scrap block for use in electric furnaces is of substantially cylindrical configuration and provided in its outer circumferential surface with angularly spaced longitudinal grooves which extend radially inwardly by between about ⅛ and ¼ of the block diameter.

3,785,785

SOLID SURFACE LUBRICANT COATING

James O. Hodshire, Mooresville; Quentin O. Shockley, Indianapolis, and Don E. Crouse, Plainfield, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 24, 1972, Ser. No. 237,950

Int. Cl. C10m *7/00*

U.S. Cl. 29—195 Y **6 Claims**

Metal articles are provided with a heat resistant, wear and abrasion resistant, antiseizing, solid surface lubricant coating consisting essentially of the combination of silver and niobium di-telluride.

3,785,786

WELDED AUSTENITIC NICKEL CHROMIUM STEELS

Jean-Jacques De Cadenet, Ugine, France, assignor to Ugine Aciers, Paris, France

Division of Ser. No. 13,757, Feb. 24, 1970, Pat. No. 3,693,247, which is a continuation-in-part of Ser. No. 608,971, Jan. 13, 1967, abandoned. This application June 9, 1972, Ser. No. 261,390

Int. Cl. B32b *15/00*

U.S. Cl. 29—196.1 **5 Claims**

Weld deposits joining nickel-chrome austenitic steels, a method of making the weld deposits and filler metals yielding

such weld deposits which have the general composition in per cent by weight of carbon 0.06 to 0.12, chromium 15 to 20, nickel 7.5 to 13, tungsten 3.5 to 5, manganese 0.5 to 2, silicon ≤0.6 and nitrogen (N_2) ≤ 0.10, and a ferritic tendency index of less than or equal to 15.

3,785,787

STAINLESS STEEL WITH HIGH RESISTANCE AGAINST CORROSION AND WELDING CRACKS

Kozo Yokota; Yukishige Fukase, and Koichiro Osozawa, all of Yokohama, Japan, assignors to Nippon Yakin Kogyo Company Limited, Tokyo, Japan

Continuation of Ser. No. 22,173, March 24, 1970, abandoned. This application Oct. 6, 1972, Ser. No. 295,733

Int. Cl. B32b *15/00*; **C22c** *39/20*

U.S. Cl. 29—196.1 **14 Claims**

Stainless steel with high resistance against corrosion and welding cracks, consisting of carbon, silicon, manganese, nickel, chromium, copper and the remainder of iron with an inevitable amount of impurity. The contents of the aforesaid ingredient elements of the stainless steel are so related with each other that the value of the following austenite/ferrite ratio is kept equal to or less than 1.06.

$$\text{austenite/ferrite ratio} = \frac{\text{Ni}(\%) + 0.5\text{Mn}(\%) + 30\text{C}(\%) + 2}{\text{Cr}(\%) + 1.5\text{Si}(\%) - 5.6}$$

The stainless steel may contain a limited amount of molybdenum, niobium, titanium, and tantalum, with a modified austenite/ferrite ratio. The stainless steel is advantageously used to make heat exchangers in processes employing automatic tungsten inert gas arc welding techniques.

3,785,788

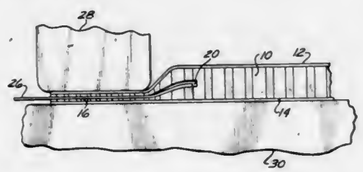
METHOD OF FORMING HONEYCOMB PANEL EDGES

Marvin D. Haggberg, Los Alamitos; Ira K. Kavanagh, Fullerton, and Leonard R. Van Horik, Long Beach, all of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Nov. 3, 1972, Ser. No. 303,484

Int. Cl. B23p *17/00*

U.S. Cl. 29—423 **4 Claims**



A method of contour-forming the edge of honeycomb sandwich panel comprising the steps of cutting a slit through the edge portion of the honeycomb midway between and parallel to the outer sheets of the sandwich, inserting a hardened blade into the slit, crushing the honeycomb core and thereafter removing the blade prior to the stretch-forming operation. This provides a bearing surface between the cells attached to the inner and outer panel sheets which permits the outer sheet to act independently of the inner sheet and thus form to contour satisfactorily in the subsequent stretch-forming step. In the alternative when crushing is not desired the blade is left in the slit during the stretch-forming operation to provide the slip surface between the inner and outer sheets.

3,785,789

FUEL DETERGENTS

Lewis R. Honnen, Petaluma, and Marvin D. Coon, Novato, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed May 24, 1972, Ser. No. 256,289

Int. Cl. C10l *1/22*

U.S. Cl. 44—66 **16 Claims**

The reaction products of hydrocarbon polyamines having a long, substantially aliphatic, hydrocarbon chain bonded to a di- or higher polyamine with certain polyfunctional coupling agents find use as detergents in distillate fuel compositions. The hydrocarbon group is normally branched chain and derived from natural sources or polyolefins, substantially free of aromatic substitution and of about 420 to 10,000 molecular weight. The poly-functional coupling agents are certain polyhalides, polycarboxylic acids, and organic polyisocyanates.

3,785,790

HYDROCARBON FUEL COMPOSITIONS

Aart Strang, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,723

Claims priority, application Great Britain, Dec. 30, 1970, 61769/70

Int. Cl. C10l *1/26*

U.S. Cl. 44—66 **4 Claims**

Liquid hydrocarbon distillate fuel compositions, especially gasolines, containing mineral and organic acid salts of hydrocarbyl polyamides effectively nullify and/or inhibit fouling of vital parts of internal combustion engines.

3,785,791

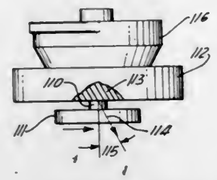
FORMING UNIT FOR FINE MINERAL FIBERS

Walter Merton Perry, 76 Locust Hill Rd., Darien, Conn.

Filed Mar. 2, 1972, Ser. No. 231,347

Int. Cl. C03b *37/04*

U.S. Cl. 65—14 **14 Claims**



An improved apparatus for the formation of fine fibers from mineral materials, especially glass, in which the molten material feeds continuously into a rotor which is turning at high speed, and discharges by centrifugal force thru multiple orifices arranged in superposed rows in the outer peripheral wall of the rotor in the form of molten filaments, with hot gaseous means to control the temperature of the zone immediately beyond the rotor outer wall and hold it close to the temperature of the molten filaments, and with a secondary outer attenuation zone comprising a high velocity annular gaseous blast for further attenuating the filaments into fine fibers, and with the gaseous blast composed of multiple individual jets spaced closely together, and so angled that the elements of the blast have a component of their velocity tangential to the rotor outer wall, and moving preferably in the same direction as the outer wall movement. The advantage of this combination is that it produces longer and finer fibers, and with less twisting together than is possible with the means used heretofore. Additional objectives are improved means to control the temperatures in the rotor, reduction of rotor windage, and reduction in the amount of power required to compress the medium used for the outer gaseous blast by reason of more efficient blast nozzles.

3,785,792

SURFACE COATING OF CHEMICALLY TEMPERED VITREOUS BODIES

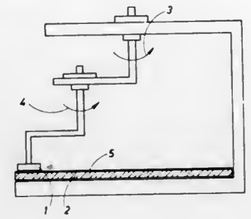
Emile Plumat, Gilly, Belgium, assignor to Glaverbel S.A., Watermadel-Boitsfort, Belgium

Filed Sept. 9, 1969, Ser. No. 856,273

Claims priority, application Luxembourg, Sept. 12, 1968, 56869; Great Britain, June 25, 1969, 32148/69

Int. Cl. C03c *17/00*, *21/00*

U.S. Cl. 65—30 **28 Claims**



A method for improving the adherence and uniformity of a coating layer on a body of vitreous or vitrocrystalline material by chemically tempering the body so as to impart compressive surface stresses to the surface to be coated before the coating layer is applied, and articles produced in such a manner.

3,785,793

METHOD OF LEACHING HIGH SILICA GLASS HAVING 0.5–2.0% P_2O_5

Yong Wan Park, Seoul, South Korea, assignor to National Industrial Research Institute, Seoul, South Korea

Filed May 26, 1972, Ser. No. 257,383

Claims priority, application South Korea, May 31, 1971, 746

Int. Cl. C03c *15/00*

U.S. Cl. 65—31 **6 Claims**

The addition of small controlled amounts of P_2O_5 to a borosilicate glass improves the speed and homogenity of phase separation upon heating of the glass. A borosilicate glass of the formula 65–75 percent SiO_2, 15–25% B_2O_3, 5–10% R_2O and 0.5–2.0% P_2O_5, wherein R is Na, K or Li, is heated and undergoes phase separation into a silica rich phase and an acid soluble $R_2O - B_2O_3 - P_2O_5$ phase. The acid soluble phase is leached with acid to form a porous high silica glass which can be reheated at about 1,200°C to contract the glass thereby yielding a transparent nonporous glass of properties similar to quartz glass.

3,785,794

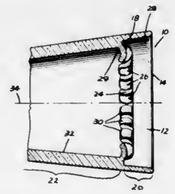
METHOD FOR FORMING A DRINKING RECEPTACLE

Frederick R. Hodges, 520 N. Michigan Ave., Chicago, Ill.

Division of Ser. No. 48,162, June 22, 1970, Pat. No. 3,666,110. This application May 30, 1972, Ser. No. 257,960

Int. Cl. C03b *21/00*

U.S. Cl. 65—108 **6 Claims**



A method for forming a drinking receptacle having means for maintaining ice, fruit, and the like within the receptacle and spaced from the rim thereof during use including the steps of forming the receptacle with the guard in a first position, and then, moving the guard into a second position in which it is used.

3,785,795

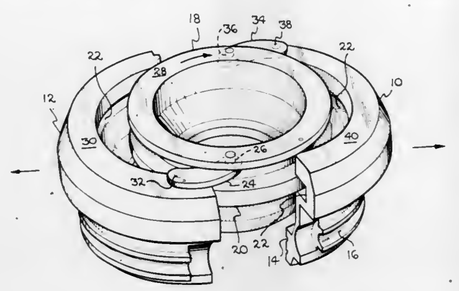
APPARATUS FOR POSITIVELY CENTERING A GLASS FORMING THIMBLE

Robert D. Colchagoff, Toledo, Ohio. assignor to Owens-Illinois Inc., Toledo, Ohio

Filed July 12, 1972, Ser. No. 271,079

Int. Cl. C03b *11/00*, *9/40*

U.S. Cl. 65—307 **10 Claims**



Apparatus for positively centering a glass forming thimble. The thimble in a glass forming operation is used to form the extreme upper portion of the finish of a glass container. In this invention, the thimble is connected to the two neck ring halves within which it is positioned. This assures that the thimble will always be positively centered with respect to the neck ring halves when they are opened.

3,785,796

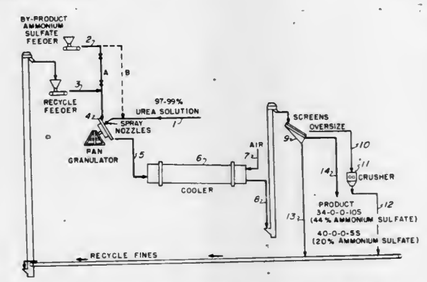
PRODUCTION OF UREA-AMMONIUM SULFATE

Horace C. Mann, Jr., Florence, Ala., assignor to Tennessee Valley Authority, Muscle Shoals, Ala.

Continuation of Ser. No. 155,133, June 21, 1971. This application Jan. 27, 1972, Ser. No. 221,262

Int. Cl. C05c *9/00*

U.S. Cl. 71—28 **1 Claim**



FLOW DIAGRAM OF GRANULATION PILOT PLANT FOR PRODUCTION OF UREA-AMMONIUM SULFATE

A process for the production of urea-ammonium sulfate granules from urea and ammonium sulfate by several granulation methods. The proportion of ammonium sulfate in the mixture was varied from 15 percent to 70 percent by weight resulting in products containing from 42 percent to 29 percent N and 3 percent to 17 percent S, respectively. Unexpectedly, the urea-ammonium sulfate mixture in these proportions were fluid enough at 250° F. to 325° F. to be prilled and granulated. The presence of the ammonium sulfate increased the strength of the granules significantly.

3,785,797
PRODUCTION OF NITROPHOSPHATE FERTILIZER

Samuel Strelzoff, New York, N.Y., and Sydney Atkin, Springfield, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Continuation of Ser. No. 85,956, Nov. 2, 1970, abandoned, which is a division of Ser. No. 766,139, Oct. 9, 1968, Pat. No. 3,582,313. This application Sept. 5, 1972, Ser. No. 286,444
Int. Cl. C05b *11/06*
U.S. Cl. 71—39 2 Claims



Nitrophosphate fertilizer is produced by the nitric acid digestion of phosphate rock. The pH of the initial digestion solution is raised to the range of about 1.8 to 2.5 by ammonia addition, to precipitate impurities including a major portion of fluoride and iron phosphate. The solid precipitate is filtered from the clear solution, and the solid filter cake is calcined at elevated temperature to volatilize fluorine and decompose iron phosphate into a nitric acid-insoluble form. The calcined cake is digested with nitric acid to recover phosphate and aluminum values in solution, and the resulting slurry is filtered and the solid filter cake containing iron compounds and silica is discarded. The clear filtrate is combined with the initial clear solution previously formed by filtration to remove solid fluoride and iron impurities, and the combined solution is preferably further acidified to reduce the PH to a low and highly acid value. A soluble salt such as ammonium sulfate or potassium sulfate, which has an anion which forms an insoluble solid salt with the calcium cation, is added to the combined solution, and an insoluble solid calcium salt is precipitated. Filtration removes the solid calcium salt, and ammonia is added to the remaining solution to raise the pH and precipitate remaining impurities. After removal of precipitated solid impurities by filtration, the final solution is processed by water removal to produce solid nitrophos fertilizer, usually together with ammonium nitrate as a co-product.

3,785,798
BIOLOGICALLY ACTIVE PARTICULATE MATERIAL AND THE PROCESS FOR MANUFACTURING SAME

John C. Horai, Hagerstown, and Stephen F. Tucker, Clear Spring, both of Md., assignors to GAF Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 633,718, April 26, 1967, Pat. No. 3,560,196. This application Oct. 19, 1970, Ser. No. 82,160The portion of the term of this patent subsequent to Feb. 2, 1988, has been disclaimed.
Int. Cl. A01n *9/00*
U.S. Cl. 71—79 6 Claims

Biologically active particulate material capable of releasing a biochemical at a controlled rate due to the change of environmental conditions, is manufactured by coating granules in the range of 10 to 50 mesh with a biochemical and a silicate binder and thereafter partially insolubilizing the binder.

3,785,799
HERBICIDAL COMPOSITIONS CONTAINING 2-(2′,6′-DICHLOROPHENYL)-1,3-THIAZINE-4-ONE AND METHODS OF EMPLOYING THE SAME

Jasper Daams, and Kobus Wellinga, both of Weesp, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 43,194, June 3, 1970, Pat. No. 3,661,900. This application Nov. 15, 1971, Ser. No. 198,999
Claims priority, application Netherlands, June 4, 1969, 6908457
Int. Cl. A01n *9/12*
U.S. Cl. 71—90 2 Claims

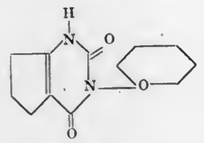
It has been found that 2-(2′,6′-dichlorophenyl)-1,3-thiazine-4-one has a biocidal effect on plants and their seeds. An interesting feature is that the said novel substance has not only a good initial activity but also a long-term activity. Selective use of the substance in cultivated plants having roots which penetrate to a comparatively great depth is possible. Thus, no appreciable damage is done to the cultivated plants.

3,785,800
NEW SUBSTITUTED PYRIMIDINE

Daniel Bertin, Montrouge; Jacques Perronnet, and Andre Teche, both of Paris, all of France, assignors to Roussel UCLAF, Paris, France

Division of Ser. No. 3,499, Jan. 16, 1970, Pat. No. 3,658,819. This application Oct. 8, 1971, Ser. No. 187,914
Claims priority, application France, Jan. 21, 1969, 69010011
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 2 Claims

A new substituted pyrimidine, of formula I:



(I)

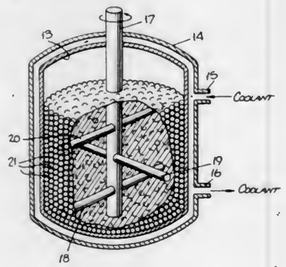
compositions containing the same, process and method.

The compound I possesses pesticidal, particularly herbicidal properties.

3,785,801
CONSOLIDATED COMPOSITE MATERIALS BY POWDER METALLURGY

John Stanwood Benjamin, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Continuation of Ser. No. 849,133, Aug. 11, 1969, abandoned, which is a continuation-in-part of Ser. No. 709,700, March 1, 1968, Pat. No. 3,591,362. This application Aug. 6, 1971, Ser. No. 169,791
Int. Cl. B22f *9/00*
U.S. Cl. 75—0.5 BC 3 Claims



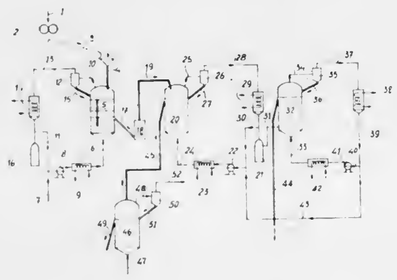
Directed to the powder metallurgy production of consolidated metal products wherein the starting material com-

prises dense wrought particles containing at least 15 percent by volume of a compressively deformable metal with the remainder being one or more other metals or non-metals with the internal structure of the particles being non-porous and with the constituents thereof being intimately united and interdispersed, i.e., mechanically alloyed, said particles, upon consolidation, yielding metal or cermet products having unusual properties and capable of compositioinal characteristics not available as a result of other processing techniques.

3,785,802
METHOD FOR EXTRACTING AND SEPARATING IRON AND NON-FERROUS METALS, FROM FERROUS MATERIALS

Giorgio Roberti, Rome; Casimiro Dufour-Berte, Genoa, and Edoardo Pasero, Rome, all of Italy, assignors to Centro Sperimental Metallurgico S.p.A., Rome, Italy

Filed Jan. 18, 1971, Ser. No. 106,962
Claims priority, application Italy, Jan. 19, 1970, 12431/70
Int. Cl. C21b *15/04*
U.S. Cl. 75—26 9 Claims



The invention consists in a method for extracting and separating iron from non-ferrous metals from ferrous ores and similar ferrous materials of such a pyrite ashes and/or purple ores, powders recovered from the steelmaking oxygen converter fumes and the like. The method comprising a first step wherein the material is reduced to an iron sponge preferably by means of hydrogen and similar reducing gases; a second step wherein said iron sponge is treated with carbon monoxide so as to obtain ferrocarbonyl vapors and a carbonylation solid residue with a higher concentration of non-ferrous metals; a third step consisting in the treatment of the ferrocarbonyl vapors on one side and then of the carbonylation solid residue; wherein the ferrocarbonyl vapors are condensed and then dissociated into pure iron powder and carbon monoxide which is used again in said second step, and wherein the residual carbonylation solid is treated to extract and recover the non ferrous metals contained therein.

3,785,803
EXTRACTION OF MERCURY FROM ALKALINE BRINES

Fletcher L. Moore, Knoxville, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Mar. 1, 1972, Ser. No. 231,029
Int. Cl. C22b *43/00*
U.S. Cl. 75—121 2 Claims

This invention is for a method of quantitatively removing mercury from aqueous waste streams with certain selected liquid organic amines. The method in its preferred form is particularly appropriate for removing mercury from aqueous brine solutions. Efficient and quantitative recovery of the extracted mercury is also provided.

3,785,804
STEEL ALLOY

Thomas Watmough, Dolton, and Robert P. O'Shea, Lombard, both of Ill., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 14, 1972, Ser. No. 280,281
Int. Cl. C22c *39/26*; F42b *13/48*
U.S. Cl. 75—126 D 4 Claims

A low alloy steel having titanium as an essential alloying ingredient. The titanium addition provides the means for controlling and manipulating the fragment mass distribution characteristics emanating from the detonation of an explosive warhead fabricated from the titanium containing steel alloy.

3,785,805
METHOD OF MANUFACTURING FORMED OBJECTS FROM A CHROMIUM-CARBON-IRON ALLOY

Jan Van Den Boomgaard, and Lodewijk Reinaerd Wolff, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 5, 1971, Ser. No. 131,477
Claims priority, application Netherlands, Apr. 3, 1970, 7004761
Int. Cl. C22c *39/14*
U.S. Cl. 75—130.5 2 Claims

Formed objects of high strength even at higher temperatures are obtained by unidirectional solidification of an iron-chromium-carbon alloy in a given range of compositions around a straight line in the triangular phase diagram connecting points representing the compositions chromium 15 percent by weight, carbon 4 percent by weight, remainde. iron and chromium 30.5 percent by weight, carbon 2.96 percent by weight, remainder iron.

3,785,806
METHOD OF PRODUCING ARSENIC SELENIDES AND ARSENIC DOPED SELENIUM

Sten Tycho Henriksson, Skelleftehamn, Sweden, assignor to Boliden Aktiebolag, Stockholm, Sweden

Filed Feb. 28, 1972, Ser. No. 229,956
Claims priority, application Sweden, Mar. 12, 1971, 3226/71
Int. Cl. C22c *1/10*
U.S. Cl. 75—134 H 7 Claims

A process for producing arsenic doped selenium. Finely divided selenium is mixed with a finely divided arsenic in an atomic ratio of 1:4, whereafter the mixture is heated in an inert atmosphere to obtain a master alloy. The master alloy is then mixed with molten pure selenium in a manner to obtain an arsenic content of between 0.1 and 2 percent by weight in the selenium.

3,785,807
METHOD FOR PRODUCING A MASTER ALLOY FOR USE IN ALUMINUM CASTING PROCESSES

Stig Lennart Backerud, Akersberga, Sweden, assignor to Granges Aluminium AB, Kubikenborg, Fack, Sundsvall, Sweden

Filed Apr. 27, 1971, Ser. No. 137,986
Claims priority, application Sweden, Apr. 28, 1970, 5881/70
Int. Cl. C22c *1/02*
U.S. Cl. 75—138 9 Claims

A method for producing a master alloy for use in aluminum casting processes in which an aluminum melt containing 0.02–6 percent by weight titanium and 0.01–2 percent by weight boron is produced under conditions under which the

boron is bound to titanium in the form of titanium diboride, whereafter the melt containing titanium diboride is held under agitation at a temperature ranging from the melting point of the material to 900° C for a period of at least 15 minutes and at most 9 hours.

3,785,808

PERMANENT MAGNET ALLOY USING MOLYBDENUM

Robert Steinitz, Montclair, N.J., assignor to Wilbur B. Driver Company, Newark, N.J.

Continuation of Ser. No. 82,501, Oct. 20, 1970, abandoned.
This application Feb. 8, 1972, Ser. No. 224,613
Int. Cl. C22c *19/00*
U.S. Cl. 75—170 4 Claims

A semihard permanent magnet alloy characterized by relatively high coercive force, relatively high residual induction, high ductility and low magnetostriction and consisting essentially of cobalt, iron and molybdenum. The molybdenum content of this alloy, as expressed in percent by weight, falls within the approximate range 2 percent – 15 percent. The sum of the cobalt and iron falls within the approximate range 85 percent – 98 percent. The ratio by weight of cobalt to iron falls within the approximate range 6.5:1 to 7.5:1.

3,785,809

NICKEL-BASE SUPERALLOY

Arthur R. Cox, Lake Park, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 15, 1971, Ser. No. 153,444
Int. Cl. C22c *19/00*
U.S. Cl. 75—171 2 Claims

A cast, precipitation-hardening alloy, applicable to turbine blades and vanes operating in the 1,200°—1,900° F. temperature range, of a nominal composition, by weight, of 9.5 percent chromium, 10 percent cobalt, 2.5 percent molybdenum, 3.7 percent tungsten, 4.2 percent titanium, 5.2 percent aluminum, 1 percent vanadium, 0.015 percent boron, 0.06 percent zirconium, balance nickel.

The invention herein described was made in the course of or under a contract with the Department of the Air Force.

3,785,810

SILVER-METAL OXIDE COMPOSITE AND METHOD OF MANUFACTURING THE SAME

Eugen Emil Durrwachter, Savosa/Ticino, Switzerland; Ulf Harmsen, and Wilhelm Merl, both of Pforzheim, Germany, assignors to Dr. Eugen Durrwachter DODUCO, Pforzheim, Germany

Filed Dec. 22, 1971, Ser. No. 211,038
Claims priority, application Germany, Mar. 3, 1970, 2011002
Int. Cl. C22c *5/00*
U.S. Cl. 75—173 A 10 Claims

The composite comprises a silver matrix having grain boundaries and metal oxide grains enriched at said grain boundaries of said silver matrix. An alloy is provided, which comprises silver, a second metallic component, and at least two alloying metals selected from the class consisting of calcium, antimony, magnesium, beryllium, aluminum, tin, manganese, and zirconium. Said second metallic component and said alloying metals are oxidized in said alloy to form said composite.

3,785,811

ZINC-ALUMINUM ALLOY

Erich Pelzel, Otto-Lilienthal-Strasse 3,519, Stolberg, Germany

Filed July 7, 1970, Ser. No. 53,039
Claims priority, application Germany, July 9, 1969, P 19 34 788.7
Int. Cl. C22c *17/00*
U.S. Cl. 75—178 A 4 Claims

A zinc-aluminum alloy consisting of 18 to 24% by weight (preferably 21% by weight) aluminum, the balance zinc and 0.1 to 1.5% by weight nickel (preferably 0.3 to 1.0% by weight). The nickel component represents a further metal for which can be substituted, to an amount of about 50% by weight, titanium in an amount of 0.05 to 0.5% by weight of the alloy, copper up to 0.5% by weight of the alloy, iron in an amount of up to 0.75% by weight of the alloy, and silicon in an amount of up to 0.75% by weight of the alloy. The lead, cadmium and tin content should be no greater than 0.05% by weight of the alloy and the magnesium content is preferably less than 0.0005% by weight of the alloy.

3,785,812

METHOD OF EXPOSURE IN MULTI-COLOR ELECTROPHOTOGRAPHY

Seiji Matsumoto, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 27, 1970, Ser. No. 92,975
Claims priority, application Japan, Nov. 27, 1969, 44/95223
Int. Cl. G03g *13/04*
U.S. Cl. 96—1.2 1 Claim

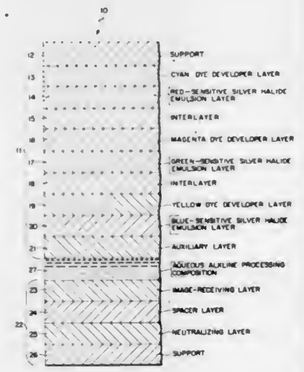
An exposure method for use in multi-color electrophotography where (1) the degree of light diffusion is decreased when exposing with the blue component in a trichromatic separation, (2) the degree of light diffusion is increased when exposing with the other color components, and (3) a tungsten light source is used as the medium for projection.

3,785,813

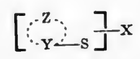
POLYCYCLIC HYDROPYRIMIDINE DEVELOPMENT RESTRAINERS

Donald O. Rickter, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 3, 1972, Ser. No. 214,665
Int. Cl. G03d *7/00*
U.S. Cl. 96—3 28 Claims



A development restrainer is made available during dye diffusion transfer processing after a predetermined period by incorporating in the photographic film unit, an S-substituted, polycyclic pyrimidine compound of the formula



wherein Y is a hydropyrimidine group, X is hydrogen in its active or unblocked form or a group hydrolyzable by alkaline processing composition as a function of temperature to provide a controlled release of development restrainer during the development process and Z is a ring system attached to the hydropyrimidine group. Those compounds in which Z is an alicyclic group or a heterocyclic group are novel compositions of matter.

3,785,814

DIFFUSION TRANSFER COLOR PROCESSES AND PRODUCTS AND COMPOSITIONS USEFUL THEREIN

Edwin H. Land, Cambridge; Stanley M. Bloom, Waban, and Howard G. Rogers, Weston, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 23, 1971, Ser. No. 211,718
Int. Cl. G03c *1/34, 5/54, 7/00*
U.S. Cl. 96—3 48 Claims

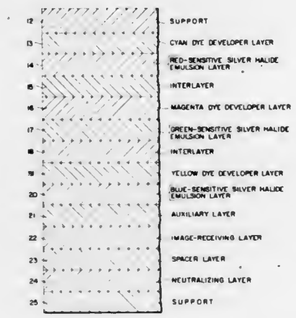
Dye developer diffusion transfer processes are disclosed utilizing 6-alkylamino purines, preferably in combination with a silver halide solvent. In particularly useful embodiments, processing is effected in the presence also of a uracil and bis-(β-aminoethyl)-sulfide.

3,785,815

SPACER OR TIMING LAYER IN COLOR DIFFUSION TRANSFER FILM

James A. Avtges, Belmont; Jerome L. Reid, Natick; Herbert N. Schlein, Beverly, and Lloyd D. Taylor, Lexington, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 24, 1972, Ser. No. 246,779
Int. Cl. G03c *7/00, 5/54, 1/76, 1/48*
U.S. Cl. 96—3 26 Claims



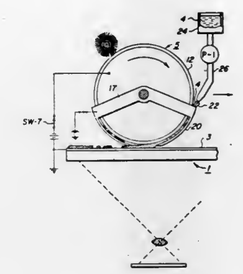
Novel photographic products for use in color diffusion transfer, particularly color diffusion transfer systems for forming color images viewable without separation as reflection prints, which products include a neutralizing layer for lowering the environmental pH after application of an aqueous alkaline processing fluid and a "timing" spacer layer so disposed with respect to the neutralizing layer that the processing fluid must first diffuse through the spacer layer before contacting the neutralizing layer, the spacer layer comprising, as a continuous phase, the coalesced essence of an aqueous film-forming synthetic polymer dispersion which is substantially impermeable to the processing fluid and a discontinuous phase comprising a material which is permeable to the processing fluid.

3,785,816

ELIMINATING CORONA ARCING IN PHOTOELECTROPHORETIC IMAGING

John M. La Cagnina, Rochester, N.Y., and Robert G. Davies, Clarksville, Va., assignors to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 821,202, May 2, 1969, Pat. No. 3,697,407.
This application Dec. 30, 1971, Ser. No. 214,496
Int. Cl. G03g *12/00, 15/00*
U.S. Cl. 96—1.3 10 Claims



Method and apparatus for eliminating corona arcing between electrodes in an electrophoretic imaging system by introducing a member at the entrance and exit of the nip between adjacent electrodes during the application of an electric field for imaging of an electrophoretic suspension between the electrodes.

3,785,817

TRANSFER OF PHOTOPOLYMER IMAGES BY IRRADIATION

August Dennis Kuchta, 20 Rolling Road, East Brunswick, N.J.

Filed Oct. 5, 1970, Ser. No. 78,180
Int. Cl. G03c *11/12*
U.S. Cl. 96—28 7 Claims

This invention relates to a process of imaging a surface by means of a transfer method utilizing an imaged photopolymerizable film element. The imaged element may be derived from a film element which comprises a photopolymerizable layer on a support and having a removable cover sheet laminated to the surface of said layer opposite from said support. Such elements comprise a dry photopolymerizable layer which is coated from a composition comprising a mixture of a particulate microcrystalline thickener having a particulate size no greater than .0001-inch, an ethylenically unsaturated monomer and an initiating system, and containing a sufficient amount of monomer to cause a thin film of substantially free monomer to form on the monomer-thickener layer upon drying. The layer will generally contain from 10–90 parts by weight of thickener per 100 parts by weight of monomer-thickener. The layer has optical density in the actinic region not more than 0.7 and a thickness of at least 0.00005-inch. The coplanar complementary polymerizable image remaining on the support, after imagewise exposure and removal of the cover sheet and exposed image, can be transferred to a receptor surface by laminating it to a receptor sheet and then exposing the layer to actinic radiation through the base or the receptor sheet of said element, if said sheet is transparent to the radiation.

3,785,818
METHOD OF MAKING LITHOGRAPHIC PRINTING PLATES

Ralph Kingsley Blake, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 847,399, Aug. 4, 1969, Pat. No. 3,635,710. This application Oct. 13, 1971, Ser. No. 189,030

Int. Cl. G03f *7/02*

U.S. Cl. 96—33 **13 Claims**

A long lived gelatin lithographic printing plate is prepared by imagewise exposing an element bearing a silver halide emulsion layer having a stratum of hexacyanoferrate sol thereon to actinic radiation, developing in a conventional developer, and activating with a cupric ion solution to form a lithographic image which accepts ink in the exposed areas and water in the unexposed areas. Novel activating solutions for the silver halide are provided. The resulting printing plates are capable of yielding many thousands of impressions.

3,785,819
METHOD FOR PHOTOGRAPHICALLY PREPARING ANAMORPHIC PICTURES

Clarence A. Barnes, Jr., New York, N.Y., and Alan Fontaine, Westport, Conn., assignors to Reflectomorphics, Inc., New York, N.Y.

Filed Mar. 15, 1972, Ser. No. 234,723

Int. Cl. G03c *1/00*

U.S. Cl. 96—46 **14 Claims**

A method for photographically preparing anamorphic pictures in which a true image of the picture to be prepared is projected through a dioptric lens system onto a curved reflected surface having an axis of curvature which is substantially perpendicular to the projected axial ray. An anamorphic reproduction of the image is reflected from the curved surface onto an opaque or translucent planer surface normal to the axis of curvature, and the planar surface is photographed from a direction parallel to the axis. In some embodiments the curved surface is cylindrical, while in other cases the surface is of conical configuration and the direction of the projected image is changed such that its axial ray is coaxial with the cone at the time the image reaches the surface.

3,785,820
PHOTORECORDING PROCESS AND PHOTORECORDING MEMBER

Eiichi Inoue; Isamu Shimizu; Ichiro Endo, and Hajime Kobayashi, all of Tokyo, Japan, assignors to Canon Camera Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 805,357, March 7, 1969, abandoned. This application Feb. 18, 1972, Ser. No. 227,636

Int. Cl. G03c *5/24*

U.S. Cl. 96—48 R **7 Claims**

A photochromic compound, particularly, spiropyran compound, is used for producing images. The difference of properties such as polarity and solubility between the colored species and the colorless species is utilized to produce the images and the spiropyran compound is maintained in a dense state to obtain a stable colored state.

3,785,821
METHOD OF DEVELOPING VESICULAR PHOTOGRAPHIC MATERIALS

Norman T. Notley, P.O. Box 462, Pasadena, Calif.

Continuation-in-part of Ser. No. 866,770, Oct. 15, 1959, abandoned, which is a continuation of Ser. No. 569,015, Aug. 1, 1966, abandoned. This application June 18, 1971, Ser. No. 154,631

Int. Cl. G03c *5/18, 5/34*

U.S. Cl. 96—49 **6 Claims**

A process for producing a vesicular photographic image while minimizing shrinkage of the backing layer upon which the vesicular photographic material is coated. The coating contains, in addition to sensitizer, a dye or pigment which can produce heat on exposure to non-actinic light. The material is exposed, image wise, to actinic light and then exposed uniformly to non-actinic light which is absorbed by the dye or pigment to heat the material and produce an image. Since the dye or pigment is not in the backing, only the vesicular coating is heated. The non-actinic light is of sufficient intensity to develop an image in less than about 0.2 second.

3,785,822
PHOTOGRAPHIC EMULSIONS AND DEVELOPERS CONTAINING 2-MERCAPTO HETEROCYCLIC COMPOUNDS

Joseph DeWitt Overman, 1805 Breen Ln., Wilmington, Del.

Continuation-in-part of Ser. No. 91,220, Nov. 19, 1970, abandoned. This application June 30, 1971, Ser. No. 158,516

Int. Cl. G03c *5/30, 1/28, 1/06*

U.S. Cl. 96—66.3 **13 Claims**

This invention relates to photographic materials designed for processing in developing agents which have a long induction period and to which fog-reducing adjuvants have been added. The induction period can be considerably shortened and the restraining action of any antifoggant overcome by the addition of certain heterocyclic nitrogen compounds which contain a mercapto substituent adjacent to the nitrogen atom and which exhibit a pKa not less than 7.7.

3,785,823
POLYHEDRAL HALOBORANES AS DEVELOPER ADJUVANTS WITH A POLYETHYLENE OXIDE CONDENSATION PRODUCT

John H. Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 27, 1972, Ser. No. 238,480. The portion of the term of this patent subsequent to Dec. 18, 1990, has been disclaimed.

Int. Cl. G03c *5/30*

U.S. Cl. 96—66.3 **21 Claims**

This invention relates to photographic films and developers and to improvement in film speed and top density which occurs by adding certain novel polyhedral haloborane compounds in synergistic combination with polyethylene oxide condenstaion products to the film-developer system. This invention also relates to improved developer tray life resulting from the use of these novel polyhedral haloboranes.

3,785,824
PHOTOGRAPHIC AQUEOUS DISPERSION CONCENTRATES

Richard S. Fisch, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 24, 1971, Ser. No. 183,703

Int. Cl. G03c *5/30*

U.S. Cl. 96—66 R **11 Claims**

A synthetic, water-soluble polymer having a hydrocarbon backbone is employed as a dispersing agent in dispersions in water of a solvent for high-boiling, water-immiscible vehicles useful in the photographic solvent-dispersion technique for the formation of coupler-containing photographic silver halide elements.

3,785,825
LIGHT-SENSITIVE QUINONE DIAZIDE COMPOUNDS, COMPOSITIONS, AND PRESENSITIZED LITHOGRAPHIC PLATE

Albert S. Deutsch, Yonkers, and Joseph M. Poppo, New Rochelle, both of N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

Filed July 19, 1971, Ser. No. 164,131

Int. Cl. G03c *1/54*; **G03f** *7/08*; **C07c** *113/00*

U.S. Cl. 96—75 **14 Claims**

Light-sensitive compounds and compositions comprising alkyl ether esters of naphthoquinone diazides that resist hydrolysis during prolonged storage, and sensitized lithographic printing plates made therewith.

3,785,826
DIAZOTYPE MATERIALS FOR BLACKLINE IMAGES

Chester Slimowicz, and Walter J. Welch, both of Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.

Continuation of Ser. No. 56,186, July 10, 1970, abandoned, which is a continuation of Ser. No. 624,999, March 22, 1967. This application Apr. 26, 1972, Ser. No. 247,903

Int. Cl. G03c *1/54, 1/58*

U.S. Cl. 96—75 **8 Claims**

Sensitizing agents for ammonia vapor developable blackline two-component diazotype sensitizing formulations comprising diamotized derivatives of 4-N-pyrrolidinyl-3-alkylparaphenylenediamine are employed with a mixture of coupling components which include an acetoacetamide, a naphthol, a diresorcyl compound alone or also with resorcinol.

3,785,827
PHOTOGRAPHIC MATERIAL STABILISED AGAINST ULTRAVIOLET RADIATION

Bernhard Piller, Marly-le-Petit; Max Meier, Fribourg; Max Duennenberger, Frenkendorf; Hans Rudolf Biland, Gelterkinden, and Christian Luethi, Muenchenstein, all of Switzerland, assignors to Ciba-Geigy AG, Basil, Switzerland

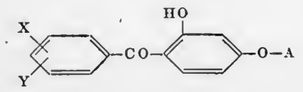
Filed Mar. 10, 1971, Ser. No. 123,018

Claims priority, application Switzerland, Mar. 11, 1970, 3643/70

Int. Cl. G03c *1/84*

U.S. Cl. 96—84 R **4 Claims**

This invention relates to colour photographic material. Said material is stabilized by means of a 2-hydroxybenzophenone which is free from sulphonic acid groups and which corresponds to the formula



wherein X represents a hydrogen or halogen atom, a possibly substituted alkyl, alkenyl or phenyl group, an alkylcarbonyl or alkylsulfonyl group or an A′-O group, Y represents a hydrogen or halogen atom, a possibly substituted alkyl group or an A″-O group, A, A′ and A″ each representing a hydrogen atom, a possibly substituted alkyl, alkenyl, cycloalkyl, aralkyl or phenyl group or a residue of the formula

$$-CO-(NH)_{n-1}-D$$

wherein D represents an alkyl, alkenyl or possibly substituted phenyl residue and n is one or two.

3,785,828
LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Masakuni Iwama; Toshihiko Yamamoto; Isaburo Inoue; Teruo Hanzawa, and Takaya Endo, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

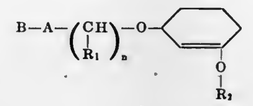
Continuation-in-part of Ser. No. 66,140, Aug. 21, 1970, abandoned. This application Sept. 6, 1972, Ser. No. 286,718

Claims priority, application Japan, Aug. 28, 1969, 44-67622

Int. Cl. G03c *1/40*

U.S. Cl. 96—100 **2 Claims**

Light sensitive silver halide color photographic materials containing novel coupler having the general formula:



wherein B is a coupler residue; R_1 is hydrogen or a lower alkyl group; R_2 is an aliphatic hydrocarbon group having eight to 18 carbon atoms; n is an integer of one to four; and A is an -NHCO- or -CONH- group, provided that in case A is a -CONH- group, R_1 is hydrogen and n three or four.

3,785,829
NOVEL CYAN-DYE FORMING COUPLER

Jose M. Fernandez, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 2, 1972, Ser. No. 259,065

Int. Cl. G03c *1/40*

U.S. Cl. 96—100 **28 Claims**

A class of cyan-dye-forming α-naptholic couplers having an alkylthio, an alkysulfinyl, or an alkysulfonyl ballasting group attached onto the β-naptholic ring; elements and emulsions containing said couplers and a method for improving color photographic images by utilizing said couplers.

3,785,830
PHOTOTHERMOGRAPHIC ELEMENT, COMPOSITION AND PROCESS

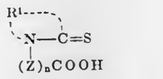
Michael F. Sullivan; Roger M. Cole, and Wilbert J. Humphlett, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 14, 1972, Ser. No. 262,907

Int. Cl. G03c *1/02, 1/72*

U.S. Cl. 96—114.1 **31 Claims**

A photothermographic element comprising a support having thereon (a) a reducing agent, (b) a silver salt of a thione compound, the thione compound being represented by the formula:



wherein n is 1 to 10, R^1 represents atoms completing a 5-member heterocyclic nucleus, Z is alkylene, such as alkylene containing 1 to 10 carbon atoms, and (c) a photosensitive component consisting essentially of photosensitive silver halide, in the absence of an image stabilizer or stabilizer precursor, can provide a developed and stabilized image upon imagewise exposure and then overall heating of the element. The photothermographic element can, but need not, contain a binder for the described components. Other addenda employed in photothermographic materials can be employed with the photothermographic element.

3,785,831
WHIPPABLE COMPOSITION
James Taylor Willock, Middle Barton, England, assignor to General Foods Limited, White Plains, N.Y.
Filed Jan. 5, 1972, Ser. No. 215,637
Int. Cl. A23g 3/00
U.S. Cl. 99—139 4 Claims

A whippable topping composition having improved low temperature performance is prepared utilizing a mixture containing at least two emulsifiers, a primary and a secondary emulsifier. The primary emulsifier is a lactylated glycerol ester, and the secondary emulsifier is a partial or complete ester of a common food acid and a mono and/or diglyceride of a saturated or unsaturated fat forming $C_{12}-C_{22}$ fatty acid.

3,785,832
DENTAL PRIMER VARNISH
Rafael L. Bowen, Gaithersburg, Md., assignor to The United States of America as represented by the Secretary of Health, Education and Welfare, Washington, D.C.
Filed Oct. 13, 1971, Ser. No. 189,034
Int. Cl. C09k 3/00
U.S. Cl. 106—35 6 Claims

A dental adhesive primer and varnish composition free of polymerizable monomers during storage and suitable specially for adhering dental direct filling resins and composite materials to human dentin and enamel consisting of the reaction product of N-phenyl glycine (NPG) type moiety and a glycidyl ether moiety containing at least one epoxy group such as p-chlorophenyl-2,3-epoxypropylether (CGE) or the reaction product of bisphenol A with epichlorohydrin (DGEBA) dissolved in the weight amount of about 5–15 percent in a suitable solvent, such as acetone, chloroform, and ether.

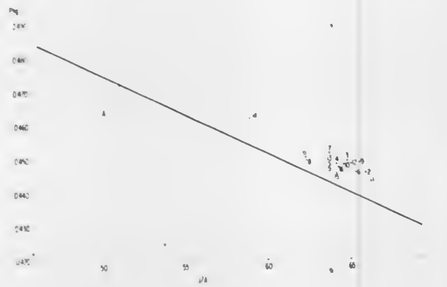
3,785,833
GLASSES OF THE Na_2O-K_2O-Nb_2O_5-SiO_2 SYSTEM AND GLASS CERAMICS MADE THEREFROM
James E. Rapp, Oregon, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Aug. 5, 1971, Ser. No. 169,513
Int. Cl. C03c 3/22
U.S. Cl. 106—39.6 13 Claims

Thermally crystallizable glasses of the Na_2O-K_2O-Nb_2O_5-SiO_2 system and glass-ceramics made therefrom which are highly transparent, have a high refractive index, high dielectric constant and low loss tangents. The glasses consist essentially of 23–38 mole percent SiO_2, 23–47 mole percent Nb_2O_5, 13–30 mole percent Na_2O and 9–22 mole percent K_2O wherein the Na_2O-to-K_2O mole ratio is at least 0.7 and the ($Na_2O + K_2O$) to Nb_2O_5 mole ratio is from 0.8 to 1.8. By varying the heat treatment schedule for crystallization of the glass of the invention to a glass-ceramic, a specific high index of refraction and a specific dielectric constant within a prescribed range may be imparted to the finished transparent glass-ceramic. A glass-ceramic having two or more different indices of refraction and/or two or more dielectric constants may be produced.

3,785,834
GLASSES, GLASS-CERAMICS AND PROCESS FOR MAKING SAME
James Erich Rapp, Oregon, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed June 9, 1972, Ser. No. 261,188
Int. Cl. C04b 3/22, 3/16, 3/12
U.S. Cl. 106—39.6 38 Claims

Thermally crystallizable glasses of the R_2O-RE_2O_3-Nb_2O_5-GF system wherein R is an alkali metal cation, RE is a rare earth metal cation, and GF is a glass former, namely, SiO_2, GeO_2 or P_2O_5, and transparent, translucent and opaque glass-ceramics made therefrom which have excellent dielectric properties, have high indices of refraction when the glass-ceramic is transparent and are suitable for use as capacitors and dielectrics, and for use in acoustooptical and electrooptical devices and the like. Also thermally crystallizable glasses of the R^1O-RE_2O_3-Nb_2O_5-GeO_2 system wherein R^1 is a divalent metal cation and RE is a rare earth metal cation and such glasses have high indices of refraction usually above 2.00, and very low acoustic attenuation. These properties make the glasses and also the transparent glass-ceramics made therefrom ideally suited for use in acoustooptical and electrooptical devices wherein such properties are important to the efficient operation of such devices. Transparent and opaque glass-ceramics made from such glasses also have good dielectric properties including high dielectric constants and low dissipation factors. Glass-ceramics of the invention preferably have crystalline phases exhibiting the cubic perovskite structure or the tetragonal tungsten-bronze structure.

3,785,835
ANOMALOUS DISPERSION GLASS
Tetsuro Izumitani, and Isao Masuda, both of Tokyo, Japan, assignors to Hoya Glass Works, Ltd., Shinjuku-ku, Tokyo, Japan
Filed May 19, 1972, Ser. No. 254,965
Claims priority, application Japan, May 21, 1971, 46-34546
Int. Cl. C03c 3/16
U.S. Cl. 106—47 Q 2 Claims



An anomalous dispersion glass having an Abbe's number (νd) of 58–68 and a partial dispersion ratio (Phg) of 0.4425–0.4650, produced by adding 0.3–7.0 wt. parts of CeO_2 and 0–2 wt. parts of Sb_2O_3 to 100 wt. parts of phosphate glass which is composed of P_2O_5 40–70 wt. percent, B_2O_3 1–21 wt. percent, Al_2O_3 1–8 wt. percent, $B_2O_3+Al_2O_3$ 2–24 wt. percent, BaO 8–42 wt. percent, ZnO 0–9 wt. percent, MgO 0–7 wt. percent, CaO 0–7 wt. percent, SrO 0–11 wt. percent, La_2O_3 0–7 wt. percent, where $BaO+MgO+ZnO+SrO+CaO+La_2O_3$ are 15–52 wt. percent.

3,785,836
HIGH MODULUS INVERT ANALOG GLASS COMPOSITIONS CONTAINING BERYLLIA
James F. Bacon, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Continuation-in-part of Ser. No. 874,674, Nov. 6, 1969, abandoned. This application Apr. 21, 1972, Ser. No. 246,295
Int. Cl. C03c 3/04
U.S. Cl. 106—50 3 Claims

Glass compositions having a Young's modulus of at least 15 million psi and a specific modulus of at least 110 million inches consisting essentially of, in mols, 10–45% SiO_2, 2–15% Li_2O, 3–34% BeO, 12–36% of at least one bivalent oxide selected from the group consisting of CaO, ZnO, MgO and CuO, 10–39% of at least one trivalent oxide selected from the group consisting of Al_2O_3, B_2O_3, La_2O_3, Y_2O_3, Fe_2O_3 and the mixed rare earth oxides, the total number of said bivalent and trivalent oxides being at least three, and up to 10% of a tetravalent oxide selected from the group consisting of ZrO_2, TiO_2 and CeO_2.

3,785,837
PARTIALLY CRYSTALLIZABLE GLASSES FOR PRODUCING LOW-K CROSSOVER DIELECTRICS
Rajnikant Babubhai Amin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed June 14, 1972, Ser. No. 262,491
Int. Cl. C03c 3/22, 3/30
U.S. Cl. 106—52 6 Claims

Partially crystallizable glasses of $BaO-ZnO-CaO-TiO_2-Al_2O_3-SiO_2$ which upon firing form crossover dielectrics for use in printed circuits. The glasses are in finely divided form and are optionally dispersed in an inert liquid vehicle. The resultant partially crystallized crossover dielectrics consist essentially of 20–48 percent by weight crystals (celsian, sphene and zinc orthosilicate) dispersed in a glassy matrix and exhibit reduced dielectric constant (K).

3,785,838
INORGANIC REFRACTORY FIBROUS COMPOSITIONS
V. Wesley Weidman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 4, 1971, Ser. No. 195,864
Int. Cl. C04b 43/02
U.S. Cl. 106—55 12 Claims

Inorganic fibers such as mineral wool are bonded in a coherent mass with a binder such as colloidal positively charged particles having a silica core and a coating of a polyvalent metal-oxygen compound. The binder is flocculated from solution onto the fibers by agents such as attapulgite or hectorite. These inorganic structures retain their strength at temperatures as high as 2300°F.

3,785,839
PORTLAND CEMENT AND ADDITIVES THEREFOR
Richard B. Peppler, and Philip A. Rosskopf, both of South Euclid, Ohio, assignors to Martin Marietta Corporation, New York, N.Y.
Filed Sept. 9, 1971, Ser. No. 179,239
Int. Cl. C04b 7/02
U.S. Cl. 106—90 36 Claims

The rate of hardening of a portland cement mix is accelerated by the addition of a monomeric, water-soluble hydroxylated adduct formed by reacting a urea and an aldehyde, said adduct being employed in an amount within the range of from about 0.01 percent to about 1.00 percent, advantageously about 0.2 percent to about 0.8 percent, by weight of cement. The water content of the cement mix for a given consistency tends to be lowered by the incorporation of the adduct, conveniently monomethylolurea and dimethylolurea, while avoiding toxic and corrosive effects normally associated with aldehyde-type set accelerators. The adducts may be employed in concentrated amounts in water and may be used in combination with known set accelerating agents. The adducts may also be employed in combination with set retarders where reduction in water content is desired without appreciable change in the rate of set of the cement mix.

3,785,840
LIME-FLY ASH-SULFITE MIXTURES
Leonard John Minnick, Cheltenham; William C. Webster, Norristown, and Charles L. Smith, Conshohocken, all of Pa., assignors to G & W. H. Corson, Inc., Plymouth Meeting, Pa.
Filed June 5, 1972, Ser. No. 259,461
Int. Cl. C04b 7/34
U.S. Cl. 106—118 6 Claims

A hardenable cementitious mixture comprised of lime, fly ash, and sulfite salts in predetermined portions may be produced from a combination of the fly ash product from combustion equipment and the slurry produced in scrubbing stack gases from such equipment to remove sulfur oxides therefrom. Generally, the cementitious mixture comprises a water solids mixture with about 30 – 90 weight percent solids. Further, the solids comprise 0.25 – 70 percent by weight alkaline earth metal hydroxide, 10 – 99.5 weight percent fly ash, and 0.25 – 70 percent by weight of alkaline earth metal sulfite of which some portion thereof may be replaced by alkaline earth metal sulfates.

This cementitious mixture may be used either by itself or with a filler or aggregate material.

3,785,841
WAX COMPOSITION
William A. Beard, 2301 Dodge Ave., Fort Wayne, Ind.
Filed Feb. 10, 1969, Ser. No. 798,126
Int. Cl. C08h 17/44; C08b 27/52
U.S. Cl. 106—186 18 Claims

A wax composition which can be used as a protective coating, a release agent, or the like, and applied to articles by spraying or brushing the composition onto the article or by dipping the article in the composition or the like. The wax composition comprises a homogeneous combination of a wax and a thermoplastic resin and/or a fatty amide in solution. The solution in a specific embodiment contains a wax, a thermoplastic resin, a fatty amide, an aromatic solvent, an aliphatic petroleum solvent, and a chlorinated solvent.

3,785,842
SYNTHETIC AGGREGATES
Ransome James Murray, Gravesend, England, assignor to The Associated Portland Cement Manufacturers Limited, London, England
Filed Jan. 6, 1971, Ser. No. 104,757
Claims priority, application Great Britain, Jan. 16, 1970, 2303/70
Int. Cl. C08h 17/04
U.S. Cl. 106—288 B 7 Claims

A method of producing a synthetic aggregate, comprising preparing a finely divided raw material having an oxide analysis SiO_2 5–35 percent, Al_2O_3 15–70 percent, FeO 0–65 percent. MgO 0–50 percent, alkalis <5 percent. and CaO<5 percent, the combined content of FeO and MgO being sufficient to provide at least 15 percent of spinels in the finished aggregate, agglomerating the raw material, and firing the agglomerated material at a temperature causing recrystallization of the raw materials until substantial elimination of any uncombined magnesium oxide is achieved and a material is produced comprising spinel crystals imbedded in a matrix of alumino-silicates, silicates, or a mixture thereof, and having a porosity low enough to provide an aggregate abrasion value less than 20 percent.

3,785,843

PROCESS FOR IMPROVING A DISAZO PIGMENT

Joachim Ribka, Offenbach am Main, and Siegfried Schwerin, Hofheim, Taunus, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Dec. 2, 1971, Ser. No. 204,371

Claims priority, application Germany, Dec. 4, 1970, P 20 59 675.2

Int. Cl. C08h *17/14*

U.S. Cl. 106—288 Q 3 Claims

A process for improving the properties of Pigment Yellow 17 (Colour Index 21 105) wherein an aqueous suspension of the crude dyestuff prepared in the usual manner by coupling tetrazotized 4,4'-diamino-3,3'-dichloro-diphenyl with 1-acetoacetylamino-2-methoxy-benzene is heated for several hours to temperatures between 100° and 200°, preferably 100°C to 150°C, at a pH-value higher than 8, preferably at about 11. Pigment Yellow 17 after-treated in this way has an essentially better fastness to light than the untreated pigment. Furthermore, the graphic prints produced with it have a higher lustre.

3,785,844

EXPANSIVE CEMENT ADDITIVES AND PROCESS FOR PRODUCING THE SAME

Toshio Kawano, Kawasaki, Japan, assignor to Onoda Cement Co., Ltd., Yamaguchi-ken, Japan

Filed Nov. 8, 1972, Ser. No. 304,817

Claims priority, application Japan, Nov. 13, 1971, 46-90749; Mar. 17, 1972, 47-27304

Int. Cl. C04b *13/22*

U.S. Cl. 106—314 12 Claims

A finely pulverized expansive cement additive having an excellent chemical prestressing property, a clinker of which consists of alite crystals and calcium oxide crystals dispersed in a vitreous interstitial substance, wherein said alite and calcium oxide crystals have a size ranging from 50 to 100 microns and from 15 to 60 microns respectively, and the content of said calcium crystals and said interstitial substance are from 30 to 80 percent and from 2 to 27 percent by weight based on the clinker respectively.

3,785,845

PRINTING PROCESS

James Derek Birchall, Norley; John Edward Cassidy, Hartford; John Stafford, and Anthony Graham Marshall Last, both of Welwyn Garden City, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Dec. 10, 1971, Ser. No. 206,909

Claims priority, application Great Britain, Dec. 11, 1970, 59010/70

Int. Cl. B41m *1/24*; B44d *1/32*

U.S. Cl. 117—15 10 Claims

A process is provided for applying printed matter to plastic substrates by coating the substrate with a composition capable of generating aluminum phosphate. A complex aluminum phosphate having at least 1 chemically-bound molecule of an hydroxy compound ROH where R is hydrogen or an organic group is preferred. The coating is heated to provide at least a partially cured layer of aluminum phosphate and the inked pattern is applied thereto.

3,785,846

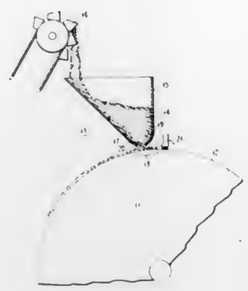
METHODS FOR DEVELOPING ELECTROSTATIC IMAGES

Theodore M. Hider; Frank A. Hawn, and George E. Makie, all of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 1, 1971, Ser. No. 158,811

Int. Cl. G03g *13/08*

U.S. Cl. 117—17.5 6 Claims



Development means and method for developing electrostatic images in a moving insulating surface with developer material in which the flow of the developer material onto the insulating surface is such that a dynamic developer crown is created of such a size to substantially develop the electrostatic image. Preferably the means for creating the developer crown is a developer receptacle positioned in near contact with the moving insulating surface.

3,785,847

PROCESS FOR ANTI-CORROSIVE PROTECTION BY REDUCTION OF IONISED METALS ON METAL SUBSTRATE

Leonard Wisniewski, 302 Henley Manor, Beach Road, Moville Point, Cape Town, South Africa

Filed June 14, 1971, Ser. No. 152,999

Claims priority, application Brazil, June 17, 1970, 219822

Int. Cl. B44d *1/44*

U.S. Cl. 117—62 8 Claims

Protecting iron and steel against corrosion by deposition of a metallic deposit from ionic compounds on the metal to be protected. The method comprises applying to the metal to be protected a paint consisting of at least one elemental metal of higher electrode potential than the metal to be protected, and at least one metal compound which yield metal ions of lower electrode potential than the metal to be protected or the elemental metal in organic binder, then treating the dry paint with acidic aqueous electrolyte containing at least one of said metal ions.

3,785,848

POLYURETHANE PLASTICIZED TOPCOAT FOR LEATHER AND METHOD

Victor Mattei, Cinnaminson, N.J., and Constance A. Lane, Philadelphia, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Sept. 4, 1969, Ser. No. 855,363

Int. Cl. B44d *1/32*; C08b *21/08*

U.S. Cl. 117—73 6 Claims

The present invention is concerned with improved coating compositions based on hard polymers, specifically, cellulose acetate butyrate plasticized with diisocyanate-extended polyesters. The diisocyanate-extended polyesters are formed in situ in the coating of the invention, which is a final top coating for the products of the invention. The invention also includes flexible products, such as full grain leather and substitute leather having topcoatings thereon of outstanding flexibility made from these compositions, and methods for their preparation.

3,785,849

DIACRYLOXY ESTERS OF ANHYDRIDES AND COATING COMPOSITIONS DERIVED THEREFROM

Gordon M. Parker, Harwick; Marco Wismer, Gibsonia, and Ernest A. Hahn, Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Apr. 8, 1969, Ser. No. 814,436

Int. Cl. B44d *1/50*; C09d *3/80*

U.S. Cl. 117—93.31 30 Claims

This invention relates to acryloxy (or methacryloxy)-alkyl (or alkyloxyalkyl) acryloxy (or methacryloxy) hydroxyalkyl organic dicarboxylic esters prepared by reacting an organic acid anhydride with a hydroxyalkyl acrylate or methacrylate and then reacting this half-ester with a glycidyl acrylate or methacrylate. These compounds are useful in coating compositions and particularly coating compositions curable by radiation.

3,785,850

METHOD OF APPLYING ACRYLIC FUNCTIONAL CARBONATE ESTER COATING TO PLASTIC SUBSTRATES USING HIGH ENERGY IONISING RADIATION

Gordon M. Parker, Apollo, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 829,754, June 2, 1969, abandoned. This application Oct. 18, 1971, Ser. No. 190,327

Int. Cl. B44d *1/50*; C08f *11/00*

U.S. Cl. 117—93.31 8 Claims

Phosgene is reacted with a polyhydroxy containing compound to form a polychloroformate. The polychloroformate is then reacted with an acrylate containing one hydroxyl group in the presence of an acid acceptor to form the novel complex acrylate esters of this invention. The product is highly radiation-sensitive so that it may be polymerized by ionizing irradiation and forms a coating on plastic substrates which is hard, stain-resistant and abrasion-resistant.

3,785,851

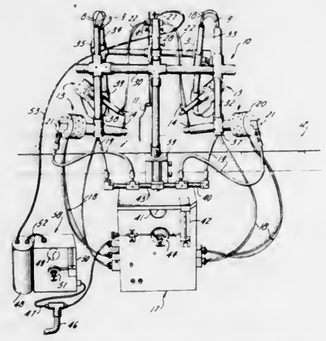
HOT END COATING DEVICE

Michael A. Novice, Elmira, N.Y., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed July 1, 1971, Ser. No. 158,751

Int. Cl. C03c *17/06*; C23c *11/02*

U.S. Cl. 117—54 5 Claims



The coating method comprises introducing a coating material into an air stream above the pyrolysis temperature of the coating material and directing the air stream at the vitreous surface. The vitreous surface is at a temperature above the pyrolysis temperature of the selected coating material. The apparatus includes an electrical filament heated to a temperature from about 500°F to about 2,000°F. A source of air is blown over the electrical filament and heated to a temperature of from about 400°F to about 1,800°F. The coating material is introduced into the air stream which is then directed at the vitreous surface.

3,785,852

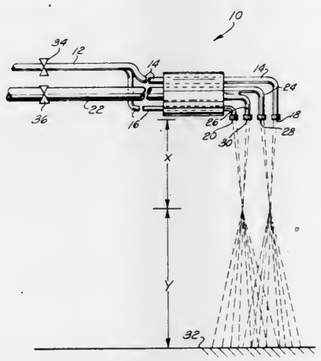
BITUMINOUS EMULSION-RUBBER LATEX COMPOSITIONS AND METHOD OF DEPOSITING COAGULA THEREFROM

George Wilhelm Schleidt, Shaker Heights, Ohio, assignor to The Tremco Manufacturing Company, Cleveland, Ohio

Filed May 10, 1972, Ser. No. 252,055

Int. Cl. B05b *7/08*; B44d *1/08*

U.S. Cl. 117—105.5 8 Claims



Method of depositing a coagulum from a bituminous emulsion-rubber latex composition by simultaneously spraying the composition and a coagulant under liquid pressure, along spray paths which converge so that the composition and coagulant mix thoroughly before contacting the surface being treated.

The use of polyvinyl alcohol as a stabilizer for the bituminous emulsion is also disclosed.

3,785,853

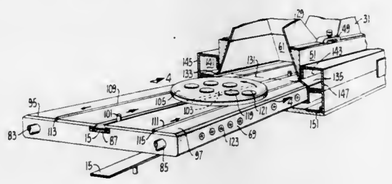
CONTINUOUS DEPOSITION REACTOR

Earl L. Kirkman, Felton, and Gerald M. Bowers, Saratoga, both of Calif., assignors to Unicorp Incorporated, Sunnyvale, Calif.

Filed May 24, 1972, Ser. No. 256,478

Int. Cl. C23c *11/06*

U.S. Cl. 117—106 22 Claims



A plurality of gas deposition chambers are arranged in a row and positioned over a heating slab. A work-piece carrying pallet is advanced through the row of deposition chambers by a

moving ribbon and two cables which also provide rotary motion to the pallet as it is being advanced. Preheat and cooling stations are provided at opposite ends of the row of deposition chambers and are each provided with a collimated gas flow "curtain" by the use of honeycomb material positioned in the path of a gas stream.

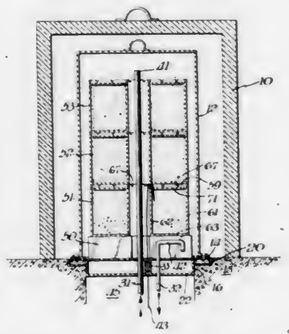
3,785,854
DIFFUSION COATING

Alfonso L. Baldi, Drexel Hill, Pa., assignor to Alloy Surfaces Co., Inc., Wilmington, Del.

Continuation-in-part of Ser. Nos. 219,514, Jan. 20, 1972, and Ser. No. 90,682, Nov. 18, 1970, each is a continuation-in-part of Ser. No. 837,811, June 30, 1969, abandoned. This application May 18, 1972, Ser. No. 254,403. The portion of the term of this patent subsequent to Oct. 9, 1990, has been disclaimed.

Int. Cl. C23c *9/02*

U.S. Cl. 117—107.2 P **13 Claims**



Rich chromium diffusion coating on dispersion-strengthened nickel or nichrome is obtained in one step by embedding work in chromium diffusion coating pack containing nickel with or without some cobalt, and held in unsealed retort cup at least 15 inches high. Pack can also contain metallic iron to reduce coating temperature. Masking is arranged by covering the sites to be masked with a layer of a mixture of nickel powder and inert filler. For better high temperature oxidation resistance the chromium-rich coating is covered by an aluminum diffusion coating from a simple aluminum diffusion pack or one that has the aluminum mixed with chromium. Low temperature aluminum diffusion is more uniform when pack energizer is aluminum chloride or other material that does not generate nitrogen, and gives good protection against marine corrosion of steels, and particularly when there is a chromate-type coating applied over the aluminizing. Highly effective chromate-type coating mixture consists essentially of aqueous solution of chromic and phosphoric acid also containing magnesium salts of said acids and dispersed polytetrafluoroethylene particles. Aluminized superalloy can be heated in air to whiten it, then cleaned to give product having more ductile case. Such coated superalloy can also be stripped of coating by aqueous HNO_3-HF-CrO_3 bath.

3,785,855
METHOD FOR COATING STEEL

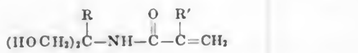
David K. Sausaman, 7098 Williamsburg Ln., Terre Haute, Ind., and Robert F. Purcell, 1501 Paul Dresser Dr., Terre Haute, Ind.

Filed Jan. 14, 1972, Ser. No. 218,013

Int. Cl. B32b *15/08*; **B44d** *1/36*

U.S. Cl. 117—75 **9 Claims**

A process for coating steel by applying thereto a monomer or partial polymer of an amide, represented by the formula



where R′ is hydrogen, methyl or ethyl and R is methyl, ethyl, or hydroxymethyl, heating to effect further polymerization, applying thereto a soiution or a dispersion of a vinyl halide polymer, copolymer, or terpolymer and heating to effect evaporation of the solvent or coalescence of the dispersion.

3,785,856
OIL SEAL OR SLEEVE HAVING PRESS-FITTED PORTIONS COATED WITH SYNTHETIC RUBBER LATEX

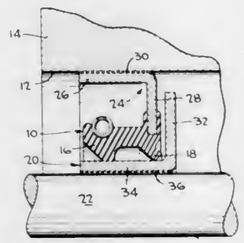
Syuichi Gotoh, Fujisawa, Japan, assignor to Nippon Oil Seal Industry Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 880,988, Nov. 28, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,751

Claims priority, application Japan, Dec. 17, 1968, 43-92476

Int. Cl. F16j *15/16*

U.S. Cl. 117—75 **4 Claims**



Machine elements, such as oil seals, wherein metallic press-fitted portions thereof are coated with grain-free vulcanized synthetic rubber latices to improve the sealing efficiency.

3,785,857
SURFACE FINISHING

Charles D. Boyer, Natrona Heights, Pa., assignor to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Mar. 23, 1972, Ser. No. 237,492. The portion of the term of this patent subsequent to Apr. 25, 1989, has been disclaimed.

Int. Cl. B32b *17/06*; **C09d** *1/00*

U.S. Cl. 117—124 B **11 Claims**

A method of providing a glass surface with a protective coating, which comprises the steps of coating the surface with a solution containing magnesium, ammonium, chromate and phosphate ions, and curing said coating. A composite article comprised of a layer of glass and a substantially water insoluble, transparent, cured coating adhered thereto. The coating being comprised of magnesium cations and anionic polymeric chains of chromium, oxygen and phosphorus atoms.

3,785,858
METHOD FOR IMPROVING THE FIRE RESISTANCE OF NYLON AND POLYESTER FABRICS

Jay C. Chapin, Marblehead, Mass., assignor to Ventron Corporation, Beverly, Mass.

Filed June 19, 1972, Ser. No. 264,342

Int. Cl. C09d *5/18*

U.S. Cl. 117—136 **2 Claims**

The resistance to burning and flame proprogation of synthetic textile fabrics, such as nylon and polyester is improved by treatment with an aqueous solution of formaldehyde and ammonium thiocyanate and drying.

3,785,859
METHOD FOR FLAMEPROOFING FIBERS

Hajime Fujii, and Tatsuo Hattori, both of Shin Nanyo, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Yamaguchi, Japan

Filed Dec. 29, 1971, Ser. No. 213,537

Claims priority, application Japan, Dec. 29, 1970, 45-121416; Dec. 30, 1970, 45-122090

Int. Cl. C09d *1/00*

U.S. Cl. 117—136 **12 Claims**

Natural or synthetic fibers are flame-proofed by treatment with an aziridinyl phosphine oxide compound containing an halogen and an acid curing catalyst which is cured to fix the aziridinyl phosphine oxide compound to the fiber.

3,785,860
FLOOR POLISHING METHOD AND ARTICLE

Richard E. Zdanowski, Fort Washington, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 640,851, May 24, 1967, Pat. No. 3,573,239, which is a continuation-in-part of Ser. No. 455,609, May 13, 1965, abandoned, which is a continuation-in-part of Ser. No. 98,744, March 28, 1961, abandoned. This application Mar. 8, 1971, Ser. No. 122,245. The portion of the term of this patent subsequent to Mar. 30, 1988, has been disclaimed.

Int. Cl. B32b *37/08*; **B44d** *5/00*

U.S. Cl. 117—138.8 UN **3 Claims**

This invention relates to methods of using coating compositions, and especially to floor polishing compositions, which are particularly suitable for applying glossy finishes on wood, rubber, glass, tile and linoleum surfaces, either with or without paint or varnish finishes, and to the resulting article. These compositions adapted to be used for polishing floors, furniture, and the like, are formed of an aqueous dispersion having a pH of at least 7.0 and containing, as essential components, water, a wax, a water-insoluble linear polymer of monoethylenically unsaturated molecules, and a dispersing agent in a proportion from 0.1 to 20 percent by weight, based on the total weight of polymer and wax, any content of alkali-soluble resin being not over 50 percent by weight, based on the weight of the polymer, any alkali-soluble resin, if present, preferably being selected from the group consisting of shellac, Manila gum, Loba gum and alkali-soluble alkyds or polyesters, the improvement consisting in using for essentially the entire weight of the polymer,

A. a water-insoluble linear copolymer of
   I. 10 to 55 percent by weight of at least one nitrile of acrylic or methacrylic acid, and
   II. 45 to 90 percent by weight of at least one ester of (a) acrylic acid with a saturated aliphatic alcohol having one to 18 carbon atoms or (b) methacrylic acid with n-butanol or a saturated aliphatic alcohol having five to 18 carbon atoms,

the sum of the proportions of (I) and (II) totaling 100 percent,

or

B. a water-insoluble linear copolymer of
   1. 10 to 55 percent by weight of at least one nitrile of acrylic or methacrylic acid,
   2. 20 to 60 percent by weight of at least one ester of acrylic or methacrylic acid with a saturated aliphatic alcohol having one to 18 carbon atoms,
   3. 0 to about 60 percent by weight of at least one other water-insoluble monomer selected from the group consisting of vinyl acetate, styrene, vinyltoluene, vinyl chloride, and vinylidene chloride, and
   4. a. ½ to 15 percent by weight of acrylic acid, methyacrylic acid or itaconic acid in the form of amine, ammonium or alkali-metal salt, or
      b. 4 to 15 percent by weight of at least one monomer containing an amine group,

the sum of the proportions of (1), (2), (3) and (4) totaling 100 percent,

the components of the copolymer being such that a film formed thereof has a KHN of about 2 to 20, and providing in the composition a weight ratio of copolymer to wax between 95:5 to 10:90.

3,785,861
MELAMINE RESINS FOR IMPROVING SURFACE PROPERTIES OF SHAPED ARTICLES OF SYNTHETIC RESINS

Noboru Tanimura, Niza; Kenji Mori, Tokyo, and Hirosi Tanaka, Niza, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan

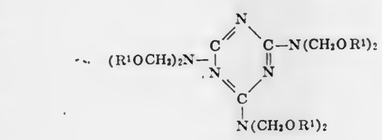
Filed Mar. 3, 1972, Ser. No. 231,735

Claims priority, application Japan, Mar. 12, 1971, 46-13078; June 1, 1971, 46/37480; June 16, 1971, 46/42493; July 23, 1971, 46/54650

Int. Cl. B44d *1/22*; **C08b** *21/08*; **C08a** *37/32*

U.S. Cl. 117—138.8 B **20 Claims**

A composition comprising (A) 100 parts by weight of an etherified methylolmelamine of the formula



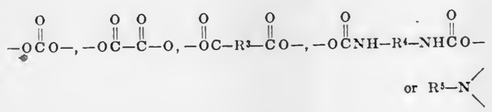
wherein R^1 represents an alkyl group having 1 to 4 carbon atoms, (B) about 0.01 to 5 parts by weight of nitrocellulose, (C) about 1 to 50 parts by weight of at least one alkyleneglycol selected from the group consisting of:

$H-OR^2OR^2OH$

and

$H-(OR^2)-X-(R^2O)-H$

wherein R^2 represents $-CH_2CH_2-$, $-CH_2CH(CH_3)-$ or $-(CH_2)_4-$ group; p is 0 or a positive integer; X represents



group wherein R^3 represents an alkylene group having 1 to 14 carbon atoms, phenylene or cyclohexylene group; R^4 represents an alkylene group having 2 to 17 carbon atoms, phenylene or cyclohexylene group; R^5 represents an alkyl group having 1 to 8 carbon atoms and when X represents



group R^2 is $-CH_2CH_2-$ group; m represents an positive integer; and n is an integer of 1 to 10, and (D) about 0.01 to 12 moles, based on one mole of said etherified methylolmelamine, of an acid catalyst.

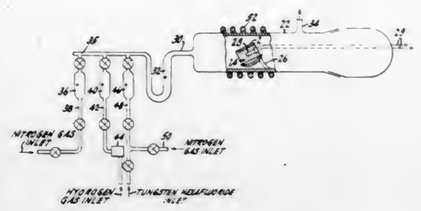
The compositions are heat-cured on the surfaces of shaped articles of synthetic resins. The heat-cured coatings are characterized by good hardness, mar resistance, abrasion resistance, antistat as well as good surface glass without losing the transparency of synthetic resins.

3,785,862

METHOD FOR DEPOSITING REFRACTORY METALS

William Augustus Grill, Parsippany, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,796
Int. Cl. B44d *1/18*
U.S. Cl. 117—217 3 Claims



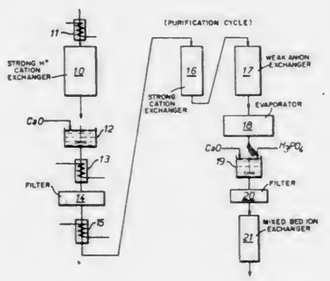
A method for depositing a refractory metal on a semiconductor oxide coating, comprising simultaneously etching the oxide coating with the metallic hexafluoride and depositing a relatively thin layer of the refractory metal by reduction of the hexafluoride, and thereafter depositing a relatively thick layer of the refractory metal by reduction of the hexafluoride alone.

3,785,863

PROCESS AND PLANT FOR THE PURIFICATION OF RAW SUGAR JUICE

Pierre Louis Henri Devillers, La Celle Saint Cloud, and Michel Loilier, La Garenne Colombes, both of France, assignors to Syndicat National des Fabricants de Sucre de France, Paris, France

Filed Aug. 23, 1971, Ser. No. 173,999
Claims priority, application France, Aug. 25, 1970, 70.31004
Int. Cl. C13d *3/14*
U.S. Cl. 127—9 11 Claims



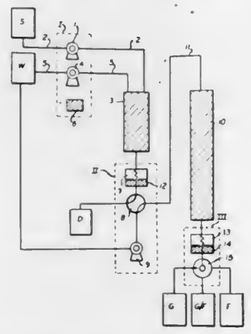
A process and plant for purifying raw sugar juice such as diffusion or expressed juice comprising passing the juice through a first strong H+ cation exchanger; neutralizing the resultant liquid with lime and filtering the neutralized liquid, passing it successively through a second strong cation exchanger and a weak anion exchanger, purifying the liquid coming from the weak anion exchanger with phosphoric acid after a second filtration, passing the filtrate from the second filtration through a weak cation exchanger and a strong cation exchanger. The neutralized liquid is preferably cooled before going into said first and second cation exchangers at a temperature such that the sugar contained therein is not practically subject to inversion.

3,785,864

PROCESS FOR THE CHROMATOGRAPHIC SEPARATION OF MULTI-COMPONENT MIXTURES CONTAINING GLUCOSE

Karl Lauer, Strahlenburg; Heinz-Gunter Budka, and Georg Stoeck, both of Mannheim-Waldhof, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Continuation-in-part of Ser. No. 75,465, Sept. 25, 1970, Pat. No. 3,686,117. This application June 14, 1971, Ser. No. 152,980
Claims priority, application Germany, July 23, 1970, 2936525; Mar. 13, 1971, 2112176. The portion of the term of this patent subsequent to Aug. 22, 1989, has been disclaimed.
Int. Cl. C13k *1/00*
U.S. Cl. 127—46 A 15 Claims



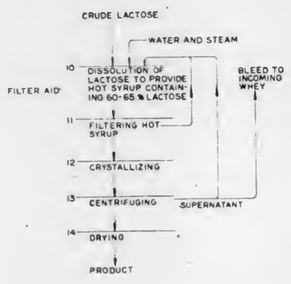
Multi-component mixtures are chromatographically separated into their components on a large scale by using a separation column divided into two sections, passing the feed stream into the first section, removing the fractions containing impurities from the end of the first section, simultaneously passing an equivalent amount of elution agent into the second section, thereupon connecting the two column sections with each other until there appears at the end of the first section the fraction containing impurities from the next cycle of feed passed into the first section, and recovering the separated main components at the end of the second section.

3,785,865

LACTOSE REFINING PROCESS

Henry L. Pollard, Millbrae, Calif., assignor to Foremost-McKesson, Inc., San Francisco, Calif.

Filed Aug. 3, 1972, Ser. No. 277,599
Int. Cl. C13k *5/00*
U.S. Cl. 127—55 4 Claims



A process for refining crude lactose in which the lactose is dissolved in water in an amount sufficient to provide concentration of the order of 60 – 70% solids and at a temperature (e.g. 218°F.) near the boiling point (e.g. 220°F.) of the concentrated solution. The hot syrup is then filtered to remove solid impurities and the refined lactose removed by crystallization.

3,785,866

METHOD FOR AVOIDING PITTING IN PLATING OXIDE-FILM-DEVELOPING METALS

Samuel S. Frey, Elizabeth, N.J., assignor to Oakite Products Inc., Berkeley Heights, N.J.

Division of Ser. No. 787,589, Dec. 27, 1969, Pat. No. 3,684,719, which is a continuation-in-part of Ser. No. 447,089, April 9, 1965, Pat. No. 3,446,715. This application Aug. 14, 1972, Ser. No. 280,575
Int. Cl. C23g *1/10*
U.S. Cl. 134—3 5 Claims

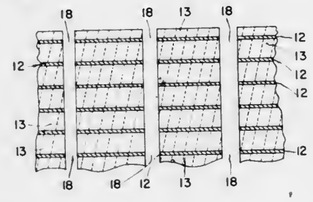
The tendency to blistering and related adverse effects on adhesion of protective coatings to be applied over the surface of a metal oxidizable by anodization and capable of taking an electrodeposit, is reduced by forming an anodic film on the metal surface, and then removing that film with any natural oxide film on which it may have been formed, by immersing the oxidized surface in an aqueous pickling bath containing dissolved inorganic ferric salt, sulfuric acid or a bisulfate, and an inorganic fluoride.

3,785,867

BATTERY PLATES COMPRISING A MULTIPLICITY OF PERFORATED METALLIC FOIL ELEMENTS AND A BATTERY UTILIZING SAME

Joseph Edwards, Bishopston, Wales, and John Edward Whittle, Sutton Coldfield, both of England, assignors to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 28,929, April 15, 1970, abandoned. This application Jan. 31, 1972, Ser. No. 222,019
Int. Cl. H01m *43/04*
U.S. Cl. 136—6 R 7 Claims



Battery plates for acid or alkaline batteries are made up of a multiplicity of perforated metallic foil elements stacked in face-to-face contact. The foil elements carry a surface deposit of battery active mass and the numerous perforations through the foil surfaces are generally uniformly distributed over the surface area. The holes in each foil element are substantially in register with the holes in the next adjacent foil element. In the stack, the foils are separated from one another by layers of battery active mass of at least twice the thickness of the foils. Electrical contact, in parallel among the foils, is attained by welding (or by other means of attaining a metallic conductive path) only at the periphery of the stack.

3,785,868

ZINC ELECTRODE

John L. Devitt, Denver, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed Nov. 20, 1970, Ser. No. 91,545
Int. Cl. H01m *43/02*
U.S. Cl. 136—30 8 Claims

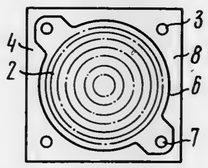
A pasted zinc electrode for use in an alkaline battery cell is described in which a plating additive is incorporated into the electrode either as a coating on a suitable electrically conductive substrate, or as a portion of the zinc paste formulation. The paste mixture contains a major portion of an active zinc material, and a source of mercury for gassing and corrosion inhibition. Enough vehicle is employed in the paste so that when dried the electrode active material is porous. The combination of the porous zinc active material, use of the plating additive, and the use of excess zinc in the paste material provides an active substrate surface in which zinc dendritic growth is minimized and localized preferentially within the interior body of the negative electrode. The negative plate is useful in alkaline electrolyte-containing secondary cells.

3,785,869

METHOD OF MANUFACTURING ELECTRODE GROUPS OF ALKALINE ACCUMULATORS

Leonid Sergeevich Zdarov, prospekt Kirova, 15, kv. 2; Nikolai Sergeevich Chernoglaskin, ulitsa 20 LET VLKSM, 100, kv. 6; Nikolai Ivanovich Igonin, ulitsa Dzerzhinskogo, 2, kv. 2; Vladimir Yakovlevich Zizo, prospekt Entuziastov, 12, kv. 13; Viktor Dmitrievich Karev, poselok Komsomolsky, 1-y Amursky proezd, 5, kv. 4; Stanislav Nikandrovich Karmanovsky, poselok Vyshny Volochek, ulitsa Karla Marxa, III; Nikolai Vasilievich Timofeev, ulitsa 7-ya Nagornaya, 8, kv. 2, and Vladimir Dmitrievich Petrov, 1-y Vesenny proezd, 3, kv. 12, all of Saratov, U.S.S.R.

Filed Dec. 29, 1970, Ser. No. 102,323
Int. Cl. H01m *35/18*
U.S. Cl. 136—75 2 Claims



A method of manufacturing disc-mounted electrode groups of alkaline accumulators comprising the steps of stamping the perforated bottom of the disc and, simultaneously forming, locating holes spaced outwardly of the perforated part from a steel band, fixing the band on locating holes and cutting it into separate plates each having the perforated bottom of the disc and with locating holes drawing from the profile of the future disc, punching the disc with the contact holes, and assembling the electrodes into groups.

3,785,870

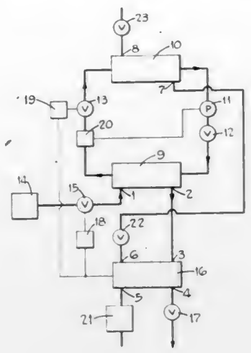
METHOD AND APPARATUS FOR THE REMOVAL OF CARBON DIOXIDE FROM GAS MIXTURES AND FUEL CELL COMBINATION

August Winsel, Kelkheim in Taunus, Germany, assignor to Varta Aktiengesellschaft, Frankfurt/Main, Germany

Filed Mar. 24, 1972, Ser. No. 238,249
Claims priority, application Germany, Mar. 27, 1971, P 21 14 920.2
Int. Cl. H01m *27/12*
U.S. Cl. 136—86 C 23 Claims

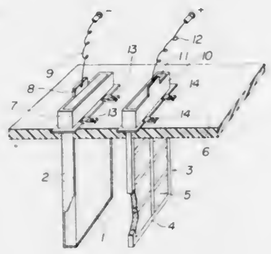
Carbon dioxide is removed from a gaseous mixture containing carbon dioxide and hydrogen by washing the gas mixture

with a liquid in an absorber where the carbon dioxide is absorbed, and desorption thereof in a desorber. The absorber and desorber contain a biporous element having a pore system of high capillary pressure and a pore system of low capillary pressure.



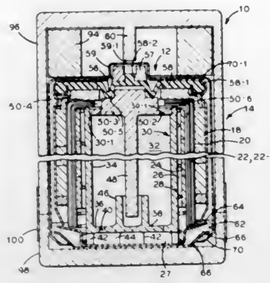
3,785,871
BRINE BATTERY
Masahide Ichikawa, No. 13-11, 1-chome, Hino, Tokyo, Japan
Filed July 10, 1972, Ser. No. 270,545
Int. Cl. H01m *17/00*
U.S. Cl. 136—100 M **4 Claims**

The present invention relates to a brine battery comprising an anode body made of metallic magnesium or a compound thereof and a cathode body made of an oxide of lead, both of these electrodes being fixedly secured to an insulating mounting plate at mutually opposed position, both said electrodes being further capable of being freely soaked into or taken out of non-tight-enclosed brine or sea water.



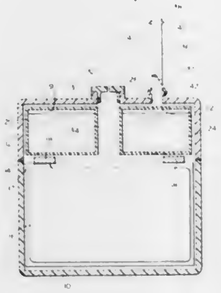
3,785,872
COMBINATION RESERVE CELL AND HOUSING
John Zaleski, Pleasantville, N.Y., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.
Filed May 8, 1972, Ser. No. 253,671
Int. Cl. H01m *21/10*
U.S. Cl. 136—114 **8 Claims**

A reserve cell designed to be activated by a push-pin, and provided with a sealed enclosure having a guide hole of small dimension to prevent temptation of tampering and activation when openly exposed, and a protective housing for the cell embodying a push-pin element to serve as a tool to activate the cell when deisred, with means serving as a detent to prevent undesired activation by said housing.



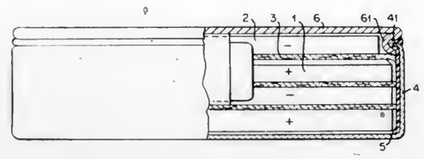
3,785,873
ACTIVATED BATTERY
Jeffrey S. Leeson, and Robert P. Laczko, both of Cuyahoga, Ohio, assignors to ESB Incorporated, Philadelphia, Pa.
Filed July 3, 1972, Ser. No. 268,877
Int. Cl. H01m *21/00*
U.S. Cl. 136—114 **13 Claims**

A storage battery cell having a dry element includes a reservoir containing an electrolyte precursor therewith. To activate the cell, it is filled with water after which the reservoir is punctured by the use of a specialized tool. The tool is forced through an opening in the battery cover puncturing first the top wall and then the bottom wall of the reservoir. In this position, the tool is locked in place against subsequent removal.



3,785,874
GAS-TIGHTLY CLOSED GALVANIC ELEMENT
Gerd Schenk, Iserlohn, and Werner Durhack, Hagen, both of Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed Feb. 28, 1972, Ser. No. 229,852
Claims priority, application Germany, Mar. 4, 1971, 7108128
Int. Cl. H01m *1/02*
U.S. Cl. 136—133 **2 Claims**

Gas-tightly closed galvanic element includes a cell container formed of a cup having an upper radially inwardly directed flanged edge, a cover for the cell container formed with a radially inwardly directed indentation, the flanged edge of the cup being pressed into the indentation formed in the cover, and a sealing ring interposed therebetween.



3,785,875
ZINC-CADMIUM ANTIMONIDE SINGLE CRYSTAL ANISOTROPIC THERMOELEMENT
Izrail Moiseevich Pilat, ulitsa Zankovetskaya, 15, kv. 29; Anatoly Grigorievich Samoilovich, ulitsa Universitetskaya, 13, kv. 4; Kornei Denisovich Soliichuk, ulitsa Lenina, 145, kv. 28, all of Chernovtsy, and Eduard Vaganovich Osipov, ulitsa Lasovskogo, 3a, kv. 32, Kiev, all of U.S.S.R.
Continuation of Ser. No. 226, Jan. 2, 1970, abandoned. This application Sept. 27, 1971, Ser. No. 184,275
Int. Cl. H01v *1/20*
U.S. Cl. 136—205 **5 Claims**

An anisotropic thermoelement is manufactured from one single crystal possessing anisotropic thermal electromotive force in at least two mutually perpendicular directions. A temperature gradient applied to said single crystal at some angle relative the direction of anisotropy of the thermal electromotive force causes the emergence of electromotive force in a direction perpendicular to that of the temperature gradient applied. Used as the single crystal is $Zn_xCd_{1-x}Sb$ solid solution, where x assumes a value greater than zero but less than unity; in a limiting case has a value of 0.99 recurring.

3,785,876
TREATING NICKEL BASE ALLOYS
Ronald E. Bailey, New York Mills, N.Y., assignor to Special Metals Corporation, New Hartford, N.Y.
Filed Sept. 25, 1972, Ser. No. 291,858
Int. Cl. C22f *1/10*
U.S. Cl. 148—2 **20 Claims**

A method of treating a nickel base alloy so as to produce an alloy having a structure characterized by dispersed discrete fine spherical carbides. The method comprises the steps of casting an ingot of nickel base alloy, homogenizing the ingot at a temperature of from 2,200° to 2,400° F so as to dissolve primary carbides present in the alloy and increase the chemical homogeneity thereof; cooling the ingot at least to a temperature of from 1,750° to 2,185° F at a rate which substantially precludes the precipitation of coarse and film-like carbides; and hot working the ingot with the primary carbides in solution with sufficient intensity to cause dispersed discrete fine spherical carbides to precipitate.

3,785,877
TREATING NICKEL BASE ALLOYS
Ronald E. Bailey, New York Mills, N.Y., assignor to Special Metals Corporation, New Hartford, N.Y.
Filed Sept. 25, 1972, Ser. No. 291,859
Int. Cl. C22f *1/10*
U.S. Cl. 148—2 **17 Claims**



A method of treating a nickel base alloy so as to produce an alloy having a structure characterized by dispersed discrete fine spherical carbides. The method comprises the steps of casting an ingot of nickel base alloy, homogenizing the ingot at a temperature of from 2,200° to 2,400° F so as to dissolve primary carbides present in the alloy and increase the chemical homogeneity thereof, cooling the alloy at a rate which substantially precludes the precipitation of coarse and film-like carbides at temperatures above 1,900° F and at a second rate in which dispersed fine spherical carbides precipitate at temperatures below 1,900° F; and hot working the alloy at a temperature lower than that at which the primary carbides dissolve.

3,785,878
TREATMENT OF METAL ROD OR WIRE
Mario Economopoulos, Liege, Belgium, assignor to Centre National De Recherches Metallurgiques, Brussels, Belgium
Filed Aug. 18, 1970, Ser. No. 64,772
Claims priority, application Belgium, Aug. 19, 1969, 757682; Nov. 14, 1969, 741754; Feb. 13, 1970, 745999; July 10, 1970, 42902; July 10, 1970, 42903; July 10, 1970, 42905; July 14, 1970, 42910; July 14, 1970, 42911
Int. Cl. C21d *1/60, 9/52*
U.S. Cl. 148—18 **19 Claims**

The process is particularly applicable to steel rod or wire. Metal rod or wire is cooled from a temperature at which the metal is in a first stable phase to a temperature at which the metal is in a second stable phase. Part of the cooling is by means of a liquid consisting of an aqueous fluid containing, in suspension and/or solution, one or more substances which modify the heat transfer conditions of the aqueous fluid. The liquid is at a temperature greater than 80° C and above 75 percent of its boiling temperature expressed in degrees centigrade. The heat transfer conditions of the liquid and the duration of cooling by means of the liquid are such that all, or the major part, of the optimum allotropic transformation of the metal takes place during cooling by means of the liquid.

3,785,879
MAGNESIUM OXIDE COATINGS
Leonard S. Lee, Daly City; Yoshio Uyeda, and Leo F. Heneghan, both of San Mateo, all of Calif., assignors to Merck & Co., Inc., Rahway, N.J.
Division of Ser. No. 64,644, Aug. 17, 1970, Continuation of Ser. No. 40,479, May 22, 1970. This application Mar. 20, 1972, Ser. No. 236,250
Int. Cl. B23k *35/24*
U.S. Cl. 148—27 **4 Claims**

Lithium additives in magnesium oxide/magnesium hydroxide coatings for silicon steel and the material coated by such process.

3,785,880
NI-FE-TA ALLOYS FOR MAGNETIC RECORDING-REPRODUCING HEADS

Hakaru Masumoto, Sendai; Yuetsu Murakami, Izumi-machi, and Masakatsu Hinai, Natori, all of Japan, assignors to The Foundation: The Research Institute of Electric and Magnetic Alloys

Filed Aug. 23, 1971, Ser. No. 173,964
Claims priority, application Japan, Sept. 17, 1970, 45-80903
Int. Cl. C04b 35/00
U.S. Cl. 148—31.55 4 Claims

A heat-treated ferromagnetic alloy for magnetic recording-reproducing heads, essentially consisting of 60.2 to 85.0 Wt. percent of nickel, 6.0 to 30.0 Wt. percent of iron, and 3.1 to 23.0 Wt. percent of tantalum, and having a Vickers hardness of above 150, a degree of order of 0.1 to 0.6, an electric resistivity of 23 to 94 $\mu\Omega$-cm, initial permeability above 3,000 and maximum permeability above 10,000.

3,785,881
METHOD OF MANUFACTURING A BODY HAVING ANISOTROPIC PERMANENT MAGNETIC PROPERTIES BY GRINDING WITH FATTY LIQUID

Pieter Aart Naastepad, and Gijsbertus Gerardus Van Liempd, both of Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Filed Apr. 5, 1972, Ser. No. 241,201
Claims priority, application Netherlands, Apr. 6, 1971, 7104566; Mar. 11, 1972, 7203267
Int. Cl. H01f 1/02
U.S. Cl. 148—103 3 Claims

A method of manufacturing a non-ageing sintered rare earth-cobalt magnet having an optimum coercive force and shape of the demagnetization curve, by sintering above a given critical temperature and by maintaining during the whole manufacturing process the oxygen content of the product below a particular critical value. This is realized in particular by starting from a powder which has been ground in the presence of a fatty liquid having the property of readily wetting metal surfaces, as a result of which the powder grains are enveloped by a layer protecting against oxidation.

3,785,882
CUBE-ON-EDGE ORIENTED SILICON-IRON HAVING IMPROVED MAGNETIC PROPERTIES AND METHOD FOR MAKING SAME

John M. Jackson, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

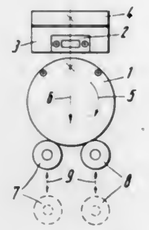
Filed Dec. 21, 1970, Ser. No. 100,504
Int. Cl. H01f 1/04
U.S. Cl. 148—113 1 Claim

Cube-on-edge oriented silicon-iron having improved magnetic properties and a glass free surface, and method for making it, wherein prior to the final anneal, the silicon-iron is coated with an annealing separator comprising a coarse, high purity alumina. The alumina separator may contain additives such as a grain-growth inhibitor, a binder, and a compound which will aid in the removal of sulfur from the silicon-iron during the secondary grain growth stage of the final anneal but will not contaminate or form a film on the surface of the silicon steel.

3,785,883
METHOD OF OPERATION WHEN HOT STRAIGHTENING ELONGATED WORKPIECES

Gerhard Seulen, and Friedhelm Reinke, both of Remscheid, Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany

Filed June 5, 1972, Ser. No. 259,663
Claims priority, application Germany, July 5, 1971, 1552854. The portion of the term of this patent subsequent to Aug. 10, 1988, has been disclaimed.
Int. Cl. C21d 1/78
U.S. Cl. 148—131 6 Claims



An improvement in a method of hot straightening workpieces as described in U.S. Pat. Nos. 3,598,665 and 3,631,698 whereby a workpiece is inductively heated and, at the same time, the induction currents in the workpiece generate, together with the inductor current, a force thrusting the workpiece against stops advanced for that purpose. In order to avoid reduction in reverse bending and/or tortional strength, according to the method of this invention the stops are advanced into contact with the workpiece only after at least 75 percent and preferably 85 percent of the total energy required for heating the workpiece has already been supplied.

3,785,884
METHOD FOR DEPOSITING A SEMICONDUCTOR MATERIAL ON THE SUBSTRATE FROM THE LIQUID PHASE

Harry Francis Lockwood, New York, N.Y., assignor to RCA Corporation, New York, N.Y.

Filed July 21, 1972, Ser. No. 273,752
Int. Cl. H01l 7/38
U.S. Cl. 148—171 1 Claim

A layer of a semiconductor material is epitaxially deposited on a substrate by liquid phase epitaxy wherein a heated solution of the semiconductor material dissolved in a molten solvent is brought into contact with a surface of the substrate and the solution and substrate are cooled to deposit the semiconductor material on the substrate. During the cooling of the solution and the substrate heat is radiated from the substrate faster than from the solution so that the substrate is at a temperature slightly below the temperature of the solution. The heat radiation differential can be achieved by carrying out the method in a container having a heat radiation window therethrough over which the substrate is mounted.

3,785,885
EPITAXIAL SOLUTION GROWTH OF TERNARY III–V COMPOUNDS

Louis Earl Stone, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

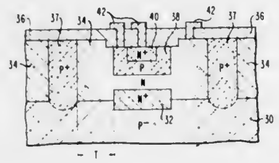
Filed Mar. 24, 1970, Ser. No. 22,270
Int. Cl. H01l 7/38
U.S. Cl. 148—172 8 Claims

The epitaxial solution growth of ternary III–V compounds, including gallium aluminum arsenide, for example, is controlled to accomplish uniform composition over extended growth periods. In a system comprising (1) a binary III–V compound substrate, (2) a solution of the ternary compound in the Group III element of the substrate, saturated with respect to the substrate compound, and (3) a solid source of the ternary compound in contact with the solution a short distance from the substrate, the necessary control is achieved by maintaining the substrate at least about 5° cooler than the solid source material spaced therefrom.

3,785,886
SEMICONDUCTOR DEVICE FABRICATION UTILIZING <100> ORIENTED SUBSTRATE MATERIAL

Paul P. Castrucci, Poughkeepsie; Edward G. Grochowski, Wappingers Falls; Martin S. Hess, Poughkeepie; George Maheras, Poughkeepsie, and William D. North, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 676,451, Oct. 19, 1971, Pat. No. 3,585,464. This application Feb. 22, 1971, Ser. No. 117,534
Int. Cl. H01l 7/36, 19/00
U.S. Cl. 148—175 6 Claims



A method for fabricating a semiconductor device which is composed of a monocrystalline semiconductor body having a surface crystallographic orientation substantially parallel to a <100> plane and having a PN junction formed in the body. The body has an insulator coating, such as silicon dioxide, over the PN junction. The surface state density at the semiconductor-insulator interface is very low. This low density is believed to be a reason for the increased beta in the <100> oriented material semiconductor device. Further, the device has a low defect density and few dopant precipitate sites even at high dopant levels. A monolithic integrated circuit structure composed of the monocrystalline semiconductor substrate having a surface crystallographic orientation substantially parallel to a <100> plane with a plurality of semiconductor devices within the substrate is described. The devices may be isolated from one another by PN junctions. The tolerance in a given isolated device, between the PN junction and the nearest region having a different conductivity is less then approximately 0.3 mils. This very close spacing allows substantially greater compactness of semiconductor devices within a monocrystalline semiconductor body than has ever been previously accomplished.

3,785,887
HIGH ENERGY ACRYLIC PREPOLYMER PROPELLANTS OF LOW SENSITIVITY

Mart G. Baldwin, Newtown, Pa., and Paul H. Gehlhaus, Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 5, 1970, Ser. No. 1,573
Int. Cl. C06d 5/06
U.S. Cl. 149—19 4 Claims

High energy propellants of low sensitivity in the range of class 2 military explosives and propellants are disclosed. The propellants are comprised of acrylic copolymers, nitrate ester plasticizers, metallic fuel, inorganic oxidizer, and curatives. The acrylic copolymers are constituted of acrylic acid copolymerized with a nitrated acrylate selected from petrin acrylate and 2,2-dinitropropyl acrylate. The nitrate ester plasticizers are selected from triethylene glycol dinitrate, (TEGDN), trimethylolethane trinitrate, (TMETN), and butane-triol trinitrate, (BTTN). The metallic fuel is powdered aluminum, and the inorganic oxidizer is ammonium perchlorate. A commercially available diepoxide, such as dicyclo diepoxy carboxylate, is used as a curing agent. Compatible cross-linking catalyst such as ferric acetylacetonate may be used to decrease the curing time and/or temperature.

3,785,888
NITROCELLULOSE GAS-GENERATING COMPOSITION CONTAINING A POLYETHYLENE GLYCOL

Robert G. Shaver, Fairfax County, and Joe M. Burton, Alexandria, both of Va., assignors to Atlantic Research Corporation, Fairfax, Va.

Continuation-in-part of Ser. No. 274,055, April 18, 1963, abandoned. This application Nov. 6, 1964, Ser. No. 410,051
Int. Cl. C06b 15/00
U.S. Cl. 149—38 20 Claims

This invention relates to nitrocellulose gas-generating compositions, and more particularly to gas-generating compositions containing nitrocellulose plasticized with polyethylene glycol and/or alkoxy-terminated polyethylene glycol.

3,785,889
EXPLOSIVE COMPOSITION CONTAINING TNT, HMX, AND RDX

Jean Vaganay, Avignon, and Robert A. Ousset, Sorgues, both of France, assignors to Societe Nationale Des Poudres et Explosifs, Paris, France

Filed Feb. 12, 1973, Ser. No. 331,496
Claims priority, application France, Feb. 21, 1972, 7205726
Int. Cl. C06b 15/02
U.S. Cl. 149—92 10 Claims

A fusible explosive composition comprises 40–90% by weight of a crystalline explosive with a high detonation velocity and 60–10% by weight of 2,4,6-trinitrotoluene, the crystalline explosive with a high detonation velocity consisting of 10–50% by weight of octogen, that is cyclotetramethylene-tetranitroamine and the remainder being hexogen, that is cyclotrimethylene-trinitroamine. The use of octogen causes a decrease in the melt viscosity and a decrease of deterioration, that is the increase in viscosity during successive fusions.

3,785,890
PROCESS FOR THE PREPARATION OF MERCURY-CONTAINING ALUMINUM HYDRIDE COMPOSITIONS

Alfred D. Cianciolo; Donald J. Sabatine, both of Hamden; James A. Scruggs, West Haven, and Samuel I. Trotz, Orange, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 30, 1963, Ser. No. 278,513
Int. Cl. C01f 7/50
U.S. Cl. 149—109 5 Claims

A mercury-containing, non-solvated aluminum hydride composition is prepared by reacting HCl with an alkali metal aluminum hydride ($MAlH_4$) in the presence of a dialkyl ether solvent, adding mercury to the solvated aluminum hydride, formed by this reaction, and heating the product to drive off the solvent.

3,785,891
METHOD OF MANUFACTURING WIRES CONSISTING AT LEAST SUPERFICIALLY OF BORON AND WIRES OBTAINED BY SAID METHOD

Wubbe Vrieze, and Otmar Schob, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

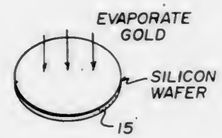
Filed Oct. 18, 1971, Ser. No. 190,378
Claims priority, application Netherlands, Oct. 21, 1970, 7015375
Int. Cl. C23f *17/00*
U.S. Cl. 156—3 **3 Claims**

To enhance the tensile strength, boron-coated tungsten wire may be etched with an etchant comprising phosphoric acid, nitric acid and water.

3,785,892
METHOD OF FORMING METALLIZATION BACKING FOR SILICON WAFER

Louis E. Terry, and Richard W. Wilson, both of Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 19, 1972, Ser. No. 255,170
Int. Cl. H01l *7/50*
U.S. Cl. 156—3 **10 Claims**



A wafer of semiconductive material used to form beam lead devices is temporarily bonded face down to a sapphire base member with a low melting temperature wax. A layer of chromium or titanium then is vacuum deposited onto the back of the chip followed by vacuum deposition of a layer of gold. The chromium forms a good low temperature bond to the silicon and the gold in turn forms a good low temperature bond to the chromium so that the gold-chromium layers adhere tightly to the silicon through subsequent etching and separation steps. After the wafer is separated into individual chips or dice, a gold-silicon eutectic bond is formed by heating the chips to the eutectic temperature, with the gold-silicon alloying taking place by a diffusion of the gold through the chromium layer.

3,785,893
METHOD FOR MANUFACTURING BELTS

Paul C. Rotondi, Cliffside Park, N.J., assignor to Dan Dee Belt & Bag Company, Inc., Hoboken, N.J.

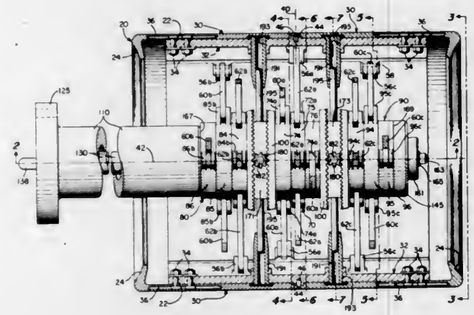
Filed Jan. 27, 1972, Ser. No. 221,145
Int. Cl. B29c *17/00*
U.S. Cl. 156—198 **4 Claims**

This invention is directed to a method for manufacturing glossy surfaced flat tubular plastic belts in which a belt tube having one end closed is formed with the glossy side in and inverted by being fitted over the closed end of a fabric sock and then the closed ends of both pieces are forced through and along the body of the sock, after which the sock is stripped from the inverted belt tube. The sock prevents contact between opposed portions of the glossy surface.

3,785,894
TIRE BUILDING DRUM

Jack A. Ling, Clinton, and Dennis W. Clem, Mogadore, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 12, 1971, Ser. No. 188,269
Int. Cl. B29h *17/16*
U.S. Cl. 156—415 **33 Claims**



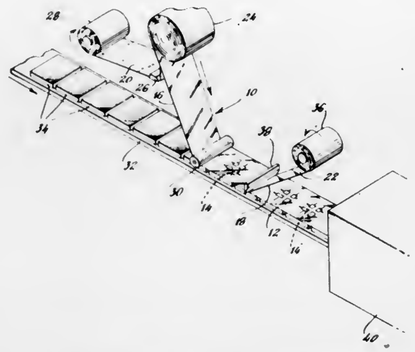
A collapsible tire building drum having deeply inwardly turned flanges which move inwardly with the drum segments as the drum is collapsed. The collapsing mechanism includes two pairs of counter-rotatable hubs. Pairs of links respectively connected to each of the pairs of hubs move the respective segments toward and away from the drum axis in response to equal and opposite rotation of the hubs relatively of the drum spindle.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,785,895
TAPE TRANSFER OF SINTERABLE CONDUCTIVE, SEMICONDUCTIVE OR INSULATING PATTERNS TO ELECTRONIC COMPONENT SUBSTRATES

Kitty S. Ettre, Norwalk, and George Richard Castles, Stamford, both of Conn., assignors to Vitta Corporation, Wilton, Conn.

Division of Ser. No. 860,866, Sept. 25, 1969, Pat. No. 3,665,496. This application Sept. 2, 1971, Ser. No. 177,481
Int. Cl. B32b *7/06*
U.S. Cl. 156—89 **6 Claims**

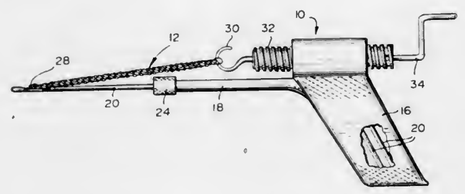


Conductive, semiconductive or insulating patterns such as fine line, thick film circuitry, or dot configurations are applied to electronic component substrates from a continuous transfer tape. In the transfer tape the patterns are formed with prearranged spacing on a heat decomposable carrier film, which in turn is supported on a backing strip and covered by a protective strip. In use the protective strip is peeled off and the patterns, still adhered to the carrier film and supported by the backing strip, are adhesively secured to a group or a continuously fed series of pre-aligned substrates. The backing strip is then peeled off, and the substrates with the applied patterns, not supported only by the heat decomposable carrier film, are placed in an oven for sintering and decomposition of the carrier film. The transfer tape and method of the invention lend themselves readily to automated, production-line procedures.

3,785,896
TIRE PUNCTURE REPAIR SYSTEM

Joseph B. Kassel, 150 E. 19th St., Brooklyn, N.Y.

Filed Nov. 6, 1972, Ser. No. 303,856
Int. Cl. B60c *25/16*
U.S. Cl. 156—97 **12 Claims**

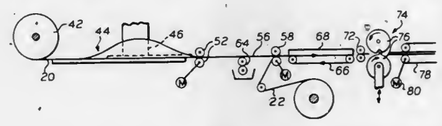


A tire puncture repair system includes an implement for forming a repair plug and inserting same into a tire casing to seal a puncture wound. The implement includes an insertion needle having a hook adjacent its free end and a gaff retractable away from the needle. To form a plug, an elastic loop constructed of an endless strand of non-circular transverse cross-section is placed between the needle hook and the gaff. The gaff is operable to simultaneously twist and stretch the strand into a helically convoluted elongated configuration. The plug thus formed is coated with a suitable cement and inserted through the puncture wound with the needle. The gaff is then returned to its original position and disengaged from the plug after which the needle is disengaged from the plug and withdrawn, leaving a stretched convoluted plug sealing the wound.

3,785,897
METHOD OF MAKING A DISPOSABLE DRAW SHEET

Fred W. Zipf, III, Rumson, N.J., assignor to Blessings, Inc., Bound Brook, N.J.

Division of Ser. No. 860,564, Sept. 24, 1969, Pat. No. 3,646,624. This application Mar. 6, 1972, Ser. No. 232,312
Int. Cl. B31f *1/00*; **A47g** *9/00*
U.S. Cl. 156—201 **9 Claims**

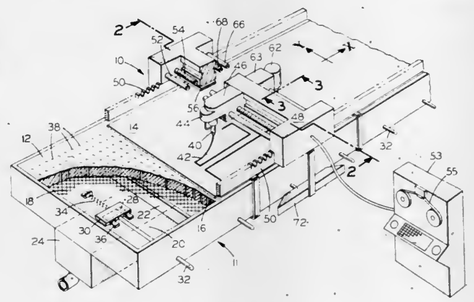


This method of making a draw sheet, suitable for hospital use, has plastic film to which is laminated a highly absorbent non-woven fabric over only that portion of the sheet which is on top when in use. The method is a continuous process that advances the web of plastic film from a supply roll and progressively folds film from both sides of the web over the top of the mid portion which is to be laminated to the absorbent material. The web becomes in effect a flattened tube. A web of the unwoven absorbent material is fed to the lower side of the flattened tube after adhesive has been applied to one of the webs to secure the absorbent material to the mid portion of the plastic web (i.e., bottom of the flattened tube). The laminated webs are cut into draw sheet length by a flying shear.

3,785,898
APPARATUS FOR PRODUCING SEAMED ARTICLES FROM SHEET MATERIAL

Heinz Joseph Gerber, and David Raymond Pearl, both of West Hartford, Conn., assignors to Gerber Garment Technology, Inc., East Hartford, Conn.

Filed Jan. 14, 1972, Ser. No. 217,921
Int. Cl. B26d *5/00*; **B05c** *11/00*
U.S. Cl. 156—353 **13 Claims**



A plurality of layers of sheet material, to be joined to one another along desired seam lines to produce garment components or other articles, are supported on a supporting surface. An applicator member movable in the plane of the supporting surface deposits a bonding agent along the seam lines. This deposition of the bonding agent may be made on the top surface of the first sheet prior to the spreading of the second sheet thereover or may be made on the top surface of the

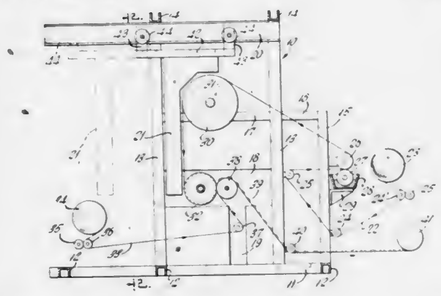
second sheet after its spreading over the first sheet. The bonding agent is thereafter activated, if necessary, to cause it to adhere to and join together the two layers, and the layers are thereafter cut along or adjacent the seam lines to produce the finished articles. The applicator member is supported and moved along the seam lines by a carriage driven relative to the supporting surface by a numerically controlled drive system. The activation of the bonding agent and the cutting of the layers may be performed by an activating member and a cutting tool also driven along the seam lines by the numerically controlled drive system. The activating means may also be a means for applying activating energy and/or pressure over the entire area of the sheets. The bonding agent may also be supplied in the form of third sheet or film, in which case the applicator member may be omitted. Vacuum may be used to hold the sheets in place during the various operations performed thereon and in particular to press the two sheets to one another during the activation of the bonding agent.

3,785,899

METHOD FOR THE MANUFACTURE OF CELLULAR MATERIAL FOR CUSHIONING AND OTHER PURPOSES

Alfred W. Fielding, Wayne, N.J., assignor to Sealed Air Corporation, Fair Lawn, N.J.

Filed June 8, 1971, Ser. No. 150,954
Int. Cl. B32b *31/16*
U.S. Cl. 156—209 **8 Claims**



Method and apparatus for the manufacture of a cellular material which utilizes an embossing roller to emboss at least one film after being preheated to an embossing temperature. At least the embossed sheet preferably includes a coating of adhesive which is reactivated during the preheating procedure so that upon applying a second unheated film to the embossed film the individual embossments will be sealed. The preheating means is arranged so that it can be moved out of its normal operating position in order to enable termination of the embossing and sealing process, and means are utilized to rapidly interchange the embossing rollers to minimize the down time for the apparatus.

3,785,900

METHOD OF MOLDING PLASTICS TO THE SURFACE OF A BACKING MATERIAL IMITATIVE OF LEATHER, FABRICS AND THE LIKE

Elie Gras, Thonon, France, assignor to Etablissements Anver S.A., Paris, France

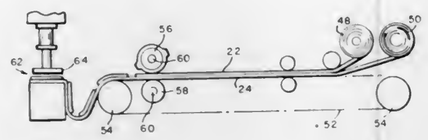
Continuation-in-part of Ser. No. 57,170, July 22, 1970, Pat. No. 3,705,071. This application Aug. 25, 1971, Ser. No. 174,818

Claims priority, application France, Feb. 25, 1972, 69.2096624. The portion of the term of this patent subsequent to Dec. 5, 1989, has been disclaimed.

Int. Cl. B29b *3/00*
U.S. Cl. 156—245 **21 Claims**

A method of making parts of shoes and articles of wearing apparel of conventional materials such as leather and splits thereof, woven and non-woven fibrous materials, synthetic materials and the like to provide a surface configuration corresponding to a master pattern which desirably is to be imitated, comprising confining a layer of compressible absorbent material and a base plastic between a backing layer of which the part is to be comprised and a mold containing a cavity embodying the surface configuration to be reproduced on the surface of the backing layer, applying pressure and heat to cause the compressible absorbent material and the base plastic to become integrated with the backing layer, allowing the plastic to stabilize and stripping the composite structure from the mold.

According to the method the compressible absobent material may be in the form of a batt of thermoplastic fibers or foam



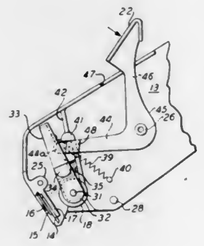
and the base plastic may be a thetmoplastic in liquid, paste, sheet or solid dry blend form. Desirably, a thin layer of dissolved plastic or plastic monomer is sprayed on the surface of the mold cavity prior to disposition of the base thermoplastic and compressible absorbent layer between the backing layer and the mold and optionally a pigmented plastic may be deposited in the mold cavity at predetermined areas. The mold is prepared by casting a material having a lower dielectric constant than the plastic employed on a master pattern embodying the configuration to be imparted to the backing layer and preferably the aforesaid material of the mold is silicone rubber.

3,785,901

HAND OPERABLE TAPE DISPENSER AND APPLICATOR

George H. Fritzinger, 15 Standish Ave., West Orange, N.J.

Filed May 18, 1972, Ser. No. 254,428
Int. Cl. B32b *31/08*
U.S. Cl. 156—527 **7 Claims**



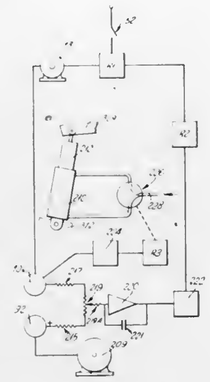
A portable dispenser and applicator has a handle and a support for a supply roll of tape, and a shiftable applicator roller locked normally in an operative position for applying the tape. A trigger extending from a head portion of the dispenser is depressible by a finger of the hand first to unlock the roller mounting and then retract the roller to enable the tape to be drawn against a tear-cut blade and to be cut. When the trigger is released the roller is shifted back to its locked operative position.

3,785,902

A WEB FEEDING AND SPLICING DEVICE

Edward George Preston, and Jerzy Wladyslaw Czoch, both of London, England, assignors to Molins Limited, London, England

Filed Feb. 4, 1971, Ser. No. 112,669
Int. Cl. B65h *25/00, 19/18*
U.S. Cl. 156—351 **8 Claims**



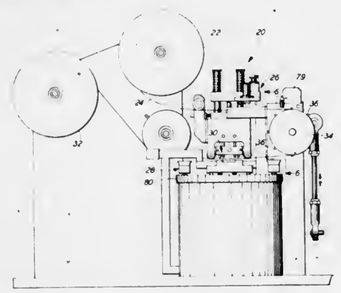
A web feedng and splicing device for a cigarette or other continuous rod making machine includes a reservoir in which a length of web is accumulated prior to splicing, the accumulation of sufficient web being sensed by an integrator responsive to the difference between the speeds with which the web is fed into and out of the reservoir.

3,785,903

LOADING OF COMPLIANT TAPE

John A. Boyer, Allentown; David P. Ludwig, and Friedrich Zwickel, both of Whitehall, all of Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 1, 1971, Ser. No. 185,648
Int. Cl. B32b *31/04;* **B65c** *11/04*
U.S. Cl. 156—356 **12 Claims**



Beam lead semiconductor devices are loaded onto an apertured compliant-bonding tape and held thereto with a releasable adhesive. The apertured tape is successively indexed through a loading machine. At one station, small accurately located dots of adhesive are applied to the tape. At a transfer station, integrated-circuit chips are pressed against the tape so that beam leads are secured to the dots of adhesive. Integrated-circuit chips are brought to the transfer station in spring-biased holding nests mounted on an indexable turret.

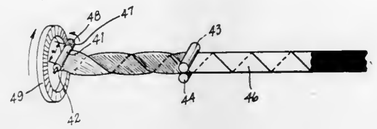
The compliant tape is embossed to form protective pockets therein so that when integrated-circuit chips are loaded onto the tape, subsequent winding of the tape onto a reel will not damage the chips.

3,785,904

APPARATUS FOR MAKING CROSS-LAPPED SPREAD WEBS

George A. Watson, Davidson, N.C., assignor to Celanese Corporation, New York, N.Y.

Division of Ser. No. 871,079, July 25, 1969, Pat. No. 3,623,927, which is a division of Ser. No. 606,984, Jan. 3, 1967, Pat. No. 3,515,621. This application Oct. 6, 1971, Ser. No. 186,879
Int. Cl. B32b *5/08;* **D04h** *3/05*
U.S. Cl. 156—441 **5 Claims**



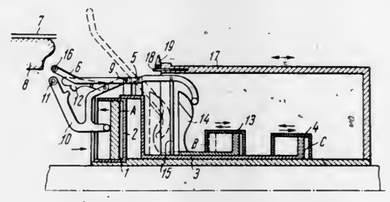
Apparatus for making non-woven fabrics which look like woven cloth by striating a web of crimped parallel filaments, setting the striated web, and cross-lapping the striated web.

3,785,905

EQUIPMENT FOR BUILDING PNEUMATIC TYRES

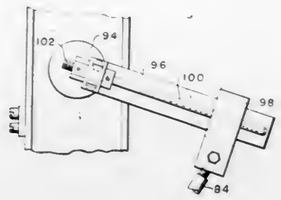
Petr Fedorovich Badenkov, prospekt Mira, 112, KV. 234; Leonid Venediktovich Petrokas, ulitsa Karla Marxa, 21/4, kv. 31; Gennady Lazarevich Portny, ulitsa 2 Kabelnaya, 10, kv. 64; Regina Lazarevna Pukhova, 15 Parkovaya, 53, korpus 2, kv. 72; Natalia Ivanovna Davidovich, Federativny prospekt, 26, korpus 2, kv. 20; Isaak Shlemovich Roitburd, Scherbakovskaya ulitsa, 20/24, kv. 85; Nikolai Sergeevich Tsaplin, pereulok Arkadia Gaidara, 5a, kv. 38; Valery Donovich Rossin, Studenchesky gorodok, MIFI, 8, kv. 21, all of Moscow, U.S.S.R., and Vladimir Alexandrovich Pinegin, deceased, late of Moscow, U.S.S.R. (by Margarita Vladimirovna Pinegina, administrator)

Filed June 28, 1971, Ser. No. 157,493
Int. Cl. B29h *17/12, 17/22*
U.S. Cl. 156—400 **1 Claim**



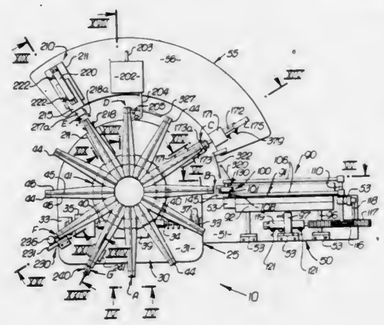
A mechanism for building in beads of pneumatic tires on a fixed tire building drum having at least one shoulder, in which there is provided a housing defined by a cylindrical support movable relative to the building drum, levers for compressing the ends of the cord plies against the drum shoulder, and an annular coil spring for turning over the cord ply ends, with the spring being secured on the levers serving to lift the spring. The levers for the compression of the cord ply ends and the lever for lifting the annular coil spring are hingedly secured with the possibility of axial rotation thereof on a common annular carrier or support axially movable relative to the body and the drum. The levers for the compression of the cord ply ends are pressed to the annular coil spring by the axial rotation of the levers with the aid of a template movable by a piston in an air cylinder-piston unit.

3,785,906
YARN FEED APPARATUS FOR PILE CARPET MACHINE
Robert C. Fay, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Mar. 27, 1972, Ser. No. 238,490
Int. Cl. D04h *11/04*
U.S. Cl. 156—435 1 Claim



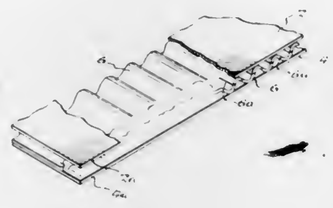
Clutch drive for the yarn feed rolls of a carpet machine which can be readily adjusted while the machine is in operation.

3,785,907
METHOD AND APPARATUS FOR AUTOMATIC ASSEMBLY OF A BELT AND ANCHOR PLATE
Richard S. Barr, and Richard L. Groendyke, both of Upland, Calif., assignors to American Safety Equipment Corporation, New York, N.Y.
Filed Apr. 5, 1971, Ser. No. 130,923
Int. Cl. B31f *1/00*
U.S. Cl. 156—443 21 Claims



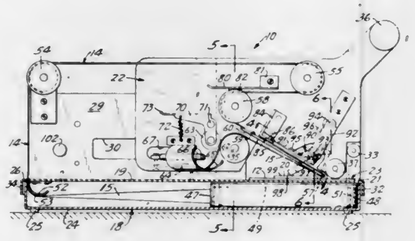
An apparatus and method for automatic assembly and interconnection of a safety belt and an anchor plate which is attachable to a frame member of a vehicle. The apparatus and method is embodied in a system for rapid production of such assembly wherein a plurality of anchor plate carrier arms are each sequentially positioned at a plurality of stations at which an anchor plate with a belt receiving opening therein is releasably positioned on the carrier arm, a pliant bendable belt is longitudinally folded at one end and advanced into and through said anchor plate opening for only a predetermined selected distance, the longitudinally folded belt is then transversely folded about the anchor plate, the folds are symmetrically arranged and creased, and the belt is then secured in assembly with the anchor plate in the bight of the belt thus formed by adhesively bonding and sewing the opposed belt portions together. The apparatus and method automatically accomplishes the assembly of the belt and anchor plate in a rapid virtually foolproof manner while providing a safety belt anchor connection capable of meeting safety regulations and Governmental standards.

3,785,908
FLUTE SEALING METHOD AND APPARATUS
William O. Wagers, Smithville; Robert H. Frappier, Wooster, both of Ohio; William S. McDonald, Georgetown, S.C., and Charles L. Boggs, Statesville, N.C., assignors to International Paper Company, New York, N.Y.
Division of Ser. No. 71,865, Sept. 14, 1970, Pat. No. 3,711,352, which is a division of Ser. No. 721,739, April 16, 1968, Pat. No. 3,563,843. This application July 13, 1972, Ser. No. 271,278
Int. Cl. B32b *3/04*; B31f *1/00*
U.S. Cl. 156—479 4 Claims



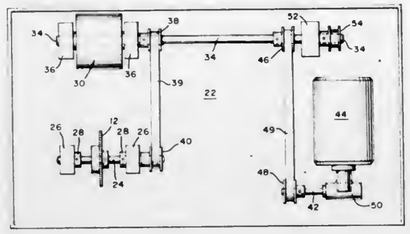
An apparatus for slitting, compressing, and folding a corrugated core paperboard, comprising means for slitting the end of the corrugated core, means for compressing the slit end inwardly to form extending facing sheet edges and means for folding the extending facing sheet edges, one over the other, to seal the flutes of the paperboard.

3,785,909
LABEL APPLYING DEVICE
Wilfred E. Stageberg, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Apr. 13, 1972, Ser. No. 243,647
Int. Cl. B44c *3/00*; B32b *35/00*
U.S. Cl. 156—541 6 Claims



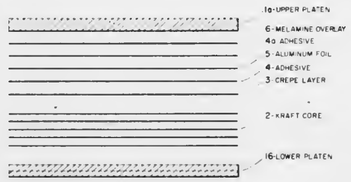
A device for applying a label from a supply of label stock in a predetermined position on an object. The device includes a first frame for positioning and supporting the object, and for movably mounting a second frame. The second frame is manually movable over the object on the first frame to dispense a label to the object from label dispensing means operated by relative movement of the frames and to press the dispensed label into engagement with the object on the first frame. The label dispensing means includes a novel indexing means for positioning the next label to be dispensed in a predetermined position on the second frame for a subsequent label application.

3,785,910
ULTRASONIC SEAMING APPARATUS INCLUDING FEED MEANS
Frank Parry, Monroe, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
Filed May 1, 1972, Ser. No. 248,943
Int. Cl. B32b *31/16*
U.S. Cl. 156—580 3 Claims



An ultrasonic seaming apparatus comprising a driven anvil wheel and an oppositely disposed resonating horn forming a seaming station through which flexible sheet material to be seamed is fed includes a driven workpiece feed wheel which is resiliently urged toward contact with the anvil wheel for assisting in feeding the seamed portion of the workpiece away from the seaming station. This arrangement minimizes the occurrence of puckering in sheer workpiece material. Additional workpiece feed means in the form of driven rollers are mounted distanced from the stated workpiece feed wheel.

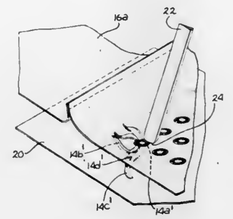
3,785,911
METALLIC APPEARING LAMINATE
Israel S. Ungar and Herbert I. Scher, Randallstown, Md., assignors to Esso Research and Engineering Company
Continuation of abandoned application Ser. No. 834,610, June 13, 1969. This application June 29, 1971, Ser. No. 157,914
Int. Cl. B44f *7/00*
U.S. Cl. 161—5 4 Claims



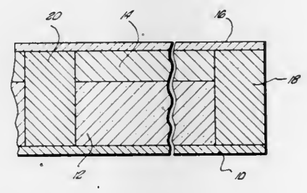
A decorative hammered metal appearing laminate produced by interlaminating an aluminum sheet between a melamine layer and crepe mounted on kraft core at high pressures and temperatures. Such laminates find particular use in furniture, commercial case goods and architectural specifications.

3,785,912
JEWELRY DESIGN KIT AND METHOD FOR DESIGN
Edward B. Van Deusen, Laguna Beach, Calif., assignor to Van-Lightner, Inc., Los Angeles, Calif.
Filed Feb. 22, 1972, Ser. No. 227,774
Int. Cl. B44f *1/06*
U.S. Cl. 161—6 3 Claims

A jewelry design kit comprising (i) transfer sheets containing a plurality of decalcomania bearing indicia of jewelry elements such as, for example, precious stones and ring shanks; (ii) a means for transferring the decalcomania from a transfer sheet to a work sheet; and (iii) a plurality of pens of different colors. The present invention also includes a method for utilizing the jewelry design kit to create new and creative jewelry designs. The invented method comprises the steps of (i) locating or selecting a decalcomania bearing the indicia of a desired jewelry element from among those on one of the transfer sheets; (iii) transferring the selected decalcomania from the transfer sheet to a work sheet by rubbing the face of the transfer sheet above the decalcomania with the means for transferring; (iii) sequentially repeating the above steps for each jewelry element comprising the design until, by superimposition of the decalcomania on the work sheet, the design is complete; and (iv) coloring the jewelry elements comprising the design with the appropriate pens, especially the precious stones. The present invention enables an unlimited number of new jewelry designs to be made in their actual size or to scale with accuracy and convenience, without any particular artistic skill or training on the part of the user.



3,785,913
PREFABRICATED CONSTRUCTION PANEL
Lloyd G. Hallamore, Long Beach, Calif., assignor to Hallamore Homes, Inc., Fountain Valley, Calif.
Filed Aug. 12, 1971, Ser. No. 171,064
Int. Cl. B32b *1/06, 3/06*; E04c *2/24*
U.S. Cl. 161—41 13 Claims



A structural panel particularly suitable for use as an exterior member of a building is disclosed. The panel includes an inner skin for providing a suitable internal wall finish and a weather resistant outer skin. A layer of rigid plastic foam is disposed adjacent the inner skin and a layer of compressible heat resistant and acoustically insulating material is disposed between the foam and the outer skin to accommodate the thermal expansion and contraction of the foam. Strengthening struts may be suitably positioned between the inner and outer skins of the panel to accommodate stresses as required by applicable building codes.

3,785,914
STRUCTURAL MATERIAL AND MEANS AND METHOD FOR MAKING IT
Harry A. King, 19361 Trino Circle, Yorba Linda, Calif. 92686
Filed July 8, 1971, Ser. No. 160,738
Int. Cl. B32b *3/28*
U.S. Cl. 161—133 16 Claims



Sheet material is made from a sandwich of a dried matrix slurry covered on both sides with a layer of fibrous material. This sandwich material is formed into corrugations having flat ridges prior to drying and hardening. The corrugations may take a number of forms including undulating or serpentine forms providing corresponding undulating ridges and also straight ridges. The sandwich sheets can be formed in a mechanism comprising travelling chains carrying arms with bars which form the desired shaped ridges. A structure is made up by over-laying a plurality of such corrugated sheets. Adjacent corrugated sheets are adhered to each other at the flat ridges. Advantages of structures made from this material reside in strength, rigidity, heat and sound insulation.

3,785,915
SHOE LINING AND COUNTER STIFFENER
Addison Walker Closson, Jr., 30 Coolidge Ave., Cambridge, Mass. 02138
Continuation-in-part of abandoned application Ser. No. 691,287, Dec. 18, 1967. This application Aug. 24, 1970, Ser. No. 66,634
Int. Cl. A43b *13/42*
U.S. Cl. 161—150 3 Claims

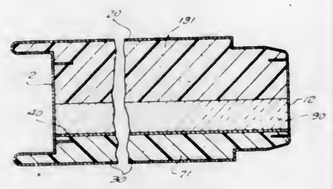


A shoe lining and counter stiffener is made from a multiply laminate having a ply of a nondirectional nonwoven fabric and a ply of thermoplastic (elastomeric) film material. To facilitate application of the laminate to a shoe, a thermally tackified adhesive is applied to the thermoplastic ply on the side opposite the fabric ply.

3,785,916
THERMOPLASTIC COMPOSITIONS
Cecil Nigel Turton, Darien, Conn., and James McAinsh, Northwich, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Nov. 9, 1971, Ser. No. 197,169
Claims priority, application Great Britain, Nov. 12, 1970, 53,836/70; May 25, 1971, 16,874/71
Int. Cl. B29c *27/00*
U.S. Cl. 161—156 5 Claims

A composite having an aromatic polymer matrix reinforced by carbon fibres having length at least 2.5 cm.

3,785,917
STRUCTURAL UNITS
Reinhard Klinkosch, Dortmund, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany
Original application July 9, 1969, Ser. No. 840,397, now Patent No. 3,650,863. Divided and this application Sept. 8, 1971, Ser. No. 178,656
Claims priority, application Germany, July 17, 1968, P 17 79 192.3
Int. Cl. B32b *5/18*
U.S. Cl. 161—161 9 Claims



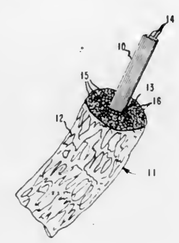
Laminar structural unit, composed of a pair of elongated spaced at least substantially parallel cover webs, two elongated layers of foamed synthetic plastic material each adhering to the inner surface of one of the aforesaid cover webs, an elongated intermediate web between these layers and adhering to one of them and an elongated intermediate layer between the intermediate web and the other of the layers; this latter elongated intermediate layer consisting of a material different from the foamed synthetic plastic material of which the aforesaid elongated layers consist.

3,785,918
REGENERATED CELLULOSE FIBROUS PRODUCT
Atsushi Kawai, Migaku Suzuki, and Hidenori Ohta, Obtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan
Filed Oct. 20, 1970, Ser. No. 82,276
Claims priority, application Japan, Oct. 24, 1969, 44/85,062
Int. Cl. B32b *5/02, 5/16*
U.S. Cl. 161—169 9 Claims



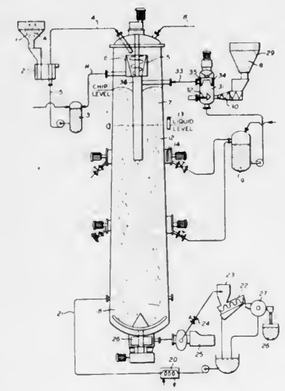
A fibrous product comprising a large number of regenerated cellulose fibril-like microfibers having a diameter of 0.1 to 5μ, at least a portion of said fibril-like microfibers being mutually entangled. The fibrous product, having a high water-retaining property and a high apparent degree of swelling, is obtained by introducing a viscose spinning dope into a coagulation liquid, wherein a reduced pressure generated by the high speed flow of said coagulation liquid is employed to apply a shear stress to the spinning dope.

3,785,919
COMPOSITE FILAMENT WITH ELASTOMERIC CORE AND MICROAPERTURED POLYPROPYLENE FOAM SHEATH AND PROCESS THEREFOR
Robert Winfield Hickman, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of abandoned application Ser. No. 94,821, Dec. 3, 1970. This application Nov. 9, 1971, Ser. No. 196,947
Int. Cl. B32b *5/18, 31/14;* D02g *3/22*
U.S. Cl. 161—175 7 Claims



A microapertured foam of a polymeric material, such as polypropylene. The foam can be applied to an elastomeric core yarn, such as a spandex core, to form a sheath around the core. The foam sheath protects the core yarn from degradation, while improving dyeability, elongation-to-break, and other properties of the sheath-core composite filament over art-known composite filaments.

3,785,920
METHOD OF TREATING RAW CELLULOSIC MATERIALS
Thor H. Johansen, West Nyack, N.Y. (% American Defibrator, 405 Lexington Ave., New York, N.Y. 10017)
Filed Apr. 10, 1972, Ser. No. 242,423
Int. Cl. D21c *3/26*
U.S. Cl. 162—19 4 Claims



Method of treating raw cellulosic materials requiring different processing conditions in a vertical digester having a vapor phase cooking zone and/or a liquor phase cooking zone, one of the raw materials being fed into the vapor phase cooking zone for treatment therein for a predetermined period of time prior to moving into the liquid phase cooking zone, the other raw material being fed directly into the liquid phase cooking zone in the form of a central core free of direct contact with the steam in the vapor phase zone during its passage therethrough.

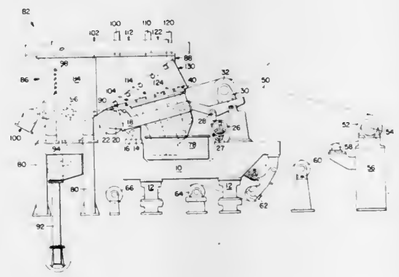
3,785,921
PAPER REINFORCING COMPOSITION CONTAINING STARCH AND A STARCH-ACRYLAMIDE GRAFT POLYMER
Fumio Ide, Tsuneo Kodama, and Yahide Kotake, Hiroshima, Japan, assignors to Mitsubishi Rayon Co., Ltd., and Nitto Kagyo Co., Ltd., both of Tokyo, Japan
No Drawing. Filed Dec. 21, 1971, Ser. No. 210,595
Int. Cl. C08d *9/06;* D21h *3/08, 3/28*
U.S. Cl. 162—168 17 Claims

Paper reinforcing agent composed mainly of a polymer composition which includes a graft polymer, a water-soluble polysaccharide, and, if necessary, an acrylamide type random copolymer. The graft polymer is that having the water-soluble polysaccharide as its backbone polymer and a copolymer derived from a monomer mixture of acrylamide and an unsaturated carboxylic acid, as its branch polymer; said random copolymer is that which is derived from the aforesaid monomer mixture. The water-soluble polysaccharide content is 5–22% by weight based on the composition.

The paper reinforcing agent is obtained by polymerizing the aforesaid monomer mixture in the presence of the water-soluble polysaccharide, or by further adding thereto a suitable amount of the water-soluble polysaccharide and/or the acrylamide type random copolymer.

The reinforcing agent exhibits high paper-reinforcing property even in a small quantity and is markedly cheaper than any of the known acrylamide type paper reinforcing agents.

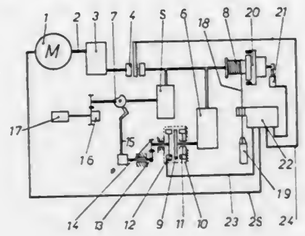
3,785,922
INCLINED FORMER
Martin B. Keller, Hudson Falls, N.Y., assignor to Sandy Hill Corporation, Hudson Falls, N.Y.
Filed May 27, 1970, Ser. No. 41,004
Int. Cl. D21f *1/24*
U.S. Cl. 162—299 3 Claims



A papermaking machine wherein stock is discharged from a stationary headbox for deposit on a web forming wire having a reach adjacent the headbox which is variably and selectively inclined upwardly between a lower rearward breast roll toward an upper forward wire roll with a suction box assembly mounted with respect to and beneath the upwardly inclined reach, there being provided a plurality of pairs of selectively employable side pond plate extensions of differing dimensions, each side pond plate extension of a pair being mounted in overlapping relation with a respective side wall of the headbox and in a tight sealed relationship with the suction box assembly and its supported inclined reach of the forming wire

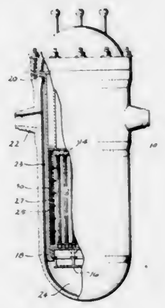
for accommodating the headbox to different angular positions of adjustment of the inclined reach of the forming wire.

3,785,923
COMBINED EMERGENCY SWITCH-OFF AND CONTROL ROD DRIVE FOR CONTROL ROD OF A GAS-COOLED NUCLEAR REACTOR
Tihomir Bratoljic, Wettingen, and Josef Waldis and Max Zimmermann, Untersiggenthal, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Mar. 22, 1971, Ser. No. 126,495
Claims priority, application Switzerland, Mar. 25, 1970, 4,485/70
Int. Cl. G21c *7/14*
U.S. Cl. 176—36 R **3 Claims**



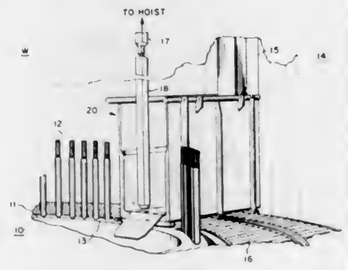
A combined emergency switch-off and control rod drive for a control rod of a gas-cooled nuclear reactor includes an electrical motor coupled through a clutch to a cable winch on which is wound a cable connected to the control rod for lowering rod into the reactor core. One brake of the eddy current type, is provided for controlled braking of the cable and a second, locking brake is provided for purposes of emergency, this locking brake being actuated in accordance with the response of a cable monitoring device which is arranged to detect both a relief of the cable as well as an overload thereon.

3,785,924
NUCLEAR REACTOR CORE SHROUD
Gennaro V. Notari, Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Sept. 2, 1970, Ser. No. 68,878
Int. Cl. G21c *19/28*
U.S. Cl. 176—61 **10 Claims**



A core shroud comprised of a plurality of vertically stacked cylindrical thermal shields resting on a core support plate. Horizontal plates closely conforming to the core shape are sandwiched between each thermal shield. The inner thermal shield sections have vertical plates in the form of angles welded to the interior in a manner generally conforming to the periphery of the core. An outer thermal shield surrounds each of the inner thermal shields. Vertical tie bolts located in the annular space between the two shields maintain a resiliently compressive force on the stacked array of thermal shields and horizontal plates. A core support barrel surrounds the shield and the structure has openings to permit downward flow of some of the coolant through the various annular spaces formed by the shields prior to passage of coolant through the core.

3,785,925
PORTABLE RADIATION SHIELD FOR NUCLEAR REACTOR INSTALLATION
Cecil R. Jones, Milford, Conn., assignor to Transfer Systems Incorporated, New Haven, Conn.
Filed Nov. 1, 1971, Ser. No. 194,665
Int. Cl. G21c *11/00*
U.S. Cl. 176—87 **13 Claims**



A portable radiation shield for a nuclear reactor is described. The shield is positioned between the reactor vessel and the fuel pool canal during fuel transfer therebetween. It features dual sets of lifting lugs, and flared rails and a removable plate to guide the fuel to a safer location in case of an accidental fall.

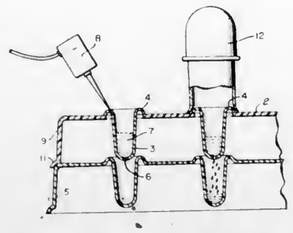
3,785,926
PROCESS FOR THE ENZYMATIC REPRODUCTION OF INFORMATIONALLY ACTIVE RNA
Diether Jachertz, Hannover, Germany (% Farbwerke Hoechst AG., Frankfurt am Main, Germany)
No Drawing. Filed Aug. 4, 1970, Ser. No. 60,922
Claims priority, application Germany, Aug. 16, 1969, P 19 41 709.5
Int. Cl. C12d *13/06*
U.S. Cl. 195—28 N **1 Claim**

A process for the enzymatic reproduction of informationally active RNA, by isolating a replicating enzyme from immunologically competent cells, incubating it together with (a) the informationally active RNA to be reproduced and (b) a cell-free system made from immunologically competent cells freed from the replicating enzyme, at pH 5, and isolating the newly formed informationally active RNA. The use of such informationally active RNA for vaccination.

3,785,927
PROCESS FOR CONVERTING (−)RETICULINE TO (+)SALUTARIDINE
Erwin F. Schoenewaldt, Watchung, and Ernel D. Ihnen, Warren Township, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Feb. 12, 1973, Ser. No. 331,394
Int. Cl. C12d *1/00*
U.S. Cl. 195—51 R **21 Claims**

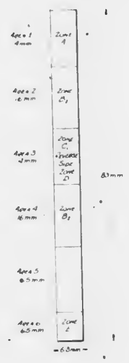
(+)salutaridine is produced by reacting (−)reticuline with an oxidative phenolic coupling enzyme produced by growing a suitable strain of Schizomycetes or Eumycetes in an aqueous nutrient medium.

3,785,928
BACTERIOLOGICAL TITRATION TRAY
Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio 44512
Filed Jan. 27, 1971, Ser. No. 110,108
Int. Cl. C12k *1/10*
U.S. Cl. 195—140 **2 Claims**



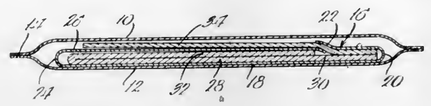
A molded plastic titration tray containing a large number of small open test cups serving as individual test tubes and which are integral with the tray and project downwardly from the tray except for a lip at the top of each cup which projects above the surface of the tray to prevent serum or solution spilled on the tray surface from contaminating the tray contents of the cup. In one modification there is a small hole in the bottom of each cup, small enough so that surface tension prevents the fluid contents of the cup from flowing through the hole, but the contents can be discharged at will by applying a sonic probe or air pressure to the cup.

3,785,929
DIAGNOSTIC COMPOSITION FOR THE DETECTION OF NITRITE
Donald P. Kronish, Rockaway, and William D. Young, Jr., Montclair, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.
Continuation-in-part of application Ser. No. 836,089, June 24, 1969, now Patent No. 3,645,853. This application Nov. 30, 1971, Ser. No. 203,289
The portion of the term of the patent subsequent to Feb. 28, 1989, has been disclaimed
Int. Cl. C12k *1/04*
U.S. Cl. 195—100 **12 Claims**



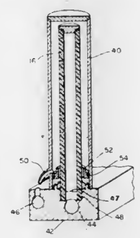
A diagnostic composition for the detection of the presence of nitrite comprises a carrier material impregnated in a specific zone with a dried form of two stable reagent solutions. In the preferred embodiment, the carrier material is also impregnated with a dried barrier composi- and an identifying dye. In use, the two zones containing the reagents are inserted into the fluid being tested and the positive presence of nitrite is indicated in 10 minutes or less by the formation of color in the reagent zones. The diagnostic composition of this invention provides a rapid, easy-to-use method for the detection of the presence of bacteriuria.

3,785,930
MICROBIOLOGICAL ACTIVITY TESTING DEVICE
R. James Ellis, Fort Wayne, Ind., assignor to Peter Eckrich and Sons, Inc.
Filed Dec. 22, 1971, Ser. No. 210,945
Int. Cl. C12k *1/10*
U.S. Cl. 195—127 **10 Claims**



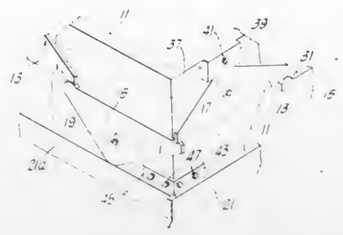
A device for determining microbiological activity in meats. A simple, economical and disposable testing device is provided by a folded-over transparent sheet to which is secured a sheet of a resazurin dye-containing material. A sample is brought, directly or indirectly, into contact with the sheet of dye-containing material and thereafter the transparent sheet is folded over the same to preclude moisture loss during incubation. Color change may be readily observed through the transparent sheet and the time required for color change taken as a measure of the microbiological activity in the meat.

3,785,931
SELF CLEANING, TUBULAR SOLAR STILL
James P. Coffey, Hatboro, and Joseph C. Duddy, Trevose, Pa., assignors to ESB Incorporated
Filed July 30, 1971, Ser. No. 167,751
Int. Cl. B01d *3/04*
U.S. Cl. 202—234 **12 Claims**



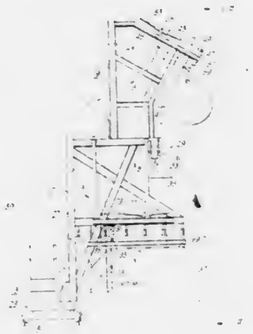
A solar still is described in which a vertical microporous evaporator having a dark outer surface is housed within but separated from a transparent tube. Impure or salt water is fed up the porous evaporator either by mechanical means or by capillary forces from a reservoir at the tube base. Sunlight impinging on the inner dark tube causes water to evaporate therefrom. The vapor subsequently condenses on the inner surface of the transparent tube and runs down to a collecting ring at the base thereof. Concentration effects cause concentrated impurities to flow down the porous evaporator so that its surface pores do not become clogged. The transparent outer tube may be glass or plastic. Its inner surface may be treated to cause the condensed water to run down as a sheet rather than collect as drops. Reflectors or other light directing means may be placed about the tube to gather and concentrate the solar radiation reaching the dark tube. In an alternate design, impure water is fed to the top of the porous evaporator.

3,785,932
SEALING DEVICE FOR COKE OVEN DOOR
Linwood G. Tucker, Pittsburgh, Pa., assignor to Koppers Company, Inc.
Filed Feb. 1, 1972, Ser. No. 222,583
Int. Cl. C10b 25/06
U.S. Cl. 202—248 3 Claims



The perimeter of the door frame of a coke oven door is fitted with a sealing knife edge and a plurality of pivotal interacting levers mounted to the door frame. The levers exert uniform forces on the knife edge and the door jam when the door is in the closed position.

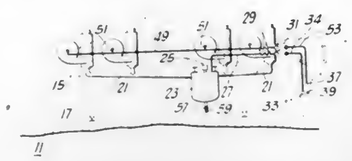
3,785,933
APPARATUS FOR COLLECTING AND REMOVING EFFLUENT EMITTED WHILE PUSHING COKE
William D. Edgar, Allison Park, and Albert G. Jonnet, Pittsburgh, Pa., assignors to Koppers Company, Inc.
Filed Aug. 11, 1971, Ser. No. 170,926
Int. Cl. C10b 33/00
U.S. Cl. 202—263 6 Claims



A gastight hood is mounted to a coke guide car. The hood is provided with a collar that cooperates with a fixed gas collecting main and with curtains that prevent gases, smoke and dirt from escaping from the quenching car while coke is being pushed.

3,785,934
WATER SYSTEM FOR A LARRY CAR
Clifford W. Clarke, McMurray, Pa., assignor to Koppers Company, Inc.
Continuation-in-part of abandoned application Ser. No. 868,012, Oct. 21, 1969. This application June 23, 1971, Ser. No. 155,820
Int. Cl. C10b 27/04
U.S. Cl. 202—263 6 Claims

Larry cars that are equipped with water scrubber type dust eliminators obtain clean water for such scrubbers from a circulating water header loop extending the length of a coke oven. A dirty water storage tank on the larry



car is emptied simultaneously with the charging of coal into a coke oven.

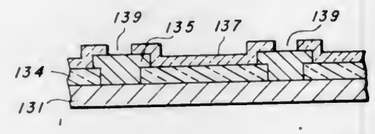
3,785,935
DISTILLATION PROCESS OF MONOMERS WITH THE ADDITION OF AN ANTI-FOAM COMPOSITION
Kermit W. Householder, Tonawanda, N.Y., and Van I. Doesburg, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed May 17, 1971, Ser. No. 144,264
Int. Cl. B01b 1/04
U.S. Cl. 203—20 6 Claims

An antifoam composition which consists essentially of (1) 5 to 50 percent by weight of a silicone-glycol copolymer, (2) 5 to 50 percent by weight of a polypropylene glycol, (3) 5 to 50 percent by weight of a glycol copolymer, and (4) 40 to 85 percent by weight of water is disclosed. This composition is particularly useful in latexes.

3,785,936
ANODIZED ALUMINUM TEST PANEL FOR EVALUATING INSPECTION PENETRANT PERFORMANCE
James R. Alburger, 5007 Hillard Ave., La Canada, Calif. 91011
No Drawing. Filed Mar. 24, 1972, Ser. No. 237,984
Int. Cl. C23b 9/02; C23f 17/00
U.S. Cl. 204—38 A 3 Claims

A test panel which may be used for evaluating inspection penetrant crack detection performance, the preferred structure of said panel being a sheet of aluminum anodized in a sulfuric acid bath to a controlled anodic film thickness between about 5 microns and 50 microns, heat sealed and coated with a thin glassy layer of sodium silicate, baked to cure the silicate layer, and stress cracked to provide cracks extending through the thickness of the anodic coating.

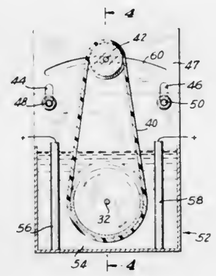
3,785,937
THIN FILM METALLIZATION PROCESS FOR MICROCIRCUITS
William Raymond McMahon, 432 Crestover Circle, Richardson, Tex. 75080, and Thomas Halliburton Ramsey, 602 Carroll Drive, Garland, Tex. 75040
Filed Apr. 28, 1971, Ser. No. 138,223
Int. Cl. C23b 5/48, 5/52
U.S. Cl. 204—15 2 Claims



Selective anodic oxidation is employed to pattern thin metallic films in the fabrication of printed circuit boards and integrated microcircuits to provide "inlaid" metalliza-

tion geometry and thereby eliminate the need for selective etching of metal films. The total anodic conversion of metallic thin films to the corresponding oxide is demonstrated. Standard photolithographic masking techniques are employed to achieve selective anodic oxidation in the delineation of a single metal film, and also for each successive metallization layer in the fabrication of integrated microcircuits having multilevel, insulated, interconnecting metallization patterns.

3,785,938
METHOD FOR MAKING ABRASIVE ARTICLES
Ahmad Sam, 671 Forest Ave., Paramus, N.J. 07652
Filed Nov. 5, 1970, Ser. No. 87,177
Int. Cl. C23b 5/48, 5/68
U.S. Cl. 204—16 39 Claims



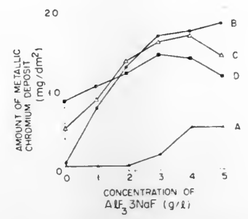
Depositing abrasive particles, such as diamonds, silicon carbide, titanium carbide, aluminum oxide, or mixtures thereof, in a matrix of electrochemically deposited metals on the outer periphery and/or the adjacent marginal side portions of metal (or non-metals) blanks or wheels.

3,785,939
TIN/LEAD PLATING BATH AND METHOD
Grace F. Hsu, Vernon, Conn., assignor to Conversion Chemical Corporation, Rockville, Conn.
No Drawing. Filed Oct. 22, 1970, Ser. No. 83,229
Int. Cl. C23b 5/38, 5/40, 5/46
U.S. Cl. 204—43 S 23 Claims

A plating bath for electrodeposition of tin/lead alloys contains stannous ion, lead ion, a fluoborate, fluosilicate or sulfamate radical and, as a brightener system, a nonionic polyoxyalkylated surfactant, a lower aliphatic aldehyde, an aliphatic or aromatic amine and an aromatic aldehyde, the pH of the bath being less than about 3.0.

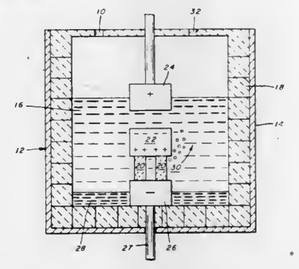
3,785,940
METHOD FOR ELECTROLYTICALLY TREATING THE SURFACE OF A STEEL PLATE WITH A CHROMATE SOLUTION
Hidehisa Yamagishi, Yokohama, Hiroshi Takano, Kawasaki, and Masao Takeuchi, Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 8, 1973, Ser. No. 321,823
Claims priority, application Japan, Jan. 14, 1972, 47/6,313
Int. Cl. C23b 11/02; C23f 17/00
U.S. Cl. 204—56 R 3 Claims

With respect to the prior art method which comprises immersing a steel plate as a cathode in an electrolyte in which there are dissolved chromic acid or salts thereof containing chromium VI oxide as a main agent and a thiocyanic compound as a promoting agent, and subjecting the surface of said steel plate to electrolytic treatment so as to improve its corrosion resistance and the adhesivity of paint thereto, it has been found that addition of aluminium sodium fluoride or aluminium potassium fluoride to said electrolyte as a second promot-



ing agent will elevate the adhesivity of paint to the treated surface of the steel plate.

3,785,941
REFRACTORY FOR PRODUCTION OF ALUMINUM BY ELECTROLYSIS OF ALUMINUM CHLORIDE
Stanley C. Jacobs, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Sept. 9, 1971, Ser. No. 178,895
Int. Cl. C22d 3/02, 3/12
U.S. Cl. 204—67 21 Claims



Selective interfacial bounding of molten metal chloride electrolyte by nitride-based refractory material in cells for production of aluminum and chlorine by electrolysis of aluminum chloride.

3,785,942
PROCESS FOR THE RECOVERY OF MERCURY FROM WASTE SOLIDS
Gordon A. Carlson, New Martinsville, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Continuation-in-part of application Ser. No. 806,204, Mar. 11, 1969, now Patent No. 3,647,653. This application Mar. 8, 1972, Ser. No. 232,769
Int. Cl. C01b 7/06; C01d 1/08; C22b 43/00
U.S. Cl. 204—99 6 Claims

Mercury is recovered from electrolytic cell caustic filter solids by treatment with a brine containing elemental chlorine in an amount sufficient to solubilize the mercury. The mercury containing brine can then be returned to the electrolytic cell.

3,785,943
ELECTROLYSIS OF MAGNESIUM CHLORIDE
Herbert Eberle, Hannover, Wolfgang Meyer, Benthe, and Johann Haase, Empelde, Germany, assignors to Salzdetfurth AG
No Drawing. Filed Nov. 23, 1971, Ser. No. 201,387
Claims priority, application Germany, Dec. 7, 1970, P 20 60 066.2
Int. Cl. C01b 7/06; C01f 5/18
U.S. Cl. 204—100 11 Claims

A process for the electrolysis of magnesium chloride solutions, in the presence of an alkali metal chloride to yield chlorine and magnesium hydroxide.

3,785,944

HYDROMETALLURGICAL PROCESS FOR THE PRODUCTION OF COPPER

George E. Atwood and Charles H. Curtis, Tucson, Ariz., assignors to Duval Corporation, Houston, Tex.

Filed Oct. 7, 1971, Ser. No. 187,393
Int. Cl. C22b *15/08;* **C22d** *1/16*
U.S. Cl. 204—107 **36 Claims**

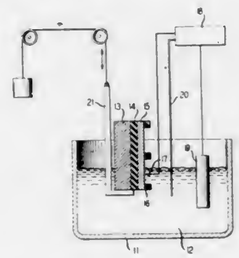
A hydrometallurgical process for pollution-free recovery of metallic copper from chalcopyrite and other copper-containing materials by (a) ferric chloride oxidation thereof to produce cupric chloride, (b) reduction of the cupric chloride to cuprous chloride, (c) recovery of metallic copper, preferably by electrolysis, and (d) regeneration of the ferric chloride by oxidation with concurrent purge of excess iron as well as sulfate ions and other impurities. The process is amenable to steady state cyclic operation, and stages (d) and (a) may advantageously be combined.

3,785,945

TECHNIQUE FOR ELECTROLYTICALLY ETCHING TUNGSTEN

Donald Morley MacArthur, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed May 4, 1972, Ser. No. 250,258
Int. Cl. C23b *3/00*
U.S. Cl. 204—129.95 **4 Claims**



A technique for electrolytically etching tungsten films involves the use of borate phosphate and carbonate buffered electrolytes having a pH within the range of 7.0 to 10.5. The described process permits automation of the etching process and eliminates the formation of isolated islands of unetched materials.

3,785,946

PROCESS FOR ELECTROCOATING ALUMINUM ARTICLES

Shiro Terai, Toshio Suzuki, Yoshihumi Hasegawa, and Hitoshi Sekiya, Nagoya, and Hiroto Matuo and Shizuo Kimata, Tokyo, Japan, assignors to Toagosei Chemical Industry Co., Ltd., Sumitomo Light Metal Industries, Ltd., and Dainichiseika Color & Chemicals Mfg. Co. Ltd., Tokyo, Japan

No Drawing. Filed Sept. 8, 1972, Ser. No. 287,431
Claims priority, application Japan, Sept. 10, 1971, 46/69,731
Int. Cl. B01k *5/02*
U.S. Cl. 204—181 **15 Claims**

In a process for electrodeposition-coating an aluminum article which comprises subjecting the aluminum article to anodic oxidation treatment, dipping the anodized aluminum article in an aqueous emulsion or solution of a thermosetting resin composition, applying a direct current to the aluminum article to electrodeposit thereon the resin contained in said aqueous emulsion or solution, and then heat-curing the resin coating electrodeposited on the aluminum article, an improvement characterized in that onto the surface of the anodized aluminum article is applied, prior to the electrodeposition, an aqueous solution, aqueous dispersion or organic solvent solution of an organo-silicon compound represented by the general formula,

$$[R\{CH_2\}_n]_m—Si—X_{4-m}$$

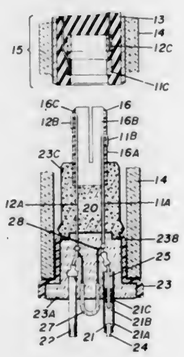
wherein m is an integer of 1 to 3; n is 0 or an integer of 1 to 3; R, in the case where n is 0, is a lower alkenyl group, and R, in the case where n is an integer of 1 to 3, is an amino group, an alkylenediamino group, a lower alkanolamino group, an α,β-unsaturated lower aliphatic carboxylic acid residue, or an alkoxy or cycloalkyl group having an epoxy group; and X is at least one group selected from the group consisting of a lower alkoxy group, a lower alkoxyalkoxy group, a saturated lower aliphatic carboxylic acid residue, a hydroxyl group and a lower alkyl group, excluding the case where all the groups represented by X are lower alkyl groups at the same time. When such treatment with the organo-silicon compound is adopted, the adhesion of the resin coating and the corrosion resistance of the aluminum article is enhanced.

3,785,947

ELECTRODE ASSEMBLY TO DETERMINE THE OXYGEN CONTENT OF MOLTEN METAL

William H. Baldwin, Lansdale, Pa., and Harry G. Clauss, Jr., Beverly, N.J., assignors to Leeds & Northrup Company, Philadelphia, Pa.

Filed May 26, 1972, Ser. No. 257,260
Int. Cl. B01k *3/00*
U.S. Cl. 204—195 S **5 Claims**



An expendable, plug-in electrode assembly for insertion into a bath of molten material to form a galvanic cell comprised of solid state electrolyte connected on one side to a solid state reference electrode and on the other side connected to a connector electrode through a liquid containing a constituent in an amount to be determined. The electrode assembly is characterized by the inclusion of a thermal switch connected across the electrical leads to the electrodes for use in checking the continuity of plug-in electrical connections and a measuring circuit prior to immersing the electrode assembly into a bath of molten material.

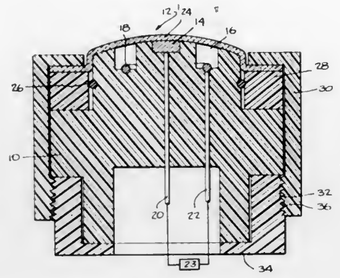
3,785,948

ELECTROCHEMICAL OXYGEN DETECTOR

Michael L. Hitchman, Wolfgang Mehl, and Jean Pierre Millot, Geneva, Switzerland, assignors to H. Dudley Wright, Cologny, Geneva, Switzerland

Filed Feb. 14, 1972, Ser. No. 226,037
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 P **11 Claims**

An electrochemical oxygen detector which is useful in a sulfurous environment contains a metal sulfide, such as nickel, tungsten or cobalt sulfide, as a cathode. The anode is desirably silver sulfide. A detector having a nickel sulfide or a tungsten sulfide cathode and a silver sulfide anode is readily formed during use in a polluted environment from a detector having a nickel or a tungsten cathode and a silver anode without substantial variation in response characteristics. The electrolyte is desirably potassium chloride in water containing a chelating agent for reducible metal ions, for example sodium potassium tartrate, a buffer to maintain the pH in excess of 5, and a deliquescent agent, e.g. a mixture of potassium dihydrogen phosphate and disodium hydrogen phosphate dihydrate.



3,785,949

ELECTROLYSIS CELL WITH LIQUID ELECTRODE

Hermann Matthey, Herdekce-Kirchende, Stefan Payer, Holzen-Hochsten, and Eberhard Zirngiebl, Cologne-Stammheim, Germany, assignors to Friedrich Uhde GmbH, Dortmund, Germany

No Drawing. Filed Mar. 8, 1972, Ser. No. 232,917
Int. Cl. C22d *1/04;* **B01k** *3/04*
U.S. Cl. 204—219 **3 Claims**

An electrolysis cell of the type employing a liquid electrode, such as mercury cathode is used for the alkaline chloride electrolysis process. The bottom of the cell is made up of an inexpensive material such as aluminum or aluminum alloy to which is bonded a thin layer having surface properties such as wettability, corrosion resistance, and little tendency to fouling. The thin layer may be a noble metal, a corrosion-resistant metal, such as nickel, a non-metallic conductor or a semi-conductor, or an electrically conducting ceramic material.

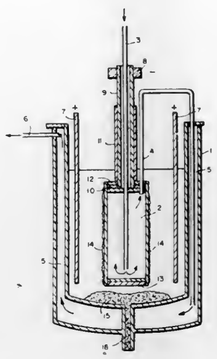
3,785,950

REGENERATION OF SPENT ETCHANT

Emerson H. Newton, 39 Virginia Road, Arlington, Mass. 02175; John M. Ketteringham, Concord Road, Lincoln, Mass. 01773; John L. Sienczyk, 50 Williams St., Arlington, Mass. 02175; and Calvin M. Isaacson, 2 Oceanside Drive, Beverly, Mass. 01915

Original application Oct. 12, 1971, Ser. No. 188,189. Divided and this application May 19, 1972, Ser. No. 254,895
Int. Cl. B01k *3/00;* **C22d** *1/02*
U.S. Cl. 204—239 **8 Claims**

The invention relates to a process for extracting copper as metal from a used etchant solution containing complexed cupric ions as an oxidant while simultaneously regenerating the etchant for further use. The etchant treated may have a pH from below 0 to 13, but preferably has a pH of at least 3 and more preferably has a pH between about 4 and 10. The process comprises electrowinning a portion of the copper from solution under conditions effective for electrowinning but not etching. These conditions include a substantial freedom from oxygen in the vicinity of the cathode, high current density, a substantial freedom from solution agitation during the winning operation and preferably for good efficiency, low solution temperature at the interface of the solution and the cathode, typically below 140° F. The process is economical because in the preferred embodiment, a portion only of the copper in solution is removed, the remaining copper being left in solution and available as a source of cupric ion for reuse of the etchant. The process is an important contribution to pollution abatement efforts as it eliminates the need for dumping copper and other wastes resulting from an etching operation.

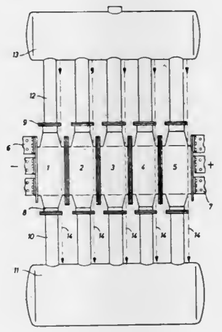


3,785,951

ELECTROLYZER COMPRISING DIAPHRAGMLESS CELL SPACES FLOWED THROUGH BY THE ELECTROLYTE

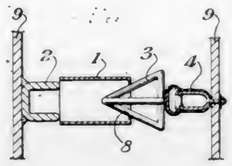
Jacques Fleck, Kehl (Rhine), Germany, assignor to Krebs & Cie, Paris, France

Filed Feb. 25, 1972, Ser. No. 229,278
Claims priority, application Germany, Mar. 2, 1971, P 21 09 949.0
Int. Cl. B01k *3/00*
U.S. Cl. 204—268 **12 Claims**



An electrolyzer of the type wherein electrolyte flows through diaphragmless cell-spaces which are in communication with each other only through a reaction vessel or a common collector and gas separator by means of pipe lines connecting given cell spaces thereto. Bipolar electrodes have lug-like anode portions protruding into the cell spaces adjacent lug-like cathode portions which also protrude into the cell spaces.

3,785,952
SUPPORT FOR MOUNTING SMALL PARTS IN ELECTROPLATING PROCESSES
Hermann Ritzenhoff, Marburg-Lahn, Germany, assignor to Gerbruder Seidel KG, Marburg-Lahn, Germany
Filed Oct. 30, 1972, Ser. No. 302,120
Int. Cl. C23b *5/70*
U.S. Cl. 204—297 W **24 Claims**

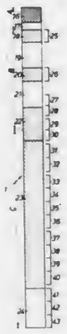


Frame for supportingly securing number of small parts each having circular edge of perforation parallel with a supporting surface while parts are subjected to electrodeposition treatment comprises electrically conductive main structure and holders for each part to be treated. Main structure includes at least one electrically conductive metal web, and each holder comprises plurality of non-electrically conducting rods which converge toward point and which engage circular edge or perforation of parts to be treated. At least one resilient rail is constructed and arranged to press holders carrying parts to be treated against metal web.

ERRATUM

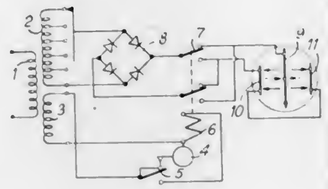
For Class 204—228 see:
Patent No. 3,785,954

3,785,953
PROCESS FOR CARRYING OUT ENDOTHERMIC CATALYTIC REACTIONS
Jean Patouillet, Paris, France, assignor to Societe Anonyme: Antar Petroles de l'Atlantique, Paris, France
Continuation-in-part of application Ser. No. 81,166, Oct. 15, 1970, which is a continuation of abandoned application Ser. No. 738,831, June 21, 1968. This application Nov. 9, 1971, Ser. No. 196,943
Int. Cl. C10g *39/00*
U.S. Cl. 208—49 **6 Claims**



A reactor for carrying out endothermic reactions under substantially adibatic conditions comprising a plurality of tubes disposed vertically and a plurality of radiant heating means exterior to said tubes, means to introduce a gaseous feedstock into said tubes, said plurality of radiant heating means being disposed along said tubes in a vertical direction in spaced relationship dependent on the temperature of the endothermic reaction of said gaseous feedstock, at least part of said vertically disposed tubes defining catalyst zones, as well as the process for carrying out endothermic catalytic reactions in substantially endothermic conditions, consisting essentially in introducing the reaction stream into at least one catalysis zone consisting of at least one zone containing dilute catalyst and which can be preceded by a zone containing an inert catalyst support, the said dilute catalyst zone being followed by a conventional catalyst zone proper, each of said zones may further be separated from adjacent zones by intercalated zones containing no material, and/or positioning along the said zones a plurality of distinct heating means to provide variable amounts of heat to the reaction stream moving in each of said zones, the temperature within said stream being maintained substantially constant during its passage through the said zones.

3,785,954
APPARATUS FOR TREATING WATER CHARGED WITH SCALE FORMING SUBSTANCES
Jean Jacques Herbert, 8 Rue Thiers, Monthyon, France
Filed May 17, 1972, Ser. No. 254,063
Claims priority, application France, May 24, 1971, 7118569
Int. Cl. B01k *3/00*; **C02b** *1/82*
U.S. Cl. 204—228 **3 Claims**

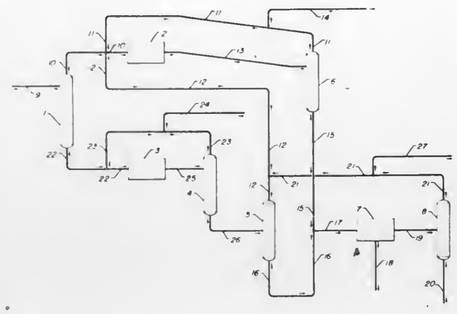


Apparatus for treating water by electrical means in order to eliminate scale-generating substances, comprising electrodes dipping into the water to be treated and connected to the mains supply through a transformer having an adjustable secondary connected to a rectifier bridge which is in turn connected to the electrodes for the purpose of obtaining a chopped current having its direction periodically reversed by a timer. The electrodes are flat and are used in sets of three. Each set comprises a central electrode flanked by two parallel-connected lateral electrodes, the electrodes and their supporting current-supplying rods being made of stainless steel.

3,785,955
GASOLINE PRODUCTION PROCESS
William H. Davis, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 1, 1971, Ser. No. 203,802
Int. Cl. C07c *5/72*; **C10g** *31/14, 35/06*
U.S. Cl. 208—80 **7 Claims**

High octane gasoline is produced by isomerizing a C_4 through C_6 paraffin fraction from a straight run gasoline, the higher boiling portion of the straight run gasoline is passed into a reforming zone. The effluent from the isomerization zone is passed into a molecular sieve separation zone which separates normal paraffins from non-normals such as aromatics and iso-paraffins. A portion of the extracted normal paraffins are then recycled to the isomerization zone to effect further production of branched chain paraffins. The raffinate material recovered from the molecular sieve separation zone is sufficiently high in octane number to be utilized as a clear gasoline.

The reforming and isomerization zone effect the conversion of the respective feed to those zones through the use of suitable catalytic components. The separation zone



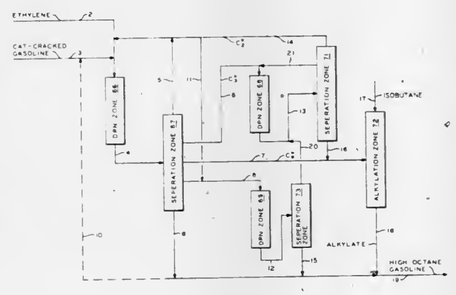
utilizes a Type A crystalline aluminosilicate to selectively extract normal paraffins from a feed containing normal paraffins and other non-normal components.

3,785,956
SELECTIVE OLEFIN DISPROPORTIONATION AND THE USE THEREOF TO PRODUCE HIGH OCTANE GASOLINES
Robert L. Banks, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Dec. 10, 1971, Ser. No. 206,734
Int. Cl. C07c *3/62*; **C10g** *37/06*
U.S. Cl. 208—93 **12 Claims**



The disproportionation of mixtures of branched and unbranched disproportionatable olefins in the presence or absence of ethylene is improved by adjusting the conversion to a specified level thereby increasing the selectivity of the reaction to the conversion of the unbranched olefins. The process has particular utility in increasing of the quality of olefinic gasoline streams in that the lower octane-rated unbranched olefins can be selectively removed from the gasoline by conversion to other olefins while substantially retaining the higher octane-rated branched olefins. In this aspect, a process for increasing the octane value of olefinic gasoline streams is provided which comprises the steps of separating a C_5 fraction from an olefinic gasoline stream, the C_5 fraction containing both pentenes and isopentenes, selectively disproportionating the C_5 stream, with or without the presence of added ethylene, to convert more of the normal pentenes than the isopentenes, alkylating the resulting butenes and lighter olefins with isobutane, and combining the alkylate and remaining gasoline to provide a high octane gasoline having a reduced light olefins content. In a modification of the above described multistep process produced propylene is disproportionated in a second olefin disproportionation zone, to provide additional butenes for alkylation and ethylene for reaction with n-pentenes in the first step of the process.

3,785,957
MULTISTAGE CLEAVAGE OF OLEFINS TO PRODUCE HIGH OCTANE GASOLINE
Robert L. Banks, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Jan. 3, 1972, Ser. No. 214,649
Int. Cl. C10g *37/00*
U.S. Cl. 208—49 **10 Claims**

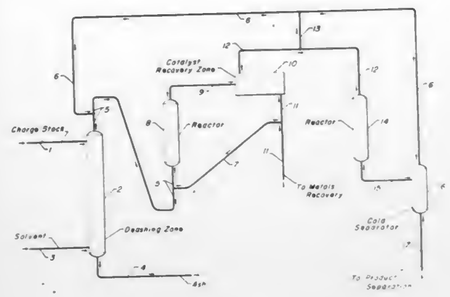


A process for increasing the octane value of olefin-containing gasoline streams comprises disproportionating the olefinic gasoline with ethylene, separating the effluent to provide a propylene stream, a butene stream, a C_5 or C_5–C_6 olefin stream, and a C_6^+ or C_7^+ gasoline stream, disproportionating the C_5 or C_5–C_6 olefin stream with ethylene to provide additional propylene and butenes, optionally disproportionating the produced propylene to provide additional ethylene and butenes, alkylating all the produced butenes with isobutane to provide a high octane alkylate and combining the high octane olkylate, and C_6^+ or C_7^+ olefin gasoline streams to provide the high octane gasoline stream.

3,785,958
DESULFURIZATION AND CONVERSION OF BLACK OILS
William K. T. Gleim, Island Lake, John G. Gatsis, Des Plaines, and Mark J. O'Hara, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed Sept. 8, 1972, Ser. No. 287,308
Int. Cl. C10g *13/06, 31/14*
U.S. Cl. 208—87 **6 Claims**

Asphaltene- and ash-containing hydrocarbonaceous charge stocks are converted into lower-boiling, substantially desulfurized hydrocarbon products via a combination process involving deashing, hydrogenative conversion

of asphaltenes in a slurry-type system and desulfurization employing a fixed-bed catalytic composite. The process



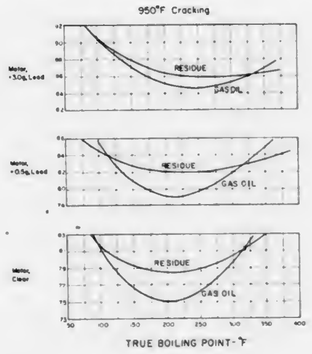
affords maximum yield of normally liquid hydrocarbon products, coupled with substantial desulfurization thereof.

3,785,959

PROCESS FOR CRACKING HYDROCARBONS CONTAINING RESIDUAL OIL

Millard C. Bryson, Conway, Joel D. McKinney, Indiana, Robert A. Titmus, Pittsburgh, and Frederick K. White, Allison Park, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jan. 10, 1972, Ser. No. 216,429
Int. Cl. C10g *11/04*; C10l *1/04*
U.S. Cl. 208—120 **19 Claims**



In fluid catalytic riser cracking of a gas oil with a zeolite catalyst the inclusion of controlled amounts of residual oil in the feed results in an improvement in octane value and/or improvement in the distribution of octane value of the gasoline product. This improvement in octane value occurs primarily in the particular boiling range fractions of the gasoline product having the lowest octane value. However, residual oil is relatively difficult to vaporize and the extent of its vaporization will depend on the equilibrium flash vaporization temperature at the bottom or inlet of the riser. The equilibrium flash vaporization temperature at the bottom of the riser is generally limited by such process necessities as avoidance of catalyst sintering or deactivation and/or avoidance of excessive catalyst to oil ratios, which can adversely affect product selectivity. Therefore, the quantity of residual oil in the feed must be controlled in relation to the equilibrium temperature in order to, on the one hand, vaporize and crack a sufficient quantity of residual oil to obtain the octane improvement effect, while, on the other hand, keeping the quantity of residual oil which remains unvaporized below a specified level. It is shown that at a fixed equilibrium flash vaporization temperature the quantity of residual oil which is vaporized cannot be increased merely by large increases in the proportion of residue in the feed.

3,785,960

REFORMING NAPHTHAS WITH A RHENIUM-GOLD CATALYST

Howard E. Merrill and Robert S. Lunt III, Baton Rouge, La., assignors to Esso Research and Engineering Company

No Drawing. Filed Sept. 30, 1969, Ser. No. 864,277
Int. Cl. C10g *35/08*
U.S. Cl. 208—135 **14 Claims**

A process for improving the octane quality of a naphtha by contacting the said naphtha at reforming conditions with a highly active catalyst composite including a porous support and catalytically active amounts of rhenium and gold.

3,785,961

CATALYTIC REFORMING OF A RELATIVELY LEAN CHARGE STOCK IN A TWO-STEP PROCESS

Michael W. Schrepfer, Buffalo Grove, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 860,826, Sept. 24, 1969, now Patent No. 3,617,522. This application Sept. 14, 1971, Ser. No. 180,471
The portion of the term of the patent subsequent to Nov. 2, 1988, has been disclaimed
Int. Cl. C10g *35/08*
U.S. Cl. 208—139 **17 Claims**

A relatively lean hydrocarbon charge stock boiling in the gasoline range is catalytically reformed by contacting the charge stock, hydrogen and a halogen or a halogen-containing compound, in an essentially water-free reforming zone, with a highly selective reforming catalyst containing a platinum group component and a rhenium component at reforming conditions selected to produce a high octane C_5^+ reformate for a first period extending until the selectivity of the catalyst decreases to an unacceptable value, and, thereafter by continuously adding water or a water-producing compound to the reforming zone in an amount corresponding to about 5 to 50 wt. p.p.m. of the hydrocarbon charge stock while continuing the contacting operation. Key feature of the subject process involves a two-step operation with this platinum-rhenium catalyst wherein the first step is operated at essentially water-free conditions with halogen inclusion and wherein the second step utilizes a carefully selected amount of water to effect a substantial improvement in the operation of the process.

3,785,962

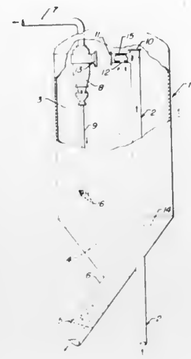
FLUIDIZED CATALYTIC CRACKING PROCESS

Algie J. Conner, Des Plaines, and Charles W. Strother and Willas L. Vermilion, Arlington Heights, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 27, 1971, Ser. No. 212,252
Int. Cl. C10g *11/18*
U.S. Cl. 208—164 **13 Claims**

A fluidized cracking process in which a riser type reaction zone empties into the dilute phase portion of a reception vessel. The process can be generally described as one in which the riser reaction zone is substantially vertical and passes into the reception zone with the outlet of the riser located within the dilute phase portion of the reception vessel. Adjacent to the riser outlet is a cyclone separation means which separates hydrocarbons and solids present in the dilute phase. The process is generally

applicable to fluidized hydrocarbon conversion processes and specifically adaptable for use in modern fluidized



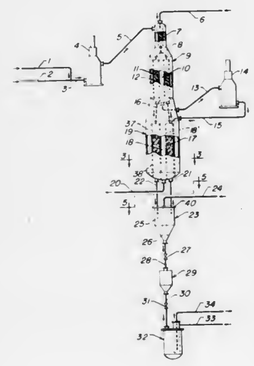
catalytic cracking processes in which short catalyst-oil contact times are desired.

3,785,963

UNIFORM SOLIDS WITHDRAWAL SYSTEM

David M. Boyd, Clarendon Hills, and Arthur R. Greenwood, Niles, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 18, 1971, Ser. No. 200,123
Int. Cl. C10g *35/10*
U.S. Cl. 208—171 **2 Claims**



Uniform amounts of solids are withdrawn from a movable bed of solids by a system comprising a plurality of conduits equally spaced across the solids cross-sectional area and communicating with a collector vessel partitioned into a plurality of vertical sections of equal volume.

3,785,964

OXIDATIVE SWEETENING OF HYDROCARBON WITH NITROGEN CONTAINING COMPOUND AND WITH A CALCINED COPPER-IRON CATALYST

Sun W. Chun, Murrysville, Harry A. Hamilton, Natrona Heights, and Angelo A. Montagna, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed July 16, 1971, Ser. No. 163,426
Int. Cl. C10g *27/04*
U.S. Cl. 208—191 **8 Claims**

The on-stream life in a sweetening process using a copper-iron catalyst is extended by incorporating in the feed a minor amount of a nitrogen containing compound having the formula:

$$R-\underset{\displaystyle R'}{\overset{}{N}}-R''$$

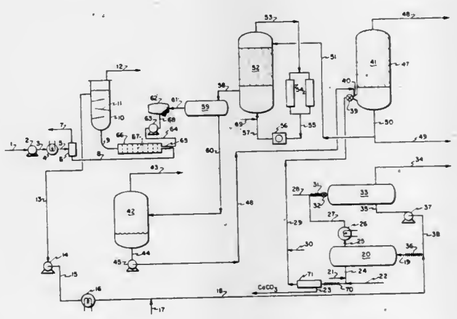
where R, R′ and R″ can be the same or different and are selected from hydrogen, a hydrocarbon group having from 1 to 10 carbon atoms and where optionally the hydrocarbon groups can be cyclicized to form a five or six membered heterocyclic compound. The preferred nitrogen containing compounds are ammonia and pyridine.

3,785,965

PROCESS FOR THE DESULFURIZATION OF PETROLEUM OIL FRACTIONS

Albert B. Welty, Jr., Westfield, N.J., assignor to Esso Research and Engineering Company

Filed Oct. 28, 1971, Ser. No. 193,527
Int. Cl. C10g *17/00, 19/00*
U.S. Cl. 208—208 M **15 Claims**

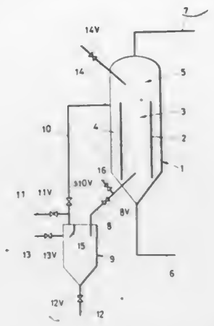


Low sulfur-content petroleum oil stocks are prepared by contacting a sulfur-containing oil stock with an alkali metal, preferably sodium, or an alkali metal alloy, preferably sodium/lead, to produce an alkali sulfide-oil dispersion. The alkali sulfide is removed from the oil by means of a two-stage washing treatment. The recovered sulfide, after additional treatment, is then electrolytically decomposed thereby reforming alkali metal for reuse in the desulfurization process.

3,785,966
METHOD FOR DISCHARGING PARTICULATE SOLID FROM HIGH PRESSURE VESSEL

Yutaka Oguchi and Junichi Kubo, Tokyo, and Shinji Goto, Yokohama, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Filed Apr. 8, 1971, Ser. No. 132,286
Int. Cl. C10g *23/00, 25/06*
U.S. Cl. 208—213 4 Claims



An improved method is disclosed for discharging particulate solids from a high pressure vessel, which method is characterized by maintaining said particulate solids in fluidized state in admixture with fluids and thus keeping the head of the particulate solid-fluid admixture in the vessel and its pressure differential greater than the head of a conduit conducting the fluid.

3,785,967
HYDRODESULFURIZATION WITH EXPANDED OR MOVING BED OF CATALYST HAVING SPECIFIC PARTICLE DIAMETER AND SPECIFIC PORE DIAMETER

Jakob van Klinken, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed June 30, 1971, Ser. No. 158,584
Claims priority, application Netherlands, July 14, 1970, 7010428
Int. Cl. C10g *23/02*
U.S. Cl. 208—216 9 Claims

A process for catalytically hydrodesulfurizing residual hydrocarbon oils having a total vanadium and nickel content above 30 p.p.m.w. and a C_5-asphaltene content above 0.5% wt., with catalyst replenishment during operation, which includes passing the residual oil together with hydrogen through catalyst particles in the form of a suspension or expanded bed having hydrodesulfurization activity at hydrodesulfurization reaction conditions, the catalyst particles in said bed having a pore volume above 0.3 ml./g., less than 10% of the pore volume being present in pores having a diameter above 1000 A., and having a specific pore diameter, expressed in A., of from $45 \times d^{0.6}$ to $140 \times d^{0.6}$ where d is the specific particle diameter in mm.

3,785,968
SORBENT AND PROCESS FOR HEAVY METAL REMOVAL FROM MOTOR FUEL

Darrell Duayne Whitehurst, Titusville, N.J., assignor to Mobil Oil Corporation

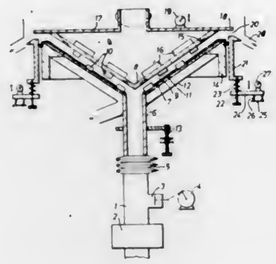
Filed July 12, 1972, Ser. No. 270,913
Int. Cl. C10g *17/00, 17/02*
U.S. Cl. 208—251 4 Claims

A cross-linked polystyrene resin modified by the presence therein of chemically bound sulfur provides a highly selective sorbent for removal of heavy metal contaminants from liquids containing the same.

3,785,969
METHOD OF AND APPARATUS FOR THE CONTINUOUS CONCENTRATION OF A DISPERSION CONTAINING SUSPENDED SOLID MATERIAL

Hans-Heinz Möills, Leverkusen, Reinhold Hörnle, Cologne, Manfred Bücheler, Leverkusen, and Hans Raab and Joachim Adrio, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Apr. 22, 1971, Ser. No. 136,460
Claims priority, application Germany, May 8, 1970, P 20 22 471.9
Int. Cl. B01d *17/10*
U.S. Cl. 210—19 21 Claims

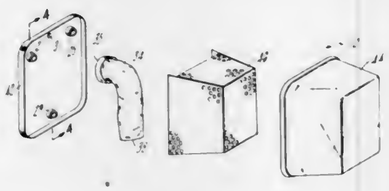


Suspended solid dispersions are guided under a pressure of 0.2 to 20 atm. above atmospheric through a gap which is a perforation, the solid dispersion, as viewed in direction perpendicular to said shells, being subjected to a drop in velocity. The supply takes place centrally and the filter cake is removed peripherally.

3,785,970
WATER SEPARATOR

David H. Hodgkins, Manchester, Conn., assignor to Stanadyne, Inc., Hartford, Conn.

Filed Dec. 27, 1971, Ser. No. 212,356
Int. Cl. B01d *13/00, 33/00*
U.S. Cl. 210—23 14 Claims



A water separator for a diesel fuel supply system provides a plenum chamber housing a water separator barrier made of ribbed-knit porous cloth in the form of a cylindrical sock having a closed end. The open end of the sock is sealed around the inlet passage of the separator so that flow maintains the sock inflated for flow through the entire porous surface area of the sock. The pores of the sock are smaller, when relaxed, than the water droplets to be separated and the sock is made of nylon which is not wettable by water. The pores of the sock are expandable as required to accommodate varying flow rates with a minimum change in pressure differential across the sock and to permit the passage of large wax particles under low temperature operating conditions to prevent clogging.

3,785,971
WASTE TREATMENT MATERIAL

James L. Halley, Atlanta, Ga., assignor to Tesco Chemicals, Inc., Atlanta, Ga.

No Drawing. Filed Jan. 26, 1972, Ser. No. 221,044
Int. Cl. C02b *3/06*
U.S. Cl. 210—64 3 Claims

A waste treatment material for use in preserving refuse and waste material within a container such as a holding tank on board a ship or other type of pleasure craft which is used at locations remote from sewage receiving or treating facilities. The treatment material comprises a mixture of paraformaldehyde, an alkali material, a masking agent, a colorant, and a wetting agent. The treatment material may be packaged in a water-soluble packaging material or conventional packets of foil or plastic in convenient dosage quantities to be added at regular intervals to a waste material container.

3,785,972
CONTAINING AND REMOVING OIL SPILLS ON WATER

Henry E. Alquist and Armin C. Pitchford, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Dec. 7, 1971, Ser. No. 205,739
Int. Cl. B01d *15/00;* E02b *15/04*
U.S. Cl. 210—40 5 Claims

A method is provided for containing oil on the surface of water and removing the oil from the water surface by increasing the liquification temperature of the oil to 50–80° F. above the temperature of the water on which it is floating by incorporating a wax into the oil to form a crust-like fused mass which will act as a boundary against extension of the oil mass and which can be easily skimmed from the water surface.

3,785,973
TEXTILE FINISH

William F. Bernholz, Wayne, Roop C. Nahta, Parsippany, and John P. Redston, Montclair, N.J., assignors to PVO International Inc., San Francisco, Calif.

No Drawing. Filed Apr. 19, 1971, Ser. No. 135,400
Int. Cl. D06m *13/40*
U.S. Cl. 252—8.8 8 Claims

Textile lubricating compositions for polyester, nylon and other fibers which contain a fatty-triglyceride, an alkylene oxide adduct of a diglyceride and an alkanolamide which may be alkoxylated.

3,785,974
LOW-TEMPERATURE LUBRICATING GREASES

William P. Scott, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed May 17, 1972, Ser. No. 254,021
Int. Cl. C10m *7/20*
U.S. Cl. 252—28 13 Claims

Grease compositions comprising (a) a lubricating oil composition which comprises a blend of synthetic alkaryl hydrocarbon lubricant and a synergistic amount of a mineral lubricating oil and (b) a grease-forming amount of a conventional grease-forming agent, such as modified bentonite. The greases have good to excellent viscosity properties at temperatures as low as −40 to −62° F., thus rendering them useful at these temperatures. Use of a blend of synthetic alkaryl hydrocarbon lubricant and a mineral lubricating oil, as compared to use of a synthetic alkaryl hydrocarbon lubricant alone, results in a grease composition having improved low temperature viscosity properties, which is also lower cost.

3,785,975
VAPOR SPACE INHIBITED TURBINE OIL

Earl L. Humphrey, Verona, and Willard B. Morse, New Kensington, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed June 18, 1971, Ser. No. 154,684
Int. Cl. C10m *1/48, 1/46*
U.S. Cl. 252—32.5 10 Claims

A vapor space inhibited turbine oil comprises (1) a major amount of a mineral lubricating oil and (2) a small amount of each of

(a) an alkyl phenol, e.g., 2,6-di-tertiary-butyl-4-methylphenol;
(b) an amine salt of a diester of o-phosphoric acid, e.g., cocoamine di-oxo-octyl orthophosphate;
(c) an alkenyl-substituted succinic acid anhydride, e.g., dodecenyl succinic anhydride;
(d) an acid ester of (1) a dimeric acid derived from an unsaturated fatty acid and (2) a partial ester of a fatty acid and an alkitol anhydride, e.g., dimerized linoleic acid-sorbitan monooleate acid ester;
(e) caprylic acid; and
(f) morpholine.

A sulfurized monoester such as sulfurized sperm oil may also be employed.

3,785,976
PROCESS FOR PRODUCING ANIONIC METAL-CONTAINING SULFONATES

Mack W. Hunt, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed May 7, 1971, Ser. No. 148,267
Int. Cl. C10m *1/40*
U.S. Cl. 252—33 9 Claims

A process for producing anionic metal-containing sulfonates is disclosed wherein an anionic metal-containing acid is reacted with an oil-soluble sulfonic acid and an amino-alcohol in the presence of a nonvolatile carrier and water.

3,785,977
LUBRICATING COMPOSITIONS

Peter Flowerday, Abingdon, and Robert Robson, East Hendred, England, assignors to Esso Research and Engineering Company

No Drawing. Filed Apr. 30, 1971, Ser. No. 139,263
Int. Cl. C10l *1/22;* C10m *1/30, 1/32*
U.S. Cl. 252—33.6 7 Claims

This invention relates to an additive which when added to not only a synthetic ester lubricant but also a mineral, animal or vegetable lubricating oil confers load carrying properties, and which is non-corrosive, does not have deleterious effects on silicone rubbers, and is hydrolytically stable. Such a lubricant composition comprises a major proportion by weight of a lubricating oil, a minor proportion by weight of an amine salt of a halogen substituted carboxylic acid wherein there is at least one halogen atom in the alpha position, and a minor proportion by weight of an antioxidant. Preferably such lubricant compositions also contain a minor proportion by weight of a corrosion inhibitor.

3,785,978
AGENT FOR PREVENTING SEIZING-UP IN ZIP-FASTENERS

Horst Uhlich, 3 Pritzwalkerstr, 1000 Berlin, Germany

No Drawing. Filed May 10, 1971, Ser. No. 141,989
Int. Cl. C10m *1/32*
U.S. Cl. 252—50 6 Claims

An agent for preventing seizing-up in plastic zip-fasteners comprising a homogenized mixture of a chlorinated hydrocarbon and a dry-impregnating agent.

3,785,979

DIBENZIMIDAZOLE GREASE THICKENING AGENTS

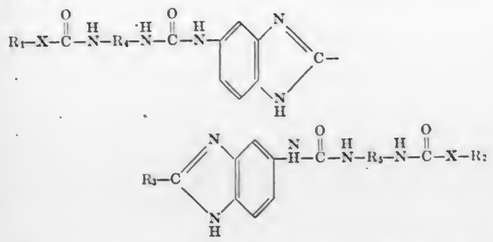
August H. Birke, Godfrey, Ill., assignor to Shell Oil Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 169,459, Aug. 5, 1971. This application Oct. 11, 1972, Ser. No. 296,733

Int. Cl. C10m *5/20*

U.S. Cl. 252—51.5 A 10 Claims

Dibenzimidazole compounds corresponding to the formula:



wherein R_1 and R_2 are aliphatic hydrocarbyl radicals, R_3 is a hydrocarbylene radical, R_4 and R_5 are aromatic hydrocarbylene radicals and X is —O— or

H
—N—

are highly efficacious grease thickening agents.

3,785,980

REACTION PRODUCT OF AN AMINE AND A HYDROPEROXIDIZED ETHYLENE/PROPYLENE COPOLYMER

Donovan R. Wilgus, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed June 1, 1971, Ser. No. 150,858

Int. Cl. C10m *1/20, 1/32*

U.S. Cl. 252—51.5 A 15 Claims

A novel polymeric lubricating oil additive is disclosed which is the reaction product of a primary or secondary amine and a hydroperoxidized atactic ethylene/propylene copolymer.

3,785,981

RUST INHIBITING LUBRICATION OIL ADDITIVES

Bruce W. Hotten, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Sept. 29, 1971, Ser. No. 184,740

Int. Cl. C10m *1/32*

U.S. Cl. 252—51.5 A 6 Claims

The reaction product of hydrocarbyl-substituted succinic acid with 5- and 6-membered ring N-heterocycle compounds is found to be an effective rust inhibitor. The hydrocarbyl radical contains less than 30 carbon atoms. The N-heterocycles are exemplified by pyrrolidine, 2-aminothiazole, piperidine, 2-aminopyridine and 2-amino-4-methyl pyridine.

3,785,982

LUBRICANTS CONTAINING SUBSTITUTED 2-OXAZOLIDONES AS OXIDATION INHIBITORS

Abraham O. M. Okorodudu, West Deptford, N.J., assignor to Mobil Oil Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 75,657, Sept. 25, 1970. This application Sept. 27, 1972, Ser. No. 292,587

Int. Cl. C10m *1/20, 1/32*

U.S. Cl. 252—51.5 A 13 Claims

Substituted 2-oxazolidones, exemplified by 5-phenyl-5-methyl-2-oxazolidone, are valuable oxidation inhibitors when added to organic materials such as lubricating oils and greases.

3,785,983

METHOD OF PRODUCING A LIQUID DEVELOPER FOR USE IN THE ELECTRONIC PHOTOGRAPHY

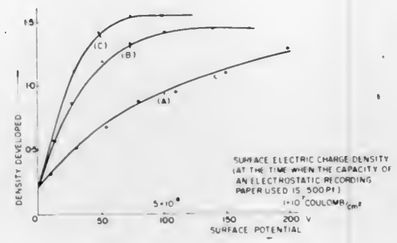
Masayoshi Inoue, Koji Nagai, and Shigeo Kitaguchi, Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan

Filed Dec. 1, 1971, Ser. No. 203,543

Claims priority, application Japan, Dec. 2, 1970, 45/105,938

Int. Cl. G03g *9/04*

U.S. Cl. 252—62.1 7 Claims



A method of producing a liquid developer for use in the electronic photography, which method comprises saponifying and unsaturated fatty acids such as an oleic acid, a linolic acid, a linolenic acid or the like so as to make a soap, dispersing a pigment such as a carbon black or the like in an aqueous solution of said soap, substituting the alkaline metallic ions of said soap on the pigment particle surface with metallic ions having a valance of 2 or more to have them precipitated, treating this precipitate by washing and drying it after taking it out therefrom so as to produce dry powder of said pigment, and dispersing said pigment powder in an aliphatic petroleum hydrocarbon.

3,785,984

COMPOSITIONS FOR THE PREPARATION OF COLD-BLEACHING LIQUORS, PARTICULARLY ACTIVE WASHING LIQUORS

Markus Berg, Dusseldorf-Holthausen, Matthias Mallmann, Dusseldorf-Oberkassel, and Jurgen Hoffmeister, Dusseldorf-Benrath, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed Sept. 27, 1971, Ser. No. 184,212

Claims priority, application Germany, Sept. 28, 1970, P 20 47 573.4; July 1, 1971, P 21 32 703.8, P 21 32 704.8

Int. Cl. C11d *7/18, 7/56*

U.S. Cl. 252—99 15 Claims

Compositions useful in the aqueous cold-bleaching of textiles comprising (1) from 0.5% to 95% by weight of an activator for active oxygen selected from the group consisting of N-acyl and O-acyl compounds having 2 to 9 carbon atoms in the acyl, said activator having an activating action of at least 3 in the Per-Acid Formation Test, (2) at least one compound selected from the group consisting of (a) an alkali metal sesquisilicate of the ratio $Me_2O:SiO_2$ of 1 to less than 2:1 in an amount that from 0.25 to 3 alkali metal atoms are present per acyl group in said activator, and (b) from 0 to 20% by weight of a water-soluble salt of a phosphoric acid ester selected from the group consisting of partial esters of fatty alcohols having from 10 to 22 carbon atoms and their ethoxylates and propoxylates having from 1 to 10 alkoxy units, with ortho phosphoric acid, pyrophosphoric acid and polyphosphoric acid, and (3) from 0 to 97% by weight of other customary ingredients of bleaching agents or washing agents having a bleaching effect.

3,785,985

COSMETIC AND TEXTILE-TREATING COMPOSITIONS

Paul Sheldon Grand, South Bound Brook, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,204

Int. Cl. C11d *3/28, 3/48*

U.S. Cl. 252—106 2 Claims

A method for solubilizing heavy metal salts of 1-hydroxy-2(1H) pyridinethione which comprises the step of forming a solution containing the pyridinethione salt, an aliphatic polyamine and a solvent. Particularly preferred are compositions containing in addition to the above ingredients a cleaning agent.

3,785,986

DENTURE CLEANER

Frederick L. Lauster, Massillon, Ohio, assignor to La Fant Research Company, Canton, Ohio

No Drawing. Filed June 28, 1972, Ser. No. 267,071

Int. Cl. C11d *7/36*

U.S. Cl. 252—136 2 Claims

A denture cleaner is provided which is non-abrasive and is highly effective for quickly and easily removing stains and tartar deposits from dentures embodying plastic or porcelain teeth and other conventional materials used in dentures. The cleaner is effective for cleaning both full and removable partial dentures, as well as for polishing gold or chromium alloy clasps and removable orthodontic and other oral dental appliances. The cleaner also has high stability under conditions involving both high and low temperatures.

3,785,987

TERNARY AZEOTROPIC CLEANING SOLUTION BASED ON TETRADICHLORODIFLUOROETHANE

John Allan Schofield, Riverside, Conn., and Roger Albert Delano, Dobbs Ferry, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Original application Oct. 28, 1968, Ser. No. 771,334, now Patent No. 3,640,884. Divided and this application July 28, 1971, Ser. No. 167,039

Int. Cl. C11d *3/44*

U.S. Cl. 252—171 2 Claims

A ternary azeotrope of tetrachlorodifluoroethane, dichloroethane and ethanol has superior properties for solvent vapor cleaning and degreasing applications.

3,785,988

CORROSION AND SCALE INHIBITING COMPOSITION

Yutaka Yamashita and Masami Sata, Tokyo, Japan, assignors to Kokusai Kasei Kosha Co., Ltd., Tokyo, Japan

No Drawing. Filed July 2, 1971, Ser. No. 159,501

Int. Cl. C02b *5/00*

U.S. Cl. 252—181 9 Claims

An inhibitor for preventing formation of corrosion and scale on metals in the presence of water is formed of about 40% by weight hydrazine, about 25% maganese compound, about 15% zinc or zinc compound, about 15% silicon chlorine hydrogen compound, about 4% mineral oil, about 1% silver compound, and about 0.4% beryllium compound.

3,785,989

NOVEL DAYLIGHT FLUORESCENT PIGMENTS AND PROCESS FOR PREPARING THEM

Siegfried Noetzel, Mainz, and Edgar Fischer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,309

Claims priority, application Germany, Feb. 2, 1971, P 21 04 718.7

Int. Cl. C09k *1/02*

U.S. Cl. 252—301.2 R 3 Claims

New daylight fluorescent pigments which contain an organic fluorescent dyestuff and as resin a condensation resin, consisting of copolymerizates of unsaturated carboxylic acid anhydrides and other vinyl compounds which are cross-linked with bi- or polyfunctional alcohols and a process for their preparation which comprises incorporating the organic fluorescent dyestuff into the condensation resin. These daylight fluorescent pigments may be employed for preparing fluorescent paints, for example air-drying lacquers on the basis of alkyl resin or physically drying lacquers on the basis of acrylic resins, as well as for preparing fluorescent printing inks such as inks for screen printing, intaglio printing, book-printing and offset-litho printing. Due to their resistance to heat, they are particularly suitable for fluorescent dyeing of plastic and enamels.

3,785,990

METHOD OF MANUFACTURING A GENERATOR WHICH PRODUCES RADIO-ISOTOPES AND HAS AN IMPROVED ELUTION EFFICIENCY, AND GENERATOR OBTAINED BY THIS METHOD

Harm Martinus Benjamins, Koos Kortenoeven, and Helena Panek-Finda, all of van Houtenlaan, Weesp, Netherlands

No Drawing. Filed Feb. 29, 1972, Ser. No. 230,502

Claims priority, application Netherlands, Mar. 2, 1971, 7102716

Int. Cl. C09k *3/00*

U.S. Cl. 252—301.1 R 4 Claims

It has been found that the elution efficiency of generators which produce radioactive isotopes and contain Al_2O_3 as the adsorbent may be greatly improved. The improvement is obtained by providing the adsorbent of the generator with an oxidant before first use of the generator. The oxidant must have a strong affinity for the substrate. Suitable oxidants are chromates and dichromates.

3,785,991

METHOD OF PREPARING PHOSPHORS FOR INFRARED-TO-VISIBLE CONVERSION

Akio Toshinai, Chigasaki, and Takashi Hase, Kamakura, Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka-shi, Japan

Filed Dec. 20, 1971, Ser. No. 209,750

Claims priority, application Japan, Dec. 21, 1970, 45/114,907; June 8, 1971, 46/40,356

Int. Cl. C09k *1/06*

U.S. Cl. 252—301.6 R 8 Claims

This invention relates to a phosphor for infrared-to-visible conversion comprising as a main ingredient a complex rare earth fluoride having a general composition expressed by the formulae $(Y_{1-x-y}Yb_xA_y)F_3$,

$$(La_{1-x-y}Yb_xA_y)F_3$$

or $(Lu_{1-x-y}Yb_xA_y)F_3$, respectively, wherein x is in the range of from 0.05 to 0.5, y is in the range of from 0.02 to 0.09 when yttrium fluoride is used as the host material, and from 0.001 to 0.1 when lanthanum or lutetium fluoride is used as the host material, and A is at least one member selected from Er and Ho, and zinc incorporated in the complex rare earth fluoride, and a process for the preparation of a zinc-incorporated phosphor for infrared-to-

visible conversion, which comprises adding zinc fluoride or zinc silicofluoride prior to or after formation of said complex rare earth fluoride, and subsequent heating.

3,785,992

PROCESS FOR PRODUCING UNTWINNED SINGLE CRYSTALS OF $LaAlO_3$

Homer Fay, Somers, N.Y., and Charles D. Brandle, Jr., Somerville, N.J., assignors to Union Carbide Corporation

No Drawing. Continuation of application Ser. No. 836,199, June 11, 1969, which is a continuation of application Ser. No. 558,582, June 20, 1966, both now abandoned. This application Jan. 11, 1972, Ser. No. 217,032

Int. Cl. C09k *1/68;* B01j *17/18;* C01r *7/02*

U.S. Cl. 252—301.4 R — 6 Claims

Lanthanum aluminate crystals grown as optically translucent twinned crystals are detwinned to produce optically transparent crystals suitable for use as laser hosts. The detwinning is produced by application of moderate mechanical stress to the twinned crystal along a [111] direction until the crystal exhibits optical transparency.

3,785,993

STABLE LIQUID EMULSIFIER COMPOSITIONS

Roy Kenneth Langhans, Newark, Del., assignor to ICI America Inc., Wilmington, Del.

No Drawing. Filed June 4, 1971, Ser. No. 150,195

Int. Cl. B01f *17/34*

U.S. Cl. 252—356 — 10 Claims

Temperature-stable, clear liquid emulsifier baking compositions comprising an ethoxylated fatty acid ester of a glycerol, hexitol, a hexitan, or an isohexide as a conditioner and a monoglyceride as a softener in combination with small amounts of clarifiers selected from propylene glycol, water, ethanol, and edible oils have been found more suitable for the continuous manufacture of baked goods. The liquid emulsifier compositions may be metered into the shortening or directly into the dough or sponge for batch methods of preparation or into the liquid brew or sponge in continuous processes.

3,785,994

GAS MIXTURE FOR FORMING PROTECTIVE COATINGS ON GRAPHITE

Melvin G. Bowman, 3247 Woodland, and Dwayne T. Vier, 764 43rd St., both of Los Alamos, N. Mex. 87544

No Drawing. Filed Sept. 23, 1960, Ser. No. 58,139

Int. Cl. C01b *2/00;* C23c *13/02*

U.S. Cl. 252—372 — 5 Claims

A gaseous mixture of hydrogen, hydrogen chloride, and a chloride of titanium, zirconium or niobium, which provides protection for graphite surfaces from hydrogen corrosion at temperatures greater than 1500° C. The composition of the mixture is such that the metal chloride and hydrogen react with graphite to form a protective metal carbide layer.

3,785,995

ANTIOZONANT-ANTIOXIDANT COMPOSITION CONTAINING SECONDARY AMINE AND HYDROUS CALCIUM SILICATE

James Kalil, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 2, 1972, Ser. No. 231,365

Int. Cl. C08d *11/04*

U.S. Cl. 252—400 R — 8 Claims

An antiozonant-antioxidant composition which is crystalline and readily dispersible in elastomeric polymers comprising a mixture of, by weight, 94–86% secondary amine, said amine containing 30–65% diaryl-p-phenylenediamine and 70–35% N-phenyl-2-naphthylamine, and 6–14% hydrous calcium silicate and process for making the same.

3,785,996

FOUR-STEP PROCEDURE FOR REGENERATING A CATALYST CONTAINING PLATINUM, RHENIUM AND HALOGEN

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 797,272, Feb. 6, 1969, now Patent No. 3,634,292. This application Aug. 26, 1971, Ser. No. 175,342

Int. Cl. B01j *11/18, 11/80;* C10g *35/06*

U.S. Cl. 252—415 — 17 Claims

A deactivated hydrocarbon conversion catalyst, which is a combination of a platinum group component, a rhenium component, and halogen component with a porous carrier material and which has been deactivated by deposition of carbonaceous materials thereon during a previous contacting with a hydrocarbon charge stock at an elevated temperature, is regenerated by the sequential steps of: (a) burning carbon therefrom at a relatively low temperature with a substantially sulfur compound-free gas stream containing H_2O and a relatively small amount of O_2, (b) treating the resulting partially regenerated catalyst at a relatively higher temperature with a substantially sulfur compound-free gas stream containing a halogen or a halogen-containing compound, H_2O and a relatively higher amount of O_2, (c) purging O_2 and H_2O from contact with the resulting catalyst, and (d) subjecting the resulting catalyst to contact with a dry and sulfur compound-free hydrogen stream. Key features of the disclosed method are: (1) presence of water in the gas streams used in all steps except the reduction step; (2) careful control of the temperature used during each step; (3) adjustment of the halogen content of the catalyst immediately after the carbon-burning step and prior to the reduction step; (4) careful control over the composition of the gas streams used in the various steps thereof; and (5) exclusion of sulfur compounds from all gas streams utilized.

3,785,997

POLYAMINE AND HYDROCARBON SULFONIC ACID ACCELERATOR COMBINATION FOR EPOXY CURING

Norman Bell Godfrey, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Continuation-in-part of application Ser. No. 80,510, Oct. 13, 1970, now Patent No. 3,666,721. This application Jan. 24, 1972, Ser. No. 220,400

Int. Cl. C08g *30/14*

U.S. Cl. 252—426 — 10 Claims

An accelerator combination of a polyamine such as a polyalkylenepolyamine or an N-(aminoalkyl)piperazine and a hydrocarbon sulfonic acid is synergistic for accelerating the cure of a polyglycidyl ether of a polyhydric phenol cured with a polyoxypropylenepolyamine. The epoxy resin product is useful in castings, coatings, adhesives, laminates, filament-reinforced compositions, seamless flooring, terrazzo flooring, crushed-stone aggregates and in grouting, caulking and sealing compositions.

3,785,998

METHOD OF CATALYST MANUFACTURE BY IMPREGNATING HONEYCOMB-TYPE SUPPORT

James Hoekstra, Evergreen Park, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed June 30, 1971, Ser. No. 158,588

Int. Cl. B01j *11/46*

U.S. Cl. 252—477 R — 6 Claims

A relatively low surface area honeycomb-type ceramic support is impregnated with a platinum group metal component dissolved in an alumina sol, the sol further containing a soluble plasticizer. The support is thereafter calcined to form a platinum group metal component dispersed on a uniformly thin, high surface area alumina film deposited on said support.

3,785,999

PROCESS OF MAKING GRAPHITE-METAL CHLORIDE INTERCALATION COMPOUNDS AND PRODUCT OBTAINED THEREBY

Helmut Derleth, Sarstedt, and Hermann Fischer, Evern, Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed Aug. 13, 1971, Ser. No. 171,765

Claims priority, application Germany, Aug. 19, 1970, P 20 41 167.0

Int. Cl. B01j *11/78*

U.S. Cl. 252—441 — 6 Claims

Graphite-metal chloride intercalation compounds are made by contacting a mixture of graphite and at least one water of hydration containing metal chloride with a stream of chlorine at a temperature between 200° C. and the decomposition temperature of the intercalation compound and at a pressure between atmospheric and 5 atm.

3,786,000

CATALYST FOR THE PRODUCTION OF ACROLEIN AND ACRYLIC ACID

Isao Ono, Tetsuo Iiguni, and Mitsumasa Akashi, Shin Nanyo, Japan, assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Jan. 6, 1972, Ser. No. 215,906

Int. Cl. B01j *11/06*

U.S. Cl. 252—464 — 7 Claims

A process for producing acrolein which comprises catalytic oxidizing propylene in the vapor phase with oxygen and steam in the presence of novel catalyst, having superior nature in activity, and composed of oxides of Mo, Co, Fe, Bi, and Sn with or without one or more of Al, Ni, W, Cr, In, and Nb, is disclosed.

3,786,001

REFORMING CATALYST AND PREPARATION

Edward B. Cornelius, Swarthmore, and George B. De La Mater, Media, Pa., David W. Koester, Wilmington, Del., and James E. McEvoy, Springfield, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa.

No Drawing. Filed June 21, 1971, Ser. No. 155,224

Int. Cl. B01j *11/12*

U.S. Cl. 252—464 — 6 Claims

Hydrated alumina gel, having a small amount of Group V–B metal oxide uniformly distributed therein, is calcined, leached with acetic acid, recalcined, humidified, and impregnated with a Group VIII noble-metal-containing composition. Reductive treatment of such material to provide supported metallic Group VIII noble metal results in highly active, stable, hard reforming catalyst having very low bulk density.

3,786,002

ANTISTATIC COATING COMPOSITIONS

August Jean Van Paesschen, Antwerp, Joseph Antoine Herbots, Edegem, and Daniel Maurice Timmerman, Mortsel, Belgium, assignors to Agfa N.V., Mortsel, Belgium

No Drawing. Filed Oct. 28, 1970, Ser. No. 84,926

Claims priority, application Great Britain, Oct. 29, 1969, 53,026/69

Int. Cl. G03c *1/82*

U.S. Cl. 252—500 — 6 Claims

An antistatic coating for a polyester film support is provided comprising a homogeneous mixture of (A) a chlorine-containing polymer consisting of at least 70% by weight of at least one monomer taken from vinylchloride and vinylidene chloride, and (B) a polymeric material having electroconductive properties, the ratio of chlorine-containing polymer to electroconductive polymeric material varying between 2:1 and 1:2 parts by weight.

3,786,003

LIQUID DETERGENT COMPOSITIONS

Leon Hunter, Walnut Creek, Calif., assignor to Shell Oil Company, Houston, Tex.

No Drawing. Filed Nov. 4, 1971, Ser. No. 195,850

Int. Cl. C11d *1/14*

U.S. Cl. 252—551 — 8 Claims

Pourable, liquid alcohol ethoxysulfate compositions are prepared from solid alcohol ethoxysulfates by combining with selected amounts of water and a sodium or potassium salt.

3,786,004

THERMOSETTING RESINOUS COMPOSITION

Akio Furuya, Yokohama, Makoto Hachiboshi, Ohtsu, Toshio Adachi, Osaka, and Masakatsu Uchida, Kamakura, Japan, assignors to Dainippon Toryo Co., Ltd. Leben Utility Co., Ltd., and Toyobo Co., Ltd., both of Osaka-shi, Japan

Filed Oct. 27, 1971, Ser. No. 192,893

Claims priority, application Japan, Dec. 29, 1970, 46/121,221; Dec. 30, 1970, 46/122,802

Int. Cl. C08g *58/10;* C08j *1/20, 1/22*

U.S. Cl. 260—2.5 N — 26 Claims

A thermosetting resinous composition comprising a vinyl chloride resin, an unsaturated polyester resin, a polymerization initiator, a reactive plasticizer and a member selected from the group consisting of the compounds of alkali metals of Group I in the Periodic Table, the compounds of elements of Group II in the Periodic Table and the compounds of lead, optionally together with a non-reactive plasticizer and/or a vinyl monomer, and a thermosetting resinous composition obtained by incorporating a bubbling material into the above composition.

3,786,005

CATALYZING URETHANE FOAM POLYMERIZATION WITH 4-(2 - DIMETHYLAMINOMETHYL) MORPHOLINE

Ibrahim S. Bechara, Boothwyn, and Rocco L. Mascioli, Media, Pa., assignors to Air Products and Chemicals, Inc., Wayne, Pa.

No Drawing. Continuation-in-part of application Ser. No. 109,641, Jan. 25, 1971. This application Aug. 22, 1972, Ser. No. 282,820

Int. Cl. C08g *22/44*

U.S. Cl. 260—2.5 AC — 4 Claims

A precursor mixture comprising organic materials having a plurality of isocyanato groups per molecule and organic materials having a plurality of hydroxy groups per molecule, said precursor containing modifying agents such as surfactants, fillers, foaming agents, dyes and/or similar minor components, is transformed into a useful polyurethane foam structure by reliance upon 4-(2-dimethylaminoethyl)morpholine as the principal amine catalyst for the polymerization.

3,786,006

MANUFACTURING METHOD FOR POLYAMIDE FOAM

Toru Okuyama and Susumu Muta, Yokohama, Shigetake Sato, Kamakura, and Shohei Tokiura and Akira Miyasu, Hirakata, Osaka, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, and Ube Industries Limited, Ube City, Yamaguchi Prefecture, Japan

No Drawing. Filed Oct. 6, 1972, Ser. No. 295,446

Claims priority, application Japan, Oct. 7, 1971, 46/78,330

Int. Cl. C08g *20/12, 53/10*

U.S. Cl. 260—2.5 N — 7 Claims

Method for manufacturing polyamide by polymerizing a lactam in the presence of a basic catalyst, a foaming agent, an N-chlorocarbonyl-2-chloro-2,3-dehydropolymethyleneimine compound in the amount ranging from $\frac{1}{10}$ to $\frac{1}{1000}$ mol per 1 mol of the lactam to be used and an aliphatic isocyanate compound in the amount ranging

from 1/10 to 1/1000 mol per 1 mol of the lactam to be used. The temperature for carrying out the polymerization and the foaming must be above the melting point of the lactam and below the melting point of the resulting polymer. The advantage of the invention lies in that the reaction can be carried out simply in the ambient atmosphere and without necessity of removal of water during the reaction. The product foam mass has evenly distributed fine cell and is of satisfactorily low density.

3,786,007

BORAX BORATED POLYMERIC FAT ACID POLYAMIDES

Paul D. Whyzmuzis, St. Paul, and Clarence W. Wilkus, New Brighton, Minn., assignors to General Mills Chemicals, Inc.

No Drawing. Filed Oct. 19, 1972, Ser. No. 298,969

Int. Cl. C08g *20/00*

U.S. Cl. 260—18 N **10 Claims**

Borated polyamides are disclosed which are the reaction of borax with a polymeric fat acid polyamide resin. These borated products are useful as binders for inks, particularly water based printing inks, or other applications where a water-borne film forming vehicle is desired. The polyamide resins employed in the boration are relatively high acid number thermoplastic resins.

3,786,008

PRINTER'S INK

Eduard Karlovich Piiroya, ulitsa Syle 21, kv. 9, and Mall Felix-Ottomarovna Adrat, ulitsa Kunderi 10, kv. 6, both of Tallin, U.S.S.R.

No Drawing. Continuation-in-part of application Ser. No. 132,576, Apr. 4, 1971, which is a continuation of application Ser. No. 749,568, Aug. 2, 1968, both now abandoned. This application Aug. 18, 1971, Ser. No. 172,871

Int. Cl. C09d *3/66, 11/10*

U.S. Cl. 260—23 H **9 Claims**

A printing ink, comprising polyisobutylene with a molecular weight of 20,000–200,000; air-drying varnishes comprising polymerized linseed oil or a polyester of pentaerythritol and phthalic acid modified with drying vegetable oil and dissolved in this oil, or a polyester of glycerine and phthalic acid modified with drying vegetable oil and dissolved in this oil, or mixtures of the above-mentioned varnishes; metal salts of high carboxylic acids having more than 6 carbon atoms; pigments and an organic solvent.

3,786,009

STABILIZED POLYBUTADIENE RESIN

Delmar F. Lohr, Jr. and Edward Leo Kay, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Sept. 25, 1972, Ser. No. 292,063

Int. Cl. C08f *19/14*

U.S. Cl. 260—23.7 M **18 Claims**

The incorporation of a combination of a metal di(hydrocarbyl) phosphoro (di- or tetra-) thioate and a metal soap into a polybutadiene resin greatly enhances the resistance thereof to thermoxidative deterioration.

3,786,010

POLYMER DISPERSION AND PROCESS FOR PREPARATION OF THE SAME

Hideyoshi Tsugukuni, Sakai, and Mitsuhiro Matsuda, Tondabayashi, Japan, assignors to Dainippon Toryo Co., Ltd., Osaka-shi, Japan

No Drawing. Filed Sept. 7, 1971, Ser. No. 178,454

Claims priority, application Japan, Sept. 8, 1970, 45/78,690; Jan. 23, 1971, 46/2,171; Feb. 15, 1971, 46/6,600

Int. Cl. C08f *47/18*

U.S. Cl. 260—21 **14 Claims**

This invention relates to a polymer dispersion useful especially as a coating composition, which comprises an organic liquid as a dispersion medium and an oil-modified alkyd resin solvated in the organic liquid, the oil-modified alkyd resin being block- or graft-polymerized with acrylonitrile and other copolymerizable monomers, and to a process for the preparation of such polymer dispersion.

3,786,011

POLYVINYL CHLORIDE RESIN COMPOSITION CLOSELY SIMULATING A GRASS PLAYING SURFACE IN ITS BOUNCE CHARACTERISTICS

David Watkin Price and Ronald Sidebottom, Cheltenham, Murray George Briscoe, Eckington, and Ronald Charles Moore, North Weald, England, assignors to Coal Industry (Patents) Limited, London, England

No Drawing. Filed June 1, 1971, Ser. No. 149,002

Int. Cl. C08c *9/14*; C08f *29/24*

U.S. Cl. 260—22 CB **18 Claims**

A synthetic pitch or field for cricket, tennis, and like ball games is provided, which, in contrast to previous proposed pitches, closely simulates grass, particularly in its bounce characteristics, especially for spinning balls. The synthetic pitch or field contains 25% to 75% of plasticized polyvinyl chloride material, 5% to 20% of a finely divided fibrous material, 0% to 20% of a natural or synthetic rubber, preferably a nitrile rubber, and 10% to 60% of a finely divided, preferably low density filler, for example chalk and clay, and may also contain a green pigment.

3,786,012

AQUEOUS EMULSION POLISH COMPOSITIONS

Donald L. Marion, Homewood, Lawrence R. Hanson, Park Forest, and Robert C. Strand, Homewood, Ill., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Continuation of application Ser. No. 84,915, Oct. 28, 1970, which is a continuation of application Ser. No. 728,811, May 13, 1968, both now abandoned. This application Mar. 31, 1972, Ser. No. 240,271

Int. Cl. C08f *45/28, 45/52*

U.S. Cl. 260—28.5 **10 Claims**

Aqueous emulsion compositions useful, for example, as floor polishes and containing polymeric film-former, a carboxyl group-containing leveling resin, a hydrocarbon wax and a carboxyl group-reactive complexing metal are improved in terms of their ability to provide films exhibiting excellent detergent resistance and ammonia-removability by employing as the leveling resin an about 50 to 100 percent half-esterified copolymer of styrene and maleic anhydride, the esterifying alcohol being an aliphatic, monohydric alcohol of 1 to about 10 carbon atoms, e.g., n-propanol, the molar ratio of styrene to maleic anhydride in said copolymer being about 1.5 to 2.5:1 and said copolymer having a molecular weight of about 600 to 6000 and an acid number of about 175 to 275. Suitable carboxyl-reactive complexing metals include, for example, zinc and zirconium and these may advantageously be supplied to the composition in the form of complexes of said metals with ammonium and carbonate ions.

3,786,013

TRANSFER MEDIA AND TRANSFERABLE COATING COMPOSITIONS

Gary J. Peters, Dayton, Stanley R. Hermann, Xenia, Howard R. Jaynes, New Carlisle, and Larry F. Milbrandt, Cincinnati, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,617

Int. Cl. C08f *29/46, 45/24, 45/52*

U.S. Cl. 260—28.5 R **6 Claims**

Transferable coating compositions consisting essentially of two acrylate polymers, two waxes and at least one sensible material are disclosed. These coatings can be placed on a transfer base such as polyethylene terephthalate and transferred to paper tags and labels or plastic cards. These coatings have easily controlled transfer properties, excellent print quality and durability, and excellent shelf stability.

3,786,014

ELECTROCOATABLE PAINT CONTAINING NON-FERROMAGNETIC CHROMIUM OXIDE

Danvers Allin Swales, Harrogate, and John William Carson, Leeds, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England

No Drawing. Filed Aug. 24, 1970, Ser. No. 66,602

Claims priority, application Great Britain, Aug. 22, 1969, 42,026/69

Int. Cl. C09c *1/34*; C23b *13/00*

U.S. Cl. 260—29.2 R **9 Claims**

A paint composition suitable for electrodeposition contains a non-ferromagnetic oxide of chromium intermediate between CrO_3 and Cr_2O_3. Intermediate oxides of chromium may be painted onto corrosible metals to inhibit corrosion.

3,786,015

METHOD FOR PREPARING FAST CURING SILANOL-CONTAINING ORGANOPOLYSILOXANE RESINS AND USE OF SUCH RESINS

Duane F. Merrill, Balston Spa, and Philip J. Lavan, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Dec. 22, 1971, Ser. No. 211,047

Int. Cl. C08g *51/34*

U.S. Cl. 260—32.8 SB **8 Claims**

Method for preparing fast curing silanol-containing organopolysiloxane resins is provided. Organohalosilanes are hydrolyzed in a water immiscible organic solvent, utilizing acetone as a cosolvent. Selected portions of certain carboxylic acid salts are added in increments. The subject resins are fast curing and are especially useful in coating formulations.

3,786,016

CARBANILATE DIOXOLANES AND DIOXANES AND THEIR UTILITY AS HERBICIDES

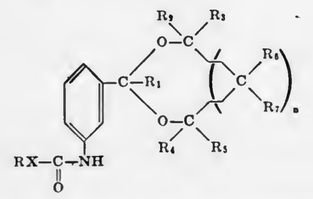
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,485

Int. Cl. C07d *13/04, 15/04*

U.S. Cl. 260—340.7 **43 Claims**

Substituted carbanilate dioxolanes and dioxane compounds having the formula



in which R is selected from the group consisting of lower alkyl, and benzyl; X is selected from the group consisting of oxygen and sulfur; R_1, R_2, R_3, R_4, R_5 and R_7 each are independently selected from the group consisting of hydrogen and lower alkyl; R_6 is selected from the group consisting of alkyl, haloalkyl, hydrogen, hydroxymethyl, lower alkoxy carbonyloxymethyl, S-lower alkylthio carbonyloxymethyl, N-lower alkyl carbamoyloxymethyl and N-phenylcarbamoyloxymethyl; and *n* is 0 or 1. These compounds are useful as herbicides.

3,786,017

YELLOW PIGMENT COMPOSITIONS

Guido R. Genta, Snyder, N.Y., assignor to American Aniline Products, Inc.

No Drawing. Continuation-in-part of application Ser. No. 826,272, May 20, 1969, now Patent No. 3,635,957. This application Jan. 14, 1972, Ser. No. 217,928

Int. Cl. C08f *45/14*; C08g *51/14*

U.S. Cl. 260—38 **6 Claims**

Water-insoluble disperse yellow pigments, particularly suitable as colorants for plastics, are provided. The dyes are made from a benzaldehyde intermediate having as part of its structure a 2-mercaptobenzothiazole or a thiazolinethiol by reacting the benzaldehyde intermediate with an active methylene group compound which contains at least one nitrile as an activating group.

3,786,018

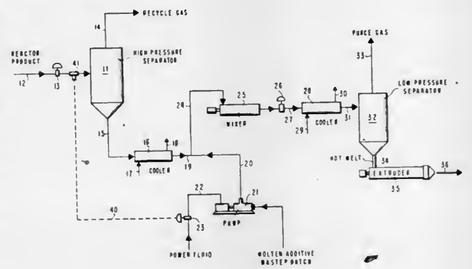
INTRODUCING ADDITIVES IN POLYOLEFINS

Murray Nadler, Baton Rouge, La., assignor to Esso Research and Engineering Company

Filed Oct. 7, 1971, Ser. No. 187,490

Int. Cl. B01f *3/10*; C08f *45/44, 45/58*

U.S. Cl. 260—32.6 PQ **8 Claims**



Molten additives are introduced into molten polyolefin, such as polyethylene, under pressure and a homogenous mixture is obtained by intensely mixing the polyolefin and additive while reducing the pressure of the mixture.

3,786,019

FIRE PROTECTING PAINTS

Zbigniew Brzozowski, Warsaw, Jadwiga Kusmierek, Gdansk, and Stanislaw Porejko, Warsaw, Poland, assignors to Politechnika Warszawska, Warsaw, Poland

No Drawing. Continuation-in-part of abandoned application Ser. No. 47,604, June 18, 1970. This application Mar. 15, 1972, Ser. No. 234,998

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 EP **5 Claims**

Fire resistant paints are prepared by mixing an epoxy resin obtained from epichlorohydrin and chlorobisphenol which contains chlorine in the side aliphatic radical, attached to the carbon atom joining the two aryl rings by a double bond, with an antimony or phosphorous compound and with known additives such as pigments, solvents, plasticizers, fillers and the like. The paints are cured conventionally, i.e. with an aliphatic or aromatic amine, an adduct of such amine with epoxy resins, adducts of such amines with alkyl ethers, polyaminoamides, or solutions of the above mentioned materials containing amino groups.

3,786,020

CAULKING COMPOSITION COMPRISING POLYMER HAVING ADDITION POLYMERIZED BACKBONE HAVING CARBOXYL GROUPS ESTERIFIED WITH DRYING OIL FATTY ACID GLYCIDYL ESTER

William D. Emmons, Huntingdon Valley, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Sept. 7, 1971, Ser. No. 178,429
Int. Cl. C08g 51/02, 51/04
U.S. Cl. 260—41 A 4 Claims

The caulking or sealing composition of the invention has as its binder an acrylic backbone containing pendant unsaturated groups, preferably derived from drying oils or equivalent air curable unsaturated pendant alkyl radicals, and attached to the acrylic backbone through ester linkages. The modified acrylic product has the flexibility and durability characteristic of acrylics, and the advantage that the composition will cure similarly to drying oils, using driers such as cobalt naphthenate and zinc naphthenate.

3,786,021

POLYMERS OF 1-OLEFINS PROTECTED AGAINST ULTRAVIOLET LIGHT

Ronald D. Mathis, Taylors, and James S. Dix, Greenville, S.C., assignors to Phillips Petroleum Company

No Drawing. Filed Feb. 10, 1972, Ser. No. 216,742
Int. Cl. C08f 45/58
U.S. Cl. 260—45.75 N 5 Claims

Homopolymers and copolymers of 1-olefins, e.g. of propylene and propylene and ethylene, respectively, are protected against the deleterious effects of ultraviolet light by incorporating therewith a synergistic combination of a hydroxybenzophenone, e.g. 2-hydroxy-4-n-octoxybenzophenone and an aromatic oxime metal complex, e.g. the metal ketoxime nickel bis(syn-methyl-2-hydroxy-4-methylphenylketoxime).

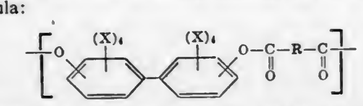
3,786,022

HALOGEN CONTAINING POLYESTERS AND METHOD FOR PREPARING SAME

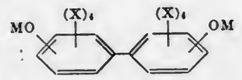
Naoaki Hata and Yuzo Takase, Tokyo, Japan, assignors to Asahi Denka Kogyo K.K., Tokyo, Japan

No Drawing. Filed Mar. 29, 1972, Ser. No. 239,320
Claims priority, application Japan, Mar. 30, 1971, 46/18,950
Int. Cl. C08g 17/08
U.S. Cl. 260—47 C 8 Claims

A linear, high molecular weight polyester consisting essentially of recurring structural units having the following formula:



wherein X is a halogen atom; R represents a member selected from the group consisting of divalent aliphatic radicals and divalent aromatic radicals is prepared by reacting (1) one or more compounds represented by the following general formula:



wherein X is a halogen atom; M represents a member selected from the group consisting of hydrogen atom, alkali metal atom and acyl group having 2 to 4 carbon atoms, and (2) one or more compounds represented by the following general formula:

Z—CO—R—CO—Z

wherein Z represents a member selected from the group consisting of a halogen atom and hydroxyl group; and R has the same significance as defined above.

3,786,023

FLAME-RETARDANT COMPOSITIONS

Anderson O. Dotson, Jr., New Brunswick, and Jack Newcombe and Lionel T. Wolford, Freehold, N.J., assignors to Cities Service Company, New York, N.Y.

No Drawing. Filed July 24, 1972, Ser. No. 274,557
Int. Cl. C08f 45/56, 45/62
U.S. Cl. 260—45.75 B 9 Claims

Polypropylene is rendered flame retardant by the incorporation of N,N'-hexane-1,6-bis(5,6-dibromonorbornane-2,3-dicarboximide). If desired, the flame retardancy may be enhanced with synergists, such as certain metal compounds (e.g., antimony trioxide) and certain organic phosphites (e.g., distearyl pentaerythritol diphosphite).

3,786,024

HIGH MOLECULAR WEIGHT AROMATIC POLYAMIDES HAVING AN AFFINITY FOR BASIC DYES

Gerhard Dieter Wolf, Dormagen, Günter Blankensteln, Stommeln, and Günther Nischk, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Apr. 7, 1971, Ser. No. 132,170, now Patent No. 3,676,525. Divided and this application Jan. 21, 1972, Ser. No. 219,819
Claims priority, application Germany, Apr. 13, 1970, P 20 17 509.1
Int. Cl. C08g 20/20, 20/36
U.S. Cl. 260—47 CZ 11 Claims

A polyamide composition of matter that can be dyed with basic dyestuffs comprising a conventional high molecular weight aromatic polyamide and 3 to 30% by weight of an aromatic polyamide containing 30–100 mol percent of removing structural units with disulfone imide structures.

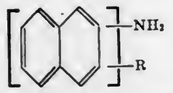
3,786,025

RAPID CURING RESIN COMPOSITIONS COMPRISING A PHENOL-ALDEHYDE CONDENSATION POLYMER MODIFIED WITH AN AMINONAPHTHALENE

Harlan G. Freeman, Gene F. Baxter, and George T. Tiedeman, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Continuation-in-part of abandoned application Ser. No. 821,998, May 5, 1969. This application June 1, 1971, Ser. No. 148,907
Int. Cl. C08g 9/06
U.S. Cl. 260—51.5 45 Claims

Described herein are reaction products having particular utility as rapid curing adhesives for wood and other materials, and processes for making the resin compositions. The products are made by reacting an aldehyde condensation polymer having reactive alkylol groups, such as a phenol-formaldehyde condensation polymer, with an aminonaphthalene having the formula:



where R may be amino in any open ring position or hydroxyl in the 2, 5 and 8 ring positions when the amino group is in the 1 position, to obtain an amine-modified polymer. When the resulting reaction product is blended with an appropriate curing agent, such as an aldehyde, the compositions cure very rapidly at ambient temperature. When pieces of wood or other materials are spread with the preferred adhesives employing the resin compositions of this invention and brought into contact with another wood surface the bond strength develops within minutes. The durability, strength and flexibility of the adhesives of this invention under adverse weathering conditions are excellent.

3,786,026

METHOD OF PREPARING HIGH MOLECULAR WEIGHT POLYOXYMETHYLENES

Jacob Ackermann, Gorla Minore, Varese, and Pierino Radici, Turate, Como, Italy, assignors to Societá Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Nov. 4, 1971, Ser. No. 195,842
Claims priority, application Italy, Nov. 12, 1970, 31,631/70
Int. Cl. C08g 1/02
U.S. Cl. 260—67 FP 8 Claims

Polyoxymethylenes are produced by polymerizing cyclic monomers in the presence of up to 10 mole percent of short chain polyoxymethylene ethers, the monomers used being highly purified and the ratio of polymerization to induction time being between 2 and 10 to 1.

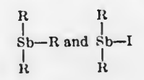
3,786,027

METHOD FOR PREPARING RANDOM COPOLYMERS OF FORMALDEHYDE AND OLEFIN OXIDE SILANE AND/OR VINYL ETHER SILYL

Robert Alton Setterquist, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 9,983, Feb. 9, 1970, now Patent No. 3,661,854, dated May 9, 1972. This application Nov. 16, 1971, Ser. No. 199,330
Int. Cl. C08g 1/14, 1/18
U.S. Cl. 260—67 FP 11 Claims

Random copolymers of formaldehyde monomer and olefin oxide silane and/or vinyl ether silyl monomers can be prepared by reacting said monomers at a temperature of from about −20° to about 100° C. in the presence of a perfluoroalkylstibine catalyst having the formula



in which R is perfluoroalkyl of from 1–8 carbon atoms.

3,786,028

1,2,5-THIADIAZOLE POLYESTERS

Robert Neal MacDonald, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Oct. 14, 1969, Ser. No. 866,401, now Patent No. 3,664,986. Divided and this application Mar. 23, 1972, Ser. No. 237,555
Int. Cl. C08g 17/06, 17/08
U.S. Cl. 260—75 N 8 Claims

Disclosed herein are polymers containing 1,2,5-thiadiazole rings in the polymer chain and their preparations. The polymers are capable of being made into films, fibers, coatings and molded objects.

3,786,029

USE OF CERTAIN AMINOORTHOESTERS AS POLYURETHANE CATALYSTS

Ibrahim S. Bechara, 1159 Naamans Creek Road, Boothwyn, Pa. 19061, and Dewey G. Holland, Box 503–B, R.D. 1, Chadds Ford, Pa. 19317

No Drawing. Filed Aug. 1, 1972, Ser. No. 276,976
Int. Cl. C08g 22/38, 22/46
U.S. Cl. 260—75 NC 3 Claims

Aminoorthoesters are prepared from amino alkanols and orthoesters of the formula $R—C(OR')_3$. Such aminoorthoesters have utility as activators in polyurethane formation, as curing agents for epoxy resins, and in other uses. Advantageous properties include good stability, low odor, low toxicity and good activity in its use fields.

3,786,030

CATALYST FOR TRIMERIZING POLYISOCYANATES

David E. Rice, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,413
Int. Cl. C08g 22/00
U.S. Cl. 260—77.5 NC 8 Claims

Certain dialkylaminoalkylurethanes, formed by the reaction of isocyanates with certain N,N-dialkylalkanolamines, are used as latent catalysts for the cross-linking or trimerization of polyisocyanate-terminated prepolymers.

3,786,031

POLYAMIDEURETHANES AND THEIR PREPARATION

Shitomi Katayama, Hidelchi Horikawa, Masao Obuchi, and Yoshihiro Ito, Akita, Japan, assignors to Denki Onkyo Co., Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 216,278, Jan. 7, 1972, which is a continuation-in-part of application Ser. No. 127,374, Mar. 23, 1971, both now abandoned. This application Dec. 11, 1972, Ser. No. 313,675
Claims priority, application Japan, Mar. 27, 1970, 45/25,757
Int. Cl. C08g 22/04
U.S. Cl. 260—77.5 AQ 29 Claims

Polyamideurethanes, having the combined desirable physical properties of polyamides and polyurethanes, are provided by a polyaddition reaction of an amidediol or a diamidediol with a diisocyanate. The products include both linear and cross-linked polymers characterized by a wide range of inherent viscosity. The substantially linear polymers of the invention are useful as synthetic textile fibers or as filaments. The cross-linked polymers are good construction materials.

3,786,032

VINYL POLYMERIZATION

James Robert Jennings and David Gavin Simon, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 9, 1971, Ser. No. 197,153
Claims priority, application Great Britain, Nov. 20, 1970, 55,244/70, 55,245/70
Int. Cl. C08f 1/34
U.S. Cl. 260—91.7 27 Claims

Polymerization of vinyl or vinylidene halides using as initiator a mixture of a transition metal compound and an organoaluminum or organozinc compound including a ligand derived from an oxime or a hydroxy ester.

Also, initiator compositions for use in such a process.

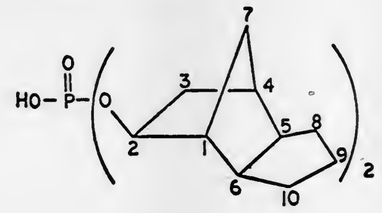
3,786,033

BIS(EXO-TRIMETHYLENENORBORNYL-(2)-EXO) HYDROGEN-PHOSPHATE

Yoshiaki Inamoto, Wakayama, and Takeji Kadono, Kainan, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed June 23, 1971, Ser. No. 156,113
Claims priority, application Japan, June 24, 1970, 45/54,976
Int. Cl. C07f 9/08
U.S. Cl. 260—958 1 Claim

A compound of the formula



is prepared by esterifying 2-exo-hydroxy-exo-trimethyl-enenorbornane with phosphoric acid. The compound is useful as an additive for synthetic lubricating oils and hydraulic oils.

3,786,034

POLYURETHANE POLYMERS FOR USE IN SOFT LENSES AND METHOD OF PRODUCING SOFT LENSES

Edgar Allan Blair, Princeton, and Donald Edward Hudgin, Princeton Junction, N.J., assignors to Frigitronics, Inc., Shelton, Conn.

No Drawing. Filed June 23, 1972, Ser. No. 265,543
Int. Cl. B29d *11/00*; G02c *7/04*; C08g *22/08*
U.S. Cl. 260—77.5 AQ **9 Claims**

The use of water absorbtive polyurethane polymers of resins of low equivalent weight and high molecular weight and slightly in excess of equimolar ratios of polyisocyanates or urethane linkage precursors for making soft lenses and for soft contact lenses made from said polymer.

3,786,035

ALKALI METAL SULFIDE-ARYLENE SULFIDE POLYMER PROCESS

Jack S. Scoggin, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed May 15, 1972, Ser. No. 253,007
Int. Cl. C08g *23/00*
U.S. Cl. 260—79.1 **7 Claims**

An improved process for the preparation of arylene sulfide polymers is described wherein alkali metal sulfide reactants are prepared and reacted with polyhalo-substituted aromatic compositions in the preparation of arylene sulfide polymers in a reaction medium free of air or oxygen.

3,786,036

PROCESS FOR PRODUCING 2-ALKYL-SUBSTITUTED 1,3-CONJUGATED DIENE POLYMER

Hidetoshi Yasunaga, Tatsusuke Chikatsu, Chihiro Nozaki, and Yoshinori Yoshida, Yokkaichi, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

No Drawing. Filed Sept. 3, 1971, Ser. No. 177,877
Claims priority, application Japan, Sept. 18, 1970, 45/81,246; Dec. 7, 1970, 45/107,663
Int. Cl. C08d *3/04*
U.S. Cl. 260—94.2 M **22 Claims**

A 2-alkyl-substituted 1,3-conjugated diene polymer having a high cis-1,4 configuration content and having a high molecular weight can advantageously be produced by polymerizing a 2-alkyl-substituted 1,3-conjugated diene with a catalyst consisting essentially of at least one organolithium compound and carbon disulfide in a proportion of 0.01 to 1.0 mole of carbon disulfide per atom of active lithium and optionally 1,2-diene hydrocarbons. The vulcanizate of said polymer is very similar in physical properties to that of a natural Hevea rubber.

3,786,037

PROCESS FOR DECREASING ETHYLENIC POLYUNSATURATION IN ORGANIC CARBOXYLIC ACIDS USING A CO-CATALYST

Arthur Waldemar Krause, Gulf Breeze, and Malcolm Edward Hannah, Pensacola, Fla., assignors to Reichhold Chemicals, Inc., White Plains, N.Y.

No Drawing. Filed July 23, 1971, Ser. No. 165,577
Int. Cl. C09f *7/00*
U.S. Cl. 260—97.5 **21 Claims**

This invention provides a process for decreasing the ethylenic polyunsaturation by reacting polyunsaturated aliphatic acid compounds or diunsaturated cycloaliphatic acid compounds in the presence of iodine disproportionation catalyst and a metal compound activator.

3,786,038

PEPTIDE BOND FORMATION IN THE PRESENCE OF TRIARYL PHOSPHITES AND HETEROCYCLIC DISULFIDES

Teruaki Mukaiyama and Masaaki Ueki, Tokyo, and Manabu Suzuki, Hiratsuka, Japan, assignors to Sankyo Company Limited

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,434
Claims priority, application Japan, June 29, 1971, 46/47,415
Int. Cl. C07c *103/52*; C07g *7/00*; C08h *1/00*
U.S. Cl. 260—112.5 **5 Claims**

Improved and commercially advantageous process for the preparation of a peptide which comprises reacting a carboxyl component which is an amino acid or peptide having free carboxyl group and other protected reactive functional groups with an amino component which is an amino acid or peptide having free amino group and other protected reactive functional groups in the presence of a triaryl phosphite and a disulfide of a mercaptoheterocyclic compound containing a nitrogen-carbon double bond with which the disulfide linkage is conjugated.

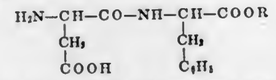
3,786,039

METHOD OF PRODUCING α-L-ASPARTYL-L-PHENYLALANINE LOWER ALKYL ESTERS

Yasuo Ariyoshi and Masanori Nagao, Kawasaki, Naotake Sato, Tokyo, Akira Shimizu, Kawasaki, and Jiro Kirimura, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Apr. 15, 1970, Ser. No. 28,972
Claims priority, application Japan, Apr. 30, 1969, 44/33,349
Int. Cl. C07c *103/52*
U.S. Cl. 260—112.5 **2 Claims**

Lower alkyl esters of α-L-aspartyl-L-phenylalanine of the formula



wherein R is lower alkyl are prepared by reacting an N-acyl-L-aspartic anhydride with a lower alkyl ester of L-phenylalanine in an inert organic solvent, and then removing the acyl group which may be formyl, carbobenzoxy, or p-methoxycarbobenzoxy.

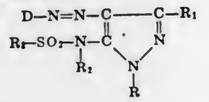
3,786,040

PHENYL- OR NAPHTHYL AZO SULFONAMIDO-PYRAZOLE DYES

Roland Mislin, Saint-Louis, France, and Hanspeter Uehlinger, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 821,502, May 2, 1969. This application May 11, 1971, Ser. No. 142,403
Claims priority, application Switzerland, May 13, 1968, 7,088/68
Int. Cl. C09b *29/38*; D06p *3/24*
U.S. Cl. 260—162 **10 Claims**

Azo dyes of the formula



wherein

D is the radical of a phenyl or naphthyl diazo component,

R is hydrogen, carboxyl, acyl, hydrocarbyl or substituted hydrocarbyl,

R_1 is hydrogen, carboxylic acid ester, carboxylic acid amide or substituted or unsubstituted alkyl, cycloalkyl, alkoxy or aryl,

R_2 is hydrogen, acyl, hydrocarbyl or substituted hydrocarbyl, and

R_3 is hydrocarbyl or substituted hydrocarbyl,

with the proviso that the molecule contains between 1 and 4 sulfo groups, preferably 1 or 2 sulfo groups. These dyes of yellow to orange shade are useful for natural and synthetic polyamide fibres. They exhibit excellent light fastness and perspiration fastness.

3,786,041

MELAMINE-FORMALDEHYDE RESIN CONTAINING ALUMINA HYDRATE

Herbert Talsma, East Cleveland, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

No Drawing. Filed Dec. 8, 1972, Ser. No. 313,494
Int. Cl. C08g *51/18*
U.S. Cl. 260—17.3 **4 Claims**

Melamine-formaldehyde molding resins containing from about 10 to about 900 parts of alumina hydrate per hundred parts of resin are outstanding for preparing molded resin articles requiring exceptional heat and light stability and a minimum of post-mold shrinkage.

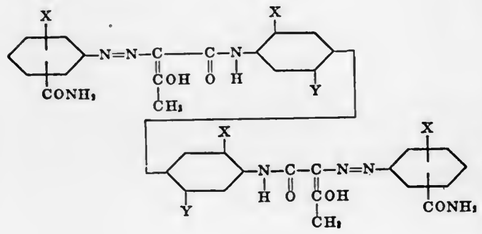
3,786,042

BIS-(BENZAMIDOAZO)-4,4'-BI-ACETOACETYL-o-CHLOROANILIDE DYESTUFFS

Francis A. Formica, New Shrewsbury, and James Izenberg, Metuchen, N.J., assignors to Indol Chemical Co., Inc., Carteret, N.J.

No Drawing. Filed July 6, 1971, Ser. No. 160,219
Int. Cl. C09b *33/16*
U.S. Cl. 260—176 **8 Claims**

Disazo-dyestuffs of the formula



in which X represents H, lower alkyl, alkoxy, or halogen and Y represents H or halogen and all of the X's are not necessarily the same and all of the Y's are not necessarily the same and the $CONH_2$ group is m- or p- to the diazo group. These dyestuffs exhibit good solvent fastness and light fastness, high coloring strength and greenish shades of yellow.

3,786,043

7-METHYL-4-CHLORO (OR -4-LOWER-ALKOXY)-1,8-NAPHTHYRIDINE-3-CARBOXYLATES

R. Pauline Brundage and George Y. Lesher, Schodack, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed June 19, 1972, Ser. No. 263,788
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 B **3 Claims**

Lower-alkyl 4 - Q - 7 - methyl-1,8-naphthyridine-3-carboxylates (I) where Q is chloro or lower-alkoxy are prepared by reacting lower-alkyl 1,4-dihydro-7-methyl-4-oxo - 1,8 - naphthyridine - 3 - carboxylate (II) with a chlorinating agent to produce said 4-chloro compound (Ia) which by reaction with alkali metal lower-alkoxide, preferably using lower-alkanol as solvent, produces said 4-(lower-alkoxy) compound (Ib). Said 4-chloro compound when heated with alkali metal lower-alkoxide or said 4-(lower-alkoxy) compound when heated yield the known antibacterially active lower-alkyl 1-(lower-alkyl)-1,4 - dihydro - 7 - methyl - 4 - oxo-1,8-naphthyridine-3-carboxylates.

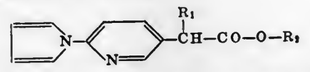
3,786,044

(6-PYRROL-1-YL)-3-PYRIDINEACETIC ACID DERIVATIVES

Franz Ostermayer, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed May 15, 1972, Ser. No. 253,615
Claims priority, application Switzerland, May 19, 1971, 7,375/71; Apr. 18, 1972, 5,693/72
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 R **8 Claims**

Compounds of the formula



wherein R_1 represents hydrogen or a methyl or ethyl group and R_2 represents hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms and the salts with bases derived from the free carboxylic acids have anti-inflammatory, mild analgesic and antipyretic action, they are active ingredients of pharmaceutical compositions and are useful for the treatment of inflammatory diseases and of pain of varying origin. An illustrative example is α-methyl-6-(pyrrol-1-yl)-3-pyridyl-acetic acid.

3,786,045

CERTAIN 10,11-BIS(BROMOMETHYL)-DIBENZAZEPINES

Hans Blattner and Walter Schindler, Riehen, near Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Nov. 19, 1969, Ser. No. 878,177, now Patent No. 3,646,046. Divided and this application Sept. 18, 1972, Ser. No. 290,033
Claims priority, application Switzerland, Dec. 19, 1968, 18,946/68
Int. Cl. C07d *41/08*
U.S. Cl. 260—239 D **1 Claim**

Compounds of the class of 1,2,3,8-tetrahydro-dibenzo-[b,f]pyrrolo[3,4-d]azepines and pharmaceutically acceptable acid addition salts thereof have a depressant effect on the central nervous system; they can be prepared from N-substituted 10,11 - bis - bromomethyl - 5H - dibenz[b,f]azepines and a primary amine; the compounds are active ingredients of pharmaceutical compositions; an illustrative embodiment is 2-ethyl - 1,2,3,8 - tetrahydro-dibenzo[3,4-d]azepine.

3,786,046

NOVEL CYANINE DYES WITH ENAMINES CONTAINING TWO FUSED CARBOCYCLIC RINGS

Arthur Fumia, Jr., Hilton, and Leslie G. S. Brooker, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application June 4, 1969, Ser. No. 830,483, now Patent No. 3,655,392, dated Apr. 11, 1972. Divided and this application Dec. 29, 1971, Ser. No. 213,533
Int. Cl. C09b *23/10*
U.S. Cl. 260—240 R **12 Claims**

Novel cyanine and merocyanine dyes are provided which feature a nucleus selected from the group consisting of a 1 - (3,4,4a,5,6,7-hexahydro-2-naphthyl)pyrrolidine group, a 1-(3,3a,4,5-tetrahydro-2H-inden-6-yl)pyrrolidine group, a 1-(2-norbornylidene)pyrrolidine group, and a 1-(1-indanylidene)pyrrolidine group.

3,786,047

METHINE DYESTUFFS

Hans-Peter Kuhlthau, Leverkusen, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 17, 1971, Ser. No. 172,585
Claims priority, application Germany, Aug. 17, 1970, P 20 40 653.5
Int. Cl. C09b *23/00*
U.S. Cl. 260—240.8 **17 Claims**

Methine dyestuffs, processes for their manufacture and their use for dyeing and printing of polyacrylnitrile, co-

polymers of acrylnitrile with other vinyl compounds, acid modified aromatic polyesters, acid modified polyamides, leather, tanned cotton, cellulose, polyurethanes and for the production of writing liquids and stamping inks.

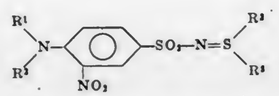
3,786,048

SULFILIMINE COMPOUNDS

James R. Beck, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Sept. 24, 1971, Ser. No. 183,644
Int. Cl. C07c *143/80*
U.S. Cl. 260—239.6 **3 Claims**

The present invention is directed to novel compounds of the formula



which compounds are useful as herbicides. In the above and succeeding formulae herein, R^1 represents hydrogen or R^2, and each R^2 independently represents loweralkyl of C_1–C_4, loweralkenyl of C_3–C_4, loweralkynyl of C_3–C_4, or radical of the formula $—CH_2—CH_2(CH_2)_nY$ wherein n represents 0 or 1, and Y represents methoxy, cyano, bromo, or chloro, subject to the limitation that the groups represented by R^1 and R^2 together contain from 2 to 8, both inclusive, carbon atoms; and each R^3 is taken separately and independently represents loweralkyl of C_1–C_3 or phenyl, subject to the limitation that both R^3 groups together, do not contain more than 8 carbon atoms, or both R^3 groups are taken together, and represent a divalent radical selected from the group consisting of $(CH_2)_2—O(CH_2)_2$ and $(CH_2)_q$ wherein q represents 4, 5, or 6.

3,786,049

PROCESS FOR THE PREPARATION OF N-ACYLATED DERIVATIVES OF 6-AMINO PENICILLANIC ACID

Antonio Luis Palomo-Coll, Maestro Perez Cabrero 7, Barcelona, Spain

No Drawing. Filed Dec. 22, 1969, Ser. No. 887,338
Claims priority, application Spain, Dec. 21, 1968, 361,743; May 12, 1969, 367,136; July 26, 1969, 369,916
Int. Cl. C07d *99/16*
U.S. Cl. 260—239.1 **11 Claims**

A process for the preparation of amides, hydrazides and esters and of alpha-aminobenzylpenicillin and N-substituted derivatives, consisting of the prior preparation of a dimethylformiminium halosulfite N-halide by adding a solution of dimethylformamide, at room temperature, to a solution of a thionyl halide in an organic solvent, then adding a carboxylic compound and then an amine, a hydrazine or an alcohol to obtain the above-mentioned derived compounds.

3,786,050

DIPHENYL SULFONES

Tsung-Ying Shen, Westfield, William V. Ruyle, Scotch Plains, Michael W. Fordice, Cranford, and Norman P. Jensen, Watchung, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 73,245, Sept. 17, 1970. This application July 6, 1971, Ser. No. 160,158
Int. Cl. C07c *147/12*
U.S. Cl. 260—239.6 **7 Claims**

New substituted diphenyl sulfones useful in reducing mortality and decreasing lesion incidence of poultry exposed to Marek's disease are disclosed.

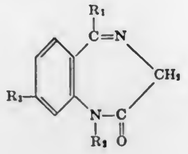
3,786,051

1-(PHENYL OR PYRIDYL)-1,3-DIHYDRO-2H-1,4-BENZODIAZEPIN-2-ONES

Adolf Bauer, Ingelheim am Rhein, Karl-Heinz Weber, Gau Algesheim, Peter Danneberg, Ockenheim, and Klaus Minck, Gau Algesheim, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

No Drawing. Filed Apr. 10, 1972, Ser. No. 242,836
Claims priority, application Germany, Apr. 8, 1971, P 21 17 438.9
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 D **15 Claims**

Compounds of the formula



wherein

R_1 is hydrogen or alkyl of 1 to 4 carbon atoms,
R_2 is phenyl, nitrophenyl, trifluoromethyl-phenyl, α-pyridyl or halogenophenyl, and
R_3 is halogen, nitro or trifluoromethyl;

the compounds are useful as psychosedatives and anticonvulsives.

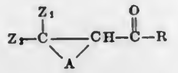
3,786,052

NOVEL CYCLOPROPANECARBOXYLIC ACIDS AND ESTERS

Jacques Martel, 15 Rue Douvillez 93, Bondy, France; Chanh Huynh, 5 bis Allee des deux Communes, Villemomble, France; and Jean Buendia, 32 Avenue Foch, Fontenay Sous Bois, France

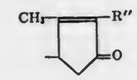
No Drawing. Continuation-in-part of abandoned applications Ser. No. 662,278, Aug. 22, 1967, and Ser. No. 879,942, Nov. 25, 1969. This application Aug. 2, 1971, Ser. No. 168,441
Claims priority, application France, Aug. 26, 1966, 74,404, 74,405; Feb. 24, 1967, 96,425; June 16, 1967, 110,719; July 19, 1967, 114,833; Nov. 26, 1968, 175,375
Int. Cl. C07d *5/16*
U.S. Cl. 260—240 R **6 Claims**

Novel cyclopropanecarboxylic acids and esters of the formula



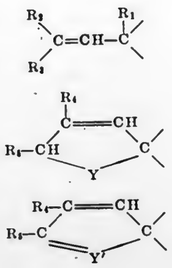
I

wherein Z_1 and Z_2 are selected from the group consisting of hydrogen, alkyl, aralkyl, aryl, alkenyl non-conjugated with the cyclopropane ring, alkynyl non-conjugated with the cyclopropane ring, cycloalkyl, cycloalkenyl and heterocyclic; R is selected from the group consisting of OH and OR′ in which R′ is selected from the group consisting of lower alkyl which may be substituted, benzyl which may be substituted on the phenyl or methylene portion, N-methylene-dicarboximide, (5-benzyl-furyl-3) methyl, and a cyclopentene of the formula



aI

wherein R″ is selected from the group consisting of alkyl, alkynyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl and heterocyclic; A is a bivalent alkyl radical selected from the group consisting of



(a), (b), and (c)

wherein R_1 is selected from the group consisting of hydrogen and lower alkyl, R_2 and R_3 are selected from the group consisting of alkyl, alkynyl, alkenyl, aryl, aralkyl, cycloalkyl, cycloalkenyl and heterocyclic and taken together with the carbon atom to which they are attached form a ring selected from the group consisting of carbon homo rings and unsaturated carbon homo rings of 3 to 7 carbon atoms and heterocyclic rings which may be substituted with lower alkyl or lower alkoxy and R_2 and R_3 may together form a polycyclic aromatic radical, R_4 is lower alkyl, R_5 is selected from the group consisting of hydrogen and lower alkyl and R_4 and R_5 together with the carbon atoms to which they are attached may form a saturated or unsaturated carbon homo ring or a heterocyclic ring, Y is selected from the group consisting of methylene and a saturated or unsaturated carbon chain and Y′ is selected from the group consisting of methine and a saturated or unsaturated carbon chain with the proviso that when Z_1 and Z_2 are methyl and R_1 is hydrogen, R_2 is other than methyl and their preparation.

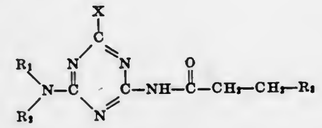
3,786,053

PROPIONAMIDO TRIAZINE

Trevor Chapman, Sittingbourne, England, and Werner Schwarze, Frankfurt, and Wolfgang Weigert, Offenbach, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Sept. 7, 1971, Ser. No. 178,411
Int. Cl. C07d *55/20*
U.S. Cl. 260—249.8 **14 Claims**

Triazines of the formula:



wherein X is a lower straight or branched chain alkyl mercapto, a lower alkoxy, benzyl mercapto or phenyl mercapto; R_1 and R_2 are the same or different and are selected from hydrogen, benzyl, cyclohexyl, a lower straight or branched chain alkyl which is unsubstituted or substituted by —OH, —OR, —SR, benzyl, and —CN wherein R is a lower alkyl and wherein R_1 and R_2 may be open or closed with one another to form a 5 or 6 membered ring with or without an oxygen atom presented in the ring; and R_3 is hydrogen, a lower straight or branched chain alkyl mercapto, or a lower alkoxy; have been found to influence the growth of plants and in many instances may be used as herbicides.

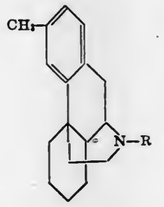
3,786,054

3-METHYL-N-METHYLMORPHINANS

Masuo Murakami, Shigemi Kawahara, and Noriyoshi Inukai, Tokyo, Noriaki Nagano and Hidenori Iwamoto, Ageo, and Hisashi Ida, Urawa, Japan, assignors to Yamanonchi Pharmaceutical Co., Ltd.

No Drawing. Filed June 8, 1971, Ser. No. 150,900
Claims priority, application Japan, June 20, 1970, 45/53,918; Feb. 2, 1971, 46/3,945; Feb. 9, 1971, 46/5,413
Int. Cl. C07d *43/32*
U.S. Cl. 260—285 **6 Claims**

A novel morphinan derivative represented by the general formula



wherein R represents an aliphatic hydrocarbon residual group having 1–5 carbon atoms and an acid-addition salt thereof. These compounds have an excellent antitussive activity.

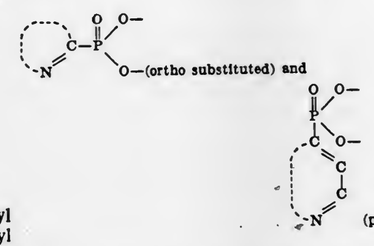
3,786,055

QUINOLINE NITROGEN-HETEROCYCLIC PHOSPHONATES

Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.

No Drawing. Original application Feb. 24, 1969, Ser. No. 801,856, now Patent No. 3,673,196. Divided and this application Aug. 19, 1971, Ser. No. 173,295
Int. Cl. C07d *33/46, 35/30*
U.S. Cl. 260—283 P **3 Claims**

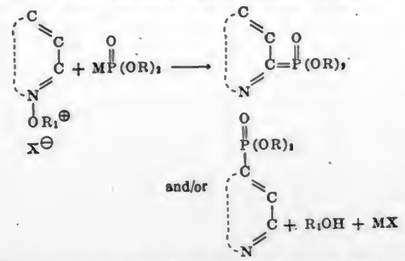
Nitrogen-heterocyclic phosphonates wherein the phosphonate group is ortho- or para- to the nitrogen heterocyclic group, where the compounds are characterized as follows:



wherein the dotted line represents a cyclic structure which cyclic structure may be the sole cyclic structure, or may be attached to other cyclic groups.

These nitrogen heterocyclic phosphonates are prepared by reacting an aromatic nitrogen-heterocyclic compound, wherein the nitrogen atom is in the form of a quaternary alkoxy derivative (N—OR hereinafter defined) with a

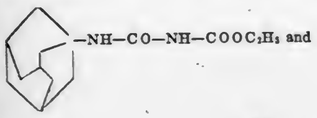
phosphite salt, preferably in the form of an ester of the phosphite, as exemplified by the following equation:



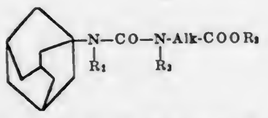
These compounds which may be characterized as phosphonates of nitrogen-heterocyclics have many uses including their use as biocides, such as bacteriocides, herbicides, corrosion inhibitors, chelating agents, etc.

3,786,056
ADAMANTYL UREA DERIVATIVES
Carl Richter, Kurt Pluss, and Georg Feth, Schaffhausen, Switzerland, assignors to Cilag-Chemie, A.G.
No Drawing. Original application Oct. 28, 1969, Ser. No. 874,084, now Patent No. 3,703,537. Divided and this application July 13, 1972, Ser. No. 271,332
Int. Cl. C07d *29/26*
U.S. Cl. 260—293.56 **2 Claims**

Compounds useful as antiviral agents defined by the formulas:



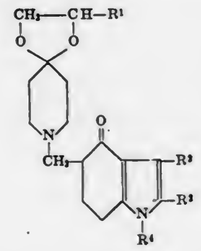
and



wherein Alk is alkylene, R_1 and R_2 are each hydrogen or lower alkyl, and R_3 is hydrogen or a variously defined ester moiety.

3,786,057
MONOSULFATE SALT OF 3-ETHYL-6,7-DIHYDRO-2 - METHYL-5 (4',4' - ETHYLENE DIOXYPIPERIDINOMETHYL)-INDOLE-4-(5H)-ONE
Harvey Byron Hopps, West Allis, Wis., and John Hans Biel, Lake Bluff, Ill., assignors to Aldrich Chemical Company, Inc., Milwaukee, Wis.
No Drawing. Original application Oct. 2, 1968, Ser. No. 764,594, now Patent No. 3,591,594. Divided and this application Feb. 23, 1971, Ser. No. 118,094
The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed
Int. Cl. C07d *27/56*
U.S. Cl. 260—293.61 **1 Claim**

Compounds of the formula



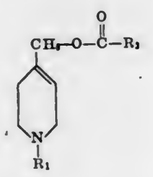
wherein R^1 represents a member selected from the group consisting of hydrogen, (lower)alkyl, phenyl and benzyl and R^2, R^3, and R^4 each represent a member selected from the group consisting of hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, phenyl and benzyl; and the pharmaceutically acceptable nontoxic salts thereof exhibit tranquilizing and antiemetic activity and are useful as tranquilizers and antiemetic agents in mammals.

3,786,058
CERTAIN BIS(PYRIDINIUM QUATERNARY SALTS)
Philip Neil Edwards, Macclesfield, England, assignor to Imperial Chemical Industries, Limited, London, England
No Drawing. Filed Mar. 14, 1972, Ser. No. 234,648
Int. Cl. C07d *31/48*
U.S. Cl. 260—294.8 R **14 Claims**

The disclosure relates to novel bis(pyridinium quaternary salts), a process for their manufacture, compositions containing them, and a method of preventing the growth of, or killing, bacteria by applying one of the novel pyridinium salts to a bacterially infected environment.

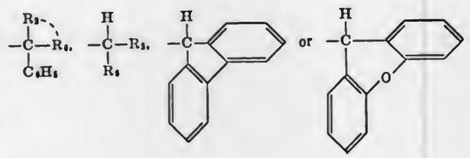
3,786,059
1,2,3,6-TETRAHYDRO-4-PYRIDYLMETHYL CARBOXYLATES
Gerhard Walther, Ingelheim am Rhein, Rudolf Bauer, Wiesbaden, and Hans-Hugo Hubner and Rolf Banholzer, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Filed Aug. 31, 1971, Ser. No. 176,708
Claims priority, application Germany, Sept. 2, 1970, P 20 43 455.3
Int. Cl. C07d *31/36*
U.S. Cl. 260—295 R **4 Claims**

Racemic mixtures of compounds of the formula



wherein

R_1 is hydrogen, alkyl of 1 to 8 carbon atoms, chloro-(alkyl of 1 to 8 carbon atoms), cyano-(alkyl of 1 to 8 carbon atoms), hydroxy-(alkyl of 1 to 8 carbon atoms), phenyl-(alkyl of 1 to 8 carbon atoms), alkenyl of 3 to 4 carbon atoms or alkinyl of 3 to 4 carbon atoms, and R_2 is



where

R_3 is hydroxyl or, together with R_4 and the carbon atom to which they are attached, a 5- to 6-membered saturated carbocyclic ring,

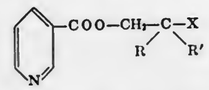
R_4 and R_5 are each alkyl of 1 to 4 carbon atoms, cycloalkyl of 5 to 6 carbon atoms or phenyl, and

R_6 is cycloalkyl of 5 to 6 carbon atoms or phenyl,

optically active antipodes thereof, quaternary ammonium salts thereof, and non-toxic acid addition salts of said racemates and optically active antipodes; the compounds are useful as anticholinergics.

3,786,060
COMPOUNDS, 2-BIS(4-CHLOROPHENOXY)-ETHYL NICOTINATE, 2 - BIS(4 - CHLOROPHENOXY)-PROPYL DINICOTINATE AND 2-(3,4-DIMETHYL-6-ISOBORNYLPHENOXY)-ETHYL NICOTINATE
Jean Mardiguian and Pierre Fournier, Paris, France, assignors to Societe a Responsabilite Limitee dite: MARPHA Societe d'Etudes et d'Exploitation de Marques, Paris, France
No Drawing. Filed July 7, 1970, Ser. No. 53,001
Claims priority, application Great Britain, July 7, 1969, 34,221/69
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 R **4 Claims**

Aryloxyalkyl nicotinates of formula



where R=H, hydroxymethyl, nicotinyloxymethyl or X, R'=H or X and X=phenoxy which may be substituted by up to 3 halogens, C_1–C_4 alkyl or isobornyl radicals, and acid addition salts thereof, prepared by reacting nicotinoyl chloride with the alcohol, are useful in the treatment of hypocholesterolaemia, hypolipidaemia and hepatic poisoning.

3,786,061
PYRIDYL-TRIFLUOROMETHYLIMIDAZOLES
Frederick C. Novello, Berwyn, and John J. Baldwin, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 885,362, Dec. 15, 1969. This application June 21, 1972, Ser. No. 265,015
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 R **10 Claims**

4(5)-trifluoromethylimidazoles having optional substituents in the 1 and 2 positions are provided. The novel 4(5)-trifluoromethylimidazoles are prepared by reacting a 1,1-dihalo-3,3,3-trifluoroacetone compound with an appropriate carboxaldehyde and ammonia. The 4(5)-trifluoromethylimidazoles are useful as anti-gout and anti-hyperuricemic agents.

3,786,062
22-DEHYDRO-25-HYDROXYCHOLECALCIFEROL AND PROCESS FOR PREPARING SAME
Collin H. Schroeder and Richard J. Lechnir, Madison, Wis., Peter G. Cleveland, Chicago, Ill., and Hector F. De Luca and Philip H. Derse, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.
No Drawing. Filed Feb. 16, 1973, Ser. No. 332,882
Int. Cl. C07c *171/10*
U.S. Cl. 260—397.2 **1 Claim**

22-dehydro-25-hydroxycholecalciferol and process for preparing the same from 3β-acetoxy-22,23-bisnorcholenaldehyde. 22-dehydro-25-hydroxycholecalciferol is characterized by antirachitic activity substantially greater than exhibited by vitamin D_3.

3,786,063
THIAZOLETHIOSULFONATES
Robert J. Arnold, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed May 24, 1971, Ser. No. 146,481
Int. Cl. C07d *91/44*
U.S. Cl. 260—306.5 **5 Claims**

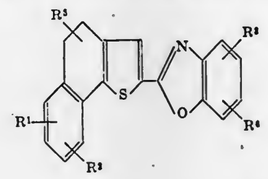
Novel compound of the formula



where at least one of R and R' is thiazole. The compound is used as a vulcanization accelerator in vulcanizable diene rubber formulations.

3,786,064
BENZOXAZOLE COMPOUNDS USEFUL AS OPTICAL BRIGHTENING AGENTS
Horst Harnisch, Cologne, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 1, 1970, Ser. No. 24,860
Claims priority, application Germany, Apr. 5, 1969, P 19 17 601.3; Oct. 25, 1969, P 19 53 809.1
Int. Cl. C07d *85/48*
U.S. Cl. 260—307 D **8 Claims**

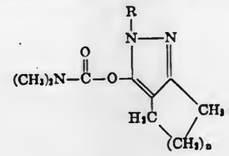
Benzoxazole compounds of the general formula



in which R^1 and R^2 stand for hydrogen, halogen, alkyl groups, or together stand for the residual members of a cycloaliphatic ring; R^3 denotes hydrogen, halogen, an alkyl, cycloalkyl, aralkyl, aryl, carboxylic acid ester, carboxylic acid amide, alkylsulphonyl, arylsulphonyl radical, or an aminosulphonyl radical; R^4 stands for hydrogen or an alkyl radical; R^3 and R^4 together may also be the residual members of a cycloaliphatic ring; and R^5 denotes an alkyl radical or hydrogen, as well as their preparation and their use as optical brightening agents.

3,786,065
N,N-DIMETHYL-O-[- SUBSTITUTED - 3,4 - POLYMETHYLENE-PYRAZOLYL-(5)]-CARBAMIC ACID ESTERS
Hellmut Hoffmann, Wuppertal-Elberfeld, Ingeborg Hammann, Cologne, and Gunter Unterstenhofer, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Aug. 28, 1972, Ser. No. 284,325
Claims priority, application Germany, Sept. 3, 1971, P 21 44 124.7
Int. Cl. C07d *49/36*
U.S. Cl. 260—310 R **8 Claims**

N,N - dimethyl - O - [1-substituted-3,4-polymethylene-pyrazolyl-(5)]-carbamic acid esters of the formula:



(I)

in which

R is an alkyl radical with up to 6 carbon atoms optionally substituted by a nitrile group, and

n is 1 or 2,

which possess insecticidal properties.

3,786,066
PROCESS FOR PREPARING ε-THIOCAPROLACTONES
Peter Ernst Fritze, West Millington, N.J., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Sept. 11, 1970, Ser. No. 71,344
Int. Cl. C07d *67/00*
U.S. Cl. 260—327 R **18 Claims**

Substituted and unsubstituted ε-thiocaprolactones are readily prepared in a two step process. In the first step

an e-caprolactone and carbon disulfide or carbonyl sulfide are reacted to an oligomer product, and in the second step the oligomer product undergoes a base catalyzed rearrangement to form the e-thiocaprolactone.

3,786,067

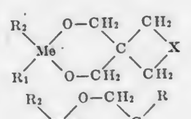
CYCLIC ORGANOMETALLIC COMPOUNDS

Peter E. Throckmorton and William J. McKillip, Worthington, Ohio, assignors to Ashland Oil, Inc., Columbus, Ohio

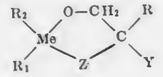
No Drawing. Filed Feb. 18, 1972, Ser. No. 227,621
Int. Cl. C07d *3/00, 61/00*
U.S. Cl. 260—327 R **17 Claims**

Cyclic organometallic compounds having one of the following structural formulas:

(I)



(II)



wherein Me is a Group IV–A metal; X is O, S, or CH_2; Y is either NO_2, NH_2, OH, CF_3, or CH_2OH; Z is OCH_2 or is NH or OCH_2 when Y is CH_2OH; R is an alkyl group; and each R_1 and R_2 individually is alkyl, aryl, cycloalkyl, aralkyl, and alkaryl; and the method of preparation. The compounds are particularly useful as catalysts for reactions involving isocyanates or isothiocyanates.

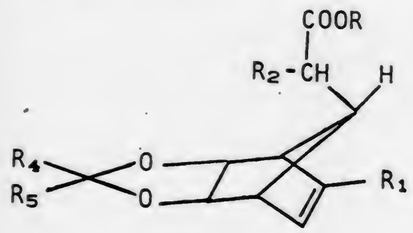
3,786,068

INTERMEDIATE IN THE TOTAL SYNTHESIS OF ELENOLIC ACID

Robert C. Kelly, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Aug. 24, 1970, Ser. No. 66,557, now Patent No. 3,703,530, dated Nov. 21, 1972. Divided and this application Apr. 12, 1972, Ser. No. 243,489
Int. Cl. C07d *13/10*
U.S. Cl. 260—340.5 **2 Claims**

A compound of the formula:



wherein R is alkyl of 1 to 8 carbon atoms, inclusive, R_1 is alkyl of 1 to 4 carbon atoms, R_2 is hydrogen or alkyl of 1 to 4 carbon atoms, and R_4 and R_5 are hydrogen, alkyl of 1 to 4 carbon atoms, inclusive or phenyl, with the proviso that only one of R_4 and R_5 is phenyl, is produced in a multistep reaction.

The compound is an intermediate for elenolic acid.

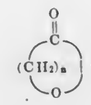
3,786,069

ISOMERIZATION OF LACTONES TO GIVE ALKYLBUTYROLACTONES

Paul Aviron-Violet and Yves Colleuille, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed May 4, 1971, Ser. No. 140,264
Claims priority, application France, May 6, 1970, 7016613
Int. Cl. C07d *5/06*
U.S. Cl. 260—343.6 **6 Claims**

5-alkyl-γ-butyrolactones are obtained by isomerizing a lactone of formula



where n=4, 5, 6 or 7 in the presence of a solid acidic catalyst. Vapor of the starting lactone is contacted with the solid catalyst which exhibits either Bronsted or Lewis acidity e.g. boron phosphate or phosphoric acid.

3,786,070

PROCESS FOR PREPARATION OF CIS-CHRYSANTHEMIC ACIDS

Jacques Martel, Bondy, and Jean Buendia, Fontenay-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,945
Claims priority, application France, Mar. 4, 1969, 6905865
Int. Cl. C07d *7/18*
U.S. Cl. 260—343.2 R **9 Claims**

A process for the preparation of racemic cis chrysanthemic acid or of the (1R,2S) configuration or of the (1S,2R) configuration beginning respectively from racemic trans 3,3-dimethyl-2-(2'-hydroxy-2'-methylpropyl)-cyclopropane1-carboxylic acid or of the (1S,2S) configuration or of the (1R,2R) configuration.

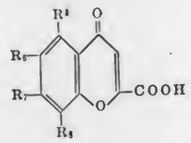
3,786,071

CHEMICAL COMPOUNDS CHROMONE-2-CARBOXYLIC ACIDS

Hugh Cairns, Albert Chambers, and Thomas Brian Lee, Loughborough, England, assignors to Fisons Limited, London, England

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,214
Claims priority, application Great Britain, Aug. 25, 1970, 40,777/70; Sept. 15, 1970, 43,984/70; Dec. 11, 1970, 58,860/70; June 3, 1971, 18,807/71
Int. Cl. C07d *7/34*
U.S. Cl. 260—345.2 **28 Claims**

There are described certain mono-chromone-2-carboxylic acids of formula,



(I)

having one substituent in the 5 or 6 position or having 2 or more substituents in the 5, 6, 7 or 8 positions. There are also described processes for making the compounds and pharmaceutical compositions, for the treatment of asthma, containing the compounds.

3,786,072

PREPARATION OF ALKYL SUBSTITUTED UNSATURATED POLYBASIC ACID ANHYDRIDES

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Mar. 15, 1971, Ser. No. 124,579
Int. Cl. C07c *57/19, 61/102*
U.S. Cl. 260—345.9 **9 Claims**

Alkyl-substituted unsaturated polybasic acid anhydrides are prepared by condensing saturated hydrocarbons with poly-halo-substituted unsaturated polybasic acid anhydrides in the presence of free radical-generating compounds at elevated temperatures to produce the desired product.

3,786,073

SEPARATION PROCESS

Walter Frey, Muttenz, Basel-Land, and Istvan Toth, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Aug. 10, 1971, Ser. No. 170,615
Claims priority, application Switzerland, Aug. 24, 1970, 12,610/70
Int. Cl. C09b *1/00*
U.S. Cl. 260—369 **6 Claims**

Solid anthraquinone nitration products suspended in the nitration medium consisting mainly of nitric acid and phosphoric and/or sulphuric acid are flushed out by an organic flushing agent which is insoluble or sparingly soluble in the mother liquor has a lower specific gravity than the mother liquor and exercises wetting action upon the nitration products; by this process very pure 1-nitroanthraquinone can be obtained.

3,786,074

1,4-DIAMINO-2-ALKYLTHIOPHENOXY-3-HALOANTHRAQUINONE POLYESTER DYES

Guido Genta, Snyder, N.Y., assignor to American Aniline Products, Inc., Paterson, N.J.

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,059
Int. Cl. C09b *1/54*
U.S. Cl. 260—380 **5 Claims**

1,4-diamino-2,3-dihaloanthraquinones are reacted with an alkylthiophenol in an alkaline medium to produce 1,4-diamino-2-alkylthiophenoxy-3-haloanthraquinones useful as dyes for polyester fibers.

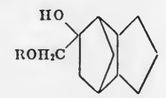
3,786,075

HYDROXY ETHERS HAVING ODORANT PROPERTIES

Paul Jose Teisseire and Bernard Auger, Grasse, France, assignors to Societe Anonyme des Etablissements Roure-Bertrand Fils & Justin Dupont, Grasse, France

No Drawing. Filed Mar. 23, 1971, Ser. No. 127,359
Claims priority, application Switzerland, Apr. 6, 1970, 5,068/70
Int. Cl. C07c *43/18*
U.S. Cl. 260—611 F **4 Claims**

Compounds of the formula



(I)

wherein R is lower alkyl or phenyl are disclosed. Said compounds are useful odorants finding utility in perfume formulations. A process for producing said compounds is also given.

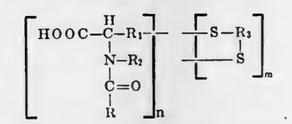
3,786,076

LIPOAMINOACIDS

Jean V. Morelle, 170 Avenue Parmentier, 75 Paris 10eme, France

No Drawing. Continuation-in-part of application Ser. No. 672,975, Oct. 5, 1967. This application Dec. 18, 1969, Ser. No. 886,379
Claims priority, application France, Oct. 13, 1966, 79,767; May 31, 1967, 108,515; Dec. 20, 1968, 179,384
Int. Cl. C08h *3/00*
U.S. Cl. 260—402.5 **6 Claims**

Water-insoluble, lipo-soluble composites of alpha-(fatty acid amido) carboxylic acids of the formula



wherein R is an aliphatic hydrocarbon chain of 5–29 carbon atoms; R_1 and R_2 are hydrogen, an unsubstituted or substituted aliphatic hydrocarbon group wherein the substituents are carboxy, hydroxy, thio, alkylthio, unsubstituted amino, or substituted amino, and R_1 and R_2 may additionally be lower alkylene when joined together to form a cyclic structure; R_3 is lower alkylene; n=1 when m=0, and n=2 when m=1. These composites are especially useful in therapeutic, dermatologic, and cosmetic preparations to be applied to human skin for their assistance in penetrating the cutaneous tissues.

3,786,077

PROCESS FOR FORMING MONOCARBOXYLIC ACID

Roger E. Chandler, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of applications Ser. No. 337,187, Jan. 13, 1964, now abandoned, and Ser. No. 657,532, Aug. 1, 1967. This application Oct. 12, 1967, Ser. No. 674,722
Int. Cl. C07c *53/22*
U.S. Cl. 260—408 **5 Claims**

Process for forming monocarboxylic acid by reaction of halogenated polymer of a C_2 to C_5 monoolefin with acrylic acid.

3,786,078

EXTRACTION OF OIL FROM OIL BEARING SEEDS

De Wayne W. Finley, Harvey E. Smith, and Owen L. Fishwild, Clinton, Iowa, assignors to Standard Brands Incorporated, New York, N.Y.

No Drawing. Filed Nov. 9, 1970, Ser. No. 88,191
Int. Cl. C11b *1/00*
U.S. Cl. 260—412.4 **8 Claims**

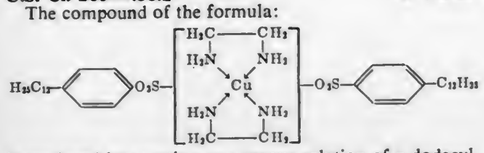
The disclosure is directed to a method of extracting oil from oil bearing vegetable materials. Oil bearing vegetable material having a moisture content below 5 percent is ground and moisturized to a moisture level of up to 9 percent. The material is then subjected to mechanical action to rupture the cells containing the oil and the oil is extracted therefrom by the use of a solvent.

3,786,079
PREPARATION OF COPPER COMPOUND AND PRODUCT THEREOF

Toyozo Yonezawa, Kyoto, Japan, assignor to Sanyo Chemical Co., Ltd., Kyoto, Japan

No Drawing. Continuation of abandoned application Ser. No. 846,222, July 30, 1969. This application Sept. 20, 1971, Ser. No. 182,173
Claims priority, application Japan, Aug. 6, 1968, 43/55,256; May 9, 1969, 44/35,137
Int. Cl. C07f *1/08*
U.S. Cl. 260—438.1 2 Claims

The compound of the formula:



is produced by reacting an aqueous solution of p-dodecylbenzene sulfonate with cupric chloride at 80 to 90° C. to form cupric p-dodecylbenzene sulfonate, which is reacted in methanol with ethylene diamine to form bis ethylenediamine copper(II) p-dodecylbenzene sulfonate. The compound is useful as an agricultural bactericide and insecticide.

3,786,080
CONTINUOUS PROCESS FOR PRODUCING ALKYLALUMINUM COMPOUNDS

Eiichi Ichiki, Kazuo Iida, Atsuro Matsui, and Hidekimi Kadokura, Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Feb. 16, 1971, Ser. No. 115,476
Claims priority, application Japan, Feb. 19, 1970, 45/14,586
Int. Cl. C07f *5/06*
U.S. Cl. 260—448 A 13 Claims

An alkylaluminum compound is produced continuously and economically with less aluminum loss by reacting hydrogen and an alkylaluminum compound or further an olefin in addition thereto, with an alloy containing aluminum and silicon and having a size larger than that of a metal residue to be withdrawn out of a reaction system in a column-type reactor through passage of said hydrogen, alkylaluminum compound and the olefin, if necessary, through the recator packed with the alloy from the bottom upwards at a temperature of 50°–200° C. under a pressure of 10–300 kg./cm.², withdrawing a metal residue made to pass substantially through 32–100 mesh sizes by the reaction out of the reaction system together with the alkylaluminum compound and separating the alkylaluminum compound from the metal residue.

3,786,081
CRUDE OIL DEMULSIFIERS

Knut Oppenlaender, Ludwigshafen, Gert Liebold, Mannheim, and Egon Buettner, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

No Drawing. Filed Dec. 3, 1971, Ser. No. 204,723
Claims priority, application Germany, Dec. 4, 1970, P 20 59 707.3
Int. Cl. C07c *125/06*
U.S. Cl. 260—471 C 2 Claims

Polyoxyalkylated derivatives of carbamic acids for use as quick-acting cold demulsifiers for water-in-oil emulsions.

3,786,082
SYNTHESIS OF ETHYL 4-HALOACETOACETATES

Neil W. Connon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 24, 1972, Ser. No. 301,576
Int. Cl. C07c *67/00, 69/72*
U.S. Cl. 260—483 6 Claims

Ethyl 4-haloacetoacetates are synthesized by a modified Reformatsky reaction of an ethyl haloacetate with magnesium in a chlorinated hydrocarbon solvent, comprising steps of:

(a) reacting magnesium and ethyl haloacetate at reflux in a chlorinated hydrocarbon solvent selected from the group consisting of chloroform and dichloromethane to form a magnesium enolate complex and solvent mixture;
(b) diluting said mixture with water to precipitate said magnesium enolate complex;
(c) washing said magnesium enolate complex with water;
(d) mixing said washed magnesium enolate complex and a quantity of the same chlorinated hydrocarbon solvent and acidifying said mixture with sulfuric acid at a temperature below about 30° C. to hydrolize said complex to form said ethyl 4-haloacetoacetate; and
(e) recovering said ethyl 4-haloacetoacetate.

3,786,083
PROCESS FOR THE PREPARATION OF ACYL SUCCINIC ACID DIALKYL ESTERS

Ewald Schmidt, Bischofsheim, Hanswilli von Brachel, Leopoldshohe, Rolf Müller, Frankfurt am Main, and Horst Kindler, Frankfurt am Main-Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main-Fechenheim, Germany

Filed Nov. 3, 1972, Ser. No. 303,491
Claims priority, application Germany, Nov. 8, 1971, P 21 55 360.6
Int. Cl. C07c *67/00*
U.S. Cl. 260—483 5 Claims

Reaction of an excess of an aldehyde and maleic acid dialkyl ester to produce the title product wherein the reaction components are continuously conducted through a reactor and the supply rate thereof and the heat elimination of the reactor are regulated to obtain the desired reaction temperature and residence time.

3,786,084
PREPARATION OF ESTERS OF FORMIC ACID

Pierre Marie Joseph Ghislain de Radzitzky d'Ostrowick, 101 Avenue Paul Hymans, and Alain Joseph Guillaume De Roocker, 149 Avenue des Capricorne, both of Brussels, Belgium

No Drawing. Filed Jan. 12, 1973, Ser. No. 322,988
Int. Cl. C07c *17/00, 29/00, 67/00*
U.S. Cl. 260—491 1 Claim

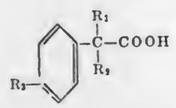
N,N-dialkyl (2-halo-1-substituted ethoxymethylene) immonium halides are formed by halogenation of olefines in the presence of N,N-dilower alkyl formamide to form new compounds and derivatives. The compounds are decomposed to valuable 1,2-dihalocompounds, 1-halo-2-formates and halohydrins by thermal decomposition, hydrolysis or alcoholysis.

3,786,085
ARYL SUBSTITUTED CYCLOALIPHATIC ACIDS

Daniel Frederick Dickel, Berkeley Heights, and George de Stevens, Summit, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 808,341, Mar. 18, 1969, which is a continuation-in-part of application Ser. No. 789,076, Jan. 2, 1969, which in turn is a continuation-in-part of application Ser. No. 716,290, Mar. 27, 1968. This application Sept. 17, 1969, Ser. No. 858,893
Int. Cl. C07c *63/00, 63/44, 69/00*
U.S. Cl. 260—515 R 3 Claims

New α-aryl-cycloaliphatic acids, e.g. those of the formula



R_1=H or alk(en)yl
R_2=cycloalk(en)yl or cycloalk(en)ylalkyl
R_3=aliphatic, cycloaliphatic, araliphatic or aromatic radical, CF_3, NO_2, acyl, free or functionally converted OH, SH, carboxy or sulfo

and functional acid derivatives thereof, are anti-inflammatory agents.

3,786,086
PROCESS FOR PREPARING AMMONIUM SALTS OF ALKANOIC ACIDS

Ebbe R. Skov, Middletown, Roderick B. Judge, Montclair, and Goeffrey Hemphill, Manasquan, N.J., assignors to W. R. Grace & Co., New York, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,462
Int. Cl. C07c *51/52*
U.S. Cl. 260—540 15 Claims

A free flowing particulate solid ammonium salt of an alkanoic acid having 1–10 carbon atoms is prepared by spraying the alkanoic acid into an atmosphere of ammonia vapor in a reaction zone in a manner to prevent the acid spray from contacting the internal surface of the reaction zone.

3,786,087
FLAME AND BURN RESISTANT BUTADIENE RESIN COMPOSITIONS

Wendell R. Conard, Kent, Ohio, and Ronald M. Ellis, Evanston, Ill., assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,476
Int. Cl. C08f *29/08*; C09k *3/28*
U.S. Cl. 260—41.5 A 6 Claims

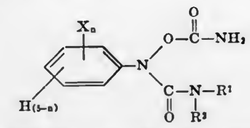
Tetrabromobenzene strongly inhibits flammability and burning of polybutadiene resins.

3,786,088
N,O-DICARBAMOYL-N-PHENYLHYDROXYLAMINES

John Krenzer, Oak Park, and Sidney B. Richter, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Dec. 5, 1968, Ser. No. 781,585
The portion of the term of the patent subsequent to Apr. 11, 1989, has been disclaimed
Int. Cl. C07c *127/16, 127/18, 127/20*
U.S. Cl. 260—545 R 4 Claims

This invention discloses new chemical compounds of the formula



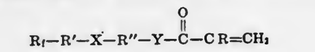
wherein X is selected from the group consisting of alkyl, alkenyl, halogen, haloalkyl, alkoxy, alkylthio, nitro and dialkylamino; *n* is an integer from 0 to 5; and R^1 and R^2 are independently selected from the group consisting of hydrogen and alkyl. The compounds of this invention are useful as herbicides and fungicides.

3,786,089
FLUORINATED ACRYLIC MONOMERS CONTAINING HETERO ATOMS AND THEIR POLYMERS

Christian Scriver Rondestvedt, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application May 16, 1967, Ser. No. 638,721, now Patent No. 3,655,732. Divided and this application Nov. 16, 1971, Ser. No. 199,316.
Int. Cl. C07c *103/30*
U.S. Cl. 260—561 S 2 Claims

Perfluoroalkyl acrylic monomers of the formula



wherein R_f is perfluoroalkyl; R' and R'' are each alkylene; X is sulfur or —NR'''—; Y is oxygen, sulfur or —NR'''—; R''' is hydrogen or lower alkyl; and R is hydrogen or methyl. Homopolymers of the above monomers and copolymers of the monomers with copolymerizable vinylidene monomers free of nonvinylic fluorine; both prepared by emulsion polymerization techniques with a free radical catalyst. Mixtures of the above polymers with a polymer derived from a polymerizable vinylidene monomer free of nonvinylic fluorine. Textile fabrics treated with the above polymers and mixtures of polymers to impart oil- and water-repellent properties to the fabric.

The preparation of the monomers from

$$R_f—R'—X—R''—YH$$

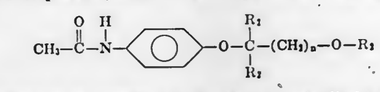
intermediates.

3,786,090
ALKOXYACETANILIDE COMPOUNDS

Anwar Hussain, Lawrence, Kans., assignor to Interx Research Corporation

No Drawing. Filed Sept. 29, 1971, Ser. No. 184,933
Int. Cl. C07c *103/38*
U.S. Cl. 260—562 A 3 Claims

Novel p-alkoxyacetanilide compounds of the formula:



wherein R_1 is hydrogen, alkyl, alkoxy, cycloalkyl or monocyclic aryl, R_2 is alkyl, alkoxy, cycloalkyl or monocyclic aryl, R_3 is alkyl, cycloalkyl or monocyclic aryl, and *n* is 0 to 4. The compounds are useful as analgesics and antipyretics.

3,786,091
PHOSPHORIC ACID SALTS OF LONG CHAIN AMINO COMPOUNDS

Friedrich Bolsing, Lindhorst, Germany (% Knapsack Aktiengesellschaft, Knapsack, Germany)

No Drawing. Continuation-in-part of abandoned application Ser. No. 44,900, June 9, 1970. This application Dec. 15, 1971, Ser. No. 208,395
Claims priority, application Germany, June 23, 1969, P 19 31 768.1
Int. Cl. C07c *87/04*
U.S. Cl. 260—583 R 2 Claims

Production of a phosphoric acid-containing paste base. The paste base is produced by preparing a finely divided aqueous dispersion of a long-chain amine, preheating the dispersion, introducing preheated phosphoric acid thereinto, with vigorous agitation, at elevated temperature and until neutral, and stirring the resulting mixture until cold.

3,786,092
3-NITROPROPIONIC ACID DERIVATIVES

Gianluigi Soldati, Naugatuck, and Allen E. Smith, Bethany, Conn., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,081
Int. Cl. C07c *103/30*
U.S. Cl. 260—561 R 23 Claims

Novel 3-nitropropionic acid derivatives, namely 3-nitropropionamides and 3-nitropropionanilides, possess fungicidal, insecticidal, viricidal, and other activity.

3,786,093
NOVEL BISAMIDES CONTAINING FLUORINE

Bernard M. Lichstein, Elizabeth, and Robert J. Du Bois, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 17, 1969, Ser. No. 867,372
Int. Cl. C07c *103/30*
U.S. Cl. 260—561 HL 7 Claims

Novel compounds useful in imparting oil repellency to fabrics have the formula $(R_fCONH)_2CHR$ wherein R_f

is a radical containing at least one fluorine atom and from 1 to 20 carbon atoms, the radical being selected from the group consisting of alkyl, phenyl, alkylphenyl, phenylalkyi, and any of these radicals containing an ether linkage, and R is hydrogen, trichloromethyl, or phenyl. The compounds are prepared by reacting a nitrile of the formula R_fCN with formaldehyde, chloral, chloral hydrate or benzaldehyde in the presence of a catalytic amount of a strong acid and preferably also in the presence of a solvent such as carbon tetrachloride.

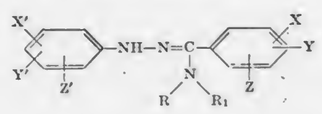
3,786,094

NOVEL PHENYLHYDRAZONES

Jacques Perronnet and Pierre Girault, Paris, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Sept. 15, 1971, Ser. No. 180,851
Claims priority, application France, Sept. 17, 1970, 7033717
Int. Cl. C07c *123/00*
U.S. Cl. 260—564 R **8 Claims**

Phenylhydrazones of the formula



(I)

wherein X and Y are selected from the group consisting of hydrogen, chlorine, bromine, lower alkoxy, lower alkyl, NO_2 and CF_3, Z is selected from the group consisting of hydrogen, chlorine, bromine, lower alkoxy, lower alkyl and NO_2, X′ is selected from the group consisting of hydrogen, chlorine, bromine, benzyloxy, NO_2, SCN, CF_3, lower alkyl and lower alkoxy, Y′ is selected from the group consisting of hydrogen, chlorine, bromine, $—NO_2$, CF_3 and lower alkyl, Z′ is selected from the group consisting of hydrogen, chlorine, bromine and lower alkyl, R and R_1 may be different and are selected from the group consisting of hydrogen, lower alkyl, benzyl, cycloalkyl of 3 to 8 carbon atoms, furfuryl and aryl optionally substituted with a member of the group consisting of chlorine, bromine and lower alkoxy and taken together with the nitrogen atom to which they are attached form a 5 to 7 ring member heterocyclic with the proviso that at least one of X, Y, Z, R, R_1, X′, Y′ and Z′ is other than hydrogen which have remarkable fungicidal activity, their preparation and novel intermediates therefore.

3,786,095

5,11-DIHYDRO-10H-DIBENZO[a,d]CYCLOHEPTEN-10-ONES

Emilio Kyburz, Reinach, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation of abandoned application Ser. No. 744,674, July 15, 1968. This application Aug. 4, 1971, Ser. No. 169,561
Claims priority, application Switzerland, Aug. 3, 1967, 11,056/67
Int. Cl. C07c *87/40*
U.S. Cl. 260—570.8 TC **7 Claims**

5-[3 - (substituted amino) - alkylidene]-5,11-dihydro-10H - dibenzo[a,d]cyclohepten - 10 - ones, 5-[3-(substituted amino)-alkyl]-5,11-dihydro-10H - dibenzo[a,d]cyclohepten-10-ones and analogs thereof are prepared, inter alia, from the correspondingly substituted 3-[10-X-5H-dibenzo[a,d]cyclohepten - 5 - ylidene]-N-substituted alkyl amines and 3-[10 - X - 5H-dibenzo[a,d]cyclohepten-5-yl]-N-substituted alkyl amines, wherein X is halogen, alkoxy, aralkoxy, amino or substituted amino. The products are useful as antidepressants.

3,786,096

RECOVERY OF ADIPIC ACID

Kazuhiko Konno, Ibaraki-ken, Japan, assignor to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan

No Drawing. Filed Mar. 1, 1971, Ser. No. 120,048
Claims priority, application Japan, Mar. 24, 1970, 45/24,738
Int. Cl. C07c *51/48*
U.S. Cl. 260—537 R **6 Claims**

A dibasic-acid mixture comprising adipic acid and succinic acid is subjected to an extraction operation wherein use is made of an extractant system comprising water and cyclohexanone and/or cyclohexanol thereby to cause preferential extraction of adipic acid into an organic phase.

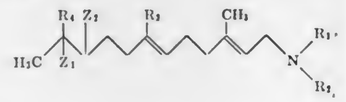
3,786,097

N,N-DIALLYL-3,7,11-TRIMETHYL-2,6,10-DODECATRIENYLAMINE

Friedrich Karrer, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed June 22, 1971, Ser. No. 155,602
Claims priority, application Switzerland, June 26, 1970, 9,706/70; Oct. 8, 1970, 14,890/70
Int. Cl. C07c *87/24*
U.S. Cl. 260—583 H **1 Claim**

New terpenoid compounds, their manufacture and use for influencing the development of insects and representatives of the order Acarina. The compounds correspond to the formula



wherein

Z_1 and Z_2 are each hydrogen or together form a carbon carbon bond or an oxygen bridge,

R_1 is C_2–C_4 alkenyl, C_2–C_4 alkinyl, cycloalkyl, C_1–C_4 haloalkyl, substituted phenyl, C_2–C_4 haloalkenyl or acyl, and

R_2 is hydrogen, C_1–C_4 alkyl, C_2–C_4 alkenyl, C_2–C_4 alkinyl or acyl, or

R_1 is hydrogen, and

R_2 is C_1–C_4 alkyl, or

R_1 and R_2 together with the nitrogen atom to which they are attached form a 3-membered ring, or

R_1 and R_2 are each acyl groups which, with the nitrogen atom to which they are attached form a substituted or unsubstituted heterocyclic ring, and

R_3 and R_4 are each methyl or ethyl.

3,786,098

PRODUCTION OF POLYALKYL PHENOLS AND POLYALKYL NAPHTHOLS BY OXIDATION OF POLYALKYL BENZENES AND POLYALKYL NAPHTHALENES WITH HF-H_2O_2

Louis Schmerling, Riverside, and Jerome A. Vesley, Park Ridge, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 797,694, Feb. 7, 1969. This application May 15, 1972, Ser. No. 253,367
Int. Cl. C07c *37/00*
U.S. Cl. 260—586 B **8 Claims**

Concurrent isomerization of, and nuclear addition of an oxygen-containing substituent to, an alkylaromatic compound containing a minimum of 3 alkyl substituents is accomplished by treating the compound with hydrogen peroxide in the presence of hydrogen fluoride at a temperature in the range of from about —10° to about 100° C.

3,786,099

PROCESS FOR THE PREPARATION OF CYCLODECANONE

Frederick Harold Howell, Maghull, near Liverpool, England, assignor to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed Nov. 20, 1967, Ser. No. 684,526
Int. Cl. C07c *49/27*
U.S. Cl. 260—586 A **1 Claim**

Cyclodecanone is produced by catalytic hydrogenation of 6-hydroxy cyclodecanone, and is converted to sebacic acid. The latter can also be produced by oxidation of mixtures of cyclodecanone and cyclodecanol, or cyclodecanol alone. Inducement and control of exothermic reaction during the conversion to sebacic acid are described.

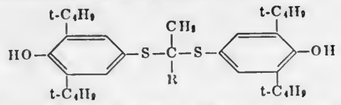
3,786,100

KETO SUBSTITUTED ALKYLIDENEDITHIO-BISPHENOLS

Martin B. Neuworth, Trumbull, Conn., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Original application June 23, 1969, Ser. No. 835,811, now abandoned. Divided and this application Dec. 10, 1971, Ser. No. 206,929
Int. Cl. C07c *149/32*
U.S. Cl. 260—590 **1 Claim**

Compounds having the general formula:



where R is an alkyl radical substituted by a radical selected from the class consisting of alkoxy, carbonyl and ester radicals. The compounds are useful for reducing blood cholesterol in warm-blooded animals.

3,786,101

PURIFICATION OF MERCAPTOALKYL N-ALKYL SULFIDES

Edward E. Huxley, Borger, Tex., assignor to Phillips Petroleum Company

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,839
Int. Cl. C07c *149/02*
U.S. Cl. 260—609 C **7 Claims**

Crude mercaptoalkyl n-alkyl sulfides containing nitrogen impurities are purified by contacting wtih a paraffinic hydrocarbon solvent which selectively removes the sulfides. The mercaptoalkyl n-alkyl sulfides have utility as metal tarnish preventive agents.

3,786,102

TRANSVINYLATION CATALYST

John J. Godfrey, Murrysville, Pa., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 883,241, Dec. 9, 1969. This application Aug. 9, 1971, Ser. No. 170,295
Int. Cl. C07c *41/00, 41/10*
U.S. Cl. 260—615 R **6 Claims**

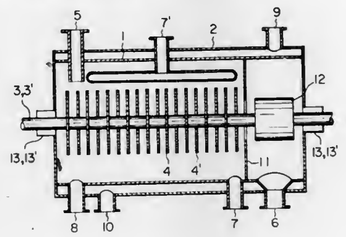
A transvinylation catalyst consisting essentially of a mercury(II) salt of a strongly acidic sulfonated hydrocarbon ion exchange resin and an effective amount of a sterically hindered tertiary amine. A process for preparing a first vinyl ether comprising contacting a second vinyl ether and an alcohol or phenol with said catalyst.

3,786,103

METHOD FOR REMOVING A SMALL AMOUNT OF COMPONENTS FROM A HIGHLY VISCOUS POLYMER SOLUTION CONTAINING SAID COMPONENTS AND AN APPARATUS THEREFOR

Tetsuya Takamatsu, Toshio Yoshimoto, Tsuneaki Narumiya, Hiroshi Yoshii, and Tsuneo Wakamatsu, Tokyo, Saburo Fukui, Hiroshima, Hikokusu Kajimoto, Akimachi, and Yoichi Kawai, Yoshinori Inaba, and Katsuyoshi Usui, Hiroshima, Japan, assignors to Bridgestone Tire Company Limited and Mitsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed July 2, 1971, Ser. No. 159,395
Claims priority, application Japan, July 6, 1970, 45/58,542
Int. Cl. C08d *5/00*
U.S. Cl. 260—683.15 R **2 Claims**



A small amount of impurities contained in a solution of a high molecular weight substance having a high viscosity is dissolved and removed by contacting said solution with an extracting liquid of a solution having a low viscosity by using a horizontal cylindrical treating vessel provided with two rotary driving shafts parallel to the longitudinal direction of said vessel which rotate in the reverse direction with each other, each of said driving shafts being provided with a plurality of rotary members so that the rotary members on the two driving shafts are overlapped at a given distance without contacting with each other and a partition wall having an opening around and near the driving shaft provided in the vicinity of the last rotary member in the outlet side of the highly viscous solution. The highly viscous solution is stirred while being retained between the rotary members and immersed in the low viscous solution and only the highly viscous solution treated with the low viscous solution is discharged through the opening of the partition wall.

3,786,104

ACRYLONITRILE GRAFT COPOLYMERS AND A PROCESS FOR THE PRODUCTION

Siegfried Korte, Leverkusen, and Carl Hans Süling, Odenthal-Hahnenberg, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 29, 1972, Ser. No. 267,541
Claims priority, application Germany, June 29, 1971, P 21 32 171.1
Int. Cl. C08f *29/56*
U.S. Cl. 260—881 **5 Claims**

The object of the invention are graft copolymers consisting of a copolymer of N-vinylpyrrolidone and vinylacetate as graft substrate and a copolymer of acrylonitrile and vinylbromide being compolymerized on said graft substrate. Fibres prepared from these graft copolymers show outstanding high flame stabilities. The graft-copolymers are produced by polymerizing a mixture of acrylonitrile and vinylbromide in the presence of a N-vinylpyrrolidone/vinylacetate copolymer.

3,786,105

POLYPHENYLENE OXIDE AND ETHYLENE/STYRENE COPOLYMER BLEND COMPOSITION

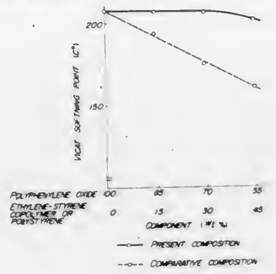
Seizo Nakashio, Nishinomiya, Kanji Yoshikawa, Niihama, Toshio Takemura, Kyoto, and Kunio Ota, Takatsuki, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 24, 1972, Ser. No. 246,764

Claims priority, application Japan, Apr. 27, 1971, 46/28,367

Int. Cl. C08f *41/12*

U.S. Cl. 260—897 R **4 Claims**



A composition comprising a mixture of 99 to 40% by weight of a polyphenylene oxide and 1 to 60% by weight of an ethylene-styrene copolymer. The composition displays excellent processability and impact resistance, while retaining a high softening point and a high heat distortion temperature which are inherent to the polyphenylene oxide, and does not cause phase separation.

3,786,106

CYCLOALKYLAROMATIC PRODUCTION

Ernest A. Zuech and Donald L. Crain, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Oct. 4, 1972, Ser. No. 294,989

Int. Cl. C07c *5/12*

U.S. Cl. 260—668 R **7 Claims**

Cycloalkylaromatics are produced by the reaction of aromatics with cycloolefins over an active clay catalyst. In one embodiment cyclohexylbenzene is produced by the alkylation of benzene with cyclohexene over active clay catalysts such as Filtrol grade 71, Filtrol grade 62 and Filtrol grade 49 catalysts.

3,786,107

METHOD OF PRODUCING ALKYL AROMATICS

Hiroshi Kuribayashi and Takehiko Takeda, Yokohama, Yoshio Okada, Iwaki, and Takashi Yamauchi, Tokyo, Japan, assignors to Japan Gasoline Co., Ltd., and Kureha Kagaku Kogyo Kabushiki Kaisha, both of Tokyo, Japan

No Drawing. Filed Sept. 27, 1972, Ser. No. 292,773

Claims priority, application Japan, Oct. 2, 1971, 46/77,244

Int. Cl. C07c *3/62*

U.S. Cl. 260—672 T **8 Claims**

An improvement in the method of producing alkyl aromatic distillates having the boiling point in the range of 230–360° C. and the mean mol number of added olefin in the range of 1–3, which comprises the step of bringing an aromatic distillate other than the above defined alkyl aromatic distillates into contact with a solid acid catalyst not containing any halogenide in the presence or without the presence of olefin having 2–4 carbon atoms while applying such a pressure as being sufficient for retaining the liquid phase of said distillate other than the above defined alkyl aromatic distillates and a temperature in the range of 150–450° C. for a residence time of 0.5 to 10 hours.

3,786,108

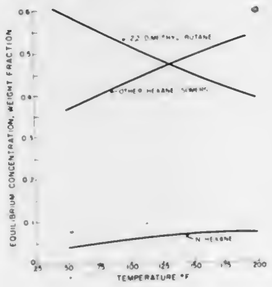
PROCESS FOR THE PRODUCTION OF 2,2-DIMETHYLBUTANE

Joseph P. Giannetti, Allison Park, and Howard G. McIlvried and Raynor T. Sebulsky, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Aug. 2, 1972, Ser. No. 277,291

Int. Cl. C07c *5/28*

U.S. Cl. 260—683.66 **10 Claims**



A process for the production of 2,2-dimethylbutane from n-hexane comprising contacting said n-hexane with an initiator, a naphthene inhibitor, and a catalyst system consisting of hydrogen fluoride and boron trifluoride at effective phase contacting conditions within a temperature range of about 50° F. to about 140° F. and wherein the precise reaction conditions to utilize are correlated by an empirical equation to realize at least 80 percent of the theoretically possible yield of 2,2-dimethylbutane.

3,786,109

OLEFIN CONVERSION PROCESS

Arthur L. Jones, Solon, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 760,991, Sept. 19, 1968. This application Apr. 12, 1971, Ser. No. 136,181

Int. Cl. C07c *3/20*

U.S. Cl. 260—673 **2 Claims**

An olefin or mixtures of olefins are converted to more complex chemical compounds such as dimers by contact with a liquid metal at an elevated temperature.

Benzene and 1,5-hexadiene are formed on passing a mixture of propylene and air through a molten mass composed of bismuth and tin.

3,786,110

ASPHALTENES FOR INHIBITING POLYMERIZATION OF PYROLYSIS PRODUCTS

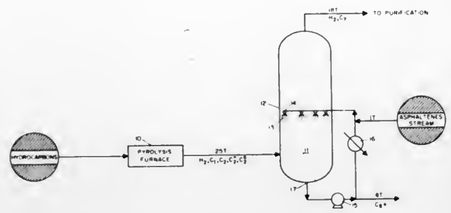
Thaddeus J. Oleszko, Burghausen, Germany, assignor to Marathon Oil Company, Findlay, Ohio

Filed May 19, 1972, Ser. No. 254,956

Int. Cl. C07c *11/24, 3/00*

U.S. Cl. 260—679 R **9 Claims**

Undesired residues from polymers obtained during pyrolysis of petroleum fractions are reduced by incorporating unoxidized or partially oxidized asphaltenes into the pyrolysis product streams. The asphaltenes provide sites for polymer molecules to attach themselves; also



asphaltenes are capable of reacting with the highly reactive polyolefins to form low molecular weight polymers—such prevent the forming of high molecular weight polymers.

3,786,111

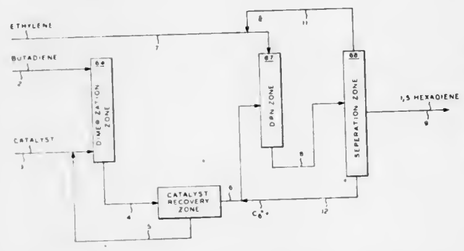
PROCESS FOR THE PREPARATION OF 1,5-HEXADIENE

Van C. Vives, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Dec. 27, 1971, Ser. No. 211,962

Int. Cl. C07c *3/62*

U.S. Cl. 260—680 R **10 Claims**



A process for the preparation of 1,5-hexadiene from ethylene and 1,5-cyclooctadiene in the presence of an olefin disproportionation catalyst is described. By maintaining the olefin disproportionation reaction within certain limits to maintain high conversions, the formation of undesirable byproducts such as 1,5,9-decatriene can be avoided. A process for the preparation of 1,5-hexadiene from ethylene and butadiene is also disclosed wherein the 1,5-cyclooctadiene is prepared by cyclodimerization of butadiene.

3,786,112

OLEFIN DISPROPORTIONATION CATALYST

Robert E. Reusser and Stanley D. Turk, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Aug. 30, 1971, Ser. No. 176,260

Int. Cl. C07c *3/62*

U.S. Cl. 260—683 D **14 Claims**

A catalyst for the olefin disproportionation of unsaturated hydrocarbons is provided comprising a physical mixture of a solid disproportionation catalyst and a double bond isomerization catalyst wherein the double bond isomerization catalyst is further treated with a base.

3,786,113

COMPOSITION CONTAINING AN ACRYLIC RESIN, A POLYETHYLENEIMINE, AND A POLYEPOXIDE

Neiko I. Vassileff, Eastchester, N.Y., assignor to National Patent Development Corporation, New York, N.Y.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,258

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 **11 Claims**

Polymer compositions showing selective permeability for gas and water vapors are prepared through intimate admixture of a polyacrylic resin with a polyethylenimine in a weight ratio of from about 5:1 to about 2:1, respectively, and cross-linking the resultant mixture. The polyacrylic resin is predominantly composed of monomer units derived from one to five types of carboxy-containing unsaturated monomers such as acrylic acid, methacrylic acid, itaconic acid, the esters thereof, the amides thereof and the nitriles thereof. The polyethylenimine can be unsubstituted or substituted on the imine group by alkyl, hydroxyalkyl, hydroxychloroalkyl, hydroxysulfoalkyl, epoxyalkyl, phenylalkyl, cyanoalkyl or carbamyl groups. At least the polyethylenimine component of the composition is cross-linked, either internally through the use of an agent such as zinc ammonium carbonate or through addition of a cross-linking agent such as an epoxide.

3,786,114

THERMALLY STABLE FLAME RETARDANT POLYCARBONATE COMPOSITION CONTAINING IN ADMIXTURE A POLYCARBONATE AND A PHOSPHINIC OR A PHOSPHORIC ACID ADDITIVE

Donald B. G. Jaquiss, New Harmony, and Frank N. Liberti, Mount Vernon, Ind., assignors to General Electric Company

No Drawing. Filed Jan. 3, 1972, Ser. No. 215,153

Int. Cl. C08g *39/10*

U.S. Cl. 260—860 **8 Claims**

A thermally stable flame retardant polycarbonate composition having in admixture a flame retardant polycarbonate and an additive which may be either the barium or cadmium salts of either phenyl phosphinic acids or mono- or diphenyl phosphoric acids.

3,786,115

SUSPENSION POLYMERIZATION PROCESS

Hiroshi Osuga, Yokohama, and Shoichi Kobayashi, Tokyo, Japan, assignors to Nihon Polystyrene Kogyo K.K., Kawasaki-ku, Kawasaki-shi, Kanagawa, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 657,014, July 31, 1967. This application Dec. 23, 1970, Ser. No. 101,119

Int. Cl. C08f *1/11, 7/04, 19/08*

U.S. Cl. 260—880 R **17 Claims**

Process for producing styrenic polymer having a particle grain size distribution such that greater than 70% of the polymer particles have a grain size of 14 to 40 mesh, comprising polymerizing, under the conditions of suspension polymerization, an aqueous suspension of a polymerizable styrene monomer or a solution of such a monomer containing a diene polymer, in which the suspension polymerization is conducted while stabilizing the suspension by adding a suspension stabilizing system consisting essentially of about 0.01–1% of hydroxyethyl cellulose and about 0.01–3% of fine particles of a substantially water insoluble, inorganic phosphate and/or carbonate, based on the weight of suspension, and further in which the suspension polymerization is conducted more preferably while adding to the suspension about 0.001–0.02% by weight of an anionic surface active agent based on the weight of the suspension in addition to the above-mentioned additives.

3,786,116
CHEMICALLY JOINED, PHASE SEPARATED THERMOPLASTIC GRAFT COPOLYMERS

Ralph Milkovich, Naperville, and Mutong T. Chiang, Palos Heights, Ill., assignors to CPC International Inc.

No Drawing. Continuation-in-part of application Ser. No. 244,205, Apr. 14, 1972, which is a continuation-in-part of application Ser. No. 117,733, Feb. 22, 1971. This application Aug. 21, 1972, Ser. No. 282,099
Int. Cl. C08f *29/12, 29/50*
U.S. Cl. 260—885 51 Claims

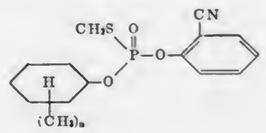
The present invention relates to thermoplastic graft copolymers comprised of copolymeric backbones containing a plurality of uninterrupted repeating units of the backbone polymer and at least one integrally copolymerized moiety per backbone polymer chain having chemically bonded thereto a substantially linear polymer which forms a copolymerized sidechain to the backbone, wherein each of the polymeric sidechains has substantially the same molecular weight and each polymeric sidechain is chemically bonded to only one backbone polymer.

3,786,117
O-(METHYLCYCLOHEXYL)-S-METHYL-O-(2-CYANOPHENYL)THIOLPHOSPHATES

Shigeo Kishino, Yasuo Yamada, Yoshio Kurahashi, and Toyohiko Kume, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 7, 1972, Ser. No. 269,698
Claims priority, application Japan, July 16, 1971, 46/52,394
Int. Cl. A01n *9/36;* C07f *9/16*
U.S. Cl. 260—940 7 Claims

O - (methylcyclohexyl) - S - methyl - O - (2-cyanophenyl)thiolphosphates of the general formula



(I)

in which

n is 1 or 2,

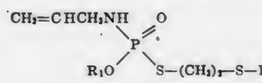
which possess fungicidal and bactericidal properties.

3,786,118
N-ALLYL PHOSPHOROTHIOAMIDATES

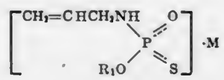
Masachika Hirano, Minoo, Kunio Mukai, Nishinomiya, and Hisami Takeda and Katsutoshi Tanaka, Takarazuka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,923
Claims priority, application Japan, Dec. 17, 1970, 45/114,365
Int. Cl. A01n *9/36;* C07f *9/24*
U.S. Cl. 260—948 10 Claims

A phosphorothioamidate having the formula,



wherein R_1 is methyl or ethyl, and R_2 is an alkyl having 1 to 4 carbon atoms, which is useful as a systemic pesticide for controlling injurious pests, and which is prepared by the condensation of a thiophosphate having the formula,



wherein R_1 is as defined above, and M is an alkali metal, with a halide having the formula,

$$Hal—(CH_2)_2—S—R_2$$

wherein R_2 is as defined above, and Hal is a halogen.

3,786,119
METHOD FOR PRODUCING OPTICAL POLARIZING ELEMENTS

Claude Ortlieb, Strasbourg-Meinau, France, assignor to Vergo S.A., Illkirch-Graffenstaden, Bas-Rhin, France

Filed Dec. 6, 1971, Ser. No. 204,811
Claims priority, application France, Dec. 14, 1970, 7045504
Int. Cl. B29d *11/00*
U.S. Cl. 264—2 1 Claim

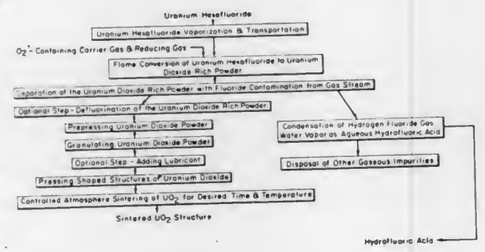


Optical polarizing elements are produced by cutting from a rigid sheet of polarizing plastic material, screens of appropriate form with suitable axial direction. These screens are then curved under vacuum when hot. The curved screens are coated with an attachment varnish and then placed in a mold which is filled with a polymerizable or polycondensable liquid resin. If the screen is of higher specific gravity than the resin, then the curvature of the screen will be less than that of the resin; while if the screen is of lower specific gravity than the resin, then the screen is more sharply curved than the mold, so that in either event the screen, falling or rising through the resin, will contact the mold only about the edges of the screen.

3,786,120
CONVERSION OF URANIUM HEXAFLUORIDE TO URANIUM DIOXIDE STRUCTURES OF CONTROLLED DENSITY AND GRAIN SIZE

William Roger De Hollander, San Jose, Calif., and Harold Holmes Klepfer, Wilmington, N.C., assignors to General Electric Company

Filed Oct. 2, 1970, Ser. No. 77,447
Int. Cl. C01g *43/02*
U.S. Cl. 264—.5 20 Claims

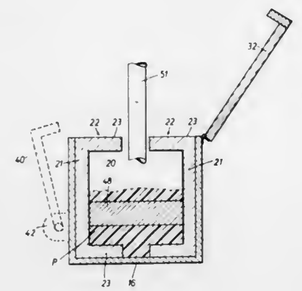


An integrated process for fabricating uranium dioxide structures of desired shape, density and grain size from enriched uranium hexafluoride is presented. Uranium hexafluoride is reacted with a reducing gas and an oxygen-containing carrier gas in a reduction-hydrolysis reaction in an active flame to yield a uranium dioxide rich powder of high usrface area with fluoride impurities. The powder is separated from the gas stream after the reaction, and if the powder has a high fluoride impurity, the powder is defluorinated by heating under a controlled atmosphere so that the high surface area of the powder is preserved. The powder is then prepressed, granulated, pressed into a structure of desired shape and sintered under a controlled atmosphere to yield a ceramic structure of desired density and grain size. The gas stream from the reaction is treated to condense the hydrogen fluoride and water vapor as aqueous hydrofluoric acid.

3,786,121
METHOD FOR THE FABRICATION OF INSULATED PROFILE MEMBERS

Andre Schaerer, 22 Sangglenstrasse, Zurich, Switzerland

Filed Aug. 20, 1971, Ser. No. 173,399
Int. Cl. B29d *27/04;* E06b *7/12*
U.S. Cl. 264—47 10 Claims



A method of manufacturing an insulated profile member useful as a structural element, such as for window frames and paneling, comprising the steps of inserting at least one profile element into a carrier section serving as the mold, introducing a foamable thermosetting resin into such carrier section, foaming the thermosetting resin under pressure, binding the foamed thermosetting resin with the profile element, thus to produce the profile member having a foamed insulating section of good insulating property rigidly bonded with said profile element.

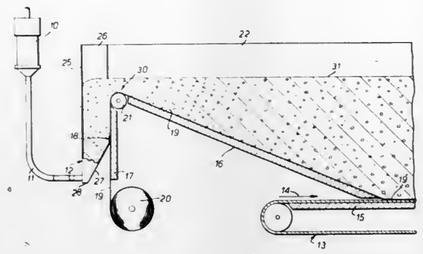
The insulated profile members produced by this invention comprise at least one profile element and a foamed member rigidly bonded therewith. The foamed member has an outer surface which is essentially free of pores and beneath such a foam structure of high density with very fine closed cells.

3,786,122
METHOD FOR THE CONTINUOUS PRODUCTION OF A FOAMED POLYURETHANE SLAB INVOLVING FLOW FROM A VESSEL OVER A WEIR STRUCTURE

Laader Berg, Spjelkavik, Norway, assignor to Unifoam AG

Filed Aug. 24, 1971, Ser. No. 174,412
Claims priority, application Norway, Sept. 1, 1970, 3,317
Int. Cl. B29d *27/04*
U.S. Cl. 264—47 9 Claims

Method for producing continuous polymeric foam slabs, characterized in that the liquid foam reactants are initially introduced into the bottom of a vessel and the resulting foam is allowed to expand upwardly in the vessel due to chemical reaction between the reactants. Prior to completion of the expansion of the mixture, the expanding foam is allowed to flow from the vessel over a weir structure, whereupon the foam completes the expansion process in a channel-shaped conveyor in which the foam



is continuously moved away from the weir structure. According to one embodiment, the foam that flows over the weir moves down an inclined fall plate surface during completion of foam expansion. In another embodiment, the expanding foam passes over the weir directly onto the horizontal reach of a conveyor.

3,786,123
METHOD FOR STABILIZING AND PRESERVING NUTRIENTS AND PRODUCTS

Sol Katzen, Hanassi St. 62, Herzliya Fituach, Israel

No Drawing. Filed Jan. 25, 1971, Ser. No. 109,566
Int. Cl. A61j *3/06;* B29d *27/00*
U.S. Cl. 264—53 7 Claims

An encapsulating agent and a nutrient are admixed, and then the encapsulating agent is gelatinized or polymerized under high temperature and pressure so as to encapsulate the nutrient. The encapsulation allows the nutrient to be kept in a dry stabilized state for a long period of time without the loss of potency. Further the encapsulation allows the nutrients to be released into the digestive tract after a predetermined amount of time. The digestive tract solubilizes or digests the encapsulating agent thereby freeing the nutrient. Encapsulation is preferably conducted using a heated extruder or expander. The encapsulating agent may be a high protein vegetable composition, such as, wheat flour gluten, a grain flour or carbohydrate flour. The nutrients may be in particulate or liquid form and can be such things as vitamins, amino acids, lipids, enzymes, inorganic salts (minerals). Additives such as surfactants, can be incorporated into the admixture before the extruding step.

3,786,124
METHOD OF SINTERING FUSED SILICA CERAMIC FOR STRENGTHENING IT

Dennis R. Platts, Boalsburg, Pa., assignor to Ceramic Finishing Company, State College, Pa.

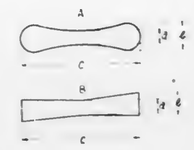
No Drawing. Continuation-in-part of abandoned application Ser. No. 785,670, Dec. 20, 1968. This application Feb. 8, 1971, Ser. No. 113,772
Int. Cl. C04b *35/14, 35/64, 41/02*
U.S. Cl. 264—65 7 Claims

A method of sintering fused silica ceramic, especially slip cast fused silica, for improving the strength of the sintered fused silica ceramic. An unsintered preformed body of fused silica ceramic is subjected, during sintering, to vapor from a heat decomposable fluoride, preferably one taken from the group consisting of aluminum fluoride, cadmium fluoride and zinc fluoride, at a temperature of from 600°–900° C. for a period of time such that the portion of the body which is to have the strength improved is kept at the treating temperature for from 1–4 hours.

3,786,125
PROCESS FOR PRODUCING ACRYLIC SYNTHETIC FIBERS OF NONCIRCULAR CROSS-SECTION AND WITH IMPROVED SPARKLE

Keitaro Shimoda, Isamu Obama, and Takamaro Kusunose, Saidaiji, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

Filed Aug. 10, 1972, Ser. No. 279,625
Claims priority, application Japan, Aug. 12, 1971, 46/61,202
Int. Cl. B28b *28/54*
U.S. Cl. 264—177 F **3 Claims**

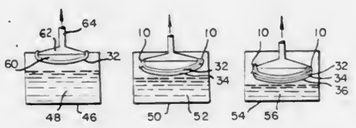


This invention relates to a process for producing acrylic synthetic fibers of a noncircular cross-section, improved in sparkle, from a spinning solution prepared by dissolving an acrylic polymer in an inorganic solvent. More particularly the present invention relates to a process for producing acrylic synthetic fibers of a noncircular cross-section improved in the sparkle by wet-spinning a spinning solution prepared by dissolving an acrylic polymer in an inorganic solvent, through a spinnerette made of a synthetic resin and having a particular spinning orifice shape and thermal conductivity, while maintaining a predetermined jet stretching ratio.

3,786,126
METHOD FOR MAKING A DISPOSABLE FACE RESPIRATOR

George Paul Reimschussel, Flemington, N.J., and Jacob Matthys Prins, Sinking Spring, Pa., assignors to Johns-Manville Corporation, New York, N.Y.

Original application Mar. 4, 1971, Ser. No. 121,086, now Patent No. 3,688,768. Divided and this application July 24, 1972, Ser. No. 274,366
Int. Cl. B28b *1/26*
U.S. Cl. 264—87 **7 Claims**



A process of simultaneously forming and attaching the filter meduim to the face piece is also disclosed. The process comprises depositing a first thin layer of solids from an aqueous slurry onto a foraminous suction mold having the surface contours desired for the interior of the filter medium, placing a face piece having an integrally formed apertured lip over the mold and the first layer, depositing a second thin fibrous layer of solids from an aqueous slurry on the outside surface of the first layer, on the outside surface of the aperture lip and within the apertures in the lip. In a preferred process, two fibrous backing layers are provided in this manner and a fibrous filter layer is deposited from an aqueous slurry on the outside surface of the second fibrous backing layer and within an undercut area provided in the apertured lip. An additional fibrous protecting layer is preferably deposited on the outside surface of the filter layer from an aqueous slurry.

3,786,127
STRETCHING POLYETHYLENE TEREPHTHALATE FILM IN A SHORTENED SPAN

Robert G. Peet, Circleville, Ohio, and Henry O. Foster, Newark, Kenneth G. Paulsell, Wilmington, and Thomas H. Hogshead, Jr., Centerville, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 101,116, Dec. 23, 1970, which is a continuation of application Ser. No. 844,140, July 23, 1969, both now abandoned. This application Jan. 28, 1971, Ser. No. 110,683
Int. Cl. B29d *7/24*
U.S. Cl. 264—288 **8 Claims**



A method of stretching a web of thermoplastic polymeric film having thickness (i.e., gauge) variations therein. The web is heated to an elevated temperature by indirect (i.e., non-contacting) heating means and stretched as it moves between slow and fast steps of nip rolls. The elevated temperature to which the web is heated is between a minimum temperature and a maximum temperature determined, in part, by the stretching rate and substantially all of the stretching takes place in a shortened stretching span between the heating means and the fast set of nip rolls. The heating means is positioned closely adjacent the fast set of nip rolls, which fast rolls preferably quench the web below its glass transition temperature and define, with the heating means, the shortened stretching span.

Apparatus is provided for performing the above-described method.

3,786,128
PURIFICATION OF BERYLLIUM HYDRIDE

Jawad H. Murib, Stuart Schott, and Charles A. Bonecutter, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 316,532, Oct. 16, 1963. This application Sept. 30, 1968, Ser. No. 763,970
Int. Cl. C01f *3/00*
U.S. Cl. 423—122 **6 Claims**

Crude impure beryllium hydride is purified by reacting the hydride with a beryllium halide in the presence of a Lewis base to form a haloberyllium halide complex and disproportionating said complex.

3,786,129
METHOD OF MANUFACTURING FUSED MAGNESIA

Tadashi Kawabe, Ako, Japan, assignor to Tateho Kagakukogyo Kabushiki Kaisha, Ako, Japan

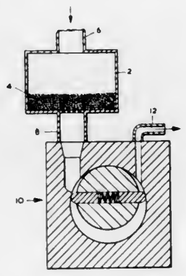
No Drawing. Filed May 4, 1971, Ser. No. 140,271
Int. Cl. C01f *5/02*
U.S. Cl. 423—170 **3 Claims**

Fused magnesia of improved purity is manufactured from magnesia clinker by a method which comprises finely dividing magnesia clinker into a powder, treating the powder with water or an aqueous alkaline solution to form magnesium hydroxide, drying the treated powder, intermixing the dried powder with untreated magnesia clinker, and melting the mixture in an electric furnace.

3,786,130
VACUUM APPARATUS

Malcolm Arthur Baker, Crawley, England, assignor to The British Oxygen Co. Ltd., London, England

Filed June 23, 1971, Ser. No. 156,123
Claims priority, application Great Britain, June 24, 1970, 30,663/70
Int. Cl. B01d *53/34;* **F04b** *37/02*
U.S. Cl. 423—245 **6 Claims**



Hydrocarbon molecules present in gas being evacuated from a housing by a pump, or leaking back into the housing from the pump, are permanently removed by passing the gas in intimate contact with a chemisorption agent at or above room temperature.

3,786,131
COMBATTING ARTHROPODS WITH PHENYLHYDRAZONES OF 1,2-DICARBONYL COMPOUNDS

Karl-Heinz Büchel and Wilfried Draber, Leverkusen, Ingeborg Hammann, Cologne, and Günter Unterstenhöfer, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Sept. 24, 1968, Ser. No. 762,155, now Patent No. 3,641,098. Divided and this application Apr. 8, 1971, Ser. No. 132,542
Claims priority, application Germany, Sept. 26, 1967, P 16 68 025.4
Int. Cl. A01n *9/12, 9/20*
U.S. Cl. 424—304 **10 Claims**

α-(Halo, cyano, nitro and azido)-α-(alkanoyl, carboalkoxy [i.e. alkoxy carbonyl], amino and mono- and dialkyl amino)-carbonyl-(unsubstituted and mono to penta alkyl and/or electronegative substituent [e.g. halo, nitro, cyano, trifluoromethyl, trifluoromethyl-mercapto, -sulfonyl, and -sulfoxyl, alkoxy, alkyl sulfonyl and/or dimethylamino sulfonyl]-substituted) phenyl hydrazones and their corresponding alkali metal, alkaline earth metal and amine salts, which possess pesticidal, especially acaricidal and insecticidal, properties and which may be produced by conventional methods.

3,786,132
METHOD FOR PREPARING CARBONYLS OF RUTHENIUM AND OSMIUM

John L. Dawes and Jerry D. Holmes, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 11, 1972, Ser. No. 270,758
Int. Cl. C01g *1/04, 55/00*
U.S. Cl. 423—417 **17 Claims**

Carbonyls of the formula $M_3(CO)_{12}$, where M is ruthenium or osmium, are prepared by reacting a solution of a halide (such as a chloride, bromide, or iodide), a halide derivative, or a carbonyl halide of ruthenium or osmium in a first solvent with carbon monoxide at a temperature of from about 100° C. to about 150° C. at atmospheric pressure until a carbonyl halide complex is formed. A second solvent is then added in sufficient quantity to lower the boiling point of the resultant solution to less than 100° C. A quantity of zinc is added and the system is reacted with additional carbon monoxide at a temperature less than 100° C. until precipitation of the desired dodecacarbonyl is substantially complete. Each of the two solvents should preferably have the following properties.

(1) Act as a solvent for the starting halide of ruthenium or osmium;
(2) Not enter into the reaction; and
(3) Not act as a solvent for the dodecacarbonyl product.

In addition the first solvent should boil at a temperature between 100° C. and 150° C., and the second solvent should boil at a temperature of less than 100° C.

3,786,133
TITANIUM CARBIDE PREPARATION

Shiu-Tang Chiu, St. Lambert, Quebec, Canada, assignor to Quebec Iron & Titanium Corporation Fer et Titane du Quebec, Inc., Sorel, Quebec, Canada

No Drawing. Filed Sept. 11, 1970, Ser. No. 71,352
Int. Cl. C01b *31/30*
U.S. Cl. 423—440 **5 Claims**

Preparation of TiC from impure titanium oxide containing starting materials by using a carbiding process involving a catalyzer, a binder, a controlled heating speed and temperature, whereby pure titanium carbide grains having high combined carbon and low free carbon contents are obtained as one phase and a metallic matrix surrounding the titanium carbide as another phase. The metallic matrix is readily removed from the two phase body by leaching, thereby recovering the pure titanium carbide.

3,786,134
PROCESS FOR PRODUCING HOLLOW CARBON MICROSPHERES

Yasuo Amagi, Zenya Shiiki, Yukihiko Ohsumi, and Kazuo Noguchi, Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed May 27, 1971, Ser. No. 147,712
Claims priority, application Japan, May 29, 1970, 45/45,625
Int. Cl. C01b *31/02*
U.S. Cl. 423—449 **14 Claims**

Hollow microspheres of carbon are obtained by homogeneously mixing a hard, highly aromatic pitch having a softening point of 60–350° C., a 0–25% nitrobenzene-insoluble moiety and a H/C ratio of 0.2–1.0 with an organic solvent having a low boiling point and being compatible with the pitch, dispersing the mixture into water in the presence of a protective colloid, adjusting the content of the solvent in the resulting microspheres to 0.2–10%, and then flash-heating said microspheres whereby the solvent therein functions as blowing agent to form hollow pitch microspheres.

Subsequently, the hollow microspheres of pitch are rendered infusible by heating them with an oxidizing fluid, gas or liquid, and baked to carbonization at a temperature of 600–2000° C. in an inert atmosphere. The resulting microspheres of carbon are excellently resistant to heat, chemicals and radioactive rays and are thus suitable as high-temperature heat-insulators, warming material, structural material for atomic piles, composite materials with metals, inorganics and plastics.

3,786,135

RECOVERY OF SOLID SELECTIVELY CONSTITUTED HIGH PURITY ALUMINUM CHLORIDE FROM HOT GASEOUS EFFLUENT

Larry K. King and Lester L. Knapp, Maryville, Tenn., Ronald C. Schoener, Lower Burrell, Pa., Nicholas Kloap, Benton, Ark., Bernard M. Starner, Rockdale, Tex., and John A. Remper, Lower Burrell, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sept. 14, 1971, Ser. No. 180,276
Int. Cl. C01f 7/58, 7/60, 7/61
U.S. Cl. 423—496 9 Claims

Recovery of selectively constituted high purity aluminum chloride from the gaseous effluent of the chlorination of sodium contaminated alumina including the steps of purifying such gaseous effluent to provide essentially contaminant-free aluminum chloride in gaseous form in a gaseous carrier through selectively cooling the hot gaseous effluent to a first temperature range well above the ambient condition condensation temperature of aluminum chloride yet sufficient to condense a selective portion of the condensable constituents therein including a substantial portion of the sodium aluminum chloride values therein without condensing appreciable amounts of aluminum chloride, initially separating from the cooled gaseous effluent entrained particles and initially condensed constituents, further reducing the temperature of the residual cooled gaseous effluent from the first stage separation to a second predetermined lower temperature range still above the condensation temperature of aluminum chloride to effect a further selective condensation and separation of the remaining condensable constituents therein, and directly desubliming the essentially contaminant-free gaseous aluminum chloride values from the purified residual gaseous effluent to selectively constituted solid form in a fluidized bed of solid particles of aluminum chloride at controlled temperatures.

3,786,136

METHODS OF REMOVING SULFUR FROM THE EXHAUST GASES OF FIRED FUELS CONTAINING SULFUR AND OF SIMULTANEOUSLY EXPLOITING THE SULFUR FOR THE PREPARATION OF SULFURIC ACID

Tord Valter Yngve Axeborg, 360 75, Alstermo, Sweden

No Drawing. Filed July 15, 1971, Ser. No. 165,783
Int. Cl. C01b 17/72
U.S. Cl. 423—522 8 Claims

Ammonium nitrate and at least one of the compounds potassium nitrate and sodium nitrate are introduced into the exhaust gases from a furnace fired with fuels containing sulfur, and the exhaust gases are mixed with steam in a reaction chamber whereupon the exhaust gases are cooled and the forming sulfuric acid solution is collected.

3,786,137

PREPARATION OF ULTRA-PURE COMPOUNDS CORRESPONDING TO THE FORMULA $CaAl_2O_4$ AND $MgAl_2C_4$

Ian M. Thomas, Temperance, Mich., assignor to Owens-Illinois, Inc.

No Drawing. Continuation of abandoned application Ser. No. 40,721, May 26, 1970. This application Apr. 7, 1972, Ser. No. 242,260
Int. Cl. C01f 7/16
U.S. Cl. 423—600 5 Claims

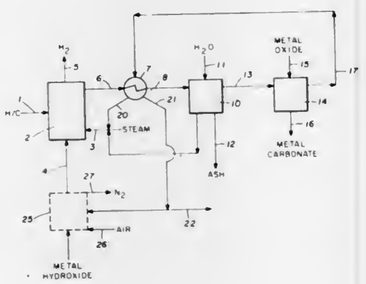
Double metal alkoxides of the formula $M[Al(OR)_4]_2$ are converted by pyrolysis, or hydrolysis and pyrolysis, to ultra-pure compounds corresponding to the formula MaI_2O_4 wherein M is magnesium or calcium and R is an alkyl group containing from 1 to 7 carbon atoms.

3,786,138

HYDROGEN GENERATION

Harold Shalit, Drexel Hill, and Edward S. J. Tomezsko, Media, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Aug. 16, 1971, Ser. No. 172,046
Int. Cl. C01b 1/02, 1/26
U.S. Cl. 423—648 8 Claims



A method for forming hydrogen by reacting a carbonaceous material with steam in the presence of a molten alkali metal hydroxide, the carbon dioxide formed reacting with the alkali metal hydroxide to form an alkali metal carbonate, the reaction being carried out at least at the melting point of the alkali metal hydroxide and the alkali metal hydroxide being supplied in an amount at least sufficient to react with substantially all the carbon dioxide formed during the reaction.

3,786,139

HYDROGEN GAS GENERATING COMPOSITION AND METHOD FOR THE SAME

Gerald L. MacKenzie, Port Tobacco, and Paul R. Mosher, Indian Head, Md., assignors to the United States of America as represented by the Secretary of the Navy

Original application Feb. 25, 1970, Ser. No. 17,994, now Patent No. 3,674,702. Divided and this application Apr. 26, 1972, Ser. No. 247,904
Int. Cl. C01b 1/02, 1/05
U.S. Cl. 423—657 12 Claims

Compositions of a metal hydride, such as lithium hydride, aluminum metal and an elastomer binder, such as butyl rubber, which generate hydrogen gas upon being dispersed in water.

ERRATUM

For Class 424—304 see:
Patent No. 3,786,131

3,786,140

DIAGNOSTIC COMPOSITION AND A METHOD OF IN-VIVO DETERMINATION OF THE FUNCTION OF THE HUMAN PANCREAS

Jürgen Meyer-Bertenrath, Hanau, Hans Kaffarnik, Marburg, Hans-Georg Rey, Mannheim-Waldhof, Gerhard Michal, Tutzing, Upper Bavaria, and Ernst-Werner Busch, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Germany

No Drawing. Filed Sept. 3, 1970, Ser. No. 69,425
Claims priority, application Germany, Sept. 10, 1969, P 19 45 663.4
Int. Cl. C07d 7/42; C09k 3/00; G01n 31/00
U.S. Cl. 424—7 8 Claims

There are provided a diagnostic composition for the determination of the activity of pancreatic enzymes in the living human body and a method for carrying out this examination of the exocrine pancreas function. This new diagnostic composition comprises a monoester of fluorescein with a fatty acid having 8 to 16 carbon atoms in a pharmaceutical carrier. This new method for examining the exocrine pancreas function is carried out in that a predetermined amount of a fluorescein fatty acid monoester is introduced into and passed through the gastrointestinal tract, then the urine is collected or a portion of blood serum is withdrawn and the amount of released fluorescein contained in the urine or the blood serum is determined analytically.

3,786,141

METHOD OF PRODUCTION OF ANTI-TUMOR SUBSTANCES

Haruki Ogawa, Fuchu, Akihiro Yamamoto, Higashimurayama, Yutaka Sugawara, Iruma-gun, and Shigeo Suzuki and Yoshio Takagaki, Kodaira, Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 30, 1971, Ser. No. 185,112
Claims priority, application Japan, Sept. 30, 1970, 45/85,006
Int. Cl. A01n 15/00
U.S. Cl. 424—95 10 Claims

A water-insoluble anti-tumor active substance is prepared from the living cells of hemolytic streptococci by lysing the cells of hemolytic streptococci with a lytic enzyme and collecting a water-insoluble fraction which corresponds to a protoplast membrane fraction of the cells. The preparation of the anti-tumor substance is far superior in the anti-tumor activity to that of water-soluble fraction and has less inflammation-, fever- and pain-causing properties than any ones of prior art.

3,786,142

ANTIBIOTIC ENDURACIDIN AND PROCESS FOR THE PRODUCTION THEREOF

Motoo Shibata, Toyonaka, Eiji Higashide, Takarazuka, Kazunori Hatano and Komei Mizuno, Suita, Mitsuko Asai, Takatsuki, and Masayuki Muroi, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation-in-part of abandoned application Ser. No. 586,483, Oct. 13, 1966. This application Oct. 15, 1969, Ser. No. 866,636
Claims priority, application Japan, Oct. 13, 1965, 40/62,849; Oct. 26, 1965, 40/65,884
Int. Cl. A61k 21/00
U.S. Cl. 424—118 5 Claims

Enduracidin (prepared from a strain of Streptomyces in a nutrient medium) and Enduracidin hydrochloride are antibiotics useful in combating septic conditions in vitro and certain pathological disorders in vivo. Enduracidin exhibits strong antimicrobial activity against Gram-positive bacteria and acid fast bacteria.

3,786,143

METHOD FOR TREATING VIRUS INFECTION AFFECTING THE BRAIN

Hans Rudolf Corrodi, Askim, Nils Erik Oskar Lycke, Frolunda, and Björn-Erik Roos, Goteborg, Sweden, assignors to Aktiebolaget Hassle, Molndal, Sweden

No Drawing. Filed Dec. 10, 1969, Ser. No. 884,024
Claims priority, application Sweden, Dec. 23, 1968, 17,745/68
Int. Cl. A61k 27/00
U.S. Cl. 424—309 3 Claims

Method for treating viral disease caused by herpes simplex virus, rabies virus, meningitis virus, or poliomyelitis virus which comprises administering a therapeutically effective dose containing at least one inhibitor of the biosynthesis of the monoamines noradrenaline, dopamine or 5-hydroxytryptamine.

3,786,144

1-POLYFLUOROALKYL BENZODIAZEPINES TO TREAT ANXIETY

Martin Steinman, Livingston, N.J., assignor to Schering Corporation, Bloomfield, N.J.

No Drawing. Original application Feb. 13, 1970, Ser. No. 11,336, now Patent No. 3,723,414. Divided and this application Dec. 8, 1972, Ser. No. 313,219
Int. Cl. A61k 27/00
U.S. Cl. 424—244 12 Claims

Disclosed herein are 1-(polyfluoroalkyl)-2,3-dihydro-5-aryl-1H-1,4-benzodiazepines and compounds useful as intermediates for preparing these benzodiazepines. These benzodiazepines are particularly useful as anti-anxiety agents.

3,786,145

11-BASICALLY SUBSTITUTED DIBENZ[b,f][1,4] OXAZEPINE COMPOSITIONS FOR TREATING EMESIS

Jean Schmutz, Muri, and Fritz Hunziker and Franz Martin Kunzle, Bern, Switzerland, assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 55,603, July 16, 1970, which is a continuation-in-part of application Ser. No. 797,281, Feb. 6, 1969, now Patent No. 3,546,226, dated Dec. 8, 1970, which in turn is a continuation-in-part of abandoned applications Ser. No. 371,123, May 28, 1964, and Ser. No. 712,956, Mar. 14, 1968. This application Dec. 29, 1971, Ser. No. 213,710
Int. Cl. A61k 27/00
U.S. Cl. 424—250 11 Claims

Pharmaceutical compositions containing 11-basically substituted dibenz[b,f][1,4]oxazepines or their pharmaceutically acceptable acid addition salts are useful in the treatment of emesis.

3,786,146

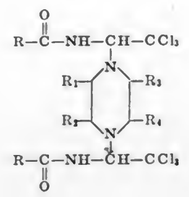
FUNGICIDAL COMPOSITIONS COMPRISING N,N'-BIS-[(1 - AMINO - 2,2,2 - TRICHLORO)-ETHYL]-PIPERAZINES

Walter Ost, Klaus Thomas, and Dietrich Jerchel, Ingelheim am Rhein, and Karl-Richard Appel, Biberach-Rissegg, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Germany

No Drawing. Application Nov. 4, 1970, Ser. No. 87,015, now Patent No. 3,696,106, dated Oct. 3, 1972, which is a continuation-in-part of application Ser. No. 793,187, Jan. 22, 1969, now Patent No. 3,595,916, dated July 27, 1971. Divided and this application July 13, 1972, Ser. No. 271,365
Claims priority, application Austria, Jan. 23, 1968, A 674/68; May 17, 1968, A 4,795/68
Int. Cl. A01n 9/22
U.S. Cl. 424—250 8 Claims

Fungicidal compositions comprising an inert liquid or comminuted solid carrier and an effective fungicidal

amount of a compound of the formula



wherein

R is hydrogen or alkyl of 1 to 4 carbon atoms which may have from one to three halogen atoms attached thereto,

R_1 is hydrogen, alkyl of 1 to 3 carbon atoms or phenyl,

R_2 hydrogen, methyl or ethyl, and

R_3 and R_4 are each hydrogen or methyl;

and a fungicidal method using such compounds.

3,786,147

METHOD OF CONTROLLING POULTRY COCCIDIOSIS

Masatoshi Nagawa, Yoshio Suzuki, Katsuaki Matsui, and Yoshiyasu Tsurusaki, Tokyo, and Masaoki Iijima, Matsudo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Continuation of application Ser. No. 859,478, Sept. 18, 1969, which is a continuation of application Ser. No. 575,241, Aug. 26, 1966, both now abandoned. This application Apr. 27, 1971, Ser. No. 138,005

Claims priority, application Japan, Sept. 2, 1965, 40/53,778; Nov. 10, 1965, 40/68,501; June 30, 1966, 41/42,102

Int. Cl. A61k *27/00*

U.S. Cl. 424—251 **2 Claims**

Poultry coccidiosis is combatted by administering to poultry an anticoccidial amount of

3 - (2 - methyl-4-amino-5-pyrimidinyl)methyl-4-methyl-5-(2-chloroethyl)thiazolium chloride hydrochloride

or

3 - (2 - methyl-4-amino-5-pyrimidinyl)-methyl-4-methyl-5 - (2 - chloroethyl)thiazolium naphthalene 1,5-disulfonate.

0.004–0.6% by weight of the respective compound is incorporated in poultry feed for obtaining the best results.

3,786,148

METHOD OF TREATING HYPERTENSION WITH MORPHANTHRIDINES

Richard Dage, Brown Deer, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 49,502, June 24, 1970, now Patent No. 3,692,906. This application Aug. 3, 1972, Ser. No. 277,527

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **3 Claims**

The inventive method comprises administering a morphanthridine to a hypertensive animal to effect a lowering of blood pressure. Representative of the compounds that can be used in the method are 2-chloro-11-(3-dimethylaminopropylidene)-morphanthridine and 11-(1-methyl-4-piperidylene)-morphanthridine.

3,786,149

ANIMAL FEED FOR OBTAINING INCREASED PRODUCTION IN ANIMALS

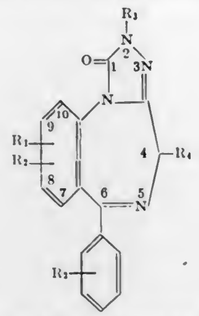
Robert J. Collins, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Aug. 9, 1971, Ser. No. 170,329

Int. Cl. A61k *27/00*

U.S. Cl. 424—269 **6 Claims**

An animal feed comprising a compound of the group consisting of 2,4-dihydro-6-phenyl-1H-s-triazolo[4,3-a][1,4]benzodiazepin-1-ones of the formula:



Formula I

wherein R_1, R_2, and R_3 are selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoylamino and dialkylamino, in which the carbon chain moieties are of 1 to 3 carbon atoms, inclusive, and wherein R_4 and R_5 are selected from the group consisting of hydrogen and alkyl as defined above and including the pharmacologically acceptable acid addition salts and N–5 oxide in combination with a nutrient feed. A process for obtaining increased productivity in meat-producing, milk-producing and egg-laying animals by feeding the aforementioned compound in combination with nutrient feeds.

3,786,150

FUNGICIDAL USE OF CERTAIN BENZ[d]ISOTHIAZOLES

Fui-Tseng H. Lee and Gert P. Volpp, Princeton, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,674

Int. Cl. A01n *9/12*

U.S. Cl. 424—270 **1 Claim**

3,6-dichloro - 7 - nitrobenz[d]isothiazole, useful as a fungicide, is described. The preparation of the compound and fungicidal formulations containing it are also described.

3,786,151

METHODS OF COMBATTING BACTERIA OR FUNGI USING 3-METHYL-4,4-DICHLORO-5-PYRAZOLONE

Pierre Girault, Paris, and Guy Hagemann, Nogent-sur-Marne, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,272

Claims priority, application France, Aug. 17, 1970, 30,177

Int. Cl. A01n *9/22*

U.S. Cl. 424—273 **2 Claims**

Biocidal 3-methyl 4,4-dichloro 5-pyrazolone, biocidal mineral or organic salts thereof, biocidal compositions containing 3-methyl 4,4-dichloro 5-pyrazolone or its mineral or organic salts, a method for controlling bacteria and a method for controlling bacteria and fungi.

3,786,152

SURFACE-COATING COMPOSITIONS CONTAINING N' - TRICHLOROMETHYLMERCAPTO-INDAZOLES

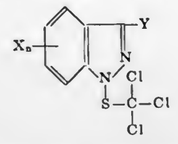
Pasquale P. Minieri, Woodside, N.Y., assignor to Tenneco Chemicals, Inc.

No Drawing. Continuation-in-part of applications Ser. No. 589,235, Oct. 25, 1966, now Patent No. 3,637,736, and Ser. No. 689,812, Dec. 12, 1967, now Patent No. 3,641,050. This application Nov. 6, 1970, Ser. No. 87,615

Int. Cl. A01n *9/22*

U.S. Cl. 424—273 **14 Claims**

Compounds that have the structural formula



wherein X represents nitro, amino (halogenated benzylidene)amino, or halogen, Y represents hydrogen or halogen, and *n* is a number in the range of zero to 2 are used to protect surface-coating compositions from deterioration resulting from attack by fungi and other microorganisms.

3,786,153

CONTROL OF VAMPIRE BATS

Roy D. Thompson and Charles P. Breidenstein, Lakewood, Colo., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed Apr. 24, 1972, Ser. No. 247,168

Int. Cl. A01n *9/24, 9/28*

U.S. Cl. 424—281 **4 Claims**

Population reduction of vampire bats is accomplished by means of a toxicant administered systemically to host animals, particularly cattle. The toxicant is administered in an amount that is harmless to the host animal but is lethal to vampires that feed on the blood of the host.

3,786,154

COMPOSITIONS AND METHOD EMPLOYING 1-[4-HYDROXY - 3'-(HYDROXYMETHYL)-PHENYL]-1-HYDROXY-2-ARALKYLAMINOETHANES

John T. Suh, Mequon, and Thomas M. Bare, Milwaukee, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 150,220, June 4, 1971, now Patent No. 3,700,692. This application Oct. 19, 1972, Ser. No. 298,841

Int. Cl. A61k *27/00*

U.S. Cl. 424—282 **6 Claims**

Pharmaceutical compositions containing α^1-[[(α-methyl - 3,4 - methylenedioxyphenethyl)amino] - methyl]-4-hydroxy-m-xylene-α^1,α^3-diol are useful in producing bronchodilation in animals.

3,786,155

SULFUR CONTAINING FUNGICIDAL COMPOSITIONS AND METHODS OF USE

Gilbert Cousserans, Portet-sur-Garonne, and Francois Mathey, Robert Scuflaire, and Oleg Gryszkiewic-Trochimowski, Ballancourt, France, assignors to Azote et Produits Chimiques S.A., Toulouse, France

No Drawing. Filed Sept. 8, 1970, Ser. No. 70,600

Claims priority, application France, Sept. 8, 1969, 6930409

Int. Cl. A01n *9/12*

U.S. Cl. 424—301 **8 Claims**

Compositions comprising as an active ingredient a compound of the formula

$$(iso\text{-}C_3H_7)O—COS—(CH_2)_n—SOC—O(iso\text{-}C_3H_7)$$

wherein *n* is 0 or 1 are useful in the prevention or cure of fungal infections, e.g., *Botrytis cinerea*, in plants and for combatting noxious insects, e.g., flies, cockroaches and ants.

3,786,156

METHOD OF TREATING HYPERGLYCEMIA

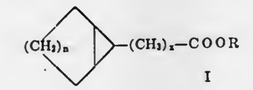
Ronald H. Rynbrandt and Elisabeth S. Cerda, Portage, and Fredericka L. Schmidt, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 106,601, Jan. 14, 1971. This application Aug. 3, 1972, Ser. No. 277,575

Int. Cl. A61k *27/00*

U.S. Cl. 424—305 **7 Claims**

A method of treating hyperglycemia and more specifically diabetes mellitus in mammals e.g. dogs, cats, horses, and humans, with a unit dosage form of exo-bicycloalkane carboxylic acids and esters thereof of the Formula I:



I

wherein *n* has the value of 1 to 3, inclusive, wherein *x* is zero or 1; and wherein R is selected from the group consisting of hydrogen, methyl and ethyl.

3,786,157

METHOD OF TREATING HYPERGLYCEMIA

Ronald H. Rynbrandt, Portage, and Fredericka L. Schmidt, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 106,590, Jan. 14, 1971. This application Aug. 3, 1972, Ser. No. 277,574

Int. Cl. A61k *27/00*

U.S. Cl. 424—317 **3 Claims**

A method of treating hyperglycemia and more specifically diabetes mellitus in mammals e.g. dogs, cats, horses, and humans, with a unit dosage form of exo-tricycloalkane-anti-carboxylic acid and esters of the Formula I:



3,786,158

SUBSTITUTED O-CARBAMYLHYDROXAMATE INSECTICIDES

James B. Buchanan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Application Apr. 2, 1970, Ser. No. 32,410, now Patent No. 3,639,633, which is a continuation-in-part of application Ser. No. 670,494, Aug. 31, 1967, now Patent No. 3,576,834, which is a continuation-in-part of application Ser. No. 602,134, Dec. 16, 1966, which in turn is a continuation-in-part of application Ser. No. 361,277, Apr. 20, 1964, both now abandoned. Divided and this application Sept. 9, 1971, Ser. No. 179,235

Int. Cl. A01n *9/12, 9/20*

U.S. Cl. 424—327 **4 Claims**

Substituted O-carbamylhydroxamates such as methyl O-(methylcarbamylthiolacetohydroxamate are useful in

controlling insects, other arthropod pests and pestiferous mollusks.

ERRATUM

For Class 424—263 see:
Patent No. 3,786,160

3,786,159
PROCESS OF MANUFACTURING ALCOHOL-CONTAINING SOLID MATTER
Jinichi Sato, Nagoya, and Tosiro Kurusu, Niwa-gun, Japan, assignors to Sato Shokuhin Kogyo Kabushiki Kaisha, Komaki-shi, Japan
No Drawing. Filed Dec. 13, 1971, Ser. No. 207,659
Claims priority, application Japan, Dec. 18, 1970, 45/114,585
Int. Cl. A23l *1/04*
U.S. Cl. 426—302 **8 Claims**

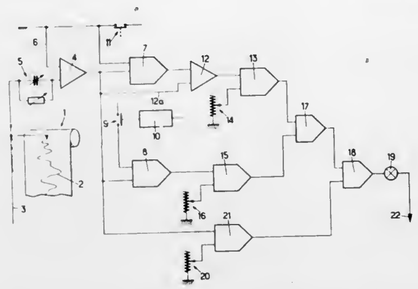
A solution of alcohol, water and a water-soluble product is formed, the water-soluble product being present in an amount more than 70% by weight of the water and more than 100% by weight of the alcohol. The solution is spray-dried at the lowest possible temperature to obtain a powder product in which the water is substantially removed and the alcohol is contained within a coating of the water-soluble product.

3,786,160
USE OF 2-HYDROXYMETHYL-3-HYDROXY-6-(1-HYDROXY - 2-AMINOETHYL)-PYRIDINES AS BRONCHODILATORS
Wayne E. Barth, New London, Conn., assignor to Pfizer Inc., New York, N.Y.
No Drawing. Original application Feb. 16, 1971, Ser. No. 115,878, now Patent No. 3,700,681, dated Oct. 24, 1972. Divided and this application May 25, 1972, Ser. No. 256,756
Int. Cl. A61k *27/00*
U.S. Cl. 424—263 **10 Claims**

2-hydroxymethyl - 3 - hydroxy - 6 - (1-hydroxy-2-aminoethyl)pyridines and salts thereof, a novel class of β-adrenergic agonist bronchodilators in mammals, and 2-hydroxymethyl - 3 - benzyloxy - 6 - pyridinecarboxaldehyde, a valuable intermediate in the preparation of the subject compounds.

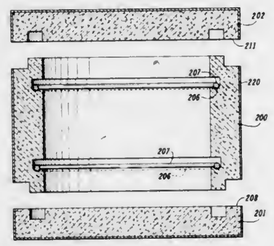
ELECTRICAL

3,786,161
PROCESS AND APPARATUS FOR MONITORING AND CONTROL OF METALLURGICAL FURNACES
Guy Sartorius, Bau-Saint-Martin, France, assignor to Societe Des Aciers Fins De L'Est, Paris, France
Filed July 6, 1973, Ser. No. 376,985
Claims priority, application France, July 11, 1972, 7225154
Int. Cl. F27d *11/10*
U.S. Cl. 13—12 **10 Claims**



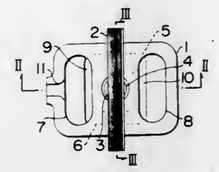
A process and apparatus for the monitoring and control of the heating conditions of a metallurgical furnace. The inside surface temperature of the furnace walls is continuously measured and after the temperature reaches a predetermined minimum, the temperature increase per unit time is also measured. When both the temperature increase per unit time and the temperature exceed predetermined minimum values an alarm is operated and control signals are inputted to control circuitry for decreasing the temperature by carrying the electrode current and by reducing the furnace voltage if varying the electrode current does not produce a desired reduction in the temperature increase per unit of time after a predetermined period.

3,786,162
PORTABLE KILNS
Frank S. Colson, 1666 Hillview, Sarosota, Fla.
Filed Sept. 27, 1971, Ser. No. 184,122
Int. Cl. H05b *3/66*
U.S. Cl. 13—22 **7 Claims**



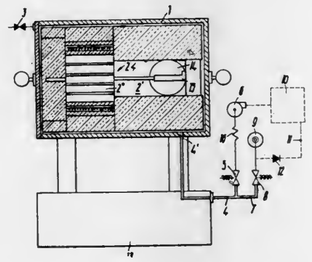
A relatively light weight portable kiln which may be quickly and easily disassembled, transported and reassembled. The kiln shown comprises: a cylindrical body, an optional body extender, a disk shaped base which engages the body, a similarly shaped lid, a metallic support frame and a controlled source of heat. The cylindrical body, the base and the lid are vacuum formed members composed of alumina-silica, zirconium or other similar fibrous material which is light weight, strong and capable of acting as an insulator and container of heat at temperatures in excess of 2,000°F. The body, the lid and the base are each covered with a stainless steel exterior surface to protect these elements from mechanical damage. The source of controlled heat shown comprises electric elements supported in retaining recesses in the wall of the cylindrical body.

3,786,163
LOW-FREQUENCY INDUCTION FURNACE
Masahiro Kohama, Yokohama, Japan, assignor to Kokusai Tekko Kabushiki Kaisha, Yokohama-shi, Japan
Filed Feb. 20, 1973, Ser. No. 333,639
Int. Cl. H05b *5/12*
U.S. Cl. 13—29 **4 Claims**



A low-frequency induction furnace in which molten metal reservoirs are provided on both sides of a primary coil, both reservoirs communicating with each other at their bottom portions by means of two secondary grooves extending across the primary coil. The bottom portion of each molten metal reservoir is of a size such that its cross-sectional area in the direction transverse to the direction of energization by induced current is smaller than that of each secondary groove. The induced current is induced in the molten metal in the reservoirs by energy from the primary coil.

3,786,164
VACUUM OVEN FOR FIRING CERAMIC FACINGS
Karl Hintenberger, Krogerstr. 4, Frankfurt am Main, Germany
Filed Apr. 24, 1972, Ser. No. 246,641
Claims priority, application Germany, Apr. 22, 1971, P 21 19 563.1
Int. Cl. H05b *1/00*
U.S. Cl. 13—31 **3 Claims**



Ceramic facings are filed in a refractory lined oven having a pre-heating zone and a firing zone, the facings being charged into the pre-heating zone on a carriage which may be moved into the firing zone. The oven chamber may be selectively evacuated through a main conduit which connects the lower part of the oven housing to the intake of a vacuum pump or supplied with inert gas from a supply thereof. For this purpose, branch conduits lead from the vacuum pump and the inert gas

supply to the main conduit, and valves in the branch conduits may be selectively operated. A venting valve is mounted in the upper part of the oven housing for venting inert gas from the oven chamber.

3,786,165

PREHEATING METHOD FOR FURNACES

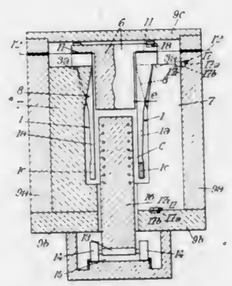
Anne-Marie Anthony nee Barbier, Meudon; Krzysztof Dembinski, Tigy; Michele Faucher nee Dupre, Fonteney Le Fleury, and Lucien Dupont, Vouzon, all of France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Paris-Defense, France

Division of Ser. No. 91,847, Nov. 23, 1970. This application Nov. 30, 1972, Ser. No. 310,790

Claims priority, application France, Nov. 24, 1970, 7040379

Int. Cl. F27d *23/00*

U.S. Cl. 13—34 **2 Claims**



The furnace has *n* superposed rows of *m* heating elements suspended on supports, the assembly bounding a heating cavity in the form of a tunnel. The elements are U-shaped and suspended at the ends of their arms. At least some of these elements are heated to 2000° to 2200°C by a movable preheating element, supplemented by radiation from the initially preheated elements to the others progressively.

3,786,166

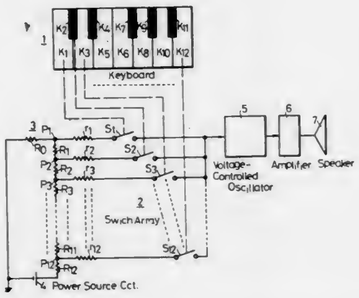
KEYBOARD TYPE ELECTRONIC MUSICAL INSTRUMENT

Fumio Mieda, Saitama, Japan, assignor to Kelo Giken Kogiyo Kabushikikaishiya, Tokyo, Japan

Continuation of Ser. No. 121,831, March 8, 1971, abandoned. This application May 19, 1972, Ser. No. 255,299

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.01 **2 Claims**



A keyboard type electronic musical instrument, having a group of twelve keys per octave for playing the even tempered scale, is adapted to sound the quarter tone between two notes of the even tempered scale when the keys corresponding to said two notes are simultaneously operated. The instrument employs a voltage controlled oscillator, a voltage source having output voltages proportional to the frequencies of the notes of the scale, a group of key operated switches and series resistors for selectively connecting the oscillator to the voltage source. The resistors of operated switches form a voltage divider when two keys are simultaneously operated and a voltage equal to the average of the converted voltages is applied to the oscillator to produce the intermediate tone.

3,786,167

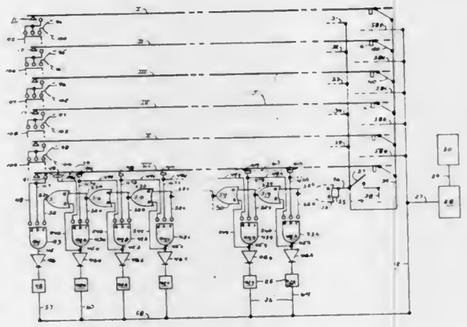
MUSICAL INSTRUMENTS

James J. Borell, 1318 W. Oak St., Kissimmee, Fla., and Arthur R. Bonham, 5614 LeJeune Dr., Orlando, Fla.

Filed Aug. 14, 1972, Ser. No. 280,501

Int. Cl. G10h *3/00, 5/00*

U.S. Cl. 84—1.16 **12 Claims**



Musical instruments playable in duet fashion by one player includes a stringed instrument with segmented frets. A control system for the other instrument includes a control circuit for each string and which has actuating circuits that are associated with the open and keyed string tones playable on the string. The actuating circuits associated with the second and higher string keying positions are enabled by simultaneous string contact with adjacent fret sections, and simultaneous string contact with a plate and fret segment at the first position serves to enable the actuating circuit associated with the first string keying position. A disabling circuit has components associated with each actuating circuit and which disable the associated actuating circuit in response to output signals of the actuating circuits associated with the higher keying positions. Open tone sensing circuits are avoided in one embodiment especially designed for chord playing players of the stringed instrument and in which simultaneous signals from a predetermined number of disabling circuits that are enabled by simultaneous keying of different strings serve to control an auxiliary circuit to enable the actuating circuits associated with the open tones of the unkeyed strings.

3,786,168

HOLDER MEMBER FOR A DISC-SHAPED SEMICONDUCTOR ELEMENT

Andre Jaecklin, Ennetbaden, and Siegfried Strassler, Wettingen, both of Switzerland, assignors to Brown, Boveri & Company Ltd., Baden, Switzerland

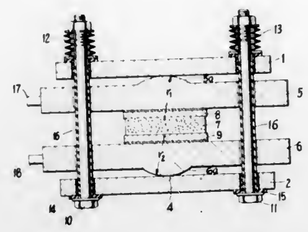
Filed Mar. 6, 1972, Ser. No. 231,959

Claims priority, application Switzerland, Mar. 11, 1971, 3691/71

Int. Cl. H05k *7/20*

U.S. Cl. 174—15 R **3 Claims**

A holder member for a disc-shaped semiconductor element includes a pair of spaced support plates each resiliently biased against one of a pair of pressure plates which are sandwiched between them. The semiconductor element is held between the pressure plates. The contacting surfaces between the support plates and the pressure plates each has a different radius of curvature. Various embodiments of the contacting surfaces



between the support plates and the pressure plates include a convexly shaped projection on one with a convex, concave or planar surface on the other. Further, the contacting surfaces can be provided by intermediate members positioned between the oppositely facing plates and with the intermediate members having a convex or spherically shaped contacting surface.

3,786,169

INSULATION GAS FILLED ENCAPSULATED HIGH VOLTAGE ELECTRICAL CONDUCTOR

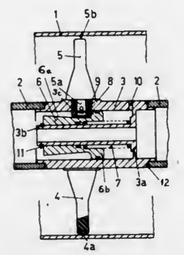
Dieter Floessel, Fislisbach, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland

Filed July 12, 1972, Ser. No. 271,002

Claims priority, application Switzerland, Sept. 20, 1971, 13598/71. The portion of the term of this patent subsequent to June 12, 1990, has been disclaimed.

Int. Cl. H01b *9/04*

U.S. Cl. 174—28 **10 Claims**



A high-voltage tubular electrical conductor is encapsulated within a pressurized insulation gas filled rectilinear tubular casing and supported centrally within the casing by longitudinally spaced support-insulators each of which is provided with three legs spaced 120° apart about the conductor. Two of the legs are fixedly secured to the conductor structure and include rolling means in the form of balls at their outer ends to facilitate abrasion-free insertion of the conductor-support insulator assembly within the casing. The third leg is supported by the tubular conductor for movement in a radial direction by a pneumatic drive mechanism to enable the leg to be moved from a radially inward position establishing an initial clearance with the wall of the casing during insertion of the conductor and support insulator assembly to a radially outward position establishing a spring-loaded elastic pressure contact with the casing wall thereby to secure the support-insulator in position against longitudinal displacement. The pneumatic drive mechanism for the radially displaceable leg is constituted by a piston located within the conductor, the piston being actuated by introduction of the pressurized insulating gas into the conductor and casing and including a tapered surface portion which forces the leg radially outward.

3,786,170

INSULATION GAS FILLED ENCAPSULATED HIGH VOLTAGE ELECTRICAL CONDUCTOR

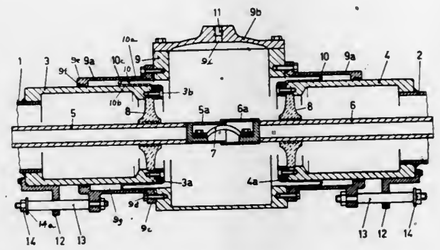
Dieter Floessel, Fislisbach, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland

Filed July 12, 1972, Ser. No. 271,003

Claims priority, application Switzerland, Sept. 8, 1971, 13097/71; Sept. 24, 1971, 13994/71

Int. Cl. H01b *9/01*

U.S. Cl. 174—28 **10 Claims**



An encapsulated high-voltage conductor structure in which the conductor is supported centrally within a grounded tubular casing by means of insulators, the casing being filled with a pressurized insulating gas and being divided in sections which are coupled together in essentially end-to-end relation by means of coupling joints which provide compensation for temperature-induced expansion and contraction of the casing sections. Each coupling joint is provided by a housing including oppositely extending coupling sleeves into which the ends of adjoining casing sections are inserted for sliding, guiding movement as the sections expand or contract, there being interposed in an annular gap provided between the end of each casing section and the associated coupling sleeve a sealing means in the form of a flexible tube turned back upon itself which accommodates the relative longitudinal displacement between the casing section and its coupling sleeve.

3,786,171

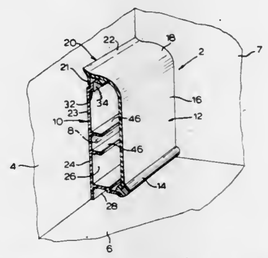
INTEGRAL HINGED WIRING RACEWAY

Jerry P. Shira, Toronto, Ontario, Canada, assignor to Kyoda Plastics Limited, Mississauga, Ontario, Canada

Filed Jan. 22, 1973, Ser. No. 325,936

Int. Cl. H02g *3/04*

U.S. Cl. 174—48 **7 Claims**



A surface mounting electrical wiring raceway having a back member adapted to be mounted on a wall, and a front cover.

The front cover is hingeably connected to the back member adjacent to one lateral edge thereof, and releaseably coupled to the back member adjacent to the opposite lateral edge. The raceway is of single unit construction and requires no alignment if installed adjacent to a floor or ceiling.

3,786,172

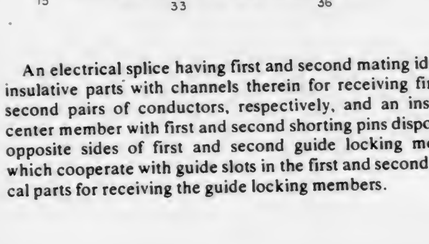
PRINTED CIRCUIT BOARD METHOD AND APPARATUS

Larry R. Conley, Fountain Valley, Calif., assignor to Accra-Point Arrays Corporation, Santa Ana, Calif.

Filed Dec. 7, 1972, Ser. No. 311,738

Int. Cl. H05b *1/18*

U.S. Cl. 174—68.5 **4 Claims**



A method for the low cost production of printed circuits with both soldered-in component leads and welded wire connections, which includes applying a sheet of highly weldable material such as stainless steel to an insulative board, plating a layer of highly solderable material such as copper over the stainless steel, applying a first resist pattern and then a first etchant such as ferric chloride that etches both copper and stainless steel to form a predetermined printed circuit pattern, and then applying a second resist pattern and a second etchant such as chromic acid which etches only the copper to leave exposed regions of the stainless steel. Components can be wave soldered in place, and the solder will not adhere to the stainless steel so that wires can later be welded to the exposed stainless steel weld regions. More uniform welding can be obtained by applying an underlayer of copper to the insulative substrate under the stainless steel layer, so that there is a low resistance path to all weld regions.

3,786,173

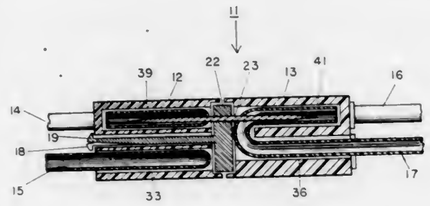
ELECTRICAL SPLICE

Kuno J. Vogt, 5854 Kantor Ct., San Diego, Calif.

Filed Jan. 31, 1972, Ser. No. 221,913

Int. Cl. H02g *15/08*

U.S. Cl. 174—88 S **3 Claims**



An electrical splice having first and second mating identical insulative parts with channels therein for receiving first and second pairs of conductors, respectively, and an insulative center member with first and second shorting pins disposed on opposite sides of first and second guide locking members which cooperate with guide slots in the first and second identical parts for receiving the guide locking members.

3,786,174

INSULATION GAS FILLED ENCAPSULATED HIGH VOLTAGE ELECTRICAL CONDUCTOR

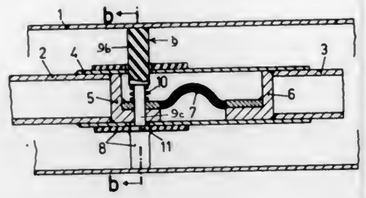
Dieter Floessel, Fislisbach, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland

Filed July 18, 1972, Ser. No. 272,875

Claims priority, application Switzerland, Sept. 13, 1971, 13295/71. The portion of the term of this patent subsequent to June 12, 1990, has been disclaimed.

Int. Cl. H01b *9/04*

U.S. Cl. 174—28 **4 Claims**



A high-voltage electrical conductor is encapsulated within an insulation gas filled rectilinear tubular casing and supported centrally within the casing by longitudinally spaced support-insulators each of which is provided with three radially directed legs spaced 120° apart about the conductor. Two of the legs have fixed positions on the insulator structure but the third leg is spring-loaded for movement in the radial direction from a retracted, latched position to a radially outward unlatched position. A carriage running on wheels or rolls is used to transport the insulator-conductor structure into the casing with the third leg in its retracted, latched position and with the outer ends of all three legs spaced from the casing wall so that no undesirable contact therebetween takes place during the transporting operation. When the insulator has reached the desired position of installation, the latch for the third leg is released causing this leg to move outward and press firmly against the casing wall accompanied by a like movement of the other two fixed legs into pressure contact with the casing wall.

3,786,175

ELECTRICAL INSULATOR HAVING SHEDS ARRANGED AT AN ANGLE TO ITS AXIS

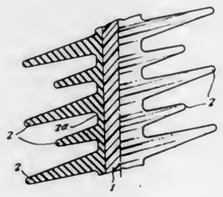
Frank Hanslow Proctor, Gloucester, England, assignor to Transmission Developments Limited, Gloucester, England

Filed Apr. 19, 1972, Ser. No. 245,434

Claims priority, application Great Britain, Apr. 27, 1971, 11701/71; Aug. 17, 1971, 38553/71

Int. Cl. H01b *17/50, 17/60*

U.S. Cl. 174—211 **4 Claims**



The invention describes a shedded insulator for supporting electric conductors particularly the conductors of overhead transmission lines. Instead of making the sheds normal to the axis of the insulator the sheds are arranged at an angle to a plane normal to the axis of the insulator. The sheds may be of the same or different diameters.

3,786,176

MAGNETIC RECORDING AND/OR REPRODUCING SYSTEM

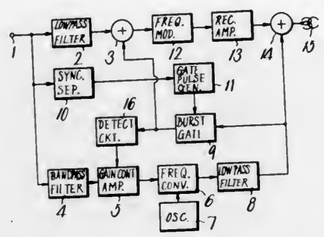
Hisaaki Narahara; Toshihiko Numakura, both of Tokyo, and Yoshimi Watanabe, Kanagawa-ken, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 13, 1972, Ser. No. 305,986

Claims priority, application Japan, Nov. 19, 1971, 46/92801; Nov. 22, 1971, 46/93830

Int. Cl. H04n *5/78, 9/02*

U.S. Cl. 178—5.4 CD **17 Claims**



An improved system for magnetic recording and/or reproducing a color television signal including a luminance signal and a chrominance signal which contains a burst signal therein. Before recording the television signal, the chrominance signal is frequency-converted to a frequency band lower than its original one and the burst signal is extracted from the chrominance signal. The burst signal is then combined with the luminance signal to frequency-modulate a carrier signal having a predetermined frequency, then both the frequency-converted chrominance signal and the frequency-modulated signal are recorded on a magnetic medium. When the magnetic medium is played back, the frequency-converted chrominance signal is frequency-reconverted to the original frequency band by means of a reference signal the phase of which is controlled by the burst signal reproduced by frequency-demodulation so that phase erros of the reproduced chrominance signal are diminished.

3,786,177

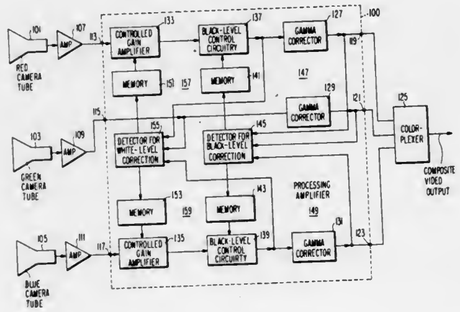
APPARATUS FOR AUTOMATIC COLOR BALANCING OF TELEVISION CAMERA SIGNALS

Lucas John Bazin, Stratford, N.J., assignor to RCA Corporation, New York, N.Y.

Filed June 19, 1972, Ser. No. 264,255

Int. Cl. H04n *9/08*

U.S. Cl. 178—5.4 BT **7 Claims**



First, second and third signal level comparators are used to compare against a predetermined signal level respective ones of the red, green and blue color signals generated by a television camera. The outputs of the comparators are combined in an AND gate to ascertain when an essentially black or essentially white signal obtains. When such signal is present, the differences between red and green color signals and between blue and green color signals are reduced by servomechanisms.

3,786,178

CIRCUIT FOR PRODUCING A THREE LINE SEQUENTIAL COLOR TELEVISION SIGNAL

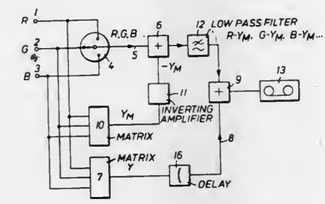
Werner Scholz, Gehrden, Germany, assignor to TED Bildplatten Aktiengesellschaft AEG-Telefunken . Teldec, Zug, Switzerland

Filed Dec. 6, 1972, Ser. No. 312,576

Claims priority, application Germany, Dec. 9, 1971, P 21 61 106.3

Int. Cl. H04n *1/22*

U.S. Cl. 178—5.4 CD **7 Claims**



A recording circuit for producing a three line sequential color television signal (TRIPAL) to be used with a playback circuit wherein the luminance signal is formed by combining the recorded chrominance signals in a matrix which differs from the standard luminance signal matrix, i.e., M-TRIPAL. In the recording circuit, a luminance signal Y_M is formed by combining the three color signals in a matrix which is the same as that to be used during playback and this luminance signal Y_M is subtracted from each of the color signals which have been sequentially sampled at horizontal picture line sweep frequency.

3,786,179

COLOR SUBCARRIER PHASE SHIFT CIRCUIT FOR COLOR TELEVISION RECEIVER

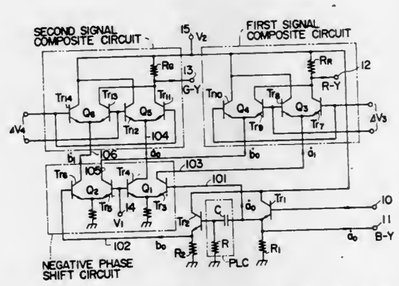
Katsuo Mouri, Yokohama, and Gentaro Miyazaki, Fujisawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 29, 1971, Ser. No. 157,885

Claims priority, application Japan, June 29, 1970, 45/56747

Int. Cl. H04n *9/50*

U.S. Cl. 178—5.4 SD **16 Claims**



A B-Y color subcarrier $\dot{a}_o$ and a signal $\dot{b}_o$, the phase of which is shifted by a specific angle θ by a phase shift circuit, are supplied to first and second differential amplifiers, thereby to obtain signals $\dot{a}_1$ and $\dot{b}_1$ whose phases are reversed with respect to

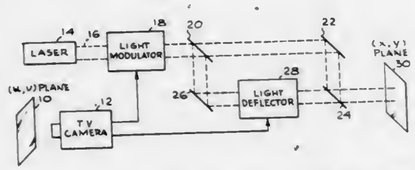
those of said input signals $\dot{a}_o$ and $\dot{b}_o$ and the signals $\dot{b}_o$ and $\dot{a}_1$ are combined vector-wise by third and fourth differential amplifiers. The signal $\dot{b}_1$ and one of said signals $\dot{a}_o$ and $\dot{a}_1$ are then combined vector-wise by fifth and sixth differential amplifiers at the same time, so that an R-Y subcarrier signal and a G-Y subcarrier signal having specific phase angles 90° and −123° with respect to the color subcarrier signal $\dot{a}_o$ are formed.

3,786,180

FOURIER TRANSFORMING SYSTEM

Albert Macovski, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed July 31, 1972, Ser. No. 276,710
Int. Cl. H04n *9/54, 9/60*
U.S. Cl. 178—6.5 **13 Claims**



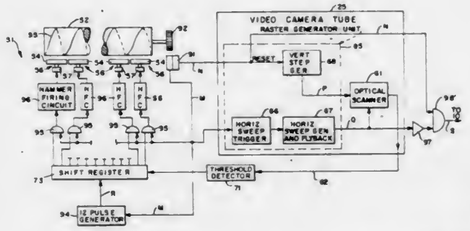
A Fourier transform of a two-dimensional scene may be made by viewing that scene with a television camera. The output of the scene modulates a source of coherent light, which is then divided into two light beams. One beam of coherent light is deflected by a light deflection system synchronously with the television camera, so that its angle of impingement on an integrating plane is varied accordingly. The undeflected light beam is also directed at the integrating plane where both light beams are integrated by either a photographic film or another television camera and thereby forms a Fourier transform of the scene. The film records the magnitude of the Fourier transform while the second television camera provides electrical signals representative thereof.

3,786,181

OPTICAL LINE SCANNER AND FACSIMILE SYSTEM

Charles B. Pear, Jr., Greenlawn, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,211
Int. Cl. H04n *3/00*
U.S. Cl. 178—6.8 **9 Claims**



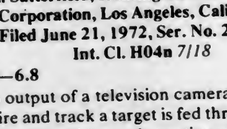
To scan a long line of printed information, a fiber-optic line-to-rectangle converter is configured at one end to divide a long scan line into a plurality of shorter segments which are arranged at the opposite end to form an array composed of consecutive segments stacked in parallel. Since the array covers an area instead of a line, a video camera tube scanning the array utilizes more of its useable face area thus improving image resolution for the converted line. To operate a helical bar printer having as many hammers as line segments in the converter, the rectangular image is scanned with a series of horizontal sweeps orthogonal to the line segments. With each sweep, the hammers are fired simultaneously in response to video signals indicative of the light level at corresponding positions in each line segment.

3,786,182

FRAME-BY-FRAME VIDEO IMAGE RECORDING APPARATUS

Masahiko Kaneko; Hiroshi Miyama, and Jun Nishida, all of Kadoma, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed June 7, 1971, Ser. No. 150,663
Claims priority, application Japan, June 9, 1970, 45/50084; July 17, 1970, 45/62981; July 17, 1970, 45/62982; July 22, 1970, 45/64531; July 23, 1970, 45/65300; Aug. 7, 1970, 45/69452; Aug. 19, 1970, 45/73079; Oct. 6, 1970, 45/88568; June 23, 1970, 45/62992 [U]; July 21, 1970, 45/73155 [U]; Oct. 15, 1970, 45/103093[U]
Int. Cl. H04n *5/86*
U.S. Cl. 178—6.7 A **5 Claims**



A recording apparatus for recording a video image on a recording medium comprises a recording mechanism including a cathode-ray tube and pressure means for pressing the recording medium against a faceplate of the cathode-ray tube, and an electronic control means for controlling the recording mechanism. The control means includes a single-frame gate means adapted to be started by a start switch thereby energizing the cathode-ray tube to reproduce the video image on a desired single-frame, and feed means governed by the start switch for actuating a feeding element of the recording mechanism so as to effect timely feeding of the recording medium. This recording apparatus thus recording a video image signal frame-by-frame as above-described, the feeding rate of the recording medium need not be synchronized with the sweeping rate of a flying-spot on the faceplate.

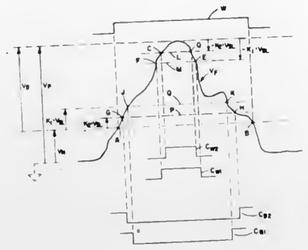
3,786,183

CONTRAST DETECTOR FOR VIDEO TRACKING SYSTEM

Richard Alan Satterfield, Huntington Beach, Calif., assignor to Northrup Corporation, Los Angeles, Calif.

Filed June 21, 1972, Ser. No. 264,975
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **10 Claims**

The video output of a television camera which is being utilized to acquire and track a target is fed through an appropriate clamp and filter to positive and negative peak detectors, which detect the maximum and minimum values of this video appearing within an area defined by a tracking gate or "window." The time constants of the peak detectors are adjusted in accordance with the expected area of the target to provide an optimum signal to noise ratio. Peak positive and negative excursions of the video are held in hold circuits, the time constants of these circuits being governed by an appropriate control signal which provides different time constants for the acquisition mode and for the tracking mode. The outputs of the hold circuits are subtracted from each other, the difference signal thus obtained indicating the spread between the peak positive and negative excursions of the sampled video. This difference signal is multiplied by separate predetermined factors to provide separate signals, each of which is a different fraction of the spread signal. These signals are each separately algebraically summed with the signal representing the peak positive excursion and the signal representing the peak positive excursion and fed to separate voltage comparators for comparison with the clamped and filtered camera output. The output signals thus generated, which represent the width of the video signal at the various amplitudes represented by the multiplying factors, are fed to tracking logical control for utilization in controlling the slewing of the TV camera.

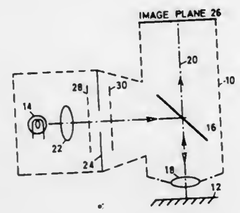


3,786,184

FOCUSING

Leon Andre Pieters, Cambridge, England, assignor to Image Analysing Computers Limited, Melbourne, Royston, Hertfordshire, England

Filed Feb. 4, 1972, Ser. No. 223,611
Claims priority, application Great Britain, Feb. 5, 1971, 3,994/71
Int. Cl. H04n *5/26*
U.S. Cl. 178—7.2 **16 Claims**



An automatic focusing system particularly adaptable for use with optical microscopes in which a final image is formed on the photo sensitive target of a television camera. Two objects are spaced by different amounts from the reflecting surfaces associated with the specimen under examination such that the reflected images are equally out of focus when the specimen image is in focus on the camera target.

3,786,185

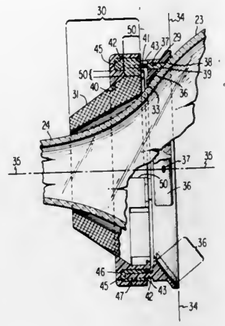
CATHODE-RAY TUBE – YOKE PLATFORM – YOKE COMBINATION AND METHOD OF ASSEMBLING THE COMBINATION

Terry Monroe Shrader, Leola, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 14, 1972, Ser. No. 217,756
Int. Cl. H04n *5/64*
U.S. Cl. 178—7.8 **9 Claims**

The combination includes a cathode-ray tube in operational relationship with a magnetic deflection yoke. A platform is rigidly adhered to fixed areas on the external surface of the tube with a hardened adhesive material. The hardened adhesive material provides the sole support for the platform and a yoke mounted thereto.

The novel method includes positioning a platform against a tube and injecting a first hardenable liquid adhesive material between at least portions of the positioned platform and the tube. The first adhesive material is permitted to harden and to fix the platform on the tube. A housing for a magnetic deflection yoke with the yoke therein is positioned adjacent the fixed platform, and the position of the housing is adjusted with respect to the fixed platform to obtain a desired operational relationship of the yoke and the tube. The housing with yoke therein is then mounted to the platform in the desired operational relationship.

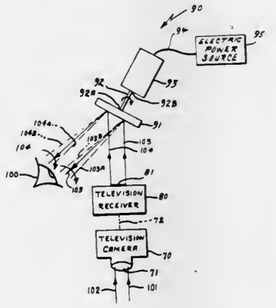


3,786,186

ENHANCEMENT AND DETECTION OF SMALL STATIC OBJECT IN SCENE BY USE OF PROGRAMMED MOTION OF IMAGE OF SCENE

Charles Edgar Thomas, Jr, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed June 13, 1972, Ser. No. 262,417
Int. Cl. H01j *29/89;* **H04n** *7/18*
U.S. Cl. 178—7.89 **6 Claims**



Method of, and apparatus for, enhancing and detecting a small static object in a scene. The object perceptability against the surrounding scene is enchanced by moving a static image of the scene in a preselected programmed motion. The motion blurs the undesired clutter of the scene; and, the small static object is detected by and because of the trace made by the movement of the image of the small static object.

3,786,187

APPARATUS FOR TESTING SYSTEMS AND DATA TRANSMITTING NETWORKS BY SIMULATION

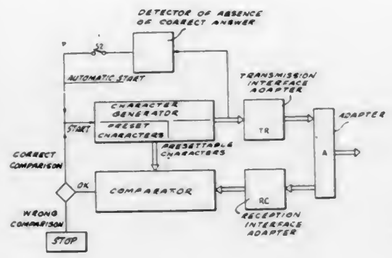
Luciano De Vita, and Emilio Mancini, both of Rome, Italy, assignors to Alitalia Linee Aeeree Italiane S.p.A., Rome, Italy

Filed Nov. 24, 1971, Ser. No. 201,842

Claims priority, application Italy, Mar. 23, 1970, 49260 A/70

Int. Cl. H04b *3/46*; **H04l** *25/02*

U.S. Cl. 178—69 A **4 Claims**



An apparatus for testing systems and networks for data transmission by simulation, comprising a character generator of arranged to generate under control a pre-fixed sequence of characters; comparator means for comparing the characters produced by said generator with a sequence of received characters; means for controlling a transmission of the sequence of characters produced by said generator consequent to a favourable comparison; means for causing the apparatus to stop operating consequent to an unfavourable comparison.

3,786,188

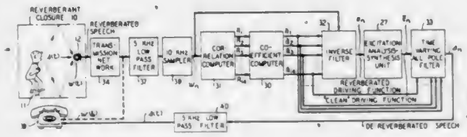
SYNTHESIS OF PURE SPEECH FROM A REVERBERANT SIGNAL

Jont Brandon Allen, Fair Haven, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 7, 1972, Ser. No. 311,731

Int. Cl. G10l *1/00*

U.S. Cl. 179—1 SA **10 Claims**



Speech that has been reverberated by the transfer function of a reverberant enclosure is analyzed to detect parameters from which an unreverberative synthetic version of the original speech may be constructed. The process involves continuously approximating the vocal tract transfer function of the speaker. The effect of this transfer function is then removed from the reverberant speech by inverse filtering, the residual signal being the glottis excitation signal reverberated by the room. The reverberant excitation function is then analyzed to determine when the speaker's driving function is voiced or unvoiced, the periodicity when voiced, and a unique gain factor. Then clean speech is synthesized using the foregoing three parameters operating on an all-pole filter that is continuously adapted to approximate the vocal tract transfer function.

3,786,189

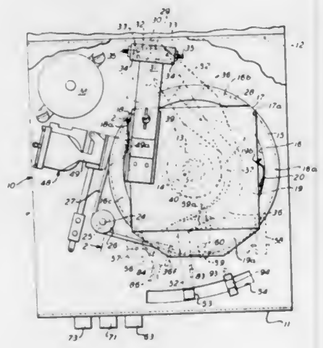
TELEPHONE ANNOUNCING AND MESSAGE RECORDING MACHINE

Thomas J. Gaven, Livingston; Harry E. Crocker, Irvington, and Edward Feldman, Teaneck, all of N.J., assignors to McGraw-Edison Company, Elgin, Ill.

Filed Jan. 7, 1972, Ser. No. 216,071

Int. Cl. H04m *1/64*; **G11b** *17/06*

U.S. Cl. 179—6 R **10 Claims**



A telephone announcing and message recording apparatus comprises an announcing instrument having a turntable with a square recess open at one side to receive a square record faced with a magnetic coating. In the bottom wall of the turntable is a notch engageable by a latch relay which also controls the power to the drive motor to stop the turntable always in the same load-unload position. During recording of an announcement by a user on a first part of the record a tone arm and a memory arm are moved in unison, but upon shifting the instrument out of recording at the end of the announcement the memory arm is disengaged from the tone arm and latched in its operated position, and the instrument continues to run to the end of the record only to perform a timing function. When the machine is placed in telephone answering condition it first plays back the announcement to the subscriber responsive to a ringing signal. When, thereupon, the tone arm passes the memory arm a switch is operated to connect the telephone line to a message recorder and a signal is fed on the line to apprise the subscriber that a message may now be recorded. At the end of the recording of a message another signal is fed into the line and the tone arm returned to start position.

3,786,190

TELEMETERING SYSTEM FOR MULTI-CHANNEL DATA OVER VOICE GRADE TELEPHONE LINES

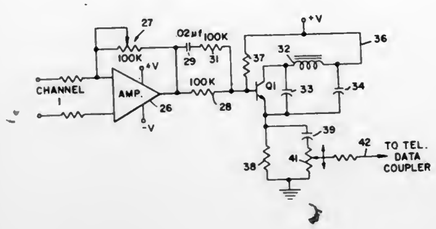
John R. Pori, Novato, Calif., assignor to Parallel Data Systems, San Francisco, Calif.

Filed Dec. 23, 1971, Ser. No. 211,221

Int. Cl. H04m *11/06*

U.S. Cl. 179—2 DP **1 Claim**

A telemetering system for multi-channel data such as EEG data where eight channels of such data are frequency modulated by eight different carrier frequencies and transmitted over a telephone line pair and then filtered and demodulated.



The demodulator for each channel includes only a single inductor which is matched with the modulator inductor.

3,786,191

AUTOMATIC TELEPHONE ANSWERING DEVICE WITH SIMULTANEOUS MESSAGE RECEPTION AND TRANSMISSION

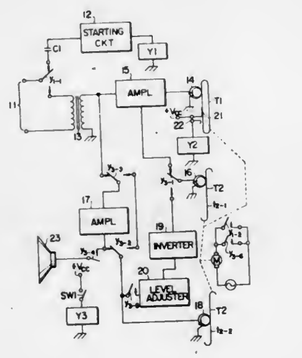
Toshifumi Nagasawa, Tokyo, and Haruhiko Ohshima, Kawasaki, both of Japan, assignors to Pioneer Electronics Corporation, Tokyo, Japan

Filed Mar. 28, 1972, Ser. No. 238,902

Claims priority, application Japan, Apr. 2, 1971, 46/20162

Int. Cl. H04m *1/64*

U.S. Cl. 179—6 R **5 Claims**



An automatic telephone answering device wherein a message recording tape is started to run simultaneously with the start of running of an answering tape having an answer signal recorded thereon. The message recording tape is recorded on its first track with only the answer signal and on its second track with a composite signal consisting of the answer signal and the incoming message signal. At the time of reproduction, the answer signal on the first track of the recording tape is phase-inverted and the composite signal reproduced from the second track of the recording tape is mixed with the phase-inverted answer signal to cancel the answer signal, whereby only the message signal is audibly reproduced by a speaker.

3,786,192

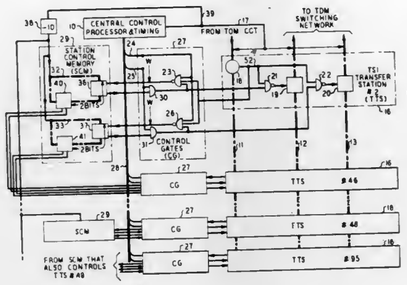
SHIFT CIRCUITS WITH OUTPUT CONTROL GATED BY COMBINED CONTROL MEMORY

Woo Foung Chow, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Oct. 11, 1972, Ser. No. 296,577

Int. Cl. H04j *3/00*

U.S. Cl. 179—15 AQ **10 Claims**



In a planar shifting technology time slot interchanger, a shift register has selectable output gates at different stages thereof, which gates are arranged to be actuated under the burden of predetermined restrictions. Those restrictions are such that in a numerical sequence of the gates along the shift register, a central gate, number C_N, is actuatable most frequently; and other gates at increasingly remote positions from the central gate in the sequence are actuatable with decreasing frequency. A control memory loop connected to control operation of one of the output gates is further connected to control operation of another output gate in the sequence on the same side of the central gate. The two gates so controlled have sequence numbers that, when considered modulo-C_N, are complementary with respect to C_N.

3,786,193

FOUR CHANNEL DECODER WITH VARIABLE MIXING OF THE OUTPUT CHANNELS

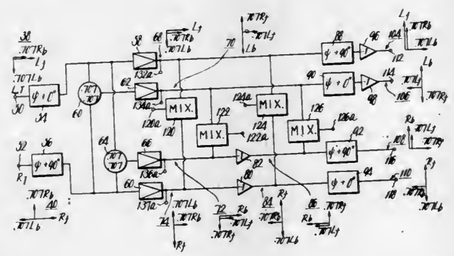
Katsuaki Tsurushima, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed July 17, 1972, Ser. No. 272,439

Claims priority, application Japan, July 19, 1971, 46/53771

Int. Cl. H04r *5/00*

U.S. Cl. 179—1 GQ **9 Claims**



A crosstalk eliminating circuit for use in a four channel stereo decoder of the type which converts two composite signals L_T and R_T into four output signals containing dominant signal components L_f, R_f, L_b and R_b, respectively, with each of the output signals further including subdominant signal components as crosstalk. The elimination circuit includes a crosstalk detecting circuit having a plurality of all wave rectifying

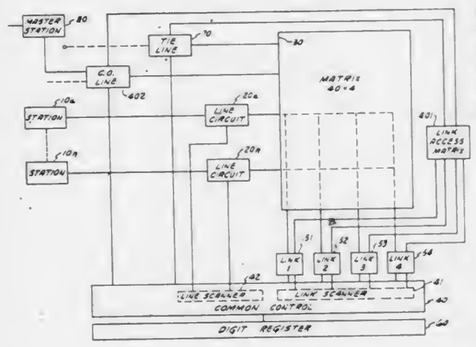
circuits and subtraction circuits for producing separate signals for controlling a plurality of mixing circuits connected between separate pairs of output channels for transmitting the output signals, the mixing circuits being controlled so as to mix two output signals in accordance with the respective control signal in such a manner that the crosstalk signals contained therein are cancelled.

3,786,194

TELEPHONE SYSTEM EMPLOYING ELECTRONIC MATRIX

Edouard Pinede; John Anthony Barsellotti, and Frederico Riccardo Laliccia, all of Guelph, Ontario, Canada, assignors to International Standard Electric Corporation, New York, N.Y.

Filed June 4, 1971, Ser. No. 149,960
Int. Cl. H04q *1/52*
U.S. Cl. 179—18 AD **12 Claims**



A common control, multi-station, multi-conversation path intercom system using a single stage, crosspoint matrix for effecting the switching between stations. Two digit dialling, either multifrequency tone or dial pulse is used to control the switching to a called party. Each station line circuit has a talking potential supply and a current control network. The conversation link circuit provides a choke coil isolating talking currents from the talking battery. Each matrix crosspoint has a plural transistor network for performing its switching through function.

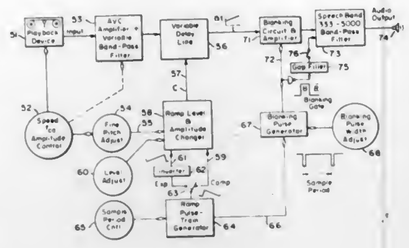
3,786,195

VARIABLE DELAY LINE SIGNAL PROCESSOR FOR SOUND REPRODUCTION

Murray M. Schiffman, Newton, Mass., assignor to Cambridge Research and Development Group, Westport, Conn.; Sanford D. Greenberg, Washington, D.C. and D. T. Liquidating Partnership, New York, N.Y.

Filed Aug. 13, 1971, Ser. No. 171,571
Int. Cl. G10l *1/06*
U.S. Cl. 179—15.55 T **65 Claims**

An electrical delay line which has variable delay controlled by a signal input thereto is connected in a sound signal channel for signals such as human speech, to compress or expand the sound signal waveform depending on whether the time delay in the line is increased or decreased. By periodically sweeping the delay line from minimum to maximum time delay or vice-versa, repeated segments of a continuous sound signal waveform are processed so that an output audio signal can be obtained having the original frequency components of the signal and occupying a time duration which is equal to or smaller or larger than the original sound sequence with the successive segments of the signal processed by the variable delay line assembled with regard both to the significant



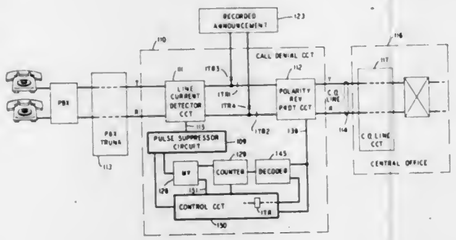
parameters of human speech or other coding and the electrical conditions imposed by the system to produce a composite audio signal which is an intelligible replica of the original and substantially free of annoying aberrations introduced by the delay line processor. Variable delay using analog or digital signal storage is also provided.

3,786,196

TOLL CALL DENIAL CIRCUIT

Perry Thomas Gresham, Fort Worth, Tex., assignor to American Telephone and Telegraph Company, New York, N.Y.

Filed Aug. 28, 1972, Ser. No. 284,441
Int. Cl. H04m *1/66*
U.S. Cl. 179—18 DA **9 Claims**



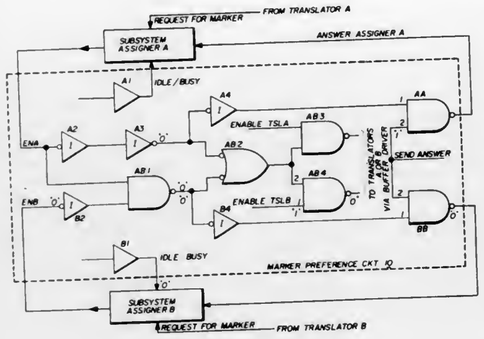
A toll call denial circuit for allowing local calls and blocking toll calls outgoing from PBXs (Private Branch Exchanges). Following seizure of a central office line by a PBX station dialing "9", the call denial circuit distinguishes between local and toll calls by having a counter and decoder register and check the first digit dialed over the line to determine if it is a toll access digit such as "0" or "1". The denial circuit includes a pulse suppressor circuit having a resistor-capacitor filter which prevents spurious signals on the line from being detected as dial pulses. Following registration of the first dialed digit, the time characteristic of this filter is changed to prevent the counter from registering dial pulses of a subsequently dialed digit but allowing a response to an on-hook condition on the line to release the denial circuit.

3,786,197

PREFERENCE CIRCUIT FOR A MARKER

Melvin A. Jacobs, Hinsdale, and David Q. Lee, Chicago, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Nov. 2, 1972, Ser. No. 303,184
Int. Cl. H04q *3/42*
U.S. Cl. 179—18 EB **5 Claims**



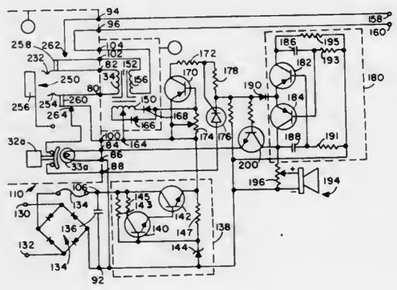
A preference circuit within a marker for a common control electronic communication system which, upon simultaneous seizure attempts, automatically inhibits the seizure of the marker by one of a pair of assigners and selects the other one thereof for service.

3,786,198

CIRCUIT AND APPARATUS FOR BRIDGING AND MONITORING

Henry V. McNulty, Arcadia, and Melvin Neal Oatis, Tustin, both of Calif., assignors to Telephonic Equipment Corporation, Santa Ana, Calif.

Filed Feb. 17, 1972, Ser. No. 227,023
Int. Cl. H04m *3/22*
U.S. Cl. 179—27 FH **5 Claims**



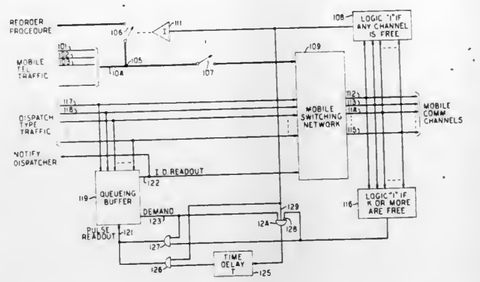
A telephone bridging apparatus which can be utilized with telephone switchboards such as those provided by an answering service. The apparatus in part comprises an insertable module in the switchboard, having internal connections and appropriate switching functions for either a single or a double cord switchboard. The module has circuitry which operates cooperatively with a monitoring circuit and the remainder of the apparatus for utilization with either a double or single cord switchboard and comprises in part an audio alert as well as a visual alert to help monitor a call.

3,786,199

MIXED TRAFFIC MOBILE RADIO SYSTEM

Andrew Rimbach, Jr., Monmouth Beach, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Oct. 22, 1971, Ser. No. 191,931
Int. Cl. H04m *7/04*
U.S. Cl. 179—41 A **2 Claims**



In order to merge telephone traffic and dispatch traffic into a common network without degrading either type of service over that enjoyed in separate systems, dispatch type traffic is somewhat degraded during particular high traffic situations. The telephone traffic is served upon demand except when no communication channels are available for assignment. The identity of each requesting dispatcher is read into a queuing buffer to await service. So long as more than a predetermined number of channels are available, the dispatch calls are read out of the buffer virtually upon their receipt. Whenever fewer than the predetermined number of channels are available, pulses which energize the service of dispatch calls are subjected to a time delay. After that delay, so long as any channel is still available, the next dispatcher in queue is served.

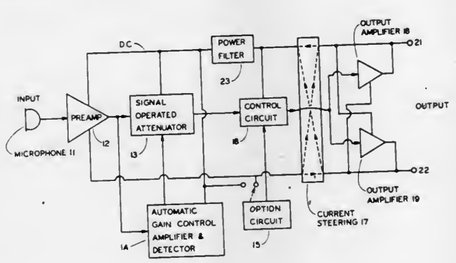
3,786,200

AMPLIFIER FOR USE IN COMMUNICATION SYSTEMS

Hans R. Camenzind, Santa Clara, Calif.

Filed May 17, 1972, Ser. No. 254,059
Int. Cl. H04m *1/60*
U.S. Cl. 179—81 B **11 Claims**

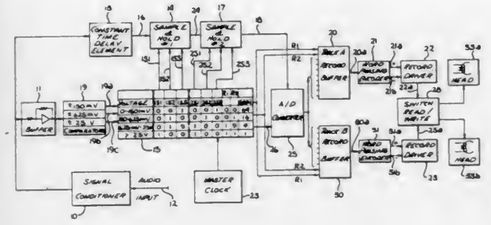
A telephone bridging apparatus which can be utilized with telephone switchboards such as those provided by an answering service. The apparatus in part comprises an insertable module in the switchboard, having internal connections and appropriate switching functions for either a single or a double cord switchboard. The module has circuitry which operates cooperatively with a monitoring circuit and the remainder of the apparatus for utilization with either a double or single cord switchboard and comprises in part an audio alert as well as a visual alert to help monitor a call.



An amplifier for use in communication systems in which the output lines supply power to the amplifier which can operate from either polarity of supply voltage which may also be a relatively low voltage. The amplifier receives an input signal and applies the signal to said pair of lines. In one embodiment of the amplifier it can operate at high gain in response to an input signal and low gain in absence of an input signal to provide suppression of background noise. Another embodiment provides control of the amplifier gain as a function of operating current to more closely match the output characteristics of carbon microphones. The amplifier disclosed is particularly

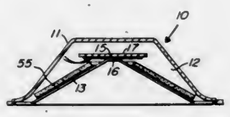
suitable for integration into a silicon monolithic bipolar circuit.

3,786,201
AUDIO-DIGITAL RECORDING SYSTEM
John P. Myers, 1513 Highvale Trl., Topanga Canyon, Calif., and Gleb Tschapek, P.O. Box 506, Hermosa Beach, Calif.
Filed Feb. 4, 1972, Ser. No. 223,532
Int. Cl. G11b *5/02*
U.S. Cl. 179—100.2 R **32 Claims**



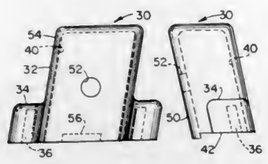
A system for converting an input analog signal, such as an audio signal or signal representative of sound into a digital form for storing in digital form and for reconstructing the input analog signal from the digital form is disclosed. The system includes sampling means for converting the input audio signal into a binary format which includes ranging bits and adjusted magnitude bits. This permits the recording in digital form of audio signals of a wide dynamic range with a reduced number of bits. Additionally, the disclosed encoding method for encoding digital words prior to recording reduces pulse crowding on magnetic tape and achieves higher bit packing densities. The system may be used with existing professional audio tape drives with tape speeds of approximately 30 ips or less.

3,786,202
ACOUSTIC TRANSDUCER INCLUDING PIEZOELECTRIC DRIVING ELEMENT
Hugo W. Schafft, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Apr. 10, 1972, Ser. No. 242,501
Int. Cl. H04r *17/00*
U.S. Cl. 179—110 A **15 Claims**



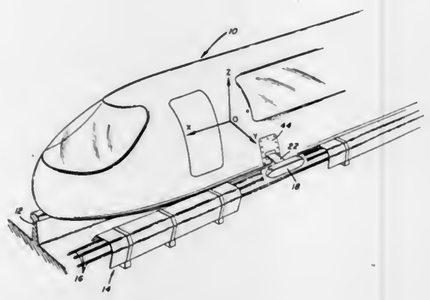
A disk shaped piezoelectric element constructed to operate in a planar mode so as to define a first overtone nodal ring on one of the major surfaces, a conically shaped diaphragm having a truncated apex defining a generally circular area affixed to a major surface of the element concentric with the nodal ring and spaced radially therefrom so as to reduce the amplitude of the output of the first overtone to approximately the amplitude of the output of the fundamental frequency, and a rubber disk affixed to the opposite major surface of the piezoelectric element to lower the fundamental resonance frequency and damp the peak output of the fundamental and first overtone resonance frequencies to provide a flat response over a desired bandwidth.

3,786,203
MICROPHONE MOUNTING
Willis C. Reddick, Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed May 15, 1972, Ser. No. 253,080
Int. Cl. H04m *1/14*
U.S. Cl. 179—146 R **5 Claims**



A mounting for positioning a miniature microphone relative to a structure such as a telephone handset cradle. The mounting firmly positions the microphone in a manner for reception of sound and provides a resilient shock and sound absorbing mounting into which the microphone may be readily assembled without the need for additional mounting members.

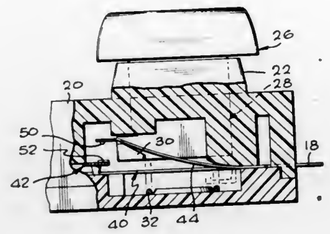
3,786,204
BALANCED SUPPORT MECHANISM FOR A LINEARLY MOVABLY CURRENT COLLECTING HEAD
Daniel Laurent, Grenoble, France, assignor to Merlin Gerin, Societe Anonyme, Grenoble, France
Filed Aug. 2, 1971, Ser. No. 167,912
Claims priority, application France, May 11, 1971, 71.17071
Int. Cl. B60l *5/12*
U.S. Cl. 191—48 **9 Claims**

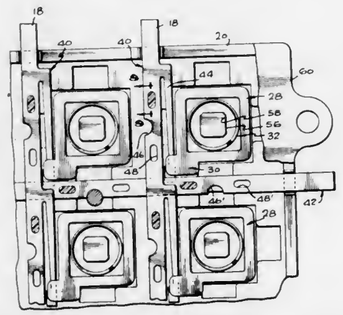


A balanced support mechanism for a collector head guided in a longitudinal current supplying passageway which extends parallelly to the trackway of a high-speed vehicle. The mechanism is pivotally attached to the vehicle and comprises a counterweight tending to maintain the collector head in neutral equilibrium. The counterweight is sustained by a pantograph or by a telescoping arrangement.

3,786,205
KEYBOARD SWITCH ASSEMBLY WITH MOVABLE, MULTI-CONTACT MEANS AND ASSOCIATED SWINGER PORTIONS
Wallace A. Lien, Palos Verdes Estates, Calif., assignor to Becton, Dickinson Electronics Company, Rutherford, Nev.
Filed May 11, 1972, Ser. No. 252,421
Int. Cl. H01h *13/70*
U.S. Cl. 200—5 A **5 Claims**

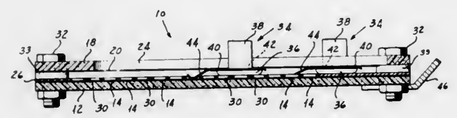
A keyboard is provided with an improved contact switch comprising movable elements extending from and integral with an elongated strip member. Other elongated strip members arranged orthogonally in a vertically displaced plane are positioned in the travel path of the movable elements. The movable elements are held in a third plane and, when





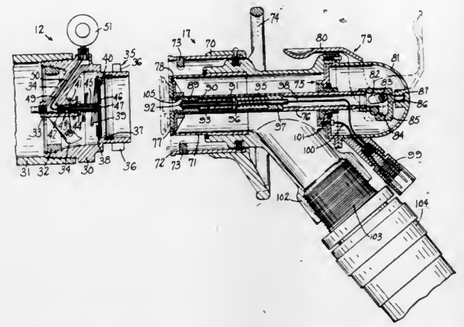
released, engage the crossing strip members. The push buttons include flanged key tops which cooperate with raised collars on the top plate to form a substantially liquid excluding arrangement.

3,786,206
PRICE BOARD SLIDE SWITCH
Albert Kurimsky, Dover, N.J., assignor to Rowe International Inc., Whippany, N.J.
Filed Oct. 30, 1972, Ser. No. 302,049
Int. Cl. H01h *15/06*
U.S. Cl. 200—16 D **4 Claims**



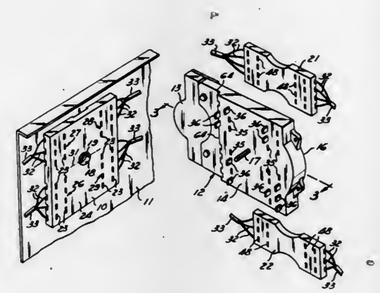
A price board selection switch assembly for facilitating the operation of selectively setting and of changing the various prices at which a plurality of respective merchandising machine delivery units will dispense articles of merchandise in which a plurality of sliding contacts are mounted for movement along respective first printed product line conductors on the undersurface of an upper board and for movement of spring fingers on the contacts over lines of holes in a detent board for selective engagement with second printed price line conductors carried by the upper surface of a lower board and extending in a direction generally perpendicular to that of the first conductors.

3,786,207
ELECTRICAL SWITCH ASSEMBLY AND VALVE FOR LIQUID FILLING SYSTEM
Edward F. Houston, Madison; Robert L. Wallace, Wethersfield; William Rochette, Waterbury, and Charles A. Chaponis, Meriden, all of Conn., assignors to The Houston Company, Cheshire, Conn.
Filed July 10, 1972, Ser. No. 270,481
Int. Cl. H01h *9/06*
U.S. Cl. 200—61.86 **7 Claims**



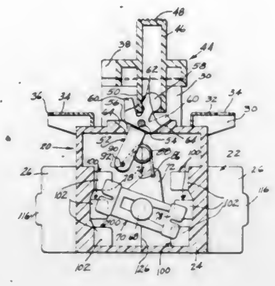
A liquid filling system comprising a filling connector on a tank and a nozzle connectable to a reservoir where an electrical connection is made between the connector and nozzle to control an electrically operated valve in the line between the reservoir and nozzle.

3,786,208
PLUG-IN TIMER ASSEMBLY
James D. Edwards, Russiaville, Ind., assignor to The Scott & Fetzer Company, Cleveland, Ohio
Filed Aug. 9, 1972, Ser. No. 279,217
Int. Cl. H01r *13/70*
U.S. Cl. 200—51 R **12 Claims**



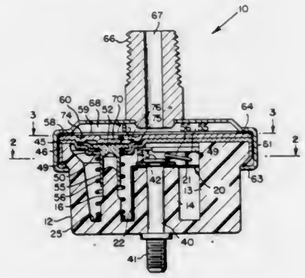
A control system is disclosed for washers, dryers and the like in which a motor-driven timer automatically operates the appliance through a predetermined cycle. The control system includes a mounting base adapted to be permanently connected to the appliance frame and a motor-driven timer which is removably plugged into the base with electrical connectors which function to provide electrical connection and the mounting of the timer. The connectors are provided in a pattern which prevents improper installation. Separate terminal assemblies are provided to plug into the rearward face of the timer for additional connections. Here again, the terminals provide both the electrical connection and the mounting of the terminal blocks.

3,786,209
SNAP SWITCH WITH PRE-WIRED TERMINALS
Allen J. Bury, Prospect Heights, Ill., assignor to Molex, Incorporated, Downers Grove, Ill.
Filed Jan. 3, 1972, Ser. No. 215,022
Int. Cl. H01h 13/26
U.S. Cl. 200—67 C 7 Claims



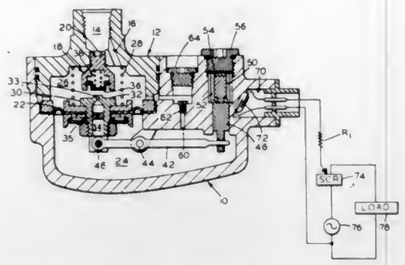
Spade type terminals are crimped on to the ends of lead wires. After such crimping the terminals are inserted into the housing of a switch and lock in place. The switch is provided with a toggle actuator to effect movement of a movable switch contact with a snap action between the inserted terminals serving as fixed contacts.

3,786,210
SEQUENTIALLY ACTUATED PRESSURE SWITCHES HAVING SEPARATE RESISTOR ELEMENTS ASSOCIATED WITH EACH
Peter M. Byam, Rochester, N.Y., assignor to Fasco Industries, Inc., Rochester, N.Y.
Filed Aug. 29, 1972, Ser. No. 284,608
Int. Cl. H01h 35/34; H01c 13/00; G01l 7/08
U.S. Cl. 200—81.4 7 Claims



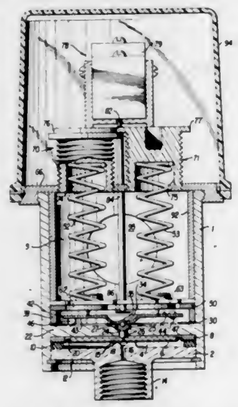
Three different pressure-operated switches are mounted in a housing to be connected to a fluid pressure system for operation thereby at three different values of the system pressure - e.g. low, medium and high. Each switch comprises a movable contact; and these contacts are connected through three different resistors with a common terminal in the housing. These contacts are urged by separate springs against one of three separate flexible diaphragms. As the fluid pressure rises, one diaphragm after the other urges its associated contact against a grounded portion of the housing successively to connect the resistors in parallel circuit between the terminal and ground.

3,786,211
DIFFERENTIAL PRESSURE RESPONSIVE MAGNETICALLY ACTUATED SWITCH RESPONSIVE ONLY TO SUDDEN PRESSURE CHANGES
Roger C. Popp, Chesaning, Mich., assignor to Chandler Evans Inc., West Hartford, Conn.
Filed July 19, 1972, Ser. No. 273,288
Int. Cl. H01h 35/34
U.S. Cl. 200—83 T 8 Claims



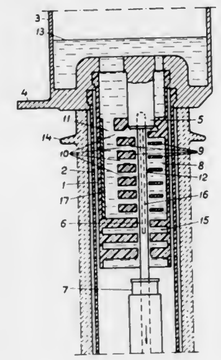
Apparatus for generating a signal commensurate with a rate of change of a monitored pressure in excess of a preselected value. The apparatus includes means coupled to a spring biased diaphragm for modifying a magnetic field in response to movements of the diaphragm and a field responsive signal generator mounted exteriorly of the housing in which the diaphragm and magnetic field generating means are located.

3,786,212
CONDITION RESPONSIVE CONTROL DEVICE WITH CAPACITY FOR INDEPENDENT ADJUSTMENT OF CONTROL POINTS
Ernesto Juan Weber, Lluvia 470, State of the Federal District, Mexico
Continuation-in-part of Ser. No. 154,536, June 18, 1971. This application Mar. 21, 1972, Ser. No. 236,732
Claims priority, application Mexico, May 31, 1971, 44,155
Int. Cl. H01h 35/34
U.S. Cl. 200—83 R 43 Claims



A control device wherein a pressure sensitive element displaceable by pressure variations, transmits linear motion to a balance plate. Stops associated with the balance plate define a pair of axes about which the balance plate alternately pivots. The device includes a single control such as a microswitch having a single actuator displaceable between first and second positions corresponding to mutually cancelling control modes. Pivotal movement of the balance plate about one axis effects movement of the actuator through the first position while pivotal movement about the other axis effects movement of the actuator through the second position. The pressures at which the respective positions are attained can be independently determined by adjustable springs acting on the balance plate and through the respective axes.

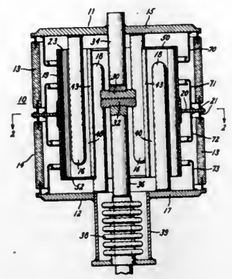
3,786,213
ELECTRIC SWITCHING DEVICE COMPRISING INSULATING PARTS COMPRISING AN ACRYLATE RESIN BINDER
Goran Holmstrom, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Feb. 14, 1972, Ser. No. 226,072
Claims priority, application Sweden, Feb. 22, 1971, 2205/71; Jan. 19, 1972, 563/72
Int. Cl. H01h 33/04
U.S. Cl. 200—144 C 8 Claims

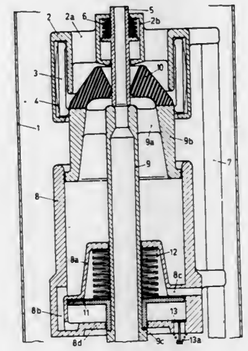


In an electrical switching device which includes insulating parts subjected to the influence of electric arcs, the insulating parts are formed of mouldings having a binder which consists essentially of a mixture of a linear acrylate polymer and a monomeric acrylate compound which is polyethylene glycol dimethacrylate or a polyethylene glycol diacrylate converted into polymerized form. The binder may contain an additive resin containing ethylenically unsaturated groups in the monomeric acrylate compound in a quantity of at most 25 percent of the total weight of linear acrylate polymer, monomeric acrylate and additive resin. The binder may also contain a powdered filler or a fibrous reinforcing material.

3,786,214
INTERLEAVING-ROD TYPE VACUUM INTERRUPTER HAVING TWO BREAKS IN SERIES BETWEEN EACH PAIR OF RODS
Joseph C. Sofianek, Broomall, Pa., assignor to General Electric Company, Philadelphia, Pa.
Filed Jan. 19, 1973, Ser. No. 325,181
Int. Cl. H01h 33/66
U.S. Cl. 200—144 B 11 Claims

A vacuum-type electric circuit interrupter comprises interleaving rod electrodes of alternating polarity arranged in a ring pattern and a tubular metal shield disposed around the ring of rod electrodes and normally electrically isolated from the rod electrodes. The tubular shield comprises metal partitions projecting from regions radially outside the ring radially inward into the spaces between immediately-adjacent rod electrodes, thereby dividing each of these spaces into two series-related arcing gaps respectively disposed on opposite sides of each of said metal partitions.



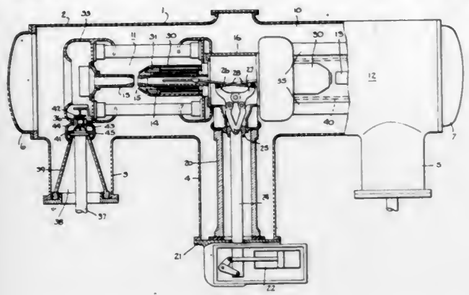


An electrical switch of the compression type wherein for quenching the arc drawn in a gap formed between the contacts as they disengage, a pressurized gaseous quenching medium is caused to flow into the gap. The quenching medium is compressed during a so-called pre-compression phase of the switch contact movement, and prior to disengagement of the contacts, by a piston and cylinder arrangement surrounding the movable contact, there being an energy-storing device in association with the piston which latter is actuated in one direction within its cylinder by the movable contact during a contact-closing movement to bring the gaseous quenching medium through a one-way valve into the cylinder and also store energy. During the first phase of a contact-opening movement the stored energy acts upon the piston causing it to move in the opposite direction thus compressing the gas within the cylinder and subsequently freed to flow into the gap between the contacts as soon as they disengage.

3,786,216
HIGH-VOLTAGE CIRCUIT BREAKER EQUIPPED WITH MEANS FOR PRECLUDING THE TRANSFER OF MECHANICAL SWITCHING FORCES

Helmut Beier, Rauchstr. 9, and Dieter Noack, Berner Str. 13-14, both of Berlin, Germany

Filed Mar. 28, 1972, Ser. No. 238,843
Int. Cl. H01h *33/54*
U.S. Cl. 200—148 D **5 Claims**

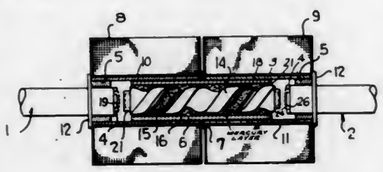


A high-voltage circuit breaker has a metal housing and at least two switching units for switching the breaker between the on and off positions. The switching units are mutually connected in series and are disposed in the housing. A centrally located support member is also provided and is rigidly connected to the switching units in the housing. At least two feed-through conductors are mounted in the housing and an electrical connector is provided for flexibly connecting the conductors to corresponding ones of the switching units so as to preclude the transfer of mechanical force therebetween.

3,786,217
POSITION-INSENSITIVE MERCURY RELAY

Sheldon S. Bitko, Cherry Hill, N.J., assignor to Fifth Dimension Inc., Princeton, N.J.

Division of Ser. No. 71,294, Sept. 10, 1970, Pat. No. 3,715,546, which is a continuation-in-part of Ser. No. 880,128, Nov. 26, 1969, Pat. No. 3,644,693. This application Nov. 1, 1972, Ser. No. 302,677
Int. Cl. H01h *29/00*
U.S. Cl. 200—214 **3 Claims**

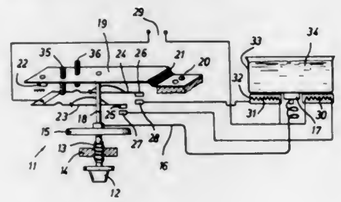


A miniature mercury switch, comprising an enclosure including a tube having a mercury wettable inner surface, within which a contact carrying shuttle is movable along the axis of the tube. The shuttle is not mercury wettable except for a slot or groove extending between its ends and for contact surfaces at its ends, but it rides on a mercury layer attached to the inner surface of the tube. Secured within and extending into the ends of the tubes are unwettable rods of magnetic material having stationary end contacts which are mercury wettable. The contacts on the shuttle ends include tantalum or niobium spacers extending beyond mercury wettable end contact surfaces on the shuttle, the spacers accepting the impacts when the relay contacts operatively close, which implies that the wettable contact areas on the shuttle ends closely approach the stationary end contacts, so that the mercury layers coalesce, but the wettable surfaces do not impact. The quantity of mercury within the enclosure is only sufficient to form a layer of mercury on the mercury wettable surfaces within the enclosure, but insufficient to form a pool of mercury, or to cover unwettable surfaces while wettable surfaces are covered, and the slot or groove in the shuttle facilities transfer of mercury from end to end of the enclosure, which prevents pooling at either end of the enclosure concomitant with depletion at the other, due to imbalance of mercury transfer during relay operation. Stationary contacts are, for open contact condition, spaced from movable contacts, by mercury unwettable surfaces of the enclosure, and the quantity of mercury available is insufficient to cover these unwettable surfaces and also to form a mercury layer on the mercury surfaces.

3,786,218
ADJUSTABLE THERMOSTATIC DEVICE WITH SNAP SWITCHES

Karl Fischer, Oberderdingen, Germany, assignor to E.G.O. Elektro-Gerate AG, Zug, Switzerland

Filed Nov. 18, 1971, Ser. No. 199,870
Claims priority, application Switzerland, Nov. 27, 1970, P 20 58 512.0
Int. Cl. H01h *35/32*
U.S. Cl. 200—83 Z **3 Claims**



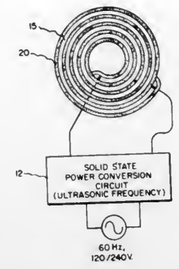
A regulator for a cooker hot plate or other heating appliance has a temperature sensing bulb filled with thermally expansible fluid and connected to a pressure bellows. An adjusting screw spindle acts on the bellows which acts in turn through a strut on a pivotally mounted, spring-biased pressure plate. The strut passes between two snap switches which are adapted to be closed by the pressure plate, acting on the switches through adjusting screws, such that the snap switches open at different temperatures. The pressure plate can include a resilient flexible portion by which the pressure plate is pivotally mounted and at the same time spring-biased towards the snap switches. Compensating bimetal means may be inserted between said pressure plate and said snap switches.

3,786,219
SOLID STATE INDUCTION COOKING SYSTEMS FOR RANGES AND SURFACE COOKING UNITS

William P. Kornrumpf, and John D. Harnden, Jr., both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,351
Int. Cl. H05b *5/04*
U.S. Cl. 219—10.49 **18 Claims**

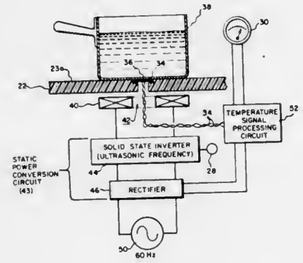
Solid state induction surface cooking units for domestic electric ranges and other cooking appliances are defined with respect to the operating parameters and functional components of complete induction heating systems suited for this use. The surface cooking units are designed for reliable, convenient, and safe operation, and for circuit packaging using hybrid and monolithic integrated circuits. Wide range power control of the inverter power circuits is needed for general cooking but is obtained within a limited ultrasonic operating range of the power semiconductors. The inter-dependent electrical and magnetic characteristics utilized in solid state induction cooking are related to the achievement of such desirable user features as the cool cooking surface, fast utensil warm-up, responsive heating, and unrestrained utensil mobility. In addition to cooking by changing the relative heating level, cooking is performed by setting the desired utensil temperature and by setting the desired utensil power level.



3,786,220
INDUCTION COOKING APPLIANCE INCLUDING TEMPERATURE SENSING OF INDUCTIVELY HEATED COOKING VESSEL

John D. Harnden, Jr, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,350
Int. Cl. H05b *5/04*
U.S. Cl. 219—10.49 **2 Claims**

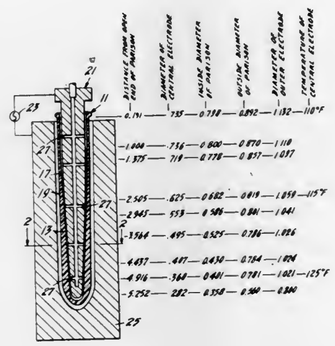


Disclosed herein is an induction range having a counter including a top surface on which a cooking vessel is rested. A temperature sensing unit is located in an opening in the counter. The temperature sensing unit includes a low-restoring-force spring diaphragm which supports a thermistor unit. The temperature sensing unit forms a closure for the opening in the counter such that the temperature sensing unit together with the top surface of the counter provides an uninterrupted work surface which may be easily cleaned. Because energization of an induction coil positioned near the counter induces high frequency heating currents in the vessel only, and because the temperature sensing unit and induction coil are located relative to each other so that the temperature sensing unit is in a region of relatively low magnetic field intensity, the counter and the temperature sensing unit are not directly heated by the action of the induction coil. Hence, materials not employable in prior art conventional electric and gas ranges may now be employed for the counter and temperature sensing unit. Since the spring diaphragm has a low restoring force it is easily compressed by the cooking vessel, enabling the thermistor unit, or temperature sensor, to make positive contact with the vessel in order to sense its temperature. Also, being of a thin elastic material, the spring diaphragm easily contours itself to the irregular surface of cooking vessels. Permanent magnet means may be combined with the diaphragm in order to achieve a more positive coupling with magnetically permeable cooking vessels.

3,786,221
METHOD FOR HEAT TREATING A POLAR, DIELECTRIC PARISON

Alan Silverman, Bridgewater Township, N.J., assignor to American Can Company, Greenwich, Conn.

Filed Mar. 29, 1973, Ser. No. 346,172
Int. Cl. H05b *9/04*
U.S. Cl. 219—10.57 **18 Claims**

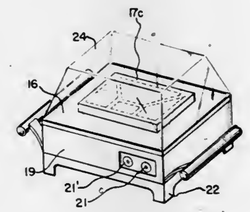


A method of heat treating an axial zone of a polar, dielectrically lossy, thermoplastic, polymeric parison with a high frequency energy source to produce a temperature gradient across the thickness of the sidewall in said zone prior to blow molding the parison into a bottle, whereby the temperature is higher on the inner surface of the parison sidewall than on the outer surface of the parison sidewall.

3,786,222
METALLIC FOIL INDUCTION COOKING

John D. Harnden, Jr., and William P. Kornrumpf, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 19, 1972, Ser. No. 245,570
Int. Cl. H05b *5/04*
U.S. Cl. 219—10.49 **15 Claims**



An ultrasonic frequency induction surface cooking unit heats aluminum foil and other thin metal utensils placed on the cool cooking surface. For optimum heating the aluminum foil has a thickness of 0.5 mils. A uniform heating distribution

is obtained by preferably using a rectangular induction heating coil with several series-connected elongated coil sections, or by varying the metal thickness to graduate the energy acceptance. Frozen convenience foods can be defrosted in this manner, and the aluminum foil can be wrapped about the food and shaped by the user into disposable utensils using a set of molds. Disposable foil cooking obviates the clean-up and storage problems of pots and pans.

3,786,223

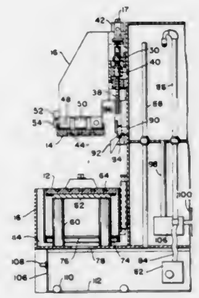
RAM FOR A RECIPROCALLY MOVABLE EDM ELECTRODE

Thomas J. O'Connor, 100 Morgan Rd., Ann Arbor, Mich.

Continuation-in-part of Ser. No. 887,795, Dec. 23, 1969, Pat. No. 3,612,810, which is a continuation-in-part of Ser. No. 696,195, Jan. 8, 1968, Pat. No. 3,485,991, which is a continuation-in-part of Ser. No. 504,971, Oct. 24, 1965, Pat. No. 3,363,083, which is a continuation-in-part of Ser. No. 250,321, Jan. 9, 1963, Pat. No. 3,222,494. This application Oct. 12, 1971, Ser. No. 188,539

Int. Cl. B23k *9/16*

U.S. Cl. 219—69 V **4 Claims**



A machine tool for electrical machining is disclosed including a ram portion for reciprocally moving an electrode supported thereby transversely of a workpiece while moving the electrode toward the workpiece. The ram is moved toward the workpiece in the machine tool disclosed by a screw and nut mechanism driven by a rotary hydraulic motor. The electrode supported by the ram portion includes a surface extending in the transverse direction adapted to be maintained in controlled spaced apart relation to the workpiece on movement of the electrode toward the workpiece whereby total form machining of the workpiece is accomplished by the electrode on transverse reciprocal movement thereof.

The machine tool further includes a stationary table for supporting a workpiece and a movable dielectric work tank having an opening in the bottom thereof operable in conjunction with the table to provide a sealed tank in one position thereof and to permit rapid draining of dielectric through the bottom of the tank on downward movement of the tank relative to the table whereby the workpiece and table are exposed for inspection. A system is also disclosed for supplying clean dielectric to the work tank for pumping dielectric from the work tank to a storage tank and for pumping the dielectric from the storage tank through a filter back to the work tank or back to the storage tank. The dielectric system also includes a removable tray for receiving contaminated electrolyte to be cleaned or disposed of.

3,786,224

METHOD FOR PRODUCING STRIPS OF INSULATING MATERIAL HAVING ELECTRICALLY CONDUCTIVE COATINGS WITH A COATING FREE MARGINAL EDGE SURFACE

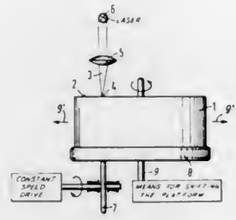
Hermann Heywang, and Gerhard Hoyler, both of Munich Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed July 21, 1971, Ser. No. 164,667

Claims priority, application Germany, July 23, 1970, P 20 36 663.6

Int. Cl. B23k *27/00*

U.S. Cl. 219—121 LM **13 Claims**



The present invention is directed to a method and device for removing a coating such as a metalized coating from a coated surface of a strip of insulative material by utilizing a laser beam which is directed parallel to the coated surface with its focal point position adjacent to the portion of the coated surface to be removed. Preferably the strip is either coiled in a roll with the edge portions forming a frontal surface and the roll is rotated with respect to the laser beam and shifted in a plane perpendicular to the axis of the laser beam or the strips are arranged in stacks and the laser beam and the stack are moved relatively in a back and forth direction and in a direction vertical to the back and forth direction to decoat the coated surface adjacent the edge of the strip.

3,786,225

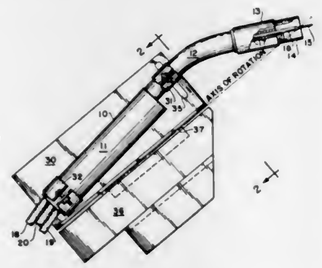
WELDING FIXTURE

Francis E. Gibbs, Pleasanton, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Dec. 7, 1972, Ser. No. 312,902

Int. Cl. B23k *9/12*

U.S. Cl. 219—124 **8 Claims**



A fixture for the welding of metal products which provides a pivotal mode of oscillation of the welding torch about the tip of the torch. The pivotal mode of oscillation is particularly effective in the arc welding of thick members with a narrow welding groove.

3,786,226

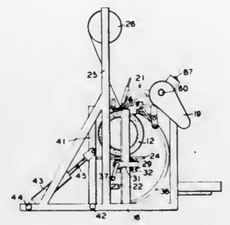
JACKET FOR CYLINDRICAL ARTICLE AND METHOD AND APPARATUS FOR FORMING SAID JACKET

Rupert Douglas Terry, Toledo, Ohio, assignor to Johns-Manville Corporation, New York, N.Y.

Division of Ser. No. 845,404, July 28, 1969, Pat. No. 3,660,890. This application Mar. 6, 1972, Ser. No. 232,310

Int. Cl. B23k *9/12*

U.S. Cl. 219—125 R **9 Claims**



A duct of thermal insulation is jacketed with a gas impermeable sheet material with a longitudinal seam formed by turning the mating ends of the sheet material outwardly and thermally fusing those ends into a linear nodular bead. In the case of metal foils of a few thousandths of an inch in thickness the bead is of the order of a thirty-second of an inch and is turned into the foil jacket to present a smooth non-cutting surface.

Semi-butt welds of foil are made by clamping the foil in face to face relationship along an essentially line contact and moving an arc welding electrode with associated gas jets for a non-oxidizing gas parallel to and in close spaced relation to the clamp line. Jacketing for preformed ducts of glass or other fiber type insulation is drawn from a supply of sheet stock to form a catenary loop in which a preformed duct is placed. Jaws forming unitary clamps and welding electrodes are closed to close the opposite sides of the loop of foil around the duct and upon each other. The foil is severed closely adjacent the clamps and the electrode with its jets for the gas is moved along the exposed edges of foil adjacent the electrode clamps while drawing an arc to fuse the opposed foil surfaces together. The clamps are then released, the jacketed duct removed from the welding apparatus and the radially extending, fused foil bead pressed parallel to the outer face of the duct.

3,786,227

HEAT EXCHANGER DEFROST APPARATUS

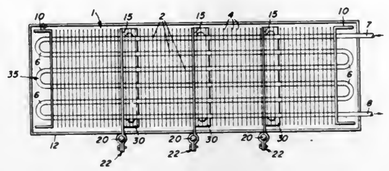
Ronald W. Seipp, Rosemont, and Harold E. McClure, Wayzota, both of Minn., assignors to Thermo King Corporation, Minneapolis, Minn.

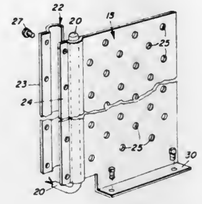
Filed Nov. 15, 1972, Ser. No. 306,665

Int. Cl. H05b *1/00;* **F25d** *21/00*

U.S. Cl. 219—201 **4 Claims**

A plate and tube heat exchanger assembly includes a plurality of coolant transporting tubes and a plurality of spaced plates to be periodically defrosted. The tubes pass through the plates and are in heat conducting relationship therewith at junction points with the plates. At least one but less than all of the plates may be modified, according to the instant invention, to include an electric heating element disposed at one end thereof for imparting heat through the plate and to the tubes and other plates at the junction points therebetween at predetermined times for periodic defrosting. The thickness of





the plates having heating elements associated therewith are of a greater thickness than the remainder of the plates.

3,786,228

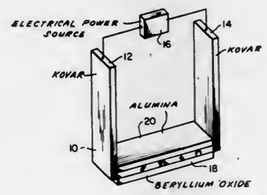
ELECTRIC SOLDERING IRON TIP

Frank S. Castellana, New York, N.Y.; Jack Liker, Wayne, N.J., and Steve Kokolis, Staten Island, N.Y., assignors to Karl Roesch Inc., New York, N.Y.

Filed Dec. 15, 1971, Ser. No. 208,309

Int. Cl. H05b *3/10;* **B23k** *3/02*

U.S. Cl. 219—233 **12 Claims**

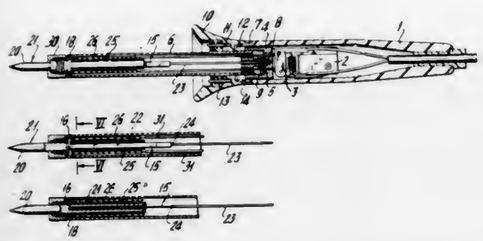


An electric soldering iron tip includes a U-shaped metallic heating member formed from an elongated strip of Kovar or other low expansion iron-nickel alloys. The base portion of the U-shaped heating member has an elongated strip of ceramic material, such as beryllium oxide, attached to one side thereof for receiving heat from the heating member and forming a soldering surface for engaging the work to be soldered in order to apply heat thereto for soldering purposes. A second ceramic strip, formed of alumina, is connected to the opposite side of the base portion of the heating member from the first ceramic strip for preventing deformation of the tip due to differences in the coefficients of expansion of the first ceramic strip and the heating member to which it is attached. The ceramic strips are brazed to the heating member to provide a strong bond having excellent thermal conductivity characteristics. The arm sections of the U-shaped heating member are adapted to be connected to a source of electrical energy to effect flow of heating current through the member.

3,786,229
THERMOSTATICALLY CONTROLLED ELECTRIC SOLDERING IRON

Friedrich Hombrecher, Wertheim/Main, Germany, assignor to Ersa Ernst Sachs KG, Wertheim/Main, Germany

Filed May 30, 1972, Ser. No. 257,802
Claims priority, application Germany, July 6, 1971, P 21 34 560.8
Int. Cl. H05b 1/02; B23k 3/04
U.S. Cl. 219—241 6 Claims

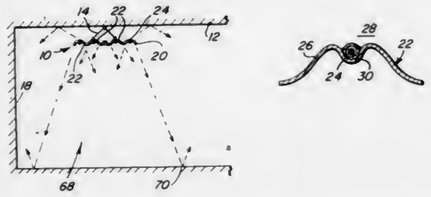


An electric soldering iron comprises, a tubular housing having a soldering element therein with a forward tip portion which projects out of the housing and a core portion which is located in the housing within an electrical resistance heating element. A switch for regulating the current to the heating element is actuated by a control rod which comprises an elongated rod member connected to a tongue portion of a material of good thermal conductivity and high thermal stability, such as refined steel, silver or nickel, which rides in a longitudinal slot defined along the length of the core so that the tongue is located adjacent the tip portion which projects from the housing. The rod is of a low thermal coefficient of expansion and its movement is influenced by the changes of temperature of the solder heating element tip portion to actuate the switch contained in the housing.

3,786,230
RADIANT HEATER

Frank J. Brandenburg, Jr., Rt. 3, Box 28, Ashland, Va.

Filed Dec. 14, 1971, Ser. No. 207,875
Int. Cl. H01b 1/02, 3/02
U.S. Cl. 219—345 7 Claims

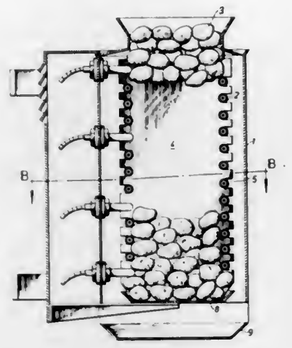


A radiant heater with a panel forming corrugations and having at least one heating element mounted on one of the corrugations. The panel is mounted at a distance from a surface partially defining a space to be heated for permitting fluid circulation between the panel and the space. The heating element is arranged in a groove defined at the apex of a convex surface defined by the corrugation, and is arranged facing the space defining surface. When a plurality of heating elements are provided, a thermostat having a set of contacts for each heating element is provided for actuating at least a portion of the elements at a predetermined temperature different from that for the other heating elements.

3,786,231
ELECTRICALLY HEATED SAUNA BATH UNIT

Nils Allan Emanuel Torvfelt, Enkoping, Sweden, assignor to AB Bahco Ventilation, Enkoping, Sweden

Filed Nov. 2, 1971, Ser. No. 194,977
Claims priority, application Sweden, Nov. 3, 1970, 14848/70
Int. Cl. H05b 1/00; A61h 37/00
U.S. Cl. 219—365 4 Claims



An electrically heated sauna bath unit has a plurality of electrical heating elements in the form of a flattened helix surrounded by a jacket which defines therewith an air passage through which air heated by the elements flows. The elements define a space forming a substantially vertical column for accomodating a mass of stone material which accumulates heat against a time when water is thrown thereon. The column has a length which is at least twice its width and a width which is about four times the average size of the stone constituting the stone material. In one embodiment the stone material is in direct contact with the heating elements and is divided by vertical plates secured to the elements and extending the full height of the column. In a second embodiment, the stone material is accomodated in a magazine for indirect heating by the elements.

3,786,232
APPARATUS FOR THE CHARGING AND DISCHARGING OF STORAGE HEATERS

Nikolaus Laing, Hofener Weg 35-37, 7141 Aldingen near Stuttgart, Germany

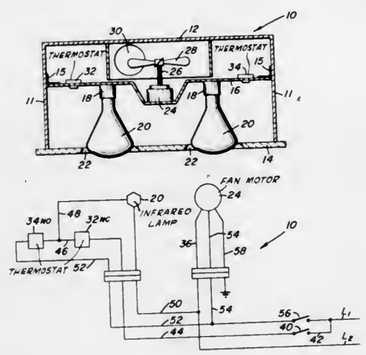
Continuation-in-part of Ser. No. 100,341, Dec. 21, 1970, abandoned, which is a continuation of Ser. No. 778,556, Nov. 24, 1968, abandoned. This application Feb. 26, 1973, Ser. No. 335,780
Claims priority, application Austria, Nov. 27, 1967, 10665/67
Int. Cl. H05b 1/00; F24h 7/04
U.S. Cl. 219—365 7 Claims

A storage heater includes a thermally insulated double walled casing having a closed top portion surrounding a heat storage element provided with vertical air passages. The casing bottom has an air inlet and outlet whereby heated air may be circulated through the passages to heat the storage element in a first mode of operation and whereby room air can be likewise circulated to withdraw heat therefrom in a second mode of operation. A blower, positioned in a compartment having an air inlet and outlet and located beneath the casing, has its suction side in communication with the casing outlet. A pivotal flap valve near the delivery zone of the blower establishes a closed air circulation circuit through the air inlet, casing, air outlet, blower and compartment during the first mode of operation and diverts circulated air outwardly of the compartment to the exterior thereof during the second mode of operation. An electric heater is located in the compartment adjacent the delivery zone of the blower to heat the circulated air during the first mode of operation.

3,786,233
INFRARED HEATER AND VENTILATOR UNIT

Ward H. Bumpus, and Justin Brehm, both of Fayetteville, N.C., assignors to Fasco Industries, Inc., Rochester, N.Y.

Filed Aug. 18, 1972, Ser. No. 281,766
Int. Cl. H05b 1/02; F21v 29/00; F24f 7/00
U.S. Cl. 219—343 6 Claims

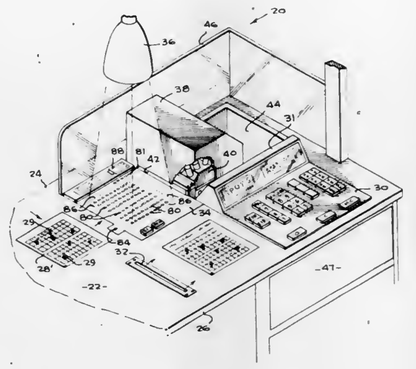


An infrared heater-ventilator unit comprises a housing adapted to be mounted in the ceiling of a room with the front of the housing substantially flush with the ceiling. Two infrared lamps are mounted on the front side of a strap that extends transversely across the housing. A motor and fan are mounted on the rear of the strap. The unit is wired so that one or both lamps may be illuminated by closing separate manually-operable switches. A normally-open thermostatic switch closes, if the temperature in the unit reaches a predetermined level, to actuate the motor to drive the fan to draw air into the housing through a front opening and vent it through a rear opening. If the temperature in the unit exceeds this level a normally-closed thermostatic switch opens to break the circuit to the lamps and motor. A separate manually-operable switch permits closing the circuit to the motor to drive the fan, if it is only desired to ventilate the room.

3,786,234
GAME CONTROL AND DATA HANDLING SYSTEM

Edward J. Trent, Reno, Nev.; Lavern H. Meyers, Newport Beach, Calif.; Frank L. Kagele, Reno, Nev.; Jerry T. Fridenberg, Westminster, and Frederick J. Alberty, Hollywood, both of Calif., assignors to Intercontinental Services, Inc., Sparkes, Nev.

Filed Nov. 16, 1971, Ser. No. 199,176
Int. Cl. G06k 3/02; A63f 7/00; G06f 3/06
U.S. Cl. 235—61.7 R 21 Claims



A system is disclosed for expediting and monitoring customer transactions in the game of keno including a plurality of transaction terminals or stations each including scanner means for sensing marked number spots of a customer marked keno ticket, a manually operable keyboard for receiving entries of the price of a transaction and the nature of the transaction and a duplicate receipt ticket providing means including printing means controlled by the scanner and the keyboard for rapidly providing a duplicate ticket with brush mark replicas in the same number spots as those of the customer marked ticket and for also imprinting additional information such as the nature and price of the transaction. Another aspect of the invention resides in the provision of a control and data processing system interconnecting the plurality of terminal stations to a central control for controlling and monitoring all of the transaction terminals and storing all transactions of all transaction terminals. An additional feature resides in the provision of a back printer for imprinting the back of a customer marked ticket with all information, such as the amount of the transaction and the nature of the transaction, imprinted on the receipt ticket.

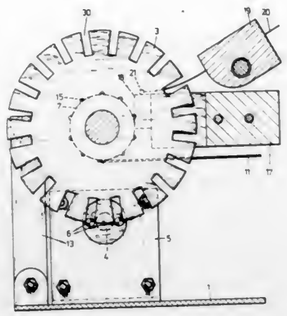
3,786,235
PROGRAM READING MECHANISM

Heinz Strecke, Lindenbaumstrasse 13, 565 Solingen, Germany

Filed July 6, 1971, Ser. No. 160,052
Int. Cl. G06k 7/06; H04k 15/18; H01h 43/08
U.S. Cl. 235—61.11 A 15 Claims

A program reading mechanism in which a band shaped exchangeable program carrier is moved in increments by a transportation roll, with the data carried by the program carrier being scanned by contacts, and the transportation roll being driven by two flights connected to one another rotating about a common center and arranged diametrically in relationship to

the common center, the flights engaging in radial slots provided for the periphery of a slotted disc connected to the



transportation roll, with the common center of the flights being generally disposed at the level of the periphery of the slotted disc.

3,786,236

PROGRAMMED SIGNAL GENERATING APPARATUS

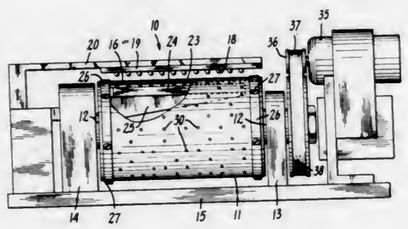
Yukihiro Sato, and Toshiju Ichinosawa, both of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Dec. 22, 1971, Ser. No. 210,947

Claims priority, application Japan, Dec. 24, 1970 45/129831

Int. Cl. G06k *7/10*

U.S. Cl. 235—61.11 E **3 Claims**



Programmed signal generating apparatus comprises a plurality of record mediums each containing punched holes arranged according to a predetermined program, a rotary drum having a transparent cylindrical surface having means for releasably connecting one of the record mediums around the drum such that the punched holes overlie the transparent cylindrical surface, and electro-optical reading means for optically reading the punched holes during rotational movement of the record medium and generating corresponding electrical output signals. The electro-optical reading means comprises an array of miniature lamps positioned exteriorly of the drum and in spaced-apart relationship from the drum and a similar array of light-sensitive devices disposed interiorly of the drum each positioned in alignment with one of the miniature lamps to receive light therefrom and operable to generate an electrical output signal in dependence upon the amount of light impinging thereon.

3,786,237

MECHANICALLY READABLE SYSTEM USING PREMARKED SUBSTRATE

Robert H. Postal, 93 Rutgers Pl., Passaic, N.J.

Continuation of Ser. No. 105,979, Jan. 12, 1971, abandoned, which is a continuation of Ser. No. 560,321, June 24, 1966, abandoned. This application Mar. 13, 1972, Ser. No. 234,430

Int. Cl. G06k *7/10, 19/06, 9/18*

U.S. Cl. 235—61.11 E **5 Claims**



An encoding means comprising a substrate having a plurality of repetitive patterns, each having a plurality of areas of different photoluminescent material and each area overprinted with stylized alphanumeric characters or coded patterns of opaque ink.

3,786,238

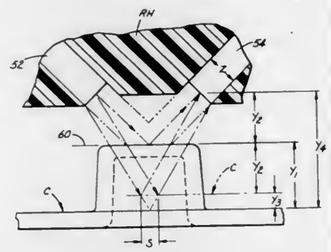
OPTICAL READER

Donald N. Heisner, Mentor, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Sept. 5, 1972, Ser. No. 286,379

Int. Cl. G02b *5/14*; **G06k** *7/10*

U.S. Cl. 235—61.11 E **5 Claims**



An optical information recognition system for sensing information carried on an information carrying member having an information carrying surface exhibiting a normal surface level and having information carried thereon as raised surface areas. The reader includes light transmitting means, such as an array of fiber optic tubes, for transmitting light along a given acute angle of incidence relative to the member so as to illuminate a portion thereof. Light receiving means, such as an array of fiber optic tubes leading to one or more light sensors, serves to receive light reflected from the member and to provide an output indication only when the amount of received light exceeds a given level. This is accomplished by positioning the light receiving means relative to the light transmitting means and the information carrying member so that the given amount of light is received only when a raised surface area is illuminated by the light transmitting means.

3,786,239

PROGRAMMING APPARATUS

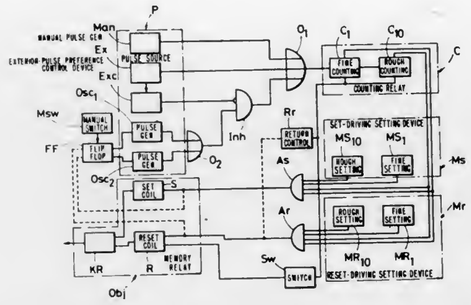
Noboru Sano, and Yoshihide Bando, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed May 17, 1971, Ser. No. 143,977

Claims priority, application Japan, May 18, 1970, 45/42577; May 18, 1970, 45/42578

Int. Cl. H03k *21/32*

U.S. Cl. 235—92 PE **10 Claims**



A plurality of memory relays have their respective set coils connected in series with and between channel terminals of a first rough setting matrix and a first fine setting matrix, and have their respective reset coils connected in series with and between channel terminals of a second rough setting matrix and a second fine setting matrix. The timing terminals of the first and second rough setting matrices are connected to the output terminals of a rough counting relay and the timing terminals of the first and second fine setting matrixes are connected to the output terminals of a fine counting relay. These counting relays are supplied with clock pulses for counting operation by means of a clock pulse source.

Each memory relay is driven to a set state in response to an output provided at a corresponding channel terminal at a time point preset in the first setting matrixes and is driven to a reset state in response to an output provided at a corresponding channel terminal at a time point preset in the second setting matrixes.

Means for controlling the pulse repetition frequency of the clock pulse and for returning said counting relays and memory relays are provided and frequency control and return operation are controlled advantageously by means of said memory relays.

3,786,240

PRESETTABLE SUBTRACTING COUNTER

Horst Pfeiffer, Aldingen Kreis Tuttlingen, Germany, assignor to Firma J. Hengstler K.G., Aldingen Kreis Tuttlingen, Germany

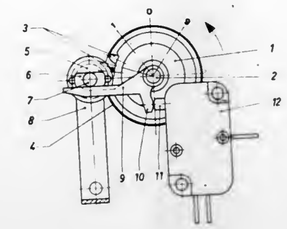
Filed Dec. 18, 1972, Ser. No. 316,287

Claims priority, application Germany, July 22, 1972, P 22 36 098.1

Int. Cl. G06f *15/18*

U.S. Cl. 235—132 R **11 Claims**

A digit wheel is adapted to be preset to a preset position corresponding to a count higher than zero and to perform a rotational subtracting movement from said preset position to and beyond a position corresponding to a zero count. A cutoff pinion is operatively connected to said digit wheel and arranged to rotate to a signaling position in response to a subtracting movement of said digit wheel beyond said position corresponding to a zero count. A signaling lever is movable between a signaling position and a non-signaling position. Biasing means resiliently urge said signaling lever to said non-signaling position. A signal generator is under control of said lever and arranged to generate a signal when, and only when, said lever is in said signaling position. Cam means are connected to said pinion for rotation therewith and in direct engagement with said lever and arranged to permit said lever to



assume its non-signaling position when said pinion is in a position other than its signaling position and to move said lever to its signaling position in response to a rotation of said pinion to its signaling position.

3,786,241

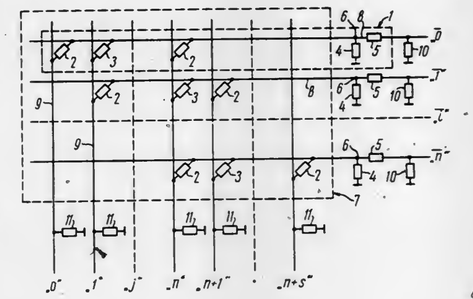
DEVICE FOR INTEGRATING AND DIFFERENTIATING DISCRETE FUNCTIONS

Georgy Evgenievich Pukhov, prospekt Nauki, 111/2, kv. 64; Boris Adamovich Borkovsky, prospekt Nauki, 142/1, Korpus 12, kv. 9; Viktor Kirillovich Belik, ulitsa Vernadskogo, 67, kv. 77; Vladimir Petrovich Romantsov, ulitsa Kolomievskaya, 16, kv. 53, and Alexandr Fedorovich Katkov, bulvar Lesi Ukrainki, 28, kv. 252, all of Kiev, U.S.S.R.

Filed Apr. 10, 1972, Ser. No. 242,645

Int. Cl. G06g *7/18*

U.S. Cl. 235—183 **2 Claims**

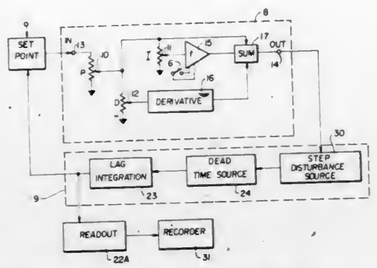


A device for performing one of integrating and differentiating discrete functions, arranged on the basis of reversible adders a number of which is equal to a number of points defining the discrete function, each of the reversible adders comprises at least four reactance components having a common connection point whose self admittance is zero, while each two reactance components of all said reversible adders are combined in a rectangular matrix, each third reactance component of all adders being connected to one of the rows or horizontal buses of said rectangular matrix, each fourth reactance components being connected between one of the horizontal buses of the matrix and the ground.

3,786,242
PROCESS CONTROL SIMULATOR

Herbert B. Brooks, 600 Washington Ave., Haddonfield, N.J.

Filed Sept. 23, 1971, Ser. No. 183,010
Int. Cl. G06g 7/66
U.S. Cl. 235—184 17 Claims



A process control simulator contains electronic circuits for modifying set-point control signals by summing, integrating, differentiating and introducing step functions on continuous, single or periodic bases to determine off-line the behavior of a process control system. Provisions are made for several interacting control loops, for dead-time delays and for faster than actual response times to speed up simulation. The dead-time delays are provided by scanning a set of storage capacitors with a variable speed scanning motor through a scanning control cycle of operation.

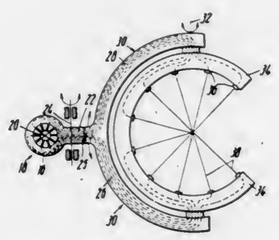
A three control loop controller section provides for setting the gain of the controller system and controlling integration and difference modes responsive to step disturbances introduced into an integration process after a selectable dead-time adjustment. The output signal is reproduced in the form of a process response waveform. Provisions are made for smoothing readout and responding to sluggish systems by a slow sampling technique.

An automatic zero adjust circuit is provided to compensate for drift once each operation cycle and is controlled by a logic circuit.

3,786,243
LIGHT FIXTURE HAVING GIMBALLED OPEN RING CARRYING FOCUSED LIGHT PIPE OUTLETS

Karl F. Ilzig, Hanau, and Klaus Junginger, Rodenbach, both of Germany, assignors to Original Hanau Quarzlampen GmbH, Hanau, Germany

Filed Aug. 18, 1972, Ser. No. 281,675
Claims priority, application Germany, Aug. 18, 1971, P 21 41 351.4
Int. Cl. A61g 13/00
U.S. Cl. 240—1.4 6 Claims

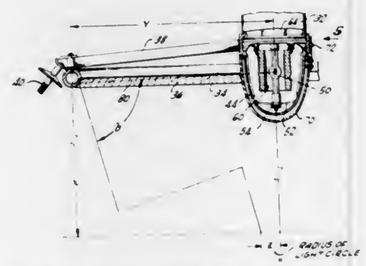


A light fixture for a hospital operating room comprises an open circle light outlet ring gimballed within a pivotable yoke. One or more light sources are provided which feed a plurality of light pipe whose outlets are disposed around the inner periphery of the ring. The outlet ends of the light pipes are inclined with respect to the horizontal plane to focus the light toward the center of the area beneath the ring. The light sources may be disposed behind the yoke pivot to provide a counterweight, or within the ring in order to shorten the length of the light pipes.

3,786,244
SURGICAL LAMP

Charles G. Hutter, III, Hollywood, Calif., assignor to Physical Systems, Inc., Hollywood, Calif.

Filed Oct. 2, 1972, Ser. No. 293,930
Int. Cl. A61g 13/00; F21v 33/00; A61b 1/06
U.S. Cl. 240—1.4 6 Claims

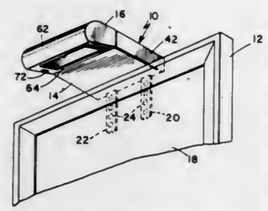


A lamp of the type used in surgical operating rooms comprising a Fresnel lens surrounding a light source for forming a substantially plane beam, a lens having vertically extending cylindrical lenticulations thereon surrounding the Fresnel lens for dividing the plane beam into a multiplicity of outwardly extending beams, and a plurality of reflectors mounted on a ring which surrounds the lenticular lens for reflecting the outwardly extending beams to form a cone of light.

3,786,245
CORDLESS ILLUMINATION APPARATUS

Donald J. Cincotta, 7330 Brodiaea, La Jolla, Calif., and Harold J. Kopelke, 1511 Beryl, San Diego, Calif.

Continuation-in-part of Ser. No. 168,637, Aug. 3, 1971, abandoned. This application Oct. 27, 1972, Ser. No. 301,326
Int. Cl. F21v 33/00
U.S. Cl. 240—2 AD 2 Claims

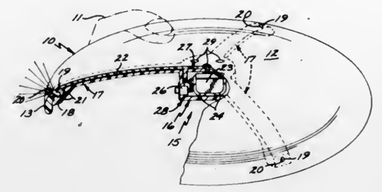


Illumination apparatus utilizing a removable and rechargable battery to eliminate the requirement for electrical outlets and to eliminate exposed electrical cords in providing illumination for pictures and other works of art. The apparatus includes a vertical mounting bracket and a source of illumination. A battery is received within the horizontal support for said source of illumination to maximize the volume available for batteries without detracting from the overall appearance of the apparatus. The source of illumination is angularly disposed to direct light downwardly and inwardly toward the vertical mounting surface and the picture or other work of art.

3,786,246
ILLUMINATED FLYING SAUCER

Stephen C. Johnson, 814 Cartegena St., and Jesse C. Ward, 7 LaLinda Dr., both of Long Beach, Calif.

Filed Mar. 24, 1972, Ser. No. 237,767
Int. Cl. A63h 1/32
U.S. Cl. 240—6.4 R 16 Claims

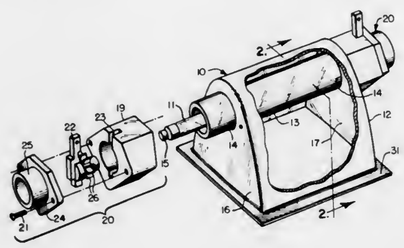


A "Frisbee" type flying saucer toy which has a generally disc-shaped body terminating at its periphery in a downwardly pointing rim so that the body and rim define a generally convex upper surface and a generally concave lower surface. Lighting means, preferably in the form of a plurality of regularly spaced lamps, is generally fixedly disposed proximate the rim so as to be visible when energized from the outside of the rim. A battery holder is generally centrally located on the body, preferably on the underside thereof, and electrical conductors extend generally radially outwardly along the body from the battery holder to the lights. The battery holder, lights, and electrical conductor means are all embodied in a unitary structure having a central hub in which the battery holder is located, with a plurality of regularly spaced arms extending radially outwardly from the hub, with the lights located at the ends of the arms, and the electrical conductor extending along the arms. This unitary structure is adapted to be engaged in the concave underside of the flying saucer. The centrally located battery holder and the peripherally located lights present a minimum interference with the aerodynamic characteristics of the saucer, so that good flight characteristics are retained.

3,786,247
OPTICAL ILLUMINATION SYSTEM

Richard L. Eilert, Palatine, and John J. Klemenz, Mount Prospect, both of Ill., assignors to Chicago Aerial Industries, Inc., Village of Barrington, Ill.

Filed Nov. 29, 1968, Ser. No. 780,124
Int. Cl. G03b 15/02
U.S. Cl. 240—1.3 7 Claims

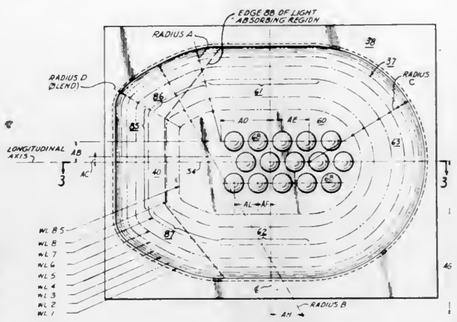


An optical illumination system for aerial electronic flash photography which employs one or more illumination modules each of which includes a cylindrical light source and a unique trough-like reflector configuration for providing weighted distribution of emitted light to compensate for attenuation factors such as slant range and lens optical fall-off.

3,786,248
LUMINAIRE

Wayne W. Compton, Irvine, Calif., assignor to Kim Lighting, Inc., City of Industry, Calif.

Filed May 15, 1972, Ser. No. 253,591
Int. Cl. F21s 1/10, 3/10, 13/10
U.S. Cl. 240—25 32 Claims

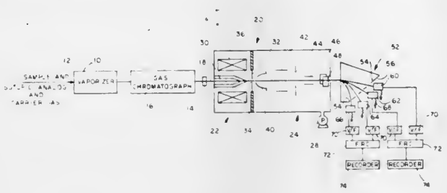


A luminaire comprising a lamp and a reflector. The lamp has an axis of radiation and the property of emitting a disproportionately large percentage of its luminous flux in an annulus which is contained within a pair of imaginary divergent conical surfaces, each at no more than about 50° to the axis of radiation (100° included angle). The reflector includes reflective cap, side and end surfaces which together form a cavity in which the lamp is placed. The cavity has a plane of symmetry. A longitudinal axis and the axis of radiation lie in the plane of symmetry. The axis of radiation intersects the longitudinal axis at an acute angle. The side and end surfaces are, in cross-section, beaming-directing, and preferably are at least approximations to parabolas, and the flux radiated from the lamp within said annulus impinges upon each of these surfaces.

3,786,249
NEGATIVE ION DUOPLASMATRON MASS SPECTROMETER FOR ISOTOPE RATIO ANALYSIS

Michael Anbar, and William H. Aberth, both of Palo Alto, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed Dec. 20, 1971, Ser. No. 209,528
Int. Cl. H01j 39/28
U.S. Cl. 250—41.9 G 21 Claims



A technique for performing isotope ratio analysis is described which utilizes a negative ion mass spectrometer coupled with a negative ion duoplasmatron source. An untreated sample to be analyzed for a specific compound is diluted with a known amount of isotopic analog. The sample plus analog is volatilized if necessary, and purified by gas chromatography before entering the ion source. The extremely hot plasma of the duoplasmatron thoroughly fragments the large molecules and efficiently ionizes the input gas stream. The resulting ionized stream is analyzed in a magnetic mass spec-

trometer. The signals from a pair of peaks representing the common and noncommon tag isotope of the same element are converted to frequency signals and the frequency signals are converted to a ratio signal by a frequency ratio counter. The value of this ratio then indicates the precise amount of compound in the sample. The system operates very efficiently on stable, non-radioactive isotopes and is applicable to many analyses which cannot be performed with radioactive isotopes.

3,786,250

APPARATUS FOR CARRYING OUT CHEMICAL REACTIONS, WITH FORMATION OF PHOTOREACTION PRECIPITATIONS

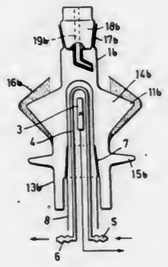
Horst Huhn, Witten-Ruhr, Germany, assignor to Studiengesellschaft Kohle mbH, Mulheim/Ruhr, Germany

Filed June 15, 1971, Ser. No. 153,196

Claims priority, application Germany, June 16, 1970, P 20 29 597.0

Int. Cl. H01j *37/00*

U.S. Cl. 250—43 **14 Claims**



An assembly for effecting chemical reactions in solutions by radiation comprises a means providing a source of radiation and a reaction vessel rotatably mounted therearound. The reaction vessel is used to contain the solution to be treated by radiation. The vessel includes a bulge portion which extends radially outwardly for holding the solution at a location for exposure to the radiation. When a precipitate is formed upon exposure to the radiation during the rotation of the vessel, the precipitate is maintained at the furthermost point from the radiation source in the bulge portion so that clear solution will be maintained near the source of radiation. Several specific embodiments of the assembly are disclosed.

3,786,251

BULK MATERIAL NUCLEAR MOISTURE GAUGING SYSTEM

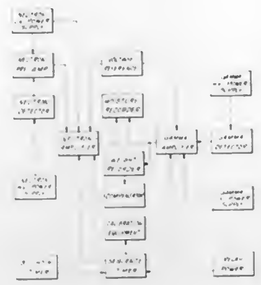
Donald H. Kylin, and Thomas E. Reim, both of Cleveland Heights, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 34,730, May 5, 1970, abandoned. This application Feb. 2, 1972, Ser. No. 222,967

Int. Cl. G01n *23/12*; G01t *3/00*

U.S. Cl. 250—43.5 D **6 Claims**

An improvement on a moisture gauging system of the type disclosed in Stone et al. U.S. Pat. No. 3,431,415, issued Mar. 4, 1969, in which slow neutrons are sensed to provide an indication of the moisture and other neutron interacting material content of an irradiation volume of a substance. A compensation circuit is provided to counteract the effect of neutron interacting material in the substance under test.



3,786,252

Patent Not Issued For This Number

3,786,253

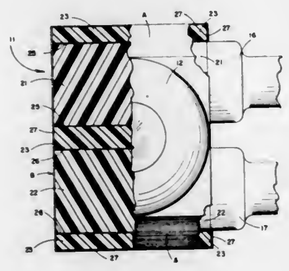
GAMMA AND NEUTRON SCINTILLATOR

James W. Haffner, Hacienda Heights, and Llewellyn S. Pearce, Bradbury, both of Calif., assignors to North American Rockwell Corporation, El Segundo, Calif.

Filed Feb. 1, 1972, Ser. No. 222,633

Int. Cl. G01j *39/18*

U.S. Cl. 250—71.5 R **5 Claims**



A uni-directional spectrometer is described that can detect and distinguish between gamma ray and neutron fluxes. The scintillator has two parallel disposed cylindrical scintillating elements that are made, for example, of plastic. The plastic compound of one element comprises only protons or hydrogen atoms, having atomic weight one, and the other element is made of a chemically similar plastic compound comprising only deuterium or hydrogen atoms of atomic weight two. The two cylindrical scintillator elements are enclosed within an anti-coincidence or outer scintillator element, with both ends of each cylinder exposed. On the same adjacent ends of each cylindrical element are disposed photomultiplier tubes. On opposite sides of the outer scintillator element are disposed two additional photomultiplier tubes. The cylindrical elements and the outer element are each, respectively, enclosed in a thin coating of aluminum except where the respective elements are in contact with the photomultiplier tubes to isolate the light output from each element.

3,786,254

THERMOLUMINESCENCE DOSIMETER HAVING A HANDLE

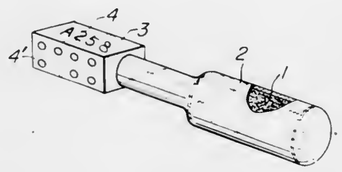
Tadaoki Yamashita; Osamu Yamamoto, both of Hirakata; Hajimu Oonishi, Neyagawa; Hidetsugu Kawabata, Kobe, and Saburo Kitamura, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 12,238, Feb. 18, 1970, abandoned. This application Dec. 20, 1971, Ser. No. 210,097

Claims priority, application Japan, Feb. 26, 1969, 44/17908; Feb. 26, 1969, 44/17909; Feb. 26, 1969, 44/17910; Feb. 26, 1969, 44/17911

Int. Cl. G01t *1/11*

U.S. Cl. 250—71 R **3 Claims**



A thermoluminescence dosimeter is integrated with a dosimeter-holding member to simplify and assure its handling as well as to prevent the generation of miscellaneous luminescences, for example, a luminescence due to the heat of friction. The reliability of the thermoluminescence dosimeter is thereby greatly improved in measuring dose.

3,786,255

DYE PENETRANT COMPOSITION AND METHOD OF APPLICATION

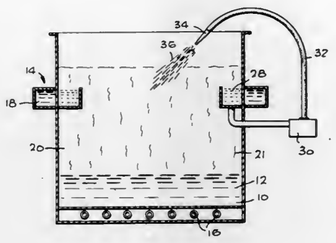
Orlando G. Molina, Westminster, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 5, 1973, Ser. No. 329,774

Int. Cl. G01n *21/16*

U.S. Cl. 250—302 **17 Claims**

Method for detecting cracks and flaws in the surface of an object or part, employing a dye penetrant composition which, following application of the dye penetrant composition to the part surface, includes means for facilitating removal of excess dye penetrant from such surface, in the form of a volatile degreaser-type solvent such as 1,1,1-trichloroethane. According to one embodiment, an object to be inspected is immersed in a dye penetrant which will withstand high temperatures, specifically a dye penetrant containing a wax, for example paraffin wax, a volatile solvent, preferably 1,1,1-trichloroethane, and a dye which is soluble in said volatile solvent, preferably a fluorescent dye, the dye penetrant composition being maintained at the boiling temperature of the volatile solvent, causing melting of the wax, which goes into solution, and vaporization of such solvent into a zone above the heated liquid dye penetrant composition, removing the object from the heated liquid dye penetrant composition, passing the object into the zone containing vapors of the volatile solvent and maintaining the object in the vapor zone for a period sufficient to cause vapors of the volatile solvent contacting and condensing on the surface of the object, to wash excess liquid dye penetrant from the surface of the object back into the liquid dye penetrant composition, together with condensed vapors of volatile solvent, removing and drying the object. The process is conveniently carried out in a degreaser-type apparatus, in which the object is initially passed through the vapors of volatile solvent above the bubbling liquid dye penetrant composition in the bottom of the degreaser, permitting facile removal of any oil or grease from the surface of the object, after which the object is then treated in the liquid dye penetrant composition, then again passed upwardly through the vapors of volatile degreaser solvent to remove excess liquid dye penetrant and dried, as previously noted, following which the dried surface of the object containing dye penetrant including wax in the cracks and defects thereof, with or without application of a developer, can be inspected under appropriate lighting conditions for detection of cracks and flaws.



3,786,256

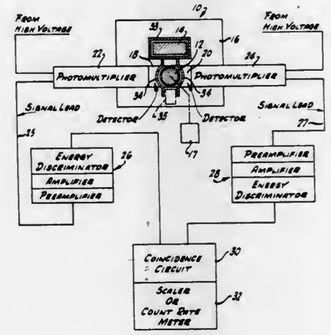
METHOD AND APPARATUS FOR NUCLEAR FUEL ASSAY WITH A NEUTRON SOURCE AND COINCIDENT FISSION NEUTRON DETECTORS

Samuel Untermyer, Portola Valley, Calif., assignor to National Nuclear Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 56,386, July 20, 1970. This application Nov. 18, 1971, Ser. No. 199,902

Int. Cl. G01t *1/20, 3/00*

U.S. Cl. 250—71.5 R **15 Claims**



A method and apparatus for the non-destructive assay of nuclear reactor fuels. Neutron irradiation of the fuel emits fis-

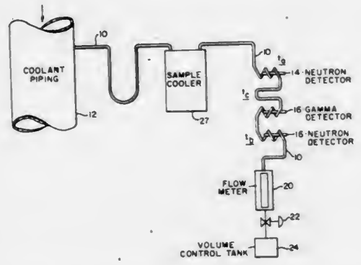
sion neutrons and gammas in groups of two to three neutrons and about five gammas for each fission and these neutrons and gammas are detected in a coincident counting system to obtain a quantitative assay of the fissionable species in the fuel. The proportions of various fissile isotopes in a fuel sample are also detected by coincident counting at a plurality of coincidence levels.

3,786,257

NUCLEAR FAILED FUEL DETECTION SYSTEM

Harald H. Weiss, Vienna, Austria, and Robert J. Johnson, Atlanta, Ga., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 12, 1971, Ser. No. 171,108
Int. Cl. G01t *1/16, 3/00*; **G21c** *17/02*
U.S. Cl. 250—83.3 R **18 Claims**



A system is disclosed which utilizes multiple radiation detectors to establish the isotopic or pseudo isotopic (weighted average of several isotopes) content of radiation sources on a continuous on-line basis. A specific application which utilizes this principle is a failed fuel monitor which continuously monitors the delayed neutron and gamma activity emanating from the primary coolant of a nuclear reactor. Employing two neutron detectors, the system has the ability to distinguish between activity from failed fuel and from fuel rod surface contamination. Applying a technique to compensate for activity build-up in the primary coolant loop, the system makes it possible to interpret the signals even during power transients. The provision of a third detector responsive to the gamma radiation emitted from the primary coolant in the reactor coolant loop enables the system to distinguish between enlarged cladding failures in already failed fuel rods and additional fuel failures.

3,786,258

CLOSED SYSTEM NEUTRON GENERATOR TUBE

Albrecht Schmidt, Karlsruhe, Germany, assignor to Gesellschaft fur Keinforschung mbH, Karlsruhe, Germany

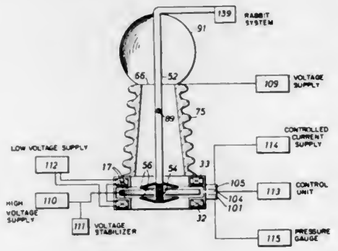
Filed Feb. 1, 1972, Ser. No. 222,639
Claims priority, application Germany, Mar. 13, 1971, P 21 12 215.6
Int. Cl. G21g *3/04*
U.S. Cl. 250—84.5 **15 Claims**

A closed system, sealed-off neutron generator tube is described which generates 14 MeV neutrons from the $T(d,n)He^4$ nuclear reaction on a deuterium and tritium absorption loaded target surface onto which accelerated deuterium and tritium gas ions are impinging.

The electrode structure of the tube consists of a magnetic poleface of one polarity, a cathode electrode in front of and adjacent to, but electrically insulated from that poleface and, a non-magnetic metallic anode discharge chamber surrounding the cathode electrode in vacuum tight connection with the first magnetic poleface which chamber ends in a full-width opened emission aperture, the rim of which constitutes another magnetic poleface. An acceleration electrode aperture whose cross-section corresponds and is adjacent to the emission aperture constitutes a short and wide acceleration gap. A target electrode opposite to the cathode electrode beyond the acceleration gap is electrically connected to the acceleration electrode and its surface is prepared with a tritium and deuterium absorbed target sheath. A magnetic field of about 1,000 – 2,000 Oe is applied by outside current windings. The path of the magnetic field emerges from the poleface behind the cathode electrode, intersects the latter, spreads along the anode discharge chamber and declines laterally in the region of the emission aperture so as to enter the poleface at its rim. A magnetic yoke outside of the windings serves to close the magnetic path between the polefaces of either polarity.

The target and acceleration electrode potential is maintained at about 100 – 300 kV, while the potential of the cathode electrode is maintained at about 10 – 30 kV, both potentials being applied with a negative polarity with respect to the anode discharge chamber by means of appropriate feedthrough insulators. Forced water flow cooling is provided for the electrodes, part of the vacuum envelope and the magnetic coils.

Positive ions are generated inside the anode discharge chamber by means of a self-sustained low pressure high-voltage cold cathode discharge with the ionizing electrons trapped in a region of crossed magnetic and electric fields. An electron cloud rotating differentially and of nearly uniform density thus ionizes the low pressure tritium deuterium gas mixture. The ions discharged from this region by the electric discharge field are either lost to the cathode electrode or to a larger degree



driven in the opposite direction into the region of the wide emission aperture and enter the continuing electric field of the acceleration gap upon passing the acceleration electrode aperture, these ions obtain a sufficient velocity to release neutrons from the fusion reactions when they finally impinge on the target surface material.

Secondary electrons, released from the target surface by the impinging ions and accelerated in the opposite direction to the ion flow, pass the acceleration gap and the discharge region and must be intercepted by the cathode electrode.

High flux neutron irradiation of samples for activation analysis or production of short-lived radioisotopes is achieved inside a cylindrical target. In this geometry, a fairly uniform neutron flux distribution is produced by bombarding the cylindrical target at its outside with ions generated in an annular discharge region concentric to the target, which ions are accelerated radially inward onto the target. The axially measured width of the ion current density distribution should be comparable to the diameter of the target cylinder.

A well collimated neutron beam, with a high dose rate applicable in medical cancer therapy irradiation with fast neutrons, is produced in the axial direction to the target cylinder outside of a thick radiation shield which is equipped with a collimating bore with the cross-section corresponding to that of the target cylinder. Optimum collimation is obtained by a slightly conical target cylinder having the form of a truncated cone with its apex located half-way on the axis along the collimating bore. An inside shielding cone resembling the residual of the target frustrum up to the apex tip is inserted

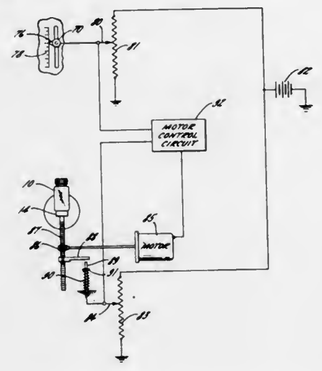
into the first half of the collimating bore. The latter may be interchangable, thus being either divergent, cylindrical or convergent, depending on the size of the irradiation field to be actually used.

3,786,259

METHOD AND APPARATUS FOR OPTIMIZING MEASUREMENT OF RADIOACTIVITY OF SAMPLES IN SCINTILLATION TYPE COUNTER

Edmund Frank, Chicago, Ill., assignor to Packard Instrument Company, Inc., Downers Grove, Ill.

Filed Apr. 7, 1972, Ser. No. 241,988
Int. Cl. G01t *7/08*
U.S. Cl. 250—106 SC **13 Claims**



A method and apparatus for optimizing the measurement of the radioactivity of samples in a scintillation type radioactivity counter in which successive samples are advanced into a counting chamber where the radioactivity of each sample is measured by detecting and counting the scintillations induced in a scintillation medium. In order to optimize the position of the sample relative to the scintillation detecting means, and thereby optimize measurement of the radioactivity of each sample, control means are provided for producing a command signal representing a selected position of the sample relative to the scintillation medium. This control means includes adjusting means for automatically adjusting the stop position of the sample in response to each command signal so that the sample is automatically stopped at a position represented by the command signal, and at which measurement of the radioactivity of the sample is optimized. Specific adjusting means disclosed are in adjustable limit switch and an adjustable wiper on a potentiometer, each of which controls the drive motor for raising and lowering successive samples relative to a counting chamber.

3,786,260

RADIATION ABSORBING SHIELD FOR PERSONNEL AND MATERIALS AND METHOD OF MAKING SAME

Bobby Leroy Atkins, and Robert Niles Bashaw, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 30, 1971, Ser. No. 214,394
Int. Cl. G21f *1/00*
U.S. Cl. 250—108 WS **12 Claims**

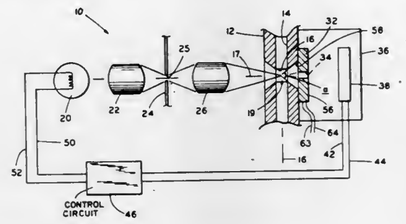
A radiation absorbing shield is constructed by forming continuous phase gelled aqueous solution, containing suitable dissolved radiation absorbing metal salts between confining walls which may be transparent. This is accomplished by mixing an aqueous solution of a polymerizable monomer, e.g., acrylamide, and an aqueous solution containing a catalyst, e.g., a redox type such as $K_2S_2O_8$-$Na_2S_2O_5$, and a crosslinking agent, e.g., N, N-methylene bisacrylamide or other divinyl monomer. Alternatively a radiation source can be used in place of the free radical and crosslinking monomer solution to accomplish the polymerizing and crosslinking of the monomer.

3,786,261

OPTICAL SCANNING DEVICE

Lorn Kenneth Tucker, Miami Lakes, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.

Filed Oct. 12, 1971, Ser. No. 188,123
Int. Cl. G01j *1/32*; **G06m** *7/00*; **G01n** *21/26*
U.S. Cl. 250—205 **13 Claims**



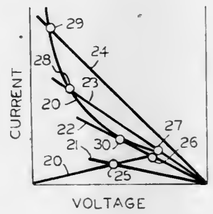
The device includes a novel photosensor having two sides, a photoreceiving surface on one side thereof, and a passageway or hole extending through the photosensor. The photosensor is positioned in the path of a light beam with the hole in alignment with the light beam for passing the same through the photosensor. A flow stream containing particles is directed across the path of the light beam and some of the light deflected (scattered) by the particles impinges on the photoreceiving surface and generates an electrical signal which can be utilized for determining the size, number and/or concentration of particles suspended in the flow stream.

3,786,262

LIGHT SENSING DEVICE

Shigeru Hayakawa, Hirakata, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

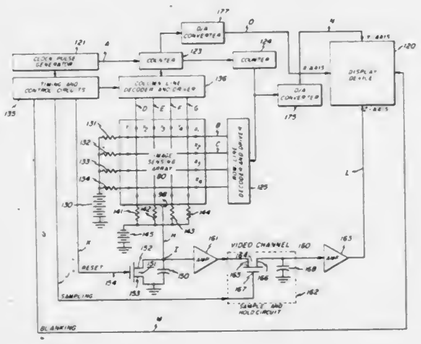
Filed July 20, 1972, Ser. No. 273,462
Claims priority, application Japan, Aug. 12, 1971, 46-61154; Dec. 20, 1941, 46-10510
Int. Cl. H03k *3/31, 3/42, 17/58*
U.S. Cl. 250—206 **2 Claims**



A light sensing device which can act as a light memory device or a light detecting device. The device has a photo-conductive element and a negative resistance element connected in series. At least one I-V curve of the photoconductive element is tangent to the I-V curve of the negative resistance element at one point and intersects the I-V curve of the negative resistance element at a second point. The current and/or voltage of the device changes abruptly upon irradiation of the photoconductive element with light having an intensity slightly greater than or slightly less than the light intensity corresponding to the I-V curve of the photoconductive element

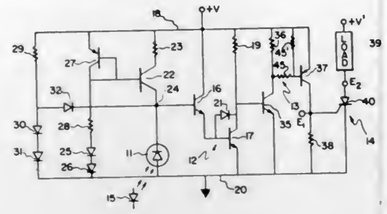
according to whether the I-V curve of the photoconductive element is tangent to the I-V curve of the negative resistance element on the concave downward side or on the concave upward side.

3,786,263
METHOD AND APPARATUS FOR SENSING RADIATION AND PROVIDING ELECTRICAL READOUT
Gerald J. Michon, Waterford, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed June 21, 1972, Ser. No. 264,803
Int. Cl. H01j *39/12*; **H04n** *5/38*
U.S. Cl. 250—209 **25 Claims**



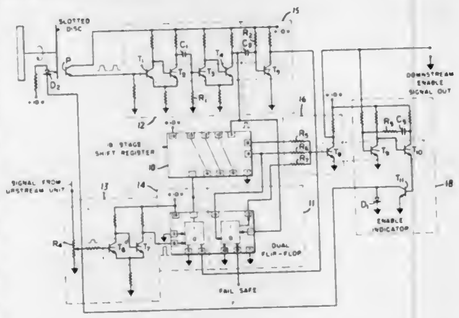
A substrate of semiconductor material of one conductivity type is provided with an insulating member overlying a surface of the substrate and a conducting member overlying the insulating member to form a surface charge storage cell. A capacitor is provided in circuit with a source of operating potentials between the conducting member and the substrate. Switching means in shunt with the capacitor connects the terminals of the capacitor together for one period of time and disconnects them for another period of time. The polarity and magnitude of the voltage applied to the storage cell is such as to produce depletion of majority carriers in a region in the surface adjacent portion of the substrate underlying the conducting member. Exposure of the substrate to radiation generates minority carriers therein which are stored near the surface of the depletion region. Circuit means are provided for changing the potential between the conducting member and the terminal of the capacitor remote from the substrate during the time the terminals of the capacitor are disconnected from one another to inject the stored minority carriers into the substrate whereby a displacement current flows in circuit between the substrate and the capacitor and produces a voltage across the capacitor which is proportional to the minority carriers stored in the depletion region during the time the terminals of the capacitor were connected. A plurality of storage cells such as described above are also provided on a common substrate and each of the cells are addressed in turn to effect injection of the charge stored therein into the substrate and produce respective voltages across a capacitor connected in circuit with the substrate. Means are provided for sampling the voltages developed across the capacitor in turn to provide an output having an amplitude varying with time in accordance with the variation in amplitude of the sample voltages.

3,786,264
HIGH SPEED LIGHT DETECTOR AMPLIFIER
Armand P. Ferro; John D. Harnden, Jr., and Bruno F. Kurz, all of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,568
Int. Cl. H01j *39/12*
U.S. Cl. 250—214 R **16 Claims**



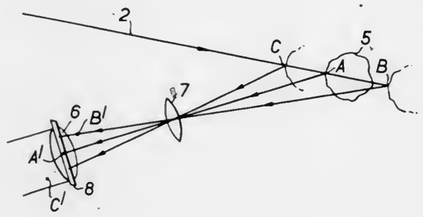
A light detector amplifier preferably fabricated as a monolithic integrated circuit has high speed of response (in the order of 1 microsecond) at low and high illumination levels, uses low quiescent power and supply voltage, and has an optional thyristor or power transistor output. A transistor preamplifier conducts in the quiescent state and reverse biases a photodiode. Upon illumination, current is diverted to the photodiode and a power amplifier is energized to produce an output which can also provide gating current for a thyristor output. Enhanced performance is obtained by the use of special components, and unique placement of components within the circuit. Voltage excursions are limited in the circuit at several points by current steering, pre-biasing and diode clamping techniques.

3,786,265
APPARATUS FOR DETECTING DEFECTS IN CONTINUOUS TRAVELING MATERIAL
Solomon Abilock, Brooklyn, and Richard Shottenfeld, Jamaica, both of N.Y., assignors to Lindly & Company, Inc., Mineola, N.Y.
Filed Feb. 2, 1973, Ser. No. 329,209
Int. Cl. G01n *21/32*
U.S. Cl. 250—219 DF **13 Claims**



Apparatus for detecting defects in continuous traveling material comprises two photoelectric detecting units disposed on the path of travel of the material with one unit downstream of the other, and a coordinating circuit between the two units. A signal produced by the upstream unit upon detection of an apparent defect is delayed or stored by a shift register for a period of time required for a defect in the material to travel from one detecting unit to the other. Coincidence of an output signal of the shift register with an output signal of the downstream detecting unit indicates the presence of an actual defect in the material. A defect signal thereupon produced can be used as desired. For example it can be used to stop the material and can be fed to a counter to provide a record of defects occurring in the material.

3,786,266
METHODS AND APPARATUS FOR DISTINGUISHING BETWEEN BODIES ACCORDING TO THEIR TRANSLUCENCY
Colin David Reid, Newbury, England, and Ian Daniel Ritchie, Belfast, Northern Ireland, assignors to United Kingdom Atomic Energy Authority, London, England
Filed May 6, 1970, Ser. No. 35,198
Claims priority, application Great Britain, May 19, 1969, 25529/69
Int. Cl. G06m *7/00*
U.S. Cl. 250—222 R **20 Claims**

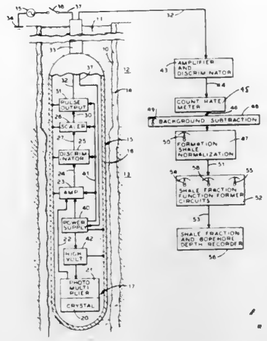


Relatively opaque and relatively translucent bodies are distinguished from one another by illuminating a limited area of the surface of each body and determining the amount of light emitted from the surface of the body outside the limited area, the amount of such emitted light increasing with increasing translucency of the body. A coaxial light-transmitting and light-receiving arrangement is preferred, using a common lens, and using adjacent fibre-optic transmitting and receiving surfaces.

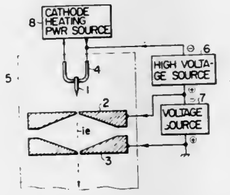
The invention has one application in distinguishing between ore fragments which comprise a translucent matrix (e.g., quartz or quartzite) and greater or lesser amounts respectively of an opaque mineral (e.g., uraninite) non-uniformly dispersed therein, and can be applied to physically separate the fragments according to their mineral content.

3,786,267
METHOD AND APPARATUS
Olive Y. Liu, Danbury, and John S. Wahl, Ridgefield, both of Conn., assignors to Schlumberger Technology Corporation, New York, N.Y.
Continuation of Ser. No. 808,923, March 20, 1969, abandoned. This application Sept. 30, 1971, Ser. No. 185,426
Int. Cl. G01t *1/20*
U.S. Cl. 250—256 **11 Claims**

An illustrative embodiment of the invention converts a signal that reflects the natural radioactivity of an earth formation into another signal that is related to the volumetric shale fraction of the formation under observation. Typically, the radiation signal is normalized to a standard formation radioactivity characteristic. The normalized signal then is contrasted with some other physical parameter (e.g., porosity, density) in accordance with the specific mineral composition of the formation in order to produce an output signal that is related to the volumetric shale fraction.



3,786,268
ELECTRON GUN DEVICE OF FIELD EMISSION TYPE
Setsuo Nomura, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 12, 1972, Ser. No. 243,215
Claims priority, application Japan, Apr. 12, 1971, 46-22338
Int. Cl. H01j *37/26*
U.S. Cl. 250—306 **11 Claims**

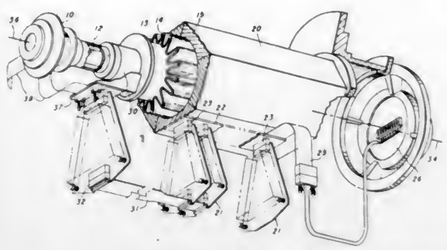


In an electron gun device of the field emission type, there is provided a heating power source for supplying a pulsating current to a filament of hair pin shape provided with a cathode tip of needle shape so as to intermittently heat said cathode tip, thereby maintaining a stable electron beam emitted from said cathode tip by means of an electric field applied between said cathode tip and an anode.

3,786,269
METHOD AND APPARATUS OF SCANNING ELECTROMAGNETIC RADIATION USING ROTATING DETECTORS-EMITTERS AND CONTROL CIRCUIT
Erwin E. Cooper, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 17, 1971, Ser. No. 209,329
Int. Cl. G01j *1/00*
U.S. Cl. 250—334 **12 Claims**

An infrared scanning system which does not require the use of scanning mirrors is disclosed. An array of infrared detectors is mounted on a support member. Infrared radiation is focused on the array of detectors by a lens system and the support member is rotated to scan the scene of interest. An array of emitters is mounted on the opposite end of the support member and the electronics necessary to interface the detector array with the emitter array is mounted on the outer sur-

face of the support member. The central portion of the support member also includes a mechanical cryogenic refrigerator for cooling the detector array. In scanning, the complete structure including the detector array, the emitter array, the



electronics interconnecting the emitter, the detector array and the refrigerator are rotated about a common axis by a drive motor. A television camera is focused on the emitter array to produce a TV image of the scene scanned by the array of infrared detectors.

3,786,270

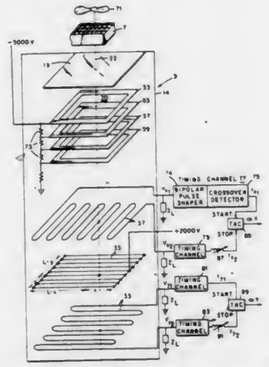
PROPORTIONAL COUNTER RADIATION CAMERA

Casimer J. Borkowski, and Manfred K. Kopp, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Feb. 1, 1973, Ser. No. 328,579

Int. Cl. G01t *1/18*

U.S. Cl. 250—385 **7 Claims**



A gas-filled proportional counter camera that images photon emitting sources has been provided. A two-dimensional, position-sensitive proportional multiwire counter is provided as the detector. The counter consists of a high voltage anode screen sandwiched between orthogonally disposed planar arrays of multiple parallel strung, resistively coupled cathode wires. Two terminals from each of the cathode arrays are connected to separate timing circuitry to obtain separate X and Y coordinate signal values from pulse shape measurements to define the position of an event within the counter arrays which may be recorded by various means for data display. The counter is further provided with a linear drift field which effectively enlarges the active gas volume of the counter and constrains the recoil electrons produced from ionizing radiation entering the counter to drift perpendicularly toward the planar detection arrays. A collimator is interposed between a subject to be imaged and the counter to transmit only the radiation from the subject which has a perpendicular trajectory with respect to the planar cathode arrays of the detector.

3,786,271

ELECTRON MICROSCOPES AND MICRO-ANALYSERS

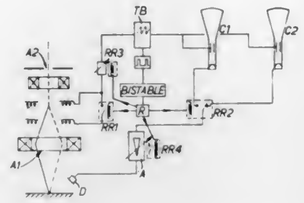
David Charles Joy, Southampton, and Graham Roger Booker, Woodstock, both of England, assignors to Cambridge Scientific Instruments Limited, Cambridge, England

Filed Feb. 14, 1972, Ser. No. 225,968

Claims priority, application Great Britain, Feb. 12, 1971, 4,604/71

Int. Cl. H01j *37/26*

U.S. Cl. 250—398 **8 Claims**



In a scanning electron beam instrument also capable of being used to exhibit pseudo-Kikuchi (electron channelling) effects by causing the electron beam to rock angularly or spirally about a substantially fixed point on a specimen surface the electron beam is switched rapidly between the rocking (electron channelling) mode and the linear scanning (micrograph) mode to allow the simultaneous display of information derived from both modes.

3,786,272

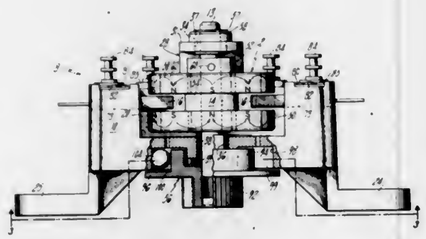
HALL EFFECT ROTARY PULSE GENERATOR

John G. Gamble, Simsbury, and Richard J. Flis, Plantsville, both of Conn., assignors to Veeder Industries, Inc., Hartford, Conn.

Filed Nov. 3, 1972, Ser. No. 303,355

Int. Cl. G01p *3/48*

U.S. Cl. 307—106 **6 Claims**



A rotary electrical pulse generator having a support block, a pair of Hall probes adjustably mounted in diametrically opposed support recesses in the block, a rotor mounted on the block having a pair of axially spaced coaxial magnet rings providing an axial gap receiving the Hall probes to generate electrical signals as the rotor rotates, and a one-way brake mechanism selectively installable for use in preventing rotation of the rotor in a selected direction.

3,786,273

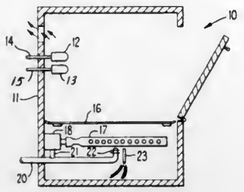
CONTROL APPARATUS

Domenick Saponara, Macungie, Pa., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Division of Ser. No. 168,077, Aug. 2, 1971, Pat. No. 3,754,703. This application Feb. 20, 1973, Ser. No. 334,056

Int. Cl. H01h *47/24*

U.S. Cl. 307—117 **1 Claim**



A control assembly to operate a gas oven. The main burner receives gas from a solenoid valve energized by a thermoelectric generator through a main thermostat switch. In order to reduce the oven temperature to, e.g. 170° F. to keep the food warm after a timer has run down, the timer and a keep-warm thermostat operate two switches, respectively, to short circuit the solenoid or the thermoelectric generator periodically. The thermoelectric generator output is in the millivolt region. Thus, use of one or two additional, inexpensive, series switches in the circuit can make solenoid operation unreliable because of even moderate contact resistance. Even the use of expensive gold may not avoid the series switch problem. The control assembly disclosed herein avoids this problem by use of a disabling shunt instead of a series switch.

3,786,274

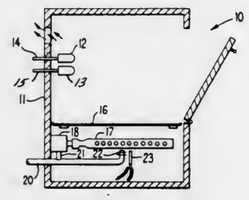
CONTROL APPARATUS

Domenick Saponara, Macungie, Pa., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Division of Ser. No. 168,077, Aug. 2, 1971, Pat. No. 3,754,703. This application Feb. 20, 1973, Ser. No. 334,057

Int. Cl. H01h *47/24*

U.S. Cl. 307—117 **2 Claims**



A control assembly to operate a gas oven. The main burner receives gas from a solenoid valve energized by a thermoelectric generator through a main thermostat switch. In order to reduce the oven temperature to, e.g. 170° F. to keep the food warm after a timer has run down, the timer and a keep-warm thermostat operate two switches, respectively, to short circuit the solenoid or the thermoelectric generator periodically. The thermoelectric generator output is in the millivolt region. Thus, use of one or two additional, inexpensive, series switches in the circuit can make solenoid operation unreliable because of even moderate contact resistance. Even the use of expensive gold may not avoid the series switch problem. The control assembly disclosed herein avoids this problem by use of a disabling shunt instead of a series switch.

3,786,275

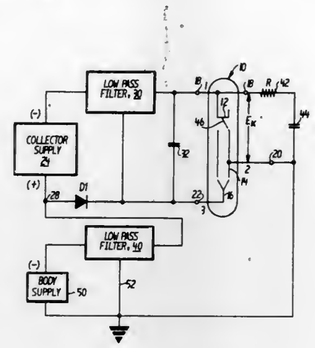
CIRCUIT AND METHOD FOR ARC PROTECTION OF LINEAR BEAM DEVICES

Arden L. Quesinberry, Towson, and Edward J. Lawson, Baltimore, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 28, 1972, Ser. No. 276,290

Int. Cl. H01h *9/30*

U.S. Cl. 307—136 **12 Claims**



A method and circuit for protecting a linear beam device such as a klystron from damage due to cathode-to-body member arcing. The linear beam device is supplied with body member and collector electrode voltages from serially connected power supplies which are both referenced to the cathode electrode. A diode poled to block current flow away from the collector electrode is provided between the collector electrode and the interconnection or junction between the power supplies. The diode thus prevents high current flow from the collector supply resulting from a cathode-to-body member arc.

3,786,276

INTERFERENCE SUPPRESSION DEVICE FOR LOGIC SIGNALS

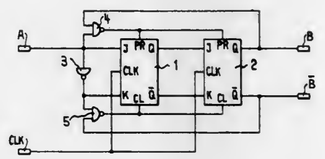
Eduard Rosch, Le Locle, Switzerland, assignor to Dixi S.A., Le Locle, Switzerland

Filed Jan. 7, 1972, Ser. No. 216,068

Claims priority, application Switzerland, Jan. 22, 1971, 974/71

Int. Cl. H03k *19/08, 3/12*

U.S. Cl. 307—208 **1 Claim**

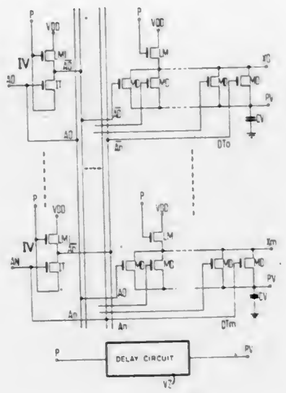


An interference suppression device for logic signals including two logic units in series with periodically controlled storage of an information signal and later transmission thereof to an output terminal, and at least one regenerating circuit which when supplied with identical information at its inputs switches the units to a definite state thus maintaining an information signal at the output of the suppression circuit.

3,786,277
CIRCUIT ARRANGEMENT OF MOS TRANSISTORS OPERATING ACCORDING TO THE DYNAMIC PRINCIPLE FOR DECODING THE ADDRESSES FOR AN MOS MEMORY

Paul-Werner V. Basse, Nantwein, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 1, 1972, Ser. No. 249,416
Claims priority, application Germany, July 22, 1971, P 21 36 771.5
Int. Cl. G11c 11/40; H03k 5/00
U.S. Cl. 307—238 2 Claims

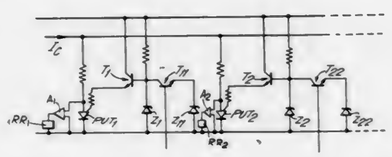


A dynamic decoding circuit arrangement employes a delay circuit for delaying the trailing edge of clock pulses and applying the clock pulses to the individual decoding circuits so that only one of the decoding circuits is effective to emit a memory access signal in accordance with the applied address.

3,786,278
ELECTRONIC SWITCHING APPARATUS

Joseph Colin Whitehouse, Blaby, and Colin Arthur Wild, Leicester, both of England, assignors to The Rank Organisation Limited, London, England

Filed Jan. 31, 1972, Ser. No. 222,178
Claims priority, application Great Britain, Feb. 11, 1971, 4437/71
Int. Cl. H03k 17/72
U.S. Cl. 307—252 F 5 Claims

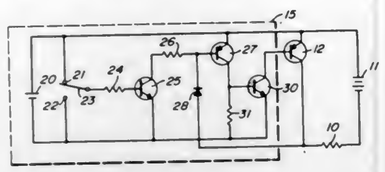


A switching circuit for enabling a selected one of a number of channels. The circuit includes a number of devices, one for each channel, each having a voltage/current characteristic with a negative-impedance region separating two stable states. The devices are fed in parallel from a source of constant current or constant voltage of a magnitude such that only one may assume one of the stable states. The devices may be for example programmable unijunction transistors or tunnel diodes.

3,786,279
ADAPTIVE TRANSISTOR SWITCH

William J. Wilson, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 30, 1972, Ser. No. 258,027
Int. Cl. H03k 17/60
U.S. Cl. 307—254 7 Claims

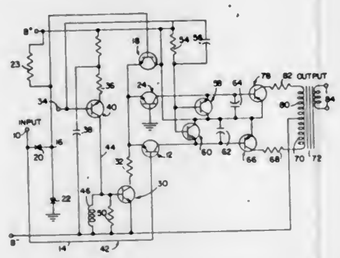


A transistor switch connecting a load to a suitable source of power with amplifying means supplying base current to the transistor switch with a voltage sensitive device, such as a diode or a transistor, connected to sense the voltage across the transistor switch and provide an alternate path for driving current to the amplifier to maintain base current into the transistor switch at a predetermined ratio relative to current flowing through the transistor switch and the load.

3,786,280
PULSE SAMPLING AND RESHAPING CIRCUIT

Frederik Nordling, Sausalito, Calif., assignor to Lynch Communication Systems, Inc., San Francisco, Calif.

Continuation of Ser. No. 21,442, March 20, 1970. This application Dec. 20, 1971, Ser. No. 210,094
Int. Cl. H03k 17/00
U.S. Cl. 307—268 4 Claims

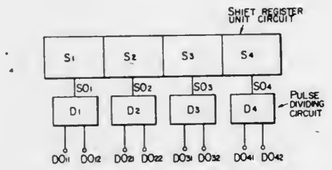


In a system for the transmission of information coded in terms of the presence and polarity of pulses in a signal pulse train, a circuit for reconstituting degraded pulses comprising a source of degraded input pulse signals to be sampled and reshaped and diode means connected back-to-back between the input signal source and a point of zero potential. Means is provided for maintaining at least one or the other of the diode means in forward biased condition at different potentials of the input pulse signals. First, second and third transistor means are also provided with means connecting the control element of the first transistor means to the input signal source. Means is provided for connecting the control element of the second transistor means to the point of zero potential and means is provided for connecting the control element of the third transistor means to the interconnection of the diode means. The transistor means is connected so as to cause only the transistor means with the highest potential at its base to conduct and sampling pulse source means is connected to the transistor means so as to prevent conduction of any of said transistor means except in the presence of a sampling pulse. Finally, the first transistor means conducts during the sampling pulse when the potential of the input signal pulse at the moment of sampling is more positive than a predetermined positive threshold value, the second transistor means conducts when the input signal potential is more negative than a predetermined negative threshold value, and the third transistor means conducts when the input signal potential is between the threshold values, these threshold values being determined by the voltage drop across the diode means.

3,786,281
SCANNING PULSE GENERATOR

Norio Koike, Kokubunji, and Mikio Ashikawa, Koganei, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 20, 1972, Ser. No. 316,814
Claims priority, application Japan, Dec. 22, 1971, 46/103695
Int. Cl. H03k 5/00, 5/156
U.S. Cl. 307—269 6 Claims

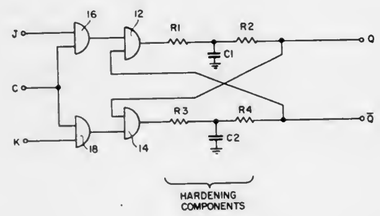


A scanning pulse generator comprising shift register means for producing pulses with a time delay and a circuit for dividing each of the delayed pulses into a plurality of pulses.

3,786,282
RADIATION HARDENED FLIP FLOP

Ross M. Orndorff, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation of Ser. No. 75,396, Sept. 25, 1970, abandoned. This application June 16, 1971, Ser. No. 153,680
Int. Cl. H03k 19/36, 3/286
U.S. Cl. 307—291 7 Claims

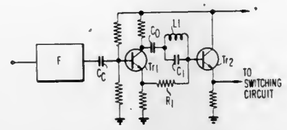


A semiconductor flip flop capable of operating before, during and after an ionizing radiation environment. The radiation hardening is achieved by use of a capacitive memory in the cross coupled feedback loop of the flip flop circuit to drive the flip flop back to its pre-irradiation state.

3,786,283
DELAY CIRCUIT FOR PROVIDING A VARIABLE DELAY CHARACTERISTIC

Hiroshi Iida, Tokyo, Japan, assignor to Sansui Electric Co., Ltd., Tokyo, Japan

Filed Dec. 29, 1971, Ser. No. 213,653
Claims priority, application Japan, Dec. 29, 1970, 45/121491
Int. Cl. H03k 17/26
U.S. Cl. 307—293 5 Claims

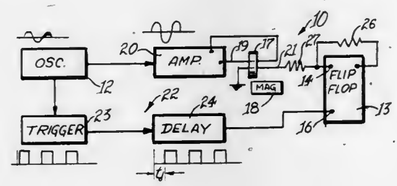


A delay circuit consists of a Toulon circuit one branch of which is a reactance circuit having at least one resonance point and one anti-resonance point wherein the resonance and anti-resonance points are chosen to provide a desired delay characteristic.

3,786,284
SOLID STATE SWITCH CONTROL CIRCUIT

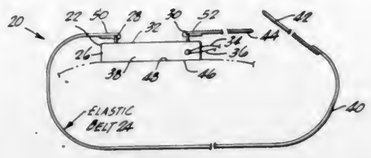
Keith A. Engstrom, River Grove, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Feb. 8, 1973, Ser. No. 330,704
Int. Cl. H03k 17/00
U.S. Cl. 307—314 7 Claims



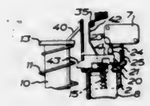
The embodiment of the invention disclosed herein is directed to a solid state switch control circuit which includes a pulsating voltage source and a switching circuit. A saturable closed loop magnetic core structure is associated with drive and sense wires which are connected between the pulsating voltage source and the switching circuit. Actuating signals are coupled to the switching circuit when the closed magnetic core structure is sufficiently magnetically unsaturated to provide transformer coupling between the drive and sense wires. A time delay signal is provided at the clock input terminal of the switching circuit to cooperate with the input signals for actuating the switching circuit only during synchronized pulses at the input. A feedback resistor is provided between the output of the switching circuit and the input thereof to lock the switching circuit in its switched condition until the input signals thereof drop below a minimum voltage which is substantially less than the actuating voltage to provide an electronic hysteresis.

3,786,285
MOMENT ACTUATED TRANSDUCER
Robert C. Reibold, 12062 Brookhaven Pk., Garden Grove, Calif.
Division of Ser. No. 146,156, May 24, 1971. This application Dec. 8, 1972, Ser. No. 313,537
Int. Cl. H04r 17/00
U.S. Cl. 310—8.5 3 Claims



A moment-actuated transducer unit mounted to an elastic belt having Velcro-type fastener means for attaching the belt and transducer unit snugly around the chest or abdomen region of a subject's body provides a highly sensitive and easily installed respiration transducer assembly. The output of the transducer unit can be connected directly to a high input impedance recorder or to a signal conditioning circuit which includes an unfiltered output and a high frequency filtered output wherein a regular high input impedance recorder can be selectively connected to either of such outputs.

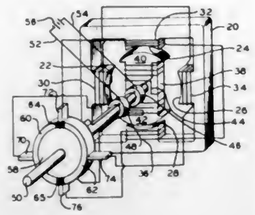
3,786,286
SELF-INTERRUPTING RECIPROCATING MOTOR
Sven Gunnar Palsson, and Olav Conny Mickelsson, both of Hestra, Sweden, assignors to Isabergs Verkstads AB, Hestra, Sweden
Filed Sept. 14, 1972, Ser. No. 289,081
Int. Cl. H02k 33/10
U.S. Cl. 310—34 4 Claims



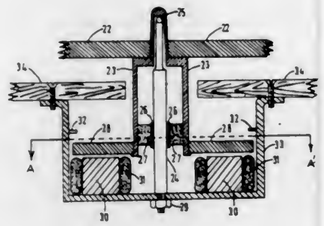
Electrically operated stapler, nailer or the like comprising a solenoid the armature of which is part of a piston means and which provides a driving force for a staple, nail or the like, circuit means for supplying at least part of the half periods of an alternating current to said solenoid as long as a switch is actuated and means for inhibiting actuation of said switch by manually actuable means in a stroke of said piston means and until release of the last named means for renewed actuation thereof.

3,786,287
DIRECT CURRENT MOTOR SYSTEM
Jesse J. Stein, 115 Trinity Pl., Syracuse, N.Y.
Continuation-in-part of Ser. Nos. 866,091, Oct. 6, 1969, Pat. No. 3,631,273, and Ser. No. 678,730, Oct. 27, 1967, abandoned. This application Dec. 27, 1971, Ser. No. 212,381
Int. Cl. H02k 37/00
U.S. Cl. 310—46 3 Claims

A direct current rotary apparatus of the type disclosed in U.S. Pat. No. 3,631,273, of which the present disclosure is a continuation-in-part, the improvement comprising a commutator switch having two arcuate blades, mounted for rotation with the rotor and evenly spaced thereon, and stationary segments connected to the stator coils. The segments are of like angular width and arranged in a circle for contact by the rotating blades which have an angular width approaching, but not greater than, 180° less the angular width of one of the segments. Thus, the stator coils are excited at all times except the relatively short time each blade contacts only one segment, when switching occurs.



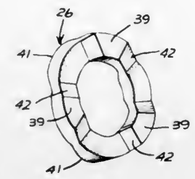
3,786,288
PHONOGRAPH RECORD PLAYER TURNTABLE AND MOTOR ASSEMBLY
Constantinos J. Joannou, 2008 Dorval Ave., Ottawa, Ontario, Canada
Filed Feb. 12, 1973, Ser. No. 331,388
Int. Cl. H02k 11/00
U.S. Cl. 310—68 3 Claims



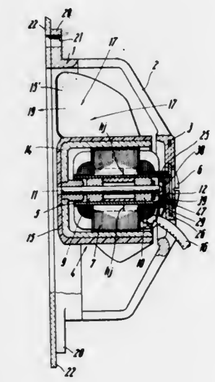
In modern phonograph record players, there are certain problems associated with turntable and motor vibrations. This invention provides a turntable bearing and motor system which has a single ball thrust bearing in the spindle and a second radial bearing which is vibration-isolated from the bearing housing and turntable by resilient material. The turntable is driven by a very slow directly coupled motor or by a conventional motor which drives the turntable via the above mentioned resilient material and thus any motor vibration is isolated from the turntable.

3,786,289
ROTATING MACHINES HAVING END THRUST CUSHIONING ARRANGEMENTS
Joseph E. Baclawski, and William R. Hunt, both of Fort Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.
Filed June 19, 1972, Ser. No. 264,196
Int. Cl. F16c 17/00, 19/32
U.S. Cl. 310—90 6 Claims

Electric motor with stator and rotor assemblies and single member end thrust transmitting and cushioning system. The single member of each system limits rotor end play and is illustrated as an undulated disc or wavy washer. The thrust member includes first and second pluralities of spaced apart bearing surfaces or pads interconnected by ramps or beam elements. Angularly alternating ones of the pads lie in axially spaced apart parallel planes and are flexibly movable toward one another when compressed. Thrust member is formed of thermoresponsive (i.e., thermosetting or thermoplastic) material and juncture of ramps and pads promotes desirable lubricating action by lubricant flowing from reservoir, along sleeve bearing to stationary thrust bearing surface.

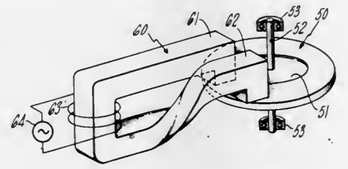


3,786,290
ELECTROMOTOR CONSTRUCTION
Hermann Papst, St. Georgen; Hans Lunde, Schramberg, and Gunter Wrobel, Villingen, all of Germany, assignors to Papst-Motoren KG, St. Georgen/Schwarzwald, Germany
Filed Jan. 18, 1972, Ser. No. 218,734
Claims priority, application Germany, Jan. 21, 1971, P 21 02 679.9
Int. Cl. H02k 5/16
U.S. Cl. 310—90 3 Claims



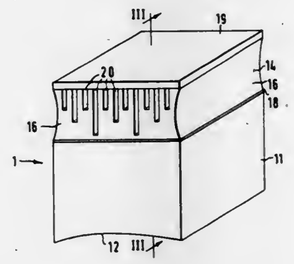
A stator is surrounded by a rotor, and bearings journal the rotor for rotation. The bearings are accommodated in an elongated tubular element which coaxially surrounds the axis of rotation of the rotor and adjacent to a free end portion of which there is located a plate element on which the motor is to be mounted. The plate element extends in a plane which is at least substantially normal to the axis of rotation and a screw extends through the plate element and engages with internal threads provided in the free end portion of the tubular element to thereby mount the same and the motor to the plate element.

3,786,291
SYNCHRONOUS MOTOR
Philip A. Sidell, West Hartford, Conn., assignor to McGraw-Edison Company, Elgin, Ill.
Continuation of Ser. No. 89,347, Nov. 30, 1970, abandoned. This application Oct. 2, 1972, Ser. No. 293,950
Int. Cl. H02k 21/00
U.S. Cl. 310—162 8 Claims



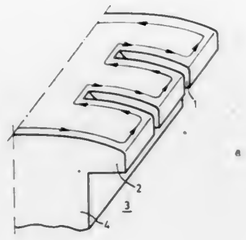
A synchronous motor having a plurality of ferromagnetic pole extensions cooperating with a permanent magnet of the oriented type that is through-magnetized. A principal form of the invention places the pole extensions on one side of the permanent magnet rotor.

3,786,292
ELECTRICAL CONTACT BRUCH ASSEMBLY WITH ANTI-VIBRATION HEAD
Peter Kenneth Clifford Wiggs, Tadworth, England, assignor to Morganite Carbon Limited, London, England
Filed Apr. 26, 1972, Ser. No. 247,839
Int. Cl. H02k 13/00
U.S. Cl. 310—251 6 Claims



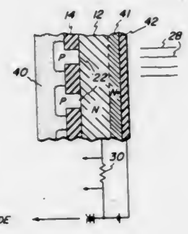
An electrical contact brush assembly with a brush head and a brush body, the brush head being of resiliently deformable material of mechanical impedance of the same order as that of the brush body, and the brush head being in contact with a top face of the brush body to provide an interface therewith so that high frequency compressive sound waves can pass into the brush head from the brush body and be absorbed to reduce brush bounce. The brush head may be slotted.

3,786,293
ELECTRIC SALIENT-POLE SYNCHRONOUS MACHINE ROTOR SOLID METAL POLE PIECE
Walter Boning, and Werner Leistner, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed July 14, 1972, Ser. No. 272,054
Claims priority, application Germany, Feb. 25, 1972, P 22 09 735.4
Int. Cl. H02k 1/24
U.S. Cl. 310—269 5 Claims



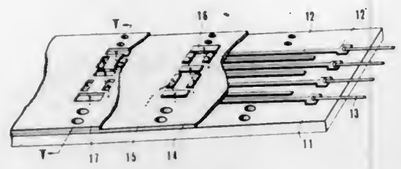
An electric salient-pole synchronous machine rotor solid pole piece having a shoe through which slots are formed which extend from the axial edges of the shoe circumferentially inwardly, has means for electrically bridging the slots adjacent to the axial edges of the shoe.

3,786,294
PROTECTIVE COATING FOR DIODE ARRAY TARGETS
Ronald H. Wilson; Samuel M. Blumenfeld; Rowland W. Redington, and Joseph S. Rosczak, all of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Feb. 22, 1971, Ser. No. 117,313
Int. Cl. H01j 31/28
U.S. Cl. 313—65 AB 6 Claims



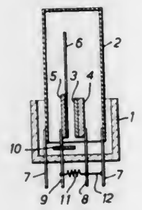
An improved coating for diode array targets is disclosed wherein a resistive sea is coated over the diode array. The resistive sea has a thickness of from 10 to 1000A and a resistivity of from 5×10^5 to 10^9 ohm-centimeters. The resistive sea comprises an electronically conductive borate glass containing an oxide of a metal, e.g. iron, vanadium, cobalt, etc. This layer has been found to serve a protective function and, in particular, serves to prevent an increase in the dark current of the array due to "aging" effects or due to vacuum baking of the array in preparation for use as an image intensifier.

3,786,295
ANODE SUBSTRATES FOR MULTI-DIGIT TYPE FLUORESCENT DISPLAY TUBES
Heihachi Fujii, Watarai-gun; Kazuhiko Kasano; Minoru Matsuno, both of Ise City; Tadahiko Muroi, Omata, and Munehiro Kitamura, Matsuzaka, all of Japan, assignors to Ise Electronics Corporation, Ise City, Mie Prefecture, Japan
Filed Oct. 20, 1972, Ser. No. 299,220
Int. Cl. H01j 7/42; H01k 1/60
U.S. Cl. 313—109.5 3 Claims



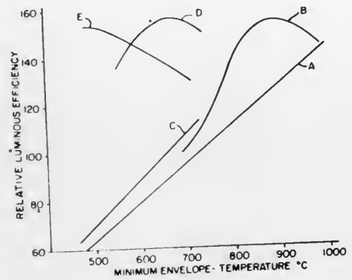
The anode substrate for use in a multi-digit type fluorescent tube comprises an insulator substrate printed with conductors for electrically interconnecting corresponding segment electrodes, an insulator substrate overlying the printed conductors and provided with a plurality of perforations above the printed conductors, a plurality of segment electrodes formed on the insulator film at the positions of the perforations, the electrodes including integral connectors extending through the perforations and respectively connected to the printed conductors, phosphor films applied onto respective segment electrodes, the segment electrodes being arranged in a predetermined pattern to display predetermined letters, and a protective film overlying the insulator film and provided with a plurality of the segment electrodes.

3,786,296
EVACUATED ELCTRON DISCHARGE TUBES
Jonathan Ross Howorth, Chelmsford, England, assignor to English Electric Company Limited, London, England
Filed May 13, 1971, Ser. No. 142,943
Claims priority, application Great Britain, May 15, 1970, 23,619/71
Int. Cl. H01j 19/70
U.S. Cl. 313—176 27 Claims



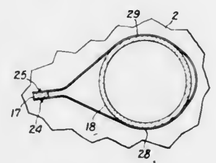
An ion getter pump for providing a vacuum in a high power microwave discharge tube consists of a body of radio-active material which is arranged to act as the power source for the pump. The pump has a glass support base concentrically surrounding a cathode. Mounted within the tubular cathode is a layer of radio-active isotope material and a particle receiver from which extends an anode rod. Pins are fused through the base to support the cathode, the particle receiver and the isotope material. A shield is provided to prevent sputtering of material on to the base.

3,786,297
DISCHARGE LAMP WHICH INCORPORATES CERIUM AND CESIUM HALIDES AND A HIGH MERCURY LOADING
Robert J. Zollweg, Monroeville; Kenneth K. Blackham, and Walter J. Burnham, both of Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 108,427, Jan. 21, 1971, abandoned. This application Apr. 13, 1972, Ser. No. 243,711
Int. Cl. H01j 61/20
U.S. Cl. 313—229 22 Claims



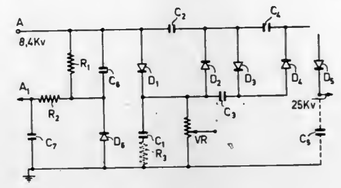
Arc-discharge device wherein the discharge-sustaining filling includes as essential elements predetermined amounts of at least one of praseodymium halide, neodymium halide and cerium halide plus cesium halide and sufficient mercury to provide an operating mercury-vapor pressure of from 3 to 15 atmospheres, in addition to the usual starting gas. The rare-earth metal halide provides a very efficient discharge and the cesium halide plus the high mercury loading permits a high efficiency to be obtained with a relatively low minimum envelope temperature. Other discharge-sustaining materials desirably are added to the foregoing essential constituents to modify the color of the discharge.

3,786,298
JACKETED LAMP MOUNT FRAME CLIP
Nelson Fitzgerald, Euclid, Ohio, assignor to General Electric Company, Schenectady, N.Y.
Filed Dec. 26, 1972, Ser. No. 318,261
Int. Cl. H01j 1/88
U.S. Cl. 313—292 8 Claims



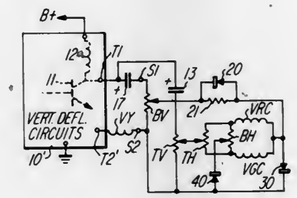
A jacketed lamp comprising an inner envelope centrally supported within a vitreous outer envelope having a bulb portion domed at one end and necked at the other to which a base is attached. The mount frame for the inner envelope extends from an inlead sealed through the stem at the base end to a dimple formed in the bulb at the dome end. The mount frame engages the dimple by a clip comprising a springy metal band formed into a closed noncircular loop. The loop deforms towards a more circular shape to resiliently engage the dimple and accommodate dimensional variations.

3,786,299
EHT SUPPLY PARTICULARLY FOR TELEVISION RECEIVERS
Kenneth Edward Martin, Horley, England, assignor to U. S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 857,674, Sept. 15, 1969, abandoned. This application Mar. 3, 1972, Ser. No. 231,764
Claims priority, application Great Britain, Sept. 16, 1968, 43,942/68
Int. Cl. H01j 29/70
U.S. Cl. 315—29 9 Claims



A circuit for supplying the final anode voltage to a CRT from a horizontal output transformer has a voltage tripler circuit. A circuit comprising a diode coupled in series with the parallel combination of a resistor and capacitor is coupled across the transformer. This prevents ringing during the scanning time, and hence, improves the regulation of the output voltage.

3,786,300
DYNAMIC CONVERGENCE CIRCUITS
Michael Walter Hill, Pinner, England, assignor to RCA Corporation, New York, N.Y.
Filed May 17, 1971, Ser. No. 143,861
Claims priority, application Great Britain, May 18, 1970, 23,940/70; May 18, 1970, 23,941/70
Int. Cl. H01j 29/50
U.S. Cl. 315—13 C 8 Claims

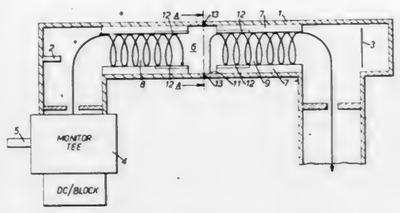


Vertical rate convergence circuit provides respective waveforms for control of vertical convergence winding energization during scanning of top raster half and bottom raster half. A pair of convergence windings are interconnected with sources of the respective waveforms in a circuit arrangement providing respective potentiometers for effecting master and differential control of the individual winding currents during each raster half scanning interval. Unidirectional current conducting means in association with one or both of the differential control potentiometers serve to reduce interaction between the control settings. In one embodiment, fixed terminals of each differential control potentiometer are linked to respective convergence coil terminals by individual diodes poled to effectively open-circuit one differential control potentiometer while placing the other differential control potentiometer in circuit with the coils during top scanning, and to effect complementary operation during bottom scanning.

3,786,301
TRAVELLING WAVE TUBES

Peter Michael Chalmers, Essex, England, assignor to English Electric Valve Company Limited, Chelmsford, Essex, England

Filed Nov. 9, 1972, Ser. No. 304,992
Claims priority, application Great Britain, Nov. 9, 1971, 51,907/71
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.6 **13 Claims**

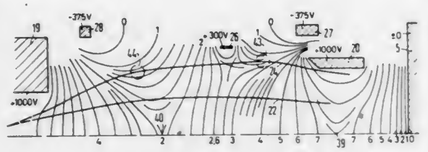


A phase modulated travelling wave tube in which amplitude modulation of the signal passing through the tube is reduced by providing a wave retarding structure which is in two electrically isolated portions arranged co-axially in line with one another, and applying modulating d.c. potential to the portion of the wave retarding structure nearer the electron gun.

3,786,302
ELECTROSTATIC LENS FOR CATHODE RAY TUBES

Werner Veith, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed June 1, 1971, Ser. No. 148,423
Claims priority, application Germany, June 25, 1970, P 20 31 486.7
Int. Cl. H01j *29/56*
U.S. Cl. 315—16 **8 Claims**



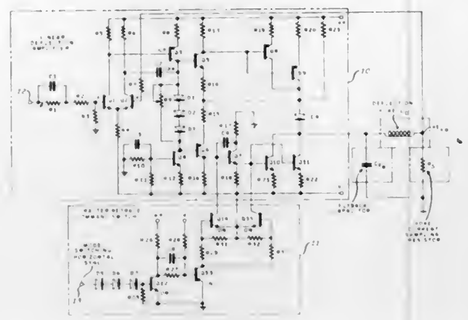
An electrostatic lens constructed of cylindrical tube sections for cathode ray tubes having two terminal electrodes and a center electrode. The terminal electrodes have a high positive potential applied to them. The center electrode is sub-divided into two parts, and a correcting electrode is inserted between these parts. The correcting electrode has a potential applied thereto which is more positive than the potential of the center electrode, and less positive than the potential of the terminal electrodes.

3,786,303
CATHODE RAY TUBE DUAL MODE HORIZONTAL DEFLECTION CONTROL AMPLIFIER

Hugh C. Hilburn, Phoenix, Ariz., assignor to Sperry Rand Corporation, Great Neck, N.Y.

Filed Apr. 12, 1971, Ser. No. 132,950
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **7 Claims**

A dual mode cathode ray tube horizontal deflection amplifier normally operable in a linear mode for horizontal forward scanning and/or symbol writing during the vertical re-trace period and controllably switchable to a non-linear resonant flyback mode for horizontal re-trace. The amplifier comprises a differential input stage cascaded with a push-pull output stage which couples to both the horizontal defection coil of the cathode ray tube and a parallel connected capacitor, forming a resonant circuit. The differential input stage compares the input deflection signal with a feedback signal proportional

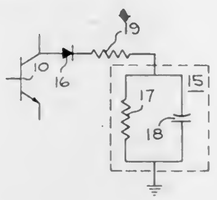


to the beam deflection to assure linear control. Switch-over to the resonant flyback mode is accomplished by actuating the push-pull stage so as to present a high impedance to the resonant circuit whereupon a half-cycle of oscillation commences to produce the horizontal retrace.

3,786,304
DAMPING CIRCUIT FOR VERTICAL DEFLECTION SYSTEM

John D. Jordan, Chesapeake, Va., assignor to General Electric Company, Portsmouth, Va.

Filed Sept. 28, 1971, Ser. No. 184,518
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **2 Claims**



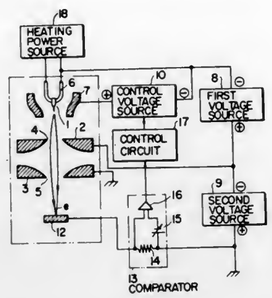
An improved damping circuit for limiting the maximum voltage and slowing the rate of rise of a pulse produced by an inductive winding when current flowing therethrough is suddenly interrupted. An additional resistor is placed in series with a conventional R-C damping network and the circuit thus constituted is coupled to a switching transistor by means of a diode. Voltage across the transistor rises more slowly, and attains a lesser maximum value, than when the conventional R-C network alone is used.

3,786,305
FIELD EMISSION ELECTRON GUN

Tsutomu Komoda, and Setsuo Nomura, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 15, 1972, Ser. No. 253,245
Int. Cl. H01j *29/70*
U.S. Cl. 315—30 **5 Claims**

In an electron gun device of the field emission type having a cathode tip, and first and second anodes connected to responsive voltage sources, a control electrode connected to a control voltage source is disposed in the neighborhood of the cathode tip so as to control the electron beam emitted from

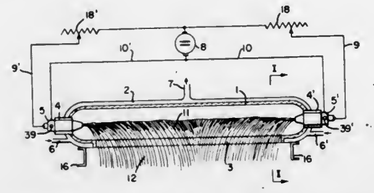


the cathode tip whereby a stable electron beam can be obtained.

3,786,306
PLASMA CURTAIN OF TWO OR MORE PLASMAS

Henry R. P. J. Schoumaker, Bruxelles, Belgium, assignor to La Soudure Electrique, Procedes Arcos, Anderlecht, Belgium

Filed Feb. 16, 1972, Ser. No. 226,842
Claims priority, application Belgium, Mar. 3, 1971, 100,431
Int. Cl. H05h *1/00*
U.S. Cl. 315—111 **13 Claims**



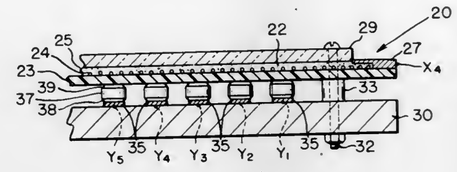
A process or apparatus for producing two or more plasmas which comprises projecting opposed plasmas into a closed space to meet in the space and form a common arc, and expelling the combined plasmas from the closed space sideways with respect to their original direction under the pressure of plasmagenic gas through at least one nozzle elongated in the sideways direction and thus producing a flame projecting outward through the elongated nozzle as at least one blade of a continuous plasma jet. In one of the forms two or more blades are projected through elongated nozzles which may be parallel to one another, divergent from one another, or convergent to one another. The curtain of plasma may deposit material on the inside or the outside or both of a tube. The chamber from which the plasma curtain issues may be supported on a roller carriage. The single chamber may also be rotated around an axis. In one embodiment the chambers are held by links on the outside of a roller or the like.

3,786,307
SOLID STATE ELECTROLUMINESCENT X-Y DISPLAY PANELS

Thomas L. Robinson, East Aurora, N.Y., assignor to Atronics Corporation, Buffalo, N.Y.

Filed June 23, 1972, Ser. No. 265,772
Int. Cl. H05b *37/00*
U.S. Cl. 315—169 TV **22 Claims**

One or more EL electrodes in the form of wire mesh strips coated with electroluminescent phosphor are sandwiched between a rigid, transparent cover and a sheet of dielectric insulation. This panel is removably secured above a printed circuit board which carries a plurality of metal electrode strips that extend transversely to the EL electrode or electrodes. A plurality of spaced, non-linear electrical elements are secured between the panel and board to register with, for example, points where the EL electrode(s) intersect the printed circuit electrodes. In one embodiment, when an AC or pulsating voltage is applied across a selected EL electrode and an intersecting circuit board electrode, the non-linear element at the in-

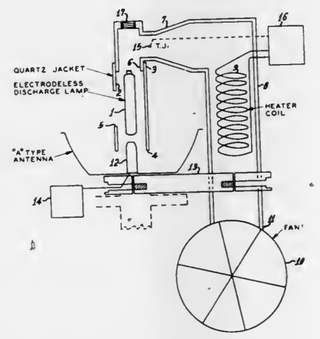


tersection of these electrodes conducts and causes the phosphor coating on the registering portion of the energized EL electrode to glow with a regulated intensity. If the non-linear elements are SCR's, the conduction of each SCR may be controlled by a pair of triggering signals arranged to be applied selectively as an X and Y coordinate, respectively, for each SCR. One or more spots, each registering with one of the non-linear elements, may thus be made to glow at selected points on the face of the panel, and with different colors, if desired.

3,786,308
TEMPERATURE STABILIZED SPECTRAL SOURCE

Richard F. Browner; James D. Winefordner, both of Gainesville, Fla., and Tom H. Glenn, deceased, late of Gainesville, Fla. (by Mary T. Glenn, heir), assignors to Board of Regents, Tallahassee, Fla., by said Browner and Winefordner

Filed Mar. 6, 1972, Ser. No. 232,035
Int. Cl. G03b *27/04*; **H05b** *41/16, 41/24*
U.S. Cl. 315—248 **14 Claims**

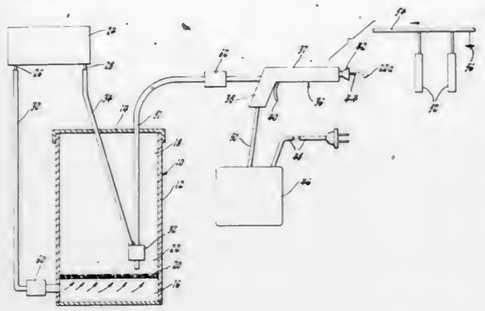


A temperature stabilized spectral source comprising an electrodeless discharge lamp energized in a radio frequency field, the temperature of the lamp being controlled by disposing the lamp in air or other gas of controlled temperature. The exciting field is typically in the microwave frequency range.

3,786,309
ELECTROSTATIC POWDER SPRAYING METHOD AND APPARATUS

Norman O. Miottel, Waterford, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 12, 1973, Ser. No. 323,033
Int. Cl. H05b *3/60*
U.S. Cl. 317—3 **6 Claims**

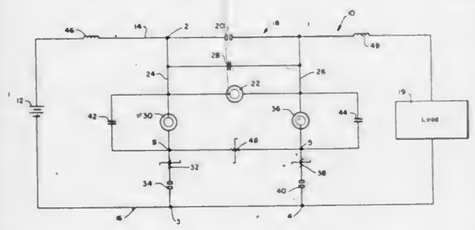


An electrostatic powder spraying method and apparatus wherein random electrical charges are neutralized on the powder to be sprayed prior to delivery of the powder particles to an electrostatic powder spray gun.

3,786,310
HYBRID DC CIRCUIT BREAKER

Willis F. Long, Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 29, 1973, Ser. No. 346,208
Int. Cl. H02h *7/22*
U.S. Cl. 317—11 C **15 Claims**



DC circuit breaker has both in-line and line-to-ground components to limit in-line and line-to-ground voltages during load breaking and fault clearing. Impedance insertion forces down current.

ERRATUM

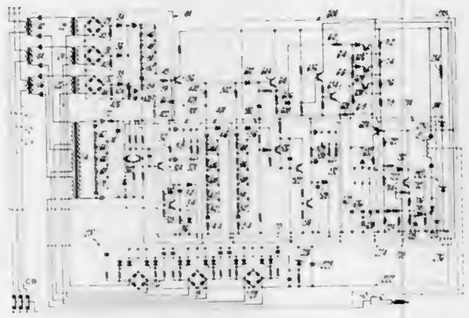
For Class 317—018 see:
Patent No. 3,786,356

3,786,311
CIRCUIT BREAKER AND STATIC TRIP CIRCUIT THEREFOR

Charles F. Hobson, Jr., Southington, and Henry G. Willard, Wethersfield, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed Jan. 2, 1973, Ser. No. 319,977
Int. Cl. H02h *3/28*
U.S. Cl. 317—18 D **4 Claims**

A circuit breaker including separable contacts, an operating means for opening and closing the contacts and a trip coil responsive to a static control circuit for tripping the circuit breaker when instantaneous power in one of the phases of a three phase alternating current circuit exceeds adjustable predetermined levels for adjustable predetermined times as well as ground faults. A separate non-saturated iron core current transformer detects the current in each of the phases independently and powers independent cascaded current transformers having outputs of the same polarity connected to form OR circuits and provide a voltage signal correlated with the instantaneous current in a single one of the protected lines with the highest signal back biasing the others. This signal is amplified and delivered to a plurality of independent solid state



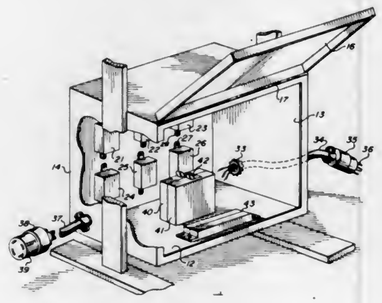
adjustable time delay circuits for instantaneous time delay, short time delay and long time delay actuation of the trip coil dependent upon the extent to which the current levels in the protected line providing the signal exceeds a predetermined level of line current. Ground fault protection is also provided.

Also disclosed is a light weight power supply whose power requirements are determined by the electronic power requirements of the control circuit but nonetheless provides the power level energy needed to actuate the trip coil. The static control circuit further includes fail-safe features so that a poor circuit connection or malfunction will not render the circuit breaker inoperative.

3,786,312
PORTABLE ELECTRIC SCATTERBOX FOR POWER DISTRIBUTION ON A CONSTRUCTION SITE

Richard D. Roussard, 3740 N. Romero Rd., Tucson, Ariz.

Filed Oct. 17, 1972, Ser No. 298,401
Int. Cl. H02b *1/18*
U.S. Cl. 317—112 **7 Claims**

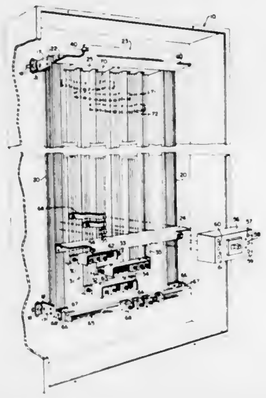


This specification discloses a portable electric scatterbox intended for use on construction sites where the contractor has installed an electrical supply line for delivering electrical current at a voltage of 240 volts. This receptacle is provided with six receptacle outlets from which electrical current at 120 volts is taken. The scatterbox includes wiring which connects three of the receptacles to a 120-volt bus line and a neutral bus line, with a circuit breaker included in the connections. The other three of the receptacles are connected to a second 120-volt bus line and the neutral bus line, with a second circuit breaker included in these connections.

3,786,313
PANELBOARD ASSEMBLY WITH IMPROVED SUPPORT MEANS

Sidney J. Coles, Carlisle, and Bernard C. Teal, Ancaster, Ontario, both of Canada, assignors to Westinghouse Canada Limited, Hamilton, Ontario, Canada

Filed May 17, 1972, Ser. No. 254,296
Int. Cl. H02b
U.S. Cl. 317—120 **8 Claims**



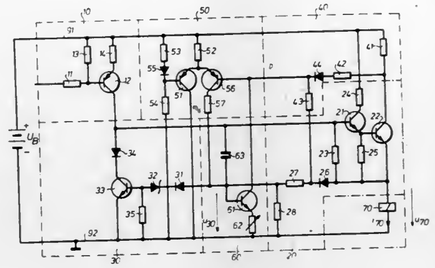
This invention relates to a panelboard assembly which is largely composed of a number of standard premanufactured components. The components may be easily assembled together to give a variety of combinations of assemblies so as to be adaptable to receive an exceedingly large number of breaker combinations. Because most of the interior components of the panelboard are fabricated from standard extrudable components, it is possible to manufacture the panelboard in a variety of lengths and widths, so as to be able to supply panelboards having a wide range of power ratings. Also, because of the case with which the interior components of the panelboard may be conveniently manufactured in various dimensions, it is possible to adapt the panelboard for use in areas where physical dimensions are limited because of some prior requirement, such as a restraint on size due to the installation of a previously smaller-rated panelboard or some other restriction of a similar nature.

3,786,314
REGULATING ARRANGEMENT FOR SOLENOID VALVES AND THE LIKE

Wolfgang Misch, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed July 3, 1972, Ser. No. 268,637
Claims priority, application Germany, July 1, 1971, P 21 32 717.3
Int. Cl. H01f *7/18*
U.S. Cl. 317—154 **13 Claims**

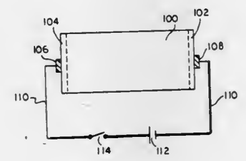
An arrangement for regulating the current flow in the solenoid of an electromagnetically actuated mechanism, particularly a high-speed solenoid valve, of the type requiring a higher activating current to effect movement of the armature from a first to a second position and a lower holding current to maintain the armature in such second position. The arrangement includes a power supply connected to the solenoid, a switch for initiating the build-up of current in the solenoid and a control arrangement responsive to the solenoid current and operative for maintaining the voltage across the solenoid substantially constant until the solenoid current reaches a predetermined threshold value. The control arrangement further includes a current-regulating arrangement operative after said threshold value has been reached for maintaining the solenoid current at a holding value lower than said threshold value.



3,786,315
ELECTROLUMINESCENT DEVICE

Carver A. Mead, Pasadena, and James O. McCaldin, South Pasadena, both of Calif., assignors to Intel Corporation, Mountain View, Calif.

Continuation of Ser. No. 851,906, Aug. 21, 1969, abandoned.
This application Apr. 3, 1972, Ser. No. 240,490
Int. Cl. H01l *3/00*; **H05b** *33/00*
U.S. Cl. 317—234 R **7 Claims**



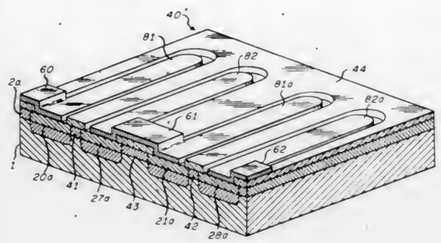
A direct current electroluminescent device for room temperature generation of blue and green light at low voltages and power levels, comprising a body of n-type zinc sulfide of low resistivity and high luminescent efficiency containing a first surface region treated to form an ohmic electron injection contact and a second region treated to contain within a thin layer of below 1 micron at least 10^{17} cm^{-3} of a Group I metal hole injection states which have an energy level intermediate the valence band of zinc sulfide and the Fermi level of a metal contact electrode and states which generate under bias a net negative charge within the layer.

An electronegative metal electrode is applied to the layer and a relatively electropositive metal electrode is applied by to the first surface region. When a forward bias is applied to the device, electrons are injected into the first region and the net negative charge generated in the layer raises the energy of the hole injection states toward the metal Fermi level to permit hole injection. The injected holes and electrons combine at recombination centers in sufficient numbers at room temperature to emit radiation visible under ordinary illumination.

3,786,316
HIGH FREQUENCY DIODE-ENERGY TRANSDUCER AND METHOD OF MANUFACTURE

Harry Kroger, Sudbury, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Division of Ser. No. 37,638, May 15, 1970, Pat. No. 3,684,901.
This application June 2, 1972, Ser. No. 259,091
Int. Cl. H01l 5/00
U.S. Cl. 317—234 R 4 Claims

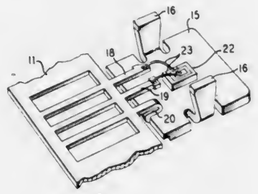


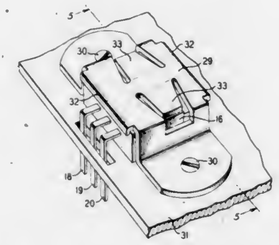
A miniature microwave or high frequency amplifier or oscillator diode array is disclosed in the form of a semiconductor microcircuit array of surface diodes with interconnections arranged for efficient distribution of bias and oscillating high frequency fields to the active diode elements for provoking high efficiency exchange of energy therein between the oscillating microwave or high frequency field and an electrical power source.

3,786,317
MICROELECTRONIC CIRCUIT PACKAGE

William George Thierfelder, Easton, Pa., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Nov. 9, 1972, Ser. No. 305,051
Int. Cl. H01l 5/00
U.S. Cl. 317—234 R 4 Claims



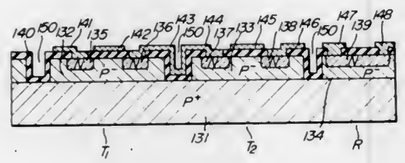


A package for microelectronic circuits is disclosed in which the mounting mechanism isolates the circuit chip and encapsulating plastic from any applied stress when mounted. The mechanical force of the mounting mechanism is applied to a pair of tabs extending upward from a combination base/heat sink. This permits the applied stress to bypass the encapsulant and be transmitted directly to the heat sink and the mechanical support.

3,786,318
SEMICONDUCTOR DEVICE HAVING CHANNEL PREVENTING STRUCTURE

Toshimitu Momoi, Tokyo, and Isamu Homma, Hokkaido, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 10, 1967, Ser. No. 674,236
Claims priority, application Japan, Oct. 14, 1966, 41/67125
Int. Cl. H01l 19/00
U.S. Cl. 317—235 R 4 Claims

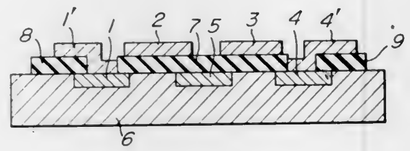


A semiconductor device, wherein a plurality of light doped p-type silicon regions are formed separately in an island form on a heavily doped P^+ type silicon substrate in contact therewith, semiconductor circuit elements like diodes, transistors, resistors, capacitors etc. are formed in the principal surfaces of the P^- regions and the exposed surface parts of the P^+ substrate and P^- regions are covered with silicon oxide films. This invention provides a stabilized semiconductor device capable of high voltage operation, wherein the leakage current is small and the interaction between the circuits elements is small.

3,786,319
INSULATED-GATE FIELD-EFFECT TRANSISTOR

Okumura Tomisaburo, Kyoto, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed Mar. 20, 1967, Ser. No. 624,477
Claims priority, application Japan, Mar. 28, 1966, 41/19828
Int. Cl. H01l 19/00
U.S. Cl. 317—235 R 7 Claims

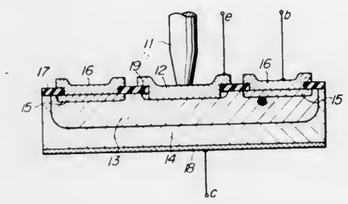


A multi-polar insulated gate transistor having two or more isolated electrodes formed on an insulated film, and an island region having a conductivity type different from that of the semiconductor proper and located in the portion of the substrate beneath said film and below the gap between said electrodes, whereby a large current can flow through the element located closer to the drain when the respective elements which may consist of the pair, i.e., each gate and source-island, island-island or island-drain are under identical voltage conditions.

3,786,320
SCHOTTKY BARRIER PRESSURE SENSITIVE SEMICONDUCTOR DEVICE WITH AIR SPACE AROUND PERIPHERY OF METAL-SEMICONDUCTOR JUNCTION

Gota Kano, Kyoto; Shohei Fujiwara, Takatsuki-shi; Mutsuo Iizuka, Osaka; Hiromasa Hasegawa, Takatsuki-shi, and Tsukasa Sawaki, Toyonaka-shi, all of Japan; assignors to Matsushita Electronics Corporation, Oaza Kadoma, Kadoma-shi, Osaka, Japan

Filed Sept. 29, 1969, Ser. No. 861,647
Claims priority, application Japan, Oct. 4, 1968, 43/72667. The portion of the term of this patent subsequent to Oct. 2, 1990, has been disclaimed.
Int. Cl. H01l 11/00, 15/00
U.S. Cl. 317—235 R 11 Claims

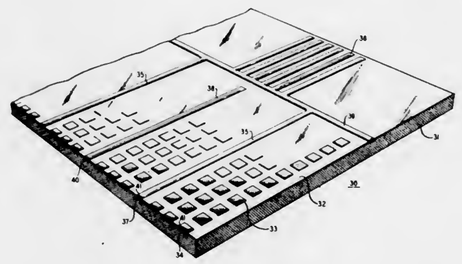


Disclosed is a pressure-sensitive transistor whose emitter or collector junction is formed by use of a Schottky barrier junction and wherein the current through the transistor changes in accordance with the applied pressure when pressure is applied to said junction by pressure applying means. Such a transistor is advantageous in that a high pressure-to-current conversion factor is obtained, little noise is generated at the junction, and the reverse leakage current appearing at the junction is extremely small.

3,786,321
COLOR CAMERA TUBE TARGET HAVING INTEGRAL INDEXING STRUCTURE

James Robert Mathews, Reading, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 8, 1973, Ser. No. 339,179
Int. Cl. H01l 15/00
U.S. Cl. 317—235 R 3 Claims

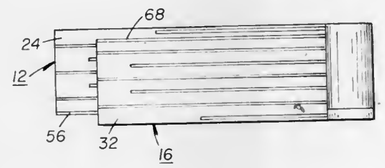


In color camera tubes having capacitance compensated indexing strips, two sets of interdigitated conductive indexing strips are placed on the cathode side of a camera tube target onto which the scene is focused. These conducting strips, which enable referencing of the electron beam position, are formed in a highly precise pattern by means of conductivity type zones formed within the semiconductor target itself. Typically, they may be fabricated by solid state diffusion or by ion implantation of a significant impurity in the same manner as is used to form the p-n junction diodes which comprise the imaging means of the target. Advantageously, the conductivity type zones are covered by means of selective electrodeposition with a thin metallic plating to enhance their performance.

3,786,322
UNITARY WOUND RESISTOR-CAPACITOR NETWORK

Donald R. Brown, Downers Grove; Otto I. Masopust, Jr., Claredon Hills, and James F. Stoltz, LaGrange, all of Ill., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,072
Int. Cl. H01g 1/00
U.S. Cl. 317—256 5 Claims

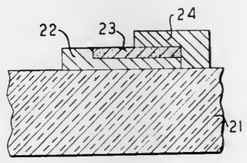


Two network forming strips are wound to form a resistor-capacitor network roll. Each strip is a sheet of dielectric material having a contiguous layer of metal, on one side thereof, formed in an elongated conductive path which extends back and forth lengthwise along the strip in serpentine fashion. An electrical connection is made at each end of the network roll with an end portion of a different one of the conductive paths to form an R-C network therebetween having a resistance which is significant with respect to the capacitance thereof.

3,786,323
CAPACITOR WITH ANODIZED ELECTRODE OF TANTALUM SILICON ALLOY

Frank Groom Peters, Nutley, and Newton Schwartz, Morris Township, Morris County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 3, 1972, Ser. No. 268,588
Int. Cl. H01g 1/01
U.S. Cl. 317—258 5 Claims

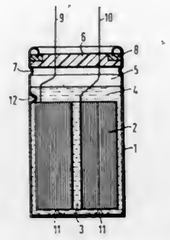


A thin film material capable of functioning as the anode in electrochemically formed thin film capacitors and as the resistive track in anodized resistors in thin film integrated circuits comprising a film of sputtered tantalum and silicon.

3,786,324
CAPACITOR WITH DECREASED FLAMMABILITY

Josef Kotschy, Kreillerstrasse 68, Munich, Germany

Filed May 4, 1973, Ser. No. 357,326
Claims priority, application Germany, May 9, 1972, P 22 22 699.9
Int. Cl. H01g 3/215
U.S. Cl. 317—258 18 Claims

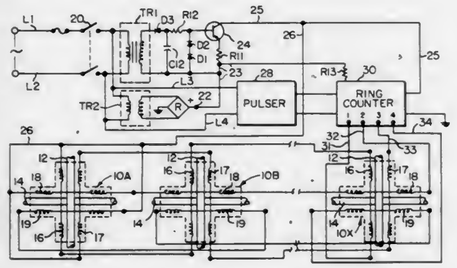


A capacitor of the regenerative type having decreased flammability. The capacitor employs as the dielectric fluid a hydrocarbon to which has been added a mixture of perfluorinated hydrocarbons.

3,786,325
ELECTRONIC MOTORLESS STIRRER

Kenneth Vincent Tunnah, Buffalo, N.Y., assignor to Associated Biomedic Systems, Inc., Buffalo, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,667
Int. Cl. H02k 23/36
U.S. Cl. 318—138 15 Claims

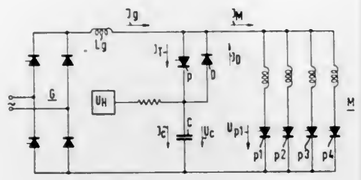


A plurality of stators are secured in a metal housing or beneath a table to form a corresponding number of stirring stations on the top of the housing or table. Each stator comprises either two pairs of wire coils wound about four, rectangularly spaced cores, with approximately one half of the coils of each pair wound about diagonally opposed cores; or a pair of intersecting cores, each of which is surrounded by a pair of wire coils. The upper ends of the four cores of the first-mentioned stator form four, rectangularly spaced poles; and the intersecting cores of each second-mentioned stator project beyond opposite ends of their associated coils and are bent upwardly also to form four rectangularly spaced poles. Each stator is mounted so that its cores form four, stationary poles at each stirring station. Like coils of each stator are periodically energized by a DC power supply to develop a rotating magnetic field, thereby to rotate a magnetic stirring slug positioned in breaker or other fluid container positioned on the stirring station.

3,786,326
STARTING CIRCUIT FOR A SYNCHRONOUS MACHINE HAVING AN ELECTRONIC COMMUTATOR

Klaus Hubner, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 17, 1972, Ser. No. 281,556
Claims priority, application Germany, Aug. 17, 1971, P 21 41 120.1
Int. Cl. H02r 5/40
U.S. Cl. 318—138 3 Claims



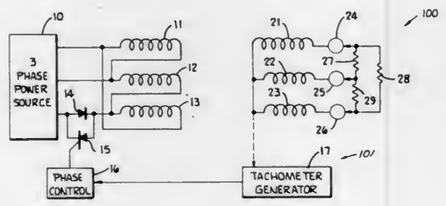
A starting circuit for a synchronous machine having controlled semi-conductors in the individual winding circuits of the machine is disclosed in which at least one auxiliary circuit connected in parallel to the windings is used. The auxiliary circuit comprises a capacitor which prior to operation of the circuit, is charged to a voltage opposite to the conducting voltage of the winding thyristors. An auxiliary thyristor connected to conduct in the same direction as the winding thyristors is connected in series with the capacitor and a diode of opposite polarity is connected in parallel to the auxiliary thyristor.

When a winding thyristor is to be cut off the auxiliary thyristor is triggered to conduct thereby causing the capacitor to discharge through the conducting winding thyristor thereby placing a negative cut off voltage on this thyristor and cutting off any further conduction of the thyristor.

3,786,327
A.C. INDUCTION MOTOR SPEED CONTROL SYSTEMS

Douglas M. Dyer, 308 S. Nineth, Noblesville, Ind.

Filed Oct. 7, 1971, Ser. No. 187,281
Int. Cl. H02p 3/20
U.S. Cl. 318—211 18 Claims

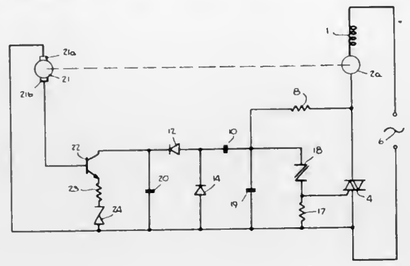


Circuits for the control of the speed of an A.C. induction motor are disclosed. These circuits use SCR's to introduce a D.C. component into the windings of an A.C. motor to cause a controlled amount of dynamic braking to counteract a portion of the torque produced by the A.C. voltage to the motor. This results in a very inexpensive method of controlling the speed of an A.C. induction motor while maintaining excellent inherent speed regulation.

3,786,328
SWITCHING CIRCUIT FOR CONTROLLING ALTERNATING CIRCUIT FLOW

Isaac Bos, Wattwil, Switzerland, assignor to Heberlein & Co. AG, Wattwil, Switzerland

Filed Sept. 15, 1972, Ser. No. 289,538
Claims priority, application Switzerland, Sept. 16, 1971, 13563/71
Int. Cl. H02p 5/40
U.S. Cl. 318—227 9 Claims

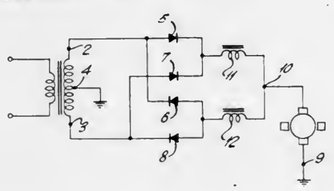


Disclosed herein is a control circuit including an automatically controlled switch coupled in series with a load and an alternating current source, wherein the switch regulates current flow in both directions of flow from the source. A triggering circuit is coupled to a control electrode of the switch for actuating the switch to permit current flow during equal energy portions of both the positive and negative half-waves of the source voltage.

3,786,329
DYNAMIC BRAKE

James Sidney Whited, Radford, Va., assignor to Kollmorgan Corporation, Hartford, Conn.

Filed Jan. 31, 1973, Ser. No. 328,295
Int. Cl. H02p 3/12
U.S. Cl. 318—379 4 Claims



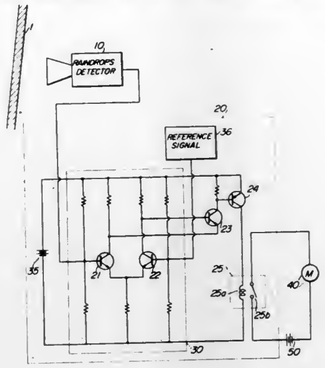
In a full wave rectified control circuit for a D-C motor comprising two banks of silicon controlled rectifiers for forward and reverse operation, there is provided a pulse generation system which applies a firing signal to each of the control SCR's when the power to the motor is lost. A short circuit is thereby provided for the motor armature through the control circuit and the rotational energy of the motor is rapidly dissipated to effect dynamic braking.

3,786,330
AUTOMATIC WINDSHIELD WIPING APPARATUS BY USING MICROWAVES FOR VEHICLES

Goro Inoue, and Ming-Tsung Huang, both of Hamamatsu, Japan, assignors to Nippendenso Co., Ltd., Aichi-ken, Japan

Continuation-in-part of Ser. No. 10,130, Feb. 10, 1970, abandoned. This application Apr. 28, 1972, Ser. No. 248,487
Int. Cl. H02p 3/00
U.S. Cl. 318—483 4 Claims

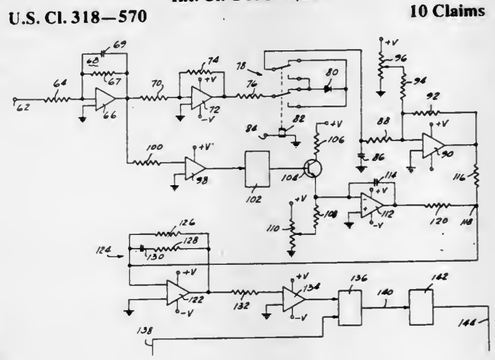
An automatic windshield wiping apparatus for vehicles which comprises a raindrops detecting device comprising a microwave oscillator, a wave guide adapted for irradiating microwaves generated by the microwave oscillator on the windshield of a vehicle and means responsive to change in microwaves reflected from or transmitted through the windshield due to raindrops thereon to detect the raindrops thereby changing its output signal; and a switching circuit adapted to drive a driving motor for a wiper of the windshield responsive to the change of the output signal from the raindrops detecting device.



3,786,331
DIGITAL TRACER

Marcel R. Sommeria, Bridgeview, Ill., and David I. Schaap, Munster, Ind., assignors to Hyper-Loop, Inc., Bridgeview, Ill.

Filed Dec. 11, 1972, Ser. No. 313,974
Int. Cl. G05b 19/24
U.S. Cl. 318—570 10 Claims

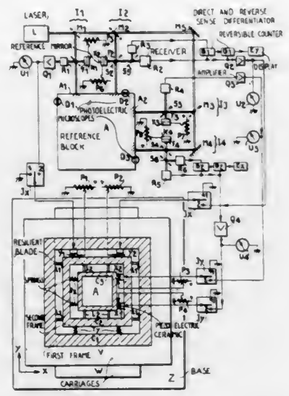


A tracer for use with a profiling machine or the like has a tracer head which is excited with a source of alternating current to produce an output which varies in amplitude and phase in accordance with the direction and magnitude of deflection of the tracer stylus. The a.c. signal from the stylus is converted into a pulse encoded in time to be representative of the direction of stylus deflection. The time position of the pulse is converted into a digital representation of the angle of the stylus deflection, and the sign and cosine of that angle are extracted from memory and separately multiplied by a factor derived from a manually controlled means operative for preselecting a tracing speed in two multipliers, the outputs of which comprise pulse trains each having a separate pulse for each increment of movement along a machine axis. The pulse trains are connected to a conventional motor drive for driving the machine in response to the output of the tracer head.

3,786,332
MICRO POSITIONING APPARATUS

Georges Hepner, Neuilly-sur-Seine; Michel Lacombat, Savigny-sur-Orge, and Raymond Marcy, Paris, all of France, assignors to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, Paris, France

Filed Mar. 19, 1969, Ser. No. 808,619
Int. Cl. G01b 9/02
U.S. Cl. 318—577 13 Claims

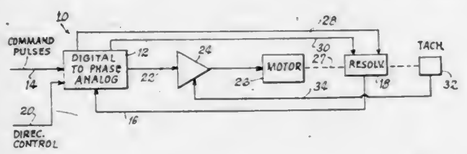


A workpiece is positioned in the order of tenths of microns, or less, with respect to a fixed assembly, with automatic stabilization of coordinates by apparatus having a solid base with two movable carriages, displacable each in a different orthogonal direction, which drive a reference block bearing the piece to be positioned. To compensate for malpositioning a correction means is provided consisting of an assembly of at least three concentric frames, the first one (C1) being fixed on the upper carriage and the other two being coupled to each other by resilient means and position transducers, such as piezoelectric ceramic or megnetostrictive elements. The transducer displaces the corresponding frame along a direction where no resilient means are present. Displacement is measured by four interferometers whose beams illuminate reflecting faces of the reference blocks and fringes; or photoelectric microscopes aimed for instance at an engraved marking on the block of some tens microns wide are used.

3,786,333
DIGITAL REGULATING CONTROL FOR SERVO SYSTEM

Marcel R. Sommeria, Bridgeview, Ill., assignor to Hyper-Loop Inc., Bridgeview, Ill.

Filed June 27, 1972, Ser. No. 266,579
Int. Cl. G05b 1/01
U.S. Cl. 318—604 10 Claims

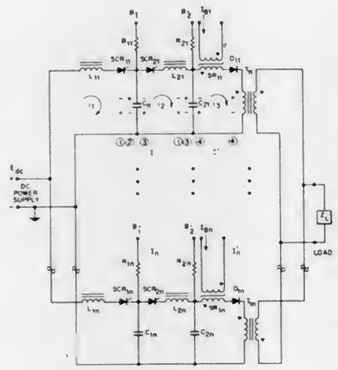


In a servo system, a digital regulating control unit has a pair of counters respectively responsive to a source of clock signals and to a source of incremental position command signals, with a comparator for producing a signal having a frequency proportional to the difference in the counting rates of the two counters, and a phase detector for comparing the phase of the signal generated by the comparator with the phase of a signal generated in response to movement of the controlled member of a servo system.

3,786,334
MAGNETIC PULSE COMPRESSION RADIO-FREQUENCY GENERATOR APPARATUS

Paul R. Johannessen, Lexington, Mass., assignor to Megapulse Incorporated, Waltham, Mass.

Filed Aug. 12, 1971, Ser. No. 171,174
Int. Cl. H02m 7/52
U.S. Cl. 321—45 R 7 Claims

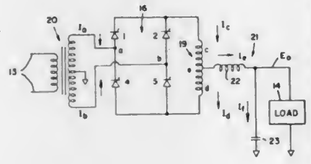


Magnetic pulse compression radio-frequency generators involving preferably SCR-controlled sequential inverters connected with magnetic pulse compression circuits feeding common output load.

3,786,335
POWER CONVERSION APPARATUS AND SYSTEM THEREFOR

Edward H. Phillips, Los Altos, and Raymond D. Underwood, Saratoga, both of Calif., assignors to Programmed Power, Inc., Menlo Park, Calif.

Filed Oct. 18, 1971, Ser. No. 190,110
Int. Cl. H02m 5/30
U.S. Cl. 321—69 R 12 Claims

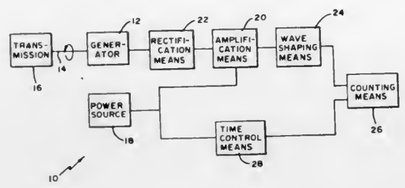


Power conversion apparatus for converting a high frequency signal to a lower frequency a.c. or controlled d.c. output signal which includes an SCR bridge rectifier and a control system utilizing the integrated input signal for generating the firing voltages for the SCRs. An autotransformer in the bridge immunizes the magnitude of the output signal against changes in the load current.

3,786,336
APPARATUS FOR MEASURING THE ANGULAR DISPLACEMENT AND THE ANGULAR VELOCITY OF A ROTATION MEMBER

Thomas E. Lohr, Mount Clemens, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Apr. 11, 1972, Ser. No. 242,961
Int. Cl. H02p 9/40
U.S. Cl. 322—51 6 Claims

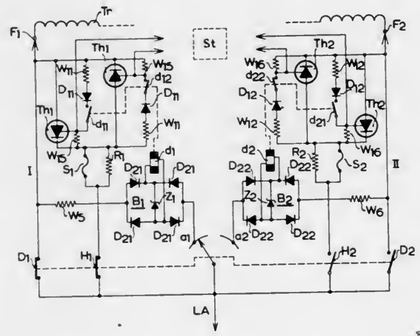


Apparatus for measuring the angular displacement and the angular velocity of a rotating member. Mechanical energy causing angular motion of the rotating member is transformed into electrical energy in the form of a plurality of electrical pulses which are counted during a preselected time interval. Variations in the magnitude of the cycle do not alter the accuracy of the apparatus. Thus, the angular displacement and the angular velocity of the rotating member can be economically measured with greater accuracy than has previously been possible with voltage dependent apparatus.

3,786,337
THYRISTORS FOR EFFECTING TAP CHANGING ON TRANSFORMERS AND INCLUDING CURRENT LIMITING RESISTORS AND STANDBY TRIGGER SYSTEM

Kurt Kugler, Lappersdorf, Germany, assignor to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G., Regensburg, Germany

Filed Feb. 14, 1973, Ser. No. 332,455
Claims priority, application Germany, Feb. 17, 1972, P 22 07 367.2
Int. Cl. G05f 1/20; H02m 5/12
U.S. Cl. 323—43.5 S 10 Claims

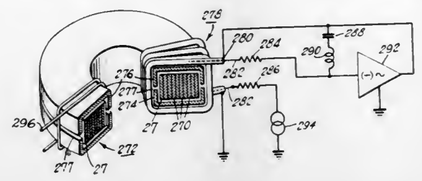


Tap-changing means for tapped transformers include thyristors for effecting tap-changes. Additional tap-changing means include electric fuses, current-limiting resistors and a relay-controlled standby thyristor trigger system prevent the occurrence of dangerous short-circuit currents in case of malfunction of the principal thyristor trigger means.

3,786,338
TRANSFORMER FOR DIRECT AND/OR ALTERNATING CURRENTS

Roswell W. Gilbert, New York, N.Y., assignor to Technical Management Services, Inc., Westfield, N.J.

Division of Ser. No. 6,075, Jan. 27, 1970, Pat. No. 3,626,292.
This application Sept. 27, 1971, Ser. No. 184,024
Int. Cl. G01r 7/00; H01f 19/08
U.S. Cl. 323—48 26 Claims

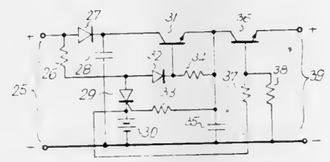


The transformer device has drive and sense windings, a high-gain differential amplifier for supplying magnetization current and negative feedback from the sense winding to the amplifier. A switching circuit is provided for repeatedly reversing the connections of the input terminals to the primary winding, and circuitry is provided for causing the magnetic flux in the core of the transformer to excursion symmetrically below saturation level, thus enabling operation with D.C. input signals. Specifically, a storage capacitor is charged during one sub-cycle of the switching, and then is connected in series with the input during the next sub-cycle to restore the core magnetization and ensure that the transformer will not saturate. A transformer operable by either A.C. or D.C. is formed by oppositely operating two transformers in which the inputs are reversed and flux levels are controlled to prevent saturation. A transformer with a co-axial winding terminated at each end with its characteristic impedance also is provided. Such termination provides critical damping of voltage transients.

3,786,339
NON-REGENERATIVE SWITCHING VOLTAGE REGULATOR

Slavko Milovancevic, P.O. Box 402, Torrance, Calif.

Filed Dec. 30, 1970, Ser. No. 102,631
Int. Cl. G05f 1/56
U.S. Cl. 323—22 T 3 Claims



A non-regenerative switching voltage regulator and filter circuit for converting a pulsating DC input voltage to a regulated DC output voltage. Also a non-regenerative switching voltage regulator and filter circuit for converting a pulsating DC input voltage to a regulated and well filtered DC output voltage by use of an additional series type regulator, coupled to the same reference voltage as mentioned non-regenerative switching voltage regulator and filter circuit. The reference voltage embodied in the form of a Zener diode compensates for temperature changes in the circuit in both mentioned arrangements. In addition, for purpose of better switching and the base-emitter junction protection of the series pass transistor from conductive into non-conductive state a protective resistor is connected across said base-emitter junction. Invention uses no inductance in any form, heatsinks for power transistors are minimized and overall efficiency is good.

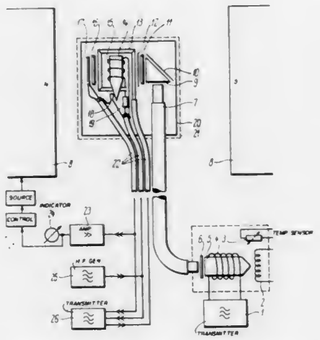
ERRATUM

For Class 323—020 see:
Patent No. 3,786,344

3,786,340
MINIATURE OPTICALLY PUMPED MAGNETOMETER PROBE USING LIGHT PIPES TO TRANSMIT LIGHT TO THE PROBE

Ernst W. Otten, and Werner D. Farr, both of Heidelberg, Germany, assignors to Bruker-Physik AG, Forchheim, Germany

Filed July 13, 1971, Ser. No. 162,280
Claims priority, application Germany, July 14, 1970, P 20 34 797.1
Int. Cl. G01r *33/08*
U.S. Cl. 324—0.5 R **5 Claims**

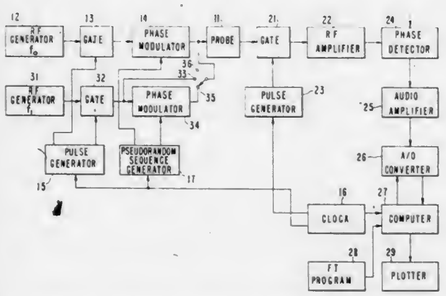


A magnetometer provides a cell containing atomic vapor, a coil surrounding the cell and a photocell responsive to light penetrating the cell all disposed in a probe of small volume, whereas the light source, r.f. generator for energizing the coil and indicating device are disposed remote from said probe with said light source being connected to said probe with said light source being connected to said probe by a flexible light conductor.

3,786,341
MAGNETIC RESONANCE SPECTROMETER EMPLOYING STOCHASTIC RESONANCE BY A PSEUDORANDOM BINARY SEQUENCE AND TIME-SHARE MODULATION

Weston A. Anderson, Palo Alto, Calif., and Richard R. Ernst, Winterthur, Switzerland, assignors to Varian Associates, Palo Alto, Calif.

Filed Oct. 26, 1972, Ser. No. 300,929
Int. Cl. G01n *27/78*
U.S. Cl. 324—0.5 R **20 Claims**



A magnetic resonance spectrometer employing a pseudorandom binary sequence to simultaneously excite magnetic resonance of a plurality of resonance lines in the spectrum of a sample under analysis, the driving radio frequency field being applied to the sample in a train of pulses in each binary sequence, the timing or phase of the pulses being changed in a stochastic manner in the sequence, the composite noise excited resonance signal being detected in a receiver and sampled in a multitude of time displaced intervals in correlation with the binary sequence and stored in an accumulative manner in the associated channels of a memory of subsequent processing, read-out and display, the receiver being activated during the time intervals between the application of the radio frequency pulses to the sample.

3,786,342
BATTERY DISCHARGE INDICATORS

Lindsay Molyneux, 4, Leazes Crescent, Newcastle-upon-Tyne, England

Filed June 7, 1972, Ser. No. 260,402
Claims priority, application Great Britain, June 11, 1971, 27531/71
Int. Cl. H02j *7/16*; **G01n** *27/46*
U.S. Cl. 324—29.5 **11 Claims**

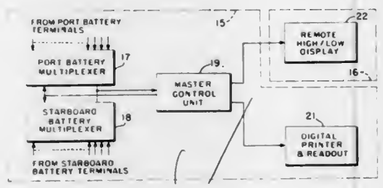


A current-compensated battery discharge indicator comprises voltage sensing means operable to provide an indication when the battery voltage falls below a predetermined value, and current sensing means adapted to sense a magnetic field generated by load current drawn from the battery and operable upon increase of the load current to lower the predetermined value of the voltage at which the voltage sensing means is operable to provide the said indication. The current sensing means may comprise a ring core of magnetic material through which passes a cable carrying the load current, and a magnetosensitive resistor disposed in an air-gap in the ring core.

3,786,343
BATTERY MONITOR SYSTEM

John G. Ehlers, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 19, 1973, Ser. No. 342,349
Int. Cl. G01m *27/02*
U.S. Cl. 324—29.5 **10 Claims**

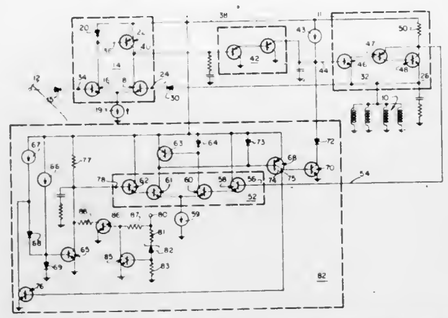


A monitoring system for a multicell storage battery periodically scans the voltage of each cell and indicates highest and lowest individual cell voltages. The system has provisions for a printout of the cell voltages of each cell to assist in locating defective cells.

3,786,344
VOLTAGE AND CURRENT REGULATOR WITH AUTOMATIC SWITCHOVER

William F. Davis, Tempe; Ronald W. Russell, Mesa; Thomas M. Frederiksen, Scottsdale, all of Ariz., and Ernest L. Long, San Jose, Calif., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 4, 1971, Ser. No. 185,939
Int. Cl. G05f *1/56, 1/60*
U.S. Cl. 323—20 **15 Claims**

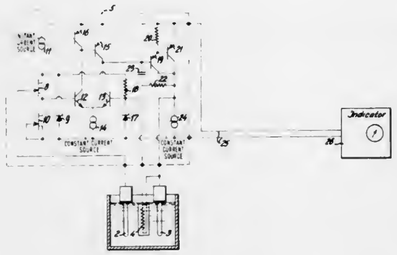


A system for energizing an inductive load includes a voltage regulator for providing a constant voltage across the load until the current builds up to a particular value, and a current regulator which then takes over to provide a constant holding current at a lower value. The voltage regulator may include a closed loop for holding the voltage across the inductive load constant or may respond to a regulated voltage value to control a power stage for providing a constant voltage. The voltage across a sensing resistor in the power stage controls the crossover from the voltage regulation mode, to the current regulation mode and the current regulator automatically resets the reference to control the power stage to provide a constant current of a lower value through the load. The system can be used to supply current to coils of injector valves in a fuel injection system, and may include two power stages for supplying current to two banks of coils. The regulator system is switched from one power stage to the other during successive 180° rotary positions of the engine for both stages.

3,786,345
MEASURING EQUIPMENT, ESPECIALLY FOR MEASURING THE PH-VALUE OF A LIQUID

Stig Glerup Mikkelsen, Herlev, Denmark, assignor to Radiometer A/S, Copenhagen, Denmark

Filed June 18, 1971, Ser. No. 154,511
Int. Cl. G01n *27/42*; **G01r** *19/18*
U.S. Cl. 324—30 R **6 Claims**

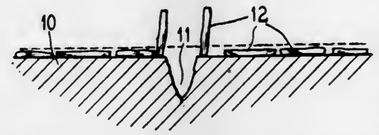


A measuring equipment is disclosed, in which a physical quantity to be measured is transformed into an electrical magnitude, such as a voltage or a current, and as such amplified in an amplifier and transferred via a two-wire cable to a device for indicating, recording or in other ways utilizing the result of the measurement, wherein the transfer cable simultaneously is used to supply the power to the amplifier in that the information concerning the measurement is converted into a current forming part of the supply current to the amplifier. Further disclosed in such equipment, is a galvanic separation which is provided in the two-wire cable for supplying power to the amplifier and for transferring the information to the utilizing device.

3,786,346
METHOD FOR DETECTING DEFECTS USING MAGNETIC PARTICLES IN A VISCOUS FLUID THAT RESTRICTS THEIR MOBILITY

Donald E. Lorenzi, Des Plaines, Ill., assignor to Magnaflux Corporation, Chicago, Ill.

Filed Mar. 6, 1973, Ser. No. 338,456
Int. Cl. G01r *33/12*
U.S. Cl. 324—38 **6 Claims**

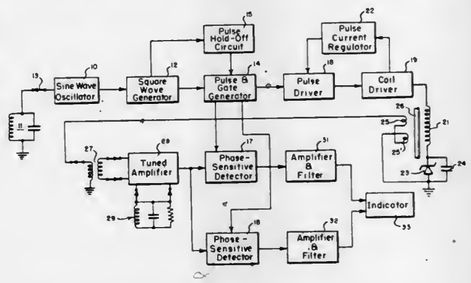


Method and composition for detecting defects in a magnetizable test piece which involves applying over the surface of the test piece a relatively viscous slurry of ferromagnetic flakes, preferably in an oily medium, the slurry being sufficiently viscous to restrict lateral mobility of the flakes while permitting rotary movement of the flakes, magnetizing the test piece, and thereafter inspecting the test piece to determine the existence of surface flaws denoted by rotation of the flakes due to reorientation thereof by any stray fields present at defects in the test piece.

3,786,347
APPARATUS FOR GENERATING STABLE DRIVING PULSES FOR AN EDDY CURRENT TEST SYSTEM

Sven E. Mansson, Hollviksnas, Sweden, assignor to Magnetic Analysis Corporation, Mt. Vernon, N.Y.

Filed Dec. 21, 1972, Ser. No. 317,140
Int. Cl. G01r *33/12*
U.S. Cl. 324—40 **10 Claims**



Pulses for energizing an eddy current test coil assembly are produced by apparatus comprising a sine wave oscillator feeding a square wave generator, and a pulse generator and pulse hold-off circuit which produces output pulses corresponding to regularly recurring non-sequential excursions of one polarity of the square wave. The hold-off circuit includes a flip-flop which is reset at the trailing edges of the output pulses, and set at edges of the square wave next preceding the output pulses. The output pulses drive a test coil assembly for inducing eddy

currents in an object under test and producing output signals varying with defects or flaws therein. The output signals pass to an amplifier tuned to the PRF of the pulses and then to a pair of gated phase-sensitive detectors Quadrature gates are developed from the hold-off circuit and a second similar circuit at times precisely related to the output pulses.

3,786,348

PIEZO ELECTRIC ACCELEROMETER PULSE TESTING

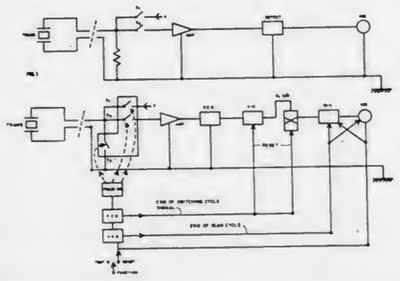
Derek Leigh Lynas, Fribourg, Switzerland; Alan Howard Lock, Belper, and Paul Houghton, Alfreton, both of England, assignors to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Nov. 1, 1971, Ser. No. 194,367

Claims priority, application Great Britain, Oct. 30, 1970, 51694/70

Int. Cl. G01r *29/22*

U.S. Cl. 324—56 **49 Claims**



Method and apparatus for remotely indicating whether a piezoelectric transducer is properly connected in circuit and in an operable state. An input pulse is applied to the transucer and a resulting response above a predetermined threshold level drives an indicator to show the integrity of the transducer apparatus. Special digital counting techniques are used for rejecting spurious noise responses and insuring that indications of operability are truly reliable.

3,786,349

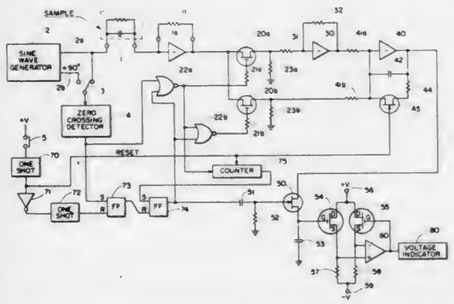
ELECTRICAL REACTANCE AND LOSS MEASUREMENT APPARATUS AND METHOD

Tibor Francis Devenyi, Carp, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed May 3, 1973, Ser. No. 356,956

Int. Cl. G01r *27/00*

U.S. Cl. 324—57 R **14 Claims**



An instrument, for measuring the electrical reactance and loss characteristics of a sample, includes a means for applying an alternating electrical signal across the sample and deriving therefrom a voltage signal having a phase and magnitude relationship with the electrical signal, according to the reactance and loss characteristics of the element and a means for synchronously rectifying the voltage signal. An integrator produces an integral of the rectified voltage, the value of which is indicative of the value of one of the characteristics. The measurement is obtained at the end of one or more full cycles of the alternating electrical signal. The instrument is operable over a wide range of frequencies, for example from 0.01 Hz to 100 KHz. It is particularly useful at very low frequencies as it provides measurements more quickly than a typical reactance bridge or phase meter.

3,786,350

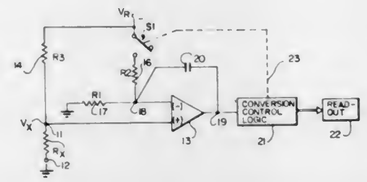
LINEAR INPUT OHMMETER

Irwin Munt, Elizabeth, N.J., assignor to Weston Instruments, Inc., Newark, N.J.

Filed Aug. 21, 1972, Ser. No. 282,019

Int. Cl. G01r *27/02*

U.S. Cl. 324—62 R **4 Claims**



A digital ohmmeter having a differential amplifier with a capacitor connected between the output and the inverting input to form an integrator. A source of DC voltage is connected to a series circuit including the unknown resistor and to a switch which selectively connects the source to a second series circuit, an intermediate point of which is connected to the inverting terminal of the amplifier. The unknown resistor is connected to the noninverting input. The output of the amplifier is connected to logic circuit and counting means of the type used in dual slope integrating digital voltmeters, and others such as voltage-to-frequency converters, with the logic means having an output to control the switch means. The switch is open for a fixed interval and closed for a variable interval, which variable interval is counted as a measure of the input resistance. In this embodiment, the two series resistance circuits form a bridge when the switch is closed. In a second embodiment an additional switch connects the second series circuit to ground when it is disconnected from the source. In either embodiment the resistance value is linearly proportional to the length of the variable interval of time multiplied by a constant, the constant being determined by the fixed resistors in the two series circuits.

3,786,351

SPECTRUM ANALYZER WITH SIMULTANEOUS DISPLAY FOR PLURAL FREQUENCY BANDS

Henry Fred Priebe, Jr., Dunwoody, Ga., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

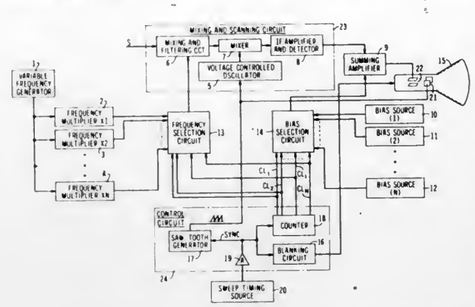
Filed July 7, 1972, Ser. No. 269,512

Int. Cl. G01r *23/16*

U.S. Cl. 324—77 B **11 Claims**

A spectrum analyzer which generates a frequency spectrum signal for each of a plurality of frequency bands in an input signal and displays all generated frequency spectrum signals simultaneously is disclosed. Specifically, the spectrum analyzer disclosed utilizes a mixer to heterodyne an input signal with a selected multiple of a base frequency. Time-shared apparatus is then used to scan a selected band of

frequencies in the filtered signal output of the mixer. The resulting signal is detected and summed with a bias level



selected from a plurality of bias levels and is displayed during one sweep of an oscilloscope screen.

3,786,352

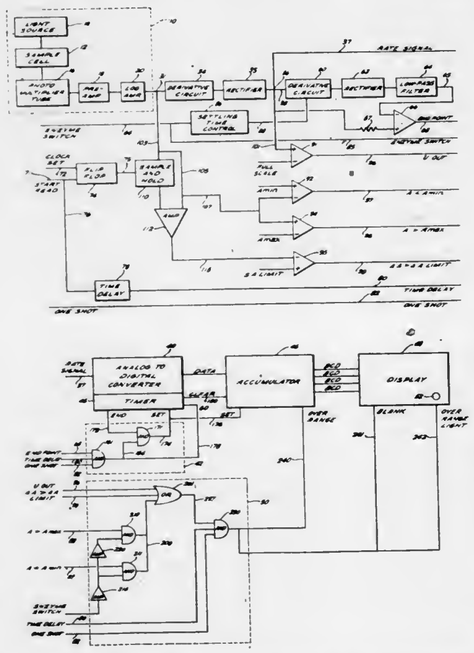
RATE ANALYSIS SYSTEM WITH OVERRANGE SIGNAL DETECTION CIRCUIT FOR IDENTIFYING FALSE SIGNALS

Thomas C. Woods, and Robert A. Ray, both of Fullerton, Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Apr. 17, 1972, Ser. No. 244,538

Int. Cl. G01r *1/00, 15/08*

U.S. Cl. 324—110 **5 Claims**



A rate analysis instrumentation system is disclosed including a sample cell and detection means for producing an electrical cell signal proportional to a parameter of a sample reacting within the cell. In a preferred embodiment the parameter comprises the enzyme activity of a sample, measured by the light absorbance characteristics of the sample. Electrical means are provided for differentiating the electrical cell signal to obtain a rate signal, and display means are provided for displaying the rate signal or a value determined therefrom, such as enzyme activity or concentration. A constant rate detection circuit is provided to permit measurement of the rate signal only during periods when the reaction rate and the cell signal are linear. The constant rate detection circuit includes electrical means for differentiating the rate signal to derive a second derivative signal to a threshold value to determine when the second derivative signal approaches zero. Since a zero second derivative signal indicates that the rate signal is constant and the cell signal is linear, the second derivative signal is used to initiate a predetermined operation of measurement and display means in the instrument. An overrange protection circuit is also disclosed for excluding false rate signals, such as signals having characteristics that fail to meet predetermined acceptable limits. The overrange protection circuit includes means for comparing the rate signal with predetermined upper or lower amplitude limits, as well as with a total deviation limit. An overrange signal and a blank signal are produced upon departure of the rate signal from any of the predetermined limits, which signals control the measurement and display means.

3,786,353

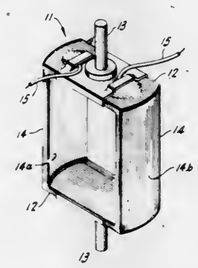
COIL FORMING APPARATUS METHOD AND GALVO-MOTOR PRODUCT

John Y. Pun, 10601 San Pablo Ave., El Cerrito, Calif.

Filed Mar. 30, 1972, Ser. No. 239,655

Int. Cl. G01r *1/00*

U.S. Cl. 324—154 **3 Claims**



A contour molded galvo-motor coil together with the forming apparatus and the specific method of manufacture. A low inertia coil is formed which also allows a smaller air gap in the magnetic circuit of the galvo-motor. The associated improvement in galvo-motor efficiency results from the inverse square relationship between flux density and length of air gap. The formed coil is shaped as a section of a thin walled circular cylinder and impregnated with a compound during winding which when cured provides a rigid unitized coil structure. The low mass resulting from the absence of the conventional coil form and the high rigidity afforded by the coil shape and impregnation compound eliminate torsional deformation during operation and provide a galvo-motor having high efficiency and accuracy.

3,786,354

ELECTROMAGNETIC TACHOMETER

Ronald J. Lasky, Wheat Ridge, Colo., assignor to Stock Equipment Company, Cleveland, Ohio

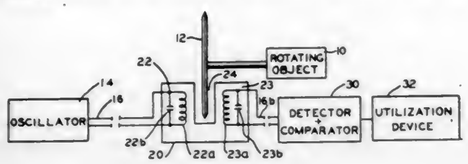
Filed Jan. 24, 1972, Ser. No. 220,091

Int. Cl. G01p *3/48*

U.S. Cl. 324—173 **12 Claims**

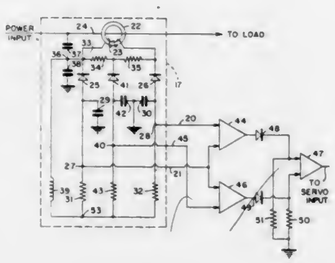
A tachometer system in which a carrier signal is transmitted to a speed sensing and transmission-line-length compensating device. Bursts of the carrier signal are relayed by the device to a detector and comparator circuit where a signal is recovered indicating the rate at which objects pass the speed sensing

device. A method of compensating for differences in transmission line length in different systems by tuning the speed sensing device to a resonant frequency greater than the



frequency of the carrier signal. Increased transmission line length causes the resonant frequency of the line including the device to approach the frequency of the carrier signal and improve the gain of the transmission line.

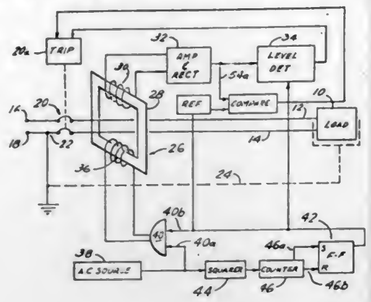
3,786,355
RADIO FREQUENCY RESISTANCE DISCRIMINATOR HAVING DEAD ZONE OUTPUT CHARACTERISTIC
James C. Midkiff, Cincinnati, Ohio, assignor to Cincinnati Electronics Corporation, Evendale, Ohio
Filed Dec. 28, 1971, Ser. No. 212,915
Int. Cl. H04b *1/04*
U.S. Cl. 325—174 **6 Claims**



Herein disclosed is an improved loading discriminator for sensing the resistive component of impedance at the input of an antenna coupler. This discriminator provides a first error signal derived through conventional current and voltage sampling techniques. It also provides a second error signal. These error signals are applied to differential amplifier stages in such a way that the resultant control signal has a negative portion derived from the second error signal and a positive portion derived from the first error signal, said portions being separated by a dead zone.

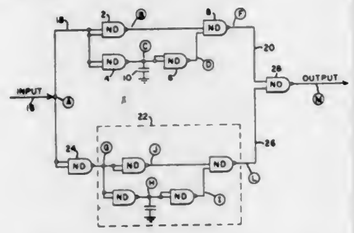
3,786,356
GROUND FAULT DETECTOR
Colin A. A. MacPhee, West Hill, Ontario, Canada, assignor to Federal Pacific Electric Company, Newark, N.J.
Continuation of Ser. No. 180,572, Sept. 15, 1971, abandoned. This application June 30, 1972, Ser. No. 268,093
Int. Cl. H02h *3/26*
U.S. Cl. 317—18 D **8 Claims**

Ground fault protectors commonly use a differential current transformer for sensing ground-fault current, and a level detector causes opening of the load circuit in response to ground-fault current above a tripping level. A current loop develops around the core of the differential transformer in case a fault develops between the "white" or neutral load-circuit conductor and the ground-return current path, this loop having the effect of reducing the sensitivity of the ground-fault sensing means. A test signal is applied to the differential transformer at frequent short intervals, and tripping of a load-circuit interrupter results if such reduced sensitivity should develop. The level detector is made less sensitive during application of the test signal, to prevent opening of the load circuit



in response to the test signal, but even during the test-signal intervals the level detector remains responsive to greater-than-minimum ground-fault signals. The circuit interrupter opens in case of reduced sensitivity of the ground fault sensing means due to any cause.

3,786,357
DIGITAL PULSE TRAIN FREQUENCY MULTIPLIER
Albert P. Belle Isle, Pittsfield, Mass., assignor to General Electric Company
Filed Nov. 30, 1971, Ser. No. 203,357
Int. Cl. H03k *5/00*
U.S. Cl. 328—38 **8 Claims**

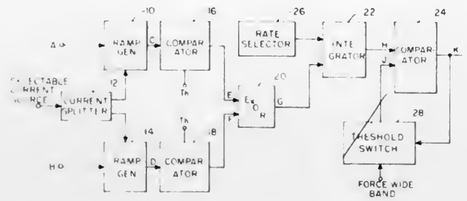


A pair of digital differentiators respectively generate pulses at the leading and the trailing edges of an input pulse, doubling the pulse input frequency. This doubling is used for reduction of errors in digital transmission and for frequency multiplication by powers of two and by values other than powers of two.

3,786,358
METHOD AND APPARATUS FOR DETECTING THE BEGINNING OF DATA BLOCK
Benjamin C. Fiorino, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 27, 1972, Ser. No. 318,955
Int. Cl. H03k *5/18, 5/153*
U.S. Cl. 328—138 **12 Claims**

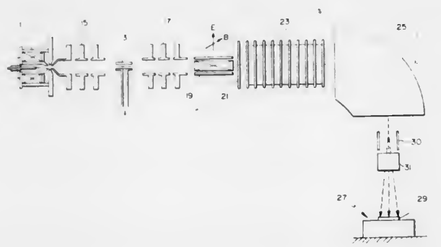
The base frequency of digital data signal is detected by using the transitions in the digital signal to control the duration of ramp signals generated by ramp generators. One ramp is restarted by each positive transition while a second ramp is restarted by each negative transition. Comparators monitor each ramp and compare the ramp against a threshold level. The threshold is set so that the comparator will change its state of output at a time period $T=\frac{1}{2}f$ where f is the base frequency of the expected data signal. The outputs from the two comparators are exclusive-OR'd to produce a signal

whose duration is a measure of the frequency departure of the input data signal from the expected data frequency. The output of the exclusive-OR is integrated to obtain an average DC voltage level which is a measure of the frequency of the input data signal. This average DC level varies linearly with the departure of the input data frequency from the expected data frequency. The output of the integrator is compared against a



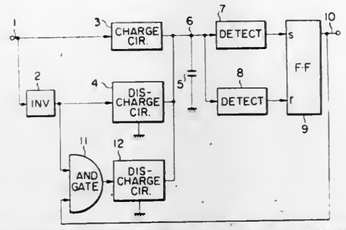
threshold by a comparator. This comparator generates an output signal indicating when the frequency of the input data signal is approaching the expected data frequency, i.e., the condition of beginning of record or beginning of data block. The threshold used by this last comparator may be adjusted to change the selectivity or bandwidth of frequencies that will result in the apparatus detecting the beginning of a data record.

3,786,359
ION ACCELERATOR AND ION SPECIES SELECTOR
William J. King, Reading, Mass., assignor to Alpha Industries, Inc., Woburn, Mass.
Filed Mar. 28, 1969, Ser. No. 811,361
Int. Cl. H01j *23/10, 37/26*
U.S. Cl. 328—233 **10 Claims**



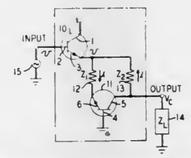
The apparatus disclosed herein provides high energy positive ions, suitable for semiconductor doping, by projecting positive ions through an electron stripping gas at relatively low energy thereby to obtain positive ions which are multiply ionized or charged. Those ions which are raised to a preselected ionization level or state are segregated, and then accelerated by a relatively high accelerating voltage to achieve an energy suitable for ion implantation in a semiconductor matrix. Since the ions subjected to the relatively high accelerating voltage are multiply ionized, the energy imparted thereto, measured in electron volts, is substantially equal to an integer multiple of the accelerating voltage.

3,786,360
SYSTEM FOR DEMODULATING PULSE-NUMBER-MODULATED BINARY SIGNALS
Ryuichi Kawa, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 213,332, Dec. 29, 1971, abandoned. This application Dec. 14, 1972, Ser. No. 315,210
Claims priority, application Japan, Dec. 31, 1970, 45-123405
Int. Cl. H03k *9/06*
U.S. Cl. 329—104 **11 Claims**



A demodulation system is provided in which the pulse-number-modulated binary signals for example "1" and "0" which are represented by the existence and absence of a predetermined number of successive pulses, respectively, are demodulated by use of the charging and discharge of a capacitor. When one of the pulse-number-modulated binary signals, for example "1," is demodulated, the discharge of the charged capacitor is made slower than that of the prior art system, whereas the discharge of the capacitor is made at the high speed when the other pulse-number-modulated binary signal, for example, "0" is demodulated.

3,786,361
BROADBAND AMPLIFIER
Henry Richard Beurrier, Chester Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Sept. 18, 1972, Ser. No. 289,822
Int. Cl. H03f *3/68*
U.S. Cl. 330—20 **4 Claims**

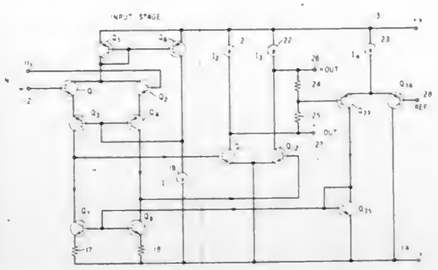


The band-limiting effects of parasitics are minimized in a two-stage amplifier wherein the active elements are operated in the common collector and the common base configurations. A pair of impedances Z_1 and Z_2 connect the emitter of one of the transistors to the emitter and the collector, respectively, of the other transistor. The collector of the latter transistor serves as the amplifier output terminal. Operating into a high impedance output load, the gain of the amplifier is given by (Z_2/Z_1+1).

3,786,362
BALANCED OUTPUT OPERATIONAL AMPLIFIER
Douglas George Marsh, Freehold, and Thomas Gerald Maxfield, New Shrewsbury, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Feb. 7, 1972, Ser. No. 224,040
Int. Cl. H03f *3/68*
U.S. Cl. 330—30 D **4 Claims**

An operational amplifier which provides a balanced output signal and whose differential input stage utilizes active loads.

A common mode signal is derived from the balanced output



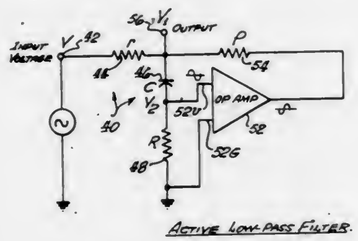
signal and used via a comparator and a feedback loop to control the operation of the active loads.

3,786,363

VOLTAGE-CONTROLLED LOW-PASS FILTER

Arthur S. Lelie, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 5, 1973, Ser. No. 321,185
Int. Cl. H03f *3/04, 1/36*
U.S. Cl. 330—31 **6 Claims**



An active low-pass filter whose cutoff frequency is a function of the input voltage to the filter comprising a series connection from the input to the filter to ground which consists of: (1) an input resistor *r*, (2) a capacitor C, and (3) a grounded resistor R. A series connection across the capacitor C comprises: (*a*) a feedback amplifier having two input leads, one of which is grounded, the other lead being connected to that side of the capacitor nearest ground; and (*b*) a feedback resistor ρ, one end being connected to the output of the feedback amplifier, the other end being connected to the ungrounded side of the capacitor. The feedback amplifier may be an operational amplifier. The output of the filter is at the junction of the resistors *r* and ρ and the capacitor C.

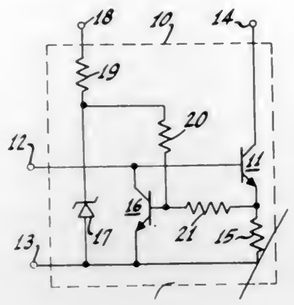
3,786,364

SEMICONDUCTOR AMPLIFIER PROTECTION

Carl F. Wheatley, Jr., Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 25, 1969, Ser. No. 810,225
Claims priority, application Great Britain, Sept. 27, 1968, 46153/68
Int. Cl. H03f *21/00*
U.S. Cl. 330—207 P **11 Claims**

A protection transistor is connected between the input electrodes of a transistor amplifier. A fixed bias voltage approximately equal to the base-emitter threshold of conductivity of the protection transistor and a voltage porportional to the current through the amplifier transistor are applied between the base and emitter electrodes of the protection transistor.

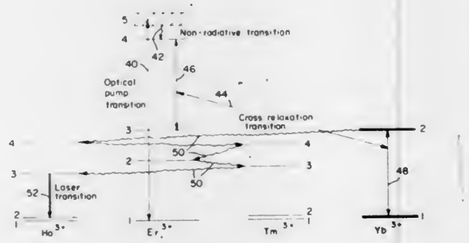


3,786,365

LASER MATERIALS FROM CALCIUM FLUORIDE - RARE EARTH FLUORIDE EXPANDED LATTICE STRUCTURES

Morton Robinson, Malibu, and Donald P. Devor, Santa Monica, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 875,127, Nov. 10, 1969, abandoned, which is a division of Ser. No. 607,041, Jan. 3, 1967, abandoned. This application Apr. 26, 1972, Ser. No. 247,539
Int. Cl. H01s *3/16, 3/06*; **B01j** *17/00*
U.S. Cl. 331—94.5 **10 Claims**



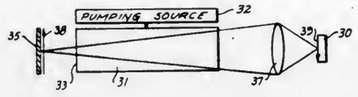
Stimulated emission at the approximate wavelengths of 840 nm, 1860 nm, 2050 nm, 2690 nm, and 2830 nm is obtained from birefrigent laser single crystals of calcium fluoride and the fluorides selected from the trivalent rare earth elements. Each crystal has a structure which deviates from the cubic lattice structure of calcium fluoride and tends toward the hexagonal lattice structure of the rare earth fluorides. The deivation in crystal structure is generally produced by increasing the percent by weight of the rare earth fluoride in excess of 3% and up to 50% of the crystalline solution. Examples of the fluorescent composition include $CaF_2{:}xErF_3{:}yYbf_3$ $zTmF_3wHoF_3$, where *x* varies from 3% to 50%, *y* varies from 0% to 3%, *z* varies from 0% to 3% and *w* varies from 0% to 3% (all percent by weight). Other rare earth ions, having absorption bands which overlap the output spectum of the pumping means over a wide region, may be used in place of erbium ions.

3,786,366

SUPER RADIANT LASER ILLUMINATOR AND IMAGE AMPLIFIER

Robert J. L. Chimenti, 2265 Ocean Pky., Brooklyn, N.Y., and Paul Rabinowitz, 10 Foxwood Rd., Old Bethpage, N.Y.

Filed Oct. 1, 1971, Ser. No. 185,706
Int. Cl. H01s *3/09, 3/00*
U.S. Cl. 331—94.5 **27 Claims**



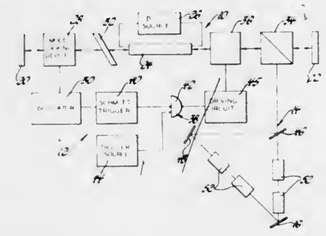
A device is described in which amplified spontaneous emission from a high-gain laser medium illuminates an object through an optical system that also serves to collect the reflected or scattered light from the object and return it through the laser medium to form a highly amplified image. By modification of the optical system and control of the gain factor, the invention can be adapted for various uses including projection or etching of the amplified image on a substrate.

3,786,367

HOLOGRAPHIC SYSTEM

David M. Shupe, Troy, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 19, 1971, Ser. No. 190,473
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 C **4 Claims**



A holographic system employing a laser having a continuous wave lasing medium. The laser has at each end of its cavity mirrors of substantially 100 percent reflectivity. Pulses of laser energy within the cavity are mode-locked and mode controlled to provide pulse width control. Then the pulses are of a certain polarization and also when located in a certain region of the cavity they are ejected from the cavity at a controlled repetition rate.

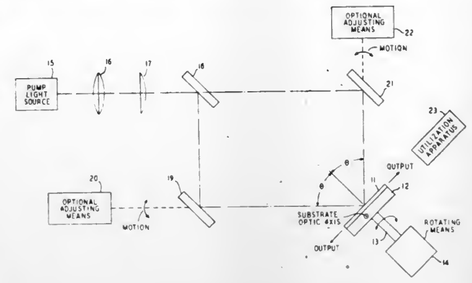
3,786,368

PLANAR WAVEGUIDE-TYPE DISTRIBUTED FEEDBACK LASER WITH ANGULAR TUNING

John Ernst Bjorkholm; Charles Vernon Shank, both of Holmdel, and Thomas Patrick Sosnowski, Colts Neck, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 20, 1972, Ser. No. 299,257
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **5 Claims**

There is disclosed a distributed feedback laser made in an active thin film optical waveguide deposited on an anisotropic substrate of which the ordinary and extraordinary indices are lower than the film index. The laser is tunable by changing the direction of the pumping fringes or other spaced perturbations that produce the distributed feedback scattering with respect to the substrate optic axis. The change in direction of the pumping fringes or effective perturbation also changes the direction of propagation of laser light relative to the substrate optic axis and changes the optical fringe spacing without changing the free-space fringe spacing. Narrow-line single-mode tunable oscillation has been obtained.



3,786,369

LASER DYE COMPOSITION

Karl H. Drexhage; George A. Reynolds, and Donald P. Specht, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 27, 1972, Ser. No. 319,086
Int. Cl. H01s *3/20*
U.S. Cl. 331—94.5 **7 Claims**

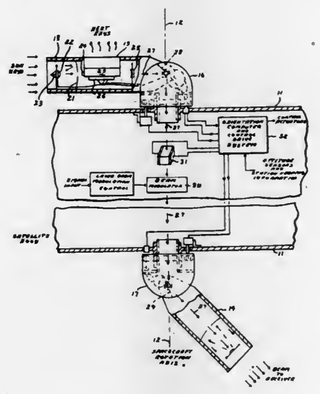
This invention relates to the use of rigidized pyrylium, benzopyrylium, and xanthylium dyes as lasing media in dye lasers. Lasing media containing certain of these dyes have advantageously been found to lase in the red and near infrared region of the electromagnetic spectrum.

3,786,370

SPACEBORNE SUN PUMPED LASER

James D. Barry, Fairborn; Paul M. Freedman, Wright-Patterson AFB, and George Matassov, Dayton, all of Ohio, assignors to The United States of America as represented by the Secretary of the United States Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 340,515, March 12, 1973. This application May 1, 1973, Ser. No. 356,270
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 **6 Claims**



An improved sun pumped laser communication system for synchronous satellites in the galactic plane is provided by mounting the sun pumped laser in a sun tracking telescope

pivoted in hollow gimbals placed on the axis of rotation of the satellite. The laser beam is directed to the earth or another spacecraft receiver from the satellite by a tracking telescope also pivoted in hollow gimbals placed on the axis of rotation of the satellite. The laser beam traverses the satellite along its axis of rotation by passing through the hollow gimbals. The polarization of the laser beam is adjusted for maximum efficiency and controlled to compensate for the orientation changes between the laser and modulator. By mounting the laser in the sun tracking telescope with the laser heat sink communicating with a thermally emissive face in the side of the telescope tube, the laser is cooled by thermal radiation which is always automatically directed toward deep space.

3,786,371

MEANS FOR COUPLING A CAVITY RESONATOR TO A CONDUCTOR CIRCUIT AND/OR A FURTHER CAVITY RESONATOR

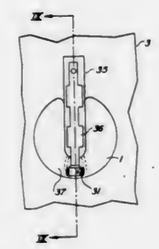
Jozef Hadbavny, and Peter Fuglister, both of Zurich, Switzerland, assignors to Siemens-Albis AG, Zurich, Switzerland

Filed Sept. 7, 1972, Ser. No. 287,031

Claims priority, application Switzerland, Oct. 14, 1971, 015080/71

Int. Cl. H01p *5/02, 5/08, 7/06*

U.S. Cl. 333—24 R **3 Claims**



Means for coupling a cavity resonator to a conductor circuit and/or a further cavity resonator wherein a coupling window or opening is present at the wall between the cavity resonator and the conductor circuit and/or the further cavity resonator. According to the invention the coupling window or opening possesses a cross-section which at least approaches a U- or V-shape having a tongue, the axis of symmetry of which is at least approximately parallel to the vector of the electrical field of the resonator at the region of the coupling window or opening. The length of the tongue is chosen such that the tongue together with the coupling window forms a λ/4 resonant circuit working with the TEM-mode. The method of tuning the coupling according to the invention contemplates bending or rotating the tongue so as to change the coupling factor.

3,786,372

BROADBAND HIGH FREQUENCY BALUN

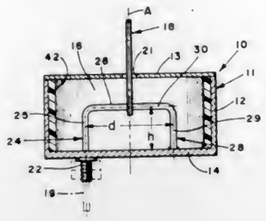
James J. Epis, Sunnyvale, and Samuel Chung-shu Kuo, Cupertino, both of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Dec. 13, 1972, Ser. No. 314,835

Int. Cl. H03h *7/38, 7/42*

U.S. Cl. 333—26 **4 Claims**

A broadband high frequency balun is connectable between balanced and unbalanced transmission lines so that these lines are essentially colinear. The balun comprises a coaxial cable and a shorted stub in approximately a half-loop configuration, the balanced line being connected to the cable and stub within a conductive housing or shield. The cable-stub spacing is substantially greater than the effective length of the stub, thereby decreasing the lower frequency operating limit of the balun. The addition of a lossy layer to the inner surface of the housing permits a substantial increase in the operating bandwidth



of the balun by suppressing adverse resonance effects within the housing.

3,786,373

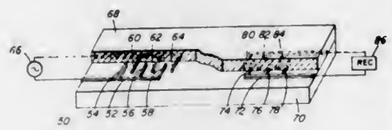
TEMPERATURE COMPENSATED ACOUSTIC SURFACE WAVE DEVICE

Manfred B. Schulz, Sudbury, and Melvin G. Holland, Lexington, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Oct. 1, 1971, Ser. No. 185,601

Int. Cl. H03h *7/30, 9/30*

U.S. Cl. 333—30 R **25 Claims**



A temperature compensated acoustic surface wave device, such as a surface wave delay line is provided in which temperature compensation is provided by the deposition of an interdigital electrode structure on a substrate with an overlay film surface of piezoelectric material of a predetermined thickness. A double substrate arrangement is also disclosed in which the interdigital electrode structure is deposited upon the surface of a non-piezoelectric layer which in turn is placed upon the surface of a piezoelectric substrate.

3,786,374

VARIABLE RESISTIVE FILM ATTENUATOR

Dietrich E. Bergfried, Potomac, Md., assignor to Weinschel Engineering Co. Inc., Gaithersburg, Md.

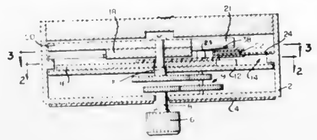
Filed June 26, 1972, Ser. No. 266,366

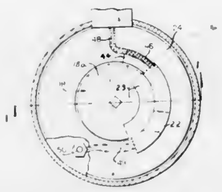
Int. Cl. H01p *1/22*

U.S. Cl. 333—81 A **7 Claims**

A continuously variable resistive film attenuator (often called "card attenuator" is provided, having distributed shunt and series film portions for use from D.C. above 8 GHz. It has a low minimum loss. It stays matched over its entire range. In one version it has substantially no incremental phase shift with changing attenuation. The resistive film is enclosed inside a slidable conductive sleeve which is moved to expose only that part of the attenuator which is inserted into the circuit, the unused part thus being in a field-free region where it can have no effect, while the inserted part of the shunt film is connected to ground through a continuous ground contact which is pressed down on the edge of the shunt portion by a multiple finger spring arrangement. In one version, the electrical length

between input and output is maintained constant by shortening a conductive portion of the attenuator as the resistive por-





tion is lengthened so that there is no phase shift between input and output as the attenuation is varied.

3,786,375

PACKAGE FOR MOUNTING SEMICONDUCTOR DEVICE IN MICROSTRIP LINE

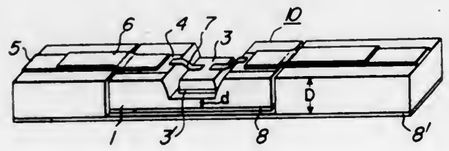
Hitoshi Sato, Tokyo; Mitsuo Tanaka; Michiharu Nakamura, both of Hachioji-shi; Susumu Takahashi, Kokubunji-shi, and Hirokazu Kurono, Hachioji-shi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 26, 1971, Ser. No. 137,479

Claims priority, application Japan, Apr. 27, 1970, 45/35413

Int. Cl. H01p *3/08*; **H05k** *1/08*

U.S. Cl. 333—84 M **12 Claims**



In a microstrip line, a package for mounting a required semiconductor device between a pair of blocks of dielectric material disposed on a first conductive plate to be spaced apart a predetermined distance from each other in the longitudinally extending direction of the first conductive plate. The package is provided with electrical leads on its upper surface for establishing an electrical connection between second conductive plates disposed on the upper surface of the dielectric blocks opposite to the first conductive plate.

3,786,376

SELF-LUBRICATED ROTARY JOINT

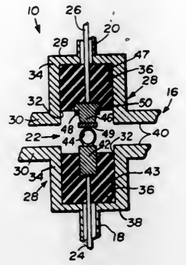
Robert E. Munson; Jerry H. Polson, and Kent G. Roller, all of Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Colo.

Filed Dec. 18, 1970, Ser. No. 99,483

Int. Cl. H01p *1/06*

U.S. Cl. 333—97 R **6 Claims**

An assembly for electrically coupling a first coaxial cable to a second coaxial cable for rotation relative to one another is disclosed and generally comprises a pair of sub-assemblies which electrically connect the inner and outer conductors of the first cable to respective inner and outer conductors of the



second cable while substantially eliminating frictional wear therebetween.

3,786,377

PLUG FITTING FOR HF TRANSMISSION LINES

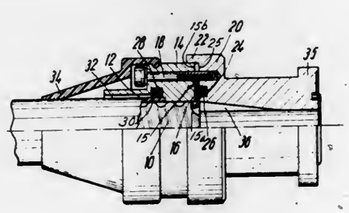
Georg Spinner, Erzgiessereistrasse 33, Munich, Germany

Filed Apr. 19, 1972, Ser. No. 245,563

Claims priority, application Germany, Apr. 19, 1971, P 21 18 940.2

Int. Cl. H01p *1/04, 5/02*

U.S. Cl. 333—98 R **13 Claims**



Plug fitting for corrugated wave guides and coaxial HF corrugated casing cable: the end of the wave guide casing is crimped over and extends radially outward between a holding ring positioned over the wave guide and a shaped part positioned over the cable; the holding ring includes a radially short height projecting step which presses against the radially inward portion of the crimped over wave guide end; the crimped over end extends past the step and at least partly over a sealing ring in a groove of the facing surface of the shaped part positioned over the casing cable.

3,786,378

ROTARY STEPPED JOINT FOR WAVEGUIDES

Mario Liguori, Milan, Italy, assignor to Elettronica Aster S.r.l., Milan, Italy

Filed Dec. 18, 1972, Ser. No. 316,107

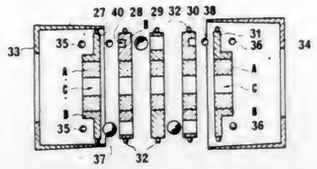
Claims priority, application Italy, Sept. 13, 1972, 29120 A/72

Int. Cl. H01p *1/06*

U.S. Cl. 333—98 TN **3 Claims**

Rotary stepped joint for waveguides of radar antennas, comprising stacks or packs of plates rotating on ball bearings, wherein the plates are spaced apart from one another and interconnected only by sets of balls, on which the plates are firmly compressed. The rotation of the first plate in the plate

stack or pack causes by means of the balls interposed between the plates a rotation of proportionally decreasing angles for



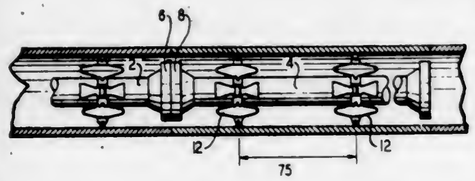
the subsequent plates. The joint is of a very simple structure and can be rotated by a substantially reduced strain.

3,786,379

WAVEGUIDE STRUCTURE UTILIZING ROLLER SPRING SUPPORTS

Milton Lutchansky, Randolph Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Mar. 14, 1973, Ser. No. 341,286
Int. Cl. H01p *1/30*; **F16l** *7/00*
U.S. Cl. 333—98 R **10 Claims**



A waveguide structure utilizes roller spring supports for supporting a waveguide in a conduit to simultaneously provide a compliant support and allow free relative longitudinal movement between the waveguide and the conduit. A tension band having a plurality of spring assemblies integrally formed therewith is fastened about the periphery of the waveguide. Rollers are mounted on the spring assemblies in contact with the conduit to allow free relative longitudinal movement of the waveguide and conduit. The spring assemblies provide a soft compliant support throughout a range of deflections accommodating the worst expected thermal loading conditions in route bends. Under higher loading the spring assemblies bottom out and provide a stiff support to prevent further radial deflection of the waveguide with respect to the conduit.

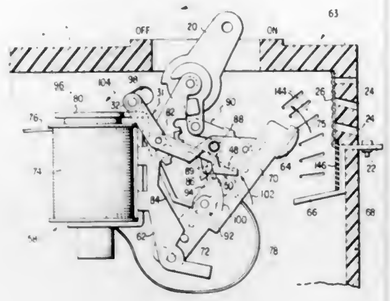
3,786,380

MULTI-POLE CIRCUIT BREAKER

George Sullivan Harper, Cambridge, Md., assignor to Airpax Electronic, Inc., Cambridge, Md.

Filed Feb. 16, 1973, Ser. No. 333,296
Int. Cl. H01h *73/02*
U.S. Cl. 335—9 **18 Claims**

A multi-pole circuit breaker is disclosed which allows selective manual making and breaking of contacts within the breaker and automatic simultaneous breaking of all breaker contacts whenever a current overload condition occurs at any of the poles of the circuit breaker. The selective and automatic breaking function is accomplished by an interlocking trip shoe assembly comprised of a number of trip levers associated, one each, with a pole of the circuit breaker. Each trip lever is cammed by the movement of the movable contact associated with one of the poles in response to an overload condition at this pole to actuate the armatures associated with the other of the poles to open all other breaker contacts. When the circuit breaker switch associated with one of the poles is moved to an "off" position, a camming member is shifted to a cut away portion of the trip lever such that the trip lever is not cammed when the movable contact swings away from the fixed contact. This permits the breaking of the contacts of one pole without breaking of the contacts associated



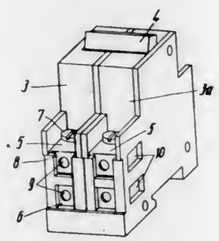
with the other of the poles. The breaker is provided with vent channels for venting arcing gases and a fine mesh screen in front of the vent channels which acts as a flame arrestor to prevent explosions.

3,786,381

MULTIPOLAR FAULT CURRENT PROTECTIVE SWITCH

Volker Schmitt, Eppelheim, and Walter Velten, Schwetzingen, both of Germany, assignors to Brown, Boveri & Cie AG, Mannheim, Germany

Filed Feb. 7, 1972, Ser. No. 223,921
Claims priority, application Germany, Feb. 13, 1971, G 71 05 414.3
Int. Cl. H01h *71/46*
U.S. Cl. 335—13 **7 Claims**



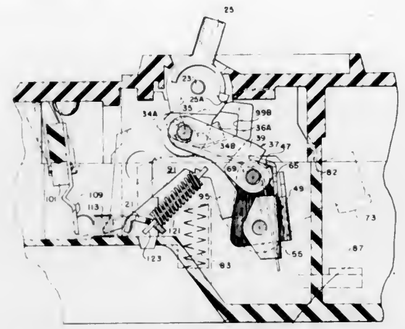
The switch comprises a summation current transformer unit containing a ground fault current testing part and a release part. Relatively narrow type automatic cutouts or circuit breakers are attached to the unit in juxtaposition thereto, and coupled mechanically and electrically to these parts. Each automatic cutout has, between the input and the output sides, two superposed externally accessible connecting points for interconnection with respective windings of the summation transformer. Each cutout has side walls with openings communicating with the connecting points and providing for insertion of the ends of the respective transformer winding into the cutout and into the connecting points thereof. The unit and the circuit breakers have identical profiles in side elevation and, when bolted together, are mounted in the same switch cabinet.

3,786,382

COMPACT CIRCUIT BREAKER

David B. Powell, Bristol, Conn., assignor to General Electric Company, New York, N.Y.

Filed Dec. 27, 1972, Ser. No. 318,992
Int. Cl. H01h *9/24*
U.S. Cl. 335—169 **9 Claims**



A compact electric circuit breaker with high current carrying ability is disclosed. This circuit breaker utilizes compact means to achieve high contact pressure necessary for high current carrying ability, and, in addition, utilizes a mechanical arrangement occupying a minimum amount of space and including a minimum number of force reducing members which cooperate to permit a relatively low trip force to actuate the circuit breaker and thus open the circuit upon the occurrence of a particular condition such as a current overload.

3,786,383

PERMANENT MAGNET SOLENOID DEVICE

John T. Ludwig, Jacksonville, and Paul D. Steiner, Clearwater, both of Fla., assignors to Electromagnetic Industries, Inc., Clearwater, Fla.

Filed Oct. 27, 1972, Ser. No. 301,315
Int. Cl. H01f *7/08*
U.S. Cl. 335—231 **10 Claims**



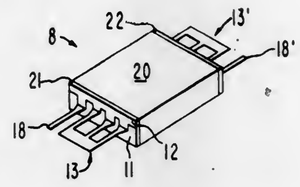
A pair of substantially identical high powered cylindrical magnets are arranged in axially aligned opposing relation in a cylindrical casing of non-magnetic material, with their facing ends spaced axially from each other. Each permanent magnet has a central cylindrical pole of one polarity, an annular pole of the opposite polarity and a base interconnecting its poles at the end remote from the other permanent magnet and forming the base of an open annular groove separating its two poles. An inner circular pole piece is interposed between the facing ends of the two cylindrical poles, and an outer annular pole piece is interposed between the facing ends of the annular poles, the two pole pieces defining an annular air gap having a very small radial dimension. A cylindrical winding form, of non-magnetic material and carrying a winding, is movably positioned substantially symmetrically in the air gap. A plurality, such as three, of angularly spaced pins of non-magnetic metal are connected to the winding form and extend outwardly through the annular groove of one permanent magnet and through dielectric bushings in the apertures in the base thereof. A fourth pin, constituting an electric conductor, terminates short of the winding form and is electrically connected at its inner end to one terminal of the winding and extends outwardly through a bushing in the base of the one permanent magnet for connection to a terminal of a source of electric potential. All of the pins, except the fourth pin, have their outer ends secured to a thin brass plate which is secured to a central pin or operator in turn secured centrally to a flexible diaphragm and projecting outwardly through an opening in the casing of the device. The fourth pin extends through the brass plate, with clearance. The air gap has a dimension of from 0.010 to 0.020 inches and, when the winding is energized, the operator will move 8 ounces through 0.1 inch with 6 millijoules of energy. The device is used as a trigger for missiles.

3,786,384

REED SWITCHING ASSEMBLY OF DEFORMABLE MATERIAL

James W. Jones, Hollister, Calif., assignor to Compac Engineering Inc., Hollister, Calif.

Division of Ser. No. 783,912, Dec. 16, 1968, Pat. No. 3,651,297. This application Mar. 20, 1972, Ser. No. 236,270
Int. Cl. H01h *51/28*
U.S. Cl. 335—152 **7 Claims**



An electrical device and method of making same is disclosed wherein a rigid base member is provided for supporting electrical conductive elements and a thermal plastic member heat sealed thereto. A reed relay is described with blades mounted on a rigid ceramic base and hermetically sealed into a switching chamber by a thermal plastic cover member sealed at the periphery to the base member as by heating with a peripheral metal strip or sonic bonding. Localized deformation of the enclosure sets the gap of the contact blade. A blade is positioned in a slanted notch to spring bias the blade against another and the switching blade can be provided with a perforation filled with a previous metal contact material.

3,786,385

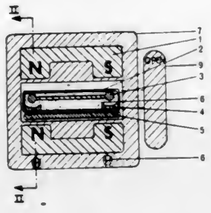
MAGNETO-MOTIVE BISTABLE SWITCHING DEVICES

Waldemar Helmut Kurpanek, Mercator Str. 3, Dusseldorf, Germany

Continuation-in-part of Ser. Nos. 149,174, June 2, 1971, abandoned, and Ser. No. 273,940, July 21, 1972. This application July 21, 1972, Ser. No. 273,941
Int. Cl. H01h *19/60*
U.S. Cl. 335—207 **7 Claims**

A manually operable magneto-motive bistable manual switch comprising a hermetically sealed contact container

space having at least one pair of stationary contact points and one free floating ferro-magnetic contactor. The contact container and associated components are mounted rigidly within the magnetic flux fields of two rigidly mounted permanent magnets spaced apart so that unlike poles of each magnet face each other across a given distance. A rotatable keeper is disposed in said switch to form with the magnets two closed



ring flux fields. By rotating the keeper into the magnetic ring flux field of one permanent magnet the permanent magnet's magnetic flux field becomes directly shorted and thus the ferro-magnetic free floating contactor is attracted by the other permanent magnet to execute bistable switching operation within the contact container by establishing a bridging relationship between at least one pair of the stationary contact points.

3,786,386

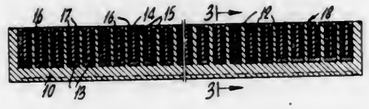
MAGNETIC ANCHORING DEVICE FOR GRAPHIC ARTS

Michele Cardone, Via Boschetto, 19, Trezzano S.N.; Angelo Grandini, Via Oratorio 44, Pero, and Bruno Zaramella, Via Cascina Barocco 18, Milan, all of Italy

Filed June 22, 1972, Ser. No. 265,198

Int. Cl. H01f *7/04*

U.S. Cl. 335—295 **8 Claims**



Magnetic anchoring device for graphic arts, wherein the magnetic work surface is provided by interposing permanent magnetic cores between ferromagnetic material pole-pieces, having a direction of magnetization for the cores substantially at right angles to said pole-pieces. The device comprises a support of ferromagnetic material having a plurality of parallel slots separated by walls defining a first plurality of pole-pieces fast with said support, a spacer of a magnetic material being placed in each of said slots, and each of said slots having therein a permanent magnet battery or unit comprising an inserted central wall or core of ferromagnetic material which is interposed between two side permanent magnetic elements. The assembly of said inserted walls define a second plurality of pole-pieces alternately interposed to the first plurality of pole-pieces. The surfaces of the magnetic elements contacting each of said inserted walls have always the same polarity, so that the magnetic surface being provided has pole-pieces of one polarity intercalated with pole-pieces of opposite polarity to said one polarity.

3,786,387

SHORT-CIRCUIT TESTING MODEL FOR STATIONARY INDUCTION APPARATUSES

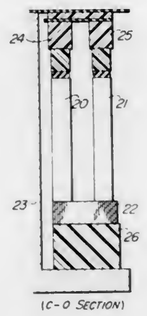
Yasuro Hori; Kiyoto Hiraishi; Tadashi Kiuchi, and Yoshitake Kashima, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 794,862, Jan. 29, 1969, abandoned. This application July 14, 1971, Ser. No. 162,601

Claims priority, application Japan, Jan. 31, 1968, 43/5419

Int. Cl. H01f *27/30*

U.S. Cl. 336—181 **4 Claims**



A stationary induction apparatus in which the number of natural vibrations of a winding formed by winding an insulated conductor by a plurality of turns about a leg portion of an iron core is shifted from the power source frequency and the frequency which is double the power source frequency so as to prevent the winding from resonating with the latter freqeuncies and to reduce the electromagnetic force generated in the axial direction of the winding due to a short-circuit current which may flow into the apparatus winding and due to the leakage flux occurring in the apparatus, thereby to obtain a mechanically strong winding structure.

3,786,388

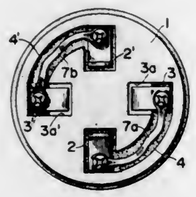
FUSE-TYPE CIRCUIT BREAKER

Katsuyasu Sato, 6, Mitsuya Kitadori 3-chome, Higashiyodogawa-ku, Osaka-shi, Japan

Filed May 27, 1971, Ser. No. 147,451

Int. Cl. H01h *85/16*

U.S. Cl. 337—269 **5 Claims**



Fuse-type circuit breaker of small dimensions and of increased safety applicable especially to household uses, provided with a pair of blades and a pair of blade supports and a fuse connecting each individual blade to its corresponding blade support. One of the pair of fuses being responsive to current and the other being responsive to ambient temperature.

3,786,389

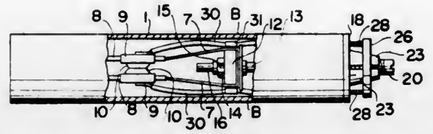
THERMOSTATIC SWITCH

Kenshi Kondo, 3-5 Ohkura 1-chome, Setagaya-ku, Tokyo, Japan

Filed Dec. 29, 1972, Ser. No. 319,522

Int. Cl. H01h *37/04*

U.S. Cl. 337—389 **5 Claims**



There is disclosed a thermostatic switch consisting essentially of a tubular casing formed of a material having a relatively high coefficient of expansion and a circuit controlling member which is disposed therein and formed of a pair of metallic springs having a relatively low coefficient of expansion. This thermostatic switch is provided with means which permits the accurate response to the ambient temperature change i.e., means such as for preventing so called backlash or minute gap caused at the thread-engaging portions between the circuit controlling member and the casing, and it is provided with means which aids in enhancing the heat sensing of the circuit controlling member in co-operation with the sensing of the casing. In another aspect of the invention, there are provided means which can protect the lead wires connected to the circuit controlling member and the temperature adjusting lock screw from erroneous operations caused by inadvertent contact with or impingement on other moving substance such as a body or the like.

3,786,390

TEMPERATURE MEASURING RESISTANCE

Klaus Kristen, Wiesbaden, Germany, assignor to Jenaer, Glaswerk, Schott, and Gen., Wiesbaden, Germany

Filed Aug. 8, 1972, Ser. No. 278,828

Claims priority, application Germany, Aug. 9, 1971, P 21 39 828.7

Int. Cl. H01c *7/04*

U.S. Cl. 338—22 R **7 Claims**



A temperature measuring resistance employing a composition whose electrical resistance varies with temperature. The composition is preferably a glass containing Al_2O_3, LiO_2 and SiO_2.

3,786,391

MAGNETIC SELF-ALIGNING ELECTRICAL CONNECTOR.

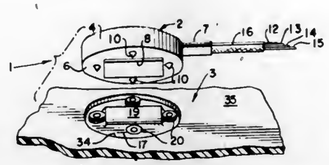
William R. Mathauser, P. O. Box 5, Sun Valley, Idaho

Filed July 11, 1972, Ser. No. 270,709

Int. Cl. H01r *11/30*

U.S. Cl. 339—12 R **15 Claims**

A magnetic self-aligning electrical connector comprising a pair of connector or coupling havles each having electrical contact means therein and one of said coupling halves having magnetic means therein disposed opposite means in said other coupling half for cooperation with said magnet means to hold said coupling halves together with the electrical contact



means in electrically conducting contacting relationship with one another, said electrical contact means in one of said coupling halves mounted for movement relative to the coupling half to insure alignment between the electrical contact means even though the coupling halves are misaligned.

3,786,392

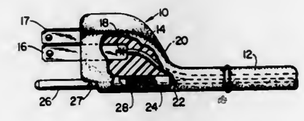
AUTOMATIC RETRACTABLE GROUND ELECTRICAL CONNECTOR

Johnny B. McDaniel, 4210 Stanby Ct., Alexandria, Va.

Filed Sept. 20, 1972, Ser. No. 290,506

Int. Cl. H01r *3/06*

U.S. Cl. 339—14 P **13 Claims**



A three prong electrical connector or plug having a spring biased grounding prong of sufficient strength to retain the ground prong extended for insertion into a three way electrical outlet and to allow the ground prong to retract when the plug is inserted into a two way electrical outlet. For plugs having a relatively short longitudinal dimension, the grounding prong is made of telescopic sections. A small conductive strip is provided to be secured to the face plate screw of a two way electrical outlet so that the ground prong is grounded even in the retracted position.

3,786,393

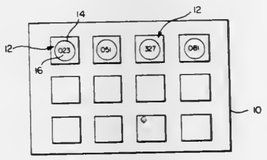
IDENTIFICATION AND POLARIZATION OF MSI/LSI ASSEMBLY AND RECEPTACLE

Richard A. Conrad, Canoga Park, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed May 21, 1971, Ser. No. 145,807

Int. Cl. H05k *1/02*

U.S. Cl. 339—17 C **7 Claims**



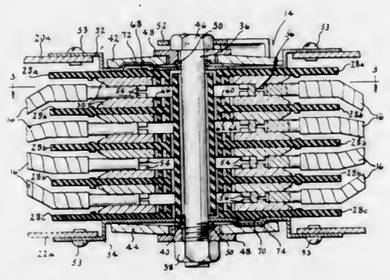
Means for coupling an electrical assembly having a plurality of connecting pins about the periphery thereof, to a receptacle

of similar dimensions having a plurality of pin receiving means about the periphery thereof; one of said assembly and receptacle having embossed on the under-surface an alpha-numeric symbol representative of the mating part, while the other one of said assembly and receptacle has engraved therein a reverse image of the alpha-numeric representation whereby said surfaces can mate in only one direction.

3,786,394
SINGLE-BOLT JOINT FOR FEEDER AND PLUG-IN BUS DUCTS

Martin F. Koenig; George A. Dempsey, Jr., both of Milwaukee, Wis.; Manuel Issa, deceased, late of Milwaukee, Wis., and Patrick T. Sheedy, administrator, Fox Point, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Mar. 22, 1972, Ser. No. 237,070
Int. Cl. H01r *13/60*
U.S. Cl. 339—22 B **9 Claims**



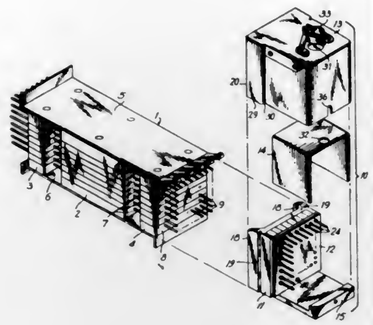
A projection on one side of each splice plate of the stacked joint assembly cooperates with an open-ended, L-shaped slot in the end of the corresponding bus bar to retain the joint assembly in place during assembly of a bus duct run and also secure the bus bars from sliding within the bus duct housing. An insulated sleeve, surrounding the bolt which extends through the stacked assembly, has an oval cross section and fits into a similarly shaped central aperture in each insulator plate. Each insulator plate has at least one raised rib portion wich is concentric with its central aperture. The outer insulator plates are keyed to respective end plates, positioned on the opposite ends of the stacked assembly, by a projection fitting into an indentation in the end plate. The raised rib portion of the insulator plates cooperates with an oval aperture in the splice plates to prevent relative rotational movement therebetween, thereby insuring the insulator and splice plates are properly oriented for installation of the joint assembly onto a duct section.

3,786,395
ELECTRICAL CONNECTOR

Paul V. DeLuca, Port Washington, N.Y., assignor to Porta Systems Corp., Roslyn, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,715
Int. Cl. H01r *13/20, 13/58, 13/40*
U.S. Cl. 339—66 M **20 Claims**

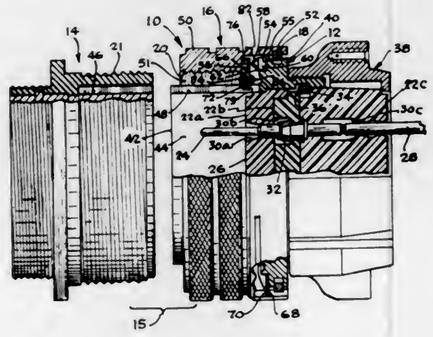
A connector designed to mate with a wire wrap terminal block, and to straighten any pins on the block which may be slightly bent at the time the connector is coupled to the block. The connector is arranged in such a manner that its cover may be removed to expose internal electrical joints within the connector without removing the connector from the terminal block and without disturbing the internal connector joints.



3,786,396
ELECTRICAL CONNECTOR WITH LOCKING DEVICE

Harry P. Kemmer, Woodstock, and Joseph A. Storcel, North Riverside, both of Ill., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Apr. 28, 1972, Ser. No. 248,647
Int. Cl. H01r *13/54*
U.S. Cl. 339—89 R **9 Claims**

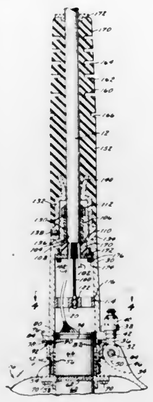


An electrical connector including plug and receptacle shells, a coupling ring rotatably mounted on one shell and arranged to be rotatably coupled to the other shell, and a locking device preventing rotation of the coupling ring with respect to the rotatably mounted shell. The locking device includes an axially compressible wave washer coupled to the coupling ring and an apertured lock ring axially movable towards the wave washer by action of the connector shell being coupled to force the detents into the apertures as the wave washer is compressed to prevent release by lower torques associated with vibrational effects. The lock ring also includes resilient plastic sealing rings which engage the two shells during coupling action and provide a seal across the shells.

3,786,397
CABLE TERMINATION

Robert M. Bridges, Northridge, Calif., assignor to The Bendix Corporation, North Hollywood, Calif.

Filed Sept. 18, 1972, Ser. No. 290,202
Int. Cl. H01r *13/54*
U.S. Cl. 339—92 M **21 Claims**

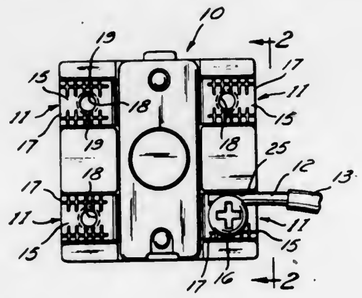


A cable termination is disclosed by which to connect and disconnect a suspension cable to and from a submersible electrical apparatus. The structure is arranged for high reliability in the mechanical and electrical phase of the connection and in the exclusion of water from the interior of the connectors.

3,786,398
TERMINAL CONSTRUCTION

Harold F. Snider, Mansfield, Ohio, assignor to Therm-O-Disc Incorporated, Mansfield, Ohio

Filed May 5, 1972, Ser. No. 250,737
Int. Cl. H01r *9/08*
U.S. Cl. 339—95 R **8 Claims**

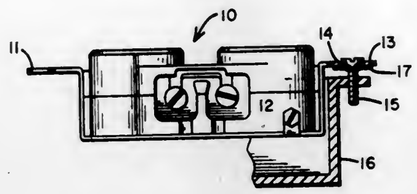


A terminal clamp for effecting an electrical connection with a conductor is disclosed. The terminal clamp includes first and second planar clamping surfaces for receiving a cylindrical wire conductor therebetween with the first clamping surface being defined by the head portion of a screw threaded into the second clamping surface. The second clamping surface is provided with a V-shaped slot which extends in the axial direction of the conductor clamped between these surfaces and which is dimensioned so that substantial portions of the conductor are coined into the slot when clamping pressure is applied to the conductor to more effectively retain the conductor at the terminal.

3,786,399
AUTOMATIC GROUNDING CONNECTION FOR ELECTRICAL UNIT

Earl E. McHattie, 2129 Midlothian Rd., Roseville, Minn.

Filed Aug. 18, 1971, Ser. No. 172,728
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R **4 Claims**

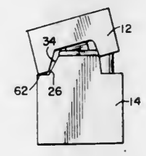


The mounting screw for an electrical unit, such as a wall receptacle, is threaded through an electrically conductive tab and into the metal flush box so that as the screw is tightened, the tab is drawn toward the metal mounting strap or yoke to make an electrical conduction path between the screw and the mounting strap. In one embodiment, the screw is undercut so that when secured the tab is locked in place and cannot be unthreaded.

3,786,400
ROLL-APART TERMINAL BLOCK ASSEMBLY

Hans Ege, Des Plaines, Ill., assignor to Underwriters Safety Device Co., Chicago, Ill.

Filed Oct. 7, 1971, Ser. No. 187,375
Int. Cl. H01r *9/00*
U.S. Cl. 339—198 P **8 Claims**



A terminal block assembly wherein the electrical connection is broken, and the blocks are separated, by pivoting or rolling one block apart from the other. The terminal block assembly includes first and second terminal blocks, each block having one side adapted to engage and mate with one side on the other block. One edge on one block defines a roll axis. An opposing surface on the other (usually mounted) block defines a fulcrum. The fulcrum surface engages the roll axis when the one block is rolled or pivoted apart from the other block to pivot its mating side away from electrical connection with the other block.

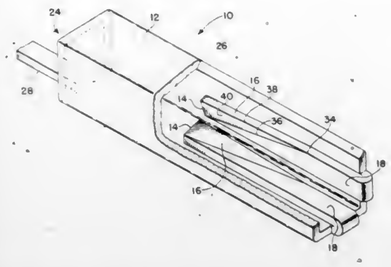
3,786,401
CONTACT SOCKET

Chesley Jones, Westlake Village, and Ougljesa Jules Poupitch, La Jolla, both of Calif., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Oct. 15, 1971, Ser. No. 189,672
Int. Cl. H01r *9/12*
U.S. Cl. 339—258 R **8 Claims**

An integral electrical contact socket having a sleeve and a plurality of spring arms folded back within the bore of the sleeve and extending longitudinally thereof which enables the

contact socket to aggressively impinge an associated contact pin upon its insertion in the socket. The contact arm may be



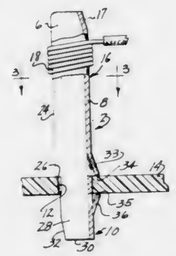
twisted substantially about its longitudinal axis which will provide firm line contact with an associated pin.

3,786,402

ELECTRICAL TERMINAL

Stanley V. Horecky, Oak Park, Ill., assignor to Molex Incorporated, Lisle, Ill.

Filed Oct. 26, 1972, Ser. No. 300,974
Int. Cl. H01r *9/14*
U.S. Cl. 339—276 A **4 Claims**



An electrical terminal comprises a U-shaped sheet metal body with the legs of the body being cut away to define shoulders for abutting the top surface of a printed circuit board. The bight of the U-shaped body also has an outwardly struck projection that engages the top surface of the printed circuit board to enhance stability of the terminal thereon. Below the detent the bight has a spring tongue for snap-locking against the bottom or printed wire side of the board. The trailing end of the body has a tapered free end and can be used as a wire wrapped terminal or may be inserted into a connector.

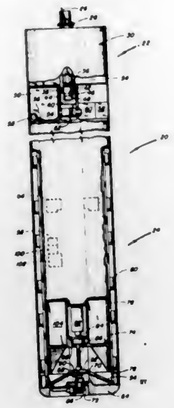
3,786,403

UNDERWATER ACOUSTICAL DETECTION SYSTEM

Albert S. Will, Bethesda; Sylvan Wolf, College Park, and William L. Barnum, Takoma Park, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 10, 1968, Ser. No. 729,143
Int. Cl. G01h *9/00*
U.S. Cl. 340—2 **10 Claims**

An air-launched multiple deployment depth sonobuoy having mechanical apparatus and electrical circuitry for intermittently lowering the sonobuoy to a plurality of predetermined depths. The mechanical apparatus includes a cable wrapped around a free wheeling roller which may be braked by a motor-driven, spring-loaded clutch while a second roller urges the cable against the free wheeling roller by means of a second spring-loaded clutch driven by the motor of the first clutch. The electrical circuitry includes a plurality of switch banks responsive to rotation of a motor shaft, a plurality of hydrostatic pressure responsive switches, a plurality of limit



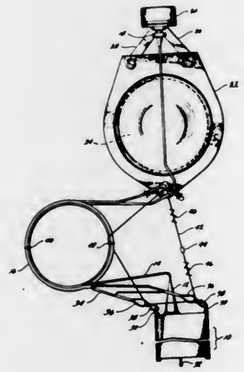
switches, and a plurality of relays. Time delay circuits including electrically energizable explosive squibs are also included to provide appropriate separation functions.

3,786,404

DEEP OCEAN TRANSPONDER

James O. Ewing, Granada Hills, and Philip E. Reilly, Woodland Hills, both of Calif., assignors to The Bendix Corporation, North Hollywood, Calif.

Filed Aug. 14, 1972, Ser. No. 280,296
Int. Cl. G01s *9/66*
U.S. Cl. 340—2 **5 Claims**



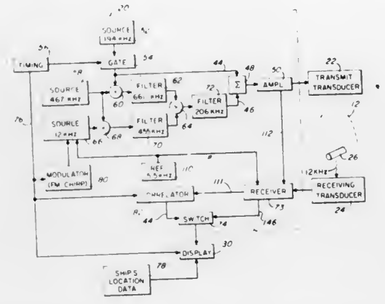
A lightweight underwater transducer is described in which the anchor contains a battery pack and a receiver-transmitter which are connected through an electrical cable to an upwardly directed transducer carried on a flotation housing. The flotation is supplied by means of a single thin-walled glass ball whose diameter is typically about 16 inches, but which may be larger or smaller. The flotation housing consists of a pair of flanged hemispheres which capture and protect the glass ball and to which is attached a tethering rope of a desired length to prevent buoyant load from being applied to the electrical cable. During handling and deployment, most of the length of the rope and electrical cable are taken up in a coil which is, in part, secured by a corrodible magnesium link and which is released in the sea by the breaking of the corrodible link.

3,786,405

SYSTEM FOR LOW-FREQUENCY TRANSMISSION OF RADIANT ENERGY

Mark A. Chramiec, Newport, R.I., and William L. Konrad, Niantic, Conn., assignors to Raytheon Company, Lexington, Mass.

Division of Ser. No. 111,218, Feb. 1, 1971, abandoned. This application Nov. 8, 1972, Ser. No. 304,884
Int. Cl. G01s *9/68*
U.S. Cl. 340—3 R **26 Claims**



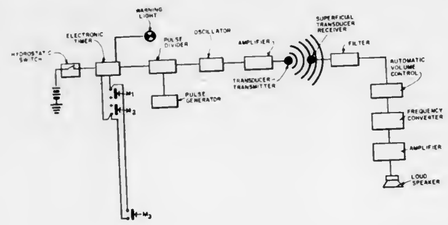
A communication system utilizing a highly directive low-frequency transmission of radiant energy which is generated by directing a beam of radiant energy at a first high frequency and at a second high frequency into a nonlinear transmission medium. By virtue of an interaction in the nonlinear medium between the energies at the first and the second high frequencies, a low frequency beam of radiation is produced having a directivity pattern comparable to that of the energy radiated at the high frequencies. The system is particularly useful for sonic examination of the seabed for sub-oceanic strata and buried objects such as pipes, in which case a receiving hydrophone and display are utilized to plot a graphical display of echoes reflected from the strata.

3,786,406

AUTOMATIC DEVICE FOR SIGNALING FROGMAN ACCIDENTS

Ettore Bianco, Via Triulziana, 52, San Donato Milanese, Italy

Filed Sept. 3, 1971, Ser. No. 177,760
Claims priority, application Italy, Sept. 3, 1970, 29296/70
Int. Cl. H04b *1/00*
U.S. Cl. 340—5 R **1 Claim**



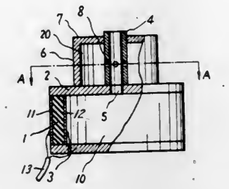
A novel system for detecting frogman accidents is disclosed. The system comprises an electronic sending system which emits an regualar acoustical signal, provided that the submerged frogman periodicaly actuates a lever and a receiving system which receives the acoustical signal and transforms it electronically to an audial signal. If the frogman fails to periodically actuate the lever, then the transmitter automatically sets off an alarm.

3,786,407

ACOUSTIC TRANSDUCER FOR DEEP SEA

Heisuke Ogawa, Kobe; Mitsuo Yamamoto, Akashi; Seiisaku Bando, Kobe, and Osami Baba, Osaka, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe and Furuno Electric Company Limited, Nagasaki-ken, Japan

Filed Mar. 29, 1972, Ser. No. 239,102
Claims priority, application Japan, Apr. 14, 1971, 46/23107
Int. Cl. H04b *13/00*
U.S. Cl. 340—10 **2 Claims**



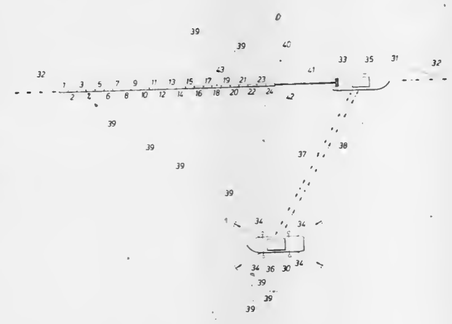
An acoustic transducer which includes a piezo-electric ceramic element, one surface of which is exposed while the other surface is enclosed by a housing to form a static water pressure chamber, an opening in said enclosure and a resonant mechanical filter coupled to said opening.

3,786,408

METHOD AND APPARATUS FOR OFFSHORE GEOPHYSICAL EXPLORATION WITH LOW POWER SEISMIC SOURCE

William David Jenkinson, and Paul Anthony Bryant Marke, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

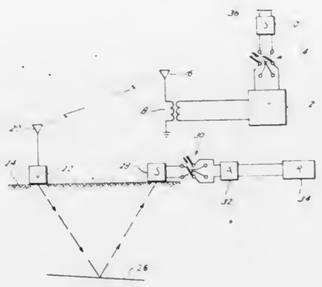
Filed Jan. 3, 1972, Ser. No. 214,880
Int. Cl. G01v *1/00, 1/24*
U.S. Cl. 340—15.5 MC **14 Claims**



This invention relates to novel methods and apparatus for making offshore geophysical surveys with a low power seismic source. A first vessel, which is provided with air guns or the like, is anchored at a predetermined location, while a second vessel tows a streamer cable along a preselected course past the first vessel. The second vessel transmits command signals to cause the air guns on the first vessel to be fired at appropriate intervals, whereby a sequence of seismic pulses is refracted along a common path on the course, and whereby each of these pulses is detected by succeeding receiver stations of the cable. All of the pulses detected at a common surface point are gathered for each of the various common surface points along the course, and are then stacked to provide a

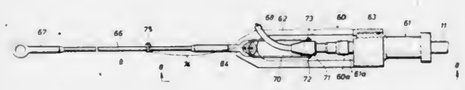
single pulse of greatly improved signal-to-noise ratio for each common surface point. The stacked signals may then be arranged to provide a refraction profile of the course, in order to define traps and the like in subterranean earth formations.

3,786,409
SWEEP SIGNAL SEISMIC EXPLORATION
Sam A. Sorkin, Houston, Tex., assignor to Teledyne Exploration Company, Houston, Tex.
Filed Aug. 7, 1972, Ser. No. 278,297
Int. Cl. G01v 1/14, 1/22
U.S. Cl. 340—15.5 CC **13 Claims**



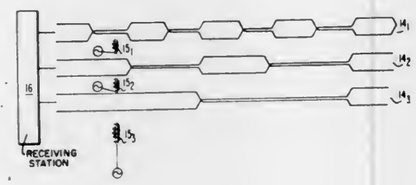
A series of sweep signals is generated at one or more locations and transmitted into the earth. The reflected signals from subsurface earth formations are composited and a correlogram produced by cross-correlation with the transmitted signal. To reduce the correlogram tail produced by harmonic distortion in the received signals, a series of sweeps, preferably even numbered, is recorded, alternate sweeps being recorded in the normal manner and the other sweeps being recorded using reversed polarity of the sweeps and reversed polarity of the seismometer input to the seismic amplifier, while maintaining the same signal amplitude during all sweeps, and then compositing and cross-correlating in the usual manner.

3,786,410
SEISMIC CABLE ASSEMBLY
Gerald D. Hazelhurst, Houston, Tex., assignor to Mark Products, Inc., Houston, Tex.
Filed Dec. 27, 1971, Ser. No. 212,267
Int. Cl. G01v 1/16
U.S. Cl. 340—17 **4 Claims**



The seismic cable assembly disclosed is made up of a plurality of lengths of cable with each link having a plurality of electrical conductors and a tensile member extending throughout its length. The lengths of cable are strung end to end and the adjacent ends of each of the lengths are connected together by connectors that connect the tensile members of adjacent cable lengths. In this way, the entire cable assembly can be moved from position to position by dragging the assembly along the ground with the load imposed on the cable by the friction between the ground, and the cable being transmitted to the towing vehicle through the tensile members. The cable assembly is connected to the towing vehicle by a connector assembly that includes a shear pin designed to fail when the force required to move the cable assembly reaches a predetermiend amount. This protects the cable from damage should it hang up as it is being dragged along the ground. The geophones and the connectors between the lengths of cable are enclosed in housings to provide smooth surfaces for sliding across the ground, and in the case of the geophones, to add weight to the geophone to improve its contact with the ground.

3,786,411
DEVICE FOR DETECTING LOCATION OF A MOVABLE BODY
Noritaka Kurauchi; Susumu Hiraoka; Kenichi Yoshida, and Masaki Ohmori, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Nov. 26, 1971, Ser. No. 202,337
Claims priority, application Japan, Nov. 26, 1970, 45/104586
Int. Cl. G08g 1/12
U.S. Cl. 340—23 **5 Claims**

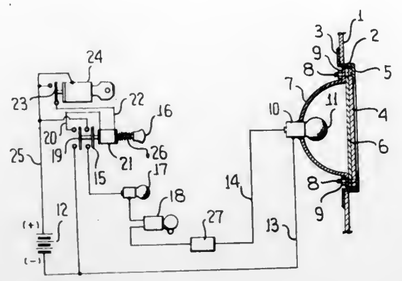


A device for detecting the location of a moving body comprising an antenna or antennae provided on the moving body. A fundamental and a plurality of other conductor pairs extend in parallel along the path of the moving body. Each of the conductor pairs includes portions in which the coupling between the conductor pair and the antenna is changed periodically. The changing period of any one of the other conductor pairs is selected as an integer fraction of the changing period of the fundamental conductor pair, so that any region along the length of the path is coded in accordance with a binary code. A ground station is coupled with all of the conductor pairs, whereby the location of the moving body in whatever coded region can be detected from the ground station or the moving body when an electric signal is transmitted from the antenna, or when one or a plurality of signals are supplied from the ground station to the conductor pairs.

3,786,412
PARKING INDICATORS FOR AUTOMOBILES
John J. Capriotti, 632 Snug Harbor Dr., Boynton Beach, Fla.
Filed Jan. 10, 1972, Ser. No. 216,407
Int. Cl. B60q 1/48
U.S. Cl. 340—54 **4 Claims**

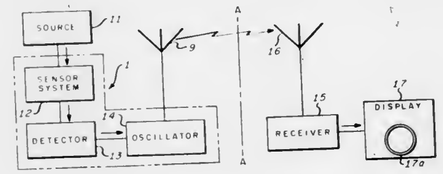
A safety parking signalling device for automobiles to enable the driver to advise drivers of vehicles to his rear of his intention to park. The device comprises a light compartment mounted at the rear of the vehicle and covered at its rear by a translucent sheet bearing "parking" indicia. The circuit to the lamps is controlled by a manual "on-off" switch mounted conveniently to the driver. A "flasher" unit and also preferably visible and/or audible indicating means, such as a lamp and/or buzzer respectively, are connected in series in the circuit to the lamps. Actuation of said switch to "on" position also energizes a separate second circuit having means therein to hold

said lamp switch in on position until a switch in said second holding circuit is opened by performance of some operation,



such as turning of the ignition, normally effected on completion of a parking maneuver.

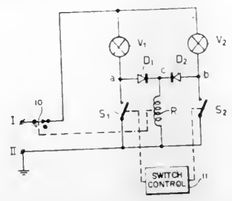
3,786,413
VEHICLE TIRE CONDITION MONITOR SYSTEM
Hugh B. Matthews, Acton; Gerald F. Ross, Lexington, and Kenneth W. Robbins, Wilmington, all of Mass., assignors to Sperry Rand Corporation, New York, N.Y.
Filed Jan. 13, 1972, Ser. No. 217,608
Int. Cl. B60c 23/02
U.S. Cl. 340—58 **19 Claims**



The condition monitor provides information as to the state of a monitored dual state device having, for example, possible satisfactory and unsatisfactory conditions. Use is made of a passive radio transducer element powered within a moving device by a resonant mechanical system excited primarily by cyclic accelerations. In the unsatisfactory condition of the monitored device, the passive transducer emits a characteristic signal which is detected at a stationary station for the operation of a suitable alarm or remedial control. In the normal or satisfactory condition of the monitored device, the passive transducer is dormant.

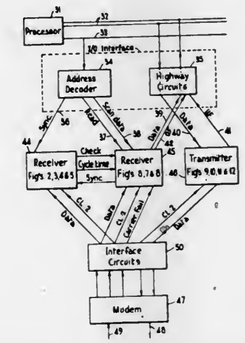
3,786,414
FAIL SAFE CONTROL CIRCUIT FOR TRAFFIC LIGHTS
Jean Dressayre, Orsay-Essones, France, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 776,467, Nov. 18, 1968, abandoned. This application Mar. 19, 1971, Ser. No. 126,338
Int. Cl. G08g 1/097
U.S. Cl. 340—78 **9 Claims**

A circuit for preventing the simultaneous energization of first and second signal lamps includes first and second relay contacts connected in series with said first and second lamps respectively, across a source of voltage. A pair of diodes are connected in series opposition between the common junction points of the lamps and contacts. A high-ohmic relay coil is



connected between the junction of the diodes and one terminal of the voltage source.

3,786,415
DATA TERMINALS
Brian Harry Phillips, Crick, and Robert Gary Young, Kenilworth, both of England, assignors to The General Electric Company, London, England
Filed Nov. 14, 1972, Ser. No. 306,314
Claims priority, application Great Britain, Nov. 17, 1973, 53380/71
Int. Cl. H04l 7/00
U.S. Cl. 340—146.1 D **12 Claims**

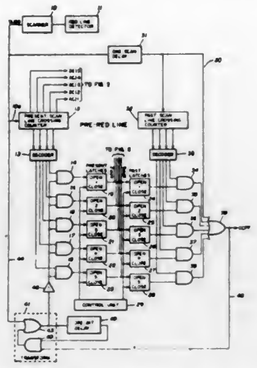


A data terminal for a digital signalling system is arranged to receive incoming data transmitted in serial form and to divide the data into multi-digit signal units for supplying to a processor. Receipt of the data is controlled by a timing generator having a cycle of time slots equal to the number of digits in a signal unit. The validity of each signal unit is checked, using check bits forming part of each unit, and a check fail indication is passed to the processor if an invalid unit is detected. If the processor receives a succession of check fail indications, it initiates resynchronisation of the terminal, by resetting the timing generator. For this purpose, the terminal has a pattern recognition circuit for extracting an indication of synchronisation from the incoming data.

3,786,416
OPTICAL CHARACTER IDENTIFICATION
Chetan Vijaysinh Bhimani, Arlington, Va., assignor to Recognition Equipment, Incorporated, Irving, Tex.
Filed Sept. 28, 1971, Ser. No. 184,537
Int. Cl. G06k 9/12
U.S. Cl. 340—146.3 AC **11 Claims**

Printed characters, superimposed upon a contrasting center bar extending through a character field, are identified by scanning each character along a plurality of vertically aligned,

laterally spaced paths to generate character signals dependent upon encountering character portions. An output signal is produced in response to the character signals and control signals. In a preferred mode for alphanumeric characters, white signals and black signals are generated, which are representative of white and black fields at each of a plurality of points along each scan path. Control signals are generated



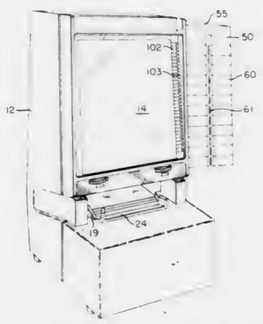
in response to a scan encountering the center bar. The character portions on either side of the center bar are scanned separately and different techniques are used to analyze the character information obtained to generate enclosed point signals and nonenclosed point signals. In both data processing techniques the enclosed point signals for a plurality of separate zones of the character field are compared with a code to produce character identification signals.

3,786,417

SCHEME FOR MAPPING MECHANICAL TRANSLATION TO A RELATIVELY ARBITRARY INDEX TABLE

Carl O. Carlson, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed May 8, 1972, Ser. No. 251,122
Int. Cl. G06k *7/10*
U.S. Cl. 340—147 R **23 Claims**



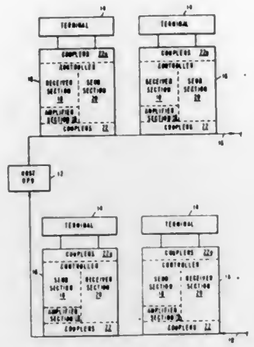
Apparatus for registering or indexing in sequential manner the position of microimages onto a table of human readable information, wherein optical fibers carry light from a masked source to an index board for rapidly obtaining the desired information. The source of light is coupled to the microimage carrier in an arrangement wherein movement of the carrier positions the light source to pick up desired points or locations and thereby project the light through the optical fibers to the index board to indicate relative positions of the microimages.

3,786,418

MULTI-TERMINAL DIGITAL SIGNAL COMMUNICATION APPARATUS

Howard H. Nick, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 13, 1972, Ser. No. 314,894
Int. Cl. H04b *1/58*
U.S. Cl. 340—147 R **11 Claims**



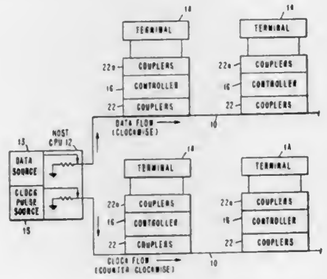
A multi-terminal digital signal communication apparatus is provided which includes a continuous medium for conveying signals such as a transmission line. At least one signal sending section is provided for generating and propagating signals along the medium. A first directional coupler is provided associated with the transmission line for obtaining branch signals without interrupting the conveyance of the signals along the transmission line. The branch signals are amplified and recoupled to the main transmission line by a second directional coupler. These signals are propagated in the direction of conveyance of the signals along the medium and are superimposed on the signals giving rise to the branch signals. An output signal to the terminal may be obtained through a directional coupler in response to the amplified branch signal.

3,786,419

SYNCHRONIZING CLOCK SYSTEM FOR A MULTI-TERMINAL COMMUNICATION APPARATUS

Howard H. Nick, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,916
Int. Cl. H04l *15/00*; **H04q** *5/06*
U.S. Cl. 340—147 SY **9 Claims**



A synchronizing clock system is provided for a multi-terminal communication apparatus having coupling connecting devices and having at least one source of information signals. The information signals are propagated along a transmission medium in one direction. The information signals on the main

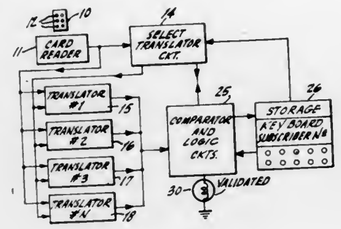
transmission medium are coupled from and to the transmission medium. Clock signals are provided which propagate along the transmission medium in the opposite direction to the information signals. These clock signals are coupled from the transmission medium to provide the synchronization for the system.

3,786,420

VALIDATION SYSTEMS FOR CREDIT CARD OR THE LIKE

Leon Stambler, 534 Longacre Ave., Woodmere, N.Y.

Filed Feb. 17, 1972, Ser. No. 227,146
Int. Cl. G06k *9/00*; **H04q** *9/00*
U.S. Cl. 340—149 A **10 Claims**



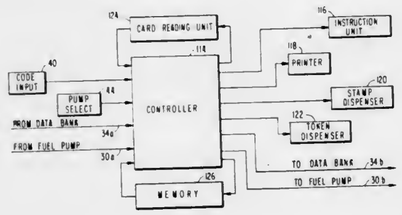
A credit card validation system employs apparatus which serves to decode validation information contained on the card by means selecting one of a plurality of translators selected at different intervals according to a predetermined format data also contained on the credit card. This uniquely translated information is compared with a secret subscriber number, memorized by the credit card holder, and obtained by him in complete privacy when his account is opened.

3,786,421

AUTOMATED DISPENSING SYSTEM

Wolfgang J. Wostl, South Holland, and Bobby G. Gower, Park Forest, both of Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed May 25, 1972, Ser. No. 256,748
Int. Cl. G06k *7/08*
U.S. Cl. 340—149 A **18 Claims**



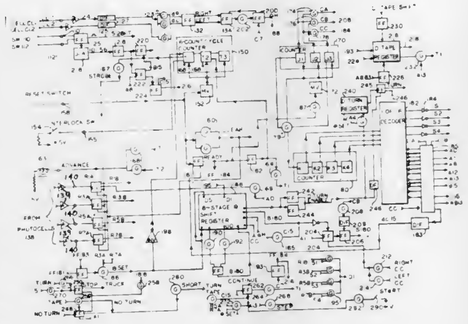
An automated article dispensing system, such as a vehicle service station, capable of dispensing goods in response to activation by an authorized holder of a credit card, and not requiring an attendant. The customer inserts the credit card into a control console and the identifying indicia from the credit card are checked to ensure they correspond to a valid credit account. If so, the control console is enabled to permit the customer to select the goods desired. If desired, the system can also require the customer to insert a personal identification code which is checked to verify that the customer is an authorized user of the credit account. The sale price and quantity are applied by the control console to a data bank for billing and inventory. If the credit account is invalid, the credit card is captured by the control console. If the credit account is questionable, the credit card is returned without enabling the selection of goods. Means are included for ensuring that the customer does not forget to pick up his credit card and receipt. Means are also included to provide premiums such as trading stamps and premium tokens.

3,786,422

SYSTEM FOR DETERMINATION OF DEVIATIONS OF A VEHICLE FROM A PRESCRIBED ROUTE

Samuel Lubkin, deceased, late of Lauderdale Lake, Fla. (by Frances Lubkin, administratrix), assignor to Rel-Reeves Inc., Boynton Beach, Fla.

Filed Jan. 31, 1973, Ser. No. 328,930
Int. Cl. B60r *25/00*
U.S. Cl. 340—149 R **10 Claims**



A system for determining deviations of a vehicle from a prescribed route on a tape advanced in steps through scanning means in a tape reader to generate first data signals representing prescribed turning points in the route. A heading means has associated photoelectric means to generate second data signals representing angular changes in heading of the vehicle and a odometer has associated switch means for generating third data signals representing distances travelled between turns and around turns. Digital logic circuitry receptive to the first, second and third data signals includes digital counting, register and decoding means for comparing the second and third data signals with the first data signals and for generating signals indicative of coincidence and noncoincidence of the compared signals.

3,786,423

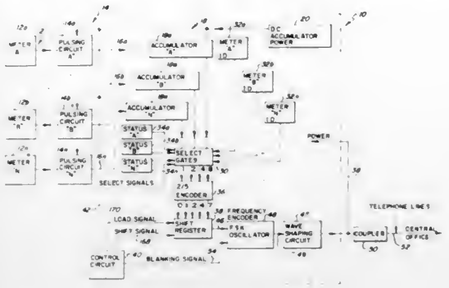
APPARATUS FOR CUMULATIVELY STORING AND REMOTELY READING A METER

Dennis J. Martell, West Chicago, Ill., assignor to Northern Illinois Gas Company, Aurora, Ill.

Filed Jan. 24, 1972, Ser. No. 220,015
Int. Cl. G08c *19/16*
U.S. Cl. 340—151 **15 Claims**

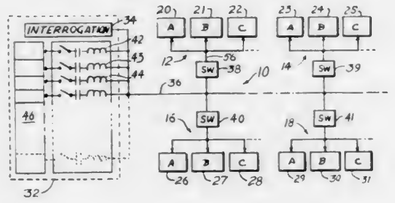
There is disclosed a method and an apparatus for remotely reading one or more meters containing information which are located in a station remote from a central location. The apparatus comprises a means for producing a plurality of information signals indicative of the information being registered on the meter; a means for accumulating the information signals; a means for interrogating the accumulator means wherein a plurality of individual output data bits, each of which are representative of one of the digits of information registered on the meter, are provided; a means for converting these output data bits to a frequency coded signal wherein the frequency coded signal is representative of the magnitude of

each of the output data bits; and a means for sequentially transmitting the frequency coded signals to the central office



location, thereby enabling each of the digits of information registered on the meter to be read.

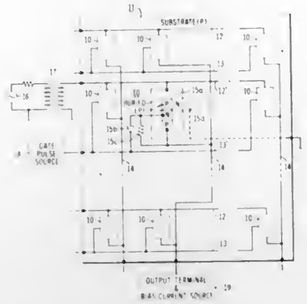
3,786,424
COMMUNICATIONS SYSTEM FOR DATA TRANSMISSION AND RETRIEVAL
David S. McVoy, and Richard G. Reynolds, both of Sarasota, Fla., assignors to Coaxial Scientific Corporation, Sarasota, Fla.
Filed Feb. 22, 1972, Ser. No. 227,752
Int. Cl. H04h 9/00
U.S. Cl. 340—151 **14 Claims**



A communications system, such as a cable television system, embodies an arrangement for data transmission which utilizes a combination of time and frequency division. Groups of data transmitters are connected to data retrieval circuitry through switch circuits which are selectively addressed by a predetermined code to provide communication between all of the data transmitters of the group and data retrieval circuitry. The transmission of data from transmitters in the other groups are blocked until the appropriate address code is sent to the associated switch circuit. Circuitry utilizing a synchronous or non-synchronous clock is provided for generating a message marker along with the data pulse train.

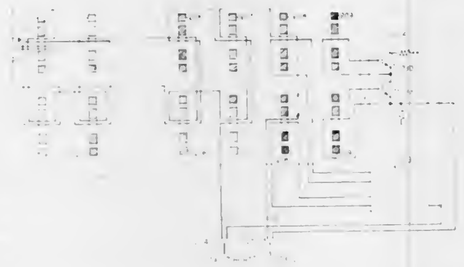
3,786,425
INTEGRATED CIRCUIT SWITCHING NETWORK PROVIDING CROSSPOINT GAIN
Irvine Keers Hetherington, St. Charles, Ill.; Robert Leonard Pritchett, Bath, Pa., and Robert Kenneth York, Naperville, Ill., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Dec. 18, 1972, Ser. No. 316,284
Int. Cl. H011 11/00
U.S. Cl. 340—166 R **12 Claims**

An integrated circuit thyristor switching network in which a parasitic pnp transistor effect, normally encountered as a result of the junction isolation employed, provides a crosspoint gain rather than the loss previously presented by the thyristor. When a thyristor crosspoint is switched to its on



state, the effective pnp transistor is biased to its active region and draws current from the negatively biased substrate to augment the signals being applied to a selected network path.

3,786,426
DATA CHARACTER DECODER WITH PROVISION FOR DECODING BEFORE ALL CHARACTER ELEMENTS ARE RECEIVED
Scott McDowell Fitch, Holmdel; Alfonso Vincent Gallina; Otto Frederick Gerkensmeier, both of Freehold, and Peter Stephen Warwick, Middletown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Division of Ser. No. 641,954, May 29, 1967,. This application Aug. 24, 1970, Ser. No. 66,623
Int. Cl. G06f 7/00; G11c 5/12, 19/00
U.S. Cl. 340—172.5 **2 Claims**

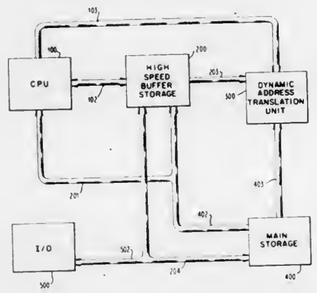


A transfluxor magnetic core dual rail shift register arranged for storing data character elements. Decoding circuits examine the stored data elements and provide a decoding function after all of the elements of a character have been accepted and, alternatively, after most but not all of the character elements have been received.

3,786,427
DYNAMIC ADDRESS TRANSLATION REVERSED
George E. Schmidt, and Joseph F. Schnell, both of Lake Katrine, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 29, 1971, Ser. No. 157,912
Int. Cl. G06f 9/20
U.S. Cl. 340—172.5 **2 Claims**

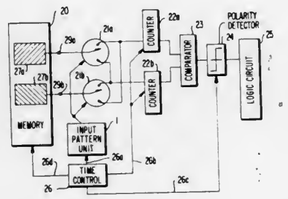
In a virtual storage system, virtual storage may be divided into segments with each segment being divided into pages and each page containing a predetermined number of bytes. A storage control system is provided including a main storage

unit, a high speed buffer storage unit operating in a virtual address mode and a dynamic address translation unit for controlling virtual page address to real page address translation including an associative storage for storing a plurality of virtual page addresses and associated real page addresses. A processing unit when making a storage request to the storage control system provides a virtual address which includes a virtual page portion containing a segment and page field and a byte portion. An I/O channel when making a storage request to the storage control system provides a real address which includes a real page portion and a byte portion. The high-speed buffer contains an address storage portion for storing virtual page addresses and a corresponding data storage portion for storing blocks of data. When a processing unit makes a request to the storage control system, the virtual page portion of the virtual address is compared with the virtual page portions stored in the buffer to determine whether the buffer may be utilized for data transmission with the processing unit. When an I/O channel makes a storage request to the storage

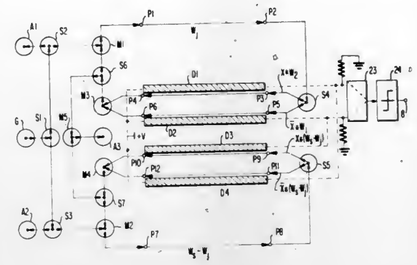


control system the real page address is compared with the real page addresses stored in the translation unit and when a comparison is achieved a virtual page address corresponding to the real page address is provided to the buffer for further determination as to whether the buffer may be utilized for data transmission with the I/O channel. The storage control system also includes logic for controlling the transfer of address and data information between the processing unit, the I/O channel, the high-speed buffer unit and the main storage unit.

3,786,428
PATTERN CLASSIFICATION EQUIPMENT
Kousuke Takahashi, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan
Filed June 1, 1972, Ser. No. 258,693
Claims priority, application Japan, June 2, 1971, 46-38802
Int. Cl. G06k 9/10
U.S. Cl. 340—172.5 **12 Claims**

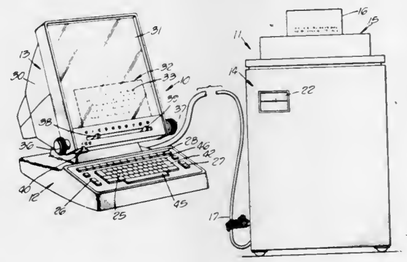


A pattern classification system responds to an n-dimensional binary pattern and classifies the pattern in accordance with previously stored weighting coefficients. The n-dimensional pattern is multiplied by positive and negative weighting coefficients to form a sum which is a measure of the similarity



of the pattern to a known pattern for which the weighting coefficients are selected. Magnetic domain storage and logic circuits are used to store the weighting coefficients and form the sum.

3,786,429
ELECTRONIC TEXT DISPLAY SYSTEM WHICH SIMULATES A TYPEWRITER
Arnold J. Goldman, Encino; Stephen L. Kurtin, and Carver A. Mead, both of Pasadena, all of Calif., assignors to Lexitron Corporation, Burbank, Calif.
Filed July 12, 1971, Ser. No. 161,554
Int. Cl. G06f 3/10, 3/14
U.S. Cl. 340—172.5 **5 Claims**

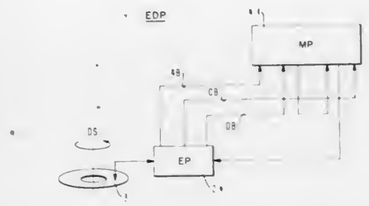


There is disclosed herein an electronic writer system including an operator station and desk-side console. The operator station includes a keyboard and a visual display for typed text, and the console includes suitable control and memory means and a print-out device. The system enables textual material to be entered via the keyboard and to be displayed in a full page format on the display, as well as to be stored in a memory. The system provides editing capabilities for changing, editing and manipulating the text, and a hard copy of the displayed text can be typed out by a printer upon command. The keyboard and display are constructed and organized to simulate the operational features of a conventional electric typewriter. Special equipment includes simulated platen knobs, margin indicators, space and back space keys, and a vertical spacing lever similar in use to those found on conventional electric typewriters, along with electronic subsystems acting in cooperation therewith to enable display of a page outline, page movement on the display, setting of margins for the typed text, controlled movement of a position indicator or cursor, and so forth.

3,786,430
DATA PROCESSING SYSTEM INCLUDING A SMALL AUXILIARY PROCESSOR FOR OVERCOMING THE EFFECTS OF FAULTY HARDWARE

Johann Hajdu; Guenter Knauft, both of Boeblingen; Petar Skuin, Magstadt, and Edwin Vogt, Boeblingen, all of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 15, 1971, Ser. No. 198,881
Int. Cl. G06f *15/16, 15/20, 11/06*
U.S. Cl. 340—172.5 2 Claims



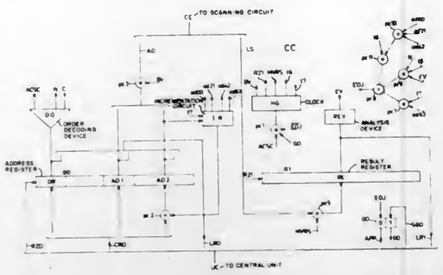
An electronic data processing system comprising a relatively large main processor, a relatively small auxiliary processor, and a bus system linking both of said processors. The auxiliary processor is linked, via the bus system, to various portions of the main processor including data registers, error checking circuits, and function decoders. If one of the error checking circuits within the main processor detects a machine malfunction, the auxiliary processor will be able, via the bus system, to determine the portion of the main processor in which the malfunction occurred (by examining the output of the function tected the malfunction), and to determine the function which the main processor was attempting to perform when the malfunction occurred (by examining the output of the function decoder). The auxiliary processor will then, also via the bus system, address a data register which furnished input data to the failing portion of the main processor and extract the data therefrom; the auxiliary processor will manipulate the data (in accordance with the function defined by the function decoder in the main processor) to produce the result that would have been produced if the malfunction had not occurred (thereby, in effect, simulating the malfunctioning portion of the main processor); and, again via the bus system, the auxiliary processor will transmit the result to a data register within the main processor which accepts output data from said failing portion. The main processor will then be restarted to continue processing.

3,786,431
ELECTRONIC SCANNER CHECKING PROCESS AND SYSTEM

Claude Bouchet, La Verenne-St.-Hilarie, and Vittorio Ziliotto, Versailles, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Mar. 6, 1972, Ser. No. 232,098
Claims priority, application France, Mar. 5, 1971, 71.7696
Int. Cl. G06f *11/00*
U.S. Cl. 340—172.5 5 Claims

An electronic scanner is started by a central processor to asynchronously scan a number of lines. When the scanner detects a calling line, it stops and calls the processor. The processor then starts the scanner again to operate till it detects another calling line or reaches the last line to be scanned. It is possible with such a system that the scanner will not operate properly and the central processor will not be informed of this

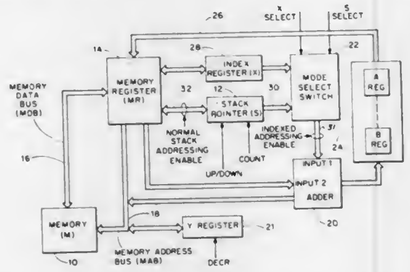


fact. The invention provides for check scanning, without event detection, but with a stop at specified addresses.

3,786,432
PUSH-POP MEMORY STACK HAVING REACH DOWN MODE AND IMPROVED MEANS FOR PROCESSING DOUBLE-WORD ITEMS

William E. Woods, Natick, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 20, 1972, Ser. No. 264,639
Int. Cl. G06f *9/20*
U.S. Cl. 340—172.5 12 Claims



A first in-last out (i.e. push-pop, push-down, or last in-first out) memory stack is implemented with means for reaching down into the stack without pushing or popping thereby allowing access to information which would not otherwise be immediately available. The stack also features improved processing of double-word items by use of unique double push and double pop algorithms.

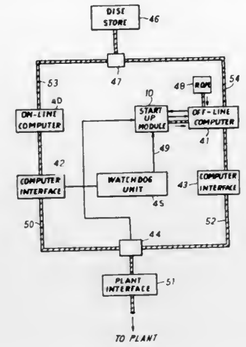
3,786,433
COMPUTER CONTROL ARRANGEMENTS

John Percy William Notley, and James Simon Noble, both of Luton, England, assignors to George Kent Limited, Luton, England

Filed Sept. 25, 1972, Ser. No. 291,527
Claims priority, application Great Britain, Sept. 29, 1971, 45430/71
Int. Cl. G06f *15/16, 15/46*
U.S. Cl. 340—172.5 12 Claims

An electrical circuit for causing a computer to begin operating in accordance with a predetermined program. The circuit comprises a sequence signal generator and a store for a start address of the program. When an input signal is applied to the circuit, the sequence signal generator provides three output signals, a first signal for stopping the computer in the event that it is already operating in accordance with another program, a second signal for causing a start address of the

predetermined program to be loaded into a memory address register of the computer, and a third signal for re-starting the computer. The circuit can be used in a dual computer system wherein malfunction of a normally on-line computer causes

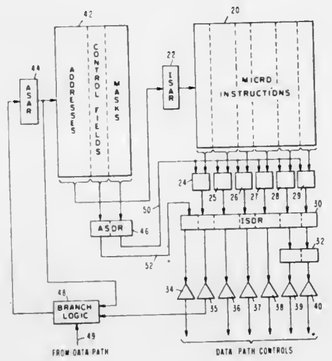


generation of an input signal for triggering the sequence signal generator to bring a normally off-line computer into operation. Alternatively, the circuit can be used for controlling a system having a single computer from a remote location.

3,786,434
FULL CAPACITY SMALL SIZE MICROPROGRAMMED CONTROL UNIT

Harold E. Frye, Hyde Park, and Robert F. McMahon, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1972, Ser. No. 316,792
Int. Cl. G06f *9/16, 9/00*
U.S. Cl. 340—172.5 8 Claims

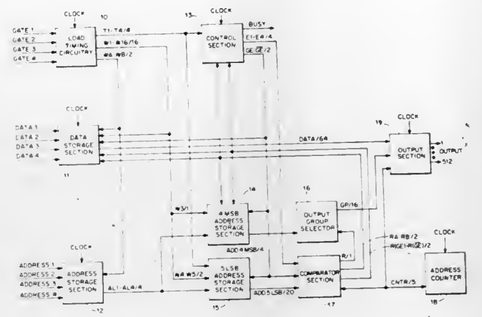


A microprogrammed control unit comprising an instruction memory for storing microinstructions with no repetitions and an address memory for storing the addresses of microinstructions which make up a microprogram. Within the instruction memory, micro-orders are densely stored. Each time that a word is accessed from the instruction storage, a mask which is stored along with the address in the address storage is utilized to select appropriate micro-orders to produce a desired microinstruction. Through the use of the mask, and associated gates, each word in the instruction storage is capable of supplying a plurality of microinstructions to the system.

3,786,435
DATA TRANSFER APPARATUS

Frederick A. Sherman, Levittown, Pa., assignor to GTE Information Systems Incorporated, Stamford, Conn.

Filed Dec. 29, 1972, Ser. No. 319,508
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 12 Claims



Apparatus for transferring messages received at any of four inputs to any of 512 outputs. Messages of 64 bits each may be present on any of four data input lines simultaneously. A 9-bit address identifying an output line is provided with each message on an associated address line. The 64 data bits of each message received during a 64-bit message input period are stored in a memory array. The four most significant bits (MSB) of each address are stored in one memory array and the five least significant bits (LSB) of each address are stored in another memory array. During the next 64-bit period the five LSB's of the stored addresses are compared with the count of a 5-bit (32 count) counter. When a comparison occurs, the appropriate four MSB's of the address are read out of the memory array and the 64 data bits are also read out of the memory. The four MSB's of the address are decoded to select the proper one of sixteen groups of of 32 output lines to which the data is to be directed. The 64 bits of data are received in parallel and accepted by the proper output group. Under control of the 5-bit counter, the output group converts the data from parallel to serial form and demultiplexes the serial data to direct it to the proper one of the 32 output lines of the group. The apparatus includes a second set of data and address memories so that a second set of messages can be received and stored while the information in the first set is being read out.

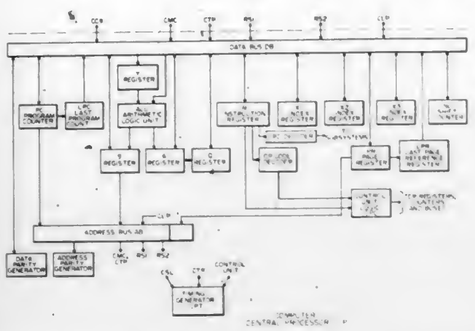
3,786,436
MEMORY EXPANSION ARRANGEMENT IN A CENTRAL PROCESSOR

Paul Z. Zelinski, Elmhurst, and Leo V. Jones, Chicago, both of Ill., assignors to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed Mar. 14, 1973, Ser. No. 341,226
Int. Cl. G06f *9/20*
U.S. Cl. 340—172.5 12 Claims

A page register in the central processor comprises 3N bistable devices, N each for an instruction field, a branch field, and a data field, to extend addresses by N bits beyond the capacity of the operand portion of the format of instructions. A "load page register" instruction uses the operand to designate load the branch field and/or the data field, or transfer the instruction field to the data field; and also supplies the values for loading the branch and/or data field. A "last page reference" register is also provided to which the instruction and data

fields are transferred from the page register during execution of each instruction, while the address in a program counter is



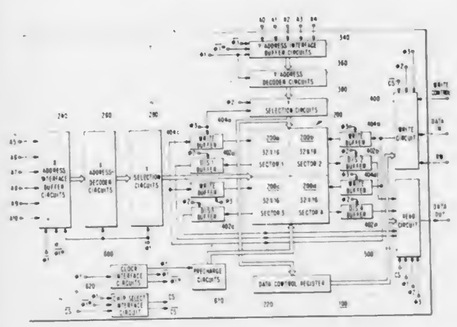
transferred to a "last program count" register, to be stored in memory when a "branch and store program" linkage instruction is executed.

3,786,437

RANDOM ACCESS MEMORY SYSTEM UTILIZING AN INVERTING CELL CONCEPT

Brian F. Croxon, Peabody, and Laurence F. Abbott, Needham, both of Mass., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jan. 3, 1972, Ser. No. 215,976
Int. Cl. G11c *13/00*
U.S. Cl. 340—173 DR **39 Claims**



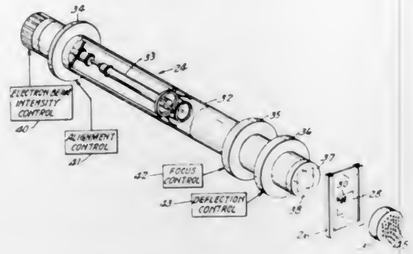
A non-destructive read MOS memory system associates a different cell of an additional group of storage cells with a different column grouping of the memory cells of a two dimensional array. Each cell of the additional group stores indications as to the number of times the cell contents of its associated column has been selected during a read or write cycle of operation. Each time a column is selected during a read cycle of operation, the contents of all of the cells of a selected column are inverted and written back into the cell automatically refreshing the column cells. To provide read out of the correct information to an utilization device a signal representative of the content of the selected cell within a column is logically combined with a signal representative of the state of its associated status cell. Similarly, to ensure that the correct data is written into a selected cell, the input data signals from the utilization device are logically combined with signals representative of the state of the status cell associated with the column.

3,786,438

OPTICAL READ-ONLY MEMORY SYSTEM INCLUDING A CATHODE RAY TUBE

James R. Packard, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed June 26, 1972, Ser. No. 266,299
Int. Cl. G11c *11/30, 13/04*
U.S. Cl. 340—173 R **5 Claims**



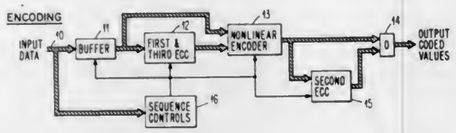
A system for optically reading in parallel a plurality of bits contained in a predetermined pattern in a data array on a planar data mask containing a plurality of data arrays. A conical beam of coherent light produced from a selected location on a planar laser material screen of a cathode ray tube is addressed to a given data array, thereby causing an image representative of said given data array to be projected onto a detector array containing a plurality of detectors in the same predetermined pattern. The planar laser material screen is positioned parallel to the planar datamask. The addressed given data array is the data array positioned within the cone of light and in an optical path including the detector array and the selected light emitting location on the screen.

3,786,439

ERROR DETECTION SYSTEMS

Earl G. McDonald, Boulder, Colo., and Arvind M. Patel, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,984
Int. Cl. H03k *13/34*; **H04l** *1/10*; **G11b** *27/36*
U.S. Cl. 340—146.1 AL **26 Claims**



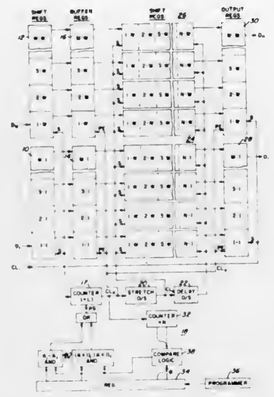
Error detection is enhanced by using multiple independent error codes combined with nonlinear changes in the data field as applied to different error codes. Such nonlinear permutations increase the probability of detecting errors thereby maximizing the utilization of check bit redundancies. In a magnetic tape subsystem, error detection and correction can be enhanced by scrambling track-to-error code relationships between a plurality of independent codes. Tracks with the highest probability of errors, i.e., the outside tracks on a ½ inch tape, for example, are connected to nonadjacent inputs of error correction code apparatus. Additionally, the input-to-track relationship of various code apparatus can be scrambled, either permanently or during a tape transducing operation. The above permutations provide best advantage with selected error correction codes and systems having identifiable probability of error patterns.

3,786,440

DIGITAL DATA STORAGE WITH EQUAL INPUT AND OUTPUT DATA RATE, BUT VARIABLE MEMORY SHIFT RATE

Gerald L. Toyen, San Diego, Calif., assignor to General Dynamics Corp., San Diego, Calif.

Filed Jan. 26, 1973, Ser. No. 326,733
Int. Cl. G11c *19/00*
U.S. Cl. 340—173 R **18 Claims**



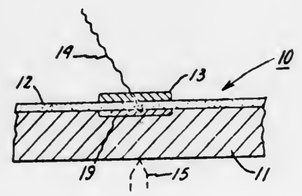
The storage capacity or length of a memory consisting of shift registers which may only be available in certain discrete bit lengths is controlled or programmed by shifting data from each stage of an input serial to parallel shift register into different ones of the memory shift registers and then transferring the data from the output stages of the memory registers into an output parallel to serial shift register. The ratio, between the number of clock pulses which shift the data into and out of the input and output registers and number of clock pulses which shift the data in the memory registers, is changed so as to alter the fan out of data from the input shift register into the memory registers. The storage capacity or length of the memory can be changed or programmed during storage operations so as to have any length up to and including the storage capacity of all of the memory registers and any additional buffer registers which may be associated therewith.

3,786,441

METHOD AND DEVICE FOR STORING INFORMATION AND PROVIDING AN ELECTRIC READOUT

William E. Engeler, Scotia, and Marvin Garfinkel, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 792,569, Jan. 21, 1969. This application Nov. 24, 1971, Ser. No. 203,110
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **5 Claims**



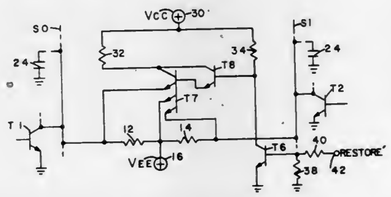
An information storing method and a storing device using a conductor-insulator-semiconductor (CIS) structure as the storage element is disclosed within. The CIS structure is initially charged to a predetermined voltage, forming a depletion region within the semiconductor beneath the conductor. Minority carriers are controllably generated within the semiconductor in proportional response to an information-bearing signal such as a specific amount of electromagnetic radiation flux. The generated minority carriers move to and are stored at the surface of the semiconductor beneath the conductor due to the electric field existing in the depletion region, thus changing the predetermined voltage. The change in voltage which may be determined is a measure of the number of generated minority carriers and, therefore, is a measure of the integrated electromagnetic radiation flux and constitutes the stored information.

3,786,442

RAPID RECOVERY CIRCUIT FOR GAPACITIVELY LOADED BIT LINES

Stephen B. Alexander, Poughkeepsie, N.Y.; Richard W. Bryant, Santa Clara, Calif.; Robert J. Lipp, Fishkill, and George K. Tu, Wappingers Falls, both of N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.

Filed Feb. 24, 1972, Ser. No. 229,132
Int. Cl. G11c *7/00*
U.S. Cl. 340—173 R **1 Claim**



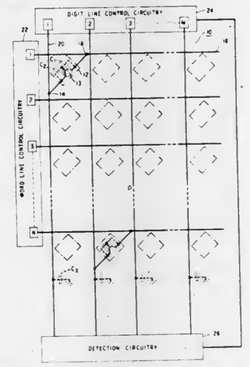
There is disclosed a circuit for achieving rapid recovery of he capacitively loaded bit lines of a semiconductor memory. Transistors are provided for driving the lines following a write cycle. The active driving of the bit lines forces them to the same potential so that a read cycle may begin very soon after the termination of a write cycle.

3,786,443

NONDESTRUGTIVE READ SEMICONDUCTOR MEMORY UTILIZING AVALANCHE BREAKDOWN

Jerry Mar, Scotch Plains, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 10, 1972, Ser. No. 270,504
Int. Cl. G11c *11/36, 11/40*
U.S. Cl. 340—173 R **9 Claims**



A semiconductor memory system contains an array of two-terminal memory cells which each comprise a single junction transistor having an uncontacted base. Bit information is written into a selected cell by applying appropriate voltage

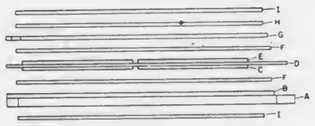
waveforms to the collector and emitter of the transistor to set the potential of the base to values which represent, respectively, either a "1" and a "0". Readout is accomplished by applying a voltage waveform containing a positive and a negative pulse to the collector of the transistor so as to first cause a change in the base potential and a corresponding change in the emitter potential, which is indicative of the information stored in the transistor cell, and then to cause the stored information to be rewritten into the cell. The readout operation is nondestructive and additionally refreshes stored information.

3,786,444

MAGNETIC THIN FILM MEMORY PACKAGING DESIGN

Larry D. Sly, Minneapolis, Minn., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 27, 1971, Ser. No. 173,511
Int. Cl. G11c *11/14, 5/04*
U.S. Cl. 340—174 TF **1 Claim**



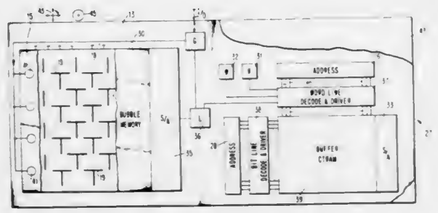
A memory store unit is made by aligning film core areas and bonding them in pairs on either side of a single piece printed wire overlay. Top and bottom insulators are aligned and tacked to a backup board. An adhesive coated top ground plane is applied to the top insulator and the glass substrates. An adhesive epoxy cover is applied to the top ground plane. The top and bottom magnetic shields are applied to the cover and backup board, and the entire package is then subjected to compression and heat to adhere the laminations together into a flat dense package.

3,786,445

INTEGRATED MAGNETIC BUBBLE AND SEMICONDUCTOR DEVICE

Irving T. Ho, and Jacob Riseman, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 3, 1972, Ser. No. 268,316
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **3 Claims**



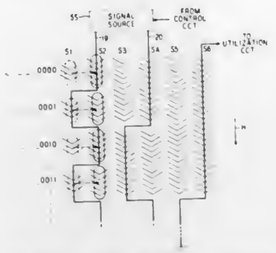
A magnetic bubble device and its associated read, write, propagation, sensing, addressing, driving, timing and control elements are combined in a unitary magnetic sheet-semiconductor structure.

3,786,446

SINGLE WALL DOMAIN CODING CIRCUIT

Peter Istvan Bonyhard, Edison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 12, 1972, Ser. No. 288,255
Int. Cl. G11c *19/00, 11/14*
U.S. Cl. 340—174 TF **9 Claims**



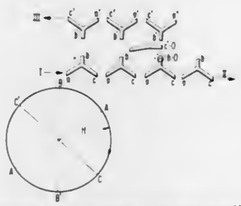
A number of field access, magnetic bubble propagation channels are connected to a single magneto-resistance detector by a binary coded interconnection circuit. The circuit is operative to retard bubbles in ones of the channels with respect to others while laterally expanding those which are not retarded. The latter provide improved signal levels.

3,786,447

INFORMATION PROPAGATION PATH SWITCHING DEVICE

Fumio Yamauchi, Tokyo-to, Japan, assignor to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed Sept. 22, 1972, Ser. No. 291,514
Claims priority, application Japan, Oct. 13, 1971, 46/81120
Int. Cl. G11c *11/14, 19/00*
U.S. Cl. 340—174 TF **3 Claims**



Magnetic domains are switched between adjacent propagation paths by varying the perpendicular magnetic field applied to a sheet of domain holding material when the domain is at a junction of two propagation paths. The propagation paths are formed by soft patterned magnetic material on the surface of the sheet. At the junction point the domain will move to one of two possible further points which are located respectively in the first and second propagation paths. The said two further points are located with respect to said junction point so that the movement of the domain to one or the other depends upon the size of the domain, which in turn is controlled by the magnetic field applied perpendicular to the sheet.

3,786,448

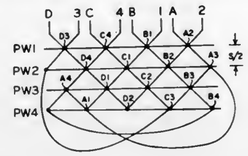
MULTIPLE ACCESS PLATED WIRE MEMORY

Kenneth E. Batcher, Stow, and John T. Franks, Jr., Tallmadge, both of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Sept. 11, 1972, Ser. No. 287,947
Int. Cl. G11c *11/04, 11/14*
U.S. Cl. 340—174 PW **10 Claims**

The invention relates to a novel plated wire memory arrangement which not only permits word-oriented access but

also bit-oriented access to the data storage bits thereof. The invention teaches the utilization of two separate and distinct sets of interrogation lines to achieve the multiple access characteristic. The invention is such as to be adaptable to the techniques and knowledge available in the present state of the



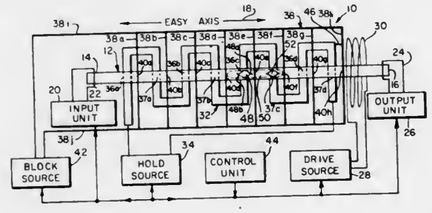
art of plated wire memories but uniquely arranges a plurality of plated wires and two separate pluralities of unplated wires so as to achieve a memory array system which is not only capable of multiple mode accessing but is also characterized by a higher bit packing density than presently taught in the art.

3,786,449

MAGNETIC THIN FILM SHIFT REGISTER HAVING BIDIRECTIONAL TRANSMISSION ELEMENTS AND OFFSET BLOCK SITES

Harvey I. Jauvtis, Arlington, Mass., assignor to Cambridge Memories, Inc., Newton, Mass.

Filed May 1, 1972, Ser. No. 249,082
Int. Cl. G11c *19/00, 11/14*
U.S. Cl. 340—174 FB **13 Claims**



A digital shift register propagating information as discrete regions of reverse magnetization has a bidirectional transmission path and has means for producing magnetic fields both continuously along the transmission path and only at selected sites along the path. Domain-blocking fields are produced at sites along the path offset uniformly from domain-holding locations by less than one-half the spacing between adjacent hold locations. In each domain-propagating step, the block fields are produced offset from the propagate fields by a time corresponding to the spatial offset.

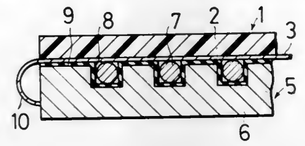
3,786,450

MAGNETIC THIN FILM PLATED WIRE MEMORY

Seihin Kobayashi; Michihiro Torii, and Takehiko Jojima, all of Shizuoka-ken, Japan, assignors to Fuji Denki Kagaku Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 24, 1971, Ser. No. 174,359
Claims priority, application Japan, Aug. 29, 1970, 45/75719
Int. Cl. G11c *11/04, 11/14*
U.S. Cl. 340—174 PW **3 Claims**

A magnetic thin film plated wire memory is provided which comprises a word plane provided with a number of parallel word wires, a digit plane having a conductive plate provided with parallel grooves and a number of digit wires each covered with a magnetic thin film and snugly disposed within said grooves with an electrical insulation therebetween, said word plane and digit plane being laminated with each other such that the word wires and digit wires face and intersect at right angles with each other, said word wires being connected at their one ends to said conductive plate, whereby when one of



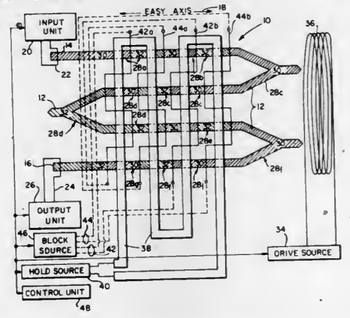
said word wires are selected, a returning electric current flowing through said conductive plate is magnetically coupled with said digit wires.

3,786,451

MAGNETIC THIN FILM SHIFT REGISTER HAVING BIDIRECTIONAL TRANSMISSION ELEMENTS AND ALTERNATELY-PAIRED BLOCK SITES

Robert J. Spain, Waban, Mass., assignor to Cambridge Memories, Inc., Newton, Mass.

Filed May 1, 1972, Ser. No. 248,813
Int. Cl. G11c *19/00*
U.S. Cl. 340—174 FB **12 Claims**



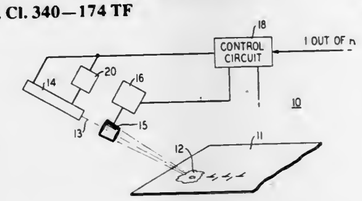
A digital shift register propagating information as discrete regions of reverse magnetization has a bidirectional transmission path and has means for producing magnetic fields both continuously along the transmission path and only at selected sites along the path. Successive locations along the path are organized into a set of first locations alternated with a set of second locations. In each shift cycle, magnetic fields first block propagation of a magnetic region along the path except from each first location to the next second location, and then block propagation except from each second location to the next first location.

3,786,452

SINGLE WALL DOMAIN GENERATOR

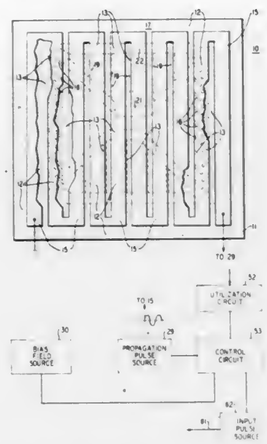
John Edward Geusic, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 28, 1972, Ser. No. 292,874
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **5 Claims**



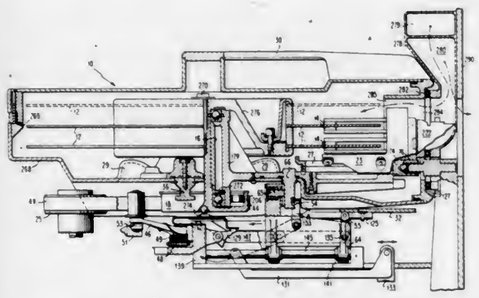
The number of magnetic bubbles generated thermally by a pulsed laser beam has been found to be a function of the diameter of the beam leading to a useful bubble generator.

3,786,453
MAGNETIC SINGLE WALL DOMAIN EXPANSION CIRCUIT
Andrew Henry Bobeck, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 24, 1972, Ser. No. 308,996
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **9 Claims**



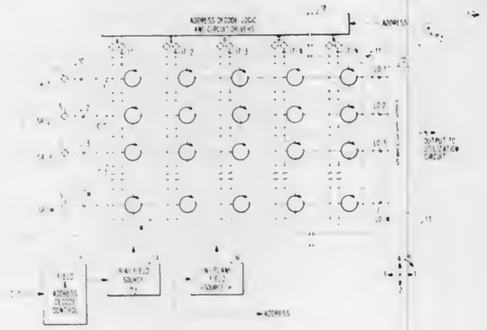
A conductor access bubble expansion and propagation arrangement is realized by interleaving the legs of a sinusoid-shaped conductor with narrow regions of relatively low moment material defined in a layer in which domains can be moved. Elongated low moment regions permit domain expansion in response to drive pulses applied to the conductor whereas a variation in the lengths of consecutive regions allows first growth and the reduction of the length of domains to a normal operating size as a domain is advanced along the axis of the sinusoid. A bubble expansion arrangement suitable for bubble detection and for a turn geometry for a closed loop bubble channel results.

3,786,454
MAGNETIC DISK STORAGE APPARATUS
Rudolf W. Lissner, and Richard B. Mulvany, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 10, 1971, Ser. No. 206,688
Int. Cl. G11b *1/02*
U.S. Cl. 340—174.1 C **28 Claims**



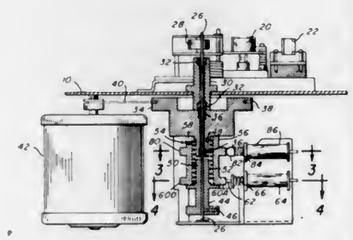
A disk storage apparatus includes an interchangeable sealed cartridge, enclosing magnetic disks, accessing magnetic head arm assemblies, a movable carriage to which the head arms are mounted, and a drive spindle on which the disks are seated. For accessing the heads to selected data tracks, coupling means are provided to engage the carriage and head arm assemblies with an external actuator, such as a linear D.C. motor or voice coil motor, disposed in a disk file housing. The file housing includes a drive motor coupled by pulley means, for example, to the enclosed spindle to provide rotary motion to the disks.

3,786,455
MAGNETIC DOMAIN DECODER/ENCODER DEVICE
Harold R. Grubb, Owego, and Lynn C. Liebschutz, Apalachin, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1972, Ser. No. 268,329
Int. Cl. G11c *5/02, 11/14*
U.S. Cl. 340—174 TF **7 Claims**



The decoder/encoder comprises plural parallel magnetic domain compressor circuits. All the idler cells of the compressor circuits are initially filled with a magnetic domain. Decode circuit drivers which include current loops associated with selected idler stages are operated to trap domains in accordance with a code pattern. A domain output is obtained from the compressor circuits having no domains trapped in idler cells while the compressor circuits having domains trapped therein do not provide a domain output to a detector circuit.

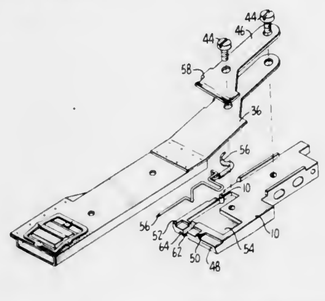
3,786,456
VARIABLE RATE INCREMENTING RECORDER
Robert L. Crafts, Tulsa, Okla., assignor to Telex Computer Products Inc., Tulsa, Okla.
Filed June 13, 1972, Ser. No. 262,242
Int. Cl. G11b *15/18*
U.S. Cl. 340—174.1 A **5 Claims**



This invention describes an improved type of incremental recording magnetic data system in which data can be recorded in response to the arrival of specific data characters, the tape being idle in between the times of such arrivals. The equipment is similar in some respects to the U. S. Pat. No. 3,595,499, granted to Robert L. Crafts, issued July 27, 1971, entitled APPARATUS FOR MOVING TAPE INCREMENTALLY PAST A RECORDING HEAD.

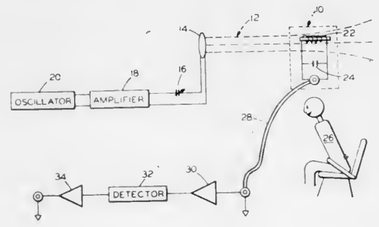
This invention covers an improvement over the Crafts patent in that while it still provides the opportunity to record data incrementally, it provides an additional advantage that the rate of playback of the data can be adjusted to any desired rate from zero up to the maximum rate of traverse of the tape.

3,786,457
DISK RECORDER ARM ASSEMBLY MOUNT
Michael E. Kahn, Palo Alto, Calif., assignor to Memorex Corporation, Santa Clara, Calif.
Filed Oct. 24, 1972, Ser. No. 300,276
Int. Cl. G11b *5/48*
U.S. Cl. 340—174.1 C **4 Claims**



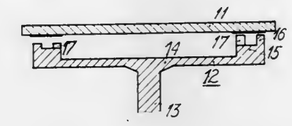
A rigid mount for a leaf spring loaded arm assembly cantilevered from the mount, the mount has a central contact point against which a leaf spring is loaded to localize the contact interface between the mount and leaf spring and prevent undesirable resonances from developing in the arm assembly caused in part by the otherwise shifting interface between a flat mounting surface and an anticlastically curved leaf spring surface developed on bending the leaf spring when the arm assembly is loaded onto a rotating recording disk.

3,786,458
NON-CONTACTING ANGULAR POSITION DETECTOR
Joseph L. Horner, Belmont, and Gordon R. Plank, Medford, both of Mass., assignors to The United States of America as represented by the Secretary of the Department of Transportation, Washington, D.C.
Filed Mar. 1, 1972, Ser. No. 230,702
Int. Cl. G08c *19/04*
U.S. Cl. 340—196 **1 Claim**



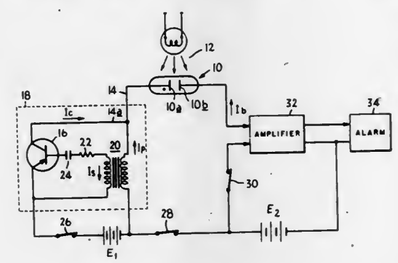
The angle between a small radio frequency coil and a spatially uniform magnetic field is measured and a signal commensurate with the measured angle is employed in a computation of angular position. The apparatus employed in the angle measurement is characterized by a DC frequency response whereby an output signal is produced in the absence of motion between the coil and field.

3,786,459
PROPORTIONAL POSITION CODER
Henri Berger, Triel sur Seine, France, assignor to Societe D'Applications Generals D'Electricite et de Mecanique, Paris, France
Filed Oct. 11, 1972, Ser. No. 296,579
Claims priority, application France, Oct. 13, 1971, 7136687
Int. Cl. G08c *19/00*
U.S. Cl. 340—196 **3 Claims**



A position coder for a moving shaft generates a DC voltage having an amplitude which is proportional to the magnitude of position shift of the moving shaft of said coder with respect to a fixed point and a sign which changes whenever a shift in direction takes place. The position coder includes a disc-shaped stator with a plurality of windings equiangularly distributed along said stator and a plurality of pairs of detection coils, also angularly distributed, the first of the paired coils being at a given distance from the rotor center and the second coil of the same pair at a different distance from said center, and a rotor set up by a disc and bearing two metallic ramps, one opposite to the first windings and the other opposite to the second windings of the stator, said ramps being so arranged that the distance from ramp points to the stator varies along each ramp. The position coder may be used in servo-motors.

3,786,460
LIGHT DETECTION MONITORING DEVICE
Pierre Kaltenbach, 680 Fifth Ave., New York, N.Y.
Continuation-in-part of Ser. No. 138,905, April 30, 1971. This application Feb. 24, 1972, Ser. No. 229,150
Int. Cl. G08b *29/00*
U.S. Cl. 340—227 R **2 Claims**

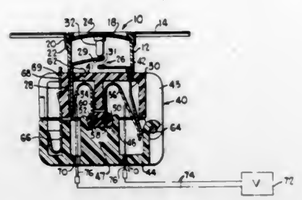


As described herein, a light detection monitoring device includes a gaseous discharge tube for converting incident light into an electric signal and a blocking oscillator. The oscillator, which is coupled to one of the electrodes of the tube and is enabled by the electric signal produced by the discharge tube, supplies short pulses which add to the discharge current to effect cumulative ionization of the gas in the tube and the attendant generation of high frequency waves. The increased discharge current and the high frequency waves are then employed to trigger local and remote alarm devices, respectively.

3,786,461
FIRE ALARM DEVICE

Will B. Jamison, Bethel Park, Pa., assignor to Consolidated Coal Company, Pittsburgh, Pa.

Filed Oct. 12, 1971, Ser. No. 188,412
Int. Cl. G08b 17/06
U.S. Cl. 340—227.1 8 Claims

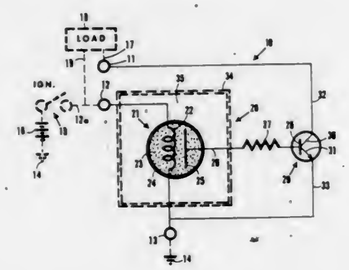


A fire alarm device including thermostat means operably connected to conductor means whereby a fire condition may activate the thermostat for providing a signal current to activate an alarm in electrical connection with the thermostat. The thermostat includes a normally open switch means having a pair of downwardly depending conducting elements extending therefrom. Each member of the pair of conducting elements is adapted to contact in electrically conducting fashion a member of a pair of current carrying conductors whereby closing of the switch due to exposure to fire may activate an alarm. In a preferred instance the conducting elements are in contact with a pair of barb-bearing electrical contacts in a hinged, channel forming receptacle. Closing of the receptacle about its hinge over a conventional electrical cord including a pair of current carrying wires forces the barbs into mechanical and electrical contact with the wires. In that fashion, the thermostat means is rapidly and efficiently operably contacted with the wires. Each hinged, channel formed receptacle includes means, such as bores, therein through which testing means, such as electrical leads to a voltmeter or the like, may be inserted for testing the connection between a fire alarm device and current carrying wires. Additionally, a fire alarm system is provided including a plurality of the foregoing fire alarm devices connected in parallel along a length of conduit and including appropriate alarm devices therefor.

3,786,462
CARBON MONOXIDE ALARM FOR AUTOMOBILES

Rodney Hayden, Stoney Creek, Ontario, Canada, assignor to TRW Inc., Cleveland, Ohio

Filed Nov. 24, 1971, Ser. No. 201,682
Int. Cl. G08b 21/00
U.S. Cl. 340—237 R 5 Claims

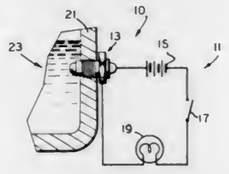


A carbon monoxide alarm device for installation in an automobile in which a vented casing contains a fuel cell having first and second electrodes in fixed space relationship within a porous body having an oxidation catalyst and is connectable by three terminals to chassis ground, the ignition circuit and to a load, the same being insertable into a mounting at a suitable location in the automobile to give a warning by actuation of the load, the latter being in the form of an electrical buzzer or lamp or both and located internally or externally of the casing.

3,786,463
FLUID LEVEL SENSOR

John R. Peltz, and Nikolaus A. Szeverenyi, both of Warren, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Mar. 20, 1972, Ser. No. 236,149
Int. Cl. G08b 21/00
U.S. Cl. 340—244 R 16 Claims

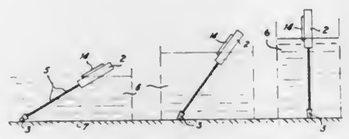


An apparatus for detecting the presence or absence of fluid at a predetermined level within a container. The apparatus comprises an electrical circuit and a sensor device electrically joined to the circuit and positioned within a wall of the container. The device comprises a housing of conductive material, a conducting member within the housing and electrically insulated therefrom, a tip member of conductive material affixed to the housing, a resistive element having first and second opposing ends, and a bimetallic member affixed respectively to the second opposing end of the resistive element and adapted for engaging the first opposing end when the temperature about the bimetallic member exceeds a predetermined level.

3,786,464
MAXIMUM LEVEL DETECTOR

Jackie Staempfli, 20, Rue du Commandant Mouchotte 75, Paris, France

Filed June 11, 1971, Ser. No. 152,110
Int. Cl. G08b 21/00
U.S. Cl. 340—245 3 Claims

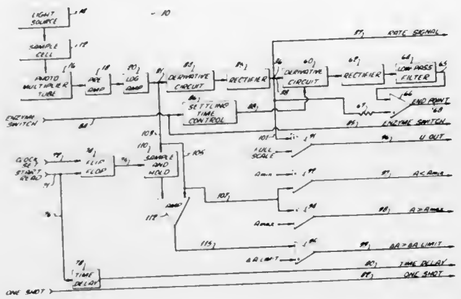


This device for detecting the maximum predetermined level of a liquid in a vessel, for example a bath tub, and warning the user when this level is attained, comprises essentially two elements, i.e., a bottom or reference element retained by gravity at the bottom of the vessel, and a float element remaining by buoyancy at the level of the liquid, and means interconnecting these two elements. These means are either telescopic or flexible, for example in the form of a nylon cord, and the float encloses a circuit comprising a source of current, a switch and a sound and/or luminous signal device. The switch is closed when the float attains the maximum preset level.

3,786,465
RATE ANALYSIS SYSTEM WITH CONSTANT RATE DETECTION CIRCUIT FOR IDENTIFYING LINEAR SIGNALS

Thomas C. Woods, Fullerton, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Apr. 17, 1972, Ser. No. 244,537
Int. Cl. G08b 21/00
U.S. Cl. 340—248 R 7 Claims

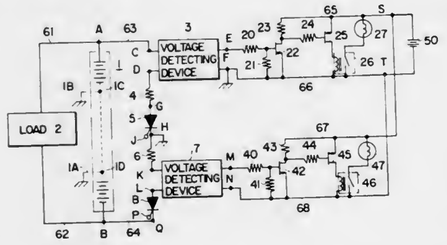


A rate analysis instrumentation system including a sample cell and detector for producing an electrical cell signal proportional to a parameter of a sample reacting within the cell. In a preferred embodiment the enzyme activity of a sample is measured by detecting the light absorbance characteristics of the sample. A differentiator is utilized to obtain a rate signal from the light absorbance characteristic, and the rate signal is displayed. A constant rate detection circuit is used to measure the rate signal only during periods when the reaction rate and the cell signal are linear. The constant rate detection circuit differentiates the rate signal whereby a second derivative of the cell signal is provided. The second derivative signal is compared in a comparator to a threshold value to determine when the second derivative signal approaches zero. An overrange protection circuit is provided for excluding false rate signals, such as signals having characteristics that fail to meet predetermined acceptable limits.

3,786,466
ELECTRICAL LEAKAGE DETECTING DEVICE

Shotaro Naito; Ryoji Kasama, both of Katsuta, and Hiro Sato, Numazu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 17, 1972, Ser. No. 235,482
Claims priority, application Japan, Mar. 19, 1971, 46/15142
Int. Cl. G08b 21/00
U.S. Cl. 340—255 11 Claims

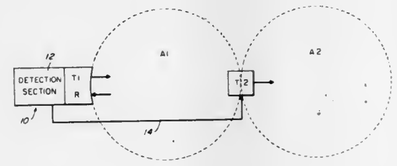


A leakage detecting circuit for detecting leakage from a source of power, for example, a battery to a source of reference potential, for example, ground, which comprises a pair of voltage detecting circuits respectively connected to the positive and negative terminals of the battery to ground through first and second switching means respectively. The battery is insulated from ground, so that if a leakage path exists between the battery and ground, an electrical circuit is closed which includes a voltage detection device and one of the switching means. A voltage is thus applied to the voltage detecting device by closing the switching device. In normal operation, the circuit is open so that no voltage is applied to the voltage detecting device. In alternative embodiments, the voltage detecting devices comprise a neon tube and a photoconductor element responsive to the neon tube, or a coil in circuit with a Hall element.

3,786,467
ALARM DETECTOR WITH INCREASED OPERATING RANGE

William L. Cotter, Beverly, Mass., assignor to Alarmtronics Engineering, Inc., Newton, Mass.

Filed Mar. 22, 1972, Ser. No. 236,868
Int. Cl. G08b 13/16
U.S. Cl. 340—258 A 11 Claims



In an ultrasonic alarm detector of the doppler detection type including a transmitter transducer and a receiver transducer, the improvement comprising a second transmitter transducer disposed remote from the detector and driven from the master oscillator at the detector. The second transmitter is preferably disposed at the limiting range of the alarm detector and is directed in the same direction as the transmitter transducer at the alarm detector thereby extending the operating range of the detector to up to twice the range attainable without the second transmitter transducer.

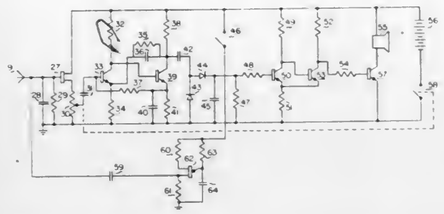
3,786,468
ELECTRIC FIELD PROXIMITY SAFETY ALARM

Melville M. Moffitt, 26 Oxford St., Chevy Chase, Md.

Continuation-in-part of Ser. No. 158,398, June 30, 1971, abandoned. This application Sept. 22, 1972, Ser. No. 291,283
Int. Cl. G08b 13/22
U.S. Cl. 340—258 D 3 Claims

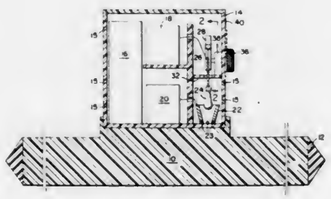
This electric field proximity detector enables a worker to detect the presence of a dangerous power line or other electri-

cal source and to then maintain a safe separation from it. A power line need not carry any current as a condition for detection since the device operates on the electric field about the conductor. Response to spurious radiation is eliminated, a sensitivity control is provided to permit setting the device to respond to various fixed combinations of field strength and distance from power lines, a threshold circuit will mark the boundary of safe operation within very narrow limits once the device is adjusted for a particular set of conditions; and a self-



testing feature permits the operator to determine the working condition of the device. This miniaturized device contains its own power supply and loudspeaker, making for easy installation on cranes, aerial personnel baskets, and other types of lifting and construction equipment which may be used near power lines. The alarm circuit may also be used to activate other electrical circuits causing machinery to shut down when the alarm is activated. This device may also be used as a test instrument to detect energized lines and sources.

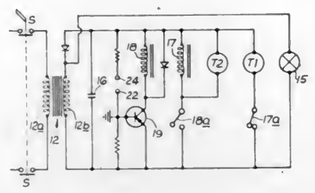
3,786,469
WARNING DEVICE FOR SWIMMING POOLS OR THE LIKE
John D. Massaro, and Michael J. Massaro, both c/o In-Speck Corp. 1414 S. Broad St., Philadelphia, Pa.
Filed Jan. 4, 1972, Ser. No. 215,315
Int. Cl. G08b *21/00*
U.S. Cl. 340—261 **10 Claims**



A movement sensing means carried by a float in the pool is responsive to the movement of the float caused by the waves produced by the falling of an unauthorized object or person into the pool to actuate a wireless transmitter to send a signal to a receiver positioned at a remote location. The receiver, upon receiving the signal, actuates an alarm sounding means which provides a warning signal of the entry of the unauthorized person or object into the pool.

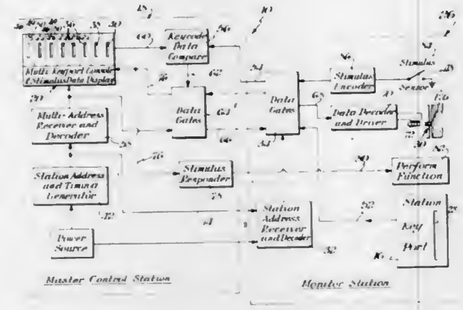
3,786,470
SENSING AND CONTROL SYSTEM
Derek Howard Greenhill, Arthur St., Redditch, England
Filed July 25, 1972, Ser. No. 274,867
Int. Cl. G08b *21/00*
U.S. Cl. 340—267 R **6 Claims**

A sensing and control system for controlling operation of a machine comprises a timer which is arranged to modify the action of the machine after the elapse of a preset time interval from the occurrence of a first given operating condition of the



machine if a second given operating condition does not occur within the interval timed. If the second condition occurs within the interval timed the modifying action of the timer is disabled.

3,786,471
SECURITY MAINTENANCE SYSTEM
Herschel T. Hochman, 7809 Second Ave. S., St. Petersburg, Fla., and Dennis L. Hogan, 6999 31st Ter. North, St. Petersburg, Fla.
Filed Apr. 5, 1971, Ser. No. 131,056
Int. Cl. G08b *19/00*; **E05b** *45/10, 47/00*
U.S. Cl. 340—274 **30 Claims**

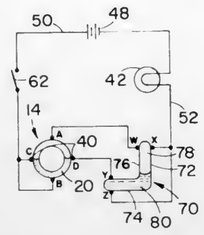


A security maintenance system includes an area keyport adjacent a locked barrier at the entrance of a restricted area with a master console disposed remote from the area keyport. The master console has a plurality of individual master keyports. Coded key means are provided for insertion into the area keyport and a master keyport. Scanning means are provided for the master console in conjunction with comparison means between the area keyport and master keyports for cyclically scanning the keyports and inactivating the locked barrier to permit entry to the restricted area when the area keyport and master keyport have identical coded key means inserted therein.

3,786,472
ELECTRIC LEVEL
Frederick L. Scopacasa, 218 Walnut, Newport Beach, Calif.
Filed Oct. 7, 1971, Ser. No. 187,464
Int. Cl. G01c *9/06*
U.S. Cl. 340—282 **3 Claims**

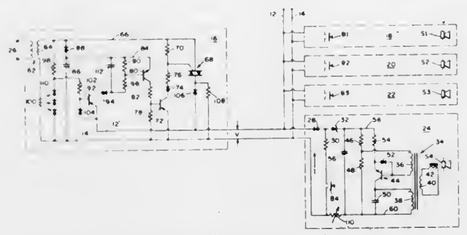
An electrical level for measuring angles of inclination, sensing motion and by a particular embodiment automatically sensing change from horizontal to vertical and vice versa. A chamber, e.g., a toroid, is disposed in a fixed manner with respect to a measuring surface. The chamber is approximately half filled with an electrically conductive liquid, e.g. mercury, and has pairs of electrodes embedded in and spaced around

the periphery of the chamber to correspond to the points of liquid contact when the chamber is inclined to predetermined angles. A power means, e.g. a battery, supplies current which passes through the liquid in the chamber to be registered at an appropriate current detecting means, e.g. a light or buzzer, when the liquid contacts an electrode pair. An L-shaped vial



containing an electrically conductive liquid and electrode pairs corresponding to points of liquid contact upon inclination to predetermined angles is used in combination with the above chamber to provide automatic sensing of changes between vertical and horizontal, useful to make and break contacts without recourse to a switch.

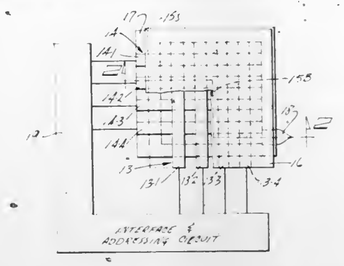
3,786,473
MULTIPLEXING CIRCUIT
John E. Trombly, Billerica, and Warren G. Bender, Wellesley Hills, both of Mass., assignors to Telecommunication Engineering Corporation, Burlington, Mass.
Filed Nov. 1, 1972, Ser. No. 302,895
Int. Cl. H04m *11/02*
U.S. Cl. 340—311 **19 Claims**



A circuit for transmission of power from a source over a line pair to a number of receivers connected to the line pair. Each receiver has a load device adapted for energization by the power source, and a circuit operable to change the impedance across the line pair from a first characteristic adapted for local power reception to a second characteristic adapted to cause remote actuation of a circuit in the source to connect power to the line pair.

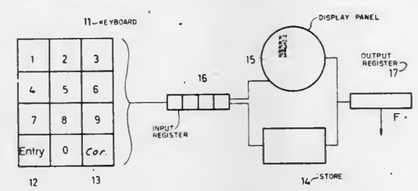
3,786,474
CONDITIONING AND WRITING OF MULTIPLE GAS DISCHARGE PANEL
John W. V. Miller, Sylvania, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 13, 1972, Ser. No. 234,387
Int. Cl. G08b *5/36*
U.S. Cl. 340—324 M **4 Claims**

There is disclosed the improved electronic conditioning and addressing of a multiple gas discharge display/memory panel. In the operation of a row-column gas discharge display/memory panel which comprises a discharge cell matrix wherein one or more discharge cells are to-be-addressed along a common row or column and wherein the border of the panel matrix comprises a plurality of pilot cells, the improvement wherein the to-be-addressed cells are electronically conditioned before addressing by applying a conditioning voltage pulse to the common row or column of to-be-addressed cells and wherein a low impedance electrical path is provided between the conditioned row or column of cells and all of the rows or columns of cells orthogonal to the conditioned row or column so as to



return the conditioned cells to a neutral state, the magnitude of the conditioning pulse being sufficient to cause discharge of cells in the off-state, but not sufficient to cause discharge of cells in the on-state, and simultaneously applying an addressing voltage to each conditioned to-be-addressed cell immediately after the conditioning voltage pulse without returning the to-be-addressed cell to a neutral state.

3,786,475
SELECTOR FOR APPARATUS FOR AUTOMATICALLY PLAYING BACK INFORMATION
Marcel Jules Helene Staar, 479 Avenue Louise, Brussels, Belgium
Filed Sept. 7, 1971, Ser. No. 177,986
Claims priority, application Belgium, Sept. 7, 1970, 755811
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 A **7 Claims**



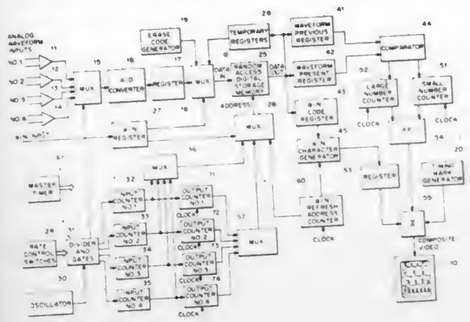
A selector for apparatus for automatically playing back information comprising a keyboard (**11**) used in formulating a selection and co-operating with a store (**14**) and a panel (**15**) for displaying signs corresponding to those identifying the keys which have been pressed. The numbers, words or combinations can be stored in sequence and in the order in which they have been formulated.

An input register (**16**) is disposed between the keyboard (**11**) and the store (**14**) and is adapted to receive a complex selection so that the latter can be checked before insertion into the store. (FIG. 1).

3,786,476
TELEVISION TYPE DISPLAY SYSTEM FOR DISPLAYING WAVEFORMS OF TIME-VARYING SIGNALS
William P. Graves, Brighton; Francis C. Passavant, West Newton, and Allen J. Worters, Newton Highlands, all of Mass., assignors to GTE Sylvania, Incorporated, Stamford, Conn.
Filed Mar. 1, 1972, Ser. No. 230,709
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 A **25 Claims**

Television display system for displaying waveforms of time-varying signals. The displayed waveforms move across the dis-

play screen. Several different waveforms may be displayed at the same time, each moving at a different rate. Alphanumeric



characters which remain fixed in position may also be displayed on the same screen.

3,786,477

METHOD AND CIRCUIT ARRANGEMENT FOR SELECTIVELY DEPICTING LIKE SYMBOLS WITH DIFFERENT CONFIGURATIONS

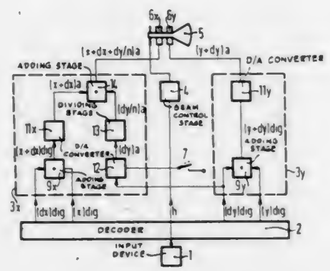
Heinrich Baumgartner, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 24, 1972, Ser. No. 256,385

Claims priority, application Germany, July 5, 1971, P 21 33 400.9

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 AD **3 Claims**



A method for selectively depicting like symbols with different configurations upon the picture screen of a cathode ray tube, utilizing cooperable intensity control of the cathode beam and two coordinate deflection values derived from digital reference point coordinate values for designating the position at which the symbol involved is to be formed and digital symbol point coordinate values for designating the position of a beam-dot within the area in which the symbol is to be formed, with the reference and point digital coordinate values for each pair of cooperable reference and point coordinate values being combined and converted to form a corresponding analog deflection value, for each coordinate deflection direction, whereby the deflected cathode beam is operative, under cooperable intensity control, to depict such a symbol with a predetermined configuration, and a symbol with a different configuration is depicted by selectively varying the deflection in one coordinate direction by the utilization of an additional deflection value, in analog form, derived from the digital symbol point coordinate value utilized in the formation of the other deflection value; and control circuit arrangements for carrying out such method.

3,786,478

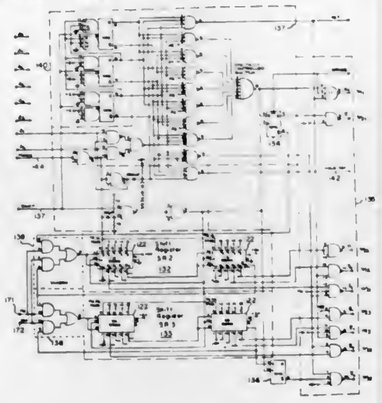
CATHODE RAY TUBE PRESENTATION OF CHARACTERS IN MATRIX FORM FROM STORED DATA AUGMENTED BY INTERPOLATION

Paul Allen King, Jr., Cambridge, Mass., assignor to Massachusettes Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 50,641, June 29, 1970. This application Aug. 17, 1972, Ser. No. 281,596

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 AD **7 Claims**



Apparatus is disclosed for displaying a selected character on the face of a cathode ray tube at a particular location from information previously stored in a memory. The cathode ray tube is swept in a raster scan with a superimposed sinusoidal deflection in the y-axis direction. The intensity modulation which produces a dot-like representation of a character occurs at a particular time during the scan depending upon the desired location of the character. The intensity modulation as a function of time is unique for each character and occurs along the sinusoidal deflection. The required storage capacity of the memory storing the character information is reduced by an interpolation technique.

3,786,479

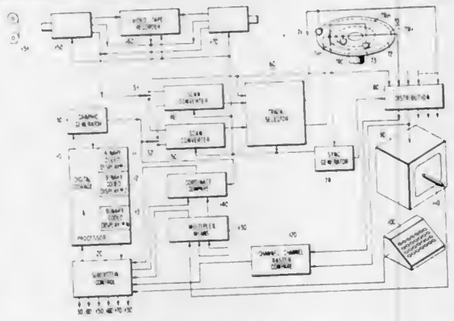
VIDEO DISPLAY SYSTEM

Caroll J. Brown, San Jose; Donald J. Chesarek, Los Gatos; Dale E. Fisk, San Jose; Joseph T. Ma, Los Gatos, all of Calif.; Harold F. Martin, Chappaqua, N.Y., and Zack D. Reynolds, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 782,154, Dec. 9, 1968, abandoned. This application June 18, 1971, Ser. No. 154,581

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 AD **5 Claims**



A display system that uses a digital storage and processor having stored therein a plurality of sources of binary coded information representative of a plurality of display messages and patterns. A graphic generator converts coded information into analog stroke or painted display information. This stroke information and/or asynchronous display information from other sources is converted into television raster information which is then cyclically stored on a magnetic disk, together with displays from other synchronous noncoded and coded sources as well as live television. A plurality of remote stations can select any display information which is converted as necessary to raster video information. These frames may be recorded on one or more tracks of the magnetic disk. This information is then applied to the television monitor at the station. The operator at the station can then control the processing of the binary coded information and request other display material while viewing the monitor and in addition, can correlate portions of images on the CRT display with the originating digitally controlled stroke information. Furthermore, raster information of several selected tracks as well as synchronized video from other sources can be compared and/or mixed.

3,786,480

DIGITAL DISPLAY SYSTEM OF FLOATING POINT REPRESENTATION

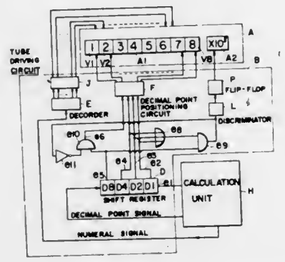
Isao Hatano, and Kazuaki Urasaki, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto-shi, Kyoto-fu, Japan

Filed Nov. 24, 1971, Ser. No. 201,856

Claims priority, application Japan, Nov. 25, 1970, 45/105295

Int. Cl. G08b *5/36*

U.S. Cl. 340—324 R **28 Claims**



A digital display system of floating point representation for use in an electronic calculator for displaying a decimal number in the form of effective figure representation together with an index $X10^n$, which means the use of n-th power of the base 10. This system is provided for enabling the result of an arithmetic operation, which has a number of digits exceeding the capacity of the display device, to be easily read.

3,786,481

DIGITAL TELEVISION CHARACTER GENERATOR

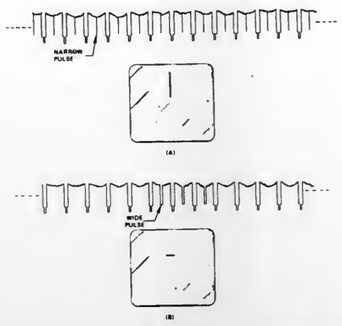
Gary F. Hartman, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 19, 1972, Ser. No. 245,412

Int. Cl. G08b *5/36*

U.S. Cl. 340—324 AD **7 Claims**

A means for causing characters such as numbers, letters and the like to appear on a CRT screen by selectively adding various combinations of narrow and wide electronic pulses to the raster scan of the CRT such that the characters are presented



on the screen in either black or white, superimposed on any other image presentation.

3,786,482

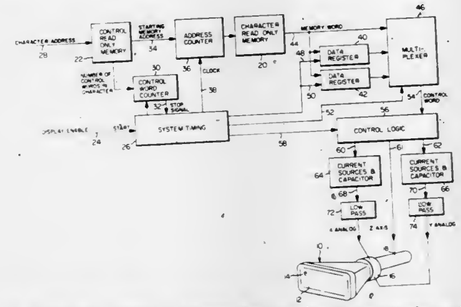
APPARATUS FOR GENERATING AND DISPLAYING CHARACTERS BY TRACING CONTINUOUS STROKES

Jason N. Puckett, Jr., Los Angeles; Stephen L. Kurtin, Sherman Oaks, and Arnold J. Goldman, Encino, all of Calif., assignors to Lexitron Corporation, Chatsworth, Calif.

Filed Mar. 13, 1972, Ser. No. 234,040

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 A **11 Claims**



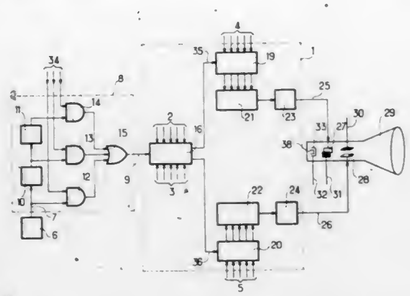
A character display system for tracing a succession of strokes on a display tube to thereby generate the character. The digital information necessary to generate the proper number of strokes in the correct sequence is stored in a character read-only memory, each location of which provides memory words of 16 bits, one or more portions of each memory word being latched into one or more data registers at predetermined time intervals after the memory word is available. A multiplexer is provided to route the correct bit from the memory or the one or more registers to each of the six multiplexer outputs to create control words of six bits. Control logic is provided to respond to the control words to generate digital signals for selectively incrementally charging two capacitors to control the vertical and horizontal deflection fields respectively of the display tube. The charging of each capacitor is accomplished by combinations of whole and fractional units of positive charging current above a predetermined negative level to provide the appropriate analog signals for the deflection circuitry. The control word also controls the unblanking amplifier of the cathode ray tube circuitry.

A control read-only memory is provided to accept information indicative of the character and provide outputs indicative of the number of strokes required for that particular character and memory address information for the character read-only memory.

3,786,483
BRIGHTNESS CONTROL FOR A COLOR CATHODE RAY TUBE

Dusan Sinobad, Paris, France, assignor to Compagnie Industrielle des Telecommunications CIT-ALCATEL, Paris, France

Filed Apr. 21, 1972, Ser. No. 246,378
Claims priority, application France, Apr. 21, 1971, 7114136
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A 7 Claims

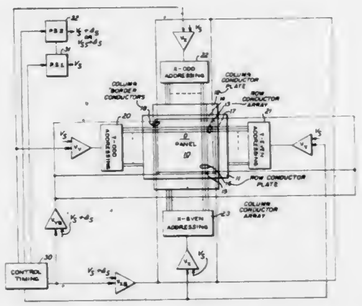


Device for controlling the brightness of the trace of vectors on the screen of a cathode tube, which is more particularly polychromatic, comprising a clock, a vector generator and means for making the brightness of the trace vary. These means consist of frequency dividers connected to the output of the clock and supplying, to the vector generator, adjustable frequency pulses.

3,786,484
BORDER CONTROL SYSTEM FOR GAS DISCHARGE DISPLAY PANELS

Joseph L. Miavecz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 23, 1971, Ser. No. 211,371
Int. Cl. G08b 5/36
U.S. Cl. 340—324 M 11 Claims

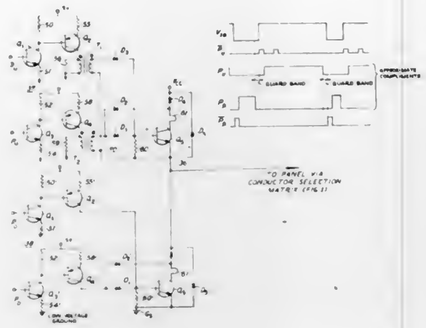


In gaseous discharge display panels of the cross conductor matrix type the conductors are non-conductively coupled to a thin gaseous discharge medium, one technique for conditioning the data or information display sites in the panel for operation of uniform potentials is to maintain the border discharge sites in an on or fired condition. The invention is directed to an improved system for controlling the border sites of such panels and provides for a border writer for (1) sustaining the border, (2) writing the border (3) erasing the border during long idle periods to minimize aging (4) border conditioning (all four sides), (5) border firing at reduced frequency to reduce or minimize the effect of aging as an alternative to (3) and (6) sustaining the border at a slightly higher voltage level.

3,786,485
BAKER CLAMPED SUSTAINER VOLTAGE GENERATOR FOR PULSING DISCHARGE DISPLAY PANEL

David S. Wojcik, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 22, 1971, Ser. No. 210,864
Int. Cl. G08b 5/36
U.S. Cl. 340—324 M 6 Claims

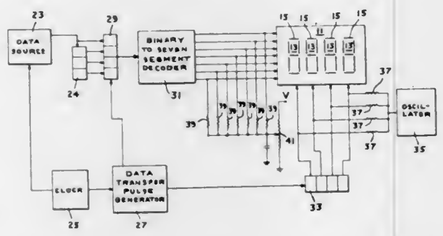


There is disclosed an improved sustaining voltage supply system for driving a gas discharge display panel having row-column conductor arrays, the matrix cross points of which are non-conductively coupled to a gaseous discharge medium in the panel. A pair of Baker clamped switching transistor amplifier circuits are series connected and have the intermediate point therebetween connected to supply square wave sustainer output voltages to the panel. Each amplifier circuit is provided with a Baker clamp diode circuit to avoid deep conduction or saturation operation of the switching transistors. The rise and fall times of the high power square wave output voltages are thereby much sharper and faster response to control signals by the circuit is achieved.

3,786,486
MULTIPLEX DRIVING CIRCUIT

Vincenzo N. Torresi, Tenafly, N.J., assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Aug. 11, 1971, Ser. No. 170,803
Int. Cl. G09f 9/32
U.S. Cl. 340—336 5 Claims

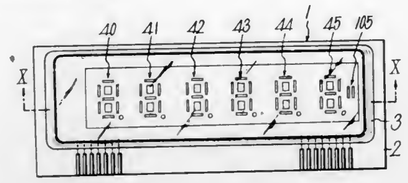


A multiplex circuit for driving a multicharacter liquid crystal display, each character having a segmented and a common electrode, which selectively applies an actuating voltage to selected segmented electrodes of all the characters in parallel while applying an AC erasing voltage to the common electrodes of all the nonselected characters. The common electrode of the selected character is set to a reference potential.

3,786,487
DISPLAY DEVICE

Yuzuru Yanagisawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 8, 1971, Ser. No. 187,700
Claims priority, application Japan, Oct. 15, 1970, 45/90650
Int. Cl. G08b 5/36
U.S. Cl. 340—336 15 Claims

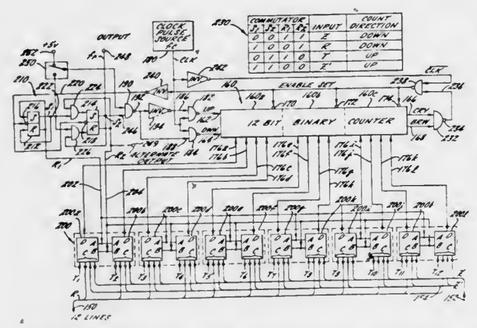


A display device for electronic computers, calculators and the like in which indicator electrode units, each comprising anode and cathode segments lying in the same plane in an envelope and in which all of the cathode segments are simultaneously energized for a predetermined desired configuration and the anode electrodes are energized on a time sequential basis in such a manner that only the cathode segments of the indicator electrode unit having its anodes energized will glow at a particular time. The individual respective cathode segments of each indicator unit are connected in parallel, and accordingly the number of leads to the display device is substantially reduced, as compared with conventional indicators which require separate leads for energizing the cathode segments respectively. The display device is provided with means for producing charged particles within the envelope to facilitate glow discharge of a particular indicator unit.

3,786,488
ALGEBRAIC SUMMING DIGITAL-TO-ANALOG CONVERTER

Joseph Robert Ahlgren, Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.

Filed Dec. 30, 1971, Ser. No. 214,162
Int. Cl. G06f 7/385; H03k 13/02
U.S. Cl. 340—347 DA 17 Claims

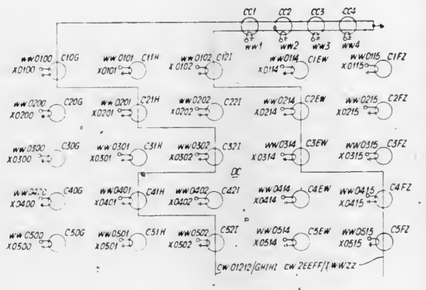


A signal conversion circuit in which there is developed an output signal having analog characteristics which vary with the algebraic sum of the numerical values represented by a plurality of changeable binary coded input signals. The loading of a binary up-down counter is controlled by a multiplexing switching unit so that the counter is preset consecutively to the numerical values of the successive input signals while being driven at a high counting rate in a direction and for a period corresponding respectively to the sense and value of the respective input signals. The operative state of the counter is effectively monitored to produce an output signal having a period which varies linearly with the algebraic sum of the input signals. In an alternate embodiment an output signal is produced which has a DC energy content proportional to the binary magnitude of a single input signal.

3,786,489
CODE TRANSLATOR

Robrecht H. K. Verstraelen, and Luciaan H. E. Van Heddegem, both of Edegem, Belgium, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Mar. 3, 1972, Ser. No. 231,561
Claims priority, application Netherlands, Mar. 9, 1971, 7103152
Int. Cl. H04l 3/00
U.S. Cl. 340—347 DD 6 Claims

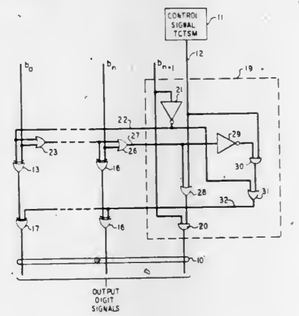


This invention provides an improved magnetic core matrix code translator wherein each core in the decoder section thereof covers two digital possibilities rather than a "unique" digit representation. Moreover, each of the code wires running through the decoder cores is divided at the output thereof into anywhere from 2 to 32 branch lines which are then run through the cores of a coder stage to form 1-out-of-32 possibilities. These lines each terminate in a transistor switch operated by a control circuit. Since each decoder core represents two possibilities, selection of but one transistor switch is required, and is effected by the control in response to a gated output determined by the "control" bits of each code element.

3,786,490
REVERSIBLE 2'S COMPLEMENT TO SIGN-MAGNITUDE CONVERTER

Robert Warren Hallock, Point Pleasant, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

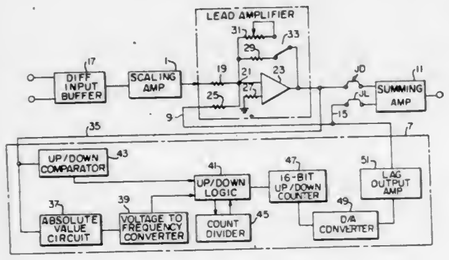
Filed Apr. 20, 1972, Ser. No. 245,944
Int. Cl. H04l 3/00
U.S. Cl. 340—347 DD 8 Claims



Two tandem-connected stages of EXCLUSIVE OR circuits transmit numerical digits of a signed multidigit binary signal

representation. In the first stage a sign digit signal is EXCLUSIVE ORed with the numerical digits to drive the second stage circuits. In addition, the sign digit is ORed with the numerical digits to produce an enabling signal which is cooperatively employed with the sign digit and a control signal, indicating direction of conversion, for controlling the state of the output sign digit and for controlling the operation of the second stage of EXCLUSIVE OR circuits in regard to conversion algorithm deviations required for certain zero character and overflow character signal representations.

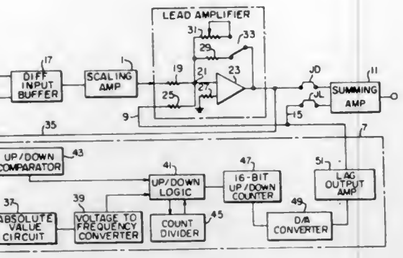
3,786,491
DIGITAL INTEGRATION APPARATUS AND METHOD
James T. Carleton, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 5, 1972, Ser. No. 268,951
Int. Cl. H03r *13/20*; **G08c** *1/00*
U.S. Cl. 340—347 NT **15 Claims**



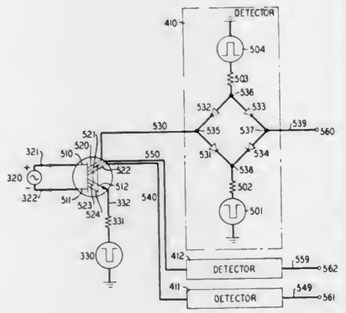
A digital integration apparatus and method which utilizes pulse count division to provide a broad range of easily selectable time constants. Pulses generated by a voltage-to-pulse conversion are divided down by a factor of 2 in a number of selectable steps and accumulated in a digital counter. A digital-to-analog conversion generates an output signal proportional to the accumulated count. A continuoous selection of time constants over an extended range is available through selection of the desired step of pulse count division followed by vernier adjustment of the conversion ratio of the voltage-to-pulse conversion. The invention is described as applied to compensation networks utilized in instrumentation circuitry.

3,786,492
COMPENSATION APPARATUS AND METHOD
James T. Carleton, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 5, 1972, Ser. No. 269,000
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 CC **24 Claims**

A Compensation apparatus and method which provides either gain, lead, lag or lead-lag compensation utilizing a single step of integration. An error signal generated as the difference between the applied signal and the output of an integrator serves as the input to a variable gain stage. The output of the variable gain stage is the input to the integrator. Lead and lag jumpers selectively connect the outputs of the variable gain stage and the integrator, respectively, to the inputs of an output summer. The lead time constant is determined by the time constant of the integrator and the lag time constant is equal to the lead time constant divided by the gain of the variable gain stage. Gain compensation is obtained by utilizing both the lead and lag jumpers and setting the variable gain to unity. The hybrid network combines a digital integrator having an extended range of easily selectable time constants with analog gain and summing circuits.

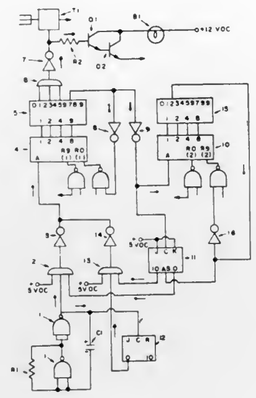


3,786,493
ANALOG TO DIGITAL CONVERTER USING A DRIFT TRANSISTOR
Gary Lee Baldwin, Sea Girt, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Aug. 10, 1972, Ser. No. 279,745
Int. Cl. G08c *5/00*; **H03k** *13/00*
U.S. Cl. 340—347 AD **10 Claims**



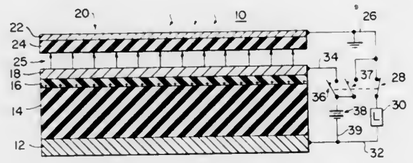
A device is described for converting an analog signal into an equivalent digital representation thereof. A single drift transistor having a plurality of collectors, a base with dual contacts, and a single emitter is operated to effect the conversion a word at a time. The drift field is established by the analog signal to be encoded as it is applied differentially to the dual base. When a pulse of charged carriers is injected into the emitter, the pulse travels through the semiconductor material to at least one of the collectors. By employing a fixed sampling time and by arranging the plurality of collectors in the form of a binary code matrix, the digital representation of the applied analog signal is obtained in the single step inherent in word-at-a-time encoders.

3,786,494
ELECTRONIC AUTOMATED SOS DEVICE
Fayette M. Clark, 2147 Waynoka Rd., Euclid, Ohio
Filed Apr. 28, 1972, Ser. No. 248,723
Int. Cl. G08c *1/00*
U.S. Cl. 340—356 **6 Claims**



A system for generating a repetitive SOS code message using binary to binary decimal conversion.

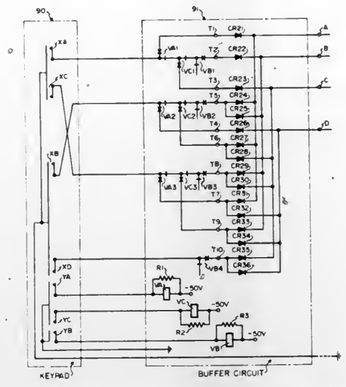
3,786,495
STORED CHARGE TRANSDUCER
Wendell Spence, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed May 17, 1972, Ser. No. 255,300
Int. Cl. G06f *3/02*
U.S. Cl. 340—365 C **16 Claims**



A transducer for converting mechanical energy to electrical energy is described. The transducer utilizes the charge trapping characteristics of a silicon-oxide silicon-nitride interface to create an electric field between a solid conductor and a flexible conductor. As the flexible conductor changes due to mechanical forces applied thereto, the dimensions of the gap correspondingly change and the voltage thereacross changes, thereby providing a voltage corresponding to the mechanical motion of the flexible conductor.

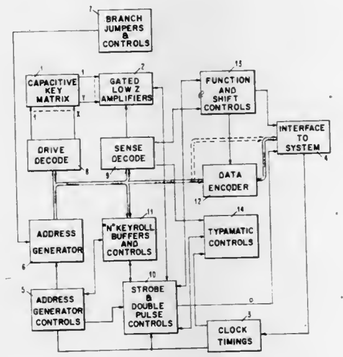
3,786,496
KEY PAD CONTROL ARRANGEMENT
George Verbaas, Brockville, Ontario, Canada, assignor to GTE Automatic Electric Laboratorie Incorporated, Northlake, Ill.
Filed July 25, 1972, Ser. No. 275,023
Int. Cl. G08c *1/00*
U.S. Cl. 340—365 S **6 Claims**

An arrangement for selectively connecting a control potential, such as ground, to one out of *n* outputs, or preferably to a group of 1-or-2-out-of-4 coded output terminals, by means of a keypad of present-day vintage, which has two sets of control contacts, one set respectively linked to the columns of the keys and the other to the rows of the keys. The arrangement



requires a minimum number of conversion relays and permits mounting of the conversion equipment on a printed circuit card affixed to the bottom of the keypad.

3,786,497
MATRIX KEYBOARD METHOD AND APPARATUS
Robert H. Davis, and Jon E. Fox, both of Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 31, 1972, Ser. No. 276,484
Int. Cl. G06f *3/02*
U.S. Cl. 340—365 S **16 Claims**

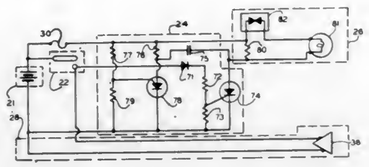


A digital encoding keyboard apparatus based on the use of a series of switches arrayed in a matrix configuration is disclosed, together with circuitry for scanning, detecting, shifting, preventing multiple detection, and encoding an output.

3,786,498
AUDIO-VISUAL WARNING SYSTEM
Gordon C. Lipe, West Lake Rd., and William S. Abbott, 20 Lakeview Circle, both of Skaneateles, N.Y.
Filed Dec. 2, 1971, Ser. No. 204,125
Int. Cl. G08b *7/00*
U.S. Cl. 340—371 **2 Claims**

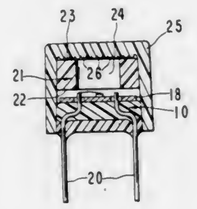
An audio-visual warning system for mechanized vehicles which is activated by a single act of the vehicle's operator.

This is accomplished by connecting an audio warning element, such as a horn, and a visual warning element, such as a light, in parallel with a horn button and a power supply. Thus when the



horn button is depressed the circuit is closed and both an audible sound and visible light are emitted to warn approaching traffic and pedestrians of an impending danger.

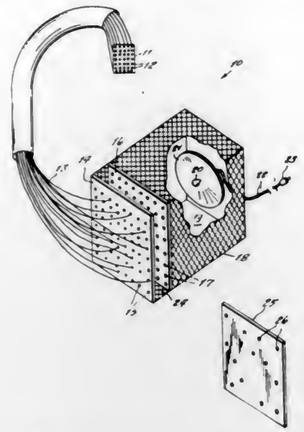
3,786,499
ALPHA-NUMERIC DISPLAY PACKAGE
Alfred S. Jankowski, San Jose; John L. Moll, Stanford, and Ernest J. Funk, Cupertino, all of Calif., assignors to Fairchild Camera and Instrument Corporation, Mountain View, Calif.
Filed Nov. 16, 1972, Ser. No. 307,280
Int. Cl. G08b *5/36*
U.S. Cl. 340—378 R **8 Claims**



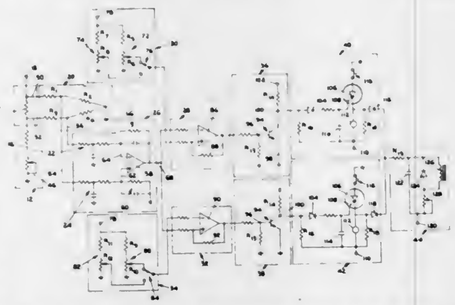
A package for displaying alpha-numeric characters using a plurality of discrete, light-emitting diodes, each diode providing a point source of light corresponding to one of the segments of the characters when electrically activated, including a substrate having the light-emitting diodes mounted upon it; a block of material adjacent the substrate containing a plurality of light pipes in the shape of the segments; and a composite fly's eye lens on top of the light pipes for displaying the selected character by the selective activation of the light-emitting diodes.

3,786,500
FIBER OPTIC TRANSLATOR
Robert J. Fiorletta, and Carol J. Fiorletta, both of 12028 Wheaton, Sterling Heights, Mich.
Filed Aug. 3, 1971, Ser. No. 168,625
Int. Cl. G08b *5/00*
U.S. Cl. 340—380 **1 Claim**

A device of optical type which may be used in an educational game or toy or which alternately can be used in a security check system, the device consisting of a common 5 by 7 dot matrix display composed of 35 single strands which at their opposite ends are connected to a light receiver block provided with 64 openings, the 35 single strands being so connected to the 64 openings so to form a pattern for an end coder, the light receiver block being aligned with a light concentration block having 64 openings aligned with the openings of the light receiver block, the light concentration block forming one end of a box containing an incandescent lamp and reflector, and a square decoder card is placeable between the light concentration block and the light receiver block, the decoder card having openings therethrough which are aligned with the openings of the light concentration block.

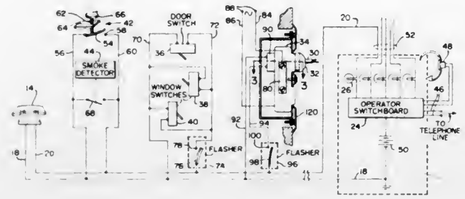


3,786,501
CURRENT MONITORING SYSTEM AND METHOD
Costas S. Marnerakis, 2980 Bryon Center Rd., Wyoming, Mich.
Filed July 14, 1971, Ser. No. 162,401
Int. Cl. G08b *21/00*
U.S. Cl. 340—409 **34 Claims**



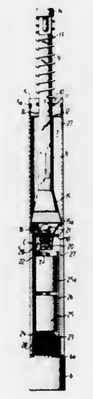
An electronic current monitoring system and method in which a current in a transmission line is detected, converted to an output voltage representative of the value of the current and compared with reference voltages representative of minimum and maximum current values in the transmission line. An alarm signal is generated in the event that the output voltage drops below the minimum reference voltage or rises above the maximum reference voltage. Two or more alarm currents can be monitored simultaneously, each alarm current representing a different condition at a subscriber station with a separate alarm being given for each alarm current which represents a different condition at the subscriber station. An alternating current signal can be impressed on the transmission line and detected with the frequency thereof compared to predetermined values to detect tampering with the alarm system. An alarm is activated in response to an alarm signal in the event the frequency in the line changes from the predetermined frequency value. The reference voltages are adjustable to adjust the tolerance level from the normal current and, in addition, alternate reference voltages are coupled to the system by a switch so that different reference voltages can be switched into the line to quickly change the level of current being monitored.

3,786,502
SECURITY SYSTEM
Joseph L. Stendig, 2500 Riverside Dr., and Claude A. Davis, 568 Piney Forest Rd., both of Danville, Va.
Filed Dec. 17, 1971, Ser. No. 209,180
Int. Cl. G08b *19/00*
U.S. Cl. 340—416 **16 Claims**



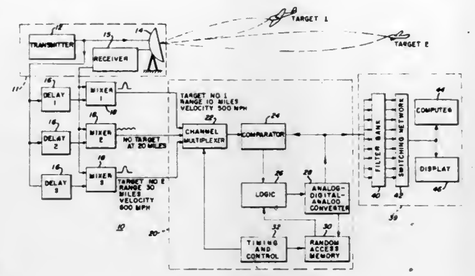
An integrated security system including a microswitch monitored, alternating current receptacle adapted to be mounted in a standard wall-box and further adapted to receive a standard two-prong plug and which is connected with a local telephone system to provide a distinct alarm signal upon removal of the plug; additional switching devices are connected with the telephone system to appraise the operator by distinct signals of the occurrence of unauthorized entry, fire and/or smoke at any of a plurality of remote locations.

3,786,503
EARTH MOVEMENT INDICATOR
Eugene E. Webb, and Leo G. Kopelman, both of East Bank, W. Va.
Filed Nov. 17, 1972, Ser. No. 307,221
Int. Cl. E21d *21/02*; **G08b** *21/00*
U.S. Cl. 340—421 **10 Claims**



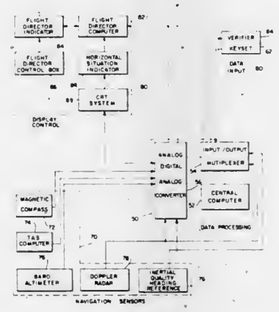
An explosion-proof subsidence-indicator for mines, tunnels and earthworks including a non-conductive body including a battery-actuated warning-light encased in a sealed chamber, and a spring-loaded probe extending outward from the chamber to engage the mine roof.

3,786,504
TIME COMPRESSION SIGNAL PROCESSOR
John D. Collins, Burlington, Mass., assignor to Raytheon Company, Lexington, Mass.
Continuation of Ser. No. 787,506, Dec. 27, 1968, abandoned.
This application Mar. 29, 1971, Ser. No. 129,218
Int. Cl. G01s *7/30*, *9/02*
U.S. Cl. 343—5 DP **10 Claims**



A time compression system used for spectrum analysis of multi-channel digital systems in which there are X identical input channels and Y identical filters. Each input is sampled in parallel and then quantized with an analog-to-digital converter. The inputs are then stored channel by channel in a random access memory. Readout begins at the end of the sample interval and each channel is read out serially. The stored digital signals are converted back to serial analog signals and fed to a single bank of filters for spectrum analysis.

3,786,505
SELF-CONTAINED NAVIGATION SYSTEM
John Coyne Rennie, 33 Third Ave., Burlington, Mass.
Filed Mar. 4, 1970, Ser. No. 16,521
Int. Cl. G01s *9/46*; **G06g** *7/78*
U.S. Cl. 343—7 ED **12 Claims**

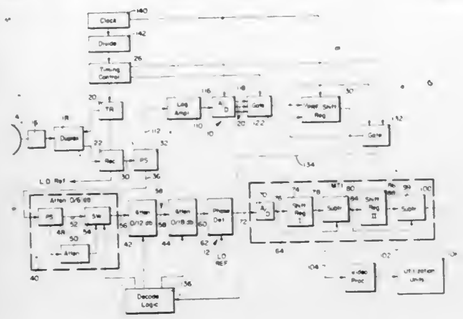


Coordinates of fixed initial and destination points and desired approach direction are stored in an on-board programmed computer which is turned on when an aircraft passes the initial point. From aircraft speed, heading and altitude inputs, bank and attitude instructions are generated to return aircraft to a computed curved path between the points. When an aircraft leaves a path corridor, a new path is computed. All-weather approaches are accomplished without requiring local approach aids at airports.

3,786,506
DYNAMIC RANGE CONTROL SYSTEM

David D. Effinger, La Habra; Norol T. Evans, San Pedro, and Vaughn H. Estrick, Fullerton, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 10, 1972, Ser. No. 233,834
Int. Cl. G01s 9/06
U.S. Cl. 343—7 A 12 Claims

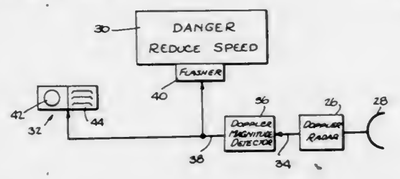


An automatic dynamic range control system for eliminating dynamic gain limitations that may provide undesirable effects in the moving target indicator or video processor portions of a radar system. A separate auxiliary measurement channel is provided in parallel with the main IF channel having a logarithmic amplifier or sequential logarithmic detector with sufficient dynamic range to meet the signal requirements. At each range bin in the auxiliary channel, the IF signal is quantized in amplitude above the predetermined dynamic range of the main channel by selecting relatively large input signal level ranges which, in the system, provides a relatively low quantizing accuracy without substantially decreasing the system reliability. The quantized levels are then passed through a switch which selects the last PRF interval used for a fill pulse (such as in an MTI system) and places the quantized signals into a 1/PRF shift register. The quantized levels are then used in subsequent sweeps of the dwell period during each range bin to attenuate signals in the main IF channel that would be limited by gain characteristics of that channel. By utilizing predetermined gain control quantized values for an entire dwell period, undesired amplitude modulations that may affect the moving target indicator or processing operation are eliminated.

3,786,507
VEHICLE ANTI-COLLISION SYSTEM

Calvin F. Hurd, Jr., 2176 Delaware Dr., Cleveland Heights, Ohio

Filed Nov. 11, 1971, Ser. No. 197,742
Int. Cl. G01s 9/02
U.S. Cl. 343—7 ED 11 Claims

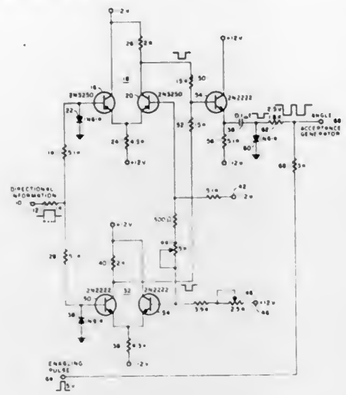


A doppler radar is mounted to face rearwardly of a roadway vehicle and to respond only to reflected radar signals from objects, e.g., following vehicles, which approach at a predetermined closing velocity, and an indicator for signalling both to the following driver by means of lights on the radar equipped vehicle and to the driver of the radar equipped vehicle itself.

3,786,508
HIGH SPEED ANGLE GATE

Criley Orton, Riverside, and Allen D. Ehresman, Corona, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 9, 1969, Ser. No. 857,629
Int. Cl. G01s 7/02
U.S. Cl. 343—7 A 3 Claims

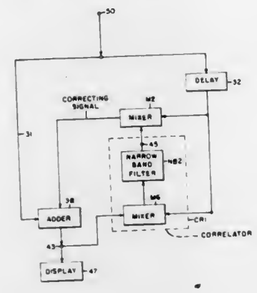


A high speed angle gate for preventing the passage of an accept pulse in a seeker system if the incoming directional information is from a target outside prescribed angular limits. Two different difference amplifiers produce negative outputs when the input signal exceeds a predetermined value. The negative signal then cancels the positive enabling pulse by adding the two signals.

3,786,509
AUTOMATIC CANCELLER

Sidney P. Applebaum, Liverpool, and James C. Kovarik, North Syracuse, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Nov. 21, 1962, Ser. No. 239,875
Int. Cl. G01s 9/42
U.S. Cl. 343—17.1 11 Claims

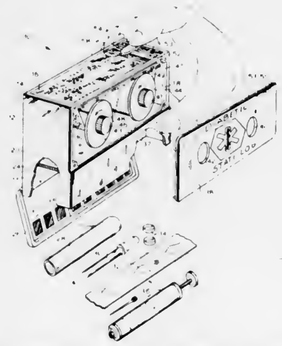


1. In a processor for eliminating undesired signals from among a plurality of desired signals, means including a first terminal for receiving all said signals, means including an adder and a first circuit for transmitting all said signals from said first terminal to said adder to produce residue signals, means including a delay line and a second circuit for transmitting all said signals from said first terminal through said delay line to produce delayed signals, cross correlator means coupled to receive said residue signals and said delayed signals, said cross correlator serving to multiply said residue signals and said delayed signals and to integrate the product to provide a control signal, mixer means receiving said control signal and said delayed signals and generating a correcting signal with phase and amplitude adjusted to cancel undesired signals, and means for transmitting said correcting signal to said adder to cancel said undesired signals, said adder thereby providing improved residue signals substantially free of undesired signals.

3,786,510
MEDICAL TESTING AND DATA RECORDING APPARATUS

Franklin Reeder Hodges, 26 Pelham Rd., Colonial Villa, Apt. J-3, Greenville, S.C.

Filed July 26, 1972, Ser. No. 275,140
Int. Cl. A61b 5/00
U.S. Cl. 346—33 ME 4 Claims

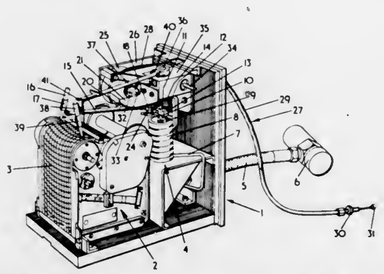


A container includes means for testing a manifestation of health, as a urine specimen of a diabetic, and means for cumulatively recording data indicative of the results of the test.

3,786,511
RECORDING APPARATUS

John Joseph Bates, Hednesford; Eric Arthur Jackson, and Gordon Smith, both of Burton upon Trent, all of England, assignors to Coal Industry (Patents) Limited, London, England

Filed May 3, 1973, Ser. No. 356,941
Claims priority, application Great Britain, May 11, 1972, 22,144/72
Int. Cl. G01d
U.S. Cl. 346—33 6 Claims

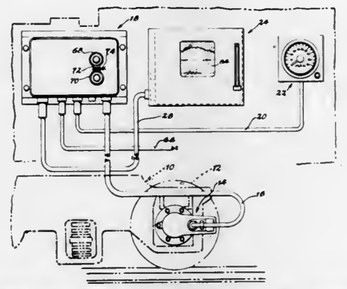


The recorder comprises a hydraulic pressure recorder section and a mechanical movement detector section which enable the recorder simultaneously to monitor the hydraulic pressure in mine roof support system and the roof convergence. The hydraulic pressure recorder section comprises a coiled, hollow Bourdon tube gauge interconnected to an arm which carries a chart marking pen. The mechanical movement detector section comprises a spring loaded drum assembly which is rotated by a Bowden cable secured at its other end to two relatively movable members of the roof support, the members being moved relative to one another upon convergence of the mine roof. Rotation of the spring loaded drum assembly moves a further arm which carries a further chart marking pen.

3,786,512
LOCOMOTIVE INFORMATION RECORDER

David D. McCue, and Thomas A. Brendle, both of Hamburg, N.Y., assignors to Aeroquip Corporation, Jackson, Mich.

Filed Dec. 4, 1967, Ser. No. 687,589
Int. Cl. G01d 9/38
U.S. Cl. 346—33 D 6 Claims

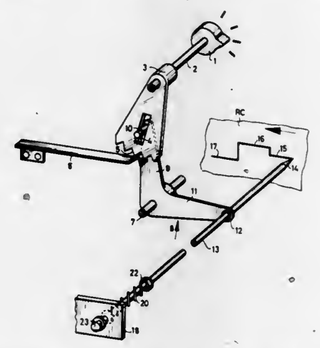


A permanent record is made of the speed of a locomotive on a linear basis proportional to distance travelled. The record paper drive and the speed indicator drive are derived from a common signal whose frequency and amplitude are proportional to vehicle speed. The mechanism is mounted in a housing having a door. Opening the door interrupts the paper take-up drive while a separate hand operated device, when actuated, restores the take-up drive while terminating the paper speed drive.

3,786,513
RECORDING APPARATUS FOR RECORDING ON A PLURALITY OF TRACKS

Hans Zimmermann, Schwenningen; Eduard Schuh, Villingen; Heinz Kelch, Buchenberg, and Norbert Helmschrott, Schwenningen, all of Germany, assignors to Kienzel Apparate, Villengen, Black Forest, Germany

Filed Feb. 22, 1973, Ser. No. 334,941
Claims priority, application Germany, Feb. 24, 1972, P 22 08 714.5
Int. Cl. G01d 9/28, 9/36
U.S. Cl. 346—62 13 Claims



In an apparatus for recording lines on a movable record carrier, a biased recording pin, whose point is urged into contact

with the record carrier, is mounted in two knife edge bearings for longitudinal and angular movement. One bearing is stationary, and the other mounted on manually operated setting lever which can be operated to place the recording pin in different angular recording positions for recording lines on parallel tracks of the record carrier. The recording pin can be oscillated with a resilient arm to make a zig-zag beam-shaped recording.

3,786,514

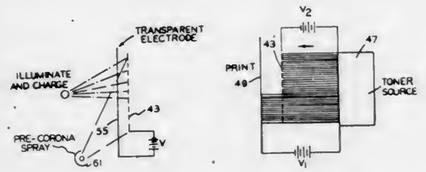
METHOD AND APPARATUS FOR CHARGED APERTURE CONTROLLED ELECTROSTATIC IMAGE REPRODUCTION

Gerald L. Pressman, San Jose, and Thomas D. Kittredge, South San Francisco, both of Calif., assignors to ElectroPrint Inc., Cupertino, Calif.

Division of Ser. No. 776,146, Nov. 15, 1968, Pat. No. 3,647,291. This application July 28, 1971, Ser. No. 167,006

Int. Cl. G03g *15/00*

U.S. Cl. 346—74 ES **4 Claims**



The invention relates to apparatus and methods for constituting or reproducing images through the use of a multilayered screen consisting of an array of apertures from facsimile read-out arrangement. A propulsion field directs charged particles through the screen to a receiving medium preferably spaced at a distance from the screen. Charge distribution on the screen controls the flow of particles through the apertures, some of which are in effect blocked, partially blocked, unblocked, and enhanced, depending on the local charge level. Thus, it is possible to produce patterns of varying tone without contact with the printed or effected substrate.

In the facsimile read-out arrangement the electrostatic charge pattern is laid down by a charging stylus through relative movement with the electrostatically chargeable multilayer screen. The screen may be flat or comprise a drum or other configuration and the insulative layer of the screen is preferably substantially non-light sensitive with print out made by passing charged particles through the stylus charged screen in accordance with signal modulation to paper wherein relative motion is established between the screen and paper.

3,786,515

LATENT IMAGE RECORDING METHOD AND ELECTRIC RECORDING APPARATUS

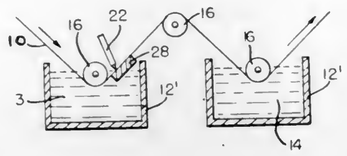
Ra W. Walker, Cleveland, Ohio, assignor to Horizons Incorporated, a division of Horizons Research Incorporated, Cleveland, Ohio

Filed June 19, 1972, Ser. No. 264,378

Int. Cl. G03g *13/00*

U.S. Cl. 346—74 E **4 Claims**

An improvement in the method and apparatus for generating imagery in which information from either an original document or an electronic input is placed on paper or other suitable record medium by the use of control element(s) which establish an electric field adjacent to the record medium; the recording element(s) being immersed in liquid, described in U.S. Pat. 3,623,122 which improvement consists in separating



the image forming step from the development step and the apparatus for accomplishing the same.

3,786,516

DEFLECTION ELECTRODE DEVICE FOR AN INK JET PRINTING APPARATUS

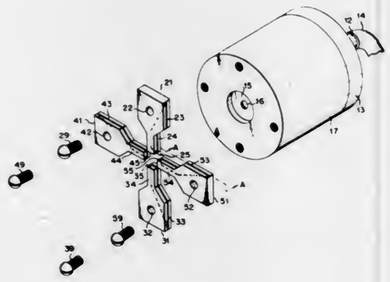
Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Dec. 13, 1971, Ser. No. 207,320

Claims priority, application Japan, Dec. 16, 1970, 45/125400; Dec. 16, 1970, 45/125401

Int. Cl. G01d *15/18*

U.S. Cl. 346—75 **4 Claims**



A deflection electrode device for an ink jet printing apparatus. A pair of vertical and a pair of horizontal deflection electrodes, the electrodes of which each have a groove for sucking ink deposited on the electrodes therein under capillary action, are disposed on the apparatus perpendicular to each other in a radial, spaced-apart arrangement about the ink stream.

3,786,517

INK JET PRINTER WITH INK SYSTEM FILTER MEANS

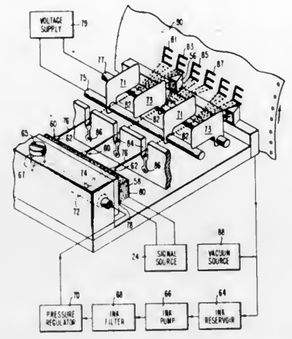
Konrad A. Krause, Mt. View, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 5, 1972, Ser. No. 286,380

Int. Cl. G01d *15/18*

U.S. Cl. 346—75 **11 Claims**

An ink jet printing apparatus in which a pressure generated ink stream is produced from an opening through a piezoelectric transducer which produces axial vibration when energized to produce a stream of uniform ink drops. A reference electrode is provided in electrical contact with the ink and a character designating signal is coupled between a charge electrode placed adjacent the drop break-off point and the reference electrode to selectively charge individual ink drops



proportional to the character designating signals. Filter means are provided for separating the chemically active part of the ink system from the remaining part of the ink system. The effects of electrolysis and corrosion within the ink system are eliminated.

3,786,518

ELECTROSENSITIVE RECORDING MATERIALS

David Atherton, Colchester, England, assignor to NIG Mason Limited, Colchester, England

Filed Sept. 22, 1972, Ser. No. 291,165

Int. Cl. G01d *15/34*

U.S. Cl. 346—135 **4 Claims**

An electrosensitive recording material comprising a non-electrically-conducting support having a substantially uniform matt surface on which has been vapour deposited a coating, devoid of any overcoat, of a metal having the property of volatilising when contacted by an electrically energized stylus, the characteristics of the matt surface and the amount of metal deposited on the support being such that a visible image of good definition is produced upon application to the material of a stylus energized by A.C.

DESIGNS

JANUARY 15, 1974

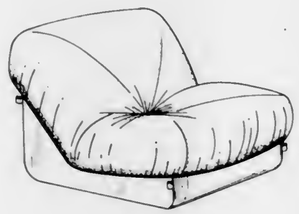
229,877
SEAM RIPPER
Herman Ament, 60 Marbledale Road, Tuckahoe, N.Y. 10707
Filed Feb. 28, 1972, Ser. No. 230,187
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D3—19 A



229,878
RACK FOR HANGING GARMENTS OR THE LIKE
Tomihei Saika, 116, 3-chome, Yagumo-Naka-machi, Moriguchi, Osaka, Japan
Filed Apr. 10, 1972, Ser. No. 242,893
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—24



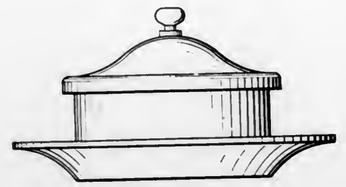
229,879
SEAT OR SIMILAR ARTICLE
Charles Bernard, Montreuil-sous-Bois, France, assignor to Airborne S.A., Montreuil-sous-Bois, France
Filed July 13, 1971, Ser. No. 162,329
Claims priority, application Germany Jan. 27, 1971
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—66



229,880
POLE SEAT
Ernest A. Keith, Cleveland, Ohio, assignor to Corporation (Ltd.), Cleveland, Ohio
Filed May 19, 1972, Ser. No. 255,317
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26



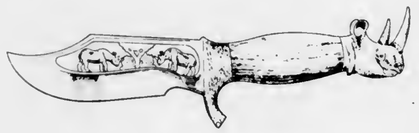
229,881
BUTTER DISH
Leon Camp Gillespie, 2714 Montana St., El Paso, Tex. 79903
Filed Feb. 11, 1972, Ser. No. 225,690
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—84



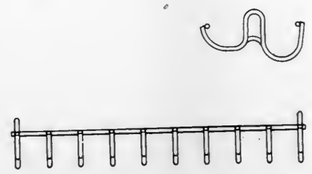
229,882
COMBINED ELECTRIC COOKING BASE AND VESSEL
George Lloveras, New York, N.Y., assignor to Cornwall Corporation, Boston, Mass.
Filed Mar. 30, 1972, Ser. No. 239,840
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—94



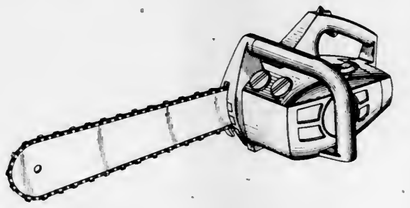
229,883
KNIFE
James F. Pugh, Sr., 917 Carpenter St., Azle, Tex. 76020
Filed Aug. 23, 1972, Ser. No. 282,982
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—144



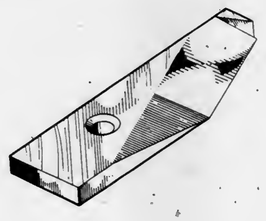
229,884
RUG-CONTACTING GRILL FOR A VACUUM CLEANER NOZZLE OR THE LIKE
Raymond H. Fineberg, Elkins Park, and Robert B. Edelson, Dresher, Pa., and Richard E. De Sisto, Salem, Mass., assignors to Proctor-Silex Incorporated, Philadelphia, Pa.
Filed Aug. 2, 1971, Ser. No. 168,305
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D7—170



229,885
CHAIN SAW
Rodney L. Guthrie, St. Anne, Richard W. Condon, Frankfort, Roscoe Combs, Jr., Kankakee, and Vernon L. Krabbe, Beecher, Ill., assignors to Roper Corporation, Kanakee, Ill.
Filed Apr. 14, 1972, Ser. No. 244,326
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—65



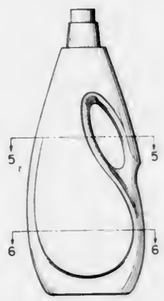
229,886
BLADE FOR WIRE STRIPPING TOOL
Walter J. Maytham, Los Altos, Calif., assignor to Speed Systems, Inc., Los Altos, Calif.
Filed July 2, 1971, Ser. No. 159,583
Term of patent 14 years
Int. Cl. D8—*99*; D15—*99*
U.S. Cl. D8—98



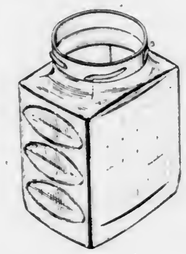
229,887
BUCKET HOOK
Ernest Roy Blood, Washington, Robert William Lichti, Oswego, and James Albert Pierson, Aurora, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed May 10, 1972, Ser. No. 252,160
Term of patent 14 years
Int. Cl. D8—*08*; D12—*16*
U.S. Cl. D8—232



229,888
JUG
Peter L. Schweizer, Liberty Center, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Sept. 15, 1972, Ser. No. 289,247
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—42



229,889
JAR
Howard L. Brody, Westport, Conn., assignor to General Foods Corporation, White Plains, N.Y.
Filed Sept. 25, 1972, Ser. No. 292,012
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—44



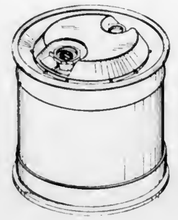
229,890
JUG
John Pardo, Yonkers, N.Y., assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Feb. 4, 1972, Ser. No. 223,802
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—48



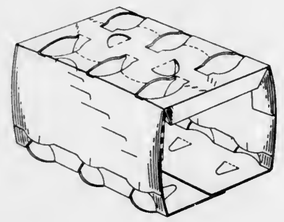
229,891
BOTTLE
Marshall J. Barrash, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed May 25, 1972, Ser. No. 257,064
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—160



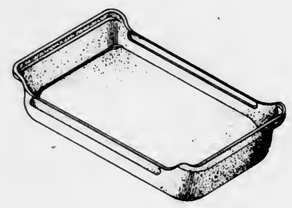
229,892
DRUM
Robert A. Dubois, Marion, Ohio, and Elmer J. Dresher, North Babylon, N.Y., assignors to Greif Bros. Corporation, Delaware, Ohio
Filed Feb. 16, 1972, Ser. No. 227,005
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—170



229,893
BOTTLE CARRIER
Prentice J. Wood, Jonesboro, James B. Funkhouser, Doraville, and Alfred J. Rinehart, Atlanta, Ga., assignors to The Mead Corporation
Continuation of abandoned design application Ser. No. 14,313, Nov. 5, 1968. This application Mar. 12, 1970, Ser. No. 22,717
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—176



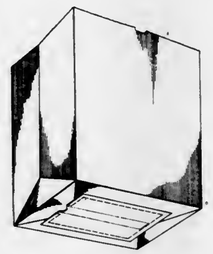
229,894
PACKAGING DISPLAY TRAY
Richard F. Reifers, New Canaan, Conn., assignor to Diamond International Corporation, New York, N.Y.
Original design application Dec. 17, 1970, Ser. No. 26,551, now Patent No. 224,735, dated Sept. 12, 1972. Divided and this application Aug. 30, 1971, Ser. No. 176,423
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—243



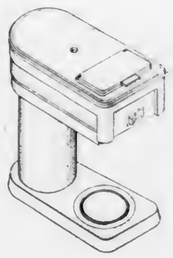
229,895
COMBINED CAN OPENER AND SEALABLE POUR SPOUT
Santo R. Musumeci, Allison Country Club Apartment, Apt. 404, N. Maple Shade Ave., Marlton, N.J. 08053
Filed Apr. 13, 1972, Ser. No. 243,921
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—290



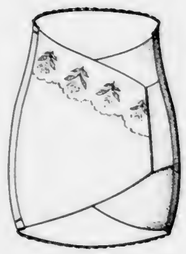
229,896
COMBINED BAG AND INFORMATION CONTAINING POCKET
Milton M. Bemel, Scottsdale, Ariz., assignor of a fractional part interest to Warren F. B. Lindsley, Paradise Valley, Ariz.
Filed Jan. 24, 1972, Ser. No. 220,549
Term of patent 14 years
Int. Cl. D9—*05*
U.S. Cl. D9—249



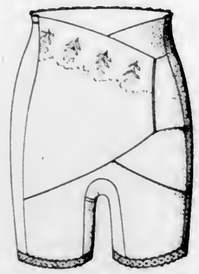
229,897
POUR-IN TYPE BEVERAGE MAKER
John C. Martin, Springfield, Ill., assignor to Bunn-O-Matic Corporation, Springfield, Ill.
Filed May 8, 1972, Ser. No. 251,587
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—85



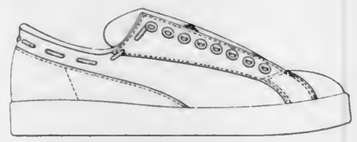
229,898
GIRDLE
Marguerite R. Williams, Trumbull, Conn., assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio
Filed Dec. 6, 1971, Ser. No. 205,439
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—2



229,899
PANTY GIRDLE
Marguerite R. Williams, Trumbull, Conn., assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio
Filed Dec. 6, 1971, Ser. No. 205,475
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—4



229,900
ATHLETIC SHOE
Alfred Powers, Los Angeles, Calif., assignor to Robert B. Wolf, Huntington Beach, Calif.
Filed July 17, 1972, Ser. No. 272,301
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—309



229,901
TIE TACK
Alexius J. Crowley, 1560 Robin, Bannockburn, Ill. 60648
Filed July 28, 1971, Ser. No. 167,081
Term of patent 3½ years
Int. Cl. D2—*07*
U.S. Cl. D2—419



229,902
SKEIN HOLDER
Manuel R. David, 406 W. Cuyler, Dalton, Ga. 30720
Filed July 18, 1972, Ser. No. 273,021
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D3—19 D



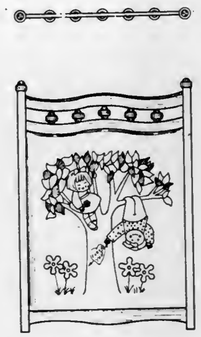
229,903
ORAL HYGIENE DEVICE
Robert C Ceniceros, 10 Hazel St., Larkspur, Calif. 94939
Filed Apr. 28, 1971, Ser. No. 138,395
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—24



229,904
BRUSH
Eric Leopold Hugo Cosby, Cobham, England, assignor to G. B. Kent & Sons Limited, London, England
Filed Jan. 26, 1973, Ser. No. 326,956
Claims priority, application Great Britain Oct. 26, 1972
Term of patent 14 years
Int. Cl. D04—*02*
U.S. Cl. D4—34



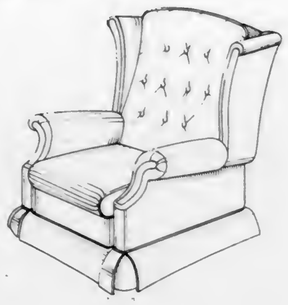
229,905
CRIB END
Robert V. Jacobs and Allen D. Jacobs, Los Angeles, Calif., assignors to Questor Corporation
Filed July 24, 1972, Ser. No. 274,349
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—14



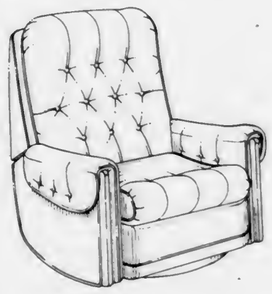
229,906
CRIB END
Robert V. Jacobs, Los Angeles, Calif., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 3, 1972, Ser. No. 277,809
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—14



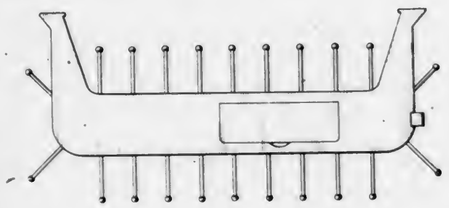
229,907
LOUNGE CHAIR
Don Ray Gill, 792 Dodge Trail, Westville, Ind. 46391
Filed June 1, 1971, Ser. No. 149,114
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—39



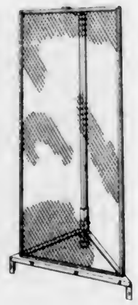
229,908
CHAIR
Eugene J. Costabile, 9216 55th Court, Oak Lawn, Ill. 60453
Filed Dec. 1, 1971, Ser. No. 203,943
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—39



229,909
AUTOMATIC NECKTIE RACK, OR SIMILAR ARTICLE
Melvin A. Goldfeder, Rockville Center, N.Y., assignor to Swank, Inc., Attleboro, Mass.
Filed Sept. 14, 1972, Ser. No. 288,925
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D6—117



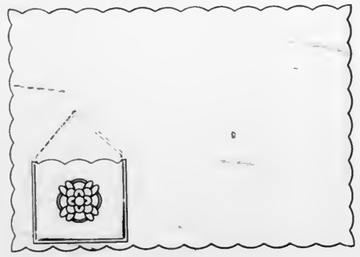
229,910
DISPLAY STAND FOR CARPET SAMPLES AND THE LIKE
Leon H. Best, Galva, and Robert D. Davis, Kewanee, Ill., assignors to John H. Best & Sons, Inc., Galva, Ill.
Filed Jan. 24, 1972, Ser. No. 220,563
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—139



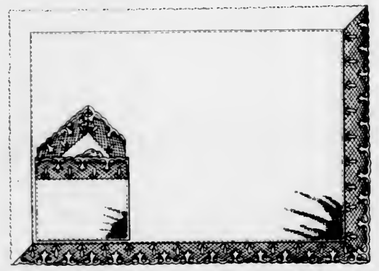
229,911
COMBINATION DESK AND RECORD FILING COMPARTMENT
Paul V. De Luca, Port Washington, N.Y., assignor to Porta Systems Corporation, Roslyn, N.Y.
Filed May 22, 1972, Ser. No. 255,965
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—161



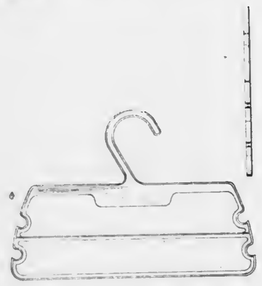
229,912
PLACE MAT
Eugenia Bradford, 5715 S. Green St., Chicago, Ill. 60621
Filed Dec. 22, 1972, Ser. No. 317,692
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—271



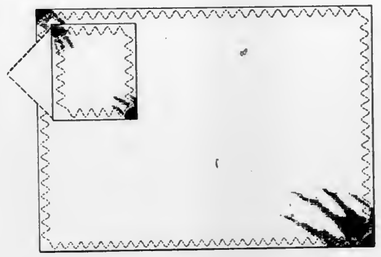
229,913
PLACE MAT AND NAPKIN SET
Eugenia Bradford, 5715 S. Green St., Chicago, Ill. 60621
Filed Dec. 22, 1972, Ser. No. 317,695
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—271



229,914
APPAREL HANGER
David H. Lindemann, 228 SW. 21st Terrace, Fort Lauderdale, Fla. 33315
Filed June 15, 1972, Ser. No. 263,193
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—255

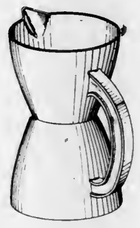


229,915
PLACE MAT
Eugenia Bradford, 5715 S. Green St., Chicago, Ill. 60621
Filed Dec. 22, 1972, Ser. No. 317,697
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—271



229,916
COVERED FOOD SERVING VESSEL
Irwin Schneider, Lincolnwood, Ill., assignor to Imperial Arts Corporation, Chicago, Ill.
Filed July 28, 1971, Ser. No. 167,073
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—18

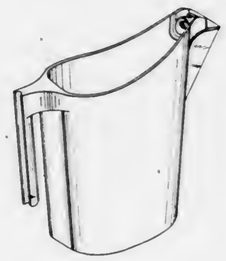
229,917
MEASURING CUP
James B. Swett, Barrington, R.I., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed July 24, 1972, Ser. No. 274,756
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D7—50



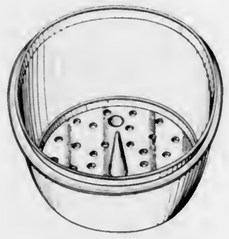
229,918
CRUET
Walter Schlessel, Lawrence, N.Y., assignor to Gemco-Ware Inc., Freeport, N.Y.
Filed Oct. 27, 1972, Ser. No. 301,286
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—54



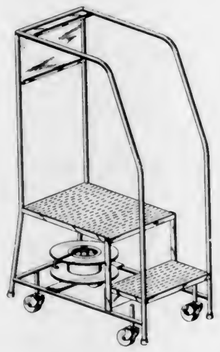
229,919
PITCHER
Justin M. Schmit, Pompano Beach, Fla., assignor to Arctic Pac, Inc., Pompano Beach, Fla.
Filed Oct. 3, 1972, Ser. No. 294,537
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—64



229,920
STORAGE CONTAINER FOR LETTUCE OR THE LIKE
James B. Swett, 8 Devonshire Drive, Barrington, R.I. 02806
Continuation-in-part of design applications Ser. No. 5,003, Dec. 12, 1966, now Patent No. 212,033, dated Aug. 20, 1968 and Ser. No. 5,008, Dec. 12, 1966, both of which were divisions of design application Ser. No. 906, Feb. 3, 1966, now abandoned. This application Oct. 2, 1967, Ser. No. 9,184
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D7—76



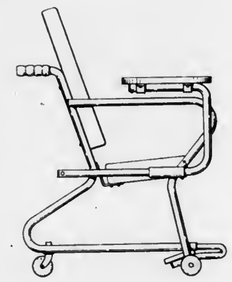
229,921
MOBILE WIRING PLATFORM ASSEMBLY
Paul V. De Luca, Port Washington, N.Y., assignor to Porta Systems Corp., Roslyn, N.Y.
Filed May 22, 1972, Ser. No. 255,966
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—59



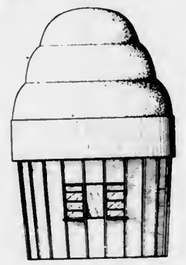
229,922
FRAME FOR CHILDREN'S BICYCLE SEAT
Morris Bishaf, 8512 N. Harding, Skokie, Ill. 60075, and Leonard Messineo, 2318 Greenfield Drive, Glenview, Ill. 60025
Filed Sept. 15, 1971, Ser. No. 180,936
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—119



229,923
WHEELCHAIR OR SIMILAR ARTICLE
Morton I. Thomas, 125 South St., Monroe, N.Y. 10950
Filed May 28, 1971, Ser. No. 148,276
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D12—131



229,924
BUILDING
C. Douglas Brown, P.O. Box 1579, Panama City, Fla. 32401
Filed Dec. 11, 1970, Ser. No. 26,411
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 F



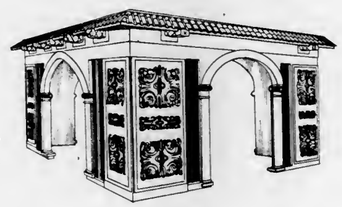
229,925
TOWNHOUSE COMPLEX
Myron Stuart Hurwitz, 4420 Forest Glen Court, Annandale, Va. 22003
Filed June 10, 1971, Ser. No. 152,020
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 A



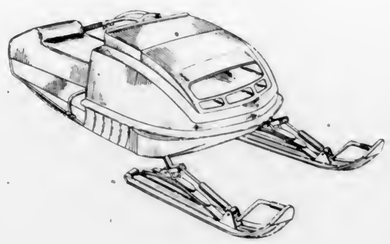
229,926
TOWNHOUSE COMPLEX
Myron Stuart Hurwitz, 4420 Forest Glen Court, Annandale, Va. 22003
Filed June 10, 1971, Ser. No. 152,021
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 A



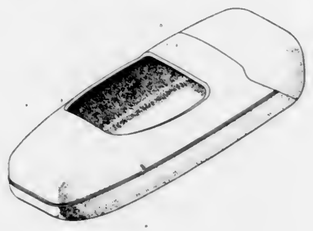
229,927
BUILDING
Donald C. Gist, 8650 SW. 67th Ave., Apt. 1039, Miami, Fla. 33143
Filed Dec. 23, 1971, Ser. No. 211,824
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 R



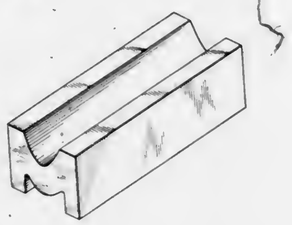
229,928
SNOWMOBILE
Y. Anselme Lapointe and Thomas Scott, Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada
Filed May 10, 1972, Ser. No. 252,161
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—24



229,929
SNOWMOBILE AMBULANCE BODY
David R. Haskins, Tomahawk, Wis., assignor to Lake Nokomis Enterprises, Inc., Tomahawk, Wis.
Filed Feb. 28, 1972, Ser. No. 230,181
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—24



229,930
MASONRY BLOCK CONSTRUCTION
Alfred A. Hala, 28 Meeks Lane, Islip, N.Y. 11751
Filed Dec. 16, 1971, Ser. No. 209,009
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D18—2 R



229,931
SOLUTION FEEDER
Dennis G. Winberg, South Cottage Grove, Minn., assignor to Ecodyne Corporation
Filed Sept. 30, 1971, Ser. No. 185,466
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—3



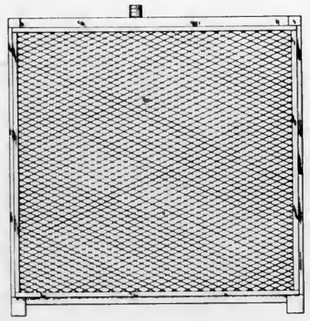
229,932
WATER SWEEPER FOR FLOORS OR SIMILAR PLANAR SURFACES
Charles E. Goodrich, 4024 N. 94th St., Omaha, Nebr. 68134
Filed Nov. 15, 1971, Ser. No. 199,093
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34

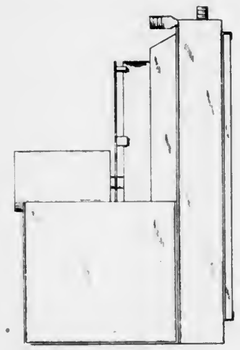


229,933
FLEXIBLE FISHING LURE
Donald L. Fitzpatrick, 12350 SW. 8th St., Miami, Fla. 33144
Filed Jan. 20, 1972, Ser. No. 219,612
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27

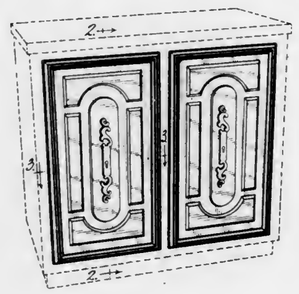


229,934
HEAT EXCHANGER
Fred M. Young, Racine, Wis., assignor to Young Radiator Company, Racine, Wis.
Filed May 9, 1972, Ser. No. 251,860
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—72

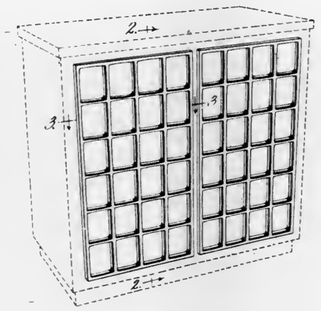




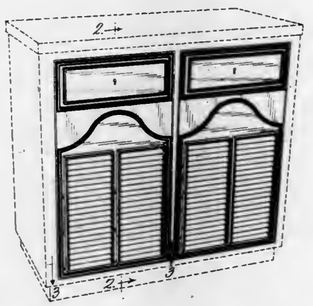
229,935
FACADE FOR ELECTRIC HUMIDIFIER
Jack B. Schmitt, West Los Angeles, Calif., assignor to Sunbeam Corporation, Chicago, Ill.
Filed July 5, 1972, Ser. No. 268,956
Term of patent 14 years
Int. Cl. D23—*04;* D06—*04*
U.S. Cl. D23—146



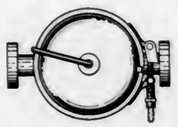
229,936
FACADE FOR ELECTRIC HUMIDIFIER
Jack B. Schmitt, West Los Angeles, Calif., assignor to Sunbeam Corporation, Chicago, Ill.
Filed July 5, 1972, Ser. No. 268,957
Term of patent 14 years
Int. Cl. D23—*04;* D06—*04*
U.S. Cl. D23—146

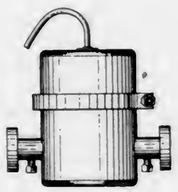


229,937
FACADE FOR AN ELECTRIC HUMIDIFIER
Jack B. Schmitt, West Los Angeles, Calif., assignor to Sunbeam Corporation, Chicago, Ill.
Filed July 5, 1972, Ser. No. 268,958
Term of patent 14 years
Int. Cl. D23—*04;* D06—*04*
U.S. Cl. D23—146

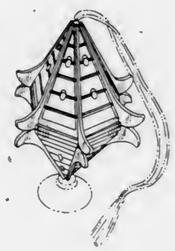


229,938
FORELINE MOLECULAR TRAP FOR A VACUUM SYSTEM
Gerald J. Pisano, Santa Clara, Calif., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Oct. 13, 1971, Ser. No. 189,078
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—149

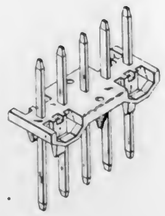




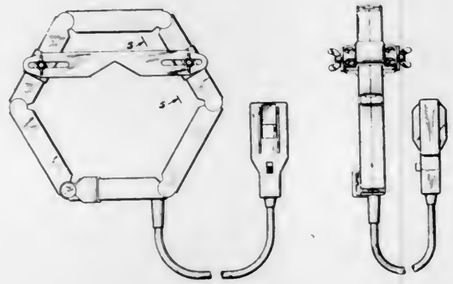
229,939
VENTILATED CONTAINER FOR AIR FRESHENER
Frank J. Curran, 3250 S. Highland Ave. Downers Grove, Ill. 60515
Filed Mar. 10, 1972, Ser. No. 233,863
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—150



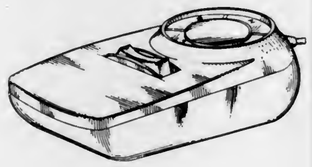
229,940
INSULATED CONNECTOR
Norimitsu Irie, Kawasaki, Japan, assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 18, 1971, Ser. No. 189,855
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 A



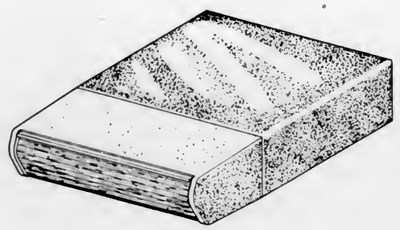
229,941
ADJUSTABLE STEP-DOWN TRANSFORMER FOR USE IN ELECTRICAL MEASURING
Raymond J. Feldman, Bronx, N.Y., assignor to SOS Consolidated, Inc., Birmingham, Mich.
Filed Nov. 17, 1971, Ser. No. 199,830
Term of patent 14 years
Int. Cl. D10—*05;* D13—*02*
U.S. Cl. D26—1 Q



229,942
CONTROL UNIT FOR AN ANTENNA ROTATOR
Raymond Kaysen, Glenside, Pa., and Franklin Roosevelt Di Meo, Woodbury, N.J., assignors to RCA Corporation
Filed Feb. 5, 1973, Ser. No. 329,611
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



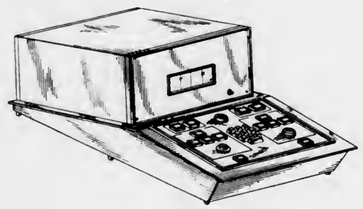
229,943
TAPE PLAYER OR SIMILAR ARTICLE
Marcus M. Artner, Chicago, and Paul D. McGee, Medinah, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Feb. 28, 1972, Ser. No. 230,203
Term of patent 14 years
Int. Cl. D14—*03, 99*
U.S. Cl. D26—14 B



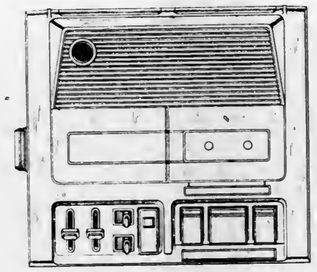
229,944
TELEPHONE RECEIVER HOLDER
Dorothy I. Eddy, 7141 Country Club Lane, Kansas City, Mo. 64114
Filed Dec. 13, 1971, Ser. No. 207,713
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A

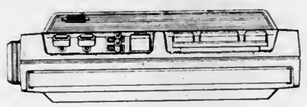


229,945
ELECTRICAL SWITCHING CONSOLE
Vincent F. Santulli, Manhassett, and Paul V. De Luca, Port Washington, N.Y., assignors to Porta Systems Corp., Roslyn, N.Y.
Filed June 12, 1972, Ser. No. 262,138
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A

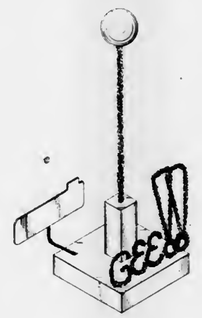


229,946
CASSETTE TAPE RECORDER
Reynolds B. Winslow, Syracuse, N.Y., assignor to General Electric Company
Filed Dec. 18, 1972, Ser. No. 315,919
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 B

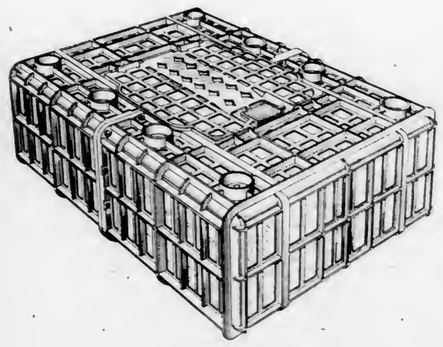




229,947
PLACE CARD FAVOR
Henry Haenelt, Coquitlam, British Columbia, Canada, assignor to David R. N. Herd, Coquitlam, British Columbia, Canada
Filed May 15, 1972, Ser. No. 253,696
Claims priority, application Canada Mar. 30, 1972
Term of patent 14 years
Int. Cl. D11—*02;* D20—*03*
U.S. Cl. D29—23 A



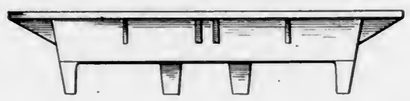
229,948
POULTRY TRANSPORT CASE
Theodor M. Box, 1108 Aileen Road, Brielle, N.J. 08730
Filed Apr. 20, 1972, Ser. No. 246,100
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—1



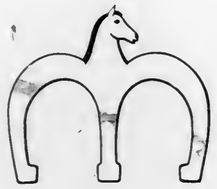
229,949
PUPPET
Russell B. Odell, 219 Walter Court, Elgin, Ill. 60121
Filed Sept. 11, 1972, Ser. No. 288,144
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—2 R



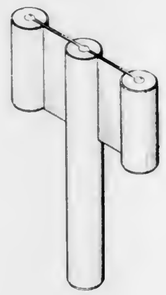
229,950
COMBINATION SANDBOX AND POOL
Walter Mitchko, 337 Elwood Road, East Northport, N.Y. 11731
Filed May 6, 1971, Ser. No. 141,100
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 F



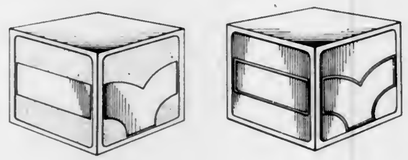
229,951
GAME HORSESHOE
Charles D. Poole, 3311 Dumas Drive, Nashville, Tenn. 37211
Filed June 13, 1972, Ser. No. 262,264
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 GP



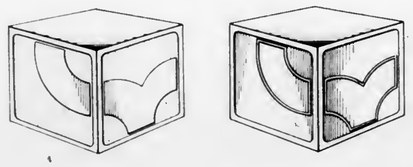
229,952
NOISEMAKER TOY
Jorma Vennola, Princeton, N.J., assignor to Columbia Broadcasting System, Inc.
Filed Feb. 22, 1972, Ser. No. 228,480
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15 C



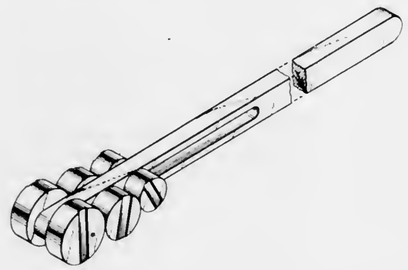
229,953
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 259,417
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



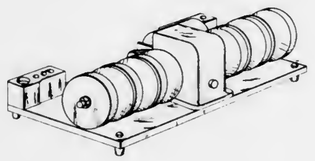
229,954
TOY BUILDING BLOCK
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,030
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



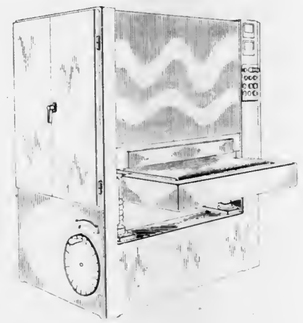
229,955
ROLLING TOY
Jorma Vennola, Princeton, and Erkki Pekka Korpijaakko, Heightstown, N.J., assignors to Columbia Broadcasting System, Inc.
Filed July 12, 1972, Ser. No. 270,984
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



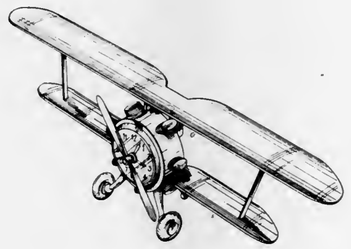
229,956
STONE POLISHING MACHINE
Robert A. Snyder, 1701 Harkness St., Manhattan Beach, Calif. 90266
Filed Sept. 30, 1971, Ser. No. 185,475
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D37—1 A



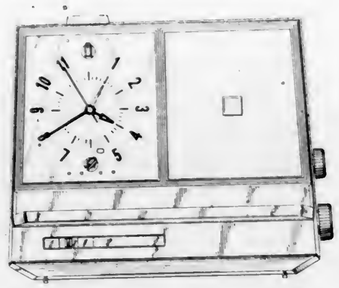
229,957
WIDE BELT SANDING MACHINE
Gordon L. Schuster, Minneapolis, and Cecil D. Brotherton, Coon Rapids, Minn., assignors to Timesavers, Inc.
Filed Nov. 16, 1972, Ser. No. 307,047
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D37—1 A



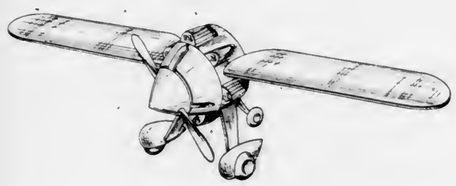
229,958
CLOCK
Creath Q. Linville, 6501 La Paloma Oeste, Phoenix, Ariz. 85014
Filed Apr. 10, 1972, Ser. No. 242,886
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7 D



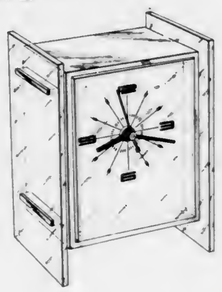
229,959
CLOCK RADIO
Cornelius W. Christie, Jr., Fulton, N.Y., assignor to General Electric Company
Filed May 15, 1972, Ser. No. 253,675
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7 H



229,960
CLOCK
Creath Q. Linville, 6501 La Paloma Oeste, Phoenix, Ariz. 85014
Filed Apr. 10, 1972, Ser. No. 242.884
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7 D



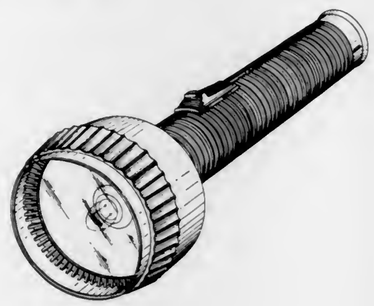
229,961
CLOCK OR SIMILAR ARTICLE
Arthur M. Felske, Westport, Conn., assignor to General Electric Company
Filed May 3, 1972, Ser. No. 250,101
Term of patent 7 years
Int. Cl. D10—*01*
U.S. Cl. D42—7 R



229,962
BRACELET OR SIMILAR ARTICLE
Andrew Mitchell David, 107 Wythe Crescent Drive, Hampton, Va. 23361
Filed Aug. 7, 1972, Ser. No. 278,363
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—4 C



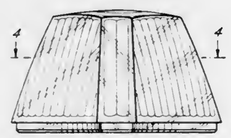
229,963
FLASHLIGHT
Robert D. Kahn, Rockville Centre, N.Y., assignor to Fedtro, Inc., Rockville Centre, N.Y.
Filed July 3, 1972, Ser. No. 268,578
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 A

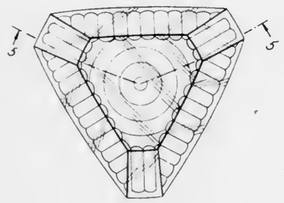


229,964
CIGARETTE LIGHTER
Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Tokyo, Japan
Filed Apr. 27, 1972, Ser. No. 248,338
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R

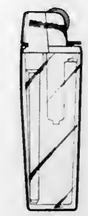


229,965
LAMP LENS
John Smith, Willowdale, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Toronto, Ontario, Canada
Filed Feb. 4, 1972, Ser. No. 223,814
Claims priority, application Canada Aug. 20, 1971
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D48—32 A

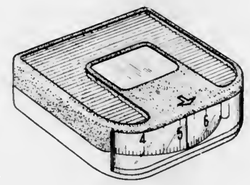




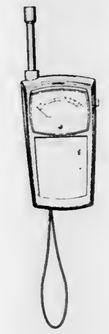
229,966
CIGARETTE LIGHTER
John C. Lockwood, Atlanta, Ga., assignor to Scripto Inc., Atlanta, Ga.
Filed Apr. 28, 1972, Ser. No. 248,801
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R



229,967
TAPE MEASURE
Michael Quenot, Trepillot-Besancon, France, assignor to Stanley Mabo, Besancon, France
Filed Aug. 10, 1972, Ser. No. 279,491
Claims priority, application France Apr. 7, 1972
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—1 R



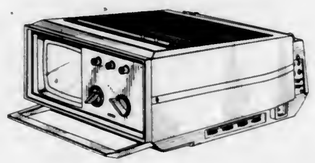
229,968
NOISE METER
Roger F. Williams, Los Altos Hills, Calif., assignor to Pulsar Instruments, Inc., Redwood City, Calif.
Filed Oct. 13, 1971, Ser. No. 188,819
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 R



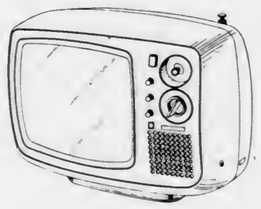
229,969
EXPANDED METAL SHEET
Eugene Kattler, Trumbull, and Kenneth Mackenzie, Newtown, Conn., assignors to Exmet Corporation
Filed Sept. 29, 1971, Ser. No. 184,970
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D54—2 B



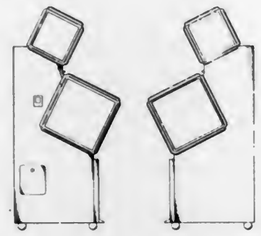
229,970
TELEVISION RECEIVER
Osamu Sugihara, Yasunobu Nakamura, Minoru Ando, Tadahiko Tokuda, and Tomio Tanaka, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 17, 1971, Ser. No. 209,500
Claims priority, application Japan June 18, 1971
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



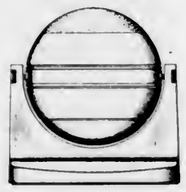
229,971
TELEVISION RECEIVER
Tadahiko Tokuda Kenichiro Ito, and Yasunobu Nakamura, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 17, 1971, Ser. No. 209,494
Claims priority, application Japan June 18, 1971
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



229,972
JUKEBOX
Walter Herbst, Evanston, Ill., assignor to NSM Apparatebau G.m.b.H. Kommanditgesellschaft, Bingen (Rhine), West Germany
Filed May 19, 1972, Ser. No. 255,315
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4 R



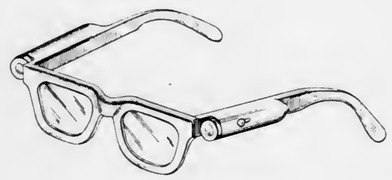
229,973
PORTABLE AM RADIO
John T. Houlihan, Manlius, N.Y., assignor to General Electric Company
Filed May 1, 1972, Ser. No. 249,480
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



229,974
SPECTACLES
Max F. Wichers, Topeka, Kans., assignor to Galaxy Optical Manufacturing Company, Inc., Topeka, Kans.
Filed Sept. 7, 1971, Ser. No. 178,532
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 F



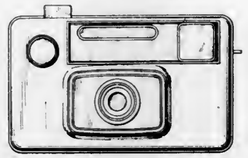
229,975
COMBINED SPECTACLES AND LAMPS THEREFOR
Julius Klugmann, 461 Fort Washington Ave., Apt. 26, New York, N.Y. 10033
Filed Mar. 24, 1972, Ser. No. 238,006
Term of patent 14 years
Int. Cl. D26—*02*; D16—*06*
U.S. Cl. D57—1 F



229,976
EYEGLASS HOLDER
Millicent Zahn, Birchwood Lane, Kings Point, N.Y. 11024
Filed May 5, 1972, Ser. No. 250,864
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 C



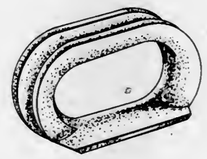
229,977
CAMERA OR SIMILAR ARTICLE
Masakazu Nakanishi, Sakai, Japan, assignor to Minolta Camera Co., Ltd., Osaka, Japan
Filed Jan. 24, 1972, Ser. No. 220,546
Claims priority, application Japan Aug. 20, 1971
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 B



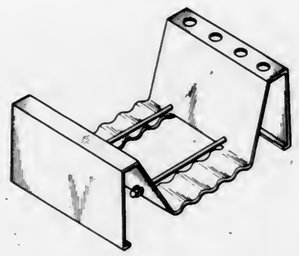
229,978
FONT OF LETTERS
Gerald Herman Hantusch, Kanata, Ontario, Canada, assignor to Microsystems International Limited, Montreal, Quebec, Canada
Filed Dec. 13, 1971, Ser. No. 207,703
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—12 B



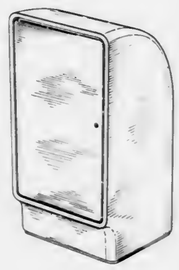
229,979
SCUPPER FOR CONCRETE HULLS
Donald O. Taylor, 4204 Reinhardt Drive, Oakland, Calif. 94619
Filed Jan. 17, 1972, Ser. No. 218,662
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1 S



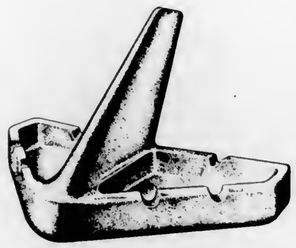
229,980
CARD FILE
Moritoshi Kimura, 34–7, 2-chome, Higashi Mukojima, Sumida-ku, Tokyo, Japan
Filed Apr. 27, 1971, Ser. No. 138,008
Claims priority, application Japan Dec. 31, 1970
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—2 A



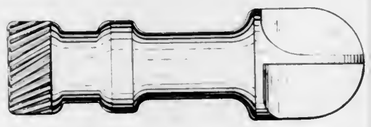
229,981
POST DROP BOX
Gerald J. Adamson, Scarborough, Ontario, and Jan W. Kuypers and Ian F. Norton, Toronto, Ontario, Canada, assignors to Don Mills Developments Limited, Toronto, Ontario, Canada
Filed Nov. 11, 1971, Ser. No. 198,088
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D74—9



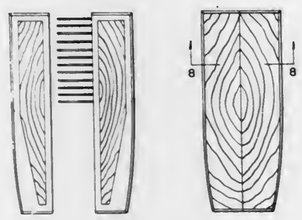
229,982
ASHTRAY
August D. Leopold, Jr., 51 Colonial Club Drive, New Orleans, La. 70123
Filed Dec. 6, 1971, Ser. No. 205,472
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 H



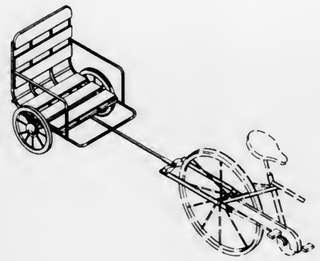
229,983
PIPE REAMER AND TAMPER
James E. Bernard, Stilwell, Kans., assignor to Richard W. Whitlaw, Milbank, S. Dak.
Filed Feb. 7, 1972, Ser. No. 224,405
Term of patent 14 years
Int. Cl. D27—*99*
U.S. Cl. D85—7 D



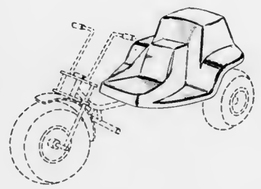
229,984
HAIR STYLING COMB
Paul E. Brooks, 17140 James Couzens Freeway, Detroit, Mich. 48235
Filed Jan. 15, 1971, Ser. No. 106,939
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—8

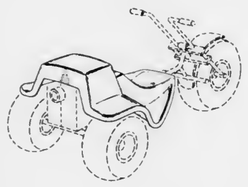


229,985
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Harry W. Trevena, 3974 Payne Ave., San Jose, Calif. 95117
Filed May 19, 1971, Ser. No. 145,115
Term of patent 14 years
Int. Cl. D12—*10, 11*
U.S. Cl. D90—1



229,986
VEHICLE BODY
Harvey L. Widgren, 1044 S. Grevillea, Inglewood, Calif. 90301, and Paul E. Adams, 10320 Rossbury Place, Los Angeles, Calif. 90064
Filed Sept. 30, 1971, Ser. No. 185,486
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D90—8 A

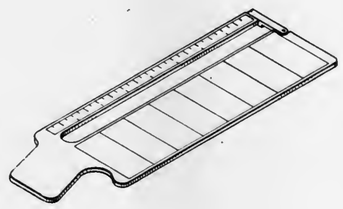




229,987
PLAID TEXTILE FABRIC
Robert F. O'Brien, 1452 Glenlake Drive 46614, and Francis S. Amussen, 1657 N. Brookfield 46628, both of South Bend, Ind.
Filed Oct. 20, 1971, Ser. No. 191,150
Term of patent 14 years
Int. Cl. D5—*05*
U.S. Cl. D92—1 AA



229,988
FRAME FOR MAKING FRINGE
Cedric C. Sovia, 319 S. Lake St., Forest Lake, Minn. 55025
Filed Oct. 19, 1972, Ser. No. 300,585
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D92—15



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JANUARY, 1974

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Baldi, Alfonso L., to Alloy Surfaces Co., Inc. Diffusion coating. 3,785,854, Cl. 117-107.20p.

Baldocchi, Archie. Apparatus for treating rows of plants with overlapping branches. 3,785,564, Cl. 239-172.000.

Baldwin, Gary Lee, to Bell Telephone Laboratories, Incorporated. Analog to digital converter using a drift transistor. 3,786,493, Cl. 340-347.0ad.

Baldwin, John J.: *See—*
Novello, Frederick C.; and Baldwin, John J., 3,786,061.

Baldwin, Mart G.; and Gehlhaus, Paul H., to United States of America, Army, mesne. High energy acrylic prepolymer propellants of low sensitivity. 3,785,887, Cl. 149-19.000.

Baldwin, William H.; and Clauss, Harry G., Jr., to Leeds & Northrup Company. Electrode assembly to determine the oxygen content of molten metal. 3,785,947, Cl. 204-195.00s.

Ball Brothers Research Corporation: *See—*
Munson, Robert E.; Polson, Jerry H.; and Roller, Kent G., 3,786,376.

Ball Corporation: *See—*
Cook, Charles W., 3,785,473.

Ballard, James L., to General Electric Company. Air conditioning system including indoor fan speed control. 3,785,433, Cl. 165-27.000.

Baltimore Aircoil Company, Inc.: *See—*
Bradley, Wilson E., Jr.; and Schinner, Edward N., 3,785,626.
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Bando, Seiisaku: *See—*
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Banholzer, Rolf: *See—*
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Banjavich, Mark P.; Morrissey, George R.; and Gaudiano, Anthony V., to Taylor Deving & Salvage Co., Inc. Method and apparatus for working on submerged pipeline means. 3,785,160, Cl. 61-72.300.

Banks, Robert L. Selective olefin disproportionation and the use thereof to produce high octane gasolines. 3,785,956, Cl. 208-93.000.

Banks, Robert L., to Phillips Petroleum Company. Multi-stage cleavage of olefins to produce high octane gasoline. 3,785,957, Cl. 208-49.000.

Baratta, Hilda E., to Lee, Raymond, Organization, Inc., The. Bird cage. 3,785,343, Cl. 119-17.000.

Bare, Thomas N.: *See—*
Suh, John T.; and Bare, Thomas N., 3,786,154.

Barnard, Benjamin R.; and Puariea, Douglas A., to Maxson Corporation, The. Motorized railway scale test car. 3,785,297, Cl. 105-112.000.

Barnes, Clarence A., Jr.; and Fontaine, Alan, to Reflectemorphics, Inc. Method for photographically preparing anamorphic pictures. 3,785,819, Cl. 96-46.000.

Barnum, William L.: *See—*
Will, Albert S.; Wolf, Sylvan; and Barnum, William L., 3,786,403.

Barr, Irwin R.; La Costa, Nicholas J.; and Davis, William O., to AAI Corporation. Practice ammunition. 3,785,293, Cl. 102-92.700.

Barr, Richard S.; and Groendyke, Richard L., to American Safety Equipment Corporation. Method and apparatus for automatic assembly of a belt and anchor plate. 3,785,907, Cl. 156-443.000.

Barrera, Roberto Gonzalez: *See—*
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Barry, James D.; Freedman, Paul M.; and Matassov, George, to United States of America, Air Force. Spaceborne sun pumped laser. 3,786,370, Cl. 331-94.500.

Barsellotti, John Anthony: *See—*
Pinede, Edouard; Barsellotti, John Anthony; and Laliccia, Frederico Riccardo, 3,786,194.

Barth, Wayne E., to Pfizer Inc. Use of 2-hydroxymethyl-3-hydroxy-6-(1-hydroxy-2-aminoethyl-pyridines as bronchodilators. 3,786,160, Cl. 424-263.000.

Baryshnikov, Gennady Fedorovich: *See—*
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev, Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Bashaw, Robert Niles: *See—*
Atkins, Bobby Leroy; and Bashaw, Robert Niles, 3,786,260.

Basse, Paul-Werner, to Siemens Aktiengesellschaft. Circuit arrangement of MOS transistors operating according to the dynamic principle for decoding the addresses for an MOS memory. 3,786,277, Cl. 307-238.000.

Batcher, Kenneth E.; and Franks, John T., Jr., to Goodyear Aerospace Corporation. Multiple access plated wire memory. 3,786,448, Cl. 340-174.0pw.

Bates, John Joseph; Jackson, Eric Arthur; and Smith, Gordon, to Coal Industry (Patents) Limited. Recording apparatus. 3,786,511, Cl. 346-33.000.

Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., to Polaroid Corporation. Processing composition release mechanism for film cassette comprising self-contained film processing system. 3,785,725, Cl. 352-7.000.

Bauer, Adola; Weber, Karl-Heinz; Danneberg, Peter; and Minck, Kalus, to Boehringer Ingelheim G.m.b.H. 1-(Phenyl or pyridyl)-1,3-dihydro-2H-1, 4-benzodiazepin-2-ones. 3,786,051, Cl. 260-239.30d.

Bauer, Rudolf: *See—*
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Baumgartner, Heinrich, to Siemens Aktiengesellschaft. Method and circuit arrangement for selectively depicting like symbols with different configurations. 3,786,477, Cl. 340-324.00a.

Baxter, Gene F.: *See—*
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Bayer Aktiengesellschaft: *See—*
Buchel, Karl-Heinz; Draber, Wilfried, Hammann, Ingeborg; and Unterstenhofer, Gunter, 3,786,131.
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Hildebrand, Dietrich; and Kuth, Robert, 3,785,767.
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Bazin, Lucas John, to RCA Corporation. Apparatus for automatic color balancing of television camera signals. 3,786,177, Cl. 178-5.4bt.

Beard, William A. Wax composition. 3,785,841, Cl. 106-186.000.

Beasley, Aubrey G., to Farah Manufacturing Company, Inc. Fabric pickup and transfer device. 3,785,638, Cl. 271-33.000.

Bechara, Ibrahim S.; and Mascioli, Rocco L., to Air Products and Chemicals, Inc. Catalyzing urethane foam polymerization with 4-(2-dimethylaminoethyl) morpholine. 3,786,005, Cl. 260-2.5ac.

Bechara, Ibrahim S.; and Holland, Dewey G. Use of certain aminoorthoesters as polyurethane catalysts. 3,786,029, Cl. 260-75.0nc.

Beck, Inc.: *See—*
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Beck, James R., to Lilly, Eli, and Company. Sulfilimine compounds. 3,786,048, Cl. 260-239.600.

Beck, William A., to Beck, Inc. Automatic shoe polisher. 3,784,997, Cl. 15-31.000.

Beckman Instruments, Inc.: *See—*
Rohrbaugh, Donald G., 3,785,773.
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Woods, Thomas C., 3,786,465.

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Genese, Joseph N.; Rapoza, Edward J.; Galanaugh, Charles F.; Kennard, Harry M.; Chevalez, Roger A.; and Smith, John A., 3,785,533.

Becton, Dickinson Electronics Company: *See*—
Lien, Wallace A., 3,786,205.

Behunin, Gage B.; Cole, Eugene A.; and Staadt, Charles R., to Masonry Systems, Inc., mesne. Motorized scaffold. 3,785,454, Cl. 182-14.000.

Beier, Helmut; and Noack, Dieter. High-voltage circuit breaker equipped with means for precluding the transfer of mechanical switching forces. 3,786,216, Cl. 200-148.00d.

Belenky, Evgeny Jurievich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev, Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

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Rimbach, Andrew, Jr., 3,786,199.
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Belle Isle, Albert P., to General Electric Company. Digital pulse train frequency multiplier. 3,786,357, Cl. 328-38.000.

Beloit Corporation: *See*—
Frye, Kenneth G.; Lucas, Robert G.; Seidel, Kenneth L.; and Rohosy, Soma M., 3,785,232.
Stafford, Larry O.; Wentworth, William P.; and Melead, James J., 3,785,340.

Bender, Lee C., to Log Etronics, Inc. Method of calibrating a graphic arts camera. 3,785,733, Cl. 355-77.000.

Bender, Martin. Balancing device. 3,785,647, Cl. 273-1.00m.

Bender, Warren G.: *See*—
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Benderovsky, Vladimir Valerianovich; Schepotiev, Alexandr Ivanovich; Yastrebov, Igor Alexandrovich; and Kotenko, Viktoria Mikhailovna. Mechanism for transportation of an information carrier at respectively different speeds. 3,785,589, Cl. 242-201.000.

Bendix Corporation, The: *See*—
Bridges, Robert M., 3,786,397.
Ewing, James O.; and Reilly, Philip E., 3,786,404.
Shure, David M., 3,786,367.

Bendler, Hellmut; Brede, Uwe; Gawlick, Heinz; and Rudolph, Hans-Heinrich, to Dynamit Nobel Aktiengesellschaft. Piezoelectric percussion fuze. 3,785,292, Cl. 102-70.20r.

Beneytoot, Lucien: *See*—
Delacroix, George; and Beneytoot, Lucien, 3,785,764.

Benjamin, John Stanwood, to International Nickel Company, Inc., The. Consolidated composite materials by powder metallurgy. 3,785,801, Cl. 75-.5bc.

Benjamins, Harm Martinus; Kortenoeven, Koos; and Panek-Finda, Helena. Method of manufacturing a generator which produces radioisotopes and has an improved elution efficiency, and generator obtained by this method. 3,785,990, Cl. 252-301.10r.

Benson, James M.; and Baker, William C., to Teledyne, Inc. Fluid flow measuring device. 3,785,206, Cl. 73-212.000.

Bentley Engineering Company Limited, The: *See*—
Hanney, Philip Michael; Stainforth, Thomas Raymond; and Bland, William Arthur, 3,785,173.

Beranek, Miroslav, to Vorwerk & Co. Elektrowerke KG, Firma. Absorption type cooling unit. 3,785,170, Cl. 62-489.000.

Beranek, Miroslav; and Krumm, Heinz G., to Vorwerk & Co. Elektrowerke KG, Firma. Absorption cooling device. 3,785,171, Cl. 62-490.000.

Berg, Laader, to Unifoam AG. Method for the continuous production of a foamed polyurethane slab involving flow from a vessel over a weir structure. 3,786,122, Cl. 264-47.000.

Berg, Markus; Hallmann, Matthias; and Hoffmeister, Jurgen, to Henkel & Cie G.m.b.H. Compositions for the preparation of cold-bleaching liquors, particularly active washing liquors. 3,785,984, Cl. 252-99.000.

Bergbauer, Axel; Ploger, Manfred; and Seyd, Gunther, to Siemens Aktiengesellschaft. Device for closing off defective heat exchanger tubes. 3,785,291, Cl. 102-24.00r.

Berger, Henri, to Societe d'Applications Generales d'Electricite et de Mecanique. Proportional position coder. 3,786,459, Cl. 340-. 196.000.

Bergfried, Dietrich E., to Weinschel Engineering Company, Inc. Variable resistive film attenuator. 3,786,374, Cl. 333-81.00a.

Berggren, John L. Mechanical movement. 3,785,213, Cl. 74-60.000.

Bergstedt, Jan O.: *See*—
Lonnemo, Kurt R.; and Bergstedt, Jan O., 3,785,398.

Berkowitz, Florence. Wedge bolster bedding holder. 3,784,993, Cl. 5-308.000.

Bernholz, William F.; Nahta, Roop C.; and Redston, John P., to PVO International Inc. Textile finish. 3,785,973, Cl. 252-8.800.

Berry, Walter V.; and Hunziker, Paul J., to Pullman Incorporated. Cable grip clamp arrangement. 3,785,296, Cl. 104-202.000.

Berstorff, Hermann, Maschinenbau GmbH: *See*—
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Berth, William H.: *See*—
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Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, to Roussel-UCLAF. Substituted pyrimidine. 3,785,800, Cl. 71-92.000.

Bessot, Jean-Jacques: *See*—
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Betteridge, Walter: *See*—
Mynard, Brian Arthur; Jones, Bryan; Tracey, Victor Allen; and Betteridge, Walter, 3,785,783.

Beurrier, Henry Richard, to Bell Telephone Laboratories, Incorporated. Broadband amplifier. 3,786,361, Cl. 330-20.000.

Bhimani, Chetan Vijaysinh, to Recognition Equipment, Incorporated. Optical character identification. 3,786,416, Cl. 340-146.3ac.

Bianco, Eitore. Automatic device for signaling frogman accidents. 3,786,406, Cl. 340-5.00r.

Biddison, John M., to Globe Tool and Engineering Company, The. Shaft rotating mechanism. 3,785,583, Cl. 242-7.05b.

Biel, John Hans: *See*—
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Bigelow, John H., to Du Pont de Nemours, E. I., and Company. Polyhedral haloboranes as developer adjuvants with a polyethylene oxide condensation product. 3,785,823, Cl. 96-66.300.

Biland, Hans Rudolf: *See*—
Piller, Bernhard; Meier, Max; Duennenberger, Max; Biland, Hans Rudolf; and Luethi, Christian, 3,785,827.

Billarant, Patrick, to Velcro France. Flexible bands fitted with hooks for the fabrication of separable fastening devices. 3,785,012, Cl. 24-204.000.

Binger, Wynn S.; Shope, Leonard L.; and Moey, Glenn W., to Construction Materials, Inc. Concrete median and curb sawing machine. 3,785,705, Cl. 299-75.000.

Bio-Medical Sciences, Inc.: *See*—
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Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,785,735.

Birchall, James Derek; Cassidy, John Edward; Stafford, John; and Last, Anthony Graham Marshall, to Imperial Chemical Industries, Limited. Printing process. 3,785,845, Cl. 117-15.000.

Birke, August H., to Shell Oil Company. Dibenzimidazole grease thickening agents. 3,785,979, Cl. 252-51.50a.

Bishop, Ralph W. Process and apparatus for dehydrating moisture containing material. 3,785,063, Cl. 34-128.000.

Bismuth, Guy: *See*—
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Bitko, Sheldon S., to Fifth Dimension, Inc. Position-insensitive mercury relay. 3,786,217, Cl. 200-214.000.

Bitting, James L.; and Hagens, Robert J., to Ethyl Corporation. Bag folding apparatus. 3,785,636, Cl. 270-69.000.

Bjorkholm, John Ernst; Shank, Charles Vernon; and Sosnowski, Patrick, to Bell Telephone Laboratories, Incorporated. Planar waveguide-type distributed feedback laser with angular tuning. 3,786,368, Cl. 331-94.500.

Black and Decker Manufacturing Company, The: *See*—
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Blackerby, Alfred A. Weighing device for movable conveyors. 3,785,447, Cl. 177-119.000.

Blackham, Kenneth K.: *See*—
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Blair, Edgar Allan; and Hudgin, Donald Edward, to Frigitronics, Inc., mesne. Polyurethane polymers for use in soft lenses and method of producing soft lenses. 3,786,034, Cl. 260-77.5aq.

Blake, Ralph Kingsley, to Du Pont de Nemours, E. I., and Company. Method of making lithographic printing plates. 3,785,818, Cl. 96-33.000.

Bland, William Arthur: *See*—

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Blattner, Hans; and Schindler, Walter, to Ciba-Geigy Corporation. Certain 10-11-bis (bromomethyl)-dibenzazepines. 3,786,045, Cl. 260-239.00d.

Blessing, Inc.: *See*—
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Blewett, John H.; and Naumann, Harry K., to Western Electric Company, Incorporated. Apparatus for applying liquid to articles without touching the articles. 3,785,341, Cl. 118-421.000.

Bliemeister, Robert M., to Allis-Chalmers Corporation. Support bearing and assembly for rotary kilns. 3,785,711, Cl. 308-237.00r.

Blinder, William, to General Motors Corporation. Assorting method and apparatus for bearing balls. 3,785,485, Cl. 209-75.000.

Bliss & Laughlin Industries, Incorporated: *See*—
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Blzig, Karl F.; and Junginger, Klaus, to Original Hanau Quarzlampen GmbH. Light fixture having gimballed open ring carrying focused light pipe outlets. 3,786,243, Cl. 240-1.400.

Board of Regents: *See*—
Browner, Richard F.; Winefordner, James D.; and Glenn, Tom H. (said Browner and said Winefordner assors. to), 3,786,308.

Bobeck, Andrew Henry, to Bell Telephone Laboratories, Incorporated. Magnetic single wall domain expansion circuit. 3,786,453, Cl. 340-174.0tf.

Bodka, Heinz-Gunter: *See*—
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Boehringer Mannheim Gesellschaft mit beschrankter Haftung: *See*—
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Bogdanov, Alexandr Antonovich; and Pomazkova, Zinaida Sirafimovna. Electric drives for centrifugal pumps. 3,785,753, Cl. 417-424.000.

Boggs, Charles L.: *See*—
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Bohn and Dawson, Inc.: *See*—
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Bohrer, Thomas Carl; Ecker, George Franklin; and Chen, David Hsiao Tsung, to Celanese Corporation. Hot stepwise drawing with independent free-wheeling idler rolls. 3,785,018, Cl. 28-71.300.

Boliden Aktiebolag: *See*—
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Bolsing, Friedrich. Phosphoric acid salts of long chain amino compounds. 3,786,091, Cl. 260-583.00r.

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Boning, Walter; and Leistner, Werner, to Siemens Aktiengesellschaft and Electric salient-pole synchronous machine rotor solid metal pole piece. 3,786,293, Cl. 310-269.000.

Bonnamy, Philippe J. F.; and Mugneret, Jean A., to Compagnie Francaise des Petroles. Anti-pounding device mounted on a boat for maintaining a cable at a given level above an underwater bed. 3,785,511, Cl. 214-14.000.

Bonyhard, Peter Istvan, to Bell Telephone Laboratories, Incorporated. Single wall domain coding circuit. 3,786,446, Cl. 340-174.0tf.

Booker, Graham Roger: *See*—
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Borisov, Jury Modestovich; Budyko, Jury Ivanovich; Dubnitsky, Nikolai Borisovich; Koganer, Valentin Eizerovich; Lisitsyn, Alexandr Ivanovich; Mozokhin, Nikolai Gavrilovich; Maskenskov, Konstantin Mikhailovich; and Dukhnin, Jury Vasilievich. Fuel injection ystem for internal combustion engine. 3,785,353, Cl. 123-32.0ea.

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Borkowski, Casimer J.; and Kopp, Manfred K., to United States of America, Atomic Energy Commission. Proportional counter radiation camera. 3,786,270, Cl. 250-385.000.

Boros, Steve, to General Electric Company. Method of basing electrical devices. 3,785,020, Cl. 29-25.130.

Bos, Isaac, to Heberlein & Co., AG. Switching circuit for controlling alternating circuit flow. 3,786,328, Cl. 318-227.000.

Bosch, Robert, G.m.b.H.: *See*—
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Misch, Wolfgang, 3,786,314.
Sandau, Hartmut, 3,785,253.
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Botros, Raouf, to American Aniline Products, Inc. Process for dyeing polyester textiles with anthraquinone dyestuffs by thermofixation. 3,785,766, Cl. 8-21.00c.

Bouchet, Claude; and Ziliotto, Vittorio, to International Standard Electric Corporation. Electronic scanner checking process and system. 3,786,431, Cl. 340-172.500.

Bourgeois, Michel; and Le Havre, Pierre Jean, to Gaz Transport, S.A.R.L. Integral tank for transporting liquefied gas. 3,785,320, Cl. 114-74.00a.

Bowen, Rafael L., to United States of America, Health, Education, and Welfare. Dental primer varnish. 3,785,832, Cl. 106-35.000.

Bowers, Gerald M.: *See*—
Kirkman, Earl L.; and Bowers, Gerald M., 3,785,853.

Bowling, Glenn W.; and Kidd, Donald D., to Dayco Corporation. Textile working unit. 3,785,022, Cl. 29-132.000.

Bowman, Melvin G.; and Vier, Dwayne T. Gas mixture for forming protective coatings on graphite. 3,785,994, Cl. 252-372.000.

Boyd, David M.; and Greenwood, Arthur R., to Universal Oil Products Company. Uniform solids withdrawal system. 3,785,963, Cl. 208-171.000.

Boyer, Charles D., to Allegheny Ludlum Industries, Inc. Surface finishing. 3,785,857, Cl. 117-124.00b.

Boyer, John A.; Ludwig, David P.; and Zwickel, Friedrich, to Western Electric Company, Incorporated. Loading of compliant tape. 3,785,903, Cl. 156-356.000.

Brachet, Hansvilli Von: *See*—
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Bradley, Robert F.; and Bradley, Lindell P. Pull type exercising device having frictional resistance to pulling. 3,785,644, Cl. 272-79.00d.

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Brajkovich, William D. Motorcycle carrier and chock. 3,785,517, Cl. 214-450.000.

Brand, Wilhelm, to Berstorff, Hermann, Maschinenbau GmbH. Apparatus to control feed of material to an extruder. 3,785,527, Cl. 222-56.000.

Brandenburg, Frank J., Jr. Radiant heater. 3,786,230, Cl. 219-345.000.

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Brewer, Lloyd E. Wall panel layout apparatus. 3,785,060, Cl. 33-191.000.
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Coad, George L.; and Carter, James C., to Applied Radiation Corporation. Scissor lift and drive mechanism therefor. 3,785,462, Cl. 187-18.000.
Coal Industry (Patents) Limited: *See—*
Bates, John Joseph; Jackson, Eric Arthur; and Smith, Gordon, 3,786,511.
Price, David Watkin; Sidebottom, Ronald; Briscoe, Murray George; and Moore, Ronald Charles, 3,786,011.
Coaxial Scientific Corporation: *See—*
McVoy, David S.; and Reynolds, Richard G., 3,786,424.
Coca-Cola Company, The: *See—*
Doheny, William Michael, 3,785,669.
Cocozella, Anthony J. Finger-actuated snap open caps for bottles collapsible tubes and the like. 3,785,538, Cl. 222-490.000.
Coffelt, James D.: *See—*
Rhinehart, Vance E.; Coffelt, James D.; and Yother, Floyd G., 3,785,345.
Coffey, James P.; and Duddy, Joseph C., to ESB Incorporated. Solar still and the like. 3,785,931, Cl. 202-234.000.
Cogar Corporation: *See—*
Alexander, Stephen B.; Bryant, Richard W.; Lipp, Robert J.; and Tu, George K., 3,786,442.
Coggeshall, John C., 25% to Blowitz, Milroy R., 25% to Pastin, Max and 50% to Magnor, Inc. Blood analyzer. 3,785,772, Cl. 23-253.00r.
Cohen, Milton J. Syringe for injection of freshly mixed liquid-powder. 3,785,379, Cl. 128-218.00m.
Coker, Morton M.: *See—*
Butterfield, Max L.; Windish, Willis L.; and Coker, Morton M., 3,785,503.
Colehagoff, Robert D., to Owens-Illinois, Inc. Apparatus for positively centering a glass forming thimble. 3,785,795, Cl. 65-307.000.
Cole, Eugene A.: *See—*
Behunin, Gage B.; Cole, Eugene A.; and Staadt, Charles R., 3,785,454.
Cole, Roger M.: *See—*
Sullivan, Michael I.; Cole, Roger M.; and Humphlett, Wilbert J., 3,785,830.
Coleco Industries, Inc.: *See—*
Kobayashi, Takanori William, 3,785,648.
Coleman Systems: *See—*
Schiff, Otto M.; and Rikis, Vitolds, 3,785,270.
Coles, Sidney J.; and Teal, Bernard C., to Westinghouse Canada, Limited. Panelboard assembly with improved support means. 3,786,313, Cl. 317-120.000.
Colgate-Palmolive Company: *See—*
Dage, Richard, 3,786,148.
Grand, Paul Sheldon, 3,785,985.
Suh, John T.; and Bare, Thomas N., 3,786,154.
Colleuille, Yves: *See—*
Aviron-violet, Paul; and Colleuille, Yves, 3,786,069.
Collier, Howard E., to Esso Production Research Company. Removable tubular insert for reducing erasion in headers. 3,785,402, Cl. 137-561.00a.
Collin, Sylvan: *See—*
Ryan, Jack E.; and Collin, Sylvan, 3,785,490.
Collins, John D., to Raytheon Company. Time compression signal processor. 3,786,504, Cl. 343-5.0dp.
Collins, Leslie C.; and Smith, Arthur W., to Eastern Rotocraft Corporation. Cable reel spring installation. 3,785,464, Cl. 191-12.20r.
Collins, Robert J., to Upjohn Company, The. Animal feed for obtaining increased production in animals. 3,786,149, Cl. 424-269.000.
Colson, Frank S. Portable kilns. 3,786,162, Cl. 13-22.000.
Colspan Environmental Systems, Inc.: *See—*
Womack, William C., 3,785,557.
Columbia Gas System Service Corporation: *See—*
Reid, Edward A., Jr.; Venendaal, Robert G.; and Myler, George W., 3,785,364.
Combustion Engineering, Inc.: *See—*
Notari, Gennaro V., 3,785,924.
Communications Satellite Corporation: *See—*
Wentworth, Donald L., 3,785,590.
Compac Engineering, Inc.: *See—*
Jones, James W., 3,786,384.
Compackager Corporation: *See—*
Hopkins, Stephen, 3,785,278.
Compagnie de Material et d'Equipements Techniques C.O.M.E.T.: *See—*
Launay, Pierre, 3,785,421.
Compagnie Francaise des Petroles: *See—*
Bonnamy, Philippe J. F.; and Mugneret, Jean A., 3,785,511.
Compagnie Francaise Thomson Houston-Hotchkiss Brandt: *See—*
Hepner, Georges; Lacombat, Michel; and Marcy, Raymond, 3,786,332.
Compagnie Industrielle des Telecommunications: *See—*
Long, Jacques; and Bessot, Jean-Jacques, 3,785,162.
Compagnie Industrielle des Telecommunications Cit-Alcatel: *See—*
Sinobad, Dosan, 3,786,483.
Wolff, Paul, 3,785,227.
Compton, Wayne W., to Kim Lighting, Inc. Luminaire. 3,786,248, Cl. 240-25.000.
Computer Communications, Inc.: *See—*
Ackley, Donald M., 3,785,047.
Conard, Wendell R.; and Ellis, Ronald M., to Firestone Tire & Rubber Company, The. Flame and burn resistant butadiene resin compositions. 3,786,087, Cl. 260-41.50a.
Confino, Maurice; and Godard, Gerard. Device for the emission of volatile products. 3,785,561, Cl. 239-60.000.
Conkle, Ellsworth V., 5% to Stratman, James A. and Morgan, Fred P. Tailgate assembly. 3,785,695, Cl. 296-50.000.
Conley, Larry R., to Accra-Point Arrays Corporation. Printed circuit board method and apparatus. 3,786,172, Cl. 174-68.500.
Conner, Algie J.; Strother, Charles W.; and Vermilion, Willas L., to Universal Oil Products Company. Fluidized catalytic cracking process. 3,785,962, Cl. 208-164.000.
Connon, Neil W., to Eastman Kodak Company. Synthesis of ethyl 4-haloacetoacetates. 3,786,082, Cl. 260-483.000.
Conoflow Europa N.V.: *See—*
Stamm, David Paul, 3,785,757.
Conrad, Richard A., to Litton Systems, Inc. Identification and polarization of msi/lsi assembly and receptacle. 3,786,393, Cl. 339-17.00c.
Conroy, Robert E., to Air Guard Industries. Athletic armor and inflatable bag assembly. 3,784,985, Cl. 2-22.000.
Consolidated Coal Company: *See—*
Jamison, Will B., 3,786,461.
Consolidated Foods Corporation: *See—*
Peura, Warren A., 3,785,217.
Construction Machinery Company: *See—*
Johnson, James E., 3,785,622.
Construction Materials, Inc.: *See—*
Binger, Wynn S.; Shope, Leonard L.; and Moey, Glenn W., 3,785,705.
Continental Aluminum Products Company: *See—*
Fink, Frederick M., 3,785,106.
Continental Gummi-Werke Aktiengesellschaft: *See—*
Bretschneider, Walter, 3,785,068.
Continental Oil Company: *See—*
Fertl, Walter H.; Cavanaugh, Robert J.; and Hillhouse, John L., 3,785,446.
Hunt, Mack W., 3,785,976.
Neuworth, Martin B., 3,786,100.
Scott, William P., 3,785,974.
Conversion Chemical Corporation: *See—*
Hsu, Grace F., 3,785,939.
Cook, Charles W., to Ball Corporation. Glass container angular displacement device. 3,785,473, Cl. 198-33.0ac.
Cook, Robert Lewellyn, to Flavor Pict, Inc. Tomato plant tying machine. 3,785,087, Cl. 47-1.000.
Coon, Marvin D.: *See—*
Honnen, Lewis R.; and Coon, Marvin D., 3,785,789.
Cooper, Erwin E., to Texas Instruments, Incorporated. Method and apparatus of scanning electromagnetic radiation using rotating detectors-emitters and control circuit. 3,786,269, Cl. 250-334.000.
Cooprider, Rex C., to Diamond International Corporation. Dispensing pump. 3,785,532, Cl. 222-207.000.

Coparfi: *See—*
Letourneur, Guy, 3,785,109.
Cornair, Russell J., to International Basic Economy Corporation. Fluid motor pressure cylinder mounting apparatus. 3,785,252, Cl. 92-161.000.
Cornelius, Edward B.; Delamater, George B.; Koester, David W.; and McEvoy, James E., to Air Products and Chemicals, Inc. Reforming catalyst and preparation. 3,786,001, Cl. 252-464.000.
Corning Glass Works: *See—*
Maurer, Robert D., 3,785,716.
Schultz, Peter C., 3,785,722.
Corrodi, Hans Rudolf; Lycke, Nils Erik Oskar; and Roos, Bjorn-Erik, to Aktiebolaget Hassle. Method for treating virus infection affecting the brain. 3,786,143, Cl. 424-309.000.
Corson, G. & W. H., Inc.: *See—*
Minnick, Leonard John; Webster, William C.; and Smith, Charles L., 3,785,840.
Costner, Donald T.: *See—*
Perry, Leonard T.: Costner, Donald T.; and Noggle, Edward F., 3,785,565.
Cotter, William L., to Darmtronics Engineering, Inc. Alarm detector with increased operating range. 3,786,467, Cl. 340-258.00a.
Coulter Electronics, Inc.: *See—*
Tucker, Lorn Kenneth, 3,786,261.
Coursigns, Inc.: *See—*
Ferris, Robert C., 3,785,331.
Cousserans, Gilbert; Mathey, Francois; and Gryszkiewic-Trouchimowski, Oleg, to Azote et Produits Chimiques S.A. Sulfur containing fungicidal compositions and methods of use. 3,786,155, Cl. 424-301.000.
Cowles, Walter C.: *See—*
Iarossi, Frank J.; and Cowles, Walter C., 3,785,318.
Cox, Arthur R., to United Aircraft Corporation. Nickel-base superalloy. 3,785,809, Cl. 75-171.000.
CPC International Inc.: *See—*
Milkovich, Ralph; and Chiang, Mutong T., 3,786,116.
Craftmaster, Inc.: *See—*
Smith, Raymond Peter, Jr., 3,785,496.
Crafts, Robert L.; to Telex Computer Products Inc. Variable rate incrementing recorder. 3,786,456, Cl. 340-174.10a.
Craig, William A. Extension desubluxation hinge appliance. 3,785,372, Cl. 128-80.00c.
Crain, Donald L.: *See—*
Zuech, Ernest A.; and Crain, Donald L., 3,786,106.
Cramer, Werner: *See—*
Asselborn, Peter; Cramer, Werner; Gladbach, Bergisch; and Mullejans, Heinrich, 3,785,189.
Crawford, Alexander, to Massey-Ferguson-Perkins, Limited. Material discharge and spreading apparatus for fluent material. 3,785,573, Cl. 239-658.000.
Crellin, John R., Jr., to Albany International Corporation. Snap lock assembly. 3,785,584, Cl. 242-118.600.
Crespo, Carlos A. Portable submersible pump. 3,785,752, Cl. 417-319.000.
Creswick, William E.: *See—*
Donnithorne, William C.; and Creswick, William E., 3,785,540.
Cretin-Mattenaz, Bernard, to Essilor International (Compagnie Generale d'Optique). Ophthalmic lenses with progressively varying focal length. 3,785,724, Cl. 351-169.000.
Crocker, Harry E.: *See—*
Gaven, Thomas J.; Crocker, Harry E.; and Feldman, Edward, 3,786,189.
Crocker, Roger A.: *See—*
Crocker, Roger A.; and Schoolcraft, Jim F. (said Schoolcraft assor. to said), 3,785,506.
Crocker, Roger A.; and Schoolcraft, Jim F., said Schoolcraft assor. to said Crocker, Roger A. Drill pipe handling apparatus. 3,785,506, Cl. 214-1.00p.
Crosby, John J.: *See—*
Meyfarth, Herbert J.; and Crosby, John J., 3,785,587.
Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Stepped integrated waveguide structure with directional coupling and a method of manufacturing such structures. 3,785,717, Cl. 350-96.0wg.
Crouse, Don E.: *See—*
Hodshire, James O.; Shockley, Quentin O.; and Crouse, Don E., 3,785,785.
Croxon, Brian F.; and Abbott, Laurence F., to Honeywell Information Systems, Inc. Random access memory system utilizing an inverting cell concept. 3,786,437, Cl. 340-173.0dr.
Crystal-X Corporation: *See—*
Delmar, John Kenneth, 3,785,406.
Cumberland Corporation: *See—*
Rhinehart, Vance E.; Coffelt, James D.; and Yother, Floyd G., 3,785,345.
Cunningham, Ernest R., to Grip-Pak, Inc., mesne. Container package. 3,785,484, Cl. 206-65.00c.
Currey, Jack L. Boat construction and method. 3,785,317, Cl. 114-61.000.
Curtis, Charles H.: *See—*
Atwood, George E.; and Curtis, Charles H., 3,785,944.
Cutler-Hammer, Inc.: *See—*
Koenig, Martin F.; Dempsey, George A., Jr.; and Issa, Manuel, 3,786,394.
Czapek, Andre Louis, to Societe d'Oplique, Precision Electronique et Mechanique-Sopelem. Coarse and fine adjustment means. 3,785,218, Cl. 74-479.000
Czoch, Jerzy Wladyslaw: *See—*
Preston, Edward George; and Czoch, Jerzy Wladyslaw, 3,785,902.
Daams, Jasper; and Wellinga, Kobus, to U.S. Philips Corporation. Herbicidal compositions containing 2-(2',6'-dichlorophenyl)-1,3-thiazine-4-one and methods of employing the same. 3,785,799, Cl. 71-90.000.
Dabbs, Robert. Portable collapsible garage. 3,785,697, Cl. 296-136.000.
Dage, Richard, to Colgate-Palmolive Company. Method of treating hypertension with morphanthridines. 3,786,148, Cl. 424-267.000.
Dagiel, Richard T., to Symons Corporation. Concrete wall form tie rod assembly with twist-off spacer members. 3,785,610, Cl. 249-214.000.
Dahl, Martin W.: *See—*
Clagett, Thomas E.; and Dahl, Martin W., 3,785,228.
Dahlgren, Harold P. Sheet interrupter. 3,785,287, Cl. 101-247.000.
Dai Nippon Toryo Co., Ltd.: *See—*
Furuya, Akio; Hachiboshi, Makoto; Adachi, Toshio; and Uchida, Masakatsu, 3,786,004.
Toshinai, Akio; and Hase, Takashi, 3,785,991.
Tsugukuni, Hideyoshi; and Matsuda, Mitsuhiro, 3,786,010.
Daigle Aqua, Inc.: *See—*
Daigle, Rosaire, 3,785,399.
Daigle, Rosaire, to Daigle Aqua, Inc. Fire hydrant drainage valve. 3,785,399, Cl. 137-305.000.
Daimler-Benz Aktiengesellschaft: *See—*
Lamm, Heinz, 3,785,745.
Strauber, Hans-Jurgen, 3,785,457.
Dainichiseika Color & Chemicals Mfg. Co. Ltd.: *See—*
Terai, Shiro; Suzuki, Toshio; Hasegawa, Yoshihumi; Sekiya, Hitoshi; Matuo, Hiroto; and Kimata, Shizuo, 3,785,946.
Daiwa Can Co. Ltd.: *See—*
Yoshikawa, Tatsumi, 3,785,311.
Dallen, John A., to Standard Products Company, The. Panel sealing system for internal glazing. 3,785,104, Cl. 52-400.000.
Dan Dee Belt & Bag Company, Inc.: *See—*
Rotondi, Paul C., 3,785,893.
Danforth, Leon J., to Markus, Richard B. Hydrofoil vessel. 3,785,319, Cl. 114-665.00h.
D'Angelo, Thomas J.; Strohmeyer, William H.; and Ulbrich, John K., to Meyer Machine Company. Tennis ball propelling machine. 3,785,358, Cl. 124-1.000.
Danneberg, Peter: *See—*
Bauer, Adola; Weber, Karl-Heinz; Danneberg, Peter; and Minck, Kalus, 3,786,051.
Darmtronics Engineering, Inc.: *See—*
Cotter, William L., 3,786,467.
Dart Industries, Inc.: *See—*
Novice, Michall A., 3,785,851.
Dasher, Cyndia H.: *See—*
Dasher, Kenneth R.; and Dasher, Cyndia H., 3,785,729.
Dasher, Kenneth R.; and Dasher, Cyndia H. Overhead projector roller assembly. 3,785,729, Cl. 353-12.200.
Date, Tasuku; and Otani, Junji, to Honda Giken Kogyo Kabushiki Kaisha. Rotary piston internal combustion engine. 3,785,352, Cl. 123-8.130.
Daussan, Andre; Daussan, Jean Charles; and Durasan, Gerard. Device for the treatment of ferrous metal ingots which are intended to be removed from molds without hold-up periods. 3,785,609, Cl. 249-197.000.
Daussan, Jean Charles: *See—*
Daussan, Andre; Daussan, Jean Charles; and Durasan, Gerard, 3,785,609.
Davidovich, Natalia Ivanovna: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.
Davidson, William Ward, Jr., 30% to Brown, Robert C., Jr. Copier-duplicator. 3,785,289, Cl. 101-450.000.
Davies, Robert G.: *See—*
La Cagnina, John M.; and Davies, Robert G., 3,785,816.
Davis, Claude A.: *See—*
Stendig, Joseph L.; and Davis, Claude A., 3,786,502.
Davis, Elmer H. Incinerators for pollution free burning of solid waste materials at low cost and with reduced possibility of accidental fire setting, often, transportable, portable, and/or semi permanently located. 3,785,302, Cl. 110-8.00c.
Davis, Hugh J. Method and apparatus for disease diagnosis. 3,785,366, Cl. 128-2.00b.
Davis, Philip E., Jr. Well packer. 3,785,436, Cl. 166-120.000.
Davis, Robert H.; and Fox, Jon E., to International Business Machines Corporation. Matrix keyboard method and apparatus. 3,786,497, Cl. 340-365.00s.
Davis, Thomas E.; and West, Thomas O., to Dawes Enterprises Incorporated, mesne. Apparatus for application of dyes and/or chemicals to fabrics, webs, strands of yarn, or other material. 3,785,179, Cl. 68-5.00d.

Davis, William F.; Russell, Ronald W.; Frederiksen, Thomas M.; and Long, Ernest L., to Motorola, Inc. Voltage and current regulator with automatic switchover. 3,786,344, Cl. 323-20.000.
Davis, William H., to Universal Oil Products Company. Gasoline production process. 3,785,955, Cl. 208-80.000.
Davis, William O.: *See—*
Barr, Irwin R.; La Costa, Nicholas J.; and Davis, William O., 3,785,293.
Dawes Enterprises Incorporated, mesne: *See—*
Davis, Thomas E.; and West, Thomas O., 3,785,179.
Dawes, John L.; and Holmes, Jerry D., to Eastman Kodak Company. Method for preparing carbonyls of ruthenium and osmium. 3,786,132, Cl. 423-417.000.
Dawidowicz, Jan; and Ferraro, Frank A., to Warner-Lambert Company. Dispensing system for bonded razor blade cartridges. 3,785,051, Cl. 30-40.200.
Dawson, James C., to Bohn and Dawson, Inc. Foot control guard. 3,785,222, Cl. 74-561.000.
Dayco Corporation: *See—*
Bowling, Glenn W.; and Kidd, Donald D., 3,785,022.
de Bie, Edouard, to Metallurgie Hoboken-Overpett. Casting of deoxidized copper. 3,785,427, Cl. 164-154.000.
De Cadenet, Jean-Jacques, to Ugine Aciers. Welded austenitic nickel chromium steels. 3,785,786, Cl. 29-196.100.
De Hollander, William Roger; and Klepfer, Harold Holmes, to General Electric Company. Conversion of uranium hexafluoride to uranium dioxide structures of controlled density and grain size. 3,786,120, Cl. 264-.500.
De La Rue Giori S.A.: *See—*
Giori, Gualtiero, 3,785,286.
de Roocker, Alain Joseph Guillaume: *See—*
d'Ostrowick, Pierre Marie Joseph Ghislain de Radzitzky; and de Roocker, Alain Joseph Guillaume, 3,786,084.
De Seversky, Alexander P. Multi-concentric wet electrostatic precipitator. 3,785,125, Cl. 55-119.000.
De Stevens, George: *See—*
Dickel, Daniel Frederick; and De Stevens, George, 3,786,085.
De Vita, Luciano; and Mancini, Emilio, to Alitalia Linee Aeree Italiame S.p.A. Apparatus for testing systems and data transmitting networks by simulation. 3,786,187, Cl. 178-69.00a.
D.E.A. Digital Electronic Automation S.p.A.: *See—*
Sartorio, Franco, 3,785,743.
Dean, William H.; and Henes, Richard W., said Dean assor. to said Henes, Richard W. Cover top for pickup truck beds. 3,785,698, Cl. 296-137.00b.
Decalock Limited: *See—*
Armstrong, Richard James, 3,785,686.
Decision Data Corporation: *See—*
Hunter, Alexander, 3,785,288.
Deere & Company: *See—*
Kittle, Carl Edwin; and Spencer, Keith Louis, 3,785,157.
Deering Milliken Research Corporation: *See—*
Fay, Robert C., 3,785,906.
DeGain, William J.: *See—*
Castor, Gary E.; and DeGain, William J., 3,785,290.
Delacroix, George; and Beneytoot, Lucien, to Societe Anonyme: Ciments Lafarge. Continuous melting of very high melting point materials. 3,785,764, Cl. 432-85.000.
Delamater, George B.: *See—*
Cornelius, Edward B.; Delamater, George B.; Koester, David W.; and McEvoy, James E., 3,786,001.
Delano, Roger Albert: *See—*
Schofield, John Allan; and Delano, Roger Albert, 3,785,987.
Delcano, Henry H.; Demchak, William M.; and Jakubowski, Marek, to International Business Machines Corporation. Apparatus for separating and feeding documents. 3,785,640, Cl. 271-90.000.
Delmar, John Kenneth, to Crystal-X Corporation. Cartridge pack for trash compaction machine. 3,785,406, Cl. 138-103.000.
Deluca, Hector F.: *See—*
Schroeder, Collin H.; Lechnir, Richard J.; Cleveland, Peter G.; Deluca, Hector F.; and Derse, Philip H., 3,786,062.
Deluca, Paul V., to Porta Systems Corporation. Electrical connector. 3,786,395, Cl. 339-66.00m.
Dembinski, Krzysztof: *See—*
Anthony, Anne-Marie, nee Barbier; Dembinski, Krzysztof; Faucher, Michele, nee Dupre; and Dupont, Lucien, 3,786,165.
Demchak, William M.: *See—*
Delcano, Henry H.; Demchak, William M.; and Jakubowski, Marek, 3,785,640.
Dempsey, George A., Jr.: *See—*
Koenig, Martin F.; Dempsey, George A., Jr.; and Issa, Manuel, 3,786,394.
Denker, James M., to Nutron Corporation. Positioning. 3,785,634, Cl. 269-71.000.
Denki Onkyo Co., Ltd.: *See—*
Katayama, Shitomi; Horikawa, Hideichi; Obuchi, Masao; and Ito, Yoshihiro, 3,786,031.
Derleth, Helmut; and Fischer, Hermann, to Kali-Chemie Aktiengesellschaft. Process of making graphite-metal chloride intercalation compounds and product obtained thereby. 3,785,999, Cl. 252-441.000.
Derse, Philip H.: *See—*
Schroeder, Collin H.; Lechnir, Richard J.; Cleveland, Peter G.; Deluca, Hector F.; and Derse, Philip H., 3,786,062.
Desbordes, Jean, to Societe Anonyme dite: Stein Industrie. Grinding mill. 3,785,576, Cl. 241-57.000.
DeScarbon, Christian M.L.L. Bourcier. Top reinforcement for pneumatic tires. 3,785,423, Cl. 152-361.00r.
Deshayes, Philippe Marie: *See—*
Weber, Guy Paul; and Deshayes, Philippe Marie, 3,785,730.
Design Systems, Inc.: *See—*
Streander, George W., 3,785,057.
Streander, George W., 3,785,245.
Deutsch, Albert S.; and Poppo, Joseph M., to Polychrome Corporation. Light-sensitive quinone diazide compounds, compositions, and presensitized lithographic plate. 3,785,825, Cl. 96-75.000.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Chapman, Trevor; Schwarze, Werner; and Weigert, Wolfgang, 3,786,053.
Devenyi, Tibor Francis, to Northern Electric Company Limited. Electrical reactance and loss measurement apparatus and method. 3,786,349, Cl. 324-57.00r.
Devillers, Pierre Louis Henri; and Loilier, Michel, to Syndicat National des Fabricants de Sucre de France. Process and plant for the purification of raw sugar juice. 3,785,863, Cl. 127-9.000.
Devitt, John L., to Gates Rubber Company, The. Zinc electrode. 3,785,868, Cl. 136-30.000.
Devor, Donald P.: *See—*
Robinson, Morton; and Devor, Donald P., 3,786,365.
DeVries, Jan Roelof Jochum Hendrik, to Industriele Onderneming Wavin N.V. Plastic block bag with a valve. 3,785,547, Cl. 229-62.500.
Dewey, Herbert F. Metal strip roll forming stand. 3,785,191, Cl. 72-181.000.
Di Sabatino, Roland, Jr., to Ametek, Inc. Swing disc check valve. 3,785,611, Cl. 251-25.000.
Diagnostic Instruments, Inc.: *See—*
Jvirblis, Alex E.; and Roth, Walter, 3,786,252.
Diamond Aerosol Corporation: *See—*
Helmrich, Ralph, 3,785,569.
Diamond International Corporation: *See—*
Cooprider, Rex C., 3,785,532.
Dick, A. B., Company: *See—*
Ziebka, Bernard M.; and Tamborrino, Paul A., 3,785,639.
Dickel, Daniel Frederick; and De Stevens, George, to Ciba-Geigy Corporation. Aryl substained cycloaliphatics acids. 3,786,085, Cl. 260-515.00r.
Didier, Diane, Enterprises, Inc.: *See—*
Naylor, Walter G., Jr., 3,785,075.
Dietrich, Johannes: *See—*
Pfeiffer, Kurt; Dietrich, Johannes; Beckmann, Gunter; and Herkt, Karl-Heinz, 3,785,430.
Dillon, Brian D.: *See—*
Huffaker, James E.; Myers, Ernest L.; Dillon, Brian D.; and Dolen, Cecil W., 3,785,039.
Dinnerstein, Albert J., to Metaframe Corporation. Animal exercising observatory. 3,785,347, Cl. 119-29.000.
Ditz-Crane: *See—*
Kough, John K.; Martin, Otis M.; and Miller, Silas N., 3,785,114.
Ditzler, Richard C.: *See—*
Burstein, Norman; and Ditzler, Richard C., 3,785,778.
Dix, James S.: *See—*
Mathis, Ronald D.; and Dix, James S., 3,786,021.
Dixi S.A.: *See—*
Rosch, Eduard, 3,786,276.
Dixon, Farris L.; and Young, Sherwood L., to American Standard, Inc. Water control valve structure. 3,785,394, Cl. 137-218.000.
Dobbs, Harold J.: *See—*
Kelseaux, Ray M.; Dobbs, Harold J.; and Priebe, Frank D., 3,785,202.
Dodds, Irvine. Letter placement indicator for typewriters and means responsive to the indicator for simultaneous setting of margin stops. 3,785,471, Cl. 197-63.000.
Doesburg, Van I.: *See—*
Householder, Kermit W.; and Doesburg, Van I., 3,785,935.
Doheny, William Michael, to Coca-Cola Company, The. Convertible bulk hand truck. 3,785,669, Cl. 280-47.180.
Dolen, Cecil W.: *See—*
Huffaker, James E.; Myers, Ernest L.; Dillon, Brian D.; and Dolen, Cecil W., 3,785,039.
Domingorene, Albert A., to General Electric Company. House-hold refrigerator. 3,785,168, Cl. 62-455.000.
Donnithorne, William C.; and Creswick, William E., to Algoma Steel Corporation, Limited, The. Golf tee type stopper for molten metal disengaging. 3,785,540, Cl. 222-559.000.
Dorr-Oliver, Incorporated: *See—*
Rosenquest, John B., Jr., 3,785,574.
Dorton, Robert H. Safety hook. 3,785,015, Cl. 24-241.0pp.
Dorwin, Walter League Associates Incorporated: *See—*
Ryan, Jack E.; and Collin, Sylvan, 3,785,490.
d'Ostrowick, Pierre Marie Joseph Ghislain de Radzitzky; and de Roocker, Alain Joseph Guillaume. Preparation of esters of formic acid. 3,786,084, Cl. 260-491.000.
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., to Cities Service Company. Flame retardant compositions. 3,786,023, Cl. 260-45.75b.
Dotto, Gianni A., to Anglemyer, Alfred A. Electrostatic wand. 3,785,383, Cl. 128-414.000.
Dovbnya, Alexandr Vasilievich: *See—*

Vereschagin, Leonid Fedorovich; Konyafv, Jury Sergeevich; Dovbnya, Alexandr Vasilievich; Polyakov, Evgeny Valentindvich; Novgorodov, Alexandr Stepanovich; Asan-Nuri, Abdulia Ogly, Paly, Polikarp Avidnomovich; and Gevorkov, Grigory Sergeevich, 3,785,093.
Dow Chemical Company, The: *See—*
Atkins, Bobby Leroy, and Bashaw, Robert Niles, 3,786,260.
Dow Corning Corporation: *See—*
Householder, Kermit W.; and Doesburg, Van I., 3,785,935.
Dower, James. Stalls for animals and gate assemblies therefor. 3,785,346, Cl. 119-27.000.
Draber, Wilfried: *See—*
Buchel, Karl-Heinz; Draber, Wilfried; Hammann, Ingeborg; and Unterstenhofer, Gunter, 3,786,131.
Dragerwerk Aktiengesellschaft: *See—*
Warncke, Ernst; and Haas, Hans, 3,785,333.
Drathschmidt, Carl J. Magnetic controlled door lock. 3,785,188, Cl. 70-276.000.
Dressayre, Jean, to U.S. Philips Corporation, mesne. Fail safe control circuit for traffic lights. 3,786,414, Cl. 340-78.000.
Drexhage, Karl H.; Reynolds, George A.; and Specht, Donald P., to Eastman Kodak Company. Laser dye composition. 3,786,369, Cl. 331-94.500.
Driver, Wilbur B., Company: *See—*
Steinitz, Robert, 3,785,808.
Drori, Assa. Recloseable carton. 3,785,478, Cl. 206-45.310.
Drozdov, Nikolai Ivanovich: *See—*
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich, Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich, Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.
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Amin, Rajnikant Babubhai, 3,785,837.
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Kalil, James, 3,785,995.
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MacDonald, Robert Neal, 3,786,028.
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Dudinec, Emery, and Wilhelm, John R., to Purolator, Inc. Filter anti-drainback and relief valves. 3,785,491, Cl. 210-130.000.
Dudzik, Chester J.: *See—*
Tecce, Frederick C.; and Dudzik, Chester J., 3,785,136.
Duennenberger, Max: *See—*
Piller, Bernhard; Meier, Max; Duennenberger, Max; Biland, Hans Rudolf; and Luethi, Christian, 3,785,827.
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Roberti, Giorgio; Dufour-Berte, Casimiro; and Pasero, Edoardo, 3,785,802.
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Borisov, Jury Modestovich; Budyko, Jury Ivanovich; Dubnitsky, Nikolai Borisovich; Koganer, Valentin Eizerovich; Lisitsyn, Alexandr Ivanovich; Mozokhin, Nikolai Gavrilovich; Maskenskov, Konstantin Mikhailovich; and Dukhnin, Jury Vasilievich, 3,785,353.
Dumbaugh, George D., to Vibranetics, Inc. Flowable material storage means. 3,785,529, Cl. 222-161.000.
Dunthorn, David I.: *See—*
Merriman, James R.; Pashley, John H.; Stephenson, Michael J.; and Dunthorn, David I., 3,785,120.
Dupont, Lucien: *See—*
Anthony, Anne-Marie, nee Barbier; Dembinski, Krzysztof; Faucher, Michele, nee Dupre; and Dupont, Lucien, 3,786,165.
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Durrwachter, Eugen Emil; Harmsen, Ulf; and Merl, Wilhelm, to Durrwachter, Eugen, Dr., DODUCO. Silver-metal oxide composite and method of manufacturing the same. 3,785,810, Cl. 75-173.00a.
Dutton, Edna M.: *See—*
McClellan, Alan J.; and Dutton, Harold R., 3,785,029.
Dutton, Harold R.: *See—*
McClellan, Alan J.; and Dutton, Harold R., 3,785,029.
Duval Corporation: *See—*
Atwood, George E.; and Curtis, Charles H., 3,785,944.
Dyer, Douglas M. A.C. Induction motor speed control systems. 3,786,327, Cl. 318-211.000.
Dyna-Kool Corporation: *See—*
Thomas, Sanford E., Jr., 3,785,064.
Dynamics Corporation of America: *See—*
Voglesonger, Harry M., 3,785,579.
Dynamit Nobel Aktiengesellschaft: *See—*
Bendler, Hellmut; Brede, Uwe; Gawlick, Heinz; and Rudolph, Hans-Heinrich, 3,785,292.
Eastern Rotocraft Corporation: *See—*
Collins, Leslie C.; and Smith, Arthur W., 3,785,464.
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Eaton Corporation: *See—*
Baker, Charles H., 3,785,392.
Eberle, Herbert; Meyer, Wolfgang; and Haase, Johann, to Salzdetfurth AG. Electrolysis of magnesium chloride. 3,785,943, Cl. 204-100.000.
Ecker, George Franklin: *See—*
Bohrer, Thomas Carl; Ecker, George Franklin; and Chen, David Hsiao Tsung, 3,785,018.
Eckrich, Peter, and Sons, Inc.: *See—*
Ellis, R. James, 3,785,930.
Economopoulos, Mario, to Centre National de Recherches Metallurgiques. Treatment of metal rod or wire. 3,785,878, Cl. 148-18.000.
Edes, Ferenc; and Gianatasio, Henry L., to Air-Trol Systems, Inc. Web-guiding apparatus and position-sensing and control unit therefor. 3,785,542, Cl. 226-22.000.
Edgar, William D.; and Jonnet, Albert G., to Koppers Company, Inc. Apparatus for collecting and removing effluent emitted while pushing coke. 3,785,933, Cl. 202-263.000.
Edwards, James D., to Scott & Fetzer Company, The. Plug-in timer assembly. 3,786,208, Cl. 200-51.00r.
Edwards, Joseph; and Whittle, John Edward, to International Nickel Company, Inc., The. Battery plates comprising a multiplicity of perforated metallic foil elements and a battery utilizing same. 3,785,867, Cl. 136-6.00r.
Edwards, Philip Neil, to Imperial Chemical Industries, Limited. Certain bis (pyridinium) quaternary salts. 3,786,058, Cl. 260-294.80r.
Effinger, David D.; Evans, Norol T.; and Estrick, Vaughn H., to Hughes Aircraft Company. Dynamic range control system. 3,786,506, Cl. 343-7.00a.
Ege, Hans, to Underwriters Safety Device Company. Roll-apart terminal block assembly. 3,786,400, Cl. 339-198.00p.
Egli, Henry O. Apparatus for and method of calibrating workpiece sensor and for aligning sensor and workpiece. 3,785,058, Cl. 33-172.00d.
E.G.O. Elektro-Gerate AG: *See—*
Fischer, Karl, 3,786,218.
Egtvedt, Robert B.; and Booth, William M., to Wolverine World Wide, Inc. Shoe manufacturing apparatus. 3,784,995, Cl. 12-1.00a.
Ehlers, John G., to United States of America, Navy. Battery monitor system. 3,786,343, Cl. 324-29.005.
Ehresman, Allen D.: *See—*
Orton, Criley; and Ehresman, Allen D., 3,786,508.
Eilert, Richard L.; and Klemenz, John J., to Chicago Aerial Industries, Inc. Optical illumination system. 3,786,247, Cl. 240-1.300.
Eisen- und Drahtwerk Erlau Aktiengesellschaft: *See—*
Witzel, Gunter, 3,785,422.
Electric salient-pole synchronous machine rotor solid metal pole piece: *See—*
Boning, Walter; and Leistner, Werner, 3,786,293.
Electro Print, Inc., mesne: *See—*
Pressman, Gerald L.; and Kittredge, Thomas D., 3,786,514.
Electromagnetic Industries Inc.: *See—*
Ludwig, John T.; and Steiner, Paul D., 3,786,383.
Elettronica Aster S. R. L.: *See—*
Liguori, Mario, 3,786,378.
Elisofon, Barry A.; and Elisofon, Judith. Child's bed support for motor vehicles. 3,784,990, Cl. 5-94.000.
Elisofon, Judith: *See—*
Elisofon, Barry A.; and Elisofon, Judith, 3,784,990.
Elitex, Zavody Textilniho Strojirenstvi: *See—*

Rajnoha, Jaroslav; Bures, Ladislav; and Orlici, Usti Nad, 3,785,138.

Elitex, Zavody textilniho strojirenstvi Generalni reditelstvi: *See*—
Sedlarik, Jaroslav, 3,785,581.

Elk Craft, Inc.: *See*—
McIntire, Nathan E.; and Porter, Zelma M., 3,785,456.

Ellis, R. James, to Eckrich, Peter, and Sons, Inc. Microbiological activity testing device. 3,785,930, Cl. 195-127.000.

Ellis, Ronald M.: *See*—
Conard, Wendell R.; and Ellis, Ronald M., 3,786,087.

Eminger, Robert J., to Windamatic Systems, Inc. Motion altering apparatus. 3,785,212, Cl. 74-23.000.

Emmons, William D., to Rohm and Haas Company. Caulking composition comprising polymer having addition polymerized backbone having carboxyl groups esterified with drying oil fatty acid glycidyl ester. 3,786,020, Cl. 260-41.00a.

Endo, Ichiro: *See*—
Inoue, Eiichi; Shimizu, Isamu; Endo, Ichiro; and Kobayashi, Hajime, 3,785,820.

Endo, Takaya: *See*—
Iwama, Masakuni; Yamamoto, Toshihiko; Inoue, Isaburo; Hanzawa, Teruo; and Endo, Takaya, 3,785,828.

Engalitcheff, John, Jr., to Baltimore Aircoil Company, Inc. Injector type evaporative heat exchanger. 3,785,625, Cl. 261-29.000.

Engeler, William E.; and Garfinkel, Marvin, to General Electric Company. Method and device for storing information and providing an electric readout. 3,786,441, Cl. 340-173.rls.

Engert, Heinz; and Engert, Heinz-Dieter. Friction wheel drive especially for cassette magnetic tape recorders. 3,785,586, Cl. 242-201.000.

Engert, Heinz-Dieter: *See*—
Engert, Heinz; and Engert, Heinz-Dieter, 3,785,586.

English Electric Company, Limited: *See*—
Howorth, Jonathan Ross, 3,786,296.

English Electric Valve Company, Limited: *See*—
Chalmers, Peter Michael, 3,786,301.

Engstrom, Keith A., to Illinois Tool Works, Inc. Solid state switch control circuit. 3,786,284, Cl. 307-314.000.

Enomoto, Koji, to Nissan Motor Company, Limited. Hydraulic shift valve for an automotive automatic power transmission. 3,785,614, Cl. 251-63.000.

Environeering, Inc.: *See*—
McIlvaine, Robert W., 3,785,119.

Epifanov, Valery Sergeevich: *See*—
Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich; Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich, 3,785,032.

Epis, James J.; and Kuo, Samuel Chung-Shu, to GTE Sylvania, Inc. Broadband high frequency balun. 3,786,372, Cl. 333-26.000.

Equitable Equipment Company, Inc.: *See*—
Kersteter, Ammon W., 3,785,322.

Erdmann, Hans, to Waldes Kohinoor, Inc. Hand tool for assembling open, bowed-body retaining rings having locking prongs in shaft or spindle grooves. 3,785,037, Cl. 29-200.00h.

Ereskunov, Nikolai Grigorievich: *See*—
Petrakov, Alexandr Ivanovich; Ereskunov, Nikolai Grigorievich; and Galitenko, Mikhail Mitrofanovich, 3,785,562.

Ericson, John F. E., to Marvel Industries, Inc. Drum lifting attachment. 3,785,692, Cl. 294-90.000.

Ernst, Richard R.: *See*—
Anderson, Weston A.; and Ernst, Richard R., 3,786,341.

ERSA Ernst Scahs KG: *See*—
Hombrecher, Friedrich, 3,786,229.

ESB Incorporated: *See*—
Coffey, James P.; and Duddy, Joseph C., 3,785,931.
Leeson, Jeffrey S.; and Laczko, Robert P., 3,785,873.

Escobedo, Francisco. Self-steering bicycle-type toy vehicle. 3,785,086, Cl. 46-213.000.

Essilor International (Compagnie Generale d'Optique): *See*—
Cretin-Mattenaz, Bernard, 3,785,724.

Esso Production Research Company: *See*—
Collier, Howard E., 3,785,402.
Maurer, William C.; and Lock, Everett H., 3,785,659.

Esso Research and Engineering Company: *See*—
Chandler, Roger E., 3,786,077.
Flowerday, Peter; and Ropson, Robert, 3,785,977.
Jarossi, Frank J.; and Cowles, Walter C., 3,785,318.
Li, Sik U.; and Koros, Robert M., 3,785,779.
List, Edward L., 3,785,204.
Merrill, Howard E.; and Lunt, Robert S., III, 3,785,960.
Nadler, Murray, 3,786,018.
Smith, Marvin F., 3,785,196.
Ungar, Israel S.; and Scher, Herbert I., 3,785,911.
Welty, Albert B., Jr., 3,785,965.

Estrick, Vaughn H.: *See*—
Effinger, David D.; Evans, Norol T.; and Estrick, Vaughn H., 3,786,506.

Etablissements Anver S.A.: *See*—
Gras, Elie, 3,785,900.

Ethyl Corporation: *See*—
Bitting, James L.; and Hagens, Robert J., 3,785,636.
Marsee, Frederick J., 3,785,624.

Ettre, Kitty S.; and Castles, George Richard, to Vitta Corporation. Tape transfer of sinterable conductive, semiconductive or insulating patterns to electronic component substrates. 3,785,895, Cl. 156-89.000.

Evans, Norol T.: *See*—
Effinger, David D.; Evans, Norol T.; and Estrick, Vaughn H., 3,786,506.

Ewing, James O.; and Reilly, Philip E., to Bendix Corporation, The. Deep ocean transponder. 3,786,404, Cl. 340-2.000.

Fails, Julius G. Preheating system for plywood hot press machine. 3,785,279, Cl. 100-93.00p.

Fairbanks, "EJ." L. Heat engine. 3,785,144, Cl. 60-25.000.

Fairchild Camera and Instrument Corporation: *See*—
Jankowski, Alfred S.; Moll, John L.; and Funk, Ernest J., 3,786,499.

Farah Manufacturing Company, Inc.: *See*—
Beasley, Aubrey G., 3,785,638.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See*—
Jacob, Ingolf; Buttner, Gert; and Heinrich, Karl, 3,785,017.
Noetzel, Siegfried; and Fischer, Edgar, 3,785,989.
Ribka, Joachim; and Schwerin, Siegfried, 3,785,843.

Farr, Werner D.: *See*—
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Fasco Industries, Inc.: *See*—
Bumpus, Ward H.; and Brehm, Justin, 3,786,233.
Byam, Peter M., 3,786,210.

Faucher, Michele, nee Dupre: *See*—
Anthony, Anne-Marie, nee Barbier; Dembinski, Krzysztof; Faucher, Michele, nee Dupre; and Dupont, Lucien, 3,786,165.

Fay, Homer; and Brandle, Charles D., Jr., to Union Carbide Corporation. Process for producing untwinned single crystals of la AlO_3. 3,785,992, Cl. 252-301.40r.

Fay, Robert C., to Deering Milliken Research Corporation. Yarn feed apparatus for pile carpet machine. 3,785,906, Cl. 156-435.000.

Federal Pacific Electric Company: *See*—
MacPhee, Colin A. A., 3,786,356.

Feldman, Edward: *See*—
Gaven, Thomas J.; Crocker, Harry E.; and Feldman, Edward, 3,786,189.

Feldmann, Hennig: *See*—
Hock, Fromund; Feldmann, Hennig; and Fialkowski, Heinz, 3,785,714.

Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich, Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich. Device for piling rotor sheets for magnetic circuits of electrical macines. 3,785,032, Cl. 29-203.001.

Felten & Guilleaume Kabelwerke Aktiengesellschaft: *See*—
Asselborn, Peter; Cramer, Werner; Gladbach, Bergisch; and Mullejans, Heinrich, 3,785,189.

Fenway Machine Co., Inc.: *See*—
Yermish, Israel J., 3,785,052.

Fernandez, John J., Sr. Helical coil filter apparatus. 3,785,498, Cl. 210-351.000.

Fernandez, Jose M., to Eastman Kodak Company. Novel cyan-dye forming coupler. 3,785,829, Cl. 96-100.000.

Ferraro, Frank A.: *See*—
Dawidowicz, Jan; and Ferraro, Frank A., 3,785,051.

Ferrat, Jean-Marie: *See*—
Prayer, Gerard; and Ferrat, Jean-Marie, 3,785,522.

Ferris, Robert C., to Coursigns, Inc. Plastic sign kit. 3,785,331, Cl. 116-63.00r.

Ferro, Armand P.; Harnden, John D., Jr.; and Kurz, Bruno F., to General Electric Company. High speed light detector amplifier. 3,786,264, Cl. 250-214.00r.

Fertl, Walter H.; Cavanaugh, Robert J.; and Hillhouse, John L., to Continental Oil Company. Predicting occurrence of geopressured subterranean zones during drilling. 3,785,446, Cl. 175-50.000.

Feth, Georg: *See*—
Richter, Carl; Pluss, Kurt; and Feth, Georg, 3,786,056.

Fialkowski, Heinz: *See*—
Hock, Fromund; Feldmann, Hennig; and Fialkowski, Heinz, 3,785,714.

Fielding, Alfred W., to Sealed Air Corporation. Method for the manufacture of cellular material for cushioning and other purposes. 3,785,899, Cl. 156-209.000.

Fifield, Ralph R. Load control device. 3,785,221, Cl. 74-242.0hp.

Fifth Dimension, Inc.: *See*—
Bitko, Sheldon S., 3,786,217.

Filatov, Nikolai Grigorievich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev, Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Finike Italian Marposs-Soc. In Accomandita Semplice di Mario Possate & C.: *See*—
Pozzetti, Mario, 3,785,091.

Fink, Frederick M., to Continental Aluminum Products Company. Glazing flange attachment system. 3,785,106, Cl. 52-476.000.

Finley, Dewayne W.; Smith, Harvey E.; and Fishwild, Owen L., to Standard Brands, Inc. Extraction of oil from oil bearing seeds. 3,786,078, Cl. 260-412.400.

Finley, Donald L.; and Morehead, Edward A., to Eastman Kodak Company. Method and apparatus for controlling the manufacture of synthetic fibers. 3,785,062, Cl. 34-34.000.

Finn, Charles P. Apparatus and method for locating the center of gravity of a golf club. 3,785,197, Cl. 73-65.000.

Fiorino, Benjamin C., to International Business Machines Corporation. Method and apparatus for detecting the beginning of data block. 3,786,358, Cl. 328-138.000.

Fiorletta, Carol J.: *See*—
Fiorletta, Robert J.; and Fiorletta, Carol J., 3,786,500.

Fiorletta, Robert J.; and Fiorletta, Carol J. Fiber optic translator. 3,786,500, Cl. 340-380.000.

Firestone Tire & Rubber Company, The: *See*—
Conard, Wendell R.; and Ellis, Ronald M., 3,786,087.
Lohr, Delmar F., Jr.; and Kay, Edward Leo, 3,786,009.

Fisch, Richard S., to Minnesota Mining and Manufacturing Company. Photographic aqueous dispersion concentrates. 3,785,824, Cl. 96-66.00r.

Fischell, Robert E., to United States of America, Navy. System for sensing and compensating for the disturbance forces on a spacecraft. 3,785,595, Cl. 244-1.0sa.

Fischer, Artur. Expansion anchor. 3,785,241, Cl. 85-71.000.

Fischer, Edgar: *See*—
Noetzel, Siegfried; and Fischer, Edgar, 3,785,989.

Fischer, Hermann: *See*—
Derleth, Helmut; and Fischer, Hermann, 3,785,999.

Fischer, Karl, to E.G.O. Elektro-Gerate AG. Adjustable thermostatic device with snap switches. 3,786,218, Cl. 200-83.00z.

Fisher, John M., to Goodrich, B. F., Company, The. Movable wall for engine nozzle. 3,785,567, Cl. 239-265.390.

Fishwild, Owen L.: *See*—
Finley, Dewayne W.; Smith, Harvey E.; and Fishwild, Owen L., 3,786,078.

Fisk, Dale E.: *See*—
Brown, Caroll J.; Chesarek, Donald J.; Fisk, Dale E.; Ma, Joseph T.; Martin, Harold F.; and Reynolds, Zack D., 3,786,479.

Fisons Limited: *See*—
Cairns, Hugh; Chambers, Albert; and Lee, Thomas Brian, 3,786,071.

Fitch, Scott McDowell; Gallina, Alfonso Vincent; Gerkensmeier, Otto Frederick; and Warwick, Peter Stephen, to Bell Telephone Laboratories, Incorporated. Data character decoder with provision for decoding before all character elements are received. 3,786,42, Cl. 340-172.500.

Fitzgerald, Nelson, to General Electric Company. Jacketed lamp mount frame clip. 3,786,298, Cl. 313-292.000.

Fjellstrom, Bengt. Tube bending device. 3,785,192, Cl. 72-319.000.

Flavor Pict, Inc.: *See*—
Cook, Robert Lewellyn, 3,785,087.

Fleck, Jacques, to Krebs & Cie. Electrolyzer comprising diaphragmless cell spaces flowed through by the electrolyte. 3,785,951, Cl. 204-268.000.

Flis, Richard J.: *See*—
Gamble, John G.; and Flis, Richard J., 3,786,272.

Floessel, Dieter, to Brown, Boveri & Company, Limited. Insulation gas filled encapsulated high voltage electrical conductor. 3,786,169, Cl. 174-28.000.

Floessel, Dieter, to Brown, Boveri & Company, Limited. Insulation gas filled encapsulated high voltage electrical conductor. 3,786,170, Cl. 174-28.000.

Floessel, Dieter, to Brown, Boveri & Company, Limited. Insulation gas filled encapsulated high voltage electrical conductor. 3,786,174, Cl. 174-28.000.

Flowerday, Carl W., to Maes Incorporated. Wire marker. 3,785,337, Cl. 116-114.00r.

Flowerday, Peter; and Ropson, Robert, to Esso Research and Engineering Company. Lubricating compositions. 3,785,977, Cl. 252-33.600.

FMC Corporation: *See*—
Hammond, Douglas L., 3,785,159.
Lee, Fui-Tseng H.; and Volpp, Gert P., 3,786,150.

Folger Adam Co.; division of Telkee, Inc.: *See*—
Wolz, Francis T., 3,785,187.

Fontaine, Alan: *See*—
Barnes, Clarence A., Jr.; and Fontaine, Alan, 3,785,819.

Fordice, Michael W.: *See*—
Shen, Tsung-Ying; Ruyle, William V.; Fordice, Michael W.; and Jensen, Norman P., 3,786,050.

Foremost-McKesson, Inc.: *See*—
Pollard, Henry L., 3,785,865.

Forlani, Franco, to Honeywell Information Systems Italia. Method for mounting integrated circuit chips on interconnection supports. 3,785,044, Cl. 29-591.000.

Formica, Francis A.; and Izenberg, James, to Indol Chemical Co., Inc. Bis(benzamidoazo)-4,4'-bi-acetoacetyl-O-chloroanilide dyestuffs. 3,786,042, Cl. 260-176.000.

Forsyth, John P.; and Forsyth, Robert W. Vehicular transportation system and apparatus. 3,785,514, Cl. 214-38.00r.

Forsyth, Robert W.: *See*—
Forsyth, John P.; and Forsyth, Robert W., 3,785,514.

Fortin, Robert F.; and Sims, Larry A., to Pharmasel; division of American Hospital Supply Corporation. Arterial blood sampler. 3,785,367, Cl. 128-2.00f.

Foster, Henry O.: *See*—
Peet, Robert G.; Foster, Henry O.; Paulsell, Kenneth G.; and Hogshead, Thomas H., Jr., 3,786,127.

Foundation: Research Institute of Electric and Magnetic Alloys, The: *See*—
Masumoto, Hakaru; Murakami, Yuetsu; and Hinai, Masakatsu, 3,785,880.

Fouquet-Werk Frauz & Planck: *See*—
Hebbecker, Rolf; and Hofmann, Robert, 3,785,176.

Fournier, Pierre: *See*—
Mardiguian, Jean; and Fournier, Pierre, 3,786,060.

Fox, Jon E.: *See*—
Davis, Robert H.; and Fox, Jon E., 3,786,497.

Fox, Robert M. Air driven vehicle. 3,785,330, Cl. 115-70.000.

Francis, Robert L.; and Rouse, Paul L., to International Harvester Company. Multiple use finger assembly for a combine harvester. 3,785,134, Cl. 56-400.000.

Frank, Edmond, to Packard Instrument Company, Inc. Method and apparatus for optimizing measurement of radioactivity of samples in scintillation type counter. 3,786,259, Cl. 250-328.000.

Franks, John T., Jr.: *See*—
Batcher, Kenneth E.; and Franks, John T., Jr., 3,786,448.

Frappier, Robert H.: *See*—
Wagers, William O.; Frappier, Robert H.; McDonald, William S.; and Boggs, Charles L., 3,785,908.

Frederiksen, Thomas M.: *See*—
Davis, William F.; Russell, Ronald W.; Frederiksen, Thomas M.; and Long, Ernest L., 3,786,344.

Freedman, Paul M.: *See*—
Barry, James D.; Freedman, Paul M.; and Matassov, George, 3,786,370.

Freeman, Ardee H., to Wheelabrator-Frye, Inc. Centrifugal blasting wheel. 3,785,105, Cl. 51-9.000.

Freeman, Harlan G.; Baxter, Gene F.; and Tiedeman, George T., to Weyerhaeuser Company. Rapid curing resin compositions comprising a phenol-aldehyde condensation polymer modified with an aminonaphthalene. 3,786,025, Cl. 260-51.500.

Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Willi; and Pelka, Walter, to Gebr. Eickhoff Maschinenfabrik und Eisengiesseru m.b.H. Coal plow with individually pivoted blades. 3,785,703, Cl. 299-34.000.

Frey, Sameul S., to Oakite Products, Inc. Method for avoiding pitting in plating oxide-film-developing metals. 3,785,866, Cl. 134-3.000.

Frey, Walter; and Toth, Istvan, to Sandoz Ltd. Separation process. 3,786,073, Cl. 260-369.000.

Friday, David G.; and Friday, Philip L. Fruit harvesting apparatus. 3,785,131, Cl. 56-328.0ts.

Friday, Philip L.: *See*—
Friday, David G.; and Friday, Philip L., 3,785,131.

Friedland, Harry; and Langill, Addison W., Jr., to Process Systems, Inc. Fluid flow control system. 3,785,389, Cl. 137-1.000.

Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, to Bio/Physics Systems, Inc. Photoanalysis method. 3,785,735, Cl. 356-39.000.

Friedrich, Rene, to USL Corporation. Method for inserting tendons into sheathing. 3,785,617, Cl. 254-1.000.

Friedrich Uhde GmbH: *See*—
Matthey, Hermann; Payer, Stefan; and Zirngiebl, Eberhard, 3,785,949.

Frigitronics, Inc., mesne: *See*—
Blair, Edgar Allan; and Hudgin, Donald Edward, 3,786,034.

Fritze, Peter Ernst, to Union Carbide Corporation. Process for preparing ε-thiocaprolactones. 3,786,066, Cl. 260-327.00r.

Fritzinger, George H. Hand operable tape dispenser and applicator. 3,785,901, Cl. 156-527.000.

Frye, Harold E.; and McMahon, Robert F., to International Business Machines Corporation. Full capacity small size microprogrammed control unit. 3,786,434, Cl. 340-172.500.

Frye, Kenneth G.; Lucas, Robert G.; Seidel, Kenneth L.; and Rohosy, Soma M., to Beloit Corporation. Web support table. 3,785,232, Cl. 83-156.000.

Frykhult, Rune, to Aktiebolaget Celleco. Cyclone separator with underflow dilutor. 3,785,489, Cl. 209-211.000.

Fuglister, Peter: *See*—
Hadbavny, Jozef; and Fuglister, Peter, 3,786,371.

Fuji Denki Kagaku Kabushiki Kaisha: *See*—
Kobayashi, Seihin; Torii, Michihiro; and Jojima, Takehiko, 3,786,450.

Fuji Photo Film Co., Ltd.: *See*—
Asano, Yoshio, 3,785,267.
Matsumoto, Seiji, 3,785,812.
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,246.
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,247.

Fujii, Hajime; and Hattori, Tatsuo, to Toyo Soda Manufacturing Co., Ltd. Method for flameproofing fibers. 3,785,859, Cl. 117-136.000.

Fujii, Heihachi; Kasano, Kazuhiko; Matsuno, Minoru; Moroi, Tadahiko; and Kitamura, Munehiro, to Ise Electronics Corporation. Anode substrates for multi-digit type fluorescent display tubes. 3,786,295, Cl. 313-109.500.

Fujimori, Yoshiaki, to Kabushiki Kaisha Suwa Seikosha. Transparent instrument cover having anti-reflection coating on selected portions thereof. 3,785,143, Cl. 58-91.000.

Fujiwara, Katsuji. Steam trap of the free float type. 3,785,555, Cl. 236-53.000.

Fujiwara, Shohei: *See*—
Kano, Gota; Fujiwara, Shohei; Iizuka, Mutsuo; Hasegawa, Hiromasa; and Sawaki, Tsukasa, 3,786,320.

Fujtwara, Masayuki: *See*—
Hino, Mikoni; Hanawa, Shozo; Itaya, Hisso; Okada, Toshihiko; and Fujtwara, Masayuki, 3,785,177.

Fukase, Yukishige: *See*—
Yokota, Kozo; Fukase, Yukishige; and Osozawa, Koichiro, 3,785,787.

Fukui, Saburo: *See*—
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.

Fulton & Partners, Inc.: *See*—
Fulton, James F.; and Rinaldi, Joseph A., 3,785,693.

Fulton, James F.; and Rinaldi, Joseph A., to Fulton & Partners, Inc. Portable sleeping compartment. 3,785,693, Cl. 296-23.00r.

Fumia, Arthur, Jr.; and Brooker, Leslie G. S., to Eastman Kodak Company. Novel dyes cyanine with enamines containing two fused carbocyclic rings. 3,786,046, Cl. 260-240.00r.

Funk, Ernest J.: *See*—
Jankowski, Alfred S.; Moll, John L.; and Funk, Ernest J., 3,786,499.

Funk, John: *See*—
Luckenbach, Roy; and Funk, John, 3,785,180.

Furuno Electric Company, Limited: *See*—
Ogawa, Heisuke; Yamamoto, Mitsuo; Bando, Seiisaku; and Baba, Osami, 3,786,407.

Furuya, Akio; Hachiboshi, Makoto; Adachi, Toshio; and Uchida, Masakatsu, to Dai Nippon Toryo Co., Ltd., Leben Utility Co., Ltd. and Toyobo Co., Ltd. Thermosetting resinous composition. 3,786,004, Cl. 260-2.50n.

Gaedderi, Melvin V., to Hesston Corporation. Header mounting for row units. 3,785,130, Cl. 56-98.000.

GAF Corporation: *See*—
Horai, John C.; and Tucker, Stephen F., 3,785,798.
Slimowicz, Chester; and Welch, Walter J., 3,785,826.

Galanaugh, Charles F.: *See*—
Genese, Joseph N.; Rapoza, Edward J.; Galanaugh, Charles F.; Kennard, Harry M.; Chevalez, Roger A.; and Smith, John A., 3,785,533.

Galiani, Roberto. Elastic supporting surface and method for its production. 3,784,992, Cl. 5-186.00r.

Galitenko, Mikhail Mitrofanovich: *See*—
Petrakov, Alexandr Ivanovich; Ereskunov, Nikolai Grigorievich; and Galitenko, Mikhail Mitrofanovich, 3,785,562.

Gallina, Alfonso Vincent: *See*—
Fitch, Scott McDowell; Gallina, Alfonso Vincent; Gerkensmeier, Otto Frederick; and Warwick, Peter Stephen, 3,786,426.

Galloway, Lawrence H.; Harast, Leonard E.; and Plimi, Frank V., Jr., to Illinois Tool Works Inc. Modular ceiling connector. 3,785,110, Cl. 52-715.000.

Gamble, John G.; and Flis, Richard J., to Veeder Industries, Inc. Hall effect rotary pulse generator. 3,786,272, Cl. 307-106.000.

Ganteaume, Robert A. Event recorder. 3,785,261, Cl. 95-12.000.

Gappisch, Max; Walter, Friedrich Claus; and Pollmacher, Horst, to Argus Gesellschaft mbH. Device for the flow control of media, particularly contaminated liquids and/or gases. 3,785,404, Cl. 137-614.000.

Garbovitsky-Gordon, Alexandr Iosipovich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev, Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Garcia, Luis: *See*—
Leasure, William C.; and Garcia, Luis, 3,785,112.

Garfinkel, Marvin: *See*—
Engeler, William E.; and Garfinkel, Marvin, 3,786,441.

Garretson, George W. Post and post base assembly. 3,785,107, Cl. 52-514.000.

Garrone, Albert: *See*—
Teichmann, Newton N.; McKenna, Chancey D.; and Garrone, Albert, 3,785,780.

Gaspariants, Artemy Mikhailovich: *See*—
Mikhalsky, Fedor Mikhailovich; Gaspariants, Artemy Mikhailovich; Purlov, Jury Nikolaevich; Kulesh, Pavel Ivanovich; Rudenko, Pavel Petrovich; Ryabtsev, Alexei Nikolaevich; and Levi, Yakov Efimovich, 3,785,775.

Gates Rubber Company, The: *See*—
Devitt, John L., 3,785,868.

Gatsis, John G.: *See*—
Gleim, William K. T.; Gatsis, John G.; and O'Hara, Mark J., 3,785,958.

Gatz, William L.; and Rennicke, Kenneth A., to Royal Industries, mesne. Apparatus and method for feeding material from storage bins and the like. 3,785,512, Cl. 214-17.00d.

Gaudiano, Anthony V.: *See*—
Banjavich, Mark P.; Morrissey, George R.; and Gaudiano, Anthony V., 3,785,160.

Gaven, Thomas J.; Crocker, Harry E.; and Feldman, Edward, to McGraw-Edison Company. Telephone announcing and message recording machine. 3,786,189, Cl. 179-6.00r.

Gawlick, Heinz: *See*—
Bendler, Hellmut; Brede, Uwe; Gawlick, Heinz; and Rudolph, Hans-Heinrich, 3,785,292.

Gaylord, Asa K., to Gaylord Industries. Pollution-free kitchen ventilator. 3,785,124, Cl. 55-118.000.

Gaylord Industries: *See*—
Gaylord, Asa K., 3,785,124.

Gaylord, John A., to Koch, H., & Sons, Inc. Parachute harness release. 3,785,597, Cl. 244-151.00a.

Gaz Transport, S.A.R.L.: *See*—
Bourgeois, Michel; and Le Havre, Pierre Jean, 3,785,320.

Gebr. Eickhoff Maschinenfabrik und Eisengiesseru m.b.H.: *See*—
Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Willi; and Pelka, Walter, 3,785,703.

Gebr. Hofmann KG: *See*—
Muller, Richard, 3,785,210.

Gedye, Rodney Banfield. Display units. 3,785,499, Cl. 211-4.000.

Gehlhaus, Paul H.: *See*—
Baldwin, Mart G.; and Gehlhaus, Paul H., 3,785,887.

Geigy, J. R., A.G.: *See*—
Howell, Frederick Harold, 3,786,099.

Gelatt Investments, Inc., mesne: *See*—
Peters, Arnis E., 3,785,728.

General Dynamics Corporation: *See*—
Toyen, Gerald L., 3,786,440.

General Electric Company: *See*—
Applebaum, Sidney P.; and Kovarik, James C., 3,786,509.
Baclawski, Joseph E., and Hunt, William R., 3,786,289.
Bailey, Gordon B.; and Wilhelm, Carl F., Jr., 3,785,146.
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Belle Isle, Albert P., 3,786,357.
Boros, Steve, 3,785,020.
De Hollander, William Roger; and Klepfer, Harold Holmes, 3,786,120.
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Ferro, Armand P.; Harnden, John D., Jr.; and Kurz, Bruno F., 3,786,264.
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Hobson, Charles F., Jr.; and Willard, Henry G., 3,786,311.
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General Electric Company Limited, The: *See*—
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General Foods, Limited: *See*—
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General Lock Company: *See*—
Yulkowski, Leon, 3,785,687.

General Mills Chemicals, Inc.: *See*—
Whyzmuzis, Paul D.; and Wilkus, Clarence W., 3,786,007.

General Motors Corporation: *See*—
Amann, Charles A., 3,785,145.
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Hodshire, James O.; Shockley, Quentin O.; and Crouse, Don E., 3,785,785.
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James, Bruce A.; Lawless, Michael J.; and Clark, David L., 3,785,186.
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Genese, Joseph N.; Rapoza, Edward J.; Galanaugh, Charles F.; Kennard, Harry M.; Chevalez, Roger A.; and Smith, John A., to Becton, Dickinson and Company. Coombs serum cartridge with indexing means. 3,785,533, Cl. 222-327.000.

Genta, Guido, to American Aniline Products, Inc. 1,4-Diamino-2-alkylihiophenoxy-3-haloanthraquinone polyester dyes. 3,786,074, Cl. 260-380.000.

Genta, Guido R., to American Aniline Products, Inc. Yellow pigment compositions. 3,786,017, Cl. 260-38.000.

Gentex Corporation: *See*—
Aileo, Jackson Anthony, 3,784,984.

Geometrics, Inc.: *See*—
Ahern, William W., 3,785,101.

Gerber Garment Technology, Inc.: *See*—
Gerber, Heinz Joseph; and Pearl, David Raymond, 3,785,898.

Gerber, Heinz Joseph; and Pearl, David Raymond, to Gerber Garment Technology, Inc. Apparatus for producing seamed articles from sheet material. 3,785,898, Cl. 156-353.000.

Gerber Products Company: *See*—
Nelson, Lloyd A., 3,785,516.

Gerbruder Seidel KG: *See*—
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Gerkensmeier, Otto Frederick: *See*—
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Gerlach, Klaus: *See*—
Walz, Klaus; Gerlach, Klaus; and Schwarz, Max, 3,785,768.

Gesellschaft fur Keinforschung mbH: *See*—
Schmidt, Albrecht, 3,786,258.

Geusic, John Edward, to Bell Telephone Laboratories, Incorporated. Single wall domain generator. 3,786,452, Cl. 340-174.0tf.

Gevorkov, Grigory Sergeevich: *See*—
Vereschagin, Leonid Fedorovich; Konyafv, Jury Sergeevich; Dovbnya, Alexandr Vasilievich; Polyakov, Evgeny Valentindvich; Novgorodov, Alexandr Stepanovich; Asan-Nuri, Abdulia Ogly; Paly, Polikarp Avidnomovich; and Gevorkov, Grigory Sergeevich, 3,785,093.

Gewerkschaft Eisenhutte Westfalia: *See*—
Ostrop, Berthold; Rassmann, Christoph; and Hauschopp, Alois, 3,785,704.

Ghigo, Andrea S.: *See*—
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Gianatasio, Henry L.: *See*—
Edes, Ferenc; and Gianatasio, Henry L., 3,785,542.

Giannetti, Joseph P.; McIlvried, Howard G.; and Sebulsky, Raynor T., to Gulf Research & Development Company. Process for the production of 2-2-dimethylbutane. 3,786,108, Cl. 260-683.660.

Gibbs, Francis E., to Kaiser Aluminum & Chemical Corporation. Welding fixture. 3,786,225, Cl. 219-124.000.

Giffard, Louis. Filtering element. 3,785,497, Cl. 210-282.000.

Gilbert, Roswell W., to Technical Management Services, Inc. Transformer for direct and/or alternating currents. 3,786,338, Cl. 323-48.000.

Gillespie Corporation: *See*—
Sibley, Louis F., 3,785,541.
Sibley, Louis F., 3,785,688.

Gillstrap, Peter M. Means for suspending cables from mine roof. 3,785,598, Cl. 248-58.000.

Gilmore, William J., to American Chain & Cable Company, Inc. Safety belt system. 3,785,701, Cl. 297-385.000.

Giori, Gualtiero, to De La Rue Giori S.A. Wiping cylinder of steel engraving printing machine and method of making it. 3,785,286, Cl. 101-155.000.

Girard, Andre, to Aronelle Textiles, Limited. Apparatus for weighing yarn on a yarn winding machine. 3,785,582, Cl. 242-39.000.

Girardi, Vincent J., to Babcock & Wilcox Company, The. Transfer device. 3,785,509, Cl. 214-8.50h.

Girault, Pierre: *See*—
Perronnet, Jacques; and Girault, Pierre, 3,786,094.

Girault, Pierre; and Hagemann, Guy, to Roussel-UCLAF. Methods of combatting bacteria or fungi using 5-methyl-4,4-dichloro-5-pyrazolone. 3,786,151, Cl. 424-273.000.

Gladbach, Bergisch: *See*—
Asselborn, Peter; Cramer, Werner; Gladbach, Bergisch; and Mullejans, Heinrich, 3,785,189.

Glaser, Harold: *See*—
Keats, Richard L.; and Glaser, Harold, 3,785,275.

Glaser Products Corporation: *See*—
Keats, Richard L.; and Glaser, Harold, 3,785,275.

Glassie, Donelson C.: *See*—
Leming, John C.; Glassie, Donelson C.; and Jahnel, Roy M., 3,785,316.

Glaverbel S.A.: *See*—
Plumat, Emile, 3,785,792.

Gleim, William K. T.; Gatsis, John G.; and O'Hara, Mark J., to Universal Oil Products Company. Desulfurization and conversion of black oils. 3,785,958, Cl. 208-87.000.

Glenn, Mary T.: *See*—
Browner, Richard F.; Winefordner, James D.; and Glenn, Tom H., 3,786,308.

Glenn, Tom H.: *See*—
Browner, Richard F.; Winefordner, James D.; and Glenn, Tom H., 3,786,308.

Globe Tool and Engineering Company, The: *See*—
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Bucholtz, Glen E., 3,785,034.

Glober Tool and Engineering Company: *See*—
Kennedy, John B.; and Pepper, Kenneth L., 3,785,580.

Gloge, Detlef Christoph, to Bell Telephone Laboratories, Incorporated. Low dispersion optical fiber. 3,785,718, Cl. 350-96.0wg.

Godard, Gerard: *See*—
Confino, Maurice; and Godard, Gerard, 3,785,561.

Godfrey, John J., to Grace, W. R., & Co. Transvinylation catlyst. 3,786,102, Cl. 260-615.00r.

Godfrey, Norman Bell, to Jefferson Chemical Company, Inc. Polyamine and hydrocarbon sulfonic acid accelerator combination for epoxy curing. 3,785,997, Cl. 252-426.000.

Goldman, Arnold J.: *See*—
Puckett, Jason N., Jr.; Kurtin, Stephen L.; and Goldman, Arnold J., 3,786,482.

Goldman, Arnold J.; Kurtin, Stephen L.; and Mead, Carver A., to Lexitron Corporation, mesne. Electronic test display system which simulates a typewriter. 3,786,429, Cl. 340-172.500.

Goldstein, Arthur. Dispenser for C-folded paper towels with hot air dryer. 3,785,523, Cl. 221-42.000.

Goldsworthy Engineering, Inc.: *See*—
Karlson, Harald E., 3,785,137.

Good, Arthur L.; and Reese, Robert P., to Reese Products, Inc. Sway control device for connection between a trailer and towing vehicles. 3,785,680, Cl. 280-446.00b.

Goodrich, B. F., Company, The: *See*—
Fisher, John M., 3,785,567.

Goodyear Aerospace Corporation: *See*—
Batcher, Kenneth E.; and Franks, John T., Jr., 3,786,448.

Goodyear Tire & Rubber Company, The: *See*—
Ling, Jack A.; and Clem, Dennis W., 3,785,894.

Gorman, Thomas G., to Hayes-Albion. Reinforced automotive fan. 3,785,748, Cl. 416-132.000.

Gormann, Willi: *See*—
Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Willi; and Pelka, Walter, 3,785,703.

Goss, Ira D.: *See*—
Sylvester, Herbert A.; Partridge, Christopher M.; and Goss, Ira D., 3,785,384.

Goto, Shinji: *See*—
Oguchi, Yutaka; Kubo, Junighi; and Goto, Shinji, 3,785,966.

Gotoh, Syuichi, to Nippon Oil Seal Industry Co., Ltd. Oil seal or sleeve having press-fitted portions coated with synthetic rubber latex. 3,785,856, Cl. 117-75.000.

Goupil, Jean-Jacques: *See*—
Allet-Coche, Pierre, 3,785,481.

Gower, Bobby G.: *See*—
Wostl, Wolfgang J.; and Gower, Bobby G., 3,786,421.

Grace, W. R., & Co.: *See*—
Godfrey, John J., 3,786,102.

Grace, W. R., Company: *See*—
Skov, Ebbe R.; Judge, Roderick B.; and Hamphill, Geoffrey, 3,786,086.

Graham, Cecil Robert Montgomery. Means for spraying liquid substances in atomised form. 3,785,536, Cl. 222-402.210.

Grand, Paul Sheldon, to Colgate-Palmolive Company. Cosmetic and textile-treating compositions. 3,785,985, Cl. 252-106.000.

Grandini, Angelo: *See*—
Cardone, Michele; Grandini, Angelo; and Zaramella, Bruno, 3,786,386.

Granges Aluminium AB: *See*—
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Graphic Systems, Inc.: *See*—
Aron, Edward A.; and Griffith, Louis E., 3,785,258.

Gras, Elie, to Etablissements Anver S.A. Method of molding plastics to the surface of a backing material imitative of leather, fabrics and the like. 3,785,900, Cl. 156-245.000.

Graves, William P.; Passavant, Francis C.; and Worters, Allen J., to GTE Sylvania Incorporated. Television type display system for displaying waveforms of time-varying signals. 3,786,476, Cl. 340-324.00a.

Gray, Paul L. Jackhammer. 3,785,444, Cl. 173-78.000.

Green, Melvin Perry. Mechanism for forming a foundation. 3,785,606, Cl. 249-3.000.

Greene, Samuel. Swimming pool coping. 3,785,099, Cl. 52-102.000.

Greenhill, Derek Howard. Sensing and control system. 3,786,470, Cl. 340-267.00r.

Greenwood, Arthur R.: *See*—
Boyd, David M.; and Greenwood, Arthur R., 3,785,963.

Gregg, David P.: *See*—
Gregg, David P.; and Pooley, Charles K. (said Pooley assor. to said), 3,785,268.

Gregg, David P.; and Pooley, Charles K., said Pooley assor. to said Gregg, David P. Scanning type photographic film developing system and apparatus. 3,785,268, Cl. 95-89.00r.

Gresham, Perry Thomas, to American Telephone and Telegraph Company. Toll call denial circuit. 3,786,196, Cl. 179-18.0da.

Griffith, Louis E.: *See*—
Aron, Edward A.; and Griffith, Louis E., 3,785,258.

Grigorenko, Anatoly Evgenievich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei

Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Grill, William Augustus, to RCA Corporation. Method for depositing refractory metals. 3,785,862, Cl. 117-217.000.

Grip-Pak, Inc., mesne: *See—*
Cunningham, Ernest R., 3,785,484.

Grochowski, Edward G.: *See—*
Castrucci, Paul P.; Grochowski, Edward G.; Hess, Martin S.; Maheras, Geroge; and North, William D., 3,785,886.

Groendyke, Richard L.: *See—*
Barr, Richard S.; and Groendyke, Richard L., 3,785,907.

Grooteboer, Wilhelm, to Linder, Alex, GmbH. Method for the destination control of objects fed into a distributing conveying system and distributing conveying system for performing such method. 3,785,510, Cl. 214-11.00c.

Groupement Atomique Alsacienne Atlantique Plessis Robinson: *See—*
Carbonnel, Henri, 3,785,744.

Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich. Wire-rope winding machine and method of its operation. 3,785,139, Cl. 57-58.340.

Grubb, Harold R.; and Liebschutz, Lynn C., to International Business Machines Corporation. Magnetic domain decoder/encoder device. 3,786,455, Cl. 340-174.0tf.

Gryszkiewic-Trouchimowski, Oleg: *See—*
Cousserans, Gilbert; Mathey, Francois; and Gryszkiewic-Trouchimowski, Oleg, 3,786,155.

GTE Automatic Electric Laboratories Incorporated: *See—*
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Verbaas, George, 3,786,496.
Zelinski, Paul A.; and Jones, Leo V., 3,786,436.

GTE Information Systems Incorporated: *See—*
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GTE Sylvania, Inc.: *See—*
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GTE Sylvania Incorporated: *See—*
Chiola, Vincent; Smith, James S.; and Vanderpool, Clarence D., 3,785,019.
Graves, William P.; Passavant, Francis C.; and Worters, Allen J., 3,786,476.
Peltz, John R.; and Szeverenyi, Nikolaus A., 3,786,463.

Guarriello, Theodore J. Nursery pot. 3,785,088, Cl. 47-34.000.

Gulf Research & Development Company: *See—*
Bryson, Millard C.; McKinney, Joel D.; Titmus, Robert A.; and White, Frederick K., 3,785,959.
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,785,964.
Humphrey, Earl L.; and Morse, William B., 3,785,975.

Gunze, Co., Ltd.: *See—*
Hino, Mikoni; Hanawa, Shozo; Itaya, Hisso; Okada, Toshihiko; and Fujtwara, Masayuki, 3,785,177.

Guthans Engineering Co.: *See—*
Guthans, Harold A., 3,785,324.

Guthans, Harold A., to Guthans Engineering Co. Ratchet haul devices. 3,785,324, Cl. 114-235.00a.

Guyton, David L. Method and apparatus for locating a principal meridian of an astigmatic optical system. 3,785,723, Cl. 351-34.000.

Gybowski, Frank. Game device. 3,785,656, Cl. 273-177.00a.

Gylland, Ernest F., Jr., to Westinghouse Electric Corporation. Multiple compressor refrigeration system. 3,785,169, Cl. 62-468.000.

Haas, Carl, Firma: *See—*
Muller, Wolfgang, 3,785,028.

Haas, Hans: *See—*
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Haas, Helmut: *See—*
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Haase, Johann: *See—*
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Haase, Willard A.; and Wegenke, Ingwald E., to Montello Products Company. Deburring and chamfering apparatus. 3,785,742, Cl. 408-3.000.

Hachiboshi, Makoto: *See—*
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Hadbavny, Jozef; and Fuglister, Peter, to Siemens-Albis AG. Means for coupling a cavity resonator to a conductor circuit and/or a further cavity resonator. 3,786,371, Cl. 333-24.00r.

Haemonetics Corporation: *See—*
Latham, Allen, Jr., 3,785,549.

Hafer, Karl-Heinz: *See—*
Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Wilfi; and Pelka, Walter, 3,785,703.

Haffner, James W.; and Pearce, Llewellyn S., to North American Rockwell Corporation. Gamma and neutron scintillator. 3,786,253, Cl. 250-366.000.

Hagemann, Guy: *See—*
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Hagens, Robert J.: *See—*
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Hager, C., & Sons Hinge Manufacturing Company: *See—*
Peterson, Francis C., 3,785,236.

Haggberg, Marvin D.; Kavanagh, Ira K.; and Van Horik, Leonard R., to McDonnell Douglas Corporation. Method of forming honeycomb panel edges. 3,785,788, Cl. 29-423.000.

Hahn & Clay: *See—*
Pechacek, Raymond E., 3,785,040.

Hahn, Ernest A.: *See—*
Parker, Gordon M.; Wismer, Marco; and Hahn, Ernest A., 3,785,849.

Hajdu, Johann; Knauft, Guenter; Skuin, Petar; and Vogt, Edwin, to International Business Machines Corporation. Data processing system including a small auxiliary processor for overcoming the effects of faulty hardware. 3,786,430, Cl. 340-172.500.

Halberschmidt, Friedrich; and Audi, Josef, to Saint-Gobain. Apparatus and method for cutting glass. 3,785,229, Cl. 83-6.000.

Hall, Ralph J. Soot cleaning method. 3,785,351, Cl. 122-379.000.

Hallamore Homes Inc.:*See—*
Hallamore, Lloyd G., 3,785,913.

Hallamore, Lloyd G., to Hallamore Homes Inc. Prefabricated construction panel. 3,785,913, Cl. 161-41.000.

Hallberg, Irving H.: *See—*
Tuzson, John J.; Hallberg, Irving H.; and Vaughn, James R., 3,785,627.

Halley, James L., to Tesco Chemicals, Inc. Waste treatment material. 3,785,971, Cl. 210-64.000.

Halliburton, Ronald D., to Allied Leisure Industries, Inc. Manually controlled electric pinball game. 3,785,650, Cl. 273-110.000.

Halliburton, Ronald D., to Allied Leisure Industries, Inc. Pinball game bumper electrically responsive to ball impact. 3,785,652, Cl. 273-127.00r.

Halliburton, Ronald D., to Allied Leisure Industries, Inc. Pinball game bumper electrically responsive to ball impact. 3,785,653, Cl. 273-127.00r.

Hallmann, Matthias: *See—*
Berg, Markus; Hallmann, Matthias; and Hoffmeister, Jurgen, 3,785,984.

Hallmark Releasing Corporation: *See—*
Minasian, Stephen G., 3,785,480.

Hallock, Robert Warren, to Bell Telephone Laboratories, Incorporated. Reversible 2's complement to sign-magnitude converter. 3,786,490, Cl. 340-347.0dd.

Halperin, Edward B., to Perin Products Corporation. Calendar display construction with indexing calendar bearing member. 3,785,074, Cl. 40-113.000.

Hamilton, Harry A.: *See—*
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,785,964.

Hammann, Ingeborg: *See—*
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Hoffmann, Hellmut; Hammann, Ingeborg; and Unterstenhofer, Gunter, 3,786,065.

Hammond, Douglas L., to FMC Corporation. Attenuation of water waves and control and utilization of wave-induced water movements. 3,785,159, Cl. 61-5.000.

Hamphill, Geoffrey: *See—*
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Hanawa, Shozo: *See—*
Hino, Mikoni; Hanawa, Shozo; Itaya, Hisso; Okada, Toshihiko; and Fujtwara, Masayuki, 3,785,177.

Handeland, George A., to Safe Well Manufacturing Company. Chemical tablet dispensing device for wells. 3,785,525, Cl. 221-265.000.

Handy, Richard L., to Iowa State University Research Foundation. Apparatus for in situ borehole testing. 3,785,200, Cl. 73-151.000.

Hannah, Malcolm Edward: *See—*
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Hannan, William James, to RCA Corporation. Playing back redundant holograms by scanning. 3,785,712, Cl. 350-3.500.

Hanney, Philip Michael; Stainforth, Thomas Raymond; and Bland, William Arthur, to Bentley Engineering Company Limited, The. Tubular knitted fabric. 3,785,173, Cl. 66-9.00r.

Hanson, Lawrence R.: *See—*
Marion, Donald L.; Hanson, Lawrence R.; and Strand, Robert C., 3,786,012.

Hantke, Gerhard J.: *See—*
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Hanzawa, Teruo: *See—*
Iwama, Masakuni; Yamamoto, Toshihiko; Inoue, Isaburo; Hanzawa, Teruo; and Endo, Takaya, 3,785,828.

Harast, Leonard E.: *See—*
Galloway, Lawrence H.; Harast, Leonard E.; and Plimi, Frank V., Jr., 3,785,110.

Harbers, Henry C., Jr.; and Harbers, Henry C., Sr., to Western Unit Corporation. Preloaded spring beam and method employed alone or in combination with air bellows spring. 3,785,673, Cl. 280-124.00f.

Harbers, Henry C., Sr.: *See—*
Harbers, Henry C., Jr.; and Harbers, Henry C., Sr., 3,785,673.

Harbottle, William L., to Timken Company, The. Method for adjusting tapered roller bearings and for assembling devices employing such bearings as journals. 3,785,023, Cl. 29-148.40a.

Harding, William R. Aquarium siphon. 3,785,493, Cl. 210-169.000.

Hardy, Alfred W.: *See—*
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Harmsen, Ulf: *See—*
Durrwachter, Eugen Emil; Harmsen, Ulf; and Merl, Wilhelm, 3,785,810.

Harnden, John D., Jr.: *See—*
Ferro, Armand P.; Harnden, John D., Jr.; and Kurz, Bruno F., 3,786,264.
Kornrumpf, William P.; and Harnden, John D., Jr., 3,786,219.

Harnden, John D., Jr., to General Electric Company. Induction cooking appliance including temperature sensing of inductively heated cooking vessel. 3,786,220, Cl. 219-10.490.

Harnden, John D., Jr.; and Kornrumpf, William P., to General Electric Company. Metallic foil induction cooking. 3,786,222, Cl. 219-10.490.

Harnisch, Horst, to Bayer Aktiengesellschaft. Benzoxazole compounds useful as optical brightening agents. 3,786,064, Cl. 260-307.00d.

Harper, George Sullivan, to Airpax Electronic, Inc. Multi-pole circuit breaker. 3,786,380, Cl. 335-9.000.

Harsch, Thomas B., to International Liqiut Xtal Company. Display devices utilizing liquid crystal light modulation with varying colors. 3,785,721, Cl. 350-150.000.

Hart, Walter C.; and Singh, Suman P. N., to Phillips Petroleum Company. Separation of components of vaporous fluids. 3,785,161, Cl. 62-23.000.

Harter, H. Elisabet; surviving spouse of Harter, Roy S., deceased: *See—*
McKenna, James J.; and Harter, Roy, 3,785,225.

Harter, Roy: *See—*
McKenna, James J.; and Harter, Roy, 3,785,225.

Hartfiel, Arlynn H.: *See—*
Jackson, Jack M.; and Hartfiel, Arlynn H., 3,785,438.

Hartman, Gary F., to United States of America, Navy. Digital television character generator. 3,786,481, Cl. 340-324.0ad.

Hartman, Rolf, to Rheinmetall G.m.b.H. Belt feeder for automatic firearms. 3,785,242, Cl. 89-33.0ca.

Hase, Takashi: *See—*
Toshinai, Akio; and Hase, Takashi, 3,785,991.

Hasegawa, Hiromasa: *See—*
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Hasegawa, Yoshihumi: *See—*
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Hastings Manufacturing Company: *See—*
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Hata, Naoaki; and Takase, Yuzo, to Asahi Denka Kogyo K.K. Halogen containing polyesters and method for preparing same. 3,786,022, Cl. 260-47.00c.

Hatano, Isao; and Urasaki, Kazuaki, to Omron Tateisi Electronics Co. Digital display system of floating point representation. 3,786,480, Cl. 340-324.00r.

Hatano, Kazunori: *See—*
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Haven, John B., to General Electric Company. Emergency trip throttle valve. 3,785,615, Cl. 251-74.000.

Haverkamp, Klaus Dieter: *See—*
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.

Hawker Siddeley Aviation, Limited: *See—*
Chichester-Miles, Ian, 3,785,596.

Hawn, Frank A.: *See—*
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Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Light sensing device. 3,786,262, Cl. 250-206.000.

Hayashi, Toshio: *See—*
Loseries, Peter; and Hayashi, Toshio, 3,785,264.

Hayden, Rodney, to TRW Inc. Carbon monoxide alarm for automobiles. 3,786,462, Cl. 340-237.00r.

Hayden, Roy E., to SWF Plywood Company. Apparatus for laying up plywood panels. 3,785,508, Cl. 214-6.00m.

Hayes, John C., to Universal Oil Products Company. Four-step procedure for regenerating a catalyst containing platinum, rhenium and halogen. 3,785,996, Cl. 252-415.000.

Hayes-Albion: *See—*
Gorman, Thomas G., 3,785,748.

Hazelett, Richard: *See—*
Hazelett, Robert William; Hazelett, Richard; and Wood, John Frederick Barry, 3,785,428.

Hazelett, Robert William; Hazelett, Richard; and Wood, John Frederick Barry, to Hazelett Strip-Casting Corporation. Wheel-belt continuous casting machine. 3,785,428, Cl. 164-278.000.

Hazelett Strip-Casting Corporation: *See—*
Hazelett, Robert William; Hazelett, Richard; and Wood, John Frederick Barry, 3,785,428.

Hazelhurst, Gerald D., to Mark Products, Inc. Seismic cable assembly. 3,786,410, Cl. 340-17.000.

Hebbecker, Rolf; and Hofmann, Robert, to Fouquet-Werk Frauz & Planck. Thread supply apparatus for textile machinery, particularly circular knitting machines. 3,785,176, Cl. 66-132.0st.

Heberlein & Co., AG: *See—*
Bos, Isaac, 3,786,328.

Heetman, Jakobus, to Lonza Ltd. Scratch resistance tester. 3,785,198, Cl. 73-78.000.

Heinrich, Karl: *See—*
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Heinzman, Arthur H.; Clifton, Henry G., Jr.; and Theobald, Robert A. Jig for precasting a plurality of panels. 3,785,608, Cl. 249-161.000.

Heisner, Donald N., to Addressograph-Multigraph Corporation. Optical reader. 3,786,238, Cl. 235-61.11e.

Helmrich, Ralph, to Diamond Aerosol Corporation. Aerosol grenade. 3,785,569, Cl. 239-337.000.

Heneghan, Leo F.: *See—*
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Henes, Richard W.: *See—*
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Hengstler, J., K.G., Firma: *See—*
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Henkel & Cie G.m.b.H.: *See—*
Berg, Markus; Hallmann, Matthias; and Hoffmeister, Jurgen, 3,785,984.

Hennig, Arnold; and Hennig, Kurt. Cover for machine tools. 3,785,418, Cl. 150-52.00r.

Hennig, Kurt: *See—*
Hennig, Arnold; and Hennig, Kurt, 3,785,418.

Henriksson, Sten Tycho, to Boliden Aktiebolag. Method of producing arsenic selenides and arsenic doped selenium. 3,785,806, Cl. 75-134.00h.

Hepner, Georges; Lacombat, Michel; and Marcy, Raymond, to Compagnie Francaise Thomson Houston-Hotchkiss Brandt. Micro positioning apparatus. 3,786,332, Cl. 318-577.000.

Herbert, Jean Jacques. Apparatus for treating water charged with scale forming substances. 3,785,954, Cl. 204-228.000.

Herbots, Joseph Antoine: *See—*
von Paesschen, August Jean; Herbots, Joseph Antoine; and Timmerman, Daniel Maurice, 3,786,002.

Hergert, Heinz, to Polrotor, Inc. Apparatus for producing patterned pile fabrics. 3,785,016, Cl. 26-2.00r.

Herkt, Karl-Heinz: *See—*
Pfeiffer, Kurt; Dietrich, Johannes; Beckmann, Gunter; and Herkt, Karl-Heinz, 3,785,430.

Hermann Finckh Metalltuch- und Maschinenfabrik: *See—*
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Hermann, Stanley R.: *See—*
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Hershberger, J. Ronald: *See—*
Mare, Ernest, 3,785,127.

Hervert, George L.; Carnahan, Robert D.; and Youtsey, Karl J., to Universal Oil Products Company. Apparatus for catalytically converting fluids. 3,785,781, Cl. 23-288.00f.

Hess, Martin S.: *See—*
Castrucci, Paul P.; Grochowski, Edward G.; Hess, Martin S.; Maheras, Geroge; and North, William D., 3,785,886.

Hessert, James E.: *See—*
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Hesston Corporation: *See—*
Gaedderi, Melvin V., 3,785,130.

Hetherington, Irvine Keers; Pritchett, Robert Leonard; and York, Robert Kenneth, to Bell Telephone Laboratories, Incorporated. Integrated circuit switching network providing crosspoint gain. 3,786,425, Cl. 340-166.00r.

Heywang, Hermann; and Hoyler, Gerhard, to Siemens Aktiengesellschaft. Method for producing strips of insulating material having electrically conductive coatings with a coating free marginal edge surface. 3,786,224, Cl. 219-121.01m.

Hickman, Robert Winfield, to Du Pont de Nemours, E. I., and Company. Composite filament with elastomeric core and micro-apertured polypropylene foam sheath and process therefor. 3,785,919, Cl. 161-175.000.

Hider, Theodore M.; Hawn, Frank A.; and Makie, George E., to International Business Machines Corporation. Methods for developing electrostatic images. 3,785,846, Cl. 117-17.500.

Higashide, Eiji: *See—*
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Hilburn, Hugh C., to Sperry Rand Corporation. Cathode ray tube dual mode horizontal deflection control amplifier. 3,786,303, Cl. 315-27.0td.

Hildebrand, Dietrich; and Kuth, Robert, to Bayer Aktiengesellschaft. Process for the continuous dyeing and printing of fibre materials containing ionic groups. 3,785,767, Cl. 8-54.000.

Hill, Elgie E. Chord-teaching device for a stringed instrument. 3,785,240, Cl. 84-485.000.

Hill, Michael Walter, to RCA Corporation. Dynamic convergence circuits. 3,786,300, Cl. 315-13.00c.

Hillhouse, John L.: *See*—
Fertl, Walter H.; Cavanaugh, Robert J.; and Hillhouse, John L., 3,785,446.
Hinai, Masakatsu: *See*—
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Hino, Mikoni; Hanawa, Shozo; Itaya, Hisso; Okada, Toshihiko; and Fujtwara, Masayuki, to Gunze, Co., Ltd. Device for sensing a broken yarn of a circular knitting machine. 3,785,177, Cl. 66-157.000.
Hintenberger, Karl. Vacuum oven for firing ceramic facings. 3,786,164, €l-13-31.000.
Hiraishi, Kiyoto: *See*—
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Hirano, Masachika; Mukai, Kunio; Takeda, Hisami; and Tanaka, Katsutoshi, to Sumitomo Chemical Company, Limited. N-allyl phosphorothiamidates. 3,786,118, Cl. 260-948.000.
Hiraoka, Susumu: *See*—
Kurauchi, Noritaka; Hiraoka, Susumu; Yoshida, Kenichi; and Ohmori, Masaki, 3,786,411.
Hitachi, Ltd.: *See*—
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Nemoto, Mamoru; and Tani, Seijiro, 3,785,751.
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Sato, Hitoshi; Tanaka, Mitsuo; Nakamura, Michiharu; Takahashi, Susumu; and Kurono, Hirokazu, 3,786,375.
Tokuyama, Takashi; and Mori, Takaaki, 3,785,043.
Hitchman, Michael L.; Mehl, Wolfgang; and Millot, Jean Pierre, to Wright, H. Dudley. Electrochemical oxygen detector. 3,785,948, Cl. 204-195.00p.
Ho, Irving T.; and Riseman, Jacob, to International Business Machines Corporation. Integrated magnetic bubble and semiconductor device. 3,786,445, Cl. 340-174.0tf.
Hoang, Ming-Tsung: *See*—
Inque, Goro; and Hoang, Ming-Tsung, 3,786,330.
Hobson, Charles F., Jr.; and Willard, Henry G., to General Electric Company. Circuit breaker and static trip circuit therefor. 3,786,311, Cl. 317-18.00d.
Hochman, Herschel T.; and Hogan, Dennis L. Security maintenance system. 3,786,471, Cl. 340-274.000.
Hock, Fromund; Feldmann, Hennig; and Fialkowski, Heinz, to Leitz, Ernst, G.m.b.H. Split-field microscope. 3,785,714, Cl. 350-15.000.
Hodges, Franklin Reeder. Medical testing and data recording apparatus. 3;786,510, Cl. 346-33.0me.
Hodges, Frederick R. Method for forming a drinking receptacle. 3,785,794, Cl. 65-108.000.
Hodgkins, David H., to Stanadyne, Inc. Water separator. 3,785,970, Cl. 210-23.000.
Hodkin, Thomas W. Magnetic writing instrument. 3,785,739, Cl. 401-195.000.
Hodshire, James O.; Shockley, Quentin O.; and Crouse, Don E., to General Motors Corporation. Solid surface lubricant coating. 3,785,785, Cl. 29-195.00y.
Hoekstra, James, to Universal Oil Products Company. Method of catalyst manufacture by impregnating honeycomb-type support. 3,785,998, Cl. 252-477.00r.
Hoening, Kevin J., to Seaquist Valve Company. Mechanical breakup aerosol sprayer button. 3,785,571, Cl. 239-492.000.
Hoesch Aktiengesellschaft: *See*—
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Hoffmann, Hellmut; Hammann, Ingeborg; and Unterstenhofer, Gunter, to Bayer Aktiengesellschaft. N,N-dimethyl-O-substituted-3,4-polymethylene-pyrazolyl. 3,786,065, Cl. 260-310.00r.
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Hogan, Elmer R.; and Simpson, John I., to Smith-Bergen Manufacturing Corporation. Fish-cleaning apparatus. 3,785,007, Cl. 17-59.000.
Hogshead, Thomas H., Jr.: *See*—
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Holz, Emil, to Hermann Finckh Metalltuch- und Maschinenfabrik. Pressure filter for fibrous suspensions. 3,785,495, Cl. 210-210.000.
Holzhauer, Rudolf, to Ruggeberg, August, Firma. Abrasive medium. 3,785,094, Cl. 51-401.000.
Hombrecher, Friedrich, to ERSA Ernst Scahs KG. Thermostatically controlled electric soldering iron. 3,786,229, Cl. 219-241.000.
Homma, Isamu: *See*—
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Homoi, Toshimitu; and Homma, Isamu, to Hitachi, Ltd. Semiconductor device having channel preventing structure. 3,786,318, Cl. 317-235.000.
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Honnen, Lewis R.; and Coon, Marvin D., to Chevron Research Company. Fuel detergents. 3,785,789, Cl. 44-66.000.
Hopkins, Henry R Portable debris incinerator. 3,785,303, Cl. 110-8.00r.
Hopkins, Stephen, to Compackager Corporation. Machine for compacting trash. 3,785,278, Cl. 100-51.000.
Hoppke, Jerell B., to Buckbee-Mears Company. Multi-angle beam director for testing aperture masks. 3,785,738, Cl. 356-138.000.
Hopps, Harvey Byron; and Biel, John Hans, to Aldrick Chemical Company, Inc. Monosulfate salt of 3-ethyl-6,7-dihydro-2-methyls-5(4',4'-ethylene dioxypiperidina-methyl)-indole-4-(5H)-one. 3,786,057, Cl. 260-293.610.
Horai, John C.; and Tucker, Stephen F., to GAF Corporation. Biologically active particulate material and the process for manufacturing same. 3,785,798, Cl. 71-79.000.
Horecky, Stanley V., to Molex Inc. Electrical terminal. 3,786,402, Cl 339-276.00a.
Hori, Yasuro; Hiraishi, Kiyoto; Kiuchi, Tadashi; and Kashima, Yoshitake, to Hitachi, Ltd. Short-circuit testing model for stationary induction apparatuses. 3,786,387, Cl. 336-181.000.
Horikawa, Hideichi: *See*—
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Houston, Edward F.; Wallace, Robert L.; Rochette, William; and Chaponis, Charles A., to Houston Company, The. Electrical switch assembly and valve for liquid filling system. 3,786,207, Cl. 200-61.860.
Howell, Frederick Harold, to Geigy, J. R., A.G. Process for the preparation of cyclodecanone. 3,786,099, Cl. 260-586.00a.
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Hruby, John O., Jr., to Rain Jet Corporation. Nozzle for discharging liquids containing solid matter. 3,785,560, Cl. 239-17.000.
Hsu, Grace F., to Conversion Chemical Corporation. Tin/lead plating bath and method. 3,785,939, Cl. 204-43.00s.
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Hunt, Mack W., to Continental Oil Company. Process for producing anionic metal-containing sulfonates. 3,785,976, Cl. 252-33.000.
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Hussain, Anwar, to Interx Research Corporation. Alkoxyacetanilide compounds. 3,786,090, Cl. 260-562.00a.
Hutchins, Alma A. Abrading tool having suction system for collecting abraded particles. 3,785,092, Cl. 51-170.0mt.
Hutchinson, Carl P., to Wilson Industries, Inc. Tool for use in removing a fish stuck within a well bore. 3,785,690, Cl. 294-86.340.
Hutter, Charles G., III, to Physical Systems, Inc. Surgical lamp. 3,786,244, Cl. 240-1.400.
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Ichikawa, Masahide. Brine battery. 3,785,871, Cl. 136-100.00m.
Ichiki, Eiichi; Iida, Kazuo; Matsui, Atsuro; and Kadokura, Hidekimi, to Sumitomo Chemical Company, Limited. Continuous process for producing alkylaluminum compounds. 3,786,080, Cl. 260-448.00a.
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Jachertz, Dietrer. Process for the enzymatic reproduction of informationally active RNA. 3,785,926, Cl. 195-28.00n.

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Jackson, Jack M.; and Hartfiel, Arlynn H., to Chemical Additives Company. Methods for minimizing fluid loss of wellbore fluids. 3,785,438, Cl. 166-295.000.

Jackson, John M., to Armco Steel Corporation. Cube-on-edge oriented silicon-iron having improved magnetic properties and method for making same. 3,785,882, Cl. 148-113.000.

Jacob, Ingolf; Buttner, Gert; and Heinrich, Karl, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Equipment for the continuous crimp development of three-dimensionally crimped synthetic fibers and filaments. 3,785,017, Cl. 28-1.20.

Jacobs, James W., to General Motors Corporation. Clutch device. 3,785,220, Cl. 74-242.1fp.

Jacobs, Melvin A.; and Lee, David Q., to GTE Automatic Electric Laboratories Incorporated. Preference circuit for a marker. 3,786,197, Cl. 179-18.0ed.

Jacobs, Stanley C., to Aluminum Company of America. Refractory for production of aluminum by electrolysis of aluminum chloride. 3,785,941, Cl. 204-67.000.

Jaecklin, Andre; and Strassler, Siegfried, to Brown, Boveri & Company, Ltd. Holder member for a disc-shaped semiconductor element. 3,786,168, Cl. 174-15.00r.

Jaget, Jean; deceased (by Jaget, Pierre). Method and apparatus for incinerating refuse. 3,785,306, Cl. 110-14.000.

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Jankowski, Alfred S.; Moll, John L.; and Funk, Ernest J., to Fairchild Camera and Instrument Corporation. Alpha-numeric display package. 3,786,499, Cl. 340-378.00r.

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Japan Gasoline Co., Ltd.: *See—*
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Jaquiss, Donald B. G.; and Liberti, Frank N., to General Electric Company. Thermally stable flame retardant polycarbonate composition containing in admixture a polycarbonate and a phosphinic or a phosphoric acid additive. 3,786,114, Cl. 1-3-72.

Jauvtis, Harvey I., to Cambridge Memories, Inc. Magnetic thin film shift register having bidirectional transmission elements and offset block sites. 3,786,449, Cl. 340-174.0fb.

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Jenkins, Thomas E., to General Electric Company. Sealing system for washing machine. 3,785,566, Cl. 239-259.000.

Jenkinson, William David; and Marke, Paul Anthony Bryant, to Texaco Inc. Method and apparatus for offshore geophysical exploration with low power seismic source. 3,786,408, Cl. 340-15.5mc.

Jennings, James Robert; and Simon, David Gavin, to Imperial Chemical Industries, Limited. Vinyl polymerisation. 3,786,032, Cl. 260-91.700.

Jennings, Thomas A., to Hull Corporation. Thin film coils and method and apparatus for making the same. 3,785,046, Cl. 29-602.000.

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Joachim Erbprinz Zu Foustenberg: *See—*
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Joannou, Constantinos J. Phonograph record player turntable and motor assembly. 3,786,288, Cl. 310-68.000.

Johannessen, Paul R., to Mesapulse Incorporated. Magnetic pulse compression radio-frequency generator apparatus. 3,786,334, Cl. 321-45.00r.

Johansen, Thor H. Method of treating raw cellulosic materials. 3,785,920, Cl. 162-19.000.

Johansson, Rolf Anders Gunnar. Centrifugal clutches in series with brake. 3,785,465, Cl. 192-48.500.

Johns-Manville Corporation: *See—*
Reimschussel, George Paul; and Ppins, Jacob Matthys, 3,786,126.
Terry, Rupert Douglas, 3,786,226.

Johnson, B. Neil; and Midthun, Robert A. Machine for forming a continuous seamless concrete pipe. 3,785,759, Cl. 425-59.000.

Johnson, Benjamin A.: *See—*
Porter, Henry D.; and Johnson, Benjamin A., 3,785,777.

Johnson, Bernard Lee. Spare tire carrier. 3,785,518, Cl. 214-454.000.

Johnson, David E., to Mobil Oil Corporation. Apparatus for extrusion of thermoplastics. 3,785,760, Cl. 425-207.000.

Johnson, James E., to Construction Machinery Company. Mounting device for mobile concrete mixing drum. 3,785,622, Cl. 259-176.000.

Johnson, Robert J.: *See—*
Weiss, Harald H.; and Johnson, Robert J., 3,786,257.

Johnson, Stephen C.; and Ward, Jesse C. Illuminated flying saucer. 3,786,246, Cl. 240-6.40r.

Johnson, William H., to Research Corporation. Tobacco treatment to increase volume thereof. 3,785,385, Cl. 131-140.00p.

Jojima, Takehiko: *See—*
Kobayashi, Seihin; Torii, Michihiro; and Jojima, Takehiko, 3,786,450.

Jones, Arthur L., to Standard Oil Company, The. Olefin conversion process. 3,786,109, Cl. 260-673.000.

Jones, Bryan: *See—*
Mynard, Brian Arthur; Jones, Bryan; Tracey, Victor Allen; and Betteridge, Walter, 3,785,783.

Jones, Cecil R., to Transfer Systems Incorporated. Portable radiation shield for nuclear reactor installation. 3,785,925, Cl. 176-87.000.

Jones, Chesley; and Poupitch, Ougljesa Jules, to Illinois Tool Works, Inc. Contact socket. 3,786,401, Cl. 339-258.00r.

Jones, James W., to Compac Engineering, Inc. Reed switching assembly of deformable material. 3,786,384, Cl. 335-152.000.

Jones, John Leslie, Sr. Composition applicator. 3,784,998, Cl. 15-209.00r.

Jones, Leo V.: *See—*
Zelinski, Paul A.; and Jones, Leo V., 3,786,436.

Jonnes, Nelson, to Minnesota Mining & Manufacturing Company. Roadway lane delineator having an elastomeric reflective portion. 3,785,719, Cl. 350-105.000.

Jonnet, Albert G.: *See—*
Edgar, William D.; and Jonnet, Albert G., 3,785,933.

Jordan, John D., to General Electric Company. Damping circuit for vertical deflection system. 3,786,304, Cl. 315-27.0td.

Jorgensen, Soren. Plant, preferably for anaesthesia. 3,785,377, Cl. 128-188.000.

Joy, David Charles; and Booker, Graham Roger, to Cambridge Scientific Instruments, Limited. Electron microscopes and microanalysers. 3,786,271, Cl. 250-398.000.

Joy, Edward, to Ventrola Manufacturing Company. Low profile ventilator apparatus means. 3,785,271, Cl. 98-40.0dc.

Juculano, Charles T., to Symons Corporation. Toeboard clamp for steel scaffolding. 3,785,602, Cl. 248-214.000.

Judge, Roderick B.: *See—*
Skov, Ebbe R.; Judge, Roderick B.; and Hamphill, Geoffrey, 3,786,086.

Judin, Valentin Dmitrievich: *See—*
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Junck, John A.; and Kokaly, Joseph, to Caterpillar Tractor Company. Hydraulic control for self-loading scraper with three-speed elevator drive. 3,785,156, Cl. 60-421.000.

Junginger, Klaus: *See—*
Blzig, Karl F.; and Junginger, Klaus, 3,786,243.

Jvirblis, Alex E.; and Roth, Walter, to Diagnostic Instruments, Inc. Field control in imaging systems. 3,786,252, Cl. 250-315.000.

Kabat, John L.; Magnussen, John L.; Porter, Richard B.; and Tobias, James R., to Honeywell Inc. Electronic control circuit with time delay of main and feedback signals. 3,785,432, Cl. 165-22.000.

Kabushiki Kaisha Daini Seikosha: *See—*
Sato, Yukihiro; and Ichinosawa, Toshiju, 3,786,236.

Kabushiki Kaisha Komatsu Seisakusho: *See—*
Suzuki, Mitsuaki, 3,785,450.

Kabushiki Kaisha Osaka Jack Seisakusho: *See—*
Une, Tatuyuki; and Kamata, Akira, 3,785,030.

Kabushiki Kaisha Suwa Seikosha: *See—*
Fujimori, Yoshiaki, 3,785,143.
Kegami, Toshimasa, 3,785,141.

Kabushiki-Kaisha Kubo Shoten: *See—*
Kubo, Shirohei, 3,785,700.

Kadokura, Hidekimi: *See—*
Ichiki, Eiichi; Iida, Kazuo; Matsui, Atsuro; and Kadokura, Hidekimi, 3,786,080.

Kadono, Takeji: *See—*
Inamoto, Yoshiaki; and Kadono, Takeji, 3,786,033.

Kaffarnik, Hans: *See—*
Moyer-Bertenrath, Jurgen; Kaffarnik, Hans; Rey, Hans-Georg; Michal, Gerhard; and Busch, Ernst-Werner, 3,786,140.

Kagele, Frank L.: *See—*
Trent, Edward J.; Meyers, Lavern H.; and Kagele, Frank L., 3,786,234.

Kahn, Michael E., to Memorex. Disk recorder arm assembly mount. 3,786,457, Cl. 340-174.10c.

Kaiser Aluminum & Chemical Corporation: *See—*
Gibbs, Francis E., 3,786,225.

Kajimoto, Hikokusu: *See—*
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.

Kali-Chemie Aktiengesellschaft: *See—*
Derleth, Helmut; and Fischer, Hermann, 3,785,999.

Kalil, James, to Du Pont de Nemours, E. I., and Company. Antiozonant-antioxidant composition containing secondary amino and hydrous calcium silicate. 3,785,995, Cl. 252-400.00r.

Kaltenbach, Pierre. Light detection monitoring device. 3,786,460, Cl. 340-227.00r.

Kamata, Akira: *See—*
Une, Tatuyuki; and Kamata, Akira, 3,785,030.

Kamelander, Ivan, to Zdarske strojirny a slevarny, Narodni podnik Zdar Nad. Mechanical press with toggle lever crank drive. 3,785,282, Cl. 100-257.000.

Kamentsky, Louis A.: *See—*
Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,785,735.

Kamm, Walter E. Landscape kit. 3,785,065, Cl. 35-16.000.

Kamp, Heinz, to Schlafhorst, W., & Co. Apparatus for inserting weft thread bunches into weft thread storage devices in warp knitting machines. 3,785,175, Cl. 66-84.00a.

Kanamaru, Hisanobu; Ohuchi, Yasushi; and Tatsumi, Hideo, to Hitachi, Ltd. Slip ring assembly and method of making same. 3,785,049, Cl. 29-629.000.

Kaneko, Masahiko; Miyama, Hiroshi; and Nishida, Jun, to Matsushita Electric Industrial Company. Frame-by-frame video image recording apparatus. 3,786,182, Cl. 178-6.70a.

Kano, Gota; Fujiwara, Shohei; Iizuka, Mutsuo; Hasegawa, Hiromasa; and Sawaki, Tsukasa, to Matsushita Electronics Corporation. Schottky barrier pressure sensitive semiconductor device with air space around periphery of metal semiconductor junction. 3,786,32, Cl. 317-235.00r.

Kao Soap Co., Ltd.: *See—*
Inamoto, Yoshiaki; and Kadono, Takeji, 3,786,033.

Kaprer, Friedrich, to Ciba-Geigy AG. N,N-diallyl-3,7,11-trimethyl-2,6,10-dodecatrienylamine. 3,786,097, Cl. 260-583.00h.

Karev, Viktor Dmitrievich: *See—*
Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich, 3,785,869.

Karkutt, Reimund: *See—*
Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Willi; and Pelka, Walter, 3,785,703.

Karlson, Harald E., to Goldsworthy Engineering, Inc. Apparatus and method for producing no-twist center-pull roving packages. 3,785,137, Cl. 57-71.000.

Karlsson, Gosta, to Allmanna Svenska Elektriska Aktiebolaget. Means for atomizing molten metal. 3,785,633, Cl. 266-34.00v.

Karlsson, Kurt: *See—*
Pettersson, Birger; and Karlsson, Kurt, 3,785,431.

Karmanovsky, Stanislav Nikandrovich: *See—*
Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich, 3,785,869.

Kasama, Ryoji: *See—*
Naito, Shotaro; Kasama, Ryoji; and Sato, Hiro, 3,786,466.

Kasano, Kazuhiko: *See—*
Fujii, Heihachi; Kasano, Kazuhiko; Matsuno, Minoru; Moroi, Tadahiko; and Kitamura, Munehiro, 3,786,295.

Kashima, Yoshitake: *See—*
Hori, Yasuro; Hiraishi, Kiyoto; Kiuchi, Tadashi; and Kashima, Yoshitake, 3,786,387.

Kashio, Toshio, to Casio Computer Co., Ltd. Deflection electrode device for an ink jet printing apparatus. 3,786,516, Cl. 346-75.000.

Kassel, Joseph B. Tire puncture repair system. 3,785,896, Cl. 156-97.000.

Katayama, Shitomi; Horikawa, Hideichi; Obuchi, Masao; and Ito, Yoshihiro, to Denki Onkyo Co., Ltd. Polyamideurethanes and their preparation. 3,786,031, Cl. 260-77.5aq.

Katcher, Emanuel E., to United States of America, Navy. Integral thrust neutralizer for rocket engines. 3,785,150, Cl. 60-229.000.

Katkov, Alexandr Fedorovich: *See—*
Pukhov, Georgy Evgenievich; Borkovsky, Boris Adamovich; Belik, Viktor Kirillovich; Romantsov, Vladimir Petrovich; and Katkov, Alexandr Fedorovich, 3,786,241.

Katsutoshi, Nakayama: *See—*
Yasuhiro, Tomita; and Katsutoshi, Nakayama, 3,785,195.

Katzen, Sol. Method for stabilizing and preserving nutrients and products. 3,786,123, Cl. 264-53.000.

Kavanagh, Ira K.: *See—*
Haggberg, Marvin D.; Kavanagh, Ira K.; and Van Horik, Leonard R., 3,785,788.

Kavick, Edward M.: *See—*
Whitledge, Jon K.; and Kavick, Edward M., 3,785,050.

Kawa, Ryuichi, to Ricoh Company, Ltd. System for demodulating pulse-number-modulated binary signals. 3,786,360, Cl. 329-104.000.

Kawabata, Hidetsugu: *See—*
Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawabata, Hidetsugu; and Kitamura, Saburo, 3,786,254.

Kawabe, Tadashi, to Tateho Kagakukogyo Kabushiki Kaisha. Method of manufacturing fused magnesia. 3,786,129, Cl. 423-170.000.

Kawahara, Shigemi: *See—*

Murakami, Masuo; Kawahara, Shigemi; Inukai, Noriyoshi; Nagano, Noriaki; Iwamoto, Hidenori; and Ida, Hisashi, 3,786,054.

Kawai, Atsushi; Suzuki, Migaku; and Ohta, Hidenori, to Mitsubishi Rayon Co., Ltd. Regenerated cellulose fibrous product. 3,785,918, Cl. 161-169.000.

Kawai, Yoichi: *See—*
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.

Kawano, Toshio, to Onoda Cement Co., Ltd. Expansive cement additives and process for producing the same. 3,785,844, Cl. 106-314.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See—*
Ogawa, Heisuke; Yamamoto, Mitsuo; Bando, Seiisaku; and Baba, Osami, 3,786,407.

Kay, Edward Leo: *See—*
Lohr, Delmar F., Jr.; and Kay, Edward Leo, 3,786,009.

Kay-Cee Industrial Products, Inc.: *See—*
Canepa, William P., 3,785,014.

Kearney, James F., to Teletype Corporation. Teleprinter assembly. 3,785,283, Cl. 101-93.00c.

Keats, Richard L.; and Glaser, Harold, to Glaser Products Corporation. Barbecue cooker. 3,785,275, Cl. 99-446.000.

Kegami, Toshimasa, to Kabushiki Kaisha Suwa Seikosha. Mechanism for a timepiece having a plurality of time display. 3,785,141, Cl. 58-42.500.

Keio Giken Kogiyo Kabushiki Kaisha: *See—*
Mieda, Fumio, 3,786,166.

Kelch, Heinz: *See—*
Zimmermann, Hans; Schuh, Eduard; and Kelch, Heinz, 3,786,513.

Keller, Joseph H., Jr., to Kidde, Walter, & Company, Inc., mesne. Side stowable jib for crane booms and jib mounting. 3,785,505, Cl. 212-144.000.

Keller, Martin B., to Sandy Hill Corporation. Inclined former. 3,785,922, Cl. 162-299.000.

Kelly, Robert C., to Upjohn Company, The. An intermediate in the total synthesis of elenolic acid. 3,786,068, Cl. 260-340.500.

Kelseaux, Ray M.; Dobbs, Harold J.; and Priebe, Frank D., to Cities Serivce Oil Company. Electronic supervisory control system for drilling wells. 3,785,202, Cl. 73-151.500.

Kemmer, Harry P.; and Storcel, Joseph A., to Bunker Ramo Corporation. Electrical connector with locking device. 3,786,396, Cl. 339-89.00r.

Kemnitz, Robert H., to Allis-Chalmers Corporation. Feed distributor for crusher. 3,785,578, Cl. 241-202.000.

Kennard, Harry M.: *See—*
Genese, Joseph N.; Rapoza, Edward J.; Galanaugh, Charles F.; Kennard, Harry M.; Chevalez, Roger A.; and Smith, John A., 3,785,533.

Kennedy, John B.; and Pepper, Kenneth L., to Glober Tool and Engineering Company. Wire guides for armature winding machines. 3,785,580, Cl. 242-7.05b.

Kennelly, Cleve F. Bicycle rack. 3,785,500, Cl. 211-5.000.

Kent, George, Limited: *See—*
Notley, John Percy William; and Noble, James Simon, 3,786,433.

Kerr, William J., to Chicago Lock Co. Keeper lock for a slide fastener. 3,785,185, Cl. 70-68.000.

Kerruish, Kermit D. Vtol aircraft. 3,785,592, Cl. 244-12.00c.

Kersteter, Ammon W., to Equitable Equipment Company, Inc. Hatch cover. 3,785,322, Cl. 114-201.00r.

Kery, Edmund. Air bed. 3,784,994, Cl. 5-348.000.

Kessler, Milton. Bacteriological titration tray. 3,785,928, Cl. 195-140.000.

Ketterer, Stanley J., to Singer Company, The. Thread tensioning mechanism for a sewing machine. 3,785,309, Cl. 112-254.000.

Ketteringham, John M.: *See—*
Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M., 3,785,950.

Kidd, Donald D.: *See—*
Bowling, Glenn W.; and Kidd, Donald D., 3,785,022.

Kidde, Walter, & Company, Inc., mesne: *See—*
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Kienzle Apparate GmbH: *See—*
Zimmermann, Hans; Schuh, Eduard; and Kelch, Heinz, 3,786,513.

Kim Lighting, Inc.: *See—*
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Kimata, Shizuo: *See—*
Terai, Shiro; Suzuki, Toshio; Hasegawa, Yoshihumi; Sekiya, Hitoshi; Matuo, Hiroto; and Kimata, Shizuo, 3,785,946.

Kindler, Horst: *See—*
Schmidt, Ewald; Brachet, Hansvilli Von; Muller, Rolf; and Kindler, Horst, 3,786,083.

King, Harry A. Structural material and means and method for making it. 3,785,914, Cl. 161-133.000.

King, Larry K.; Knapp, Lester L.; Schoener, Ronald C.; Kloap, Nicholas; Starner, Bernard M.; and Remper, John A., to Aluminum Company of America. Recovery of solid selectively constituted high purity aluminum chloride from hot gaseous effluent. 3,786,135, I. 423-446.000.

King, Paul Allen, Jr., to Massachusetts Institute of Technology. Cathode ray tube presentation of characters in matrix form from stored data augmented by interpolation. 3,786,478, Cl. 340-324.0ad.

King, William J., to Alpha Industries, Inc. Ion accelerator and ion species selector. 3,786,359, Cl. 328-233.000.

Kinley, John C.: *See—*
Kinley, Myron M.; and Agee, Charles W., 3,785,193.

Kinley, Myron M.; and Agee, Charles W., to Kinley, John C. Liner expanding apparatus. 3,785,193, Cl. 72-393.000.

Kirimura, Jiro: *See—*
Ariyoshi, Yasuo; Nagao, Masanori; Sato, Naotake; Shimizu, Akira; and Kirimura, Jiro, 3,786,039.

Kirk, Colin John, to Martonair Limited. Fluid logic circuit. 3,785,403, Cl. 137-608.000.

Kirk, Gregory H.: *See—*
Kitchen, Elwyn L., Jr.; and Kirk, Gregory H., 3,785,601.

Kirkman, Earl L.; and Bowers, Gerald M., to Unicorp, Incorporated. Continuous deposition reactor. 3,785,853, Cl. 117-106.000.

Kishino, Shigeo; Yamada, Yasuo; Kurahashi, Yoshio; and Kume, Toyohiko, to Bayer Aktiengesellschaft. O-(methycyclohexyl)-5-methyl-0-(2-cyanophenyl) thiolphosphates. 3,786,117, Cl. 260-940.000.

Kitaguchi, Shigeo: *See—*
Inque, Masayoshi; Nagai, Koji; and Kitaguchi, Shigeo, 3,785,983.

Kitai, Kiyoshi, to Seiko Koki Kabushiki Kaisha. Daylight and flash photography changeover electrically-operated shutter. 3,785,259, Cl. 95-10.0ct.

Kitamura, Munehiro: *See—*
Fujii, Heihachi; Kasano, Kazuhiko; Matsuno, Minoru; Moroi, Tadahiko; and Kitamura, Munehiro, 3,786,295.

Kitamura, Saburo: *See—*
Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawabata, Hidetsugu; and Kitamura, Saburo, 3,786,254.

Kitchen, Elwyn L., Jr.; and Kirk, Gregory H., to General Motors Corporation. Shock absorbing securement device. 3,785,601, Cl. 248-119.00r.

Kitrilakis, Sotiris, to Tecna Corporation. Intrauterine device. 3,785,376, Cl. 128-130.000.

Kittle, Carl Edwin; and Spencer, Keith Louis, to Deere & Company. Flow control dump valve. 3,785,157, Cl. 60-493.000.

Kittredge, Thomas D.: *See—*
Pressman, Gerald L.; and Kittredge, Thomas D., 3,786,514.

Kitzinger, Frank; and Tarassoff, Peter, to Noranda Mines Limited. Automatic speed control and programming system for high-speed belt conveyor type throwers. 3,785,513, Cl. 214-18.220.

Kiuchi, Tadashi: *See—*
Hori, Yasuro; Hiraishi, Kiyoto; Kiuchi, Tadashi; and Kashima, Yoshitake, 3,786,387.

Kiukkonen, Olli Juhani, to Rateko Oy. Car conveyor, in particular for a washing car machine. 3,785,295, Cl. 104-155.000.

Klaproth, Rolf. Trousers. 3,784,986, Cl. 2-237.000.

Klein, Frank F., Jr. Bicycle stem lock. 3,785,676, Cl. 280-279.000.

Kleinmann, Earl E.: *See—*
Taverner, Clarence I.; and Kleinmann, Earl E., 3,785,413.

Klemenz, John J.: *See—*
Eilert, Richard L.; and Klemenz, John J., 3,786,247.

Klepfer, Harold Holmes: *See—*
De Hollander, William Roger; and Klepfer, Harold Holmes, 3,786,120.

Klinger, Isaac: *See—*
Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,785,735.

Klinkosch, Reinhard, to Hoesch Aktiengesellschaft. Structural units. 3,785,917, Cl. 161-161.000.

Kloap, Nicholas: *See—*
King, Larry K.; Knapp, Lester L.; Schoener, Ronald C.; Kloap, Nicholas; Starner, Bernard M.; and Remper, John A., 3,786,135.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Langmaack, Jurgen; and Haas, Helmut, 3,785,575.

Kloiber, Robert F., to Brunswick Corporation. Outboard motor anti-tilt locking mechanism. 3,785,328, Cl. 115-17.000.

Knapp, Lester L.: *See—*
King, Larry K.; Knapp, Lester L.; Schoener, Ronald C.; Kloap, Nicholas; Starner, Bernard M.; and Remper, John A., 3,786,135.

Knauf, Jack W., to United States of America, Interior. Method and apparatus for producing orthophotoplans. 3,785,731, Cl. 355-22.000.

Knauft, Guenter: *See—*
Hajdu, Johann; Knauft, Guenter; Skuin, Petar; and Vogt, Edwin, 3,786,430.

Kobayashi, Hajime: *See—*
Inoue, Eiichi; Shimizu, Isamu; Endo, Ichiro; and Kobayashi, Hajime, 3,785,820.

Kobayashi, Seihin; Torii, Michihiro; and Jojima, Takehiko, to Fuji Denki Kagaku Kabushiki Kaisha. Magnetic thin film plated wire memory. 3,786,450, Cl. 340-174.0pw.

Kobayashi, Shoichi: *See—*
Osuga, Hiroshi; and Kobayashi, Shoichi, 3,786,115.

Kobayashi, Takanori William, to Coleco Industries, Inc. Hockey game with magnetic control members. 3,785,648, Cl. 273-85.00b.

Koch, H., & Sons, Inc.: *See—*
Gaylord, John A., 3,785,597.

Kodama Brothers Co., Ltd.: *See—*
Okui, Sakujiro, 3,785,362.

Kodama, Tsuneu: *See—*
Ide, Fumio; Kodama, Tsuneu; and Kotake, Yahide, 3,785,921.

Koenig, Martin F.; Dempsey, George A., Jr.; and Issa, Manuel; deceased (by Sheedy, Patrick T.; administrator), to Cutler-Hammer, Inc. Single-bolt joint for feeder and plug-in bus ducts. 3,786,394, Cl. 339-22.00b.

Koester, David W.: *See—*
Cornelius, Edward B.; Delamater, George B.; Koester, David W.; and McEvoy, James E., 3,786,001.

Kofsky, Harvey Irwin. Sorting and counting apparatus. 3,785,386, Cl. 133-3.00d.

Koganer, Valentin Eizerovich: *See—*
Borisov, Jury Modestovich; Budyko, Jury Ivanovich; Dubnitsky, Nikolai Borisovich; Koganer, Valentin Eizerovich; Lisitsyn, Alexandr Ivanovich; Mozokhin, Nikolai Gavrilovich; Maskenskov, Konstantin Mikhailovich; and Dukhnin, Jury Vasilievich, 3,785,353.

Kohama, Masahiro, to Kokusai Tekko Kabushiki Kaisha. Low-frequency induction furnace. 3,786,163, Cl. 13-29.000.

Koike, Norio; and Ashikawa, Mikio, to Hitachi, Ltd. Scanning pulse generator. 3,786,281, Cl. 307-269.000.

Kokaly, Joseph: *See—*
Junck, John A.; and Kokaly, Joseph, 3,785,156.

Kokolis, Steve: *See—*
Castellana, Frank S.; Liker, Jack; and Kokolis, Steve, 3,786,228.

Kokusai Kasei Kosha Co., Ltd.: *See—*
Yamashita, Yutaka; and Sata, Masami, 3,785,988.

Kokusai Tekko Kabushiki Kaisha: *See—*
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Kollmorgan Corporation: *See—*
Whited, James Sidney, 3,786,329.

Komoda, Tsutomu; and Nomura, Setsuo, to Hitachi, Ltd. Field emission electron gun. 3,786,305, Cl. 315-30.000.

Kondo, Kenshi. Thermostatic switch. 3,786,389, Cl. 337-389.000.

Konig, Helmut. Dough portioning machine. 3,785,623, Cl. 259-185.000.

Konishiroku Photo Industry Co., Ltd.: *See—*
Iwama, Masakuni; Yamamoto, Toshihiko; Inoue, Isaburo; Hanzawa, Teruo; and Endo, Takaya, 3,785,828.

Konno, Kazubiko, to Mitsuhishi Petrochemical Company Limited. Recovery of adipic acid. 3,786,096, Cl. 260-537.00r.

Konomi, Shunzi: *See—*
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,246.
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,247.

Konrad, William L.: *See—*
Chramiec, Mark A ; and Konrad, William L., 3,786,405.

Konstant, Anthony N., to Speedrack Inc. Storage racks. 3,785,502, Cl. 211-134.000.

Konyafv, Jury Sergeevich: *See—*
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Kotschy, Josef. Capacitor with decreased flammability. 3,786,324, Cl. 317-258.000.

Kough, John K.; Martin, Otis M.; and Miller, Silas N., to Ditz-Crane. Building panel enclosures for valley and hip structures. 3,785,114, Cl. 52-748.000.

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Krause, Arthur Waldemar; and Hannah, Malcolm Edward, to Reichold Chemicals, Inc., mesne. Process for decreasing ethylenic polunsaturation in organic carboxylic acids using a co-catalyst. 3,786,037, Cl. 260-97.500.

Krause, Konrad A., to International Business Machines Corporation. Ink jet printer with ink system filter means. 3,786,517, Cl. 346-75.000.

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Krieger, Stanley, to United States of America, Army. Dual orifice fuel nozzle with air-assisted primary at low flow rates. 3,785,570, Cl. 239-401.000.

Kristen, Klaus, to Jenaer Glaswerk, Schott & Gen. Temperature measuring resistance. 3,786,390, Cl. 338-22.00r.

Kroger, Harry, to Sperry Rand Corporation. High frequency diode energy transducer and method of manufacture. 3,786,316, Cl. 317-234.00r.

Kronish, Donald P.; and Young, William D., Jr., to Warner-Lambert Company. Diagnostic composition for the detection of nitrite. 3,785,929, Cl. 195-100.000.

Krumm, Heinz G.: *See—*
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Kuchta, August Dennis. Transfer of photopolymer images by irradiation. 3,785,817, Cl. 96-28.000.

Kugler, Kurt, to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G. Thyristors for effecting tap-changing on transformers and including current limiting resistors and standby trigger system. 3,786,337, Cl. 323-43.50s.

Kuhl, Joseph W.; and Lauer, Robert J., to Reliance Electric Company. Final stopping control. 3,785,463, Cl. 187-29.00r.

Kuhlthau, Hans-Peter, to Bayer Aktiengesellschaft. Methine dyestuffs. 3,786,047, Cl. 260-240.800.

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Kurimsky, Albert, to Rowe International, Inc. Price board slide switch. 3,786,206, Cl. 200-16.00d.

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Lamm, Heinz, to Daimler-Benz Aktiengesellschaft. Sealing bar for a rotary piston internal combustion engine. 3,785,745, Cl. 418-117.000.
Land, Edwin H.; Bloom, Stanely M.; and Rogers, Howard G., to Polaroid Corporation. Diffusion transfer color processes and products and compositions useful therein. 3,785,814, Cl. 96-3.000.
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Lang, Ludwig G. Device for the implementation of procedures for the decontamination of internal combustion engine exhaust gases. 3,785,628, Cl. 261-65.000.
Langenderfer, Les M., to General Motors Corporation. Gear pump. 3,785,756, Cl. 418-170.000.
Langhans, Roy Kenneth, to ICI America Inc. Stable liquid emulsifier compositions. 3,785,993, Cl. 252-356.000.
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Lantz, William F. Anchor hold-down device. 3,785,323, Cl. 114-210.000.
Lardeau, Jacques, to Societe d'Optique, Precision, Electronique et Mecanique-Sopelem. Iris diaphragm. 3,785,265, Cl. 95-64.00r.
Larkin, Barrymore T., to Koppers Company, Inc. Apparatus for continuous liquid phase separation. 3,785,776, Cl. 23-267.00r.
Lasch, Cecil A., Jr., to Industrial Modular Systems Corporation, mesne. Method of producing fluid bearing track structure. 3,785,027, Cl. 29-157.00c.
Lasky, Ronald J., to Stock Equipment Company. Electromagnetic tachometer. 3,786,354, Cl. 324-173.000.
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Laurent, Daniel, to Merlin Gerin, Societe Anonyme. Balanced support mechanism for a linearly movably current collecting head. 3,786,204, Cl. 191-48.000.
Lauster, Frederick L., to La Fant Research Company. Denture cleaner. 3,785,986, Cl. 252-136.000.
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Lee, Leonard S.; Uyeda, Yoshio; and Heneghan, Leo F., to Merck & Co., Inc. Magnesium oxide coatings. 3,785,879, Cl. 148-27.000.
Lee, Norman, to British Aircraft Corporation. Aircraft flap system. 3,785,594, Cl. 244-42.0da.
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Leith, William Cumming. Rotating concentric homogeneous turbulence electrostatic precipitation gas cleaner method. 3,785,117, Cl. 55-2.000.
Leith, William Cumming. Rotating concentric "homogeneous turbulence" fabric bag gas cleaner method. 3,785,123, Cl. 55-96.000.
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Ligh, David R. Refuse compressor. 3,785,281, Cl. 100-116.000.
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Lipson, Herbert G. Temporary inflatable cast. 3,785,375, Cl. 128-82.100.
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Lodige, Alois. Expansion joint construction for concrete slabs. 3,785,741, Cl. 404-51.000.
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Lohr, Delmar F., Jr.; and Kay, Edward Leo, to Firestone Tire & Rubber Company, The. Stabilized polybutadiene resin. 3,786,009, Cl. 260-237.00n.
Lohr, Thomas L., to Allied Chemical Corporation. Apparatus for measuring the angular displacement and the angular velocity of a rotation member. 3,786,336, Cl. 322-51.000.
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Lower, Brenton R.; Hughes, Kenneth E.; and Laufe, Leonard E., to Laufe, Leonard E., mesne. Pressure sensing obstetrical forceps. 3,785,381, Cl. 128-323.000.
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Padovano, Felix, 3,785,600.
LTV Aerospace Corporation: *See—*
Stalmach, Charles J., Jr., 3,785,591.
Lubkin, Frances: *See—*
Lubkin, Samuel, 3,786,422.
Lubkin, Samuel; deceased (by Lubkin, Frances; administratrix), to Rel-Reeves, Inc., mesne. System for determination of deviations of a vehicle from a prescribed route. 3,786,422, Cl. 340-149.00r.
Lucas, Robert G.: *See—*
Frye, Kenneth G.; Lucas, Robert G.; Seidel, Kenneth L.; and Rohosy, Soma M., 3,785,232.
Luchsinger, Wayne W.; and Nadeau, Richard G., to Du Pont de Nemours, E. I., and Company. Method and apparatus for analyzing a liquid containing macromolecules that would interfere with the analysis. 3,785,771, Cl. 23-230.00r.
Luckenbach, Roy; and Funk, John, to Burlington Industries, Inc. Dyeing apparatus. 3,785,180, Cl. 68-15.000.
Ludwig, David P.: *See—*
Boyer, John A.; Ludwig, David P.; and Zwickel, Friedrich, 3,785,903.
Ludwig, John T.; and Steiner, Paul D., to Electromagnetic Industries Inc. Permanent magnet solenoid device. 3,786,383, Cl. 335-231.000.
Luethi, Christian: *See—*
Piller, Bernhard; Meier, Max; Duennenberger, Max; Biland, Hans Rudolf; and Luethi, Christian, 3,785,827.
Lumb, Dale R.: *See—*
McCarthy, Thomas M.; and Lumb, Dale R., 3,785,368.
Lunde, Hans: *See—*
Papst, Hermann; Lunde, Hans; and Wrobel, Gunter, 3,786,290.
Lundqvist, Harald Oskar. Adjustable shelving structure. 3,785,301, Cl. 108-109.000.
Lunt, Robert S., III: *See—*
Merrill, Howard E.; and Lunt, Robert S., III, 3,785,960.
Luongo, Michael C., to Westinghouse Electric Corporation. Electronic system and method for operating a steam turbine with independent overspeed protection especially adapted for a nuclear reactor powered steam turbine. 3,785,148, Cl. 60-105.000.
Lutchansky, Milton; and Township, Randolph, to Bell Telephone Laboratories, Incorporated. Waveguide structure utilizing roller spring supports. 3,786,379, Cl. 333-98.00r.
Lycke, Nils Erik Oskar: *See—*
Corrodi, Hans Rudolf; Lycke, Nils Erik Oskar; and Roos, Bjorn-Erik, 3,786,143.

Lynas, Derek Leigh; Lock, Alan Howard; and Houghton, Paul, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Piezo electric accelerometer pulse testing. 3,786,348, Cl. 324-6.000.

Lynch Communication Systems, Inc.: *See*—
Nordling, Frederik, 3,786,280.

Lynch, Leonard J. Dual inline package handling tool. 3,785,033, Cl. 29-203.00h.

Ma, Joseph T.: *See*—
Brown, Caroll J.; Chesarek, Donald J.; Fisk, Dale E.; Ma, Joseph T.; Martin, Harold F.; and Reynolds, Zack D., 3,786,479.

Mac Arthur, Donald Morley, to Bell Telephone Laboratories, Incorporated. Technique for electrolytically etching tungsten. 3,785,945, Cl. 204-129.950.

MacDonald, Francis X.; and MacDonald, Paul M., to P. X. Industries, Inc. Cabinet door restraint. 3,785,685, Cl. 292-288.000.

MacDonald, Paul M.: *See*—
MacDonald, Francis X.; and MacDonald, Paul M., 3,785,685.

MacDonald, Robert Neal, to Du Pont de Nemours, E. I., and Company. 1,2,5-Thiadiazole polyesters. 3,786,028, Cl. 260-75.00n.

MacGillis, Donald J. Metal window construction with clamped corner joints. 3,785,090, Cl. 49-425.000.

Machacek, Frantisek; Minarik, Josef; Rossa, Lubomir; Koristek, Zdenek; and Brandstadter, Miroslav, to Vyzkumny ustav pletarsky. Weft knitted fabric and method of producing the same. 3,785,178, Cl. 66-196.000.

Machado, Joseph G. Cleaning apparatus for automobiles with indirect heat exchange for heating the cleaning fluid. 3,785,363, Cl. 126-350.00r.

MacIntyre, John S.: *See*—
Wiesler, Mordechai; Martinonis, Virgil; and MacIntyre, John S., 3,785,507.

MacKenzie, Gerald L.; and Mosher, Paul R., to United States of America, Navy. Hydrogen gas generating composition and method for the same. 3,786,139, Cl. 423-657.000.

Macovski, Albert, to Stamford Research Institute. Fourier transforming system. 3,786,180, Cl. 178-6.500.

MacPhee, Colin A. A., to Federal Pacific Electric Company. Ground fault detector. 3,786,356, Cl. 317-18.00d.

Maes Incorporated: *See*—
Flowerday, Carl W., 3,785,337.

Magna-Matic Systems, Inc.: *See*—
Maynard, John F., 3,785,475.

Magnaflux Corporation: *See*—
Lorenzi, Donald E., 3,786,346.

Magnetic Analysis Corporation. *See*—
Mansson, Sven E., 3,786,347.

Magnor, Inc.: *See*—
Coggeshall, John C., 3,785,772.

Magnussen, John L.: *See*—
Kabat, John L.; Magnussen, John L.; Porter, Richard B.; and Tobias, James R., 3,785,432.

Maheras, Geroge: *See*—
Castrucci, Paul P.; Grochowski, Edward G.; Hess, Martin S.; Maheras, Geroge; and North, William D., 3,785,886.

Makie, George E.: *See*—
Hider, Theodore M.; Hawn, Frank A.; and Makie, George E., 3,785,846.

Malik, Marvin J., to General Motors Corporation. Hydrodynamic fluid unit with energy storage. 3,785,154, Cl. 60-347.000.

Mallory, P. R., & Co., Inc.: *See*—
Zaleski, John, 3,785,872.

Mallory, William L.: *See*—
Carlsmith, Lawrence A.; Mallory, William L.; and Perkins, Joseph K., 3,785,577.

Mancini, Emilio: *See*—
De Vita, Luciano; and Mancini, Emilio, 3,786,187.

Mandel, Jorn: *See*—
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.

Mandeltort, Stanley T., to VCA Corporation. Aerosol dispensing device. 3,785,528, Cl. 222-148.000.

Mann, Horace C., Jr., to Tennessee Valley Authority. Production of urea-ammonium sulfate. 3,785,796, Cl. 71-28.000.

Mann, Robert H. Insulated containers or the like. 3,785,254, Cl. 93-36.010.

Mansson, Sven E., to Magnetic Analysis Corporation. Apparatus for generating stable driving pulses for an eddy current test system. 3,786,347, Cl. 324-40.000.

Maple, Steven E., to Nelson, L. R., Corporation, mesne. Shut-off device for traveling sprinkler. 3,785,563, Cl. 239-183.000.

Mar, Jerry, to Bell Telephone Laboratories, Incorporated. Nondestructive read semiconductor memory utilizing avalanche breakdown. 3,786,443, Cl. 340-173.00r.

Marathon Oil Company: *See*—
Oleszko, Thaddeus J., 3,786,110.

Marcy, Raymond: *See*—
Hepner, Georges; Lacombat, Michel; and Marcy, Raymond, 3,786,332.

Mardiguian, Jean; and Fournier, Pierre, to Societe a Responsabilite Limitee dite: MAR-PHA Societe d'Etudes d'Exploitation de Marques. Compounds, 2-bis(4-chlorophenoxy)ethyl nicotinate, 2-bis(4-chlorophenoxy)propyl dinicotinate and 2-(3,4-dimethyl-6-isobornl-phenoxy)ethyl nicotinate. 3,786,060, Cl. 260-295.50r.

Mare, Ernest, to Hershberger, J. Ronald. Scrubbing apparatus. 3,785,127, Cl. 55-233.000.

Marecek, John R.: *See*—
Niemi, Arvi E.; and Marecek, John R., 3,785,001.

Marforio, Nerino, to S.p.A. Virginio Rimoldi & C. Lubricant sealing device for a work feeding mechanism of a sewing machine. 3,785,310, Cl. 112-256.000.

Marion, Donald L.; Hanson, Lawrence R.; and Strand, Robert C., to Atlantic Richfield Company. Aqueous emulsion polish compositions. 3,786,012, Cl. 260-28.500.

Mark Products, Inc.: *See*—
Hazelhurst, Gerald D., 3,786,410.

Marke, Paul Anthony Bryant: *See*—
Jenkinson, William David; and Marke, Paul Anthony Bryant, 3,786,408.

Marker, Hannes. Safety ski binding system. 3,785,668, Cl. 280-11.35r.

Marks, William J. Fishing line. 3,785,011, Cl. 24-115.00h.

Markus, Richard B.: *See*—
Danforth, Leon J., 3,785,319.

Marnerakis, Costas S. Current monitoring system and method. 3,786,501, Cl. 340-409.000.

Mars, James E.: *See*—
Poole, Donald R., Stang, Peter L.; and Mars, James E., 3,785,674

Marsee, Frederick J., to Ethyl Corporation. Carburetor. 3,785,624, Cl 261-23.00a.

Marsh, Douglas George; and Maxfield, Thomas Gerald, to Bell Telephone Laboratories, Incorporated. Balanced output operational amplifier. 3,786,362, Cl. 330-30.00d.

Marsilia, Louis P.; and Moran, Robert J., to Cardinal Instrument Corporation. Clinical thermometer. 3,785,208, Cl. 73-368.400.

Martel Jacques; Huynh, Chanh; and Buendia, Jean. Novel cyclopropanecarboxylic acids and esters. 3,786,052, Cl 260-240.00r.

Martel, Jacques; and Buendia, Jean, to Roussel-UCLAF. Process for preparation of cis-chrysanthemic acids. 3,786,070, Cl. 260-343.20r

Martell, Dennis J., to Northern Illinois Gas Company. Apparatus for cumulatively storing and remotely reading a meter. 3,786,423, Cl 340-151.000.

Martensson, Kjell Halvard; Linde, Bjorn H Son; Palsson, Jan Fredrik, and Jerre, Sven Torsten, to Tetra Pak International AB. Packaging machine. 3,785,113, Cl. 53-186.000.

Martin, Edward J. Demountable camp grill. 3,785,360, Cl. 126-30.000

Martin, Harold F.: *See*—
Brown, Caroll J., Chesarek, Donald J.; Fisk, Dale E., Ma, Joseph T.; Martin, Harold F.; and Reynolds, Zack D., 3,786,479

Martin, Kenneth Edward, to U.S. Philips Corporation. EHT supply particularly for television receivers. 3,786,299, Cl. 315-29.000

Martin Marietta Corporation: *See*—
Peppler, Richard B.; and Rosskopf, Philip A., 3,785,839.

Martin, Otis M.: *See*—
Kough, John K.; Martin, Otis M.; and Miller, Silas N., 3,785,114.

Martin, Ronald C.: *See*—
Schaller, Willard W.; Martin, Ronald C.; and Sixt, Marty E., 3,785,682.

Martin, Roy A.; and Pittman, Clarence L., to Lectra Data, Inc. Voting machine. 3,785,550, Cl. 235-50.00r.

Martinonis, Virgil: *See*—
Wiesler, Mordechai; Martinonis, Virgil; and MacIntyre, John S., 3,785,507.

Martonair Limited: *See*—
Kirk, Colin John, 3,785,403.

Marvel Industries, Inc.: *See*—
Ericson, John F. E., 3,785,692.

Maschinenfabrik Reinhausen Gebruder Scheubeck K.G.: *See*—
Kugler, Kurt, 3,786,337.

Maschinenfabrik und Giesserei Netstal AG: *See*—
Munz, Paul; and Byland, Hans, 3,785,116.

Mascioli, Rocco L.: *See*—
Bechara, Ibrahim S.; and Mascioli, Rocco L., 3,786,005.

Maskenskov, Konstantin Mikhailovich: *See*—
Borisov, Jury Modestovich; Budyko, Jury Ivanovich; Dubnitsky, Nikolai Borisovich; Koganer, Valentin Eizerovich; Lisitsyn, Alexandr Ivanovich; Mozokhin, Nikolai Gavrilovich; Maskenskov, Konstantin Mikhailovich; and Dukhnin, Jury Vasilievich, 3,785,353.

Mason, Paul B.: *See*—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,785,725.

Masonry Systems, Inc., mesne: *See*—
Behunin, Gage B.; Cole, Eugene A.; and Staadt, Charles R., 3,785,454.

Masopust, Otto I., Jr.: *See*—
Brown, Donald R.; Masopust, Otto I., Jr.; and Stoltz, James F., 3,786,322.

Massachusetts Institute of Technology: *See*—
King, Paul Allen, Jr., 3,786,478.

Massaro, John D.; and Massaro, Michael J. Warning device for swimming pools or the like. 3,786,469, Cl. 340-261.000.

Massaro, Michael J.: *See*—
Massaro, John D.; and Massaro, Michael J., 3,786,469.

Massey-Ferguson-Perkins, Limited: *See*—
Crawford, Alexander, 3,785,573.

Masuda, Isao: *See*—
Izumitani, Tetsuro; and Masuda, Isao, 3,785,835.

Masumoto, Hakaru; Murakami, Yuetsu; and Hinai, Masakatsu, to Foundation: Research Institute of Electric and Magnetic Alloys, The. Ni-Fe-Ta alloys for magnetic recording-reproducing heads. 3,785,880, Cl. 148-31.550.

Matassov, George: *See*—
Barry, James D.; Freedman, Paul M.; and Matassov, George, 3,786,370.

Mathauser, William R. Magnetic self-aligning electrical connector. 3,786,391, Cl. 339-12.00r.

Mathews, Bernard C. Slat elevators for combines or the like. 3,785,472, Cl. 198-171.000.

Mathews, James Robert, to Bell Telephone Laboratories, Incorporated. Color camera tube target having integral indexing structure. 3,786,321, Cl. 317-235.00r.

Mathey, Francois: *See*—
Cousserans, Gilbert; Mathey, Francois; and Gryszkiewic-Trouchimowski, Oleg, 3,786,155.

Mathis, Ronald D.; and Dix, James S., to Phillips Petroleum Company. Polymers of 1-olefins protected against ultraviolet light. 3,786,021, Cl. 260-45.75n.

Matsuda, Mitsuhiro: *See*—
Tsugukuni, Hideyoshi; and Matsuda, Mitsuhiro, 3,786,010.

Matsui, Atsuro: *See*—
Ichiki, Eiichi; Iida, Kazuo; Matsui, Atsuro; and Kadokura, Hidekimi, 3,786,080.

Matsui, Katsuaki: *See*—
Nagawa, Masatoshi; Suzuki, Yoshio; Matsui, Katsuaki; Iijima, Masaoki; and Tsurusaki, Yoshiyasu, 3,786,147.

Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Method of exposure in multi-color electrophotography. 3,785,812, Cl. 96-1.200.

Matsuno, Minoru: *See*—
Fujii, Heihachi; Kasano, Kazuhiko; Matsuno, Minoru; Moroi, Tadahiko; and Kitamura, Munehiro, 3,786,295.

Matsushita Electric Industrial Co., Ltd.: *See*—
Hayakawa, Shigeru, 3,786,262.
Ikeda, Hisao, 3,785,658.
Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawabata, Hidetsugu; and Kitamura, Saburo, 3,786,254.

Matsushita Electric Industrial Company: *See*—
Kaneko, Masahiko; Miyama, Hiroshi; and Nishida, Jun, 3,786,182.

Matsushita Electronics Corporation: *See*—
Kano, Gota; Fujiwara, Shohei; Iizuka, Mutsuo; Hasegawa, Hiromasa; and Sawaki, Tsukasa, 3,786,320.
Okumura, Tomisaburo, 3,786,319.

Mattei, Victor; and Lane, Constance A., to Rohm & Haas Company. Polyurethane plasticized topcoat for leather and method. 3,785,848, Cl. 117-73.000.

Matthews, Hugh B.: *See*—
Ross, Gerald F.; Matthews, Hugh B.; and Robbins, Kenneth W., 3,786,413.

Matthey, Hermann, Payer, Stefan; and Zirngiebl, Eberhard, to Friedrich Uhde GmbH. Electrolysis cell with liquid electrode. 3,785,949, Cl. 204-219.000.

Matuo, Hiroto: *See*—
Terai, Shiro; Suzuki, Toshio; Hasegawa, Yoshihumi; Sekiya, Hitoshi; Matuo, Hiroto; and Kimata, Shizuo, 3,785,946.

Maurer, Robert D., to Corning Glass Works. Optical waveguide delay line. 3,785,716, Cl. 350-96.0wg.

Maurer, William C.; and Lock, Everett H., to Esso Production Research Company. Packing cartridge for reciprocating pump. 3,785,659, Cl. 277-35.000.

Mauthe, Gerhard, to Aktiengesellschaft Brown, Boveri & Cie. Electrical compressing switch. 3,786,215, Cl. 200-148.00a.

Maxfield, Thomas Gerald: *See*—
Marsh, Douglas George; and Maxfield, Thomas Gerald, 3,786,362.

Maxson Corporation, The: *See*—
Barnard, Benjamin R.; and Puariea, Douglas A., 3,785,297.

Mayer, Siegfried: *See*—
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.

Maynard, John F., to Magna-Matic Systems, Inc. Magnetically controlled non-synchronous conveyor system. 3,785,475, Cl. 198-41.000.

Mayo, Howard A., Jr., to Allis-Chalmers Corporation. Axial flow hydraulic turbine generator installation. 3,785,747, Cl. 415-33.000.

Mazza, Lamberto, to Industrie A. Zanussi S.p.A. Method and apparatus for the preparation of beverages. 3,785,492, Cl. 210-149.000.

McAinsh, James: *See*—
Turton, Cecil Nigel; and McAinsh, James, 3,785,916.

McCaldin, James O.: *See*—
Mead, Carver A.; and McCaldin, James O., 3,786,315.

McCarthy, Thomas M.; and Lumb, Dale R. Abnormal nerve pressure locus detector and method. 3,785,368, Cl. 128-2.10z.

McClellan, Alan J.; and Dutton, Harold R.; deceased (by Dutton, Edna M.; executrix), to General Motors Corporation. Method of assembling inserts with precision looseness. 3,785,029, Cl. 29-157.10r.

McClure, Harold E.: *See*—
Seipp, Ronald W.; and McClure, Harold E., 3,786,227.

McCord, John T., 50% to Ghigo, Andrea S. Flexible and fireproof automobile diaper. 3,785,451, Cl. 180-69.100.

McCormick, John. Heat transfer apparatus. 3,785,350; Cl. 122-115.000.

McCue, David D.; and Brendle, Thomas A., to Aeroquip Corporation. Locomotive information recorder. 3,786,512, Cl. 346-33.00d.

McDaniel, Johnny B. Automatic retractable ground electrical connector. 3,786,392, Cl. 339-14.00p.

McDonald, Carl C.; and Patel, Arvind M., to International Business Machines Corporation. Error detection systems. 3,786,439, Cl. 340-146.1al.

McDonald, William S.: *See*—
Wagers, William O.; Frappier, Robert H.; McDonald, William S.; and Boggs, Charles L., 3,785,908.

McDonnell Douglas Corporation: *See*—
Haggberg, Marvin D.; Kavanagh, Ira K.; and Van Horik, Leonard R., 3,785,788.

McEvoy, James E.: *See*—
Cornelius, Edward B.; Delamater, George B.; Koester, David W.; and McEvoy, James E., 3,786,001.

McGraw-Edison Company: *See*—
Gaven, Thomas J.; Crocker, Harry E.; and Feldman, Edward, 3,786,189.
Sidell, Philip A., 3,786,291.

McHattie, Earl E. Automatic grounding connection for electrical unit. 3,786,399, Cl. 339-14.00r.

McIlvaine, Robert W., to Environeering, Inc. Method and apparatus for removing particulates and oxides of sulphur from gas. 3,785,119, Cl. 55-7.000.

McIlvried, Howard G.: *See*—
Giannetti, Joseph P.; McIlvried, Howard G.; and Sebulsky, Raynor T., 3,786,108.

McIntire, Nathan E.; and Porter, Zelma M., to Elk Craft, Inc. Automatic lubrication system. 3,785,456, Cl. 184-6.00r.

McKenna, Chancey D.: *See*—
Teichmann, Newton N.; McKenna, Chancey D.; and Garrone, Albert, 3,785,780.

McKenna, James J.; and Harter, Roy, to Harter, H. Elisabet; surviving spouse of Harter, Roy S., deceased. Safety device for removing radiator caps. 3,785,225, Cl. 81-3.10r.

McKillip, William J.: *See*—
Throckmorton, Peter E.; and McKillip, William J., 3,786,067.

McKinney, Joel D.: *See*—
Bryson, Millard C.; McKinney, Joel D.; Titmus, Robert A.; and White, Frederick K., 3,785,959.

McKinney, Lawrence A., to Westinghouse Electric Corporation. Apparatus for gas diffusion. 3,785,629, Cl. 261-122.000.

McLaren, Robert John Lawson: *See*—
McLean, Norman; Lewis, Donald Bernard; and McLaren, Robert John Lawson, 3,785,216.

McLean, Norman; Lewis, Donald Bernard; and McLaren, Robert John Lawson, to Redman Heenan Froude Limited. Control systems for hydrokinetic devices. 3,785,216, Cl. 73-134.000.

McMahon, Robert F.: *See*—
Frye, Harold E.; and McMahon, Robert F., 3,786,434.

McMahon, William Raymond; and Ramsey, Thomas Haliburton. Thin film metallization process for microcircuits. 3,785,937, Cl. 204-15.000.

McNabney, John C.; and Hantke, Gerhard J., to Trane Company, The. Air diffuser fire damper. 3,785,272, Cl. 98-40.00d.

McNulty, Henry V.; and Oatis, Melvin Neal, to Telephonic Equipment Corporation. Circuit and apparatus for bridging and monitoring. 3,786,198, Cl. 179-27.0fh.

McNutt, William P.: *See*—
Appleby, Vernon L.; and McNutt, William P., 3,785,537.

McVoy, David S.; and Reynolds, Richard G., to Coaxial Scientific Corporation. Communications system for data transmission and retrieval. 3,786,424, Cl. 340-151.000.

Mead, Carver A.: *See*—
Goldman, Arnold J.; Kurtin, Stephen L.; and Mead, Carver A., 3,786,429.

Mead, Carver A.; and McCaldin, James O., to Intel Corporation, mesne. Electroluminescent device. 3,786,315, Cl. 317-234.00r.

Mead Corporation, The: *See*—
Robertson, John A., 3,785,118.

Mechanics Research, Inc.: *See*—
Mull, Michael M., 3,785,203.

Mecklenborg, Richard A., to Singer Company, The. Panoramic infinity image display. 3,785,715, Cl. 350-55.000.

Medwick, Joseph P.; and Thiffault, Marcel. Vehicle jack. 3,785,618, Cl. 254-94.000.

Mehl, Wolfgang: *See*—
Hitchman, Michael L.; Mehl, Wolfgang; and Millot, Jean Pierre, 3,785,948.

Meier, Max: *See*—
Piller, Bernhard; Meier, Max; Duennenberger, Max; Biland, Hans Rudolf; and Luethi, Christian, 3,785,827.

Mejyr, Carl-Anker; and Ledin, Lars Eric, to Primus-Sievert AB. Gas burner device for food grilling. 3,785,361, Cl. 126-41.00r.

Melead, James J.: *See*—
Stafford, Larry O.; Wentworth, William P.; and Melead, James J., 3,785,340.

Memorex: *See*—
Kahn, Michael E., 3,786,457.

Menk, Melvin A., to General Motors Corporation. Clothes washer having a siphon-actuated flood control arrangement. 3,785,181, Cl. 68-208.000.

Merck & Co., Inc.: *See—*
Lee, Leonard S.; Uyeda, Yoshio; and Heneghan, Leo F., 3,785,879.
Novello, Frederick C.: and Baldwin, John J., 3,786,061.
Schoenewaldt, Erwin F.; and Ihnen, Ernel D., 3,785,927.
Shen, Tsung-Ying; Ruyle, William V.; Fordice, Michael W.; and Jensen, Norman P., 3,786,050.

Merenheimo, Markko; and Ruuska, Mauno, to Valmet Oy. Ski for snow vehicle. 3,785,665, Cl. 280-28.000.

Merenheimo, Markku; and Ruuska, Mauno, to Valmet Oy. Device in connection with the steering ski of a vehicle for improving its control. 3,785,448, Cl. 180-5.00r.

Merl, Wilhelm: *See—*
Durrwachter, Eugen Emil; Harmsen, Ulf; and Merl, Wilhelm, 3,785,810.

Merlin Gerin, Societe Anonyme: *See—*
Laurent, Daniel, 3,786,204.

Merrill, Duane F.; and Lavan, Philip J., to General Electric Company. Method for preparing fast curing silanol-containing organopolysiloxane resins and use of such resins. 3,786,015, Cl. 260-32.8sb.

Merrill, Howard E.; and Lunt, Robert S., III, to Esso Research and Engineering Company. Reforming naphthas with a rhenium-gold catalyst. 3,785,960, Cl. 208-135.000.

Merriman, James R.; Pashley, John H.; Stephenson, Michael J.; and Dunthorn, David I., to United States of America, Atomic Energy Commission. Recovery of purified helium or hydrogen from gas mixtures. 3,785,120, Cl. 55-44.000.

Mesapulse Incorporated: *See—*
Johannessen, Paul R., 3,786,334.

Metaframe Corporation: *See—*
Dinnerstein, Albert J., 3,785,347.

Metallurgie Hoboken-Overpett: *See—*
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Metz, Helmut, to Audi NSU Auto Union Aktiengesellschaft. Hinge for a cover. 3,785,006, Cl. 16-184.000.

Meyer, Donald W.: *See—*
Meyer, Fred P.; and Meyer, Donald W., 3,785,072.

Meyer Enterprises, Inc.: *See—*
Meyer, Fred P.; and Meyer, Donald W., 3,785,072.

Meyer, Fred P.; and Meyer, Donald W., to Meyer Enterprises, Inc. Needlepoint blocking device. 3,785,072, Cl. 38-102.500.

Meyer Machine Company: *See—*
D'Angelo, Thomas J.; Strohmeyer, William H.; and Ulbrich, John K., 3,785,358.

Meyer, Wolfgang: *See—*
Eberle, Herbert; Meyer, Wolfgang; and Haase, Johann, 3,785,943.

Meyers, Lavern H.: *See—*
Trent, Edward J.; Meyers, Lavern H.; and Kagele, Frank L., 3,786,234.

Meyfarth, Herbert J.; and Crosby, John J., to Republics Steel Corporation. Coil of continuous elongated material. 3,785,587, Cl. 242-159.000.

Miavecz, Joseph L., to Owens-Illinois, Inc. Border control system for gas discharge display panels. 3,786,484, Cl. 340-324.00m.

Michaels, Louis J.: *See—*
Baker, Ronald Lee, 3,785,411.

Michaelson, Dennis M., to Pan-Technic, Inc. Combination saw. 3,785,053, Cl. 30-394.000.

Michal, Gerhard: *See—*
Moyer-Bertenrath, Jurgen; Kaffarnik, Hans; Rey, Hans-Georg; Michal, Gerhard; and Busch, Ernst-Werner, 3,786,140.

Michon, Gerald J., to General Electric Company. Method and apparatus for sensing radiation and providing electrical readout. 3,786,263, Cl. 250-209.000.

Mickelsson, Olav Conny: *See—*
Palsson, Sven Gunnar; and Mickelsson, Olav Conny, 3,786,286.

Midkiff, James C., to Cincinnati Electronics Corporation, mesne. Radio frequency resistance discriminator having dead zone output characteristic. 3,786,355, Cl. 325-174.000.

Midthun, Robert A.: *See—*
Johnson, B. Neil; and Midthun, Robert A., 3,785,759.

Mieda, Fumio, to Keio Giken Kogiyo Kabushiki Kaisha. Keyboard type electronic musical instrument. 3,786,166, Cl. 84-1.010.

Mikhalsky, Fedor Mikhailovich; Gasparians, Artemy Mikhailovich; Purlov, Jury Nikolaevich; Kulesh, Pavel Ivanovich; Rudenko, Pavel Petrovich; Ryabtsev, Alexei Nikolaevich; and Levi, Yakov Efimovich; deceased (by Levi, Mina Neukhovna; administrator). Plant or continuous production of cellulose triacetate in a heterogeneous phase. 3,785,775, Cl. 23-260.000.

Mikkelsen, Stig Glerup, to Radiometer A/S. Measuring equipment, especially for measuring the ph-value of a liquid. 3,786,345, Cl. 324-30.00r.

Milbrandt, Larry F.: *See—*
Peters, Gary J.; Hermann, Stanley R.; Jaynes, Howard R.; and Milbrandt, Larry F., 3,786,013.

Milkovich, Ralph; and Chiang, Mutong T., to CPC International Inc. Chemically joined, phase separated thermoplastic graft copolymers. 3,786,116, Cl. 260-885.000.

Miller, Bob C. Sequencing valve. 3,785,391, Cl. 137-119.000.

Miller, Dean E., to Caterpillar Tractor Company. Manual override system for a variable volume pump. 3,785,754, Cl. 417-213.000.

Miller, John W. V., to Owens-Illinois, Inc. Conditioning and writing of multiple gas discharge panel. 3,786,474, Cl. 340-324.00m.

Miller, Silas N.: *See—*
Kough, John K.; Martin, Otis M.; and Miller, Silas N., 3,785,114.

Miller, Stephen R., to Eastman Kodak Company. Film cartridge. 3,785,726, Cl. 352-78.00r.

Millot, Jean Pierre: *See—*
Hitchman, Michael L.; Mehl, Wolfgang; and Millot, Jean Pierre, 3,785,948.

Mills, Roscoe H.: *See—*
Von Ohain, Hans J. P.; Mills, Roscoe H.; and Scolatti, Charles A., 3,785,593.

Milovancevic, Slavko. Non-regenerative switching voltage regulator. 3,786,339, Cl. 323-22.00t.

Minarik, Josef: *See—*
Machacek, Frantisek; Minarik, Josef; Rossa, Lubomir; Koristek, Zdenek; and Brandstadter, Miroslav, 3,785,178.

Minasian, Stephen G., to Hallmark Releasing Corporation. Entertainment accessory package. 3,785,480, Cl. 206-47.00r.

Minck, Kalus: *See—*
Bauer, Adola; Weber, Karl-Heinz; Danneberg, Peter; and Minck, Kalus, 3,786,051.

Minieri, Pasquale P., to Tenneco Chemicals, Inc. Surface-coating compositions containing N'-trichloromethylmercaptoindazoles. 3,786,152, Cl. 424-273.000.

Minnesota Mining & Manufacturing Company: *See—*
Jonnes, Nelson, 3,785,719.

Minnesota Mining and Manufacturing Company: *See—*
Fisch, Richard S., 3,785,824.
Packard, James R., 3,786,438.
Rice, David E., 3,786,030.
Stageberg, Wilfred E., 3,785,909.
Wirth, Wayne M., 3,785,184.

Minnick, Leonard John; Webster, William C.; and Smith, Charles L., to Corson, G. & W. H., Inc. Lime-fly ash-sulfite mixtures. 3,785,840, Cl. 106-118.000.

Minolta Camera Co. Ltd.: *See—*
Loseries, Peter; and Hayashi, Toshio, 3,785,264.

Minolta Camera Kabushiki Kaisha: *See—*
Inque, Masayoshi; Nagai, Koji; and Kitaguchi, Shigeo, 3,785,983.

Miottel, Norman O., to General Motors Corporation. Electrostatic powder spraying method and apparatus. 3,786,309, Cl. 317-3.000.

Mira-Pak Inc.: *See—*
Leasure, William C.; and Garcia, Luis, 3,785,112.

Misch, Wolfgang, to Bosch, Robert, G.m.b.H. Regulating arrangement for solenoid valves and the like. 3,786,314, Cl. 317-154.000.

Mischon, Lester, to Singer Company, The. Delayed-action auxiliary stitch cams. 3,785,174, Cl. 66-57.000.

Misenheimer, Reid, to Textron, Inc. Dual axis roll and conveyor system using same. 3,785,468, Cl. 193-35.0md.

Mislin, Roland; and Uehlinger, Hanspeter, to Sandoz Ltd. Phenyl-or naphthyl azo sulfonamidopyrazole dyes. 3,786,040, Cl. 260-162.000.

Mitchel & King Skates Limited: *See—*
Staples, John, 3,785,662.

Mitchell, William O.: *See—*
Hunter, John P., Jr., Norton, Ross Erle; and Mitchell, William O., 3,785,307.

Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.
Ujiff, Akira, 3,785,429.

Mitsubishi Petrochemical Company Limited: *See—*
Konno, Kazubiko, 3,786,096.

Mitsubishi Rayon Co., Ltd.: *See—*
Ide, Fumio; Kodama, Tsuneu; and Kotake, Yahide, 3,785,921.
Kawai, Atsushi; Suzuki, Migaku; and Ohta, Hidenori, 3,785,918.

Mitsui Shipbuilding and Engineering Co., Ltd.: *See—*
Okazaki, Takeo, 3,785,357.

Mitsuoka, Toyokazu, to Industrial Science & Technology, Agency of. Automatically controlled hydrostatic bearing. 3,785,707, Cl. 308-9.000.

Miyama, Hiroshi: *See—*
Kaneko, Masahiko; Miyama, Hiroshi; and Nishida, Jun, 3,786,182.

Miyasaki, Yasukichiro. Static fluid pressure bearings. 3,785,708, Cl. 308-9.000.

Miyasu, Akira: *See—*
Okuyama, Toru; Muta, Susumu; Sato, Shigetake; Tokiura, Shohei; and Miyasu, Akira, 3,786,006.

Miyazaki, Gentaro: *See—*
Mouri, Katsuo; and Miyazaki, Gentaro, 3,786,179.

Mizumo, Komei: *See—*
Shibata, Motoo; Higashide, Eiji; Hatano, Kazunori; Mizumo, Komei; Asai, Mitsuko; and Muroi, Masayuki, 3,786,142.

Mobil Oil Corporation: *See—*
Johnson, David E., 3,785,760.
Okorodudu, Abraham O. M., 3,785,982.
Whitehurst, Darrell Duayne, 3,785,968.

Moey, Glenn W.: *See—*
Binger, Wynn S.; Shope, Leonard L.; and Moey, Glenn W., 3,785,705.

Moffitt, Melville M. Electric field proximity safety alarm. 3,786,468, Cl. 340-258.00d.

Mogilny, Dmitry Gavrilovich: *See—*

Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich; Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich, 3,785,032.

Molaskey, Charles E.; and Starkey, Charles O. Wind deflector for automobiles. 3,785,699, Cl. 296-152.000.

Molex Inc.: *See—*
Horecky, Stanley V., 3,786,402.

Molex, Incorporated: *See—*
Bury, Allen J., 3,786,209.

Molina, Orlando G., to Air Products and Chemicals, Inc., mesne. Dye penetrant inspection process. 3,785,199, Cl. 73-104.000.

Molina, Orlando G., to Rockwell International Corporation. Dye penetrant composition and method of application. 3,786,255, Cl. 250-302.000.

Molins, Limited: *See—*
Preston, Edward George; and Czoch, Jerzy Wladyslaw, 3,785,902.

Moll, John L.: *See—*
Jankowski, Alfred S.; Moll, John L.; and Funk, Ernest J., 3,786,499.

Moller, Bynum W. Golf club swing training device. 3,785,657, Cl. 273-186.00a.

Molls, Hans-Heinz; Hornle, Reinhold; Bucheler, Manfred; Raab, Hans; and Adrio, Joachim, to Bayer Aktiengesellschaft. Method of and apparatus for the continuous concentration of a dispersion containing suspended solid material. 3,785,969, Cl. 210-19.000.

Molyneux, Lindsay. Battery discharge indicators. 3,786,342, Cl. 324-29.005.

Monsanto Company: *See—*
Logomasini, James C.; and Shelby, Richard K., 3,785,761.

Montagna, Angelo A.: *See—*
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,785,964.

Montello Products Company: *See—*
Haase, Willard A.; and Wegenke, Ingwald E., 3,785,742.

Moore, Coleman B., to Moore Products Co. Metering valve. 3,785,616, Cl. 251-121.000.

Moore, Fletcher L., to United States of America, Atomic Energy Commission. Extraction of mercury from alkaline brines. 3,785,803, Cl. 75-121.000.

Moore, James C.; and Leonard, Milton K., to Portland Wire & Iron Works. Rollover protective systems for construction vehicles. 3,785,696, Cl. 296-102.000.

Moore Products Co.: *See—*
Moore, Coleman B., 3,785,616.

Moore, Ronald Charles: *See—*
Price, David Watkin; Sidebottom, Ronald; Briscoe, Murray George; and Moore, Ronald Charles, 3,786,011.

Moore, Samuel, & Company: *See—*
Smith, Roy B.; and Sabo, Alex T., 3,785,460.
Whitledge, Jon K.; and Kavick, Edward M., 3,785,050.

Moran, Robert J.: *See—*
Marsilia, Louis P.; and Moran, Robert J., 3,785,208.

Morehead, Edward A.: *See—*
Finley, Donald L.; and Morehead, Edward A., 3,785,062.

Morelle, Jean V. Lipoaminoacids. 3,786,076, Cl. 260-402.500.

Morgan, Fred P.: *See—*
Conkle, Ellsworth V., 3,785,695.

Morganite Carbon, Limited: *See—*
Wiggs, Peter Kenneth Clifford, 3,786,292.

Mori, Kenji: *See—*
Tanimura, Noboru; Mori, Kenji; and Tanaka, Hirosi, 3,785,861.

Mori, Takaaki: *See—*
Tokuyama, Takashi; and Mori, Takaaki, 3,785,043.

Morioka, Masami, to LogEtronics Inc. Automatic film processor having switchable transport path. 3,785,269, Cl. 95-94.00r.

Moroi, Tadahiko: *See—*
Fujii, Heihachi; Kasano, Kazuhiko; Matsuno, Minoru; Moroi, Tadahiko; and Kitamura, Munehiro, 3,786,295.

Morova, Michael A.: *See—*
Albritton, George W.; Wendt, Ronald C.; and Morova, Michael A., 3,785,558.

Morris, Earl L.; and Sally, Theodore J. Tamper-proof, fluid flow control system. 3,785,396, Cl. 137-359.000.

Morrissey, George R.: *See—*
Banjavich, Mark P.; Morrissey, George R.; and Gaudiano, Anthony V., 3,785,160.

Morse, William B.: *See—*
Humphrey, Earl L.; and Morse, William B., 3,785,975.

Mosher, Paul R.: *See—*
MacKenzie, Gerald L.; and Mosher, Paul R., 3,786,139.

Motorola, Inc.: *See—*
Davis, William F.; Russell, Ronald W.; Frederiksen, Thomas M.; and Long, Ernest L., 3,786,344.
Schafet, Hugo W., 3,786,202.
Terry, Louis E.; and Wilson, Richard W., 3,785,892.
Wilson, William J., 3,786,279.

Motz, Jurgen: *See—*
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.

Moulds, John W., to General Motors Corporation. Fuel injection system. 3,785,354, Cl. 123-32.0ea.

Mouri, Katsuo; and Miyazaki, Gentaro, to Hitachi, Ltd. Color subcarrier phase shift circuit for color television receiver. 3,786,179, Cl. 178-5.4sd.

Moyer-Bertenrath, Jurgen; Kaffarnik, Hans; Rey, Hans-Georg; Michal, Gerhard; and Busch, Ernst-Werner, to Boehinger Mannheim GmbH. Diagnostic composition and a method of in-vivo determination of the function of the human pancreas. 3,786,140, Cl. 424-7.000.

Mozokhin, Nikolai Gavrilovich: *See—*
Borisov, Jury Modestovich; Budyko, Jury Ivanovich; Dubnitsky, Nikolai Borisovich; Koganer, Valentin Eizerovich; Lisitsyn, Alexandr Ivanovich; Mozokhin, Nikolai Gavrilovich; Maskenskov, Konstantin Mikhailovich; and Dukhnin, Jury Vasilievich, 3,785,353.

Muffly, Robert N., 20% to Lee, Raymond, Organization, Inc., The. Rotatable cord driven passenger carrying disc. 3,785,641, Cl. 272-46.000.

Mugneret, Jean A.: *See—*
Bonnamy, Philippe J. F.; and Mugneret, Jean A., 3,785,511.

Mukai, Kunio: *See—*
Hirano, Masachika; Mukai, Kunio; Takeda, Hisami; and Tanaka, Katsutoshi, 3,786,118.

Mukaiyama, Teruaki; Ueki, Masaaki; and Suzuki, Manabu, to Sankyo Company, Limited. Peptide bond formation in the presence of triaryl phosphites and heterocyclic disulfides. 3,786,038, Cl. 260-112.500.

Mull, Michael M., to Mechanics Research, Inc. Wave force transducer. 3,785,203, Cl. 73-170.00a.

Mullejans, Heinrich: *See—*
Asselborn, Peter; Cramer, Werner; Gladbach, Bergisch; and Mullejans, Heinrich, 3,785,189.

Muller, Artur, to Industrie-Werke Karlsruhe Aktiengesellschaft. Device for winding threads, particularly textile threads. 3,785,140, Cl. 57-100.000.

Muller, Richard, to Gebr. Hofmann KG. Balancing apparatus for balancing out-of-balance bodies. 3,785,210, Cl. 73-459.000.

Muller, Rolf: *See—*
Schmidt, Ewald; Brachet, Hansvilli Von; Muller, Rolf; and Kindler, Horst, 3,786,083.

Muller, Wolfgang, to Haas, Carl, Firma. Process for the production of hubs for spiral springs of timepieces. 3,785,028, Cl. 29-177.000.

Mullerheim, Steven B. Water propulsion systems using submerged propulsion cable. 3,785,326, Cl. 115-7.000.

Mulvany, Richard B.: *See—*
Lissner, Rudolf W.; and Mulvany, Richard B., 3,786,454.

Munson, Robert E.; Polson, Jerry H.; and Roller, Kent G., to Ball Brothers Research Corporation. Self-lubricated rotary joint. 3,786,376, Cl. 333-97.00r.

Munt, Irwin, to Weston Instruments, Inc. Linear input ohmmeter. 3,786,350, Cl. 324-62.00r.

Munz, Paul; and Byland, Hans, to Maschinenfabrik und Giesserei Netstal AG. Device for the production of filled and closed plastic containers. 3,785,116, Cl. 53-194.000.

Murai, Okihiko; and Okubo, Mamoru. Device for holding wire rings in diaphragm clutch. 3,785,466, Cl. 192-89.00b.

Murakami, Masuo; Kawahara, Shigemi; Inukai, Noriyoshi; Nagand, Noriaki; Iwamoto, Hidenori; and Ida, Hisashi, to Yamanouchi Pharmaceutical Company, Ltd. 3-Methyl-N-methyl morphinans. 3,786,054, Cl. 260-285.000.

Murakami, Yuetsu: *See—*
Masumoto, Hakaru; Murakami, Yuetsu; and Hinai, Masakatsu, 3,785,880.

Murib, Jawad H.; Schott, Stuart; and Bonecutter, Charles A., to National Distillers and Chemical Corporation. Purification of beryllium hydride. 3,786,128, Cl. 423-122.000.

Muroi, Masayuki: *See—*
Shibata, Motoo; Higashide, Eiji; Hatano, Kazunori; Mizumo, Komei; Asai, Mitsuko; and Muroi, Masayuki, 3,786,142.

Murphy, John E., to Borg-Warner Corporation. Breath testing system with breath temperature sensor. 3,785,774, Cl. 23-254.00e.

Murray, Ransome James, to Associated Portland Cement Manufacturers, Limited, The. Synthetic aggregates. 3,785,842, Cl. 106-288.00b.

Muta, Susumu: *See—*
Okuyama, Toru; Muta, Susumu; Sato, Shigetake; Tokiura, Shohei; and Miyasu, Akira, 3,786,006.

Mycroft, Leonora M. Amphibious structure. 3,785,325, Cl. 115-1.00r.

Myers, Ernest L.: *See—*
Huffaker, James E.; Myers, Ernest L.; Dillon, Brian D.; and Dolen, Cecil W., 3,785,039.

Myers, John P.; and Tschapek, Gleb. Audio-digital recording system. 3,786,201, Cl. 179-100.200.

Myhre, Curth: *See—*
Cheldelin, Lyle O.; and Myhre, Curth, 3,785,504.

Myler, George W.: *See—*
Reid, Edward A., Jr.; Venendaal, Robert G.; and Myler, George W., 3,785,364.

Mynard, Brian Arthur; Jones, Bryan; Tracey, Victor Allen; and Betteridge, Walter, to International Nickel Company, Inc., The. Ruthenium or osmium on hard metal. 3,785,783, Cl. 29-182.700.

Naastepad, Pieter Aart; and Van Liempd, Gijsbertus Gerardus, to U.S. Philips Corporation. Method of manufacturing a body having anisotropic permanent magnetic properties by grinding with fatty liquid. 3,785,881, Cl. 148-103.000.

Nadeau, Richard G.: *See—*
Luchsinger, Wayne W.; and Nadeau, Richard G., 3,785,771.

Nadler, Murray, to Esso Research and Engineering Company. Introducing additives in polyolefins. 3,786,018, Cl. 260-32.6pq.

Nagai, Koji: *See*—
Inque, Masayoshi; Nagai, Koji; and Kitaguchi, Shigeo, 3,785,983.

Nagand, Noriaki: *See*—
Murakami, Masuo; Kawahara, Shigemi; Inukai, Noriyoshi; Nagand, Noriaki; Iwamoto, Hidenori; and Ida, Hisashi, 3,786,054.

Nagao, Masanori: *See*—
Ariyoshi, Yasuo; Nagao, Masanori; Sato, Naotake; Shimizu, Akira; and Kirimura, Jiro, 3,786,039.

Nagasaki, Yoichi, to Nippon Gakki Seizo Kabushiki Kaisha. Toe-holding device for safety ski binding. 3,785,667, Cl. 280-11.35t.

Nagasawa, Toshifumi; and Ohshima, Haruhiko, to Pioneer Electronics Corporation. Automatic telephone answering device with simultaneous message reception and transmission. 3,786,191, Cl. 179-6.00r.

Nagawa, Masatoshi; Suzuki, Yoshio; Matsui, Katsuaki, Iijima, Masaoki; and Tsurusaki, Yoshiyasu, to Sankyo Company Limited. Method of controlling poultry coccidiosis. 3,786,147, Cl. 424-251.000.

Nahta, Roop C.: *See*—
Bernholz, William F.; Nahta, Roop C.; and Redston, John P., 3,785,973.

Naito, Shotaro; Kasama, Ryoji; and Sato, Hiro, to Hitachi, Ltd. Electrical leakage detecting device. 3,786,466, Cl. 340-255.000.

Nakamoto, Taro. Apparatus for sorting and distributing clothing. 3,785,474, Cl. 198-38.000.

Nakamura, Michiharu: *See*—
Sato, Hitoshi; Tanaka, Mitsuo; Nakamura, Michiharu; Takahashi, Susumu; and Kurono, Hirokazu, 3,786,375.

Nakanishi, Yoshitaka. Door locking mechanism. 3,785,684, Cl. 292-241.000.

Nakashio, Seizo; Yoshikawa, Kanji; Takemura, Toshio; and Ota, Kunio, to Sumitomo Chemical Company, Limited. Polyphenylene oxide and ethylene/styrene copolymer blend composition. 3,786,105, Cl. 260-897.00r.

Narahara, Hisaaki; Numakura, Toshihiko; and Watanabe, Yoshimi, to Sony Corporation. Magnetic recording and/or reproducing system. 3,786,176, Cl. 178-5.4cd.

Narumiya, Tsuneaki: *See*—
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.

National Cash Register Company, The: *See*—
Carlson, Carl O., 3,786,417.
Peters, Gary J.; Hermann, Stanley R.; Jaynes, Howard R.; and Milbrandt, Larry F., 3,786,013.
Spence, Wendell, 3,786,495.

National Distillers and Chemical Corporation: *See*—
Murib, Jawad H., Schott, Stuart; and Bonecutter, Charles A., 3,786,128.

National Industrial Research Institute: *See*—
Park, Yong Wan, 3,785,793.

National Nuclear Corporation: *See*—
Untermyer, Samuel, 3,786,256.

National Patent Development Corporation: *See*—
Vassileff, Neiko I., 3,786,113.

National Research Development Corporation: *See*—
Hoskins, Leonard Maxwell, 3,785,621.
Schofield, Andrew Noel, 3,785,158.

Naumann, Harry K.: *See*—
Blewett, John H.; and Naumann, Harry K., 3,785,341.

Naylor, Walter G., Jr., to Didier, Diane, Enterprises, Inc. Miniature scroll winding and display device. 3,785,075, Cl. 40-94.000.

Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer: *See*—
Schijf, Johannes, 3,785,209.

Nelson, L. R., Corporation, mesne: *See*—
Maple, Steven E., 3,785,563.

Nelson, Lloyd A., to Gerber Products Company. Glass jar handling system. 3,785,516, Cl. 214-152.000.

Nemoto, Mamoru; and Tani, Seijiro, to Hitachi, Ltd. Swash plate type compressor. 3,785,751, Cl. 417-269.000.

Neuhardt, Charles P., to Interface Systems, Limited. Modular building. 3,785,096, Cl. 52-79.000.

Neuworth, Martin B., to Continental Oil Company. Keto substituted alkylidenedithiobisphenols. 3,786,100, Cl. 260-590.000.

Newcombe, Jack: *See*—
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., 3,786,023.

Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M. Regeneration of spent etchant. 3,785,950, Cl. 204-239.000.

Niccoli, George J., to Airguide Instrument Company. Weather indicating instrument. 3,785,339, Cl. 116-129.00r.

Nick, Howard H., to International Business Machines Corporation. Multi-terminal digital signal communication apparatus. 3,786,418, Cl. 340-147.00r.

Nick, Howard H., to International Business Machines Corporation. Synchronizing clock system for a multi-terminal communication apparatus. 3,786,419, Cl. 340-147.0sy.

Niemi, Arvi E.; and Marecek, John R., to Brunswick Corporation. Bowling lane finish applicator. 3,785,001, Cl. 15-245.000.

Niemoeller, Donald E., to Arvin Industries, Inc. Electronically controlled ignition system. 3,785,356, Cl. 123-148.00e.

NIG Mason, Limited: *See*—
Atherton, David, 3,786,518.

Nihon Netsugaku Kogyo Kabushiki Kaisha: *See*—
Okuma, Yoshiro; and Inuzuka, Keizo, 3,785,434.

Nihon Polystyrene Kogyo K.K.: *See*—
Osuga, Hiroshi; and Kobayashi, Shoichi, 3,786,115.

Nikkel, Willem Andre, to Westvaco Corporation. Panel counting, collecting and gating apparatus. 3,785,256, Cl. 93-93.00c.

Nippon Electric Co., Ltd.: *See*—
Takahashi, Kousuke, 3,786,428.

Nippon Electric Company, Limited: *See*—
Yamauchi, Fumio, 3,786,447.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
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Nippon Kokan Kabushiki Kaisha: *See*—
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Nippon Oil Seal Industry Co., Ltd.: *See*—
Gotoh, Syuichi, 3,785,856.

Nippon Yakin Kogyo Company, Limited: *See*—
Yokota, Kozo; Fukase, Yukishige; and Osozawa, Koichiro, 3,785,787.

Nippondenso Co., Ltd.: *See*—
Inque, Goro; and Hoang, Ming-Tsung, 3,786,330.

Nischk, Gunther: *See*—
Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, 3,786,024.

Nishida, Jun: *See*—
Kaneko, Masahiko; Miyama, Hiroshi; and Nishida, Jun, 3,786,182.

Nissan Motor Company, Limited: *See*—
Enomoto, Koji, 3,785,614.

Nitto Kagyo Co. Ltd.: *See*—
Ide, Fumio; Kodama, Tsuneu, and Kotake, Yahide, 3,785,921.

Noack, Dieter: *See*—
Beier, Helmut; and Noack, Dieter, 3,786,216.

Noble, James Simon: *See*—
Notley, John Percy William; and Noble, James Simon, 3,786,433.

Noetzel, Siegfried; and Fischer, Edgar, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Novel daylight fluorescent pigments and process for preparing them. 3,785,989, Cl. 252-301.20r.

Noggle, Edward F.: *See*—
Perry, Leonard T., Costner, Donald T.; and Noggle, Edward F., 3,785,565.

Noguchi, Kazuo: *See*—
Amagi, Yasuo, Shiki, Zenya; Ohsumi, Yukihiko; and Noguchi, Kazuo, 3,786,134.

Nomura, Setsuo: *See*—
Komoda, Tsutomu; and Nomura, Setsuo, 3,786,305.

Nomura, Setsuo, to Hitachi, Ltd. Electron gun device of field emission type. 3,786,268, Cl. 250-306.000.

Noor, David A., to Noor Engineering-Manufacturing Corporation. Equipment for conditioning and packaging a product. 3,785,276, Cl. 99-516.000.

Noor Engineering-Manufacturing Corporation: *See*—
Noor, David A., 3,785,276.

Noranda Mines Limited: *See*—
Kitzinger, Frank; and Tarassoff, Peter, 3,785,513.

Nordling, Frederik, to Lynch Communication Systems, Inc. Pulse sampling and reshaping circuit. 3,786,280, Cl. 307-268.000.

Norgren, Lars Erik, to Sandrik Aktiebolag. Thin chip cutting tool. 3,785,021, Cl. 29-96.000.

Norris, George F.; and Robbins, Gerald K. Mobile home skirting. 3,785,675, Cl. 280-150.00p.

North American Rockwell Corporation: *See*—
Atkinson, James L., 3,785,709.
Haffner, James W.; and Pearce, Llewellyn S., 3,786,253.

North, William D.: *See*—
Castrucci, Paul P.; Grochowski, Edward G.; Hess, Martin S.; Maheras, Geroge; and North, William D., 3,785,886.

Northern Electric Company Limited: *See*—
Devenyi, Tibor Francis, 3,786,349.

Northern Illinois Gas Company: *See*—
Martell, Dennis J., 3,786,423.

Northrop Corporation: *See*—
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Northrup Corporation: *See*—
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Norton, Ross Erle: *See*—
Hunter, John P., Jr.; Norton, Ross Erle; and Mitchell, William O., 3,785,307.

Notari, Gennaro V., to Combustion Engineering, Inc. Nuclear reactor core shroud. 3,785,924, Cl. 176-61.000.

Notley, John Percy William; and Noble, James Simon, to Kent, George, Limited. Computer control arrangements. 3,786,433, Cl. 340-172.500.

Notley, Norman T. Method of developing vesicular photographic materials. 3,785,821, Cl. 96-49.000.

Novak, Walter M.; and Thurmond, Fred A., Jr., to Rogers Machinery Company, Inc. Air compressor system. 3,785,755, Cl. 418-85.000.

Novello, Frederick C.; and Baldwin, John J., to Merck & Co., Inc. Pyridyl-trifluoromethylimidazoles. 3,786,061, Cl. 260-296.00r.

Novgorodov, Alexandr Stepanovich: *See*—

Vereschagin, Leonid Fedorovich; Konyafv, Jury Sergeevich; Dovbnya, Alexandr Vasilievich; Polyakov, Evgeny Valentindvich; Novgorodov, Alexandr Stepanovich; Asan-Nuri, Abdulia Ogly; Paly, Polikarp Avidnomovich; and Gevorkov, Grigory Sergeevich, 3,785,093.

Novice, Michall A., to Dart Industries, Inc. Hot end coating device. 3,785,851, Cl. 117-54.000.

Nozaki, Chihiro: *See*—
Yasunage, Hidetoshi; Chikatsu, Tatsusuke; Nozaki, Chihiro; and Yoshida, Yoshinori, 3,786,036.

Nugent, Walter Stone. Fastener. 3,785,013, Cl. 24-204.000.

Numakura, Toshihiko: *See*—
Narahara, Hisaaki; Numakura, Toshihiko; and Watanabe, Yoshimi, 3,786,176.

Nutron Corporation: *See*—
Denker, James M., 3,785,634.

N.V. Optische Industrie "De Oude Delft": *See*—
Van Der Does, Lucas, 3,785,637.

Nysten, Bernhard P., to William Prym-Werke K.G., Firma. Attaching of buttons and the like without sewing. 3,785,009, Cl. 24-90.0ta.

Oakite Products, Inc.: *See*—
Frey, Sameul S., 3,785,866.

Oatis, Melvin Neal: *See*—
McNulty, Henry V.; and Oatis, Melvin Neal, 3,786,198.

Obama, Isamu: *See*—
Shimoda, Keitaro; Obama, Isamu; and Kusunose, Takamaro, 3,786,125.

Obara, Katsuji. Automatic bag feed system. 3,785,414, Cl. 141-114.000.

Oberwelland, Klaus; and Wiegratz, Siegfried, to Storck, August, G.m.b.H., Firma. Apparatus for producing a packaged assortment of different sweets. 3,785,115, Cl. 53-154.000.

Obuchi, Masao: *See*—
Katayama, Shitomi; Horikawa, Hideichi; Obuchi, Masao; and Ito, Yoshihiro, 3,786,031.

O'Connor, Thomas J. Ram for a reciprocally movable EDM electrode. 3,786,223, Cl. 219-69.00v.

Ogawa, Haruki; Yamamoto, Akihiro; Sugawara, Yutaka; Suzuki, Shigeo; and Takagaki, Yoshio, to Chugai Seiyaku Kahushiki Kaisha. Method of the production of anti-tumor substances. 3,786,141, Cl. 424-95.000.

Ogawa, Heisuke; Yamamoto, Mitsuo; Bando, Seiisaku; and Baba, Osami, to Kawasaki Jukogyo Kabushiki Kaisha and Furuno Electric Company, Limited. Acoustic transducer for deep sea. 3,786,407, Cl. 340-10.000.

Ogita, Hideo: *See*—
Tada, Yoshiyuki; Ogita, Hideo; and Yoda, Takeshi, 3,785,036.

Oguchi, Yutaka; Kubo, Junighi; and Goto, Shinji, to Industrial Science and Technology, Agency of. Method for discharging particulate solid from high pressure vessel. 3,785,966, Cl. 208-213.000.

O'Hara, Mark J.: *See*—
Gleim, William K. T.; Gatsis, John G.; and O'Hara, Mark J., 3,785,958.

Ohio Art Company, The: *See*—
Burkhart, Larry J., 3,785,081.

Ohmori, Masaki: *See*—
Kurauchi, Noritaka; Hiraoka, Susumu; Yoshida, Kenichi; and Ohmori, Masaki, 3,786,411.

Ohmstede Machine Works, Inc.: *See*—
Ohmstedt, Gene E., 3,785,026.

Ohmstedt, Gene E., to Ohmstede Machine Works, Inc. Method of dismantling tube bundles. 3,785,026, Cl. 29-157.400.

Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, to Fuji Photo Film Co., Ltd. Reciprocating cutting method and apparatus. 3,785,246, Cl. 90-11.00c.

Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, to Fuji Photo Film Co., Ltd. Reciprocating cutting machine. 3,785,247, Cl. 90-.15.000.

Ohshima, Haruhiko: *See*—
Nagasawa, Toshifumi; and Ohshima, Haruhiko, 3,786,191.

Ohsumi, Yukihiko: *See*—
Amagi, Yasuo; Shiki, Zenya; Ohsumi, Yukihiko; and Noguchi, Kazuo, 3,786,134.

Ohta, Hidenori: *See*—
Kawai, Atsushi; Suzuki, Migaku; and Ohta, Hidenori, 3,785,918.

Ohuchi, Yasushi: *See*—
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Okada, Toshihiko: *See*—
Hino, Mikoni; Hanawa, Shozo; Itaya, Hisso; Okada, Toshihiko; and Fujtwara, Masayuki, 3,785,177.

Okada, Yoshio: *See*—
Kuribayashi, Hiroshi; Takeda, Takehiko; Okada, Yoshio; and Yamauchi, Takashi, 3,786,107.

Okazaki, Takeo, to Mitsui Shipbuilding and Engineering Co., Ltd. Cylinder construction for trunk piston engine. 3,785,357, Cl. 123-195.00r.

Okorodudu, Abraham O. M., to Mobil Oil Corporation. Lubricants containing substituted 2-oxazolidones as oxidation inhibitors. 3,785,982, Cl. 252-51.50a.

Okubo, Mamoru: *See*—
Murai, Okihiko; and Okubo, Mamoru, 3,785,466.

Okui, Sakujiro, to Kodama Brothers Co., Ltd. Radiating system for body warming devices. 3,785,362, Cl. 126-208.000.

Okuma, Yoshiro; and Inuzuka, Keizo, to Nihon Netsugaku Kogyo Kabushiki Kaisha. Cooling and heating unit of air-cooled heat pump. type. 3,785,434, Cl. 165-29.000.

Okumura, Tomisaburo, to Matsushita Electronics Corporation. Insulated-gate field-effect transistor. 3,786,319, Cl. 317-235.00a.

Okuyama, Toru; Muta, Susumu; Sato, Shigetake; Tokiura, Shohei; and Miyasu, Akira, to Bridgestone Tire Company Limited and Ube Industries Limited. Manufacturing method for polyamide foam. 3,786,006, Cl. 260-2.50n.

Oleszko, Thaddeus J., to Marathon Oil Company. Asphaltenes for inhibiting polymerization of pyrolysis products. 3,786,110, Cl. 260-679.00r.

Olin Corporation: *See*—
Cianciolo, Alfred D.; Sabatine, Donald J.; Scruggs, James A.; and Trotz, Samuel I., 3,785,890.

Olivetti, Ing. C., & C., S.p.A.: *See*—
Torresi, Vincenzo N., 3,786,486.

Oltmanns, George F. Insulator and support for electrically charged fence wires. 3,785,619, Cl. 256-10.000.

Omar, Alejandro Goicoechea, to S.A. DeTrenes Vertebrados. Switch for elevated binary railway vehicles. 3,785,294, Cl. 104-130.000.

Omron Tateisi Electronics Co.: *See*—
Hatano, Isao; and Urasaki, Kazuaki, 3,786,480.
Sano, Noboru; and Bando, Yoshihide, 3,786,239.

Ono, Isao; Iiguni, Tetsuo; and Akashi, Mitsumasa, to Rohm and Haas Company. Catalyst for the production of acrolein and acrylic acid. 3,786,000, Cl. 252-464.000.

Onoda Cement Co., Ltd.: *See*—
Kawano, Toshio, 3,785,844.

Oonishi, Hajimu: *See*—
Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawahata, Hidetsugu; and Kitamura, Saburo, 3,786,254.

Oppenlaender, Knut; Liebold, Gert; and Buettner, Egon, to Badische Anilin & Soda-Fabrik Aktiengesellschaft. Crude oil demulsifiers. 3,786,081, Cl. 260-471.00c.

Original Hanau Quarzlampen GmbH: *See*—
Blzig, Karl F.; and Junginger, Klaus, 3,786,243.

Orlici, Usti Nad: *See*—
Rajnoha, Jaroslav; Bures, Ladislav; and Orlici, Usti Nad, 3,785,138.

Orndorff, Ross M., to Hughes Aircraft Company. Radiation hardened flip flop. 3,786,282, Cl. 307-291.000.

Ornstin, A., Limited: *See*—
Owen, Cyril Howard, 3,785,010.

Ortlieb, Claude, to Vergo S.A. Method for producing optical polarizing elements. 3,786,119, Cl. 264-2.000.

Orton, Criley; and Ehresman, Allen D., to United States of America, Navy. High speed angle gate. 3,786,508, Cl. 343-7.00a.

O'Shea, Robert P.: *See*—
Watmough, Thomas; and O'Shea, Robert P., 3,785,804.

Osi, Walter; Thomas, Klaus; Jerchel, Dietrich; and Appel, Karl-Richard, to Boehringer, C. H., Sohn. Fungicidal compositions comprising N,N-bis-((1-amindo-2,2,-trichloro)-ethyl)-piperazines. 3,786,146, Cl. 424-250.000.

Osipov, Eduard Vaganovich: *See*—
Pilat, Izrail Moiseevich; Samoilovich, Anatoly Grigorievich; Soliichuk, Kornei Denisovich; and Osipov, Eduard Vaganovich, 3,785,875.

Osozawa, Koichiro: *See*—
Yokota, Kozo; Fukase, Yukishige; and Osozawa, Koichiro, 3,785,787.

Ostermayer, Franz, to Ciba-Geigy Corporation. (6-Pyrrol-1-yl)-3-pyridineacetic acid derivatives. 3,786,044, Cl. 260-295.50r.

Ostrop, Berthold; Rassmann, Christoph; and Hauschopp, Alois, to Gewerkschaft Eisenhutte Westfalia. Planer mining installation. 3,785,704, Cl. 299-34.000.

Osuga, Hiroshi; and Kobayashi, Shoichi, to Nihon Polystyrene Kogyo K.K. Suspension polymerization process. 3,786,115, Cl. 260-880.00r.

Ota, Kunio: *See*—
Nakashio, Seizo; Yoshikawa, Kanji; Takemura, Toshio; and Ota, Kunio, 3,786,105.

Otani, Junji: *See*—
Date, Tasuku; and Otani, Junji, 3,785,352.

Otten, Ernst W.; and Farr, Werner D., to Bruker-Physik AG. Miniature optically pumped magnetometer probe using light pipes to transmit light to the probe. 3,786,340, Cl. 324-.50r.

Ousset, Robert A.: *See*—
Vaganay, Jean; and Ousset, Robert A., 3,785,889.

Outboard Marine Corporation: *See*—
Shimanckas, William J., 3,785,329.

Overman, Joseph De Witt. Photographic emulsions and developers containing 2-mercapto heterocyclic compounds. 3,785,822, Cl. 96-66.300.

Owen, Cyril Howard, to Ornstin, A., Limited. Pin-back buttons. 3,785,010, Cl. 24-90.0pr.

Owens-Illinois, Inc.: *See*—
Colchagoff, Robert D., 3,785,795.
Miavecz, Joseph L., 3,786,484.
Miller, John W. V., 3,786,474.
Rapp, James E., 3,785,833.
Rapp, James Erich, 3,785,834.
Thomas, Ian M., 3,786,137.
Wojcik, David S., 3,786,485.

Oxford Industries, Inc.: *See*—

Hunter, John P., Jr.; Norton, Ross Erle; and Mitchell, William O., 3,785,307.

P. X. Industries, Inc.: *See—*
MacDonald, Francis X.; and MacDonald, Paul M., 3,785,685.

Pacific Plantronics, Inc.: *See—*
Camenzind, Hans R., 3,786,200.

Packard Instrument Company, Inc.: *See—*
Frank, Edmond, 3,786,259.

Packard, James R., to Minnesota Mining and Manufacturing Company. Optical read-only memory system including a cathode ray tube. 3,786,438, Cl. 340-173.00r.

Padovano, Felix, to LP Industria Chimica per l'Anedamento S.p.A. Adjustable mounting assemblies for groups of seats in aircraft or other vehicles. 3,785,600, Cl. 248-188.100.

Paige, Walter Griffin, to Burroughs Corporation. Sealing combination for pneumatic actuator. 3,785,251, Cl. 92-98.00r.

Pak-Well Corporation: *See—*
Lake, Willett R., Jr.; and Ward, James O., 3,785,231.

Pako Corporation: *See—*
Lee, Conrad E., 3,785,543.

Pall Corporation: *See—*
Silverwater, Bernard F., 3,785,332.

Palomo-Coll, Antonio Luis. Process for the preparation of N-acylated derivatives of 6-amino penicillanic acid. 3,786,049, Cl. 260-239.100.

Palsson, Jan Fredrik: *See—*
Martensson, Kjell Halvard; Linde, Bjorn H Son; Palsson, Jan Fredrik; and Jerre, Sven Torsten, 3,785,113.

Palsson, Sven Gunnar; and Mickelsson, Olav Conny, to Isabergs Verkstads AB. Self-interrupting reciprocating motor. 3,786,286, Cl. 310-34.000.

Paly, Polikarp Avidnomovich: *See—*
Vereschagin, Leonid Fedorovich; Konyafv, Jury Sergeevich; Dovbnya, Alexandr Vasilievich; Polyakov, Evgeny Valentindvich; Novgorodov, Alexandr Stepanovich; Asan-Nuri, Abdulia Ogly; Paly, Polikarp Avidnomovich; and Gevorkov, Grigory Sergeevich, 3,785,093.

Pan-Technic, Inc.: *See—*
Michaelson, Dennis M., 3,785,053.

Panek-Finda, Helena: *See—*
Benjamins, Harm Martinus; Kortenoeven, Koos; and Panek-Finda, Helena, 3,785,990.

Papst, Hermann; Lunde, Hans; and Wrobel, Gunter, to Papst-Motoren KG. Electromotor construction. 3,786,290, Cl. 310-90.000.

Papst-Motoren KG: *See—*
Papst, Hermann; Lunde, Hans; and Wrobel, Gunter, 3,786,290.

Parallel Data Systems: *See—*
Pori, John R., 3,786,190.

Parekh, Hemant. Book prop. 3,785,605, Cl. 248-455.000.

Park, Yong Wan, to National Industrial Research Institute. Method of leaching high silica glass having 0.5-2.0% P_2O_5. 3,785,793, Cl. 65-31.000.

Parker, Amelia Mary. Fish scaler. 3,785,008, Cl. 17-70.000.

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Parker, Gordon M., to PPG Industries, Inc. Method of applying acrylic functional carbonate ester coating to plastic substrates using high energy ionising radiation. 3,785,850, Cl. 117-93.310.

Parry, Frank, to Branson Instruments, Incorporated. Ultrasonic seaming apparatus including feed means. 3,785,910, Cl. 156-580.000.

Parsons, Richard H., to General Motors Corporation. Constant velocity universal joint. 3,785,172, Cl. 64-21.000.

Partridge, Christopher M.: *See—*
Sylvester, Herbert A.; Partridge, Christopher M.; and Goss, Ira D., 3,785,384.

Pasero, Edoardo: *See—*
Roberti, Giorgio; Dufour-Berte, Casimiro; and Pasero, Edoardo, 3,785,802.

Pashkov, Alexandr Nikitovich: *See—*
Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich; Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich, 3,785,032.

Pashley, John H.: *See—*
Merriman, James R.; Pashley, John H.; Stephenson, Michael J.; and Dunthorn, David I., 3,785,120.

Passavant, Francis C.: *See—*
Graves, William P.; Passavant, Francis C.; and Worters, Allen J., 3,786,476.

Pastin, Max: *See—*
Coggeshall, John C., 3,785,772.

Patchen, Paul J., to Allis-Chalmers Corporation. Lubrication and cooling system for connecting rod and piston. 3,785,459, Cl. 184-6.500.

Patel, Arvind M.: *See—*
McDonald, Carl C.; and Patel, Arvind M., 3,786,439.

Patouillet, Jean, to Societe Anonyme Antar-Petroles de L'Atlantique. Process for carrying out endothermic catalytic reactions. 3,785,953, Cl. 208-49.000.

Patterson, Carol M., to Research Equipment Company, Inc. Cage apparatus. 3,785,344, Cl. 119-17.000.

Paulsell, Kenneth G.: *See—*
Peet, Robert G.; Foster, Henry O.; Paulsell, Kenneth G.; and Hogshead, Thomas H., Jr., 3,786,127.

Payer, Stefan: *See—*
Matthey, Hermann; Payer, Stefan; and Zirngiebl, Eberhard, 3,785,949.

Payne, Calvin L., Jr., to Tudor Metal Products Corporation. Score keeper. 3,785,552, Cl. 235-98.00r.

Peabody Engineering Corporation: *See—*
Arnold, Orlan M.; and Hardy, Alfred W., 3,785,572.

Pear, Charles B., Jr., to Potter Instrument Company, Inc. Optical line scanner and facsimile system. 3,786,181, Cl. 178-6.800.

Pearce, Llewellyn S.: *See—*
Haffner, James W.; and Pearce, Llewellyn S., 3,786,253.

Pearl, David Raymond: *See—*
Gerber, Heinz Joseph; and Pearl, David Raymond, 3,785,898.

Pechacek, Raymond E., to Hahn & Clay. Multilayer pressure vessel method. 3,785,040, Cl. 29-447.000.

Peddinghaus, Werner; and Regenbrecht, Ludwig, said Peddinghaus assor. to said Regenbrecht, Ludwig. Punching or shearing train. 3,785,235, Cl. 83-557.000.

Peet, Robert G.; Foster, Henry O.; Paulsell, Kenneth G.; and Hogshead, Thomas H., Jr., to Du Pont de Nemours, E. I., and Company. Stretching polyethylene terephathalate film in a shortened span. 3,786,127, Cl. 264-288.000.

Pelka, Walter: *See—*
Frenyo, Pal; Hafer, Karl-Heinz; Karkutt, Reimund; Gormann, Willi; and Pelka, Walter, 3,785,703.

Peltz, John R.; and Szeverenyi, Nikolaus A., to GTE Sylvania Incorporated. Fluid level sensor. 3,786,463, Cl. 340-244.00r.

Pelzel, Erich. Zinc-aluminum alloy. 3,785,811, Cl. 75-178.00a.

Penick, Ib, to Simpro Corporation of America. Hammer-driven shutter and percussion ignition system. 3,785,260, Cl. 95-11.50r.

Pepper, Kenneth L.: *See—*
Kennedy, John B.; and Pepper, Kenneth L., 3,785,580.

Peppler, Richard B.; and Rosskopf, Philip A., to Martin Marietta Corporation. Portland cement and additives therefor. 3,785,839, Cl. 106-90.000.

Perin Products Corporation: *See—*
Halperin, Edward B., 3,785,074.

Perkins, Joseph K.: *See—*
Carlsmith, Lawrence A.; Mallory, William L.; and Perkins, Joseph K., 3,785,577.

Peroni, Gary J. Model vehicle for erratic action. 3,785,085, Cl. 46-206.000.

Perronnet, Jacques: *See—*
Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, 3,785,800.

Perronnet, Jacques; and Girault, Pierre, to Roussel-UCLAF. Novel phenylhydrazones. 3,786,094, Cl. 260-564.00r.

Perry, Leonard T.; Costner, Donald T.; and Noggle, Edward F., to Wet Manufacturing Co. Rotary sprinkler head. 3,785,565, Cl. 239-206.000.

Perry, Robert J.; and Whitson, Bob L., to Phillips Petroleum Company. Control system for two-stage compressors. 3,785,749, Cl. 417-12.000.

Perry, Walter Merton. Forming unit for fine mineral fibers. 3,785,791, Cl. 65-14.000.

Peters, Arnis E., to Gelatt Investments, Inc., mesne. Microfilm viewer. 3,785,728, Cl. 353-26.000.

Peters, Frank Groom; and Schwartz, Newton, to Bell Telephone Laboratories, Incorporated. Capacitor with anodized electrode of tantalum silcon alloy. 3,786,323, Cl. 317-258.000.

Peters, Gary J.; Hermann, Stanley R.; Jaynes, Howard R.; and Milbrandt, Larry F., to National Cash Register Company, The. Transfer media and transferable coating compositions. 3,786,013, Cl. 260-28.50r.

Peters Machinery Company: *See—*
Talbot, Richard C.; Ruse, Edward; and Roth, Robert A., 3,785,255.

Petersen, Warren Eugene, to Western Electric Company Incorporated. Method and apparatus for forming an unsoldered sheath about a strand. 3,785,048, Cl. 29-624.000.

Peterson, Bertil E.; and Housman, Richard J., to Cardwell Westinghouse Company. Cushioned bumper for scrapers. 3,785,679, Cl. 280-481.000.

Peterson, Francis C., to Hager, C., & Sons Hinge Manufacturing Company. Impact die and carbide insert therefor. 3,785,236, Cl. 83-685.000.

Petrakov, Alexandr Ivanovich; Ereskunov, Nikolai Grigorievich; and Galitenko, Mikhail Mitrofanovich. Apparatus for producing impulse liquid jets. 3,785,562, Cl. 239-92.000.

Petrokas, Leonid Venediktovich: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.

Petrolite Corporation: *See—*
Redmore, Derek, 3,786,055.

Petrov, Vladimir Dmitrievich: *See—*
Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich, 3,785,869.

Pettersson, Birger; and Karlsson, Kurt, to Svenska Rotor Maskiner Aktiebolag. Rotary regenerative heat exchangers. 3,785,431, Cl. 165-9.000.

Peura, Warren A., to Consolidated Foods Corporation. Roller assembly and method of making the same. 3,785,217, Cl. 74-230.300.

Pfeiffer, Horst, to Hengstler, J., K.G., Firma. Presettable subtracting counter. 3,786,240, Cl. 235-132.00r.

Pfeiffer, Kurt; Dietrich, Johannes; Beckmann, Gunter; and Herkt, Karl-Heinz, to Chemische Werke Huls Aktiengesellschaft. Cooling unit for large polymerization vessels. 3,785,430, Cl. 165-1.000.

Pfingsten, Eddie M.; and Travis, Jerry L. Particulate material distributing means. 3,785,568, Cl. 239-310.000.

Pfizer Inc.: *See—*
Barth, Wayne E., 3,786,160.

Pharmasel; division of American Hospital Supply Corporation: *See—*
Fortin, Robert F.; and Sims, Larry A., 3,785,367.

Phelps, Peter M. Combination gas stripper and cooling tower. 3,785,121, Cl. 55-53.000.

Phillips, Benjamin, to Universal Electric Company. Method for forming self-aligning bearing structures. 3,785,024, Cl. 29-149.50d.

Phillips, Brian Harry; and Young, Robert Gary, to General Electric Company Limited, The. Data terminals. 3,786,415, Cl. 340-146.10d.

Phillips, Edward H.; and Underwood, Raymond D., to Programmed Power Inc. Power conversion apparatus and system therefor. 3,786,335, Cl. 321-69.00r.

Phillips Petroleum Company: *See—*
Alquist, Henry E.; and Pitchford, Armin C., 3,785,972.
Banks, Robert L., 3,785,957.
Clampitt, Richard L.; and Hessert, James E., 3,785,437.
Hart, Walter C.; and Singh, Suman P. N., 3,785,161.
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Perry, Robert J.; and Whitson, Bob L., 3,785,749.
Reusser, Robert E.; and Turk, Stanley D., 3,786,112.
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Smith, Ernest L., 3,785,544.
Taverner, Clarence I.; and Kleinmann, Earl E., 3,785,413.
Vives, Van C., 3,786,111.
Zuech, Ernest A.; and Crain, Donald L., 3,786,106.

Physical Systems, Inc.: *See—*
Hutter, Charles G., III, 3,786,244.

Picard, Joseph A. R. Sequencing valve control apparatus and system. 3,785,613, Cl. 251-56.000.

Pieters, Leon Andre, to Image Analysing Computers Ltd. Focusing. 3,786,184, Cl. 178-7.200.

Piiroya, Eduard Karlovich; and Adrat, Mall Felix-Ottomarovna. Printers ink. 3,786,008, Cl. 260-23.00h.

Pike, Brian R., 30% to Schneider, William S., 30% to Schneider, Carl F. and 10% to Rodgers, V. Wayne, Mrs. Method of forming containers and packages. 3,785,111, Cl. 53-14.000.

Pike, Daniel E., to Air Pollution Industries, Inc. Gas collector for steel furnace. 3,785,630, Cl. 266-16.000.

Pilat, Izrail Moiseevich; Samoilovich, Anatoly Grigorievich; Soliichuk, Kornei Denisovich; and Osipov, Eduard Vaganovich. Zinc-cadmium antimonide single crystal anisotropic thermoelement. 3,785,875, Cl. 136-205.000.

Piller, Bernhard; Meier, Max; Duennenberger, Max; Biland, Hans Rudolf; and Luethi, Christian, to Ciba-Geigy AG. Photographic material stabilised against ultraviolet radiation. 3,785,827, Cl. 96-84.00r.

Pinede, Edouard; Barsellotti, John Anthony; and Laliccia, Frederico Riccardo, to International Standard Electric Corporation. Telephone system employing electronic matrix. 3,786,194, Cl. 179-18.0ad.

Pinegin, Vladimir Alexandrovich: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.

Pinegina, Margarita Vladimirovna: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.

Pioneer Electronics Corporation: *See—*
Nagasawa, Toshifumi; and Ohshima, Haruhiko, 3,786,191.

Pipe Line Development Company, The: *See—*
Smith, Joseph B., 3,785,041.

Pippin, Reginald F., Jr. Reaction toy arrangement and method. 3,785,083, Cl. 46-74.00c.

Piroska, Jozsef. Power transmission system. 3,785,249, Cl. 91-41.000.

Pitchford, Armin C.: *See—*
Alquist, Henry E.; and Pitchford, Armin C., 3,785,972.

Pittman, Clarence L.: *See—*
Martin, Roy A.; and Pittman, Clarence L., 3,785,550.

Pitts, Claude L.: *See—*
Watson, Robert E.; and Pitts, Claude L., 3,784,991.

Plank, Gordon R.: *See—*
Horner, Joseph L.; and Plank, Gordon R., 3,786,458.

Platts, Dennis R., to Ceramic Finishing Company. Method of sintering fused silica ceramic for strengthening it. 3,786,124, Cl. 264-65.000.

Plimi, Frank V., Jr.: *See—*
Galloway, Lawrence H.; Harast, Leonard E.; and Plimi, Frank V., Jr., 3,785,110.

Ploger, Manfred: *See—*
Bergbauer, Axel; Ploger, Manfred; and Seyd, Gunther, 3,785,291.

Plumat, Emile, to Glaverbel S.A. Surface coating of chemically tempered vitreous bodies. 3,785,792, Cl. 65-30.000.

Pluss, Kurt: *See—*
Richter, Carl; Pluss, Kurt; and Feth, Georg, 3,786,056.

Poerink, Jannes Jonge. Platform conveyor. 3,785,476, Cl. 198-189.000.

Polaroid Corporation: *See—*
Avtges, James A.; Reid, Jerome L.; Schlein, Herbert N.; and Taylor, Lloyd D., 3,785,815.
Baker, James G., 3,785,263.
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,785,725.
Land, Edwin H.; Bloom, Stanely M.; and Rogers, Howard G., 3,785,814.
Rickter, Donald O., 3,785,813.

Polidori, Stanley J., Sr.; and Tope, Rockney A. Automatic pet feeder. 3,785,348, Cl. 119-62.000.

Politechnika Warszawska: *See—*
Brzozowski, Zhigniew; Kusmierek, Jadwiga; and Porljko, Stanislaw, 3,786,019.

Pollard, Henry L., to Foremost-McKesson, Inc. Lactose refining process. 3,785,865, Cl. 127-55.000.

Pollmacher, Horst: *See—*
Gappisch, Max; Walter, Friedrich Claus; and Pollmacher, Horst, 3,785,404.

Polrotor, Inc.: *See—*
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Polson, Jerry H.: *See—*
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Polyakov, Evgeny Valentindvich: *See—*
Vereschagin, Leonid Fedorovich; Konyafv, Jury Sergeevich; Dovbnya, Alexandr Vasilievich; Polyakov, Evgeny Valentindvich; Novgorodov, Alexandr Stepanovich; Asan-Nuri, Abdulia Ogly; Paly, Polikarp Avidnomovich; and Gevorkov, Grigory Sergeevich, 3,785,093.

Polychrome Corporation: *See—*
Deutsch, Albert S.; and Poppo, Joseph M., 3,785,825.

Pomazkova, Zinaida Sirafimovna: *See—*
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Poole, Donald R.; Stang, Peter L.; and Mars, James E., to Rocket Research Corporation. Crash restraint nitrogen generating inflation system. 3,785,674, Cl. 280-150.0ab.

Pooley, Charles K.: *See—*
Gregg, David P.; and Pooley, Charles K., 3,785,268.

Popp, Roger C., to Chandler Evans, Inc. Differential pressure responsive magnetically actuated switch responsive only to sudden pressure changes. 3,786,211, Cl. 200-83.00t.

Poppo, Joseph M.: *See—*
Deutsch, Albert S.; and Poppo, Joseph M., 3,785,825.

Pori, John R., to Parallel Data Systems. Telemetering system for multichannel data over voice grade telephone lines. 3,786,190, Cl. 179-2.0dp.

Porljko, Stanislaw: *See—*
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Porta Systems Corporation: *See—*
Deluca, Paul V., 3,786,395.

Portage Machine Company: *See—*
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Porter, Henry D.; and Johnson, Benjamin A., to Eastman Kodak Company. Apparatus for the uniform preparation of silver halide grains. 3,785,777, Cl. 23-271.000.

Porter, Richard B.: *See—*
Kabat, John L.; Magnussen, John L.; Porter, Richard B.; and Tobias, James R., 3,785,432.

Porter, Zelma M.: *See—*
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Portland Wire & Iron Works: *See—*
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Portny, Gennady Lazarevich: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.

Postal, Robert H. Mechanically readable system using premarked substrate. 3,786,237, Cl. 235-61.11e.

Potter Instrument Company, Inc.: *See—*
Pear, Charles B., Jr., 3,786,181.

Poupitch, Ougljesa Jules: *See—*
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Powell, David B., to General Electric Company. Compact circuit breaker. 3,786,382, Cl. 335-169.000.

Powers Regulator Company, The: *See—*
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Pozniak, Donald J.; and Siewert, Robert M., to General Motors Corporation. Inlet throttled air pump for exhaust emission control. 3,785,152, Cl. 60-290.000.

Pozzetti, Mario, to Finike Italian Marposs-Soc. In Accomandita Semplice di Mario Possate & C. Device for detecting the speed of removal of the chips in a grinding machine. 3,785,091, Cl. 51-165.00r.

PPG Industries, Inc.: *See—*
Carlson, Gordon A., 3,785,942.
Parker, Gordon M.; Wismer, Marco; and Hahn, Ernest A., 3,785,849.
Parker, Gordon M., 3,785,850.
Ppins, Jacob Matthys: *See—*
Reimschussel, George Paul; and Ppins, Jacob Matthys, 3,786,126.
Prayer, Gerard; and Ferrat, Jean-Marie, to Cebal GP. Lid for easy opening cans. 3,785,522, Cl. 220-54.000.
Pressman, Gerald L.; and Kittredge, Thomas D., to Electro Print, Inc., mesne. Method and apparatus for charged aperture controlled electrostatic image reproduction. 3,786,514, Cl. 346-74.0es.
Preston, Edward George; and Czoch, Jerzy Wladyslaw, to Molins, Limited. Web feeding and splicing device. 3,785,902, Cl. 156-351.000.
Preston, Gerald, to Lee, Raymond, Organization, Inc., The. Cleaner for forks. 3,784,999, Cl. 15-218.100.
Preston, Larry T. Magnetic tape reel setup. 3,785,482, Cl. 206-53.000.
Price, David Watkin; Sidebottom, Ronald; Briscoe, Murray George; and Moore, Ronald Charles, to Coal Industry (Patents) Limited. Polyvinyl chloride resin composition closely simulating a grass playing surface in its bounce characteristics. 3,786,011, Cl. 26-22.0cb.
Price, Joe C. Revolver cylinder reloader. 3,785,077, Cl. 42-89.000.
Priebe, Frank D.: *See—*
Kelseaux, Ray M.; Dobbs, Harold J.; and Priebe, Frank D., 3,785,202.
Priebe, Henry Fred, Jr., to Bell Telephone Laboratories, Incorporated. Spectrum analyzer with simultaneous display for plural frequency bands. 3,786,351, Cl. 324-77.00b.
Primus-Sievert AB: *See—*
Mejyr, Carl-Anker; and Ledin, Lars Eric, 3,785,361.
Pritchett, Robert Leonard: *See—*
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Privon, George T.: *See—*
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Process Systems, Inc.: *See—*
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Proctor, Frank Hanslow, to Transmission Developments, Limited. Electrical insulator having sheds arranged at an angle to its axis. 3,786,175, Cl. 174-211.000.
Proctor, Robert H., to Jackes-Evans Manufacturing Company, mesne. Temperature responsive throttling valve. 3,785,554, Cl. 236-34.000.
Programmed Power Inc.: *See—*
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Progress Tool and Engineering Co., Inc.: *See—*
Van Lahr, Leo F., 3,785,182
Prye, Stanley Peter. Parting and bevel burning device. 3,785,631, Cl. 266-23.00r.
Pryor, Tomothy R.; and Hageniers, Omep L. Separation measurement method and devices employing diffraction waves. 3,785,737, Cl. 356-111.000.
Puariea, Douglas A.: *See—*
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Puckett, Jason N., Jr.; Kurtin, Stephen L.; and Goldman, Arnold J., to Lexitron Corporation. Apparatus for generating and displaying characters by tracing continuous strokes. 3,786,482, Cl. 340-324.00a.
Pukhov, Georgy Evgenievich; Borkovsky, Boris Adamovich; Belik, Viktor Kirillovich; Romantsov, Vladimir Petrovich; and Katkov, Alexandr Fedorovich. Device for intergrating and differentiating discrete functions. 3,786,241, Cl. 235-183.000.
Pukhova, Regina Lazarevna: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.
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Berry, Walter V.; and Hunziker, Paul J., 3,785,296.
Pun, John Y. Coil forming apparatus method and galvo-motor product. 3,786,353, Cl. 324-154.000.
Purcell, Robert F.: *See—*
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Purlov, Jury Nikolaevich: *See—*
Mikhalsky, Fedor Mikhailovich; Gaspariants, Artemy Mikhailovich; Purlov, Jury Nikolaevich; Kulesh, Pavel Ivanovich; Rudenko, Pavel Petrovich; Ryabtsev, Alexei Nikolaevich; and Levi, Yakov Efimovich, 3,785,775.
Purolator, Inc.: *See—*
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PVO International Inc.: *See—*
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Quaker Oats Company, The: *See—*
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Quebec Iron & Titanium Corporation: *See—*
Chlu, Shiu-Tang, 3,786,133.
Quesinberry, Arden L.; and Lawson, Edward J., to Westinghouse Electric Corporation. Circuit and method for arc protection of oinear beam devices. 3,786,275, Cl. 307-136.000.
Quinlan, William J.; and Huver, Lawrence L., to Hastings Manufacturing Company. Windshield wiper assembly. 3,785,002, Cl. 15-250.360.
Quinn, Brian P., to United States of America, Air Force. Aerodynamic nozzles in rectangular duct. 3,785,405, Cl. 138-39.000.
Raab, Hans: *See—*
Molls, Hans-Heinz; Hornle, Reinhold; Bucheler, Manfred; Raab, Hans; and Adrio, Joachim, 3,785,969.
Rabinowitz, Paul: *See—*
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Radici, Pierino: *See—*
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Radiometer A/S: *See—*
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Rain Jet Corporation: *See—*
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Hruby, John O., Jr., 3,785,560.
Rajnoha, Jaroslav; Bures, Ladislav; and Orlici, Usti Nad, to Elitex, Zavody Textilniho Strojirenstvi. Spinning unit for open end spinning machine. 3,785,138, Cl. 57-58.950.
Ramirez, Ramon, to Lee, Raymond, Organization, Inc., The. Iron pad. 3,785,599, Cl. 248-117.200.
Ramsey, Thomas Haliburton: *See—*
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Rank Organisation, Limited, The: *See—*
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Rapp, James E., to Owens-Illinois, Inc. Glasses of the Na_2O-K_2O-Nb_2O_5-SiO_2 system and glass ceramics made therefrom. 3,785,833, Cl. 106-39.600.
Rapp, James Erich, to Owens-Illinois, Inc. Glasses, glass-ceramics and process for making same. 3,785,834, Cl. 106-39.600.
Rassmann, Christoph: *See—*
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Reddick, Willis C., to International Telephone & Telegraph Corporation. Microphone mounting. 3,786,203, Cl. 179-146.00r.
Redemann, Hubert, to Linde Aktiengesellschaft. Expansion turbine separator. 3,785,128, Cl. 55-405.000.
Redington, Rowland W.: *See—*
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Redman Heenan Froude Limited: *See—*
McLean, Norman; Lewis, Donald Bernard, and McLaren, Robert John Lawson, 3,785,216.
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Redston, John P.: *See—*
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Reese Products, Inc.: *See—*
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Reese, Robert P.: *See—*
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Regan, Thomas. Tamper-proof odometer. 3,785,551, Cl. 235-95.000.
Regenbrecht, Ludwig: *See—*
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Reibold, Robert C. Moment activated transducer. 3,786,285, Cl. 310-8.500.
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Krause, Arthur Waldemar; and Hannah, Malcolm Edward, 3,786,037.
Reid, Colin David; and Ritchie, Ian Daniel, to United Kingdom Atomic Energy Authority. Methods and apparatus for distinguishing between bodies according to their translucency. 3,786,266, Cl. 250-222.00r.

Reid, Edward A., Jr.; Venendaal, Robert G.; and Myler, George W., to Columbia Gas System Service Corporation. Smooth top range. 3,785,364, Cl. 126-39.00j.
Reid, Jerome L.: *See—*
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Reimschussel, George Paul; and Ppins, Jacob Matthys, to Johns-Manville Corporation. Method for making a disposable face respirator. 3,786,126, Cl. 264-87.000.
Reinke, Friedhelm: *See—*
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Reis, Walter. Method of casting and subsequently deburring of workpieces and a device for carrying out the method. 3,785,045, Cl. 29-527.000.
Rel-Reeves, Inc., mesne: *See—*
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Renfrew, Edgar Earl, to American Aniline Products, Inc. Polyester fibers dyed with methylidynebis pyrazolone dyestuffs. 3,785,769, Cl. 8-179.000.
Rennicke, Kenneth A.: *See—*
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Rennie, John Coyne. Self-contained navigation system. 3,786,505, Cl. 343-7 0ed.
Republic Industrial Corporation: *See—*
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Reusser, Robert E.; and Turk, Stanley D., to Phillips Petroleum Company. Olefin disproportionation catalyst. 3,786,112, Cl. 260-683.00d.
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Reynolds, David J., to Buckeye Steel Castings. Cushion mounting bearing adapter for railway trucks. 3,785,298, Cl. 105-218.00r.
Reynolds, George A.: *See—*
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Rhinehart, Vance E.; Coffelt, James D.; and Yother, Floyd G., to Cumberland Corporation. Automated systems for raising and transporting broilers. 3,785,345, Cl. 119-18.000.
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Ribka, Joachim; and Schwerin, Siegfried, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for improving a disazo pigment. 3,785,843, Cl. 106-288.00q.
Riccio, Pasquale R., to Ciba-Geigy Corporation. Compressed air operated dispenser with air compression piston means movable laterally of the dispenser. 3,785,530, Cl. 222-193.000.
Rice, David E., to Minnesota Mining and Manufacturing Company. Catalyst for trimerizing polyisocyanates. 3,786,030, Cl. 260-77.5nc.
Rich, Everett W. Erratic movement tethered ball striking toy. 3,785,643, Cl. 272-78.000.
Richards, Powell; Susskind, Herbert; and Stang, Louis G., Jr., to United States of America, Atomic Energy Commission. Detection of impaired pulmonary function. 3,785,370, Cl. 128-2.080.
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Richter, Carl; Pluss, Kurt; and Feth, Georg, to Cilag-Chemie, A.G. Adamantyl urea derivatives. 3,786,056, Cl. 260-293.560.
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Yanagawa, Nobuyuki, 3,785,486.
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Ridley, John Cecil. Fluid pressure operated rotary actuators. 3,785,214, Cl. 74-89.210.
Ries, Donald L., to Rockwell International Corporation. Self-contained power transmitting assembly. 3,785,449, Cl. 180-6.480.
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Robertson, John A., to Mead Corporation, The. Apparatus and method for electrical precipitation. 3,785,118, Cl. 55-5.000.
Robinson, Morton; and Devor, Donald P., to Hughes Aircraft Company. Laser materials from calcium fluoride-rare earth fluoride expanded lattice structures. 3,786,365, Cl. 331-94.500.
Robinson, Murry M. Cutting punches for destroying hypodermic syringes. 3,785,233, Cl. 83-167.000.
Robinson, Thomas L., to Astronics Corporation. Solid state electroluminescent X-Y display panels. 3,786,307, Cl. 315-169.0tv.
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Rogers, George H. Self-cleaning aquarium. 3,785,342, Cl. 119-5.000.
Rogers, Howard G.: *See—*
Land, Edwin H.; Bloom, Stanely M.; and Rogers, Howard G., 3,785,814.
Rogers Machinery Company, Inc.: *See—*
Novak, Walter M.; and Thurmond, Fred A., Jr., 3,785,755.
Rohm & Haas Company: *See—*
Mattei, Victor; and Lane, Constance A., 3,785,848.
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Rohm and Haas Company: *See—*
Emmons, William D., 3,786,020.
Ono, Isao; Iiguni, Tetsuo; and Akashi, Mitsumasa, 3,786,000.
Rohn, William C. Deep trolling reel with temperature monitoring capability. 3,785,079, Cl. 43-4.000.
Rohosy, Soma M.: *See—*
Frye, Kenneth G.; Lucas, Robert G.; Seidel, Kenneth L.; and Rohosy, Soma M., 3,785,232.
Rohrbaugh, Donald G., to Beckman Instruments, Inc. Chemical analysis tube module. 3,785,773, Cl. 23-253.00r.
Rohrig, Klaus: *See—*
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.
Roitburd, Isaak Shlemovich: *See—*
Badenkov, Petr Fedorovich; Petrokas, Leonid Venediktovich; Portny, Gennady Lazarevich; Pukhova, Regina Lazarevna; Davidovich, Natalia Ivanovna; Roitburd, Isaak Shlemovich; Tsaplin, Nikolai Sergeevich; and Pinegin, Vladimir Alexandrovich, 3,785,905.
Roller, Kent G.: *See—*
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Romantsov, Vladimir Petrovich: *See—*
Pukhov, Georgy Evgenievich; Borkovsky, Boris Adamovich; Belik, Viktor Kirillovich; Romantsov, Vladimir Petrovich; and Katkov, Alexandr Fedorovich, 3,786,241.
Rompa, Jozef Johannes Theresia. Air line oilers. 3,785,461, Cl. 184-55.00a.

Ronci, Fernando M. Molded shoe and reinforcement therefore. 3,785,067, Cl. 36-4.000.

Rondestvedt, Christian Scriver, Jr., to Du Pont de Nemours, E. I., and Company. Fluorinated acrylic monomers containing hetero atoms and their polymers. 3,786,089, Cl. 260-561.00s.

Roos, Bjorn-Erik: *See*—
Corrodi, Hans Rudolf; Lycke, Nils Erik Oskar; and Roos, Bjorn-Erik, 3,786,143.

Ropson, Robert: *See*—
Flowerday, Peter; and Ropson, Robert, 3,785,977.

Rosch, Eduard, to Dixi S.A. Interference suppression device for logic signals. 3,786,276, Cl. 307-208.000.

Rosczak, Joseph S.: *See*—
Wilson, Ronald H.; Blumenfeld, Samuel M.; Redington, Rowland W.; and Rosczak, Joseph S., 3,786,294.

Rosenberg, Edgar N., to United States of America, Navy. Spherical module connectors. 3,785,313, Cl. 114-.50t.

Rosenquest, John B., Jr., to Dorr-Oliver, Incorporated. Swash-type impeller pumps. 3,785,574, Cl. 241-15.000.

Ross, Francis D., to Northrop Corporation. Chemical processing facility. 3,785,387, Cl. 134-95.000.

Ross, Gerald F.; Matthews, Hugh B.; and Robbins, Kenneth W., to Sperry Rand Corporation. Vehicle tire condition monitor system. 3,786,413, Cl. 340-58.000.

Ross, Milton Dean: *See*—
Busler, Willard Leroy; Ross, Milton Dean; and Schwartzer, Thomas Edward, 3,785,035.

Rossa, Lubomir: *See*—
Machacek, Frantisek; Minarik, Josef; Rossa, Lubomir; Koristek, Zdenek; and Brandstadter, Miroslav, 3,785,178.

Rosskopf, Philip A.: *See*—
Peppler, Richard B.; and Rosskopf, Philip A., 3,785,839.

Roszkowski, Gregory J., to Bio-Medical Sciences, Inc. Temperature indicator. 3,785,336, Cl. 116-114.500.

Roth, Robert A.: *See*—
Talbot, Richard C.; Ruse, Edward; and Roth, Robert A., 3,785,255.

Roth, Walter: *See*—
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Rothmans, Carreras, Limited: *See*—
Sylvester, Herbert A.; Partridge, Christopher M.; and Goss, Ira D., 3,785,384.

Rotondi, Paul C., to Dan Dee Belt & Bag Company, Inc. Method for manufacturing belts. 3,785,893, Cl. 156-198.000.

Rouse, Paul L.: *See*—
Francis, Robert L.; and Rouse, Paul L., 3,785,134.

Roussard, Richard D. Portable electric scatterbox for power distribution on a construction site. 3,786,312, Cl. 317-112.000.

Roussel, Jean, to SCAL, Societe de Conditionnements en Aluminium. Collapsible multi-compartment container. 3,785,545, Cl. 229-51.0db.

Roussel-UCLAF: *See*—
Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, 3,785,800.
Girault, Pierre; and Hagemann, Guy, 3,786,151.
Martel, Jacques; and Buendia, Jean, 3,786,070.
Perronnet, Jacques; and Girault, Pierre, 3,786,094.

Rowe International, Inc.: *See*—
Kurimsky, Albert, 3,786,206.

Rowell, Lorne A.; and Cartmell, James H., to Imasco Limited. Rotary tobacco dryer. 3,785,765, Cl. 432-107.000.

Royal Industries, Inc.: *See*—
Rishovd, Sigurd A., 3,785,424.

Royal Industries, Inc., mesne: *See*—
Sosalia, Harry, 3,785,441.

Royal Industries, mesne: *See*—
Gatz, William L.; and Rennicke, Kenneth A., 3,785,512.

Rubio, Manuel Jesus; and Leal, Victor Mario, to Barrera, Roberto Gonzalez. Determining hardness of soft materials. 3,785,201, Cl. 73-169.000.

Rudenko, Pavel Petrovich: *See*—
Mikhalsky, Fedor Mikhailovich; Gasparıants, Artemy Mikhailovich; Purlov, Jury Nikolaevich; Kulesh, Pavel Ivanovich; Rudenko, Pavel Petrovich; Ryabtsev, Alexei Nikolaevich; and Levi, Yakov Efimovich, 3,785,775.

Rudolph, Hans-Heinrich: *See*—
Bendler, Hellmut; Brede, Uwe; Gawlick, Heinz; and Rudolph, Hans-Heinrich, 3,785,292.

Ruggeberg, August, Firma: *See*—
Holzhauer, Rudolf, 3,785,094.

Ruse, Edward: *See*—
Talbot, Richard C.; Ruse, Edward; and Roth, Robert A., 3,785,255.

Ruskin, Sol. Exercising device. 3,785,646, Cl. 272-57.00d.

Russell, Ronald W.: *See*—
Davis, William F.; Russell, Ronald W.; Frederiksen, Thomas M.; and Long, Ernest L., 3,786,344.

Ruti Machinery Works Ltd.: *See*—
Strauss, Edgar H., 3,785,408.

Ruuska, Mauno: *See*—
Merenheimo, Markko; and Ruuska, Mauno, 3,785,665.
Merenheimo, Markku; and Ruuska, Mauno, 3,785,448.

Ruyle, William V.: *See*—
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Ryabtsev, Alexei Nikolaevich: *See*—
Mikhalsky, Fedor Mikhailovich; Gasparıants, Artemy Mikhailovich; Purlov, Jury Nikolaevich; Kulesh, Pavel Ivanovich; Rudenko, Pavel Petrovich; Ryabtsev, Alexei Nikolaevich; and Levi, Yakov Efimovich, 3,785,775.

Ryan, Jack E.; and Collin, Sylvan, to Dorwin, Walter League Associates Incorporated. Water purification apparatus. 3,785,490, Cl. 210-109.000.

Rynbrandt, Ronald H.; Cerda, Elisabeth S.; and Schmidt, Fredericka L., to Upjohn Company, The. Method of treating hyperglycemia. 3,786,156, Cl. 424-305.000.

Rynbrandt, Ronald H.; and Schmidt, Fredericka L., to Upjohn Company, The. Method of treating hyperglycemia. 3,786,157, Cl. 424-317.000.

S.A. DeTrenes Vertebrados: *See*—
Omar, Alejandro Goicoechea, 3,785,294.

Sabatine, Donald J.: *See*—
Cianciolo, Alfred D.; Sabatine, Donald J.; Scruggs, James A.; and Trotz, Samuel I., 3,785,890.

Sabo, Alex T.: *See*—
Smith, Roy B.; and Sabo, Alex T., 3,785,460.

Safe Well Manufacturing Company: *See*—
Handeland, George A., 3,785,525.

Sahs, Leonard J., to Amana Refrigeration, Inc. Noise reduction means for connecting refrigerant compressors in air conditioners. 3,785,167, Cl. 62-296.000.

Saiko, Alphons: *See*—
Spieldiener, Reinhold; Saiko, Alphons; and Spieldiener, Robert, 3,785,663.

Saint-Gobain: *See*—
Halberschmidt, Friedrich; and Audi, Josef, 3,785,229.

Salewsky, Gert, to Audi NSU Auto Union Aktiengesellschaft. Safety bracket for a motor car. 3,785,671, Cl. 280-87.00r.

Sally, Theodore J.: *See*—
Morris, Earl L.; and Sally, Theodore J., 3,785,396.

Salomon, Georges Pierre. Device for changing the longitudinal position of a ski binding. 3,785,666, Cl. 280-11.35t.

Salzdetfurth AG: *See*—
Eberle, Herbert; Meyer, Wolfgang; and Haase, Johann, 3,785,943.

Sam, Ahmad. Method for making abrasive articles. 3,785,938, Cl. 204-16.000.

Sama, Nicholas. Filtering device. 3,785,494, Cl. 210-169.000.

Samoilovich, Anatoly Grigorievich: *See*—
Pilat, Izrail Moiseevich; Samoilovich, Anatoly Grigorievich; Soliichuk, Kornei Denisovich; and Osipov, Eduard Vaganovich, 3,785,875.

Sandau, Hartmut, to Bosch, Robert, G.m.b.H. Radially yielding cylinder and piston arrangement. 3,785,253, Cl. 92-181.000.

Sander, Paul F., to I. O. Prague Corporation. Theft deterrent for office machines, television sets and small factory tools. 3,785,183, Cl. 70-58.000.

Sandoz Ltd.: *See*—
Frey, Walter; and Toth, Istvan, 3,786,073.
Mislin, Roland; and Uehlinger, Hanspeter, 3,786,040.

Sandoz-Wander, Inc.: *See*—
Schmutz, Jean; Hunziker, Fritz; and Kunzle, Franz Martin, 3,786,145.

Sandrik Aktiebolag: *See*—
Norgren, Lars Erik, 3,785,021.

Sandy Hill Corporation: *See*—
Keller, Martin B., 3,785,922.

Sankyo Company, Limited: *See*—
Mukaiyama, Teruaki; Ueki, Masaaki; and Suzuki, Manabu, 3,786,038.
Nagawa, Masatoshi; Suzuki, Yoshio; Matsui, Katsuaki; Iijima, Masaoki; and Tsurusaki, Yoshiyasu, 3,786,147.

Sano, Noboru; and Bando, Yoshihide, to Omron Tateisi Electronics Co. Programming apparatus. 3,786,239, Cl. 235-92.0pe.

Sansui Electric Co., Ltd.: *See*—
Iida, Hiroshi, 3,786,283.

Sanyo Chemical Company Ltd.: *See*—
Yonezawa, Toyozo, 3,786,079.

Saponara, Domenick, to International Telephone and Telegraph Corporation. Control apparatus. 3,786,273, Cl. 307-117.000.

Saponara, Domenick, to International Telephone and Telegraph Corporation. Control apparatus. 3,786,274, Cl. 307-117.000.

Sargent, Robert J., to Retsel Inc. Flexible cover assembly. 3,785,694, Cl. 296-98.000.

Sartorio, Franco, to D.E.A. Digital Electronic Automation S.p.A. Structure for measuring machines, machine tools and the like immune from the influence of variable, fixed or mobile loads acting on it, including the weight of the workpieces and from the infuence of the ground to which it is connected. 3,785,743, Cl. 408-143.000.

Sartorius, Guy, to Societe des Aciers Fins de l'Est. Process and apparatus for monitoring and control of metallurgical furnaces. 3,786,161, Cl. 13-12.000.

Sata, Masami: *See*—
Yamashita, Yutaka; and Sata, Masami, 3,785,988.

Satchell, Eric William, to Duraframe Systems Pty., Ltd., mesne. Roof trusses. 3,785,108, Cl. 52-645.000.

Satierfield, Richard Alan, to Northrup Corporation. Contrast detector for video tracking system. 3,786,183, Cl. 178-6.800.

Sato, Hiro: *See*—
Naito, Shotaro; Kasama, Ryoji; and Sato, Hiro, 3,786,466.

Sato, Hitoshi; Tanaka, Mitsuo; Nakamura, Michiharu; Takahashi, Susumu; and Kurono, Hirokazu, to Hitachi, Ltd. Package for mounting semiconductor device in microstrip line. 3,786,375, Cl. 333-84.00m.

Sato, Isao. Bobbin socket. 3,785,585, Cl. 242-118.310.

Sato, Jinichi; and Kurusu, Tosiro, to Sato Shokuhin Kogyo Kabushiki Kaisha. Process of manufacturing alcohol-containing solid matter. 3,786,159, Cl. 426-302.000.

Sato, Katsuyasu. Fuse-type circuit breaker. 3,786,388, Cl. 337-269.000.

Sato, Naotake: *See*—
Ariyoshi, Yasuo; Nagao, Masanori; Sato, Naotake; Shimizu, Akira; and Kirimura, Jiro, 3,786,039.

Sato, Shigetake: *See*—
Okuyama, Toru; Muta, Susumu; Sato, Shigetake; Tokiura, Shohei; and Miyasu, Akira, 3,786,006.

Sato Shokuhin Kogyo Kabushiki Kaisha: *See*—
Sato, Jinichi; and Kurusu, Tosiro, 3,786,159.

Sato, Yukihiro; and Ichinosawa, Toshiju, to Kabushiki Kaisha Daini Seikosha. Programmed signal generating apparatus. 3,786,236, Cl. 235-61.11e.

Sausaman, David K.; and Purcell, Robert F. Method for coating steel. 3,785,855, Cl. 117-75.000.

Sawaki, Tsukasa: *See*—
Kano, Gota; Fujiwara, Shohei; Iizuka, Mutsuo; Hasegawa, Hiromasa; and Sawaki, Tsukasa, 3,786,320.

SCAL, Societe de Conditionnements en Aluminium: *See*—
Roussel, Jean, 3,785,545.

Scanlan, Harry J., to Shoreline Precast Company. Floating factory for the manufacture of building components. 3,785,314, Cl. 114-.50f.

Schacht, Roy Arthur. Single commutation vertical wheel marking machine. 3,785,470, Cl. 197-6.400.

Schaeff, Hans. Multi-bucket excavating machine. 3,785,071, Cl. 37-90.000.

Schaerer, Andre. Method for the fabrication of insulated profile members. 3,786,121, Cl. 264-47.000.

Schafer, Josef, to Telesco Brophey, Limited. Telescopic umbrella. 3,785,388, Cl. 135-20.00r.

Schafet, Hugo W., to Motorola, Inc. Acoustic transducer including piexoelectric driving element. 3,786,202, Cl. 179-110.00a.

Schall, Wallace J.; and Van Horn, Richard F. High pressure portable tube bender. 3,785,190, Cl. 72-149.000.

Schaller, Willard W.; Martin, Ronald C.; and Sixt, Marty E., to Advanced Drainage Systems, Inc. Flexible fittings for corrugated tubing. 3,785,682, Cl. 285-24.000.

Schapp, David I.: *See*—
Sommeria, Marcel R.; and Schapp, David I., 3,786,331.

Schenk, Gerd; and Durhack, Werner, to Varta Aktiengesellschaft. Gastightly closed galvanic element. 3,785,874, Cl. 136-133.000.

Schepotiev, Alexandr Ivanovich: *See*—
Benderovsky, Vladimir Valerianovich; Schepotiev, Alexandr Ivanovich; Yastrebov, Igor Alexandrovich; and Kotenko, Viktoria Mikhailovna, 3,785,589.

Scher, Herbert I.: *See*—
Ungar, Israel S.; and Scher, Herbert I., 3,785,911.

Schering Corporation: *See*—
Steinman, Martin, 3,786,144.

Schertler, Siegfried, to VAT Aktiengesellschaft fur Vakuum Apparate-Technik. Quick-acting gate valve. 3,785,612, Cl. 251-43.000.

Schiff, Otto M.; and Rikis, Vitolds, to Coleman Systems. Reflex camera view finder. 3,785,270, Cl. 95-11.00v.

Schiffman, Murray M., to Cambridge Research and Development Group. Variable delay line signal processor for sound reproduction. 3,786,195, Cl. 179-15.55t.

Schijf, Johannes, to Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer. Pressure gauge. 3,785,209, Cl. 73-395.000.

Schiler, Frederick S., to Portage Machine Company. Statically balanced probe assembly. 3,785,056, Cl. 33-169.00r.

Schindler, Walter: *See*—
Blattner, Hans; and Schindler, Walter, 3,786,045.

Schinner, Edward N.: *See*—
Bradley, Wilson E., Jr.; and Schinner, Edward N., 3,785,626.

Schlafhorst, W., & Co.: *See*—
Kamp, Heinz, 3,785,175.

Schleidt, George Wilhelm, to Tremco Manufacturing Company, The. Bituminous emulsion-rubber latex compositions and method of depositing coagula therefrom. 3,785,852, Cl. 117-105.500.

Schlein, Herbert N.: *See*—
Avtges, James A.; Reid, Jerome L.; Schlein, Herbert N.; and Taylor, Lloyd D., 3,785,815.

Schlumberger Technology Corporation: *See*—
Liu, Olive Y.; and Wahl, John S., 3,786,267.

Schmerling, Louis, to Universal Oil Products Company. Preparation of alkyl substituted unsaturated polybasic acid anhydrides. 3,786,072, Cl. 260-345.900.

Schmerling, Louis; and Vesely, Jerome A., to Universal Oil Products Company. Production of polyalkyl phenols and polyalkyl naphthols by oxidation of polyalkyl benzenes and polyalkyl naphtholenes with HF-H_2O_2. 3,786,098, Cl. 260-586.00b.

Schmidt, Albrecht, to Gesellschaft fur Keinforschung mbH. Closed system neutron generator tube. 3,786,258, Cl. 250-501.000.

Schmidt, Ewald; Brachet, Hansvilli Von; Muller, Rolf; and Kindler, Horst, to Cassella Farbwerke Mainkur Aktiengesellschaft. Process for the preparation of acyl succinc acid dialkyl esters. 3,786,083, Cl. 260-483.000.

Schmidt, Fredericka L.: *See*—
Rynbrandt, Ronald H.; Cerda, Elisabeth S.; and Schmidt, Fredericka L., 3,786,156.
Rynbrandt, Ronald H.; and Schmidt, Fredericka L., 3,786,157.

Schmidt, George E.; and Schnell, Joseph F., to International Business Machines Corporation. Dynamic address translation reversed. 3,786,427, Cl. 340-172.500.

Schmidt-Kloiber, Heinz; and Schuy, Stefan, to Wolf, Richard, GmbH. Device for destroying stones in the bladder, in the ureter, in the kidneys and the like. 3,785,382, Cl. 128-328.000.

Schmitt, Jack N., to Truswal Systems, Inc. Apparatus and method for making trusses. 3,785,277, Cl. 100-41.000.

Schmitt, Volker; and Valten, Walter, to Brown, Boveri & Cie AG. Multipolar fault current protective switch. 3,786,381, Cl. 335-13.000.

Schmutz, Jean; Hunziker, Fritz; and Kunzle, Franz Martin, to Sandoz-Wander, Inc. 11-Basically substituted dibenz (b,f) (1,4) oxazepine compositions for treating emesis. 3,786,145, Cl. 424-250.000.

Schneider, Carl F.: *See*—
Pike, Brian R., 3,785,111.

Schneider, Gordon L. Modular floating structure. 3,785,312, Cl. 114-5.00f.

Schneider, William S.: *See*—
Pike, Brian R., 3,785,111.

Schnell, Joseph F.: *See*—
Schmidt, George E.; and Schnell, Joseph F., 3,786,427.

Schob, Otmar: *See*—
Vrieze, Wubbe; and Schob, Otmar, 3,785,891.

Schoener, Ronald C.: *See*—
King, Larry K.; Knapp, Lester L.; Schoener, Ronald C.; Kloap, Nicholas; Starner, Bernard M.; and Remper, John A., 3,786,135.

Schoenewaldt, Erwin F.; and Ihnen, Ernel D., to Merck & Co., Inc. Process for converting (-) reticuline to ( ) salutaridine. 3,785,927, Cl. 195-51.00r.

Schofield, Andrew Noel, to National Research Development Corporation. Hydraulic engineering installations. 3,785,158, Cl. 61-1.000.

Schofield, John Allan; and Delano, Roger Albert, to Union Carbide Corporation. Ternary azeotropic cleaning solution based on tetradich-lorodifluoroethane. 3,785,987, Cl. 252-171.000.

Scholz, Werner, to Ted Bildplatten Aktiengesellschaft AEG-Telefunken. Circuit for producing a three line sequential color television signal. 3,786,178, Cl. 178-5.4cd.

Schoolcraft, Jim F.: *See*—
Crocker, Roger A.; and Schoolcraft, Jim F., 3,785,506.

Schott, Stuart: *See*—
Murib, Jawad H.; Schott, Stuart; and Bonecutter, Charles A., 3,786,128.

Schoumaker, Henry R. P. J., to La Soudure Electrique, Procedes Arcos. Plasma curtain of two or more plasmas. 3,786,306, Cl. 315-111.000.

Schrader, Paul D., to General Electric Company. Room air conditioner frost protection with bimetal control thermostat. 3,785,166, Cl. 62-227.000.

Schrage, Donald J., to Aqua-Chem, Inc. Incinerator. 3,785,305, Cl. 110-8.00a.

Schramm, Eugene Charles, to Bell Telephone Laboratories, Incorporated. Tape transport reel servo system. 3,785,588, Cl. 242-188.000.

Schrepfer, Michael W., to Universal Oil Products Company. Catalytic reforming of a relatively lean charge stock in a two-step process. 3,785,961, Cl. 208-139.000.

Schroeder Brothers Corporation: *See*—
Walters, William C.; and Zabinski, Ronald A., 3,785,734.

Schroeder, Collin H.; Lechnir, Richard J.; Cleveland, Peter G.; Deluca, Hector F.; and Derse, Philip H., to Wisconsin Alumni Research Foundation. 22-Dehydro-25-hydroxychloecalciferol and process for preparing same. 3,786,062, Cl. 260-397.200.

Schuh, Eduard: *See*—
Zimmermann, Hans; Schuh, Eduard; and Kelch, Heinz, 3,786,513.

Schultz, Peter C., to Corning Glass Works. Use of SiO_2-Nb_2O_5 and/or Ta_2O_5 glasses as ultraviolet filters. 3,785,722, Cl. 350-320.000.

Schulz, Hans-Peter: *See*—
Kraemer, Friedrich; Mandel, Jorn; Mayer, Siegfried; Rohrig, Klaus; Schulz, Hans-Peter; Weidenmuller, Hilmar; Haverkamp, Klaus Dieter; and Motz, Jurgen, 3,785,632.

Schulz, Manfred B.; and Holland, Melvin G., to Raytheon Company. Temperature compensated acoustic surface wave device. 3,786,373, Cl. 333-30.00r.

Schutze, Rainer. Harpsichord mechanism. 3,785,237, Cl. 84-258.000.

Schuy, Stefan: *See*—
Schmidt-Kloiber, Heinz; and Schuy, Stefan, 3,785,382.

Schwartz, Newton: *See*—
Peters, Frank Groom; and Schwartz, Newton, 3,786,323.

Schwartzer, Thomas Edward: *See*—
Busler, Willard Leroy; Ross, Milton Dean; and Schwartzer, Thomas Edward, 3,785,035.

Schwarz, Max: *See*—
Walz, Klaus; Gerlach, Klaus; and Schwarz, Max, 3,785,768.

Schwarze, Werner: *See*—

Chapman, Trevor; Schwarze, Werner; and Weigert, Wolfgang, 3,786,053.

Schweitzer, H. E., AG: *See*—
Schweitzer, Hans E.; and Huber, Ernst, 3,785,098.

Schweitzer, Hans E.; and Huber, Ernst, to Schweitzer, H. E., AG. Composite panel structure. 3,785,098, Cl. 52-663.000.

Schwerin, Siegfried: *See*—
Ribka, Joachim; and Schwerin, Siegfried, 3,785,843.

Schwing, Richard C., to General Motors Corporation. Engine with exhaust reactor arranged for early ignition. 3,785,153, Cl. 60-303.000.

Scoggin, Jack S., to Phillips Petroleum Company. Alkali metal sulfide-arylene sulfide polymer. 3,786,035, Cl. 260-79.100.

Scolatti, Charles A.: *See*—
Von Ohain, Hans J. P.; Mills, Roscoe H.; and Scolatti, Charles A., 3,785,593.

Scopacasa, Frederick L. Electric level. 3,786,472, Cl. 340-282.000.

Scott & Fetzer Company, The: *See*—
Edwards, James D., 3,786,208.

Scott, Charles Hamilton. Keypunch acoustic cover. 3,785,452, Cl. 181-33.00k.

Scott, William P., to Continental Oil Company. Low-temperature lubricating greases. 3,785,974, Cl. 252-28.000.

Scozzafava, James Joseph. Combined riser tensioner and drill string heave compensator. 3,785,445, Cl. 175-5.000.

Scruggs, James A.: *See*—
Cianciolo, Alfred D.; Sabatine, Donald J.; Scruggs, James A.; and Trotz, Samuel I., 3,785,890.

Sealed Air Corporation: *See*—
Fielding, Alfred W., 3,785,899.

Seaquist Valve Company: *See*—
Hoening, Kevin J., 3,785,571.

Sebulsky, Raynor T.: *See*—
Giannetti, Joseph P.; McIlvried, Howard G.; and Sebulsky, Raynor T., 3,786,108.

Sedlarik, Jaroslav, to Elitex, Zavody textilniho strojirenstvi Generalni reditelstvi. Winding stop motion for textile winding machines. 3,785,581, Cl. 242-39.000.

Seem, Warren A.; Stoddard, Nicholas J.; and Stoddard, Robert W., to Leesona Corporation. Producing torque controlled voluminous set yarns. 3,785,135, Cl. 57-34.0hs.

Seidel, Kenneth L.: *See*—
Frye, Kenneth G.; Lucas, Robert G.; Seidel, Kenneth L.; and Rohosy, Soma M., 3,785,232.

Seiko Koki Kabushiki Kaisha: *See*—
Kitai, Kiyoshi, 3,785,259.

Seipp, Ronald W.; and McClure, Harold E., to Thermo King Corporation. Heat exchanger defrost apparatus. 3,786,227, Cl. 219-201.000.

Seitz, Carl R. Fishing bait sinker. 3,785,078, Cl. 43-43.140.

Sekiya, Hitoshi: *See*—
Terai, Shiro; Suzuki, Toshio; Hasegawa, Yoshihumi; Sekiya, Hitoshi; Matuo, Hiroto; and Kimata, Shizuo, 3,785,946.

Semkin, Alexei Trofimovich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Setterquist, Robert Alton, to Du Pont de Nemours, E. I., and Company. Method for preparing random copolymers of formaldehyde and olefin oxide silane and/or vinyl ether silyl. 3,786,027, Cl. 260-67.0fp.

Seulen, Gerhard; and Reinke, Friedhelm, to AEG-Elotherm GmbH. Method of operation when hot straightening elongated workpieces. 3,785,883, Cl. 148-131.000.

Seyd, Gunther: *See*—
Bergbauer, Axel; Ploger, Manfred; and Seyd, Gunther, 3,785,291.

Seymour, William B. Adjustable anchor bolt and block building and leveling means. 3,785,097, Cl. 52-126.000.

Shaffer, Walter M., to Towmotor Corporation. Transverse-traveling load handling vehicle. 3,785,515, Cl. 214-75.00g.

Shakespear, Horacio, to General Motors Corporation. Vehicle suspension system. 3,785,672, Cl. 280-112.00a.

Shakhpazov, Khristofor Sergeevich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Shalit, Harold; and Tomezsko, Edward S. J., to Atlantic Richfield Company. Hydrogen generation. 3,786,138, Cl. 423-698.000.

Shank, Charles Vernon: *See*—
Bjorkholm, John Ernst; Shank, Charles Vernon; and Sosnowski, Patrick, 3,786,368.

Sharapov, Jury Nikolaevich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Shaver, Robert G.; and Burton, Joe M., to Atlantic Research Corporation, mesne. Nitrocellulose gas-generating composition containing a polyethylene glycol. 3,785,888, Cl. 149-38.000.

Shea, Edward T., to Reliable Automatic Sprinkler Company, Inc., The. Pressure monitor and transducer. 3,785,440, Cl. 169-20.000.

Shearer, John Marshal, to Leyman Manufacturing Corporation. Coupler device for a cart. 3,785,678, Cl. 280-491.00b.

Sheedy, Patrick T.: *See*—
Koenig, Martin F.; Dempsey, George A., Jr.; and Issa, Manuel, 3,786,394.

Shelby, Richard K.: *See*—
Logomasini, James C.; and Shelby, Richard K., 3,785,761.

Shell Oil Company: *See*—
Birke, August H., 3,785,979.
Hunter, Leon, 3,786,003.
Strang, Aart, 3,785,790.
Van Klinken, Jakob, 3,785,967.

Shen, Tsung-Ying; Ruyle, William V.; Fordice, Michael W.; and Jensen, Norman P., to Merck & Co., Inc. Diphenyl sulfones. 3,786,050, Cl. 260-239.600.

Shepard, Lyman K.; and Zilahy, Zoltan E., to Standard Tool & Manufacturing Co. Nonsynchronous conveyor system. 3,785,031, Cl. 29-200.00a.

Sherlock, Mary Ellen. Removable table covering. 3,785,419, Cl. 150-52.00r.

Sherman, Frederick A., to GTE Information Systems Incorporated. Data transfer apparatus. 3,786,435, Cl. 340-172.500.

Shibata, Motoo; Higashide, Eiji, Hatano, Kazunori; Mizumo, Komei; Asai, Mitsuko; and Muroi, Masayuki, to Takeda Chemical Industries, Ltd. Antibiotic enduracidin and process for the production thereof. 3,786,142, Cl. 424-118.000.

Shiki, Zenya: *See*—
Amagi, Yasuo; Shiki, Zenya, Ohsumi, Yukihiko; and Noguchi, Kazuo, 3,786,134.

Shimanckas, William J., to Outboard Marine Corporation. Combined reverse lock and swivel bracket holding mechanism. 3,785,329, Cl. 115-41.000.

Shimizu, Akira: *See*—
Ariyoshi, Yasuo; Nagao, Masanori; Sato, Naotake; Shimizu, Akira; and Kirimura, Jiro, 3,786,039.

Shimizu, Isamu: *See*—
Inoue, Eiichi; Shimizu, Isamu, Endo, Ichiro, and Kobayashi, Hajime, 3,785,820.

Shimoda, Keitaro; Obama, Isamu; and Kusunose, Takamaro, to Japan Exlan Company Limited. Process for producing acrylic synthetic fibers of non-circular cross-section and with improved sparkle. 3,786,125, Cl. 264-177.00f.

Shimose, Namio: *See*—
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,246.
Ohno, Tadao; Shimose, Namio; and Konomi, Shunzi, 3,785,247.

Shinn, David M., to Autobar Systems Corporation. Dispensing apparatus. 3,785,526, Cl. 222-14.000.

Shira, Jerry P., to Kyoda Plastics, Limited. Integral hinged wiring raceway. 3,786,171, Cl. 174-48.000.

Shockley, Quentin O.: *See*—
Hodshire, James O.; Shockley, Quentin O.; and Crouse, Don E., 3,785,785.

Shope, Leonard L.: *See*—
Binger, Wynn S.; Shope, Leonard L.; and Moey, Glenn W., 3,785,705.

Shoreline Precast Company: *See*—
Scanlan, Harry J., 3,785,314.

Shottenfeld, Richard: *See*—
Abilock, Solomon; and Shottenfeld, Richard, 3,786,265.

Shrader, Terry Monroe, to RCA Corporation. Cathode-ray-tube-yoke platform - yoke combination and method of assembling the combination. 3,786,185, Cl. 178-7.800.

Shure, David M., to Bendix Corporation, The. Holographic system. 3,786,367, Cl. 331-94.50c.

Sibley, Louis F., 1/2 to Gillespie Corporation. Foldable jack and/or baggage carrier for a snow mobile. 3,785,541, Cl. 224-42.080.

Sibley, Louis F., 1/2 to Gillespie Corporation. Vehicle bumper. 3,785,688, Cl. 293-62.000.

Sidebottom, Ronald: *See*—
Price, David Watkin; Sidebottom, Ronald; Briscoe, Murray George; and Moore, Ronald Charles, 3,786,011.

Sidell, Philip A., to McGraw-Edison Company. Synchronous motor. 3,786,291, Cl. 310-162.000.

Siemens Aktiengesellschaft: *See*—
Adelhed, Ter Je Roj Enok, 3,785,683.
Basse, Paul-Werner, 3,786,277.
Baumgartner, Heinrich, 3,786,477.
Bergbauer, Axel; Ploger, Manfred; and Seyd, Gunther, 3,785,291.
Boning, Walter; and Leistner, Werner, 3,786,293.
Heywang, Hermann; and Hoyler, Gerhard, 3,786,224
Hubner, Klaus, 3,786,326.
Veith, Werner, 3,786,302.

Siemens-Albis AG: *See*—
Hadbavny, Jozef; and Fuglister, Peter, 3,786,371.

Sienczyk, John L.: *See*—

Newton, Emerson H.; Ketteringham, John M.; Sienczyk, John L.; and Isaacson, Calvin M., 3,785,950.

Siewert, Robert M.: *See*—
Pozniak, Donald J.; and Siewert, Robert M., 3,785,152.

Sifre, Gaston: *See*—
Lambert, Andre; Soury, Jean-Pierre; and Sifre, Gaston, 3,785,205.

Sillay, Roy S., to Celanese Corporation. Stable fiber package comprising overlying wraps of a fibrous tape. 3,785,483, Cl. 206-59.00a.

Silverman, Alan, to American Can Company. Method for heat treating a polar, dielectric parison. 3,786,221, Cl. 219-10.570.

Silverwater, Bernard F., to Pall Corporation. Magnetic pressure indicator. 3,785,332, Cl. 116-70.000.

Simon, David Gavin: *See*—
Jennings, James Robert; and Simon, David Gavin, 3,786,032.

Simpro Corporation of America: *See*—
Penick, Ib, 3,785,260.

Simpson, John I.: *See*—
Hogan, Elmer R.; and Simpson, John I., 3,785,007.

Sims, Larry A.: *See*—
Fortin, Robert F.; and Sims, Larry A., 3,785,367.

Singer Company, The: *See*—
Ketterer, Stanley J., 3,785,309.
Mecklenborg, Richard A., 3,785,715.
Mischon, Lester, 3,785,174.

Singh, Suman P. N.: *See*—
Hart, Walter C.; and Singh, Suman P. N., 3,785,161.

Sinohad, Dosan, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Brightness control for a color cathode ray tube. 3,786,483, Cl. 340-324.00a.

Sintermetallwerk Krebsoge G.m.b.H.: *See*—
Zapf, Gerhard, 3,785,038.

Sitte, Hellmuth, to Reichert, C., Optische Werke AG. Device for an infinite adjustment of the specimen stroke in microtomes and ultramicrotomes. 3,785,234, Cl. 83-414.000.

Sittmann, Brigitte, to Vereinigte Baubeschlagfahriken Gretsch & Co. G.m.b.H. Heel supporting device of a ski safety binding. 3,785,664, Cl. 280-11.35t.

Sixt, Marty E.: *See*—
Schaller, Willard W.; Martin, Ronald C.; and Sixt, Marty E., 3,785,682.

Skagit Corporation: *See*—
Cheldelin, Lyle O.; and Myhre, Curth, 3,785,504.

Skov, Ebbe R.; Judge, Roderick B.; and Hamphill, Geoffrey, to Grace, W. R., Company. Process for preparing ammonium salts of alkanoic acids. 3,786,086, Cl. 260-540.000.

Skripnik, Ivan Timofeevich: *See*—
Groza, Viktor Filimonovich; Drozdov, Nikolai Ivanovich; Sharapov, Jury Nikolaevich; Garbovitsky-Gordon, Alexandr Iosipovich; Shakhpazov, Khristofor Sergeevich; Filatov, Nikolai Grigorievich; Skripnik, Ivan Timofeevich; Semkin, Alexei Trofimovich; Vasiliev,Vladimir Ivanovich; Judin, Valentin Dmitrievich; Belenky, Evgeny Jurievich; Grigorenko, Anatoly Evgenievich; and Baryshnikov, Gennady Fedorovich, 3,785,139.

Skuin, Petar: *See*—
Hajdu, Johann; Knauft, Guenter; Skuin, Petar; and Vogt, Edwin, 3,786,430.

Skuran, Victor: *See*—
Waite, William; and Skuran, Victor, 3,785,407.

Slimowicz, Chester; and Welch, Walter J., to GAF Corporation. Diazotype materials for blackline images. 3,785,826, Cl. 96-75.000.

Sly, Larry D., to United States of America, Army, mesne. Magnetic thin film memory packaging design. 3,786,444, Cl. 340-174.tfm.

Smith, Albert C. Liquid propulsion apparatus and method of fabrication. 3,785,327, Cl. 115-16.000.

Smith, Allen E.: *See*—
Soldati, Gianluigi; and Smith, Allen E., 3,786,092.

Smith, Arthur W.: *See*—
Collins, Leslie C.; and Smith, Arthur W., 3,785,464.

Smith, Charles L.: *See*—
Minnick, Leonard John; Webster, William C.; and Smith, Charles L., 3,785,840.

Smith, David F. Plaster of Paris bandages to make water-resistant casts. 3,785,373, Cl. 128-91.000.

Smith, David F. Plaster of Paris bandages to make casts of improved strength, water-resistance and physiological properties. 3,785,479, Cl. 206-47.00a.

Smith, Ernest L., to Phillips Petroleum Company. Tray with strengthening member. 3,785,544, Cl. 229-14.0be.

Smith, Gordon: *See*—
Bates, John Joseph; Jackson, Eric Arthur; and Smith, Gordon, 3,786,511.

Smith, Harvey E.: *See*—
Finley, Dewayne W.; Smith, Harvey E.; and Fishwild, Owen L., 3,786,078.

Smith, Howard, Company: *See*—
Smith, Howard F., III, 3,785,409.

Smith, Howard F., III, to Smith, Howard, Company. Clamping apparatus for resistance welding of multiple wires forming a well screen. 3,785,409, Cl. 140-92.200.

Smith, James S.: *See*—
Chiola, Vincent; Smith, James S.; and Vanderpool, Clarence D., 3,785,019.

Smith, John A.: *See*—
Genese, Joseph N.; Rapoza, Edward J.; Galanaugh, Charles F.; Kennard, Harry M.; Chevalez, Roger A.; and Smith, John A., 3,785,533.

Smith, John D., to Wellman Industries. Carousel aligning apparatus. 3,785,524, Cl. 221-122.000.

Smith, Joseph B., to Pipe Line Development Company, The. Method for plugging pipe. 3,785,041, Cl. 29-471.300.

Smith, M. Kent. Dice maze puzzle. 3,785,651, Cl. 273-113.000.

Smith, Marvin F., to Esso Research and Engineering Company. Apparatus for testing shear stability of lubricants. 3,785,196, Cl. 73-64.000.

Smith, Raymond Peter, Jr., to Craftmaster, Inc. Oil reclaiming device for removing oil from the surface of water. 3,785,496, Cl. 210-242.000.

Smith, Robert M. Security coupling. 3,785,670, Cl. 280-79.100.

Smith, Roy B.; and Sabo, Alex T., to Moore, Samuel, & Company. Lubricator. 3,785,460, Cl. 184-43.000.

Smith, Walter E. Fret board for guitar. 3,785,239, Cl. 84-314.000.

Smith, Wesley A. Door operator. 3,785,089, Cl. 49-139.000.

Smith, William R., to Cincinnati Milacron Inc. Dispensing shipping container with funnel-type pallet. 3,785,534, Cl. 222-460.000.

Smith-Bergen Manufacturing Corporation: *See*—
Hogan, Elmer R.; and Simpson, John I., 3,785,007.

Smitherman, John B. Pollution control apparatus for smoke emitter. 3,785,126, Cl. 55-228.000.

Smokontrol Corporation of America: *See*—
Burstein, Norman; and Ditzler, Richard C., 3,785,778.

Snider, Harold B., to Thermo-O-Disc Incorporated. Terminal construction. 3,786,398, Cl. 339-95.00r.

Societa' Italiana Resine S.p.A.: *See*—
Ackermann, Jacob; and Radici, Pierino, 3,786,026.

Societe a Responsabilite Limitee dite: MAR-PHA Societe d'Etudes d'Exploitation de Marques: *See*—
Mardiguian, Jean; and Fournier, Pierre, 3,786,060.

Societe Anonyme Antar-Petroles de L'Atlantique: *See*—
Patouillet, Jean, 3,785,953.

Societe Anonyme D.B.A.: *See*—
Tanguy, Christian, 3,785,393.

Societe Anonyme des Etablissements Roure Bertrand Fils & Justin Dukent: *See*—
Teisseire, Paul Jose; and Auger, Bernard, 3,786,075.

Societe Anonyme dite: Stein Industrie: *See*—
Desbordes, Jean, 3,785,576.

Societe Anonyme: Ciments Lafarge: *See*—
Delacroix, George; and Beneytoot, Lucien, 3,785,764.

Societe d'Applications Generales d'Electricite et de Mecanique: *See*—
Berger, Henri, 3,786,459.

Societe des Aciers Fins de l'Est: *See*—
Sartorius, Guy, 3,786,161.

Societe d'Etudes de Machines Speciales S.A.: *See*—
Chambon, Louis Jean, 3,785,285.

Societe d'Etudes Fabrications, Installations et Manutention en Abrege EFIM S.A.: *See*—
Le Jeune, Gwenole Jean-Claude, 3,785,280.

Societe d'Oplique, Precision Electronique et Mechanique-Sopelem: *See*—
Czapek, Andre Louis, 3,785,218.

Societe d'Optique, Precision, Electronique et Mecanique-Sopelem: *See*—
Lardeau, Jacques, 3,785,265.

Societe Generale de Constructions Electriques et Mecaniques (Alsthom): *See*—
Lambert, Andre; Soury, Jean-Pierre; and Sifre, Gaston, 3,785,205.

Societe Nationale des Poudres et Explosifs: *See*—
Vaganay, Jean; and Ousset, Robert A., 3,785,889.

Sofianek, Joseph C., to General Electric Company. Interleaving-rod type vacuum interrupter having two breaks in series between each pair of rods. 3,786,214, Cl. 200-144.00b.

Soguel, Rene. Watchcase comprising at least a two-piece casing assembly. 3,785,142, Cl. 58-90.00r.

Soldati, Gianluigi; and Smith, Allen E., to Uniroyal, Inc. 3-nitropropionic acid derivatives. 3,786,092, Cl. 260-561.00r.

Soliichuk, Kornei Denisovich: *See*—
Pilat, Izrail Moiseevich; Samoilovich, Anatoly Grigorievich; Soliichuk, Kornei Denisovich; and Osipov, Eduard Vaganovich, 3,785,875.

Sommeria, Marcel R.; and Schapp, David I., to Hyper-Loop, Inc. Digital tracer. 3,786,331, Cl. 318-570.000.

Sommeria, Marcel R., to Hyper-Loop Inc. Digital regulating control for servo system. 3,786,333, Cl. 318-604.000.

Sony Corporation: *See*—
Narahara, Hisaaki; Numakura, Toshihiko; and Watanabe, Yoshimi, 3,786,176.
Tsurushima, Katsuaki, 3,786,193.
Yanagisawa, Yuzuru, 3,786,487.

Sorkin, Sam A., to Teledyne Exploration Company. Sweep signal seismic exploration. 3,786,409, Cl. 340-15.5cc.

Sosalia, Harry, to Royal Industries, Inc., mesne. Hinge construction. 3,785,441, Cl. 172-311.000.

Sosnowski, Patrick: *See*—
Bjorkholm, John Ernst; Shank, Charles Vernon; and Sosnowski, Patrick, 3,786,368.

Soury, Jean-Pierre: *See*—
Lambert, Andre; Soury, Jean-Pierre; and Sifre, Gaston, 3,785,205.

S.p.A. Virginio Rimoldi & C.: *See*—
Marforio, Nerino, 3,785,310.
Spain, Robert J., to Cambridge Memories, Inc. Magnetic thin film shift register having bidirectional transmission elements and alternately-paired block sites. 3,786,451, Cl. 340-174.0fb.
Specht, Donald P.: *See*—
Drexhage, Karl H.; Reynolds, George A.; and Specht, Donald P., 3,786,369.
Special Metals Corporation: *See*—
Bailey, Ronald E., 3,785,876.
Bailey, Ronald E., 3,785,877.
Specialty Products Development Corporation: *See*—
Timmerman, Hubert G., 3,785,149.
Speedrack Inc.: *See*—
Konstant, Anthony N., 3,785,502.
Spees, Arthur T., to Visu-Flex Company. Filing system and elements thereof. 3,785,520, Cl. 220-221.000.
Spence, Wendell, to National Cash Register Company, The. Stored charge transducer. 3,786,495, Cl. 340-365.00c.
Spencer, Gilbert W., to Reynolds, R. J., Tobacco Company. Apparatus for detecting and capturing defective articles. 3,785,487, Cl. 209-82.000.
Spencer, Keith Louis: *See*—
Kittle, Carl Edwin; and Spencer, Keith Louis, 3,785,157.
Sperling, Phillip. Fabric hanging and pleating bracket. 3,785,426, Cl. 160-327.000.
Sperry, Gene, to American Chain & Cable Co., Inc. Automatic lifting device. 3,785,691, Cl. 294-64.00r.
Sperry Rand Corporation: *See*—
Hilburn, Hugh C., 3,786,303.
Kroger, Harry, 3,786,316.
Lonnemo, Kurt R.; and Bergstedt, Jan O., 3,785,398.
Ross, Gerald F.; Matthews, Hugh B.; and Robbins, Kenneth W., 3,786,413.
Spiegelberg, Hans: *See*—
Kyburz, Emilio; and Spiegelberg, Hans, 3,786,095.
Spieldiener, Reinhold; Saiko, Alphons; and Spieldiener, Robert. Braking device for a ski. 3,785,663, Cl. 280-11.13b.
Spieldiener, Robert: *See*—
Spieldiener, Reinhold; Saiko, Alphons; and Spieldiener, Robert, 3,785,663.
Spinner, Georg. Plug fitting for HF transmission lines. 3,786,377, Cl. 333-98.00r.
Spitz, Erich; and Bismuth, Guy, to Thomson-CSF. Small-sized optical correlator. 3,785,736, Cl. 356-71.000.
Staadt, Charles R.: *See*—
Behunin, Gage B.; Cole, Eugene A.; and Staadt, Charles R., 3,785,454.
Staar, Marcel Jules Helene. Selector for apparatus for automatically playing back information. 3,786,475, Cl. 340-324.00a.
Staempfli, Jackie. Maximum level detector. 3,786,464, Cl. 340-245.000.
Stafford, Cleo. Cushion insole for shoes. 3,785,070, Cl. 36-44.000.
Stafford, John: *See*—
Birchall, James Derek; Cassidy, John Edward; Stafford, John; and Last, Anthony Graham Marshall, 3,785,845.
Stafford, Larry O.; Wentworth, William P.; and Melead, James J., to Beloit Corporation. Metering bar. 3,785,340, Cl. 118-101.000.
Stageberg, Wilfred E., to Minnesota Mining and Manufacturing Company. Label applying device. 3,785,909, Cl. 156-541.000.
Stainforth, Thomas Raymond: *See*—
Hanney, Philip Michael; Stainforth, Thomas Raymond; and Bland, William Arthur, 3,785,173.
Stalmach, Charles J., Jr., to LTV Aerospace Corporation. Cooling system, employing heat-expandable means, for an aerodynamically heated vehicle. 3,785,591, Cl. 244-1.0sc.
Stambler, Leon. Validation systems for credit card or the like. 3,786,420, Cl. 340-149.00a.
Stamford Research Institute: *See*—
Macovski, Albert, 3,786,180.
Stamm, David Paul, to Conoflow Europa N.V. Blade joint. 3,785,757, Cl. 418-255.000.
Stanadyne, Inc.: *See*—
Hodgkins, David H., 3,785,970.
Standard Brands, Inc.: *See*—
Finley, Dewayne W.; Smith, Harvey E.; and Fishwild, Owen L., 3,786,078.
Standard Oil Company: *See*—
Cartmell, Robert R., 3,785,782.
Standard Oil Company, The: *See*—
Jones, Arthur L., 3,786,109.
Talsma, Herbert, 3,786,041.
Standard Products Company, The: *See*—
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Standard Tool & Manufacturing Co.: *See*—
Shepard, Lyman K.; and Zilahy, Zoltan E., 3,785,031.
Stanford Research Institute: *See*—
Anbar, Michael; and Berth, William H., 3,786,249.
Stang, Louis G., Jr.: *See*—
Richards, Powell; Susskind, Herbert; and Stang, Louis G., Jr., 3,785,370.
Stang, Peter L.: *See*—
Poole, Donald R.; Stang, Peter L.; and Mars, James E., 3,785,674.
Staples, John, to Mitchel & King Skates Limited. Ice skates. 3,785,662, Cl. 280-11.170.
Stark Brabant N.V.: *See*—
Vertegaal, Jacobus Gerardus, 3,785,284.
Starkey, Charles O.: *See*—
Molaskey, Charles E.; and Starkey, Charles O., 3,785,699.
Starner, Bernard M.: *See*—
King, Larry K.; Knapp, Lester L.; Schoener, Ronald C.; Kloap, Nicholas; Starner, Bernard M.; and Remper, John A., 3,786,135.
Stauffer Chemical Company: *See*—
Teach, Eugene G., 3,786,016.
Steck, Edward James. Support bracket for lanterns and the like. 3,785,604, Cl. 248-231.000.
Steele, Richard C., to Cleveland Twist Drill Company, The, mesne. Rotary indexing machine. 3,785,223, Cl. 74-815.000.
Stefani, Joseph P., to General Electric Company. Pawl and ratchet indexing mechanism for on-off switching. 3,785,215, Cl. 74-142.000.
Steiger, Anton, to Sulzer Brothers Limited. Piston-type machine. 3,785,250, Cl. 92-72.000.
Stein, Jesse J. Direct current motor system. 3,786,287, Cl. 310-46.000.
Stein, Wolfgang J.; and Straniti, Salvatore, to Avco Corporation. Thermal damper for plate type heat exchangers. 3,785,435, Cl. 165-76.000.
Steiner, Paul D.: *See*—
Ludwig, John T.; and Steiner, Paul D., 3,786,383.
Steinitz, Robert, to Driver, Wilbur B., Company. Permanent magnet alloy using molybdenum. 3,785,808, Cl. 75-170.000.
Steinman, Martin, to Schering Corporation. 1-Polyfluoroalkyl benzodiazepines. 3,786,144, Cl. 424-244.000.
Stella, Joseph A.: *See*—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,785,725.
Stendig, Joseph L.; and Davis, Claude A. Security system. 3,786,502, Cl. 340-416.000.
Stenger, Harvey G.: *See*—
Buonocore, Salvatore; Stenger, Harvey G.; and Privon, George T., 3,785,453.
Stephenson, Michael J.: *See*—
Merriman, James R.; Pashley, John H.; Stephenson, Michael J.; and Dunthorn, David I., 3,785,120.
Sterlicchi, Pasquale J. Jogger ball. 3,785,642, Cl. 272-70.000.
Sterling Drug, Inc.: *See*—
Brundage, R. Pauline; and Lesher, George Y., 3,786,043.
Stewart, Calvin R. Flow control valve for intravenous fluids. 3,785,378, Cl. 128-214.00c.
Stickle, Daniel T. Taco shell machine. 3,785,273, Cl. 99-404.000.
Stock Equipment Company: *See*—
Lasky, Ronald J., 3,786,354.
Stoddard, Nicholas J.: *See*—
Seem, Warren A.; Stoddard, Nicholas J.; and Stoddard, Robert W., 3,785,135.
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Seem, Warren A.; Stoddard, Nicholas J.; and Stoddard, Robert W., 3,785,135.
Stoeck, Georg: *See*—
Lauer, Karl, Bodka, Heinz-Gunter; and Stoeck, Georg, 3,785,864.
Stoffregen, Gunter. Door check attachment. 3,785,004, Cl. 16-49.000.
Stoltz, James F.: *See*—
Brown, Donald R.; Masopust, Otto I., Jr., and Stoltz, James F., 3,786,322.
Stone, Leslie F., to Richardson Company, The. Mill apron automatic can filling machine. 3,785,412, Cl. 141-83.000.
Stone, Louis Earl, to Texas Instruments, Incorporated. Epitaxial solution growth of ternary III-V compounds. 3,785,885, Cl. 148-172.000.
Stookey, Kenneth W. Method and apparatus for the thermal reduction of rubber or plastic material. 3,785,304, Cl. 110-8.00r.
Storcel, Joseph A.: *See*—
Kemmer, Harry P.; and Storcel, Joseph A., 3,786,396.
Storck, August, G.m.b.H., Firma: *See*—
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Strand, Robert C.: *See*—
Marion, Donald L.; Hanson, Lawrence R.; and Strand, Robert C., 3,786,012.
Strang, Aart, to Shell Oil Company. Hydrocarbon fuel compositions. 3,785,790, Cl. 44-66.000.
Straniti, Salvatore: *See*—
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Strassler, Siegfried: *See*—
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Stratman, James A.: *See*—
Conkle, Ellsworth V., 3,785,695.
Strauber, Hans-Jurgen, to Daimler-Benz Aktiengesellschaft. Internal combustion engine. 3,785,457, Cl. 184-6.500.
Strauss, Edgar H., to Ruti Machinery Works Ltd. Arrangement of movable thread-contacting lamellae on a wave-type loom. 3,785,408, Cl. 139-12.000.
Streander, George W., to Design Systems, Inc. Workpiece edge and corner locating tool. 3,785,057, Cl. 33-169.00r.
Streander, George W., to Design Systems, Inc. Multi-curve generator. 3,785,245, Cl. 90-11.00r.
Strecke, Heinz. Program reading mechanism. 3,786,235, Cl. 235-61.11a.
Strelzoff, Samuel; and Atkin, Sydney, to Chemical Construction Corporation. Production of nitrophosphate fertilizer. 3,785,797, Cl. 71-39.000.

Strickland, Edward T.: *See*—
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Strohmeyer, William H.: *See*—
D'Angelo, Thomas J.; Strohmeyer, William H.; and Ulbrich, John K., 3,785,358.
Stroke, George W. Optical aperture synthesis. 3,785,262, Cl. 95-18.000.
Strong, Kline D. Expandable binder. 3,785,740, Cl. 402-29.000.
Strother, Charles W.: *See*—
Conner, Algie J.; Strother, Charles W.; and Vermilion, Willas L., 3,785,962.
Stroucken, Klaus Hans Dieter, to Alfa-Laval AB. Centrifuge with intermittent sludge discharge. 3,785,548, Cl. 233-20.00a.
Studiengesellschaft Kohle mbH: *See*—
Huhn, Horst, 3,786,250.
Stumpf, Karl. Roll train switch. 3,785,469, Cl. 193-36.000.
Sugawara, Yutaka: *See*—
Ogawa, Haruki; Yamamoto, Akihiro; Sugawara, Yutaka; Suzuki, Shigeo; and Takagaki, Yoshio, 3,786,141.
Suh, John T.; and Bare, Thomas N., to Colgate-Palmolive Company. Compositions and method employing 1-[4-hydroxy-3-(hydroxymethyl)-phenyl]-1-hydroxy-2 -aralkylaminoethanes. 3,786,154, Cl. 424-282.000.
Suling, Carl Hans: *See*—
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Sullivan, Michael I.; Cole, Roger M.; and Humphlett, Wilbert J., to Eastman Kodak Company. Photothermographic element, composition and process. 3,785,830, Cl. 96-114.100.
Sulzer Brothers Limited: *See*—
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Ichiki, Eiichi; Iida, Kazuo; Matsui, Atsuro; and Kadokura, Hidekimi, 3,786,080.
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Suzuki, Mitsuaki, to Kabushiki Kaisha Komatsu Seisakusho. Steering system for an endless track type tractor. 3,785,450, Cl. 180-6.700.
Suzuki, Shigeo: *See*—
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Suzuki, Toshio: *See*—
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Swain, James C.: *See*—
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Swales, Danvers Allin; and Carson, John William, to Albright-Wilson, Limited. Electrocoatable paint containing non-ferromagnetic chromium oxide. 3,786,014, Cl. 260-29.20r.
Swensson, Wallin K. Adjusting mechanism for perpetual calendars. 3,785,076, Cl. 40-335.000.
SWF Plywood Company: *See*—
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Sylvester, Herbert A.; Partridge, Christopher M.; and Goss, Ira D., to Rothmans, Carreras, Limited. Method of treating tobacco. 3,785,384, Cl. 131-121.000.
Symons Corporation: *See*—
Dagiel, Richard T., 3,785,610.
Juculano, Charles T., 3,785,602.
Syndicat National des Fabricants de Sucre de France: *See*—
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Szmutko, Charles J., to Purolator, Inc. Spin-on air filter. 3,785,129, Cl. 55-419.000.
Tada, Yoshiyuki; Ogita, Hideo; and Yoda, Takeshi, to Sumitomo Electric Industries, Ltd. Method of manufacturing fine metallic filaments. 3,785,036, Cl. 29-419.000.
Takagaki, Yoshio: *See*—
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Takahashi, Kousuke, to Nippon Electric Co., Ltd. Pattern classification equipment. 3,786,428, Cl. 340-172.500.
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Takano, Hiroshi: *See*—
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Takase, Yuzo: *See*—
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Talbot, Richard C.; Ruse, Edward; and Roth, Robert A., to Peters Machinery Company. Hot air sealing apparatus for cartons. 3,785,255, Cl. 93-41.000.
Tallent, L. Bust-developing means. 3,785,369, Cl. 128-40.000.
Talsma, Herbert, to Standard Oil Company, The. Melamine-formaldehyde resin containing alumina hydrate. 3,786,041, Cl. 260-17.300.
Tamborrino, Paul A.: *See*—
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Sato, Hitoshi; Tanaka, Mitsuo; Nakamura, Michiharu; Takahashi, Susumu; and Kurono, Hirokazu, 3,786,375.
Tanguy, Christian, to Societe Anonyme D.B.A. Fluid power braking and steering system. 3,785,393, Cl. 137-110.000.
Tani, Seijiro: *See*—
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Tanimura, Noboru; Mori, Kenji; and Tanaka, Hirosi, to Asahi Kasei Kogyo Kabushiki Kaisha. Melamine resins for improving surface properties of shaped articles of synthetic resins. 3,785,861, Cl. 117-138.800.
Tanksley, Marcello M. Litter grabbler an handling implement. 3,785,689, Cl. 294-19.00r.
Taponen, Mariti, to Lee, Raymond, Organization, Inc., The. Tree felling device. 3,785,415, Cl. 144-34.00r.
Tarassoff, Peter: *See*—
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Tatsumi, Hideo: *See*—
Kanamaru, Hisanobu; Ohuchi, Yasushi; and Tatsumi, Hideo, 3,785,049.
Taverner, Clarence I.; and Kleinmann, Earl E., to Phillips Petroleum Company. Apparatus for redirecting flow in a fluid conveying system. 3,785,413, Cl. 141-84.000.
Taylor Deving & Salvage Co., Inc.: *See*—
Banjavich, Mark P.; Morrissey, George R.; and Gaudiano, Anthony V., 3,785,160.
Taylor, Lloyd D.: *See*—
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Taylor, Wesley L., to Powers Regulator Company, The. Pure fluid amplifier. 3,785,390, Cl. 137-13.000.
Teach, Eugene G., to Stauffer Chemical Company. Carbanilate dioxolanes and dioxanes and their utility as herbicides. 3,786,016, Cl 260-340.700.
Teal, Bernard C.: *See*—
Coles, Sidney J.; and Teal, Bernard C., 3,786,313.

Tecce, Frederick C.; and Dudzik, Chester J., to Leesona Corporation. Apparatus and process for producing torque controlled voluminous set yarn and yarn and fabric produced thereby. 3,785,136, Cl. 57-34.0hs.

Teche, Andre: *See—*
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Technical Management Services, Inc.: *See—*
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Tecumseh Products Company: *See—*
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Teichmann, Henry F., Inc.: *See—*
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Teichmann, Newton N.; McKenna, Chancey D.; and Garrone, Albert, to Teichmann, Henry F., Inc. Reaction vessel. 3,785,780, Cl. 23-285.000.

Teisseire, Paul Jose; and Auger, Bernard, to Societe Anonyme des Etablissements Roure Bertrand Fils & Justin Dukent. Hydroxy ethers having odorant properties. 3,786,075, Cl. 260-611.00f.

Telecommunication Engineering Corporation: *See—*
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Teledyne Exploration Company: *See—*
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Teledyne, Inc.: *See—*
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Telex Computer Products Inc.: *See—*
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Tennessee Valley Authority: *See—*
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Terai, Shiro; Suzuki, Toshio; Hasegawa, Yoshihumi; Sekiya, Hitoshi; Matuo, Hiroto; and Kimata, Shizuo, to Toagosei Chemical Industry Co., Ltd., Sumitomo Light Metal Industries, Ltd. and Dainichiseika Color & Chemicals Mfg. Co. Ltd. Process for electrocoatig aluminum articles. 3,785,946, Cl. 204-181.000.

Terry, Louis E.; and Wilson, Richard W., to Motorola, Inc. Method of forming metallization backing for silicon wafer. 3,785,892, Cl. 156-3.000.

Terry, Rupert Douglas, to Johns-Manville Corporation. Jacket for cylindrical article and method and apparatus for forming said jacket. 3,786,226, Cl. 219-125.00r.

Tesco Chemicals, Inc.: *See—*
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Tetenborg, Konrad, to Windmoller & Holscher. Apparatus for forming stacks of flat, apertured workpieces. 3,785,257, Cl. 93-93.0ht.

Tetra Pak International AB: *See—*
Martensson, Kjell Halvard; Linde, Bjorn H Son; Palsson, Jan Fredrik; and Jerre, Sven Torsten, 3,785,113.

Texaco Inc.: *See—*
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Texas Instruments, Incorporated: *See—*
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Textron, Inc.: *See—*
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Misenheimer, Reid, 3,785,468.

Tezuka, Kunitoshi. Scrap blocks for electric furnaces. 3,785,784, Cl. 29-186.000.

Theobald, Robert A.: *See—*
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Thermo-O-Disc Incorporated: *See—*
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Thiel, Charles J.: *See—*
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Thierfelder, William George, to Bell Telephone Laboratories, Incorporated. Microelectronic circuit package. 3,786,317, Cl. 317-234.000.

Thiffault, Marcel: *See—*
Medwick, Joseph P.; and Thiffault, Marcel, 3,785,618.

Thomas, Charles Edgar, Jr., to United States of America, Air Force, mesne. Enhancement and detection of small static object in scene by use of programmed motion of image of scene. 3,786,186, Cl. 178-7.890.

Thomas, Ian M., to Owens-Illinois, Inc. Preparation of ultra-fure compounds corresponding to the formula CAA1204 and MGAL2C4. 3,786,137, Cl. 423-600.000.

Thomas, Klaus: *See—*
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Thomas, Paul W., Jr.: *See—*
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Thomas, Sanford E., Jr., to Dyna-Kool Corporation. Air-conditioning simulation system and method. 3,785,064, Cl. 35-13.000.

Thompson, Roy O.; and Breidenstein, Charles P., to United States of America, Interior. Control of vampire bats. 3,786,153, Cl. 424-281.000.

Thomson, Gwendoline May. Curtain hanging. 3,785,003, Cl. 16-87.200.

Thomson-CSF: *See—*
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Spitz, Erich, and Bismuth, Guy, 3,785,736.

Throckmorton, Peter E.; and McKillip, William J., to Ashland Oil, Inc. Cyclic organimetallic compounds. 3,786;067, Cl. 260-327.00r.

Thurmond, Fred A., Jr.: *See—*
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Tiedeman, George T.: *See—*
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Timken Company, The: *See—*
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Timmerman, Daniel Maurice. *See—*
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Timmerman, Hubert G., to Specialty Products Development Corporation. Method for filling a bag with water vapor and carbon dioxide gas. 3,785,149, Cl. 60-205.000.

Timofeev, Nikolai Vasilievich. *See—*
Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich, 3,785,869

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Toagosei Chemical Industry Co., Ltd.: *See—*
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Tobias, James R.: *See—*
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Toepel, Richard R., to General Motors Corporation. Engine with internal charge dilution and method. 3,785,355, Cl. 123-119.00a.

Tokiura, Shohei: *See—*
Okuyama, Toru; Muta, Susumu; Sato, Shigetake; Tokiura, Shohei; and Miyasu, Akira, 3,786,006.

Tokuyama, Takashi; and Mori, Takaaki, to Hitachi, Ltd. Method of producing semiconductor devices. 3,785,043, Cl. 29-578.000.

Tomezsko, Edward S. J.: *See—*
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Tope, Rockney A.: *See—*
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Torii, Michihiro: *See—*
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Torresi, Vincenzo N., to Olivetti, Ing. C., & C., S.p.A. Multiplex driving circuit. 3,786,486, Cl. 340-336.000.

Torrington Company, The: *See—*
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Torvfelt, Nils Allan Emanuel, to AB Bahco Ventilation. Electrically heated sauna bath unit. 3,786,231, Cl. 219-365.000.

Toshinai, Akio; and Hase, Takashi, to Dai Nippon Toryo Co., Ltd. Method of preparing phosphors for infrared-to-visible conversion. 3,785,991, Cl. 252-301.600.

Toth, Istvan: *See—*
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Towmotor Corporation: *See—*
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Township, Randolph: *See—*
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Toyen, Gerald L., to General Dynamics Corporation. Digital data storage with equal input and output data rate, but variable memory shift rate. 3,786,440, Cl. 340-173.00r.

Toyo Soda Manufacturing Co., Ltd.: *See—*
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Toyobo Co., Ltd.: *See—*
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Tracey, Victor Allen: *See—*
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Tremco Manufacturing Company, The: *See—*
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Trent, Edward J.; Meyers, Lavern H.; and Kagele, Frank L., to Intercontinental Services, Inc. Game control and data handling system. 3,786,234, Cl. 235-61.70r.

Trombly, John E.; and Bender, Warren G., to Telecommunication Engineering Corporation. Multiplexing circuit. 3,786,473, Cl. 340-311.000.

Trotz, Samuel I.: *See—*
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Trumpler, Theodor. Leg prosthesis with resiliently mounted stump socket. 3,784,988, Cl. 3-18.000.

Truswal Systems, Inc.: *See—*
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TRW Inc.: *See—*
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White, Hollis N., Jr., 3,785,661.

Tsaplin, Nikolai Sergeevich: *See—*
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Tschapek, Gleb: *See—*
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Tsugukuni, Hideyoshi; and Matsuda, Mitsuhiro, to Dai Nippon Toryo Co., Ltd. Polymer dispersion and process for preparation of the same. 3,786,010, Cl. 260-21.000.

Tsurusaki, Yoshiyasu: *See—*
Nagawa, Masatoshi; Suzuki, Yoshio; Matsui, Katsuaki; Iijima, Masaoki; and Tsurusaki, Yoshiyasu, 3,786,147.

Tsurushima, Katsuaki, to Sony Corporation. Four channel decoder with variable mixing of the output channels. 3,786,193, Cl. 179-1.0gq

Tsygankov, Vladimir Fedorovich: *See—*
Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich; Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich, 3,785,032.

Tu, George K.: *See—*
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Tucker, Linwood G., to Koppers Company, Inc. Sealing device for coke oven door. 3,785,932, Cl. 202-248.000.

Tucker, Lorn Kenneth, to Coulter Electronics, Inc. Optical scanning device. 3,786,261, Cl. 250-205.000.

Tucker, Stephen F.: *See—*
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Tudor Metal Products Corporation: *See—*
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Tuitt, Milton. Modular paper sculptures. 3,785,066, Cl. 35-72.000.

Turk, Stanley D.: *See—*
Reusser, Robert E.; and Turk, Stanley D., 3,786,112.

Turner, Hamish. Building panel with latching means. 3,785,103, Cl. 52-309.000.

Turton, Cecil Nigel; and McAinsh, James, to Imperial Chemical Industries Limited. Thermoplastic compositions. 3,785,916, Cl. 161-156.000.

Tuzson, John J.; Hallberg, Irving H.; and Vaughn, James R., to Borg-Warner Corporation. Charge forming apparatus. 3,785,627, Cl. 261-36.00a.

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Uhlich, Horst. Agent for preventing seizing-up in zip-fasteners. 3,785,978, Cl. 252-50.000.

Ujiie, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Apparatus for the manufacture of circular products. 3,785,429, Cl. 164-282.000.

Ulbrich, John K.: *See—*
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Une, Tatuyuki; and Kamata, Akira, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha and Kabushiki Kaisha Osaka Jack Seisakusho. Hydraulic jig for correction of mis-alignment between joints of plates. 3,785,030, Cl. 29-200.00p.

Ungar, Israel S.; and Scher, Herbert I., to Esso Research and Engineering Company. Metallic appearing laminate. 3,785,911, Cl. 161-5.000.

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Untermyer, Samuel, to National Nuclear Corporation. Method and apparatus for nuclear fuel assay with a neutron source and coincident fission neutron detectors. 3,786,256, Cl. 250-391.000.

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Van Der Does, Lucas, to N.V. Optische Industrie "De Oude Delft". Device for the delivery, one by one, of pieces of film from a stack. 3,785,637, Cl. 271-24.000.
Van der Lely, Cornelis. Hay making machines. 3,785,133, Cl. 56-370.000.
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Van Handel, Ambrose B. Lining for artificial dentures. 3,785,054, Cl. 32-2.000.
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von Paesschen, August Jean; Herbots, Joseph Antoine; and Timmerman, Daniel Maurice, to Agfa N.V. Antistatic coating compositions. 3,786,002, Cl. 252-500.000.
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Weyerhaeuser Company: *See*—
Freeman, Harlan G.; Baxter, Gene F.; and Tiedeman, George T., 3,786,025.
Wheatley, Carl F., Jr., to RCA Corporation. Semiconductor amplifier protection. 3,786,364, Cl. 330-207.00p.
Wheelabrator-Frye, Inc.: *See*—
Freeman, Ardee H., 3,785,105.
Wheeler, Willard L. Tone changing and tone marking apparatus for guitars. 3,785,238, Cl. 84-312.000.
White, Frederick K.: *See*—
Bryson, Millard C.; McKinney, Joel D.; Titmus, Robert A.; and White, Frederick K., 3,785,959.
White, Hollis N., Jr., to TRW Inc. High pressure rotary seal backup. 3,785,661, Cl. 277-188.000.
Whited, James Sidney, to Kollmorgan Corporation. Dynamic brake. 3,786,329, Cl. 318-379.000.
Whitehouse Joseph Colin; and Wild, Colin Arthur, to Rank Organisation, Limited, The. Electronic switching apparatus. 3,786,278, Cl. 307-252.00f.
Whitehurst, Darrell Duayne, to Mobil Oil Corporation. Surbent and process for heavy metal removal from motor fuel. 3,785,968, Cl. 208-251.000.

Whitledge, Jon K.; and Kavick, Edward M., to Moore, Samuel, & Company. Coupling attachment device. 3,785,050, Cl. 30-237.000.

Whitson, Bob L.: *See—*
Perry, Robert J.; and Whitson, Bob L., 3,785,749.

Whittaker, Thomas H. Windshield wash water heater. 3,785,359, Cl. 126-19.500.

Whittle, John Edward: *See—*
Edwards, Joseph; and Whittle, John Edward, 3,785,867.

Whyzmuzis, Paul D.; and Wilkus, Clarence W., to General Mills Chemicals, Inc. Borax borated polymeric fat acid polyamides. 3,786,007, Cl. 260-18.00n.

Wickes Corporation, The: *See—*
Clagett, Thomas E.; and Dahl, Martin W., 3,785,228.

Wiegratz, Siegfried: *See—*
Oberwelland, Klaus; and Wiegratz, Siegfried, 3,785,115.

Wiesler, Mordechai; Martinonis, Virgil; and MacIntyre, John S., to Teledyne Inc. Die sorting system. 3,785,507, Cl. 214-1.0bh.

Wiggs, Peter Kenneth Clifford, to Morganite Carbon, Limited. Electrical contact brush assembly with anti-vibration head. 3,786,292, Cl. 310-251.000.

Wilcox, Jack W.: *See—*
Adams, Cecil E.; Swain, James C.; and Wilcox, Jack W., 3,785,758.

Wilcox, John F.: *See—*
Brandriff, Robert C.; and Wilcox, John F., 3,785,308.

Wild, Colin Arthur: *See—*
Whitehouse Joseph Colin; and Wild, Colin Arthur, 3,786,278.

Wildhaber, Ernest. Method of and means of generating gear teeth. 3,785,244, Cl. 90-4.000.

Wilgus, Donovan R., to Chevron Research Company. Reaction product of an amine and a hydroperoxidized ethylene/propylene copolymer. 3,785,980, Cl. 255-51.50a.

Wilhelm, Carl F., Jr.: *See—*
Bailey, Gordon B.; and Wilhelm, Carl F., Jr., 3,785,146.

Wilhelm, John R.: *See—*
Dudinec, Emery; and Wilhelm, John R., 3,785,491.

Wilkus, Clarence W.: *See—*
Whyzmuzis, Paul D.; and Wilkus, Clarence W., 3,786,007.

Will, Albert S.; Wolf, Sylvan; and Barnum, William L., to United States of America, Navy. Underwater acoustical detection system. 3,786,403, Cl. 340-2.000.

Will, Gerhard, to Bosch, Robert, G.m.b.H. Electrohydraulic transmission shifting apparatus for a motor car. 3,785,224, Cl. 74-865.000.

Willard, Henry G.: *See—*
Hobson, Charles F., Jr.; and Willard, Henry G., 3,786,311.

William Prym-Werke K.G., Firma: *See—*
Nysten, Bernhard P., 3,785,009.

Willock, James Taylor, to General Foods, Limited. Whippable composition. 3,785,831, Cl. 99-139.000.

Wilson, Duane L. Grain pick up. 3,785,132, Cl. 56-364.000.

Wilson Industries, Inc.: *See—*
Hutchinson, Carl P., 3,785,690.

Wilson, Richard W.: *See—*
Terry, Louis E.; and Wilson, Richard W., 3,785,892.

Wilson, Ronald H.; Blumenfeld, Samuel M.; Redington, Rowland W.; and Rosczak, Joseph S., to General Electric Company. Protective coating for diode array targets. 3,786,294, Cl. 313-65.0ab.

Wilson, William J., to Motorola, Inc. Adaptive transistor switch. 3,786,279, Cl. 307-254.000.

Windamatic Systems, Inc.: *See—*
Eminger, Robert J., 3,785,212.

Windish, Willis L.: *See—*
Butterfield, Max L.; Windish, Willis L.; and Coker, Morton M., 3,785,503.

Windmoller & Holscher: *See—*
Tetenborg, Konrad, 3,785,257.

Winefordner, James D.: *See—*
Browner, Richard F.; Winefordner, James D.; and Glenn, Tom H., 3,786,308.

Winsel, August, to Varta Aktiengesellschaft. Method and apparatus for the removal of carbon dioxide from gas mixtures and fuel cell combination. 3,785,870, Cl. 136-86.00c.

Winston, Emanuel A. Filament actuated vehicle. 3,785,082, Cl. 46-210.000.

Wirth, Wayne M., to Minnesota Mining and Manufacturing Company. Locking latch for a disk-pack storage container. 3,785,184, Cl. 70-63.000.

Wisconsin Alumni Research Foundation: *See—*
Schroeder, Collin H.; Lechnir, Richard J.; Cleveland, Peter G.; Deluca, Hector F.; and Derse, Philip H., 3,786,062.

Wismer, Marco: *See—*
Parker, Gordon M.; Wismer, Marco; and Hahn, Ernest A., 3,785,849.

Wisniewski, Leonard. Process for anti-corrosive protection by reduction of ionised metals on metal substrate. 3,785,847, Cl. 117-62.000.

Witzel, Gunter, to Eisen- und Drahtwerk Erlau Aktiengesellschaft. Connecting link for antiskid chains for tires. 3,785,422, Cl. 152-241.000.

Wojcik, David S., to Owens-Illinois, Inc. Baker clamped sustainer voltage generator for pulsing discharge display panel. 3,786,485, Cl. 340-324.00m.

Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, to Bayer Aktiengesellschaft. High molecular weight aromatic polyamides having an affinity for basic dyes. 3,786,024, Cl. 260-47.0cz.

Wolf, Heinz K.; and Averbeck, Dean C., to Kysor Industrial Corporation. Adjustable tool holder. 3,785,746, Cl. 408-182.000.

Wolf, Richard, GmbH: *See—*
Schmidt-Kloiber, Heinz; and Schuy, Stefan, 3,785,382.

Wolf, Rudolf Herman, to Tecumseh Products Company. Method of constructing a hermetic compressor discharge tube joint. 3,785,025, Cl. 29-156.40r.

Wolf, Sylvan: *See—*
Will, Albert S.; Wolf, Sylvan; and Barnum, William L., 3,786,403.

Wolff, Lodewijk Reinaerd: *See—*
Van Den Boomgaard, Jan; and Wolff, Lodewijk Reinaerd, 3,785,805.

Wolff, Paul, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Lathe. 3,785,227, Cl. 82-2.000.

Wolford, Lionel T.: *See—*
Dotson, Anderson O., Jr.; Newcombe, Jack; and Wolford, Lionel T., 3,786,023

Wolverine World Wide, Inc.: *See—*
Egtvedt, Robert B.; and Booth, William M., 3,784,995.

Wolz, Francis T., to Folger Adam Co.; division of Telkee, Inc. Institutional security system. 3,785,187, Cl. 70-264.000.

Womack, William C., to Colspan Environmental Systems, Inc. Cloud seeding system. 3,785,557, Cl. 239-14.000.

Wood, John Frederick Barry: *See—*
Hazelett, Robert William; Hazelett, Richard; and Wood, John Frederick Barry, 3,785,428.

Woods, Thomas C.; and Ray, Robert A., to Beckman Instruments, Inc. Rate analysis system with overrange signal detection circuit for identifying false signals. 3,786,352, Cl. 324-110.000.

Woods, Thomas C., to Beckman Instruments, Inc. Rate analysis system with constant rate detection circuit for identifying linear signals. 3,786,465, Cl. 340-248.00r.

Woods, William E., to Honeywell Information Systems, Inc. Push-pop memory stack having reach down mode and improved means for processing double-word items. 3,786,432, Cl. 340-172.500.

Woodward Governor Company: *See—*
Ahlgren, Joseph Robert, 3,786,488.
Leeson, James I., Jr., 3,785,147.

Worker, George W.; and Waddington, Philip L., to Leonard Concrete Pipe Co., Inc. Apparatus for molding concrete columns. 3,785,607, Cl. 249-48.000.

Worters, Allen J.: *See—*
Graves, William P., Passavant, Francis C.; and Worters, Allen J., 3,786,476.

Wostl, Wolfgang J.; and Gower, Bobby G., to Atlantic Richfield Company. Automated dispensing system. 3,786,421, Cl. 340-149.00a.

Wrenn, George T., Jr., to Virginia Chemicals Inc. Precharged receiver drier for automobile air conditioning systems. 3,785,164, Cl. 62-129.000.

Wright, H. Dudley: *See—*
Hitchman, Michael L.; Mehl, Wolfgang; and Millot, Jean Pierre, 3,785,948.

Wright, Joseph H.: *See—*
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,785,725.

Wrobel, Gunter: *See—*
Papst, Hermann; Lunde, Hans; and Wrobel, Gunter, 3,786,290.

Wyckoff Company: *See—*
Hudson, Charles D., 3,785,770.

Xerox Corporation: *See—*
La Cagnina, John M.; and Davies, Robert G., 3,785,816.

Yakovlev, Mikhail Vasilievich: *See—*
Feldshtein, Isaak Yakovlevich; Epifanov, Valery Sergeevich; Tsygankov, Vladimir Fedorovich; Pashkov, Alexandr Nikitovich; Mogilny, Dmitry Gavrilovich; and Yakovlev, Mikhail Vasilievich, 3,785,032.

Yamada, Oimachi: *See—*
Yanagawa, Noboyuki; and Yamada, Oimachi, 3,785,732.

Yamada, Yasuo: *See—*
Kishino, Shigeo; Yamada, Yasuo; Kurahashi, Yoshio; and Kume, Toyohiko, 3,786,117.

Yamagishi, Hidehisa; Takano, Hiroshi; and Takeuchi, Masao, to Nippon Kokan Kabushiki Kaisha. Method for electrolytically treating the surface of a steel plate with a chromate solution. 3,785,940, Cl. 204-56.00r.

Yamamoto, Akihiro: *See—*
Ogawa, Haruki; Yamamoto, Akihiro; Sugawara, Yutaka; Suzuki, Shigeo; and Takagaki, Yoshio, 3,786,141.

Yamamoto, Mitsuo: *See—*
Ogawa, Heisuke; Yamamoto, Mitsuo; Bando, Seiisaku; and Baba, Osami, 3,786,407.

Yamamoto, Osamu: *See—*
Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawabata, Hidetsugu; and Kitamura, Saburo, 3,786,254.

Yamamoto, Toshihiko: *See—*
Iwama, Masakuni; Yamamoto, Toshihiko; Inoue, Isaburo; Hanzawa, Teruo; and Endo, Takaya, 3,785,828.

Yamamoto, Yuki. Reversible cooking instrument. 3,785,274, Cl. 99-425.000.

Yamamura Glass Kabushiki Kaisha: *See—*
Yasuhiro, Tomita; and Katsutoshi, Nakayama, 3,785,195.

Yamanouchi Pharmaceutical Company, Ltd.: *See—*

Murakami, Masuo; Kawahara, Shigemi; Inukai, Noriyoshi; Nagand, Noriaki; Iwamoto, Hidenori; and Ida, Hisashi, 3,786,054.

Yamashita, Tadaoki; Yamamoto, Osamu; Oonishi, Hajimu; Kawabata, Hidetsugu; and Kitamura, Saburo, to Matsushita Electric Industrial Co., Ltd. Thermoluminescence dosimeter having a handle. 3,786,254, Cl. 250-483.000.

Yamashita, Yutaka; and Sata, Masami, to Kokusai Kasei Kosha Co., Ltd. Corrosion and scale inhibiting composition. 3,785,988, Cl. 252-181.000.

Yamauchi, Fumio, to Nippon Electric Company, Limited. Information propagation path switching device. 3,786,447, Cl. 340-174.0tf.

Yamauchi, Takashi: *See—*
Kuribayashi, Hiroshi; Takeda, Takehiko; Okada, Yoshio; and Yamauchi, Takashi, 3,786,107.

Yanagawa, Noboyuki; and Yamada, Oimachi, to Ricoh Co., Ltd. Microreader. 3,785,732, Cl. 355-45.000.

Yanagawa, Nobuyuki, to Ricoh Co., Ltd. Information card retrieval apparatus. 3,785,486, Cl. 209-80.500.

Yanagisawa, Yuzuru, to Sony Corporation. Display device. 3,786,487, Cl. 340-336.000.

Yastrebov, Igor Alexandrovich: *See—*
Benderovsky, Vladimir Valerianovich; Schepotiev, Alexandr Ivanovich; Yastrebov, Igor Alexandrovich; and Kotenko, Viktoria Mikhailovna, 3,785,589.

Yasuhiro, Tomita; and Katsutoshi, Nakayama, to Yamamura Glass Kabushiki Kaisha. Apparatus for testing pressure resistance of bottles. 3,785,195, Cl. 73-37.000.

Yasunage, Hidetoshi; Chikatsu, Tatsusuke; Nozaki, Chihiro; and Yoshida, Yoshinori, to Japan Synthetic Rubber Co., Ltd. Process for producing 2-alkyl-substituted 1,3-conjugated diene polymer. 3,786,036, Cl. 260-94.20m.

Yatsurugi, Yoshifumi; Kuratomi, Tatsuo; and Takaishi, Tetsuo. Process for preparing 4,5A zeolite and method for separating mixtures using same. 3,785,122, Cl. 55-75.000.

Yermish, Israel J., to Fenway Machine Co., Inc. Heavy duty nibbler. 3,785,052, Cl. 30-241.000.

Yoda, Takeshi: *See—*
Tada, Yoshiyuki; Ogita, Hideo; and Yoda, Takeshi, 3,785,036.

Yokota, Kozo; Fukase, Yukishige; and Osozawa, Koichiro, to Nippon Yakin Kogyo Company, Limited Stainless steel with high resistance against corrosion and welding cracks. 3,785,787, Cl. 29-196.100.

Yonezawa, Toyozo, to Sanyo Chemical Company Ltd. Proparation of cooper, compound and product thereof. 3,786,079, Cl. 260-438.100.

York, Robert Kenneth: *See—*.
Hetherington, Irvine Keers; Pritchett, Robert Leonard; and York, Robert Kenneth, 3,786,425.

Yosef, Ouziel. Elastic band type exercising device. 3,785,645, Cl. 272-82.000.

Yoshida, Kenichi: *See—*
Kurauchi, Noritaka; Hiraoka, Susumu; Yoshida, Kenichi; and Ohmori, Masaki, 3,786,411.

Yoshida, Yoshinori: *See—*
Yasunage, Hidetoshi; Chikatsu, Tatsusuke; Nozaki, Chihiro; and Yoshida, Yoshinori, 3,786,036.

Yoshii, Hiroshi: *See—*
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103

Yoshikawa, Kanji: *See—*
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Yoshikawa, Tatsumi, to Daiwa Can Co. Ltd. Method for producing a metallic container or can. 3,785,311, Cl. 113-120.00h.

Yoshimoto, Toshio: *See—*
Takamatsu, Tetsuya; Yoshimoto, Toshio; Narumiya, Tsuneaki; Yoshii, Hiroshi; Wakamatsu, Tsuneo; Fukui, Saburo; Kajimoto, Hikokusu; Kawai, Yoichi; Inaba, Yoshinori; and Usui, Katsuyoshi, 3,786,103.

Yother, Floyd G.: *See—*
Rhinehart, Vance E.; Coffelt, James D.; and Yother, Floyd G., 3,785,345.

Young, Robert Gary: *See—*
Phillips, Brian Harry; and Young, Robert Gary, 3,786,415.

Young, Sherwood L.: *See—*
Dixon, Farris L.; and Young, Sherwood L., 3,785,394.

Young, Sherwood L., to American Standard, Inc. Water control valve structure. 3,785,397, Cl. 137-434.000.

Young, William D., Jr.: *See—*
Kronish, Donald P.; and Young, William D., Jr., 3,785,929.

Youtsey, Karl J.: *See—*
Hervert, George L.; Carnahan, Robert D.; and Youtsey, Karl J., 3,785,781.

Yulkowski, Leon, to General Lock Company. Two-piece door knob construction. 3,785,687, Cl. 292-347.000.

Zabinski, Ronald A.: *See—*
Walters, William C.; and Zabinski, Ronald A., 3,785,734.

Zacha, Bonnie D.: *See—*
Zacha, Russell S.; and Zacha, Bonnie D., 3,785,000.

Zacha, Russell S.; and Zacha, Bonnie D. Sponge brush. 3,785,000, Cl. 15-244.00r.

Zaleski, John, to Mallory, P. R., & Co., Inc. Combination reserve cell and housing. 3,785,872, Cl. 136-114.000.

Zapf, Gerhard, to Sintermetallwerk Krebsoge G.m.b.H. Process of working a sintered powder metal compact. 3,785,038, Cl. 29-420.500.

Zaramella, Bruno: *See—*
Cardone, Michele; Grandini, Angelo; and Zaramella, Bruno, 3,786,386.

Zdanowski, Richard E., to Rohm & Haas Company. Floor polishing method and article. 3,785,860, Cl. 117-138.8ua.

Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich. Method of anufacturing electrode groups of alkaline accumulators. 3,785,869, Cl. 136-75.000.

Zdarske strojirny a slevarny, Narodni podnik Zdar Nad: *See—*
Kamelander, Ivan, 3,785,282.

Zelinski, Paul A.; and Jones, Leo V., to GTE Automatic Electric Laboratories, Incorporated. Memory expansion arrangement in a central processor. 3,786,436, Cl. 340-172.500.

Ziehka, Bernard M.; and Tamborrino, Paul A., to Dick, A. B., Company. Sheet stacking apparatus for a duplicating machine or the like. 3,785,639, Cl. 274-46.000.

Zilahy, Zoltan E.: *See—*
Shepard, Lyman K.; and Zilahy, Zoltan E., 3,785,031.

Ziliotto, Vittorio: *See—*
Bouchet, Claude; and Ziliotto, Vittorio, 3,786,431.

Zimmerer, Arthur L.; and Anderson, John L., to Lindsay Manufacturing Co. Alignment monitoring system for a self-propelled irrigation system. 3,785,400, Cl. 137-344.000.

Zimmermann, Hans; Schuh, Eduard; and Kelch, Heinz, to Kienzle Apparate GmbH. Recording apparatus for recording on a plurality of tracks. 3,786,513, Cl. 346-62.000.

Zimmermann, Ma :: *See—*
Bratoljic, Tihomir; Waldis, Josef; and Zimmermann, Max, 3,785,923.

Zipf, Fred W., III, to Blessing, Inc. Method of making a disposable draw sheet. 3,785,897, Cl. 156-201.000.

Zirngiebl, Eberhard: *See—*
Matthey, Hermann; Payer, Stefan; and Zirngiebl, Eberhard, 3,785,949.

Zizo, Vladimir Yakovlevich: *See—*
Zdarov, Leonid Sergeevich; Chernoglaskin, Nikolai Sergeevich; Igonin, Nikolai Ivanovich; Zizo, Vladimir Yakovlevich; Karev, Viktor Dmitrievich; Karmanovsky, Stanislav Nikandrovich; Timofeev, Nikolai Vasilievich; and Petrov, Vladimir Dmitrievich, 3,785,869.

Zollweg, Robert J.; Blackham, Kenneth K.; and Burnham, Walter J., to Westinghouse Electric Corporation. Discharge lamp which incorporates cerium and cesium halides and a high mercury loading. 3,786,297, Cl. 313-229.000.

Zuech, Ernest A.; and Crain, Donald L., to Phillips Petroleum Company. Cycloalkylaromatic production. 3,786,106, Cl. 260-668.00r.

Zwickel, Friedrich: *See—*
Boyer, John A.; Ludwig, David P.; and Zwickel, Friedrich, 3,785,903.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (In accordance with city and telephone directory practice).

Brown, Gaylord W., and B. A. Schnepp, to Koehring Co. Compact differential pressure forming machine. Re. 27,881. 1–15–74. Cl. 425—155.

Burnham, Gerald E., Sr., to Thermotics, Inc. Method and apparatus for the degassification of drilling muds. Re. 27,882. 1–15–74. Cl. 55—41.

Esso Research and Engineering Co.: *See* Li, Norman N. Re. 27,888.

Fultz, Palmer: *See*—
Vogel, Arthur E., and Fultz. Re. 27,883.

Gates Rubber Co., The: *See*—
Lear, William P. Re. 27,885.

Holbus, Edward. Protective coating for metal surfaces. Re. 27,890. 1–15–74. Cl. 106—10.

Izumihara, Sozo: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

Johnson, Martin R.. to Prentiban A.G. Knit garment and method of manufacture. Re. 27,886. 1–15–74. Cl. 66—177.

Koehring Co.: *See*—
Brown, Gaylord W., and Schnepp. Re. 27,881.

Lear, William P., to The Gates Rubber Co. Magnetic tape. Re. 27,885. 1–15–74. Cl. 242—55.19 A.

Li, Norman N., to Esso Research and Engineering Co. Separating hydrocarbons with liquid membranes. Re. 27,888. 1–15–74. Cl. 208—308.

Makino, Kazunosuke: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

Matsushima, Eiichi: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

McGary, Charles W., Jr., and P. L. Smith, to Union Carbide Corp. Esters of phosphorus-containing acid, [halogenated] epoxide and dicarboxylic acid and process for producing same. Re. 27,887. 1–15–74. Cl. 260—952.

Mihic, Wlajko. Toolholder assemblies. Re. 27,884. 1–15–74. Cl. 29—96.

Murata, Yoshio: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

Nagashima, Kiyoji: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

Prentiban A. G.: *See*—
Johnson, Martin R. Re. 27,886.

Sato Kiko Kabushiki Kaisha: *See*—
Sato, Yo, Nagashima, Murata, Makino, Matsushima, and Izumihara. Re. 27,889.

Sato, Yo, K. Nagashima, Y. Murata, K. Makino, E. Matsushima, and S. Izumihara, to Sato Kiko Kabushiki Kaisha. Portable, one-hand-operable labeling machine. Re. 27,889. 1–15–74. Cl. 156—384.

Schnepp, Bradley A.: *See*—
Brown, Gaylord W., and Schnepp. Re. 27,881.

Smith, Percy L.: *See*—
McGary, Charles W., Jr., and Smith. Re. 27,887.

Thermotics, Inc.: *See*—
Burnham, Gerald E., Sr. Re. 27,882.

Union Carbide Corp.: *See*—
McGary, Charles W., Jr., and Smith. Re. 27,887.

Vogel, Arthur E., and P. Fultz. Suspension system for vehicles. Re. 27,883. 1–15–74. Cl. 280—6.1

LIST OF PLANT PATENTEES

Armstrong, David L., to Armstrong Nurseries, Inc. Rose plant. 3,438. 1–15–74. Cl. 20.

Armstrong, David L., to Armstrong Nurseries, Inc. Rose plant. 3,440. 1–15–74. Cl. 11.

Armstrong Nurseries, Inc.: *See*—
Armstrong, David L. 3,438.
Armstrong, David L. 3,440.

Ball, Geo. J.: *See*—
Fischer, Arnold W. 3,436.
Fischer, Arnold W. 3,441.

Bohls, Allie, to O. S. Gray. Pecan tree. 3,434. 1–15–74. Cl. 31.

Broadmoor Hotel, Inc.: *See*—
Dropinski, Marion M. 3,437.
Dropinski, Marion M. 3,439.

Dropinski, Marion M., to Broadmoor Hotel, Inc. Carnation plant. 3,437. 1–15–74. Cl. 70.

Dropinski, Marion M., to Broadmoor Hotel, Inc. Carnation plant. 3,439. 1–15–74. Cl. 70.

Fischer, Arnold W., to Geo. J. Ball. African violet. 3,436. 1–15–74. Cl. 69.

Fischer, Arnold W., to Geo. J. Ball. African violet plant. 3,441. 1–15–74. Cl. 69.

Fischer, Carl H., to Selected Glads, Inc. Gladiolus. 3,442. 1–15–74. Cl. 85.

Frampton's Nurseries Ltd.: *See*—
Machin, Barrie J. 3,433.
Machin, Barrie J. 3,435.

Gray, O. S.: *See*—
Bohls, Allie. 3,434.

Machin, Barrie J., to Frampton's Nurseries Ltd. Chrysanthemum plant. 3,433. 1–15–74. Cl. 82.

Machin, Barrie J., to Frampton's Nurseries Ltd. Chrysanthemum plant. 3,435. 1–15–74. Cl. 81.

Selected Glads, Inc.: *See*—
Fischer, Carl H. 3,442.

LIST OF DESIGN PATENTEES

AMP Inc.: *See*—
Irie, Norimitsu. 229,940.

Adams, Paul E.: *See*—
Widgren, Harvey L., and Adams. 229,986.

Adamson, Gerald J., J. W. Knypers, and I. F. Norton, to Don Mills Developments Ltd. Post drop box. 229,981. 1–15–74. Cl. D74—9.

Airborne S.A.: *See*—
Bernard, Charles. 229,879.

Ament, Herman. Seam ripper. 229,877. 1–15–74. Cl. D8—19.

Amussen, Francis S.: *See*—
O'Brien, Robert F., and Amussen. 229,987.

Ando, Minorn: *See*—
Sugihara, Osamu, Nakamura, and Ando. 229,970.

Arctic Pac, Inc.: *See*—
Schmit, Justin M. 229,919.

Artner, Marcus M., and P. D. McGee, to Motorola, Inc. Tape player or similar article. 229,943. 1–15–74. Cl. D26—14.

Barush, Marshall J., to The Coca-Cola Co. Bottle. 229,891. 1–15–74. Cl. D9—160.

Bemel, Milton M., 50% to Warren F. B. Lindsley. Combined bay and information containing pocket. 229,896. 1–15–74. Cl. D9—249.

Bernard, Charles, to Airborne S.A. Seat or similar article. 229,879. 1–15–74. Cl. D6—66.

Bernard, James E., to Richard W. Whitlaw. Pipe reamer and tamper. 229,983. 1–15–74. Cl. D85—7.

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Best, Leon H., and R.D. Davis, to John H. Best & Sons, Inc. Display stand for carpet samples and the like. 229,910. 1–15–74. Cl. D6—139.

Bishaf, Morris, and L. Messineo. Frame for children's bicycle seat. 229,922. 1–15–74. Cl. D12—119.

Blood, Ernest R., R. W. Lichti, and J. A. Pierson, to Caterpillar Tractor Co. Bucket hook. 229,887. 1–15–74. Cl. D8—232.

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Box, Theodor M. Poultry transport case. 229,948. 1–15–74. Cl. D30—1.

Bradford, Eugenia. Place mat. 229,912. 1–15–74. Cl. D6—271.

Bradford, Eugenia. Place mat and napkin set. 229,913. 1–15–74. Cl. D6—271.

Bradford, Eugenia. Place mat. 229,915. 1–15–74. Cl. D6—271.

Brody, Howard L., to General Foods Corp. Jar. 229,889. 1–15–74. Cl. D9—44.

Brooks, Paul E. Hair styling comb. 229,984. 1–15–74. Cl. D86—8.

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Costabile, Eugene J. Chair. 229,908. 1–15–74. Cl. D6—39.

Crowley, Alexius J. Tie tack. 229,901. 1–15–74. Cl. D2—419.

Curran, Frank J. Ventilated container for air freshner. 229,939. 1–15–74. Cl. D23—150.

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David, Andrew M. Bracelet or similar article. 229,962. 1–15–74. Cl. D45—4.

David, Manuel R. Skein holder. 229,902. 1–15–74. Cl. D3—19.

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Fitzpatrick, Donald L. Fishing flexible resilient lure. 229,933. 1–15–74. Cl. D22—27.

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Haskins, David R., to Lake Nokomis Enterprises, Inc. Snowmobile ambulance body. 229,929. 1–15–74. Cl. D14—24.

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119 3,785,125
228 3,785,126
233 3,785,127
405 3,785,128
419 3,785,129

CLASS 56
98 3,785,130
328TS 3,785,131
364 3,785,132
370 3,785,133
400 3,785,134

CLASS 57
34HS 3,785,135
3,785,136
58.34 3,785,139
58.95 3,785,138
71 3,785,137
100 3,785,140

CLASS 58
42.5 3,785,141
90R 3,785,142
91 3,785,143

CLASS 60
39.24 3,785,145
39.53 3,785,146
97S 3,785,147
105 3,785,148
205 3,785,149
229 3,785,150
277 3,785,151
290 3,785,152
303 3,785,153
347 3,785,154
3,785,155
421 3,785,156
493 3,785,157
531 3,785,144

CLASS 61
1 3,785,158
5 3,785,159
72.3 3,785,160

CLASS 62
23 3,785,161
55.5 3,785,162
77 3,785,163
129 3,785,164
158 3,785,165
227 3,785,166
296 3,785,167
455 3,785,168
468 3,785,169
489 3,785,170
490 3,785,171

CLASS 64
21 3,785,172

CLASS 65
14 3,785,791
30 3,785,792
31 3,785,793
108 3,785,794
307 3,785,795

CLASS 66
9R 3,785,173
57 3,785,174
84A 3,785,175
132T 3,785,176
157 3,785,177
177 Re.27,886
196 3,785,178

CLASS 68
5D 3,785,179
15 3,785,180
208 3,785,181

CLASS 70
38B 3,785,182
58 3,785,183
63 3,785,184
68 3,785,185
240 3,785,186
264 3,785,187
276 3,785,188

CLASS 71
28 3,785,796
39 3,785,797
79 3,785,798
90 3,785,799
92 3,785,800

CLASS 72
78 3,785,189
149 3,785,190
181 3,785,191
319 3,785,192
393 3,785,193
405 3,785,194

CLASS 73
37 3,785,195
64 3,785,196
65 3,785,197
78 3,785,198
104 3,785,199
134 3,785,216
151 3,785,200
151.5 3,785,202
169 3,785,201
170A 3,785,203
198 3,785,205
212 3,785,206
362AR 3,785,207
368.4 3,785,208
395 3,785,209
459 3,785,210
480 3,785,211

CLASS 74
23 3,785,212
60 3,785,213
89.21 3,785,214
142 3,785,215
217B 3,785,219
230.3 3,785,217
242.1FP 3,785,220
242.11P 3,785,221
479 3,785,218
561 3,785,222
815 3,785,223
865 3,785,224

CLASS 75
.5BC 3,785,801
26 3,785,802
121 3,785,803
126D 3,785,804
130.5 3,785,805
134H 3,785,806
138 3,785,807
170 3,785,808
171 3,785,809
173A 3,785,810
178A 3,785,811

CLASS 81
3.1R 3,785,225
119 3,785,226

CLASS 82
2 3,785,227
36B 3,785,228

CLASS 83
6 3,785,229
58 3,785,230
103 3,785,231
156 3,785,232
167 3,785,233
414 3,785,234
557 3,785,235
685 3,785,236

CLASS 84
1.01 3,786,166
1.16 3,786,167
258 3,785,237
312 3,785,238
314 3,785,239
485 3,785,240

CLASS 85
71 3,785,241

CLASS 89
33CA 3,785,242
149 3,785,243

CLASS 90
4 3,785,244
11C 3,785,246
11R 3,785,245
15 3,785,247

CLASS 91
6 3,785,248
41 3,785,249

CLASS 92
72 3,785,250
98R 3,785,251
161 3,785,252
181 3,785,253

CLASS 93
36.01 3,785,254
41 3,785,255
93HT 3,785,257
93C 3,785,256

CLASS 95
4.5 3,785,258
10CT 3,785,259
11U 3,785,270
11.5R 3,785,260
12 3,785,261
18R 3,785,262
39 3,785,263
55 3,785,264
64R 3,785,265
3,785,266
89L 3,785,267
89R 3,785,268
94R 3,785,269

CLASS 96
1.2 3,785,812
1.3 3,785,816
3 3,785,813
3,785,814
3,785,815
28 3,785,817
33 3,785,818
46 3,785,819
48R 3,785,820
49 3,785,821
66R 3,785,824
66.3 3,785,822
3,785,823
75 3,785,825
3,785,826
84R 3,785,827
100 3,785,828
3,785,829
114.1 3,785,830

CLASS 98
40DL 3,785,271
40D 3,785,272

CLASS 99
139 3,785,831
404 3,785,273
425 3,785,274
446 3,785,275
516 3,785,276

CLASS 100
41 3,785,277
51 3,785,278
93P 3,785,279
100 3,785,280
116 3,785,281
257 3,785,282

CLASS 101
93C 3,785,283
118 3,785,284
148 3,785,285
155 3,785,286
247 3,785,287
348 3,785,288
450 3,785,289

CLASS 102
4 3,785,290
24R 3,785,291
70.2R 3,785,292
92.7 3,785,293

CLASS 104
130 3,785,294
155 3,785,295
202 3,785,296

CLASS 105
112 3,785,297
218R 3,785,298

CLASS 106
10 Re.27,890
35 3,785,832
39.6 3,785,833
3,785,834
47Q 3,785,835
50 3,785,836
52 3,785,837
55 3,785,838
90 3,785,839
118 3,785,840
186 3,785,841
288B 3,785,842
288Q 3,785,843
314 3,785,844

CLASS 108
11 3,785,299
44 3,785,300
109 3,785,301

CLASS 110
8A 3,785,305
8C 3,785,302
8R 3,785,303
3,785,304
14 3,785,306

CLASS 112
121.27 3,785,307
218R 3,785,308
254 3,785,309
256 3,785,310

CLASS 113
120H 3,785,311

CLASS 114
.5F 3,785,312
3,785,314
.5T 3,785,313
40 3,785,315
43.5 3,785,316
61 3,785,317
66.5H 3,785,319
74A 3,785,318
3,785,320
74R 3,785,321
201R 3,785,322
210 3,785,323
235A 3,785,324

CLASS 115
1R 3,785,325
7 3,785,326
16 3,785,327
17 3,785,328

41 3,785,329
70 3,785,330

CLASS 116

63R 3,785,331
70 3,785,332
3,785,333
106 3,785,334
112 3,785,335
114R 3,785,337
114.5 3,785,336
125 3,785,338
129R 3,785,339

CLASS 117

15 3,785,845
17.5 3,785,846
54 3,785,851
62 3,785,847
73 3,785,848
75 3,785,855
3,785,856
93.31 3,785,849
3,785,850
105.5 3,785,852
106 3,785,853
107.2P 3,785,854
124B 3,785,857
136 3,785,858
3,785,859
138.8UA 3,785,860
138.8B 3,785,861
217 3,785,862

CLASS 118

101 3,785,340
421 3,785,341

CLASS 119

5 3,785,342
17 3,785,343
3,785,344
18 3,785,345
27 3,785,346
29 3,785,347
62 3,785,348
82 3,785,349

CLASS 122

115 3,785,350
379 3,785,351

CLASS 123

8.13 3,785,352
32EA 3,785,353
3,785,354
119A 3,785,355
148E 3,785,356
195R 3,785,357

CLASS 124

1 3,785,358

CLASS 126

19.5 3,785,359
30 3,785,360
39J 3,785,364
41R 3,785,361
208 3,785,362
350R 3,785,363
400 3,785,365

CLASS 127

9 3,785,863
46A 3,785,864
55 3,785,865

CLASS 128

2B 3,785,366
2F 3,785,367
2.08 3,785,370
2.1Z 3,785,368
40 3,785,369
77 3,785,371
80C 3,785,372
82 3,785,374
82.1 3,785,375
91 3,785,373
130 3,785,376
188 3,785,377
214C 3,785,378
218M 3,785,379
276 3,785,380
323 3,785,381
328 3,785,382
414 3,785,383

CLASS 131

121 3,785,384
140P 3,785,385

CLASS 133

3D 3,785,386

CLASS 134

3 3,785,866
95 3,785,387

CLASS 135

20R 3,785,388

CLASS 136

6R 3,785,867
30 3,785,868
75 3,785,869
86C 3,785,870
100M 3,785,871
114 3,785,872
3,785,873
133 3,785,874
205 3,785,875

CLASS 137

1 3,785,389
13 3,785,390
110 3,785,393
117 3,785,392
119 3,785,391
218 3,785,394
223 3,785,395
305 3,785,399
344 3,785,400
359 3,785,396
434 3,785,397
488 3,785,398
493.2 3,785,401
561A 3,785,402
608 3,785,403
614 3,785,404

CLASS 138

39 3,785,405
103 3,785,406
108 3,785,407

CLASS 139

12 3,785,408

CLASS 140

92.2 3,785,409

CLASS 141

10 3,785,410
18 3,785,411
83 3,785,412
84 3,785,413
114 3,785,414

CLASS 144

34R 3,785,415
116 3,785,416
221 3,785,417

CLASS 148

2 3,785,876
3,785,877
18 3,785,878
27 3,785,879
31.55 3,785,880
103 3,785,881
113 3,785,882
131 3,785,883
171 3,785,884
172 3,785,885
175 3,785,886

CLASS 149

19 3,785,887
38 3,785,888
92 3,785,889
109 3,785,890

CLASS 150

52R 3,785,418
3,785,419

CLASS 151

37 3,785,420
41.75 3,785,421

CLASS 152

241 3,785,422
361R 3,785,423

CLASS 156

3 3,785,891
3,785,892
89 3,785,895
97 3,785,896
198 3,785,893
201 3,785,897
209 3,785,899
245 3,785,900
351 3,785,902
353 3,785,898
356 3,785,903
384 Re.27,889
400 3,785,905
415 3,785,894
435 3,785,906
441 3,785,904
443 3,785,907
479 3,785,908
527 3,785,901
541 3,785,909
580 3,785,910

CLASS 157

1.1 3,785,424

CLASS 159

11 3,785,425

CLASS 160

327 3,785,426

CLASS 161

5 3,785,911
6 3,785,912
41 3,785,913
133 3,785,914
150 3,785,915
156 3,785,916
161 3,785,917
169 3,785,918
175 3,785,919

CLASS 162

19 3,785,920
168 3,785,921
299 3,785,922

CLASS 164

154 3,785,427
278 3,785,428
282 3,785,429

CLASS 165

1 3,785,430
9 3,785,431
22 3,785,432
27 3,785,433
29 3,785,434
76 3,785,435

CLASS 166

120 3,785,436
281 3,785,437
295 3,785,438

CLASS 169

2A 3,785,439
20 3,785,440

CLASS 172

311 3,785,441

CLASS 173

12 3,785,442
48 3,785,443
78 3,785,444
194M 3,785,204

CLASS 174

15R 3,786,168
28 3,786,169
3,786,170
3,786,174
48 3,786,171
68.5 3,786,172
88S 3,786,173
211 3,786,175

CLASS 175

5 3,785,445
50 3,785,446

CLASS 176

36R 3,785,923
61 3,785,924
87 3,785,925

CLASS 177

119 3,785,447

CLASS 178

5.4BT 3,786,177
5.4CD 3,786,176
3,786,178
5.4SD 3,786,179
6.5 3,786,180
6.7A 3,786,182
6.8 3,786,181
3,786,183
7.2 3,786,184
7.8 3,786,185
7.89 3,786,186
69A 3,786,187

CLASS 179

1GQ 3,786,193
1SA 3,786,188
2DP 3,786,190
6R 3,786,189
3,786,191
15AQ 3,786,192
15.55T 3,786,195
18AD 3,786,194
18DA 3,786,196
18EB 3,786,197
27FH 3,786,198
41A 3,786,199
81B 3,786,200
100.2R 3,786,201
110A 3,786,202
146R 3,786,203

CLASS 180

5R 3,785,448
6.48 3,785,449
6.7 3,785,450
69.1 3,785,451

CLASS 181

33K 3,785,452
36R 3,785,453

CLASS 182

14 3,785,454
22 3,785,455

CLASS 184

6R 3,785,456
6.12 3,785,458
6.5 3,785,457
3,785,459
43 3,785,460
55A 3,785,461

CLASS 187

18 3,785,462
29R 3,785,463

CLASS 191

12.2R 3,785,464
48 3,786,204

CLASS 192

48.5 3,785,465
89B 3,785,466

CLASS 193

35MD 3,785,468
35A 3,785,467
36 3,785,469

CLASS 195

28N 3,785,926
51R 3,785,927
100 3,785,929
127 3,785,930
140 3,785,928

CLASS 197

6.4 3,785,470
63 3,785,471

CLASS 198

33AC 3,785,473
38 3,785,474
41 3,785,475
171 3,785,472
189 3,785,476
218 3,785,477

CLASS 200

5A 3,786,205
16D 3,786,206
51R 3,786,208
61.86 3,786,207
67C 3,786,209
81.4 3,786,210
83R 3,786,212
83T 3,786,211
83Z 3,786,218
144B 3,786,214
144C 3,786,213
148A 3,786,215
148D 3,786,216
214 3,786,217

CLASS 202

234 3,785,931
248 3,785,932
263 3,785,933
3,785,934

CLASS 203

20 3,785,935

CLASS 204

15 3,785,937
16 3,785,938
38A 3,785,936
43S 3,785,939
56R 3,785,940
67 3,785,941
99 3,785,942
100 3,785,943
107 3,785,944
129.95 3,785,945
181 3,785,946
195P 3,785,948
195S 3,785,947
219 3,785,949
228 3,785,954
239 3,785,950
268 3,785,951
297W 3,785,952

CLASS 206

45.31 3,785,478
47A 3,785,479
3,785,481
47R 3,785,480
53 3,785,482
59A 3,785,483
65C 3,785,484

CLASS 208

49 3,785,953
3,785,957
80 3,785,955
87 3,785,958
93 3,785,956
120 3,785,959
135 3,785,960
139 3,785,961
164 3,785,962
171 3,785,963
191 3,785,964
208M 3,785,965
213 3,785,966
216 3,785,967
251R 3,785,968
308 Re.27,888

CLASS 209

75 3,785,485
80.5 3,785,486
82 3,785,487
167 3,785,488
211 3,785,489

CLASS 210

19 3,785,969
23 3,785,970
40 3,785,972
64 3,785,971
109 3,785,490
130 3,785,491
149 3,785,492
169 3,785,493
3,785,494
210 3,785,495
242 3,785,496
282 3,785,497
351 3,785,498

CLASS 211

4 3,785,499
5 3,785,500
7 3,785,501
134 3,785,502

CLASS 212

8B 3,785,503
84 3,785,504
144 3,785,505

CLASS 214

1BH 3,785,507
1P 3,785,506
6M 3,785,508
8.5H 3,785,509
11C 3,785,510
14 3,785,511
17D 3,785,512
18.22 3,785,513
38R 3,785,514
75G 3,785,515
152 3,785,516
450 3,785,517
454 3,785,518

CLASS 215

46A 3,785,519

CLASS 219

10.49 3,786,219
3,786,220
3,786,222
10.57 3,786,221
69V 3,786,223
121LM 3,786,224
124 3,786,225
125R 3,786,226
201 3,786,227
233 3,786,228
241 3,786,229
343 3,786,233
345 3,786,230
365 3,786,231
3,786,232

CLASS 220

22.1 3,785,520
22.3 3,785,521
54 3,785,522

CLASS 221

42 3,785,523
122 3,785,524
265 3,785,525

CLASS 222

14 3,785,526
56 3,785,527
148 3,785,528
161 3,785,529
193 3,785,530
3,785,531
207 3,785,532
327 3,785,533
331 3,785,535
402.21 3,785,536
460 3,785,534
464 3,785,537
490 3,785,538
552 3,785,539
559 3,785,540

CLASS 224

42.08 3,785,541

CLASS 226

22 3,785,542
188 3,785,543

CLASS 229

14BE 3,785,544
51DB 3,785,545
53 3,785,546
62.5 3,785,547

CLASS 233

20A 3,785,548
23R 3,785,549

CLASS 235

50R 3,785,550
61.11A 3,786,235
61.11E 3,786,236
3,786,237
3,786,238
61.7R 3,786,234
80 3,785,553
92PE 3,786,239
95 3,785,551
98R 3,785,552
132R 3,786,240
183 3,786,241
184 3,786,242

CLASS 236

34 3,785,554
53 3,785,555

CLASS 239

6 3,785,556
14 3,785,557
16 3,785,558
17 3,785,559
3,785,560
60 3,785,561
92 3,785,562
172 3,785,564
183 3,785,563
206 3,785,565
259 3,785,566
265.39 3,785,567
310 3,785,568
337 3,785,569
401 3,785,570
492 3,785,571
518 3,785,572
658 3,785,573

CLASS 240

1.3 3,786,247
1.4 3,786,243
3,786,244
2AD 3,786,245
6.4R 3,786,246
25 3,786,248

CLASS 241

15 3,785,574
33 3,785,575
57 3,785,576
3,785,577
202 3,785,578
282.1 3,785,579

CLASS 242

7.05B 3,785,580
3,785,583
39 3,785,581
3,785,582
55.19A Re.27,885
118.31 3,785,585
118.6 3,785,584
159 3,785,587
188 3,785,588
201 3,785,586
3,785,589

CLASS 244

1SA 3,785,595
1SC 3,785,591
1SS 3,785,590
12C 3,785,592
12R 3,785,593
42DA 3,785,594
83R 3,785,596
151A 3,785,597

CLASS 248

58 3,785,598
117.2 3,785,599
119R 3,785,601
188.1 3,785,600
214 3,785,602
225 3,785,603
231 3,785,604
455 3,785,605

CLASS 249

3 3,785,606
48 3,785,607
161 3,785,608
197 3,785,609
214 3,785,610

CLASS 250

83.3R 3,786,257
205 3,786,261
206 3,786,262
209 3,786,263
214R 3,786,264
222R 3,786,266
256 3,786,267
283 3,786,249
302 3,786,255
306 3,786,268
315 3,786,252
328 3,786,259
334 3,786,269
360 3,786,253
385 3,786,270
390 3,786,251
391 3,786,256
398 3,786,271
429 3,786,250
483 3,786,254
501 3,786,258
518 3,786,260
562 3,786,265

CLASS 251

25 3,785,611
43 3,785,612
56 3,785,613
63 3,785,614
74 3,785,615

121 3,785,616

CLASS 252

8.8 3,785,973
28 3,785,974
32.5 3,785,975
33 3,785,976
33.6 3,785,977
50 3,785,978
51.5A 3,785,979
3,785,980
3,785,981
62.1 3,785,982
99 3,785,983
106 3,785,984
136 3,785,985
171 3,785,986
181 3,785,987
301.1R 3,785,988
301.2R 3,785,990
301.4R 3,785,989
301.6R 3,785,992
356 3,785,991
372 3,785,993
400R 3,785,994
415 3,785,995
426 3,785,996
441 3,785,997
464 3,785,999
3,786,000
3,786,001
477R 3,785,998
500 3,786,002
551 3,786,003

CLASS 254

1 3,785,617
94 3,785,618

CLASS 256

10 3,785,619

CLASS 259

4 3,785,620
102 3,785,621
176 3,785,622
185 3,785,623

CLASS 260

2.5AC 3,786,005
2.5N 3,786,004
3,786,006
17.3 3,786,041
18N 3,786,007
21 3,786,010
22CB 3,786,011
23H 3,786,008
23.7M 3,786,009
28.5R 3,786,013
28.5 3,786,012
29.2R 3,786,014
32.6PQ 3,786,018
32.8SB 3,786,015
37EP 3,786,019
38 3,786,017
41A 3,786,020
41.5A 3,786,087
45.75B 3,786,023
45.75N 3,786,021
47CZ 3,786,024
47C 3,786,022
51.5 3,786,025
67FP 3,786,026
3,786,027
75NC 3,786,029
75N 3,786,028
77.5AQ 3,786,031
3,786,034
77.5NC 3,786,030
79.1 3,786,035
91.7 3,786,032
94.2M 3,786,036
97.5 3,786,037
112.5 3,786,038
3,786,039
162 3,786,040
176 3,786,042
239D 3,786,045
239.1 3,786,049
239.3D 3,786,051
239.6 3,786,048
3,786,050
240R 3,786,046
3,786,052
240.8 3,786,047
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496	3,786,135	95	3,786,141	267	3,786,148	301	3,786,155	59	3,785,759	**CLASS 431**	
522	3,786,136	118	3,786,142	269	3,786,149	304	3,786,131	155	Re.27,881	328	3,785,763
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648	3,786,138	250	3,786,145	273	3,786,151	309	3,786,143	289	3,785,762	85	3,785,764
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	3,785,268		3,785,853		3,786,404		3,786,100		3,786,471		3,785,619
	3,785,270		3,785,865		3,786,429		3,786,160		3,786,510		3,785,627
	3,785,290		3,785,879		3,786,440		3,786,207	13 :	3,785,307		3,785,639
	3,785,312		3,785,907		3,786,454		3,786,267		3,785,468		3,785,676
	3,785,313		3,785,912		3,786,457		3,786,272		3,785,550		3,785,679
	3,785,319		3,785,913		3,786,465		3,786,291		3,785,654		3,785,691
	3,785,326		3,785,914		3,786,472		3,786,311		3,785,669		3,785,733
	3,785,327		3,785,936		3,786,479		3,786,382		3,785,971		3,785,754
	3,785,336		3,785,980		3,786,481		3,786,405		3,786,257		3,785,772
	3,785,350		3,785,981		3,786,482	10 :	3,785,073		3,786,351		3,785,774

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PATENT NOTICES

Certificates of Correction for the Week of Jan. 22, 1974

P.P. 3,190	3,723,516	3,740,878	3,748,141
P.P. 3,347	3,723,812	3,741,089	3,748,640
Re. 27,659	3,725,026	3,741,174	3,748,818
D. 228,119	3,726,697	3,741,799	3,749,381
3,610,864	3,726,851	3,741,967	3,749,612
3,614,608	3,727,574	3,742,001	3,749,735
3,615,359	3,727,665	3,742,138	3,749,817
3,616,325	3,727,705	3,742,354	3,749,997
3,627,872	3,727,809	3,742,576	3,750,371
3,642,823	3,727,810	3,743,019	3,750,616
3,644,593	3,728,011	3,743,041	3,750,749
3,653,225	3,728,106	3,743,243	3,752,321
3,654,319	3,728,550	3,743,250	3,752,438
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3,655,465	3,729,853	3,743,596	3,752,711
3,655,553	3,730,184	3,744,460	3,752,940
3,656,283	3,731,561	3,744,924	3,753,253
3,679,775	3,731,981	3,745,248	3,753,730
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3,685,342	3,732,215	3,745,493	3,754,500
3,686,027	3,732,257	3,745,651	3,754,992
3,687,023	3,732,859	3,745,824	3,755,103
3,692,514	3,733,078	3,746,003	3,755,175
3,695,526	3,734,980	3,746,052	3,755,295
3,699,143	3,735,084	3,746,075	3,755,388
3,699,186	3,735,165	3,746,240	3,755,404
3,715,451	3,735,657	3,746,456	3,756,061
3,716,723	3,736,593	3,746,581	3,756,155
3,718,970	3,736,671	3,746,654	3,756,225
3,719,980	3,736,973	3,747,021	3,758,531
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3,721,973	3,740,000	3,747,843	3,761,417
3,723,107	3,740,220	3,748,049	3,762,059
3,723,399	3,740,698	3,748,055	

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

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Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. DEPARTMENT OF TRANSPORTATION

Patent Counsel, 300 7th St., SW., Washington, D.C. 20590

Patent application 401,294. Display System Employing Digitally-Addressable GRT. Filed Sept. 27, 1973. PC $3/MF $1.45.

Patent application 412,263. De-Icing and Ice Preventive Composition and Process. Filed Nov. 2, 1973. PC $3/MF $1.45.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts., NW.,
Washington, D.C. 20240

Patent application 398, Removal of Mercury From Solution. Filed Sept. 19, 1973. PC $3/MF $1.45.

Patent application 398,025. Prefabricated Brick Panels. Filed Sept. 17, 1973. PC $3/MF $1.45.

Patent application 401,002. Smelting of Copper Oxides To Produce Blister Copper. Filed Sept. 26, 1973. PC $3/MF $1.45.

Patent 3,764,402. Creep-Resistant, High-Strength Zn-Al and Zn-Al-Mg Alloys. Filed Feb. 29, 1972. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,526. Dynamics Reverse Osmosis Membranes of Ultrathin Discs. Filed Mar. 28, 1972. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,650. Recovery of Gold From Ores. Filed Dec. 31, 1970. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,767,378. Production of Rutile and Iron From Ilmenite. Filed Jan. 5, 1972. Patented Oct. 23, 1973. Not available NTIS.

Patent 3,767,782. Self-Destructing Pesticidal Formulations and Methods for Their Use. Filed Dec. 23, 1970. Patented Oct. 23, 1973. Not available NTIS.

Patent 3,767,783. Self-Destructing Pesticidal Formulations and Methods for Their Use. Filed Dec. 23, 1970. Patented Oct. 23, 1973. Not available NTIS.

Patent 3,769,185. Electrolytic Preparation of Zirconium and Hafnium Diborides Using a Molten, Cryolite-Base Electrolyte. Filed Dec. 18, 1972. Patented Oct. 30, 1973. Not available NTIS.

DEPARTMENT OF THE NAVY
Assistant Chief for Patents, Office of Naval Research,
Code 302, Arlington, Va. 22217

Patent 3,487,687. Fluid Velocity Limit Gage. Filed Nov. 30, 1967. Patented Jan. 6, 1970. Not available NTIS.

Patent 3,488,018. Ducted Propulsion Units for VTOL Aircraft. Filed Mar. 13, 1968. Patented Jan. 6, 1970. Not available NTIS.

Patent 3,488,274. Electrolytic Composite Anode and Connector. Filed May 31, 1967. Patented Jan. 7, 1970. Not available NTIS.

Patent 3,488,507. Photovoltaic Detector and Method of Manufacture. Filed Apr. 15, 1966. Patented Jan. 6, 1970. Not available NTIS.

Patent 3,496,906. Day/Night Bidirectional Marine Marker. Filed Feb. 2, 1968. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,497,846. Magnetic Anchor for Curved and Irregular Surfaces. Filed Dec. 27, 1967. Patented Feb. 24, 1970. Not available NTIS.

Patent 3,498,768. Rust-Inhibitive Abrasive Blasting. Filed Oct. 18, 1967. Patented Mar. 3, 1970. Not available NTIS.

Patent 3,499,240. Illuminated Grid for Backlighted Plotting Boards. Filed Feb. 21, 1967. Patented Mar. 10, 1970. Not available NTIS.

Patent 3,699,435. Signal Spectrum Generator. Filed July 26, 1971. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,699,462. Channel Combining Circuit for Synchronous Phase Detection Systems. Filed June 1, 1971. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,699,534. Cellular Arithmetic Array. Filed Dec. 15, 1970. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,699,558. Nondestructive Readout Thin Film Memory Device and Method Therefor. Filed Feb. 12, 1971. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,700,269. Sexless Hose Coupling. Filed Nov. 17, 1970. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,293. Piston Type Thrust Bearing. Filed Apr. 7, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,350. Helicopter Cyclic and Collective Pitch Mechanism. Filed Feb. 3, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,354. Compressor Blade Root Seal. Filed May 3, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,409. Spot Test for Identification of Oil Contaminants in Water. Filed Apr. 23, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,445. Photoresist Processing Method for Fabricating Etched Microcircuits. Filed July 29, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,446. Process for Manufacture of Stripline Circuit Modules. Filed June 22, 1970. Patented Oct. 24, 1972. Not available NTIS.

[FR Doc. 73-27150; Filed 12-27-73; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 22, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-02-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo, Sulfur; Misc. Esters, Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-12-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carhohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-11-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	1-02-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-01-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-16-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	9-01-72[2]
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	4-02-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	7-17-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-15-73
DESIGNS, GROUP 290—R L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-17-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	3-08-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-10-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters, Stationery; Information Dissemination	3-02-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors: Pumps; Rotary Engines and Pumps: Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	3-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes. Sewing Machines.	9-28-72

Expiration of patents: The patents within the range of numbers indicated below expire during December 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 2,772,415 to 2,775,761, inclusive
Plant Patents ..... Numbers 1,532 to 1,542, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JANUARY 22, 1974

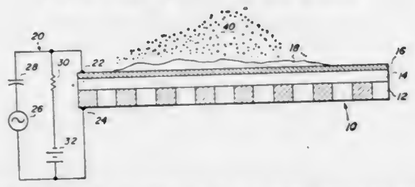
Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T918,010
VIBRATING-DIAPHRAGM POWDER-CLOUD GENERATOR

Theodore H. Morse, 4352 St. Paul Blvd., Rochester, N.Y. 14617

Filed Oct. 7, 1971, Ser. No. 187,267
Int. Cl. G03g *13/08*
U.S. Cl. 118—627
1 Sheet Drawing. 13 Pages Specification



An apparatus for generating a powder cloud by vibration of a laminated diaphragm with an oscillating electrical signal. Toner particles contact or are supported on a multi-layer diaphragm which preferably comprises an uppermost thin coating of metal, e.g., aluminum, vacuum or otherwise deposited on an intermediate flexible plastic membrane which, in turn, is positioned over a perforated rigid conductive member. Toner particles deposited atop the coated membrane are physically propelled into a powder cloud above the diaphragm when an oscillating electrical signal from a power source is applied. This occurs because the oscillating signal causes the coated plastic membrane to cyclically and physically flex due to electrostatic attraction and relaxation between the two conductive layers. Linear combinations of a variety of applied electrical frequencies can be utilized to form "beats" or pulses which cause greater vibration excursions to aid in agitating the toner particles into a powder cloud.

T918,011
MOLDING RESIN COMPOSITIONS

William W. Blount, Jr., 1129 Oakleaf Drive 37663; Roger H. Calendine, 217 Elmhurst Drive 37663; and James L. Suggs, 4241 Maplewood St. 37660, all of Kingsport, Tenn.

Filed Oct. 2, 1972, Ser. No. 293,899
Int. Cl. C08b *21/08;* **C08g** *39/10*
U.S. Cl. 260—16
No Drawing. 10 Pages Specification

Thickened, unsaturated polyesters of 2,2,4-trimethyl-1,3-pentanediol or neopentyl glycol, a polyhydric alcohol, and maleic acid, when reacted with styrene or the like, particularly in the presence of leveling resins such as cellulose acetate butyrate, produce molded articles of good surface appearance and a high degree of pigment homogeneity. The unsaturated polyesters have a number average molecular weight of from about 1,000 to about 4,000, their glycol constituents comprise at least about 30 percent by weight of 2,2,4-trimethyl-1,3-pentanediol or neopentyl glycol or mixtures thereof, and the polyhydric alcohol constituent comprises about 1 to 20 mole percent of the glycol constituent. The polyhydric alcohol may be pentaerythritol, trimethylolpropane, trimethylolethane, glycerine, mannitol, or the like.

T918,012
COMPUTER TERMINAL MESSAGE CONTROL

Francis Michael Hartmann, Hurley, Richard Alfred Jones, Redhook, Theodore Edwin Larson, Saugerties, Kenneth Rogers McNary, Hyde Park, and James Theodore Zahorsky, Saugerties, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1972, Ser. No. 305,744
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5
8 Sheets Drawing. 21 Pages Specification

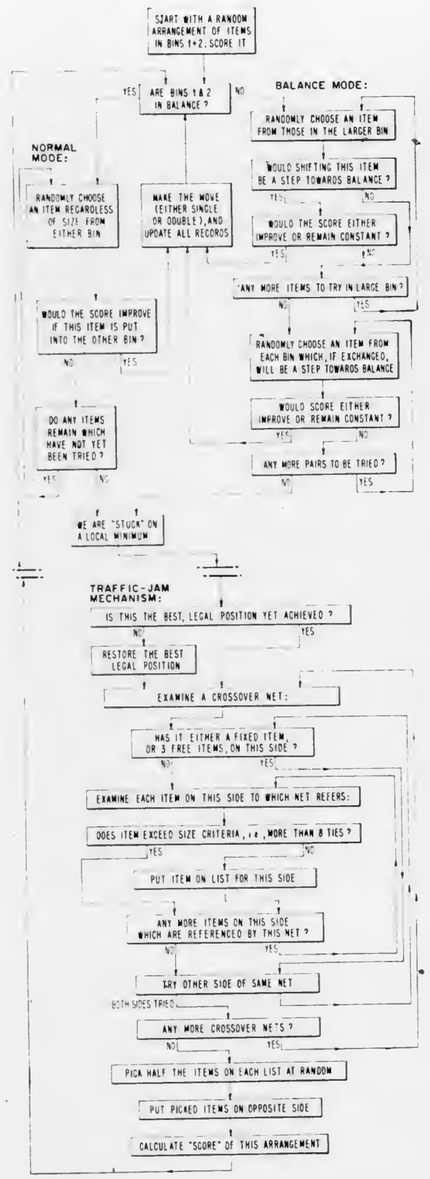


A terminal which includes an addressable message buffer for storing fields of data; the fields being defined as a group of consecutive characters starting with a field defining character followed by alphameric characters and terminated by a field defining character which defines the beginning of the next field. The field defining character defines an attribute of the field, i.e., whether the field is protected [P] from modification by a terminal operator or unprotected [U] and therefore available for modification or entry of data. The terminal responds to a data stream which includes a single program tab order. In executing this order, the current buffer address is advanced to the address of the first character location of the next unprotected field. If the order is issued following an alphameric or null character, null characters are inserted for all the remaining characters in the current field; otherwise, no null character insertion operation takes place.

T918,013
NATURAL SELECTION PROGRAM WITH RADOMIZATION TRAFFIC-JAM MECHANISM

Bradford Dunham, White Plains, and James H. North, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 28, 1973, Ser. No. 374,620
Int. Cl. G06f *7/00*
U.S. Cl. 444—1
4 Sheets Drawing. 17 Pages Specification

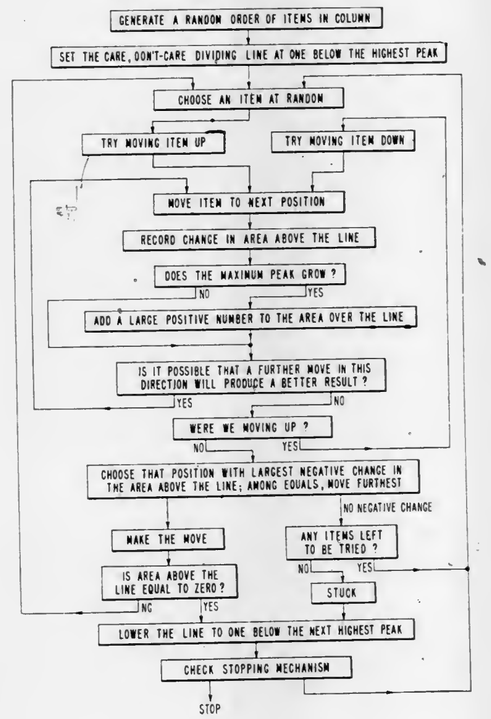


The present invention relates to an automatic process for preventing a "natural selection" design automation computer program that is optimizing a specified objective function, for example, the location of a plurality of objects, from becoming permanently "stuck" at an unsatisfactory local minimum. The innovation presented in the disclosure is in the application of a novel "traffic-jam" routine which enables the optimization process to continue after it has reached such a local minimum. This routine operates most effectively in certain traffic-jam situations caused by unrecognized coalitions of objects where it is difficult to recognize the coalitions in question and difficult to maneuver them when unrecognized. Such coalitions can be broken up by an appropriate randomization of certain subsets of the total data, the subsets in question being demonstrably of high relevance to those unrecognized coalitions whose incorrect location has caused the unsatisfactory local minimum to be reached. The normal natural selection process may then continue to a more successful point even though the coalitions themselves remain unrecognized.

T918,014
NATURAL SELECTION METHOD FOR DESIGN AUTOMATION INCLUDING A MOVING LINE SCORER

Bradford Dunham, 300 Martine Ave., White Plains, N.Y. 10601, and James H. North, 1249 Baldwin Road, Yorktown Heights, N.Y. 10598

Filed June 29, 1973, Ser. No. 375,288
Int. Cl. G06f *15/46*
U.S. Cl. 444—1
2 Sheets Drawing. 14 Pages Specification



What is described is a progressive scoring mechanism for a "natural selection" design automation method

which can be embodied in a computer program for optimizing a specified objective function, for example, the location of a plurality of objects. By dividing what is scored by the optimization process at a given stage on what is defined as a "care" "don't care" basis, the program can focus attention on most troublesome points without prematurely building in structure elsewhere. At a next stage, some of the material previously treated as "don't care" is now treated as "care." Thus, the method can proceed through a sequence of stages progressively dealing with more and more of the content of the problem until an appropriate stopping point is reached. In this way, not only can worst peaks be directly attacked, but also lesser peaks and valleys can be treated in due course.

T918,015

RESCHEDULING OF I/O INTERRUPTS

Gerald A. Davison, Poughkeepsie, and Edward J. Nauss, Millbrook, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

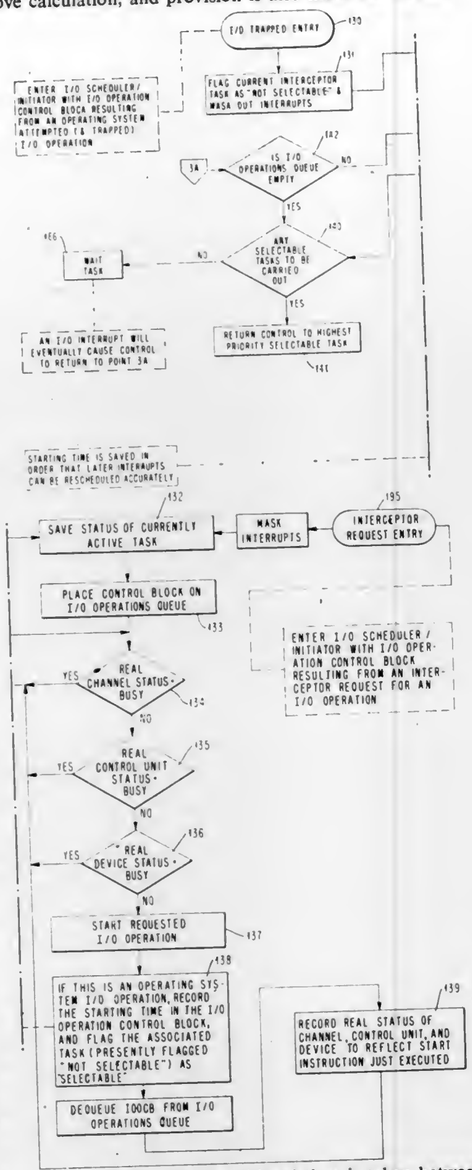
Continuation of application Ser. No. 218,743, Jan. 18, 1972. This application July 25, 1973, Ser. No. 382,431

Int. Cl. G06f *7/00*
U.S. Cl. 444—1

13 Sheets Drawing. 32 Pages Specification

To evaluate computer system performance, software techniques are frequently used to collect data on the system as it runs, and/or to simulate new devices. However, data collecting, simulating and report writing procedures degrade the performance of the system on which they are run and therefore provide distorted results. The technique herein is designed to hide the overhead procedure from the performance of the system by using prior art procedures in stopping the system clock whenever an overhead program is being executed, and adding to that a technique for compensating for distortion in the I/O area by intercepting and rescheduling I/O interrupts to compensate for the "stolen" time during which the system clock is stopped.

The procedure involves the interception of all I/O instructions issuing from the CPU to the channel and interception of all I/O interrupts from the channel in order to reschedule their presentation to the operating system. This is accomplished by measuring the length of time that it takes for the I/O operation to be performed and, by adding to that time any "stolen" time taken from the operating system during the period in which the I/O operation was outstanding, the presentation of the interrupt may be delayed an appropriate time. Provision is made for scheduling the interrupt in accordance with the above calculation, and provision is also made for further delaying the interrupt if additional time is taken between initial rescheduling and final presentation.



REISSUES

JANUARY 22, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

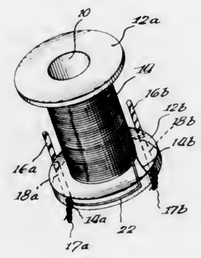
27,891
INDUCTOR COIL

Dhu Aine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co., Inc.

Original No. 3,544,940, dated Dec. 1, 1970, Ser. No. 792,721, Jan. 21, 1969. Application for reissue July 13, 1971, Ser. No. 162,127

Int. Cl. H01f *15/10*

U.S. Cl. 336—192 **6 Claims**



An electrical coil which has a bobbin configuration with a coil receiving central portion and a pair of end discs at the ends of the central portion defining a channel. A plurality of slots are formed in one of the end discs for receiving terminal leads which have exposed conductor portions for connection to end wires from a coil wound on the central portion of the bobbin. Each of the slots has openings at opposite ends so that a terminal lead may be inserted into one end of the slot with the exposed conductor portion protruding from the opposite end of the slot for connection to one of the coil end wires.

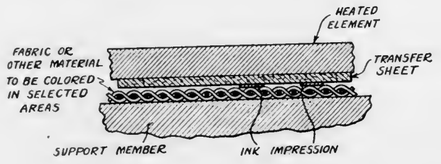
27,892
HEAT TRANSFER OF INDICIA CONTAINING SUBLIMABLE COLORING AGENT

Carl B. Blake, Bronx, N.Y., by Sinclair & Valentine Company, Inc., New York, N.Y., assignee

Original No. 3,363,577, dated Jan. 16, 1968, Ser. No. 532,490, Jan. 19, 1966, which is a continuation-in-part of Ser. No. 115,152, June 6, 1961. Application for reissue May 18, 1972, Ser. No. 235,380

Int. Cl. B41m *5/26*

U.S. Cl. 101—470 **11 Claims**



A process and structure for heat transfer of indicia from one surface to another involving the use of a transfer device consisting of a surface having imprinted thereon in mirror image the indicia to be transferred with an ink containing a sublimable dye.

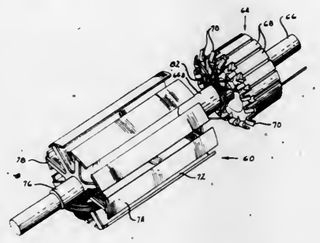
27,893
ARMATURE WINDING AND COMMUTATOR CONNECTION

Jerry E. Miller, Dayton, Ohio, assignor to The Globe Tool and Engineering Company, Dayton, Ohio

Original No. 3,506,864, dated Apr. 14, 1970, Ser. No. 704,342, Feb. 9, 1968. Application for reissue Apr. 18, 1972, Ser. No. 245,282

Int. Cl. H02k *3/46*

U.S. Cl. 310—234 **14 Claims**



Novel winding patterns for armatures having various numbers of slots and either one or two coils per slot are disclosed along with methods and apparatus for winding armatures. Lead wires between coils are wrapped around the armature shaft and looped around commutator tangs. An efficient method of obtaining armatures having opposite polarities is also shown and described.

27,894
4-HYDROXY-3-(3-PHENYLUREIDO)CROTONIC ACID, GAMMA LACTONE COMPOUNDS

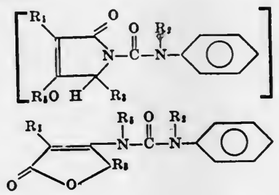
Peter Gerlke, Hilden, Germany, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original No. 3,541,111, dated Nov. 17, 1970, Ser. No. 727,712, May 8, 1968. Application for reissue May 15, 1972, Ser. No. 253,639

Int. Cl. C07d *5/06*

U.S. Cl. 260—343.6 **8 Claims**

Novel compounds are presented which have the following structure



where:

R_1 is hydrogen, halogen, methyl or ethyl,

R_2 and R_3 are independently selected from hydrogen or alkyl of one through three carbon atoms and salts of said compounds when R_5 is hydrogen where the salt forming constituent is an alkali metal ion, alkaline earth metal ion, ammonium ion or mono-, di-, tri-, or tetra-substituted ammonium ion where the substituents are alkyl of one through four carbon atoms or benzyl, and

R_5 is hydrogen or alkyl of one through four carbon atoms.

These compounds are excellent defoliants.

27,895

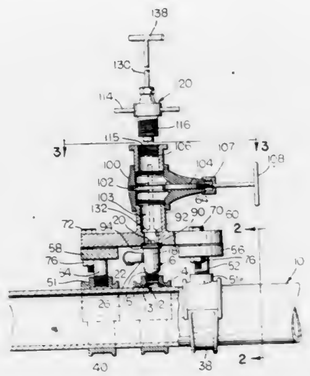
METHOD FOR REPAIRING PRESSURE LINES SUCH AS GAS MAINS AND THE LIKE

Charles W. Ray, Fort Wayne, Ind., assignor to Emmett O. Bandy, Indianapolis, Ind.

Original No. 3,626,576, dated Dec. 14, 1971, Ser. No. 807,846, Mar. 17, 1969. Application for reissue Jan. 26, 1973, Ser. No. 326,878

Int. Cl. F16l *55/10*

U.S. Cl. 137—15 2 Claims



In repairing gas mains, a fixture is clamped to the main at the location of the repair, and a conduit is then joined to the main through a sealed fit. The conduit has a valve which separates the conduit into two compartments, and the end of the conduit is adapted to receive a tool mounting, the valve being opened and a tool passed through the conduit to perform repair operations on the main. The tool mounting is connected to the conduit through a sealed connection, and the tool can be operated through the tool mounting means by an operator so that the repair operation occurs through a sealed conduit. The entire operation occurs with normal operation of the main under its usual operating condition of internal superatmospheric pressure.

This superatmospheric pressure can be varied and the present invention contemplates pressures for gas mains in the range of 60 p.s.i.–120 p.s.i., other pressures for other materials such as petroleum, water etc., varying as desired.

27,896

METHOD OF FORMING A COPPER CONTAINING PROTECTIVE COATING PRIOR TO ELECTRODEPOSITION OF PAINT

Werner Rausch, Stierstadt, Hans Hansen, Karben, and Gerhard Mueller, Hanau, Germany, assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Original No. 3,467,589, dated Sept. 16, 1969, Ser. No. 587,679, Oct. 19, 1966. Application for reissue Sept. 5, 1972, Ser. No. 286,505

Claims priority, application Germany, Nov. 6, 1965, P 12 87 413.4

Int. Cl. B01k *5/02*; C23b *13/00*

U.S. Cl. 204—181 8 Claims

1. A method for forming a protective coating on a ferrous metal surface which comprises contacting said surface with an acidic zinc phosphate coating solution containing from about 3 to 200 milligrams per liter of Cu^{++} for a period sufficient to form a zinc phosphate coating containing metallic copper on the surface and, thereafter, electrophoretically depositing a paint on the thus-coated surface.

27,897

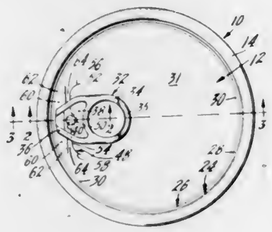
FULL OPEN END

Leonard Thomas La Croce, Paramus, and Raymond Luscombe Batchelar, Westwood, N.J., and John Wilson Rouse, Stamford, Conn., assignors to American Can Company, New York, N.Y.

Original No. 3,544,025, dated Dec. 1, 1970, Ser. No. 728,518, May 13, 1968. Application for reissue Aug. 5, 1971, Ser. No. 169,559

Int. Cl. B65d *17/20*

U.S. Cl. 220—54 17 Claims



A "self-opening" can end having a central wall is peripherally scored to define a removable panel which may be removed by manipulation of a pull tab which is riveted to the removable panel at a location adjacent to the peripheral score, the removable panel being provided with to ancillary score passing adjacent to the rivet on the side thereof away from the peripheral score, to set off in the removable panel a pivotable portion which contains the rivet and two flex-inducing scores which are disposed on either side of the rivet between the peripheral score and the ancillary score, to render the pivotable portion sufficiently flexible to prevent its rupture during the opening operation. The outer end of the pull tab is tilted upwardly to insure that the ancillary score ruptures before the peripheral score does.

27,898

PEDESTAL CLOSURES FOR BURIED TELEPHONE PLANT

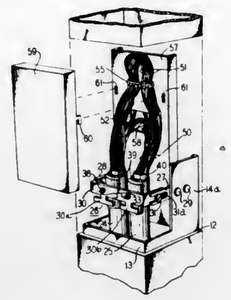
Robert Garland Baumgartner, Baltimore, Md., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original No. 3,538,236, dated Nov. 3, 1970, Ser. No. 831,086, June 6, 1969. Application for reissue Sept. 12, 1972, Ser. No. 288,412

Int. Cl. H02g *9/02*

U.S. Cl. 174—38 3 Claims

This specification discloses a pedestal-type telephone cable closure consisting of a base and an upper housing of like cross section. The base is mounted on a channel which is driven into the ground separately. The cables are led in through the base bottom and supported on a bonding clamp that also contacts the cable's metallic shield. A center partition in the upper housing physically



segregates the pairs to which service wire splices will be made.

27,899

SLOPE SENSING DEVICE

Luther B. Burgin, Box 958, Poplar Bluff, Mo. 63901

Original No. 3,564,531, dated Feb. 16, 1971, Ser. No. 659,284, July 24, 1967, which is a continuation-in-part of abandoned Ser. No. 572,143, Aug. 12, 1966. Application for reissue Feb. 12, 1973, Ser. No. 331,581

Int. Cl. G08b *21/00*

U.S. Cl. 340—282 17 Claims

A body of mercury, the movement of which is dampened by baffles, establishes a conductive path between contacts within a chamber the position of whch reflects tilting of a grading blade [of] *to* automatically correct the position of the blade. The sensitivity of the device is varied by adjusting the position of an element partially submerged in the mercury.

27,900

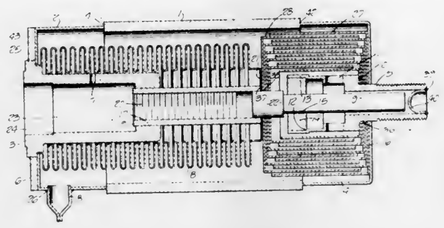
HERMETICALLY SEALED VARIABLE CAPACITOR WITH OPTIMUM MOVABLE PLATE SHAFT BEARING STRUCTURE

Joseph Emil Oeschger, Palo Alto, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Original No. 3,541,405, dated Nov. 17, 1970, Ser. No. 820,451, Apr. 30, 1969. Application for reissue Nov. 16, 1972, Ser. No. 307,163

Int. Cl. H01g *5/04*

U.S. Cl. 317—245 5 Claims



A variable vacuum capacitor having a ceramic body shell and metal end bells and a plurality of fixed concentric cylindrical plates mounted inside near one end of said body shell and a corresponding plurality of axially interleaving movable plates mounted on a shaft assembly. The shaft assembly is mounted through two thrust bearings; one of said bearings (internal) being located at a position within the axial length of the fixed plates, and the other (external) being mounted within the body shell between the plates and the opposite end of the body shell at a point where it supports one end of the shaft assembly and allows for shaft overtravel within the end bell at that end. The external bearing and its support are within a metal bellows open to the atmosphere at the same end. The metal bellows is attached (vacuum tight) near the center of the shaft assembly and compresses and extends axially with movement of the shaft assembly. The volume around the plates (including the internal bearing) is sealed and evacuated. An independent concentric hollow spindle fixed end mount supports the internal bearing and relieves the fixed plates of any structural load therefrom while also providing overtravel space for the internal end of the shaft assembly.

PLANT PATENTS

GRANTED JANUARY 22, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,443

CHRYSANTHEMUM PLANT

Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Dec. 27, 1971, Ser. No. 212,836

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—77 1 Claim

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as shown and described, characterized particularly as to its novelty by the unique combination of a pure white color, an eight week response time under summer growing conditions, and a relatively large number of flowers per plant.

3,444

CHRYSANTHEMUM PLANT

Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England

Filed Dec. 27, 1971, Ser. No. 212,835

Int. Cl. A01h *5/00*

U.S. Cl. Plt.—82 1 Claim

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, pot type, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a uniform response under winter light conditions, a short internode length, incurved flowers, and a distinct ruby color.

3,445
CHRYSANTHEMUM PLANT
Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England
Filed Dec. 27, 1971, Ser. No. 212,833
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a reduced flowering time, uniformity of response in a wide range of environmental conditions, and marigold orange color with red undertones.

3,446
CHRYSANTHEMUM PLANT
Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England
Filed Dec. 27, 1971, Ser. No. 212,832
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of reduced flowering time, uniform response in a wide range of environmental conditions, and currant red color.

3,447
CHRYSANTHEMUM PLANT
Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England
Filed Dec. 27, 1971, Ser. No. 212,831
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, spray type, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a nine week flowering response during short days, a uniform habit of growth, and the ability to maintain the normal green color of its foliage under a wide variety of soil conditions.

3,448
GRAPEVINE
Luther R. Stohl, 5895 Avenue 426, Reedley, Calif. 93654
Filed Jan. 6, 1972, Ser. No. 215,922
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—47 **1 Claim**

A new and distinct variety of grapevine characterized principally by its leaves of an orbicular cordate configuration having five clefts dividing five lobes, large seedless berries having less rudimentary embryo and firmer pulp than the berries of the Thompson seedless grape which it most nearly resembles, but from which it is distinguished, growing in large loose clusters less compact and more elongated than the clusters of the Thompson seedless grape and supported by peduncles of a length of from 2 to 4 inches.

3,449
CHRYSANTHEMUM PLANT
Hubert Brandkamp, In der Flora 6, Anholt, Westphalia, Germany, and Hermann Vogel, Via delle Grugnole, Tre Cancelli, Nettuno, Italy
Filed Jan. 17, 1972, Ser. No. 218,369
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—77 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a wiry, upright plant with spider-flowers having from 60 to 80 fully expanded petals of tube-shape, which are blunt at their ends, an exact response time of 10 weeks over the year.

3,450
CHRYSANTHEMUM PLANT
Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England
Filed Dec. 27, 1971, Ser. No. 212,838
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—80 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey (pot type), substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a reduced response period, an increased number of flowers per plant, and improved quality of petal in poor winter light conditions.

3,451
CHRYSANTHEMUM PLANT
Barrie John Machin, East Broyle Estate, Chichester, England, assignor to Frampton's Nurseries Limited, Chichester, Sussex, England
Filed Dec. 27, 1971, Ser. No. 212,837
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—81 **1 Claim**

1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of purple color, short internode length, and uniform response time in poor winter light conditions.

3,452
ROSE PLANT
Marie-Louise Meilland, Cap d'Antibes, France, assignor to The Conrad-Pyle Company, West Grove, Pa.
Filed Jan. 10, 1972, Ser. No. 216,817
Claims priority, application France, Jan. 15, 1971, 7102259
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—20 **1 Claim**

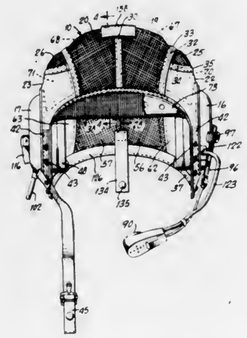
A rose plant of the hybrid tea class, with double red flowers, produced by crossing the variety Lovita (Plant Pat. No. 2,598), as pollen parent, on an unnamed seedling, as seed parent, which was the product of crossing Baccara (Plant Pat. No. 1,367) on Queen Elizabeth (Plant Pat. No. 1,257).

PATENTS

GRANTED JANUARY 22, 1974

GENERAL AND MECHANICAL

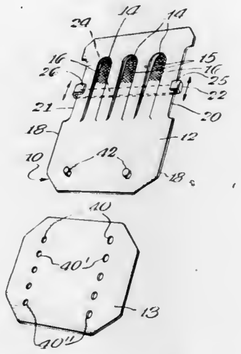
3,786,519
HEADGEAR STRUCTURE
Jackson Anthony Aileo, Carbondale, Pa., assignor to Gentex Corporation, Carbondale, Pa.
Filed Nov. 12, 1970, Ser. No. 88,823
Int. Cl. A42b *3/00*
U.S. Cl. 2—6 **11 Claims**



A flexible helmet having plural inner and outer panels of woven fabric cut and assembled so as to conform closely to heads of different shapes and sizes, and plural pads for protecting the wearer's head against impacts, the pads being removably carried in separate pockets formed by the inner and outer panels. The pads may be fabricated of resilient energy-absorbing material and/or may include a layer of flexible ballistic material for protection against blows from sharp objects. The helmet panels may be made of open mesh fabric, and the pads may be perforated for ventilation of the helmet; also, the inner surfaces of the pads may be so shaped or lined as to provide ventilation spaces between the pads and the wearer's head. Sound-attenuating earcups are carried by the helmet in position for close-fitting engagement with the head. Size adjustment of the helmet is effected by means of a variable length nape strap at the rear of the helmet. In addition, the helmet may carry communications equipment, including earphones within the ear-cups, and a microphone, with a switch for the microphone sealed in a watertight enclosure within one of the earcups. An elongated flap extending across the lower inner margin of the rear of the helmet may be folded over and fastened to provide a passage for holding the wiring of the communications equipment. For further protection of the head, a rigid outer shell may be placed over and detachably secured to the flexible helmet, being stabilized in position relative thereto by means of cooperating, complementary pressure-actuable surface contact fastening elements respectively carried on the crown portions of the outer surface of the flexible helmet and the inner surface of the rigid shell.

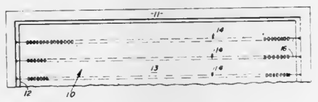
3,786,520
SIMULATED POCKET ORNAMENT AND HOLDER
Jerome Z. Harmon, Box 591, Oak Lawn, Ill.
Filed Aug. 24, 1972, Ser. No. 283,538
Int. Cl. A41b *15/00*
U.S. Cl. 2—279 **5 Claims**

A combination decorative pocket ornament and adjustable holder therefor. The ornament is arranged in the shape of a folded handkerchief or scarf and is retained by the holder within a pocket of the wearer's clothing such that only the ornament is visible above the pocket. The holder includes gripping fingers and a slidable clamping bar to removably



retain the ornament thereon. An adapter member cooperates with the holder for raising or lowering the same within the pocket so that the device can be used for a variety of different pocket sizes.

3,786,521
SWINGING BAFFLE ELEMENT FOR WATER TURBULENCE SUPPRESSION SYSTEMS
Mercer Donald Walket, Medina, Ohio, assignor to Adolph Kiefer McNeil Corporation, Akron, Ohio
Filed July 13, 1972, Ser. No. 271,360
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.15 **19 Claims**

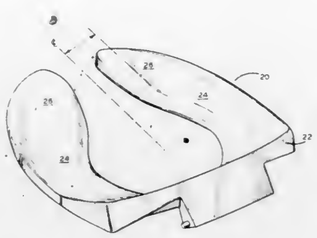


A swimming pool turbulence reducing system employs a taut restraining cable positioned approximately at the water line to rotatably support a series of closely spaced baffle plates arranged in planes parallel with the axis of the cable, the mass and the surface areas of the plates being unequally distributed with respect to the rotatable axis so that the baffle plates tend normally to depend downwardly from the cable and will yieldingly swing from side to side in resisting wave movement.

3,786,522
TOILET SEAT
Alexander Kira, Ithaca, N.Y., and George R. Scheuring, Pittsburgh, Pa., assignors to American Standard Inc., New York, N.Y.
Filed Sept. 15, 1970, Ser. No. 72,466
Int. Cl. A47k *13/00*
U.S. Cl. 4—237 **13 Claims**

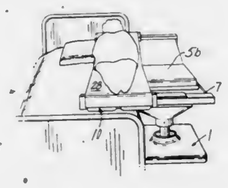
The defecation process can be substantially facilitated by means of a specially contoured toilet seat which is completely

adaptable to conventional toilets. The toilet seat has a hinge means for attachment to the toilet and an annular relatively planar section, conforming generally in peripheral configuration to the periphery of the bowl section of the toilet. The hinge post section positioned at the rear end of the toilet. The rear section of the toilet is upwardly and outwardly curved at a steep angle thereby preventing the user from sitting back on



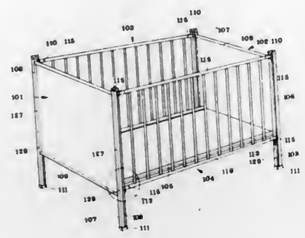
the rear section of the toilet seat. The top surfaces of the seat in the rear and side sections slope in an upwardly and outward direction but at a progressively smaller angle than the rear most section. At the front section of the seat particularly in the thigh support region, the surface of the seat is somewhat concave and in a region of the front section the seat slopes in a direction which is the reverse of the slope at the side and rear sections.

3,786,523
MEDICAL APPLIANCE
Georges J. F. Sele, rue Cdt. Marchand 23, Liege, Belgium
Filed Nov. 17, 1971, Ser. No. 199,664
Claims priority, application Belgium, Nov. 18, 1971, 759,132
Int. Cl. A61g 1/02, 7/02
U.S. Cl. 5—81 B **6 Claims**



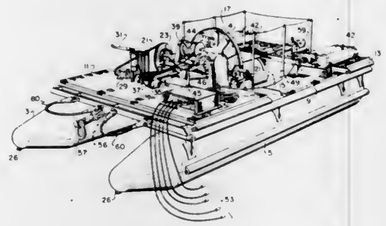
A stretcher including means which facilitates the transfer of a patient between a bed and the stretcher is disclosed. The stretcher includes actuators for controlling the vertical position of the appliance and also for imparting angular movement to transfer means which can be extended from the appliance. Additionally, the device may be provided with further actuators which are employed to convert the stretcher into a wheel chair by rotating back and foot support platforms relative to a central support member.

3,786,524
BEDS WITH LATERAL SLIDING PANELS
Marcel Mathou, 12 Gages, France
Filed Mar. 1, 1971, Ser. No. 119,778
Claims priority, application France, Feb. 27, 1970, 70.07142; Dec. 3, 1970, 70.43520
Int. Cl. A47d 9/00
U.S. Cl. 5—100 **11 Claims**



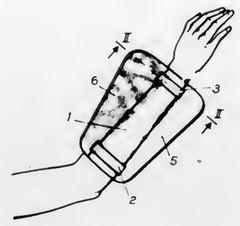
A bed having head and foot panels with lateral panels therebetween. The lateral panels may be raised or lowered to a high position, a low position or any position in between. Provision is also made for locking the lateral panels in the top or bottom positions. The lateral panels may be removed to convert the bed to a bench or a stringer on the bottom of the bed may be removed and the bed turned over to convert it to a playpen.

3,786,525
TRANSPORTABLE MOORING BUOY ASSEMBLY
John A. Christians, Springfield, Va., and Francis M. Cevasco, Oxon Hill, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed June 1, 1972, Ser. No. 258,691
Int. Cl. B63b 21/52, 21/28
U.S. Cl. 9—8 R **12 Claims**



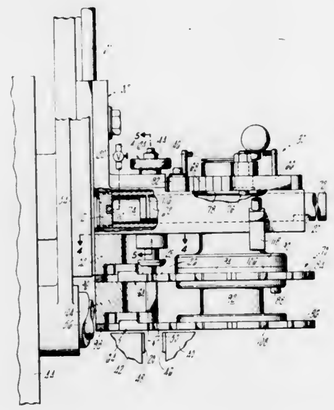
A readily transportable offshore mooring buoy assembly is disclosed. The mooring buoy comprises a floating platform mounted on a pair of pontoons. The platform houses an explosive embedment anchor assembly and the apparatus required to put the anchor in place in order to anchor the mooring buoy. Prior to anchoring the mooring buoy, the anchor assembly is housed on the mooring buoy in approximately a horizontal position. The apparatus used to place the anchor assembly in a vertical position and to lower the anchor into the water is air controlled. The air supply is carried on the mooring buoy. The anchor embedding operation can be carried on remotely from a boat used to tow the mooring buoy in place. The mooring buoy and boat are both of such size that they can be readily transported to the location where the mooring buoy is to be anchored.

3,786,526
SWIMMING-AID DEVICES
Claude C. A. Ausseil, Square Curie, Saint Malo, France
Filed Mar. 17, 1972, Ser. No. 235,639
Claims priority, application France, Mar. 23, 1971, 7110667
Int. Cl. A63b 31/04
U.S. Cl. 9—307 **5 Claims**



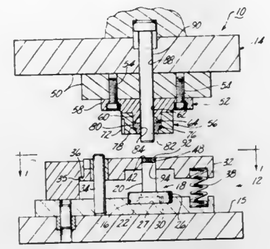
This invention relates to a device for assisting swimming or for re-education for use in swimming pools, which is fastended to a limb, and formed of two fins disposed longitudinally with respect to the limb and extending radially with respect thereto.

3,786,527
POINTER FOR MULTIPLE SIZE WORK BLANKS
Robert D. Morton, West Hartford, and Edward G. Grohoski, Litchfield, both of Conn., assignors to The Hartford Special Machinery Company, Simsbury, Conn.
Filed Aug. 5, 1971, Ser. No. 169,207
Int. Cl. B21k 27/00; B23g 9/00, 11/00
U.S. Cl. 10—169 **11 Claims**



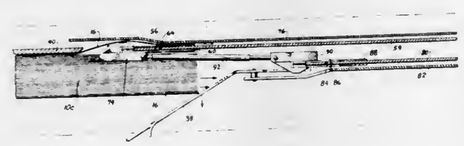
A machine having a frame and a modular stack of interchangeable rotary dials mounted on the frame for carrying headed work blanks of varying shank length and diameter, fluid actuated head and shank pusher assemblies effecting compressive engagement of the work blanks against the dials when each work blank is positioned in power operated die means for a pointing operation, and a fluid circuit including adjustable air spring means providing a continuous fluid bias for actuating the head pusher and shank pusher assemblies.

3,786,528
APPARATUS AND METHOD FOR MANUFACTURING WELD NUTS
Jack Sol, 28539 Trvistock Trl., Southfield, Mich.
Filed Oct. 24, 1972, Ser. No. 299,742
Int. Cl. B21d 53/24; B21j 5/12
U.S. Cl. 10—76 R **8 Claims**



An apparatus for manufacturing a weld nut by the application of pressure to a standard nut blank. The apparatus has reciprocally mounted and axially aligned upper and lower die members between which an axial pressure is applied to the nut blank to form the weld nut. A cutting die carried by and movable with one of die members has a central aperture through which the other die member and nut blank pass during the pressure-applying stroke. The aperture is so sized with respect to the nut blank that the same, during lateral and axial deformation thereof, becomes snuggly disposed within the upper portion of the aperture and is retained therein during the separation of the upper and lower die members. A knockout pin carried by the movable die member engages the upper surface of the deformed nut blank to eject the same through the cutting die aperture and remove all lateral deformations such that the resulting weld nut has overall dimensions which are substantially the same as the original dimensions of the nut blank. A method for fabricating the weld nut is also disclosed.

3,786,529
BOOKBINDING MACHINE WITH ENDLEAF FOLDING MEANS
Jack Bendror, Sands Point, and Gastone Venco, Huntington, both of N.Y., assignors to Roblins and Bendron Associates Inc., Nassau, N.Y.
Filed Dec. 15, 1972, Ser. No. 315,547
Int. Cl. B42c 15/00
U.S. Cl. 11—1 R **16 Claims**

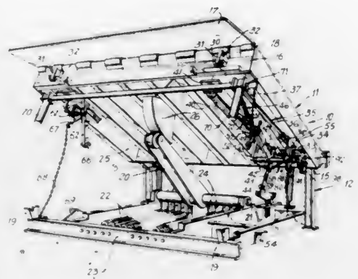


Bookbinding machine which embodies means for folding the outer leaves of end leaf assemblies which are attached to the sides of the spine of a book. The folds are formed by placing a backing plate with a relatively low frictional coefficient behind each outer leaf, then sliding the outer leaf on said backing plate in the direction of the spine of the book to form a loop, pressing the loop to form a fold, and adhesively securing the fold to that portion of the leaf assembly which is attached to the side of the spine of the book.

3,786,530
DOCK LEVELER

Robert L. Le Clear, Albion, Mich., assignor to T & S Equipment Company, Albion, Mich.

Filed June 24, 1971, Ser. No. 156,396
Int. Cl. B65g 1/00
U.S. Cl. 14—71 16 Claims



A swingable deck having a pivoted end lip, means for extending the lip, means for holding the lip extended, means for releasing the lip from its extended condition, and means for returning the deck to its initial position.

3,786,531
PORTABLE SELF-CLEANING DOOR MAT

John P. Borg, 271 St. Johns Rd., Toronto, Ontario, Canada

Filed July 7, 1972, Ser. No. 269,825
Int. Cl. A47l 5/38
U.S. Cl. 15—310 3 Claims

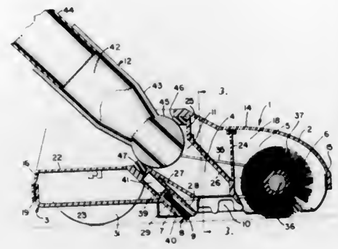


A self-cleaning door mat having a hollow mat frame which is provided with a top plate of substantially rigid material. The plate is formed with a plurality of depressed apertures which are preferably aligned axially and transversely. The marginal crests of the depressions are covered with felt or other soft material which will remove dirt from shoes, etc. The apertures are closed by spring mounted valve members which protrude above the depressions a sufficient distance to be unseated by being depressed by a person's foot being wiped off on the soft material or by a person standing thereon. The dirt is sucked down through the apertures by a suction device which device automatically starts when stepped-on. The suction device is connected to a collector into which the dirt is deposited.

3,786,532
CARPET SWEEPER

Edward W. Lindsay, Ponca City, Okla., assignor to Vacu-Maid, Inc., Ponca City, Okla.

Filed June 19, 1972, Ser. No. 263,961
Int. Cl. A47l 9/04, 9/06
U.S. Cl. 15—364 6 Claims

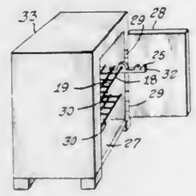


A carpet sweeper for use with a source of vacuum includes a housing having cooperating wall portions defining an air flow passage therethrough with an entrance adjacent a floor and extending transversely of a path of movement of the sweeper. The housing has a brush chamber adjacent the air flow passage entrance with a rotary brush mounted therein and operative to move dirt toward said entrance. An elongated brush is arranged adjacent said entrance on the opposite side from said rotary brush. The air flow passage has a member connected to a source of vacuum to effect movement of air upperwardly through the flow passage.

3,786,533
DOOR AND A WINDOW CHECK

Thomas P. O'Donnell, 220 Highland Blvd., Brooklyn, N.Y.

Continuation-in-part of Ser. No. 472,398, July 6, 1965, abandoned, and a continuation-in-part of Ser. No. 311,067, Sept. 24, 1963, abandoned. This application May 6, 1970, Ser. No. 35,222
Int. Cl. E05c 17/54; E05f 5/02
U.S. Cl. 16—82 9 Claims



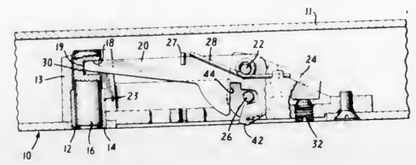
A manually actuable check member for checkwisely holding a door in a desired open position wherein a said check is pivotably attached to a support so as to abbuttingly engage a surface of the door, said support may be either a door frame, or, a link of a chain straddling an opened door and its frame, or, a rod of a shelf contained within a container closeable by its door.

3,786,534
CENTER-TOP DOOR PIVOT MOUNTING MECHANISM

Paul R. Ferguson, 340 Industrial Ave., Cheshire, Conn.

Filed Nov. 15, 1971, Ser. No. 198,625
Int. Cl. E05d 7/10
U.S. Cl. 16—176 9 Claims

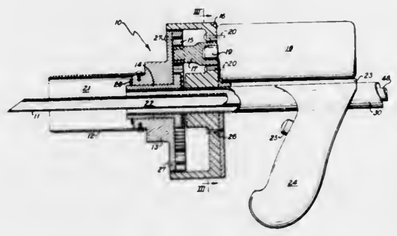
A mechanism for control of the operation of top frame pivots for center mounting doors wherein there is provided an upper frame member with a vertical pivot pin movable in a sleeve serving as a dowel to aid in positioning and securing the mechanism. One end of a lever extends into a lateral recess in the pivot pin, and the lever is mounted on a transverse shaft for oscillation through a central area and for reciprocation between a position in which the lever engages a vertical pin wall to prevent movement through said central area and a position in which it may be moved through the central area.



3,786,535
APPARATUS FOR EVISCERATING POULTRY AND THE LIKE

Joseph A. La Barber, 501 Pebble Beach Dr., Kern City, Calif.

Filed June 23, 1972, Ser. No. 265,953
Int. Cl. A22b 3/08
U.S. Cl. 17—11 R 9 Claims



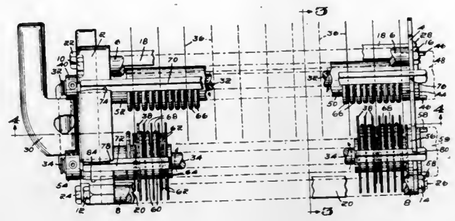
A dressing tool includes a rotatable cutting means with an elongated probe member coaxially disposed therein. The probe member extends outwardly beyond the cutting means. The alimentary canal is cleaned by drawing a vacuum through the elongated probe which is to be inserted into the anus of the poultry. The anus is then drawn away from the body of the poultry by drawing a vacuum in the space between the probe and the cutting means. Another feature of this invention is directed to the use of a control mechanism to provide the necessary sequence of operations so that the dressing tool will operate automatically under assembly line conditions.

3,786,536
MEANS FOR CUTTING AND TENDERIZING MEATS

Robert Deckert, Acton, Mass., assignor to Sir Steak Machinery, Inc., Boxborough, Mass.

Filed May 8, 1972, Ser. No. 251,076
Int. Cl. A22c 9/00
U.S. Cl. 17—25 17 Claims

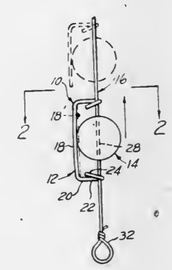
A machine which simultaneously cuts a slab of meat into strips through the use of a first group of rotating spaced disc cutters mounted on a first rotating shaft and simultaneously the meat is penetrated by a second group of rotating radially extending penetrating blades mounted on a second rotating shaft. The peripheral speed of the disc cutters is always greater than the peripheral speed of the penetrating blades. Means compelling passage of the disc cutters completely through the meat is an essential feature.



3,786,537
GRIPPER FOR ELONGATED MEMBERS

Harold E. Schenavar, 18696 Inkster, Detroit, Mich., and Irving L. Pierce, 760 Trombley, Grosse Point Park, Mich.

Filed Aug. 11, 1972, Ser. No. 279,979
Int. Cl. A01k 91/04; F16g 11/04
U.S. Cl. 24—134 R 2 Claims



Disposed approximately perpendicular to the opposite ends of an elongated bridge portion are two approximately parallel hook arms having reversely-bent ends providing Vee-notches into which the elongated member to be gripped is wedged by a jam element approximately midway between the arms and of slightly greater width than the length of the arms whereby to urge the bridge portion away from the elongated member and consequently to wedge the elongated member into the Vee-notches. In FIGS. 1 and 2 the jam element is a bead or block threaded onto the elongated member, for example, a resilient wire. In FIGS. 3 and 4 the jam element is a cam portion on the end of a handle pivotally mounted on the bridge portion for engagement with the elongated member, for example a rod or pipe, held in the hook arms.

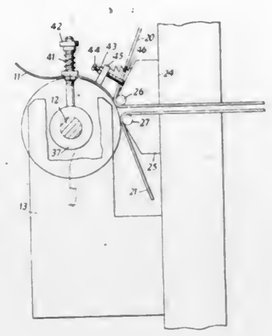
3,786,538
TEXTILE CRIMPING

Peter Hutchinson, Ilkley, and Geoffrey Darnbrough, Wetherby, both of England, assignors to T.W.S. Nominee, Company Limited, London, England

Filed Mar. 9, 1972, Ser. No. 233,221
Claims priority, application Great Britain, Mar. 16, 1971, 7,007/71
Int. Cl. D02g 1/12
U.S. Cl. 28—1.6 13 Claims

An improved crimper for wool and other fibres employs a feed section and a conveyor or delivering section in which the fibre layer advances at a slower speed than in the feed section,

the two sections being separated by a folding zone sufficiently small to ensure that the layer is folded therein into simple folds or waves of amplitude dependent upon the spacing of the conveyor surfaces. The improved feed section is constituted by a roller and a curved plate, the latter being spaced from the



roller at its intake end and conforming closely to the roller nearer the folding zone. The roller and/or the plate may be resiliently biased towards the operating position, for example by being mounted on a resiliently biased, pivoted arm. Provision may be made for applying steam to the fibres in the folding zone.

3,786,539

MULTIPLE TOOL TURRET

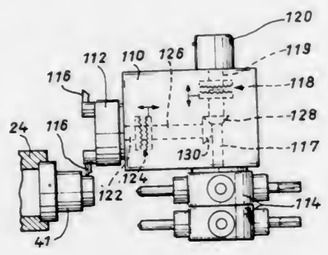
Gerhard Foll, Esslingen, and Heinrich Lahm, Esslingen-Sirnau, both of Germany, assignors to Index-Werke KG Hahn & Tessky, Esslinger/Neckar, Germany

Filed Oct. 9, 1970, Ser. No. 79,483

Claims priority, application Germany, Oct. 16, 1969, P 19 52 050.4

Int. Cl. B23b 7/04

U.S. Cl. 29—27 5 Claims



A turning machine with a rotary work spindle and a slide having a lower carriage movable at right angles to the spindle axis, an upper carriage movable on the lower carriage in parallelism with the axis of the spindle, and a tool support on the upper carriage. The tool support constitutes a vertically reciprocable carriage with several longitudinally extending rows for tool holders, or it may consist of at least one indexible turret with axially parallel and/or radially extending sockets for tool holders. If the tool support consists of several turrets, its turrets are either coaxial or indexible about axes which make an angel of 90 degrees with each other. Each tool turret can have two or more annuli of sockets for tool holders.

3,786,540

CUTTING INSERT

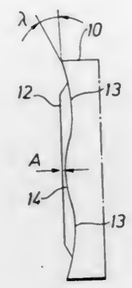
Evert Gustav Lundgren, Sandviken, Sweden, assignor to Sandvikens Jernverks Aktiebolag, Sandviken, Sweden

Filed Oct. 17, 1972, Ser. No. 298,234

Claims priority, application Sweden, Oct. 27, 1971, 13607/71

Int. Cl. B26d 1/00

U.S. Cl. 29—95 7 Claims



A cutting insert for use in the chip-forming machining of a metal work piece has at least one insert corner with one or more associated cutting edges provided with chip-breakers in the form of grooves in the broad sides of the cutting insert. According to the invention, the cutting edge is so formed that in the plane of the clearance or side face it describes a curve consisting of inward- or downward- directed parts from the insert corners and an interjacent outward- or upward turned part.

3,786,541

CUTTING INSERTS HAVING TWO-STAGE CHIPBREAKER

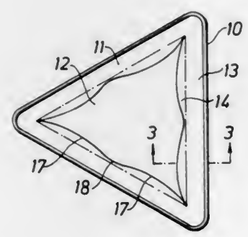
Evert Gustav Lundgren, Sandviken, Sweden, assignor to Sandvikens Jernveks Aktiebolag, Sandviken, Sweden

Filed Oct. 18, 1972, Ser. No. 299,336

Claims priority, application Sweden, Oct. 27, 1971, 13605/71

Int. Cl. B26d 1/00

U.S. Cl. 29—95 R 6 Claims



The invention relates to a cutting insert having chip-breakers in two stages, and is characterized in that the cutting edge and the associated chip-breaker describe a curve composed of straight and/or arched parts in the plane of the clearance- or side face.

3,786,542

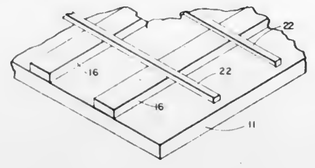
METHOD OF FORMING CIRCUIT STRUCTURES BY PHOTO ETCHING-ELECTROFORMING PROCESS

Jacques Francois Linder, Palos Verdes Peninsula, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Nov. 18, 1971, Ser. No. 200,016

Int. Cl. H01j 9/00

U.S. Cl. 29—25.17 2 Claims



A mandrel or mold shaped in a desired configuration is formed by photoprocessing a film of photopolymer applied to a substrate. A metallic structure is formed in the mold by electroforming. The photopolymer forming the mold is then dissolved away leaving the desired metallic configuration.

3,786,543

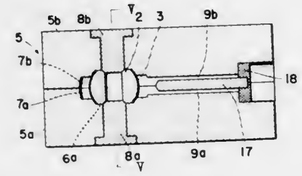
METHOD OF PRODUCING ROTATING JOINT MEMBER BY CASTING

Shigeru Sato, Yokohama, Japan, assignor to Nippon Miniature Bearing Co. Ltd., Nagano and Tanaka Diecast Co. Ltd., Yokohama, Japan

Filed Apr. 26, 1972, Ser. No. 247,712

Int. Cl. B23p 11/00, 17/00

U.S. Cl. 29—149.5 B 5 Claims



A spherical element whose external peripheral surface is coated with a thin heat resisting resin film and said spherical element is set into the inside of a metal mold provided with a molding chamber for casting a socket for embracing the spherical element, and then a molten metal is poured into the metal mold for forming the socket and is solidified to cast the socket that embraces the spherical element and this cast socket is removed from the metal mold and the heat resisting resin film remaining on the external peripheral surface of the spherical element is removed mechanically or chemically thereby forming a clearance that permits the free rotation of the spherical element with respect to the socket in the external peripheral surface of the spherical element and the inner surface of the socket.

3,786,544

PROCESS AND APPARATUS FOR UNIVERSAL JOINT DISASSEMBLY AND ASSEMBLY

Willie Douglas Ferguson, Borger, Tex., assignor to Scott E. Neil, Jr., Salida, Colo.

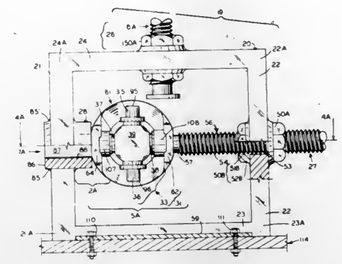
Filed Apr. 12, 1971, Ser. No. 132,967

Int. Cl. B23p 19/02

U.S. Cl. 29—251 4 Claims

An adjustable press with vibratile characteristics and a symmetrical frame structure locates a compression means along the longitudinal axis of each of a plurality of symmetrical bearing sleeves and resilient lock rings. The sleeves are positioned with a press fit in a support therefor in a U-joint casing and, in operative position, held in place by the lock rings.

The press is operated to apply vibration as well as a shearing force to each of such resilient lock rings to separate each of



such sleeves from the U-joint casing. The press also supports a symmetrically located second compression means for moving and locating longitudinally spaced apart bearing sleeves in longitudinally spaced apart supports therefor with a press fit.

3,786,545

MILLING CUTTER

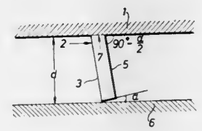
Sven Axel Olof Wirfelt, Sandviken, Sweden, assignor to Sandvik Akitebolag, Sandviken, Sweden

Filed Nov. 20, 1972, Ser. No. 307,765

Claims priority, application Sweden, Nov. 29, 1971, 015234

Int. Cl. B26d 1/12

U.S. Cl. 29—105 R 4 Claims



In a milling cutter comprising a cutter body having a plurality of cutting insert-receiving recesses spaced about its periphery and cutting inserts removably secured in said recesses by clamping means, each insert having two opposite, substantially plane, end surfaces with side surfaces between them, the improvement wherein the side edges of each cutting insert are formed with clearance angles s equal to one-half that clearance angle a which is necessary for the functioning of the milling cutter. Each insert is positioned, in its recess, with one side edge resting against a support surface that is planetarily ground in the cutter body substantially parallel to its rotational plane so that the angle which one end surface presents to said planetarily ground support surface is equal to $90° - (\alpha/2)$.

3,786,546

FORMING ROLL, ESPECIALLY FOR ROD MILLS AND THE LIKE

Thomas A. Brown, Greensburg, and Joseph B. Huber, Acme, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.

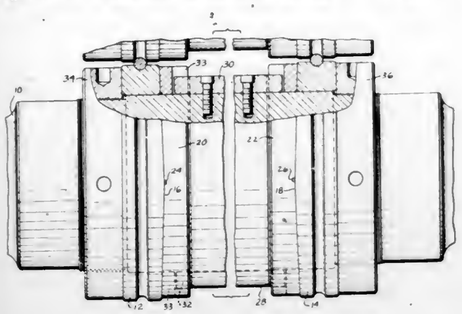
Filed Oct. 2, 1972, Ser. No. 294,194

Int. Cl. B21b 31/08

U.S. Cl. 29—125 13 Claims

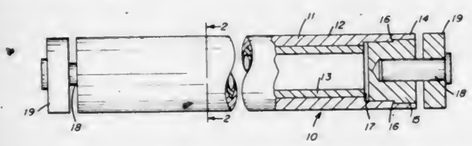
A forming roll of hard material, such as cemented tungsten carbide, is mounted on a driving shaft. The shaft has a shoulder either integral with the shaft or in the form of a nut threaded thereon abutting one axial end of the roll while the

other end of the roll is in the form of a wide angle "V." A keying element is mounted on the shaft having a wide angle "V"



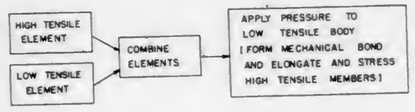
configuration complementary to that of the roll, and this last mentioned element is keyed to the shaft for transmitting torque from the shaft to the roll.

3,786,547
COATING ROLLER
Robert J. O'Connor, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 22, 1971, Ser. No. 200,910
Int. Cl. B21b *31/08*
U.S. Cl. 29—130 **3 Claims**



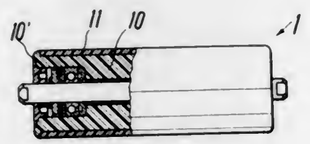
An improved coating roller, particularly for use in coating photographic compositions onto webs, including a tubular generally-cylindrical roller member and a tubular generally-cylindrical insert shrink-fitted into the roller member, such that the interference interface between the members dampens vibrations imparted to the roller. Prior to insertion the OD of the insert is approximately equal to the ID of the roller member within a tolerance of ± 0.001 inches. The insert extends axially within the outer member so that at least fifty percent of the inner surface of the roller member is frictionally engaged by the outer surface of the insert.

3,786,548
METHOD OF MAKING PRESTRESSED BEAMS
Robert E. Haskell, 1232 S. Lake Stickney Dr., Lynnwood, Wash.
Filed June 8, 1972, Ser. No. 260,970
Int. Cl. B23p *17/00*; **B21d** *39/00*
U.S. Cl. 29—155 R **7 Claims**



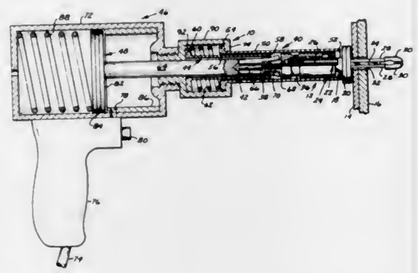
A method of manufacturing a prestressed bimetallic beam including the steps of imbedding a high tensile element within a low tensile element and then mechanically welding the two elements by applying pressure to the low tensile members as a unit. This mechanical interlock and elongation places the high tensile member under stress which is uniform throughout the entire length of the low tensile encapsulating element. The result of such manufacturing technique is a bimetallic beam or the like which has the structural advantage of great strength and low weight. The high tensile elements are placed where necessary for each particular design including the expected stress and the low tensile element is then easily and economically machined or formed into the final desired exterior configuration.

3,786,549
ARTICLE OF MANUFACTURE
Richard Pott, Heiden, Germany, assignor to Precismeca Gesellschaft Fur Fordertechnik mbH, Sulzbach-Saar, Germany
Filed Nov. 11, 1971, Ser. No. 197,806
Claims priority, application Germany, Nov. 12, 1970, G 70 41 835.8
Int. Cl. B21b *13/02*
U.S. Cl. 29—116 R **8 Claims**



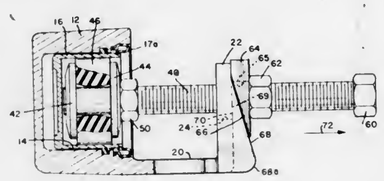
A roller for use in conveyors has a roller body composed of a core part and an outer part which surrounds the core part. Either both parts or at least the outer part is composed of cellular synthetic plastic material which may be of the rigid type or of the elastically yieldable type.

3,786,550
FASTENER APPLYING TOOL
Sterling B. Jones, 858 Duff Ave., West Covina, Calif.
Filed Oct. 5, 1972, Ser. No. 295,282
Int. Cl. B21j *15/42*
U.S. Cl. 29—238 **17 Claims**



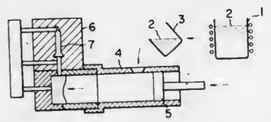
The tool of this invention is specifically adapted to apply a novel clamping device or temporary fastener which includes a body having an enlarged head end to engage the near side of work to be clamped, a tension member axially movable in the body and having a gripper head at its forward end to engage the remote side of the work and an aft end projecting from the aft end of the body to be engaged by a puller, and a locking actuator axially movable forward on the body to lock the tension member in clamping position. The tool includes a first barrel to surround the fastener body and engage the head end to push it against the work, a second barrel slidable in the first barrel to move the actuator, and a puller slidable in the second barrel to retract the tension member. The forward end of the puller has a gripping jaw to engage the tension member. A first reaction member in the form of a cylinder pushes solidly against the second barrel which pushes yieldingly through a spring against the first barrel. A second reaction member in the form of a piston retracts the puller under fluid pressure. The force applied first retracts the puller until a predetermined clamping load is achieved, and then forces the second barrel forward with respect to the first barrel to contact the actuator and lock the clamping device.

3,786,551
PISTON PULLER
Jack C. Gregg, 1518 Glenview Dr., and Samuel L. Davis, R.R. No. 3, both of Elwood, Ind.
Filed Apr. 10, 1972, Ser. No. 242,635
Int. Cl. B23p *19/04*
U.S. Cl. 29—266 **6 Claims**



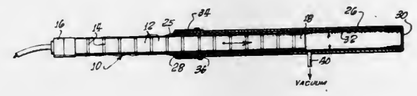
Apparatus for use in removing and reinstalling pistons in disc brake assemblies of the type including a caliper housing providing a bore in which the piston is reciprocably disposed, the bore being open at one end and closed at its opposite end, and the piston being hollow with a closed end adjacent the closed end of the bore and an open end adjacent the open end of the bore. Such caliper housings also provide an outboard shoe support bracket spaced axially apart from the open end of the bore. The apparatus comprises a threaded shaft which extends through an opening in the said support bracket to have one of its ends received in the hollow of the piston. A rubber-like grommet is disposed on that one end of the threaded shaft between a fixed abutment and a movable abutment. A nut is advanced against the movable abutment to compress axially the grommet to cause it to expand radially frictionally to engage the piston. Another nut and an adapter plate are advanced against the axially outer side of the support bracket to pull the piston and against the axially inner side of the support bracket to push the piston inwardly.

3,786,552
METHOD OF MANUFACTURING A COMPOSITE BIMETALLIC SLEEVE FOR A DIE-CASTING MACHINE
Yuichi Saito, Urawa; Tokuzo Shikano, Oomiya, and Masanori Kimura, Saitama-ken, all of Japan, assignors to Mitsubishi Kinzoku Kogyo Kabushiki Kaisha, Chiyoda-ku, Tokyo-to, Japan
Filed June 27, 1972, Ser. No. 266,749
Claims priority, application Japan, June 30, 1971, 46/47289
Int. Cl. B22f *3/24*
U.S. Cl. 29—420.5 **3 Claims**



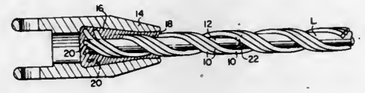
A sleeve is composed of a relatively thin inner layer made of such highly infusible material as molybdenum, tungsten or their alloys, and an outer layer made of an iron-base alloy. For manufacture, a mixture of powders compounded to form an iron-base alloy when heated is compacted to cylindrical shape around a hollow cylinder suitably molded of one of the listed metals and alloys. The compact is then sintered to provide an outer layer of the iron-base alloy solidly united with the hollow cylinder.

3,786,553
METHOD OF ASSEMBLING TRANSDUCER ACOUSTICALLY COUPLED BY SILICONE GREASE
Lawrence K. C. Ma, Honolulu, Hawaii, assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 24, 1972, Ser. No. 309,579
Int. Cl. B29d *17/00*
U.S. Cl. 29—169.5 **6 Claims**



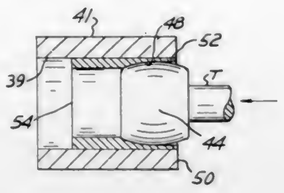
A transducer which includes an element assembly which is acoustically coupled to a boot by silicone grease, such as dimethyl polysiloxane oil and silicone oxide. A method of assembling the transducer may comprise coating an elongated element assembly with the silicone grease; inserting an elongated resilient boot into an evacuating tube which is open at one end and closed at an opposite end; drawing a vacuum inside the tube at a position intermediate its ends for expanding the boot tightly against the inner surface of the tube; inserting the coated element assembly into the expanded boot; wiping the silicone grease smooth on the element assembly as the assembly is inserted into the tube; releasing the vacuum inside the tube; and withdrawing the assembly and boot from the tube.

3,786,554
METHOD OF FABRICATING A FIELD-APPLIED GRIPPING DEVICE
Jess C. Little, Chagrin Falls, Ohio, assignor to A. B. Chance Company, Centralia, Mo.
Division of Ser. No. 729,618, May 16, 1968, Pat. No. 3,551,960. This application Aug. 17, 1970, Ser. No. 64,615
Int. Cl. B23p *25/00*
U.S. Cl. 29—461 **5 Claims**



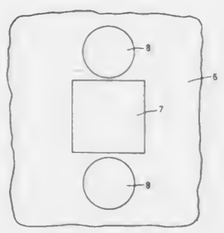
A field applied dead end and method of making same wherein a plurality of preformed helical rods, or wires are secured at one end thereof preferably by encapsulating material within a socket housing. The other ends project from the socket and are disposed to wrappingly engage and thereby grip a line. A core member projects from the socket and is surrounded by the helically formed rods to provide a stop against which the end of the line being gripped abuts.

3,786,555
APPLICATION OF BEARING MATERIAL
John M. Robertson, Northville, Mich., and Wilbur E. Wyatt, Greesburg, Ind., assignors to Gulf & Western Metals Forming Company, Southfield, Mich.
Filed Aug. 25, 1971, Ser. No. 174,885
Int. Cl. B21d 39/04
U.S. Cl. 29—474.3 1 Claim



Bearing material, such as an aluminum alloy, is applied and bonded to the support surface by heating the surface to 500° to 700° Fahrenheit, applying the bearing material in sheet form to the surface at one edge thereof, and spreading the material across the surface by moving a zone of pressure application to the bearing material from one edge of the surface to an opposed edge so as to reduce the thickness of the bearing material and to provide a flow which continually brings fresh previously unexposed bearing material from the interior of the sheet so as to effect a molecular bond. Typical applications are to sleeve type bearings or bushings, and a preferred use of the invention is the application of bearing material to connecting rods.

3,786,556
MOUNTING SEMICONDUCTOR BODIES
Alan David Weston, Southampton, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 10, 1971, Ser. No. 206,620
Claims priority, application Great Britain, Dec. 15, 1970, 59,436/70
Int. Cl. B23k 31/02
U.S. Cl. 29—473.1 7 Claims



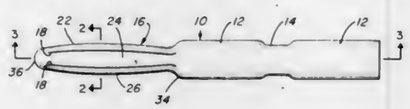
Method of securing a semiconductor body to a support surface comprising steps of placing semiconductor body face in contact with surface with at least one solder body on the surface and spaced laterally from the semiconductor body, melting solder to cause it to flow by capillary action between the body face and support surface, and cooling solder to provide intermediate layer between the surface and the body face. Also, a product made by this method.

3,786,557
FABRICATION OF THIN FILM RESISTORS
George E. Bodway, 23200 Mora Glen Dr., Los Altos, Calif.
Division of Ser. No. 56,610, July 20, 1970, abandoned. This application May 22, 1972, Ser. No. 255,888
Int. Cl. H01c 7/00
U.S. Cl. 29—620 1 Claim



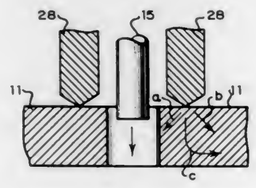
A method of fabricating thin film resistors is disclosed including the step of trimming the resistors to their final values by heating a resistance layer from which all the resistors are formed for a predetermined time to ensure that each resistance value will fall within a range appropriate to that resistor. The time of heating is determined by first separately determining the heating time required to bring each individual resistor within its appropriate range. A time period which overlaps at least a portion of each individual time period is then selected as the heating time.

3,786,558
METHOD OF MAKING A HOLLOW ELECTRICAL CONTACT
Lauris J. McCarthy, 99 N. Hermosa, Sierra Madre, Calif.
Continuation-in-part of Ser. No. 52,546, July 6, 1970, abandoned. This application Nov. 16, 1971, Ser. No. 199,383
Int. Cl. H01r 11/00
U.S. Cl. 29—630 A 3 Claims



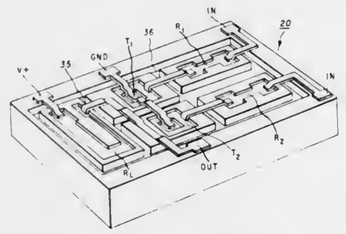
A releasable, hollow electrical connector formed from an elongated hollow body of resilient and flexible metal, an elongated section of which is provided with a plurality of elongated slots having width of less than .010 inch, which slots are formed by spark erosion of the metal.

3,786,559
COLD DIFFUSION WELDS IN A MICROCIRCUIT PACKAGE ASSEMBLY
James M. Smith, San Jose, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Continuation-in-part of Ser. No. 145,457, May 20, 1971. This application May 22, 1972, Ser. No. 255,859
Int. Cl. B23k 21/00
U.S. Cl. 29—470.1 6 Claims



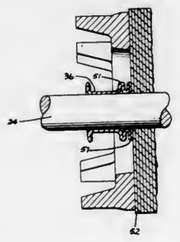
A hermetically sealed package for microcircuits is provided with a base plate on which one or more microcircuits are mounted by, for example, soldering them thereto or by means of studs, the studs being positioned in the base plate so as to accommodate the microcircuits which are held down on the plate, for example, by spring fasteners mounted on the studs. The microcircuits may be mounted on a heat conductive carrier base. Electrical feedthroughs by hermetically sealed in the base plate. In certain forms of the package, an isolation wall structure is employed to electrically isolate one microcircuit from another, the wall being secured to the base plate via studs and stud fasteners. The studs and feedthroughs are attached and hermetically sealed to the base plate by inserting them into holes in the base plate while simultaneously forcing the holes to shrink in size, thereby forming a diffusion weld between the studs (and feedthroughs) and the base plate. A cover, which is thin compared to the base plate, is attached and hermetically sealed to the base plate over the microcircuits, carrier, isolation wall and feedthroughs. This is accomplished by employing a tool with an inclined surface to form a diffusion weld between the cover and the base plate.

3,786,560
ELECTRICAL ISOLATION OF CIRCUIT COMPONENTS OF INTEGRATED CIRCUITS
James A. Cunningham, 8434 Gladwood Ln., Richardson, Tex.
Continuation of Ser. No. 468,196, June 30, 1965, abandoned. This application Mar. 20, 1972, Ser. No. 236,011
Int. Cl. B01j 17/00
U.S. Cl. 29—577 5 Claims



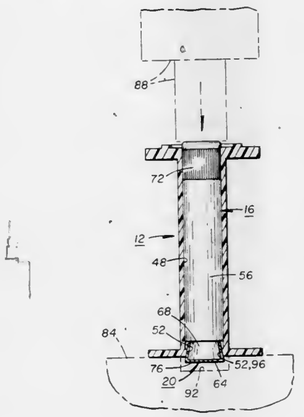
A method of fabricating an integrated circuit having interconnected circuit components adjacent one surface of a semiconductor body having its opposite surface disposed upon an insulating layer on a substrate wherein the semiconductor material between the circuit elements is removed to form a moat or channel between the circuit elements and electrically isolate them from one another by the space remaining after the removal and the insulating layer.

3,786,561
METHOD FOR USE IN MANUFACTURING DYNAMOELECTRIC MACHINE
Vincent V. Busian, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.
Division of Ser. No. 40,224, May 25, 1970, Pat. No. 3,681,836. This application Dec. 23, 1971, Ser. No. 211,575
Int. Cl. H02k 15/02, 15/10
U.S. Cl. 29—598 9 Claims



Rotatable assembly of dynamoelectric machine is provided with at least one spacer that is collapsed from an initial length, in its free form, to a preselected length in its final configuration, to provide means for controlling end play of the assembly and for establishing a desired alignment of the assembly with the stationary structure of the machine. Collapsing the spacer reduces an internal diameter of the spacer and rigidly secures the spacer to a shaft portion of the assembly. Method includes reducing the axial length of a thrust member to a preselected length relative to a reference portion of a rotatable assembly and may also include reducing the length of a second thrust member to establish a preselected distance between two thrust surfaces. Apparatus includes a pair of opposed rams having spacer collapsing tooling that includes anvil means for collapsing the spacers and abutment means for engaging other portions of a rotatable assembly. A lost motion mechanism interconnects one of the anvil means and one of the abutment means.

3,786,562
METHOD OF FABRICATING A BOBBIN AND CORE ASSEMBLY
Raymond S. Ciszewski, Lagrange, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Dec. 18, 1972, Ser. No. 316,196
Int. Cl. H01f 7/06
U.S. Cl. 29—602 4 Claims

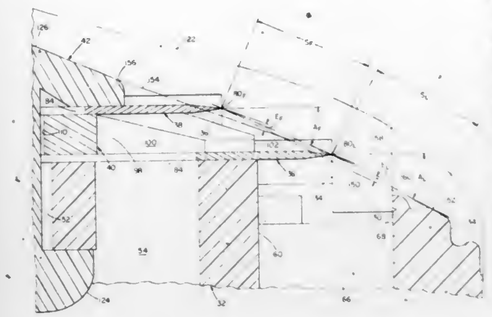


A disc of a nonmagnetic malleable material is forced within a center tubular portion of a nonmagnetic bobbin with an elongated cylindrical core of a magnetic material. The diameter of the disc is greater than the inside diameter of the tubular portion, the core is adapted to be closely received longitudinally within the tubular portion, and as the disc is forced within the restricted opening of the tubular portion by the core it is folded around the end of the core and secured thereto. Continued movement of the core, with the disc secured to the end thereof, through the tubular portion and slightly past the end thereof forms the bobbin and core assembly.

3,786,563
SHAVING SYSTEM
Francis W. Dorion, Jr., Hingham; Warren I. Nissen, Topsfield, both of Mass., and Edward E. Pomfret, Berkshire, England, assignors to The Gillette Company, Boston, Mass.
Filed Aug. 31, 1971, Ser. No. 176,547
Int. Cl. B26b 21/06
U.S. Cl. 30—50 2 Claims

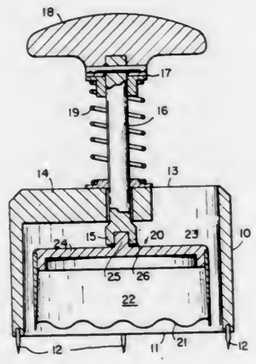
A shaving system comprises a leading blade member having a cutting edge and a following blade member having a cutting

edge. The cutting edges are supported in spaced parallel relation to one another by structure which extends along substantially the entire lengths of the leading and following blade members and a guard structure is disposed forwardly of the leading cutting edge. The guard structure is disposed relative



to the leading cutting edge to define a leading edge tangent angle in the range of 20°–32° and a span (S_L) in the range of 0.030–0.080 inch, the following cutting edge is rearwardly offset from the leading cutting edge to define a span (S_F) in the range of 0.030–0.080 inch, and each cutting edge has an exposure in the range of from −0.002 inch to +0.004 inch.

3,786,564
CARPET PLUG CUTTER
Melvin G. Acheson, 4555 Auburn Ave., Suite A, Sacramento, Calif.
Filed Oct. 19, 1972, Ser. No. 298,839
Int. Cl. B26b *3/08*
U.S. Cl. 30—124 **10 Claims**

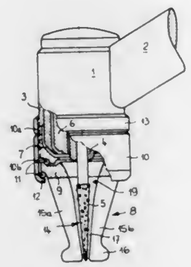


A tool for cutting circular plugs of carpeting solely by rotary cutting action and without the use of impact forces is disclosed. Cutter blade assemblies for use in such tool providing serrated cutting edges with various types of serrations are described. Means for quickly and easily interchanging cutter blade assemblies of various diameters in the tool are disclosed.

3,786,565
PROCESS FOR MANUFACTURING FALSE TEETH
Maurice Louis Jarrault, Fresnes, France, assignor to Societe Civile d'Etudes Et De Recherches Pour L'Application De La Ceramique Dentaire en abreviation S.E.R.A.C., Paris, France
Filed Mar. 6, 1972, Ser. No. 232,230
Int. Cl. A61c *13/00*
U.S. Cl. 32—8 **8 Claims**

A process for manufacturing false teeth constituted of a metallic frame made of non-precious metal, for example, chromium-nickel or cobalt-chromium, this frame being coated with various layers of dental porcelain having a medium melting-point, this process being note-worthy for there is laid down on the frame which is in the form of a cap, fine particles of metallic brazing of cobalt-chromium so as to form on the outer face of the frame, positive retentions, then, a physico-chemical binder, burnt under vacuum, is applied on the said frame, afterwards, porcelain layers are laid down and burnt as usual.

3,786,566
DENTAL DRILL HANDGRIP
Dusan Jelicic, Gatterstrasse 8, Gallen, Switzerland, and Ivan Jelicic, Milosa Docerca 21, Belgrad, Yugoslavia
Filed Nov. 10, 1972, Ser. No. 306,030
Claims priority, application Yugoslavia, Nov. 12, 1971, 2863
Int. Cl. A61c *1/16*
U.S. Cl. 32—29 **14 Claims**

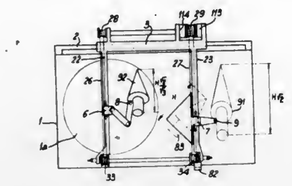


A dental drill handle or handgrip comprising a drivable clamping mechanism for a rotating tool, the clamping mechanism being rotatably mounted in a housing. A protective shield partially surrounds the rotating tool at least along its effective or working portion while leaving free a region of engagement or attack. The protective shield is freely rotatable or pivotable about a portion of the periphery of the tool.

3,786,567
APPARATUS FOR DRAWING THE ISOMETRIC PERSPECTIVE VIEW OF AN OBJECT
Jean Louis Dangay, deceased, late of 4 rue Alfred de Musset, Hauts de Seine, France; by Regine Godard, 23 rue de l'Annonciation, Paris, France; Philippe Dangay, 79-81 avenue P. Brossolette, Hauts de Seine, France, and Catherine Dangay, 74 rue Gabriel Peri, Hauts de Seine, France (heirs)
Filed June 30, 1972, Ser. No. 268,124
Claims priority, application France, June 30, 1971, 7123910
Int. Cl. B43l *13/14*
U.S. Cl. 33—23 B **10 Claims**

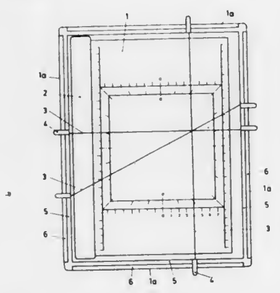
Apparatus enabling the isometric perspective of an object to be drawn from flat views of the object, including a fixed support on which the flat views of the object are provided, a rotatable support for a drawing sheet and positionable in one

of three positions spaced by 120°, a follower for following a flat view, a tracer displacable over the rotatable support and means linking the follower and tracer such that displacements of the follower in two perpendicular directions cause displace-



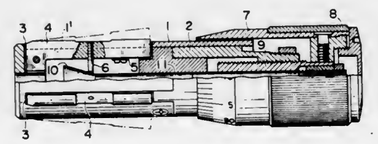
ments of the tracer which are perpendicular but in the ratio of one over the square root of three, the linkage means for displacements in one reference direction comprising rotary means, the effective diameters if which are in the ratio of one over the square root of three.

3,786,568
GEOMETRY APPARATUS
Erich Schulte, Hagener Str. 25, Nachrodt, and Ulrich Hebel, Helenenweg 7, Kirchen, both of Germany
Filed May 1, 1972, Ser. No. 249,028
Claims priority, application Germany, May 3, 1971, G 71 16 996.5; June 21, 1971, G 71 27 928.6
Int. Cl. B43l *5/02, 13/14*
U.S. Cl. 33—76 R **11 Claims**



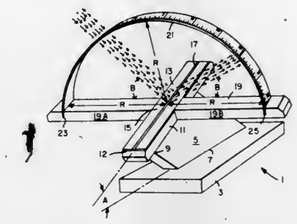
Apparatus for mathematical-geometric experimentation with variable straight lines, distances, angles, and areas in one plane.

3,786,569
THREE-POINT INSIDE TAPER-MEASURING INSTRUMENT
Minero Yamauchi, Kawasaki, Japan, assignor to Yehan Numata, Yokohama City, Japan
Filed Nov. 22, 1971, Ser. No. 200,756
Int. Cl. G01b *5/24*
U.S. Cl. 33—174 E **1 Claim**



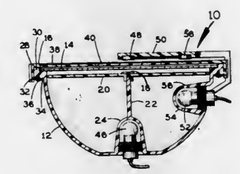
This invention relates to an instrument for measuring the degree of an internal taper and comprises a cone having an inclined surface which increases in diameter from its inner to its outer end and is moved axially within a tubular sleeve by an actuating screw. Three identical longitudinal measuring members are pivotally attached to said tubular sleeve at their forward ends and supported resiliently at their rearward ends. Adjustable abutment members projecting inwardly of said measuring members contact the surface of said cone.

3,786,570
SUNDIAL
Robert H. Davies, 3831 Carson Cir., Palo Alto, Calif.
Filed July 31, 1972, Ser. No. 276,519
Int. Cl. G04b *49/00*
U.S. Cl. 33—270 **10 Claims**



An improved sundial comprising a reflective surface member supported in a plane parallel with the earth's axis and adapted to receive and reflect sun rays; a non-reflective line inscribed along said reflective surface parallel to the axis of the earth's rotation and adapted to project a shadow; a translucent semicylindrical member projected over said surface and co-axial about said line, the surface of said cylinder carrying a time scale observable from the exterior of the translucent member such that the shadow is highlighted by a bright sunlit outline of reflected sun rays with said shadow indicating the time of day.

3,786,571
AUDIO COMPASS
Lloyd Sol Kelman, 2452 S.W. 30th Ave., Fort Lauderdale, Fla.
Filed Aug. 30, 1972, Ser. No. 284,904
Int. Cl. G01c *17/26*
U.S. Cl. 33—363 K **8 Claims**



The audio compass includes a first polarized transparent sheet affixed to a magnetic needle of a magnetic compass, and second and third polarized transparent sheets affixed to a graduated compass ring rotatably mounted on a housing for the magnetic compass and having their planes of polarization offset from each other by an angle which is bisected by the polarization plane of magnitude first sheet when the zero mark of the compass ring is set at north. Light from a first light source shines through the first and second sheets on a first photocell, and light from a second light source shines through the first and third sheets on to a second photocell. Circuit means coupled to the photocells produces first and second audio tones of different frequencies interrupted at rates related to the intensity of the light received by the first and

second photocells respectively. A shift of the second and third sheets to the left or right from the north position increases the light received by one of the photocells and decreases the light received by the other photocell to produce a tone which is interrupted at a rate related to the change of the light received by one of the photocells. Thus, when the audio compass is mounted in a boat and the compass is set for a particular heading, a deviation of the boat to the left of that heading will produce a tone of one frequency, and a deviation of the boat to the right of that heading will produce another tone of a different frequency. The rate of the interruptions or modulations in the tones indicates the magntidue of the deviation.

3,786,572

GAUGE FOR USE IN STRAIGHTENING AUTOMOTIVE FRAMES

Byron A. Larson, 116 La Crosse Ave., South San Francisco, Calif.

Filed Oct. 19, 1972, Ser. No. 299,022
Int. Cl. G01b 11/26
U.S. Cl. 33—288 4 Claims



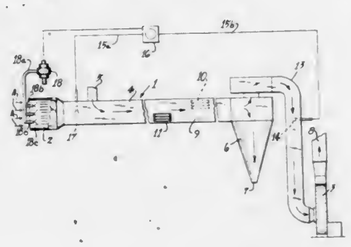
A gauge for use in straightening automotive frames wherein an elongated bar is provided with a series of spaced holes in each end section thereof, with pairs of holes in the opposite end sections being located equal distances from the midpoint of the bar. A pair of rigid hangers have their lower end swingably anchored in selected holes in the bar, and each hanger has a hook at its upper end arranged to engage with openings in an automotive frame that is to be straightened. Moreover, a vertical sight pin is located at the midpoint of the bar. When the automotive frame has been straightened, the vertical sight pins on several gauges will coincide with the longitudinal centerline of the chassis frame, thus testing horizontal displacement of the frame members. In event that all bars of the several gauges are disposed in the same horizontal plane, there is no displacement vertically of the frame members.

3,786,573

METHOD OF AND A DEVICE FOR CONTROLLING THE PROCESS TEMPERATURE IN AN AIR STREAM DRYING SYSTEM

John J. Scheppe, Washington, Pa., and Raymond N. Carini, North Brunswick, N.J., assignors to Helme Products, Inc., Helmetta, N.J.

Filed Dec. 27, 1971, Ser. No. 211,873
Int. Cl. F26b 3/10
U.S. Cl. 34—10 7 Claims



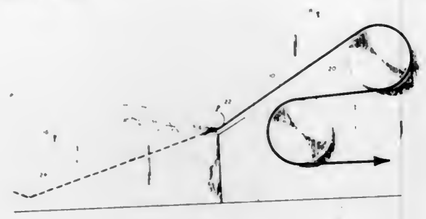
A method of maintaining a high intake temperature and a low outlet temperature in a gas stream conveying suspended particles to be dried including the step of introducing a controlled amount of ambient cooler into an intermediate portion of the drying gas stream. The device comprises preferably two ambient air intake openings provided with controllable louvers.

3,786,574

METHOD FOR REMOVING WATER FROM TOW

Donald L. Finley, and Edward A. Morehead, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.J.

Filed May 26, 1972, Ser. No. 257,406
Int. Cl. F26b 5/14
U.S. Cl. 34—23 5 Claims



In a process for treating continuous length filamentary tow of man-made fiber that is moved through a heated water bath, drafted and then in due course of processing is subsequently moved into a heatsetting chamber where it is heatset, the improved method of removing water from the tow by guiding the tow immediately from the heated water bath to and displacing it under and around the surface of an improved dewatering jet device and partly wrapping the tow around that portion of the dewatering jet device within which is the jet opening through which air is blown against the wrapped around portion toward the upstream portion of the tow and through the tow. The improved dewatering jet device is a cylindrical body member provided with an axially extending slot-like opening having substantially parallel walls and a depth to width ratio of about 5:1 and a radius on the outer lips of the opening of about 1/32 inch.

3,786,575

HANGING LAMP FIXTURE

Edward L. Riblett, Winter Park, Fla., assignor to William S. Carson; James F. Hafele; Roderick T. Wilson; William W. Gluyas, Jr. and John H. Day, part interest to each

Filed June 27, 1972, Ser. No. 266,575
Int. Cl. A45d 20/24; F26b 19/00
U.S. Cl. 34—99 8 Claims



A hanging lamp fixture having a concealed hair dryer therein is provided. The fixture is hung to the ceiling of a room

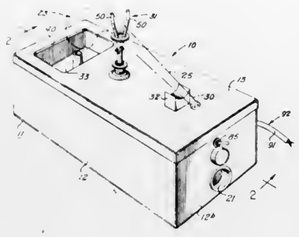
to provide light in the room and may be converted to a hair dryer by moving the light sources to one side and lowering the fixture to the proper height over a chair.

3,786,576

PIPE DRYER AND ODORIZER

John R. Gavlick, Sr., 780 Emberwood, Dallas, Tex.

Filed May 17, 1972, Ser. No. 254,168
Int. Cl. F26b 25/00
U.S. Cl. 34—104 6 Claims



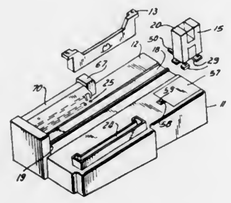
A device for drying and odorizing smoking pipes including a housing, a pipe support on the housing, an air flow nozzle extending from the housing to direct air into an inverted pipe bowl in the support, a blower in the housing to direct air into the drying nozzle, an electrical resistance heater for heating air directed from the blower to the nozzle, and a wick for odorizing air drawn into the housing by the blower.

3,786,577

EDUCATIONAL TOY

Sidney Tepper, Millburn, and Thomas J. Fauls, West Orange, both of N.J., assignors to Educational Toys Inc.

Filed Feb. 2, 1972, Ser. No. 222,834
Int. Cl. G09b 1/14
U.S. Cl. 35—35 D 14 Claims



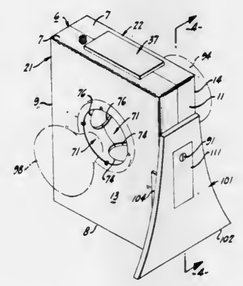
A spelling toy wherein movable structures carrying letters of the alphabet are caused to move by gravity down an inclined path to predetermined positions on a housing. The housing includes a plurality of slots, and an orifice for guiding any one of a plurality of verifying means or actuators into the housing. In addition, the housing pivotally supports a plurality of levers, each of said levers being capable of passing through one of the slots when operated by an actuator. Each actuator corresponds to a word to be spelled and includes a plurality of unequaly spaced abutments for engaging some of the plurality of levers. Each of the movable structures includes projections which extend over some of the plurality of the slots when the structures are at the predetermined positions. As a result, when the letters associated with the structures at the predetermined positions spell out a word associated with an actuator, and that actuator is depressed into the orifice, the activated levers pass through their respective slots without engaging the projections of the structures. The actuator does, however, engage a lever which causes a lid on the housing to open, thereby permitting a doll to pop up. Alternatively, if a word is not spelled out, the actuator causes the levers to knock over the structures of the letters which are out of place. The projections of the falling structures engage a member which in turn drives a link into the path of the lid lever, thereby preventing movement of the lid lever and preventing the lid from opening. As a result, the doll does not pop up.

3,786,578

DISPLAY MOUNT FOR LOCKS

Thomas P. Hufford, Foster City, and Hollis L. De Vines, Pacifica, both of Calif., assignors to Schlage Lock Company

Filed Nov. 24, 1972, Ser. No. 309,206
Int. Cl. G09b 25/00
U.S. Cl. 35—49 7 Claims



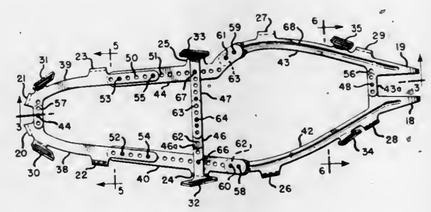
A display mount is provided for any of several locks each having an actuator assembly and a bolt assemblies having different backsets or faceplate arrangements or both. The mount holds any one of the different locks assembled for operation and in appropriate position in the mount. The display mount is in complementary, detachable parts and may be supported on a table or wall.

3,786,579

ADJUSTABLE CRAMPONS

James R. Clark, and Larry R. Gearheard, both of Bellevue, Wash., assignors to Seattle Manufacturing Corporation, Bellevue, Wash.

Filed Jan. 29, 1973, Ser. No. 327,465
Int. Cl. A43b 3/10
U.S. Cl. 36—7.6 12 Claims



An adjustable crampon with a frame which is articulated for width adjustment and has extensible rear frame members for length adjustment, and is made rigid after being fitted to a given boot.

3,786,580

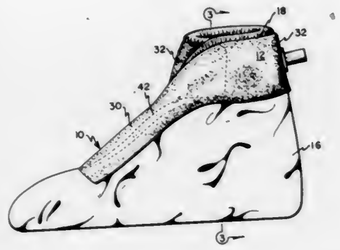
INNER BOOT AND METHOD FOR FORMING THE SAME

Melvin W. Dalebout, Salt Lake City, Utah, assignor to Tanner, Gold & Trask and Kipp and Christian

Continuation-in-part of Ser. No. 8,547, Feb. 4, 1970, Pat. No. 3,581,412, which is a continuation-in-part of Ser. No. 726,094, May 2, 1968, Pat. No. 3,521,385. This application Dec. 1, 1970, Ser. No. 93,964

Int. Cl. A43b 00/00

U.S. Cl. 36—2.5 AL 27 Claims



An inner boot for use within an outer shell which includes a flexible inner liner sized to receive the foot of an individual, an outer liner positioned about the inner liner to form a substantially closed compartment between the liners and attached to the inner liner with connecting means for maintaining filling material within the compartment and for passing gas out of said compartment when said filling material is injected thereinto. A filling tube can be provided in communication with the compartment for injecting a resin elastomer reaction mixture into said compartment.

3,786,581

SKI BOOT

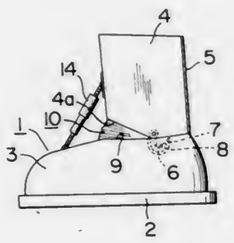
Tetsuya Mochizuki, Tokyo, Japan, assignor to Hope Kabushiki Kaisha, Tokyo-to, Japan

Filed Feb. 26, 1973, Ser. No. 335,815

Claims priority, application Japan, Feb. 29, 1972, 47-24778

Int. Cl. A43b 7/06

U.S. Cl. 36—2.5 AL 3 Claims



A ski boot made of a rigid material comprises a boot proper and a shaft pivotably connected to the boot proper and having its lower front portion cut off to enable it to tilt in a forward direction. An air bladder is provided in the cut off portion of the shaft and a pipe connected to the air bladder communicates the air bladder with the inside of the boot proper. A forward lean motion of the skier during skiing is utilized for compressing the air bladder and thereby providing ventilation inside the ski boot.

3,786,582

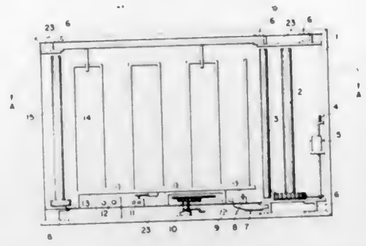
ILLUMINATED PICTORIAL DISPLAY MECHANISM

Istvan Ralbowsky, 1265 Blvd. d'Auteuil, Laval, Quebec, Canada

Filed Sept. 20, 1971, Ser. No. 181,688

Int. Cl. G09f 11/29

U.S. Cl. 40—31 3 Claims



In illuminated display mechanisms the automation has heretofore consisted of automatic off-on switches controlling the illumination or sequential lighting of patterns of light bulbs or tubes which greatly restricts the number of displays which may be presented on a single surface. In this invention back or front illumination may be provided for a great number of pictures, signs or messages; the number being limited only by the duration of each display, the interval of time between each and the allowable size of the body of the mechanisms which may have one or several display faces depending on their size and shape. The pictures, signs or messages to be displayed are printed or painted full size on a band of translucent flexible material of suitable size which moves between two reversible terminal rolls appropriately located within the mechanism and to which the ends of the band are connected. Idler guide rollers are placed at each point at which a direction change of the translucent material occurs. During the change of displays the internal illumination is interrupted so that the actual change is not visible externally. The automatic driving mechanism, timing sequences, illumination control and movement reversal are all electrically operated and controlled and may be activated by self-contained built-in units or by remote control. This invention increases the number of displays available from each display unit, decreases the display change time and permits multifaced units with a minimum of mechanical or electrical addition or variation.

3,786,583

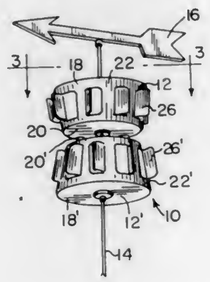
AIR MOTION APPARATUS

Arthur L. Revor, 3433 W. 117th St., Merrionette Park, Ill.

Filed May 18, 1972, Ser. No. 254,564

Int. Cl. G09f 11/02

U.S. Cl. 40—39 2 Claims



An air motion apparatus particularly adapted to move in response to air currents in a fascinating and eye-appealing

manner, having a body means formed from a generally frustoconical container mounted on a spindle means for rotation about the central axis thereof. The body means has formed in or attached to its peripheral side surface a series of elongated vane means which may be slightly curved in transverse cross section and which serve to catch air currents due to wind motion or heat and thereby impart a rotation to the body means about the central axis of the spindle. A plurality of body means mounted on a spindle means, the vane means of each adjacent body means being pitched in opposite directions so that adjacent body means will rotate in opposite directions about the spindle.

3,786,584

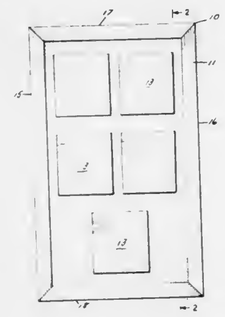
PHOTO DISPLAY FRAME AND ATTACHMENT MEANS THEREFOR

Sheldon Holson, Norwalk, Conn., assignor to The Holson Company, Wilton, Conn.

Filed Jan. 22, 1973, Ser. No. 325,849

Int. Cl. G09f 1/10

U.S. Cl. 40—124 2 Claims



A display frame for temporarily exhibiting photographic prints and similar planar display material by magnetic attachment. The frame includes a planar backing member of metallic material, and the display material is affixed thereto by means of spots of planar synthetic resinous material having magnetized metallic particles therein which are magnetically attracted to the backing member, and are temporarily affixed to a rear surface of the print or display material by a coated adhesive substance having relatively limited adhesive properties relative to hard calendered paper, so as to be readily peelable therefrom for reuse with other display material.

3,786,585

DISPLAY SIGN STRUCTURE

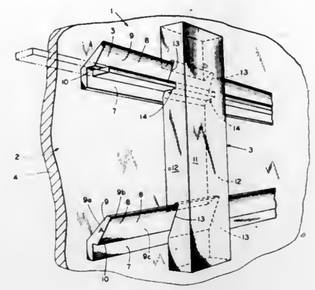
Gary Delaquila, Addison, and John R. Bercier, Elk Grove Village, both of Ill., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 19, 1971, Ser. No. 144,795

Int. Cl. G09f 7/00

U.S. Cl. 40—125 H 6 Claims

A sign arrangement including a sign support structure having upper and lower outwardly extending sign support arms each having an outer diagonally upwardly extending tapered end bar portion and a sign having complementary upper and lower inwardly and upwardly extending tapered bar receiving slots received in the tapered end portions and lock means in the form of key slots in the lower base portion of the upper bar receiving slots and a key lock member inserted in the key lock slots and abutting against the lower edge of the upper arm in preventing removal of the sign from the sign support structure.



3,786,586

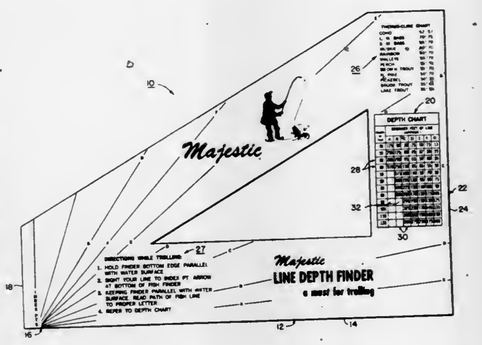
METHOD AND ARTICLE FOR DETERMINING HOW MUCH LINE TO USE WHEN TROLLING

Edward J. Swan, Ontario, N.Y., assignor to Majestic Lures, Ontario, N.Y.

Filed Jan. 11, 1973, Ser. No. 322,895

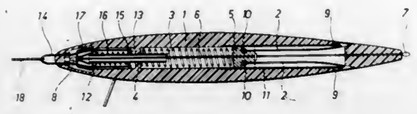
Int. Cl. A01k 97/00

U.S. Cl. 43—4 15 Claims



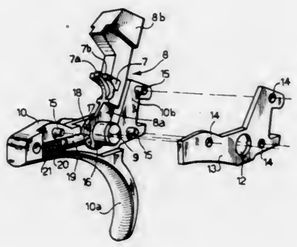
The depth at which fish are located is first measured using, for example, a sonar depth finder. The line depth finder of this invention is a plastic plate in the form of a truncated right triangle which is held vertically with its horizontal reference line horizontal, and the slope of the fish line while trolling is compared to a plurality of differently sloped and marked lines on the line depth finder. After selecting the sloped line that most closely matches the actual slope of the fish line, reference is made to a depth chart located directly on the line depth finder. The depth chart plots "depth in feet" against the various sloped lines and gives the length of line required to position the hook at that depth while trolling. The line depth finder has the same information printed on both sides, and all of the sloped lines preferably emanate from a single index point.

3,786,587
TROLLING LURE
Eino Ilmari Niileksela, Kruunukoankatu 1 B19, Helsinki, Finland
Filed Nov. 17, 1971, Ser. No. 199,409
Claims priority, application Finland, Nov. 18, 1970, 3101/70
Int. Cl. A01k 85/02
U.S. Cl. 43—35 3 Claims



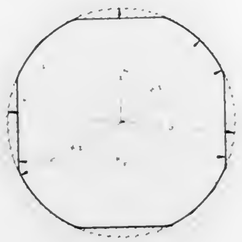
A trolling lure is disclosed having a pair of hooks hidden in the body of the lure. A special triggering mechanism is disposed in a chamber of the lure body and comprises a setting rod held in the set position by a pair of U-shaped safety springs under the combined effects of a setting spring and the resilient kneed arms of a forked spring attached to the fishing line, the arms passing through the bights of the safety springs and connected to the setting spring which is under compressive stress. The hooks are propelled from the lure under the action of a discharge spring which is released when the bights of the safety springs are separated due to the action of tightening the fishing line. The hooks are tensionally disposed within the interior of the lure body and fixed to a piston bearing on the discharge spring, so that when the discharge spring is released the piston moves longitudinally within the interior of the lure body and causes the hooks to be propelled from the lure.

3,786,588
ARRANGEMENT FOR PRE-SELECTING THE SEQUENCE OF FIRING OF A DOUBLE-BARRELLED GUN HAVING A SINGLE TRIGGER
Renzo Soana, Brescia, Italy, assignor to S.p.A. Luigi Franchi, Brescia, Italy
Filed July 28, 1972, Ser. No. 275,992
Claims priority, application Italy, Aug. 13, 1971, 69721 A/71
Int. Cl. F41c 19/00
U.S. Cl. 42—42 R 1 Claim



An arrangement for pre-selecting the firing sequence of a double-barrelled gun, in which a pivoted selector arm resiliently connected to a single trigger is displaceable parallel to its pivot axis between two positions in which it is positively located for cooperation with one or the other of two hammer release catches for discharging a selected one of the barrels first upon pulling the trigger when both hammers are cocked, according to the position in which the said pivoted arm is located.

3,786,589
BARRELS FOR RIFLES AND PISTOLS WITH RUNNING LANDS AND GROOVES
Hans-Joachim Kaltmann, Dusseldorf, Germany, assignor to Rheinmetall GmbH, Dusseldorf, Germany
Filed June 15, 1971, Ser. No. 153,207
Claims priority, application Germany, June 18, 1970, 2029877
Int. Cl. F41c 21/00; F41f 17/10
U.S. Cl. 42—78 3 Claims

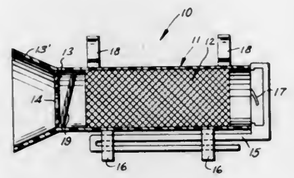


A barrel for rifles and pistols equipped with lands and grooves, wherein the greatest measure of the groove caliber of the barrel corresponds with the minimum measure of the diameter of the projectile, and the land caliber amounts to about 96 percent of the groove caliber.

ERRATA

For Classes 43—4 and 43—35 see:
Patents Nos. 3,786,586 and 3,786,587

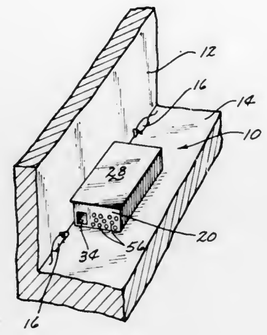
3,786,590
FISHING ROD RETRIEVING DEVICE
Closter G. Weeks, Box 54, Qulin, Mo.
Filed May 30, 1972, Ser. No. 257,948
Int. Cl. A01k 87/00
U.S. Cl. 43—25 4 Claims



A device for attachment to a fishing rod in order that it will automatically float to the surface if lost overboard. This device consists primarily of a cylinder with clamp means for the rod and having a self-contained balloon with chemical means within the cylinder and will put a gas in the balloon upon contact with water.

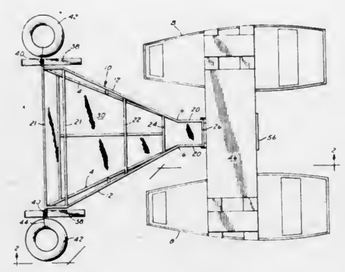
3,786,591
MOUSE TRAP
Marvin A. Morford, 1815 Ashworth Rd., West Des Moines, Iowa
Filed June 3, 1971, Ser. No. 149,459
Int. Cl. A01m 23/08
U.S. Cl. 43—66 1 Claim

A housing having trap passageways at opposite ends closely adjacent one housing side wall. A trap door or floor in the passageway upon being pivoted downwardly under the weight of the mouse operates through a linkage a gate which pivots upwardly allowing the mouse to enter the interior of the housing whereupon the gate closes locking the mouse in the housing. A removable slidable top on the housing allows emptying



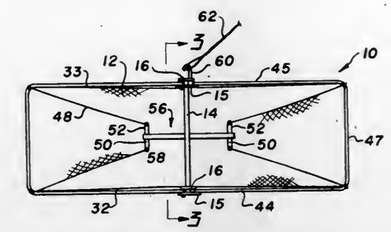
of the trap. Openings are provided in the gates and housing end walls. The oppositely disposed passageways close to one housing side wall accommodates the natural instincts of mice to keep close to a wall and seek safety in small openings and passageways.

3,786,592
SEINE ASSEMBLY
Jack E. Miller, 325 S. Reynolds St., and Kenneth M. Garrett, 700 Allison Ave., both of Canon City, Colo.
Filed Sept. 25, 1972, Ser. No. 291,918
Int. Cl. A01k 79/00
U.S. Cl. 43—6.5 3 Claims



A shallow water seine assembly especially useful for capturing large quantities of small aquatic creatures for use as live bait. An open frame is screened on two vertical sides and across its bottom to form a wide mouthed rearwardly and upwardly tapered capture chamber open at its front and top. Ski-like skids mounted on the bottom of the frame at each side of the front of the frame support the frame for sliding movement across the bottom of a pond. The rearward end of the frame in one form of the invention is mounted upon a platform which in turn is intended to be supported at opposite ends by a pair of small boats. The frame is hinged to the platform for pivotal movement about a horizontal axis normal to the direction of travel of boats. Buoyant elements are attached to the front end of the frame to support a major portion of the weight of the front end of the frame so that the entire seine assembly has a slightly negative buoyancy.

3,786,593
FOLDABLE TRAP
George Gerbrandt, 2273 Lawson Ave., West Vancouver, British Columbia, Canada
Filed July 31, 1972, Ser. No. 276,854
Int. Cl. A01k 69/00
U.S. Cl. 43—100 7 Claims

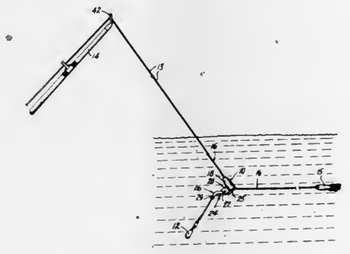


A trap having a frame enclosed by a box-like net. The frame has a centre post and normally radially extending arms which are hinged to swing parallel to one another thereby folding the trap. A latching device is provided to hold the frame open or unfolded and resilient members apply tension to end walls of the trap which serve to keep the end walls taut and properly shaped to provide lead-ins to entrance openings formed therein.

3,786,594
METHOD OF RAISING AND HANDLING WASPS
Clarence A. Scott, Jr., Groom, Tex., assignor to Beneficial Insect Control, Inc., Groom, Tex.
Filed Apr. 17, 1972, Ser. No. 244,932
Int. Cl. A01m 5/00
U.S. Cl. 43—124 3 Claims

Aphid infestation of crops such as alfalfa and milo is treated by first collecting aphid mummies, i.e., the dead carcasses of aphids within which eggs of the parasitic wasp, braconid lysiphlebus, have been laid. After the aphid mummies are collected, they are refrigerated and transported to the location of the infested fields to be treated. A plurality of mummies are then placed in a container open to the atmosphere in a field infested with aphids. Parasitic wasps hatch from eggs within the aphid mummies within a short period of time and leave the container. The wasps then attack and kill the live aphids infesting the crop by planting eggs in them which subsequently hatch into more wasps.

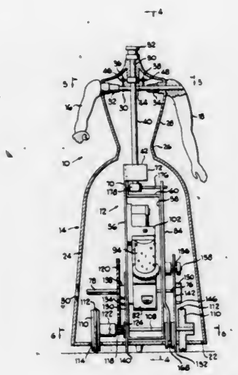
3,786,595
DEVICE FOR RELEASABLY CONNECTING A SINKER TO A LINE
Nicola Croce, 7511 Leesburh Pl., Bethesda, Md.
Filed Oct. 17, 1972, Ser. No. 298,452
Int. Cl. A01k 95/00
U.S. Cl. 43—44.87 9 Claims



A device for releasably connecting a sinker to a line comprising a body member having a bore therethrough and a lever

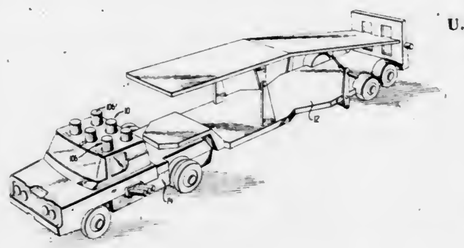
means attached to the body member. The lever means has a line-engaging portion at one end and a sinker attaching means at the other end. The lever is moveable between an engaged position and a released position.

3,786,596
ANIMATED MUSICAL FIGURE TOY
Jeffrey D. Breslow, Highland Park, and Bette Marie Kaelin, Chicago, both of Ill., assignors to Marvin Glass and Associates, Chicago, Ill.
Filed July 10, 1972, Ser. No. 270,229
Int. Cl. A63h *5/00*
U.S. Cl. 46—98 **9 Claims**



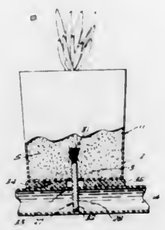
A doll having a movable head and movable upper arms and a lower torso comprised of a music box mechanism covered by a long skirt. The torso is positioned on a wheel-supporting platform having depending wheels and depending pivot structure.

3,786,597
AMUSEMENT DEVICE
Hiroshi Sano, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan
Filed July 21, 1972, Ser. No. 274,027
Int. Cl. A63h *33/26*
U.S. Cl. 46—243 LV **5 Claims**



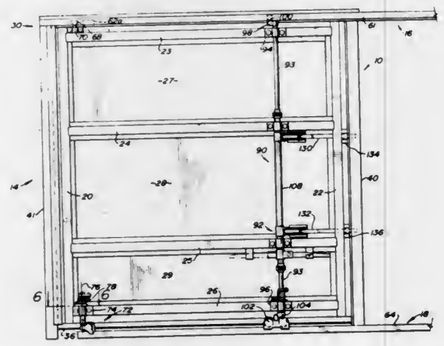
An amusement device featuring a vehicle provided with a motor and a source of energy for running same, one or more driving wheels operatively connected to the motor for propelling the vehicle, one or more guide wheels rotatably mounted to the front of the vehicle for steering same and a control panel mounted centrally of the vehicle featuring a plurality of buttons to be selectively depressed by the child for operatively connecting the motor and the source of energy and reversing the direction of the motor to reverse the direction of the driving wheel permitting the vehicle to remain stationary, move forward and move in reverse, as desired, and also rotating the guide wheel permitting the vehicle to move in a straight path and turn in either direction, as desired.

3,786,598
SELF-FEEDING WATERING SYSTEM FOR POTTED NURSERY PLANTS
Richard S. Stadelhofer, 14275 S. W. 232 St., Goulds, Fla.
Filed Aug. 10, 1971, Ser. No. 170,458
Int. Cl. A01g *27/00*
U.S. Cl. 47—38.1 **6 Claims**



A plurality of vertically-extending wick members arranged in regularly spaced rows serve to receive, impaled thereon through bottom openings, potted nursery plants. The wick members are substantially rigid except for frayed wick portions extending outwardly of their upper ends; and are of such length as to extend upwardly into the soil of the containers in the vicinity of the root systems of the plants. A plurality of horizontally-disposed water pipes through which the lower ends of the wick members extend supply water without pressure head to central wick cords within the wick members, which cords, by capillary attraction, conduct water upwardly to their frayed upper ends for distribution, also by capillary attraction, through the soil in the containers. As moisture is utilized by the growing plants, capillary attraction from the wick members serves to maintain substantially constant moisture content irrespective of the varying demands of the plants, thereby achieving optimum growth.

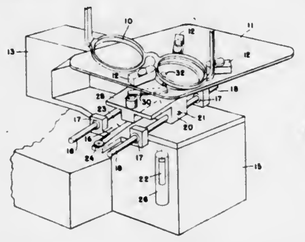
3,786,599
TRACKING PLUG DOOR
Leslie L. Galbarzyk, Oak Park; Irving D. Ross, Jr., Barrington, and Thorvald Madland, Arlington Heights, all of Ill., assignors to The Youngstown Steel Door Company, Chicago, Ill.
Filed June 20, 1972, Ser. No. 264,408
Int. Cl. E05d *15/10*
U.S. Cl. 49—220 **16 Claims**



The specification and drawings disclose an improved mounting and operating mechanism for a plug-type door. The

disclosed assembly is for use in a door opening defined by a frame including spaced first and second vertically extended frame members. Upper guideway means extend adjacent the top door opening and a lower guideway means extends under the door opening and longitudinally of the car past the second frame members. This permits a door to be moved longitudinally of the car away from the opening. A door member adapted to be received within the opening is mounted on the guideways and has leading and trailing lateral edges adapted to mate with the first and second lateral frame members respectively of the opening. Upper and lower sets of roller means support the door member. Each set of roller means includes at least one roller member located generally along the leading edge so that as the leading edge moves toward the first frame member, cooperation between the guideway means and the roller members cause the leading edge of the door to move into the opening. The upper and lower sets of roller means each further include at least a second roller member spaced from the first set in the direction of the trailing edge. Each of said second roller members is carried by crank arms on a vertically extending rotatable shaft assembly. Latch bolt means are mounted along at least the trailing edge for engaging the second door frame member when the door is in the opening. Additionally, actuating means are provided for rotating the shaft assembly and moving the latch bolt means. The actuating means include means for producing retraction of the latch bolts prior to rotation of the crank arms.

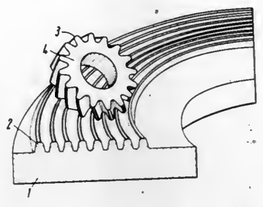
3,786,600
CONTOUR GRINDER
Joseph Thomas Bloxsom, Peekskill, N.Y., assignor to A. Lemay Co., Inc., Carmel, N.Y.
Filed Oct. 2, 1972, Ser. No. 294,350
Int. Cl. B24b *9/14*; **B23c** *1/18*
U.S. Cl. 51—101 LG **9 Claims**



An industrial shaping system to form various articles including eyeglass lenses. The invention specifically discloses an eyeglass frame pattern generator and edge grinder for shaping eyeglass lenses to fit a particular frame. A sensing wheel makes contact with the internal frame groove which is designed to hold the lens. The frame pattern generator controls an edge cutter by means of a servo system to shape the lens so that it will fit into the frame groove after the grinding operation. A computing device in the frame pattern generator is arranged to correct for the inherent errors generally present in all contour devices employing a tracing mechanism and a grinding cutter where grinding is done along the circumference of the grinding wheel.

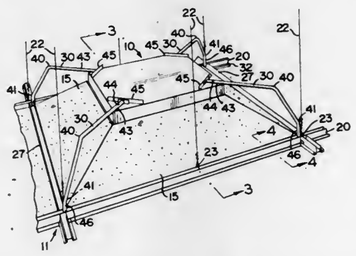
3,786,601
APPARATUS FOR DE-BURRING OR CHAMFERING OF GEARS
Horst Seidensticker, Lonkert 32, Brackwede, Germany
Filed July 1, 1971, Ser. No. 158,876
Claims priority, application Germany, July 2, 1970, P 20 32 759.7
Int. Cl. B24b *5/02*
U.S. Cl. 51—129 **9 Claims**

An apparatus for de-burring or chamfering of gears has at least one disk member of abrasive material one or both major surfaces of which are provided with helical or concentric ribs of the abrasive material. The ribs have a cross-sectional profile



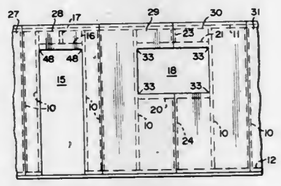
corresponding to that of the teeth on gears to be processed, and a drive is provided which rotates the disk member about its axis of rotation which is encircled by the ribs.

3,786,602
MODULAR CEILING ASSEMBLY
Joseph D. Wilkin, Tampa, Fla., assignor to The Celotex Corporation, Tampa, Fla.
Filed May 1, 1972, Ser. No. 248,950
Int. Cl. E04b *5/52*
U.S. Cl. 52—28 **6 Claims**



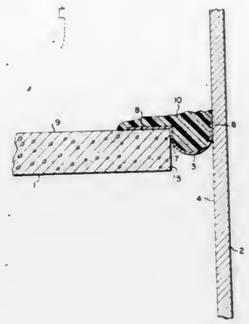
A modular light fixture and sound absorbing panel assembly which can be easily inserted into place in a preassembled suspension system with the support hangers for the suspension system being symmetrically located with respect to the supporting legs of the modules.

3,786,603
METHOD OF RELIEVING STRAINS IN A WALL AND CONSTRUCTION THEREFOR
David P. Kasprzak, Largo, Fla., assignor to The Celotex Corporation, Tampa, Fla.
Filed May 3, 1972, Ser. No. 250,075
Int. Cl. E04g *23/02*
U.S. Cl. 52—204 **7 Claims**



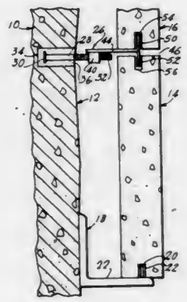
A method for and construction resulting from scoring the paper cover sheet of a gypsum wallboard from corners of openings therein to relieve strains and control cracking of the wallboard.

3,786,604
FIRE STOP BETWEEN FLOOR SLAB AND CURTAIN WALL OF BUILDING
Fritz Kramer, Woodside, N.Y., assignor to U. F. Chemical Corp., Woodside, N.Y.
Filed Dec. 6, 1971, Ser. No. 205,106
Int. Cl. E04c 2/00; E04b 1/74
U.S. Cl. 52—232 5 Claims



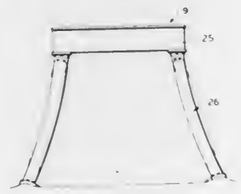
A fire stop separating superposed floors of a building having a concrete floor slab and a curtain wall horizontally separated by a gap to permit relative thermal expansion movement of the slab and wall essentially consists of a trough of pliable sheet steel filling the gap, and urea formaldehyde resin foam filling the upwardly open cavity of the trough. The foam chars, but does not burn in the event of a fire so as to retain its cellular structure and much of its thermal insulating properties, and the thin sheet steel can support the light foam and its own weight even at temperatures high enough to reduce the tensile strength of the steel.

3,786,605
STONE ANCHOR
Hal C. Winfrey, 4160 Hawkeye Way, De Kalb County, near Stone Mountain, Ga.
Filed Mar. 16, 1971, Ser. No. 124,728
Int. Cl. E04b 1/41, 2/88
U.S. Cl. 52—235 6 Claims



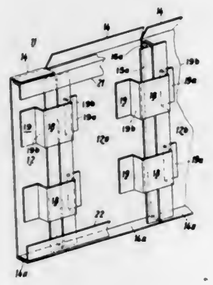
A stone anchor for attachment between the face of a building and pieces of veneer such as stone. A threaded anchor stud carries an internally threaded collar which is attached to the flat plate that extends between joints in adjacent courses of stone. The flat plate may carry angular portions at the end which extend into kerfs formed in the respective adjacent stones. The end of the stud is inserted into a hole in the face of the wall and secured therein by mortar, adhesive and the like and thereafter the collar with the plate may be screwed in or out relative to the face of the wall to adjust the stone anchor to the proper extension thereby eliminating altogether the use of a variety of different sizes of stone anchors. In one form the plate is split on the end and turned in opposite directions whereas in another form a pin is secured perpendicularly to the plate.

3,786,606
SUPPORTING APPARATUS FOR VESSELS
Melvin J. Greaves, Cleveland, and Tage Werner, Rocky River, both of Ohio, assignors to Arthur G. McKee & Company, Cleveland, Ohio
Division of Ser. No. 811,527, March 28, 1969, Pat. No. 3,630,507, which is a continuation-in-part of Ser. No. 778,883, Aug. 29, 1968, Pat. No. 3,559,972, which is a division of Ser. No. 520,945, Jan. 17, 1966, Pat. No. 3,431,691. This application Apr. 26, 1971, Ser. No. 137,640
Int. Cl. E04c 3/10
U.S. Cl. 52—223 7 Claims



Apparatus for supporting a vessel, such as a blast furnace having a shell, comprising a main frame that surrounds the shell and is connected to and at least partially supports the shell. The supporting apparatus for the vessel also includes diverging legs rigidly connected to the main frame; during construction the lower ends of these legs are supported off-center from the centers of the legs to enable the lower ends of the legs to deflect outwardly by amounts corresponding to the amounts that they would deflect when loaded with the vessel. The legs are thus prestressed before loading.

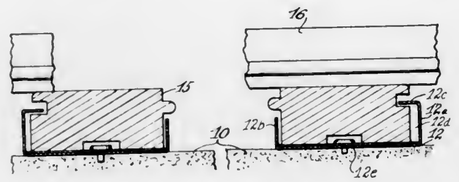
3,786,607
ELEMENT FOR CONSTRUCTING TEMPORARY WALL STRUCTURES
Friedrich Bartels, Tilsiter Str. 144, Hamburg, Germany
Filed May 12, 1972, Ser. No. 252,857
Claims priority, application Germany, May 21, 1971, P 21 25 373.6
Int. Cl. A63j 23/00
U.S. Cl. 52—474 11 Claims



An element for constructing a temporary wall or partition made from corrugated cardboard sheet parts and scored so as

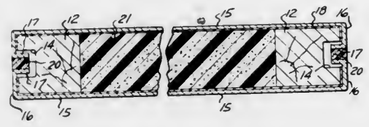
to be foldable to form side surfaces by which adjacent parts can be joined, other edges of the sheet parts being folded at right angles and the joins between adjacent parts being effected by U-form brackets overlying the join. Two assembled elements are connected back to back to form a rigid cavity structure.

3,786,608
FLOORING SLEEPER ASSEMBLY
William A. Boettcher, 4507 N. Clark St., Chicago, Ill.
Filed June 12, 1972, Ser. No. 262,057
Int. Cl. E04b 5/00
U.S. Cl. 52—480 4 Claims



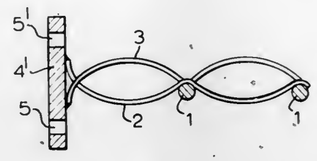
A flooring sleeper assembly comprising a retainer and flooring sleepers made up of a linear series of sections. These are of floor board material and have a slot in one side edge. The present retainer is a long, metallic receptacle for the series of sleeper sections, such receptacle rising with a channel on one side which terminates with an inward hook directed into the sleepers' slot. On the opposite side the receptacle rises with a vertical flange. The latter and the channel form guards to check lateral shifting tendencies of the sleeper sections; and the hook checks them from rising out of the retainer.

3,786,609
CORED INSULATED DOOR
Joseph Difazio, Warren, Mich., assignor to Acorn Products Company, Detroit, Mich.
Filed Jan. 7, 1972, Ser. No. 216,053
Int. Cl. E04b 1/68, 2/28
U.S. Cl. 52—619 1 Claim



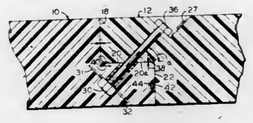
A slab door formed of a wood frame having a wide, deep, vertically extending groove formed in the exposed edges of each of the opposite vertical frame stiles, and each face of the frame being covered by a thin sheet of metal whose opposite vertical edges are bent into flanges covering the stile edges and loosely extending into their adjacent groove. The adjacent pair of flange portions within each groove are spaced apart and bonded together by a plastic filler material. Thus, a rigid slab unit is formed by the sheets of metal bonded together at their vertical edge flanges and adhesively secured to the frame, with the sheets being thermally insulated from each other by the plastic material which also seals the vertical edges of the slab against moisture penetration.

3,786,610
REINFORCING ELEMENT FOR CONCRETE STRUCTURES
Horst Glatz, Eldagsen Hanover, Germany, assignor to Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschrankter Haftung, Hanover, Germany
Filed Dec. 3, 1971, Ser. No. 204,653
Claims priority, application Germany, Dec. 17, 1970, P 20 62 099.9. The portion of the term of this patent subsequent to June 19, 1990, has been disclaimed.
Int. Cl. E04c 2/42, 5/04
U.S. Cl. 52—661 7 Claims



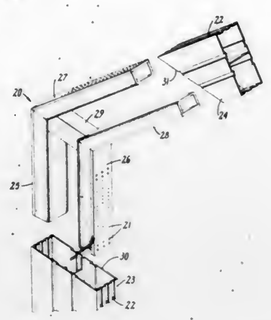
The invention is concerned with mat-like or plate-shaped elements such as are used as reinforcing elements and as shuttering in the production of concrete structures. These elements are generally somewhat flexible in character and when of large size or formed into an assembly of large size have hitherto had to be supported in their predetermined position until hardening of the concrete applied is completed. The reinforcing elements of the present invention are made substantially self-supporting by the arrangement along at least one edge of a supporting element which is resistant to bending. Suitably the supporting element resistant to bending is a steel section applied to a reinforcing element which comprises parallel longitudinal ribs of rod-like steel connected by parallel strip-like transverse ribs bent alternately in the one and other direction perpendicular to the plane of the plate.

3,786,611
FASTENING SYSTEM FOR JOINING STRUCTURAL MEMBERS
Boyd E. Brown, Hubbard, and Eric A. Brown, Portland, both of Oreg., assignors to Ordeco, Inc., Woodburn, Oreg.
Filed Jan. 14, 1972, Ser. No. 217,854
Int. Cl. F16b 5/02
U.S. Cl. 52—753J 8 Claims



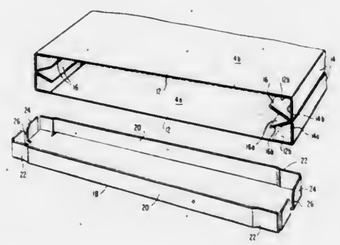
Two mold-formed polyurethane foam structural members are joined in edge-abutting relationship at interfitting complementary stepped edges. A threaded fastener extends from an external surface of one member at an oblique angle through an abutting set of edge surfaces of the stepped edges into threaded engagement with a nut embedded within the other so as to draw together the corresponding edge surfaces of the two stepped edges. The nut has wing-like projections which resist its rotation within and withdrawal from such other member. The nut is embedded within its parent member during the mold-forming of such member. Similarly, the required stepped edges and pilot hole leading to the embedded nut are formed as the member is mold-formed. A threaded fastener extending into the mold cavity through a pilot hole in the mold positions the nut within the mold cavity, and a sleeve surrounding the portion of the fastener within the cavity defines the pilot hole to the nut during the mold-forming process.

3,786,612
ANGLE CONNECTORS FOR MODULAR BEAM STRUCTURES
William H. Baker, 403 Loudonville Rd., Albany, N.Y.
Filed Nov. 17, 1970, Ser. No. 90,305
Int. Cl. F16b 7/00
U.S. Cl. 52—754 5 Claims



Angle connectors are provided for modular box beam building members. The connectors have two opposed pairs of substantially parallel support members, attached to and extending from a base member, one support member of each pair being disposed substantially in alignment with one support member of the opposite pair, and at an angle thereto corresponding to the angle of the connection to be made.

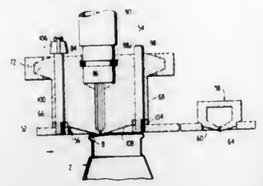
3,786,613
SHEET METAL DOOR WITH FOAM PLASTIC CORE
William L. Shepheard, 3040 Broad Creek St., Norfolk, Va.
Filed June 9, 1972, Ser. No. 261,425
Int. Cl. E06b 3/70; E04c 2/40
U.S. Cl. 52—619 3 Claims



The shell of a sheet metal door is formed of two opposed wide, shallow trough-like members each having opposed edge layers folded back upon one another to provide greater thicknesses of metal at the edges than at the panels.

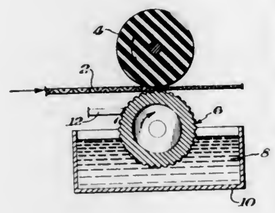
3,786,614
CONTAINER FILLING AND CAPPING APPARATUS
Robert J. Mistarz, Northbrook, Ill., assignor to Koehring Company, Milwaukee, Wis.
Filed Feb. 15, 1972, Ser. No. 226,582
Int. Cl. B65b 55/24
U.S. Cl. 53—167 16 Claims

A milk bottling machine includes a spin welder for joining together plastic container halves, means for filling the thus formed containers with milk and means for heat sealing caps in place on the open tops of the filled containers. In order to assure good sealing between the caps and the container lips, each container lip is acted upon by one or more vacuum heads as it is moved from the container filling station to the point where a cap is applied to the container. The vacuum heads remove drops of milk which may have been deposited onto the



container lip at the filling station. Each vacuum head is so constructed that it may be disassembled readily for cleaning, and steam may be applied to the container lips prior to the passage thereof beneath the vacuum heads so as to dilute the milk droplets and increase the intervals over which the vacuum heads may be used without becoming clogged.

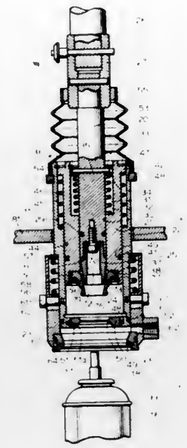
3,786,615
PROCESS FOR PREPARING PRE-MOISTENED ANTIMICROBIAL TOWELS
Stuart M. Bauer, Succasunna, N.J., assignor to Pfizer Inc., New York, N.Y.
Filed Nov. 13, 1972, Ser. No. 305,859
Int. Cl. B65b 63/04
U.S. Cl. 53—21 FC 6 Claims



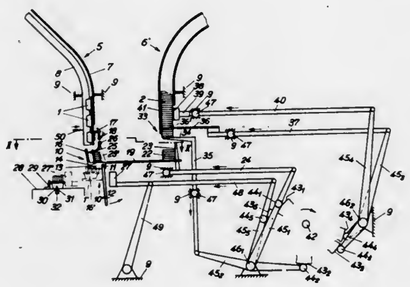
A process for the preparation of pre-moistened antimicrobial towels is disclosed.

3,786,616
APPARATUS FOR SECURING AND SEALING A CLOSURE CAP TO A RECEPTACLE
John C. Nalbach, La Grange Park, and Graeme W. Warner, Hinsdale, both of Ill., assignors to John R. Nalbach Engineering Company, Chicago, Ill.
Filed May 2, 1972, Ser. No. 249,514
Int. Cl. B65b 31/02, 7/28
U.S. Cl. 53—88 6 Claims

Apparatus for securing and sealing a closure cap to a receptacle and for evacuating air from the receptacle including a head assembly actuated by an air cylinder, the head assembly including coaxially disposed outer, central and inner sleeve members slidable relative to each other, the outer sleeve member having means thereon to establish a sealed relationship with the receptacle to allow a vacuum to be pulled on the receptacle, the central sleeve having means thereon for holding a closure cap firmly in the receptacle opening, and the inner sleeve having means thereon for securing the closure cap to the receptacle.

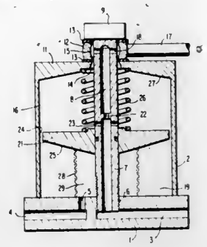


3,786,617
DEVICE FOR THE AUTOMATIC FILLING OF BISCUITS INTO PACKAGING CONTAINERS
Rene Fluck, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Rhienfall, Switzerland
Filed June 2, 1972, Ser. No. 259,137
Claims priority, application Switzerland, June 15, 1971, 8716/71
Int. Cl. B65b 5/06, 35/30
U.S. Cl. 53—154 7 Claims



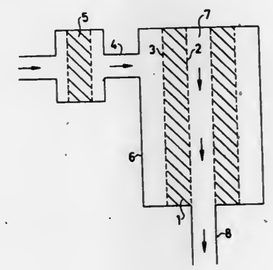
A device for automatic filling of biscuits into packaging containers which are open on one side is provided with a vertical channel for feeding the containers downwardly one by one onto a pivot support with the open side of the container facing sideways toward an article feed device which horizontally moves one stack of biscuits at a time into the sideways open container on said support. When the container is filled the pivot support swings the filled container about 90° so that the open side of the container faces upwardly, whereupon the filled container is conveyed away from the device along a horizontal discharge track.

3,786,618
INSTALLATION FOR DEFOAMING LUBRICANTS
Karl Sommerfeld, and Herbert Zelldann, both of Fellbach, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Dec. 15, 1971, Ser. No. 208,320
Claims priority, application Germany, Dec. 15, 1970, 2061597
Int. Cl. B01d 19/00
U.S. Cl. 55—159 25 Claims



An installation for defoaming lubricants, in particular for the supply of hydraulic valve lifter elements in internal combustion engines and the like, in which a center pipe extending substantially vertically through the housing is adapted to be connected with the supply channel conducting the oil from the feed pump; the center pipe is provided internally with a throttling place and upstream thereof with apertures in communication with a housing space that is considerably larger than the bore in the center pipe; oil which is defoamed and possibly also filtered is conducted off through an opening provided in the bottom of the housing whereas oil that might still contain air, is able to flow off through an opening provided in the upper portion of the housing space into the line leading back to the oil sump.

3,786,619
METHOD OF PURIFYING GASES CONTAINING MERCURY COMPOUNDS AND ELEMENTARY MERCURY
Karl-Axel Melkersson, Helsingborg, and Bo Gustav Valter Hedenas, Viken, both of Sweden, assignors to Bolliden Aktiebolag, Stockholm, Sweden
Filed June 1, 1972, Ser. No. 258,626
Claims priority, application Netherlands, June 4, 1971, 7237
Int. Cl. B01d 53/04
U.S. Cl. 55—72 9 Claims

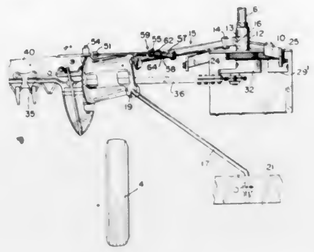


A method of purifying gases containing gaseous mercury. Mercury containing gas is passed through a mass of purifying material containing as an active constituent a material consisting of selenium, selenium sulphide or other selenium compounds or mixtures thereof.

3,786,620
BALANCED MOWER

Thomas J. Scarnato, Barrington; Paul C. Gordon, Hinsdale; Robert Sorensen, Glen Ellyn, and Craig M. Lawler, Downers Grove, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed May 19, 1972, Ser. No. 254,979
Int. Cl. A01d *35/08, 55/02*
U.S. Cl. 56—16.3 9 Claims

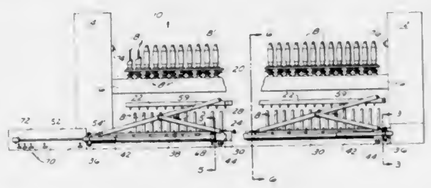


A mower having a stationary cutter bar and a sickle reciprocal thereon, and a drive which comprises a pitman connected to the sickel and driven by a crank which has a counterweight. The crank is connected by a flexible, preferably nylon, gear assembly to a counterbalancing counterweight. Both counterweights are arranged in a meshing relation and in planes parallel to the longitudinal axis of the sickle. Certain force couples and unbalancing forces are modulated by deflection of the plastic gear teeth.

3,786,621
GRASPER BAR POSITIONING MECHANISM FOR AUTOMATIC DOFFER

Lester W. Pray, Clemson; John H. Christeson, Seneca; Frederick A. Preston, Clemson; Herman D. Sheron, Jr., Seneca; William H. Drake, and Gordon C. Anderson, both of Clemson, all of S.C., assignors to Maremont Corporation, Chicago, Ill.

Continuation of Ser. No. 864,399, Oct. 7, 1969, abandoned.
This application Oct. 13, 1971, Ser. No. 188,767
Int. Cl. D01h *9/00*
U.S. Cl. 57—52 10 Claims

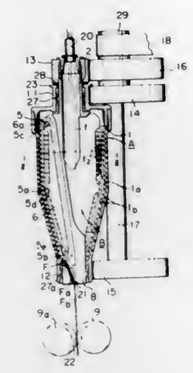


Bobbins are moved during doffing between a position upon and a position below the spindles of a textile spinning frame or like machine by a retractable mechanism disposed when not in use entirely below the spindles so as to not impede end-down or other servicing of the frame during normal spinning operations. Multiple guided connections with hydraulic cylinder and piston assemblies provide the smoothness and precision of grasper-bar movement necessary for successful performance of the bobbin doffing and donning operations. Critical components of the mechanism are shielded from the ambient atmosphere and from accidental impacts. Completion of each phase of the grasper bar's movement is verified before commencement of its next movement, and a photoelectric stop-motion device detects non-doffing of any bobbin.

3,786,622
YARN SPINNING METHOD AND APPARATUS THEREFOR

Eizaburo Negishi, Yono, Japan, assignor to Kabushiki Kaisha Negishi Kogyo Kenkyusho, Urawa-shi, Saitama-ken, Japan

Filed Nov. 15, 1972, Ser. No. 306,826
Claims priority, application Japan, Nov. 15, 1971, 46-91767
Int. Cl. D01h *1/12*
U.S. Cl. 57—58.89 7 Claims

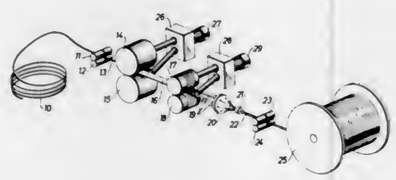


A new improved yarn spinning method of the open-end spinning system, which method comprises the steps of collecting the fibers to be processed thereby to form a sliver in an inner rotor disposed in an outer rotor, said rotors being differentially rotated, transferring successively the thus formed sliver toward a spinning-out direction, and drawing said sliver in order to stretch or draft thereby to automatically twist said stretched or drafted sliver, thus producing an excellent yarn. Furthermore, an apparatus adapted to carry out effectively the aforementioned method and modifications of this apparatus are disclosed.

3,786,623
METHOD AND AN APPARATUS FOR THE CONTINUOUS PRODUCTION OF STRANDED WIRE

Karl Bertil Eliasson, Vasteras, Sweden, assignor to Granges Essem AB, Vasteras, Sweden

Filed July 24, 1972, Ser. No. 274,375
Claims priority, application Sweden, Aug. 8, 1971, 10102/71
Int. Cl. D07b *3/00, 3/12, 7/00*
U.S. Cl. 57—34 R 4 Claims

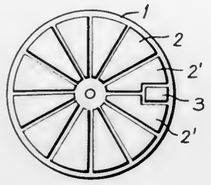


The present invention relates to a method and an apparatus for the continuous production of a twisted stranded wire by flattening a strand of wire, shearing it into a plurality of strands, and twisting the strands together.

3,786,624
SOLAR CELL WATCH DIAL HAVING CALENDAR DISPLAY WINDOW

Hideaki Uchiyama, Swa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed July 3, 1972, Ser. No. 268,325
Claims priority, application Japan, July 9, 1971, 46/50870
Int. Cl. G04c *3/00*; G04b *19/24*
U.S. Cl. 58—23 C 2 Claims

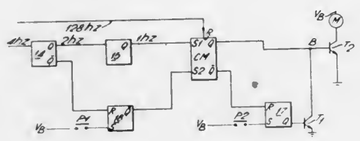


A timepiece has a plurality of solar cell elements arranged on the surface of the dial thereof, the dial being formed with a window through which a time or calendar indication may be viewed. The portion of one or more of the solar cell elements in the region of the window is removed. The elements having portions removed are connected in parallel with each other if the total light receiving area of other of said elements, otherwise, the elements having portions removed are electrically disconnected from the other of said elements.

3,786,625
ARRANGEMENT FOR CORRECTING OF SECONDS INDICATION OF A TIMEPIECE

Pierre Sauthier, Bienne, Switzerland, assignor to Societe Suisse Pour L'Industrie Horlogere Management Services S.A., Bienne, Switzerland

Filed Dec. 5, 1972, Ser. No. 312,328
Claims priority, application Great Britain, Dec. 16, 1971, 58,470/71
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 R 10 Claims

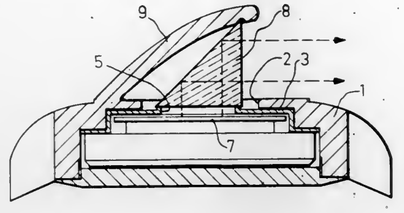


A correction circuit for a timepiece is driven by digital pulses to advance the timepiece display by one second in response to each pulse. A first push button switch is provided for eliminating one pulse, and a second push button switch is provided for inserting an additional pulse into the sequence of pulses applied to the display, to thereby provide correction of the time displayed by the timepiece.

3,786,626
DIGITAL WATCH

Zeno Hurt, Mohlin, Switzerland, assignor to AGON Uhrenfabrik Robert Triebold AG, Mumpf, Switzerland

Filed Apr. 5, 1973, Ser. No. 348,174
Claims priority, application Switzerland, May 10, 1972, 6923/72
Int. Cl. G04b *37/00, 39/00, 19/06*
U.S. Cl. 58—88 R 6 Claims

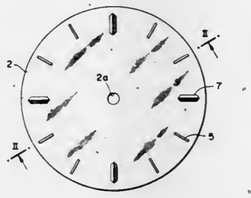


A digital watch in which the numerals move beneath windows of a cover plate and possessing a reflecting element for reading the time in a direction which is at least approximately parallel to the cover plate.

3,786,627
DIAL PLATES FOR TIMEPIECES

Tooru Takagi; Tsuneyoshi Shinoyama, and Setsuo Satoh, all of Tokyo, Japan, assignors to Orient Watch Co., Ltd., Tokyo, Japan

Filed Sept. 26, 1972, Ser. No. 292,322
Claims priority, application Japan, Dec. 8, 1971, 46-99151; Apr. 17, 1972, 47-38485
Int. Cl. G04b *19/06*
U.S. Cl. 58—127 R 6 Claims



A dial plate for timepieces consisting of a metallic base plate and a thin shell plate having a nacreous gloss and bonded to said metallic base plate with the nacreous surface thereof exposed to the outside by means of an adhesive, in which said thin shell plate is bonded to said metallic base plate at an opaque layer formed on said thin plate or plating applied to the back side thereof.

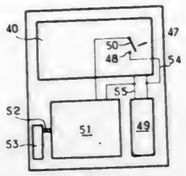
3,786,628
WARNING SYSTEM AND METHOD

Hubert Rene Louis Fossard, Rue de Vitot, Le Neubourg, and Henriette Josephine Joly, 22 Avenue Parmentier, Paris, both of France

Filed Apr. 28, 1972, Ser. No. 248,611
Claims priority, application France, Apr. 30, 1971, 71.15615
Int. Cl. G06b *23/12*
U.S. Cl. 58—152 B 1 Claim

A warning device particularly useful for the deaf or partially deaf comprising a mechanical vibration generator responsive

to signals produced by a trigger signal generator to which it is operatively connected, the trigger signal generator being



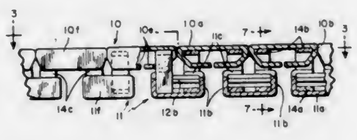
responsive to various external sources of different natures, such as an alarm clock, a door bell or a car horn.

3,786,629

EXPANSIBLE LINKAGE FOR USE IN MAKING A WATCHBAND OR SIMILAR ARTICLE

Kurt A. Rieth, Warwick, R.I., assignor to Textron, Inc., Providence, R.I.

Filed June 29, 1972, Ser. No. 267,419
Int. Cl. F16g *13/24*
U.S. Cl. 59—79 R **11 Claims**



An expansible linkage for use as a watchband, bracelet or similar article having two rows of overlapping staggered links, connecting members displaceably connecting the links of the inner row to the links of the outer row and springs in the inner row for urging the links from their expanded to their contracted positions. The springs are located only in the links of the inner row of links. Each of the links of the outer row has an outer wall, a narrower inner wall substantially parallel to the outer wall, a pair of substantially parallel first side walls connected to the opposite sides of the outer wall and a pair of second side walls which converge inwardly from the inner sides of the first side walls to lateral sides of the inner wall. In one embodiment, the outer wall of each of the links of the outer row of links has an opening formed at one side thereof intermediate its ends and an extension at the opposite side thereof which is of substantially the same size as said opening so that when the linkage is in contracted position the extension is positioned in the opening of the outer wall of the adjacent link. In this embodiment, each of one of the first side walls of each of the links of the outer row of links includes an opening formed therein which communicates with the opening in the outer wall of the link.

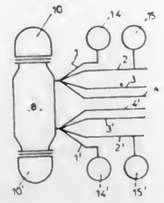
3,786,630

DEVICE FOR CONNECTING EXHAUST MANIFOLD SETS TO THE TURBO-BLOWERS OF A SUPERCHARGED INTERNAL-COMBUSTION ENGINE

Karl Walter Kuhn, Saint-Germain-en-Laye, and Jacques Gallois, Paris, both of France, assignors to Societe D'Etudes de Machines Thermiques, St. Denis, France

Filed Nov. 23, 1971, Ser. No. 201,410
Claims priority, application France, Jan. 15, 1971, 71.01345
Int. Cl. F02c *37/04*
U.S. Cl. 60—13 **4 Claims**

In a supercharged internal combustion engine provided with two rows of V-shaped cylinders, each row being fed by a turbo-blower and having an associated cluster of exhaust manifolds, an arrangement for connecting said clusters of exhaust manifolds to said turbo-blowers, wherein each cluster of exhaust manifolds is connected by a convergent nozzle forming a pulse converter with its associated turbo-blower through a compact intermediate chamber common to both clusters, said chamber being mounted between the turbo-blowers and forming a mixing and attenuating casing.

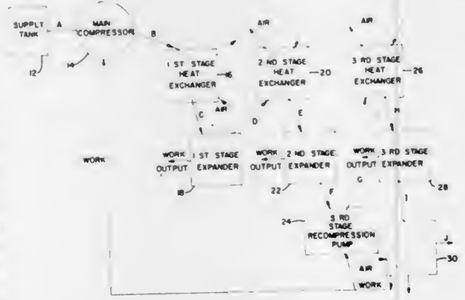


3,786,631

NITROGEN VAPOR ENGINE

Lindley Manning, 4585 Clearview Dr., and Richard N. Schneider, 1950 Castle Way, both of Reno, Nev.

Filed Sept. 23, 1971, Ser. No. 182,994
Int. Cl. F01k *25/10*; **F03g** *7/04*
U.S. Cl. 60—26 **4 Claims**



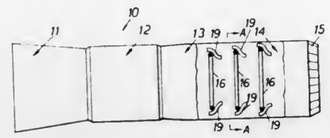
An open-cycle thermodynamic engine using a working fluid which is a gas at ambient conditions and which is liquefiable at temperatures below ambient. The engine operates by compressing the working fluid, such as liquid nitrogen, with a pump, convectively heating the nitrogen in a heat exchanger, and isentropically expanding the nitrogen within an expandable chamber to produce shaft work. The cycle is repeated both without compression and with compression of the working fluid. To salvage the remaining energy in the nitrogen or other fluid, an exhaust engine is used. In one embodiment the exhaust engine uses an expandable chamber and piston driven by a plurality of long, small diameter heat responsive wires coupled under tension between the chamber wall and piston. When gases of different temperatures are directed across the chamber, the wires expand and contract thereby reciprocally moving the piston. In another embodiment of the heat engine a manifold is connected to numerous closed tubes in which nitrogen is heated by natural convention. When the pressures within the tubes reach a maximum, the tubes are selectively exhausted against a double acting piston to produce work.

3,786,632

REHEAT SYSTEM FOR A GAS TURBINE ENGINE

Donald Maynard Anley, Long Eaton, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed Aug. 7, 1972, Ser. No. 278,342
Claims priority, application Great Britain, Aug. 21, 1971, 39,332/71
Int. Cl. F02c *7/22*
U.S. Cl. 60—39.74 R **5 Claims**



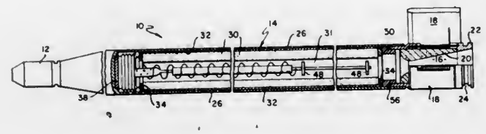
A reheat system for a gas turbine engine is provided with fuel supply means, a plurality of fuel manifolds having fuel distribution holes or nozzles located thereon, fuel/exhaust gas mixing means associated with each of the holes or nozzles and flame stabilisation means located downstream of the fuel manifolds. The mixing means are adapted in operation to tap exhaust gases from a portion of the reheat system, to mix the exhaust gases with fuel from their respective associated fuel nozzles or holes and exhaust the mixture into the combustion zone of the reheat system.

3,786,633

PROPELLANT IMMOBILIZER AND RESONANCE SUPPRESSION SYSTEM

Francis J. Worcester, La Plata, Md., and William H. Allor, III, West Lafayette, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 26, 1973, Ser. No. 327,046
Int. Cl. F02k *9/06*
U.S. Cl. 60—255 **14 Claims**



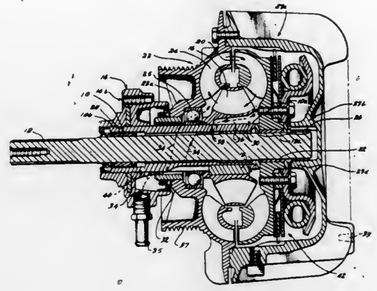
A system for immobilizing solid propellant grain while providing an improved mechanical suppression of resonant burning comprises a small diameter, tension spring extending within the center bore of the grain. The spring is fastened at the forward end to a spacer abutting the grain while the other end is fastened to a resonator rod positioned within the center bore. An immobilizing force is thus exerted upon the grain which does not appreciably vary with ambient temperature changes. The spring is free to oscillate in the longitudinal and transverse modes thus serving more effectively as a mechanical resonance suppressor.

3,786,634

CANTILEVERED HYDROKINETIC CONVERTER HAVING IMPROVED BEARING STRUCTURE

Waldo E. Rodler, Jr., San Jose, Calif., assignor to Instrument Systems Corporation, Jericho, N.Y.

Filed July 13, 1972, Ser. No. 271,565
Int. Cl. F16h *41/04*
U.S. Cl. 60—361 **8 Claims**



A hydrokinetic converter has an elongated, tubular-shaped reactor mounting shaft and an elongated central shaft coaxially mounted in the reactor shaft that has at least one exposed end extending out from a first end of the reactor shaft. A mounting structure is rigidly affixed to the opposite end of the reactor shaft from the first end and has mounting means for mounting the reactor shaft and the hydrokinetic converter to another member. A hydrokinetic bladed reactor is mounted at the first end of the reactor shaft. A first hydrokinetic bladed member is rigidly affixed to and mounted on the exposed end of the reactor shaft. An enclosing member is mounted around and encloses the reactor and the first member and comprises a hydrokinetic bladed second member mounted over the reactor shaft. The enclosing member further comprises a first end rotatably mounted and supported on the reactor shaft and a second end rotatably mounted and supported on the exposed end of the central shaft. One of the bladed members comprises an impeller and the other bladed member comprises a turbine. The hydrokinetic bladed reactor, impeller and turbine are adapted to direct fluid from the impeller through the turbine to the reactor, causing rotation of the turbine upon rotation of the impeller. First and second bearings are spaced apart in between the reactor shaft and output shaft for rotatably mounting the same. The first bearing is positioned adjacent the first end of the reactor shaft and provides the load path from the exposed end of the central for the second enclosing member and the first bladed member back to the cantilever mounted reactor shaft.

3,786,635

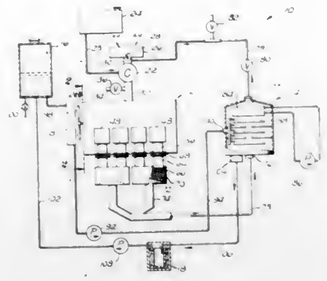
INTERNAL COMBUSTION ENGINE WITH MODIFIED AND CONTROLLED EXHAUST

Frank F. Kates, Irvine, and George E. Faber, Santa Ana, both of Calif., assignors to Krun Corporation, Santa Fe Springs, Calif.

Filed Dec. 20, 1971, Ser. No. 210,006
Int. Cl. F02m *25/06*; **F01n** *3/04*
U.S. Cl. 60—278 **7 Claims**

The exhaust gases and fluids from an internal combustion engine which is using gasoline and air as fuel, are passed

through a metal screen and a bed of activated carbon whereby a modification of the gases occur, and thence through a condenser where water and solids are removed therefrom, with



from zero to about twenty (20 percent) percent of the gases leaving the condenser being exhausted to atmosphere and the remainder thereof being returned to the engine for reuse in the combustion process.

3,786,636

HYDRAULIC BRAKE BOOSTER

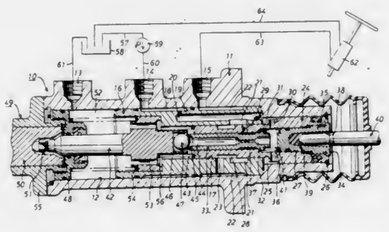
Uichiro Kobashi, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed Dec. 17, 1971, Ser. No. 209,107

Claims priority, application Japan, Dec. 18, 1970, 45-114510

Int. Cl. F15b *7/00, 9/00, 13/14*

U.S. Cl. 60—548 **15 Claims**



Disclosed herein is a hydraulic brake booster for a brake system of a vehicle utilizing a hydraulic pressure source for a hydraulic power control system of the vehicle, wherein the booster comprises a casing mounted on the brake master cylinder, a booster piston reciprocable within the casing and in operable connection with the master cylinder piston, the booster piston forming a drain chamber, a control piston reciprocable within the bores of the casing and the booster piston and in operable connection with the push rod of the brake pedal, the control piston forming a pressure chamber, a passageway for leading operating fluid to flow toward the power control system through the booster, and a first and second valve means respectively for controlling communication between the pressure and drain chambers and between the pressure chamber and the passageway in response to actuation of the brake pedal, thereby to obtain desired braking force without disturbing operation of the power control system.

3,786,637

OIL FENCE

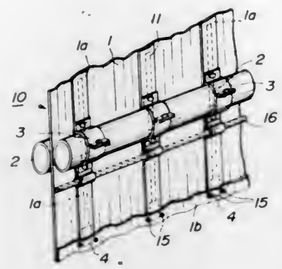
Tateo Muramatsu; Kuninori Aramaki, both of Yokohama, and Yoshikazu Kondo, Tokyo, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Mar. 7, 1972, Ser. No. 232,399

Claims priority, application Japan, Mar. 13, 1971, 46-13519

Int. Cl. E02b *15/04*

U.S. Cl. 61—1 F **4 Claims**



An oil fence comprising an elongated resilient belt member and a float secured to it for keeping at least a part of the belt member floating above water level. The floating portion of the belt member is kept substantially upright by a weight means and reinforcing means. The oil fence so flexes as to conform with the profile of water surface.

3,786,638

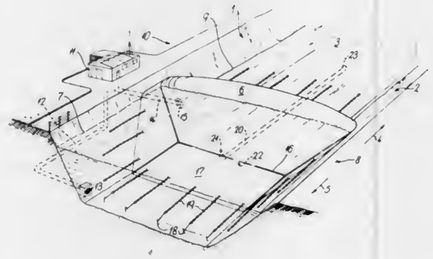
INFLATABLE DAMS AND DAM UNITS

Daniel Cecil Edward Fish, Broadthorn, Armstrong Ln., Brockenhurst, England

Filed June 27, 1972, Ser. No. 266,554

Int. Cl. E02b *7/02*

U.S. Cl. 61—30 **5 Claims**



An inflatable dam unit with means to anchor it to the bed of a water course. These means are in two parts, one which primarily resists bodily movement of the unit downstream and the other which concentrates on resisting the tendency of the unit to roll. The invention also includes dams including such units when installed, and methods of damming water flow.

3,786,639

METHOD AND APPARATUS FOR BACKFILLING AN UNDERGROUND CAVITY

Stephen Pineno, 37 E. Seventh St., Wyoming, Pa., and Albert Tamburro, 32 New St., Pittston, Pa., assignors to said Pineno and Tamburro

Filed Dec. 18, 1972, Ser. No. 316,067

Int. Cl. E21p *15/08*

U.S. Cl. 61—35 **18 Claims**



A system for backfilling an underground cavity, such as a coal mine or the like, wherein a slurry of fill material is uniformly displaced and propelled in all directions in the cavity through the aid of a high pressure air jet.

3,786,640

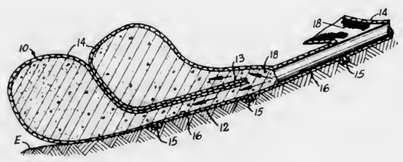
MEANS AND METHOD FOR PRODUCING STEPPED CONCRETE SLOPE STRUCTURES

Lee A. Turzillo, P.O. Box 155, Bath, Ohio

Filed Dec. 15, 1971, Ser. No. 208,267

Int. Cl. E02d *17/20*

U.S. Cl. 61—37 **9 Claims**



Container means, and method utilizing same for forming a mat-like protective cover of hardenable, cementitious material on a sloping surface of an earth situs, for example. Container means includes rectangular sheet-like flexible web which is spread flatwise on surface to be protected, and series of transversely extending porous fabric containers of loop-shaped cross-section which are connected to the web along laterally spaced, generally parallel lines. Fluid cementitious material pumped into containers in succession, so that adjacent containers overlap one upon another. Upon hardening, cementitious material which oozes through porous bag walls tends to bond the contacting walls together, thereby to provide an integrated mat-like protective cover of generally uniform, effective thickness.

3,786,641

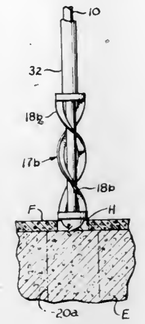
MEANS FOR STABILIZING STRUCTURAL LAYER OVERLYING EARTH MATERIALS IN SITU

Lee A. Turzillo, 2078 Glengary Rd., Akron, Ohio

Division of Ser. No. 15,355, March 2, 1970, which is a division of Ser. No. 755,273, Aug. 26, 1968. This application Aug. 8, 1972, Ser. No. 278,844

Int. Cl. E02d *27/48*

U.S. Cl. 61—63 **3 Claims**



Method and means for providing solid columnar support under structural layer, overlying earth materials of an earth situs. Expansible agitator means projected through relatively small diameter hole in overlying layer and expanded to agitate and loosen earth materials to define elongated body thereof of greater peripheral size than hole. Self-hardenable fluid pumped through hole into loosened earth, is allowed to harden after removal of contracted agitator means through small hole. Resultant rigid, composite column underlies area of structural layer surrounding hole for the solid support of same.

3,786,642

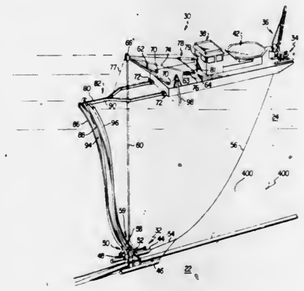
METHOD AND APPARATUS FOR ENTRENCHING SUBMERGED ELONGATE STRUCTURES

Alan E. Good, and Delbert R. Ward, both of Houston, Tex., assignors to Brown & Root, Inc., Houston, Tex.

Filed May 16, 1972, Ser. No. 253,895

Int. Cl. E02f *5/02*; **B63b** *35/04*

U.S. Cl. 61—72.4 **25 Claims**



A method and apparatus for entrenching submerged elongate structures within the bed of a body of water including a floating vessel, and at least one submergible vehicle connected to the floating vessel and operable to be lowered adjacent to a submerged elongate structure to be entrenched. The submergible vehicle includes a frame having a fore end and an aft end with a first primary and a first alternate cutting means connected to the frame and generally operably directed

toward the fore end thereof for cutting a trench within the water bed beneath the submerged elongate structure. Additionally, the submergible vehicle may be provided with a second primary and a second alternate cutting means connected to the frame and generally operably directed toward the aft end thereof for forming a trench within the water bed beneath the submerged elongate structure to be entrenched.

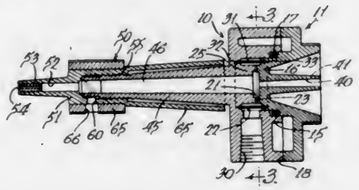
In one embodiment of the invention a motion compensation system is connected between the floating vessel and at least one submergible vehicle in order to minimize relative, sea induced, motion between the floating vessel and the submergible vehicle.

3,786,643

VORTEX TUBE

Richard T. Anderson, and Willard L. Andrist, both of Owatonna, Minn., assignors to Owatonna Tool Company, Owatonna, Minn.

Filed Jan. 2, 1973, Ser. No. 320,649
Int. Cl. F25b 9/02
U.S. Cl. 62—5 **6 Claims**



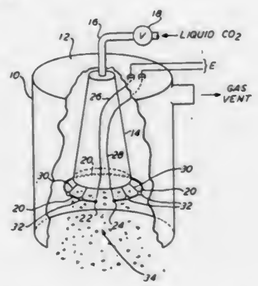
A vortex tube for converting pressure air to hot and cold air fractions and constructed of a body and cap assembled together with the cap and body forming a vortex chamber and a surrounding plenum chamber with a cold air passage extending outwardly from the cap and an elongate hot air passage extending outwardly of the body with the parts formed of plastic and shaped to provide a plug fit with each other and mounting an annular air filter screen therebetween and with a nozzle and valve unit threaded onto an end of the body providing for a plurality of control positions whereby either maximum cold air may be emitted from the unit or high temperature air can be emitted from the other end of the unit.

3,786,644

SYSTEM FOR CHANGING THE STATIC ELECTRICAL CHARGE ON CO_2 ICE PARTICLES

Harold T. Rich, Fullerton, and Torrence L. Wolf, Santa Ana, both of Calif., assignors to Airco, Inc., Montvale, N.J.

Filed June 2, 1972, Ser. No. 259,227
Int. Cl. F25j 1/00
U.S. Cl. 62—10 **4 Claims**



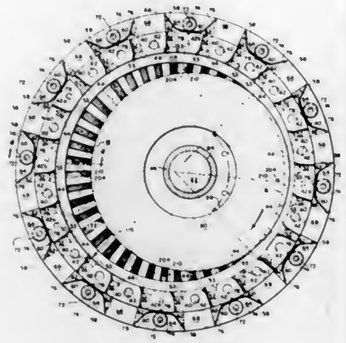
A CO_2 snow making machine comprising a snow horn into which liquid CO_2 is expanded for producing CO_2 snow, and an electrically energized conductor of general hoop shape spaced from and encircling the horn outlet.

3,786,645

APPARATUS FOR MAKING COMPACTED PELLETS OF SOLID PHASE CARBON DIOXIDE

Lyle L. Cann, Peotone, Ill., assignor to Chemetron Corporation, Chicago, Ill.

Filed Aug. 28, 1972, Ser. No. 284,264
Int. Cl. B29c 3/00
U.S. Cl. 62—35 **19 Claims**



Apparatus for making compacted pellets of solid phase carbon dioxide comprises die means having radial extrusion passages therein, injector means for forming snow from liquid carbon dioxide flashed into an expansion zone adjacent the inlet end of said extrusion passages, compression means for compacting said snow and extruding the same outwardly through said passages to form elongated, rod-like extrusions of solid phase carbon dioxide, and back pressure means for exerting contact pressure against said extrusions leaving the outer ends of said passages in said die means.

A novel method in accordance with the present invention comprises the formation of compacted pellets of solid phase carbon dioxide from liquid phase carbon dioxide to form snow, compressing said snow to force the same through an extrusion passageway forming elongated, rod-like extrusions of compacted solid phase carbon dioxide and exerting back pressure against the rod-like extrusion as they leave the passageways thereby stabilizing the extrusions permitting the escape of gas without fracturing the same.

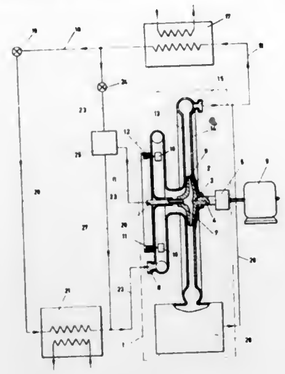
3,786,646

REFRIGERATING PLANT

Peter Jacobus Collet, Voorschoten, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve Van Nijverheid, Handel En Verkeer, The Hague, Netherlands

Filed Oct. 12, 1972, Ser. No. 297,090
Claims priority, application Netherlands, Oct. 13, 1971, 7114051
Int. Cl. F25b 1/04
U.S. Cl. 62—115 **4 Claims**

A refrigerating plant comprising a condenser, an evaporator and a centrifugal compressor having a rotor with radial or bent-backward solid vanes and further comprising means for controlling the head and volume-capacity of the compressor, wherein the compressor is a combination of a centrifugal compressor and a fluid vanes compressor, said solid vanes being provided with jet channels for forming liquid vanes said channels ending on the one side into slit-shaped orifices provided in the tips of the vanes and on the other side being connected to a central fluid supply provided with a flow-through control device and in operation below a pre-determined partial load of the plant, said flow-through control device is kept closed and the head and the volume-capacity of the compressor are controlled by means known per se for this purpose while operating above said pre-determined load said flow-through control device is adjusted in such a way that the head and volume-capacity of the plant will meet the requirements between the higher range of said partial load and full load.



3,786,647

CENTRIFUGAL COMPRESSOR MELTER

Peter Jacobus Collet, Voorschoten, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast Natuurwetenschapelijk Onderzoek Ten Behoeve Van Nverheid, Handel En Verkeer, The Hague, Netherlands

Filed Aug. 7, 1972, Ser. No. 278,392
Claims priority, application Netherlands, Aug. 23, 1971, 11595
Int. Cl. B01d 9/04
U.S. Cl. 62—123 **2 Claims**



In a device for the preparation of drinking-water out of brackish-water or salt-water, whereby the water is brought into contact with a cooling medium and the ice crystals are melted, the compressor and the melter-condenser vessel are combined into one unit, comprising a centrifugal fluid vanes compressor, the compressor chamber of which also forms the melting chamber and the fluid vanes are formed from a mixture of ice particles and a fluid which occurs in the process and which is fed to the jets.

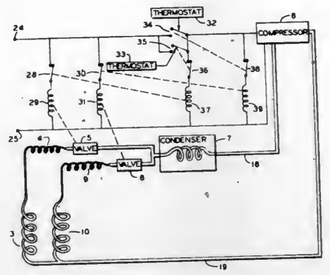
3,786,648

COOLING SYSTEM WITH MULTIPLE EVAPORATORS

Milton J. Rice, Crete, Ill., assignor to General Electric Company, Indianapolis, Ind.

Filed Mar. 5, 1973, Ser. No. 338,095
Int. Cl. F25b 5/00
U.S. Cl. 62—200 **5 Claims**

A cooling system for a refrigerator and a water cooler. A cabinet is provided with a refrigeration chamber having a first evaporator contained therein and a water cooler chamber having a second evaporator contained therein. The evaporators are connected to a single condenser and to first and second valves. The condenser and evaporators are further connected to a compressor. A control circuit is further provided for controlling the valves. The valves remain open while the compressor is off allowing the fluid pressure to equalize on either side of the compressor.

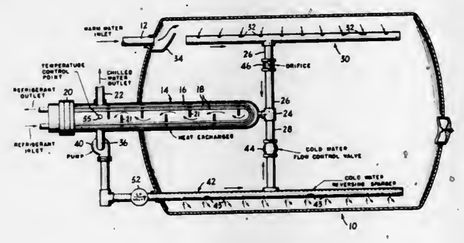


3,786,649

WATER CHILLER AND STORAGE SYSTEM

Robert F. Kirschner, Lakeville, Mass., assignor to The Patterson-Kelly Company, Inc., East Stroudsberg, Pa.

Continuation-in-part of Ser. No. 93,342, Nov. 27, 1970, Pat. No. 3,688,833. This application Aug. 2, 1972, Ser. No. 277,271
Int. Cl. F25d 17/02
U.S. Cl. 62—201 **26 Claims**



A dual mode operative water chilling and storage system for supplying "chilled" or cooled water or the like under both normal and peak demand conditions. The system includes a chilled water storage tank having a water supply inlet for replenishing water withdrawn from the tank, a conduit system including means for forcibly circulating water from a higher region to a lower region of the tank and including means for cooling the circulating water; means connected into the system for withdrawing chilled water up to a given rate of flow which is in excess of the rate at which water is normally circulated through the conduit system; and normally closed means for connecting the lower region of the tank in flow communication with the withdrawal means whenever the withdrawal rate exceeds the normal circulation rate to supplement the normal delivery rate of the system.

3,786,650

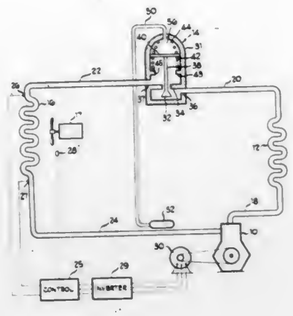
AIR CONDITIONING CONTROL SYSTEM

Alwin B. Newton, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

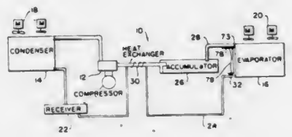
Filed July 7, 1972, Ser. No. 269,636
Int. Cl. F25b 41/00
U.S. Cl. 62—209 **1 Claim**

A refrigerant control system, particularly useful for air conditioning apparatus, including means for operating the system with a relatively high evaporator pressure during the time the temperature within the cooled space is being reduced to its

desired level. While such temperature level is being reduced, a constant pressure expansion device is adjusted to maintain the control point at a lower temperature (and pressure) to effect dehumidification. This system thus provides a higher capacity during pull-down by modifying the response level of an automatic expansion device until pull-down is achieved. Until either a reduced suction line temperature or a reduced ambient temperature (or both) is attained, the setting of the valve is higher than normal thus increasing the capacity required of the compressor for a given superheat level.

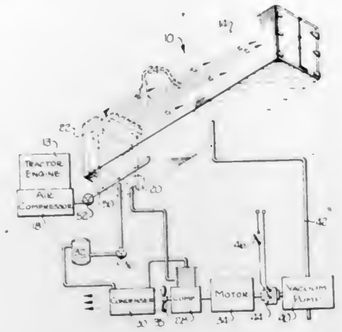


3,786,651
REFRIGERATION SYSTEM
John T. Eschbaugh, Chesterland, Ohio, and Herbert S. Lindahl, Danville, Ill., assignors to Gulf & Western Metals Farming Company, Southfield, Mich.
Division of Ser. No. 127,174, March 23, 1971, which is a continuation-in-part of Ser. No. 773,946, June 3, 1968, abandoned. This application Nov. 19, 1971, Ser. No. 200,474
Int. Cl. F25b *41/06*
U.S. Cl. 62—222 **10 Claims**



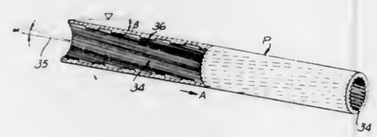
A refrigeration system has the system condenser exposed to the normal outdoor ambient temperature. The control means includes a single balanced expansion valve having a maximum port opening which is oversized as compared to that required only for normal summer operation, and the valve is actuated to provide a much larger increase in port opening under winter conditions than have heretofore been used. The result is that the system operates without adjustment or modification over an exceptionally wide range of condenser ambient temperature. The balanced valve is actuated by motor means responsive to evaporator outlet temperature and an evaporator pressure condition such as inlet or outlet pressure. The valve element may be slightly over or under balanced to provide predetermined operating characteristics.

3,786,652
REFRIGERATING APPARATUS
Andrew T. Bolynn, P.O. Box 8112, Charlotte, N.C.
Filed July 18, 1972, Ser. No. 272,786
Int. Cl. B60h *3/04*
U.S. Cl. 62—243 **5 Claims**



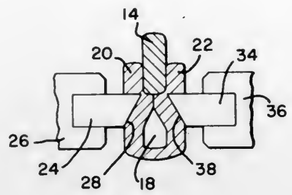
A refrigerating apparatus for conditioning an enclosed space such as a truck trailer body and including means for selectively drawing a partial vacuum within the space such that perishable food products may be rapidly cooled by vaporizing the moisture thereon, and means for selectively pressurizing the space to prevent dehydration of the food products during relatively long term storage.

3,786,653
ABSORPTION REFRIGERATION SYSTEM OF THE INERT GAS TYPE
Peter Erik Blomberg, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden
Filed Mar. 9, 1971, Ser. No. 122,413
Claims priority, application Sweden, Mar. 10, 1970, 3152/70
Int. Cl. F25b *15/10*
U.S. Cl. 62—491 **10 Claims**



Liquid flows in the presence of an inert gas in heat transfer members, such as the evaporator and absorber, of an inert gas circuit of absorption refrigeration apparatus. The heat transfer members are formed by piping which slopes downward and is inclined at an acute angle to the horizontal and has a plurality of internal longitudinal capillary grooves. The grooves are helical and at an acute angle to the generatrix or slope of the piping which is less than the acute angle at which the piping is inclined to the horizontal.

3,786,654
LATCH SEAT FOR KNITTING NEEDLE
John J. Sgrillo, Torrington, Conn., assignor to The Torrington Company, Torrington, Conn.
Filed July 18, 1972, Ser. No. 272,730
Int. Cl. D04b *35/04*
U.S. Cl. 66—121 **2 Claims**



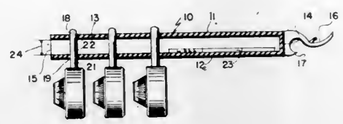
The latch seat is formed by displacing laterally inwardly into the latch slot a portion of one side or a portion of both sides of the blade.

3,786,655
CONTROL ARRANGEMENT FOR A FLAT KNITTING MACHINE
Erich Krause, Bopfingen, Germany, assignor to Universal Maschinenfabrik Dr. Rudolf Schieber KG, Westhausen, Germany
Filed Mar. 3, 1971, Ser. No. 120,628
Int. Cl. D04b *15/66*
U.S. Cl. 66—154 A **4 Claims**



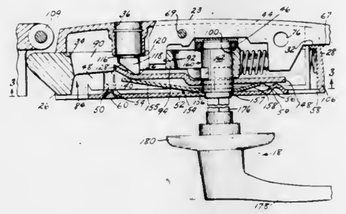
A multiplicity of electrically actuated operating elements in a flat knitting machine is controlled by punched cards having only a limited number of tracks and a corresponding reading station in which sensing switches generate control signals in response to card movement. A system of logic elements is arranged in a circuit between the sensing switches and the operating elements in such a manner that control signals generated by the relatively few switches cause an entire group of operating elements, more numerous than the sensing switches, to be actuated either simultaneously or in timed sequence.

3,786,656
IGNITION KEY STORAGE DEVICE
Wasyl Suprowich, Box 16, Group 200, R.R. No. 2, Selkirk, Manitoba, Canada
Filed Dec. 11, 1972, Ser. No. 313,774
Int. Cl. E05b *65/52, 73/00*
U.S. Cl. 70—63 **2 Claims**



A container receives the key and a plurality of combination locks close off the container and prevents the key from being removed until all of the locks are unlocked and removed. Due to the concentration and manipulation required, this prevents an intoxicated driver from obtaining access to the ignition key of his vehicle.

3,786,657
SLAM-STYLE SAFETY LOCK
Frank F. Loikitz, Middletown, N.J., assignor to Instrument Systems Corporation, Jericho, N.Y.
Filed Jan. 12, 1972, Ser. No. 217,148
Int. Cl. E05b *65/06*
U.S. Cl. 70—150 **8 Claims**

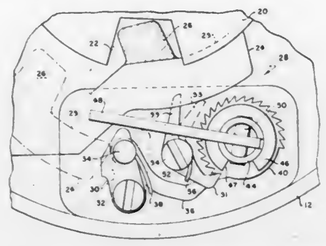


A slam-style safety lock for industrial refrigerated walk-in compartments, truck bodies, and self-sealing environmental rooms, to allow egress from the interior when the lock is secured on the outside. The lock bolt is retractable, being actuated by a pivotal handle in the well known manner, and the bolt has a centrally positioned aperture in which is positioned a cam hub which engages a shoulder at the rear of the bolt, the shoulder acting as a cam follower.

The forward portion of the bolt has a rear lip under which is positioned a forwardly extending metal locking plate, also having a shoulder positioned just forwardly of the front surface of the cam hub. Positioned under the plate is a leaf spring maintaining constant pressure on the locking plate to actuate a drop action when locking is required.

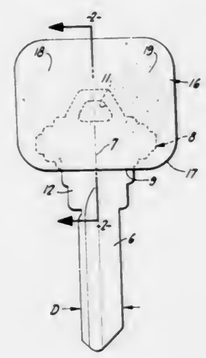
In an unlocked position the plate is depressed inwardly so that the bolt passes along the plate without contacting it. When the lock is in a secured position rearward movement of the bolt will cause the forward portion of the plate to engage the lip on the bolt. If the cam hub is actuated from within, upon rotation, the forward surface of the hub will strike the shoulder of the plate, causing the plate to be depressed inwardly, and allowing the bolt to move rearwardly

3,786,658
RESTRICTIVE MANIPULATION LIMITED TRY MECHANISM FOR A COMBINATION LOCK
Frank H. Swaim, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 23, 1972, Ser. No. 265,930
Int. Cl. E05b *37/08*
U.S. Cl. 70—333 R 12 Claims



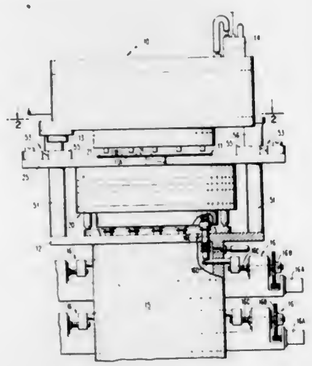
A combination lock having a restrictive manipulation or limited-try feature to prevent the opening of the lock by trial and error manipulation. The mechanism recognizes and counts each unsuccessful attempt at finding the proper code. After a predetermined number of unsuccessful attempts to open the lock, the mechanism renders the lock unopenable, without the knowledge of the illicit manipulator but will continue to accept additional manipulations. A registering device, associated with the mechanism, will reset to permit the opening of the lock by the owner only when the proper code is dialed before the predetermined number of unsuccessful attempts has been reached.

3,786,659
LOCK KEY
George Elder, Woodside, and Hans F. Lehnhoff, Moraga, both of Calif., assignors to Schlage Lock Company, San Francisco, Calif.
Filed Nov. 15, 1972, Ser. No. 306,695
Int. Cl. E05b *19/04*
U.S. Cl. 70—395 5 Claims



A lock key having a shank elongated along an axis and having a predetermined width also has a substantially flat bow integral with the shank and extending laterally thereof for a much greater width to provide extensions on opposite sides of the shank axis. A hard, integral, non-frangible turning pad is preferably molded in intimate contact with the bow and extends out from the margins of the bow to encase the bow except at the junction of the bow with the shank. The pad furnishes spaced torque zones that are supported by the encased bow to resist yielding of the extended turning pad under torque.

3,786,660
WAFER INTERLOCKING TRANSPORT SYSTEM
Henry Albert Appenzeller, Wallkill; Joseph Charles Miller, and Vincent Shea, both of Poughkeepsie, all of N.Y., assignors to International Business Machine Corporation, Armonk, N.Y.
Filed Nov. 24, 1972, Ser. No. 309,408
Int. Cl. B21d *26/00*
U.S. Cl. 72—12 15 Claims

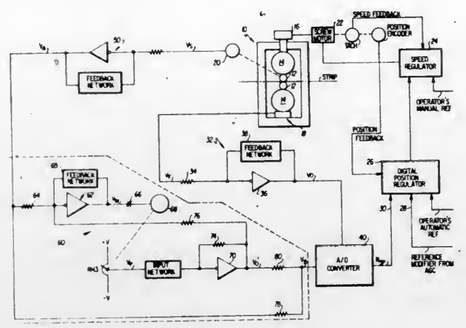


A wafer transport apparatus to lock and hold a wafer in a predetermined contoured position while permitting transport of the wafer from the contouring apparatus to a remote location for further processing on the contoured wafer surface. The apparatus comprises a pallet having a plurality of pedestals therein, and vacuum cups at one extended end of the pedestals for supporting and gripping a wafer thereon. Means are provided to permit reciprocation of individual ones of the pedestals in the pallet, when the pallet is positioned in the contouring apparatus, and pedestal locks are provided to grasp and lock individual ones of the pedestals in an individually determinable position, while holding the pedestals in that position so that the pallet may be removed from the apparatus and positioned at some remote station.

The purpose of this abstract is to enable the public and the Patent Office to determine rapidly the subject matter of the technical disclosure of the application. This abstract is neither intended to define the invention of the application nor is it intended to be limiting as to the scope thereof.

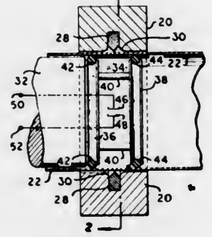
3,786,661
ROLLING MILL CONTROL SYSTEM
James D. McKee, and John F. Lamb, both of Florence, Ala., assignors to Reynolds Metals Company, Richmond, Va.
Filed Apr. 12, 1972, Ser. No. 243,130
Int. Cl. B21b *37/00*
U.S. Cl. 72—19 12 Claims

A rolling mill and associated control system are described, including means for adjusting roll spacing of the mill to keep the exit gage of rolled strip substantially constant as the mill is accelerated to normal operating speed; the adjusting means



being operable selectively over a range of mill speeds to cause roll spacing adjustments in relation to subsequent changes in mill speed.

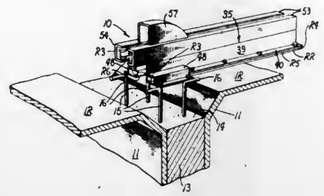
3,786,662
ELECTROPNEUMATIC OR ELECTROHYDRAULIC CUTOFF, FLANGING AND RE-FORMING OF TUBING
Donald J. Roth, Chicago Heights, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Continuation of Ser. No. 441,017, March 19, 1965, abandoned. This application Aug. 31, 1970, Ser. No. 68,505
Int. Cl. B21d *28/18*
U.S. Cl. 72—55 10 Claims



Disclosed herein is apparatus and method for the electropneumatic or electrohydraulic severing, flanging, re-forming and the like of members such as, for examples, container bodies and the like. The force generated for performing these operations is created through the application of electrical energy to a pair of electrodes positioned within a chamber to provide an electrical discharge within such chamber. The electrical discharge creates a plasma bubble between the electrodes and such bubble continues to grow as continued power is supplied to the electrodes. The force so created drives the wall of the member or workpiece against an adjacent die to perform the desired operation or operations.

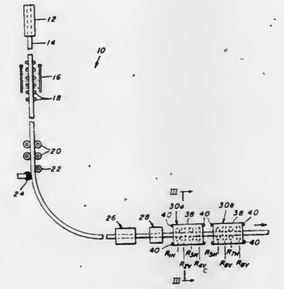
3,786,663
BENDING TOOL
Michael J. Molnar, Selma, Calif., assignor to ABC Bending Enterprises, Fresno, Calif.
Filed Feb. 25, 1972, Ser. No. 229,313
Int. Cl. B21d *7/02*
U.S. Cl. 72—220 14 Claims

A tool for bending rods and the like having a frame, a mandrel mounted in the frame and adapted to be positioned in contact with such a rod, a pair of cooperative grasping latches mounted in the frame and operable to secure the rod in contact with the mandrel, a pair of juxtaposed guide rails provided in the frame on opposite sides of the mandrel, a pair of arms mounted in the rails for reciprocal movement toward and from the mandrel for controlled spaced adjustment by said



movement, a forming member having separable portions individually mounted on the arms, said portions being adapted to pass on opposite sides of the rod held by the latches in movement of the arms from the mandrel and being brought together and engaged with the rod in movement of the arms toward the mandrel, and a ram operatively interconnecting the arms and the latches.

3,786,664
ROLLING MILL MODULE
Donald A. Jones, Bethel Park; Howard S. Orr, Upper St. Clair Township, Allegheny County, and Francis K. Qualey, Churchill, all of Pa., assignors to United States Steel Corporation
Filed Mar. 20, 1972, Ser. No. 235,992
Int. Cl. B21b *13/08*
U.S. Cl. 72—234 23 Claims

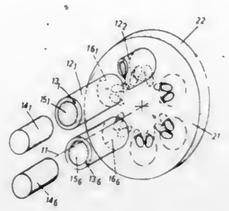


A rolling mill module for a rolling mill for rolling a billet is disclosed. The rolling mill module has a frame, a first pair of rolls journalled in the frame, and a second pair of rolls journalled in the frame and spaced a predetermined distance from the first pair of rolls so that the temperature drop in the billet between the first pair of rolls and the second pair of rolls is minimized. The rolling mill module is adapted to be readily removed from the rolling mill for repairs or replacement.

3,786,665
HOT EXTRUSION MACHINE
Robert Armand Creuzet, Route de Beyssac, Marmande, France
Filed Feb. 16, 1972, Ser. No. 226,829
Claims priority, application France, Mar. 26, 1971, 7110820
Int. Cl. B21c *23/00*
U.S. Cl. 72—259 10 Claims

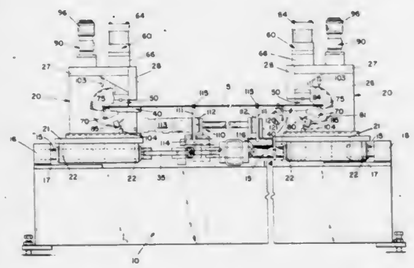
A machine for producing metal tubes by hot extrusion of billets. The machine has an annular extrusion gap, a plurality

of containers for receiving billets which are uniformly angularly spaced about the extrusion gap and grooves or conduits formed in an annular plate of progressively diminishing cross section towards the annular gap for channeling metal from the



billets as associated extrusion pistons exert pressure on the ends of the billets remote from the extrusion gap, the grooves or conduits being delimited by an extrusion needle arranged coaxially of the extrusion gap.

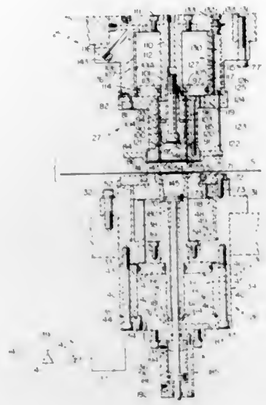
3,786,666
METAL BENDING MACHINE
John J. York, Jr., Walker, Mich., assignor to Schiefler Tool & Engineering, Inc., Grand Rapids, Mich.
Filed Aug. 4, 1971, Ser. No. 168,871
Int. Cl. B21d *11/04, 43/00*
U.S. Cl. 72—305 **18 Claims**



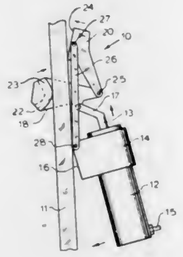
The bending apparatus includes a pair of supports mounted on a frame, each support including means for bending a sheet of metal supported between the supports. Each support includes a bed upon which a sheet of metal can be laid and a mandrel mounted on a clamping press which can be clamped onto the top of a sheet of metal lying on the bed. The face of the mandrel has a cross-sectional configuration corresponding to the configuration desired for the metal to be bent. A bending wing, having a configuration which will matingly abut the face of the mandrel, is mounted adjacent the bed on a rotatable carriage assembly. A pivot drive assembly acts to rotate the carriage assembly and pivot the wing into a sheet of metal, thereby bending the sheet of metal on the mandrel.

3,786,667
APPARATUS FOR AND METHOD OF MAKING A NESTABLE CONTAINER
Eubank W. Garnett, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed Oct. 26, 1971, Ser. No. 192,177
Int. Cl. B21d *22/24*
U.S. Cl. 72—348 **6 Claims**

An improved apparatus for and method of making a nestable container are provided wherein a flat blank is drawn to define a drawn container which is reverse redrawn to form the nestable container which has a side wall and an annular planar flange extending therefrom with a toroidal bead extending from the flange and having at least a portion thereof arranged within and beneath the peripheral edge of the flange. The apparatus comprises a die set having integral fluid cushion means of simple construction which controls the movements of cooperating dies during both the drawing and reverse redrawing action.

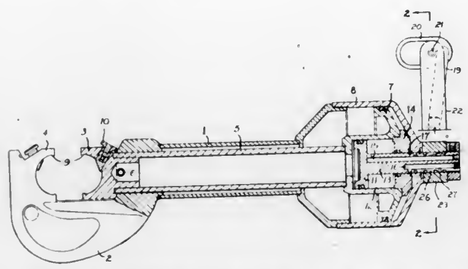


3,786,668
CABLE BENDING APPARATUS
Silas Ray Crees, P.O. Box 813, Eau Gallie, Fla.
Filed Aug. 18, 1972, Ser. No. 281,817
Int. Cl. B21d *9/05*
U.S. Cl. 72—388 **10 Claims**



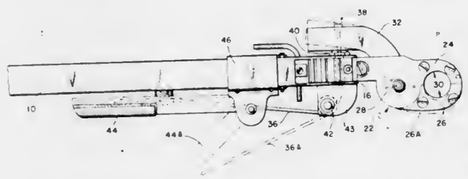
A wire bending apparatus for bending electrical cables, or the like, in narrow confines such as panel boxes. The apparatus is connected to an electrical conductor by placing three separate wire engaging members, each of which is connected to a hydraulic cylinder, against the wire, and actuating the hydraulic cylinder to bring the wire-engaging members into engagement onto the wire. Continued actuation of the hydraulic cylinder then bends the wire to any desired bend.

3,786,669
HYDRAULIC JOINTING PRESS
Raydon A. Lines, Elizabeth West, Australia, assignor to Proline Industries Pty. Ltd., Elizabeth West, Australia
Filed May 17, 1972, Ser. No. 254,298
Claims priority, application Australia, May 19, 1971, PA 4935/71
Int. Cl. B21j *9/12*
U.S. Cl. 72—453 **5 Claims**



A hydraulic jointing press having a housing with jaws at one end thereof. The other end is expanded to house a large diameter piston to apply the jointing pressure, the large piston having a smaller piston therein to return the main piston.

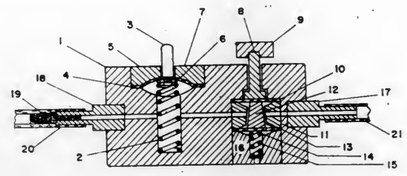
3,786,670
WIRE GRIPPING TOOL
Charles J. McGlothlin, Rt. 1, Box 198 Madison Height, Madison Heights, Va.
Filed Apr. 13, 1972, Ser. No. 243,716
Int. Cl. B25b *7/04*
U.S. Cl. 72—480 **6 Claims**



A wire gripping tool particularly adapted to grip and facilitate for bending and the like of large electric wires when wiring switch boxes, fuse boxes or the like, having a head including wire gripping jaws actuatable to gripping position by a lever controlled cable, the head and wire gripping jaws being pivotally mounted on a handle to be turned angularly with respect to the axis of the handle, and controllable ratchet means selectively permitting angular turning and locking of the head and jaws.

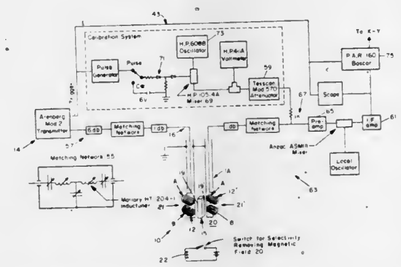
3,786,671
VEHICLE VACUUM CHAMBER LEAK TESTING DEVICE
Joseph Adalbert Caron, 1170, 9th St., Box 341, Grand Mere, Quebec, Canada
Filed Feb. 3, 1972, Ser. No. 223,066
Int. Cl. G01m *3/02*
U.S. Cl. 73—40 **4 Claims**

A mannually operated vacuum device, particularly adapted to use the engine running vacuum to detect the leaks in a vacuum chamber of ignition distributors, automatic transmission, heater controls antipolution devices, etc.; without removal thereof from the vehicle. The device includes an operation mechanism and a leak indication mechanism connected by a main passage arranged to connect the engine intake manifold to the vacuum chamber to be checked. The operating mechanism includes a valve along said main passage and a button to selectively open and close the valve. The leak



indication mechanism includes diaphragm, and indicator fixed to the latter, and a return spring whereby a leak will be indicated by the displacement of the indicator.

3,786,672
TWO-DIMENSIONAL COILS FOR ELECTRO-MAGNETIC GENERATION AND DETECTION OF ACOUSTIC WAVES
Martin R. Gaerttner, Ithaca, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Sept. 20, 1972, Ser. No. 290,684
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.5 R **6 Claims**

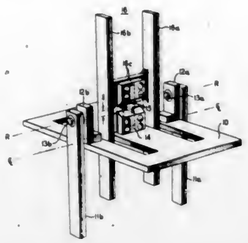


Apparatus and method for producing and detecting magnetic and non-magnetic acoustic waves in a conductive body, wherein the waves are generated electromagnetically by a constant amplitude wave front transmitted to a surface of the body by a two-dimensional, flat, spirally wound coil in a plane parallel to and spaced from the conductive surface, and like coil means or a quartz transducer are used for detection. Specific transducers having dual, race-track shaped, two-dimensional coils are described for selectively generating and detecting magnetic directly generated acoustic waves when the body is immersed in a magnetic field, and non-magnetic directly generated acoustic waves when the magnetic field is reduced or removed entirely. A single spiral, two-dimensional coil, is also used for selectively producing and/or detecting the non-magnetically generated acoustic waves.

3,786,673
DETERMINATION OF MECHANICAL DESIGN PROPERTIES OF ELASTIC MATERIALS
Gerd Friedrich Horst Weissmann, Florham Park, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 15, 1972, Ser. No. 234,781
Int. Cl. G01m *7/00*; **G01n** *3/38*
U.S. Cl. 73—67.2 **7 Claims**

Mechanical design properties of elastic materials including design stress and design modulus are determined from the energy dissipation per cycle and total elastic energy of a sam-

ple used as a spring in a one degree of freedom oscillator whose fixed end is subjected to a transient displacement dur-



ing each cycle. The energy dissipation per cycle and total elastic energy are related to the steady state amplitude and frequency, respectively, of the oscillator.

3,786,674

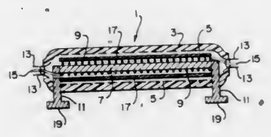
COAXIAL MAGNETOSTRICTIVE ACCELEROMETER

Romans Skujins, Jr., Clifton, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 6, 1972, Ser. No. 286,804

Int. Cl. G01h *1/00*; **G01p** *15/00*; **G08b** *13/00*

U.S. Cl. 73—71.4 **2 Claims**



A coaxial magnetostrictive accelerometer designed to sense mechanical vibration or acceleration and convert these vibrations or accelerations to a corresponding electrical signal is disclosed. A single accelerometer designed in accordance with this invention may be used to sense vibrations and accelerations or a very large number of accelerometers of this invention may be connected in series by sections of coaxial cable and used with single channel electronic sensing and measuring devices.

3,786,675

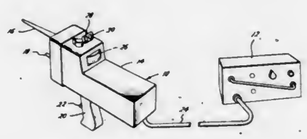
PORTABLE GAS LEAK DETECTOR

Leroy C. Delatorre, Spring, and William J. Rapson, Houston, both of Tex., assignors to Uson Corporation, Houston, Tex.

Filed Nov. 23, 1970, Ser. No. 92,035

Int. Cl. G01n *31/00*

U.S. Cl. 73—27 R **8 Claims**



In a portable gas leak detector for determining the location of leaks of gases having a different thermal conductivity than the ambient surroundings and having a conductivity detector, first amplifier and output, the improvement of a positive and a negative drive amplifier connected to the first amplifier with separate indicating lights connected to each of the positive and negative drive amplifiers for indicating the relative conductivity of the sample to the ambient surroundings and whether the detector is approaching or leaving a leak. A feedback loop connected across the first amplifier which includes an amplifier having a memory retaining means for zeroing the output for overcoming temperature induced drift in the detector and nulling the output of the detector thereby allowing accurate pin-pointing of the leak. Means for actuating the feedback loop including a manual switch, an automatic switch when the output is less than a predetermined amount, and an automatic switching means when the output is more than a predetermined amount for a certain period of time.

3,786,676

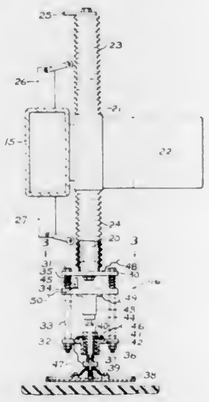
COMPRESSION TESTING MACHINE

Russell T. Korolyshun, Derby, and P. Mark Rehnborg, Bethany, both of Conn., assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,567

Int. Cl. G01n *3/00*

U.S. Cl. 73—94 **10 Claims**



A machine for automatically carrying out an indentation load deflection test on cushioning material such as latex foam rubber mattresses and cushions deposits a foot plate on the article being tested, stores an electric signal indicating thickness, utilizes the signal to advance the foot plate until a null point is reached at the predetermined percentage of compression, reads and displays the compressive force, and retracts from the article.

3,786,677

APPARATUS FOR TESTING SWAGED FERRULES

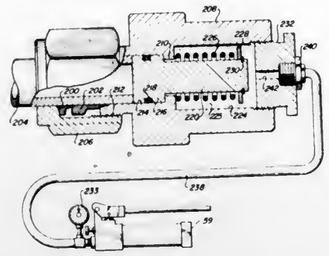
Leonard P. Spontelli, Seven Hills, Ohio, assignor to Crawford Fitting Company, Solon, Ohio

Division of Ser. No. 134,229, April 15, 1971. This application Nov. 20, 1972, Ser. No. 308,258

Int. Cl. G01l *5/00*; **G01n** *3/10*

U.S. Cl. 73—88 B **3 Claims**

Apparatus for testing the swaging of one or more ferrules on the periphery of a cylindrical member such as a tube. The apparatus shown in the drawings includes means for applying a predetermined longitudinally directed force against an end of



the tube while the ferrules are held to determine whether or not the tube will move relative to the ferrules.

3,786,678

FORCE MEASURING APPARATUS INCLUDING ELECTROMAGNETIC LOAD COMPENSATION

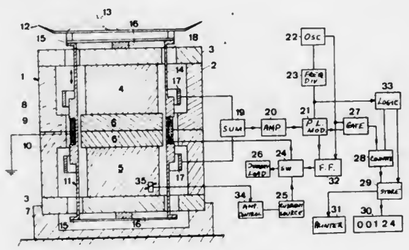
Peter Kunz, Meilen, Switzerland, assignor to Mettler Instrumente, AG, Zurich, Switzerland

Filed Feb. 2, 1972, Ser. No. 222,960

Claims priority, application Switzerland, Apr. 5, 1971, 5006/71

Int. Cl. G01l *1/08*

U.S. Cl. 73—141 R **10 Claims**



Force measuring apparatus of the type including electromagnetic load compensation means for returning a load-responsive movable member to its initial no-load position relative to a housing. Load compensating pulses of constant amplitude are supplied to a load compensating coil that is connected with the movable member, the length of said pulses being varied as a function of the extent of the displacement of the movable member from its initial position as determined by position sensing means. The invention is characterized by the provision of means for supplying high frequency pulses from an oscillator to a counter only during periods corresponding with the length of said load compensating current pulses.

3,786,679

FATIGUE INDICATION

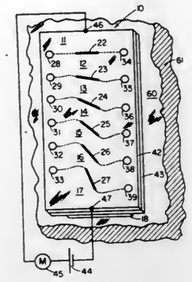
Nelson A. Crites, Columbus, Ohio, assignor to Battelle Memorial Institute, Columbus, Ohio

Filed Apr. 12, 1972, Ser. No. 243,225

Int. Cl. G01l *1/22*; **G01b** *7/18*

U.S. Cl. 73—88.5 R **21 Claims**

A device for indicating accumulated fatigue in a selected portion of a structural member. An elongate electrically conductive foil coupon has crack initiating slots of different sizes or shapes, or oriented at different angles, in regions that crack in response to fatigue and thus increase the electrical resistance between selected points. An adhesive securely bonds the coupon to the selected portion of the structural member, transmitting any strain therein to the coupon, which cracks at a lower level of accumulated fatigue than is enough to crack



the structural member in the selected portion. Means responsive to the electrical resistance between the selected points on the coupon provide warning indications in time to avoid rupture of the structural member.

3,786,680

VOLTAGE SENSING SYSTEM

Derek Gerald Wyatt, Oxford; Delia Margaret Clark, Almondsbury, and Michael Anthony Warne, Brewood, all of England, assignors to Marston Excelsior Limited, Wolverhampton, Staffordshire; Derek Gerald Wyatt, Oxford, Oxfordshire and Delia Margaret Clark, Almondsbury, Somerset, all of, England

Division of Ser. No. 144,292, May 17, 1971. This application Nov. 1, 1972, Ser. No. 302,676

Int. Cl. G01f *1/00*; **A61b** *5/02*

U.S. Cl. 73—194 EM **9 Claims**

A system comprising means for providing an alternating magnetic field in a liquid phase so as to induce an alternating voltage therein, and a pair of contact electrodes positioned at right angles to the field to sense the alternating voltage thus induced, each of the electrodes being an electrode comprising a substrate body of a metal selected from the group consisting of gold, platinum and alloys thereof, with at least one coating of a precious metal or alloy fired on at least part of the surface of the body from a paint containing the precious metal or alloy, the electrode being characterized by its low impedance to the passage of alternating current even after repeated autoclaving in steam.

3,786,681

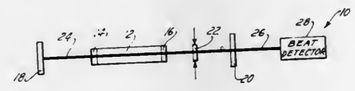
ELECTROMAGNETIC WAVE MODULATION AND MEASUREMENT SYSTEM AND METHOD

Robert M. Kiehn, Luling, Tex., assignor to SCI Systems, Inc., Huntsville, Ala.

Filed Mar. 4, 1971, Ser. No. 121,101

Int. Cl. G01p *15/08*; **G01v** *7/12*

U.S. Cl. 73—382 **11 Claims**



Electromagnetic waves with multiple polarization and/or propagation direction modes, preferably in the form of laser waves, are modulated by means of force-responsive devices such as amorphous quartz elements. The application of force or acceleration to the modulator creates a difference in frequency of two of the modes. That frequency difference is a

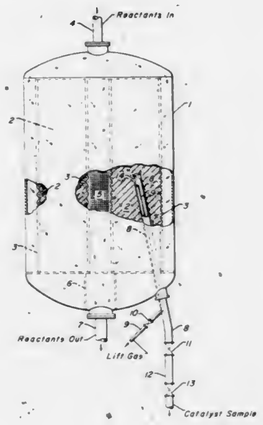
function of the force or acceleration being measured. The two signals are combined and their difference is detected in a beat detector. In a preferred embodiment, the electromagnetic waves are developed in a ring laser operating with plural circular polarization modes. Preferably, each polarization mode exists in one of the counter-directional laser beams. The modulator is a quartz cylinder located in the laser cavity. The force is applied in the form of a torque tending to twist the cylinder about its longitudinal axis. The device provides a high degree of sensitivity and a wide range in the measurement of force and acceleration. The invention is described as it is used in gravimeters, pressure altimeters and pressure measurement devices.

3,786,682

CATALYST SAMPLING APPARATUS

George R. Winter, Des Plaines; Laurence O. Stine, Western Springs, and John E. Vande Ven, Bensenville, all of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 22, 1972, Ser. No. 317,870
Int. Cl. G01n *1/14*
U.S. Cl. 73—421 B **8 Claims**



Catalyst is withdrawn from an operating high pressure reactor through a tube extending into the catalyst bed from a blocked off sample receiver. The large diameter tube contains a small diameter line which delivers a gas stream of such high velocity that it acts as a valve to prevent catalyst from entering the opening in the larger tube. A temporary reduction in the gas flow allows catalyst to fall into the large tube, through which it falls by gravity to the receiver. The end of the gas line is preferably near the opening in the catalyst withdrawal tube.

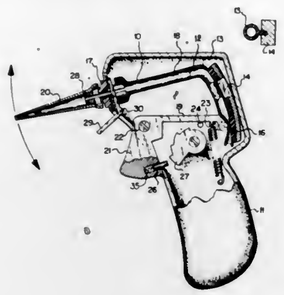
3,786,683

HAND-OPERATED PIPETTE

Richard M. Berman, Dresher, Pa., and Bernard Schwartz, Springfield, N.J., assignors to Alphamedics Mfg. Corp., Levittown, Pa.

Filed Sept. 12, 1972, Ser. No. 288,266
Int. Cl. G01n *1/10*; A63h *3/18*; F04b *43/08*
U.S. Cl. 73—425.4 P **10 Claims**

A hand-operated portable pipette is disclosed which includes a housing, a flexible tube mounted therein along a path. The tube has a first end thereof mounted for movement with respect to the housing. A trigger is also mounted on the housing to operate a roller for occluding the tube along a portion of the path in response to movement of the trigger. The trigger is biased to a rest position. A multifaced cam is mounted as an adjustable stop for determining the nominal maximum travel of the trigger. A spring loaded over-travel stop is mounted in the trigger to interact with the multifaced cam so that a first force applied to the trigger will cause the spring loaded over-travel stop to rest against the face of the multifaced cam bringing the trigger to rest at a first position. If additional force is applied to the trigger, the spring loaded over-travel stop depresses into the trigger extending the movement of the trigger to allow the tube to be occluded further along the path. A disposable tip is inserted in a movable end of the tube to allow changing thereof. A second trigger, arm, and sleeve are used to eject the disposable tip after usage.

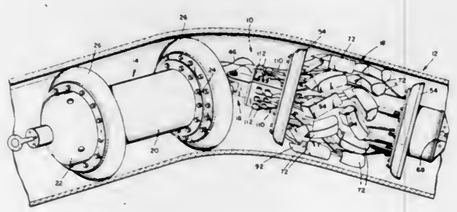


3,786,684

PIPELINE INSPECTION PIG

William C. Wiers, Ann Arbor, Mich.; James R. Sullins, and David A. Warren, both of Tulsa, Okla., assignors to Automation Industries, Inc., Los Angeles, Calif.

Filed Dec. 27, 1971, Ser. No. 211,910
Int. Cl. G01r *3/12*
U.S. Cl. 73—432 R **17 Claims**



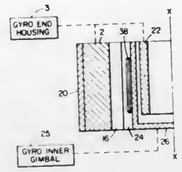
A self-contained, fully instrumented pipeline inspection pig is disclosed herein. The pig is particularly adapted to be (1) placed in a cross-country or transmission pipeline at a first location such as a pumping station, (2) carried a long distance through the pipeline by the products being pumped therethrough, and (3) eventually retrieved at a second location such as a subsequent pumping station. The pig includes an assortment of instruments for scanning the inside of the pipeline as it is being carried therethrough. These instruments detect various types of discontinuities such as cracks and other defects in the wall of the pipeline. The results of the inspection are stored in an onboard recorder carried by the pig whereby the results can be analyzed after the pig has traversed the pipeline and has been removed therefrom.

3,786,685

COMBINATION PERMANENT MAGNET TORQUER-EDDY CURRENT DAMPER FOR A GYRO

Ernest E. Lademann, Park Ridge, and Ralph E. Iadarola, Roseland, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Sept. 28, 1971, Ser. No. 184,544
Int. Cl. G01c *19/04*
U.S. Cl. 74—5.5 **3 Claims**



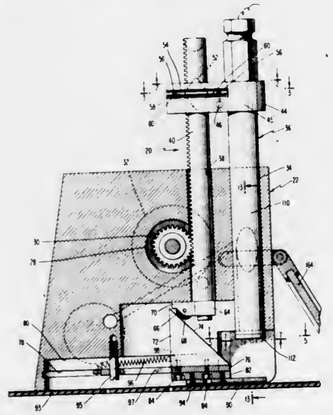
A permanent magnet torquer-eddy current damper for a gyro includes a copper cylinder supported for rotating with the gyro inner gimbal and a coil assembly mounted on the cylinder. The cylinder is disposed in the magnetic field and relative motion between the field and cylinder is damped to induce currents while torquing is provided through current in the coil assembly. Temperature compensating means are provided for damping and torquing stability.

3,786,686

SUPPORTING DEVICE

William D. Hay, Peekskill, N.Y., assignor to Unit Process Assemblies, Inc., Woodside, N.Y.

Division of Ser. No. 141,496, May 10, 1971, Pat. No. 3,720,833. This application Mar. 22, 1972, Ser. No. 237,213
Int. Cl. F16h *19/04*
U.S. Cl. 74—33 **3 Claims**



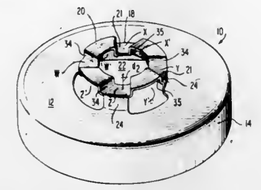
A radiation backscatter measuring instrument is provided for use with a portable probe assembly having an elongated casing with an opening at one end thereof and containing a radiation source positioned in predetermined relation therewith and a radiation detector for detecting radiation backscattered from a workpiece exposed to radiation from the source through the casing opening. The radiation backscatter measuring instrument includes a planar, horizontally disposed, transparent locator with a series of guide lines on the bottom surface thereof which is positioned over the selected locus of measurement on the horizontally supported workpiece. The locator, is then horizontally retracted from its locating position while the portable probe is vertically lowered to engage the workpiece with the opening thereof being positioned over the selected portion of the workpiece to be tested.

3,786,687

UNITIZED CLUTCH DRUM AND SPROCKET

William Lavier Gasner, Carson, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.

Filed Nov. 7, 1972, Ser. No. 304,313
Int. Cl. F16h *55/30*
U.S. Cl. 74—243 CS **7 Claims**



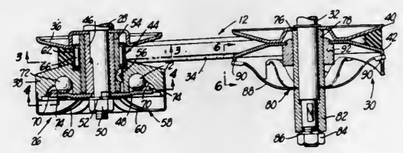
A unitized clutch drum and coaxially aligned chain driving sprocket and a method of fabrication thereof from a single blank is provided. An outside cylindrical wall of an apertured blank is stamped to form a clutch drum friction face. An interior portion of the blank is stamped a first time to form a cup-shaped depression which extends oppositely from the cylindrical wall. This cup-shaped depression is supported by webs intermediate the apertures in the blank. This interior portion of the blank is stamped a second time to form a set of oppositely facing tang receiving pockets which set comprises the sprocket portion of the unit.

3,786,688

VARIABLE RATIO BELT-TYPE TRANSMISSION HAVING IMPROVED DRIVEN PULLEY

Bert N. Svenson, Downey, Calif., assignor to Instrument Systems Corporation, Jericho, N.Y.

Division of Ser. No. 150,523, June 7, 1971. This application Apr. 16, 1973, Ser. No. 351,474
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 M **21 Claims**



A variable ratio belt-type transmission. The transmission transmits power from a driving shaft of the engine to a driven shaft of the cycle when the engine is running, and transmits pedal-generated power from the driven shaft to the driving shaft to start the engine when it is not running.

3,786,689

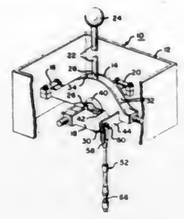
SINGLE LEVER JOY-STICK APPARATUS

Richard D. Houk, Stow, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.

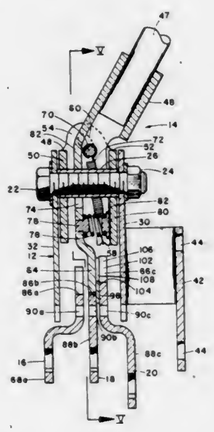
Filed Aug. 8, 1972, Ser. No. 278,789
Int. Cl. G05g *9/02*
U.S. Cl. 74—471 XY **9 Claims**

A single lever joy-stick apparatus comprising a housing, first and second slotted motion transmitting members pivotally mounted in said housing such that their respective pivot axes perpendicularly intersect, a joy-stick having a spherical ball attached to its shaft, portions of said shaft of said joy-stick engaging said motion transmitting members at bearing surfaces

defined by said slots, each of said motion transmitting members having oppositely disposed substantially concave bearing surfaces intermediate their respective ends, mating with the convex outer surface of said spherical ball for supporting said ball in its operational position.



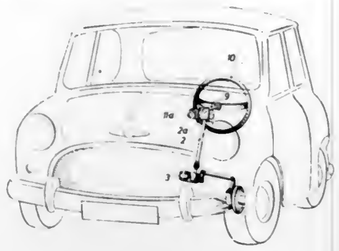
3,786,690
LIFT GATE MECHANISM
Max R. C. Bruhn, Jr., Spring Lake, Mich., assignor to Grand Haven Stamped Products Company, Grand Hills, Mich.
Filed May 25, 1972, Ser. No. 256,755
Int. Cl. G05g 9/12
U.S. Cl. 74—476 12 Claims



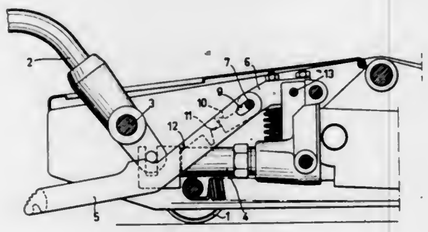
A lift gate mechanism for preventing accidental engagement of the reverse gear in a gear-shifting apparatus in which the shifting stick when moved vertically allows shifting of the reverse gear. The shifting stick is pivotal about an axis which is guided along on arcuate cam means for providing the proper amount of restraint against moving the stick vertically into reverse gear actuating position, but facilitating ease in shifting into reverse gear when desired.

3,786,691
VEHICLE STEERING GEAR
Bengt Lindstrom, Eriksbergsgatan 34, Stockholm, Sweden
Filed Aug. 18, 1972, Ser. No. 281,800
Claims priority, application Sweden, Aug. 23, 1971, 10689/71
Int. Cl. B62d 1/18; F16h 1/14
U.S. Cl. 74—493 4 Claims

A vehicle steering column is divided into an upper and a lower column section connected through a bevel gear unit. The two sections are off-set and may be adjusted to different angular positions. An impact axial force of a predetermined magnitude on any of the column sections will release the connection between the column sections in order to prevent that excessive impact forces are transmitted to the driver.



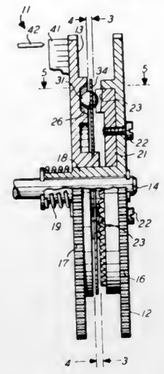
3,786,692
HYDRAULIC GARAGE JACK
Bengt Anders Bjork, Eskilstuna, Sweden, assignor to Domkraft AB Nike, Eskilstuna, Sweden
Filed Apr. 6, 1972, Ser. No. 241,548
Int. Cl. G05g 1/14
U.S. Cl. 74—512 5 Claims



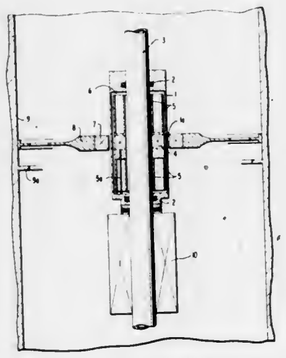
A garage jack, the load is lowered by depressing a pedal at the end of a pedal arm. To prevent the load from being lowered by unintentional depression of the pedal, the pedal arm is divided into an outer portion connected with the pedal proper, and an inner portion. The portions are adapted to be disengaged from each other such that in disengaged position the pedal cannot effect lowering of the load.

3,786,693
DETENT MECHANISM FOR RELEASABLY SECURING RELATIVELY ROTATABLE MEMBERS
Hans K. Keipert, Glenview, Ill., assignor to Teletype Corporation, Skokie, Ill.
Filed May 25, 1972, Ser. No. 256,867
Int. Cl. G05g 5/06
U.S. Cl. 74—527 6 Claims

First and second disks are mounted on a common shaft for rotation relative to each other, the second disk being releasably urged into contact with the first disk by a spring. A plurality of ball detents disposed about the face of the second disk seat in a plurality of radially extending grooves formed in the face of the first disk. This permits the disks to be releasably secured in a fixed angular relationship by the force of the spring. Any desired one of a plurality of angular relationships between the disks may be selected by rotating the disks relative to each other through a desired angle. The selected angular relationship is then maintained by the urging force of the spring which seats the plurality of ball detents in adjacent ones of the plurality of grooves. Each of the plurality of ball detents is freely movable longitudinally over an adjustment range to automatically seat each ball detent in a corresponding one of the plurality of grooves. In one example, the adjustable disks are gears, driven alternately, to provide a paper feeding drive of variable stroke for a teleprinter.



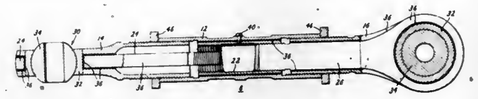
3,786,694
DAMPING DEVICE FOR AN INHOMOGENEOUS CENTRIFUGE ROTOR
Eberhardt Willeitner, Munich, Germany, assignor to Maschinenfabrik Augsburg Nuernberg Aktiengesellschaft, Munich, Germany
Filed May 8, 1972, Ser. No. 250,913
Claims priority, application Germany, May 7, 1971, 2122602
Int. Cl. F16f 15/22
U.S. Cl. 74—573 14 Claims



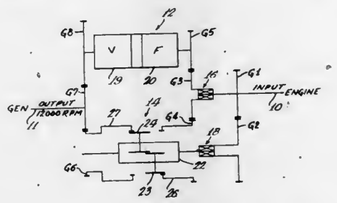
A damping device for damping the deflections of an inhomogeneous centrifuge rotor which is elastically supported on both sides, in which the damping device is arranged along the rotor axis on the inside of the rotor and the deflections of the rotor are transmitted to the damping device with the use of a system of coaxial ring magnets by way of a disc and devoid of mechanical contact.

3,786,695
REDUNDANT PITCH LINK
Lawrence D. Barrett, Jr., Glen Mills, Pa., assignor to The Boeing Company, Seattle, Wash.
Filed Apr. 28, 1972, Ser. No. 248,370
Int. Cl. F16l
U.S. Cl. 74—586 17 Claims

A redundant pitch link for providing a connection between a helicopter rotor blade and control assembly. A primary load path is provided for use during normal operation and a secondary load path is provided in the event the primary load path becomes inoperable. The pitch link is constructed by locating a primary turn buckle around a secondary or back-up turn buckle. Teflon fabric is used to prevent fretting while maintaining the secondary turn buckle in a substantially unloaded condition during normal usage as well as when the secondary turn buckle is operative due to failure of the primary turn buckle.



3,786,696
STARTER-DRIVE
Mohammed A. Aleem, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.
Filed Sept. 11, 1972, Ser. No. 288,153
Int. Cl. F16h 47/04; F02c 7/26
U.S. Cl. 74—687 9 Claims

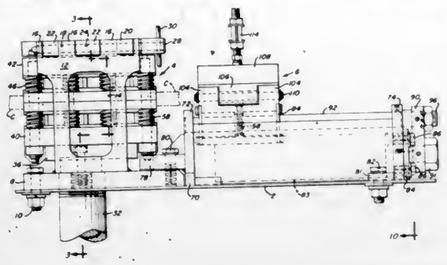


A starter-drive for use between an aircraft engine and a generator to transmit power in either direction between the engine and the generator, for driving the engine from the generator in a starting mode, and for driving the generator from the engine in a generating mode, including, a generator shaft, an engine shaft, a differential for transmitting power from the engine shaft to the generator shaft, a hydrostatic transmission including one hydraulic unit connected for rotation with the generator shaft, and a second hydraulic unit connected for rotation with a control gear in the differential, a first one-way clutch connecting the second hydraulic unit to drive the engine shaft exclusively through the hydrostatic transmission during starting, a second one-way clutch connecting the engine shaft to the differential to transmit power from the engine to the generator after the engine is started, and means for varying the displacement of one of the hydraulic units to bring the engine shaft up to speed during the starting mode and to add or subtract speed in the differential during the generating mode.

3,786,697
METHOD AND APPARATUS FOR PREPARING THE ENDS OF CABLES FOR SPLICING
Eugene V. Abarotin, Franklin Twp., Westmoreland County, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed Apr. 12, 1972, Ser. No. 243,331
Int. Cl. H02g 1/12
U.S. Cl. 81—9.51 5 Claims

To prepare a multi-conductor jacketed cable for splicing it is necessary to remove the jacket for some distance from the end of the cable and to cut the conductors so that they extend for different distances from the end of the jacket. This is done by first gripping the cable by a clamp some distance from its end. Longitudinally spaced pairs of cutters are then brought

together to cut through the conductors and through the jacket to the conductors with the cut through the conductors being spaced toward the clamp from the end of the cable a greater distance than the cut through the conductors. The clamp is



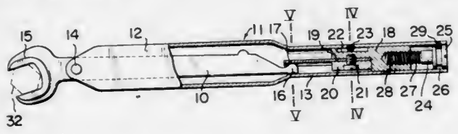
then moved away from the cutters so as to pull the main portion of the cable with it while leaving the portions of the jacket and conductors between the cutters and the end of the cable behind.

3,786,698
DOUBLE RATCHET WRENCH
Henry T. Diehl, 1722 Certainty Dr., Point Pleasant, N.J., and James D. Rouse, 2100 Brier Oak Dr., Bryon, Tex.
Filed Jan. 8, 1973, Ser. No. 321,778
Int. Cl. B25b *13/46*
U.S. Cl. 81—57.39 **6 Claims**



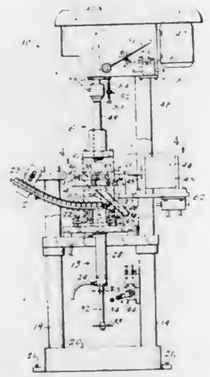
A double ratchet wrench capable of loosening or tightening nuts either in a conventional reciprocating arcuate manner when the nuts are freely accessible thereto, or in a linear reciprocating manner when the nuts are in a cramped or inaccessible area and usage of the wrench is not possible in the conventional manner. The wrench includes a head and a body, the head being provided with a spindle having ends for receiving nut sockets, and first and second pawls for mesh with respective ratchets. Located on the spindle is a double spool, each spool having spring members thereon which are cooperatively associated with a rod which extends through the handle. Upon linear reciprocating movement of the rod, the spools are moved to rotate the spindle to either loosen or tighten the nuts.

3,786,699
PREDETERMINED TORQUE RELEASE WRENCH
Seiichiro Kobayashi, Tokyo, Japan, assignor to Kabushiki Kaisha Nakamura Seisakusho, Tokyo, Japan
Filed Dec. 11, 1972, Ser. No. 313,757
Int. Cl. B25b
U.S. Cl. 81—52.4 **4 Claims**



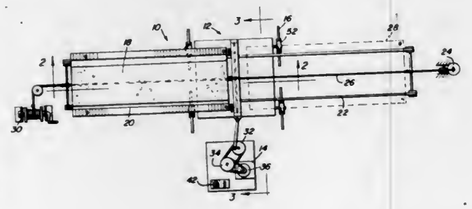
A predetermined torque release wrench comprises a tubular handle member, a torque transmitting arm pivotally connected to the front end of the handle member and a leaf spring having an arcuate shape in cross section. The leaf spring is so arranged that its concave surface is in faced relationship with the free end of the arm. One of the ends of leaf spring is fixed on a support block positioned in the rear portion of the handle member and the other end is engaged by the free end of the arm.

3,786,700
MACHINE FOR FINISHING PARTS
David P. King, 9835 Telegraph Rd., Erie, Mich.
Filed Jan. 13, 1972, Ser. No. 217,568
Int. Cl. B23b *5/16, 13/00*
U.S. Cl. 82—1 B **5 Claims**



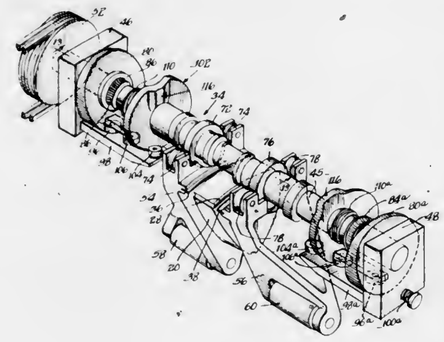
A machine for finishing parts, such as welding tips, is disclosed. A driven spindle and cutting tool attached to the spindle are carried by a support over a work table which receives individual parts. The spindle and cutting tool are movable from an upper position to a lower, finishing position against a part. A feeding mechanism below the work table transfers the parts sequentially to a chucking mechanism which retains a part in a fixed finishing position beneath the cutting tool. A chute transfers finished parts away from the machine. A fluid control system is provided for automatic, sequential operation of the feeding and chucking mechanisms.

3,786,701
DEVICE FOR CUTTING URETHANE FOAM
Eugene A. Ludwig, 1106 Greene St., Magnolia, Ark.
Filed Nov. 5, 1971, Ser. No. 196,111
Int. Cl. B26d *3/10, 3/28*
U.S. Cl. 83—1 **8 Claims**



A cutting device for urethane foam and the like, said device comprising a carriage adapted to advance a bun or slab or urethane material through a cutter assembly including groups of elongated cutting wires which are heated and oscillated longitudinally to clean the wires as the material is advanced, one group of cutting wires being adapted to follow a vertical relief pattern, thereby cutting a corresponding pattern in the material.

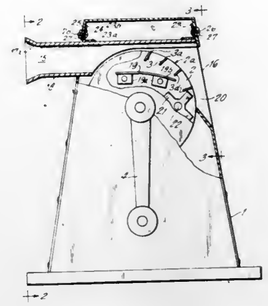
3,786,702
METHOD AND TOOLING FOR CUTTING SIDE SEAL GROOVES
Oliver E. Saari, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Apr. 14, 1972, Ser. No. 244,030
Int. Cl. B26d *3/06*; **B23d** *5/04*
U.S. Cl. 83—5 **12 Claims**



The present invention relates generally to improvements in methods of and apparatus for forming longitudinal slots in the side surface of a rotor. More specifically, the present invention is directed to novel and practical methods and apparatus whereby longitudinal seal accommodating slots may be formed in the side wall of the rotor of a rotary internal combustion engine. An embodiment of the invention disclosed herein contemplates the use of reciprocable blade members having aligned slot cutting teeth along one marginal edge, the opposite margin of the blades being gripped within a reciprocable or oscillating blade holding device. Means is provided for securing the rotor in a fixed predetermined position with the side surfaces thereof being located in proximity to and in substantial parallelism with the aligned slot cutting teeth of a pair of spaced blades. Relatively short reciprocable synchronous strokes of the blades cause slots of predetermined depth to be formed simultaneously in each side surface of the rotor. The blades disclosed herein are arcuate in shape so as to produce corresponding arcuate slots in the side surfaces of the rotor.

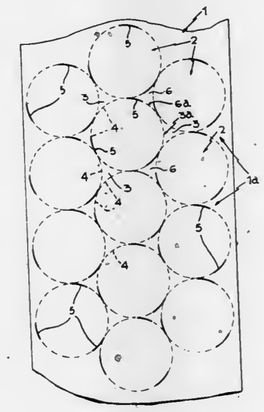
3,786,703
FRANKFURTER CUTTING AND SCORING APPARATUS
David Piel, New York, N.Y., assignor to Round Dog Corporation of America, New York, N.Y.
Filed Oct. 10, 1972, Ser. No. 296,060
Int. Cl. B26d *3/08*
U.S. Cl. 83—10 **15 Claims**

A device for the continuous and rapid cutting and scoring of frankfurters is described and comprises a rotatable annular shaped planar cutting means, a plurality of transverse cutting means mounted at spaced intervals along the periphery of said annular cutting means, and means associated with said cutting



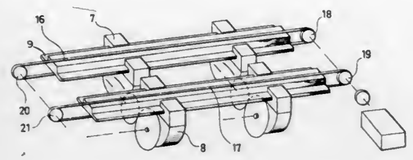
means for guiding a frankfurter into a position such that the frankfurter is cut and scored but not severed by said cutting means.

3,786,704
METHOD FOR MANUFACTURING METALLIC OBJECTS FROM CIRCULAR PLATES
Maurice Lachaussee, Rue de l'Yser, Ans, Belgium, and Andre Maigret, Avenue de la Grange, Saint-Maur-des Fosses, France
Filed Mar. 20, 1972, Ser. No. 235,983
Claims priority, application Belgium, Mar. 19, 1971, 43234
Int. Cl. B26f *1/38*
U.S. Cl. 83—39 **8 Claims**



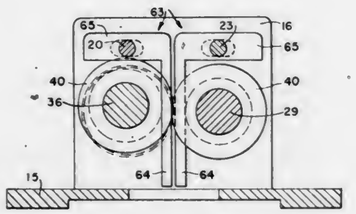
In a method for manufacturing metallic objects from circular plates which are in staggered arrangement and are perforated on a part of their outline exactly at the diameter of the serviceable part in order to be held in the metallic strip in which they are formed which passes step by step beneath the moulding tools there is provided the step which consists in arranging said plates in the strip in order to be immediately tangential in respect to each other and separated solely by equilateral triangles having concave sides which surround said plates.

3,786,705
APPARATUS FOR SLITTING MOVING WEBS
Gerhard Walter Dorfel, Weilheim-Teck, Germany, assignor to A. Osakeyhtio Ahlstrom, Noormarkuu, Finland
Filed Aug. 31, 1971, Ser. No. 176,542
Claims priority, application Finland, Aug. 31, 1970, 2405
Int. Cl. B23d 19/06
U.S. Cl. 83—71 4 Claims



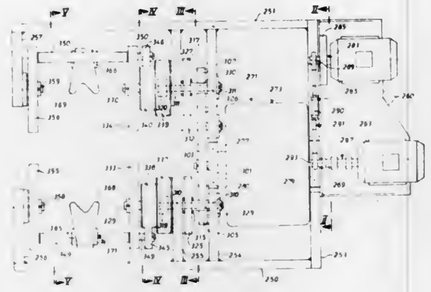
Each one of the blades forming a web slitting blade pair and positioned at opposite sides of the web adjacent each other is provided with separate moving means. The separate moving means for a blade pair are connected to each other outside the web so that the blades may be moved together the web being between them and regardless whether the blades are in contact with each other in a cutting position or separated from each other in an inactive position. The blade moving means for the blades of a pair may comprise two threaded spindles extending along rail or the like on which blade supporting carriages are movable driven by said spindles. Further may a registering device be connected to the blade moving means to register the positions of all the blades and to transmit the information to a computer controlling the slitting operation.

3,786,706
PRECISION SLITTING MACHINE FOR PLASTIC SHEETING
Frederick Hyatt, Providence, and Theodore Robert Coburn, Coventry, both of R.I., assignors to Marshall & Williams Company, Providence, R.I.
Filed Nov. 24, 1971, Ser. No. 201,913
Int. Cl. B23d 19/06
U.S. Cl. 83—122 1 Claim



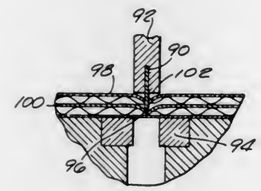
A slitting machine for cutting thin plastic sheeting into narrow ribbons. A plurality of rotary cutter blades and a plurality of spacers are alternately fastened on a pair of spaced shafts with the blades on one shaft overlapping the blades on the other shaft. Opposed guide fingers suspended in pairs from a mounting means with each pair of guide fingers aligned with the spacers on both shafts are provided in order to define a guide path for the plastic sheeting.

3,786,707
APPARATUS FOR CUTTING OFF SUCCESSIVE PORTIONS FROM A STRAND OF PLASTIC MATERIAL SUCH AS A STRAND OF VISCOUS GLASS
Kurt Becker, Obernkirchen, and Hans-Georg Seidel, Rinteln, both of Germany, assignors to Hermann Heye, Allee, Obernkirchen, Germany
Filed May 19, 1972, Ser. No. 255,033
Claims priority, application Germany, May 29, 1971, 2126825
Int. Cl. B26d 1/40
U.S. Cl. 83—299 10 Claims



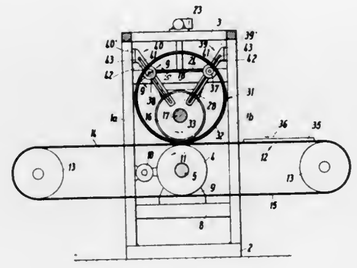
Apparatus for cutting off portions from a strand of plastic material advancing in axial direction in which a pair of opposite substantially parallel cutting knives are arranged to opposite sides of the strand movable in the direction of the strand axis and toward and away from each other in a direction transverse to the axis of the strand to thereby cut the latter. The knives are respectively supported on two shafts which in turn are turnably supported at opposite ends in two pairs of carrier discs and means are provided to rotate the two pairs of carrier discs about their axes while preventing rotation of said shafts about the axes of the latter so as to maintain the knives parallel to each other during their movement.

3,786,708
PUNCH FOR CORRUGATED BOARD
Richard G. Mumper, Milwaukee, Wis., assignor to Milwaukee Tool & Machine Co., Inc., Milwaukee, Wis.
Filed Feb. 27, 1973, Ser. No. 336,314
Int. Cl. B26f 1/14
U.S. Cl. 83—332 7 Claims



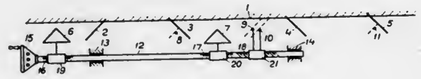
Apparatus for slotting corrugated board for box partitions includes a reciprocating punch which is received in the female slotting die and in which a thin liner knife located intermediate the side walls of the male punch and extending from the end wall of the male punch initially contacts and severs the board liners to prevent stretching and tearing of the board by the male punch as the punch engages the board and moves into the female die.

3,786,709
ROTARY STAMPING APPARATUS
Ernst Maximilian Spengler, Lerchenstrasse 47, Heusenstamm near Offenbach am Main, Germany
Continuation-in-part of Ser. No. 32,325, April 27, 1970, abandoned. This application May 1, 1972, Ser. No. 248,878
Claims priority, application Germany, May 7, 1969, P 69 18 516.6
Int. Cl. B26d 1/28
U.S. Cl. 83—339 20 Claims



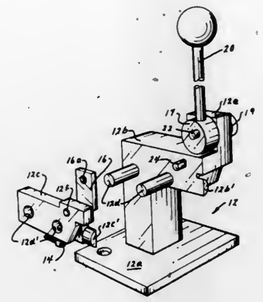
This rotary stamping apparatus includes a presser roller supported inside a hollow cylinder roller which carries tool means on its outer surface. The presser roller presses the hollow cylinder toward a counter roller whereby the hollow cylinder is positively held and a working area is formed through which sheet material is fed from which shapes are punched by said tool means when the rollers are rotated. The hollow cylinder roller is also held in position by automatically adjustable guide rollers.

3,786,710
MEANS FOR CUTTING PLATES FOR TRANSFORMER CORES
Olle Backlin, Ludvika, Sweden, assignor to Allmann Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed June 1, 1972, Ser. No. 258,590
Int. Cl. B26d 11/00
U.S. Cl. 83—406 5 Claims



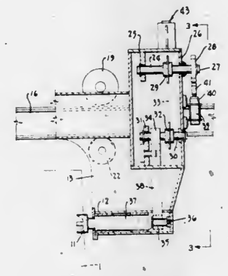
For cutting in sequence from a strip of sheet metal all the plates of a transformer core which are interleaved with separate yoke and leg plates, a number of shears are placed obliquely in relation to the feeding direction of the metal strip to cut off plates from the metal strip, along with a number of punches to make notches in the yoke plates for connection of the central leg to the yoke. A number of stops movable into and out of the path of the strip are provided to stop the strip in proper position before each cutting step.

3,786,711
RING SIZE CUTTER
Melvin A. Lamey, 223 N. Main St., Oakland City, Ind.
Filed May 12, 1971, Ser. No. 142,442
Int. Cl. B26d 5/16
U.S. Cl. 83—628 4 Claims



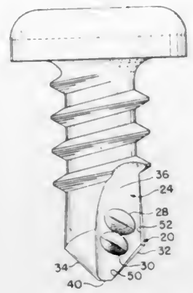
A ring size cutter whereby a ring is positively and accurately cut through cam controlled blade action, and where cutting blades of different thicknesses are readily substituted.

3,786,712
SAWMILL LOG INDEXING DEVICE
Wilson Joseph Mackin, Vancouver, B.C., Canada, assignor to Greenleaf Holdings Limited, Vancouver, British Columbia, Canada
Continuation of Ser. No. 6,349, Jan. 28, 1970, abandoned. This application June 28, 1972, Ser. No. 267,209
Claims priority, application Canada, Jan. 29, 1969, 41441
Int. Cl. B27b 7/04, 29/08
U.S. Cl. 83—708 7 Claims



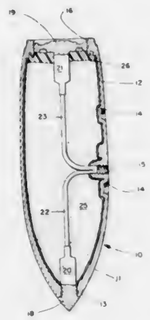
An indexing mechanism for use in a log sawmill which is mounted on the log carriage remote from the log mounting chucks. The indexing device enables the operator to position the log accurately for cutting and to rotate the log for subsequent cuts. The device is remote from the mounting chucks so that it can be protected from mechanical damage and so that it can be dimensioned to provide extremely accurate indexing.

3,786,713
CHIP BREAKER DRILL SCREW
Henry A. Sygnator, Arlington Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Oct. 15, 1971, Ser. No. 189,572
Int. Cl. F16b 25/00
U.S. Cl. 85—41 3 Claims



A drilling and thread cutting screw having a drill point including generally concave surfaces forming flutes therein with discrete obstructions formed on the concave surfaces to effectively break chips produced by cutting edges in the drill point.

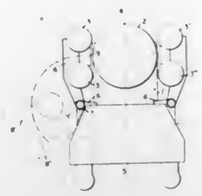
3,786,714
MILITARY BOMB AND METHOD OF MAKING SAME
John E. Dereich, Edgeworth; James E. Gleeson, and Glenn J. Earle, both of Pittsburgh, all of Pa., assignors to H. H. Robertson Company, Pittsburgh, Pa.
Division of Ser. No. 86,089, Nov. 2, 1970, Pat. No. 3,693,548.
This application Apr. 13, 1972, Ser. No. 243,744
Int. Cl. F42b 33/02
U.S. Cl. 86—23 2 Claims



A military bomb is provided which has an elastomeric tail pad and seal formed from a composition including the reaction product of a mixture of asphaltic filler; hydroxy terminated polydiene; non-volatile organic polyisocyanate.

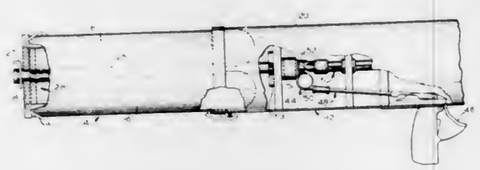
The military bombs can be assembled and filled with explosive compositions in a vertical, nose down position and can be sealed with the present elastomeric tail pad while in that vertical position. In a short period the completed military bombs can be stacked horizontally or in any other disposition regardless of whether the explosive composition has congealed or not.

3,786,715
RAPID LOADING SYSTEM FOR MISSILES
Georges Even, 7 Ave. Pierre Grenier, Boulogne-sur-Seine, France
Filed June 1, 1971, Ser. No. 148,389
Claims priority, application France, Aug. 25, 1970, 70.31066
Int. Cl. F41f 3/04
U.S. Cl. 89—1.805 5 Claims



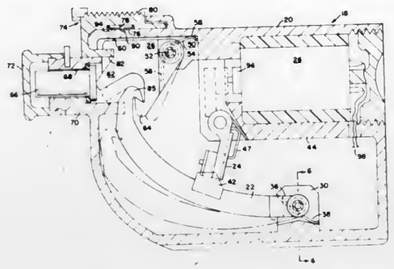
This invention relates to the feeding of missiles to missile launchers and more particularly to a system comprising a support member for at least one missile container, translation means for fetching each missile carried by said supporting member from a waiting position to a loading position in contact with the launcher by a rotational movement in a plane perpendicular to the missile axis, first temporary latching means of the supporting member with the translation means during the common movements thereof, second temporary latching means of the launcher with the supporting member in the loading position, and means for establishing electrical connections between the launcher and each container and/or missile in the loaded position thereof.

3,786,716
SAFETY INDEXING DEVICE FOR LAUNCHER FIRING MECHANISMS
Dennis L. Wilson, Davenport, Iowa, assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 158,792, July 1, 1971, abandoned. This application Dec. 12, 1972, Ser. No. 314,491
Int. Cl. F41f 3/04
U.S. Cl. 89—1.812 6 Claims



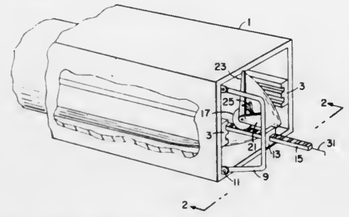
The firing mechanism of a multishot rocket launcher comprises a shaft journaled for rotation within the launcher case and for longitudinal displacement between an extended and a telescoped position respective thereto. A firing pin mechanism carried by the shaft for longitudinal displacement therewith successively retracts and releases a plurality of firing pins responsive to rotation of a rotary cam on the shaft by a trigger mechanism. Displacement of the shaft to the telescoped position disconnects the trigger mechanism therefrom and engages the shaft with a safety guide tube thereby indexing the firing pin mechanism so as to be safely uncocked and securing it against actuation after being indexed.

3,786,717
ELECTRICAL FIRING MECHANISM
Wiley B. Vickers, Huntsville, and Lonnie L. Looger, Madison, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Aug. 29, 1972, Ser. No. 284,533
Int. Cl. F41f 3/04
U.S. Cl. 89—1.814 4 Claims



Electrical firing mechanism for a light weight, portable, rocket launcher. The mechanism includes means for actuating a battery for supplying an electrical pulse to the rocket carried in the launcher for ignition of the rocket motor.

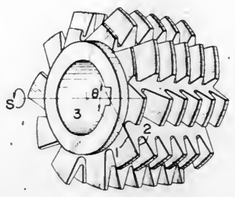
3,786,718
MISSILE EXTRACTION DEVICE
Frank G. Appleby, Cypress; Edmund J. Rodwan, Venice, and William Lee, Costa Mesa, all of Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 118,015, Feb. 23, 1971, abandoned. This application Jan. 22, 1973, Ser. No. 325,498
Int. Cl. F41f 9/00
U.S. Cl. 89—1.805 1 Claim



A device for moving a missle having shoes in a container or canister having launch rails for engaging the shoes. The device includes a bracket for attachment to one end of the container, a bar disposed for movable cooperation with the rails and a ratchet for cooperation between the bracket and bar for movement thereof along the rails. A claw member is pivoted on the bar and disposed for engagement with one of the shoes for operation of the ratchet to remove the missile from the container. The claw is disposed for engagement with the shoe to slide the missile into the container.

3,786,719
HOBBING CUTTER
Kanbei Kimura, 1-48-5, Nogata, Nakano-ku, Tokyo, and Masato Ainoura, 1253, Eguchi, Kitashigeyasa-machi, Miyaki, both of Japan
Continuation of Ser. No. 39,085, May 20, 1970. This application May 4, 1972, Ser. No. 250,402
Int. Cl. B23f 19/06; B26d 1/12
U.S. Cl. 90—1.6 1 Claim

The method of finishing the sides of the teeth of a roughly formed and hardened gear blank, of which the bottom portions of the grooves between adjacent teeth have been cleared away, by means of a hobbing cutter wherein the top edges of the cutter blades run free of the bottoms of the grooves and the leading surfaces of the blades including both side edges

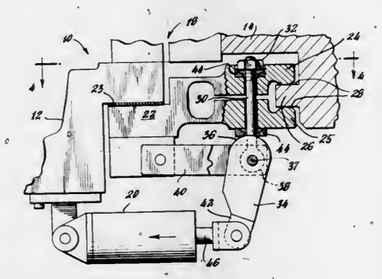


thereof which serve to perform the finish-cutting of the confronting sides of adjacent teeth are inclined in a backward direction at an angle of between 15° and 60° relative to the direction of rotation of the cutter.

3,786,720
REMOVAL OF SURFACE METAL BY SHAVING
George Zavodny, Jr., Palos Hills, Ill., assignor to La Salle Steel Company, Hammond, Ind.
Filed Sept. 1, 1972, Ser. No. 285,897
Int. Cl. B23b 3/00; B23d 1/00; B26d 1/00
U.S. Cl. 90—24 R 7 Claims

The removal of surface metal from bars, rods, tubes and the like by the use of a shaving tool which is preheated to elevated temperature to enhance tool life and surface finish of the work processed therethrough.

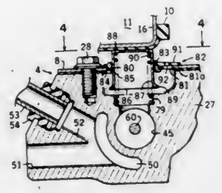
3,786,721
CLAMP FOR ROTARY TABLES
Kazimierz J. Reda, Trumbull, Conn., assignor to The Producto Machine Company, Bridgeport, Conn.
Filed Sept. 9, 1971, Ser. No. 179,005
Int. Cl. B23c 1/14
U.S. Cl. 90—58 B 3 Claims



A clamping apparatus for clamping a rotary table assembly, particularly when it is incorporated into a numerically controlled machine tool system where maintaining a static position without influencing table orientation is especially desirable. The clamping apparatus includes opposed clamping jaws which engage an annular clamping ring disposed on the rotary table. The clamping jaws apply essentially equal and opposite clamping forces to each side of the clamping ring to clamp the table without influencing the loading thereof in any direction. The gripping action of the clamping jaws is actuated by a levered linkage to attain a considerable mechanical advantage which thereby reduces the size and the expense of the apparatus and simplifies its incorporation into rotary table assemblies. Furthermore, the clamping apparatus is designed as an overcenter device so that when it is in its clamped position

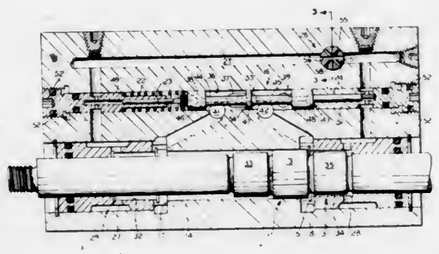
a positive force is required to unclamp it. This provides fail safe operation inasmuch as failure of the clamp actuating device does not release the holding forces.

3,786,722
ANTI-SKID MECHANISM
John A. Machek, Creve Coeur, Mo., assignor to Wagner Electric Corporation, Newark, N.J.
Division of Ser. No. 199,431, Nov. 17, 1971, Pat. No. 3,752,536. This application Dec. 13, 1972, Ser. No. 314,820
Int. Cl. F15b *11/08, 13/04, 15/22*
U.S. Cl. 91—26 3 Claims



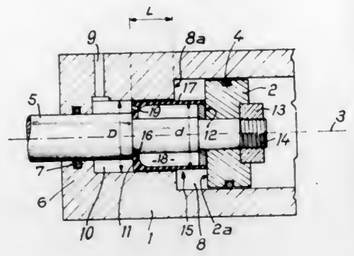
An anti-lock device for a vehicle brake system is provided with a control valve actuated in response to signals from a sensing mechanism to subject a control member to vacuum and selectively subject said control member to atmosphere for controlling the application of supplied fluid pressure to a vehicle brake, and throttling valve means is provided to control the subjection of said control member to the vacuum.

3,786,723
HYDRAULIC OSCILLATOR
Waldo G. Fruehauf, Kalamazoo, Mich., assignor to General Signal Corporation, Rochester, N.Y.
Filed May 15, 1972, Ser. No. 253,514
Int. Cl. F01l *25/02, 31/00*
U.S. Cl. 91—284 10 Claims



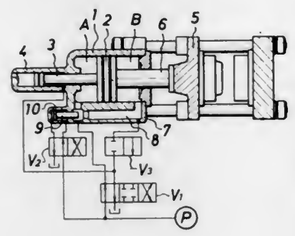
The disclosure concerns a hydraulic oscillator of the type in which the distributing valve for the power element is shifted by pressures developed by pumping members operated by the power element. The device is relatively simple and is truly self-starting regardless of the position in which the power element is resting. Preferably, the distributing valve acts as a flow divider which diverts a portion of the supply flow to tank, and thereby precludes development of large pressure peaks at the ends of the strokes of the power element. Moreover, the flow-dividing action is adjustable so that oscillator frequency can be selected independently of the rate of supply.

3,786,724
DEVICE LIMITING THE DELIVERY OUTPUT OF A JACK
Louis E. Martin, Senlis, France, assignor to Societe Anonyme Poclain, Le Plessis-Belleville, Oise, France
Filed May 3, 1972, Ser. No. 249,879
Claims priority, application France, May 24, 1971, 7118647
Int. Cl. F15b *15/22*
U.S. Cl. 91—395 5 Claims



A device for limiting the delivery output of a jack having a complementary chamber of substantially smaller diameter opening into the end of a main delivery chamber, the complementary chamber having a delivery conduit, a deformable member coupled in translation with a piston rod and being capable of abutting the piston, the deformable member being capable of penetrating into the complementary chamber from the main delivery chamber and being of slightly smaller diameter and having complementary walls with respect to the walls of the complementary chamber to form a passage between the end of main delivery chamber and the complementary chamber, the deformable member being deformed by fluid pressure to increase the transverse section of the passage between the walls of the deformable member and the complementary chamber.

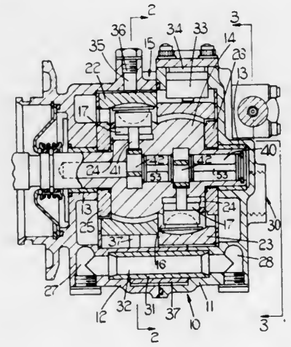
3,786,725
HYDRAULIC TYPE MOLD CLAMPING DEVICE
Katashi Aoki, 6037, Oaza Minamijo, Sakaki-machi, Japan
Filed July 5, 1972, Ser. No. 268,992
Claims priority, application Japan, July 10, 1971, 46/51277
Int. Cl. F15b *11/18*
U.S. Cl. 91—411 A 5 Claims



A mold clamping device of hydraulic type having a mold clamping cylinder including a mold clamping piston coupled through a ram portion thereof to a movable plate for supporting a movable mold, and a high-speed mold shifting cylinder including a mold shifting piston associated with said mold clamping piston through a rod portion thereof, according to the invention, said device further comprising a passage interconnecting two chambers formed at both sides of said mold clamping piston in said mold clamping cylinder, and a valve

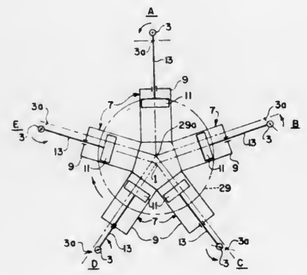
located in said passage for opening and closing the passage in accordance with the operation of the mold clamping device, while said two chambers are connected to hydraulic lines through portions of said passage at corresponding sides of said valve.

3,786,726
ROTARY HYDRAULIC MACHINES
Frank George Freeman, Solihull, Warwickshire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Oct. 19, 1971, Ser. No. 190,632
Claims priority, application Great Britain, Oct. 21, 1970, 49,988/70
Int. Cl. F01b *13/06*
U.S. Cl. 91—492 10 Claims



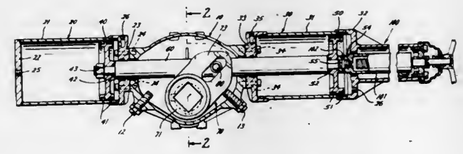
A radial piston pump has two rows of radial bores and two associated movable cam rings. The cam rings are constrained to move in unison by arms which are secured to a hollow shaft extending parallel to the axis of the pump rotor. Within the shaft is a passage by means of which the high pressure ports associated with respective rows of bores are interconnected.

3,786,727
EXPANSIBLE CHAMBER DEVICE
Andrew A. Baumann, 3810 Bowen St., St. Louis, Mo.
Filed Sept. 23, 1971, Ser. No. 183,134
Int. Cl. F01b *13/01*
U.S. Cl. 91—493 18 Claims



An expansible chamber device, adapted for operation either as a motor or a pump, having an inner pin and a plurality of outer crank pins rotatable about axes parallel to the axis of the inner pin and spaced at intervals around a circle surrounding the inner pin, with means interconnecting the outer pins and the inner pin and interconnecting the outer pins with one another, a cluster of double-acting cylinder and piston means, one for each outer crank pin, each having its cylinder connected to the inner pin and its piston rod connected to a respective outer crank pin, and means for controlling the supply and exhaust of fluid to and from opposite ends of each cylinder.

3,786,728
ACTUATOR OVERRIDE
John M. Sheesley, and Ronald A. Gulick, both of Houston, Tex., assignors to Research Engineering Company, Houston, Tex.
Continuation of Ser. No. 865,342, Oct. 10, 1969, abandoned.
This application Aug. 27, 1971, Ser. No. 175,749
Int. Cl. F01b *9/02*; F15b *13/10*
U.S. Cl. 92—33 6 Claims

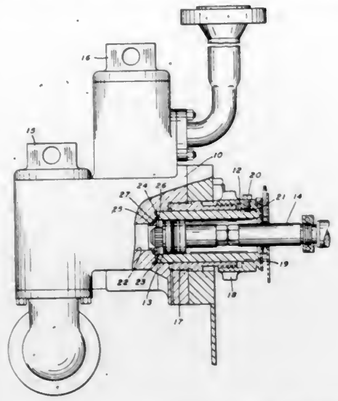


An actuating device may comprise: at least one cylinder; means for providing fluid under pressure to the cylinder; a piston mounted in the cylinder for longitudinal sliding motion; a rod attached to the piston for longitudinal motion therewith; a crank member adapted for attachment to apparatus to be actuated; a mechanism connecting the rod and crank member adapted to convert longitudinal motion of the rod to rotary motion of the crank member; and a manual override assembly connected to the rod for displacement of the rod without providing fluid under pressure to the cylinder. The manual override assembly may comprise a ball screw mechanism in which the nut portion may be non-rotatingly attached by a hollow shaft to the end of the rod. The screw shaft of the ball screw mechanism may be mounted coaxially with the rod and rotatingly supported on a support housing adjacent to the cylinder. The end of the screw shaft may be adapted to receive a disengageable handwheel for rotation of the screw shaft and consequent reciprocation of the nut portion and attached rod.

3,786,729
LINER SEAL FOR RECIPROCATING PUMPS
Michael L. Rizzone, Dallas, Tex., assignor to United States Steel Corporation
Filed June 22, 1972, Ser. No. 265,378
Int. Cl. F01b *11/02*; F16j *15/00*
U.S. Cl. 92—171 5 Claims

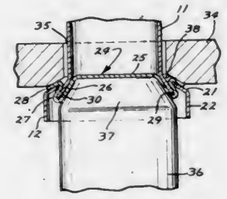
A liner seal for use in reciprocating pumps. The seal includes an insert of erosion- and corrosion-resistant material (for example stainless steel or titanium) placed between the liner and fluid-end piece. A gasket is interposed between the end face of the liner and the insert, and preferably another gasket of smaller diameter between the insert and the fluid-

end piece. The insert enables fluid-tight seals to be maintained between the liner and the fluid-end piece through liner



changes involving various liner bore sizes. In the event the insert itself is damaged, it is replaced readily, whereby it affords a renewable seal face for contact with the liner.

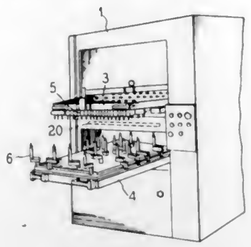
3,786,730
TIRE PUMP
Gordon J. Linderholm, Minneapolis, Minn., assignor to Pyroil Company, Inc., La Crosse, Wis.
Filed June 7, 1972, Ser. No. 260,428
Int. Cl. F16j *11/02*
U.S. Cl. 92—169 **2 Claims**



A tire pump with an upright cylinder mounted on a base wherein the connection between the cylinder and base is made by a circular connector element having annular interlocking engagement with both the cylinder and base eliminating the use of solder, rivets or the like. The actual connection is effected by arranging the cylinder, connector and base in a stacked assembly and then placing the assembly between two closing dies which deform the connector into a tight interlocked connection with the other components.

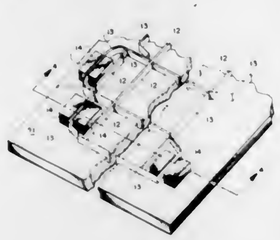
3,786,731
PRESS FOR CUTTING SHEET MATERIAL
Jacques Bobst, Epalinges; Walter Gruetter, Morrens, and Edwin Bollinger, Morges, all of Switzerland, assignors to J. Bobst & Fils, S.A., Prilly, Switzerland
Filed July 10, 1972, Ser. No. 269,952
Claims priority, application Switzerland, July 13, 1971, 10303/71
Int. Cl. B31b *1/74*
U.S. Cl. 93—36 A **4 Claims**

A press for cutting sheet material includes a waste stripping section and is provided with waste ejecting elements supported by two frames which, in turn, are slideably receivable within two relatively moveable carriages whereby the frames



can be slideably withdrawn from the carriages in order to permit adjustments of the stripping tools.

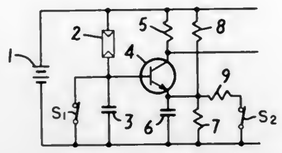
3,786,732
CUTTING AND SCORING DIE
Hampton E. Forbes, Jr., Wilmington, Del., assignor to Westvaco Corporation, New York, N.Y.
Filed Feb. 16, 1972, Ser. No. 226,727
Int. Cl. B26f *1/44*
U.S. Cl. 93—58.3 **7 Claims**



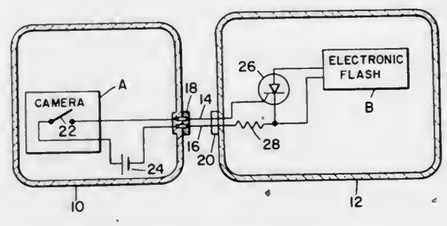
An apparatus for cutting and scoring sheet-like material is described comprising a single die plate which includes both severing elements and scoring elements mounted thereon. The severing elements constitute the usual knife blades employed in prior art sheet cutting and scoring dies. However, the scoring elements constitute novel pairs of knife blades which eliminate the need for a conventional makeready or female die as required in the prior art devices.

3,786,733
ILLUMINATION-TIME CHARACTERISTIC CIRCUIT FOR ELECTRIC EYE CAMERAS
Kiyoshi Kitai, Tokyo, Japan, assignor to Kabushiki Kaisha Hattori Tokeiten, Tokyo, Japan
Continuation of Ser. No. 127,103, March 23, 1971, abandoned. This application Mar. 26, 1973, Ser. No. 345,118
Claims priority, application Japan, Mar. 25, 1970, 45-24481
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CT **1 Claim**

A built-in exposure-timer circuit for electric eye cameras automatically correcting the exposure time of a photographic exposure by compensation for the nonlinearity of the illumination-resistance characteristic of the *Cds* in the circuit. The switching circuit of the timer circuit includes a first integrating circuit or network by which the quantity of light sensed by the Cds from the field or scene to be photographed develops a trigger output to a switching circuit whose output controls the closing of an electric shutter in a camera. The switching circuit has a trigger-level-determining network or circuit and a second integrating circuit or network and compares the voltage determined by the trigger-level-determining circuit with the voltage output of the light quantity integrating circuit and makes the trigger level itself a function of time.



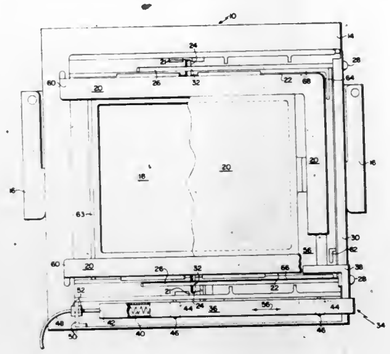
3,786,734
UNDERWATER ELECTRONIC FLASH ACTUATOR
Martin H. Long, Jr., 61 Camino Alto, and Alvin L. Pachynski, 423 Pixie Trl., both of Mill Valley, Calif.
Filed Oct. 27, 1972, Ser. No. 301,547
Int. Cl. G03b *15/05, 17/08*
U.S. Cl. 95—11 W **12 Claims**



An underwater electronic flash actuator for electronic flash apparatus contained in a waterproof housing separate from the camera and interconnected thereto by an electrical cable, in which the deleterious effects of salt water on the cable conductors are substantially eliminated. A battery is provided in the camera housing connected in series with the camera shutter switch. An electronic gating circuit, typically employing a silicon control rectifier, is provided in the electronic flash housing. The circuitry is interconnected by a pair of conductors between the camera and electronic flash housings so that the actuation of the shutter switch applies current from the battery to the gating circuitry to trigger the electronic flash.

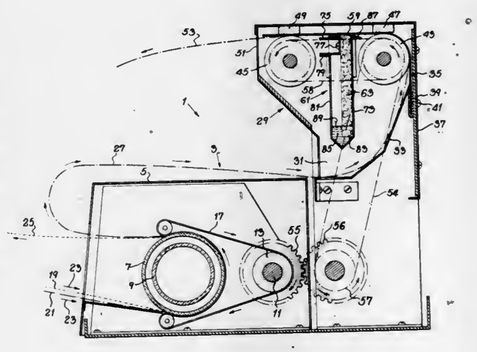
3,786,735
PHOTOGRAPHIC APPARATUS
Myron A. Seiden, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Sept. 27, 1972, Ser. No. 292,487
Int. Cl. G03b *17/44*
U.S. Cl. 95—49 **5 Claims**

An automatic shutter control system for a photographic camera having a removable film holder and viewing screen. When the film holder is attached to the camera, the shutter control system closes down the shutter. Removal of the film holder for viewing and focusing actuates the shutter control system for automatically opening the shutter to a full aperture



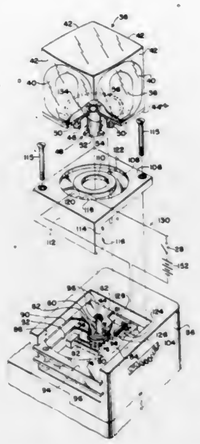
position in which the available focusing light is maximized. The need for manually opening the shutter to its fully opened position just prior to focusing is thereby alleviated.

3,786,736
DIAZOTYPE DEVELOPING APPARATUS
Robert P. Neeb, Wake Forest; Henry W. Patrick, and Ray H. Mumford, both of Raleigh, all of N.C., assignors to Diazit Company, Inc., Youngsville, N.C.
Filed Nov. 2, 1971, Ser. No. 195,074
Int. Cl. G03d *5/06*
U.S. Cl. 95—89 R **2 Claims**



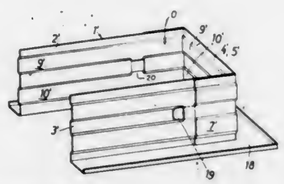
Apparatus and method for development of two-component, diazotype sheets and webs. The developing solution is applied to the moving surface of the exposed diazo paper by the wiping action of a porous applicator pad that is kept damp and replenished by capillary, wicking action through the pad from a developer solution reservoir. The range of application extends from slightly less than 4 grams per square meter to just over 30 grams per square meter. A mechanism may be incorporated in the apparatus for oscillating the applicator surface transverse to the paper travel, such action serving to provide uniform developer application, and thereby eliminating streaking, particularly at low rates of developer application.

3,786,737
PHOTOGRAPHIC FLASH ASSEMBLY
David E. Van Allen, Malden, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation of Ser. No. 41,681, May 25, 1970, which is a continuation of Ser. No. 743,744, July 10, 1968, abandoned. This application July 17, 1972, Ser. No. 272,717
Int. Cl. G03b 19/00
U.S. Cl. 95—11 L 5 Claims



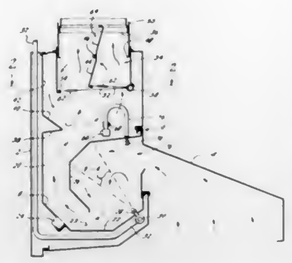
This disclosure relates to flash photography and particularly to apparatus for releasably mounting a multilamp photoflash unit on a photographic camera to facilitate sequential presentation of each lamp in the unit to a predetermined location for ignition in timed relationship to photographic exposure.

3,786,738
VENT OPENING GRILL
Tore Fahre, Oslo, Norway, assignor to Farex Fabriken A/S, Oslo, Norway
Filed June 20, 1972, Ser. No. 264,541
Claims priority, application Norway, June 22, 1971, 2357/71
Int. Cl. F24f 13/06
U.S. Cl. 98—114 10 Claims



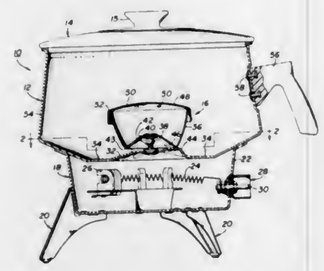
A vent opening grill having a rectangular frame composed of two pairs of parallel frame members surrounding a rectangular vent opening and consisting of metallic or plastic sheet material. The inner sides of the frame members are provided with elongated parallel grooves which snugly receive rails having rows of parallel pins for louvers which extend across the vent opening and are turnable about the respective pairs of pins. The louvers between one pair of frame members are normal and offset relative to the louvers between the other pair of frame members. The frame members of one pair are U-shaped and have pairs of legs which overlap and are connected with adjacent end portions of the other pair of frame members. One pair of frame members may be integral with a flat plate which surrounds one end of the vent opening.

3,786,739
VENTILATING SYSTEM
John David Wright, Houston, Tex., assignor to Industrial Industries, Inc., Houston, Tex.
Filed May 26, 1972, Ser. No. 257,423
Int. Cl. F23j 11/02
U.S. Cl. 98—115 K 7 Claims



A system for venting air laden with moisture, smoke, fumes, grease vapors and the like from environments such as kitchen areas. The system extracts nearly all grease vapors and a large proportion of other materials in the air and is adapted to periodically undergo a wash cycle to clean practically the entire system. The system includes a housing, a hood, a first chamber in the lower portion of the housing, a first series of nozzles for imparting an extraction spray to the first chamber, a second chamber in the upper portion of the housing communicating with the first chamber by means of a baffled conduit, a damper means for regulating exhaust, a suction fan and a second series of nozzles for imparting wash liquid to both chambers within the housing.

3,786,740
CORN POPPER
Wesley G. Martin, Manitowoc, Wis., assignor to Aluminum Specialty Company, Manitowoc, Wis.
Filed Oct. 10, 1972, Ser. No. 296,113
Int. Cl. A23l 1/18
U.S. Cl. 99—323.8 9 Claims

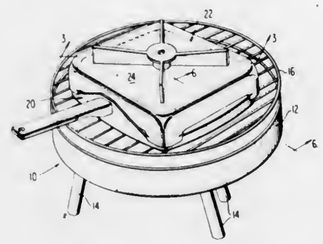


A corn popper includes a vessel having a low mass, heat conducting cup mounted in the bottom for holding butter to be melted while popping corn is being popped in the vessel.

3,786,741
SMOKING AND COOKING APPARATUS
Elizabeth Emmett Plumley, 44 Willway Ave., and David A. Brown, 46 Willway Ave., both of Richmond, Va.
Filed Aug. 4, 1972, Ser. No. 278,127
Int. Cl. A47j 37/07; A23b 1/04
U.S. Cl. 99—447 15 Claims

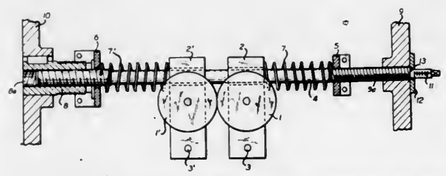
A smoking and cooking apparatus operable to overlay a cooking surface including a closed heat reflective member,

support members connected to and downwardly extending from the closed heat reflective member for supporting the member above a cooking surface. The closed heat reflective member in combination with the support members serve to reflect heat onto food cooking upon the cooking surface and to collect smoke above the cooking surface in order to flavor the food. Passages are fashioned laterally through the supporting members to permit circulation within the smoking and cooking apparatus while simultaneously providing a desirable retention of smoke adjacent to the food during the cooking and smoking thereof. The closed heat reflective member and support members may be operatively engageable with a griddle which comprises a generally square heat conductive plate. The plate is fashioned with upwardly extending flange means peripherally extending thereabout for engagement with the



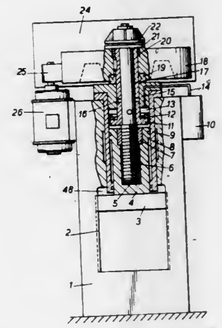
support members. During a cooking operation the downwardly extending support members serve to maintain the closed heat reflective member generally above and in a parallel plane with respect to the heat conductive plate to facilitate the cooking and smoking of food upon the plate. After the cooking operation the closed heat reflective and support members may be disconnected from the griddle and inverted to serve as a grease collecting means, attarctive table server and the like. The closed heat reflective and support members in combination with the griddle may be advantageously utilized in combination with a barbecuing grill which is suitable to support a charcoal fire or the like. In this instance the griddle is provided with a plurality of apertures extending through the heat conductive plate to faciliate smoking the food during the cooking operation.

3,786,742
DEVICE FOR ADJUSTING THE SPRING FORCE ON FOLDING ROLLERS
Klaus Hertrich, Gohrenz, Germany, assignor to Veb Polygraph Leipzig, Kombinat fur Polygraphische Maschinen und Ausrustungen, Leipzig, Germany
Filed Oct. 18, 1971, Ser. No. 189,848
Int. Cl. B30b 3/04
U.S. Cl. 100—99 2 Claims



A device for adjusting the spring force pressing two axially parallel folding rollers, which comprises a shaft and two folding rollers having parallel axes and supported in swivel bearings. An abutment is spaced apart from each of the swivel bearings and mounted on the shaft. A compression spring is disposed between each of the folding rollers and an abutment.

3,786,743
SPINDLE PRESS
Helmut Dischler, Neusa-Udesheim, Germany, assignor to Noropress GmbH Iressen und Presswerkzeuge & Co. KG, Dusseldorf, Germany
Filed Sept. 26, 1972, Ser. No. 292,327
Claims priority, application Germany, Oct. 12, 1971, P 21 50 726.6
Int. Cl. B30b 1/08
U.S. Cl. 100—270 12 Claims



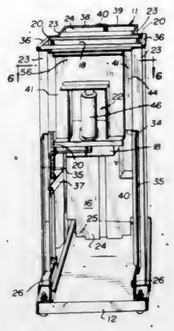
The present invention is concerned with improvements to that type of spindle press which has a spindle mounted in the press frame in an axial thrust bearing, a fly-wheel continuously rotating in one direction and an hydraulically actuated coupling arranged between the fly-wheel and the spindle which coupling during the operational stroke produces a connection between the fly-wheel and the spindle.

To reduce or eliminate the risk of overloading in the late operation of the coupling at the end of the press stroke and thereby damage to the press or excessive wear on the coupling parts the spindle press in accordance with the invention is provided with a hydrostatic support device to absorb the axial forces this support device having a pressure chamber in pressure-fluid communication with a pressure chamber of an hydraulically actuating device for the coupling, the pressure chambers being connected to a common outflow valve which opens when a predetermined pressure is reached in the pressure-fluid system.

3,786,744
REFUSE COMPACTOR SUPPORT STRUCTURE
Frank E. Miller, and Charles E. Sulcek, both of Danville, Ky., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Sept. 8, 1971, Ser. No. 178,604
Int. Cl. B30b 1/18
U.S. Cl. 100—229 A 18 Claims

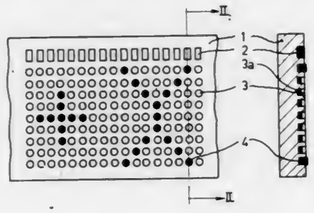
A frame structure for use in a refuse compactor defining an enclosure of the compacting space. The frame further is formed to define means for guiding the compacting ram in the compacting operation. The frame may be used in conjunction with an outer, one-piece cabinet where the compactor com-

prises a freestanding compactor, or may itself define the enclosure of the compactor ram and receptacle without the need



for an outer cabinet where the compactor is installed as an under-the-counter compactor. The frame may be formed of sheet metal to provide a simple, low cost support structure.

3,786,745
DURABLE REGISTRATION TEMPLATE FOR ELECTROSTATIC PRINTERS
Hans Dieter Hinz, Tornesch, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 177,255, Sept. 2, 1971. This application Dec. 15, 1972, Ser. No. 315,643
Int. Cl. G01d *15/18*
U.S. Cl. 101—1 **4 Claims**

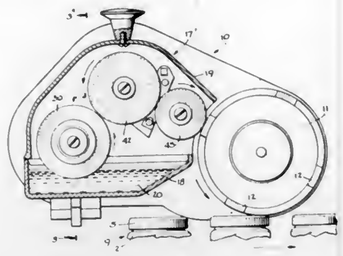


A electrostatic template for use in a printing operation.

The template comprises a synthetic resin raster having discrete raster positions surrounded by metal to form the template. A synchronization track is provided on the template adjacent the raster positions and coincident with the movement of the template carrier.

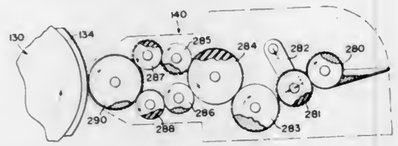
3,786,746
HIGH SPEED ARTICLE CODING MACHINE
Cecil P. Roberts, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Oct. 6, 1971, Ser. No. 186,868
Int. Cl. B41f *17/16, 31/06*
U.S. Cl. 101—35 **3 Claims**

An improved coder is described for applying a legend or a code to an article such as a sealed package. As the articles move past the coder on a conveyor, the code symbols are applied to the moving articles by spaced coding heads on a rotating coding wheel. Improved means are provided to feed the required amount of ink from a reservoir to each of the coding heads. This means includes a thin rotating disc whose edge passes through the ink reservoir and which carries a bead of ink first to a transfer wheel. An improved ink transfer is obtained by spacing the disc from the transfer wheel so that the only direct contact is between a bead of ink on the disc and the transfer wheel. Adjustment of the disc rotational speed independently of the transfer wheel speed and the preset disc and transfer wheel spacing precisely control the amount of ink



transferred. The transfer wheel engages a spreader wheel which in turn transfers the coding ink to the heads of the coding wheel.

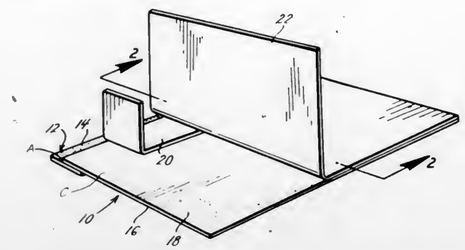
3,786,747
INKING MECHANISM FOR HIGH SPEED CAN PRINTING MACHINE
Wesley J. Szpitalak, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Division of Ser. No. 501,372, Oct. 22, 1965, Pat. No. 3,683,799. This application Apr. 7, 1972, Ser. No. 242,110
Int. Cl. B41f *31/00*
U.S. Cl. 101—350 **2 Claims**



An automatic coating and printing machine wherein can bodies and like tubular members are atuomatically positioned on mandrels and thereafter serially presented to coating and printing blankets wherein the necessary coating and printing is effected thereon with the mandrels being rotated as the can bodies carried thereby contact the blankets of the coating and printing cylinders to transfer coating and printing materials to the can bodies. Thereafter, the appropriately coated and printed can bodies are automatically transferred from the mandrels to another conveyor. The mandrels are so mounted wherein when no can body is on a mandrel, the mandrel does not come into contact with the printing or coating blankets. The inking mechanism for the printing machine is designed to apply a uniform coating of ink to the printing drum by a drum inking roll which first has a heavy ink coat applied thereto followed by a second light smoothing ink coat over the heavy coat in advance of the printing drum.

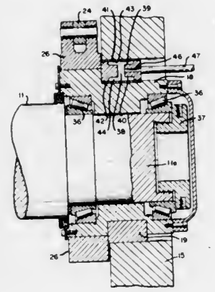
3,786,748
STENCIL ASSEMBLY WITH FOLDABLE ADHESIVE COVERING GUARDIAN STRIP
Harold H. Rabelow, Marion, Ill., assignor to Marsh Stencil Machine Company, Belleville, Ill.
Filed May 27, 1971, Ser. No. 147,394
Int. Cl. B41n *1/24*
U.S. Cl. 101—128.1 **7 Claims**

There is disclosed a novel stencil assembly employed in duplicating address and other information on cartons, packages, and the like. The assembly includes a narrow strip with pressure sensitive adhesive on one side, a stencil tissue having a carbon material covering its back side, the stencil tissue being connected along its upper front surface to the adhesive leaving a major portion of the adhesive exposed. A narrow guardian strip beneath the stencil tissue is connected to a portion of the exposed adhesive leaving a portion exposed. A



protective backing sheet is disposed beneath the guardian strip and stencil tissue with the upper edge of the backing sheet engaging the remaining exposed area of the adhesive. The guardian strip is foldable to cover the exposed adhesive strip, bared by subsequent removal of the backing sheet.

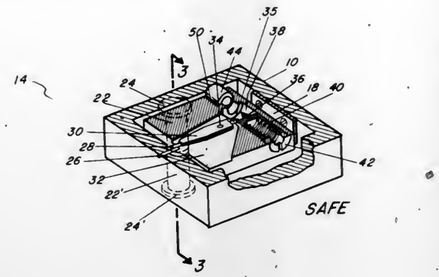
3,786,749
PRINTING PRESS CYLINDER SUPPORT AND CONTROL
Mahendra Vir Singh, Chicago, Ill., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed Apr. 7, 1972, Ser. No. 242,034
Int. Cl. B41f *13/24, 13/26, 13/40*
U.S. Cl. 101—247 **2 Claims**



The present invention pertains generally to printing presses and more particularly to improved means for preloading the journal bearing housings for the cylinders of a printing press against the forces of impression. Rotatable eccentric bushings include hydraulically expandable pads for circumferentially restraining and radially stressing the bushings when activated by an elevated fluid pressure. Hydraulic and electric controls are included to provide proper sequential activation when the cylinder is tripped.

3,786,750
MOTION SENSITIVE EXPLOSIVE WITH A DELAY MECHANISM
Alexey T. Zacharin, Parsippany, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Jan. 3, 1973, Ser. No. 320,797
Int. Cl. F42b *23/26*
U.S. Cl. 102—8 **4 Claims**

A motion sensitive explosive device is kept in a safe unarmed condition by a pair of silicone gum plugs which have been expanded by absorption of a fluoro-carbon fluid such as FREON. The expanded plugs hold a trip lever arm immovable against a detent when the device is being deployed. The device when implaced is armed, after a time delay, by evaporation of the fluoro-carbon which causes shrinking of the plugs to their



normal size and release of the lever arm. Upon subsequent slight movement of the device the trip lever releases a spring loaded firing pin so that it can strike and ignite an impact detonator.

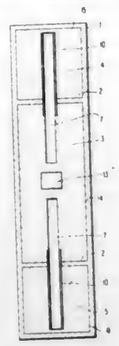
3,786,751
PRESSURE SENSITIVE MINE INSENSITIVE TO WATER DEACTIVATION
William O. Seals, Budd Lake Heights, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Division of Ser. No. 226,545, Feb. 15, 1972. This application May 22, 1973, Ser. No. 362,721
Int. Cl. F42b *23/14*
U.S. Cl. 102—8 **7 Claims**

A pressure sensitive explosive composition is provided which is rendered insensitive to water or water vapor by means of a coating of an organo-functional silane capable of polymerization on contact with water or water vapor. Additionally, a method is provided of coating such a composition by the use of the above-mentioned silane in a halocarbon solvent having a relatively low vapor pressure at ambient conditions. The composition may be a mixture of an inorganic oxidizer and fuel such as potassium chlorate, red phosphorous and ground glass or a mixture of a primary explosive such as lead azide and a secondary explosive such as RDX, either mixture being coated with a silane such as $\gamma(\beta$ aminoethyl) aminopropyl trimethoxy silane applied from a volatile halocarbon liquid such as 1,1,2 trichloro-1,2,2 trifluoro ethane. The silane, after evaporation of the liquid, coats the composition and polymerizes on contact with water or water vapor to form a water impermeable film and this renders the composition insensitive to water deactivation.

3,786,752
EXPLOSIVE CHARGE WITH IMPROVED FRAGMENTATION EFFECT
Paul Lingens, Leverkusen, and Garhard Martin, Troisdorf, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed July 26, 1971, Ser. No. 166,191
Claims priority, application Germany, July 25, 1970, 2036977
Int. Cl. F42h *3/00*; **F42b** *13/48*
U.S. Cl. 102—24 R **22 Claims**

An explosive charge and method for producing increased fragmentation per unit weight of explosive by providing hollow bodies or cavities adjacent the explosive and connected to the explosive by means of a pipe. The explosive includes a

channel communicating with the pipe. Any number of hollow bodies, spaced at any desired distance from the explosive, may



be employed. The channel preferably is cylindrical or annular. Each hollow body may be filled with a gas, liquid or solid medium or be under vacuum.

3,786,753

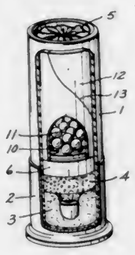
WAD COLUMN FOR SHOTSHELLS

George R. Eckstein, Fairfield, and Lavern S. Bayard, Decon, both of Conn., assignors to Remington Arms Company, Inc., Bridgeport, Conn.

Continuation-in-part of Ser. No. 168,681, Aug. 3, 1971, abandoned. This application July 24, 1972, Ser. No. 274,615

Int. Cl. F42b *7/08*

U.S. Cl. 102—42 C **10 Claims**



This invention relates to a wad column for shotshells which tends to protect both the shotshell and the bore of the gun from abrasion or plastic deformation as the result of the passage of shot therethrough and is particularly applicable to use with ferrous metal shot. In its preferred embodiment the wad column comprises a gas sealing wad which acts as a piston to push a charge of shot out of the shell and through the barrel in combination with a shot enclosing sleeve formed from a section of material having physical characteristics such as those of biaxially oriented plastic tubing and which substantially resists penetration by shot pellets. This sleeve is so formed that it is capable of changing readily in its diameter to conform to diametral changes in the passageway from the shotshell and through the barrel but is designed to avoid opening a gap to permit the shot contained therein to contact the gun barrel. A refinement of the invention involves the use of a gas sealing wad which is so shaped that it functions to minimize the opportunity for shot pellets to arrange themselves in close packed, layered, and mechanically rigid conformations.

With all of the features of the invention combined, the column of shot pellets tends to conform generally to the changes in the dimensions of the passage from the shotshell through the bore of the gun in a relatively fluid-like manner, and tends to minimize both abrasion of the surface of the shotgun barrel and plastic deformation of the choked section of the shotgun barrel.

3,786,754

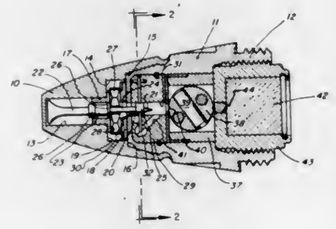
FIRING DELAY FOR POINT DETONATING FUZE

William J. Donahue, Takoma Park; Peter D. Gratton, Simpsonville; Thomas A. Cammack, Beltsville, and Robert L. Schmidt, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 20, 1968, Ser. No. 788,984

Int. Cl. F42c *15/22*

U.S. Cl. 102—79 **9 Claims**



A mechanical delay for point detonating fuzes for projectiles to allow penetration into aircraft or similar light target structures before detonation of the projectile. A trans-axial inertial firing pin is mounted within the projectile so that the centrifugal force exerted thereon by the spinning projectile during light target penetration will selectively determine the firing time delay. Alternatively, instantaneous detonation is provided by a second, axial firing pin when the projectile strikes an impenetrable target or one of such hardness that would break up the projectile before the trans-axial firing pin could react to provide the normal delayed detonation.

3,786,755

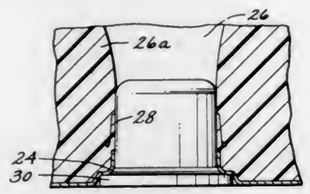
PLASTIC CARTRIDGE CASING

George R. Eckstein, and William G. Moyher, both of Fairfield, Conn., assignors to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Nov. 18, 1971, Ser. No. 199,913

Int. Cl. F42b *7/06*

U.S. Cl. 102—43 P **4 Claims**



A method of making a one-piece plastic shotgun shell, i.e., where the transverse base portion is integral with the tubular body portion. A tubular plastic slug is carried progressively through a series of dies to produce a shotgun shell having a body portion which is highly oriented and a head section of somewhat lesser orientation. An oriented, integral primer gas seal skirt is formed inside the primer opening.

3,786,756

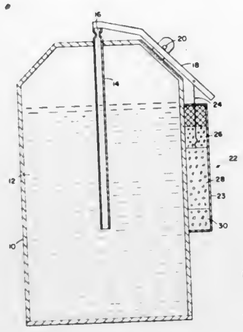
GASEOUS GRENADE

Lonnie L. Looger, 1104 Mahon Dr., Madison, Ala.

Filed Nov. 15, 1972, Ser. No. 306,787

Int. Cl. F42b *27/02, 27/04*

U.S. Cl. 102—65 **2 Claims**



A grenade for use in dispensing a vaporized explosive mixture in the atmosphere of a winding tunnel and igniting the mixture. The grenade provides a storage compartment for the pressurized explosive mixture and a separate compartment for elements of a delay ignitor. An operating mechanism, releases the pressurized mixture and actuates the delay ignitor for setting off the explosion of the vaporized mixture.

3,786,757

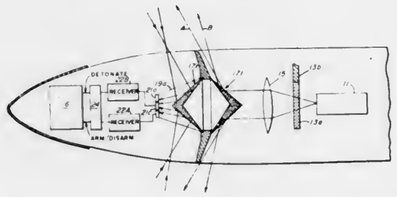
OPTICAL LENS ARRANGEMENT

Irving Goldstein; Gary G. Hayward, both of Lexington, and Jon G. Holt, Woburn, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed June 22, 1972, Ser. No. 265,131

Int. Cl. F42c *13/02, 13/00, 19/00*

U.S. Cl. 102—70.2 P **4 Claims**



An improved optical lens arrangement providing arming and detonating signals for a proximity fuse is shown. The illustrated lens arrangement includes a reflecting surface generally in the shape of a right circular cone, such surface effectively being faceted so that two conical detection fields are formed. Also disclosed are logic and control circuits for processing optical signals from targets in either or both detection fields to differentiate between true and spurious targets.

3,786,758

RAIN DISCRIMINATING FAST ACTING IMPACT SWITCH

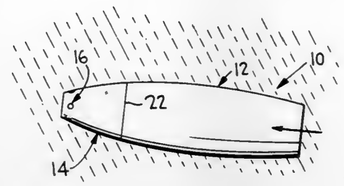
Thomas H. Zimmerman, Seneca, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 27, 1972, Ser. No. 292,596

Int. Cl. F42c *5/00, 3/00;* **H01h** *35/24*

U.S. Cl. 102—70.2 R **4 Claims**

A number of spring-mass switches are located around a circumferential line near the forward end of a missile. The switches are connected in series so that detonator energization occurs only when all switches are closed simultaneously. Due to the random nature of rain, all the switches are statistically



restricted from being actuated simultaneously by rain. However, when the missile impacts with a large water body, all switches will close simultaneously to effect a fast acting detonation.

3,786,759

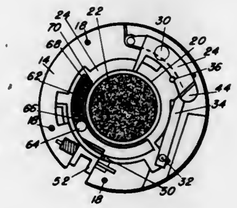
SELF-DESTRUCT FUZE

George P. Mellen, Wayzata, and William A. Schuster, Hopatcong, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 27, 1972, Ser. No. 309,864

Int. Cl. F42c *9/04*

U.S. Cl. 102—71 **5 Claims**



A self-destruct fuze for exploding dud projectiles that fail to function upon impact with a ground target. The fuze utilizes three separate locking devices which are each responsive to acceleration environments that a projectile experiences in a normal launch in order to keep the fuze in a safe unarmed position. A spin rotor and dashpot delay assembly cooperates to hold the fuze in an unarmed state in the event that the projectile has not seen the minimum normal spin environment. If the projectile has experienced a normal firing, but has failed to explode on impact with the target, the present invention will cause the dud to explode.

3,786,760

ROTATING BAND FOR PROJECTILE

Fritz K. Feldmann, Santa Barbara, Calif., assignor to Pacific Technica Corporation, Santa Barbara, Calif.

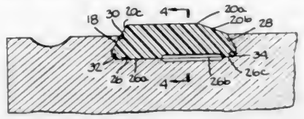
Filed June 1, 1972, Ser. No. 258,558

Int. Cl. F42b *31/00*

U.S. Cl. 102—93 **7 Claims**

The present invention relates to the use of plastics for rotating bands on projectiles fired from rifled gun barrels. The

plastic band is injection molded into a circumferential channel provided in the projectile body. The cross section of the circumferential channel is designed such as to provide a tight gas seal between the plastic rotating band and the projectile body, to assure transfer of spin introduced by the rifling in the gun barrel and to secure the rotating band to the projectile after exit from the muzzle of the gun. The portion of the plastic

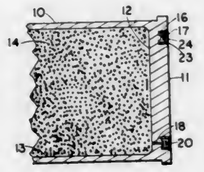


rotating band protruding beyond the projectile body engraves and is compressed into the rifling groove of the gun barrel, thus obturating the propellant gases and transmitting the spinning motion to the projectile. The plastic rotating band is lighter and costs less than conventional metallic rotating bands and is, in addition, a noncritical war material. Furthermore, its use yields better obturation and reduced barrel wear than is obtained with conventional rotating bands.

3,786,761
CARTRIDGE IGNITION SYSTEM

Thomas Q. Ciccone, Cornwells Heights; George F. Hare, Feasterville, and Osyp Nimylowycz, Philadelphia, all of Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 28, 1972, Ser. No. 266,956
Int. Cl. F42b *5/32, 5/36;* **F42c** *19/10*
U.S. Cl. 102—45 **3 Claims**



A rim-fire ignition system in which a ring-type primer is provided in an annular receptacle adjacent the periphery of the rearward end of the large caliber cartridge case. The primer is an annulus of extruded ignition material and preferably includes an extruded aluminum sheath surrounding a fixed core load of priming mixture that can be ignited by an offset firing mechanism.

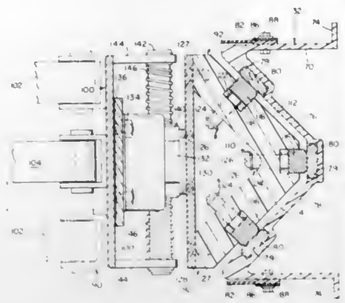
The arrangement assures good quality control of the primer charge weight from cartridge to cartridge.

3,786,762
TRANSPORTATION SYSTEM ELECTRICAL POWER DISTRIBUTION

James L. Corkum, Enfield, Conn.; David Schoepflin, Newburyport, Mass., and Paul A. Taylor, East Hartford, Conn., assignors to Alden Self-Transit Systems Corporation, Bedford, Mass.

Filed Mar. 5, 1971, Ser. No. 121,263
Int. Cl. B60l *5/00*
U.S. Cl. 104—148 R **21 Claims**

A transportation system includes two power sources that extend along opposite sides of a right of way for an electrically powered vehicle. Each power source includes an elongated open side housing of electrically insulating material that defines a channel having opposed inner surfaces disposed at an angle to one another and tapering inwardly. A power conductor is disposed in each inner surface and a third power conductor is located at the innermost end of the channel substantially midway between the two inner surfaces. Each vehicle in-

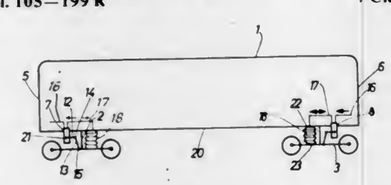


cludes two power collector assemblies, each power collector assembly having a tapered head that carries three conductor members and is arranged for sliding engagement with the power source on its side of the vehicle.

3,786,763
PNEUMATIC SUSPENSION AND CONTROL SYSTEM FOR RAILWAY VEHICLES

Hans Pollinger, Munich, Germany, assignor to Knorr-Bremse GmbH, Munich, Germany

Filed Feb. 25, 1971, Ser. No. 118,886
Claims priority, application Germany, Feb. 26, 1970, 2009025
Int. Cl. B60g *21/06;* **B61f** *5/10, 5/24*
U.S. Cl. 105—199 R **7 Claims**



The body of a railway vehicle is supported on both sides by air bellows mounted between the body and a pivotable truck. An air control valve having an actuating handle is connected between a source of air under pressure and a bellows. A lever connects each actuating lever with a point on the longitudinal side of a truck, the points on the truck being horizontally displaced with respect to each other as the truck pivots with respect to the vehicle body as the vehicle moves along a curved path. The pivotal movement of the truck causes movement of the lever which actuates the control valves to increase the pressure in the bellows on the outside of the curve and to decrease the pressure in the bellows on the inside of the curve to tilt the vehicle toward the inside of the curve.

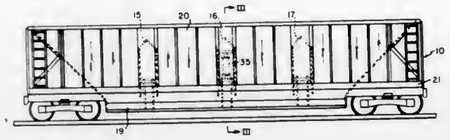
3,786,764
RAPID DISCHARGE HOPPER CAR

Albert Alvin Beers, Jr.; Paul Eugene Stoyer, and Joseph Campbell Lightner, Jr., all of Greenville, Pa., assignors to Greenville Steel Car Company, Greenville, Pa.

Filed May 17, 1972, Ser. No. 253,977
Int. Cl. B61d *7/02, 7/18, 7/28*
U.S. Cl. 105—240 **6 Claims**

The rapid commodity discharge car contains no center sill along the car bottom opening and the longitudinally spaced hoppers are closed by a pair of doors which overlap in the closed position along the longitudinal center line. The doors

are mounted to door hangers pivotally connected in the spaces between the various hoppers of the car. The doors are actuated by a vertically disposed air cylinder and rack and pinion assembly which is also located in the space between the hoppers. The rack and pinion connect to a linkage assembly which

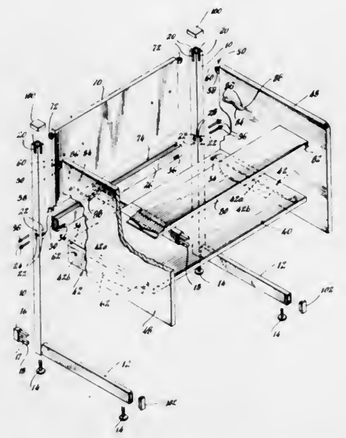


locks in both the open and closed position. The various pivot points of the linkage assembly and the door hangers are positioned so that the centers of gravity of the car doors are vertically disposed below the door hanger pivot points when the linkage is in its position of least mechanical advantage.

3,786,765
CARREL CONSTRUCTION

Alan Carleton Burr, East Norwalk, Conn., assignor to Howe Folding Furniture, Incorporated, New York, N.Y.

Filed Feb. 28, 1972, Ser. No. 230,001
Int. Cl. A47b *57/00;* **F16b** *12/00*
U.S. Cl. 108—60 **7 Claims**

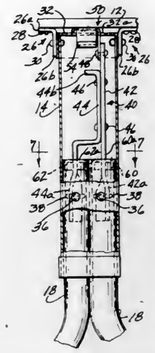


Carrel system support framework comprising pairs of uprights and interconnecting cross members, is formed by inserting through the uprights pins with circumferentially grooved ends adapted to enter and engage the end of an opposed cross member or members; one or more horizontal planar members are supported in cantilever fashion from a cross member by hook and slot interconnections; backs with laterally protruding headed hanger pins are hung between pairs of uprights the upper ends of which are slotted to receive the hanger pins; side panels each with a headed hanger pin projecting from one end are supported from the uprights respectively by inserting the hanger pins in other slots in the upper ends of the uprights; and shelves with recessed ends are supported by and between spring-wire brackets which are assembled in opposed relation on the opposed faces of a pair of side panels, or a side panel and a back of one carrel which is acting as a side panel of another carrel.

3,786,766
COLLAPSIBLE TABLE

Ned Chiariello, 454 Tower Lawn Dr., Burlington, Wis.

Filed Sept. 15, 1972, Ser. No. 289,725
Int. Cl. A47b *3/00*
U.S. Cl. 108—115 **10 Claims**

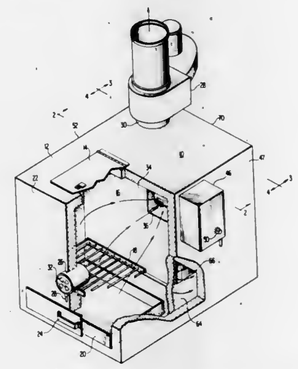


A collapsible table comprising a pivotable tabletop mounted at the upper end of a standard to which one, or more, movable legs are secured. Leg actuating means, having a twisted, flat-surfaced, movable leg-engaging portion, connects the pivotable tabletop with means on said one, or more, movable legs which coacts or cooperates with the flat surfaces of the leg-engaging portion to move the movable leg, or legs, from a collapsed position to an extended position when the pivotable tabletop is pivoted from a position of non-use to a position of use. The table may be used as a stand for a movie or slide projector, as a game table, as a snack table, or the like.

3,786,767
INCINERATOR TYPE ENVIRONMENTAL CONTROL SYSTEM

William H. Schwartz, Jr., 7221 Ash Ave., Gary, Ind., and Billy D. Maxwell, 3548 Delaware St., Gary, Ind.

Division of Ser. No. 46,937, June 17, 1970. This application Apr. 5, 1972, Ser. No. 241,225
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 A **7 Claims**



A relatively small and compact system for cleaning and purifying products of combustion resulting from incineration of waste materials including smoke and particles suspended therein as well as gases produced thereby wherein all of the products of combustion are forced from a first burning

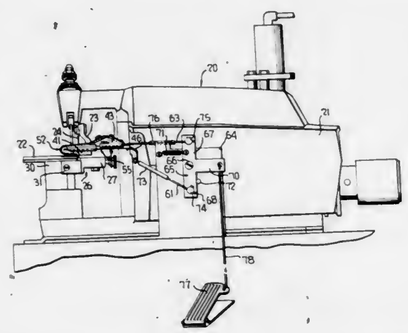
chamber into a balanced flow system including a second burning chamber having a burner flame completely enveloping the input thereto for incinerating the smoke, etc. to a substantially clean, hot exhaust gas.

The extremely hot exhaust gases are\fed into a temperature reduction labyrinth having several direction changes while maintaining the constant volumetric flow therethrough and finally through a scrubbing stage including a water bath, a series of water sprays and an output baffle while still maintaining the constant volumetric flow for completely removing any other products remaining in the exhaust gases thereby reducing air pollution to substantially a zero level.

3,786,768
AUTOMATIC HEMMING APPARATUS

Robert L. Kosrow, Hoffman Estates, and Aloizy Mrowczynski, Des Plaines, both of Ill., assignors to Union Special Machine Company, Chicago, Ill.

Filed Oct. 20, 1971, Ser. No. 190,757
Int. Cl. D05b *35/04*
U.S. Cl. 112—143 **24 Claims**



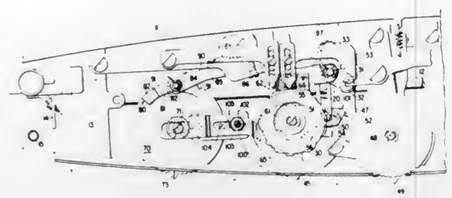
This disclosure relates to an automatic hemmer which includes a conventional overedge sewing machine having special support and hem folding apparatus associated therewith. The hem folding apparatus includes means for assuring the elimination of a curl in advance of the hem folder, means for controlling movement of the material in advance of the hem folder, an ejector, and hem detecting means whereby the various components of the hem folding attachment and the operation of the sewing machine may be automatically controlled. The support apparatus may include means for supporting tubular material, such as an undershirt, whereby a continuous hem along one edge of the tubular material may be automatically sewn.

3,786,769
PATTERN SELECTION SYSTEM

Lionel J. Coulombe, Matawan, N.J., assignor to The Singer Company, New York, N.Y.

Filed Feb. 5, 1973, Ser. No. 329,499
Int. Cl. D05b *3/02*
U.S. Cl. 112—158 A **3 Claims**

A pattern cam selecting mechanism which is operated by turning movement of a dial and includes a cam follower retracting linkage effective during the angular movement of the dial between positions in which the various pattern cams are selected. The cam follower retracking linkage is constructed so as to utilize in either direction of dial movement much more than half the angular movement of the dial between successive positions of cam selection for retracting the cam follower. As a result, the magnitude of forces required

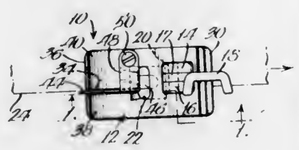


to effect cam selection may be reduced or for the same magnitude of forces, a smaller angle of turning movement of the cam selecting dial need be required.

3,786,770
OVERCASTING FOOT ATTACHMENT FOR SEWING MACHINES

Naoichi Nishi, Sanjo, Japan, assignor to Brewer Sewing Supplies Company, Chicago, Ill.

Filed Jan. 20, 1972, Ser. No. 219,448
Int. Cl. D05b *29/00*
U.S. Cl. 112—235 **2 Claims**



An improved overcasting presser foot attachment for a zigzag sewing machine comprising a body portion having a pair of forwardly extending upwardly curved arms separated by a narrow longitudinal slot and having a needle opening located at the rear of the narrow slot in communication therewith, and a guide and tongue member having a guide wall for guiding the raw edge of a piece of material to be stitched and an integral tongue member, said guide and tongue member being attached to the presser foot body portion so that the guide wall is disposed in the narrow longitudinal slot and the tongue member projects rearwardly beneath the needle opening so as to bisect the latter.

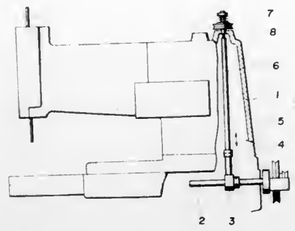
3,786,771
MEANS FOR IMPARTING TENSION TO THE DRAWN-OUT THREAD FOR SEWING MACHINES

Mitsuo Matsumoto, Tokyo, Japan, assignor to Nara Mishin Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1971, Ser. No. 213,080
Claims priority, application Japan, May 13, 1971, 46-31575
Int. Cl. D05b *47/00*
U.S. Cl. 112—255 **3 Claims**

According to the invention, the drawn-out thread of a sewing machine is guided between a roller having a thread releasing notch formed in part of the roller periphery and a thread

urging member urged against the roller periphery, with the roller rotated in the direction opposite to the direction of

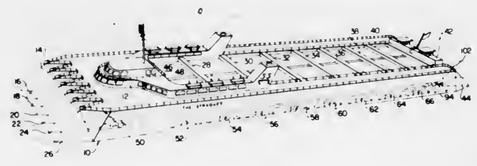


withdrawal of the thread, so that the thread can be effectively rendered taut and loose alternately by the co-operation of the roller and thread urging member.

3,786,772
CATAMARAN SHIP'S STRUCTURE

Frank Broes, McLean, Va., assignor to Stradco Inventions & Research Co., Washington, D.C.

Filed May 2, 1972, Ser. No. 249,595
Int. Cl. B63b *35/28*
U.S. Cl. 114—43.5 **10 Claims**



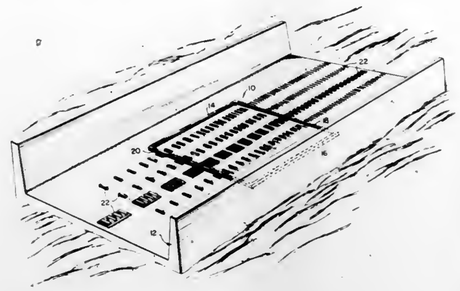
A catamaran type vessel having a plurality of longitudinally extending hulls defining longitudinal propulsion channels intermediate said hull form and one or more elevators vertically liftable intermediate the hulls, so as to vary the height of the elevator with respect to the surface of the water. As a result, the ship may be used for the transport of cargo in a variety of vertical attitudes, as well as a dry dock. The elevator may be supported above the surface of the water or it may be lowered to permit the floating in of another vessel prior to dry docking operation.

3,786,773
HYDROCARBON RETAINER FOR DRYDOCKS

Paul Preus, P.O. Box 1002, Toms River, N.J.

Filed Sept. 28, 1972, Ser. No. 292,887
Int. Cl. B63c *1/02*
U.S. Cl. 114—45 **8 Claims**

A device placed on the floor of a drydock to encompass the damaged area of the hull of a ship drydocked therein, intercepts the flow of water from the area of the hull during drydocking to filter out hydrocarbons eminating from the

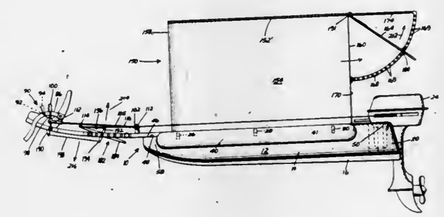


damaged hull to preclude contamination of the waters surrounding the drydock and the drydock itself.

3,786,774
AIRBOAT

William A. Gabel, Rt. 8, Huntington, Ind.

Filed Aug. 21, 1972, Ser. No. 282,495
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 R **7 Claims**



A watercraft comprising a planing hull, means for propelling the hull through the water, and at least one seat mounted on the hull adjacent to the forward end thereof. A first airfoil means including a device resembling a large box-kite is mounted on the hull for lifting the hull partially out of the water in response to air flow pressure against the ceiling of the box-kite as the hull moves forwardly and a second airfoil means is pivotably mounted forwardly of the hull and movable between upwardly and downwardly tilted positions for applying a selected amount of lift thereto. Control means are mounted adjacent the seat for controlling the speed and direction of the propelling means and the tilted position of the second airfoil means.

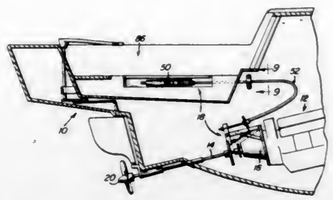
3,786,775
SHAFT LOCK

Norman M. Sarns, Bass Harbor, Maine

Filed Feb. 25, 1972, Ser. No. 229,448
Int. Cl. B63h *9/00*
U.S. Cl. 115—0.5 R **12 Claims**

A shaft lock particularly for auxiliary sailboats and the like has a split flanged-collar clampable to a rotatable shaft provided with a pair of opposed recesses. A pivotally mounted latch member is arranged adjacent the flanged collar for selectively cooperating with the recesses in holding the shaft in one of two opposed positions. A lever member is connected to the

latch member by means of a cable for selectively moving the latch member in cooperative engagement with a recess. The



lever member is arranged for freely releasing upon a rotation of the shaft from a position wherein the latch member and a recess are in cooperative engagement.

3,786,776

ALARM DEVICE ON A CLUTCH

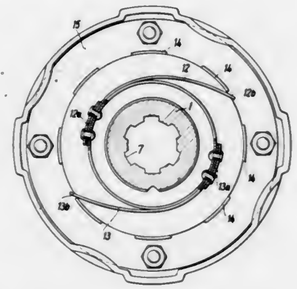
Theo Buthe, and Manfred Kugler, both of Lohmar/Rheinl, Germany, assignors to Jean Wallerscheild, GmbH, Lohmar/Rheinl, Germany

Filed Sept. 5, 1972, Ser. No. 286,278

Claims priority, application Germany, Jan. 14, 1972, 7201226

Int. Cl. G08b *3/00*

U.S. Cl. 116—67 R **5 Claims**



The clutch is provided with a driven hub on which is mounted a sleeve having a number of leaf springs attached in such a manner that the free ends of the springs are freely moveable and the springs are positioned at an increasing radial distance from the periphery of the sleeve. The clutch housing as the driven member, is provided with a ring having a plurality of axial extensions which are engaged by the free ends of the leaf springs. Relative movement between the driven and driving members causes the free ends of the leaf springs to move rapidly over the axial extensions and produce an audible signal indicating the relative movement.

3,786,777

IRREVERSIBLE WARM-UP INDICATOR

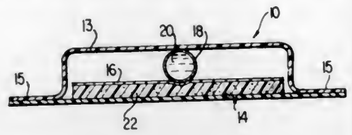
Robert W. Smith, Oakton, Va.; Fred Ordway, Bethesda, Md.; Charles A. Taylor, Falls Church, and William Zimmerman, III, Alexandria, both of Va., assignors to Artech Corporation, Falls Church, Va.

Filed Dec. 31, 1970, Ser. No. 103,146

Int. Cl. A23 ; G01d *21/00*

U.S. Cl. 116—114 AB **19 Claims**

An indicator for use with a refrigerated object to indicate visually that the object has rewarmed and to warn of possible spoilage. The indicator includes a transparent package housing a frangible container filled with a liquid that expands on freezing and an indicator material placed in proximity thereto which will undergo a color change when contacted by the liquid. The liquid freezes when refrigerated along with the object and expands fracturing the container which previously prevented communication between the liquid and indicator material. Rewarming of the object causes the liquid to melt and contact the indicator material to record by a change of color in the indicator material the fact that the object has



rewarmed, even if subsequently recooled. Resilient pressure means, such as a foam pad, an elastic ring, a helical compression spring, a compressed gas bag, an indenter, resilient tongues formed in the indicator material, or equivalent structure is provided in the package between the container and a wall of the package to assure liquid flow from the container in the event of its incomplete or local fracture.

3,786,778

SIGNAL DEVICE FOR WATER SKIING

Steven Wayne Palmer, 118 Glendora Ave., Long Beach, Calif., and Gary Ross Palmer, 1348 Seventh St., Santa Monica, Calif.

Filed Sept. 18, 1972, Ser. No. 290,118

Int. Cl. G08c *5/00*

U.S. Cl. 116—132 **8 Claims**

A pivotable flag or signal device for water skiing is provided to warn other boats when a skier is down in the water. An over centered spring mechanism securely positions the signal device in either an operative upright position or a storage horizontal position. The signal device is mounted on an extendable shaft for varying the height of the signal device and to insure a compact storage in an inoperative position.

3,786,779

OVERHEAD RAIL CLEANER AND OILER

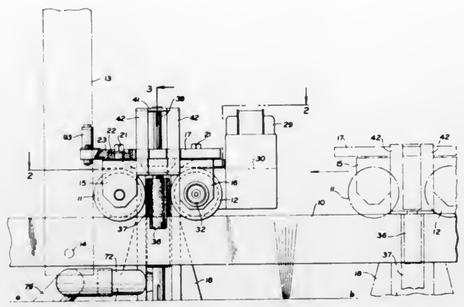
Roger L. Brunel, Grove City; Robert D. Fannon, and Ronald L. Legue, both of Columbus, all of Ohio, assignors to Klenco Corporation, Massilon, Ohio

Filed Sept. 13, 1972, Ser. No. 288,870

Int. Cl. B05c *5/00*; **E01h** *8/00*

U.S. Cl. 118—4 **11 Claims**

An automatic cleaner for overhead conveyor rails comprising a motor-driven carriage riding on the rail. The machine has vertically disposed axially rotatable brushes for cleaning opposite sides of the rail and a suction device for collecting dirt removed by the brushes. The brushes are vertically ad-



justable to avoid interference with rail switches and with rail hanger brackets and their rivet heads. An oil spray system mounted on the machine behind the brushes coats the cleaned surfaces of the rail to inhibit corrosion.

3,786,780

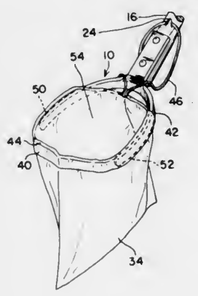
PORTABLE CANINE TOILET

Carmine Pezzino, 251 Westminster, Brooklyn, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,505

Int. Cl. A01k *23/00*; **A47f** *13/06*

U.S. Cl. 119—1 **1 Claim**



As a portable canine toilet, in combination a holder and disposable waste receiving means adapted to be removably fitted upon the holder. The holder has a projecting means mounted on its rod portion, and the receiving means has a partially circumferential sleeve along its upper portion and into which the lower part of the holder is inserted. The receiving means also has a stringed collar at the top of the upper portion, the protruding portion of the string normally positioned on the projecting means.

3,786,781

TURTLE TRAY AND HOOD (A NATURAL HABITAT)

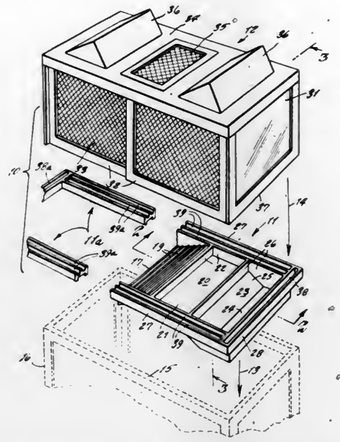
Gene M. Poulsen, 5455 Sheffield Ct. Apt. 52, Alexandria, Va.

Filed July 24, 1972, Ser. No. 274,397

Int. Cl. A01k *64/00*

U.S. Cl. 119—5 **1 Claim**

An enclosure for placement upon a conventional aquarium tank such as is used in a home for tropical and other fish, the enclosure comprising a tray upon which turtles may climb from the aquarium water, and a hood that is placeable over the tray so to present the turtles to escape, the hood accordingly including sliding access doors on a front side for servicing the tray area, the front and sides of the hood having viewing windows, and a top of the hood having lamps directing light rays downwardly on the tray and aquarium tank.



3,786,782

MILK FLOW SENSING VALVE FOR TEAT CUP RELEASE

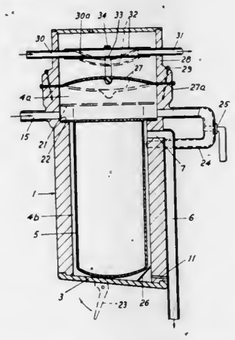
Walter Frank Abrahamson; John Hougham Abrahamson, and Boris Hougham Abrahamson, all of R. D. 6, Otorohanga, New Zealand

Filed June 30, 1972, Ser. No. 268,122

Claims priority, application New Zealand, June 30, 1971, 164144; Mar. 3, 1972, 166474

Int. Cl. A01j *5/04*

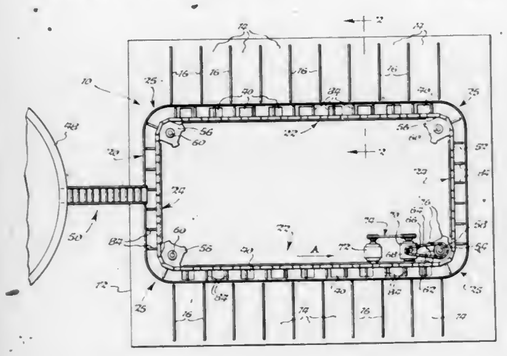
U.S. Cl. 119—14.08 **5 Claims**



A milk flow sensing valve unit particularly for location in a milk line to a set of teat cups and whereby vacuum supply to the teat cups can be cut off, or at least substantially reduced, to effect release of the teat cups from the animal upon cessation or substantial reduction in milk flow from the animal. The sensing valve unit including a hollow body defining a milk receiving float chamber housing a float member which is arranged to actuate and hold open valve means on filling of the chamber with milk from the teat cups to permit milk discharge through a main outlet to which vacuum is applied. A secondary or drain outlet is provided for emptying the chamber after cessation of milking and the arrangement providing that the float member will hold the valve means open whilst there is full milk flow from an animal in excess of the milk flow permitted through the secondary or drain outlet, but when the

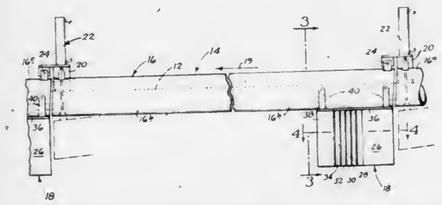
milk flow from the animal into the chamber falls below the flow rate through the secondary or drain outlet, the float lowers to close the valve means and shut off vacuum supply to the upper part of the chamber and milk inlet to thus shut off vacuum supply to the teat cups and permit the teat cups to fall away from the cows udder.

3,786,783
FEED CONVEYING AND DISPENSING APPARATUS
Terryl J. Ripstein, 2478 Main St., Varysburg, N.Y.
Filed July 12, 1972, Ser. No. 270,937
Int. Cl. A01k *5/00*
U.S. Cl. 119—52 AF **4 Claims**



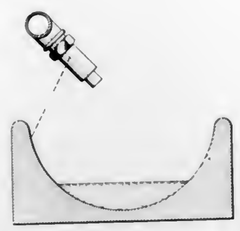
An endless trough is suspended in an elevated, generally horizontal plane above and slightly forward of the front ends of a plurality of stalls disposed in spaced-apart rows. A plurality of transversely extending paddles, carried by an endless drive chain, convey feed material through the trough. Openings are provided in the trough bottom wall for dispensing the feed material to livestock confined within the stalls. Slide gates are associated with the openings for selectively closing such openings or varying the sizes thereof.

3,786,784
FISH FEEDING APPARATUS
Eugene W. Dils, Jr.; Larry A. Ward, and Robert A. Ward, all of Vancouver, Wash., assignors to Garon Company, Vancouver, Wash.
Filed July 3, 1972, Ser. No. 268,463
Int. Cl. A01k *5/00*
U.S. Cl. 119—51 R **8 Claims**



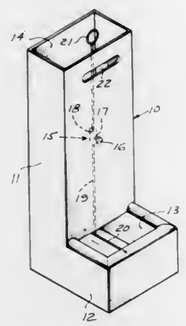
A conduit system in fish feeding apparatus including plural end-to-end disposed conduit sections which, when in communication with one another, define an elongated flow path for feed. Each conduit section is pivoted adjacent its intake end to permit selective downward swinging of its discharge end to dispense feed out of the flow path. Adjacent the discharge end of each such conduit section, and positioned beneath the flow path, is a multi-vaned diffuser which, with the discharge end of the associated conduit section lowered, diffuses feed dispensed from such end.

3,786,785
WATERING VALVE
Jarl Rune Olde, Laduagen 4, Uppsala, Sweden
Filed Oct. 2, 1972, Ser. No. 294,372
Claims priority, application Sweden, Sept. 30, 1971, 12410/71
Int. Cl. A01k *7/00*
U.S. Cl. 119—75 **4 Claims**



A watering valve for animals including a valve device and a water outlet to be placed above a feed trough for supplying water out over a large area of the feed in the trough. The actuable end of the valve stem being on such a distance from the water outlet that an animal cannot actuate the valve and drink of the water simultaneously.

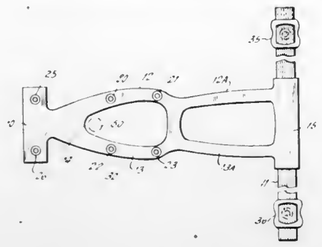
3,786,786
ANIMAL FEEDER
Leif H. Gravos, Arnegard, N. Dak.
Filed Nov. 1, 1972, Ser. No. 302,747
Int. Cl. A01k *5/00*
U.S. Cl. 119—52 A **1 Claim**



A feeder for small pigs that stores food in a vertical container. Food deposited in a top opening is taken by the animals at a bottom opening. An integrally built agitator is manually operated from time to time to move the food to the bottom opening.

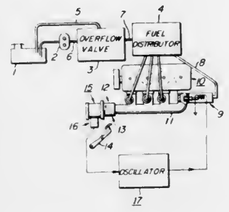
3,786,787
DEVICE FOR DISPOSING OF DOG DROPPINGS
Morton Weinberger, 1023 S. Carley Ct., North Bellmore, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,672
Int. Cl. A01k *23/00*
U.S. Cl. 119—95 **4 Claims**

A harness and bag device for dogs and similar pets is described of which at least the bag portion thereof is disposable. The harness includes cooperating back and belly strip means which are connectable to encircle the dog at the girth, and a pair of bag-carrying strap means extending from the back strap to the belly strap and adapted to pass inside the hind legs of the dog. Bag means is provided integrally with, or attachable to, the pair of bag-carrying strap means and connection is provided between the straps to locate the back strap



with respect to the tail and thereby to properly position the bag for catching the dog droppings. The bag is formed on or attached to the bag-carrying straps in such a way as not to interfere with the dog's movement, or to tightly cover any part that the dog may try to lick, scratch or bite.

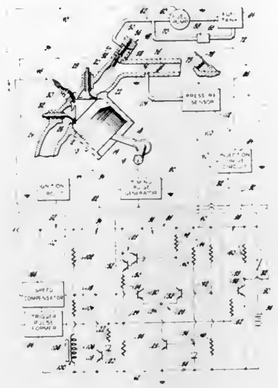
3,786,788
FUEL INJECTION APPARATUS FOR INTERNAL COMBUSTION ENGINE
Toshi Suda, Nagoya, and Hideya Fujisawa, Kariya, both of Japan, assignors to Nippondenso Co., Ltd., Aichi-ken, Japan
Continuation-in-part of Ser. No. 64,766, Aug. 18, 1970, abandoned. This application May 24, 1972, Ser. No. 256,256
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **2 Claims**



In a fuel injection apparatus for an internal combustion engine, including a fuel pump for feeding fuel from a fuel tank to a fuel distributor, an overflow valve for regulating the pressure of the fuel in said fuel distributor and solenoid valves provided in the same number as the number of cylinders of the engine and connected to said fuel distributor to act as fuel injection valves, said solenoid valves are driven by a variable frequency oscillator and the frequency of said variable frequency oscillator is controlled in accordance with the average quantity of air sucked by the engine per unit time and further said solenoid valves are opened and closed by means of a pulse row independent of the engine speed.

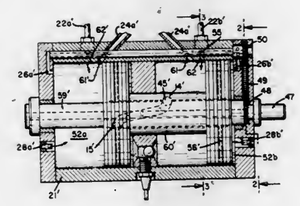
3,786,789
ELECTRONIC FUEL INJECTION SYSTEM HAVING COARSE AND FINE SPEED COMPENSATION
Paul N. Barr, Kokomo, Ind., and Tim G. Jagodzinski, Troy, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 15, 1971, Ser. No. 198,749
Int. Cl. F02d *5/02*; **F02m** *51/00*
U.S. Cl. 123—32 EA **8 Claims**

Fuel is applied to an internal combustion engine in an amount determined by the length of the control pulses produced at a frequency proportional to the speed of the engine. The length of the control pulses is determined as a function of at least one engine operating parameter. In addition, the length of the control pulses is determined in response to the amplitude of a speed voltage during each of the control pulses. The amplitude of the speed voltage linearly varies over a time period defined as a function of the total time interval



between the termination of successive control pulses thereby to provide coarse speed compensation. Further, the slope or the rate of change in the amplitude of the speed voltage is defined as a function of engine speed thereby to provide fine speed compensation. Preferably, the rate of change in the amplitude of the speed voltage is altered such that the length of the control pulses is approximately linearly released to the speed of the engine.

3,786,790
DOUBLE-CHAMBERED RECIPROCATABLE DOUBLE-ACTION-PISTON INTERNAL COMBUSTION ENGINE
Joseph B. Plevyak, 19 Jefferson St., Newton, N.J.
Filed Aug. 3, 1972, Ser. No. 277,687
Int. Cl. F02b *75/26*, *75/28*
U.S. Cl. 123—58 C **11 Claims**



An internal combustion engine having two piston chambers in series with interconnected pistons for synchronous reciprocating motion, the combustion-expansion cycle of one cylinder serving to return the other piston to the fuel-compression state, there being an intermediate compression and ignition chamber between the opposing piston cylinders and pistons with a valve means mounted within the piston cylinder such as a spherical ball movable between and sealable alternately of opposite-end openings of the ignition chamber opening into the opposing piston cylinders and the movement of the spherical ball valve being dependent upon return-movement of the piston bringing about compression of gases adjacent the ball thereby forcing the ball out of the vent toward the distant end of the ignition cylinder away from the approaching piston, to seal the far end of the ignition chamber,

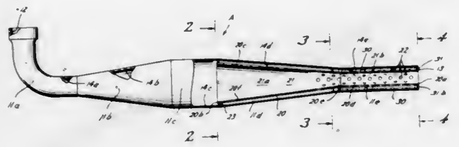
whereby as the approaching piston continues to approach and finally to become substantially flush with the piston chamber, gases within the space adjacent the approaching piston and compressed within the ignition chamber prior to ignition by a spark plug or other ignition mechanism within the ignition chamber.

3,786,791

EXHAUST CONTROL METHOD AND APPARATUS

Kay Keith Richardson, Baytown, Tex., assignor to Arthur F. Hoehn, Trustee, Houston, Tex.

Filed Jan. 27, 1972, Ser. No. 221,179
Int. Cl. F02b 27/00; F01n 1/00
U.S. Cl. 123—65 EM 11 Claims



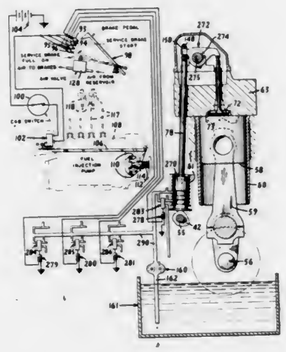
An exhaust control method and apparatus for controlling the exhaust flow of an internal combustion engine to increase engine efficiency and power while suppressing the sound of the exhaust by both absorbing and canceling sound waves.

3,786,792

VARIABLE VALVE TIMING SYSTEM

Winton J. Pelizzoni; Jack F. Greathouse; Frank J. Pekar, Jr., and Richard B. Gibson, all of Hagerstown, Md., assignors to Mack Trucks, Inc., Allentown, Pa.

Filed May 28, 1971, Ser. No. 147,833
Int. Cl. F02d 13/04
U.S. Cl. 123—97 B 36 Claims



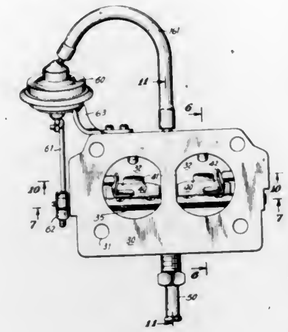
A system for varying the valve timing of an internal combustion engine to increase the retarding effect of the engine for braking purposes, to increase the compression ratio of a relatively low compression ratio engine to enhance starting, and to optimize breathing to improve the engine performance over the useful operating speed range. The valve timing is varied by changing the total valve train length so as to shift the points on the cam profile at which the valve opening and closing events are determined.

3,786,793

EMISSION CONTROL DEVICE FOR CARBURETOR-EQUIPPED INTERNAL-COMBUSTION ENGINES

Victor C. Bohls, 6391 Brittany Pl., Littleton, and D. Douglas Graham, 2000 W. 92nd Ave., Denver, both of Colo.

Filed Feb. 7, 1972, Ser. No. 223,863
Int. Cl. F02b 33/00
U.S. Cl. 123—119 A 9 Claims



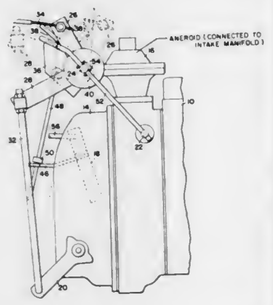
An eccentrically pivoted control vane is provided in a bore interconnecting a standard carburetor with the intake manifold of an internal-combustion engine. The shaft of the control vane is connected to a pressure sensitive actuator exposed to the differential between atmospheric and induction manifold pressure levels; the angular position of the control vane being, therefore, sensitive to both engine air mass flow and manifold vacuum. Two inlet ports, for diluting air and recirculating exhaust gas, variably obscured by tabs mounted on the control vane, flow through them depending on the angular position of the latter. A secondary air dilution circuit provides a small flow of air at intermediate manifold vacuum conditions. Emission of harmful pollutants is substantially reduced by the admixture of recycled exhaust gas and of diluting air with the engine propellant charge.

3,786,794

TRIGGER MECHANISM FOR FUEL INJECTION PUMP ANEROID CONTROL

Lewis Kie Davis, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Nov. 24, 1972, Ser. No. 309,364
Int. Cl. F02m 63/00; F02n 17/00
U.S. Cl. 123—139 ST 6 Claims



A trigger mechanism for the control member of an aneroid on a fuel injection pump assembly includes pivot lever means linked to the fuel shut-off lever of the pump assembly to move the fuel shut-off lever between its off and on positions, pivoted trigger means operatively connected to the control member and extending across the path of movement of the lever means

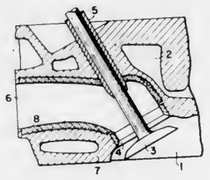
to be engaged and moved by the lever means in a direction to move the control member in a direction to deactivate the aneroid as the lever means is moved in a direction to move the fuel shut-off lever to its off position, and a one-way connection between the speed control lever of the pump assembly and the trigger means to move the trigger means in a direction to move the control member in a direction to activate the aneroid as the speed control lever is moved towards its high-speed position. With this arrangement, the aneroid is automatically deactivated when the engine is shut down so that the engine can be overfuelled for starting and as soon as the speed control lever is advanced to accelerate the engine, the aneroid is again activated.

3,786,795

CYLINDER HEAD

Yasuhisa Kaneko; Yasuhiko Komatsu, and Yasuo Okada, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-cho, Toyota-shi, Aichi-ken, Japan

Filed Nov. 14, 1972, Ser. No. 306,420
Claims priority, application Japan, Nov. 30, 1971, 46-96428
Int. Cl. F02b 23/00
U.S. Cl. 123—193 H 2 Claims



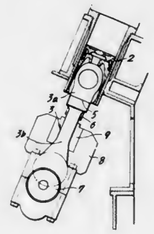
The present invention relates to an improvement in the internal combustion engine, particularly, internal combustion engines for automobiles. More specifically it relates to an improved cylinder head characterized by having the total area of the internal wall of the exhaust port constructed in two-piece fashion, one piece or part being a refractory part solidly enveloped with the other part which is the engine casting. The refractory part is shrink-fitted in the molten metal of the casting so that it can fully withstand repeated cycles of heating and cooling as well as mechanical vibrations.

3,786,796

METHOD AND APPARATUS FOR TAKING OUT PISTON IN TRUNK PISTON ENGINE

Takeo Okazaki, Tokyo, Japan, assignor to Mitsui Shipbuilding and Engineering Company, Ltd. and Japan Ship's Machinery Development Association, both of Tokyo, Japan

Filed Apr. 12, 1972, Ser. No. 243,128
Claims priority, application Japan, May 27, 1971, 46-36822
Int. Cl. F02f 7/00
U.S. Cl. 123—195 R 6 Claims



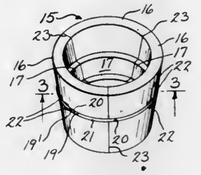
Method of taking the piston from the engine in the internal combustion engine, more particularly in the trunk piston engine, characterized by that the connecting rod is disconnected from the piston and turned to a suitable position in the crankcase, the piston is drawn out of the cylinder to the crankshaft and supported on the crankshaft, and the crankshaft is rotated together with the piston to the position where the piston is taken out of the engine.

3,786,797

VALVE SPRING RETAINER LOCKS AND METHOD OF ASSEMBLING ON A VALVE STEM

Maurice J. Eade, and Charles N. Mellowes, both of Milwaukee, Wis., assignors to Charter Manufacturing Company, Inc., Milwaukee, Wis.

Filed Mar. 31, 1971, Ser. No. 129,791
Int. Cl. F01l 3/10, 3/00
U.S. Cl. 123—90.67 4 Claims



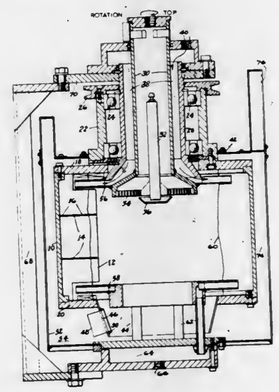
An externally tapered valve spring retainer lock is formed of multiple segments, preferably three in number, which have external circumferential grooves in circumferential alignment to accommodate a yielding ring having separable ends to hold the segments in pre-assembled relationship so that the lock may yield outwardly as it is being slipped onto a valve stem and be held in pre-assembled condition prior to being engaged with the tapered bore of the valve spring retainer. The segments are connected to the ring and maintain the ring in a fixed circumferential position so that one of the end portions of the ring is slidable over a segment during expansion of the lock, with said end so located that it can provide for maximum needed expansion of the lock without having said end enter a joint.

3,786,798

DIRECT FIRED WATER HEATER

Lothar A. Huettner, c/o Inter Continental Corp., 193 W. Boylston St., West Boylston, Mass.

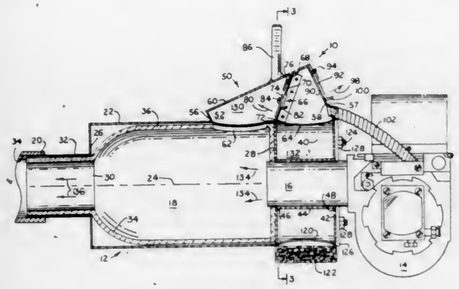
Filed Feb. 22, 1972, Ser. No. 228,290
Int. Cl. F24h 1/10
U.S. Cl. 126—350 R 11 Claims



A direct fired water heater comprising a rotary drum, a water inlet and a water outlet therefor, a burner generally cen-

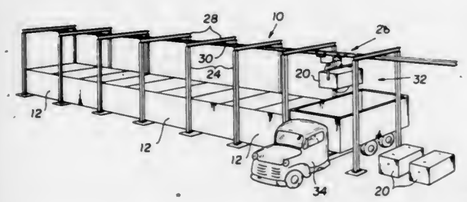
trally located in the drum, the burner being fixed, there being an inlet stator and an outlet stator having openings at different distances from the inner periphery of the drum providing a static pressure difference in the water.

3,786,799
PULSE RELIEF DAMPER
Paul D. Cox, Ridgeville, Ind., assignor to Cox Manufacturing Co., Inc., Ridgeville, Ind.
Filed Feb. 7, 1972, Ser. No. 224,190
Int. Cl. F24c *3/06*
U.S. Cl. 126—91 A **10 Claims**



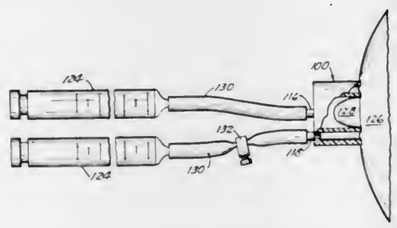
For use with a tube-fired radiant heating system which includes a serially connected fuel combusting device and an elongated, hollow radiant heating tube, a pressure-pulse relief damper comprising a chamber having a first opening therein which communicates with the interior of the radiant heating tube at a point adjacent the fuel combusting device and a second opening therein disposed remotely with respect to the first opening and communicating with the atmosphere. A normally closed, unidirectional valve means is mounted within the chamber for preventing the flow of air through the chamber from the radiant heating tube to the atmosphere and which is responsive to a sub-atmospheric pressure in the radiant heating tube for permitting the flow of air from the atmosphere to the interior of the radiant heating tube.

3,786,800
ASPHALT STORAGE AND LOADING APPARATUS AND METHOD
Anton H. Heller, Levittown, N.Y., assignor to Poweray Infrared Corporation, Farmingdale, N.Y.
Filed July 12, 1971, Ser. No. 161,561
Claims priority, application Great Britain, July 31, 1970, 37155/70
Int. Cl. E01c *19/45*
U.S. Cl. 126—343.5 A **6 Claims**



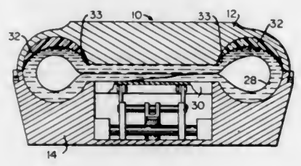
An asphalt storage and loading apparatus advantageously located adjacent to or distant from an asphalt plant and operated independently thereof, said apparatus including plural heated enclosures arranged in side-by-side relation to define an asphalt storage station, and an overhead conveyor arranged to extend along said storage station and also beyond one end thereof so as to define an asphalt loading station, whereby asphalt carriers can be loaded with asphalt by said overhead conveyor.

3,786,801
METHOD AND APPARATUS FOR AIDING IN THE DETECTION OF BREAST CANCER
Otto W. Sartorius, Santa Barbara, Calif., assignor to Diagnostic, Inc., St. Paul, Minn.
Continuation-in-part of Ser. No. 801,613, Feb. 24, 1969, Pat. No. 3,608,540. This application Sept. 28, 1971, Ser. No. 184,501. The portion of the term of this patent subsequent to Sept. 28, 1988, has been disclaimed.
Int. Cl. A61b *10/00*
U.S. Cl. 128—2 F **2 Claims**



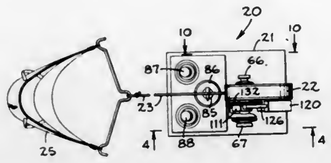
A method for detection of cancer of the breast is provided which comprises drawing a partial vacuum around the area of the breast immediately peripherally surrounding the breast nipple to restrain sphincter contraction of the duct openings in the nipple area, then, while maintaining this first mentioned partial vacuum, intermittently applying a zone of reduced pressure to the nipple itself for the extraction of secretion therefrom in sufficient quantity for the cytological examination of epithelial cells found therein for abnormalities. An apparatus is also provided for practicing the method.

3,786,802
LEG UNIT INSERTS
Nubar D. Hagopian, Waltham, and John M. Colman, Lexington, both of Mass., assignors to Medical Innovations, Inc., Waltham, Mass.
Filed Oct. 24, 1972, Ser. No. 299,712
Int. Cl. A61h *1/00*
U.S. Cl. 128—24 R **3 Claims**



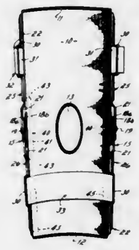
In an external pressure circulatory assist apparatus of the kind wherein hydraulic pressure is cycled against a patient's legs usually in synchronization with the patient's heartbeat, means to improve the performance of the apparatus on smaller patients by providing rigid leg inserts adapted to fit between the upper portion of a supine patient's legs and a rigid shell for enclosing both the inserts and a hydraulic blanket. The inserts provide means to improve pressure cycle control on a patient's legs.

3,786,803
APPARATUS FOR APPLYING THERAPUTIC TRACTION IN PROGRESSIVE INTERMITTENT INCREASE OF MAGNITUDE
Laurence R. Petulla, 2290 Highland Park Ln., Campbell, and Harris E. Fik, 420 Alberto Way, Dept. 19, Los Gatos, both of Calif.
Filed Apr. 28, 1972, Ser. No. 248,637
Int. Cl. A61h *1/02*
U.S. Cl. 128—75 **10 Claims**



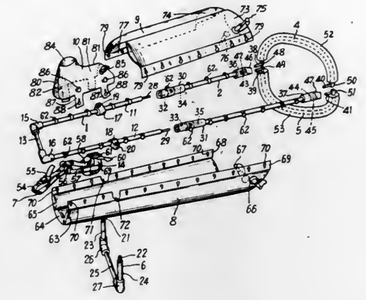
Apparatus for applying therapeutic traction to a patient in which a solenoid energized simultaneously with the energization of an intermittently operated traction motor actuates a ratchet wheel fixed to a device that controls the magnitude of applied traction to increase intermittently and automatically the magnitude of applied traction for each cycle over a preselected period of time until a maximum magnitude of applied traction is reached.

3,786,804
HINGED KNEE BRACE HAVING TORQUE PADS FOR PRODUCING INWARD SUPPORT PRESSURE
Hector E. Lewis, Cincinnati, Ohio, assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio
Filed Aug. 7, 1972, Ser. No. 278,372
Int. Cl. A61f *5/00*
U.S. Cl. 128—80 C **3 Claims**



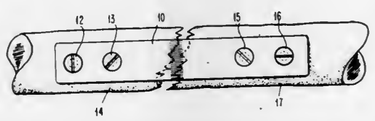
A knee brace for supporting a weakened knee having a single-piece cylindrical sleeve of elastic material dimensioned to accommodate the wearer's knee. A pair of hinges with elongated arms are located on opposite outer sides of the sleeve to laterally support the knee without impairing the normal bending of the knee joint. Pads are provided on both sides of the sleeve between the associated lower arms of each hinge and opposite sides of the knee to provide a torque on the hinge arms which results in the application of an inward supporting pressure on the knee joint. A pair of openings are provided on the front and rear of the sleeve to accommodate the kneecap and to prevent bunching of the sleeve as the knee bends. Additionally, a pair of replaceable strips are provided to alternatively fully encircle or partially encircle the wearer's leg above and below the knee to insure that the brace will remain properly positioned.

3,786,805
SPLINT HAVING INFLATABLE DETACHABLE CUSHIONS
Andre Marcel Tourin, Paris, France, assignor to Institute Europeen de Recherces et d'Applications Medicales "I.E.R.A.M.", Paris, France
Filed Oct. 5, 1971, Ser. No. 186,664
Claims priority, application France, Oct. 6, 1970, 70.36047
Int. Cl. A61f *5/04*
U.S. Cl. 128—87 R **5 Claims**



Elongated, inflatable cushions are detachably secured along the length of a U-shaped frame adapted to support the limb of a vertebrae. A stretching device is provided for encircling the ankle of the user to apply tension to the supported limb.

3,786,806
THERMOCONSTRICTIVE SURGICAL APPLIANCE
Alan A. Johnson, S.W. 620 Dawnview, Pullman, Wash., and Frank P. Alicandri, 511 Emerson Ave., Teaneck, N.J.
Continuation-in-part of Ser. No. 72,651, Sept. 16, 1970, abandoned. This application Nov. 22, 1972, Ser. No. 308,739
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 D **7 Claims**

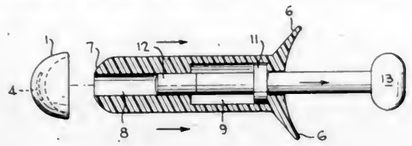


The application of a plate of thermoconstrictive material for extra-medullary fixation of fractured bones is described. The plate, consisting of a nickel-titanium alloy, is subjected to deformation by a tensile stress below its critical transition temperature. Upon securing the plate over the fracture, heat is applied at or above the transition temperature thereof so as to return it to its original state, thereby drawing the fractured bone ends together.

3,786,807
DISPOSABLE DIAPHRAGM AND INSERTION-REMOVAL UNIT THEREFOR
Dale B. Dubin, 25 Park Ln. South, Menands, N.Y.
Filed Feb. 29, 1972, Ser. No. 230,303
Int. Cl. A61f *5/46*
U.S. Cl. 128—127 **9 Claims**

A disposable diaphragm and reusable insertion-removal unit which enables the user to easily insert, position and remove the diaphragm. The diaphragm includes a magnetically attractable object embedded in absorbent material, such magnetically attractable object being attracted to or released

from the tip of an insertion-removal unit, the insertion-removal unit having a magnet at the end of a plunger-rod.



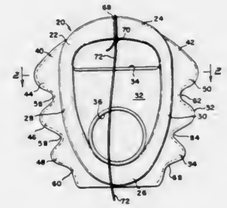
When the plunger-rod is advanced forward, it attracts and holds the diaphragm and when it is retracted it releases the diaphragm.

3,786,808

INTRAUTERINE CONTRACEPTIVE DEVICE WITH SCALLOPED EDGE APPENDAGES

Irwin S. Lerner, Greenwich, Conn., assignor to A. H. Robins Company, Incorporated, Richmond, Va.

Filed June 23, 1971, Ser. No. 155,866
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **62 Claims**



An intrauterine contraceptive device made from plastic and having a perimetral ring with or without a central membrane and including perimetral appendages having scalloped side edges located on each of the side portions of the perimetral ring. The width of the outer scallops preferably decreases as the locations of the scallops approach the tail portion, providing the IUD with an inverted somewhat pear shaped scalloped outline when viewed in plan. A marker and extraction string or line is secured at the nose portion but can be secured to the tail portion. The scalloped appendages are constructed in the manner of webs which are substantially flat or they can be hollow with a bulbous cross-section. Internal of the perimetral ring is preferably a membrane which may be a single wall or made hollow by having a double wall. The membrane has openings at least adjacent the nose and the tail. The internal membrane can be centrally disposed or made as internally scalloped appendages.

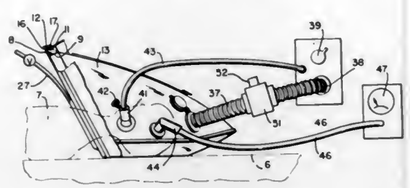
3,786,809

DEVICE FOR TREATING INFANTS HAVING BREATHING DIFFICULTIES

Sotiris Kitrilakis, Berkeley, Calif., assignor to Tecna Corporation, Emeryville, Calif.

Filed Sept. 7, 1972, Ser. No. 286,968
Int. Cl. A61m *16/02*
U.S. Cl. 128—191 **8 Claims**

A device for treating infants having breathing difficulty has a rigid, externally grooved ring to one side of which is attached a clear, flexible, plastic envelope adapted to contain the infant's head and provided with a connection for a flexible hose leading breathing gas under pressure from a suitable source into the envelope. The other side of the ring is spanned by a flexible, plastic diaphragm overlying the groove and held in engagement with the ring by a quickly removable contracting band deforming the diaphragm material into the groove. The diaphragm has an opening therein encircled by a collar ad-



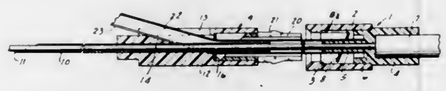
justable into close contact with the infant's neck. The envelope has a slider-closed major access opening and various fittings for minor access and monitoring connections.

3,786,810

PLACEMENT APPARATUS FOR POSITIONING AN ELONGATED ELEMENT IN A BODY LUMENT

Karl A. Pannier, Jr.; Gordon S. Reynolds, and James L. Sorenson, all of Salt Lake City, Utah, assignors to Levoy's, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 885,803, Dec. 17, 1969, abandoned. This application Mar. 22, 1971, Ser. No. 126,439
Int. Cl. A61m *31/00*
U.S. Cl. 128—214.4 **17 Claims**



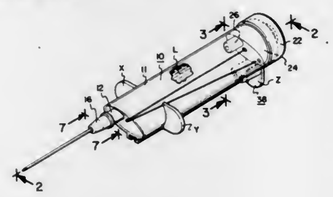
A placement apparatus or unit for positioning an elongated element in a body lumen, and a method of using the same. The elongated element may be a catheter, piezoelectric transducer means carried in a catheter, a coaxial cable, or other sensing means, which may or may not have a lumen therethrough, but which may be connected to apparatus for indicating or recording central arterial pulse wave-forms and other heart actions. The element is encased in a sheath to which the proximal end of the element is removably connected, and the element is advanced relatively to a needle into a body lumen by pulling or pushing the sheath through an opening in the needle hub. The method involves monitoring venous or arterial pressure from the point of entry into a body lumen to the thoracic cavity at or adjacent the heart.

3,786,811

SYRINGE CONSTRUCTION

Le Grand K. Holbrook, Salt Lake City, Utah, assignor to Medical Development Corporation, Salt Lake City, Utah

Filed Aug. 12, 1971, Ser. No. 171,211
Int. Cl. A61m *5/22*
U.S. Cl. 128—218 P **3 Claims**



The compact syringe construction wherein the internal plunger is externally actuated by a side-mount actuator so

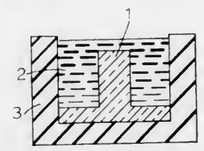
connected to an interior plunger portion that a forward advance of the actuator will effect a forward advance of the interior plunger, this for desired liquid expression from the syringe. Two embodiments of the invention specifically disclose teachable, flexible elongate connector inter-engagement of the plunger and actuator and also a pin-type sealed interconnection. General syringe improvements as to slanted forward-face closure, and related items are included.

3,786,812

CONTACT LENS FOR OLAR DRUG DELIVERY

Charles W. Neefe, Box 429, Big Spring, Tex.

Continuation-in-part of Ser. No. 45,333, June 11, 1970, which is a continuation-in-part of Ser. No. 562,022, May 16, 1966, abandoned. This application Mar. 10, 1972, Ser. No. 233,408. The portion of the term of this patent subsequent to Sept. 25, 1990, has been disclaimed.
Int. Cl. A61m *7/00*
U.S. Cl. 128—260 **4 Claims**



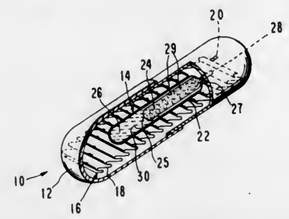
A method of making a contact lens for delivering medications directly to the ocular tissue. The central segment being transparent and capable of correcting refractive errors. The peripheral segment containing the desired medication and the rate at which the medication is released to the eye is controlled.

3,786,813

DRUG DELIVERY DEVICE WITH SELF ACTUATED MECHANISM FOR RETAINING DEVICE IN SELECTED AREA

Alan S. Michaels, Atherton, Calif., assignor to Alza Corporation, Palo Alto, Calif.

Continuation of Ser. No. 300,673, Oct. 25, 1972, abandoned. This application Dec. 27, 1972, Ser. No. 318,798
Int. Cl. A61m *31/00*
U.S. Cl. 128—260 **8 Claims**



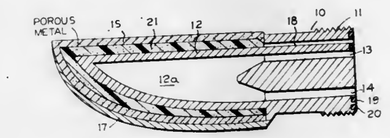
A device is disclosed for administering a drug at a controlled rate for a prolonged period of time to a drug receptor area to produce a nonsystemic or systemic physiological or pharmacological effect. The device is comprised of a hollow deformable member that is movable from a collapsed to an expanded position and returnable to a collapsed position after an extended period of time. A housing is attached to the deformable member and it is internally divided into a first and second chamber with the chambers separated by an impermeable, pressure responsive movable bladder. The first chamber contains a drug and it has a discharge port for releasing the drug to the exterior of the device. The second chamber contains a means for generating pressure that is applied against the bladder. Drug is released from the first chamber through the discharge port by the bladder moving in response to pressure generated in the second chamber to increase its volume while simultaneously reducing the volume of the first chamber to release the drug at a controlled rate over a prolonged period of time. The device is initially optionally contained in a bioerodible container that erodes in the area to release the container.

3,786,814

METHOD OF PREVENTING CRYOADHESION OF CRYOSURGICAL INSTRUMENTS AND CRYOSURGICAL INSTRUMENTS

Thomas A. Armao, 1242 56th St., Brooklyn, N.Y.

Continuation-in-part of Ser. No. 213,380, Dec. 29, 1971, abandoned. This application Dec. 15, 1972, Ser. No. 315,314
Int. Cl. A61b *17/36*
U.S. Cl. 128—303.1 **38 Claims**



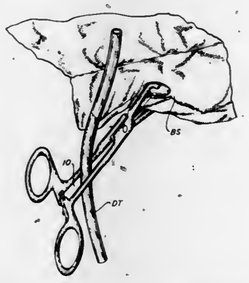
A method of preventing cryoadhesion of cryosurgical instruments comprises placing on the surface of the instrument which comes in contact with tissue a coating of a fluorocarbon anti-cryoadhesion material which is a good heat conducting material which is liquid at ambient temperatures and remains a liquid at cryogenic temperatures and which is non-toxic to tissue. A cryosurgical instrument which prevents cryoadhesion has a hollow inner portion of a good heat conducting material having a cryogenic fluid inlet passage opening into the hollow interior thereof and a cryogenic outlet passage opening out of the hollow interior thereof. A sheath is provided which is of a good heat conducting material, at least a portion of which is porous. The sheath is positioned around the inner portion and spaced therefrom to define an enclosed space between the sheath and the inner portion. The instrument has an anti-cryoadhesion inlet passage therethrough opening into the enclosed space for anti-cryoadhesion material to flow into the space and through the porous portion of the sheath so that it is always present on the surface of the instrument during its use.

3,786,815

RADIOPAQUE CLAMP

Richard E. Ericson, Keene, N.H., assignor to C. R. Bard, Inc., Murray Hill, N.J.

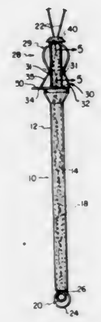
Filed July 14, 1971, Ser. No. 168,785
Int. Cl. A61b *17/28, 17/08*
U.S. Cl. 128—321 **5 Claims**



A surgical clamp of the scissors type, adapted to be locked closed and having knurled clamping surfaces which can be

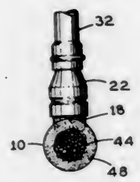
brought into contact, straight edge clamping portions which cannot be brought into contact, and an opening between the pivot point and handles through which a tube can be passed and held while the first named clamping surfaces are engaged with a support such as a bed sheet, the two halves of the clamp being identical and being injection molded of glass-fiber-filled nylon.

3,786,816
METHOD AND APPARATUS FOR OCCLUDING FLUID FLOW THROUGH VESSELS
Sidney Wolvek, Brooklyn, N.Y., assignor to Technibiotics, Inc., Brooklyn, N.Y.
Filed Dec. 21, 1972, Ser. No. 317,233
Int. Cl. A61b *17/12, 17/10*
U.S. Cl. 128—325 7 Claims



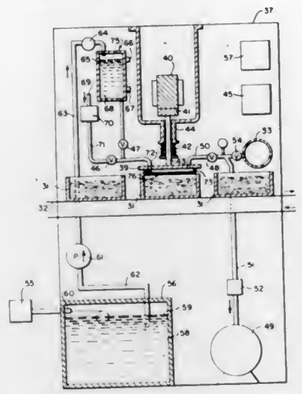
A vascular conduit tourniquet including a sleeve having a bore defined by a wall formed of a resilient material and a spring clip fixed over the sleeve, preferably at the end of the sleeve opposite from the vessel which is to be occluded. Umbilical tape is passed under the vessel, the ends of the tape threaded through the sleeve bore and, while holding the ends of the tape, the sleeve is advanced against the vessel, thereby occluding the blood flow therein. The spring clip is then pinched forcing the sleeve walls together capturing the tape therein and maintaining the sleeve against the vessel in occluding relationship therewith.

3,786,817
METHOD AND APPARATUS FOR AIDING SEVERED NERVES TO JOIN
James R. Palma, 1502 Curry Rd., Schenectady, N.Y.
Continuation-in-part of Ser. No. 193,389, Oct. 28, 1971, abandoned. This application June 1, 1972, Ser. No. 258,737
Int. Cl. A61b *17/04*
U.S. Cl. 128—334 R 11 Claims



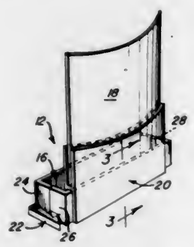
Method and apparatus in which severed nerve ends are placed inside a tube which aligns the nerve ends and guides them to promote joining of the nerve ends. An ambience may be provided inside the tube which further promotes joining of the nerve ends.

3,786,818
APPARATUS FOR TURGOR CONDITIONING TOBACCO
William H. Johnson, Raleigh, N.C., assignor to Research Corporation, New York, N.Y.
Division of Ser. No. 14,060, Feb. 24, 1970, Pat. No. 3,710,803.
This application Aug. 28, 1972, Ser. No. 284,170
Int. Cl. A24b *03/18*
U.S. Cl. 131—136 1 Claim



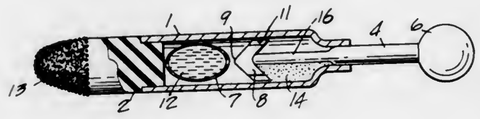
Tobacco is shredded or strip form is turgor conditioned prior to sublimation drying to produce tobacco of high specific volume with minimal alteration of the chemical characteristics and intercellular structure of the tobacco by establishing a high vacuum around the tobacco to remove rapidly air and water vapor from within the cells and intercellular spaces of the tobacco, supplying liquid water to the evacuated tobacco and raising the ambient pressure to drive the water into the cells and intercellular spaces of the tobacco. Apparatus for carrying out the method includes sealable containers for tobacco, means for evacuating the container, means for introducing water into the evacuated containers and means for pressurizing the container to or above atmospheric pressure. The containers are disposed an a conveyor and brought into sealing engagement with a closure member which is connected to the evacuating means and the water and pressure supply. The actuation of the various means in the sealing means is brought about by a sequence timer in the system.

3,786,819
APPARATUS AND METHOD FOR TREATING HAIR
Audrey M. Cantrell, 111 Ehlinger Dr., Bryan, Tex.
Filed Oct. 18, 1971, Ser. No. 189,959
Int. Cl. A45d *1/00*
U.S. Cl. 132—9 9 Claims



A spacer for use in treating hair has an integral clamp for sealingly gripping a quantity of hair to be treated, a trough for holding the quantity of hair for applying a treat-ment material thereto, and an integral connector for selectively connecting the clamp to the trough. This spacer may be used in a method for treating hair having the steps of sealingly gripping a quantity of hair to be treated with a gripping device, holding the hair to be treated in an open trough, treating the hair in the open trough while permitting excess treating material to move toward the gripping device, and collecting the excess treating material within a cavity associated with the gripping device.

3,786,820
MIXER AND APPLICATOR FOR FINGERNAIL REPAIR MATERIAL
Rudolph J. Kopfer, 137 Almenar Dr., Greenbrae, Calif.
Filed Feb. 20, 1973, Ser. No. 333,874
Int. Cl. A45d *29/18*
U.S. Cl. 132—74.5 16 Claims



A transparent tube has on one end a conical tip with abrasive coating thereon capable of use for preparing a fingernail for repair, and has a mixer and applicator extended into its other end; inside the tube is a crushable capsule containing a liquid monomer; within the tube is a polymer in powder form; means being provided to crush the capsule thereby to release the monomer; said mixer being manipulatable to mix said liquid and powder to suitable consistency observable through the transparent tube, and said mixer being withdrawable from said tube for use as an applicator to apply the mixture to the damaged fingernail, said monomer and polymer being capable of forming an auto polymer with a hardening time of about one-half to one and one-half minutes.

3,786,821
METHOD AND KIT FOR FORMING AN ARTIFICIAL NAIL
Harold P. Noskin, Wantagh, N.Y., assignor to Customcraft Nails, Inc., Rockville Centre, N.Y.
Filed Feb. 9, 1973, Ser. No. 331,320
Int. Cl. A45d *40/30*
U.S. Cl. 132—88.5 20 Claims



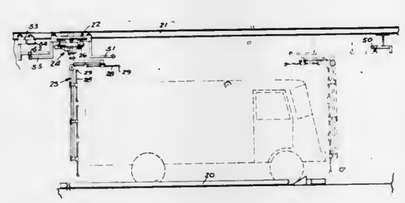
A method and kit for forming an artificial nail whereby a thin plastic cover is bonded to a digit nail and the bonding material is formed so as to taper from the front edge of the digit nail to the front edge of the cover. A method and kit is provided for forming an artificial nail that simulates a natural nail.

3,786,822
ARTIFICIAL HAIR ARTICLES AND PROCESS FOR THE PREPARATION THEREOF
Nobuo Kimura, Yokkaichi, and Yukio Mizutani, Tokuyama, both of Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi-ken and Toa Boshoku Kabushiki Kaisha, Osaka, Japan
Continuation-in-part of Ser. No. 864,479, Oct. 7, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,796
Claims priority, application Japan, Oct. 11, 1968, 43-74414
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 10 Claims



Artificial hair article made of filamentary shaped strands of a fiber-forming, thermoplastic synthetic polymer containing as uniformly dispersed therein and incorporated therewith, particles of cross-linked copolymer of 0.01 to 2 microns in size which do not decompose at the melting point of the fiber-forming, thermoplastic synthetic polymer, in an amount of 0.1 to 10 percent by weight, the strands having a uniformly distributed fine slit-like grooved pattern along their entire length.

3,786,823
TRUCK WASH APPARATUS
Robert B. Wiley, 21630 Knudsen Dr., Grosse Ile, Mich.
Filed July 19, 1971, Ser. No. 163,892
Int. Cl. B60s *3/04*
U.S. Cl. 134—45 11 Claims

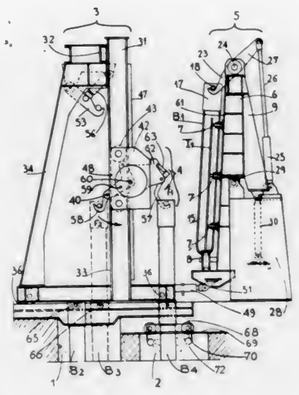


A truck wash apparatus comprising a carriage which is movable back and forth over a stationary truck. The carriage supports spray nozzles for washing the truck. The spray nozzles are movable to wash the sides and ends of the truck. One of the spray nozzle arms extends vertically and is supported by a trolley that is movable transversely of the carriage and is indexable to wash the sides and ends of the truck. The carriage is first moved along to wash one side of the truck, the nozzle arm is then indexed and the trolley is moved transversely to wash an end of the truck, the nozzle is then indexed and the carriage is moved to wash the other side of the truck, and the nozzle is then indexed and the trolley moved to wash the other end of the truck.

3,786,824
CHEMICAL DESCALING APPARATUS FOR DISCONTINUOUS AUTOMATIC TREATMENT OF SHEET METAL

Bernard Lhenry, Le Creusot, France, assignor to Creusot-Loire, Paris, France

Filed July 10, 1972, Ser. No. 270,061
Int. Cl. B08b 3/02
U.S. Cl. 134—62 10 Claims

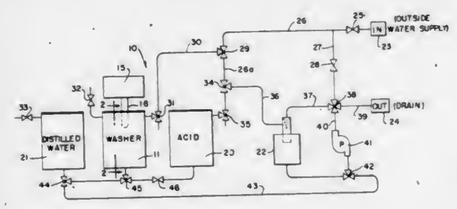


Chemical descaling apparatus is provided for the automatic treatment of sheets of metal, including, a descaling pit and a rinsing pit, with introduction of the sheets into the descaling pit and for transferring them to the rinsing pit. The sheets are handled in a series of cradles by a transfer crane which is horizontally movable between the pits, and which has a vertically movable support bar which includes hooks for supporting the cradles. A runway is used for initially introducing sheets into the cradles.

3,786,825
ACID BATH WASHER APPARATUS

Hassel L. Weisner, P.O. Box 266, Mary Esther, Fla.

Continuation-in-part of Ser. No. 96,878, Dec. 10, 1970, abandoned. This application Aug. 28, 1972, Ser. No. 283,958
Int. Cl. B08b 3/08
U.S. Cl. 134—99 5 Claims

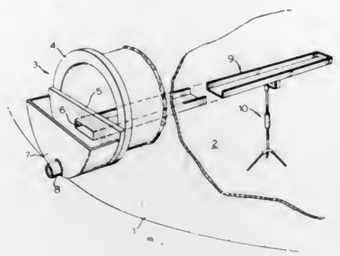


Acid from a storage tank is delivered into a washer tank containing work to be treated. After treatment, the acid is returned to the storage tank and the washer tank is rinsed with water from an outside supply. Distilled water from a distilled water supply tank is then admitted into the washer tank to treat the work therein, and after the distilled water is discharged, a hot air generator delivers hot air into the washer tank to dry the work.

3,786,826
OIL TANK SKIMMING DEVICE

Charles T. Taylor, Port Credit, Ontario, Canada, assignor to Gulf Oil Canada Limited, Toronto, Ontario, Canada

Filed June 12, 1972, Ser. No. 261,836
Int. Cl. B08b 3/00
U.S. Cl. 134—104 4 Claims

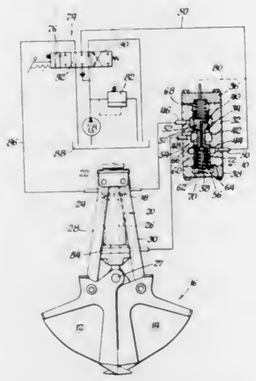


A device to expedite removal of residual water-immiscible oil from a large tank through a manhole entry in the side of the tank, includes a trough which is inserted through the manhole and levelled, after which water fed into the tank floats the residual oil into the trough from which the oil discharges from the tank through the manhole for recovery or disposal.

3,786,827
FLOW CONTROL VALVE

Lawrance F. Berg, Lockport, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 16, 1973, Ser. No. 342,060
Int. Cl. F16k 11/07
U.S. Cl. 137—109 11 Claims

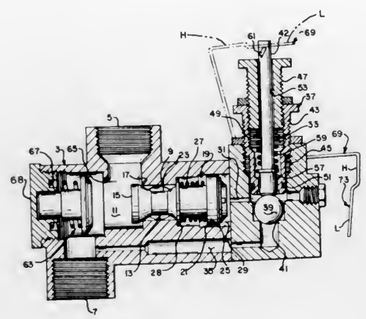


A flow control valve is used with a hydraulic cylinder having a reciprocable piston and a rod connected thereto. The valve includes a valving spool which defines a relatively stable center position blocking off hydraulic fluid flow to the rod end of the cylinder, but not interfering with the flow to the head end of the cylinder. Upon application of pressurized hydraulic fluid to the valve through a line connected to the valve, the valving spool shifts in one direction to allow fluid flow to the rod end of the cylinder, retracting the rod. Upon application of fluid pressure to the head end of the cylinder, the valving spool shifts in the other direction to allow open communication between the rod end and the head end of the cylinder, so that fluid flows from the rod end to the head end of the cylinder, resulting in a super-charged condition at the head end of the cylinder and consequent rapid extension of the rod.

3,786,828
COMPRESSOR UNLOADER AND CHECK VALVE UNIT

Joseph L. Krechel, 1420 Hanley Industrial Ct., Chesterfield, Mo.

Filed Aug. 28, 1972, Ser. No. 284,101
Int. Cl. G05d 16/10
U.S. Cl. 137—116 8 Claims

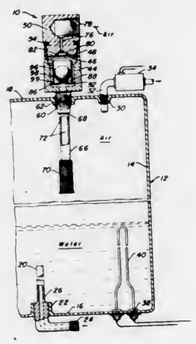


An improved compressor unloader and check valve unit normally operable automatically to unload a compressor when the pressure downstream from the compressor exceeds a predetermined value and having means for locking it in either its loaded or unloaded mode of operation.

3,786,829
VENT VALVE ASSEMBLY

Thomas P. Nardo, Old Bethpage, and Ralph R. Pecoraro, East Northport, both of N.Y., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed June 22, 1972, Ser. No. 265,414
Int. Cl. F16k 45/02
U.S. Cl. 137—202 2 Claims

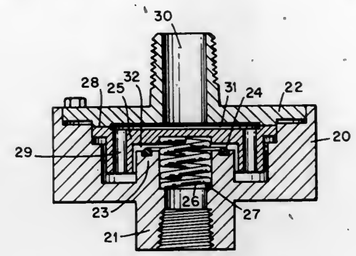


Vent valve assembly for hot water boiler of type used in aircraft galleys permits trapped air in the boiler to escape during the initial fill. The valve includes a floating ball which rises as the boiler is filled so as to seat against an o-ring for sealing the boiler under pressure. A flow diverting plate positioned under the ball permits escaping air to rise rapidly around the ball without causing the ball to lift and be prematurely sealed against the o-ring. The plate also prevents the ball from blocking the air which must enter the boiler when it is drained.

3,786,830
OIL DRAINING VALVE FOR A COMPRESSED AIR CONTAINER

Akihito Owada, Kawaguchi, Japan, assignor to Nippon Piston Ring Kabushiki Kaisha, Tokyo, Japan

Filed July 3, 1972, Ser. No. 268,548
Claims priority, application Japan, Aug. 4, 1971, 46-58328
Int. Cl. F16t 1/14
U.S. Cl. 137—204 8 Claims

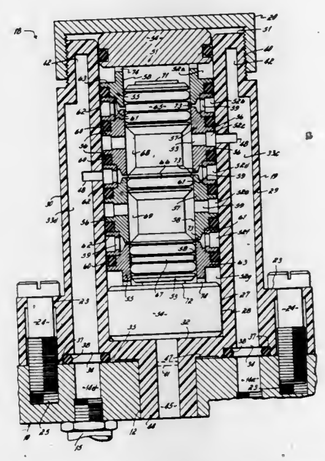


An automatic draining valve having a plate-shaped valve member spring-biased toward a position in which it defines throttling passages connecting the inlet and discharge nipples of the valve. An increased fluid pressure at the inlet nipple causes the valve member to be pressed against a seat on the discharge nipple. The valve permits a container intermittently receiving compressed air to be drained of lubricating oil while at approximately ambient pressure, while sealing the container if it receives compressed air.

3,786,831
VALVE WITH MODULAR MANIFOLD BODY

Wm. L. Clippard, III, Cincinnati, Ohio, assignor to Clippard Instrument Laboratory, Inc., Cincinnati, Ohio

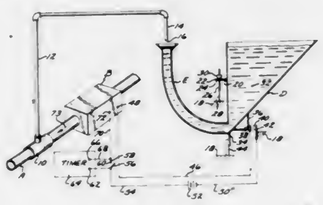
Division of Ser. No. 206,636, Dec. 10, 1971. This application Apr. 5, 1973, Ser. No. 348,303
Int. Cl. F16k 11/00; F15c 1/06
U.S. Cl. 137—269 16 Claims



A valve having a modular, multi-passage manifold or body. Different types of valve mechanisms are insertable axially through an open end of a cavity formed within the manifold and are sealed therein by a closure. Fluid connections for the valve mechanism are provided by a plurality of passages which extend parallel to the cavity but within the wall of the

manifold, from a common end of the manifold. Each passage extends longitudinally in the manifold parallel to the cavity over substantially all of the effective length of the cavity, and is selectively ported to the cavity at one or more positions along its length to serve the particular valve mechanism with which the manifold is used. The valve mechanism has circumferential grooves with which the respective manifold cavity ports communicate.

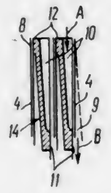
3,786,832
SOLAR EVAPORATION CONTROLLED IRRIGATION SYSTEM
Dale F. Marean, 1626 First St., Manhattan Beach, Calif.
Filed May 18, 1972, Ser. No. 254,746
Int. Cl. E02b *13/00*
U.S. Cl. 137—403 **4 Claims**



A water supply line in a land irrigation system has a normally closed valve included as a part thereof, with the valve when in an open position permitting water to discharge through a pilot line as well as the supply line. A pivotally and eccentrically supported evaporator pan is provided that may receive both rain and water from the pilot line. Adjustable resilient means at all times urge the pan to a first position. Control means to operatively associate the pan and valve that the valve is in an open position when the pan is in a first position.

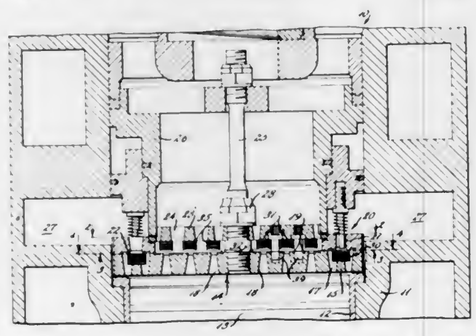
However, when the pan is filled with water, either from the pilot line or by rain, to the extent that the weight of water pivots the pan to a second position, the valve is closed to terminate the irrigation operation. When solar evaporation of water from the pan has depleted the weight of the water to the extent that the resilient means can pivot the pan to the first position, the valve is opened to initiate an irrigation operation. The rate of solar evaporation from the pan and the rate of evaporation of water from the land are so related to one another that the pan pivots to the first position when the land requires irrigation.

3,786,833
DIRECT-FLOW CYLINDRICAL VALVE
Mark Isaakovich Frenkel, ulitsa Karbysheva, 6, korpus 2, kv. 20, Leningrad, U.S.S.R.
Filed Mar. 31, 1972, Ser. No. 240,079
Int. Cl. F16k *15/16*
U.S. Cl. 137—512.15 **4 Claims**



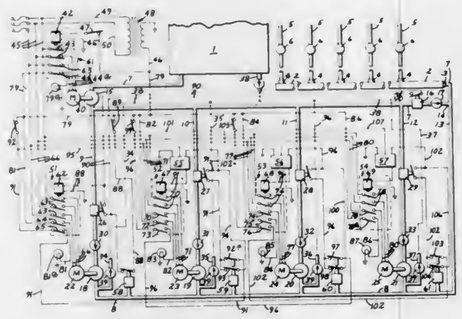
Direct-flow cylindrical valve comprising a pack of serially assembled elements, wherein each element includes adjoining ring-shaped members, for example a seat and a flexible plate. Provided on end faces of the seats are inlet passages for a working medium, in the form of radial slots open at the sides of one of the cylindrical surfaces of the seats, in such a manner that the medium washes the surfaces of the plates along the entire lengths of the slots. The seats also have radial outlet slots, a zigzag slot being formed in the valve, which allows the medium to flow from the inlet slots to the outlet slots.

3,786,834
MULTIPLE WAVE FORM SPRING VALVE ASSEMBLY
Milton W. Garland, Waynesboro, Pa., assignor to Frick Company, Waynesboro, Pa.
Filed June 21, 1972, Ser. No. 265,043
Int. Cl. F16k *15/08*; **F16K** *15/12*
U.S. Cl. 137—540 **1 Claim**



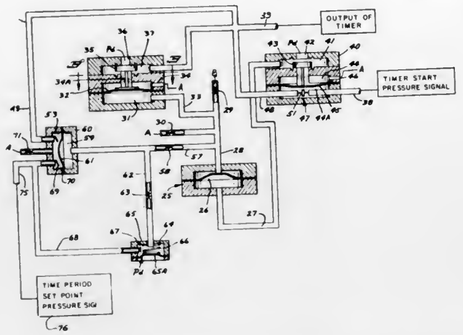
Apparatus for modulating the rate of opening of the valve member in a valve assembly which includes a plurality of wave form springs for each valve member and a flat rigid spacer between each pair of wave form springs.

3,786,835
PUMP CONTROL SYSTEM
John F. Finger, Beresford, S. Dak., assignor to Sioux Steam Cleaner Corporation, Beresford, S. Dak.
Filed Aug. 28, 1972, Ser. No. 284,364
Int. Cl. F04b *41/06*
U.S. Cl. 137—566 **2 Claims**



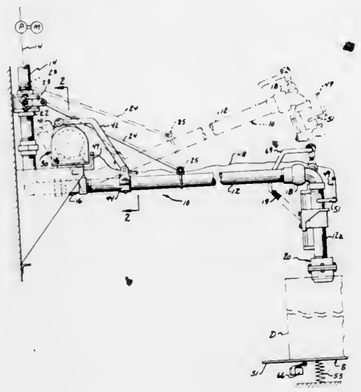
A fluid supply apparatus and control system, the apparatus including a plurality of independently operated fluid outlets and a plurality of fluid pumps each operative upon demand at the outlets to maintain a supply of liquid at least equal to the demand at the outlets. The control system includes control circuitry, fluid pressure operated switches, and relays for energizing only as many pumps as are required to maintain a given pressure under varying volume delivery requirements.

3,786,836
PNEUMATIC TIMER
Lowell A. Kleven, Bloomington, Minn., assignor to Uniflo Systems Company, Edina, Minn.
Filed June 2, 1972, Ser. No. 259,169
Int. Cl. F16k *31/365*
U.S. Cl. 137—624.2 **14 Claims**



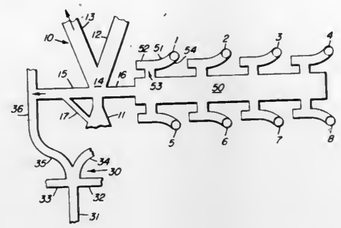
A pneumatic timer which provides a pneumatic signal for a preselected length of time for use in operation of pneumatic systems and which includes means for varying the timer period of the timer in response to an external signal.

3,786,837
FILLING APPARATUS
David D. Pipkins, Downers Grove, Ill., assignor to The Valspar Corporation, Rockford, Ill.
Division of Ser. No. 4,863, Jan. 22, 1970, abandoned. This application Nov. 26, 1971, Ser. No. 202,684
Int. Cl. F16k *5/10, 23/00*
U.S. Cl. 137—625.32 **3 Claims**



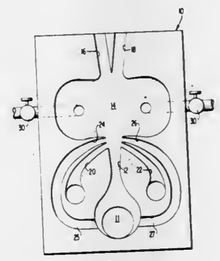
An outwardly extending discharge line is pivotally connected to a supply line. A torsion spring unit urges the discharge line from a lower dispensing position to a raised position. Apparatus is provided for automatically opening and closing a valve in the supply line in response to movement of the discharge line between its positions. An outlet valve is provided at the outlet of the discharge line and is opened and closed by a pneumatic cylinder controlled by movement of a scale. The outlet valve is a ball-type valve having a valve insert with openings of a size such that surface tension of the fluent material will prevent dripping. The insert is formed of a bearing material and is adjustable against the ball valve element to accommodate any wear.

3,786,838
FLUID MULTI-AND LOGICAL CIRCUIT
Elmer L. Swartz, Annandale, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed May 22, 1973, Ser. No. 362,720
Int. Cl. F15c *1/14*
U.S. Cl. 137—814 **3 Claims**



Disclosed herein in a MULTI-AND fluid logic circuit comprising essentially of a conventional fluid amplifier having a power source, first and second control channels and first and second output channels. The amplifier is provided with biasing means which is associated with one of the control channels and means are associated with the other control channel for producing a control signal which is a function of a predetermined number of external signals. More particularly, this last named means comprises a plurality of aspirators, each having an input nozzle and an exhaust nozzle and each connected to an enclosed manifold which in turn is in fluid communication with the second control channel of the fluid amplifier. The operation is such that the simultaneous presence of a fluid signal in all aspirators creates a sufficient pressure change to switch the fluid stream in the fluid amplifier from the first output channel to the second output channel.

3,786,839
HIGH INPUT IMPEDANCE FLUERIC AMPLIFIER
Francis M. Manion, Rockville, and Joseph M. Kirshner, Bethesda, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 800,650, Feb. 19, 1969, abandoned. This application Mar. 15, 1971, Ser. No. 124,610
Int. Cl. F15c *1/04*
U.S. Cl. 137—837 **4 Claims**



The amplifier includes a supply jet providing fluid to an interaction chamber and a pair of fluid outlet passages on the side of the chamber opposite the supply jet. A pair of control nozzles are provided on laterally opposite sides of the supply jet for deflecting the jet into one or the other of the outlet passages. A pair of supplementary nozzles in communication with the fluid supply are also located on opposite sides of the supply jet. The flow resistance through the supplementary

nozzles is large so that as the jet is deflected by flow through the control nozzle, the supplementary flow increases due to decreased resistance and increases its support of the pressure field deflection. Accordingly, the control flow has a high input impedance requiring little control flow.

3,786,840

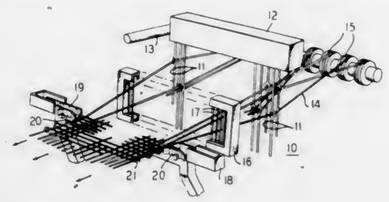
FIBER OPTIC DEVICES AND METHOD FOR MAKING SAME

Jeofry S. Courtney-Pratt, Locust, and Alfred C. Schmidt, Jr., Brunswick, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 796,027, Feb. 3, 1969, abandoned. This application Jan. 4, 1971, Ser. No. 103,581

Int. Cl. D03d *41/00*

U.S. Cl. 139—11 **2 Claims**



This disclosure describes optical fiber devices with machine-reproducible end array transformations. Image interleaving devices with specific end array transformations are described which find use in optical scramblers and color imaging. Modified multiple ply weaving techniques are used to realize the devices.

3,786,841

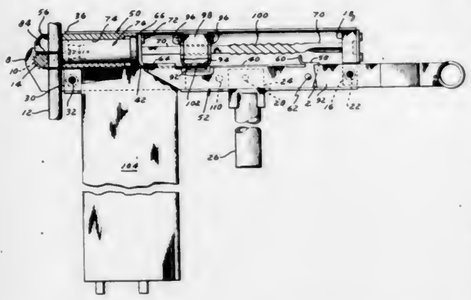
WIRE-TIE FORMING AND TWISTING TOOL

Clifford C. Albrecht, Leicester, and Howard G. Brown, Worcester, both of Mass., assignors to Novelty Tool Company, Inc., Spencer, Mass.

Filed Oct. 13, 1972, Ser. No. 297,360

Int. Cl. B21f *15/04*

U.S. Cl. 140—119 **8 Claims**



A tool for applying, forming, and twisting a wire-tie at rod cross-over points of concrete reinforcement grids and the like, having releasable jaw clamping means to grip intersecting rods together at right angles, wire feeding means to direct the legs of a pre-formed hair-pin like looped wire onto anvil surfaces in said clamping jaws and engage the looped end thereof against one of the rods while said legs are being reversely turned around the other rod with the free ends thereof straddling said first rod, and means for twisting said free ends together. The wire-tie so fastened is characterized by opposed pairs of spaced loops embracing the rods, the loops of the pair about each rod lying in a parallel planar relation to each other and in perpendicular planar relation to the plane of each loop about the other rod. The tool, by sequentially operating actuator means, clamps the jaws, feeds and forms the legs of the preformed wire, twists the free ends, and then releases the jaws in a single reciprocating stroke.

3,786,842

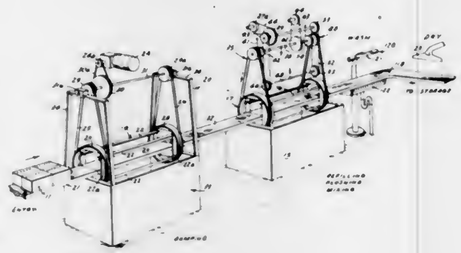
METHOD FOR EMPTYING AND FILLING BATTERIES AND APPARATUS THEREFOR

Helmut Kurt Rinnert, Yorba Linda, Calif., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed Feb. 25, 1972, Ser. No. 229,275

Int. Cl. B65b *3/04*

U.S. Cl. 141—1 **22 Claims**



A method and apparatus for simultaneously filling and emptying acid from batteries of the lead acid storage type wherein rows of batteries are oppositely disposed with one row directed upwardly and another downwardly and the batteries immersed into the electrolyte acid with the ports of the batteries positioned substantially normal to the acid liquid level. While immersed, the batteries are rotated so that they assume a position somewhat opposite to that initially and the batteries are then raised above the liquid level while tilted approximately 45° from horizontal so that the upwardly disposed batteries will allow acid to flow from them to achieve proper acid filling volumes. The method and apparatus permits a double fill operation wherein rows of oppositely disposed batteries are immersed with the upwardly disposed rows filled with acid, raised from the acid and drained and subsequently immersed and filled to the desired level by the previously indicated tilting procedure.

3,786,843

DELAYED FILLING OF AIR BAG

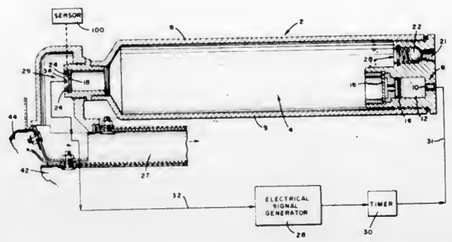
Robert L. Stephenson, Sterling Heights, and Donald J. Lewis, Troy, both of Mich., assignors to Allied Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 81,947, Oct. 19, 1970, Pat. No. 3,674,059. This application Aug. 24, 1971, Ser. No. 174,444

Int. Cl. B60r *21/08*; **B65d** *35/26*; **B65b** *31/04*

U.S. Cl. 141—13 **2 Claims**

A method and apparatus for filling motor vehicle gas bags. A gas-filled cylinder is provided with an inlet pressure sensitive rupture disc and a dislodgeable outlet plug. The inlet disc is in communication with a combustible material. The material is fired, yielding a gaseous product. The outlet plug is dislodged before the rupture of the inlet disc at least substantially emptying the cylinder before said disc ruptures. The liberated gas flows to a diffuser, about which a motor vehicle gas bag or bags are disposed, whereby the filling of gas bag (or



bags) is delayed, it being filled first with gas filling the cylinder and then with gas generated from the combustible material when the disc ruptures.

3,786,844

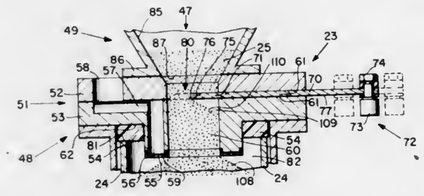
FILLING CONTAINERS WITH FRIABLE PARTICLES

Wayne W. Smearsoll, Loveland, and John F. Kaar, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Aug. 12, 1971, Ser. No. 171,049

Int. Cl. B65b *1/20, 1/32, 3/28, 31/02, 37/18, 59/02*; **B02c** *19/12, 25/00*

U.S. Cl. 141—8 **11 Claims**



A method of filling a succession of containers with friable particles so that the average weight of volumetrically filled containers is substantially uniform, the method comprising controlling the cross-sectional area of an aperture through which the particles flow from a hopper into the container, the area of the aperture being adjusted in response to the deviation from normal of the average filled weight of a preceding plurality of containers.

3,786,845

PNEUMATIC SCREWDRIVER OR LIKE ROTARY TOOL

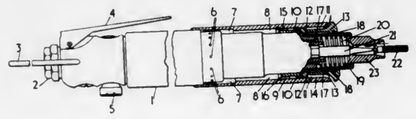
Ronald Frederick States, Hendon, England, assignor to Desoutter Brothers Limited, London, England

Filed Oct. 13, 1972, Ser. No. 297,369

Claims priority, application Great Britain, Nov. 5, 1971, 51578/71

Int. Cl. B25b *23/08*

U.S. Cl. 144—32 **6 Claims**



A pneumatic screwdriver having a hollow fastener finder around a rotary bit, in which finder a sub-atmospheric pressure of air is provided to pick up and hold a fastener in the finder by the passage of sir through an annular passage way adjacent the head of the tool formed by a stepped sleeve in a bore in the casing, the air first passing through the narrow part of the passage way before emerging into the wider part of the passage way, and having radial bores opening into the wider part of the passage way adjacent the step in the sleeve to induce flow of air radially outwards through the bores and thereby induce a sub-atmospheric pressure in the hollow of the fastener.

3,786,846

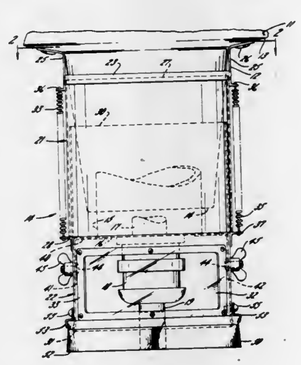
SHIELD ASSEMBLY FOR ROUTER

Lucien L. Mehring, Morton Grove, Ill., assignor to Danley Machine Corporation, Chicago, Ill.

Filed Oct. 17, 1972, Ser. No. 298,414

Int. Cl. B27g *21/00*

U.S. Cl. 144—251 **7 Claims**



A shield assembly for a router which is made up of two relatively telescoping sections, with the upper section being secured to the headstock and the lower section being coupled to the spindle carrier so that it moves with the tool. To couple the lower section to the spindle carrier a ledge member is adjustably secured between them. The sections are biased together with interposed stops so that the lower section occupies a reference position but is engaged by the spindle carrier when the latter moves downwardly toward the work. The lower section is provided with a window of transparent material for viewing the field of operation of the tool. The lower section is also provided with an encircling brush which yields as the tool is fed axially into engagement with the work. Finally, the lower section has provision for evacuation with ambient air being drawn through the bristles of the brush for continuous clearing away of chips.

3,786,847

SAFETY SLEDGE-HAMMER

Enos L. Schera, Jr., 8254 S.W. 37 St., Miami, Fla.

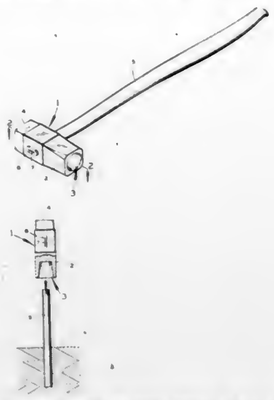
Filed Nov. 6, 1972, Ser. No. 304,048

Int. Cl. B25c *1/00*

U.S. Cl. 145—29 R **5 Claims**

This invention is a hammer adapted for the safe driving of long rods into the earth. Building codes require long rods drive into the ground for temporary and permanent ground connections for electric systems, or rods or pipe for marking surveyed locations. This hammer is provided with a cavity in one impact

end in order to avoid outside misses dangerous to the person temporarily holding the rod. The cavity has conical walls for



guiding the end of the rod or pipe which often vibrates out of exact alignment with the path of movement of the hammer head.

3,786,848

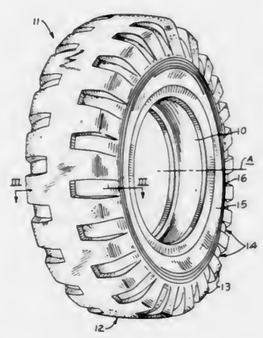
DEFLECTOR RING FOR TIRE

Wayne Brown, Aurora; Raymond W. Fabere; Gerald E. Grant, both of Oswego, and Charles C. Sons, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 24, 1972, Ser. No. 246,714

Int. Cl. B60c *11/04*

U.S. Cl. 152—209 R **10 Claims**



A tire has an annular tread forming a plurality of circumferentially spaced tread bars thereon. A circumferentially continuous deflection ring is formed at the juncture of the tread with each tire sidewall to project beyond such sidewall to provide full protection thereat during tire operation.

3,786,849

TYRE STUD

Kaj-Ragnar Loqvist, Fagersta, Sweden, assignor to Fagersta Aktiebolag, Fagersta, Sweden

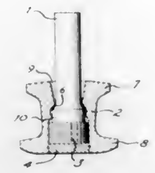
Filed Apr. 5, 1972, Ser. No. 241,341

Claims priority, application Sweden, Apr. 20, 1971, 5084/71

Int. Cl. B60c *11/16*

U.S. Cl. 152—210 **8 Claims**

There is disclosed herein a tyre stud structure comprising a body portion for insertion in a vehicle tyre and a stud pin mounted in the body for limited axial movement in the radial direction with respect to the tyre. Means are provided for



resiliently urging the pin outwardly, and in a modification, the outwardly projecting portion of the pin has a sleeve positioned thereover.

3,786,850

BALANCED TIRE

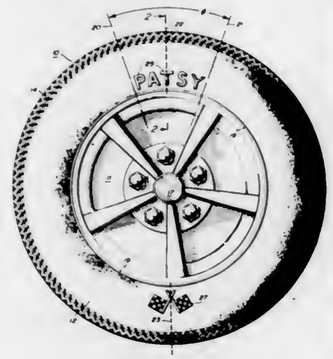
Alexander Turoczi, Jr., R.D. 01, Box 133, Bath, Pa.

Division of Ser. No. 97,938, Dec. 12, 1970, Pat. No. 3,663,328.

This application Jan. 13, 1972, Ser. No. 217,686

Int. Cl. B60b *13/00*

U.S. Cl. 152—330 **3 Claims**



A tire, balanced with respect to the wheel upon which it is mounted, utilizes a plurality of weights. These weights are in the form of indicia mounted upon the side walls of the tire, rather than upon the wheel, and are arcuately distributed to achieve both the required balance and a predetermined, highly visible, identifying and/or decorative effect which makes the tire readily recognizable and easily identifiable. An improved method of balancing a tire in accordance with the invention is also disclosed.

3,786,851

BELTED PNEUMATIC TIRES

Henri Mirtain, and Jacques Vervin, both of Compiegne, France, assignors to Uniroyal S. A., Neuilly-Sur-Seine, France

Filed Mar. 2, 1971, Ser. No. 120,090

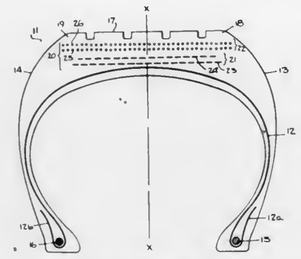
Claims priority, application France, Mar. 4, 1970, 70.07797

Int. Cl. B60c *9/20*

U.S. Cl. 152—361 DM **26 Claims**

Belted pneumatic tires characterized by improved tread-reinforcing breaker constructions are disclosed. In any such breaker, a plural-layer ply structure of non-metallic cord ply having the cords thereof oriented at a 0° angle to the median equatorial plane of the tire is superposed on a plural-layer ply structure of metallic wires or strips which in each layer are crossed relative to those in the adjacent layer and are oriented

at a bias angle, preferably between 16° and 30°, to the plane. The layers of non-metallic cord ply structure are of equal width and are symmetrical with respect to the median equatorial plane. The plural-layer non-metallic cord ply structure is constituted by a single length of breaker cord wound in a continuous spiral circumferentially of the carcass for at least a plurality of full turns. The layers of the metallic ply structure may be of equal or unequal widths, and arranged symmetrically or asymmetrically with respect to median equatorial plane of the plural-layer nonmetallic ply structure. Where the layers of the metallic ply structure have unequal widths, the widest ply may be either radially outward or radially inward of



the other ply or plies. The width of the non-metallic ply structure ranges from 30mm more to 30mm less than the width of the widest ply layer of the metallic ply structure. The widest ply layer of the metallic ply structure is symmetrical with respect to the median equatorial plane and the non-metallic ply structure.

The foregoing abstract is not to be taken either as a complete description or as a limitation of the present invention. In order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,786,852

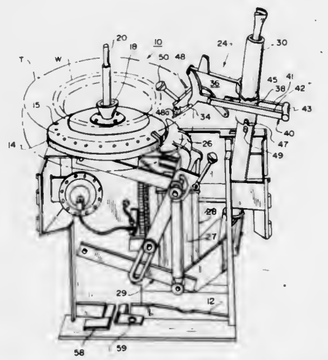
TIRE CHANGER APPARATUS

Robert W. Houston, Cincinnati, Ohio, assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed Apr. 22, 1971, Ser. No. 136,343

Int. Cl. B60c *25/06*

U.S. Cl. 157—1.1 **12 Claims**



A tire changer including a seat expander for sealing beads of a tubeless tire onto a wheel. The wheel and unmounted tire are supported on a support table having a series of holes communicating with manifold chamber constructed in a segment of the support table. The chamber is selectively coupled to a source of high pressure air to cause the air to be directed into the peripheral cavity of the wheel around the outer rim for deflection into the tire cavity. The air pressure induced in the tire cavity causes flexing of the side walls of the tire to seat the beads thereof in the seating area of the wheel. The application of pressure into the tire is controlled by a foot pedal which is operativcly connected to a valve imposed between the air source and the manifold chamber.

3,786,853

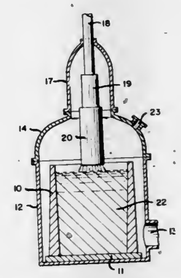
PRODUCTION OF LARGE STEEL INGOTS USING AN ELECTRODE REMELTING HOT TOP PRACTICE

Lloyd R. Cooper, Pittsburgh, Pa., assignor to Heppenstall Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 144,440, May 18, 1971, Pat. No. 3,696,859, which is a continuation-in-part of Ser. No. 80,669, Oct. 14, 1970, abandoned. This application June 7, 1972, Ser. No. 260,410. The portion of the term of this patent subsequent to Oct. 10, 1989, has been disclaimed.

Int. Cl. B22d *27/02*

U.S. Cl. 164—52 **10 Claims**



A method is provided for preventing shrinkage cavities and voids in steel ingots by the steps of forming a body of degassed molten steel in an ingot mold and continuously supplying molten steel by remelting an electrode into the body of molten steel at a controlled rate substantially equal to the volume loss by shrinkage on cooling until the body of steel is solidified.

3,786,854

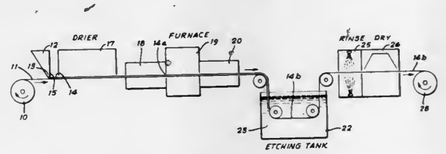
METHOD OF MAKING BRAZING ALLOY

Howard Mizuhara, San Mateo, and Nicholas T. Gamer, Palo Alto, both of Calif., assignors to Western Gold & Platinum Company, Belmont, Calif.

Filed Mar. 1, 1972, Ser. No. 230,794

Int. Cl. B22d *11/06*

U.S. Cl. 164—80 **3 Claims**



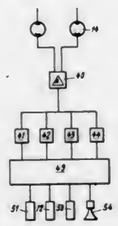
A method of making a substantially pure brittle brazing alloy in solid form such as sheet or strip consists of forming a paste with an atomized or mechanically powdered alloy and an organic vehicle, continuously applying the paste at a uniform predetermined thickness to a metallic substrate, thermally expelling the organic vehicle from the alloy layer, melting the alloy granules without melting the substrate, and chemically or otherwise removing the substrate. The method preferably is practiced with a continuously moving line which begins with a supply roll of the substrate and ends with a roll of the pure brazing alloy in strip form. This alloy strip may thereafter be blanked or otherwise formed into desired shapes for use as brazing inserts.

3,786,855
ROTARY CASTING METHOD OF KILLED STEEL
Kimio Saito, and Yutaka Fujisawa, both of c/o Itoh Iron & Steel Works Co., Ltd., No. 4-1, 5-chome, Matsue, Edogawa-ku, Tokyo, Japan
Filed May 25, 1971, Ser. No. 146,674
Int. Cl. B22d *27/04, 27/08*
U.S. Cl. 164—126 5 Claims



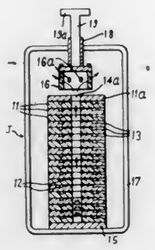
A rotary casting method for making a killed steel ingot wherein molten steel is charged into the ingot mold, the charged molten steel on its surface being sprayed with water or compressed cold air to form a coagulation layer, and after passage of a predetermined time period the ingot mold containing the molten steel is inverted or is positioned in horizontal direction, whereafter the inverted or horizontally directed ingot mold is returned to its original vertical upright position for coagulation of the molten steel.

3,786,856
METHOD FOR CONTROLLING A CONTINUOUS CASTING INSTALLATION IN THE EVENT OF MOLTEN METAL BREAKOUT
Tomio Nishikawa, Takatsuki, Japan, assignor to Concast AG, Zurich, Switzerland
Filed Feb. 4, 1972, Ser. No. 223,674
Claims priority, application Japan, Feb. 22, 1971, 46-8843
Int. Cl. B22d *11/12*
U.S. Cl. 164—4 7 Claims



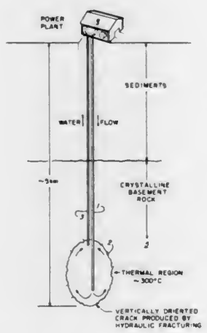
A method for controlling a continuous casting installation in the event of molten metal breakout wherein during the casting operation the light intensity at the secondary cooling zone of the continuously cast strand is monitored, changes in the light intensity with predetermined threshold values are compared and upon exceeding any such predetermined threshold values electrical signals are produced by means of which it is possible to control the continuous casting operation.

3,786,857
METAL CASTING APPARATUS WITH MECHANISM FOR IMMERSING JIG AND MOULD
Alan Sutherland, Bradford, England, assignor to Hepworth and Grandage Limited, Bradford, England
Continuation-in-part of Ser. No. 762,201, Sept. 16, 1968, abandoned. This application May 7, 1971, Ser. No. 141,114
Claims priority, application Great Britain, May 14, 1970, 23508/70
Int. Cl. B22d *23/00*
U.S. Cl. 164—350 8 Claims



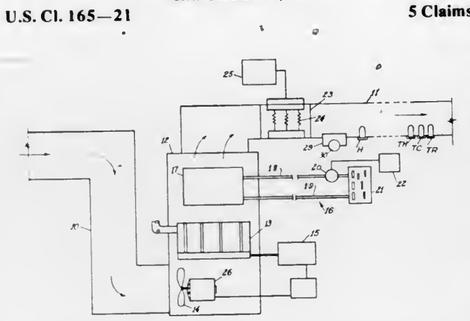
This invention relates to a process for casting articles from molten metal by the immersion of a mould or stack of moulds carried in a jig into a melt of the metal to be cast such that the cavity or cavities in the or each mould become filled with molten metal as the jig is immersed in the melt, whereafter the jig carrying the mould or stack of moulds is removed from the melt. Each mould cavity has a permanently open ingate and at least some of the heated air or gas within the cavity escapes through the ingate as the ingate passes through the surface of the melt, thereby preventing the entry of impurities from the surface of the melt into the cavity.

3,786,858
METHOD OF EXTRACTING HEAT FROM DRY GEOTHERMAL RESERVOIRS
Robert M. Potter; Eugene S. Robinson, and Morton C. Smith, all of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Mar. 27, 1972, Ser. No. 238,435
Int. Cl. F28d *21/00*
U.S. Cl. 165—1 5 Claims



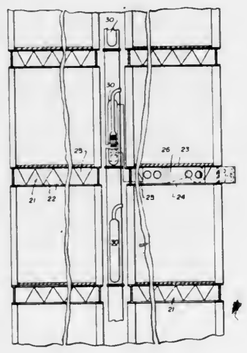
Hydraulic fracturing is used to interconnect two or more holes which penetrate a previously dry geothermal reservoir, and to produce within the reservoir a sufficiently large heat-transfer surface so that heat can be extracted from the reservoir at a usefully high rate by a fluid entering it through one hole and leaving it through another. Introduction of a fluid into the reservoir to remove heat from it and establishment of natural (unpumped) convective circulation through the reservoir to accomplish continuous heat removal are important and novel features of the method.

3,786,859
TEMPERATURE AND HUMIDITY CONTROL AND APPARATUS FOR RESIDENTIAL BUILDINGS
Wendell E. Day, Box 338, Sunbury, Ohio
Filed June 19, 1972, Ser. No. 263,779
Int. Cl. F24f *3/14*
U.S. Cl. 165—21 5 Claims



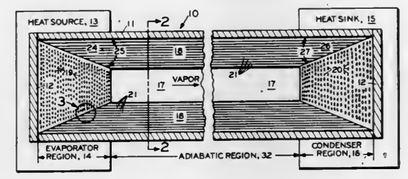
Apparatus and electrical control circuit is provided for control of temperature and humidity in residential structures. Heating and cooling of residences utilizes separate units for heating and cooling that are independently operable although both units are incorporated in a common air circulation system. A change-over type control system is provided to permit essentially seasonal operation as to either heating or cooling. The apparatus and electrical control circuit provided includes a humidity sensor and auxiliary heating means selectively operable in cooperation with the cooling unit to effect dehumidification irrespective of cooling requirements but maintaining a relatively constant temperature while continuing dehumidification.

3,786,860
HEATING AND AIR CONDITIONING SYSTEM
Homer D. Huggins, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis.
Filed Oct. 16, 1972, Ser. No. 297,606
Int. Cl. F24d *3/00*
U.S. Cl. 165—50 9 Claims



A heating system which may also include a cooling air conditioning section for a multiple unit building such as one of dwelling flats in which the units are adjacent to each other in the completed building such as being on a single floor and are arranged for prefabrication exteriorly of the building before being lifted and fastened into place. The assembly of building units can all be on a single floor and each unit is provided with a hot fluid such as a hot water heat exchanger for heating the air in the unit and the entire building is provided with a generally vertical chimney means of small horizontal extent positioned preferably centrally in the assembly for disposing of flue gases and a single fuel fired heater for the heat exchangers positioned in the chimney and exhausting flue gases thereto for disposal. The heater is vertically elongated and of a small horizontal extent occupying only a fraction of the horizontal area of the chimney with piping for the heated fluid extending from the heater to all of the heat exchangers for heating the exchangers as desired. The heat exchanger may also include an air cooling member such as a refrigerant evaporator coil in the heat exchanger and means for selectively directing air from each unit over the heater portion for heating the air and over the cooling member for cooling the air of each unit as desired.

3,786,861
HEAT PIPES
Philip E. Eggers, Worthington, Ohio, assignor to Battelle Memorial Institute, Columbus, Ohio
Filed Apr. 12, 1971, Ser. No. 133,082
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 11 Claims

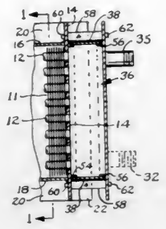


A heat pipe comprising a fluid-tight container 10 for transferring heat from a source 13 adjacent to an evaporation region 14 to a sink 15 adjacent to a condenser region 16, a passage 17 for transferring vapor from the evaporator region to the condenser region, and a wick 18 having high heat conductivity for transferring condensate from the condenser region back to the evaporator region by capillary pumping and for conducting heat from the container in the evaporator region to the evaporation sites 19 and from the condensation sites 20 to the container in the condenser region. The wick comprises a bundle-like arrangement of substantially direct, parallel, substantially uniform capillary channels 21, each about 10^{-4} to 10^{-1} square millimeter in cross-sectional area and having a low rugosity factor, from the condenser region to the evaporator region. Each end 24,26 of the wick forms an angle 25,27 of about 15° to 60° with the adjacent capillary channels, and may have porous surfaces, to provide substantial areas for evaporation and condensation at the ends of the channels.

3,786,862
HEAT EXCHANGE OIL CONSTRUCTION
David Bernard Zipser, and Russell H. Bullard, both of Wilmington, N.C., assignors to The Singer Company, New York, N.Y.
Filed Apr. 30, 1971, Ser. No. 138,957
Int. Cl. F28f *9/14*
U.S. Cl. 165—158 2 Claims

A heat exchange coil having a removable header which includes a peripheral rim having edgewise engagement with the

tube sheet. Special clamp devices located outside the rim act to apply controlled compressive forces on an endless deformable seal element squeezably interposed between the edge of the rim and the face of the tube sheet. Total surface area of

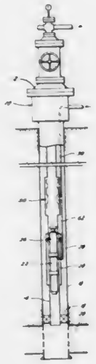


the rim edge is small so that a given compressive force provides a comparatively large p.s.i. sealing force. The lessened edge contact area also advantageously minimizes the possibility of leakage due to local surface imperfections such as ridges, bumps, nicks, depressions, etc.

ERRATUM

For Class 165—9 see:
Patent No. 3,786,868

3,786,863
WELL SAFETY VALVE SYSTEM
Gilbert H. Tausch, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.
Filed Mar. 30, 1973, Ser. No. 346,706
Int. Cl. E21b *41/00*
U.S. Cl. 166—72 **3 Claims**



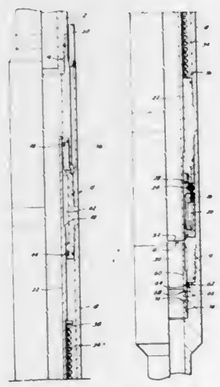
A well safety valve system for controlling the fluid flow through a well tubing in which a retrievable safety valve is positioned in the well tubing by providing a shut-off valve in the tubing above the safety valve which allows the safety valve to be controlled by fluid pressure from the well surface but which closes off the tubing pressure from the surface control fluid for isolating tubing pressure from the control fluid prior to retrieving the safety valve. A safety valve landing nipple connected in the well tubing for receiving the retrievable safety valve. A fluid control line connected between the landing nipple for supplying control fluid through the safety valve, and the shut-off valve connected in the well tubing above the landing nipple. The shut-off valve having first and second ports, the first port connected to the fluid control line leading to the landing nipple, and a second port connected to the control fluid pressure at the well surface. The valve including a valve element for opening and closing communication between the first and second ports.

3,786,864
DRILLING CONTROL DEVICE
August L. Segelhorst, 211 Las Alturas Rd., Santa Barbara, Calif.
Filed Mar. 15, 1972, Ser. No. 234,707
Int. Cl. E21b *33/127, 41/00*
U.S. Cl. 166—187 **9 Claims**



A drilling control device for inclusion in a drill string and serving in place of a short section thereof, embodying an internal bore closure member for closing off the internal well bore in response to sub-surface high-pressure conditions which may be encountered during drilling operations, and a well bore closure member in the form of a normally contracted, expansible packing ring which is expansible in response to the application of fluid pressure thereto from a fluid pressure system operable by the internal bore closure member to seal off the annular space between the drilling control device and the well bore.

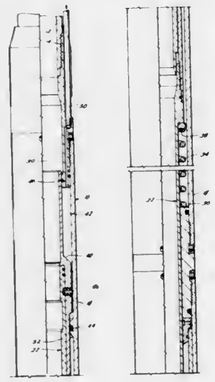
3,786,865
LOCKOUT FOR WELL SAFETY VALVE
Gilbert H. Tausch, and Fred E. Watkins, both of Houston, Tex., assignors to Camco Incorporated, Houston, Tex.
Filed Mar. 6, 1973, Ser. No. 338,503
Int. Cl. E21b *43/12*
U.S. Cl. 166—224 S **10 Claims**



In a well safety valve for controlling the fluid flow through a well tubing in which the valve closure means is controlled by

longitudinal movable tubular member, the improvement of lockout means for locking the valve closure member in the open position by providing a second tubular member axially aligned with the first tubular member and normally positioned below the valve closure member. Means on the second member for moving the second member upwardly for holding the valve closure member open. Holding means for holding the second member in the upward position for locking the valve open. The holding means being releasable for resetting and closing the valve if desired.

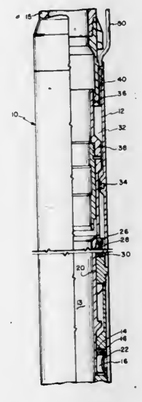
3,786,866
LOCKOUT FOR WELL SAFETY VALVE
Gilbert H. Tausch, and Fred E. Watkins, both of Houston, Tex., assignors to Camco, Incorporated, Houston, Tex.
Filed Mar. 6, 1973, Ser. No. 338,502
Int. Cl. E21b *43/12*
U.S. Cl. 166—224 S **14 Claims**





In a well safety valve for controlling the fluid flow through a well tubing in which the valve closure means is controlled by a longitudinal movable tubular member, the improvement of a lockout means for locking the valve closure member in the open position by providing a second tubular member telescoping with the first tubular member and initially secured thereto. Means for preventing inadvertently locking out the valve while the valve is in the open position. Tool engaging means on the second telescoping section for moving the second section downwardly for opening the valve closure member, and holding means for engaging the second section downwardly for locking the valve open. The holding means may include coacting ratchet teeth between the first and second tubular sections and may be releasable if desired. Or the holding means may include coacting ratchet means between the second section and the valve housing. Tool engaging means may be provided on both the first and second sections for moving the second section downwardly by engaging only the tool engaging means on the second section. Or the second section may be moved downwardly by a tool engaging both the first and second sections and moving the first and second sections apart.

3,786,867
WELL SAFETY VALVE SYSTEM AND METHOD OF OPERATION
Gilbert H. Tausch; Fred E. Watkins, and William H. Dietz, all of Houston, Tex., assignors to Camco, Incorporated, Houston, Tex.
Filed Feb. 23, 1973, Ser. No. 335,229
Int. Cl. E21b *43/12*
U.S. Cl. 166—315 **15 Claims**

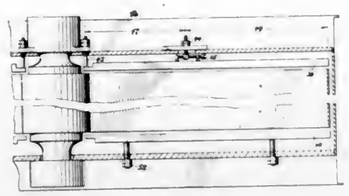


A well safety valve which is controlled through a control line leading to the surface which can be set at greater depths in the well by limiting the hydrostatic liquid head in the control line by using gas in the control line and temporarily opening the control line adjacent the lower end for draining the control line of accumulated liquids. Pressurizing the control line with gas while the lower end of the line is open to drive out any liquid therein. A normally closed opening in the control line adjacent the safety valve with means for opening and closing the opening for normally closing the opening for allowing control of the safety valve, but for opening the opening draining any accumulated liquids. A passageway connected between the safety valve and the opening and closing means. The opening and closing means may include various mechanisms such as a sliding sleeve or a sidepocket mandrel having flow control means in the sidepocket for controlling the opening of the passageway.

3,786,868
SELF-COMPENSATING SECTOR PLATE
Harlan E. Finnemore, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Apr. 24, 1972, Ser. No. 246,957
Int. Cl. F28d *19/04*
U.S. Cl. 165—9 **6 Claims**

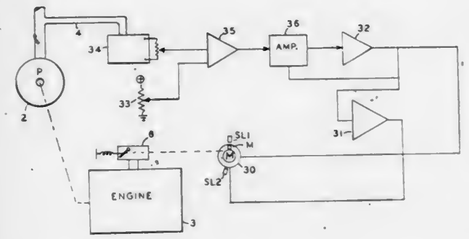
A rotary regenerative heat exchanger having a rotor comprised of heat absorbent material that is alternately exposed to a hot and a cold fluid in order that heat absorbed from the hot fluid may in turn be transferred to the cold fluid. The rotor is surrounded by a housing including a sector plate at opposite

ends of the rotor that separates the several fluids. A pivoted mounting means maintains the sector plate at an optimum



distance from the rotor whereby fluid leakage from the rotor will be reduced to a minimum throughout a wide range of temperature variation and thermal expansion.

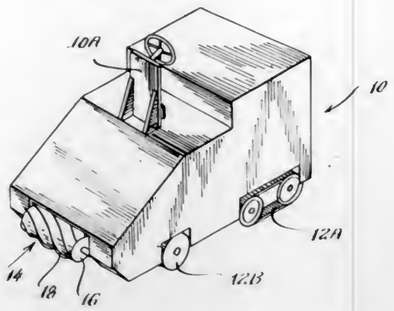
3,786,869
NOZZLE PRESSURE CONTROL SYSTEM
John McLoughlin, 92 Mobrey Ln., Smithtown, N.Y.
Filed Apr. 27, 1972, Ser. No. 248,012
Int. Cl. A62c *27/00*
U.S. Cl. 169—24 **1 Claim**



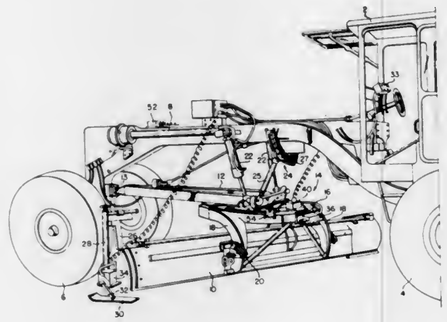
Hose nozzle pressure control means for a fire engine pumper of the type having a pump driven by a truck engine comprising, engine governor means connected to and responsive to the pump output pressure and engine throttle means to regulate engine speed to maintain pump output pressure, a motorized valve connected between said pump and said hose, and means to control said valve from said nozzle location. The valve control means comprises a transmitter located at said nozzle, a receiver and control means connected to said receiver and responsive to said transmitter to control said valve. The transmitter is connected to said receiver means by wire or by radio.

3,786,870
DEBRIS REMOVING APPARATUS
Robert A. List, 33 Coachlamp Ln., Darien, Conn.
Filed Aug. 14, 1972, Ser. No. 280,721
Int. Cl. B07b *1/22*
U.S. Cl. 171—129 **4 Claims**

A device for separating debris, such as wrappers, bottlecaps, cans and the like, from quantities of sand, comprises a rotating drum-sieve with an axis of rotation inclined at an angle to the horizontal so that one end is higher than the other. The drum is supported by peripheral bearings which permit access to central openings at each end. Sand, containing debris is collected and delivered into the opening at the higher end. As the drum rotates, sand passes through the sieve while debris is engaged and lifted by projections on the inner surface. As the projections approach their highest point during rotation of the drum, the debris falls onto an inclined collecting chute which is supported independently of the drum, extending downwardly and outwardly through the opening at the lower end. The chute acts as a passage for carrying debris out of the drum into a collecting receptacle.

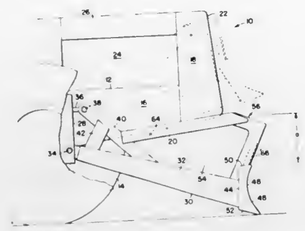


3,786,871
GRADER CONTROL
George E. Long, Monroe; Dennis L. Reese, Kirkland, and Floyd C. Johnson, Seattle, all of Wash., assignors to Grad-Line Inc., Woodinville, Wash.
Filed July 26, 1971, Ser. No. 165,973
Int. Cl. E02f *3/76*
U.S. Cl. 172—4.5 **8 Claims**



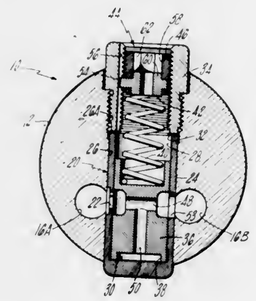
A control system for a road grader adapted to maintain the working edge of the grader blade in a preset datum plane so as to establish a uniform graded condition of the surface worked by the blade, regardless of the inclination assumed by the motor grader or the relative angular position of the blade itself. The system includes grade sensor means mounted adjacent one end of the blade to follow a pre-selected grade datum, slope sensing means mounted in fixed relation with the blade for keeping the blade at a predetermined slope with rotary position sensing means mounted on the blade supporting ring or circle to detect the relative angular position of the blade, and longitudinal grade angle sensing means with rotary position sensing means for altering the control signals to compensate for grade changes and rotary position of the blade.

3,786,872
EXTENSION ASSEMBLY FOR A SKIDDER TRACTOR STACKING BLADE ASSEMBLY
Robert Allyn Rathe, Sherrill, and Lyle Eugene Miller, Dubuque, both of Iowa, assignors to Deere & Company, Moline, Ill.
Filed Sept. 15, 1972, Ser. No. 289,337
Int. Cl. E02f *3/76*
U.S. Cl. 172—801 **4 Claims**



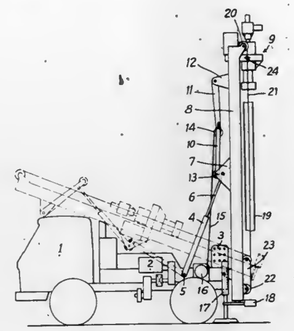
A skidder tractor includes a vertically swingable stacking blade assembly at its forward end, the assembly comprising a pair of push arms located at the opposite sides of the tractor front end and having their forward ends joined by a blade. A stacking blade extension assembly is fixed to the stacking blade assembly for preventing elongate objects such as logs or rocks or the like from passing over the blade into a position whereat they would be disposed between the blade assembly and the underside of the tractor.

3,786,873
STALL TORQUE REGULATOR VALVE FOR FLUID OPERATED POWER TOOL
Hugh L. Whitehouse, Lyndhurst, Ohio, assignor to The Stanley Works, New Britain, Conn.
Filed Apr. 3, 1972, Ser. No. 240,715
Int. Cl. B25b *23/14*
U.S. Cl. 173—12 **7 Claims**



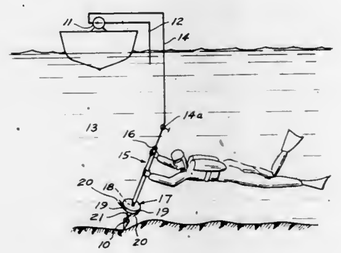
A fluid operated stall type power tool having a fluid supply line including a motor inlet passage, the tool incorporating a normally open stall torque regulator valve in the motor inlet passage, a built-in orifice restriction in the supply line upstream of the stall torque regulator and a modulating spring engaging the valve for maintaining valve travel rate of displacement from its normally open position proportional to the rate of increase in the torque load on the motor during loading of the tool.

3,786,874
UNIVERSAL DRILLING MACHINE
Alain Jodet; Hubert Noret, both of Angers, and Jacques Demichelis, Paris, all of France, assignors to Etat Francais, represented by Ministere de l'Equipement et du Logement, Laboratoire Central Des Ponts Et Chaussees, Paris, France
Filed Apr. 25, 1972, Ser. No. 247,278
Claims priority, application France, Apr. 30, 1971, 7115694
Int. Cl. E21c *1/12*
U.S. Cl. 173—49 **13 Claims**



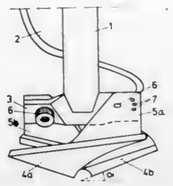
A borer comprises a hammer, a spindle connected to rotate with a rotatable table, and a vibrator connected between the hammer and a support for vibrating the hammer. The spindle is free to rotate with respect to the support. A flexible coupling is arranged between the support and the table.

3,786,875
UNDERWATER ROTATABLE TOOL EQUIPMENT
Jean Merle, La Tronche, France, assignor to Societe Grenobloise d'Etudes et d'Applications Hydrauliques, (SOGREAH), Grenoble, France
Filed Feb. 26, 1969, Ser. No. 802,537
Claims priority, application France, Feb. 29, 1968, 685224
Int. Cl. E02b *1/00*
U.S. Cl. 173—159 **14 Claims**



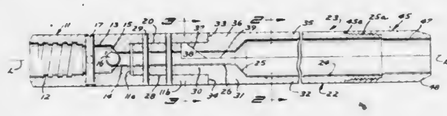
The equipment includes a hydraulic underwater manipulatable, unitary tool connected to one end of a flexible conduit and comprising a rigid member having a chamber in communication with the conduit and with a fluid actuated member rotatably mounted at its inner end on the rigid member. Tool-carrier means are mounted on the outer end of the fluid actuated member. Also mounted on the fluid actuated member between the inner and outer ends thereof are a plurality of nozzles for dispensing the fluid from said chamber into the ambient water, the nozzles being canted so as to impart tool actuating movement to the member upon emergence of the pressurized fluid therefrom.

3,786,876
ICE AUGER
Asseri Akseli Aaltonen, Makelankatu, Hameenlinna, Finland
Filed June 19, 1972, Ser. No. 263,823
Claims priority, application Finland, June 24, 1971, 1805/71; May 26, 1972, 1494/71
Int. Cl. F25c 5/04; E02d 17/14
U.S. Cl. 175—18 6 Claims



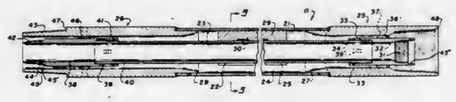
The present invention concerns an ice auger to the shank of which an ice lifting and auger guiding helix has been attached and the cutting blade of which consists of two equal blade pieces provided with an ice-cutting edge. The auger according to the invention is primarily intended for fishing uses.

3,786,877
SOIL SAMPLER APPARATUS
Robert P. Schafer, Golden Valley; Leonard A. Braun, St. Paul, and Terrence C. Maki, Coon Rapids, all of Minn., assignors to Longyear Company, Minneapolis, Minn.
Filed Oct. 25, 1972, Ser. No. 300,476
Int. Cl. E21b 9/20, 25/00
U.S. Cl. 175—249 11 Claims



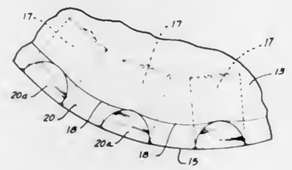
Apparatus for taking soil samples that includes a drive head attachable to the drill rod of a drill rig having a drive hammer, a sample receiving barrel of longitudinally split barrel sections having a reduced diameter end portions extended into the drive head, one of the sections being pinned to the drive head, and a drive shoe threaded on the other end portions of the barrel sections. When the drive shoe is removed, the unpinned barrel section is hingedly movable relative the other barrel section.

3,786,878
DUAL CONCENTRIC DRILLPIPE
Harold Sherman Chapman, 501-320 7th Ave., S.W., Calgary, Alberta, Canada
Filed Dec. 14, 1971, Ser. No. 207,758
Int. Cl. F16l 15/00, 39/00; E21b 43/00, 2/00
U.S. Cl. 175—320 8 Claims



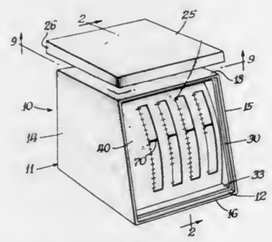
A dual concentric drillstring assembly for use with rotary drilling apparatus and a downhole percussion motor in which the inner and outer pipes of each stand of drillpipe are rigidly secured together by full-length welded webs for minimized reduction in the annulus and maximized heat transfer between the inner and outer members of each stand of dual-wall pipe. Each stand of dual-wall pipe is equipped with web-welded dual box-and-pin tool joints so that coupling rotation of one stand of the drillpipe will simultaneously form two fluid-tight thread-coupled joints; the outer joint is fully thread-coupled while the inner joint is thread-coupled and includes a resilient seal at the interface between adjacent pipe joints so that full make-up of the inner pipe joint is not essential for sealing. For replacement of a worn pipe joint, cutting of the single outer pipe weld permits uncoupling of the dual pipe joint from the inner and outer pipe members of a stand.

3,786,879
DRILL BIT
Henry W. Murdoch, Houston, Tex., assignor to Reed Tool Company, Houston, Tex.
Continuation of Ser. No. 126,833, March 22, 1971, abandoned. This application Mar. 9, 1973, Ser. No. 339,522
Int. Cl. E21c 13/00
U.S. Cl. 175—374 10 Claims



A drill bit including a plurality of roller cutters, each cutter having at least one substantially chisel-shaped circumferential web and hardened inserts positioned therein to allow penetration of the web into the formation being drilled, said inserts having one substantially chisel-shaped end and positioned so that the chisel-shaped surfaces of the web and the inserts present a relatively continuous chisel-shaped surface to the formation. This abstract is neither intended to define the invention of the application, which of course is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

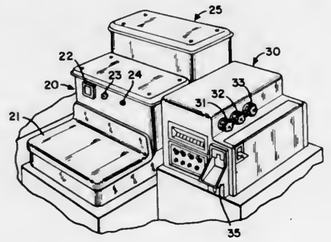
3,786,880
PLATFORM SCALE
Kert E. Artwick, Morton Grove, Ill., assignor to Hanson Scale Company, Chicago, Ill.
Filed Oct. 25, 1972, Ser. No. 300,485
Int. Cl. G01g 23/14, 23/26, 21/28
U.S. Cl. 177—1 19 Claims



A versatile scale having an easily changed readout face which due to its resiliency may be flexed to forcibly engage a retaining frame positioned adjacent to the scale mechanism indicator which is located behind the scale readout face and thus need not be removed before changing the scale face. The

assembly method of the scale enclosure is designed to require a minimum number of steps and extraneous components since most of the pieces are made such that they snap together. This versatile scale also has an easily interchangeable weight receiving platform such that various arrangements may be used to support or carry the load to be weighed.

3,786,881
TARE ADJUSTING APPARATUS FOR A COMPUTING SCALE SYSTEM
Kenneth C. Allen, and Edwin E. Boshinski, both of Dayton, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio
Continuation-in-part of Ser. No. 85,139, Oct. 29, 1970, which is a division of Ser. No. 422,730, Dec. 31, 1964, Pat. No. 3,557,353. This application Nov. 30, 1972, Ser. No. 310,763
Int. Cl. G01g 23/38, 23/18, 13/14
U.S. Cl. 177—3 16 Claims

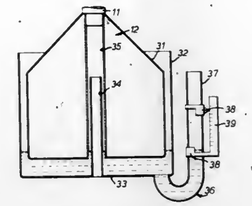


Tare adjusting apparatus for a computing scale system wherein tare adjustment is accomplished by manual positioning of an adjustment knob which is connected to turn off a tare signal light when the knob is touched. This requires the operator to adjust the tare before each weighing, or to touch the knob if the tare adjustment is the same as for the previous weighing. Thus there is avoided any inadvertent use of an incorrect tare weight when weighing a product or computing the value thereof. Further there is disclosed an error detecting circuit which causes the tare signal light to be lit if the operator touches the tare adjustment knob while the scale is weighing the product. The touch control feature is implemented by constructing the tare adjustment knob as a part of an oscillation circuit. When the operator touches the tare adjustment knob his body capacitance is introduced into this oscillation circuit. This in turn produces a flipping of the output of a flip-flop which is connected to control the operation of the tare signal light.

For the error detecting embodiment there is provided a logic circuit to control the turning off of the signal light once it has been inadvertently lighted. This logic circuit operates in accordance with one or the other of two disclosed control modes under the joint influence of the output from the tuned oscillation circuit and a signal indicative of the presence of weight on the scale. One control mode requires the operator merely to unload the scale while the other control mode requires him to unload the scale and touch the tare adjusting knob during the unloaded condition.

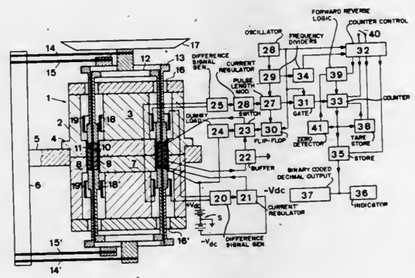
3,786,882
BUOYANCY WEIGHING SCALES
John Shaw, Winterbourne Down, England, assignor to Glevum Industrial Designers Limited, Gloucester, England
Filed July 24, 1972, Ser. No. 274,245
Claims priority, application Great Britain, July 22, 1971, 34331/71
Int. Cl. G01g 13/24, 5/02
U.S. Cl. 177—114 6 Claims

A balance designed for use in dialysis apparatus includes a float within a container for a liquid. A vessel for treatment solution is connected to the float so that the float moves in dependence on the mass of solution in the vessel. Movement of



the float is determined by sensing the level of liquid in a U-tube which communicates with the container.

3,786,883
ELECTROMAGNETICALLY-COMPENSATED BALANCE HAVING SERIES CONNECTED COILS
Peter Kunz, Meilen, Switzerland, assignor to Mettler Instrumente, AG, Zurich, Switzerland
Filed Sept. 11, 1972, Ser. No. 287,854
Claims priority, application Switzerland, Sept. 22, 1971, 013867/71
Int. Cl. G01g 7/04, 23/16
U.S. Cl. 177—164 13 Claims



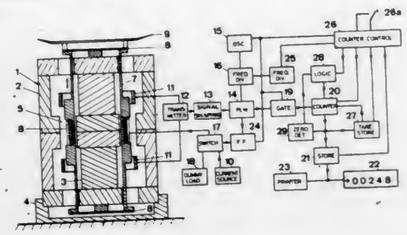
An electromagnetically-compensated balance of the type including load and reference compensation coils for returning load and reference assemblies to their neutral positions relative to the balance housing, characterized in that the reference compensation coil is connected in series with reference current regulating means to define a series branch that is connected at one end with one terminal of a direct-current voltage source. Electronic switch means alternately connect the other end of said series branch in series with, and disconnect said other end of said series branch from, said load compensation coil and said voltage source, respectively. The reference current regulating means are operable by a reference control voltage as a function of the displacement of the reference assembly from its neutral position, and the electronic switch means are operable by a load control voltage to effect series connection between said load and reference compensation coils for time periods that correspond with the displacement of the load assembly from its neutral position. Buffer means are provided for effecting a galvanic coupling between the load and reference coil switching circuits, and stabilizing means—such as a dummy load or a catching diode—are provided for stabilizing the switching operation.

3,786,884

FORCE-MEASURING APPARATUS INCLUDING TOTALIZER MEANS

Heinz Allenspach, Faellenden, Switzerland, assignor to Mettler Instrumente AG, Zurich, Switzerland

Filed Apr. 14, 1972, Ser. No. 244,054
Claims priority, application Switzerland, Apr. 16, 1971, 5947/71; Aug. 30, 1971, 12683/71
Int. Cl. G01g 3/15, 23/42
U.S. Cl. 177—210 9 Claims



Force-measuring apparatus of the type including electromagnetic compensation means having a movable member that is returned to a no-load position relative to a stationary member by the supply of compensating current pulses of constant amplitude and variable length to a compensation coil secured to said movable member, characterized by the provision of counter means for counting subtotal numbers of counting pulses during periods corresponding with the lengths of said compensating current pulses, respectively, and means including counter control means for periodically transferring to store means the total value of the successive subtotals in the counter means and for simultaneously resetting the counter means to zero. Coarse control means are provided for causing the totalized subtotal pulse count to correspond with a decimal multiple or fraction of a weight unit, and additional store means are provided for optionally indicating for each of a series of subtotal measuring operations the net arithmetic difference between the totalized value and a given pulse reference value (such as tare). According to an alternate embodiment, means including subtotal rate selection switch means are provided for establishing low and high frequency subtotal rates, respectively, and stage selection switch means are operable in conjunction with the operation of said rate switch selection switch means for supplying the counting pulses to corresponding low and high stages, respectively, of the counter.

3,786,885

POSTAGE ESTIMATOR AND RULER

Warren L. Mills, 5742 Maryland Ave., Chicago, Ill.

Filed May 18, 1972, Ser. No. 254,622
Int. Cl. G01g 21/14
U.S. Cl. 177—245 1 Claim



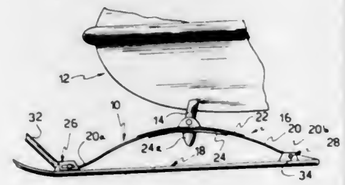
A construction for a postage estimating device and ruler which can be fashioned in one piece without complicated moving parts and will estimate with acceptable accuracy, the amount of postage required on letters and small parcels of varying size and shape and does not require that letters to be weighed are of a predetermined or standard size envelope, as is the case with some similar devices. The construction consists of a ruler, or the like, upon which has been positioned; a fulcrum with flattened point, near the center or balance point of the ruler. Upon the arm of the ruler to the left of the fulcrum, a scale or digram is positioned, with equal distance gradations from zero to seven to the right and zero to seven to the left of a balance point. Upon the ruler to the right of the fulcrum, a slot with open end is carved, to receive a five cents coin, which coin or coins is used as a weight.

3,786,886

BRACKET ASSEMBLY FOR SNOWMOBILE SKIS

Jerome Bombardier, Valcourt, Quebec, Canada, assignor to Bombardier Limited, Valcourt, Quebec, Canada

Filed Dec. 20, 1972, Ser. No. 316,727
Int. Cl. B62b 17/04
U.S. Cl. 180—5 R 6 Claims



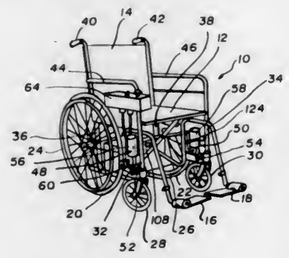
A bracket assembly is mounted on a snowmobile ski runner for slidingly receiving one end of the main leaf of a leaf spring unit and includes: a retaining pin extending connected to the said one end; a sliding block defining a housing for receiving the said one end therein and having opposite side walls with aligned openings for receiving the retaining pin therethrough; and a cover fixed to the ski runner and having an open end for slidingly receiving the block therein, opposite side walls of the cover having longitudinally extending aligned slots allowing the opposite ends of the retaining pin to move freely relative to the cover. In a preferred form, the block is made of plastic material and is constructed to avoid direct contact between the retaining pin and the cover thereby greatly reducing wear and breakage of the parts.

3,786,887

MOTORIZED WHEEL CHAIR DRIVE

Ben J. Rosenthal, 9140 Kildare, Skokie, Ill., and Earl Matsuoka, 206 W. Kathleen, Park Ridge, Ill.

Filed Mar. 20, 1972, Ser. No. 236,040
Int. Cl. B62d 11/04
U.S. Cl. 180—6.5 10 Claims



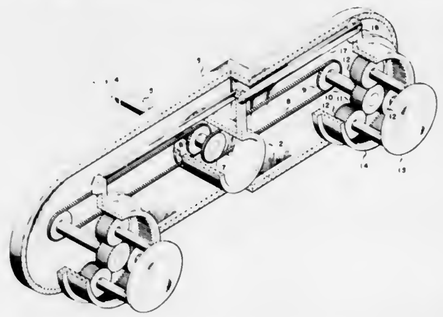
A motorized drive for a wheel chair includes a motor mounting having an angle bracket with one arm which is adapted to be secured to the frame of the wheel chair. A mounting plate for the motor is pivotally secured to another arm of the bracket. The motor has a drive wheel which engages a wheel of the wheel chair. A spring biased link holds the motor in a position with respect to the bracket so that the drive wheel bears against the wheel of the chair to propel the same. A control arm pivotally supported on the bracket engages the motor mounting plate to move the same so that the drive wheel is away from the wheel of the chair, to disengage the drive, and releases the mounting plate so that the drive can propel the chair.

3,786,888

TORQUE COMPENSATED WALKING BEAM

Stanley Oscar Nelson, Sunnyvale, Calif., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed May 22, 1972, Ser. No. 255,824
Int. Cl. B62d 61/10
U.S. Cl. 180—24.11 4 Claims



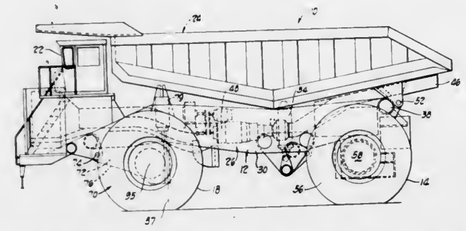
A vehicular walking beam suspension system which provides equal ground pressure on the ground under dynamic conditions is shown. Gear reduction is provided at each wheel hub and the ensuing torque reaction is fed directly back to the vehicle chassis.

3,786,889

STEERABLE LOAD TRANSPORTING VEHICLE

Douglas M. Kelley, Chesterland, Ohio, assignor to Euclid, Inc., Cleveland, Ohio

Filed Feb. 16, 1971, Ser. No. 115,387
Int. Cl. B62d 19/00; B60g 9/02
U.S. Cl. 180—44 E 6 Claims



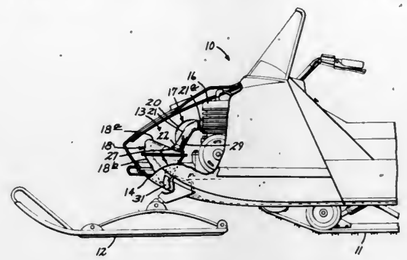
A load transporting vehicle is disclosed which includes a vehicle frame having a narrow forward end and a relatively wide rearward end. Forward and rear wheel assemblies support the frame with the forward wheel assemblies being steerable. A suspension for the forward wheel assemblies provides for pivotal steering motion of each assembly about a steering axis which is spaced from the axis of rotation of the associated wheels and between the associated wheel assembly and the frame.

3,786,890

SNOWMOBILE MUFFLER AND HEADER ASSEMBLY

Gerald G. Shank, Roseau, Minn., assignor to Textron Inc., Providence, R.I.

Filed Dec. 20, 1971, Ser. No. 209,563
Int. Cl. B60k 13/04
U.S. Cl. 180—64 A 2 Claims



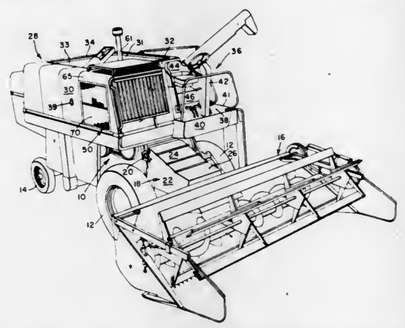
A muffler assembly for a three-cylinder two-cycle snowmobile engine is shown. The assembly is designed to optimize engine output over a broad RPM range while providing improved noise attenuation. Three tubes of generally equal length are connected to the exhaust ports of the engine, and the tubes are connected together into one end of a common joint, which is connected to an exhaust inlet tube of a muffler body having two spaced exhaust outlet tubes.

3,786,891

ENGINE ENCLOSURE FOR A HARVESTING MACHINE

Bernard Francis Vogelaar; James Peter Doering, both of Moline, and Felix Stanley Pasturczak, East Moline, all of Ill., assignors to Deere & Company, Moline, Ill.

Division of Ser. No. 852,689, Aug. 25, 1969, Pat. No. 3,636,684. This application Dec. 21, 1970, Ser. No. 100,542
Int. Cl. B60k 11/04
U.S. Cl. 180—68 R 23 Claims



A self-propelled combine has a mobile main separator body with an elevated grain tank mounted on a central portion of the body and a forward operator's station and engine enclosure mounted side-by-side at the forward end of the body immediately in front of the grain tank. The engine enclosure has an air outlet in its outer lateral side and air inlets in both the top and front side of the enclosure. A transversely oriented internal combustion engine is mounted in the enclosure and has a radiator opposite the outlet opening. A fan in the outlet opening draws air through the inlet openings and through the radiator, discharging it through the outlet opening at the side of the combine. The air drawn through the radiator is filtered by means of screens in the air inlets, and the top and front of the enclosure are provided with louvers to deflect part of the air along the surface of the screens to carry away foreign

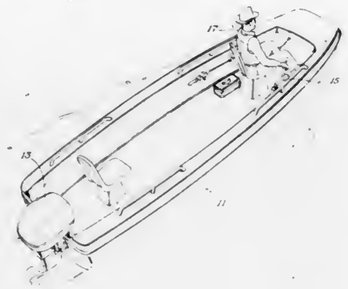
material collected therein, the contaminated air bypassing the radiator and being discharged out the side of the combine with the cooling air.

3,786,892

SAFETY CUT-OFF DEVICE FOR IGNITION SWITCH

George F. Horton, Rt. 2, Box 718, Fort Worth, Tex.

Filed Nov. 29, 1972, Ser. No. 310,224
Int. Cl. B60k 27/08
U.S. Cl. 180—99 5 Claims



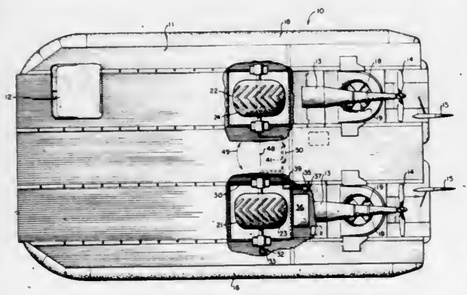
The specification discloses an ignition switch cut-off device for use on an open type carrier, for example a motor boat, to cut off the engine in the event that the operator is thrown out or falls out of the boat. The cut-off device comprises a control member to be supported in front of the keyhole of the ignition switch housing and having a slot for receiving the ignition switch key when the key is inserted into the keyhole. A housing means is provided for supporting the control member for rotational movement in front of the ignition switch keyhole to allow the key to be inserted through the slot into the ignition switch keyhole and to turn with the key when it is turned to its run and off positions. A flexible pull member is coupled to the control member and is adapted to extend out of the housing means in a manner such that when the key is at its run position and the pull member is pulled, the control member and hence the key will be pulled to its off position to cut off the motor. The pull member is adapted to be coupled to the operator.

3,786,893

AIR CUSHION VEHICLE WITH SELECTIVELY OPERABLE SURFACE TRACTION MEANS

Douglas D. Joyce, Jr., Williamsville, N.Y., and Anthony Y. Simpson, New Orleans, La., assignors to Textron Inc., Providence, R.I.

Filed Mar. 31, 1971, Ser. No. 176,579
Int. Cl. B60v 3/02
U.S. Cl. 180—119 1 Claim



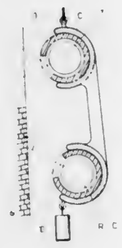
An air cushion vehicle including a rigid body extended along a longitudinal axis thereof, and means for producing an air cushion thereunder; at least two wheels equipped with inflatable tires, said wheels depending downwardly from the rigid body and each wheel being on an opposite side of and laterally spaced from the longitudinal axis of the vehicle; and said wheels being located in the central third portion longitudinally of the vehicle. Means are provided for causing said wheels to selectively engage the surface underneath the vehicle (whether it be solid, semi-solid, or fluid) and means for driving the wheels independently in the same direction or in opposite directions, and at the same speed or at different speeds. Also, means are provided for selectively braking said wheels, whereby to assist in propulsion of the vehicle on inclined surfaces, and in the steering of the vehicle during maneuverings over ground or water surfaces.

3,786,894

ACOUSTIC SOUNDING INSTRUMENT

Francisque Lebreton, Paris, France, assignor to Institut Francais du Petrole des Carburants et Lubrifiants, Rueil-Malmaison, Hauts-de-Seine, France

Filed Sept. 21, 1971, Ser. No. 182,458
Claims priority, application France, Sept. 21, 1970, 70.34200
Int. Cl. G01v 1/40
U.S. Cl. 181—.5 BE 4 Claims



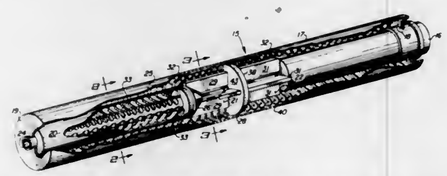
Acoustic sounding instrument for use in determining the acoustic characteristics of the terrain of a borehole includes at least one acoustic emitter and at least one acoustic receiver disposed with the mean cross-sectional planes thereof disposed essentially parallel to the axis of the borehole, the emitter and receiver each being provided with a surface which is essentially a cylindrical surface of revolution through which the waves are emitted and received, respectively.

3,786,895

SILENCER FOR GAS DISCHARGING DEVICES

Walter E. Perrine, P.O. Box 66, Navajo, Ariz.

Filed Jan. 18, 1973, Ser. No. 324,850
Int. Cl. F01n 1/08
U.S. Cl. 181—49 20 Claims



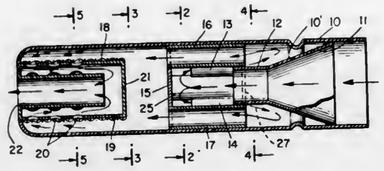
A silencer for muffling of noises in a fluid pressure exhaust system such as the exhaust systems for air operated power cylinders, tools and the like, firearms such as hand weapons, as well as internal combustion engines of the two- and four-cycle type by the utilization of guiding surfaces for directing the gases under pressure into chambers where the gases acquire a rotary or whirling movement about a stationary axis within the silencer and are expelled after such rotary action has dissipated their energy.

3,786,896

MUFFLER

Silvers A. Foster, 20735 Bryant St., Canoga Park, Calif., and Charles F. Smith, 19515 Welby Way, Reseda, Calif.

Continuation-in-part of Ser. No. 282,493, Aug. 21, 1971, Pat. No. 3,754,620. This application May 10, 1973, Ser. No. 358,889
Int. Cl. F01n 1/08
U.S. Cl. 181—53 1 Claim



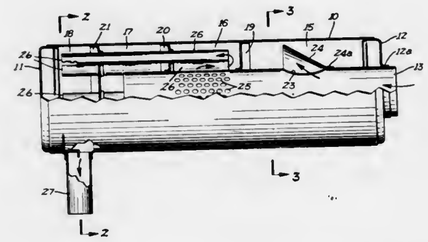
A muffler particularly suited to motorcycles includes a cylindrical casing incorporating a tube assembly comprised of long and short tubes circumferentially spaced about an inner wall portion of the casing. A deflector plate is positioned in the casing to receive and deflect backwardly gases passing through the short tubes. The gases are then caused to reverse again and pass through the long tubes which communicate with the other side of the deflector plate. The cylindrical casing itself includes an annular internal ridge close to the reversal point of the gases to trap carbon particles and thus prevent sparks. Gases exiting from the long pipes then pass through a baffle arrangement at the exit end of the cylindrical casing. The design results in substantial muffling of noise carried along the route of the gases through the muffler.

3,786,897

EXHAUST MUFFLER FOR TWO-STROKE CYCLE ENGINE

Ian N. Swanson, St. Paul, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Apr. 12, 1972, Ser. No. 243,349
Int. Cl. F01n 1/08
U.S. Cl. 181—54 8 Claims



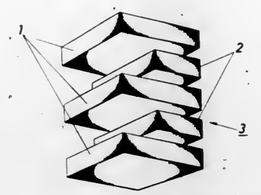
A muffler housing with an axial inlet is shown. A tube extends axially into the housing from the inlet. A closed tuning chamber is provided in the housing surrounding the tube adjacent the inlet end. The tube has a single opening leading to the tuning chamber. A louver is mounted on the tube in the chamber to extend over the opening. The louver acts as a megaphone portion to enhance performance of the two cycle engine. The housing is provided with baffles and chambers downstream from the tuning chamber to muffle exhaust noises and further enhance performance of the engine.

3,786,898

MUFFLING BLOCK

Shozo Fujii, Tokyo, Japan, assignor to Kabushiki Kaisha Fujii Kogyo, Tokyo, Japan

Filed Dec. 15, 1972, Ser. No. 315,483
Claims priority, application Japan, Sept. 6, 1972, 47-103249
Int. Cl. E04b 1/84
U.S. Cl. 181—33 G 10 Claims



Sound-absorbing blocks of box-like shape are combined to form a unit. The unit consists of two kinds of blocks, one being shorter and having a lower density than the other. In use, every unit is fixed to a wall or ceiling so that a discontinuous side of each unit faces away from the surface of the wall or ceiling and a smooth side thereof is fixed to the latter. Every unit consists of four or five sound-absorbing blocks which latter are made of a fiber material.

One of the features of this invention is that the unit can be adapted for use in a rather wide sound-absorbing chamber by making the walls thin.

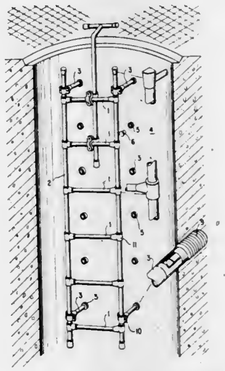
Another feature is that the structure of the sound-absorbing unit is so simple that the manufacturing cost is very low.

3,786,899

LADDER

Heinrich Zenhausern, Birmensdorferstrasse 134, Urdorf, Switzerland

Filed Aug. 24, 1971, Ser. No. 174,441
Claims priority, application Switzerland, Aug. 27, 1970, 12964/70
Int. Cl. E06c 9/02, 7/08
U.S. Cl. 182—93 1 Claim



A ladder comprises two stringers, a plurality of rungs and fastening elements for fastening said ladder to structure, said fastening elements and said rungs being provided, at their ends with external toothing and the stringers carrying a plurality of shiftable and clampable connecting elements some of which are provided with a blind bores for receiving ends of said rungs and others of which are provided with bores for receiving ends of said fastening elements.

3,786,900

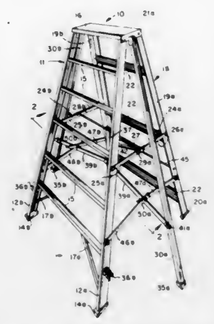
LATERALLY STABILIZED STEPLADDER

Paul J. Olsen, 19511 Almaden Rd., San Jose, Calif.

Continuation-in-part of Ser. No. 159,115, July 2, 1971, abandoned. This application Feb. 25, 1972, Ser. No. 229,438

Int. Cl. E06c *1/22*

U.S. Cl. 182—172 **5 Claims**



A foldable stepladder having stabilizer structure as a part thereof to provide the stepladder with lateral stability. The stepladder may be a generally conventional stepladder foldable between open and closed positions and equipped along the sides thereof with stabilizer components that are laterally movable between inner retracted and outer extended positions, and operative in the latter positions thereof to inhibit lateral tipping of the stepladder in each direction. The movable stabilizer components are elongated support legs pivotally connected with the stepladder adjacent the upper end thereof, and selectively movable between inner retracted positions in which they are held by retainer structure in general juxtaposition with the side edges of the ladder and outer positions in which they are constrained by tie structure that prevents movement of the support legs in both lateral and transverse directions. The movable support legs are also adjustable in length to accommodate irregular surfaces, and they may be used individually or together so as to permit the ladder to accommodate any particular environmental conditions during use thereof.

3,786,901

SEALED LUBRICATING SYSTEM MODULE

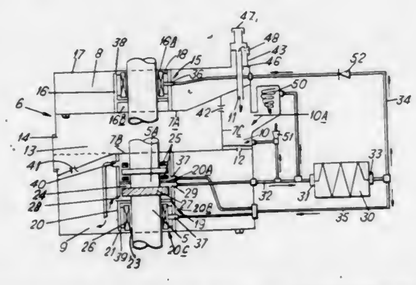
Forrest Thomson Randell, Glasgow, Scotland, assignor to Weir Pumps Limited, Cathcart, Scotland

Filed June 2, 1972, Ser. No. 259,259

Claims priority, application Great Britain, June 3, 1971, 18,804/71

Int. Cl. F16n *1/00*

U.S. Cl. 184—6.18 **17 Claims**



Rotodynamic apparatus includes a pair of spaced upper and lower rotodynamic machines such as for example an upper pump and a lower drive turbine for the pump, and upright shafting drivingly interconnecting the machines.

Lubricated bearing means are provided to support the upright shafting and comprises a closed vessel adapted to permit the extension therethrough of the shafting and which includes upper and lower compartments for bearing lubricant and ducting interconnecting the compartments, upper and lower shaft-engaging bearing devices in the respective compartments, and a lubricant circulator having an inlet communicating with the lower compartment and an outlet communicating with the bearing devices, the arrangement being such that lubricant flows from the lower compartment through the bearing devices into the compartments and overflows from the upper compartment into the lower compartment.

3,786,902

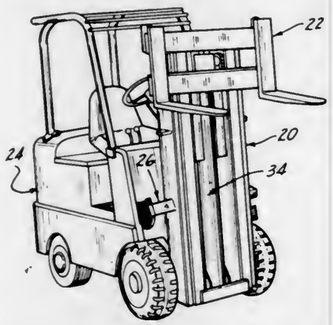
LOAD-LIFTING MECHANISM FOR A LIFT TRUCK

Keith E. Ramsey, Jackson, Mich., assignor to The Knickerbocker Company, Jackson, Mich.

Filed May 8, 1972, Ser. No. 251,253

Int. Cl. B66b *9/20*; **B66c** *19/00*

U.S. Cl. 187—9 **29 Claims**



A load-lifting mechanism for lift trucks in which an extensible three-stage mast carries a load-lifting carriage and is vertically actuated by a hydraulic ram and associated load-lifting chains. A simple piston and cylinder ram operates to elevate the carriage through a full free lift travel on the upper, inner mast section in the collapsed condition of the mast via a system of two sets of chains and associated lifting bar and lifting bracket. One set of chains is trained over the piston of the ram and coupled at its opposite ends to the lower mast section via the ram cylinder and the lifting bracket which is guided for limited travel on the intermediate mast section. The other set of chains is trained over the lifting bracket and coupled at one end to the inner mast and at its other end to the lifting bar which engages the carriage during free lift thereof and then couples to the stationary outer mast via the ram cylinder during mast extension. A latch system automatically couples the inner and outer mast sections during free lift of the carriage and interconnects the carriage and inner mast section during extension of the mast.

3,786,903

CLUTCH RELEASE CYLINDER FOR VEHICLES

Shoji Haga, and Junichi Komorizono, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisin Seihi Kabushiki Kaisha, both of Aichi-ken, Japan

Filed Feb. 1, 1972, Ser. No. 222,565

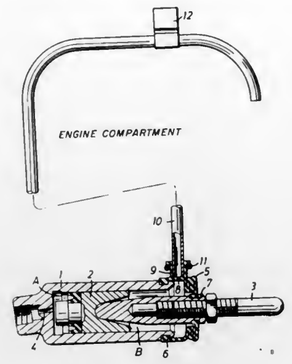
Claims priority, application Japan, Feb. 3, 1971, 46/5067

Int. Cl. F16d *25/00*

U.S. Cl. 192—91 R **2 Claims**

A clutch releasing mechanism of the type including a cylinder housing and the rod of a piston slidable therein,

sealed by folding bellows which hermetically enclose one end of the cylinder housing and the piston rod, and wherein is provided elongated passage means connecting the air chamber formed between the piston and bellows to the atmosphere so as to prevent entrance of dust, dirt and water.



3,786,904

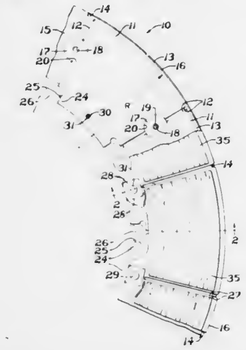
SEGMENTED FRICTION MEMBER ASSEMBLY

Marvin E. Hotchkiss, Troy, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 23, 1972, Ser. No. 265,528

Int. Cl. F16d *13/64*

U.S. Cl. 192—107 R **2 Claims**



A segmented friction member assembly for a disc type brake or clutch having a continuous band extending around the peripheral surfaces of the heat-absorbing segments and between the radially outer edges of the segmental facing members. The band provides radial restraint and resists rotation of the heat-absorbing segments due to torque forces applied during operation of the assembly.

3,786,905

DEVICE FOR THE INDIVIDUAL ADJUSTMENT OF THE STRIKING FORCE IN A TYPEWRITER

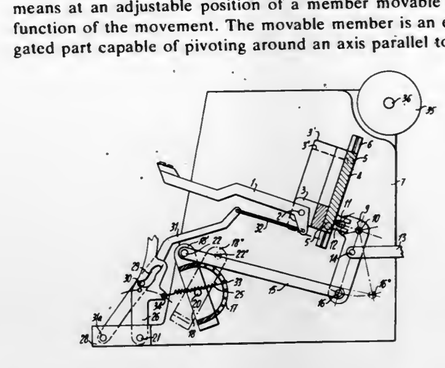
Georges Costa, Yverdon, Switzerland, assignor to Paillard S.A., Sainte Croix Vaud, Switzerland

Filed Dec. 1, 1971, Ser. No. 203,716

Claims priority, application Switzerland, Dec. 15, 1970, 18599/70

Int. Cl. B41j *23/08*

U.S. Cl. 197—17 **1 Claim**



An adjusting spring is associated with each type bar acting as a function of the movement, so as to increase, maintain or reduce the striking force. Each of the springs is attached by one of its ends to a movable element of the actuating system of the corresponding type bar and by its other end to anchoring means at an adjustable position of a member movable as a function of the movement. The movable member is an elongated part capable of pivoting around an axis parallel to the platen of the machine, capable of taking up two positions corresponding to the lower case and upper case positions respectively of the movement. The movable member has a U-shaped section and its surface has series of slots corresponding in number to the number of type bars, each slot having a series of notches forming fixing points for the adjusting springs.

3,786,906

PRINTING RIBBON FEEDING MECHANISM IN A PRINTER

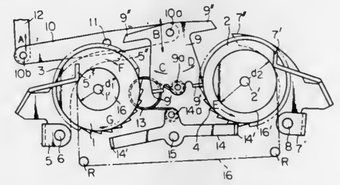
Katsuhiko Okabe, Tokorozawa, Japan, assignor to Kabushikikaisha Copal, Itabashi-ku, Tokyo, Japan

Filed July 11, 1972, Ser. No. 270,865

Claims priority, application Japan, July 19, 1971, 46-63647

Int. Cl. B41j *33/44*

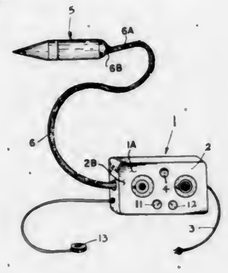
U.S. Cl. 197—161 **4 Claims**



Printing ribbon feeding mechanism in a printer having a pair of ribbon reel supporting shafts alternately driven in the opposite directions to each other so as to feed the printing ribbon from a reel supported on one of the shafts to a reel supported on the other shaft and vice versa. The feeding mechanism has a ratchet feeding member reciprocably moved between a pair of ratchet wheels secured to the shafts, respectively, each time the printing operation is effected, and swingable to alternately engage with either of the ratchet for driving the same, a detent member alternately engageable with either of the ratchet wheels so as to prevent the reverse rotation of the same, a compression spring connecting the ratchet feeding member to the detent member so that, when the ratchet feeding member engages with either one of the ratchet wheels, the detent member is also engaged with the ratchet wheel with which the ratchet feeding member engages, whereas, when the ratchet feeding member is swung to engage with the other ratchet wheel, the detent member is also swung to engage with the other ratchet wheel with which the ratchet feeding member engages, and a pair of detecting levers each adapted to detect

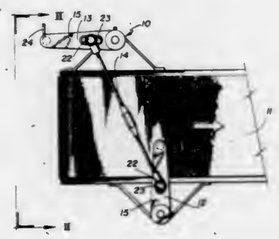
the amount of the ribbon wound on the reel which is mounted on the respective shaft and cooperating with the ratchet feeding member so that, when the diameter of the coil of ribbon on either of the reels is reduced to a predetermined value, the detecting lever detecting the diameter reduced to the predetermined value engages with the ratchet feeding member so as to swing the same to disengage from the ratchet wheel with which it has been engaged and engage with the other ratchet wheel from which it has been disengaged thereby permitting the ribbon to be fed in the reverse direction. The reversing of the direction of feeding of the ribbon is automatically repeated during the printing operation of the printer.

3,786,907
LASER ERASER FOR A TYPEWRITER
Hrand M. Muncheryan, 1735 Morningside St., Orange, Calif.
Filed Sept. 22, 1971, Ser. No. 182,597
Int. Cl. B41j *29/16*
U.S. Cl. 197—181 **17 Claims**



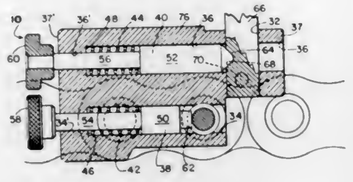
A laser eraser for erasing errors from a written document and adapted with means to be permanently incorporated on a typewriter is described. The device comprises a laser instrumentation head containing a laser generator, a power supply unit to energize said laser generator, and a conduit means connecting the laser instrumentation head to the power supply unit for electrical communication therebetween and for electronic and fluid cooling of the laser generator in said laser instrumentation head.

3,786,908
ARTICLE HANDLING DEVICE
Charles H. Jones, Lunemburg, Mass., assignor to Van Brode Milling Co., Inc., Clinton, Mass.
Filed Sept. 1, 1972, Ser. No. 285,876
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 AB **9 Claims**



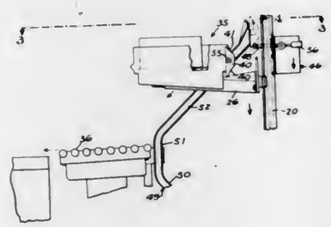
An article handling device for turning an article moving along a conveyor, so that the longitudinal dimension of the article is oriented from a position perpendicular to the direction of motion to a position parallel to the direction of motion; a downstream gate cams the article around and is pushed out of the path of motion; the movement of the gate draws a following gate over the conveyor for final orientation of the article.

3,786,909
PALLET COUPLING DEVICE FOR CHAIN TYPE CONVEYORS
Glauco Reda, Milano, Italy, assignor to Officina Tecnomeccanica Esecuzioni e Montaggi S.p.A. (O.T.E.M.), Milano, Italy
Filed June 26, 1972, Ser. No. 266,228
Claims priority, application Italy, Feb. 4, 1972, 20202 A/72
Int. Cl. B65g *17/00*
U.S. Cl. 198—131 **15 Claims**



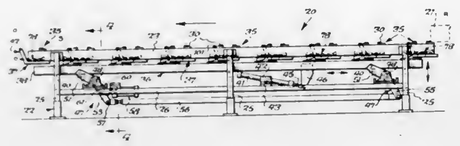
A pallet coupling device for chain type conveyors including a body and a support pin journaled therein and constrained axially relative thereto. The support pin is insertable within the hollow roller of said conveyor chain for rotation therein. The body has a pair of offset passageways, one for receiving said support pin and the second having its long axis normal to the first for receiving a pallet dog or holder pin. A pair of parallel sockets are provided in the body arranged normal to said passageway pair and respectively intercepting each of said passageways. Spring biased spindles or plungers are received within said respective sockets with their free ends biased in engagement with annular grooves provided on said support pin and said pallet holder pin respectively. Actuators are provided for operating each of said plungers independently. An outwardly extending projection or peg is provided for engagement upon the link of the chain.

3,786,910
VERTICAL CONVEYOR
Charles W. Wallis, Cary, Ill., assignor to American Chain & Cable Company, Inc., New York, N.Y.
Filed July 20, 1972, Ser. No. 273,520
Int. Cl. B65g *15/00*
U.S. Cl. 198—158 **16 Claims**



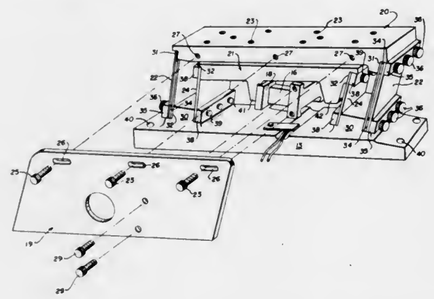
An endless vertical conveyor having a vertical reach, carriers mounted on the conveyor at longitudinally spaced points including a base and an article support mounted on each said base and movable transversely such that it can be positioned adjacent a loading or unloading station as the conveyor moves vertically. Each article support includes a cam that is engaged by an actuator selectively to move the article support transversely such that it will be adjacent the loading or unloading station. Guide means are provided for engaging a roller on the article support and guiding the article support to and from the station as the conveyor moves vertically.

3,786,911
ACCUMULATING TRANSFER CONVEYOR
Carl J. Milazzo, Tonawanda, N.Y., assignor to Hohl Machine & Conveyor Co., Inc., Buffalo, N.Y.
Filed Aug. 1, 1972, Ser. No. 276,980
Int. Cl. B65g *25/04*
U.S. Cl. 198—219 **18 Claims**



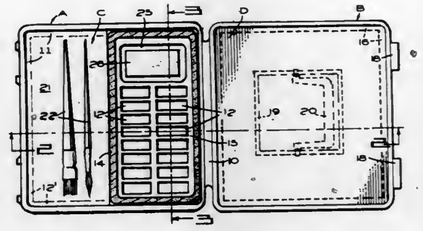
A plurality of article transfer mechanisms are mounted on a carriage for movement therewith in a rectangular path relative to a conveyor frame and, when in their operative positions, are adapted to advance articles from rest positions on the frame to successive next adjacent rest positions toward the conveyor discharge. An article sensing arm at each rest position, connected to a disabling arm, is responsive to the presence of an article at that position to displace the disabling arm in a manner maintaining the associated transfer mechanism in a disabled condition, precluding transfer of the preceding article to the blocked position.

3,786,912
LINEAR VIBRATORY FEEDER
William C. Taylor, Waterford, Pa., assignor to Automation Devices, Inc., Fairview, Pa.
Filed Nov. 20, 1970, Ser. No. 91,494
Int. Cl. B65g *27/00*
U.S. Cl. 198—220 CC **9 Claims**



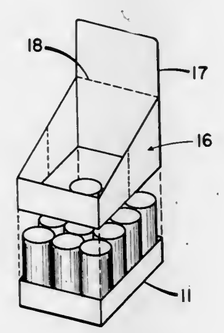
A linear vibratory feeder is disclosed in which an action mass is positioned above a reaction mass, both of which are secured to a base by means of leaf type springs. Side plates are secured to the upper or action mass to which the coil is attached. The armature is secured to the underneath portion of the reaction mass, and the coil also mounted beneath the reaction mass to render the centers of gravity of the action and reaction masses substantially coincidental. Means are provided to adjust the gap between the armature and coil, and the action mass center of gravity is ideally located slightly below the center of gravity of the reaction mass to accommodate a track which is mounted atop the action mass.

3,786,913
ARTIST'S PAINT BOX
Donald Crawford, 2211 Coronet Blvd., Belmont, Calif.
Filed Dec. 4, 1972, Ser. No. 311,554
Int. Cl. B65d *1/34, 25/02, 53/00, 85/54*
U.S. Cl. 206—1.8 **6 Claims**



An artist's paint box wherein a box body has a lid hinged thereto for closing and opening movements, and a tray is mounted in the box body and has a group of paint-receiving compartments with an endless sealing ring surrounding these compartments. A palette is fixed to the lid in a position to abut flatwise against the sealing ring when the lid is closed, thereby preventing the paints from drying out. Moreover, a sponge-receiving compartment is formed in the tray for holding a wet sponge, whereby moisture may be conveyed to the paints to add moisture thereto. The tray is made to hold brushes, while the box body below the mounted tray provides for storage of paint tubes.

3,786,914
SHIPPING AND DISPLAY CARTON
Hervey F. Beutler, Saginaw, Mich., assignor to Dow Corning Corporation, Midland, Mich.
Filed June 7, 1972, Ser. No. 260,675
Int. Cl. B65d *5/52*
U.S. Cl. 206—44 R **5 Claims**



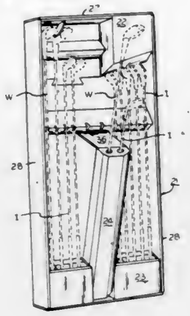
Shipping and display carton combination comprising a rectangular box, having a tear strip around all four sides spaced from bottom to allow top and top portions of sides to be removed leaving a tray and exposing contents. A sleeve foldable into the box and dimensioned to fit around tray, is slipped over the tray and held unfolded by the tray and a rigidifying rib.

3,786,915

DISPLAY PACKAGE FOR ELONGATED ARTICLES

Herbert M. Potts, Yulee, and Maynard A. Trutna, Jacksonville, both of Fla., assignors to Container Corporation of America, Chicago, Ill.

Filed June 8, 1972, Ser. No. 260,988
Int. Cl. B65d 5/50
U.S. Cl. 206—45.15 9 Claims



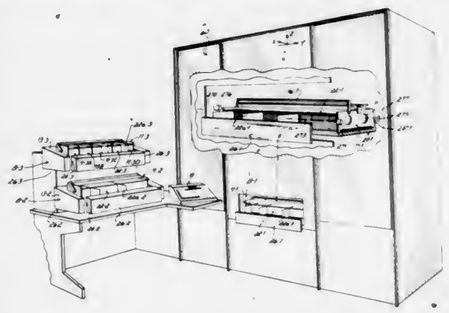
A display package for elongated articles such as golf clubs is formed from a plurality of cut and scored blanks of paperboard or the like. These are formed to comprise a walled tray having a main panel and side and end walls extending from the main panel. A first insert is placed into the tray and is formed from a cut, scored and folded blank and is disposed in the tray adjacent one end thereof and is adapted to position upper extremities of certain of the elongated articles. A second insert is placed in the tray and is formed from a cut, scored and folded blank, and it is disposed in the tray adjacent the opposite end thereof for positioning opposite extremities of certain of the articles. An elongated tube is formed from a cut, scored and folded blank for positioning of other of the elongated articles, and structure is provided for securing the elongated tube in position and pivotally supporting the same so that the tube lies selectively within the tray or in an inclined position with respect thereto for display.

3,786,916

DOCUMENT RETRIEVAL APPARATUS AND METHOD

Richard C. O'Brien, Dayton, Ohio, assignor to O. K. Partnership, Cincinnati, Ohio

Continuation of Ser. No. 213,325, Dec. 29, 1971, abandoned.
This application Jan. 9, 1973, Ser. No. 322,185
Int. Cl. B07c 5/36
U.S. Cl. 209—80.5 17 Claims



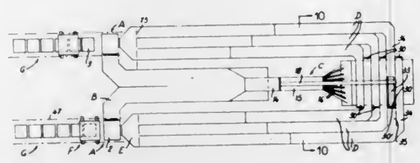
A document retrieval apparatus and method having a plurality of movable trays each containing encoded documents which are normally stored in addressable crypts arranged in two opposed, spaced matrices with the crypt openings of respective matrices in common vertical planes, a main document selector designed to select a desired document from among a tray of encoded documents transported thereto, and a tray transport movable in the space between the crypt matrices, the main selector and the crypt openings for transferring trays of encoded documents between their respective crypts and the main selector, and a keyboard control console which in response to entry of data identifying a document in a specific tray effects the transfer of the tray from its respective crypt to the main selector whereat the desired document is then ejected by the selector from among those of the retrieved tray. A second, or buffer, selector, which is searched along with the main selector when a document is sought, is provided for temporarily storing retrieved documents prior to their return to storage, or new documents prior to infiling, in the movable trays stored in the crypts.

3,786,917

FRUIT-GRADING PLANT

Claude Joseph Rousselie, Saint Sylvain D'Anjou, and Pierre Lacharlotte, Ecouflant, both of France, assignors to S. I. C. A. "Pomanjou", Ecouflant, Maine et Loire, France

Filed Feb. 4, 1972, Ser. No. 223,470
Claims priority, application France, Feb. 16, 1971, 71.06558
Int. Cl. B07c 7/00
U.S. Cl. 209—123 8 Claims



This fruit grading plant is of the type comprising an immersion-type emptying station, a transfer trough in which water is circulated for directing the fruits to a sorting and grading station, and a plurality of discharge troughs for feeding the graded fruits of each grade and/or size to a case filling station.

According to this invention, the plant comprises at least one vessel which, acting both as an emptying station and as a filling station, can be connected either to an emptying circuit or to a filling circuit, and is associated with handling means for immersing and retracting each case in or from the vessel. This plant is suitable for sorting and grading any fruits or other products or articles adapted to be transferred by buoyancy.

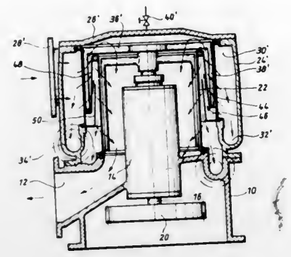
3,786,918

PRESSURE FILTER FOR FIBROUS SUSPENSIONS

Emil Holz, Eningen/Wurttenberg, Germany, assignor to Hermann Finckh Metalltuch-und Maschinenfabrik, Reutlingen/Wurtt, Germany

Filed Aug. 27, 1971, Ser. No. 175,625
Claims priority, application Germany, Aug. 16, 1971, 7131281
Int. Cl. B07b 1/04; B01d 29/26
U.S. Cl. 209—273 6 Claims

A pressure filter for fibrous suspensions including a multiple component housing within which at least one stationary upright filter basket is disposed. The housing is divided into an upper housing section and a lower housing section with a stock inlet in the upper housing section and a stock outlet in the lower housing section, and with the stationary basket being supported by the lower housing section.

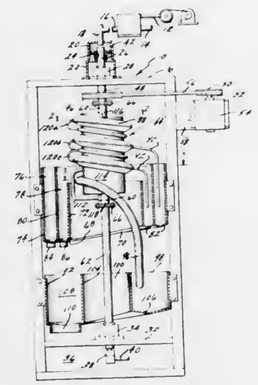


3,786,919

METHOD AND APPARATUS FOR CONCENTRATING ORE PULPS

Dewitt C. Deringer, Golden, Colo., assignor to Ben H. Parker, Jr., Sao Paulo, Brazil

Filed Dec. 13, 1971, Ser. No. 207,386
Int. Cl. B03b 3/10
U.S. Cl. 209—434 5 Claims



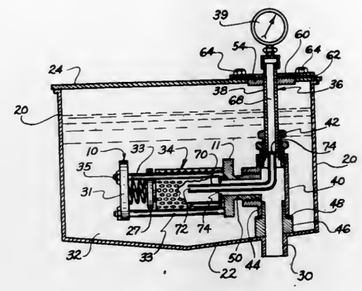
This invention relates to a centrifugal ore concentrator characterized by a spirally wound tunnel-forming member wound about a rotatable core into which an ore pulp is introduced. As the ore pulp gravitates, or is preferably forced, through the whirling spiral, the heavy minerals that have migrated to the outside of the tunnel under the influence of the centrifugal action are drawn off and separated from the lighter gangue particles that are similarly drawn off from the inside. The invention also encompasses the novel method of concentrating ore pulps which comprises feeding the pulp through a rotating spirally disposed tunnel with a pulsating action, dividing the stream and drawing off the heavier material from the outside and the lighter material from the inside.

3,786,920

FILTER APPARATUS FOR HYDRAULIC SYSTEM

Robert E. Raymond, Zanesville, Ohio, assignor to International Basic Economy Corporation, New York, N.Y.

Continuation of Ser. No. 103,176, Dec. 31, 1970, abandoned.
This application June 26, 1972, Ser. No. 266,417
Int. Cl. B01d 35/14
U.S. Cl. 210—90 2 Claims



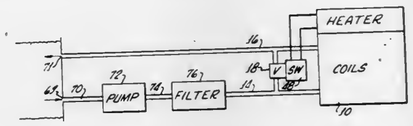
A filter for a hydraulic system which filter is mounted within the reservoir containing the hydraulic fluid supply. The filter comprises a yieldably mounted cylinder element that is normally biased towards a closed filtering position, said filter element being adapted to yield to an open position at such times as porous side walls of the filter element become clogged to the extent that a predetermined back pressure is imposed by the filter element on the flow passing therethrough. The apparatus is further characterized by a filter condition sensing and indicating means that senses only that pressure build-up within the filter element which is caused by clogging of the porous walls of the element. Hence, false condition indications due to flow surges inherent in filtered systems are eliminated.

3,786,921

HEATER BYPASS AND SHUT-OFF VALVE

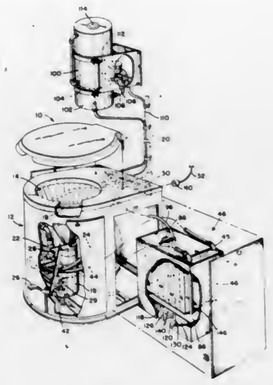
Charles S. Johnson, Laguna Niguel, Calif., assignor to Baker Hydro, Inc., Santa Ana, Calif.

Filed Feb. 14, 1972, Ser. No. 226,115
Int. Cl. B01d 35/14
U.S. Cl. 210—130 6 Claims



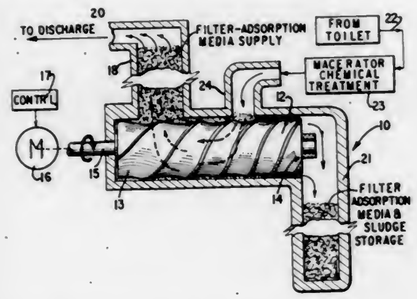
A shut-off device for a heater for water in continuous circulation, as in the filtering line for a swimming pool, is disclosed. The flow of water through the system is monitored by a bypass connected between the input and the output of the heater, shunting the coils in the heater. A spring-loaded valve is mounted in the bypass so as to close the bypass except when the flow of water to the heater input exceeds that required to maintain a desired minimum flow through the heater. The valve controls a heater disabling device, so that the heater may be on only when the bypass valve is open.

3,786,922
WASTE TREATMENT SYSTEM WITH ENCLOSED SCREEN UNIT
Vincent Materese, Dayton, Ohio, assignor to Dayton Manufacturing Company, Dayton, Ohio
Continuation-in-part of Ser. No. 196,092, Nov. 5, 1971. This application July 31, 1972, Ser. No. 276,518
Int. Cl. C02c 1/40
U.S. Cl. 210—136 9 Claims



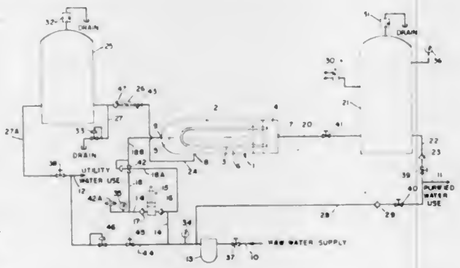
A waste treatment system including means for grinding solid wastes, mixing them with liquid to form a pumpable slurry and pumping the slurry to a waste treatment tank. The waste treatment tank includes a screening section in which an enclosed screen unit is loosely received. The slurry is pumped to the interior of the screen unit for flow outwardly through the foraminous side walls thereof and thence, into a mixing section of the treatment tank. The screened waste material is mixed with chemical additives as it passes from the screening section of the treatment tank to the mixing section and a series of perforated baffles in the mixing section insure that the additives and screened waste material are intimately mixed and retained in the tank for a sufficient period of time to render the mixture pathogenically harmless before it is ejected from an outlet from the mixing section of the treatment tank.

3,786,923
MARINE WASTE DISPOSAL APPARATUS
Ferenc J. Schmidt, Ardmore, Pa., assignor to Ametek, Inc., New York, N.Y.
Filed July 26, 1971, Ser. No. 166,132
Int. Cl. B01d 33/30
U.S. Cl. 210—152 1 Claim
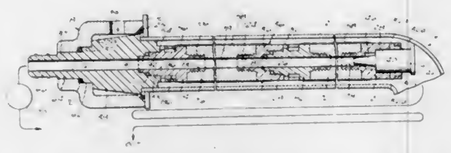


A filter-adsorption media, such as activated carbon, is supplied to one end of a screw conveyor having a variable pitch along its length with the greater pitch being at the supply end. Sewage, such as from a marine toilet, is passed through a macerator and chemically treated before being introduced into the central portion of the screw conveyor to be mixed with the filter-adsorption media and compacted as the screw conveyor is rotated. The compacting produces a mixture of filter-adsorption media and sludge at the discharge end while the liquid is passed through the conveyor in counter-flow relationship, to the incoming filter-adsorption media and through the filter-adsorption media, and then to a discharge.

3,786,924
WATER PURIFICATION SYSTEM
Lowell E. Huffman, Wilmington, Del., assignor to Delro Inc., New Castle, Del.
Filed July 22, 1971, Ser. No. 164,991
Int. Cl. B01d 31/00
U.S. Cl. 210—257 14 Claims



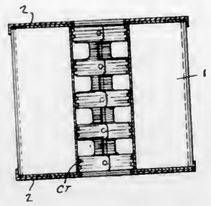
A water purification system incorporating a reverse osmosis unit for purifying water is disclosed. The system yields two streams, one of very high purity for drinking and cooking and the like and one of lower quality for use in toilet tanks, lawn watering, garden irrigation and the like. The system provides apparatus and techniques for reconciling the varying flow rates inherent in a domestic water system with the constant flow rate desirable for efficient performance of the reverse osmosis unit. Provision is made for automatic flushing and backwashing of the reverse osmosis element.

3,786,925
MEANS FOR SEALING MEMBRANE CARRYING TUBES
Leo Block, Woodland Hills, and Frank R. Shippey, Thousand Oaks, both of Calif., assignors to Raypak, Inc., Westlake Village, Calif.
Filed Feb. 14, 1972, Ser. No. 225,945
Int. Cl. B01d 31/00
U.S. Cl. 210—321 6 Claims



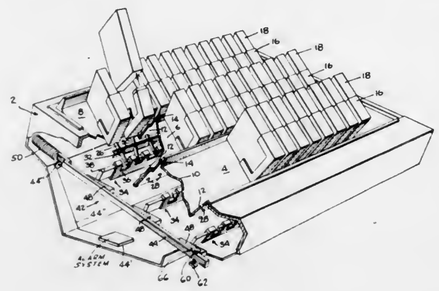
An osmotic membrane bridges over the joint between an end core fitting and the end of a tubular porous core member and alloys with the material of the core fitting. The joints may be between modules joined or coupled by male and female plastic core fittings linked together by bayonet joints. This assembly is adapted to use in reverse osmosis machines with the joined modules in a tubular shell forming an annulus with concentrate in the annulus under pressure. The bayonet joints prevent pulling apart of the modules.

3,786,926
PAPER FILTER ELEMENT CENTER TUBE
John R. Wilhelm, Perth Amboy, N.J., assignor to Purolator, Inc., Rahway, N.J.
Filed Nov. 17, 1971, Ser. No. 199,565
Int. Cl. B01d 29/04
U.S. Cl. 210—497 1 Claim



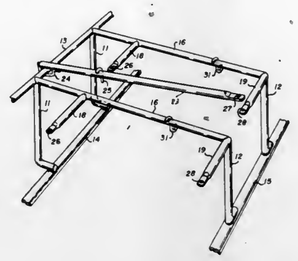
Annular filter elements for outside-in operation ordinarily include a center tube for support against inward collapse, and this disclosure concerns a center tube formed from a flat sheet metal stamping including a longitudinally extended backbone and interspaced ribs extending laterally from this backbone and having free ends, the stamping being formed into a cylinder with the backbone extending axially and the ribs extending circumferentially and their free ends fastened.

3,786,927
PILFER PROOF DISPLAY UNIT FOR PACK MERCHANDISE
Jay Manheim, 860 United Nations Plaza, New York, N.Y.
Filed Sept. 7, 1971, Ser. No. 178,039
Int. Cl. A47f 7/00
U.S. Cl. 211—4 15 Claims



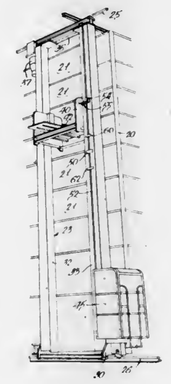
A display unit for merchandise in packs which is intended to prevent pilfering. The unit includes a housing for supporting a plurality of holders. Each holder is adapted to hold one of the packs and to permit its removal upon movement of the pack in a predetermined path relative to the holder. Each holder is connected with the housing for pivoting motion about a generally horizontal pivot axis, to facilitate browsing. Each pack is normally prevented from removal from its holder by a limit member connected with the housing projecting into the predetermined path of the pack from its holder when the holder is in a secured, first position, which limits movement of the pack to less than that necessary for removal. Each holder can, however, be tilted about a tilt axis generally perpendicular to the pivot axis to a released, second position in which the predetermined path of removal of the pack relative to the holder is moved out of the way of the limit member so that the pack can be removed. Tilting of the holders to the released position is normally prevented by a selectively operable, concealed keeper hidden within the housing.

3,786,928
BICYCLE RACK
J. Robert Johnson, 13090 Alta Ln. North, Los Altos Hills, Calif.
Filed Apr. 17, 1972, Ser. No. 244,476
Int. Cl. E05b 73/00
U.S. Cl. 211—5 5 Claims



The bicycle rack of this invention provides a supporting structure having a longitudinal member or rail against which a bicycle may be leaned, two transverse members which may extend through (1) the front wheel of the bicycle and (2) both the rear wheel and the frame of the bicycle. A locking member closes between both of the transverse members to secure the bicycle between the longitudinal member and the locking member. A rear transverse member connects with the longitudinal member and other longitudinal members of adjacent bicycle racks forming a continuous bank of similar bicycle racks, and further provides a slidable and pivotal mounting for said locking member. These members provide a framework structure wherein a bicycle may be parked and secured against theft or unauthorized removal.

3,786,929
WAREHOUSING SYSTEM USING SLOWDOWN AND STOP BIN INDICATORS
James S. Hathcock, Jr., Houston, Tex., assignor to Conco Inc., Mendota, Ill.
Filed Nov. 1, 1971, Ser. No. 194,713
Int. Cl. B66g 1/36
U.S. Cl. 214—16.4 A 13 Claims



To identify vertical slowdown and stop positions for a stacker crane, each vertical bin is uniquely located by a binary coded slowdown plate and a separate binary coded stop plate. A vertical drive control is responsive to photoelectric sensors, mounted on a crane hoist, as the sensors are driven adjacent

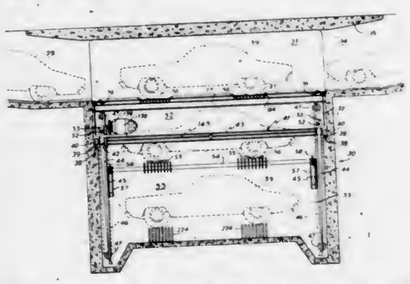
the binary coded plates. To reduce the minimum vertical spacing between bins, the coded plates are interleaved so that the slowdown plate for an adjacent bin is located between each stop plate and slowdown plate for a different bin. Various combinations of detectable elements are carried on each coded plate to provide strobe, high or deposit, and low or retrieve information.

3,786,930

UNDERGROUND AUTOMATIC PARKING SYSTEM FOR VEHICLES

Alejandro Obregon, Horacio 543-403, Mexico City, Mexico

Filed Aug. 9, 1972, Ser. No. 279,268
Claims priority, application Mexico, Sept. 8, 1971, 129985
Int. Cl. E04h *6/06*
U.S. Cl. 214—16.1 CB **23 Claims**



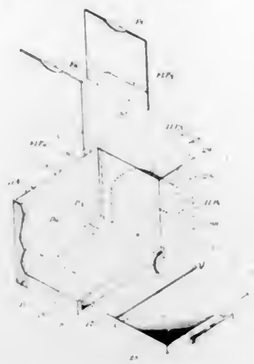
An underground automatic parking system for vehicles, comprising a horizontal tunnel; a rectangular entrance opening on the roof of said tunnel; slidable horizontal doors closing said opening; grids in said doors located at a position suitable to receive the four tires of a vehicle; a carriage movable along the length of said tunnel at an intermediate transit level thereof; the carriage is provided with anchoring means to coact with anchoring blocks provided on the tracks along which said carriage moves, in order to automatically stop the carriage in alignment with a selected parking space; elevator means in said carriage comprising two pairs of comb-like sets of parallel brackets rotatable about respective axes in a position such that the brackets match the position of the four tires of a vehicle, said brackets being such that, when the elevator means are elevated to its uppermost position, said brackets pass between the grids of said doors to support a vehicle located thereon; an upper parking level in said tunnel comprising a plurality of upper parking spaces each being provided with four sets of retractible vehicle supporting brackets, interleavable with the brackets of said elevator means, each set of vehicle supporting brackets being provided with a ratchet mechanism to retain the same in operative position; a lower parking level in said tunnel comprising a plurality of lower parking spaces each being provided with four vehicle supporting cradles, each cradle comprising a grid interleavable with the brackets of said elevator means; said intermediate transit level comprising a lower sub-level to allow the transit of the carriage with its elevator means carrying a vehicle thereon and an upper sub-level to allow the transit of the carriage with its elevator means empty; means for driving said carriage along the length of said tunnel; means for driving said elevator means between the transit level and the upper and lower parking levels and between the transit level and the entrance opening; means for extending and retracting said retractible vehicle supporting brackets of the upper parking level; means for retracting and extending the brackets of said elevator means, when the same are lowered to the lower parking level in order to clear a vehicle parked in a lower parking space; electric detecting means in each parking space to coact with the carriage in order to detect an empty parking space when the carriage is carrying a vehicle thereon; and means for deactivating said detecting means in order to allow the carriage to travel past an empty parking space when it is not desired to park a vehicle therein.

3,786,931

OPTICS INDEX FILING SYSTEM

Ross F. Housholder, 1725 Brooks Dr., Arlington, Tex.

Filed Dec. 7, 1972, Ser. No. 313,146
Int. Cl. A47b *63/00*; **G02b** *5/14*
U.S. Cl. 211—40 **7 Claims**



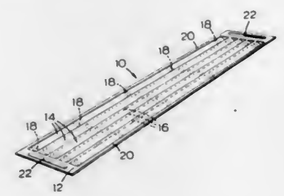
The specification discloses an optics index filing system for allowing records, files, etc. to be filed in a random manner and to be readily identified and retrieved when needed. The system comprises a frame forming a storage zone adapted to hold a plurality of records, files, etc. An optics selector system is employed for identifying the records or files stored. In the preferred embodiment the selector system comprises a plurality of light pipes having ends located in a column or row forming an index observable to the user. The other ends of the light pipes are located at spaced and distinct positions to receive light individually from a movable light emitting selector slit when shifted to different positions. Each record or file folder has a light pipe having one end to be located in alignment with one of said other ends of the index light pipes, when the folder is filed, to receive light from the selector slit when the selector slit is shifted to different positions. The other ends of the light pipes of the record or file folders are located at a position to be observable to the user.

3,786,932

CORE TRAYS

Carl M. Smith, Weston, Ontario, Canada, assignor to Schlegel Company Canada Limited, Oakville, Ontario, Canada

Continuation-in-part of Ser. No. 42,770, June 21, 1970, abandoned. This application Oct. 8, 1971, Ser. No. 187,757
Int. Cl. A47f *7/00*
U.S. Cl. 211—60 A **2 Claims**



The invention relates to a plastic drill core tray of the type having a plurality of longitudinally extending channels disposed in a side by side relationship which are dished in cross-section to contain a drill core. The effective contained angle of the cross-section at the dished bottom of the channels is greater than 90°. The plastic tray is reinforced with elongated metal reinforcing ribs having a U-shaped cross-section.

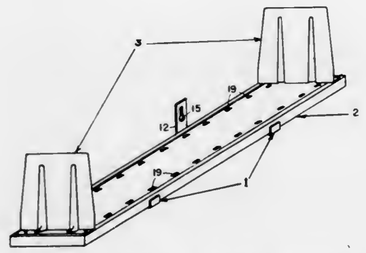
The ribs are adhered to adjacent longitudinally extending marginal areas of adjacent channels to provide longitudinally extending reinforcing means, and the contained angle of the cross-section of the tray at the adjacent longitudinally extending areas is less than 90°.

3,786,933

PORTABLE SUSPENDED SHELF

Felipe G. Vianzon, 1436 S. Kearney, Denver, Colo.

Filed Aug. 28, 1972, Ser. No. 266,973
Int. Cl. A47f *5/08*
U.S. Cl. 211—90 **6 Claims**



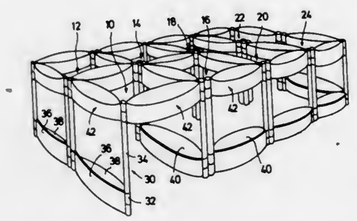
A portable suspended shelf assembly includes a channel-shaped shelf releasably supported by a bracket or a plurality of brackets at spaced intervals along the shelf. Each bracket has a horizontally disposed support portion under the base portion and an upturned inner end portion adapted to fasten to a wall. One depression is formed in the bracket slidably receiving an inner side wall projection of the shelf and another depression is formed in the bracket slidably receiving an outer side wall projection of the shelf. End plates with a pair of depending laterally spaced pins extend downwardly into a plurality of apertures at spaced intervals along the shelf.

3,786,934

CARRIER STRUCTURE PARTICULARLY FOR OFFICE EQUIPMENT ASSEMBLY

Gerard Burgin, 6, rue de la Thur, Kingersheim, France

Filed Mar. 20, 1972, Ser. No. 236,098
Claims priority, application Germany, Mar. 18, 1971, 2113113
Int. Cl. A47f *5/00*, *7/00*
U.S. Cl. 211—182 **11 Claims**



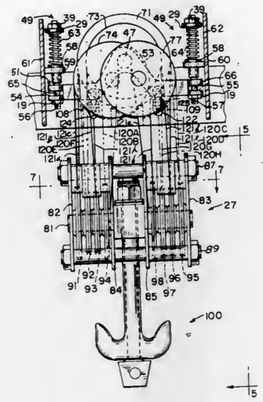
Various items of work place equipment, such as a seat, desk, typewriter top, phone shelf, overhead illuminating structure and the like are supported by one or more vertical carrier columns each formed of an inner throughgoing hollow support post (adapted to receive electric conductors and the like), a plurality of carrier sleeves which surround the hollow support post and to which said items are secured (directly or by a cantilever) and a plurality of spacer sleeves for arbitrarily determining the height position of any carrier sleeve.

3,786,935

OVERHEAD CRANE

Joseph J. Vlazny, Park Forest, Ill., and Malcom M. Coston, Balboa, Calif., assignors to Whiting Corporation, Harvey, Ill.

Filed May 22, 1972, Ser. No. 255,720
Int. Cl. B66c *17/06*
U.S. Cl. 212—11 **15 Claims**



An overhead crane characterized by its redundant or double-safe features. The crane has two separate ropes with one end of each rope attached to the drum and the other end attached to an equalizer. Each rope, intermediate its opposite ends, is reeved over sheaves in the sheave nest and on the load block in such manner that each rope provides at least four active parts (i.e., load-supporting lines) running to the four horizontal quadrants of the load block with respect to the vertical center line therethrough. With this system and arrangement the load block will be supported by two independent sets having at least four active rope parts or lines of support in each set in such a manner that if a rope breaks or fails for any reason, at least one remaining complete set of at least four active parts provided by the undamaged rope will assume full support with little or no appreciable impact load occurring and with only small and acceptable swinging or twisting movement imparted to the lead. Additional redundancy and double-safety is provided by: constructing the crane hook so it has two separate load paths into the load block; having two complete gear trains between the hoist motor and the drum assembly with each being capable of handling the rated load with a normal factor of safety; having safety lugs to catch the drum hubs in case of shaft failure; having safety retainers for all sheaves in the sheave nest and in the load block to sustain the load upon failure of any sheave or its supporting shaft; and, having the equalizer bar boxed or caged in with load supporting members and provided with bumpers at opposite ends.

3,786,936

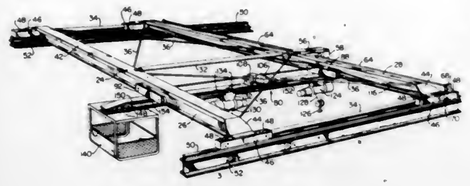
OVERHEAD CRANE APPARATUS

Charles R. Staadt, Aurora, Colo., assignor to Masonry Systems, Inc., Westminster, Colo.

Filed Oct. 26, 1971, Ser. No. 192,026
Int. Cl. B66c *17/06*
U.S. Cl. 212—11 **11 Claims**

An overhead crane adapted for universal movement in a horizontal plane includes a pair of bridge members which span the width of an industrial plant and have guide wheels adapted to be driven along rails running longitudinally along the sides of the plant, a trolley which extends longitudinally of the plant and is mounted on guide wheels which ride along tracks on the

bridge members, the trolley having a hoist stationary relative to the trolley, a hoist movable along the trolley, and an operator's cab at one end of the trolley whereby the operator is provided with a close unobstructed view of the hoists. A sprocket-chain drive is operative to move the trolley along the bridge members to enable the hoists to be positioned close to the sides of the installation site.

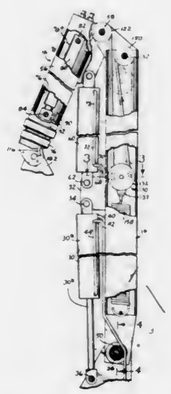


3,786,937

LOAD-HANDLING APPARATUS

Donald M. Faust, Winchester, Oreg., assignor to Cascade Corporation, Portland, Oreg.

Filed Nov. 26, 1971, Ser. No. 202,531
Int. Cl. B66c *23/06*
U.S. Cl. 212—59 **5 Claims**



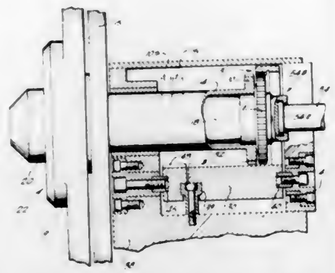
Load-handling apparatus including a mounting frame, a main boom pivotally connected at one of its ends to the frame, and a jib boom pivotally connected to the opposite end of the main boom. The jib boom includes a telescoping extension section and a motor for extending and retracting the same. A power-operated device is connected to the outer end of the extension section for extension and retraction therewith. Elongated flexible power-supply lines for the power device and the extension motor extend along the jib boom, are trained over a sheave at the pivot connection between the jib and main boom, and then extend along the main boom toward the frame. Line take-up means on the main boom is operable to take up and pay out slack in such lines produced by extension and retraction of the jib boom. The main and jib booms are operated by elongated rams. The main boom ram is pivotally connected at its cylinder end to a midregion of the main boom and at its rod end to the mounting frame in a region spaced laterally of the pivot connection between the main boom and frame. Fluid supply and exhaust lines connect to the cylinder end of the ram adjacent its pivotal connection with the main boom.

3,786,938

REVERSING DRIVE FOR A TOOL CHANGER

Edward E. Kirkham, Brookfield, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.

Filed May 22, 1972, Ser. No. 255,716
Int. Cl. B23q *3/157*
U.S. Cl. 214—1 BD **3 Claims**



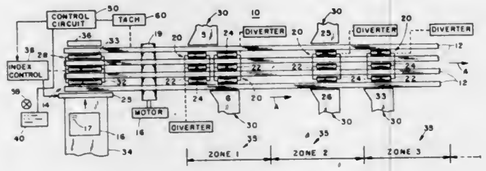
The present invention relates to an improved reversing drive for a tool change mechanism. The improved novel features of this reversing drive are particularly disposed to be incorporated in a tool changer equipped with a pair of tool change arms mounted for pivotal movement in opposite direction from a parked position into enclosed gripping engagement with a pair of spaced apart tools. In addition, the described tool changer particularly adapted to receive the present reversing drive has already included separate power means connected to positively maintain the pivotal arms in original clamped engagement as well as effect bodily movement of the clamped arms to interchange the tools. The reversing drive of this invention includes a single unitary rack having inwardly facing opposed upper and lower rack sections laterally offset a sufficient distance to rotatably drive adjacently journalled gears in opposite direction upon rectilinear movement of the unitary rack in one direction. In addition, one of the laterally offset rack sections of the present invention incorporates an axially extending rack section that is relatively positionable to function as a transfer device for simultaneously engaging the synchronized teeth of both oppositely rotated concentric gears to maintain them in preset angular positions during axial movement relative thereto.

3,786,939

METHOD AND APPARATUS FOR SORTING ARTICLES ON A CONVEYOR UTILIZING A SHIFT REGISTER AND A TIME VARYING CODE CONTROL MECHANISM

James D. Habegger, Middleville; Andrew B. Huttula, Grand Rapids; Daniel L. Fowler, Kentwood, and James T. Schrader, Grand Rapids, all of Mich., assignors to Rapistan, Incorporated, Grand Rapids, Mich.

Filed Oct. 19, 1972, Ser. No. 298,873
Int. Cl. B65g *43/00*
U.S. Cl. 214—11 A **27 Claims**



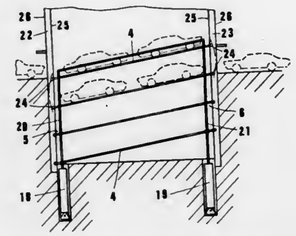
A sorting conveyor is divided into discrete discharge zones each assigned a unique zone identification code and each including one or more discharge locations having one or two discharge chutes aligned therewith and assigned a chute identification code. Each article inducted onto the conveyor is assigned a digital code a portion of the bits of which correspond to the code assigned to a chute within a zone. The article code is applied to a shift register memory and shifted in synchronism with the conveyor movement to be applied to a zone control circuit during a timer interval corresponding to the entry of the article into the discharge zone. A code generator synchronized with the conveyor movement produces a time varying code repeated for each zone time interval and which is compared with a location code assigned to each discharge location and uniquely identifying the position on a discharge chute within a discharge zone. An article diverter is actuated to discharge an article onto a discharge chute when the zone and chute codes coincide with the article code and the location code assigned to a discharge chute corresponds to the generated time varying code.

3,786,940

GARAGE FOR THE STORAGE OF VEHICLES

Kaspar Klaus, Schlachthofstrasse 46, 894 Memmingen/Bavaria, Germany

Division of Ser. No. 883,903, Dec. 10, 1969, Pat. No. 3,688,922. This application June 21, 1972, Ser. No. 264,842
Int. Cl. E04h *6/06*
U.S. Cl. 214—16.1 ED **4 Claims**



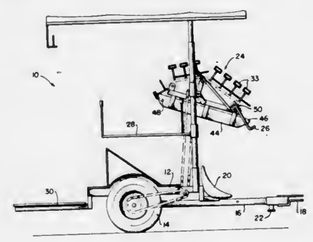
The garage comprises at least two tilting platforms, each capable of accommodating at least two vehicles end-to-end, superposed in spaced relation and linked for tilting in unison to place one end of one platform and the other end of the other platform in communication with fixed run-in and run-off areas of the garage, in one tilted position, and vice versa in the other tilted position. Provision is also made for raising and lowering the interlinked platform structure where there are more than two platforms in a stack.

3,786,941

APPARATUS FOR TOBACCO HARVESTING

Louis E. Dailey, Jr., R.F.D. No. 1 Box 99A, Ahoskie, N.C.

Filed Aug. 15, 1972, Ser. No. 279,539
Int. Cl. B60p *1/36*
U.S. Cl. 214—83.1 **3 Claims**



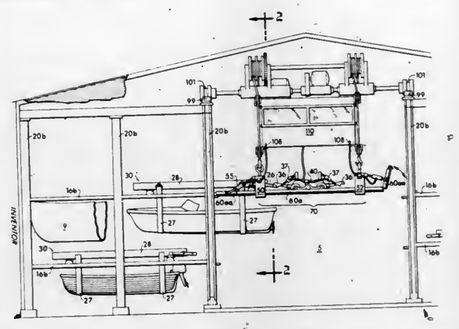
A safety hand positioner and guard for the conveyor of harvested tobacco being passed from the workers known as breakers to the tiers which permits a new and more efficient method of harvesting by passing it rearwardly instead of forwardly of the harvesting vehicle.

3,786,942

DRY SAIL MARINA

Ernest B. Dane, Jr., 57 Tyler Rd., Belmont, Mass.

Filed Feb. 9, 1970, Ser. No. 9,902
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 A **8 Claims**



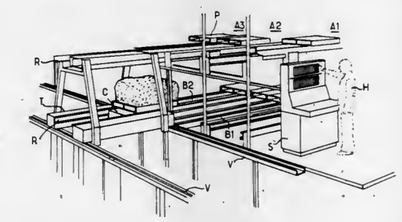
A dry sail marina is disclosed for storing small to moderately sized boats out of the water with means for transferring them automatically between storage points and the water. The marina is contained within a building having a center aisle extending the length thereof and a series of vertically stacked racks bounding each side of the aisle. Boats are stored in sling by boat cars housed in the racks. An overhead traveling crane with a hoist suspended track assembly rides along the center aisle between any storage point and the water side of the marina. The track assembly is adapted to connect with any rack and includes transport means for coupling to individual cars and wheeling them onto and off of the track assembly. To deliver a boat, the track assembly is connected up with the assigned rack and the transport means draws the car with boat in sling onto the track assembly. The loaded track assembly is then transported to the water by the overhead crane whereupon it is lowered and the boat is deposited in the water and released from its car. The crane then returns the boat car to the rack by a reverse procedure.

3,786,943

CENTRALISED CONTROL FOR AN AUTOMATIC SYSTEM OF HANDLING PALLETS

Georges Coppel, Paris, France, assignor to Constructions Mills. K, Saint-Ouen, France

Filed Mar. 28, 1972, Ser. No. 238,771
Claims priority, application France, May 12, 1971, 71.17275
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 A **9 Claims**



A control system with memory and synoptic panel enabling an operator to prepare the movement of pallets between the passage-ways and the entrances to and exits from a storage installation.

The frame has a main and lateral channels in which slide lugs representing the handling pallets ; movement of the lugs is recorded electrically in the form of signals in the memory ; the starting point and destination signals are progressively converted into commands for the motors of the transfer trolley and the automatic trolley.

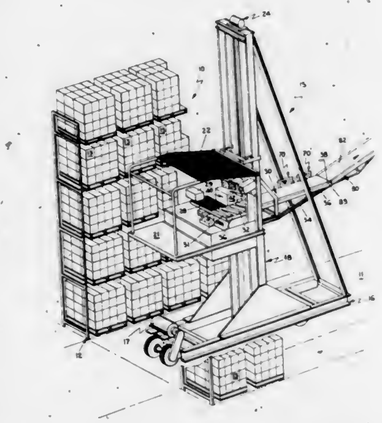
Applicable to all types of storage installations on one or more levels with parallel passage-ways in which storage pallets accumulate.

3,786,944

APPARATUS AND METHOD FOR APPLYING LABELS TO ARTICLES IN A WAREHOUSE SYSTEM

Jack R. Daigle, Grand Rapids, and James D. Habegger, Middleville, both of Mich., assignors to Rapistan, Incorporated, Grand Rapids, Mich.

Filed Sept. 28, 1972, Ser. No. 292,958
Int. Cl. B65g *1/04*
U.S. Cl. 214—16.4 A **12 Claims**



An article retrieval system includes an operator carrying picking vehicle for batch picking of customer orders in a warehouse. The vehicle includes a labeler supplied with a sequence of individual labels for positioning on each article picked. Each label includes article storage location, quantity and destination information and display means are provided for displaying this label information to the operator. A tape includes sorting information recorded thereon for each article to be picked and is synchronized with the sequence of labels placed in the labeler. A tape playback mechanism controls destination coding apparatus such that an article picked by the operator will leave the vehicle with both a label and sorting indicia thereon. The sorting information on the tape is also displayed to the operator to provide a check for synchronization between the tape and the sequence of labels. The articles are then routed via an accumulation conveyor to a sorting area where the sorting indicia is detected to control the diverting of articles to predetermined destination areas.

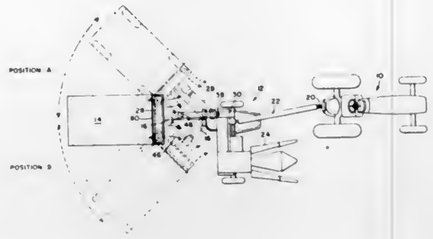
3,786,945

SPOUT CONTROL SYSTEM

Dean Homer Symonds, Davenport, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jan. 15, 1973, Ser. No. 323,984
Int. Cl. B65g *67/22*
U.S. Cl. 214—42 A **9 Claims**

The lateral swing of a discharge spout on a forage harvester is magnetically governed such that the spout is kept in proper coordination with the crop inlet port of a trailing wagon as the harvester is negotiated through turns. A wire loop encircling the wagon, upon excitation by an AC signal, produces a magnetic field which is sensed by a signal coil mounted on the discharge spout and adapted for common movement therewith. The signal coil has an output voltage, the amplitude of which varies as the wagon swings relative to the spout. This



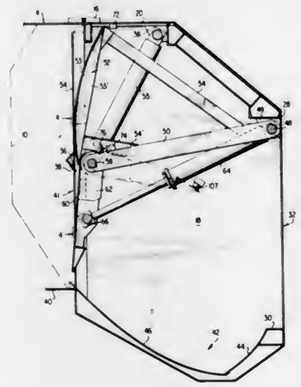
output voltage is compared with the loop excitation signal to denote any phase differential and the resulting voltage signal, after being passed through a dead band generator, drives a bidirectional electrohydraulic unit which swivelly swings the discharge spout into proper coordination with the crop inlet of the wagon.

3,786,946

REFUSE COLLECTION VEHICLES

Charles R. Toppins; Samuel E. Harvey; Harvey W. Liberman, all of Knoxville; Houston Ratledge, Maryville, and Steven C. Voorhees, Oak Ridge, all of Tenn., assignors to Dempster Brothers, Inc., Knoxville, Tenn.

Division of Ser. No. 59,453, July 30, 1970, Pat. No. 3,696,951.
This application Feb. 18, 1972, Ser. No. 227,504
Int. Cl. B65f *3/04*
U.S. Cl. 214—152 **8 Claims**



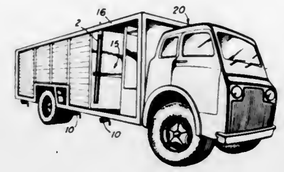
A rear loader for refuse collection vehicles. The rear loader includes a housing with an opening through which refuse is deposited in a hopper. A movable packer plate in the housing moves in opposition to the bottom of the hopper to partially compress the material and subsequently to convey the material through a discharge opening into the body of the vehicle. The packer plate in the housing also cooperates with an ejector plate in the body to further compress the refuse contained within the body.

3,786,947

MOVABLE SHELF APPARATUS

James Pressley Craft, III, College Park, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed June 12, 1972, Ser. No. 261,851
Int. Cl. B60p *1/44*; B65d *9/00*
U.S. Cl. 214—75 R **11 Claims**



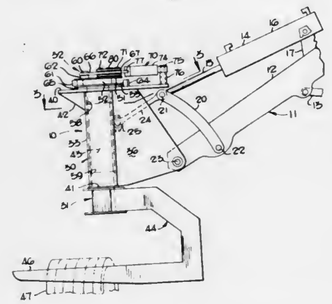
A movable shelf apparatus is described which is capable of being adjustably positioned within a bay of a truck or trailer body for article separation purposes and for supporting, handling, and transporting stacked articles during transit from manufacturing points to sales points. The movable shelf apparatus includes a shelf that is supported within the bay by four roller chains that are recessed within the divider bay walls of the truck or trailer body. The shelf is inclined towards the center of the truck or trailer body to minimize slippage of the articles during transit. The roller chains are driven by a rachet and gear arrangement that is positioned below the compartment floor line of the truck or trailer body so as not to interfere with the interior of the bays and any forklift pallet interface.

3,786,948

MATERIAL HANDLING ATTACHMENT

Norman R. Golden, 718 West Main Street, Carlinville, Ill.

Filed Jan. 17, 1972, Ser. No. 218,128
Int. Cl. B66c *23/00*
U.S. Cl. 214—130 C **6 Claims**



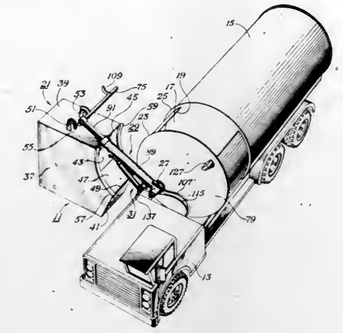
This material handling attachment is adapted to be mounted to the boom of a backhoe. The attachment includes a base assembly for rotatively mounting a shaft assembly having a tiltable axis of rotation. The shaft assembly includes a hook at the lower end providing a transverse loading arm suitable for manipulating bales of coiled wire. The shaft assembly is rotatable through more than 180° of arc by means of a hydraulic actuating assembly providing a compound linkage, which is connected at one end to the shaft assembly and at the other end to the base assembly.

3,786,949

APPARATUS FOR SIDE PICK UP REFUSE COLLECTION

William H. Sutton, 7400 Smithfield Rd., Fort Worth, Tex.

Filed Oct. 16, 1972, Ser. No. 297,687
Int. Cl. B65f *3/02*
U.S. Cl. 214—302 **5 Claims**



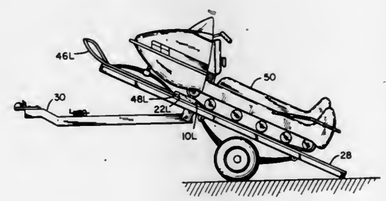
Apparatus for collecting refuse and loading the refuse onto a side-loading, refuse collection vehicle having a bed and a loading compartment with a top opening aperture therein, characterized by: a trash container that includes a sloping front wall for dumping the trash from the container when it is inverted, doors, loading hooks, and a pair of arcuate track engaging means for maintaining the container in place when it is inverted onto the bed of the vehicle and preventing escape of trash; a pair of arcuate tracks mounted on the vehicle; a base connected to the front of the bed of the vehicle so as to accommodate lateral motion of a pick up arm; and an extensible and retractable L-shaped cantilever pick up arm for being moved outwardly to pick up, invert, and lower the trash container by its hooks responsive to operation of the controls by only a driver of the vehicle, without requiring rolling of the container into position by a helper. Also disclosed are preferred structural embodiments, including safety catches and the like.

3,786,950

APPARATUS FOR LOADING SNOWMOBILES ON TRAILERS

Andrew S. Zemien, 6311 Jefferson St., Fridley, Minn.

Filed Dec. 29, 1972, Ser. No. 319,519
Int. Cl. B60p *3/00*
U.S. Cl. 214—506 **4 Claims**



An attachment for facilitating the loading of a snowmobile on a tilting type trailer is described. The attachment, in its simplest form, comprising a pair of ramp-like members, each ramp terminating in a sheer dropoff, and having one side defining a guide and adapted to be removably-secured to the trailer bed. As the snowmobile is driven onto the trailer, its skis engage the guide attachment and are steered up the ramps until the trailing edges of the skis fall off the sheer dropoff

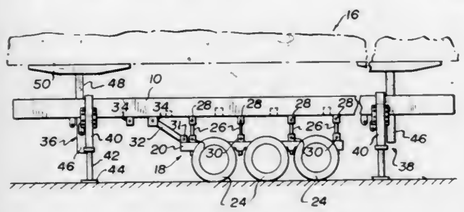
back onto the trailer bed, thus giving a positive indication that the snowmobile is in a desired position on the trailer bed. The sheer dropoff of the ramps also provide a restraining surface in holding the snowmobile in a desired location on the trailer and prevent it from sliding back down the trailer's inclined bed.

3,786,951

MODULAR STRUCTURE TRANSPORTING APPARATUS

Paul H. Ruff, Decatur, and Jerome C. Schnur, Champaign, both of Ill., assignors to Tryco Manufacturing Company, Inc., Decatur, Ill.

Filed Nov. 1, 1971, Ser. No. 194,634
Int. Cl. B60p *1/02*
U.S. Cl. 214—512 **3 Claims**



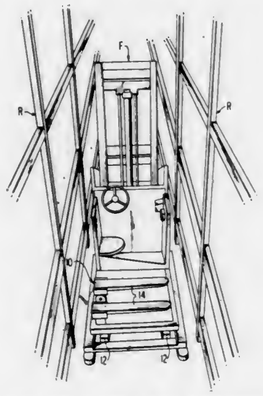
A trailer for transporting modular building structures from a point of assembly or storage to a point of permanent installation. The same includes an elongated frame having sufficient strength to receive and support a modular building structure and a wheeled carriage secured to the underside of the frame for vertical movement relative to the frame so that the height of the frame above the terrain over which it may travel may be varied. The frame also mounts a plurality of pairs of jacks with one jack on each pair adapted to engage the underlying terrain to raise or level the frame relative thereto and the other jack in the pair adapted to move an element upwardly to engage the underside of a modular building structure. Each pair of jacks is pivotally mounted of the frame for movement between the above operative position and traveling position and the arrangement is such that the weight of one jack generally counterbalances the other of the pair so that the same may be easily manipulated.

3,786,952

BI-DIRECTIONAL FORK APPARATUS

Richard E. Nearman, Rt. 3 Box 90, Mount Airy, Md.

Filed Nov. 1, 1972, Ser. No. 302,643
Int. Cl. B66f *9/14*
U.S. Cl. 214—731 **16 Claims**



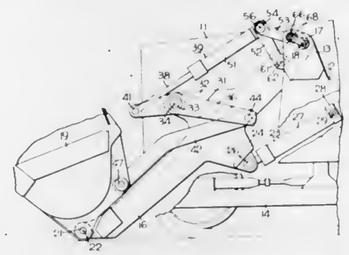
Bi-directional, side loading fork apparatus adapted to be mounted on a vertically movable mounting structure or base mounted on a lift vehicle of any suitable construction. The lift vehicle is adapted to be positioned and operated in an aisle between two storage racks where pallets are to be stored. A supporting frame is mounted on the base and is laterally movable relative thereto, the frame being of a width that is only slightly less than that of the aisle between the storage racks. A shuttle platform or head is mounted on the supporting frame and is laterally movable relative thereto between the storage racks. A pair of forks are rotatably mounted on the shuttle platform for rotation about a substantially vertical axis so that the direction of the forks can be reversed. Means are provided on the shuttle platform for guiding one of the forks over the other fork as they are simultaneously rotated during reversal of their positions. The forks and shuttle platform are so interconnected that the forks are rotated to accomplish reversal as the shuttle platform is moved laterally between the storage racks. In this manner, the direction of the forks can be reversed without the forks extending beyond the width of the supporting frame, thereby minimizing the aisle space required for the subject side-loading fork apparatus and allowing 100% selectivity of pallets in any given storage rack aisle without the necessity of reversing the direction of the lift vehicle.

3,786,953

LOADER LINKAGE

Robert L. Crum, and Ishwarlal P. Patel, both of Springfield, Ill., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 307,054
Int. Cl. E02f *3/00*
U.S. Cl. 214—776 **10 Claims**



The bucket control linkage of a tractor loader includes a vertically disposed lever pivotally connected intermediate its upper and lower ends to a boom. A dump link is interconnected between the lower end of the lever and the upper rear of the bucket. The bucket control linkage also includes a bucket operating jack having its front rod end pivotally connected to the upper end of the lever and its rear cylinder end pivotally connected to a special linkage. The special linkage includes a pair of pivotally interconnected links, one of which is pivotally connected to the boom and the other of which is pivotally connected to the tractor frame at a point spaced forwardly of the pivot connection between the boom and the frame. The special linkage to which the cylinder end of the bucket operating jack is connected, causes the bucket to automatically retract as the boom is raised through an initial angle toward its level position and then will cause the bucket to pivot forwardly relative to the boom to maintain the bucket in a proper material retaining altitude in relation to the ground. The various components of the bucket operating linkage are in line with the longitudinal vertical plane of the boom for ideal component stress distribution. The bucket is retracted by introduction of hydraulic fluid to the cylinder end of the dumping jack whereby the greatest possible breakout force is achieved by the jack. The rod end of the hydraulic jack is pressurized to dump the bucket thus giving the shortest possible dumping time. The connections between the bucket operating linkage and the frame of the tractor are relatively low thereby affording good operator visibility and desirable loader frame stress distribution.

ERRATA

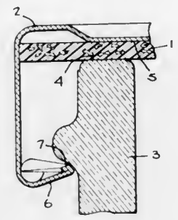
For Classes 214—16.40 A and 214—16.1 CB see:
Patents Nos. 3,786,929 and 3,786,930

3,786,954

CLOSURE CAP LINER

Robert W. Shull, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Pa.

Filed Oct. 18, 1971, Ser. No. 189,901
Int. Cl. B65d *53/04*
U.S. Cl. 215—40 **5 Claims**



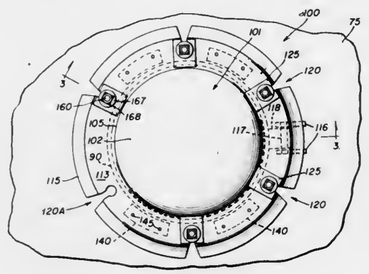
An improved cap liner is disclosed for use with a closure cap in sealing a container. The liner is cut from a foamed polyethylene sheet material. It provides an extremely tight seal for products such as fine powdered products where leakage has been experienced with prior liners. The foamed liner material has improved dynamic cushioning properties so that a tight seal is maintained at all times including handling and shipping operations of the sealed package. One embodiment of the closure is a laminate of the foamed sheet material and a thin air impervious film such as a saran resin film.

3,786,955

MANWAY COVER FOR TANK CARS

Erling Mowatt-Larssen, Warren, Ohio, assignor to General American Transportation Corporation, Chicago, Ill.

Filed Aug. 30, 1971, Ser. No. 176,000
Int. Cl. B65d *41/00*
U.S. Cl. 220—55 E **6 Claims**



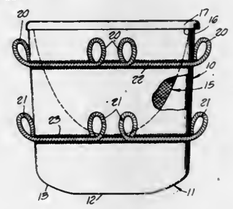
A manway cover assembly for a pressurized railway tank car comprises an integrally constructed cover plate having a generally cylindrical side wall portion and a sealing flange extending outwardly from the side wall portion substantially normal thereto and a stiffening flange sloping downwardly and outwardly from the sealing flange, a gasket held in place on the sealing flange by four retaining plates for sealing engagement with the manway rim, six spaced-apart notches formed in the periphery of the cover plate, one of the notches having a relatively narrow neck portion and a relatively wide base portion, six eye-bolt and nut assemblies pivotally mounted on the manway for movement between locking positions respectively disposed in the notches for holding the cover plate in sealing relationship with the manway and releasing positions disposed out of the notches, a sleeve surrounding the shank of the bolt corresponding to the one notch and constructed and arranged to be accommodated only in the wide base portion of the one notch when the cover plate is closed, whereby the one bolt cannot be pivoted from its locking position until a cover plate is loosened and lifted a predetermined distance sufficient to clear the sleeve from the notch and relieve the pressure in the tank.

3,786,956

CONTAINER FOR EXPLOSIVE CHARGE

Patrick M. Tabor, 101 S. LaSenda Dr., South Laguna, Calif.

Continuation-in-part of Ser. No. 27,626, April 13, 1970, abandoned. This application June 3, 1970, Ser. No. 43,110
Int. Cl. B65d *25/14*
U.S. Cl. 220—63 R **7 Claims**



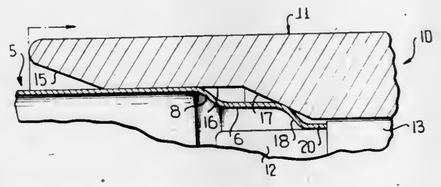
There is disclosed herein a container within which explosives, such as bombs, can be placed and transported for disposal. An exemplary container may be considered as essentially an elastic container, and is substantially cylindrical with an arcuate bottom and formed from a number of laminations of suitable material, such as fiberglass. A support member is provided in the container for holding the explosive charge from intimate contact with the container. The support member may be in the form of a net suspended in the container, foam material within the container, or the like. The structure of the container is such that if the bomb explodes the container delaminates rather than breaking apart in the form of flying fragments.

3,786,957

DOUBLE STAGE NECKING

John T. Hilgenbrink, Oak Lawn, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,681
Int. Cl. B65d *7/42*
U.S. Cl. 220—83 **2 Claims**



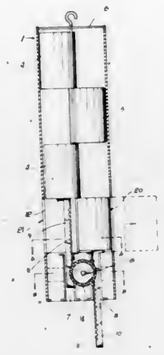
This disclosure relates to the necking-in of can bodies for the purpose of applying smaller diameter or special ends thereon. Previously experienced extreme difficulties in properly necking-in can bodies have been eliminated by first necking-in a larger than normal end portion of a can body to an intermediate diameter and then utilizing tooling for performing the desired necking in operation to further neck-in the extreme end portion only of the previously necked-in longer end portion.

3,786,958

DEVICE FOR SUPPORTING AND DELIVERING CONTAINERS IN A CONTROLLED FORM

Tita Zuccaro de Morgan, Guemes 1053, San Salvador de Jujuy, Argentina

Filed Apr. 3, 1972, Ser. No. 240,469
Claims priority, application Argentina, May 10, 1971, 235461
Int. Cl. B65g 59/06; A47f 1/08
U.S. Cl. 221—67 2 Claims



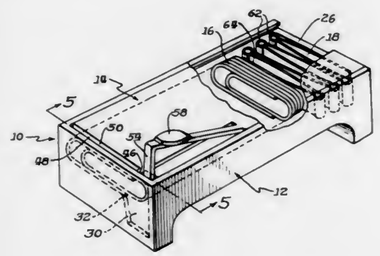
The present invention relates to a device for supporting and delivering containers in a controlled form. The containers are stacked in the device alternately in adjacent overlapping columns. A ratchet and gear wheel arrangement control a platform under each column to facilitate withdrawal through an opening in said device of one container at a time.

3,786,959

PAPER CLIP DISPENSER

Kenneth W. Greb, and Daniel W. Greb, both of 18 Stanford Dr., Glenview, Ill.

Filed Apr. 5, 1972, Ser. No. 241,224
Int. Cl. B65h 3/36
U.S. Cl. 221—261 5 Claims



A paper clip dispenser includes a housing having a base member and a cover member which cooperate to confine a plurality of paper clips in a side-by-side relationship and includes a spring for biasing the clips to a dispensing position. The cover member has an integral manually operable member for pivoting one end of a clip about an abutment and into a slot in the base member thereby projecting the other end of the clip through an exit aperture. The projected clip is ready to be lifted from the dispenser.

3,786,960

TRANSMITTER-OPERATED FUEL-DISPENSING SYSTEM

Robert B. Young, Buena Park, Calif., assignor to Pan Nova, Inc., Santa Fe Springs, Calif.

Filed Nov. 10, 1971, Ser. No. 197,244
Int. Cl. G07f 13/00
U.S. Cl. 222—2 4 Claims



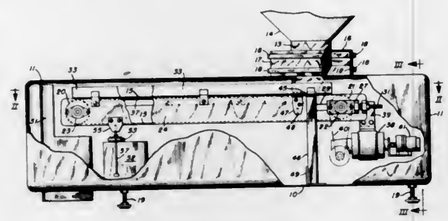
A gasoline-dispensing system includes a portable transmitting unit for each service attendant and a plurality of transmitter-operated dispensing units. Each transmitting unit is connectable to any one of the dispensing units and has manually operable switching means cooperating with the interconnected dispensing unit for generating credit signals which are accepted and registered in the dispensing unit. A meter in each transmitting unit accumulates and indicates a running total of the number of accepted credits attributable to that transmitting unit. After the desired number of credits are accepted in the dispensing unit, the transmitting unit is removable to be used elsewhere while a customer serves himself. Each dispensing unit includes valves and means for closing them when the value of gasoline dispensed equals the number of credits accepted. A coin-return mechanism is provided for returning change to the customer as necessary.

3,786,961

SET RATE GRAVIMETRIC FEEDER

Eugene A. Wahl, 460 Ridgewood Ave., Glen Ridge; Cornelius Debonte, Jr., 1 Birch Rd., Little Falls, and Ralph J. Winters, 138 Crestview Ave., Nutley, all of N.J.

Filed Oct. 5, 1972, Ser. No. 295,113
Int. Cl. G01g 11/12
U.S. Cl. 222—55 8 Claims



A set rate gravimetric feeder for use with particulate materials and comprising an endless belt mounted for pivotal displacement about a horizontal axis. Material from a hopper is delivered onto the belt and the weight of the material on the belt is sensed by a transducer which effects operation of a control system for automatically adjusting the belt speed to maintain a discharge of the material from an end of the belt at a pre-set rate.

3,786,962

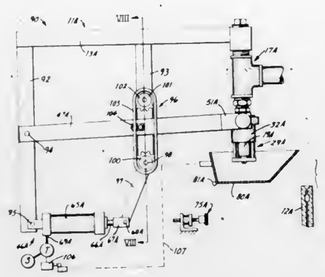
MOLTEN METAL DOSING SYSTEM

Ronald C. VanLinder, Watervliet, Mich., assignor to Kalamazoo Manufacturing Company, Kalamazoo, Mich.

Filed Nov. 15, 1971, Ser. No. 198,686
Int. Cl. B22d 37/00
U.S. Cl. 222—56 9 Claims

Apparatus for dispensing a measured and adjustable amount of molten lead into a mold and incorporating a self-

cleaning valve for controlling the amount of lead dispensed. The valve mechanism includes a tube supplied with molten lead, the lower end thereof being disposed above a trough pivotable for pouring lead into a mold. A substantially cylindrical valve element is slidably receiving in the lower end of the tube with a clearance through which the molten lead flows in the open condition of the valve, such flow washing the valve element and tube to maintain same clean. The valve element has a substantially conical inner end to assist cleaning the



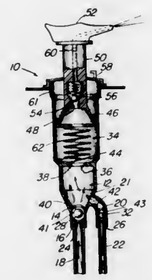
inner wall of the tube upon sliding therein and further has a radially extending, tapered sealing portion adapted to close the end of the tube for preventing lead flow therefrom. Means connect the valve element to a slider telescoped on the tube. A pivoted lever connects between a motive power source and gimbal means connected to the slider, the lever being pivotally supported for transferring motion of the motive power source to the slider and valve element with a mechanical advantage. Means coact with the lever for adjustably limiting opening motion of the valve.

3,786,963

APPARATUS FOR DISPENSING MIXED COMPONENTS

Gottfried Metzler, III, Lancaster, Pa., assignor to The Mennen Company, Morristown, N.J.

Filed Nov. 4, 1971, Ser. No. 195,714
Int. Cl. B67d 5/50
U.S. Cl. 222—136 2 Claims



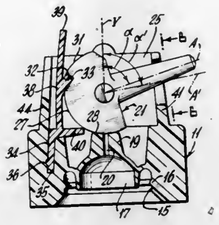
An apparatus for dispensing mixed components including a mixing chamber, first means for directing a first liquid component into the mixing chamber, second means for directing a second liquid component into the mixing chamber, valve means for normally preventing the liquid components from entering the mixing chamber from the first and second component directing means, and pump means for opening the valve means to withdraw the liquid components into the mixing chamber for mixing and dispensing of the resulting product from the mixing chamber.

3,786,964

SAFETY MECHANISM FOR A LIQUID-DISPENSING CONTAINER

William James Landen, Cheshire, Conn., assignor to Eyelet Speciality Company, Wallingford, Conn.

Filed Sept. 15, 1972, Ser. No. 289,245
Int. Cl. B67b 5/00
U.S. Cl. 222—153 12 Claims



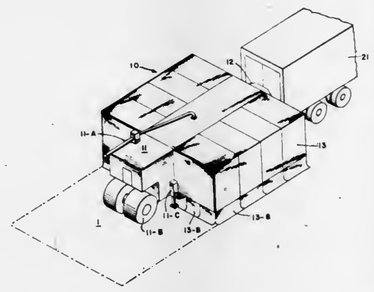
The invention contemplates application to liquid-dispensing closures of the type in which a dispensing nozzle is rotatable between a first or liquid-dispensing position and a second or container-closing position. Safety features are provided by latch or dogging elements which automatically set a dogged condition of the nozzle at the second or container-closing position, and a deliberate and totally separate manual actuation of the latch mechanism is required to disenage the dogged condition, in order to permit nozzle actuation to the first or liquid-dispensing position.

3,786,965

FLUID DISPENSER MANIPULATION

James R. James, Louisville, and Kay E. Eliason, Fort Madison, both of Iowa, assignors to Atlantic Richfield Company, New York, N.Y.

Filed Nov. 10, 1971, Ser. No. 197,219
Int. Cl. A01c 15/00
U.S. Cl. 222—176 19 Claims

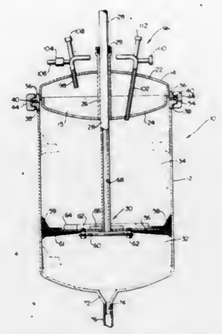


Described is apparatus for dispensing fluid materials such as urethane foams onto terrestrial substrates, in a precisely controlled manner with high thickness uniformity and including such sub-components as chain driven reciprocated carrier means, coupling means and accessories, and supplemental conduit suspension means.

3,786,966
APPARATUS FOR DISPENSING FLOWABLE HIGH-DENSITY MATERIAL

Gage B. Behunin, Arvada; Eugene A. Cole, Denver, and Charles R. Staadt, Aurora, all of Colo., assignors to Masonry Systems, Inc., Westminster, Colo.

Filed Oct. 26, 1971, Ser. No. 192,016
Int. Cl. E04g *21/04*
U.S. Cl. 222—387 17 Claims



A pressurized pot for dispensing mortar includes a cylindrical tank having a piston with a hollow piston rod mounted for reciprocal movement therein. The piston divides the tank into a compression chamber and a mortar supply chamber, the mortar supply chamber having an outlet connected to an adjustable trowel through which mortar may pass. A removable hermetically sealable cap for the tank has a compressed air reserve chamber and a pressure line connecting the reserve chamber to the compression chamber through a pressure regulator valve. The hollow piston rod fluidically connects the mortar supply chamber to the atmosphere and includes a rubber valve which seals or closes the opening in the piston rod when the piston engages the mortar so that mortar cannot pass therethrough but allows air entrapped in the mortar supply chamber to escape until the valve closes.

3,786,967
PRESSURE RELIEF SYSTEM FOR AN AEROSOL CONTAINER

James Donald Giocomo, Schaumburg, and Harry Anthony Grosso, Wheeling, both of Ill., assignors to American Can Company, Greenwich, Conn.

Continuation of Ser. No. 75,470, Sept. 25, 1970, abandoned.
This application June 8, 1972, Ser. No. 261,126
Int. Cl. B65d *83/00*
U.S. Cl. 222—397 5 Claims

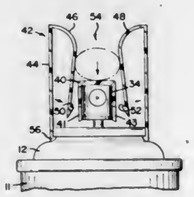


A metal container that is adapted to hold a pressurized product for dispensing through a valve mounted on the container. The container has a safety venting system therein, whereby the product may be vented from a filled pressurized container through the system when an increase in internal pressure threatens to blow an end off the container. The venting system comprises a plurality of scores formed in the upper seam where the container body is jointed to the dome closure of the container. When the internal pressure of a filled container increases sufficiently the periphery of the dome buckles outwardly causing the residual of the scores to fracture and thus produce a plurality of vents to permit the highly pressurized contents of the sealed container to safely escape and prevent end blow off.

3,786,968
CHILDPROOF SAFETY ADAPTOR

Ronald F. Ewald, Rolling Meadows, Ill., assignor to Seaquist Valve Company, Division of Pittway, Cary, Ill.

Filed Aug. 18, 1972, Ser. No. 281,917
Int. Cl. B65d *83/14*
U.S. Cl. 22—402.11 9 Claims

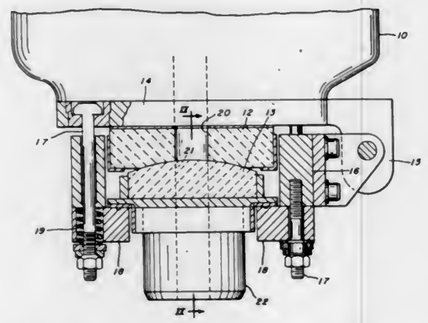


A childproof safety adaptor for an aerosol dispenser comprising an adaptor having a pair of spaced finger guides attached thereto by resilient interconnecting means, each finger guide includes a locking ledge arranged to operatively engage the button actuator to prevent actuaton of the dispenser when in the "locked" position. The spaced separation of the finger guides is such that a finger inserted therebetween moves the finger guides outward relative to each other moving the locking ledges out of operative engagement with the button actuator thereby permitting vertical movement of the button actuator for actuation and wherein upon removal of the finger from between the finger guides, the locking ledges automatically return to the "locked" position.

3,786,969
SLIDING-GATE CLOSURE CONSTRUCTION FOR BOTTOM-POUR VESSELS

Calvin E. Kelly, Franklin Twp., Westmoreland County, Pa., assignor to United States Steel Corporation

Filed Apr. 17, 1972, Ser. No. 244,518
Int. Cl. B65d *47/00*
U.S. Cl. 222—561 4 Claims

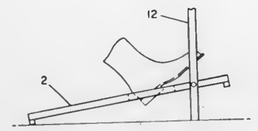


A slidable gate construction for use as a closure on a bottom-pour vessel, such as a ladle or tundish used for pouring liquid metal. The novel feature is that the upper face of the gate is convex when viewed in cross section. The underface of the top plate has a mating concave face.

3,786,970
BOOT AND SHOE PULLER

Lemuel Claude Dixon, 6252 S. Pennsylvania, Littleton, Colo.

Filed Feb. 15, 1973, Ser. No. 332,563
Int. Cl. A42c *1/04*
U.S. Cl. 223—15 3 Claims

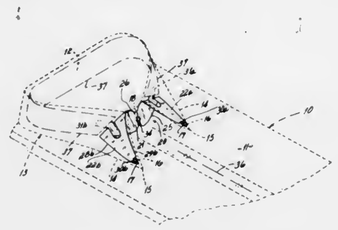


An improved and durable device allowing the quick and easy removal of boots or of high-top shoes, is herein disclosed. The current invention incorporates, with the use of an elongated foot-board and integral hand-grip, an improved means of stabilizing the device and utilizing maximum leverage to facilitate the shoe or boot removal.

3,786,971
SKIRT COLLAR SUPPORT

Robert I. Lojinger, 6405 Shadyglen, Cincinnati, Ohio

Filed Feb. 5, 1973, Ser. No. 329,756
Int. Cl. D06c *15/00*
U.S. Cl. 223—83 7 Claims

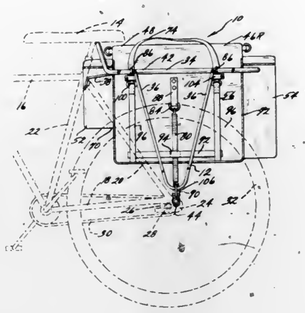


A shirt collar support particularly adapted for use with button-down type collars. The collar support includes a wing section extending outwardly from each end of a center section, a symmetry axis that extends through the center section dividing the collar support into mirror image right and left hand halves. Each wing section is folded in the same direction relative to the center section on a fold line disposed at an angle of about 45° relative to the symmetry axis. In use, the collar support's center section is wrapped around the front of the shirt's collar band, same being held positively in location by engaging the shirt's collar button with a collar button slot formed in the center section. The collar support is positioned relative to the shirt's collar band so that each of the wing sections extends outwardly from the shirt's collar band about the fold lines, thereby underlying the points of the shirt's collar and lifting the collar's points upwardly into collar configuration away from the body of the shirt.

3,786,972
COMBINATION PANNIER BAG, VALISE AND BACK PACK

Hartley R. Alley, 970 Gillaspie Dr., Boulder, Colo.

Filed Dec. 27, 1971, Ser. No. 212,060
Int. Cl. B62j *9/00*
U.S. Cl. 224—31 3 Claims

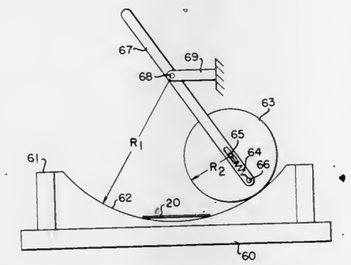


This invention relates to a pair of stiff-backed compartmentalized fabric bags having marginal fasteners for use in releasably connecting the bags together in back-to-back relation so as to form a unitary valise and, in addition, a three-hook harness subassembly on the back of each bag by means of which they can either be hung on opposite sides of a rear fender luggage carrier of a bicycle to form pannier bags or, alternatively, fastened in stacked superimposed relation on a pack frame to form a back pack.

3,786,973
METHOD AND APPARATUS FOR BREAKING SEMICONDUCTOR WAFERS

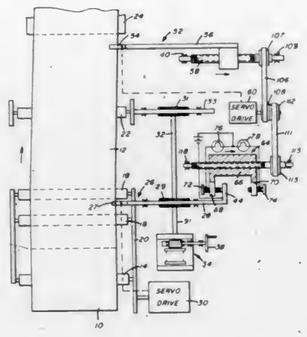
Dale R. Bussman, Dayton; Frederick K. Bell, Centerville, and David E. Filsinger, Dayton, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Mar. 28, 1972, Ser. No. 238,825
Int. Cl. B26f *3/00*
U.S. Cl. 225—2 8 Claims



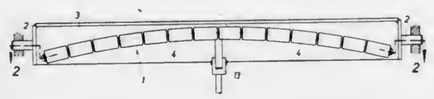
The semiconductor wafers, containing a plurality of electrical circuits, are scribed along critical lines so as to provide weakened portions for ease of breaking the wafers along such lines. The wafer is placed between two cylindrical surfaces of prescribed radii, one larger than the other, and a predetermined load is impressed to deform the wafer and to accurately control the stresses throughout the wafer for breaking the wafer into dice containing individual circuits.

3,786,974
WEB EDGE GUIDE SYSTEM
Martin W. Kron, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 19, 1972, Ser. No. 273,236
Int. Cl. B65h 25/26
U.S. Cl. 226—19 14 Claims



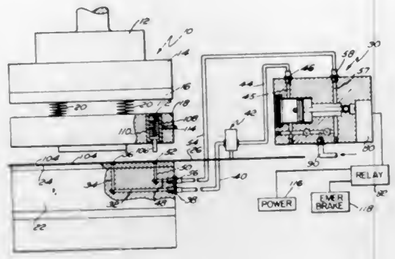
Apparatus for limiting the maximum lateral web shift initiated by a web guiding system to a predetermined safe amount. A first web edge sensor adjacent the supply roll senses deviations from a normal web edge position and generates a correction signal which causes a servo-drive system to axially move the web supply roll in a direction to return the web to its normal position. A second web edge sensor longitudinally spaced along the web from the first sensor senses the web edge, and in response thereto positions stop members which limit corrective lateral shift of the first edge sensor to a predetermined safe amount.

3,786,975
APPARATUS FOR BROAD-DRAWING SHEET MATERIALS
Willia Heymanns, Hemmerden Ub. Neuss, Germany, assignor to Jagenberg Werke AG, Dusseldorf, Germany
Filed July 7, 1972, Ser. No. 269,695
Claims priority, application Germany, Aug. 5, 1971, P 21 39 159.3
Int. Cl. B65h 17/20
U.S. Cl. 226—194 5 Claims



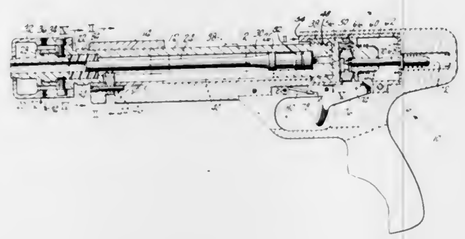
In a broad-drawing roll for moving webs of paper or the like, including a plurality of individual roll sections defining an arcuate curve to spread the web, the improvement which comprises a plurality of supporting bearings provided between the individual roll sections, said bearings being adjustable selectively and independently of one another and thereby determining the degree of curvature defined by said roll sections. Each roll section is mounted in freely rotatable fashion on its own shaft of substantially the same length as the section. Bearings, comprising two halves meeting along a line diametrically of the shaft, occupy substantially the full small space between adjacent roll sections.

3,786,976
SENSOR SYSTEM FOR AUTOMATIC TOOLING
Patrick J. Murphy, II, 96 North St., Middleboro, Mass.
Filed June 21, 1972, Ser. No. 264,835
Int. Cl. B65h 25/32, 25/08; B26d 7/24
U.S. Cl. 226—48 15 Claims



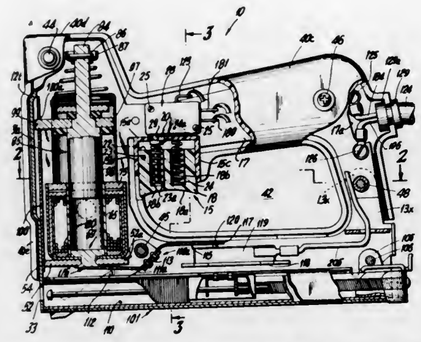
A device is disclosed for detecting a variation in position from normal of a work material as located in a work fabricating machine. The device includes a sensor system that communicates with a work station in said machine and includes a sensing unit through which a fluid under pressure is directed, an equilibrium condition of said sensing unit being established in accordance with the flow of fluid therethrough when the work material is in the normal position thereof at the work station. Should the work material be located out of the normal position at the work station, the equilibrium condition of the sensing unit is disturbed and the sensing unit is operative to discontinue the operation of the machine.

3,786,977
EXPLOSIVE FASTENER DRIVING TOOL
Thomas P. Shamaly, Shelton, Conn., assignor to USM Corporation, Boston, Mass.
Filed May 23, 1972, Ser. No. 256,085
Int. Cl. B25c 1/14
U.S. Cl. 227—8 10 Claims



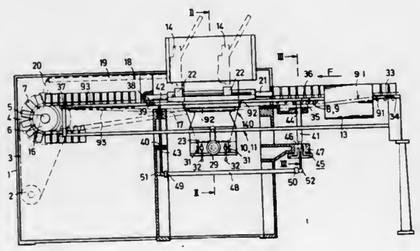
An explosive fastener driving tool of the "push to fire" type comprises a barrel which is axially slidable and rotatable in a receiver to and from breech closed and locked position. The receiver pivotally supports a safety pawl slidable in a longitudinal slot in the barrel to return a driving ram therein to its initial operating position. Additionally the pawl prevents tool cocking unless the barrel is locked in operating position. The pawl is removed from the barrel by breech locking movement to allow the ram to impact a buffer in the event of overdrive thus avoiding damage to the pawl.

3,786,978
ELECTROMAGNETIC STAPLER
George F. Manganaro, Lake Hiawatha, N.J., assignor to Electro-Matic Staplers, Inc., Woodcliff Lake, N.J.
Filed June 5, 1972, Ser. No. 259,398
Int. Cl. B25c 1/06
U.S. Cl. 227—8 24 Claims



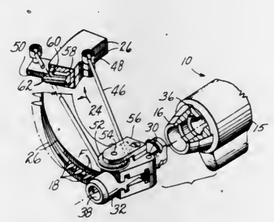
This electro-magnetic stapler is hand held and has a circuit including a trigger switch, which when actuated, energizes an electro-magnetic load coil to operate the stapler. When the trigger is held in an actuated condition for sufficient time the operation of the stapler is repeated. A safety switch controlled by work engaging means on the stapler, prevents operation of the stapler unless said work engaging means contacts the work piece. The staple driving blade is at the front end of the stapler to facilitate locating the stapler relative to the place where the stapling is to be done. The trigger switch assembly permits a smooth operation. The assembly of the stapler permits a pair of split plastic covers to be removed without effecting the innards of the stapler. The plunger movement is shock absorbed at opposite ends of its movement. The circuit parts and components are housed in the stapler and mounted on a non-conductive plate disposed in the handle portion of the stapler.

3,786,979
STITCHING MACHINE FOR A STACK OF SHEETS
Hans Muller, Zofingen, Switzerland, assignor to Grapha Maschinenfabrik Hans Muller AG, Zofingen, Switzerland
Filed Mar. 2, 1972, Ser. No. 231,252
Claims priority, application Switzerland, Apr. 8, 1971, 5210/71
Int. Cl. B27f 7/08
U.S. Cl. 227—44 10 Claims



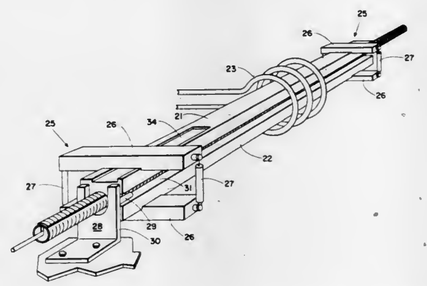
A stitching machine for stitching a folded stack of sheets along a fold line by a stitching head cooperating with a clinching anvil, has two conveyors located on opposite sides of the clinching anvil for transporting and carrying the angularly spread stack portions, while the inside of the fold line slides on the clinching anvil whose position is adjusted to the thickness of the stack. Manual means are provided for raising and lowering the conveyors with the stacks also in accordance with the thickness of the transported stacks and with the adjusted position of the clinching anvil.

3,786,980
MECHANISM FOR FEEDING WASHER-CARRYING FASTENERS
La Roy B. Passer, Seymour, Conn., assignor to USM Corporation, Boston, Mass.
Filed July 14, 1972, Ser. No. 271,680
Int. Cl. B25c 1/14
U.S. Cl. 227—120 6 Claims



A fastener driving tool is provided at its muzzle end with a circular magazine slidably carrying washer-bearing fasteners, and a spring-urged follower in the magazine is arranged to position the fasteners successively in driving position in the tool. The magazine is preferably mountable for rotation about the driving axis to enable the fasteners to be conveniently supplied regardless of restricted space in which to operate the tool. The magazine preferably is detachably mountable to enable a similar feeding device to supply a different size of washer-carrying fastener.

3,786,981
CONTINUOUS SOLDERING APPARATUS
Dan Bryan Davis, Ile Perrot, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Feb. 25, 1972, Ser. No. 229,321
Int. Cl. B23k 1/00
U.S. Cl. 228—4 1 Claim

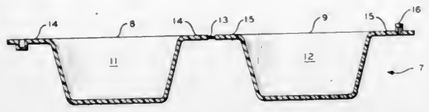


Soldering apparatus, and method, for soldering a butt strap over a butt joint of a tube, particularly a corrugated tube, as used for the outer conductor of a coaxial cable. The soldering member is in two opposed parts acting on the strap and tube to maintain the strap in correct alignment and in intimate contact while soldering, the soldering member floating and sliding on the tube.

3,786,982
THERMOFORMED SNAP CLOSURES

James L. Rakes, and Wayne E. Cooper, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 17, 1971, Ser. No. 199,422
Int. Cl. B65d 1/26; A44b 17/00
U.S. Cl. 229—2.5 8 Claims

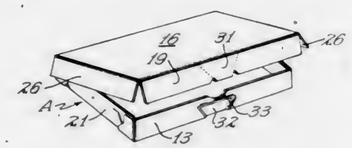


An at least substantially cylindrical columnar projection thermoformed in a first sheet of a thermoformable polymeric material and an at least substantially cylindrical columnar depression thermoformed in a second sheet are employed as a snap fastener. The exterior dimensions of the columnar projection and the interior dimensions of the columnar depression permit the insertion of the columnar depression with significant frictional engagement therebetween.

3,786,983
CARTON OPENER

Russell J. Hennessey, St. Paul, Minn., assignor to Hoerner Waldorf Corporation, Ramsey, Minn.

Filed Mar. 1, 1971, Ser. No. 119,622
Int. Cl. B65d 5/54
U.S. Cl. 229—51 WB 2 Claims

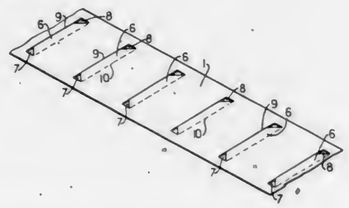


Two layers of paperboard are sealed together. An intermediate area of one lyaer is embossed outwardly away from the other so that the other layer is out of contact with the one layer when the layers are sealed. This leaves the embossed area free of adhesion to the other layer so that it may be grasped for removal.

3,786,984
CONTINUOUS STRIP ENVELOPES

Pierre Malenge, Raches, France, assignor to S.A. Dite Societe D'Exploitation Des Establissements Malenge, Raches, France

Filed Sept. 23, 1971, Ser. No. 182,990
Claims priority, application France, Sept. 23, 1970, 70.34944 Int. Cl. B65d 27/10
U.S. Cl. 229—69 8 Claims



A continuous strip of successive detachable envelopes in the form of continuous stationery for use in printing mechanism of calculators or computers is produced from superimposed punched webs one of which has folded edge portions forming tabs which are coated with adhesive and bonded to an opposed web, the webs being also bonded along a transverse line between the terminal ends of the side tabs to form successive envelope elements having internal dimensions substantially equal to the external dimensions. In a preferred construction a tab formed in the opposed web is bonded to a transverse adhesive line applied to the first web to form the bottom of the envelope and said first web is shaped so that on detachment of each successive envelope element a tuck-in flap is left for the envelope next to be detached. Preferably the opposed web is extended laterally to provide a marginal portion bearing sprocket feed holes, said marginal portions being capable of being detached after detachment of successive envelopes from the strip.

3,786,985
BLOOD COLLECTION CONTAINER

Murray Aaron Blaivas, New York, N.Y., assignor to Hoffman-La Roche Inc., Nutley, N.J.

Filed Jan. 5, 1973, Ser. No. 321,430
Int. Cl. B04b 9/12
U.S. Cl. 233—26 1 Claim

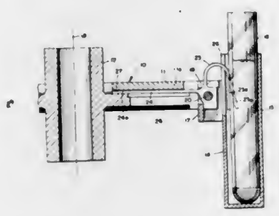


An improved blood collection container having a reduced portion disposed between its closed longitudinal ends and a stopper means disposed therein and adopted under the influence of centrifugal force to be securely received in the reduced portion is described.

3,786,986
CENTRIFUGE ROTOR ASSEMBLY

Michael Carl Guerrero, Miami, Fla., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Sept. 7, 1972, Ser. No. 287,095
Int. Cl. B04b 9/12
U.S. Cl. 233—26 13 Claims

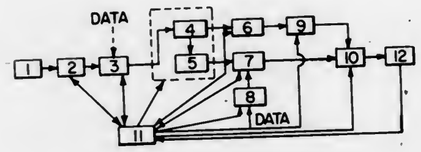


An improved centrifuge rotor assembly having a plurality of tube-receiving sleeves pivotally mounted about the periphery of the rotor, each sleeve being associated with a spring member. Each spring has a pair of flexible fingers, one of which is disposed within the tube-receiving sleeve for frictionally holding a centrifuge tube within that sleeve. The other finger bears against the rotor to urge the sleeve into a vertical position, thereby cushioning pivotal movement of the sleeve (and the tube supported therein) under the influence of centrifugal force as the rotor accelerates, and holding such sleeve in a position generally parallel with the axis of the rotor when the rotor is stationary.

3,786,987
METHOD OF AUTOMATICALLY MAKING PATTERN CARDS FOR JACQUARD LOOMS

Shigeru Nishikawa; Hitoshi Akami, and Atsuo Shibuya, all of Tokyo, Japan, assignors to Director-General of agency of Industrial Science and Technology, Tokyo-to, Japan

Filed Sept. 29, 1971, Ser. No. 184,925
Claims priority, application Japan, Sept. 29, 1970, 45-85272
Int. Cl. G06k 1/02
U.S. Cl. 234—2 2 Claims

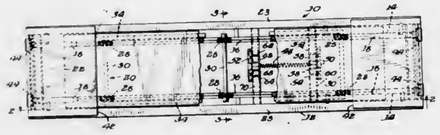


A method of automatically making pattern cards for Jacquard looms or for controlling the operation of the loom directly in which the pattern or design to be woven is scanned directly and signals corresponding to location and color of changes in such pattern or design are fed to a computer for controlling a card punching machine or the operation of the loom directly.

3,786,988
CORRELATOR FOR AUTOMOBILE WASHING INSTALLATIONS

William H. Thompson, Mount Prospect, Ill., assignor to Trans-Clean, Inc., Glenview, Ill.

Filed Feb. 25, 1972, Ser. No. 229,386
Int. Cl. B61b 13/12
U.S. Cl. 238—4 11 Claims

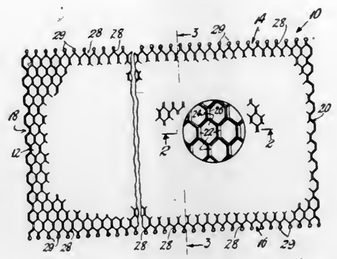


A correlator for properly aligning the front of a vehicle which is about to be washed in a conveyorized automatic auto laundry installation. A load-bearing plate is capable of lateral movement in two directions over a series of wheel assemblies which comprise no load-carrying bearings. The plate is returned to a null position after movement in either direction by a single, pre-loaded spring.

3,786,989
TRACTION MAT FOR AUTOMOBILES

Lincoln W. Haynes, 71 Raporeda Rd., Wilmington, Vt.

Filed Dec. 23, 1971, Ser. No. 211,220
Int. Cl. E01b 23/00
U.S. Cl. 238—14 1 Claim

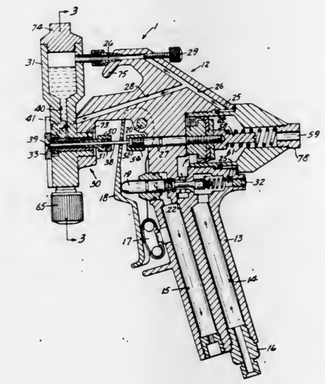


A traction mat for placement beneath the driving wheel of an automobile disabled on an ice- or snow-covered road. The mat comprises an inexpensive, one-piece, expendable elongate flat sheet of expanded metal such as metal lath, having a substantially rectangular shape and characterized by a plurality of slit portions formed by transverse slits in the metal. The sheet has a pair of opposite, longitudinal edge or margin portions formed by cutting across the sheet. This normally would result in a plurality of sharp protrusions which are formed by the cutting. To prevent injury to the user and daage to surrounding objects from scratching by the protrusions, a plastic substance is applied to the sharp protrusions, preferably by dipping the latter into a bath of plastic in a molten state and allowing the plastic substance to solidify, whereby the protrusions become coated with beads or globules of plastic.

3,786,990
PLURAL COMPONENT GUN

Gerald D. Hagfors, Columbia Heights, Minn., assignor to Graco Inc., Minneapolis, Minn.

Filed July 17, 1972, Ser. No. 272,607
Int. Cl. B05b 7/04
U.S. Cl. 239—112 10 Claims



An improved internal mix plural component spray gun. This gun is of the solventless type that has as its major method of purging the barrel bore that acts as a mixing chamber, a movable valve rod. The rod may have a spray pattern and mixing device on its front end. A lubricating device for the rod may

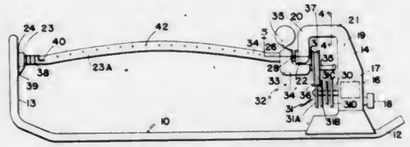
be added to this specific rod feature in combination or may be used by itself for any rod. The front end of the rod is rotated near the chemically-reactive plural component inlets to the mixing chamber to adjust the degree of change for the spray pattern and/or component mixing. Specially designed flatten deflecting rod surfaces accomplish this result. The rod may be made to reciprocate in its barrel bore to purge the mixed components and control the flow from the component inlets. This movement is aided by a lubricant supplied to the rod usually rearward of the component inlets. Such a lubricant substantially eliminates sticking of the movable rod in any of its positions and also acts to keep the rod clean. Fluid jets near the barrel front outlet also aid in cleaning the front end of the rod and preventing the mixed reactive plural components from fully reacting while on the valve rod. The lubricant may be gravity-fed or force-fed from a pressurized fluid source. If a pressurized fluid source is used, the same fluid may be used to simultaneously act as the mentioned rod-cleaning jets by actuating a single trigger valve.

3,786,991

WATER SPRINKLER

Lawrence Allister Ingham, Box 112, Lanigan, Saskatchewan, Canada

Filed Oct. 31, 1972, Ser. No. 302,554
Int. Cl. B05b *3/08*
U.S. Cl. 239—236 **4 Claims**



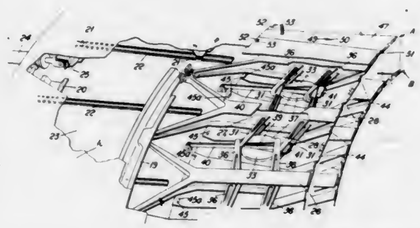
An oscillating tube is mounted in a frame and connected to a hose. The tube is oscillated by a water motor which drives a shaft carrying a plurality of cams for different patterns of water coverage. A wheel is connected to a carrier which in turn is secured to the tube and the wheel can be slid along a pin to engage any one of the fixed cams thus varying the pattern readily and easily and eliminating all linkage, crankshafts, connecting rods and the like normally present.

3,786,992

VARIABLE AREA NOZZLE FOR A GAS TURBINE ENGINE

Norman Robert Robinson, Duffield, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed May 31, 1972, Ser. No. 258,378
Claims priority, application Great Britain, June 11, 1971, 27417/71
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.39 **10 Claims**



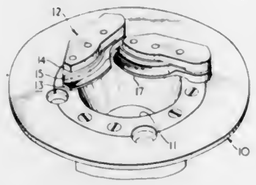
A variable area nozzle for a gas turbine engine comprises an annular array of primary flap members pivoted at their upstream ends for movement of their downstream ends towards or away from the axis of the array. The primary flap members are provided with roller tracks which co-operate with roller tracks of adjacent primary flap members to define tapered roller trackways. Rollers are positioned in the roller trackways such that relative axial movement between the rollers and roller trackways urges the downstream ends of the primary flap members towards or away from the axis of the array.

3,786,993

CONTROL SYSTEMS FOR ROCKET MOTORS

Brian Burgess, Bendley, and Geoffrey Philip Thorp, Kidderminster, both of England, assignors to Imperial Metal Industries (Kynock) Limited, Birmingham, Warwickshire, England

Continuation-in-part of Ser. No. 62,499, Oct. 10, 1970, abandoned, Continuation-in-part of Ser. No. 62,500, Oct. 10, 1970, abandoned. This application May 22, 1972, Ser. No. 255,668
Int. Cl. B63h *11/10*
U.S. Cl. 239—265.19 **6 Claims**



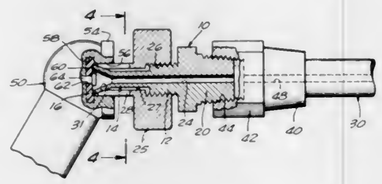
Thrust vector control system for a rocket motor comprising at least one spoiler blade pivotally mounted adjacent the exit end of the motor nozzle, the blade comprising an exhaust gas impingement element of refractory metallic material, a rigid metallic support, and an interposed layer of heat insulating material.

3,786,994

ADAPTOR UNIT FOR USE WITH FLUID NOZZLES

Charles E. Kukes, Glendale; Richard H. Volheim, Los Angeles, and Carl Erikson, Glendale, all of Calif., assignors to Alan Scott, Los Angeles, and Charles E. Kukes, Glendale, both of Calif.; a part interest to each

Filed July 27, 1972, Ser. No. 275,795
Int. Cl. F16k *15/20*
U.S. Cl. 239—569 **7 Claims**



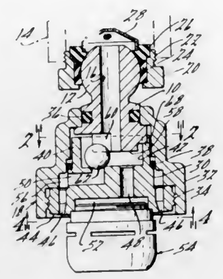
An adaptor unit adapted for sealing connection with a fluid nozzle, particularly, an air nozzle to provide connection between it and a tubular extension fitting having an air nozzle at the end particularly adapted for reaching into the valve stem of the inner of a pair of dual tires.

3,786,995

AERATOR SPRAY ATTACHMENT FOR FAUCETS

Alex Manoogian, Grosse Pointe Farms, and Eric V. Pullen, Northville, both of Mich., assignors to Masco Corporation, Taylor, Mich.

Filed May 3, 1972, Ser. No. 250,007
Int. Cl. E03c *1/084*
U.S. Cl. 239—428.5 **14 Claims**



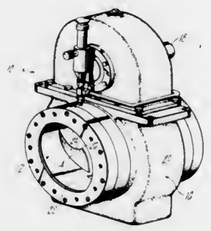
A combination spray and aerator device for attachment to a faucet to selectively discharge water in the form of a conical spray or an aerated stream. The device includes a housing attached to the faucet by a swivel member through which water is discharged into a chamber in the housing having two outlet ports, one of which discharges through an aerating device and the other of which discharges through spray-forming passages. A ball valve member in the chamber is adapted to close one outlet port while opening the other. Rotation of the housing on the swivel member brings one or the other of the outlet ports beneath the ball valve member so as to be closed thereby.

3,786,996

AXIAL FLOW UNIT

Harvey E. Richter, Farmington, Conn., assignor to The Tec Group Inc., Bloomfield, Conn.

Filed Mar. 20, 1972, Ser. No. 236,263
Int. Cl. B02c *18/18*
U.S. Cl. 241—46.17 **8 Claims**



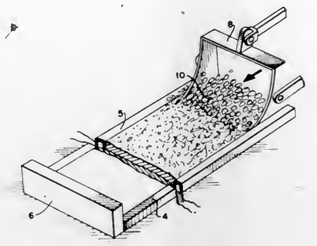
An axial flow unit is provided having a cylindrical rotor with impeller blades extending radially inwardly from the inside wall of the rotor and terminating in an elongated knife-like cutting edge. The radial distance of the cutting edge of each blade from the inside rotor wall progressively increases from one end of the blade toward its opposite end. The blades are arranged in helical symmetrical relation about the major longitudinal axis of the rotor, and a blade profile in a plane normal to that axis provides a projection with each blade in spaced relation to an adjacent blade.

3,786,997

APPARATUS FOR RECOVERING UNUSED CONCRETE

Richard L. Viner, 10110 Chapel Rd., Potomac, Md.

Filed Apr. 25, 1972, Ser. No. 247,464
Int. Cl. B02c *1/04*
U.S. Cl. 241—101.7 **3 Claims**



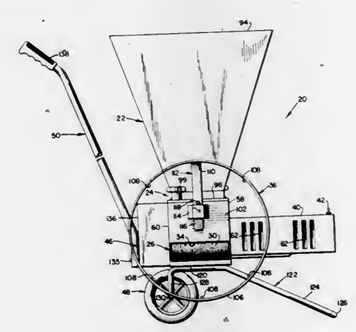
Apparatus and method for recovering unused concrete. A form is provided which is defined by a foundation having a backstop and rails or channel irons secured on the top surface along the sides of the foundation. Unused concrete is poured into the form, leveled to a depth of approximately one-half inch more than the size of the coarse aggregate in the concrete mixture and allowed to achieve final set. Crushing means is then moved forward in the form on the top surface of the foundation so that the hardened unused concrete is broken into relatively small particles which may be used as aggregate in new concrete mixtures.

3,786,998

COMMINUTION APPARATUS

Donald G. Risko; Donald R. Bosten, and Michael Rusnak, all of Pittsburgh, Pa., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Jan. 19, 1972, Ser. No. 219,012
Int. Cl. B02c *21/02, 4/02*
U.S. Cl. 241—101.7 **15 Claims**



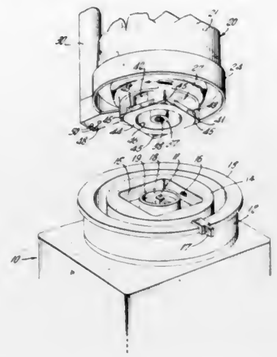
Comminution apparatus including two components rotating in opposite directions at different speeds and having a plurality of radially extending, elongated elements for reducing in size material fed into the nip between the components.

3,786,999

SAFETY MECHANISM TO PREVENT SHAFT COUPLING WHEN BLADES ARE EXPOSED IN A BLENDER

Douglas N. Cabell, Bloomfield Hills, Mich., assignor to Ronson Corporation, Woodbridge, N.J.

Filed Jan. 11, 1972, Ser. No. 216,934
Int. Cl. B02c 18/12
U.S. Cl. 241—282.1 11 Claims



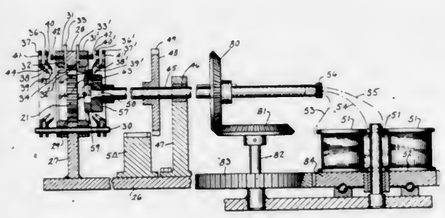
A safety mechanism to insure that a blender jar is properly mounted over the high speed comminuting blades of a blender to prevent exposure of the blades when they are revolving. The jar must be inserted on a base member properly and twisted to a locked position to enable the base, which has a portion of the driven blade shaft in it, to be connected to the drive shaft of the blender.

3,787,000

WAVE FORM COIL WINDING MACHINE

Lemoyne E. Farnsworth, Racine; Bruce R. Pitt, Wilwaukee, and John W. Wolf, Colgate, all of Wis., assignors to Ro-Band Corporation, Menomonee Falls, Wis.

Filed May 19, 1971, Ser. No. 144,752
Int. Cl. H02k 15/085
U.S. Cl. 242—1.1 R 11 Claims



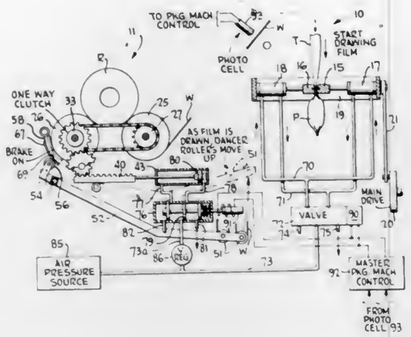
Apparatus for winding electrical coils with a wave form pattern into the slots of cores includes a support for a core, a wire feeding, rotatably indexible head which is reciprocable axially of the core, wire laying needles carried by the head, guiding fingers over which the wire is guided as the head is rotatably indexed, and axially movable retainer means for holding previously wound sequences of wire toward the bases of the core slots as additional sequences are being wound. The fingers and needles are radially adjustable toward the center of the core in preparation for subsequent winding. The wire supply is supported on a turntable positioned to rotate as the wire is withdrawn to prevent twisting during rotatable indexing of the head.

3,787,001

WEB ROLL CRADLE WITH POSITIVE DRIVE

Nelson R. Henry, Decatur, Ga., assignor to The Woodman Company, Inc., Decatur, Ga.

Filed Mar. 14, 1972, Ser. No. 234,494
Int. Cl. B65h 17/08, 75/02
U.S. Cl. 242—75.43 22 Claims



Apparatus and method of cyclic or intermittent feeding and unwinding of sheet material includes a pneumatic motor that drives the rotary web roll support and a brake that serves to stall out the motor when the predetermined length of material has been unwound. Draw means is provided to draw the predetermined length of film in a manufacturing process, such as packaging, with a slack loop being formed between the draw means and the web roll. The pneumatic motor is preferably a cylinder and rack combination with a drive stroke producing a capability greater than said predetermined length with the brake stalling out the motor at the end of the stroke to assure proper feed during each cycle and to maintain the tension in the web at a minimum and substantially constant during the complete operation. The slack loop is formed by a dancer assembly with linkage means comprising a cam and leaf spring applying the brake in a progressive manner only during the final moments of unwinding of the material. The dancer assembly desirably has insufficient pulling or tensioning power to pull film from the web roll so that complete reliance for feeding is put on the positive drive. The drive means and the draw means are operated at mutually exclusive times and are coordinated by first and second valves that actuate the drive means as the draw means are withdrawn to complete the drawing step.

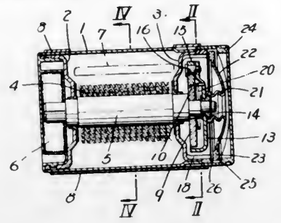
3,787,002

EMERGENCY LOCKING DEVICE FOR SAFETY SEAT BELT USED IN MOTOR VEHICLES AND THE LIKE

Yoshihiro Hayashi, Toyota, and Masahiro Iwatsuki, Anjo, both of Japan, assignors to Kabushiki-Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Oct. 12, 1971, Ser. No. 188,141
Claims priority, application Japan, Oct. 20, 1970, 45-104208; Oct. 20, 1970, 45-104210
Int. Cl. A62b 35/02; B65h 63/04
U.S. Cl. 242—107.4 3 Claims

An improvement in an emergency locking device for a safety seat belt in which a webbing roller is locked against rotation in the uncoiling direction as it is about to rotate at a speed higher than a certain predetermined value as a result of a sudden uncoiling or protracting movement of said safety belt.

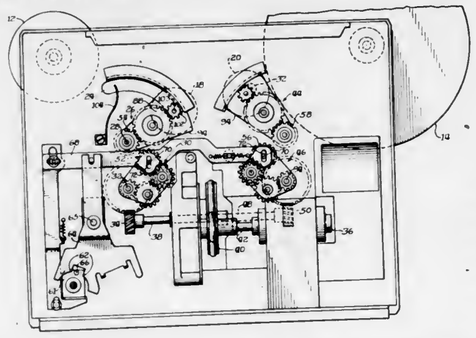


3,787,003

DUAL REEL DRIVE

Nicholas Mischenko, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed July 25, 1972, Ser. No. 275,033
Int. Cl. G03b 1/04; G11b 15/32
U.S. Cl. 242—192 8 Claims



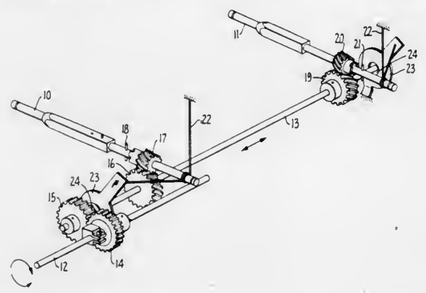
A motion picture projector having a roller drive for winding film on both the take-up and supply reels.

3,787,004

SPINDLE BRAKING MECHANISM FOR MICROFILM READER

Lyle Gilbert Priest, Palo Alto, Calif., assignor to Information Design, Inc., Menlo Park, Calif.

Filed June 30, 1972, Ser. No. 268,095
Int. Cl. B11b 15/32; G03b 1/04
U.S. Cl. 242—204 5 Claims



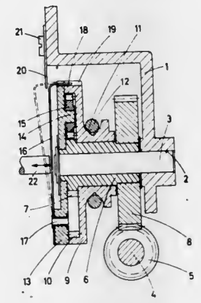
A spindle braking mechanism for microfilm readers and the like comprising a pair of spindles either one of which may be driven from a common drive shaft through pairs of helical gears producing a thrust on the drive shaft which is proportional to the driving torque. This thrust is utilized to control the braking force of uni-directional braking devices, one such device being applied to each spindle to avoid overrun.

3,787,005

MEANS FOR TRANSPORTING MOTION PICTURE FILM OR THE LIKE

Wolfgang Riedel, Winnenden, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Mar. 31, 1972, Ser. No. 240,254
Claims priority, application Germany, Apr. 1, 1971, 2115873; Nov. 3, 1971, 2154546
Int. Cl. B11b 15/32; G03b 1/04
U.S. Cl. 242—205 19 Claims



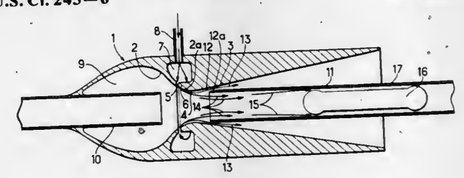
The supply reel of a cinematographic apparatus is driven by the internal gear of a planetary transmission whose sun gear receives torque from an electric motor. The cage for the planet pinions can be coupled to the internal gear so that the latter rotates with the sun gear at a high speed in a direction to collect the film on the reel. When the cage is disengaged from the internal gear, it is held against rotation by a stationary stop so that the internal gear rotates the reel at a lower speed and in a direction to pay out the film. The cage can be further coupled to an elastic clamping device which is in frictional engagement with the internal gear so that the clamping device can slip with reference to the internal gear when the film offers a relatively low resistance to transport in a direction to be collected by the reel.

3,787,006

SYSTEM FOR PNEUMATICALLY ADVANCING A CONTAINER WITHIN A DUCT

Henri Coanda, Paris, France, assignor to Institutul Pentru Creatie Stiintifica Si Technica, Bucharest, Romania

Continuation of Ser. No. 32,958, April 29, 1970. This application Apr. 7, 1972, Ser. No. 242,212
Claims priority, application France, June 6, 1969, 69.18838
Int. Cl. B65g 51/04
U.S. Cl. 243—6 14 Claims



A system for advancing a container along a duct comprises suction nozzles between successive duct sections, which noz-

zles are provided with circumferential slots through which air is introduced under pressure. The slots are contoured to lead the incoming air toward a tube section which projects into the divergent part of the nozzle and defines a gas outlet between it and said divergent part.

3,787,007

DEVICE FOR DRIVING TRAINS OF CONTAINERS THROUGH PIPELINE

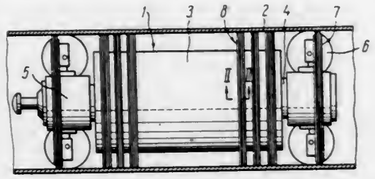
Adolf Moritsovich Alexandrov, Federativny prospekt, 6, korpus 3, kv. 8, Moscow; Ruben Dzhangirovich Balaian, Ljubertsy, Volkovskaya ulitsa, 9, kv. 31, Moskovskaya Oblast; Ippolit Davidovich Suladze, Prospekt Chavchavadze, 11, kv. 41, Tbilisi; Vladimir Efimovich Aglitsky, Zatsepsky val, 6/13, kv. 61, Moscow; Avtandil Semenovich Kakhniashvili, ulitsa Eliava, 37, kv. 41, Tbilisi; Ilia Solomonovich Kantor, Malo-Moskovskaya ulitsa, 31. kv. 45, Moscow; Vazha Venediktovich Dzhanelidze, prospekt Plekhanova, 140, Tbilisi, and Alexandr Alexandrovich Lachinov, Zhivopismaya ulitsa, 12, kv. 19, Moscow, all of U.S.S.R.

Filed Mar. 9, 1971, Ser. No. 122,478

Claims priority, application U.S.S.R., Mar. 18, 1971, 1411851

Int. Cl. B65g *51/04, 51/06*

U.S. Cl. 243—33 **2 Claims**



A device for driving a train of containers through a pipeline in which a housing rests through trunnions on wheel trucks which support disks taking the pressure of the gas flow passing through the pipeline. The housing has an elastic sealing means closing the gap between the internal surface of the pipeline and the external surface of the housing.

3,787,008

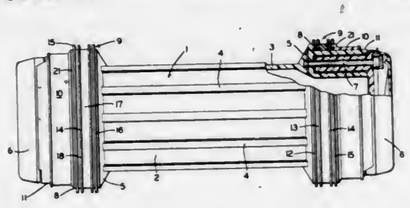
PNEUMATIC TUBE SYSTEM CARRIER WEAR RING CONSTRUCTION

Charles B. Barnett, Akron, and Pieter J. Ekama, Malvern, both of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed July 3, 1972, Ser. No. 268,830

Int. Cl. B65h *49/26*

U.S. Cl. 243—35 **3 Claims**



A wear ring seal construction for a carrier used in a pneumatic tube system, particularly a carrier of the type having a pair of wear rings surrounding the carrier body spaced from each other and from the ends of the carrier. The wear rings each are formed of a plurality of ring layers or laminations of a special material which flexes easily to accommodate out-of-roundness of the tube cross section, and indentations or sharp projections in the interior of the tube wall. The ring layers have alternately large and small diameters and different thicknesses and the arrangement of ring layers preferably is symmetrical about a center plane perpendicular to the ring axis. The wear rings are replaceable and have a minimum contact with the tube inner surface during travel through the tube while providing an efficient seal. Further, the minimum surface contact between wear ring and tube results in a miminum area on the edges of the seal rings for the collection of material which can soil the hands of a user manipulating the carrier when removed from the tube.

3,787,009

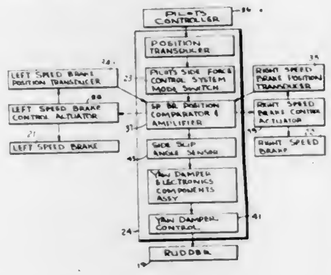
DIRECT SIDE FORCE CONTROL DEVICE

Wilbert G. Wheldon, Palos Verdes Peninsula, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Aug. 24, 1970, Ser. No. 66,449

Int. Cl. B64c *13/04*

U.S. Cl. 244—83 E **8 Claims**



An airplane using the rudder and speed brakes located at the aileron position, or otherwise located at the wing tips and capable of differential operation, to provide a pure side force acting to alter the horizontal flight path of the plane, without sideslip or the need for roll movements normally associated with such maneuvers. This device is hereinafter referred to as the Side Force Control System.

3,787,010

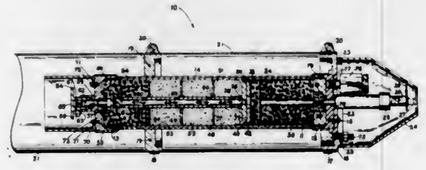
INFLATING APPARATUS

George Meranshian; Raymond C. Sutter; Osyp Nimylowycz, all of Philadelphia, Pa., and Wilmer White, Haddonfield, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 6, 1973, Ser. No. 348,810

Int. Cl. B01j *7/00*

U.S. Cl. 244—146 **8 Claims**



A small and lightweight rapid gas inflating apparatus for inflating a paraglider with gas having a minimum of temperature and moisture content. A generated propellant gas is passed through a baffle plate, bed of charcoal for reduction in water vapor content, then radially dispersed through a coolant of ammonium carbonate and passed through a gas filtering anhydros body for absorption of water before being deflectively delivered in the parawing of the paraglider.

3,787,011

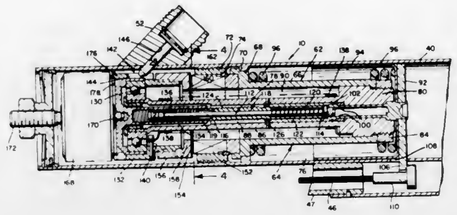
PARACHUTE RELEASE

John J. Phillips, Rolling Hills, and Thomas A. Clark, Santa Monica, both of Calif., assignors to G & H Technology, Inc., Santa Monica, Calif.

Filed Apr. 10, 1972, Ser. No. 242,587

Int. Cl. B64d *17/58*

U.S. Cl. 244—150 **10 Claims**



A parachute release is disclosed herein for automatically deploying a parachute without any assistance from the pilot. The release is effective to deploy the parachute within some predetermined short interval of time such as ½ to 2 seconds after the pilot has ejected from his aircraft and/or has separated from his seat, provided that he is below some preselected altitude such as 15,000 feet. In the event the pilot ejects at an altitude which is above this level, the release will not deploy the parachute until the pilot has free-fallen to that preselected level at which time the release will automatically deploy the parachute.

3,787,012

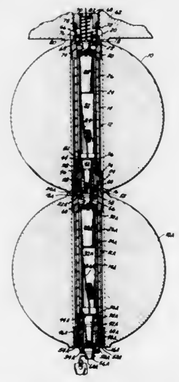
INTERNAL EJECTOR MECHANISM FOR STACKED SEQUENTIALLY RELEASABLE SEPARABLE UNITS

Thaddeus Jakubowski, Jr., Long Beach, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Feb. 5, 1973, Ser. No. 329,660

Int. Cl. B64d *1/04*

U.S. Cl. 244—137 R **9 Claims**



An internal ejector mechanism for releasably fastening stacked and sequentially separable units to a carrier unit. The carrier unit contains a mounting bracket or lug having a plurality of latching balls radially movable through its cylindrical walls. When the balls are urged outwardly by a ball retention plunger they fit within a groove in the ejector housing in the separable unit to lock it to the carrier unit. A cartridge actuated piston in the separable unit moves the ball retention plunger to permit inward movement of the balls, freeing the ejector housing and releasing the separable unit.

The stacked separable units are interchangeable and provide for sequential release starting with the outermost unit. Each separable unit has a threaded cavity liner in which a disposable ejector fits. The ejector consists of a cylinder threaded into the liner, an ejector piston movable within the cylinder, an explosive cartridge, a plunger actuator and cartridge cap with electrical contacts.

Each separable unit has at its outer, lower or other end to which an additional unit may be attached a further locking arrangement to prevent piston movement within the cylinder when such additional unit is attached. This locking arrangement also includes locking balls between a lower lug threaded into the cylinder and the movable piston within the cylinder. A plunger within the lug keeps the balls moved outwardly into the cylinder grooves until the plunger is moved upwardly by the separation of the outermost separable unit. Thus, release of the outermost separable unit releases the piston in the innermost separable unit for movement and subsequent release of the innermost separable unit.

3,787,013

FOLDABLE KITE AND ROCKET LAUNCHING MEANS THEREFOR

James H. McKenzie, Sr., 1202 W. King St., York, Pa.

Filed Sept. 13, 1972, Ser. No. 288,744

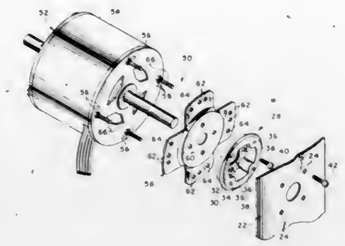
Int. Cl. A63h *27/08*

U.S. Cl. 244—155 R **5 Claims**



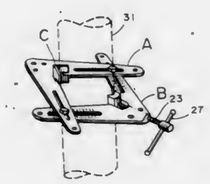
A foldable kite adapted to be compactly arranged in a manner to have a small cross section for storage within the hollow interior of a minature, toy-like rocket having a rocket engine in the normally rearward end thereof and the opposite end of the rocket body having a conical nose removably mounted therein. The folded kite is positioned adjacent to rocket engine and the normally outer end of the rocket body has a compactly folded parachute stored therein and connected to the body of the rocket as well as to said nose. The rocket engine has a delay charge therein which, when the rocket has been projected to a predetermined height is fired automatically to project the nose and the parachute which is connected thereto, as well as the kite, and a tether cord extends from the kite down to a compact arrangement of such cord adapted to rapidly pay out as the rocket and kite ascend but permit a person to control the flight of the kite by said cord, while the rocket is recovered due to the parachute permitting its gradual decent without injury.

3,787,014
REPLACEMENT MOTOR MOUNTING
Robert S. Story, 1419 Oak Vista, Dallas, and Arvind S. Patel, 818 Dorian Way, Grand Prairie, both of Tex.
Continuation of Ser. No. 154,421, June 18, 1971, abandoned.
This application Apr. 30, 1973, Ser. No. 355,453
Int. Cl. H02k 5/04
U.S. Cl. 248—14 8 Claims



A replacement motor mounting includes an adapter plate comprising a circular central portion and four arms which extend radially outwardly from the central portion. A first set of fastener receiving holes is formed in the central portion in the pattern of the fastener receiving holes of a mounting structure designed to support an original equipment motor. Two second sets of fastener receiving holes are formed in the arms in the patterns of the fastener receiving holes of two types of replacement motors. The central portion is displaced axially from the arms to admit air to a replacement motor supported on the adapter bracket.

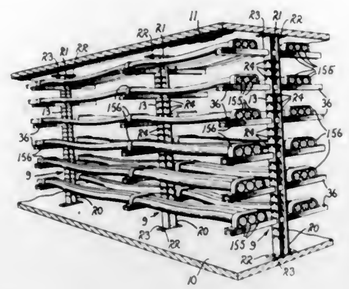
3,787,015
BRACKET FOR POLES AND THE LIKE
Allan H. Ablett, P.O. Box 1128, Wildwood, Fla.
Filed Nov. 14, 1972, Ser. No. 306,430
Int. Cl. F16m 13/02
U.S. Cl. 248—43 3 Claims



A bracket for poles and the like having a pair of bracket elements capable of being swung open to encircle a pole at the position it is desired to mount the bracket with fastening means for securing the bracket thereon and an attachment thereto that permits the fastening of the bracket to a pole for supporting a second pole or antenna; the bracket having a movable centering member that can be rotated to engage a horizontally positioned member such as a girder or planking and be mountable thereon.

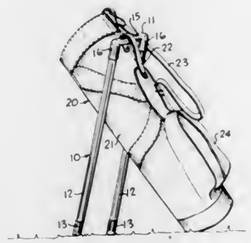
3,787,016
RACK FOR SUPPORTING CABLES AND THE LIKE
Claude C. Laval, Jr., 2444 N. Farris, Fresno, Calif.
Filed Apr. 20, 1972, Ser. No. 245,948
Int. Cl. F16l 3/22
U.S. Cl. 248—49 8 Claims

A rack having a substantially upright support providing a transverse passage defined at its lower side by an upwardly extended lip, an arm slidably received by the passage having a notch fitted downwardly over the lip, and a spacer received in



the passage in engagement with the arm blocking removal of the arm from the lip.

3,787,017
PORTABLE GOLF BAG STAND
Richard W. Sauer, 8 Coopers Run Dr., Cherry Hill, N.J.
Filed July 28, 1971, Ser. No. 166,816
Int. Cl. A63b 55/06
U.S. Cl. 248—96 7 Claims

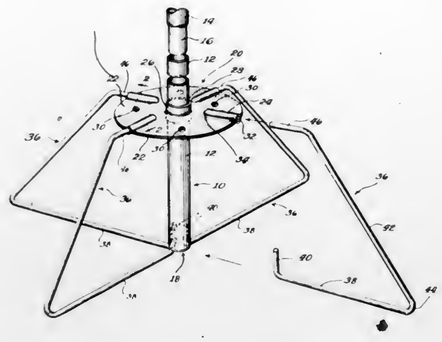


A portable golf bag stand wherein a cross member extends freely through and beneath a golf bag handle, and a pair of legs depend from opposite ends of the cross member for swinging movement of the legs between an inoperative condition alongside the bag and an operative condition suspending the bag in an inclined relation.

3,787,018
BASE FOR AN UPRIGHT FOR FORMING A STAND OR THE LIKE
Walter Nathan, Glencoe, Ill., assignor to RTC Industries, Inc., Chicago, Ill.
Filed June 8, 1972, Ser. No. 260,817
Int. Cl. F16m 11/20
U.S. Cl. 248—165 5 Claims

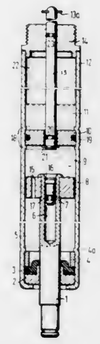
A base for an upright for forming a display stand or the like, which base is formed of a plurality of legs which interlock with the upright without the use of any extraneous fastening elements and/or tools by the positioning of the legs in relation to

the upright, and wherein the legs are readily detachable from the upright for the purpose of collapsing the base so that it oc-



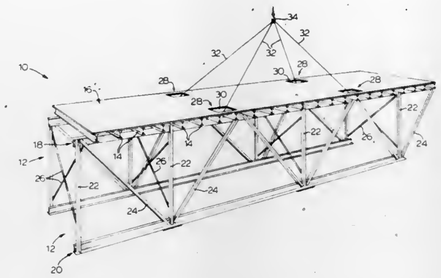
cupies a minimum of space in a carton or storage area when collapsed, and which may be readily set up.

3,787,019
SUPPORTING ELEMENT OF ADJUSTABLE LENGTH
Herbert Freitag, Koblenz-Lutzel, Germany, assignor to Stabilus Industrie und Handelsgesellschaft MBH, Koblenz-Neuendorf, Germany
Filed Apr. 3, 1972, Ser. No. 240,646
Claims priority, application Germany, Apr. 6, 1971, P 21 16 699.4
Int. Cl. F16f 9/32
U.S. Cl. 248—188.2 10 Claims



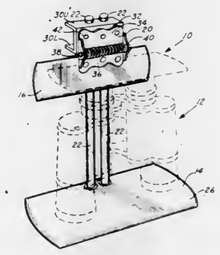
A normally upright, telescopically adjustable, supporting element, such as a leg for a stool, has a cylinder whose cavity is axially divided into two chambers by a partition. The lower chamber is liquid-filled, the upper chamber contains liquid under the pressure of a gas cushion, and the two chambers may be connected by a valve in the partition. The position of a plunger axially projecting from the lower chamber is generally determined by the amount of non-compressible liquid in the lower chamber, but limited axial movement is made possible by a gas cell partly bounded by the plunger and otherwise by a sealing member separating the gas in the cell from the liquid in the lower chamber.

3,787,020
CONCRETE FORMING STRUCTURE
Peter J. Avery, Toronto, Ontario, Canada, assignor to Aluma Building Systems Incorporated, Downsivew, Ontario, Canada
Filed Dec. 2, 1971, Ser. No. 204,132
Claims priority, application Canada, Nov. 12, 1971, 127,439
Int. Cl. E04q 11/48
U.S. Cl. 249—18. 4 Claims



A concrete forming structure is provided wherein a pair of substantially parallel trusses have a plurality of beam members placed transversely across their upper end with a substantially planar upper deck secured to the upper edges of the beams. Each beam has an upper portion which comprises an open, inverted top hat section into which a wooden joist member may be forced and graspingly secured in snug manner. Panels, such as plywood, which are usually used for concrete forming, may be nailed or screwed to the concrete forming structure at the wooden joists engaged in the open top hat sections of the beams. The deflection resistance of a beam having a wooden joist graspingly and snugly secured therein is improved over that of an I-beam having a similar metal cross-section. When a floor panel poured on the concrete forming structure is cured, the structure may be lowered from beneath that panel and "flown" using known construction cranes to a position several storeys above the floor from which it had just been removed in order for a new floor panel to be poured on the emplaced concrete forming structure.

3,787,021
BINOCULAR HOLDER
Thomas A. Horst, Lafayette, Colo., assignor to Western Sales and Supply Co., Denver, Colo.
Filed Aug. 7, 1972, Ser. No. 278,579
Int. Cl. F16m 13/00
U.S. Cl. 248—316 B 6 Claims



This invention relates to an adjustable carrier for use in automobiles and the like as a means to releasably hold a pair of

binoculars ready for instant use. It comprises a horizontally disposed padded platform upon which the objective lenses rest that has a pair of parallel upright posts at the rear edge thereof that are slidably received in the parallel flanges of a channel-shaped mounting bracket. The web of said bracket mounts one leaf of a spring hinge, the remaining leaf of which is fastened atop a foldable pad that is biased down on top of the binocular eyepieces thus cooperating with the platform to releasably retain same:

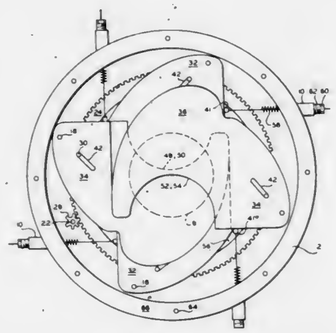
ERRATA

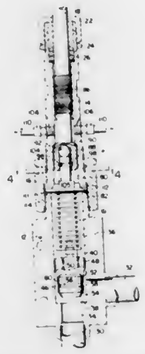
For Classes 248—361 B and 248—399 see:
Patents Nos. 3,787,024 and 3,787,025

ERRATUM

For Class 249—18 see:
Patent No. 3,787,020

3,787,022
IRIS CHECK VALVE AND USE THEREOF
Charles F. Wilcox, 201 W. Cudahy, Bartlesville, Okla.
Filed May 22, 1972, Ser. No. 255,648
Int. Cl. F16k *3/03*
U.S. Cl. 251—212 **9 Claims**





An iris type check valve is provided having at least one matched pair of vanes which are actuated by a rotating plate to modify the size of the orifice and thus regulate flow of materials through the unit. The vanes are constructed to provide an interlocking of the respective vane members of the matched pair. Thus the valve unit is capable of withstanding extremely high fluid pressures. The use of the valve in discovery and production of underground fluids is also described.

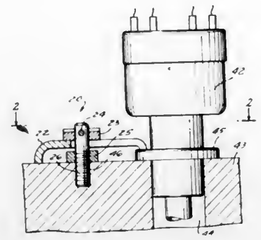
3,787,023
BELLOWS VALVE
Earl D. Shufflebarger; Bernard J. Gallagher, both of Mentor; David M. Simko, Parma Heights, and John R. Boylan, Cleveland Heights, all of Ohio, assignors to Nupro Company, Cleveland, Ohio
Filed Aug. 5, 1971, Ser. No. 169,316
Int. Cl. F16k *41/04*
U.S. Cl. 251—335 B **22 Claims**

A valve including a bonnet mounted on a body and having an actuator carried in a central passage in the bonnet. The body includes a fluid passageway connecting an inlet and an outlet, an annular sealing seat in the passageway and a bore intersecting the passageway substantially coaxially with said seat. The central passage in the bonnet is aligned substantially coaxially with the bore in the body, and the inner end of the actuator is connected to a non-rotatable stem which is reciprocated by the actuator into and out of sealing engagement with the seat. The connection between the stem and the actuator comprises a cup on the lower end of the actuator into which the upper end of the stem projects, and a groove around the periphery of the upper end of the stem into which a pair of detents project from the wall of the cup. Thereby the stem and actuator are locked together for coordinated axial movement while allowing relative rotational movement. The cup and the upper end of the stem present opposed, substantially cone-shaped surfaces for abutting a friction reducing ball held therebetween. The ball minimizes the amount of torque transmitted from the rotatable actuator to the non-rotatable stem.

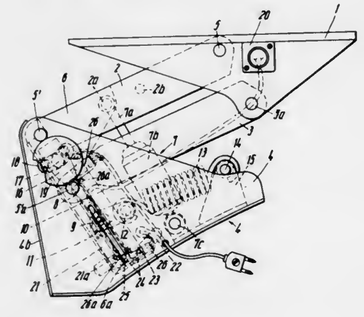
The lower end of the stem carries sealing means for co-acting with the valve seat and includes a plug mounted within a polygonal body having a plurality of rounded guiding corners for engaging the bore wall. A bellows surrounds a portion of the stem with its lower end bonded to the stem and its upper end bonded to a weld ring. The weld ring is sealingly clamped between the body and the bonnet. Concentric grooves are formed in the weld ring with at least one of the grooves opening upwardly toward a flat face on the lower end of the bonnet. The upwardly opening groove contains an O-ring sealingly compressed between the flat face of the bonnet and the bottom of the groove. Another groove is sufficiently close to an edge of the weld ring as to form an upstanding flange of radial thickness not substantially greater than the thickness of the bellows. An outwardly flaring surface merges with the terminus of the bonnet passage and its maximum diameter is greater than the diameter of the crest of the flange which is bonded to said bellows.

3,787,024
CAM LOCK AND BRACKET ASSEMBLY
Theodore Dzus, Jr., West Islip, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed Apr. 7, 1972, Ser. No. 242,077
Int. Cl. B25b *5/08*
U.S. Cl. 248—361 B **10 Claims**

A cam lock and bracket assembly for fastening a removable member to a base. The assembly includes a stud, a bracket and a cam nut. The stud is adapted to be mounted to a base with the bracket adapted to be releasably engaged with a removable member in the base. A cam slot and cam follower are on the stud and cam nut arrangement whereby shifting of these elements permit the assembly to be shifted between a locked and unlocked position. In the locked position the bracket is held in fixed position with a force being exerted on the removable member to retain it in position. In the unlocked position the bracket is permitted to be shifted away from the removable member permitting it to be disassembled from the base. The assembly is designed to permit shifting between the locked and unlocked position to occur with a mere quarter turn of a revolution of the cam nut or the stud.

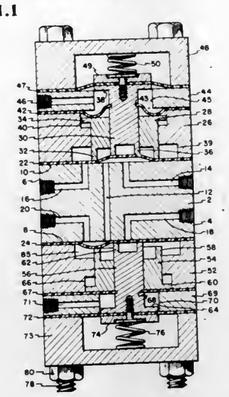


3,787,025
POWER DRIVEN ADJUSTABLE SEAT FOR AUTOMOTIVE VEHICLE
Klaus Sturhan, Lemgo, Germany, assignor to Gebr. Isringhausen, Lemgo/Lippe, Germany
Filed May 5, 1972, Ser. No. 250,570
Claims priority, application Germany, May 12, 1971, 2123399
Int. Cl. B60n *1/02*
U.S. Cl. 248—399 **14 Claims**



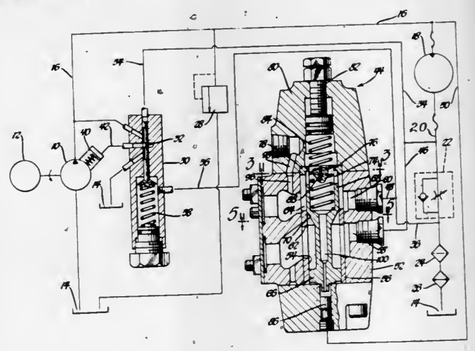
A seat for use in automotive vehicles wherein the seat supporting portion is movable toward and away from a base in response to changes in the inclination of two pairs of links which are articulately connected with the base and the seat supporting portion. One or more helical springs may be attached to the base and to a spindle nut which is movable up and down along an adjusting screw, or the helical springs may be connected to either the links or to the seat supporting portion to thereby change the effective moment applied to the seat supporting portion with changes of the position of the spindle. A motor drive turns the adjusting screw to cause the spindle nut to move between two end positions. Switches reverse the current through the motor drive to change directions of rotation of the adjusting screw when the spindle nut has reached either end position along the latter. A cam follower forming part of a switch rides on a cam surface when the seat supporting portion moves relative to the base. The cam follower drops into a cut out in the cam surface when the seat supporting portion is spaced at a desired distance from the base. To thereby deactivate the motor drive. Shock absorbers can be mounted in the same manner as the helical springs.

3,787,026
CHROMATOGRAPHY VALVE
Jeffrey M. Lazar, Warminster, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 24, 1972, Ser. No. 309,495
Int. Cl. F16k *31/165*
U.S. Cl. 251—61.1 **7 Claims**



A valve using a valve body having a plurality of valving elements, each valving element including three fluid ports located on a flat face of the valve body. Fluid passages are provided in the valve body to communicate with the fluid ports. A corresponding resilient member covers each valving element and is selectively urged toward the flat face to seal the fluid ports in the respective valving elements from each other. A pair of concentric fluid actuated plungers are slidably supported in a plunger body located on the other side of the resilient member from the valving element and having operative ends arranged to bear on the resilient member. The concentric plungers are selectively urged against the resilient member by either a fluid pressure supplied to a closed volume defined by the other ends of the concentric plungers, by the fluid pressure of a fluid being controlled by the valve or by a stationary spring means arranged to apply axial pressure to one of the plungers.

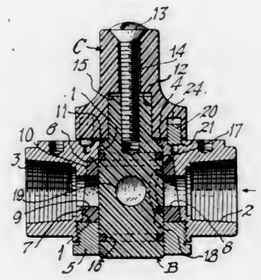
3,787,027
POWER TRANSMISSION
John W. Curnow, Utica, and Harry J. Nowicki, Mt. Clemens, both of Mich., assignors to Sperry Rand Corporation, Troy, Mich.
Filed Oct. 16, 1972, Ser. No. 298,106
Int. Cl. F16k *31/143*
U.S. Cl. 251—63 **4 Claims**



A valve for automatic stabilization of hydraulic motor speed under varying motor loads is arranged to bypass a small flow

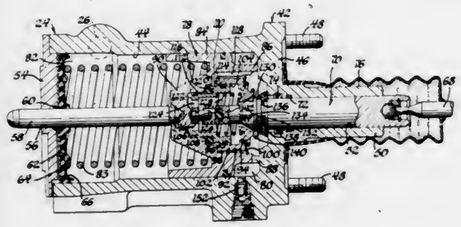
around the principal motor speed regulating valve, which small flow is increased with the motor inlet pressure. This compensates for the cross-port leakage in the motor which varies with motor load. The inner parts of the valve may be selectively assembled in various positions to provide various maximum flow openings so that hydraulic motors of various sizes may be effectively stabilized.

3,787,028
ROTARY PLUG VALVE
Albert L. Semon, 11 Eliot Pl., Short Hills, N.J.
Filed Jan. 20, 1972, Ser. No. 219,219
Int. Cl. F16k *5/00*
U.S. Cl. 251—317 **5 Claims**



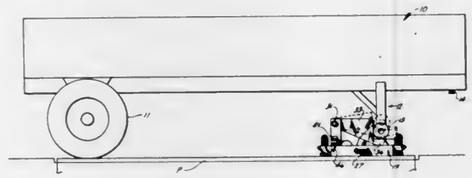
A rotary plug valve whose plug chamber includes a sleeve of plastic material compressed in an opening through the valve body between a shoulder on the wall of said opening and a tubular nut screw-threaded in one end of the opening, said sleeve having inlet and outlet port holes and a plug that has transverse fluid passages being rotatably mounted in said chamber with one end in said tubular nut and its other end provided with a knob adjustable thereon which has a stop stud coactive with the ends of an arcuate stop element which is settable in different positions on the valve body to stop the rotation of the plug selectively in different positions.

3,787,029
OPEN CENTER CONTROL VALVE
Ronald L. Shellhause, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Division of Ser. No. 76,473, Sept. 29, 1970, Pat. No. 3,699,680. This application Sept. 13, 1971, Ser. No. 179,682
Int. Cl. F16k *47/02*
U.S. Cl. 251—333 **1 Claim**



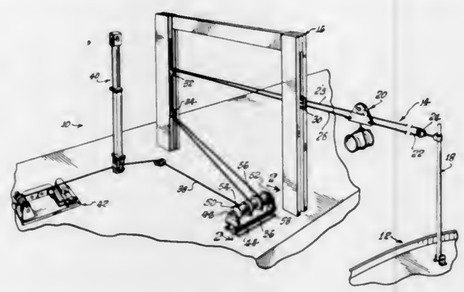
A hydraulic power brake booster powered by power steering gear pump pressure and utilizing an open-center valve so that fluid flows through the booster without pressure reduction when the booster is not activated. The valve assembly includes a radially floating valve seat which provides for self-centering, permits a valve separation operation to pass viscous cold hydraulic fluid or any elements which may tend to overly restrict the valve. It also includes a valve face design providing entrance and exit angles defining a venturi-type passage conducive to laminar flow with consequent reduction in valve noise, and has a hydraulic reaction mechanism which includes an arrangement for supported line pressure.

3,787,030
LIFT SUPPORT DEVICE FOR USE WITH TRUCK WEIGHING SCALES
Ron D. Bieker, Salina, Kans., assignor to Rickel, Inc., Kansas City, Mo.
Filed May 18, 1972, Ser. No. 254,508
Int. Cl. B60p *1/48*
U.S. Cl. 254—8 R **2 Claims**



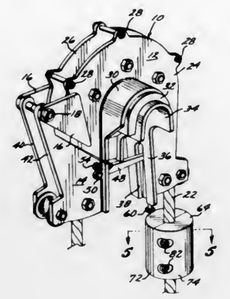
A wheeled device adapted to be manually directed in a sidewise direction under the front portion of the semi-trailer carries a hydraulic lift engagable with the dolly wheels or support pads of the trailer and operable to elevate the forward end of the trailer sufficiently to break the fifth wheel connection so that the trailer is supported only by its rear wheels and the lift devices. The wheels are constructed to permit the frame to descend into contact with the scale surface when the load is transferred from the tractor to the frame, and while it remains supported by the frame, so that the trailer is immobilized on the scale surface during weighing.

3,787,031
CABLE DRUM HIGHLINE SYSTEM
Peter K. Lucas, Inglewood, Ontario, Canada, assignor to The Garrett Corporation, Los Angeles, Calif.
Filed Dec. 8, 1971, Ser. No. 205,826
Int. Cl. B66d *1/48*
U.S. Cl. 254—172 **16 Claims**



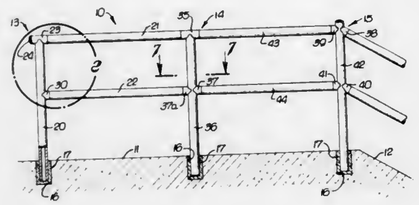
A load-carrying vehicle traverses between supply and receiving vessels at sea, on a closed loop highline of two cable whips terminating at one of the vessels on a pair of drums mechanically interconnected by a differential gear assembly whose spider is coupled to a third drum having a cable coupled to a ram tensioner. The vehicle is snubbed or secured to both the cable whips, and traverse is effected by motor power applied to the drums.

3,787,032
SELF-RELEASING AND SELF-LOWERING BLOCK
Percy R. Bagby, 27844 Conestoga Dr., Rolling Hills, Calif.
Filed Aug. 24, 1972, Ser. No. 283,394
Int. Cl. B66d *1/28, 5/32*
U.S. Cl. 254—190 **6 Claims**



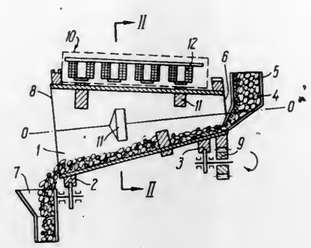
A self-releasing, self-lowering block adapted to rest upon a horizontal support cable. A vertically extending hoisting cable extends about the support cable, through sheaves in the block, and is retained within pivoted sections of the block. A release element attached to the hoisting cable can be raised to effect release of the pivoted sections so that they may move apart and allow the block to drop off the support cable and slide down the hoisting cable. Certain ones of the sheaves of the block are laterally offset to impart a drag upon the block and slow its descent.

3,787,033
JOINT FOR TUBULAR STRUCTURE
Donald E. Snyder, La Habra, and Roy W. Batcheller, West Covina, both of Calif., assignors to Crane-Veyor Corporation, South El Monte, Calif.
Filed Aug. 14, 1972, Ser. No. 280,516
Int. Cl. E04h *17/14*
U.S. Cl. 256—59 **7 Claims**



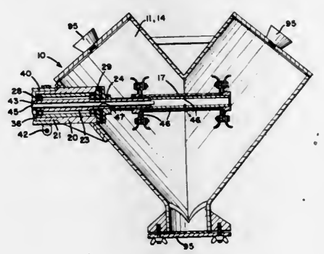
A tubular structure has end posts, intermediate posts and rails which extend between the end posts and intermediate posts. For fastening the rails to a post use is made of a T joint at the top of the post and a cross joint at an intermediate location. For the cross leg of the T joint a hole is made on one side of the cross leg of the same diameter as the post, a square end of the post is pushed in the hole and a weld is applied on the interior of the cross leg to anchor the parts together. A sleeve is inserted into the end of the cross leg with part protruding and this also anchored by a weld applied to the interior. Each end of the rail is then merely slid over the protruding part of the sleeve at each opposite post and no welding appears on the exterior which may need to be ground off.

3,787,034
DEVICE FOR CONTINUOUS MIXING OF POWDERED MATERIALS
Valery Lvovich Shvartsman, ulitsa Kuibysheva 36, kv, 64, Donetsk, and Anatoly Kirillovich Gaiduchenko, ulitsa Oktyabrskoi revoljutsii 19, kv. 16, Kiev, both of U.S.S.R.
Filed July 28, 1971, Ser. No. 166,890
Int. Cl. B01f *9/02, 13/08, 3/18*
U.S. Cl. 259—3 **6 Claims**



A device for continuous mixing of powdered materials which include ferro-magnetic components, has a drum mounted for rotation on its own axis and made in the form of a polyhedral truncated pyramid. The drum is disposed with the axis inclined to the horizontal and is fed at one end thereof with powdered materials which are to be thoroughly mixed, and the mixed materials are discharged at the other end. The inside of the drum is provided on its longitudinal edges with rigidly mounted baffles which are made of ferromagnetic material, and the baffles are arranged along a helix. A magnetic system which can generate a pulse magnetic field is stationarily mounted above the drum and parallel to a generatrix of the drum. The magnetic field reaches the inside of the drum through the ferromagnetic baffles which act as cores and aids a redistribution and thorough mixing of the ferromagnetic components with the rest of the components in the powdered material. In order to increase the effect of the pulse magnetic field by effectively increasing the proximity of the baffles to the magnetic system, additional ferromagnetic members may be securingly mounted on the outside of the drum to rotate therewith and arranged so as to nearly bridge a gap between the drum and the magnetic means, whereby the effect of the magnetic field inside the drum is increased.

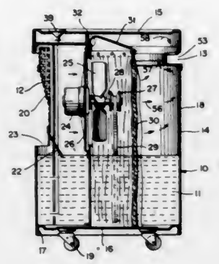
3,787,035
BLENDER WITH INTEGRAL INTENSIFIER
Wilmer G. Bryson, Jr.; Donald D. Lyle, and Jack S. Wilda, all of East Liverpool, Ohio, assignors to Banner Indstries, Inc., East Liverpool, Ohio
Filed May 9, 1972, Ser. No. 251,804
Int. Cl. B01f *9/08*
U.S. Cl. 259—16 **13 Claims**



A separately rotatable intensifier is contained within a rotatable blending vessel as an integral part thereof. A mount-

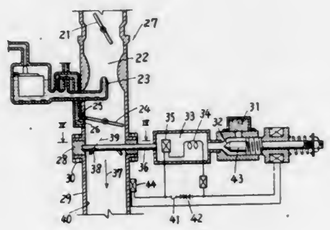
ing unit carried by the vessel mounts the intensifier therein and couples to an external power source for selective rotation of the intensifier and/or the vessel, to mix, agitate, or blend ingredients enclosed within.

3,787,036
HUMIDIFIER
Thomas C. Hastings, 52 Addington St., Willowdale, Ontario, Canada
Filed Apr. 27, 1972, Ser. No. 248,080
Int. Cl. B01f *3/04*
U.S. Cl. 261—29 8 Claims



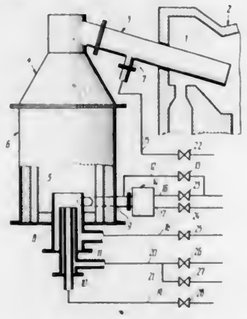
A humidifier comprises a housing defining a water reservoir, the housing providing an air inlet and an air outlet, means for effecting a flow of air through the housing between the air inlet and the air outlet, means cooperating with the reservoir for imparting moisture to the air flow, and baffle means adjacent the air outlet for deflecting the flow of air within the housing, said baffle means providing surfaces positioned to impart a substantially 180° turn in the flow of air before it reaches the air outlet and to intercept water droplets in the deflected air for preventing the droplets from reaching the outlet.

3,787,037
CARBURATION SYSTEM
Motozo Motooka, 7-23, Orihashicho, Saseho, Japan
Filed June 7, 1971, Ser. No. 150,650
Int. Cl. F02m *23/14*
U.S. Cl. 261—130 1 Claim



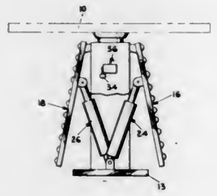
This invention provides a device for use in association with a carburetor and an internal combustion engine. The device comprises: a heater, an air heating means and a means for communicating the hot air with a fuel-air mixture passage leading to a combustion chamber, so that an atmosphere of elevated temperature is obtained in the fuel-air mixture. The liquid fuel tending not to be volatilized by the carburetor is caused to be rapidly vaporized, resulting in fuel economy and avoiding the problem of air contamination by carbon monoxide.

3,787,038
REFORMER FOR FIRING REVERBERATORY FURNACE AND METHOD OF OPERATING SAID REFORMER
Pavel Alexandrovich Tesner, ulitsa Chaplygina, 2, kv. 3; Konstantin Ivanovich Makarov, Khlebozavodskoi proezd, 5, korpus 2, kv. 370; Alexandr Kornilovich Ivanov, ulitsa Raskovoi, 33, kv. 49; Mark Anisimovich Robin, 2, kvertsl, 11, kv. 19; Igor Sergeevich Slavkin, ulitsa, Mira, 9, kv. 10; Alexandr Petrovich Pischulin, Proletarsky prospekt, korpus 1, kv. 30, all of Moscow; Leonid Mikhailovich Pokrass, ulitsa Pionerskaya, 98, Donetsk; Alexandr Markovich Pochtman, ulitsa Prardy, 5, kv. 41v, Kharkov; Felix Isaakovich Sheinfain, ulitsa Postysheva, 120, kv. 18, Donetsk; Evgeny Mikhailovich Kondratiev, prospekt Metallurgov, 107, Donetsk; Grigory Isaevich Moiseevich, ulitsa Postysheva, 122, kv. 54, Donetsk; Igor Ivanovich Osmaga, bulvar Shevchenko, 17, kv. 53, Donetsk, and Georgy Gavrilovich Zhitnik, bulvar Pushkina, 25, kv. 21, Donetsk, all of U.S.S.R.
Division of Ser. No. 103,127, Dec. 31, 1970, abandoned. This application Nov. 7, 1972, Ser. No. 304,307
Claims priority, application U.S.S.R., Jan. 4, 1970, 1391905
Int. Cl. C21c *5/04*
U.S. Cl. 266—24 4 Claims



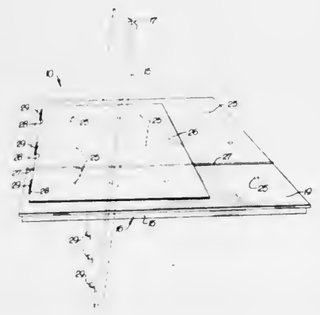
A reformer for firing a reverberatory furnace comprising a reaction chamber with a device for incomplete combustion of the gaseous and liquid hydrocarbon fuel accompanied by the formation of soot which is supplied into the working space of the furnace for ensuring a high luminosity of the flame.

3,787,039
PNEUMATIC HOLD DOWN TABLE
Robert G. Zeichman, 2070 Eldon N.E., Grand Rapids, Mich.
Filed Feb. 4, 1972, Ser. No. 223,597
Int. Cl. B25b *11/08*; B25h *1/02*
U.S. Cl. 269—13 12 Claims



A hold down table for planar work pieces and the like to enable workmen to work completely around the edges of the table and permitting the planar workpiece to be moved into position by sliding along the top of the table. Means, preferably vacuum means, firmly grip and hold the workpiece when in the proper position. The table has a pair of arms which are mounted on a frame to swing upwardly to support the workpiece above the top of the gripping and holding means. The arms are also mounted for movement downwardly and inwardly to lower the workpiece onto the gripping and holding means. The movement of the arms inwardly permits the worker to move completely about the edge of the workpiece. In the preferred embodiment vacuum is drawn on the holding and gripping means by a venturi. The arms are supported and moved by fluid cylinders which are operated by a valve coupled to a fluid supply source, the valve also controlling the operation of the venturi.

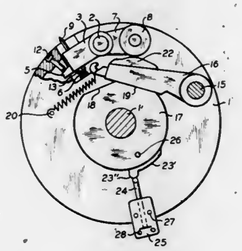
3,787,040
TILTABLE GLASS CUTTER'S TABLE WITH RETRACTABLE SHEET SUPPORTING PEGS
Byron W. Allen, 188 S. "I" St., San Bernardino, Calif.
Filed Nov. 18, 1971, Ser. No. 200,004
Int. Cl. B25b *11/00*
U.S. Cl. 269—58 5 Claims



A power actuated tiltable plate glass cutter's table is shown in my U.S. Pat. No. 3,570,733, which is power tiltable between a steeply inclined position in which a heavy sheet of glass is received on said table with the sheet supported on a plurality of pegs provided at the lower edge of the table and a horizontal position in which said sheet is supported by an air floatation system permitting it to be readily shifted horizontally, said table also having a breaker bar mechanism for breaking said sheet into pieces of various size while said sheet rests on the air cushion between it and said table.

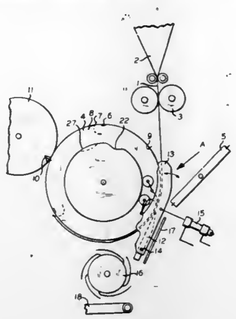
Mechanism manually operable from a control station at one end of the table, is provided by the present invention for simultaneously retracting said pegs below the surface of said table after the latter has been tilted to horizontal position and said pegs are no longer required for supporring said sheet of glass, whereby pieces of glass may be readily removed from said table horizontally over the edge of said table equipped with said pegs.

3,787,041
ROTARY FOLDING APPARATUS
Klaus Hertrich, Gohrenz, Germany, assignor to VEB Polygraph Leipzig, Kombinat fuer polygraphische Maschinen u. Ausruestungen, Leipzig, Germany
Filed Oct. 18, 1971, Ser. No. 189,847
Int. Cl. B65h *45/16*
U.S. Cl. 270—64 4 Claims



A rotary folding apparatus, having cam-controlled puncturing needles on one swing shaft associated with cam-controlled strippers, on another swing shaft.

First roller levers are supported rotatably and connected each via a compression spring to each of the swing shafts, and rigid levers are secured to each of the swing shafts, and bolts connect corresponding of the first roller levers to corresponding of the rigid levers. Second roller levers are firmly connected to the swing shafts and a radially swingable cam segment is disposed operatively in cooperation with the second roller levers.



3,787,042
FOLDING APPARATUS FOR WEB-FED ROTARY PRINTING PRESSES
Klaus Hertrich, Gohrenz, Germany, assignor to VEB Polygraph Leipzig, Kombinat fuer polygraphische Maschinen u. Ausruestungen, Leipzig, Germany
Filed Jan. 27, 1971, Ser. No. 110,050
Int. Cl. B65h *45/16*
U.S. Cl. 270—70 3 Claims

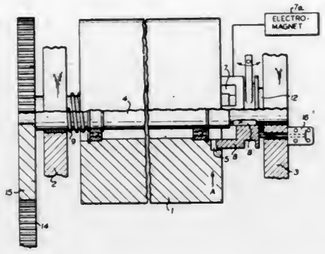
A folding apparatus for web-fed rotating printing presses which comprises a machine wall, folding knives, and one movable folding blade. A fixed folding blade stop is provided. One movable folding blade, operating against the fixed folding blade stop, coordinated to each of the folding knives. A folding knife cylinder, and two double-armed levers. The folding knives are guided under taut spring action and disposed on one of the double levers. One of the levers has a cam roller, which engages temporarily for the duration of the rearward movement of the cylinder a swingable cam segment. A hub is provided and a cam is fastened to the hub and has two surfaces extending at an obtuse angle to each other, and is adapted for fixing the position of the cam segment. A switch for the blocking of a control circuit for at least one of the forward and rearward movements of the folding apparatus is controlled by the cam.

3,787,043

ROTATING FOLDER FOR PRINTING PRESSES

Klaus Hertrich, Gohrenz, Germany, assignor to VEB Polygraph Leipzig, Kombinat fuer polygraphische Maschinen u. Ausruestungen, Leipzig, Germany

Filed Feb. 2, 1971, Ser. No. 111,880
Int. Cl. B65h 45/16
U.S. Cl. 270—71 5 Claims



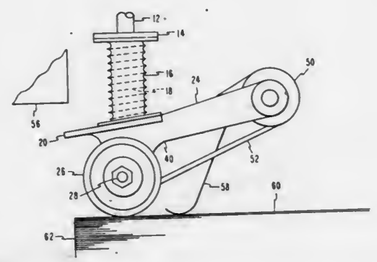
A rotating folder for printing presses in which a movable folding blade operating against a fixed folding blade stop is associated with each folding knife, comprising a folding blade cylinder and a driven shaft between which is arranged a torsion element and a clutch equipped with jaws which are trapezoidal over a part of their length, and a fixed stop is provided to limit the width of opening of the clutch which amounts at most to only two-thirds of the length of the jaws.

3,787,044

DOCUMENT CONTROLLED PICKING AND FEEDING APPARATUS

Cletus E. Lorensen, Rochester, and John A. Peterson, New Brighton, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1971, Ser. No. 145,668
Int. Cl. B65h 3/08
U.S. Cl. 271—27 4 Claims



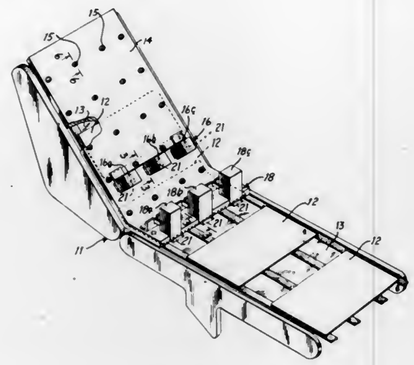
A vacuum actuated document picking and feeding mechanism wherein the document acts as a valve by closing openings in a stationary suction roller thereby causing a document feed cycle to be initiated during which the document is initially lifted and thereafter driven until the document is delivered from suction roller contact. Uncovering the vacuum openings in the suction roller acts to discontinue the driving connection with the drive mechanism and permit restoration of the roller assembly to an initial position thereby also permitting use of a feedback function.

3,787,045

APPARATUS FOR CONTROLLING MOVEMENT OF OBJECTS

Solomon Stoller, West Hartford, Conn., assignor to The Prudential Insurance Company of America and Randolph Computer Corporation

Filed June 15, 1972, Ser. No. 263,001
Int. Cl. B65h 9/06
U.S. Cl. 271—60 10 Claims



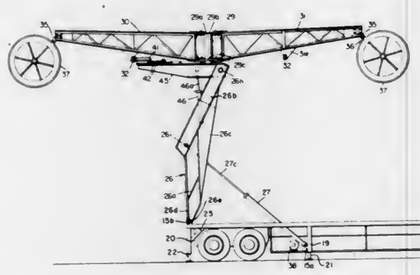
As described herein, a magnetic paper stop includes a relatively freely mounted roller armature mounted in the direction of document flow. The armature is adapted to be driven against and away from a solid surface by an associated solenoid to provide a controlled alignment barrier for the documents passing between the roller armature and the solid surface.

3,787,046

CARROUSEL-TYPE AMUSEMENT DEVICE

Chesley D. Clem, Staunton, Va., assignor to Virginia Amusement Company, Staunton, Va.

Filed May 12, 1972, Ser. No. 252,602
Int. Cl. A63g 1/08
U.S. Cl. 272—29 9 Claims



A collapsible and portable, over-the-road carrousel having when in assembly, a plurality of passenger-carrying gondolas mounted from a rotatable sweep assembly, wherein an hydraulically powered elevator, with included linkage, is so mounted from and upon a portable platform, which platform serves as a vehicle trailer in over-the-road transport and in assembly serves as a base, as to raise and lower, within wide and predetermined limits, the sweep assembly whether or not the latter be in rotation, through continuously variable relation of the sweep assembly both as to its vertical height above platform and as to its angular attitude with respect to either the vertical or horizontal and which elevator, when desired and

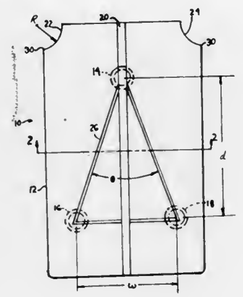
through its included linkage, will so position the sweep assembly as to permit simultaneous loading and unloading of all of the passenger-carrying gondolas, the hydraulic powering for the elevator being such that changes in the vertical height and angular attitude of the sweep assembly as well as changes in the rotational speed of the latter, can all be accomplished independently of each other.

3,787,047

SKI MOTION SIMULATING TRAINING DEVICE

Darrell S. Brawn, 18,849 Flamingo, Livonia, Mich.

Filed Oct. 15, 1971, Ser. No. 189,519
Int. Cl. A63b 23/04
U.S. Cl. 272—57 B 8 Claims



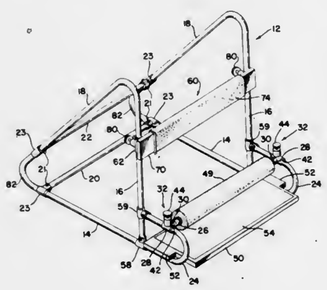
A device is described which simulates the reaction of skis in snow when a user executes thereon the proper skiing motions involved in the wedeln style of skiing, to thereby enable the user to perfect his wedeln form as well as to condition the muscles necessary for proper and easy execution of this skiing style. The device includes a low platform mounted on three bearing elements arranged in a triangle, with the configuration, dimensions, etc., of these elements and the platform such that unweighting, torsional, and angulating movement of the user standing on the platform result in a reaction of the platform simulating that of the skis in snow.

3,787,048

EXERCISE DEVICE

Wallace O. Bock, 26606 Wolf Rd., Bay Village, Ohio

Filed Feb. 24, 1969, Ser. No. 801,498
Int. Cl. A63b 23/02, 23/04
U.S. Cl. 272—57 R 1 Claim



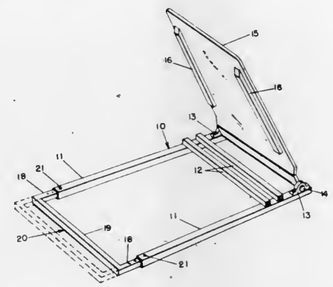
An exercise device which includes a pair of side frames extending substantially vertical in parallel position and held in relatively fixed position by cross members. An extension projects from one end of each side frame and a padded horizontally disposed bar is adjustably fixed between said extensions and is adapted to engage the front of the leg of an exerciser at approximately the height of his ankle. A padded leg support member adapted to engage the back of an exerciser's leg at about his calf extends between the side frames above the bar and is vertically movable on the side frames to accommodate movements of the exerciser.

3,787,049

ATHLETIC TRAINING FRAME WITH PIVOTED BOARD

Oscar A. Rellinger, P.O. Box 12, Helena, Ohio

Filed Nov. 3, 1971, Ser. No. 195,097
Int. Cl. A63b 21/00
U.S. Cl. 272—58 3 Claims



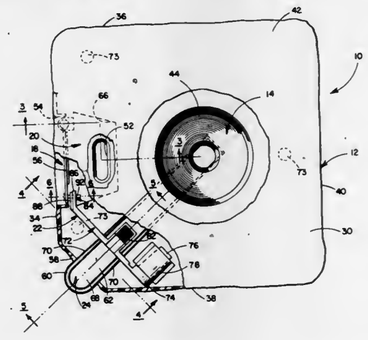
This invention is an athletic training and exercising device consisting of a horizontally disposed rectangular frame which is adjustable in length, and to one end of which is hingedly attached a rectangular board of the same width as said frame but somewhat shorter in length. The exercising procedure consists of placing the device upon the floor or ground and lying down upon it, face up, with the head towards the hinged end of said frame and feet braced against the extendable end of said frame; then, by taking hold of the free end of said board with both hands, lifting ones self to an upright position.

3,787,050

REACTION GAME SIMULATING RELEASE OF TREASURE

Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif.

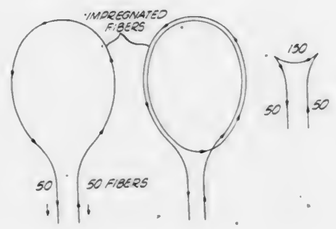
Filed Jan. 31, 1972, Ser. No. 222,122
Int. Cl. A63f 9/00
U.S. Cl. 273—1 R 4 Claims



A housing is provided with a receptacle for the treasure. An opening in the housing allows deposit of treasure items into the housing and a door in the housing allows removal of the treasure. The door is normally latched shut but is unlatched by

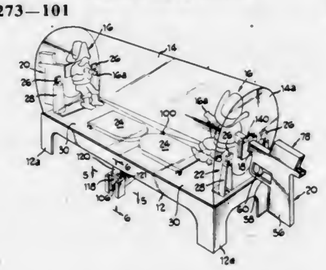
a ball operated pivoted arm. The housing includes a funnel shaped receptacle for the receipt of individually marked player balls. The funnel allows deposit of all the balls simultaneously but because of its shape permits exit of only one ball at a time. As the balls exit the funnel they travel down an inclined chute. The pivoted arm overlies the chute and is caused to pivot by a ball wedging it upwardly and thus unlatching the door. The end of the chute extends out of the housing whereby the players may see which ball was the first one down the chute and thus unlatch the door. A stack of cards are provided bearing various instructions for the players of the game to either deposit treasure tokens in the receptacle or deposit their balls in the funnel. The cards are drawn one at a time by the players.

3,787,051
CONTINUOUS FIBER TENNIS RACQUET
Henry Van Dyke Johns, 314 Oriole Rd., Pasadena, Calif.
Filed Aug. 28, 1970, Ser. No. 67,882
Int. Cl. A63b *49/10*
U.S. Cl. 273—73 F **3 Claims**



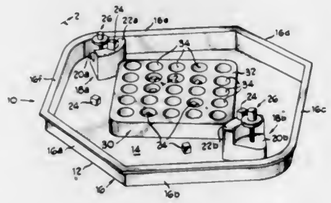
A tennis racquet composed entirely, except for the strings and a leather handle cover, of resin impregnated glass fibres approximately 25 percent of which extend unbrokenly up one handle, around the bow including the throat, around the head and down the other handle, approximately 50 percent of which extend up one handle around the head and then down the other handle, and approximately 25 percent of which extend up one handle member, across the throat and then down the other handle member. Short fibres are positioned across the throat to make the throat contain a number of fibres equal to that of any other portion of the racquet.

3,787,052
PROJECTOR AND TARGET APPARATUS INCLUDING PROJECTILE COLLECTING CLIP WHICH IS ALSO A MAGAZINE FOR THE PROJECTOR
Marvin I. Glass, Chicago, and Robert S. McKay, Morton Grove, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Mar. 1, 1972, Ser. No. 230,585
Int. Cl. A63b *71/00*
U.S. Cl. 273—101 **10 Claims**



A skill type target game which includes two opposing launching areas each having target means alongside a selectively operable launching device for propelling objects therefrom through the air toward the target means at the opposite launching area. A movable blocking panel is operatively associated with each of the targets to effectively block the propelling of objects from the adjacent launching device in response to the respective target being struck by one of the objects propelled from the opposite launching device. The launching devices are formed in the shape of cowboys holding guns to simulate a Western "shoot-out." Clips are provided for the guns to hold a plurality of spherical projectiles. The target areas have floors inclined downwardly to a storage compartment for propelled projectiles, the storage compartment having movable door means for delivering projectiles from the compartment to the clips automatically as the clips are interengaged with the compartment.

3,787,053
LAUNCHING PLATFORM, SPRING LAUNCHING ELEMENT AND TARGET AREA
Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed Nov. 5, 1971, Ser. No. 196,114
Int. Cl. A63b *71/02*
U.S. Cl. 273—101 **2 Claims**

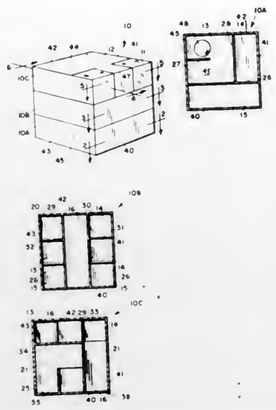


A launching type target game including a multi-compartmented board with the compartments arranged in regular rows, and launching platforms with launching elements spaced from said game board, and plural playing pieces of a size and shape to be launched by said launching elements and received in the compartments of said game board. The launching platforms have raised arcuate shoulders defining a launching surface for supporting a playing piece. The launching members are mounted adjacent the platforms for movement between a cocked or stressed position remote from the platforms and a released or launched position which extends through the space above the platform. Each launching element includes a spring connected at its lower end to the platform and having an enlarged riged member connected at the spring's upper end.

3,787,054
HIDDEN MAZE PUZZLE CONTAINED BALL
David C. Stafford, 212 North E St., Marion, Ind.
Filed Jan. 7, 1972, Ser. No. 216,056
Int. Cl. A63f *7/00*
U.S. Cl. 273—109 **2 Claims**

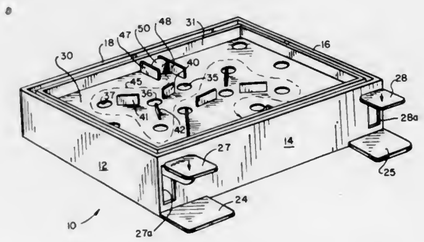
A puzzle having a maze through which a contained ball traverses. A cubicle main body is provided with nontransparent outer walls with a plurality of inner walls mounted therein defining a single noncontinuous tortuous passage having a start and finish without any dead end passages. A pair of transparent windows mounted to the outer walls of the main body are positioned at the start and finish of the passage. A ball is positioned within the main body and is movable from the start window through the passage to the finish window. The ball is unremovable from the main body. In one embodiment, the inner walls are nontransparent thereby preventing

visual determination through the windows of the tortuous passage. In another embodiment, some of the inner walls are



transparent allowing a person to visually determine through the windows a portion of the tortuous passage. In another embodiment, all of the inner walls are transparent.

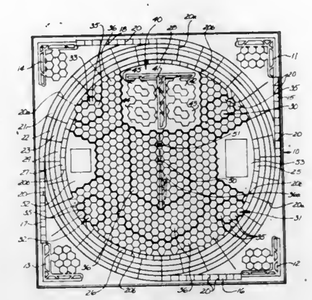
3,787,055
TILT BOARD GAME
Sandy F. Kraemer, 430 N. Tejon St., Colorado Springs, Colo.
Filed July 27, 1972, Ser. No. 275,485
Int. Cl. A63f *7/16*
U.S. Cl. 273—110 **3 Claims**



A tilt board game having a frame, a tiltable playing board pivoted at a single point centrally of one side of the frame, and spring supported on the opposite side, a plurality of barriers on the playing surface for guiding a ball, and a plurality of holes each with point values spaced around the playing board.

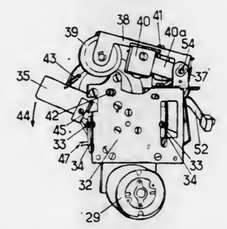
3,787,056
AIRCRAFT TRAFFIC CONTROL BOARD GAME APPARATUS
Richard L. Hellmann, 112 Varsity Ct., Crestview Hills, Ky.
Filed Nov. 26, 1971, Ser. No. 202,402
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 C **4 Claims**

A game device for simulating aircraft traffic control procedures between departure airports and a destination airport, comprising a game board having delineated thereon simulated departure terminals, playing spaces connecting said terminals with concentric flight routes, playing spaces within said flight routes, and a simulated destination airport; a plurality of playing pieces simulating aircraft; means to determine by chance the extent of movement of the playing pieces on the game board; and means to determine by chance simulated



take-off and landing clearances for the playing pieces. The game provides entertainment and an introduction to fundamental rules of aircraft traffic control.

3,787,057
TAPE RECORDER UTILIZING RESILIENT TAPE AND CARTRIDGE HAVING NO MOVING PARTS
Serge Cailliot, 16 Avenue Hache, Paris, France
Filed Mar. 30, 1970, Ser. No. 23,745
Claims priority, application France, Mar. 31, 1969, 6909731
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 B **13 Claims**

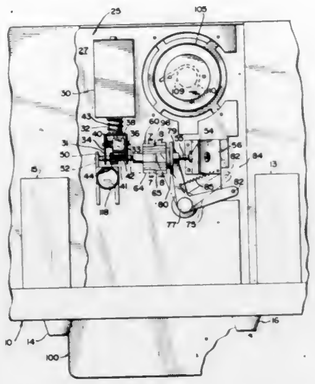


Tape recorder comprising a cartridge within which an endless resilient tape is coiled about a stationary post, and a main assembly comprising a driving spindle, pressure roller, a magnetic head, and means for urging said pressure roller and head against said tape, and thereby pressing said tape against said driving spindle.

3,787,058
MAGNETIC TAPE REPRODUCING DEVICE
Charles E. Lyon, Jr., Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Continuation of Ser. No. 487,996, Sept. 17, 1965, abandoned. This application Nov. 40, 1971, Ser. No. 197,507
Int. Cl. G11b *21/08, 23/04*
U.S. Cl. 274—4 G **17 Claims**

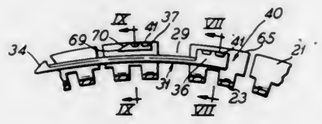
This invention pertains to cartridge tape players and more particularly to the automatic positioning of the magnetic tape head of a cartridge type tape player that is adapted to receive and play multi-track tape cartridges of different kinds which have tapes with different numbers of tracks. Automatic opera-

tion means also include a cartridge sensing means for identifying four track and eight track cartridges and a head actuating



means including a pair of coaxially mounted cams for shifting said magnetic head according to the type of cartridge sensed.

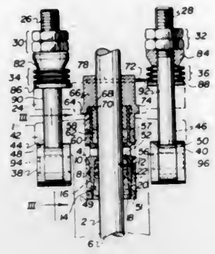
3,787,059
PISTON RING END GUIDE
Harold E. McCormick, Ballwin, Mo., assignor to Ramsey Corporation, St. Louis, Mo.
Filed Aug. 14, 1972, Ser. No. 280,657
Int. Cl. F16j *9/18*
U.S. Cl. 277—1 **11 Claims**



An end guide for piston rings and particularly circumferential expansion rings of substantially U-shaped cross section. The rings are split and the end guide functions to align the split ends. The end guide consists of a first member having a head thereon and a projecting lance member. The head is dimensioned to be snugly received between opposed radially extending legs of the ring in a press-fit relation on one side of the gap with the lance crossing the gap and extending between the legs of the ring on the other side of the gap. A second member is press-fit between the legs on the opposite side of the gap from the head and prevents exit of the end of the lance from that side of the gap. The first and second members are attached together at the time of installation of the end guide into the ring.

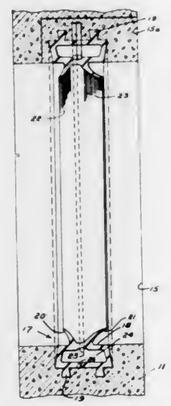
3,787,060
VALVE STEM PACKING ASSEMBLY
Cyril J. Astill, Deep River, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
Filed July 24, 1972, Ser. No. 274,733
Claims priority, application Canada, Nov. 12, 1971, 127509
Int. Cl. F16j *15/00*; **B65d** *53/00*
U.S. Cl. 277—69 **4 Claims**

A valve stem assembly wherein a wedge-shaped sleeve is pushed between packings, sealing a valve stem in a valve housing, by clamping nuts and bolts compressing Belleville washers and cams applying further compression to the Belleville washers. The valve stem is actuated by temporarily releasing



the cams. Preferably outer secondary packing is provided on a cylindrical extension of the wedge-shaped sleeve to trap any fluid which escapes when the cams are temporarily released.

3,787,061
ELASTOMERIC SEAL
Ronald E. Yoakum R.R. 1, Union, Ohio
Filed May 17, 1971, Ser. No. 143,922
Int. Cl. F16j *15/32*
U.S. Cl. 277—164 **5 Claims**

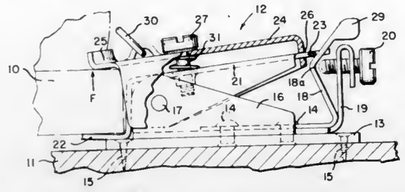


A seal for making leakproof, durable and adjustable telescoping connections for piping and the like comprises a generally cylindrical body portion of flexible elastomeric material having a pair of ribs extending inwardly and toward opposite ends of the body portion, which ribs are releasably biased inwardly and are adapted to be flattened into sealing engagement with the outer surface of a pipe or the like.

3,787,062
SAFETY STEP-IN HEEL BINDING FOR SKIS
John D. Kusianovich, 1829 Sigma Chi Rd., Albuquerque, N. Mex.
Filed Dec. 13, 1971, Ser. No. 207,309
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 T **6 Claims**

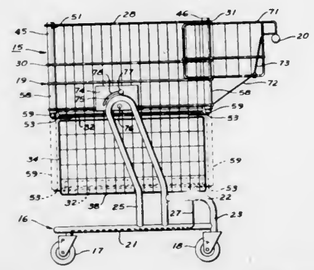
A step-in safety ski heel binding includes a heel holding means engaging the heel of a ski boot, the heel holding means

operatively connected to a linkage or lever arrangement which engages one or more flat or leaf springs. The force of the springs acting against the lever arrangement retains the



heel of the ski boot on the ski and absorbs ordinary skiing shocks without release and releases the ski boot when an upwardly directed force is exerted on the heel-holding means which exceeds the force of the springs.

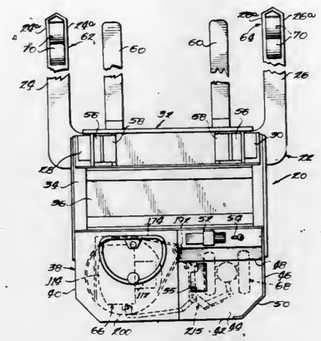
3,787,063
SHOPPING CART OR THE LIKE
Earl J. Oliver, 555 Montague Ave., Fremont, Calif.
Filed Dec. 10, 1970, Ser. No. 96,704
Int. Cl. B62b *11/00*
U.S. Cl. 280—33.99 F **17 Claims**



A shopping cart or the like having a container adapted to receive articles therein, and having also wheels enabling the cart to be propelled along the aisles of a supper market or similar establishment. The cart includes wheel-equipped frame structure having a container supported thereby for selective angular displacements between a generally horizontal position of use and a generally vertical position in which a plurality of carts can be disposed in successive juxtaposition with frame and container portions of one cart nested within frame and container portions of an adjacent cart. The container has a movable bottom wall displaceable between retracted and extended positions in accordance with the magnitude of the weight supported at any time by the bottom wall, thereby making the chamber defined by the container automatically expandable to accommodate the size of the load placed therein by a shopper, and automatically retractable as such load is removed therefrom to facilitate unloading of the chamber at the check out counter of such market. The movable bottom wall is floatingly supported so that it will not bind if subjected to asymmetrical loading.

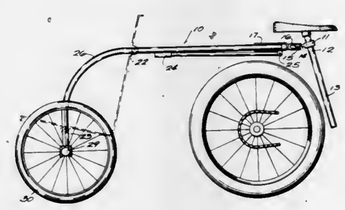
3,787,064
POWER DRIVEN MATERIAL HANDLING TRUCK
Donald Jack De Priester; David C. Horney, both of Muscatine, and Robert H. Mangels, Buffalo, all of Iowa, assignors to Hon Industries Inc., Muscatine, Iowa
Division of Ser. No. 100,191, Dec. 21, 1970, Pat. No. 3,722,613. This application Dec. 15, 1972, Ser. No. 315,639
Int. Cl. B60k *17/30*
U.S. Cl. 280—93 **12 Claims**

Disclosed herein is a material handling truck of the stand-up rider type having four support wheel units, including two steerable support wheel units, one of which comprises a power driven traction wheel. The two steerable wheel units are mounted on a rigid subframe joined to the main frame of the truck for pivotal movement about a longitudinal axis so that the wheels can accommodate to uneven terrain and thereby maintain the traction wheel in effective contact with varying subjacent surfaces. The second steerable wheel unit comprises



a pair of spaced wheels which have independent horizontal tilting movement about a mounting axis spaced below the axis of rotation of these wheels to minimize any tendency of this wheel unit to cock. A telescoping universal drive connects a steering wheel on the vehicle with a sprocket chain on the subframe for steering the traction wheel. An internesting compensating linkage system on the subframe provides positive steering movement of the other steerable wheel unit.

3,787,065
TRAILER FOR BICYCLES
Ronald F. Grimm, 5241 N. 25th St., Milwaukee, Wis.
Filed Aug. 22, 1972, Ser. No. 282,755
Int. Cl. B62k *27/00*
U.S. Cl. 280—204 **4 Claims**

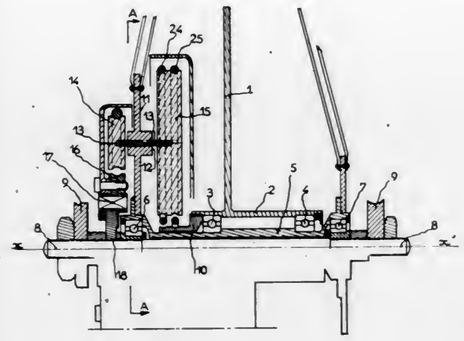


A trailer for a bicycle including a plate affixed to the vertical support for the bicycle seat, a pair of trailing elements attached for limited lateral pivotal movement to said plate, means on the free ends of the trailing elements to dispose a pair of wheels in trailing alignment, and means to releaseably secure said trailing elements in spread trailing position, whereby upon release of said means the trailing elements may be folded into parallel contact for storage.

3,787,066
GYROSCOPIC DEVICE FOR THE STABILIZATION OF LATERALLY UNSTABLE VEHICLES

Claude Hautier, 11 rue du Pavillion, Chinois 44, Nantes, France

Filed Sept. 28, 1971, Ser. No. 184,593
Claims priority, application France, Oct. 1, 1970, 7036476
Int. Cl. B62m *1/10*
U.S. Cl. 280—217 **5 Claims**



The present invention is directed to a gyroscopic device for stabilizing a laterally unstable vehicle which rests on aligned contact points or on a very narrow surface which may be identified with a segment of a line.

The device comprises a gyroscopic disc mounted on a swivelling support. The disc rotates in an oscillating plane according to the orientation of the support and according to the tilt of the vehicle. This plane is substantially parallel with the one passing through the line of the contact points of the vehicle with the travelling surface and the center of gravity of the vehicle. Its axis of rotation can never be parallel with the latter plane. The disc rotates even after the vehicle has stopped. It is rotated either by a wheel actuated by the movement of rolling surface of the vehicle either by an independent motor either by the propulsion motor. After the vehicle has stopped, the disc rotates through its own inertia, due to a free wheel mounted on the transmission. The stability device and the direction system may include a control system.

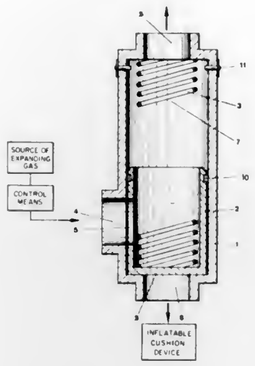
It is particularly used for cycles, motorized or not, to vehicles sliding on snow or rough ground, to laterally unstable boats.

3,787,067
SAFETY VALVE WITH INERTIAL OPENING CONTROL

Jean Paul Bernard, Paris, France, assignor to Societe Anonyme Aerazur Constructions Aeronautiques, Issy-Les-Moulineaux, France

Filed Nov. 18, 1971, Ser. No. 199,997
Claims priority, application France, Nov. 18, 1970, 70.41379
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **5 Claims**

A safety valve is provided whose opening is controlled by the movement of a piston that responds to an inertial force. The valve includes a tubular body having a discharge opening at one end an evacuation opening at the other end, and a fluid inlet situated in the lateral wall. A piston is slidably arranged within the tubular body so as to close the discharge opening at one end, but to permit communication between the inlet, an evacuation opening at the other end. A compression spring is mounted in the tubular body so as to continually push the piston toward the discharge opening, in order to keep the evacuation opening open. Upon the application of an inertial

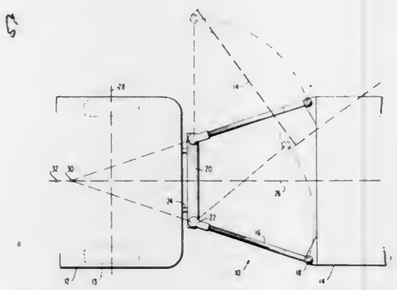


force, the piston will slide towards the evacuation opening and open the discharge opening for permitting the egress of gas. The valve can be arranged for use in inflation devices, such as air bags, for automotive vehicles.

3,787,068
ARTICULATED TRAILER HITCH

Lester Miller, Topeka, Ind., assignor to Bangor Punta Operations, Inc., Greenwich, Conn.

Filed Sept. 25, 1972, Ser. No. 292,059
Int. Cl. B60d *1/06*
U.S. Cl. 280—446 R **2 Claims**

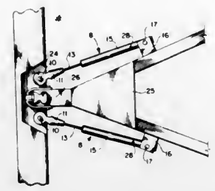


The trailer hitch includes a pair of tongues pivotally connected at opposite ends to a towing vehicle and a towed vehicle, respectively. The tongues are symmetrically arranged on opposite sides of a line coincident with the centerlines of the towing vehicle and the towed vehicle when the latter are longitudinally aligned. The tongues converge forwardly toward one another such that lines coincident with the long axes of the tongues intersect along the centerline of the towing vehicle at a location forwardly of its rear wheel axis and rearwardly of its center of gravity. The foregoing provides an effective hitch pivot point which sustantially reduces the tendency of the vehicles to sway relative to one another.

3,787,069
TRAILER HITCH WITH AUXILIARY SAFETY CONNECTIONS

Edward W. Chauncey, Rt. 1, Box 519, Walker, La.

Filed May 22, 1972, Ser. No. 255,451
Int. Cl. B62d *53/06*
U.S. Cl. 280—486 **9 Claims**

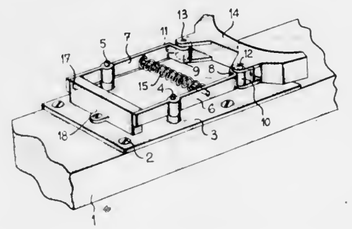


An apparatus for securing a trailer to a towing vehicle comprising at least two connecting means attached to the tongue of the trailer, the connecting means including cylinder means connected to the trailer, spring means located inside the cylinder means, and cable means connecting the spring means to the towing vehicle.

3,787,070
SKI BINDING WITH LATERAL RELEASE

Georges Pierre Joseph Salomon, 34 Ave. de Laverchy, Annecy, France

Filed Feb. 11, 1972, Ser. No. 225,427
Claims priority, application France, Feb. 16, 1971, 7106187
Int. Cl. A63e *9/00*
U.S. Cl. 280—11.35 T **6 Claims**



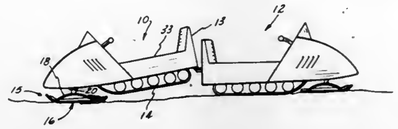
A ski binding intended to ensure retention of a ski boot and the release thereof whenever a predetermined load is applied to the boot laterally in the plane of the ski; it includes a base plate attached to the ski, a lever mechanism hinged to a vertical axis on the base plate cooperating with a jaw holding the boot and with a stationary stop integral with the base plate, and a resilient means restoring the lever mechanism to a position against the stationary stop. The cooperation between the jaw and the lever mechanism is achieved by means of a system of axes and guide ramps ensuring release of the binding by means of relative movement between the jaw and the lever mechanism.

3,787,071
TOWING SKI ATTACHMENT FOR SNOWMOBILES AND METHOD OF USING SAME

Edward H. Jagel, 3629 Lippencott, Flint, Mich., and Joseph R. Purzycki, 4396 Eleanor, Linden, Mich.

Filed May 7, 1971, Ser. No. 141,132
Int. Cl. B62b *17/02*
U.S. Cl. 280—28 **5 Claims**

A towing ski for attachment to the skis of snowmobiles and similar vehicles designed for travel over snow so as to facilitate the towing of an inoperative snowmobile in a rearward direction. Each towing ski comprises a ski member having a straight portion and a generally upwardly curved forward end. A stop member is carried on the upper face of the ski member and projects toward the rear end thereof. The rear portion of the snowmobile ski is adapted to be fitted onto the straight

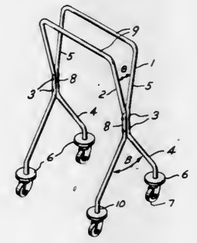


portion of the ski member with the stop member providing a means for preventing the snowmobile ski from overriding the forward curved end of the towing ski when the snowmobile is being towed rearwardly. Means are provided on the towing ski to prevent lateral movement of the snowmobile ski with respect to the longitudinal axis of the towing ski.

3,787,072
LAUNDRY HAMPER STAND

Harry F. DeBoer, Lansing, Ill., and Joseph A. N. Spowart, Hammond, Ind., assignors to Servicemaster Hospital Corporation, Downers Grove, Ill.

Filed Nov. 4, 1971, Ser. No. 195,667
Int. Cl. B62d *53/06*
U.S. Cl. 280—79.1 **5 Claims**



A laundry hamper stand suitable for holding, in a stable manner, two laundry bags. The stand comprises two substantially identical front and rear interconnected inverted U-shaped support members, each member having a vertical center arm intermediate each of the legs and the closed end of the inverted U, said legs and closed end being bent outwardly from the vertical arm. The front and rear members are interconnected by joining their respective vertical center arms. The bottom legs extend beyond the closed end to provide a stable base when a laundry bag is placed over the closed end of the support.

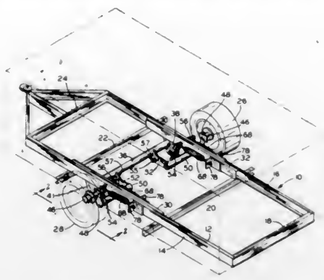
3,787,073
SUSPENSION SYSTEM

Silvano Giuseppe Llevore, Elkhart, Ind., assignor to Elkhart, Bridge & Iron, Inc., Elkhart, Ind.

Filed Dec. 14, 1972, Ser. No. 315,123
Int. Cl. B60g *11/16*
U.S. Cl. 280—124 A **8 Claims**

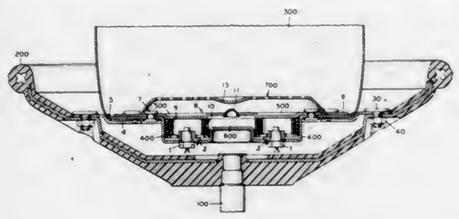
A trailer is supported at each side by a vehicle wheel and the vehicle wheel is mounted on a stub axle portion of a shaft, the shaft being transversely supported along its length on the frame side. Each supported section of the shaft is pivotally supported through lugs which are secured to the side of the frame. The said support for the shaft includes two bellcrank levers one disposed at each side of the frame siderail and having a spring connection which yieldably opposes movement of

the wheel in a vertical direction. The wheel is thus cushioned. The wheel is supported against turning except vertically and rotatably. Other movements relative to the frame are resisted



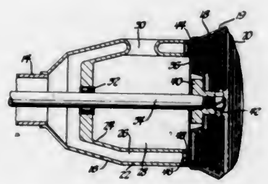
by reason of the support for the shaft which is provided at spaced points along the length thereof. Thus, the wheel is stably mounted.

3,787,074
MULTIPLE PYRO SYSTEM
Donald J. Lewis, Troy, and Robert L. Stephenson, Sterling Heights, both of Mich., assignors to Allied Chemical Corporation, New York, N.Y.
Filed May 28, 1971, Ser. No. 147,913
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **3 Claims**



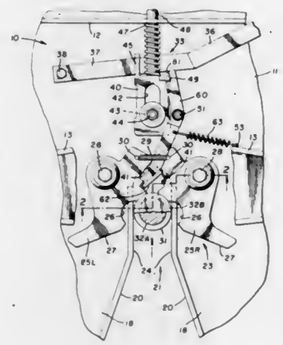
This invention relates to the procedure of redundancy, without operational compromise, in the supply of generated gas from a pyrotechnic device to an inflatible bag assembly.

3,787,075
STEERING WHEEL AND COLUMN INTERFACE SEAL
Philip L. Francis, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 30, 1972, Ser. No. 302,043
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **5 Claims**



The housing at the upper end of a motor vehicle steering column indicates radially spaced inner and outer walls which define a plenum communicating with an inflator. An interface seal is mounted in the plenum at its end portion adjacent the steering wheel and includes an annular rubber seal of channel cross section having received therein an annular reinforcement and being located in axially spaced relation from the end wall of the steering wheel to permit frictionless rotation of the steering wheel relative the housing. Upon communication of pressure fluid to the plenum, the interface seal is slidably moved axially into engagement with the end wall of the steering wheel. The reinforcement of the interface seal has circumferentially spaced curved slots which register with circumferentially spaced apertures in the end wall of the steering wheel. Upon pressure build up within the annular passage, the bight of the annular rubber seal is ruptured at its portions which are in registering relationship with the curved slots of the reinforcement and the apertures of the steering wheel end wall to communicate the pressure fluid from the plenum to an inflatable occupant restraint cushion on the steering wheel.

3,787,076
FIFTH WHEEL COUPLER ASSEMBLY
William D. Walther, Dayton, and Robert A. Deregnaucourt, Centerville, both of Ohio, assignors to The Dayton Steel Foundry Company, Dayton, Ohio
Filed Apr. 11, 1972, Ser. No. 242,948
Int. Cl. B62d *53/12*
U.S. Cl. 280—435 **1 Claim**

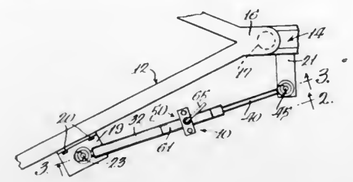


A fifth wheel coupler assembly having dual opposed coupling jaws pivotally mounted beneath the top plate on opposite sides of the kingpin slot. A latch mechanism is carried beneath the top plate and includes a plunger block movable longitudinally of the kingpin slot and spring-biased so as to be inserted between opposed and parallel faces on the forward end of the dual coupling jaws to lock the jaws in a kingpin engaging position. A sensor arm projects into the slot when the assembly is in open or kingpin receiving condition and has an orientation such that the plunger block will not release if the kingpin is in a position so as not to correctly engage with the coupling jaws.

3,787,077
ANTI-SWAY BAR
Louis J. Sanders, 418 S. Smith St., Aurora, Ill.
Filed Mar. 2, 1973, Ser. No. 337,453
Int. Cl. B60d *1/14*
U.S. Cl. 280—446 B **6 Claims**

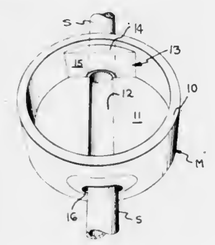
An anti-sway bar mechanism for a trailer driven by automobile or truck including first and second pivotal connections on the trailer and driving vehicle, respectively, a split cylindrical member extending from the trailer pivotal connection and a rod telescoping in the cylindrical member and extending from the other pivotal connection, there being provided an arcuate pressure plate which is actuated by a flat actuator or clamping

plate to press the split cylindrical member and an associated frictional element into engagement with the rod member to vary the clamping force on the rod member and provide variable resistance to sway, there also being provided an actuating member for the arcuate pressure plate that is threaded into the actuating plate and spring biased to a retracted position, the



actuating plate being held in position by a plate on the opposite side of the pressure plate connected to the bottom of the split cylindrical member that has threaded members connected to the actuating plate with the actuating plate and the bottom plate being urged apart to urge the pressure plate to its non-pressure position to assist in releasing the anti-sway pressure on the rod member.

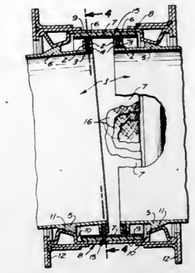
3,787,078
MANHOLE BASE SECTION FOR SEWER LINES
Richard L. Williams, Rt. No. 1, Harrod, Ohio
Filed Aug. 3, 1972, Ser. No. 277,558
Int. Cl. F16l *39/04*
U.S. Cl. 285—189 **1 Claim**



A manhole base section for sewer lines having reinforcing sections on the inside of the base section at opposite ends of the flow channel. Each reinforcing section is of substantial thickness, but the outer side conforms to the outer side of the base section. In each reinforcing section is an inwardly tapered hole aligned with the channel. The sewer pipe for each tapered hole has on its inner end an elastomeric band equipped with tongue-like resilient flexible flanges, which, when crowded into a tapered hole, provide a fluid-tight seal and enable deflection or tilting of the sewer pipe to a limited extent in any direction.

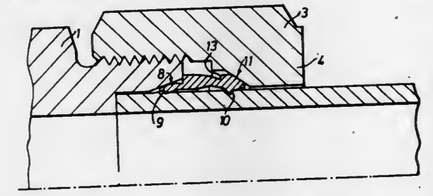
3,787,079
SEALING CONNECTION FOR CONDUIT COUPLINGS
Roy E. Yorke, Granada Hills, and Fred A. Greenwald, Burbank, both of Calif., assignors to General Connectors Corporation, Burbank, Calif.
Filed Apr. 13, 1972, Ser. No. 243,829
Int. Cl. F16l *21/02*
U.S. Cl. 285—233 **1 Claim**

A sealing connection for a pair of conduits wherein each conduit is provided with a radially outwardly directed seal ring receiving channel at its extremity in confronting relation to the other conduit. A cylindrical connector band extends between the seal rings and is confronted by a cylindrical housing, which extends thereover and is joined by a pair of pivotal connections to the two conduits to resist separation but permit limited relative angular movement. An elastomeric ring is



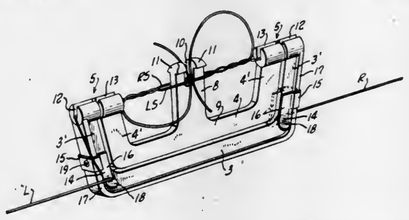
disposed between the connector band and overlying housing to minimize angular movement or radial displacement of the connector band relative to the housing, thereby preventing excess clearance between the connector and thus prevent a seal ring against extrusion from its channel.

3,787,080
PIPE COUPLINGS
Brian Percy Daniel, 5, The Pagoda, Maidenhead; Berkshire, England
Filed Jan. 25, 1972, Ser. No. 220,634
Claims priority, application Great Britain, May 20, 1971, 16120/71; Jan. 26, 1971, 3178/71
Int. Cl. F16l *17/00*
U.S. Cl. 285—341 **2 Claims**



A compression type pipe coupling in which the ring is formed with a front annular cutting tooth which cuts into the pipe surface on initial tightening of the nut, and is then stopped against further forward movement, further nut tightening resulting in the ring bowing to cause a rear annular cutting to enter the pipe surface, the ring also having an annular cavity between said teeth.

3,787,081
BARREL KNOT TYING DEVICE
Carl L. Macy, 2708 N. 84th St., Milwaukee, Wis.
Filed June 8, 1972, Ser. No. 260,820
Int. Cl. D03j *3/00*
U.S. Cl. 289—17 **9 Claims**



A knot typing device consisting of complementary inner and outer U-shaped plastic moldings, connected for relative

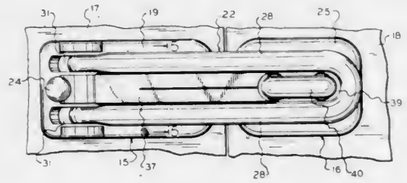
rotation about an axis passing through the distal portions of their arms, the inner U-shaped member having an integral post between and in alignment with its spaced arms to lie between parallel stretches of a pair of lines that approach one another from opposite ends of the device and are laid into communicating slots in the extremities of the arms of both U-shaped members so that upon relative rotation of the two U-shaped members while said stretches of the lines are at opposite sides of the post and are held taut by anchoring the ends thereof to the outer U-shaped member, said stretches are wound upon one another in preparation for the completion of a barrel knot tying said pair of lines together.

3,787,082

HASP AND STAPLE ASSEMBLAGE

Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed May 22, 1972, Ser. No. 255,540
Int. Cl. E05c *19/08*
U.S. Cl. 292—281 **4 Claims**



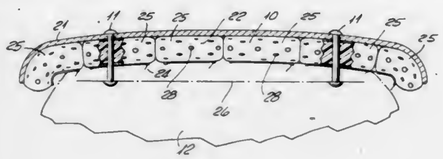
The hasp plate has swingably associated therewith the inner end portion of a novel type of strap of shackle-like formation with the extremities of its legs extending through slots therefor in the hasp plate and being engaged below the under-surface of the plate by a recess-accommodated, non-accessible hinge pin. Similarly the legs of the staple eye extend through slots therefor in the staple plate and are held against withdrawal by a non-accessible pin seated in a recess in the under-surface of the staple plate. Both the hasp strap and the staple eye may be easily assembled with their respective plates in a simple and expeditious manner.

3,787,083

SAFETY VEHICLE BUMPER

Jack Perlberg, Forest Hills, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed June 6, 1972, Ser. No. 260,322
Int. Cl. B60r *19/08*
U.S. Cl. 293—88 **1 Claim**



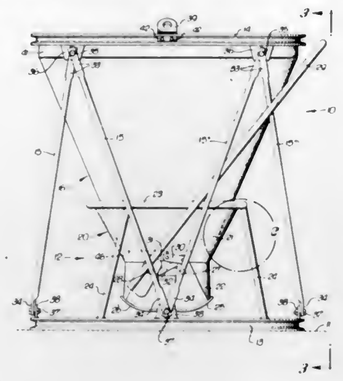
A safety bumper for automotive vehicles with energy absorption properties to minimize the shock of collision. The bumper consists of a metal facing which is backed by blocks of foamed plastic, such as polyurethane, encased in porous plastic or fabric sheeting. For installation, on the front and on the rear of existing automobiles, the present metal bumper is retained as the metal facing, and the plastic foam formed in place, or affixed by means of adhesive to fill the space between the existing bumper and the front or the rear of the automobile body.

3,787,084

RUBBER CONE CONCRETE BUCKET

Leslie H. Garlinghouse, 1585 Sierra Madre Villa, Pasadena, Calif.

Filed Jan. 5, 1972, Ser. No. 215,484
Int. Cl. B66c *3/00*
U.S. Cl. 294—71 **6 Claims**



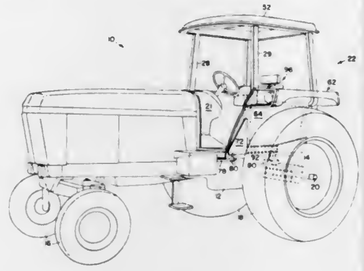
A concrete bucket structure has a lower rigid assembly including a ring for supporting the structure on the ground. A rigid hopper with an open top is mounted on the ring. Rods are releasably bolted at lower ends to the ring and at upper ends to a second rigid ring thereby supporting the second rigid ring well above the top of the hopper. A rubber cone has the edge of its large open upper end secured to the second rigid ring and its small open lower end hung unattached in the hopper. The upper, rigid ring may be dismantled from the lower rigid assembly by unbolting and removing the rods, to make a smaller package for shipping.

3,787,085

TRACTOR ROLL-OVER PROTECTIVE FRAME

David Hoffer Bucher, Bettendorf; Craig Eugene Christie; Don J. Rasmussen, both of Cedar Falls, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed June 23, 1972, Ser. No. 265,779
Int. Cl. B62d *27/04*
U.S. Cl. 296—28 C **11 Claims**



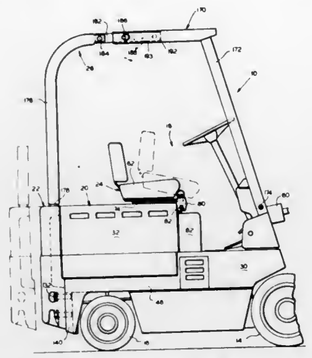
A tractor roll-over protective frame includes front and rear pairs of upright support members which form the corners of a box-like framework. A canopy is supported at the top of the framework and fenders are integral with the opposite sides of the framework. The framework also supports an operator's seat, at its back side, and supports the floor of the operator's station.

3,787,086

ADJUSTABLE SEAT FOR AN INDUSTRIAL VEHICLE

Henry L. Cosby, Hickory Corners, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Division of Ser. No. 34,713, May 5, 1970, Pat. No. 3,687,484.
This application Nov. 8, 1971, Ser. No. 196,648
Int. Cl. B60n *1/02*
U.S. Cl. 296—65 R **10 Claims**



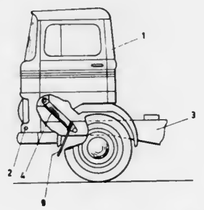
A lift truck is shown to exemplify the invention in which a seat support member is pivoted at one side to allow the seat to be swung outwardly of one side of the truck from a forwardly facing operative position for operating the vehicle to a rearwardly facing non-operative position relative to a compartment housing the power source apparatus, such as an electric storage battery. A protective overhead guard device includes one pivotable and longitudinally adjustable connector and one longitudinally adjustable connector for adjusting the length of the guard for connection to a longitudinally adjustable and novel counterweight structure at different adjusted positions thereof, thereby enabling the same truck chassis to be utilized for a relatively wide range of lift truck capacities. In addition, the pivoted connector is adapted to provide an opening in the guard structure through which may pass a chain or cable of a lifting and transfer device which, with the pivoted seat structure, provides simple means for performing an efficient method of removing and replacing the power source or other devices without removing or disassembling the overhead guard or seat structure.

3,787,087

VEHICLE HAVING TILTABLE CABIN AND ACTUATING DEVICE THEREFOR

Pieter Buys, Hengelo-O, and Lambertus Sonneborn, Oldenzaal, both of Netherlands, assignors to Applied Power Industries, Inc., Milwaukee, Wis.

Filed May 1, 1972, Ser. No. 249,352
Claims priority, application Netherlands, Aug. 31, 1971, 7111991
Int. Cl. B62d *27/06*
U.S. Cl. 296—28 C **6 Claims**



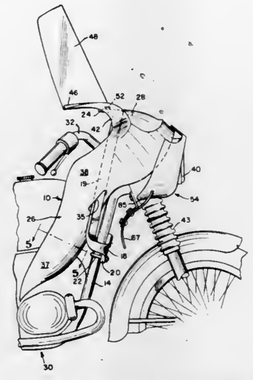
A vehicle such as a truck having a cabin which is pivoted about a horizontal, transverse axis, and hydraulically operated means for tilting the cabin. The hydraulically operated means has an integral hand operated pump which is arranged and positioned to provide a simple, efficient and easily operated device.

3,787,088

MOTORCYCLE FAIRING

Floyd H. Dreyer, Sr., 4164 W. Washington, Indianapolis, Ind.

Filed Nov. 29, 1972, Ser. No. 310,251
Int. Cl. B62j *17/02*
U.S. Cl. 296—78.1 **9 Claims**



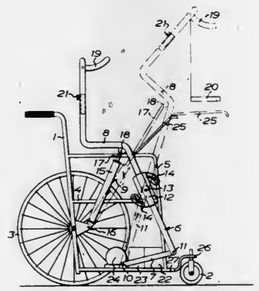
A motorcycle fairing in which a generally U-shaped yoke is mounted on a motorcycle frame. A shield is mounted on said yoke and includes a pair of laterally spaced leg panels interconnected at their upper ends by a transverse top panel. The top panel has a recess at its forward end through which the motorcycle fork and the headlight and its mounting brackets extend. A windscreen is mounted along the rearward edge of said panel. A shell having an opening through which the headlight projects extends across the recess in the top panel and is connected to the headlight bracket for movement with the motorcycle fork. And a mud guard is mounted on said fork below said shell and forwardly of said leg panels.

3,787,089

REHABILITATING CHAIRS FOR HANDICAPPED PERSONS

Karl Edvin Sixten Wrethander, Kallreda Sjukhem 360 40, Rottne, Sweden

Filed July 6, 1971, Ser. No. 159,830
Claims priority, application Sweden, July 6, 1970, 9327/70
Int. Cl. A61h *3/04*; **B62b** *1/00*
U.S. Cl. 297—118 **6 Claims**



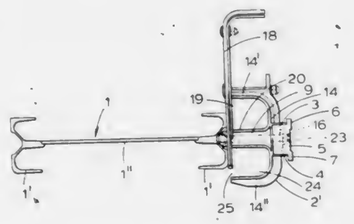
A rehabilitating chair for handicapped persons, comprising a combination of a wheel chair and a motor-driven lifting

device mounted thereon, said lifting device comprising at least one toggled lifting arm having its lower part pivotally connected to the chair and its upper part slidable in a pivoted sliding attachment on the chair and having at its upper part an armpit support for the patient.

3,787,090
MINERAL MINING INSTALLATIONS

Alois Hauschopp, Werne/Lippe Langem; Oswald Breuer, Dortmund/Husen; Berthold Ostrop, Selm, and Bernd Steinkuhl, Lunen, all of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany

Filed June 28, 1972, Ser. No. 266,919
Claims priority, application Germany, July 5, 1971, P 21 33 262.7; Oct. 8, 1971, P 21 50 228.3
Int. Cl. E21c *35/12*
U.S. Cl. 299—43 **23 Claims**

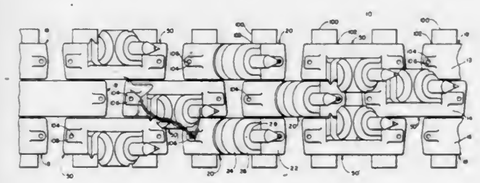


A mineral mining installation with a multi-section conveyor on which is guided a plough provided with a sword plate. The conveyor channel sections each have two E-shaped members attached to a barrier plate which is in turn connected to the goaf side of the conveyor. A narrow gap is produced between these two members: which members define upper and lower guide passages for a chain used to drive the plough. The sword plate extends through a gap formed between the lower ends of the conveyor and the members. The outer face of each of the members has ribs thereon for connection with shifting rams and the central limb of each member projecting towards the conveyor is of hollow reinforced construction. These webs can be detachable from the remainder of the members.

3,787,091
CUTTING CHAIN

Alfred P. Paolini, and Warren E. Fife, both of Columbus, Ohio, assignors to Jeffrey Galion Inc., Columbus, Ohio

Filed May 26, 1972, Ser. No. 257,301
Int. Cl. E21c *25/34*
U.S. Cl. 299—84 **4 Claims**

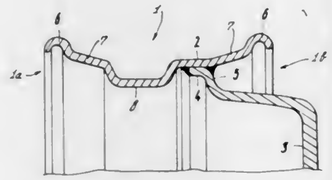


A chain link for a cutting chain with a boss for supporting a cutter bit. The boss extends laterally beyond the link body and overlies an adjacent chain link in an adjacent row of the chain. The boss is relieved to mate with the adjacent link and to permit articulation of the links relatively to each other. The chain link body and the boss are symmetrical, so that the chain link may be turned for either end of the chain link to be leading in the direction of advance of the chain.

3,787,092
WHEEL WITH DROP-BASE RIM

Lorenz Weegen, Langenfeld; Albrecht Luders, Haan; Heinz Brinkmann, Solingen; Klaus Herbst, and Gerd Ernst, both of Solingen-Ohligs, all of Germany, assignors to Kronprinz Aktiengesellschaft, Solingen-Ohligs, Germany

Filed Jan. 26, 1972, Ser. No. 220,794
Claims priority, application Germany, Feb. 5, 1971, P 21 06 381.0—21
Int. Cl. B60b *3/04*
U.S. Cl. 301—63 R **1 Claim**

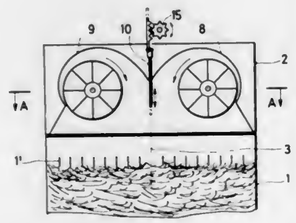


Wheel for vehicles having a rim element and a wheel disk, the rim being of asymmetrical construction with one narrower and one broader side relative to a dropped base, the broader side having a substantially cylindrical portion, the rim element having flanges bent toward the axis of the wheel; the wheel disk having a peripheral portion of cylindrical configuration that extends axially and matches said cylindrical portion in fitting configuration and being welded thereto.

3,787,093
APPARATUS FOR SEPARATING FIBER FLOCKS FROM A TRANSPORTING AIR STREAM

Daniel Hanselmann, Oberwil, and Rudolf Wildbolz, Winterthur, both of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Oct. 6, 1971, Ser. No. 186,847
Claims priority, application Switzerland, Oct. 12, 1970, 15031/70
Int. Cl. B65g *53/40*
U.S. Cl. 302—61 **16 Claims**

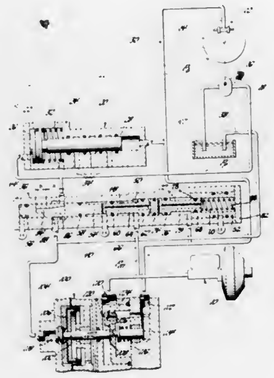


An apparatus for separating opened fiber flocks from a transporting air stream charged with such fiber flocks at a feed chute connected with a pneumatic flock transporting duct wherein the upper part of the feed chute is equipped with at least two inlet openings for the transporting air stream carrying the fiber flocks. A centrifugal wheel is provided for each such inlet opening.

3,787,094
HYDRAULIC ANTI-LOCK BRAKE CONTROL SYSTEM

John L. Harned, Grosse Pointe Woods, and Laird E. Johnston, Birmingham, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 30, 1971, Ser. No. 185,233
Int. Cl. B60t *13/16*
U.S. Cl. 303—10 **1 Claim**



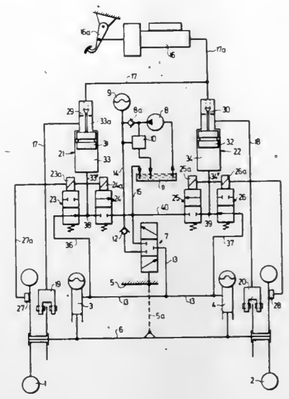
A brake control system includes a pressure operated wheel brake, a master cylinder, a positive displacement pump drivingly connected to the wheel, a brake actuator providing a brake pressure to the wheel brake in proportion to the pump generated pressure, an orifice exhausting the pump generated pressure at a rate which prevents the pump generated pressure from operating the actuator throughout the range of vehicle speeds, and a slip control valve in series connection with the orifice and providing a variable restriction to exhaustion of the pump generated pressure in proportion to the difference between the master cylinder and wheel brake pressures. The flow area presented by the variable restriction of the slip control valve decreases at a decreasing rate as the differential between master and wheel brake pressures increases.

3,787,095
APPARATUS FOR UNLOCKING A BRAKE-LOCKED WHEEL

Alexander Von Loewis of Menar, Post Holzgerlingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 13, 1973, Ser. No. 332,168
Claims priority, application Germany, Feb. 22, 1972, P 22 08 182.9
Int. Cl. B60t *8/02*
U.S. Cl. 303—21 F **10 Claims**

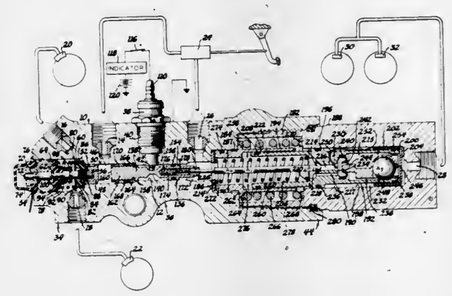
A sensor senses the brake-locked condition of a wheel of a motor car, and actuates a control valve to discharge fluid from the cylinder of a brake-unlocking device whose piston operates an unlocking valve in a brake fluid supply conduit so that the supply of brake fluid to the brake is interrupted, while fluid is drawn out of the supply conduit for unlocking the respective wheel. The cylinder of the unlocking device is connected with the hydropneumatic springs supporting the car body on the wheel shaft, so that the unlocking valve is held open even if the pressure of the pump or of the accumulator of the hydropneumatic springs fails.



3,787,096
INERTIA VALVE IN A DECELERATION ENERGIZED LOAD CONTROLLED BRAKE VALVE

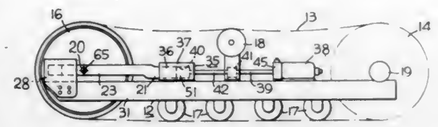
Ronald L. Shellhause, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 217,542, Jan. 13, 1973, Pat. No. 3,727,987. This application Dec. 5, 1972, Ser. No. 312,335
Int. Cl. B60t *13/06*
U.S. Cl. 303—24 F **1 Claim**



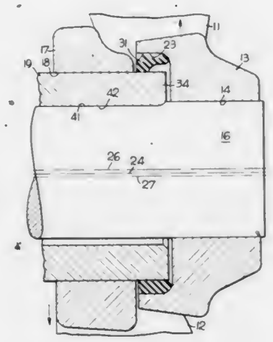
A combination valve assembly for a dual circuit brake system in which a metering valve is in one circuit, a proportioner is in the other circuit, and a hydraulically reset pressure loss warning indicator unit is sensitive to both circuits. The proportioning action rates change to match vehicle loading, to accommodate uphill and downhill grades, and to accommodate any brake fade. This is accomplished providing a deceleration sensing mechanism, including the inertia valve of the invention, which locates the proportioner piston to determine the amount of proportioning required based on the pressure at which deceleration triggers an inertia valve in the proportioner. Actuation of the warning unit because of pressure loss in the metering valve circuit causes the proportioner to be overridden by removing a valve element from a closed position to permit direct flow so that pressure through the proportioner is not proportioned.

3,787,097
TRACK IDLER MOUNT AND RECOIL ADJUSTER
Bobby J. Orr, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed June 7, 1972, Ser. No. 260,631
Int. Cl. B62d 55/30
U.S. Cl. 305—10 10 Claims



The track idler yoke of an endless track mechanism has a pair of forwardly extending legs mounted in a pair of cylindrical bearing members and has a rear end acted on by a hydraulic actuator which is connected to a gas charged hydraulic accumulator by way of a counterbalance valve. The counterbalance valve includes a differential pressure valve whereby the hydraulic actuator resists recoil of the track idler at a pressure approximately 1,640 pounds per square inch greater than the pressure exerted by the accumulator to return the idler to its normal operating position.

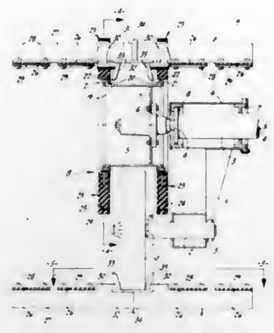
3,787,098
TRACK LINK WITH ECCENTRIC SEAL COUNTERBORE
Bobby J. Orr, Springfield, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 16, 1972, Ser. No. 307,056
Int. Cl. B62d 55/18
U.S. Cl. 305—11 4 Claims



The counterbore of the side bar of an endless track link is formed in eccentric relation to the pin in such a manner that as the usual pin and bushing wear occurs, the eccentricity is reduced. This construction allows the radial seal between the counterbore and bushing to be effective over a greater portion of the wear life of the pin and bushing connection.

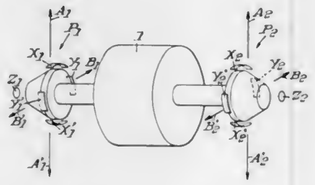
3,787,099
ENDLESS TRACK UNIT
Emmitt M. Tucker, Ashland, and J. Morris Tucker, Medford, both of Oreg., assignors to Tucker & Sons, Sacramento, Calif.
Filed July 24, 1972, Ser. No. 274,737
Int. Cl. B62m 27/02
U.S. Cl. 305—25 5 Claims

An endless track unit for use—in multiple—on an all-terrain vehicle; the unit being substantially triangular in side elevation, and provided with a mount which permits of pivoting of the unit about a transverse axis adjacent the apex of its triangular form; the included endless track being driven by a dual



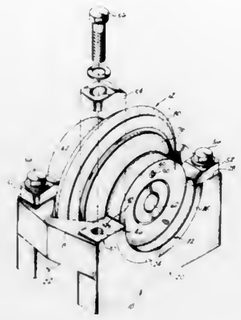
sprocket assembly coaxial with such axis, and such endless track being guided in its lower and working run by a wheel train journaled in connection with said mount.

3,787,100
DEVICES INCLUDING ROTATING MEMBERS SUPPORTED BY MAGNETIC BEARINGS
Helmut Habermann, Vernon, France; Roger Loyen, deceased, late of Vernon, France (by Ghislaine Loyen nee Voisen, administratrix); Pierre Joly, Vernon, and Yvan Auber, Rueil Malmaison, both of France, assignors to Etat Francais represente par le Ministre d'Etat charge de la Defense Nationale Delegation Ministerielle pour l'Armement Direction Technique des Engins Laboratoire de Recherches Balistiques et Aerodynamiques, Paris, France
Filed Dec. 11, 1972, Ser. No. 313,679
Int. Cl. F16c 39/06
U.S. Cl. 308—10 11 Claims



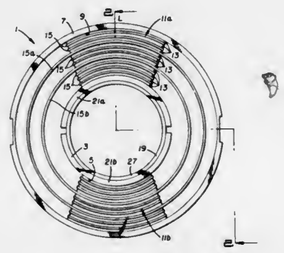
A gyroscope including a rotating member which is supported by a pair of magnetic bearings. Each bearing has two detectors for providing signals representative of the relative position of the member with respect to a common axis of the two bearings along first and second directions perpendicular to the axis and to each other. A feed-back loop controls biasing means in each bearing assembly and includes, for each direction, a summation circuit which sums the signals from the detectors corresponding to that direction in the two bearings and applies correction signals increasing with the summed signals to the biasing means corresponding to the directions in the two bearings. A subtracting circuit subtracts the signals from the detectors corresponding to the considered direction in the two bearings and applied correction signals to the biasing means, but through a polarity inverter in one of the bearings.

3,787,101
ROCK CUTTER ASSEMBLY
David B. Sugden, Tasmania, Australia, assignor to The Robbins Company, Seattle, Wash.
Filed May 1, 1972, Ser. No. 249,364
Int. Cl. F16c 35/00
U.S. Cl. 308—15 10 Claims



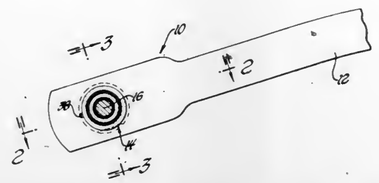
A cutter wheel is mounted for rotation about an elongated support shaft which is interconnected between a pair of relatively large diameter side caps. Base portions of the side caps snugly fit within recesses formed in side members of a mounting frame. The side caps include narrower exposed portions in their extent outwardly of the recesses. Retainer members secured to said side members overhang said recesses to contact and bear against the base portions of the side caps. At least some of the retainer members are detachable from said end members so that they can be removed to permit installation of the side caps into, or removal out from, said recesses.

3,787,102
STABILIZED TUBULAR COMPRESSIVE LOAD CARRYING LAMINATED BEARING
Michael W. Moran, McKean Township, Erie County, Pa., assignor to Lord Corporation, Erie, Pa.
Filed Feb. 5, 1973, Ser. No. 329,945
Int. Cl. F16c 27/06
U.S. Cl. 308—26 9 Claims



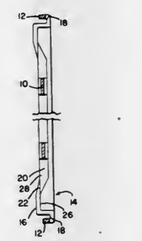
A compressive load carrying laminated bearing comprising concentrically arranged inner and outer tubular bearing support members having disposed and circumferentially spaced therebetween in compressive load transmitting relation separate stacks of radially alternating bonded layers of resilient material and non-extensible material wherein at least one of the layers of non-extensible material is continuous and common to the separate and spaced stacks to provide increased lateral or buckling stability.

3,787,103
UNITARY BUSHING CONSTRUCTION
Robert E. MacMillan, Allentown, Pa., assignor to McCord Corporation, Detroit, Mich.
Filed June 26, 1972, Ser. No. 266,103
Int. Cl. F16c 27/06
U.S. Cl. 308—26 9 Claims



A windshield wiper motion transmitting linkage assembly which includes two links interconnected by a stud. A bushing is supported by one of the links for receiving the stud. The bushing includes a circular attachment means including a groove for receiving the link so as to be attached thereto. The bushing also includes a cylindrical sleeve means having a bore for receiving the stud and an outer surface. There is also included a connection means comprising a web for interconnecting the outer surface of the sleeve means to the connection means whereby the sleeve means is free to cant relative to the attachment means and link.

3,787,104
TWISTED BAR CAGE
Richard L. Alling, Torrington, Conn., assignor to The Torrington Company, Torrington, Conn.
Filed Dec. 29, 1972, Ser. No. 319,854
Int. Cl. F16c 33/30
U.S. Cl. 308—235 6 Claims

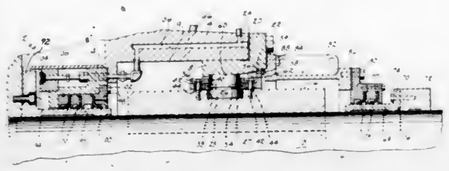


A thrust-bearing cage is provided with twisted bars. The smaller width portion of the bar is connected to the inner rim, while the normal bar width is connected to the outer rim. Thus, more rollers can be placed in a cage having a predetermined inside diameter than can be placed in conventional cages having the same inside diameter.

3,787,105
TILTING PAD JOURNAL BEARING
Willis W. Gardner, Waukesha, Wis., assignor to Waukesha Bearing Corporation, Waukesha, Wis.
Filed Dec. 4, 1972, Ser. No. 312,141
Int. Cl. F16c 17/06, 33/74
U.S. Cl. 308—73 10 Claims

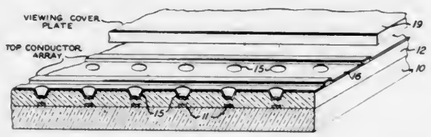
A plurality of bearing pads are each tiltably engaged with the interior of a hollow, cylindrical bearing shell in circumferentially-spaced relationship therearound. Relatively hard bearing buttons, one on each pad, and a cooperating one for

each pad on the interior of the bearing shell, are shaped on the adjacent surfaces to provide for tilting engagement between the corresponding pad and the interior of the shell. Each pair of buttons is held in place by a retainer which is removably fastened on one side to the exterior surface of the corresponding pad and is removably fastened on one end to the bearing



shell. An annular flange projecting from the bearing shell is bolted to a supporting structure. The pads and shell are recessed to removably receive their corresponding bearing buttons, and a sloping ramp in the shell for each button guides the button into its recess so that each pad, along with its buttons and retainer, may be easily slid into place as a unit and may be easily removed as a unit.

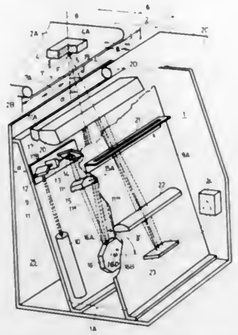
3,787,106
MONOLITHICALLY STRUCTURED GAS DISCHARGE DEVICE AND METHOD OF FABRICATION
Jerry D. Schermerhorn, Swanton, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Nov. 9, 1971, Ser. No. 197,003
Int. Cl. H01j *9/00*
U.S. Cl. 316—17 **15 Claims**



There is disclosed a gas discharge device having an inherent memory wherein all electrically operative elements are formed on a common support substrate. The device comprises a monolithic panel structure in which the conductor arrays are created on a single substrate and wherein two or more arrays are separated from each other and from the gaseous medium by at least one insulating member. In such a device the gas discharge takes place not between two opposing members, but between two contiguous or adjacent members on the same substrate.

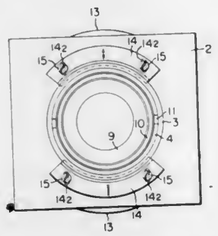
3,787,107
SCANNER APPARATUS FOR OPTICALLY DISCERNIBLE CHARACTERS
Erwin Sick, Icking; Gernot Pinior, Germering, and Johann Plockl, Unterhaching, all of Germany, assignors to Zellweger AG Apparate und Maschinenfabrik Uster, Uster, Switzerland
Filed Jan. 28, 1972, Ser. No. 221,703
Claims priority, application Switzerland, Mar. 23, 1971, 4238/71
Int. Cl. G01n *21/30*; **G02b** *17/00*
U.S. Cl. 350—7 **7 Claims**

A scanner apparatus for optically discernible characters, especially characters associated with an article and applied thereat or thereto, wherein a transmitted beam which on the basis of a rotary- or oscillating movement of a movable component of a beam deflecting mechanism which produces or further conveys a light beam scans about an axis of a reference plane. According to the invention a first cylindrical lens member is arranged between the reference plane and the movable component of the beam deflecting mechanism. This



first cylindrical lens member extends in the scanning direction and images or portrays the surface of the beam deflecting member, which transmits the transmitted light beam at least when the transmitted light beam impinges perpendicularly upon the scanning track, within a depth of focus region which contains the reference plane.

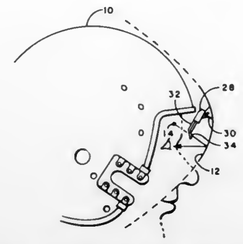
3,787,108
DEVICE FOR ADJUSTING THE FOCAL POINT OF A PHOTOGRAPHIC LENS
Tadashi Ito, and Kanehiro Sorimachi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 16, 1971, Ser. No. 208,610
Claims priority, application Japan, Dec. 23, 1970, 45/129046
Int. Cl. G02b *7/02*
U.S. Cl. 350—252 **1 Claim**



In a device for adjusting the focal point of a photographic lens which comprises a reception cylinder, a rotatable cylinder and a lens holding cylinder, the rotatable cylinder has an annular groove formed peripherally thereof and engageable with sloped surfaces formed on anti-slip members. The anti-slip members are adjustable to a position for smoothly rotating the rotatable cylinder within the reception cylinder.

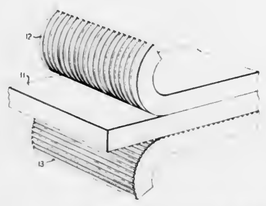
3,787,109
INSIDE HELMET SIGHT APPARATUS
Richard P. Vizenor, Wright, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed June 28, 1972, Ser. No. 266,995
Int. Cl. G02b *5/08*
U.S. Cl. 350—302 **8 Claims**

Helmet mounted display apparatus in which a reflective inside surface of a partially transparent visor is used as the primary optical element. A paraboloidal inside visor surface coated with a metallic film may be used. A light source image



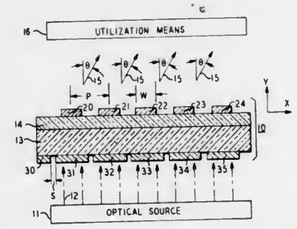
or a virtual image is positioned at the focal point of the inside surface of the visor. The outside surface of the visor may be coated with an anti-reflective coating.

3,787,110
LIQUID CRYSTAL DEVICES
Dwight Winton Berreman, Westfield; Saul Meiboom, Berkeley Heights; Donald Lawrence White, Bernardsville, and Frederic Jay Kahn, Stirling, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 23, 1972, Ser. No. 265,459
Int. Cl. G02f *1/16*
U.S. Cl. 350—160 LC **21 Claims**



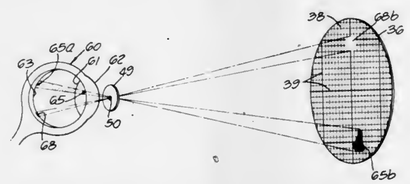
Liquid crystal devices, an operation state of which is dependent upon substantially unidirectional liquid crystal orientation, includes a contacting surface which has parallel grooves or ridges. Liquid crystal orientation is attributed to minimization of elastic energy.

3,787,111
ELECTROOPTIC GRATING FOR SCANNING A BEAM OF LIGHT
Joseph Anthony Giordmaine, Summit, and David Allmond Kleinman, Lebanon, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 16, 1973, Ser. No. 351,167
Int. Cl. H04n *3/14*
U.S. Cl. 350—160 R **10 Claims**



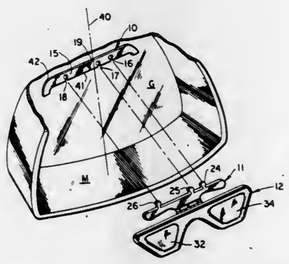
An optical grating is provided by an array of multiple stripe electrodes on a single major surface of an electrooptic crystal. Advantageously, in one type of operation (scanning), time-varying linear sawtooth voltage potentials (or electrostatic charges) are applied to each electrode. The rise times of these applied sawtooth voltages (or charges) vary for successive electrodes, such that the phase shift undergone by an optical beam propagating through the crystal perpendicular to the major surface varies substantially linearly with distance along the surface in a direction perpendicular to the stripe electrodes. Thereby, the optical beam is deflected (scanned) through an angle which likewise varies linearly with time. In other types of operation (including analog deflection), signal voltages are applied to sawtooth function generators which supply suitable voltages (or charges) to the electrodes, for deflecting the optical beam in accordance with a desired function of time.

3,787,112
APPARATUS AND METHOD FOR THE SELF-EXAMINATION OF CERTAIN CONDITIONS OF THE EYE
John H. Lyons, 351 Rancho St., Ridgecrest, Calif.
Filed Aug. 3, 1972, Ser. No. 277,528
Int. Cl. A61b *3/02*
U.S. Cl. 351—18 **17 Claims**



Apparatus and method for the self-examination of certain conditions of the eye as, for example, the presence, location and nature of a cataract, retinal damage, scars and injuries, etc. Diffused light is introduced into the eye through an eyepiece supported coaxially of the pupilary axis thereby permitting the user to perceive a cataract on his eye and to view in very substantially enlarged form, the cataract and/or certain other conditions of his own eye on a translucent target or screen forwardly of his eye which target is prefereably imprinted with a network of lines useful in the accurate transfer and recording of observed conditions and faults onto a sheet bearing a similar network.

3,787,113
EYEGLASSES, AND MOUNTING MEANS THEREFOR
Sidney Shedrow, 202 E. Gaston St., Savannah, Ga.
Filed Sept. 20, 1972, Ser. No. 290,713
Int. Cl. G02c *9/02*, *9/04*, *7/08*
U.S. Cl. 351—43 **6 Claims**



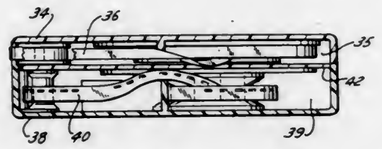
Mounting means for mounting a pair of visually corrective eyeglasses within a protective mask including an attaching

means fixed to the viewing glass of the protective mask, the attaching means having a plurality of notches in its lower edge, a carrier having a plurality of tabs to be received within the notches to fix the carrier to the attaching means, the eyeglasses being pivotally carried by the carrier. The arrangement is such that the eyeglasses, with the carrier, are removable from the attaching means; and, when the eyeglasses are in place within the mask, the mask itself locates the eyeglasses with respect to the wearer's eyes.

3,787,114
AUDIO-VISUAL SYSTEM

Paul D. Catalano, Manhasset; Norman Buten, Douglaston, both of N.Y.; George H. Eash, Encino, Calif., and Frank V. Emanuel, Cherry Hill, N.J., assignors to Retention Communication Systems, Inc., New York, N.Y.

Division of Ser. No. 97,794, Dec. 14, 1970, Pat. No. 3,733,119.
This application Apr. 17, 1972, Ser. No. 244,987
Int. Cl. G03b *31/04*
U.S. Cl. 352—31 **2 Claims**

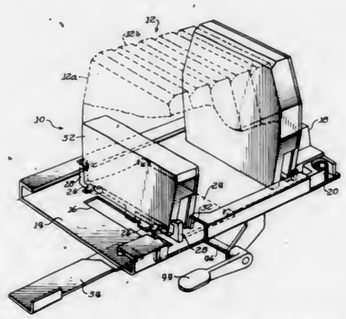


An audio visual projector adapted to removably receive a single cartridge containing an endless tape having a sound track and a signal track thereon on a first reel and an endless film strip in a loop in side by side relationship. The projector responsive to engagement with the cartridge so as to transmit the audio program on the sound track and to advance and project the film strip portion in response to predetermined signal on the audio tape. A cooling system is in the projector for cooling the film and tape of the cartridge by drawing air through the cartridge along a predetermined plenum path.

3,787,115
INDEXING MECHANISM

Joerg Fischer, Wilmette, Ill., assignor to Bell and Howell, Chicago, Ill.

Filed Jan. 26, 1972, Ser. No. 220,952
Int. Cl. G03b *21/04*
U.S. Cl. 352—123 **4 Claims**

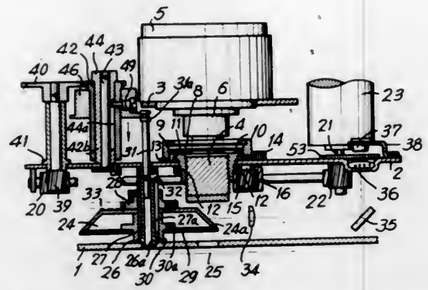


An indexing mechanism for sequentially presenting each of a plurality of cassettes containing photographic film to a projection station in a film projector. The indexing mechanism includes an escapement member having two pairs of stop members that are alternately placed in and out of engagement abutments on the cassette.

3,787,116
EXPOSURE CONTROLS FOR MOTION PICTURE CAMERAS

Tatsuro Shimizu, Tokyo, Japan, assignor to Asahi Kogaku Kogy Kabushiki Kaisha, Tokyo-to, Japan

Filed Dec. 8, 1972, Ser. No. 313,514
Int. Cl. G03b *7/08*
U.S. Cl. 352—141 **12 Claims**

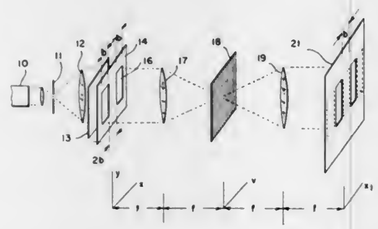


A motion picture camera which has an adjustable diaphragm capable of being automatically adjusted by a drive which operates in response to a change in the light received by a light-responsive structure. The camera includes a rotary shutter having an opening through which film in the camera is exposed as well as an adjusting plate coaxial with the rotary shutter so that when the shutter and adjusting plate are turned one with respect to the other the size of the shutter opening can be adjusted. A suitable adjusting structure is operatively connected with the shutter and adjusting plate for turning them one with respect to the other to adjust the shutter opening, and this adjusting structure is driven from the drive which adjusts the diaphragm, so that when the diaphragm is adjusted the shutter opening is also adjusted.

3,787,117
METHODS AND APPARATUS FOR INSPECTING WORKPIECES BY SPATIAL FILTERING SUBTRACTION

Laurence Shrapnell Watkins, Hopewell Twp., Mercer, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 2, 1972, Ser. No. 294,284
Int. Cl. G03b *21/14*
U.S. Cl. 353—20 **23 Claims**

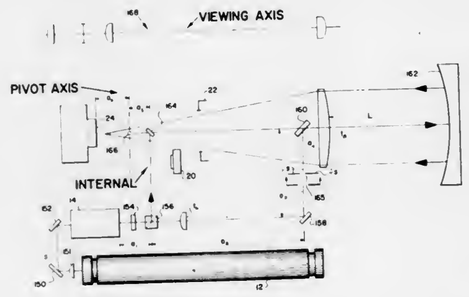


Integrated circuit and thin-film photomasks are inspected by a spatial filtering subtraction technique. The photomask to be inspected is illuminated by coherent, collimated radiation from a laser. An apertured mask is placed in front of the photomask to block light from all except two, spaced-apart columns in the array of features on the photomask. A lens forms Fraunhoffer diffraction patterns of the two apertured portions of the photomask at the focal plane of the lens, and these patterns are passed through an asymmetrically positioned optical grating. The diffraction patterns are then displayed on a screen. The grating produces a central image and two side images of each apertured portion of the photomask. The centermost side images of each aperture are 180° out of phase and cancel, because the columns of the photomask are identical. Differences between the two columns, which include nonperiodic errors in the photomask, are not cancelled and, hence, are readily detected.

3,787,118
COMPENSATION MEANS FOR POLARIZED LIGHT ELECTRO-OPTICAL MODULATOR

Thomas Nowicki, Oakland, N.J.; John I. Shipp, Tullahoma, Tenn.; Robin H. Hines, Tullahoma, Tenn., and Thomas D. Broadbent, Tullahoma, Tenn., assignors to AGA Corporation, Seacaucus, N.J.

Filed July 11, 1972, Ser. No. 270,705
Int. Cl. G01c *3/08*
U.S. Cl. 356—5 **7 Claims**



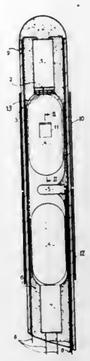
When a polarized light beam is electro-optically modulated as it passes through a birefringent crystal there are created observed divergent beams caused by internal diffraction. In order to eliminate these observed divergent beams from the central beam so as to avoid distortion caused by interference between the divergent beams and the main central beam, a converging lens is placed between the source of polarized light and the birefringent crystal to converge the central beam at a point substantially distant from the output of the birefringent crystal. At a point beyond the focal length of the converging lens there is placed an aperture aligned with the central beam and of a size equal to the size of the central beam, but small enough so as not to pass any light from the divergent beams, thus eliminating these divergent beams and allowing just the central beam, properly modulated, to pass through the aperture.

3,787,119
CATHETERIZABLE MULTIPLE PHOTOMETER USABLE IN ANY PENETRABLE MEDIUM

Boris Rybak, Universite De Caen Faculte des Sciences Zoophysiologie, Caen, France

Filed Jan. 31, 1972, Ser. No. 222,169
Claims priority, application France, Jan. 29, 1971, 7103675
Int. Cl. G01n *21/00, 33/16;* **G01j** *1/42*
U.S. Cl. 356—73 **7 Claims**

The device of the invention is constituted by a multiple photometer mounted in a catheter and comprising at least two associated photosensitive cells placed at a certain distance from one another and separated by open spaces called dish-members and at least one microlamp for energizing the said photosensitive cells.

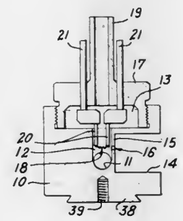


Said device allows continuous measurements, particularly in blood in vivo, of physical and chemical characteristics by means of natural or artificial colouring matters.

3,787,120
APPARATUS FOR ATOMIC ABSORPTION SPECTROPHOTOMETRY

Bernard Hircq, Arpajon, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed Feb. 2, 1972, Ser. No. 222,734
Claims priority, application France, Feb. 8, 1971, 7104146
Int. Cl. G01j *3/02, 3/42*
U.S. Cl. 356—85 **9 Claims**

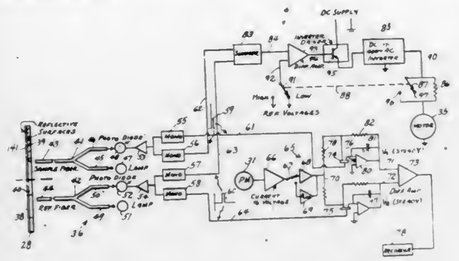


The apparatus is of the atom-generating filament type and comprises a T-shaped tubular cell, the rectilineal tube at the top of the T being traversed by a light beam whilst the central stem of the T is a tube containing the filament. A cell-holder contains the rectilineal tube which is optically open at its two opposite extremities, and a cap unit containing the central tube together with a filament of adjustable height is screwed onto the cell-holder. A rare or inert gas is introduced through the central tube in order to permit continuous sweeping with a stream having a constant flow which passes through the filament and is discharged to free air through the extremities of the rectilineal tube.

3,787,121
MULTIPLE FUNCTION SPECTROPHOTOMETER HAVING AN AUTOMATICALLY STABILIZED CHOPPER DISC

George W. Lowy; Joseph M. Conlon, both of Silver Spring, and Byron E. Marcus, Columbia, all of Md., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Dec. 18, 1972, Ser. No. 315,875
Int. Cl. G01j 3/42, 3/12
U.S. Cl. 356—93 19 Claims

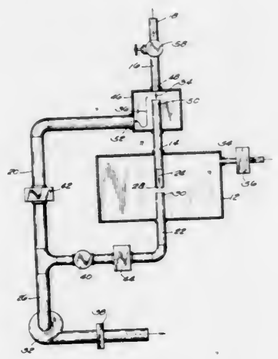


A spectrophotometer of the two-beam type employing two adjustable monochromators and employing a rotating chopper disc to provide time-sharing operation, such as split-beam operation, dual wavelength operation, or other desired modes of operation. The chopper disc motor is stabilized by a fiber optic feedback system and cooperating electronic system utilizing light beams reflected by the underside of the chopper disc and photo diodes responding to these reflections. The main optical system includes an adjustable lens element coupled to one of the monochromators to compensate for variations in refractive index of the lens element with wavelength. The electronic readout system is gated by the chopper disc stabilizing system to maintain synchronism of the readout signals with the two monochromatic excitation beams.

3,787,122
LIGHT SCATTERING PARTICLE ANALYZER

James M. Lepper, Jr., Madison, Wis., assignor to Wehr Corporation, Milwaukee, Wis.

Filed Jan. 5, 1973, Ser. No. 321,310
Int. Cl. G01n 21/00; G01j 3/46
U.S. Cl. 356—103 11 Claims

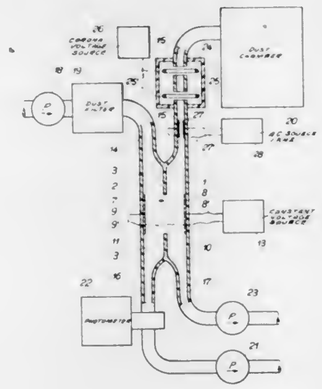


A light scattering device for analyzing colloidal particles in a fluid which includes an intake conduit through which a relatively high volume flow of the fluid to be analyzed is drawn by a pump. The intake stream is divided into a sample stream, which comprises a minor fraction of the intake stream and is drawn through an optical sensing chamber via a sample inlet nozzle for analysis, and a by-pass stream, which comprises the remaining portion of the intake stream and is drawn through a conduit by-passing the optical sensing chamber. A trickle flow of purging air is introduced into the sensing chamber through a small filter during normal operation. When flow through the intake conduit is shut off, the pump draws a high volume flow of purging air through the filter to rapidly purge residual particles and other similar contaminants from both the sensing chamber and the sample inlet nozzle.

3,787,123
METHOD AND APPARATUS FOR MEASURING THE WEIGHT OF SOLID PARTICLES SUSPENDED IN A CARRIER GAS

Willy Sigrist, Ennetbuergen, Switzerland

Filed Mar. 27, 1972, Ser. No. 238,197
Claims priority, application Switzerland, Mar. 29, 1971, 4552/71
Int. Cl. G01n 21/26
U.S. Cl. 356—103 6 Claims



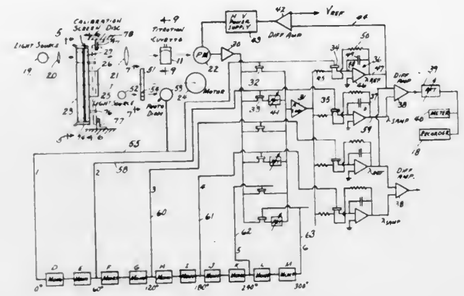
The weight of particles suspended in a carrier gas is determined regardless of particle size by electrically charging the suspended particles in the carrier gas, thereafter jointly passing the carrier gas and a stream of pure gas under conditions of at least approximately laminar flow through an electric field arranged to cause a portion of the charged particles to migrate into the pure gas, and thereafter separating the initially pure gas from the carrier gas and measuring the amount of particles suspended in the initially pure gas by conventional means. It is shown that the measured values obtained are independent of the particle size and provide an indication of the weight of particles suspended in the carrier gas.

3,787,124
DUAL WAVELENGTH PHOTOMETER FOR ABSORBANCE DIFFERENCE MEASUREMENTS

George W. Lowy, Silver Spring; Paul Priarone, Hyattsville, and Herbert M. Cullis, Silver Spring, all of Md., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Sept. 21, 1972, Ser. No. 291,046
Int. Cl. G01n 21/24
U.S. Cl. 356—205 16 Claims

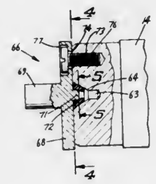
A dual wavelength photometer for measuring the oxygenation characteristics of blood. Light is passed through two different filters on a rotating time-sharing wheel, one filter providing a reference wave length at which there is substantially no absorbance change as between oxygenated and deoxygenated blood, the other filter providing a wavelength at which there is maximum absorbance change. The two wavelengths are sequentially passed through a cuvette containing deoxygenated blood being treated at controlled rates with an oxygenating reagent and changes in absorbance are detected by a photomultiplier which generates corresponding signals. A time-shared difference-measuring circuit, synchronized with the rotating wheel, receives the signals and derives a resultant absorbance difference signal which is delivered to a recorder. The trace provided by the recorder shows the change in absorbance-difference with time as blood oxygenation proceeds.



3,787,125
COUPLING ASSEMBLY

Bernart E. Traut, Wayzaya, and Vernon A. Kiffmeyer, Watertown, both of Minn., assignors to Washington Scientific Industries, Inc., Minnetonka, Minn.

Division of Ser. No. 850,386, Aug. 15, 1969, Pat. No. 3,582,246. This application May 17, 1971, Ser. No. 144,236
Int. Cl. F16d 1/06
U.S. Cl. 403—13 7 Claims

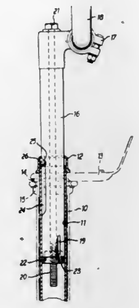


A fluid motor having intermittently rotatable vanes sequentially movable between a radial position and a circumferential position by a circuitous cam mechanism having a third harmonic configuration for substantially constant acceleration and decelertion of the vanes resulting in constant force on the vanes. The motor has a rotor mounted on a housing with the use of a combination sharp edge bearing and seal units. A coupling apparatus, having a flexible O-ring, is centered on the end of the drive shaft of the motor.

3,787,126
HANDLEBAR ASSEMBLIES

Richard Arlen, West Bridgford, England, assignor to Raleigh Industries Limited, Nottingham, England

Filed Jan. 6, 1972, Ser. No. 215,777
Claims priority, application Great Britain, Jan. 7, 1971, 767/71
Int. Cl. F16b 7/10
U.S. Cl. 403—104 8 Claims

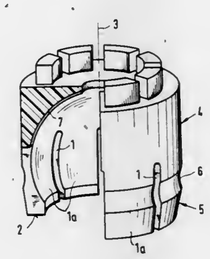


This invention concerns a handlebar assembly in which a handlebar stem is provided to be located within the front fork tube in such a manner that it can be raised or lowered by an amount determined by the length of a track formed in the handlebar stem which contains a ball captive in the steering head locknut.

3,787,127
BALL JOINT

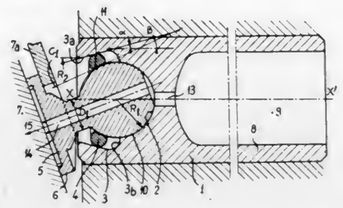
Richard Cutler, Wiesenweg, Germany, assignor to Gottfried Reuter GmbH, Lemforde, Germany

Filed Nov. 22, 1971, Ser. No. 201,081
Claims priority, application Germany, Nov. 23, 1970, P 20 57 513.7
Int. Cl. F16c 11/06
U.S. Cl. 403—133 4 Claims



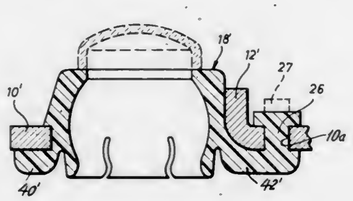
A ball and socket joint is provided having a casing with a bore closed at one end with a cover, a ball in the casing and a resilient bearing between the ball and the wall of the bore, the bore being cylindrical from the opening closed by the cover to a point below the maximum cross-section of the ball where it merges into a frustoconical portion terminating adjacent the ball pin in an annular inwardly extending flange, the external configuration of the bearing corresponding to that of the wall of the bore, having protuberances adjacent to and compressed by the cover and having circumferentially spaced longitudinal slots in that portion thereof which is frusto-conically shaped to reduce the volume of the bearing and reduce friction when the ball moves with respect to the bearing.

3,787,128
BALL-JOINT RETAINERS FOR THE PISTONS OF HYDRAULIC MOTORS AND PUMPS
Roger Maistrelli, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France
Filed May 28, 1971, Ser. No. 147,794
Claims priority, application France, June 30, 1970, 70.24191
Int. Cl. F16c *11/06*
U.S. Cl. 403—135 2 Claims



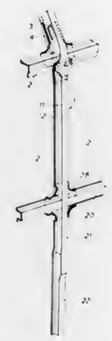
This device intended essentially for maintaining the mutual swivel engagement between a swash-plate engaging shoe and a piston in a barrel-type hydraulic pump or motor, of the type comprising a swivel ball rigid with the shoe and adapted to engage a corresponding cavity in the relevant piston, comprises a ring, a groove formed in said piston cavity and engageable by said ring, the configuration of said retaining member and groove being such that the retaining member can be fitted without play, while preserving the possibility of taking up plays due to manufacturing tolerances while safely retaining the shoe by virtue of a wedging effect.

3,787,129
UNIVERSAL JOINT BALL MOUNTING CONSTRUCTION
Alfred Kohler, Bietigheim/Wurttemberg, and Kurt Bauer, Kleiningersheim/Wurttemberg, both of Germany, assignors to SWF Spezialfabrik fur Antozubehor Gustav Raw GmbH, Bietigheim/Wurttemberg, Germany
Filed Mar. 22, 1972, Ser. No. 237,109
Claims priority, application Germany, Apr. 3, 1971, P 21 16 463.6
Int. Cl. F16c *11/06*
U.S. Cl. 403—135 4 Claims



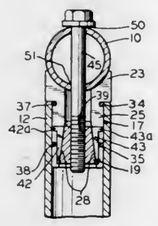
A universal joint ball mounting comprises a pivot rod member having an opening therethrough and with a ball receiving socket secured on the rod member which extends through the opening and which provides a generally semi-spherical ball pivot surface on its interior for receiving a ball member of a universal joint. The rod member carries an outstanding lug disposed around a portion of the opening on each side thereof which define interior bearing surfaces which bear against the socket. The remaining area around the opening of the rod member defines a tongue which is engaged in a groove formation of the socket member. The socket member also advantageously includes a deformable upper part which may be bent into engagement over the top of the lugs.

3,787,130
MOTOR VEHICLE JOINT
Keith Reginald Hemmings, Adlington, and Gerald Fowler, Eccleston Nr. Chorley, both of England, assignors to British Leyland Truck and Bus Division Limited, Leyland, Lancashire, England
Filed Aug. 25, 1971, Ser. No. 174,772
Claims priority, application Great Britain, Aug. 26, 1970, 40,975/70; Sept. 16, 1970, 44,174/70
Int. Cl. F16b *7/00*
U.S. Cl. 403—205 7 Claims



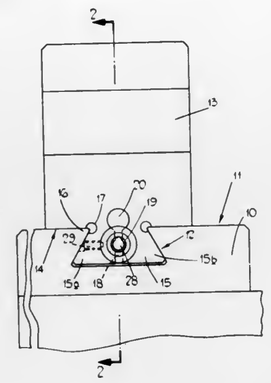
An integral construction motor vehicle is provided having a body including first and second frame members to which panel members are attached the frame members being connected by a jointer in the form of a plate which extends between two frame members and is rivetted to them.

3,787,131
PIPE ANCHOR
Frederick S. Reachek, 1259 Charles Ave., Lakewood, Ohio
Filed Apr. 5, 1972, Ser. No. 241,270
Int. Cl. F16b *7/04*
U.S. Cl. 403—234 9 Claims



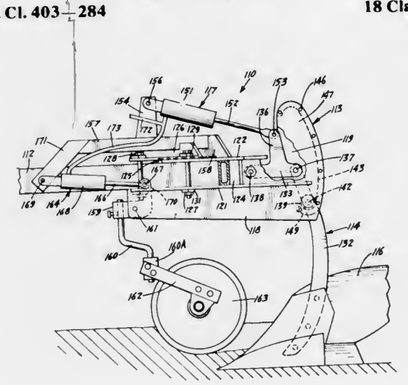
A device for connecting a pair of mutually transversely extending tubular structural members. A tubular member having a body and a head is split lengthwise into complementary half sections resiliently connected together. The body fits within one structural member and the head is connected to the second structural member. A bolt passes through the second structural member and threadedly engages a plug in the body of the tubular member. Tightening of the bolt moves the plug axially in the body and causes the body to expand and grip the inner walls of the second structural member.

3,787,132
CLAMPING ARRANGEMENT
Charles Alexander Garnett, Worcester, England, assignor to Edward Williams Holdings Limited, Birmingham, England
Filed Apr. 6, 1971, Ser. No. 131,691
Claims priority, application Great Britain, Apr. 7, 1970, 16,395/70
Int. Cl. F16b *12/20*
U.S. Cl. 403—290 10 Claims



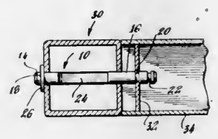
An arrangement for securing an attachment to a body has a split dovetail extending from the attachment and slidable in a dovetailed recess in the body. One portion of the split dovetail is flexed by a wedge arrangement to provide a clamping action. The other portion of the dovetail is not deflected by wedging action and thereby provides a relatively fixed locating face.

3,787,133
CLAMP AND POSITIONING STRUCTURE
Cletus J. Geurts, 530 N. Melvin, Gibson City, Ill.
Division of Ser. No. 124,753, March 16, 1971. This application Jan. 27, 1972, Ser. No. 221,286
Int. Cl. F16b *7/00*
U.S. Cl. 403—284 18 Claims



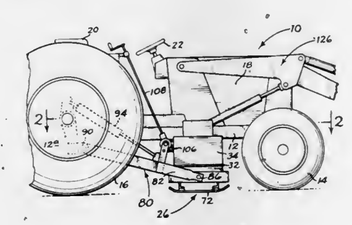
An earth working implement having a high ground clearance beam connected to a frame unit having side plates. A clamp assembly having bolts and eccentric washers mounts the frame unit to a beam of the implement. A block secured to the beam cooperates with the clamp assembly to position the clamp assembly on the beam. An articulated linkage is connected to an earth working tool and pivotally joined to the frame unit. Tracks on the side plates cooperate with rollers on the standard to guide the movement of the plow bottom to a trip position without the plow bottom going below its normal earth working position. A hydraulic cylinder acting on the standard continuously holds and biases the plow bottom to its earth working position. A second hydraulic cylinder biases a colter to its earth working position.

3,787,134
PIN FOR INTERCONNECTING TWO PARTS OF A KNOCKDOWN ASSEMBLY
Alan Carleton Burr, East Norwalk, Conn., assignor to Howe Folding Furniture, Incorporated, New York, N.Y.
Filed Feb. 28, 1972, Ser. No. 230,003
Int. Cl. F16b *13/00*
U.S. Cl. 403—408 2 Claims



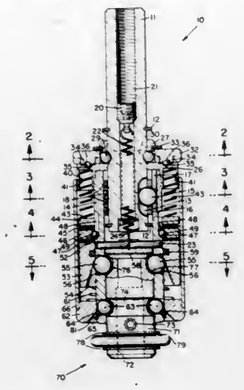
A pin which has one circumferential groove adjacent one end and has two axially spaced circumferential grooves adjacent its other end, is long enough to be inserted through a member of a knock down assembly, with its grooved ends extending beyond opposite faces of the member respectively, in position for either or both ends to be inserted through a slot in an opposed end of another member of the assembly and to receive in a groove the edge of a slot defining portion of an opposed other member of the assembly. At a predetermined position between its ends the pin is reduced in diameter for a predetermined distance and shaped so that two of the pins may be inserted through the said member in crossed relation and disposed in the same plane.

3,787,135
VEHICLE AND VIBRATING COMPACTOR COMBINATION
Jack D. Layton, Salem, Oreg., assignor to Layton Manufacturing Company, Salem, Oreg.
Filed Apr. 7, 1972, Ser. No. 242,000
Int. Cl. E01c *19/34*
U.S. Cl. 404—113 10 Claims



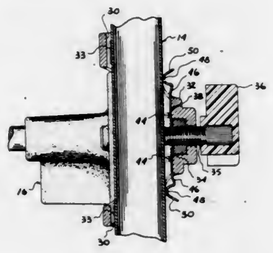
A vehicle and vibrating compactor combination, where the compactor is connected to the vehicle to move over the ground with movement of the vehicle. The compactor can be raised to elevate a compacting plate bottoming the compactor above the ground. Means in the combination provides for changing the position of the compactor and its compacting plate to enable it to be placed at different inclined positions with respect to the ground while in ground contact. This adjustment occurs with a change in the mode of operation of the compactor. Adjustable limit means defines the limits of different inclined positions for the compactor plate.

3,787,136
ADJUSTABLE TORQUE CONTROLLED TOOL HOLDER
Rudolph Steiner, Fairport, N.Y., assignor to Numertap, Inc., Rochester, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,623
Int. Cl. B23b 47/24
U.S. Cl. 408—139 10 Claims



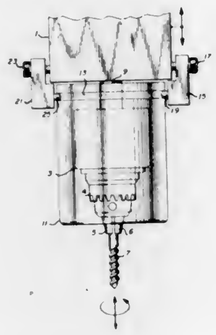
The holder has a shank to be driven by a machine spindle, a sleeve axially slidable on the shank and rotatable thereby, and an adapter removably connected to the sleeve for rotation thereby. The adapter carries a removable tool, and is releasably coupled to the sleeve by a spring-loaded torque ring, which is axially slidable on the sleeve and holds a plurality of ball couplers resiliently in driving engagement with recesses in the adapter. When a predetermined torque is exceeded the balls are forced out of the recesses to interrupt the drive to the adapter, and also to force the torque ring upwardly to inoperative or released position. The sleeve is held in released position by a ball coupling which is engaged in stepped angularly and longitudinally spaced recesses in the sleeve.

3,787,137
ADJUSTABLE LOCK FOR A COLUMN MOUNTED TOOL
Earl G. Renner, St. Charles, Ill., assignor to McGraw-Edison Company, Elgin, Ill.
Filed Nov. 21, 1972, Ser. No. 308,430
Int. Cl. B23b 47/26
U.S. Cl. 408—241 R 9 Claims



This invention has particular utility in the drill press art where it is desired to adjust and lock a column head, to which a power tool is connected, heightwise on its supporting column. The head has a bore that fits freely over the column, and a leaf spring is secured to the head in the bore and engages the column to impose a continuous drag between the head and column of magnitude greater than the weight of the head and tool so that the head will not slide under this weight along the column but instead will remain stationary until moved by the manually applied height adjusting force. A manually controlled lock is also carried in the head which can be engaged to permanently lock the head at the adjusted column position.

3,787,138
SPINDLE MOUNTED PERSONNEL PROTECTOR
John Pershing Vernon, and Douglas Wayne Lamkins, both of Springfield, Mo., assignors to Litton Systems, Inc., Springfield, Mo.
Filed Aug. 23, 1972, Ser. No. 283,107
Int. Cl. B23b 47/00
U.S. Cl. 408—241 G 1 Claim

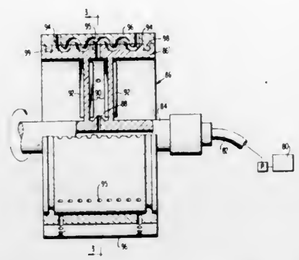


A spindle mounted personnel protector provides a barrier for a rotating drill chuck which prevents an operator's hair or other objects from becoming entangled with such a rotating part, while permitting full view of the work. This includes a hollow elongated cylinder of transparent plastic material which fits over and ensleeves the drill chuck. The cylinder contains a groove in its outer surface proximate the upper end of the cylinder and such groove extends about the circumference of the cylinder. A set of three mounting brackets are evenly spaced about and are attached to the drill housing, a non-rotating element of a drill press. The brackets each extend to beneath the housing and each includes a radially inwardly projecting prong. The prongs engage the groove in the plastic cylinder to thereby support the cylinder in place. The plastic cylinder is easily removed by downwardly pulling upon an end of same, as would be done when it is desired to change drill bits, and is easily reinserted into place by simply pushing upward on the bottom end until the bracket prongs re-engage in the groove of the plastic cylinder.

3,787,139
PROCESS FOR THE PREPARATION OF TITANIUN CONCENTRATES FROM IRON-CONTAINING TITANIUM ORES
Felix Oster, Strasbourg, France, assignor to Fabriques De Produits Chimiques De Thann Et De Mulhouse, Thann, (Haut-Rhin), France
Continuation of Ser. No. 808,197, March 18, 1969, abandoned. This application Oct. 15, 1971, Ser. No. 189,602
Claims priority, application France, Mar. 26, 1968, 68.1860
Int. Cl. C01g 23/04
U.S. Cl. 423—610 9 Claims

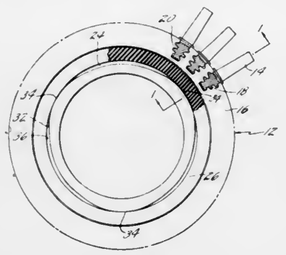
A titanium concentrate is made from an ilmenite or other iron-containing titanium ore by treatment with aqueous hydrochloric acid of the azeotropic concentration while maintaining this concentration by continuously removing excess water by distillation. Preferably, when as much iron as practicable or desired has dissolved, the distillate is returned, or water from some other source added, to the mixture, which is then boiled further for a short time under total reflux to precipitate titanium which may have dissolved.

3,787,140
POWER PLANT
Alvin L. Gregory, 5860 Callister Ave., Sacramento, Calif.
Filed Oct. 4, 1971, Ser. No. 186,092
Int. Cl. F01d 3/00, 5/08
U.S. Cl. 415—80 8 Claims



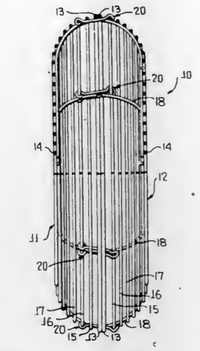
A prime source of mechanical power comprising an expansion chamber, an inlet into which expansible fluid is injected, and an outlet through which said fluid is exhausted after expansion in said chamber. Expansion of said fluid is achieved by application of a heat source directly to the expansion chamber, which expansion acts through piston means to create useful mechanical motion. The engine may be of a reciprocating type, rotary or novel turbine, while the heat source can be solar, gaseous, petroleum, nuclear, or electrical. In addition, it is conceived that the novel turbine engine can produce motion by either a rotor driven by a stator or a stator driven by a rotor.

3,787,141
FILAMENT REINFORCED MOTOR ASSEMBLY
Thomas C. Walsh, New Britain, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Nov. 30, 1972, Ser. No. 310,759
Int. Cl. F01d 5/30
U.S. Cl. 416—244 4 Claims



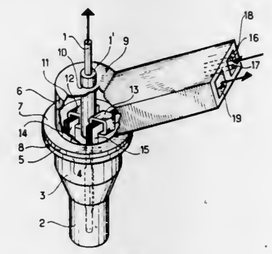
A radially outwardly facing annular surface of a non-composite rotatable member, such as a rotor disc, includes a plurality of lobes extending radially outwardly from the surface. A filament reinforced composite annular ring surrounds the surface and is disposed on the lobes which serve to position it with respect to the rotatable member. The ring is spaced from the surface between adjacent lobes when the member is not rotating. The member is thus able to expand radially more rapidly than the composite ring which will deform as the member grows to reduce the space between it and the member until they are in contact or until the ring is taut whereupon the ring begins to carry the centrifugal loads of the rotating member.

3,787,142
FAN GUARD
Roger C. Dupke, 707 Jefferson St., Merrill, Wis.
Filed May 1, 1972, Ser. No. 249,272
Int. Cl. F04d 29/70
U.S. Cl. 416—247 12 Claims



This disclosure relates to fan guard which includes a pair of guard halves each including a plurality of peripheral wires circumscribing progressively reduced areas from a first peripheral wire toward a most remote and smaller second peripheral wire with at least an additional peripheral wire therebetween, the guard halves being disposed with the first peripheral wires adjacent each other and means in the form of hooks pivotally connected to the additional peripheral wire of a first of the pair of guard halves and hooked upon the additional peripheral wire of a second of the pair of guard halves for maintaining the same in assembled relationship. Each hook includes an eye and a hooking nose at opposite ends of a spanning portion and the spanning portions are disposed inboard of, in contact with, and in spanning relationship to the first peripheral wires of both the first and second guard halves.

3,787,143
IMMERSION PUMP FOR PUMPING CORROSIVE LIQUID METALS
Henri Carbonnel, Antony, and Robert Borie, Sceaux, both of France, assignors to Groupement Atomique Alsacienne Atlantique, Le Plessis Robinson, France
Filed Mar. 16, 1972, Ser. No. 235,271
Claims priority, application France, Mar. 16, 1971, 71.09159; Mar. 30, 1971, 71.11143
Int. Cl. H02k 1/12
U.S. Cl. 417—50 8 Claims



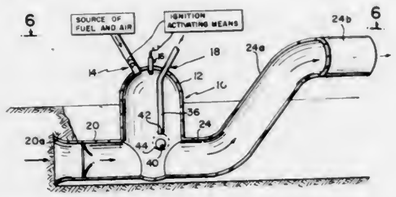
Immersion pump having slight bulk, for liquid metals, operating by conduction, consisting of one or two magnetic circuits, a conduction loop made of liquid metal and of two electrodes limiting the liquid metal duct in the active zone. A

refractory material is cast round the components of the pump, and protects them against the corrosive action of the liquid metal. The part which is not immersed comprising the induction windings of the magnetic circuits is protected by a cast aluminum steel housing.

3,787,144
EXPLOSIVE PUMPING AND DREDGING METHOD AND APPARATUS

Charles D. Wood, San Antonio, Tex., assignor to Southwest Research Institute, Bexar, Tex.

Filed June 29, 1972, Ser. No. 267,602
Int. Cl. F04f 1/16; E02f 3/88
U.S. Cl. 417—74 **9 Claims**

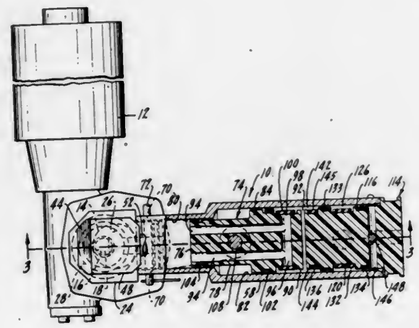


A method and apparatus particularly suited for underwater dredging, trenching and the like. An explosion chamber is provided with a fuel source, a fuel ignitor and an exhaust outlet. A dreg intake conduit having a check valve communicates with the explosion chamber as does a dreg exhaust chamber. Material to be dredged enters the dreg intake and fills the explosion chamber to a certain level while fuel is admitted to the explosion chamber. The fuel is burned or exploded which closes the check valve in the dreg intake and forces the dreg material out through the exhaust conduit.

3,787,145
MIXING PUMP ASSEMBLY

Richard Martin Keyes, Rockford, and Bertel Swan Nelson, Naperville, both of Ill., assignors to Beatrice Foods Company, Chicago, Ill.

Filed Feb. 18, 1972, Ser. No. 227,481
Int. Cl. F04b 23/04, 23/06, 19/02
U.S. Cl. 417—250 **8 Claims**

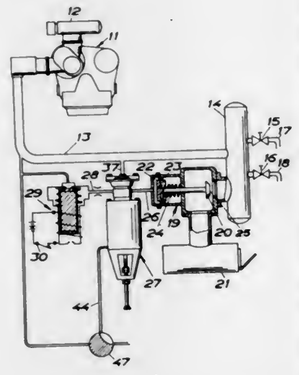


A double-acting proportioning pump having a receiving chamber and a mixing chamber for accurately mixing and delivering two fluids such as a liquid and air in a system. The double-acting pump includes a single stationary piston and reciprocating cylinder whereby the fluids are conveyed and mixed by the alternate expansion and contraction of each pump chamber, with one of the fluids passing from the receiving chamber to the mixing chamber through the single piston element. The pump is cylindrical with end cap members at each end thereof; the piston is disposed between the end caps and the two pump chambers are each defined by an end cap member and one radial end face of the piston. Cyclical valve means alternately open and close the passage through which one of the fluids communicates with the receiving chamber. Adjustable air inlet means vary the quantity of air admitted to the mixing chamber, thereby varying the ratio of mixed ingredients in the final product.

3,787,146
DELIVERY CONTROL SYSTEM FOR A MOTOR DRIVEN COMPRESSOR

Sven Evald Eriksson, Kontich, Belgium, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Aug. 4, 1971, Ser. No. 168,856
Int. Cl. F04b 49/02
U.S. Cl. 417—299 **5 Claims**



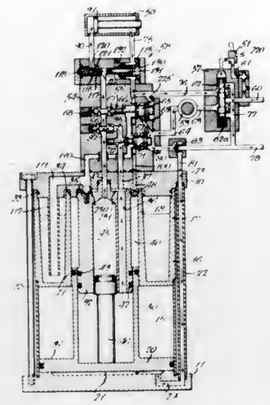
A screw compressor is mounted on a truck and adapted to deliver compessed air for ground checks, starting jet engines, and air-conditioning aircraft cabines. Its delivery pipe has an automatic discharge valve for venting to the atmosphere part or all of the compressed air so that the pressure in the delivery pipe will vary within very close limits independently of the amount of air utilized. The discharge valve is pneumatically controlled by means of a pressure relay which has a very quick action.

3,787,147
TWO-STAGE AIR-HYDRAULIC BOOSTER

Samuel B. McClocklin, and Clarence L. Kostelecky, both of Owatonna, Minn., assignors to Owatonna Tool Company, Owatonna, Minn.

Filed Dec. 26, 1972, Ser. No. 318,088
Int. Cl. F04b 17/00, 35/00; F15b 7/00
U.S. Cl. 417—302 **15 Claims**

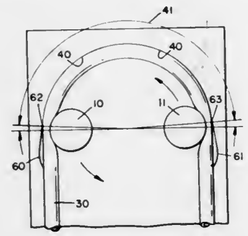
A two-stage air-hydraulic booster having two pumping chambers, with one being a relatively large-volume, low-pressure chamber and the other a relatively small-volume, high-pressure chamber and with both chambers being formed, in part, by pumping structure carried by an air-operated piston. The ratio of the area of the air-operated piston to the area of the hydraulic cylinder for the large-volume, low-pressure chamber is relatively low whereby a large volume of fluid per inch of stroke is delivered to the system while the ratio of the area of the air-operated piston to the area of the high-pressure, small-volume chamber is high to deliver a small volume of fluid per inch of stroke of the air-operated piston. The structure provides for minimal consumption of operating air in both advancing the movable air-operated piston in a pumping stroke and in return of the air-operated piston to an initial position.



3,787,148
ROLLER PUMP

J. David Kopf, Tujunga, Calif., assignor to David Kopf Systems, Tujunga, Calif.

Filed Sept. 26, 1972, Ser. No. 292,314
Int. Cl. F04b 43/08, 43/12, 45/06
U.S. Cl. 417—477 **6 Claims**



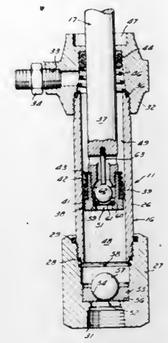
A roller pump with a pair of opposed rollers which travel in a circular path concentric with a bearing surface of angular length less than 180° and squeeze a flexible tube against the bearing surface. Lead ramps extend outwardly from the ends of the bearing surface so that as one roller begins to squeeze the flexible tube, the opposite roller begins to disengage said flexible tube; thereby providing a relatively constant driving torque and smooth operation of the pump.

3,787,149
PUMP FOR ZINC-RICH MATERIALS OR THE LIKE

Oscar Dane, Houston; Ronald Wentworth Beers, Spring, and Gustave Stanley Levey, Houston, all of Tex., assignors to Gustave S. Levey, trustee, Houston, Tex.

Filed Mar. 24, 1971, Ser. No. 127,676
Int. Cl. F04b 21/06
U.S. Cl. 417—554 **14 Claims**

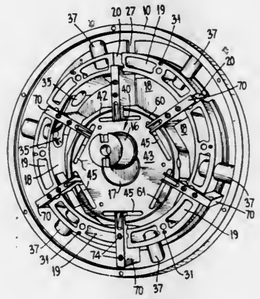
A pump for use in the airless spraying of zinc-rich materials or the like is disclosed. The pump is provided with valves in which the mating valve surfaces are constructed to avoid excessive localized pressure and incorporate elements formed of materials with which zinc-rich coating materials or the like do not tend to form weld type bonds. In one embodiment, a ball check valve includes a rigid ball encased in a polyurethane jacket which seats against a spherical valve seat. In another embodiment, the valve seat is provided by an O-ring formed of elastomeric material.



3,787,150
ROTARY MOTOR

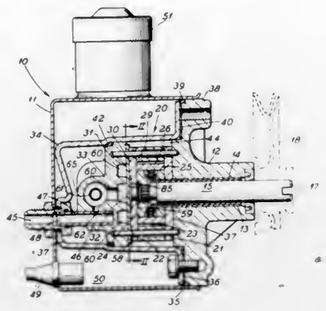
Tony Ralph Sarich, 2 Hadley Pl., Karrinyup, Bayswater, Australia

Filed July 6, 1971, Ser. No. 159,834
Claims priority, application Australia, July 6, 1970, 1737/70
Int. Cl. F02b 53/00
U.S. Cl. 418—61 **15 Claims**



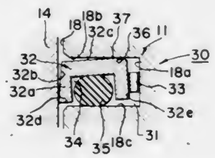
A rotary vanes type motor having a plurality of vane mounted for reciprocal movement in a housing in a radial direction with respect to a shaft journalled in the housing. A piston member is eccentrically mounted on the shaft in the housing so that the piston member will orbit without rotation in the housing as the shaft rotates. The vanes are connected to the piston member so as to reciprocate when the piston member orbits. The housing, vanes, and piston member defining a plurality of chambers to which a working fluid may be admitted in sequence to induce orbiting of the piston member and resulting rotation of the shaft.

3,787,151
STACK-UP ASSEMBLY
Robert Edward Carlson, Livonia, Mich., assignor to TRW Inc., Cleveland, Ohio
Filed July 7, 1972, Ser. No. 269,766
Int. Cl. F01c 19/08; F03c 3/00; F04c 15/00
U.S. Cl. 418—133 7 Claims



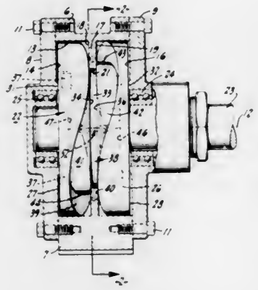
A stack-up pump is provided with a pressure generating area ported through a pressure plate and a separator plate to a valve plate, the separator plate contacting the pressure plate on one side and open to high pressure channels on the other side whereby the separator plate is biased against the pressure plate and the pressure plate in turn against the pressure generating rotor cavity to maintain a seal. To prevent the separator plate from pressing against the pressure plate with sufficient force to bow the pressure plate and seize the rotor, the pressure plate is relieved in areas under the separator plate.

3,787,152
OIL SEAL CONSTRUCTION FOR ROTARY INTERNAL COMBUSTION ENGINE
Masaru Mitsuyama, and Noriyuki Kurio, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima-ken, Japan
Filed June 7, 1972, Ser. No. 260,461
Claims priority, application Japan, June 10, 1971, 46/49545
Int. Cl. F01c 19/00; F03c 3/00; F04c 27/00
U.S. Cl. 418—142 10 Claims



An oil seal construction for use in an internal combustion engine of the rotary type, including a generally annular groove formed in each of the side surfaces of an inner body or rotor and having a generally rectangular cross section, an oil seal ring relatively tightly received within the annular groove with a limited clearance inbetween for sealing engagement with the inner surface of each of the side walls of an outer body or engine housing, and biasing means mounted between the annular groove and the oil seal ring for urging the oil seal ring toward each of the outer body side walls to effect the sealing engagement of the oil seal ring. At least one of the side surfaces of the oil seal ring is locally reduced, or more specifically round or tapered, at the bottom corners thereof, so that smoothly sliding engagement of the oil seal ring with the associated inner side surfaces of the annular groove is effected even when the clearance defined between the side walls of the annular groove and of the oil seal ring is so limited as to prevent unnecessary bouncing of the ring, and even when the inner body experiences inevitable rocking motions along the axis of the outer housing.

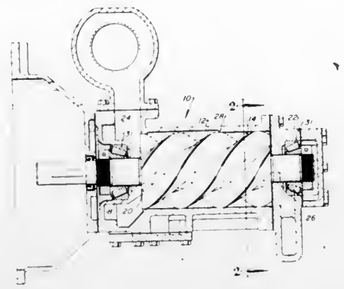
3,787,153
POSITIVE DISPLACEMENT MACHINE SUCH AS A PUMP
Benjamin F. Williams, Douglas, Ariz., assignor to Benwilco, Inc., Douglas, Ariz.
Filed Aug. 16, 1972, Ser. No. 280,944
Int. Cl. F03c 3/00
U.S. Cl. 418—176 7 Claims



A positive displacement machine such as a pump or compressor has a drum-like housing having an interior, circular-cylindrical surface symmetrical about a main axis and having a pair of interior, planar, side surfaces normal to the main axis. A drum-like rotor is mounted within the housing for rotation relative thereto about the main axis and has an exterior, circular-cylindrical surface approximately fitting the interior, circular-cylindrical housing surface. Also, the rotor has a pair of exterior, planar, side surfaces approximately fitting the interior, planar, side surfaces of the housing. Around the rotor is a peripheral groove symmetrical about a plane normal to the main axis and disposed between the planar side surfaces of the rotor. A ring having peripheral gaps therein is mounted on the housing and projects into and substantially occupies the groove. There are axially undulatory walls on the rotor defining a channel forming approximately sinusoidal pockets disposed on opposite sides of the ring and open thereto. The pockets have circumferentially overlapping portions and are circumferentially displaced from each other. The pockets when considered together have a substantially constant axial dimension. Vanes having substantially the same axial dimension are mounted on the housing for pivotal motion through the gaps and in the pockets as impelled by the channel walls. There are ports in the housing on axially opposite sides of the ring and on circumferentially opposite sides of the vanes defining inlet and outlet passages open to the pockets.

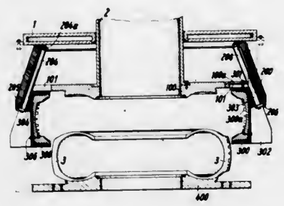
3,787,154
ROTOR PROFILES FOR HELICAL SCREW ROTOR MACHINES
Soren E. H. Edstrom, Quincy, Ill., assignor to Gardner-Denver Company, Quincy, Ill.
Filed May 24, 1972, Ser. No. 256,237
Int. Cl. F01c 21/08; F04b 21/00
U.S. Cl. 418—201 15 Claims

Asymmetric rotor profiles for cooperating helical screw type rotors for use in fluid compressors and motors. One flank of each gate rotor groove is formed partially as a concave curved surface defined by a circular arc having its radius center located outside the pitch circle of the gate rotor. The radially outermost portions of the gate rotor grooves are formed as convex curved surfaces defined by circular arcs.



The other flank of each gate rotor groove and the flanks of the main rotor lobes are largely formed by traveling generation.

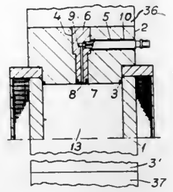
3,787,155
SEGMENTED VULCANISING TIRE MOULD
Karl Zangl, Kantstrasse 10, Munich, Germany
Filed Aug. 1, 1972, Ser. No. 276,904
Int. Cl. B29h 5/08
U.S. Cl. 425—47 11 Claims



The specification describes a vulcanising mould for vehicle tires, comprising a first side wall mould part with radially outwardly extended support arms, a second side wall mould part and a tread mould ring subdivided into radially movable profile segments. The profile segments have conical sliding shoes on their outer surface. These shoes are provided with a surrounding part whose internal surface is conical. The surrounding part serves to produce radial movement of the profile segments when relative axial movement takes place between the surrounding part and the tread mould ring. The axial guide means of the first side wall mould part in the surrounding part comprises recesses in the surrounding part in which the extended carrying arms of the first side wall mould part can be displaced axially. The radial guidance of the sliding shoes of the profile segments is ensured by support screws which can be displaced radially in slots in the support arms.

3,787,156
PRESS FOR TREATING PRODUCTS UNDER HIGH ISOSTATIC PRESSURE
Torstein Landa; Paul Johannsson, and Knud Engedal, all of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed May 1, 1972, Ser. No. 249,149
Claims priority, application Sweden, May 6, 1971, 5877/71
Int. Cl. B29b 11/32
U.S. Cl. 425—77 4 Claims

A process for treating products with high pressure includes a high pressure cylinder with end closures projecting thereinto and a press stand. The supply of pressure medium is made through one end closure which includes a cylindrical unit with an axial and a radial channel, applied in an axially arranged recess in the end closure and sealed to the recess at its inner part and a second cylindrical unit with an axial chamber which is applied in a recess perpendicular to the axial recess and connected to the first unit. This permits the units to be readily interchanged if any part of the unit cracks under the high pressure.



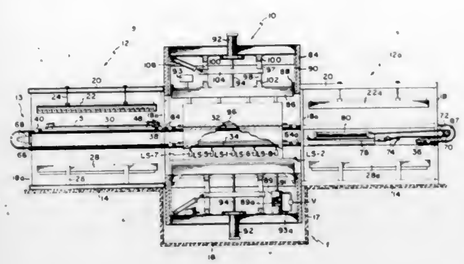
3,787,157
APPARATUS FOR MAKING COMPOSITE PLASTIC ARTICLES
Emery I. Valyi, 5200 Sycamore Ave., New York, N.Y.
Continuation-in-part of Ser. No. 71,734, Sept. 14, 1970, Pat. No. 3,717,544, and a continuation-in-part of Ser. No. 100,050, Dec. 21, 1970, Pat. No. 3,719,735. This application Oct. 6, 1971, Ser. No. 186,984
Int. Cl. B29d 23/03
U.S. Cl. 425—112 9 Claims

Plastic articles and apparatus for making the same in which a preformed sleeve is placed over a core, a parison is injected around the core and sleeve in a parison mold and the parison is blown in a blow mold together with the sleeve.

3,787,158
TWIN SHEET THERMOFORMER
Gaylord W. Brown, and George L. Pickard, both of Beaverton, Mich., assignors to Koehring Company, Milwaukee, Wis.
Filed July 3, 1972, Ser. No. 268,883
Int. Cl. B29c 17/04, 3/06
U.S. Cl. 425—156 8 Claims

Thermoforming apparatus having a pair of plastic sheet heating stations, each including upper and lower heaters, on opposite sides of a differential pressure forming station, upper and lower plastic sheet supporting carriages for supporting upper and lower pairs of plastic sheets of differing thicknesses; transfer apparatus for shuttling the upper carriages to alternate ones of the heating stations while concurrently moving alternate ones of the lower sheets to opposite ones of the heating stations so that two of the upper and lower sheets are

simultaneously heated, one in each heating station, while the other two upper and lower sheets are concurrently superposed at the forming station where they are formed into a hollow article by differential pressure forming apparatus at the forming station, and control apparatus for alternately operating the



upper and lower heaters at each heating station for longer and shorter periods of time while the upper and lower heaters at the other station are being operated for shorter and longer periods of time respectively to subject the plastic sheets which are alternately moved to the heating stations to different amounts of heat.

3,787,159

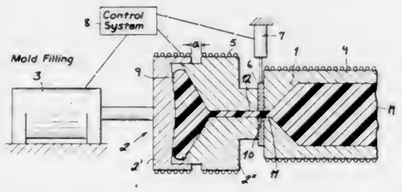
APPARATUS FOR INJECTION MOLDING WITH THERMOSETTING RESINS

Friedrich Bernd Bielfeldt, Pappenheim, Germany, assignor to Eckert & Ziegler G.m.b.H., Weissenburg, Germany

Division of Ser. No. 852,025, Aug. 21, 1969, Pat. No. 3,632,729. This application May 3, 1971, Ser. No. 139,846

Int. Cl. B29f *1/06*

U.S. Cl. 425—167 **1 Claim**



A thermosetting resin is injected into a partially open separable mold having a mold cavity. This mold is then partially closed to precompress the resin and is heated to soften it. After a predetermined amount of time, the mold is fully closed to compress the mass of resin and to force it into every portion of the cavity. A telescoping mold and a valve between the mold and the injection head are used to prevent the mass from escaping during compression.

3,787,160

APPARATUS HAVING EXTRUSION AND MIXING ZONES

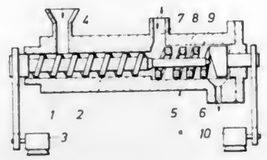
Karl Leister, Krefeld, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 69,486, Sept. 3, 1970, abandoned, which is a continuation-in-part of Ser. No. 1,678, Jan. 9, 1970, abandoned. This application Sept. 11, 1972, Ser. No. 288,222

Int. Cl. B29f *3/02*

U.S. Cl. 425—208 **11 Claims**

Apparatus for extruding and mixing of material comprising an extrusion zone, into which the material is introduced, and a mixing zone, into which the material is extruded. In the mixing zone, a core member and a worm helix are driven independently of each other and mix the material and advance it to the discharge nozzle of the machine.



3,787,161

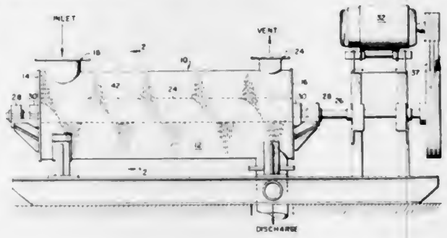
CARBON BLACK PELLETIZER

James A. Frye, Oklahoma City, and Ralph B. Morton, Del City, both of Okla., assignors to The Boardman Company, Oklahoma City, Okla.

Filed May 25, 1972, Ser. No. 256,851

Int. Cl. B29b *1/02*

U.S. Cl. 425—222 **7 Claims**



A carbon black, and the like, pelletizer having a rotor with a multiplicity of flat, bladelike toolholders attached to a rotatable shaft and each mounting at the end thereof a pelletizing tool in the nature of a pin. The toolholders are so designed and arranged as to effectively form a helix, in conjunction with the pins, for advancing the material during pelletizing to an outlet, and one embodiment provides a double helix for substantially working all of a product at all times.

3,787,162

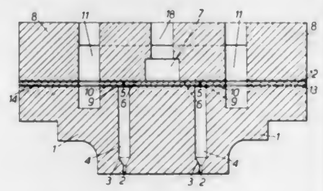
CONJUGATE FILAMENTS APPARATUS

John Laurence Cheetham, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Apr. 13, 1972, Ser. No. 243,878

Int. Cl. D01d *3/00*

U.S. Cl. 425—463 **1 Claim**



Process and apparatus for sheath/core conjugate filaments in which a jet of a first fiber-forming polymer is forced into confined space, second fibre-forming polymer is forced around first polymer from one side and polymers are extruded to form filaments. Preferably the ducts for first and second polymers are formed in part by appropriate apertures in metal shims.

3,787,163

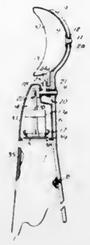
POWERED ICE CREAM DIPPER

Neil E. Denison, 300 S. Straughan, Apt. 704, Boise, Idaho, and Edward E. McCullough, Box 46, Brigham City, Utah

Filed Dec. 29, 1971, Ser. No. 213,263

Int. Cl. A23g *5/02*

U.S. Cl. 425—280 **9 Claims**



Dipper apparatus that fits as an attachment on an electric knife handle has an arm, rigidly attachable thereto, that pivotally holds a scoop member, and means for transferring reciprocating motion from the actuators in the knife handle to the scoop, whereby it may be rotated through a small arc. The scoop member is preferably less than hemispherical, being laterally narrowed. It also has sharpened and serrated edges, and may be electrically heated to facilitate removal of ice cream therefrom.

3,787,164

DEVICE FOR THE MANUFACTURE OF A ROW OF LINKING COMPONENTS FOR A SLIDE FASTENER

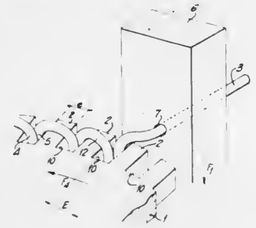
Horst Jakob, Choisy-le-Roi, France, assignor to Societe Financiere Francaise De Licenses Et Brevets, Chosy-le-Roi, France

Filed Oct. 5, 1971, Ser. No. 186,612

Claims priority, application France, Oct. 8, 1970, 7036379

Int. Cl. B29c *17/00*

U.S. Cl. 425—397 **3 Claims**



In a known process and apparatus for the production of a continuous row of linking components for a slide fastener, using a plastics thread, the plastics thread is shaped into a spiral over and between a series of studs by means of a thread guide. One of the ends of each whorl of the spiral is crushed by means of a punch to form a linking component, whilst holding the corresponding whorl between the studs. The invention provides the improvement in that, on the crushing-point side of each whorl, the corresponding portion of the thread is stretched out rectilinearly beyond the crushing point and facing the corresponding side face of the thread guide. The required point of the thread is then crushed against the thread guide, which is used as an anvil, the punch used being independent of the other working tools, and the folding back of the corresponding portion of the thread being performed only after the crushing has been carried out.

3,787,165

SUPPORT DEVICE FOR A MOULDING PRESS

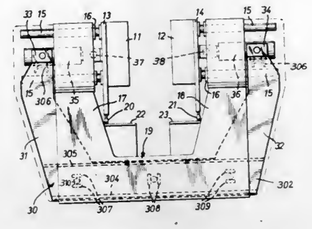
Stefan Fischer, Im Korresgarten 21, and Rainer Fischer, Am Wildtor 2, both of Lohmar (Bez. Koln), Germany

Filed Sept. 30, 1968, Ser. No. 763,500

Claims priority, application Germany, Sept. 30, 1967, P 17 04 046.9

Int. Cl. B29c *3/00*

U.S. Cl. 425—450 **10 Claims**



This invention relates to a support device for use in combination with a molding press, which support serves to contain the forces exerted by the clamping together of the molds affixed to the platens of such press.

3,787,166

PROCESS FOR THE THERMAL TREATMENT OF RUBBER AND OTHER PLASTIC MATERIALS

Franz Schaub, Oberhausen, and Sebastian Speth, Duisburg, both of Germany, assignors to Ruhchemie Aktiengesellschaft, Oberhausen-Holten, Germany

Filed Jan. 29, 1973, Ser. No. 327,701

Claims priority, application Germany, Feb. 3, 1972, 2205001

Int. Cl. F23d *11/44*

U.S. Cl. 431—11 **9 Claims**

Wastes of the group comprising synthetic plastics and rubber are thermally disposed of by cracking at temperatures between 250° and 450°C. The cracking may be carried out in the presence of an auxiliary medium which is in the liquid state at the reaction temperature and capable of dissolving the wastes and/or the cracking products at least partially. The thermal decomposition may be accelerated by the addition of catalysts.

3,787,167

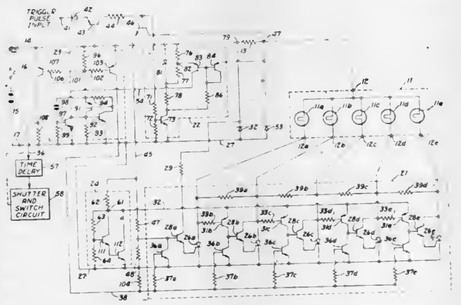
CURRENT-SENSING CIRCUIT FOR DETERMINING FLASHING OF A PHOTOFLASH LAMP

Donald L. Watrous, Liverpool, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 24, 1972, Ser. No. 299,653

Int. Cl. F21k *5/02*

U.S. Cl. 431—95 **8 Claims**



The inputs of a differential amplifier are connected across a current-sensing resistor that is connected in series with an

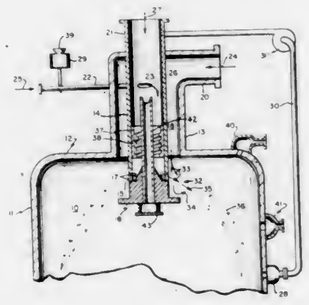
array of flash lamps adapted to be sequentially flashed, one at a time per flash picture. The differential amplifier produces an output signal in response to current flow to a lamp being flashed. An enabling circuit prevents the differential amplifier from consuming battery current until a trigger signal occurs to initiate flashing of a lamp, and a diode voltage reference circuit improves the accuracy of operation.

3,787,168

BURNER ASSEMBLY FOR PROVIDING REDUCED EMISSION OF AIR POLLUTANT

Richard R. Koppang, Cypress, and Harland L. Burge, Jr., Tarzana, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 91,333, Nov. 20, 1970. This application Aug. 23, 1972, Ser. No. 283,197
Int. Cl. F23d *13/40*
U.S. Cl. 431—354 **5 Claims**



A pair of conduits, coaxially arranged, provide flow paths for carrying combustible reactants to a combustion zone. The central conduit, otherwise known as a distribution tube, extends to within the combustion zone and includes a disc element at the combustion zone end thereof for deflecting an oxidizing reactant moving axially along the exterior of the distribution tube. A fuel reactant introduced into the distribution tube is carried to the combustion zone end thereof where it issues through radial ports and impinges the oxidizing reactant to produce a hollow cone flame. Additionally, a mixing element is included within the distribution tube to impart centrifugal motion to liquid fuels which are then subject to being atomized in the region of the radial ports. Temperature conditioning of the fuel-atomizing gas may optionally be performed to reduce liquid fuel surface tension and to promote vaporization.

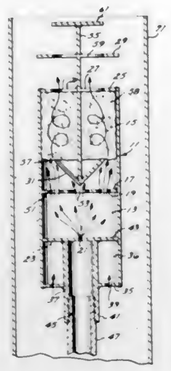
3,787,169

HIGH VELOCITY GAS IGNITER

Erwin G. Gjerde, 14095 Nona Ln., Whittier, Calif.

Filed Oct. 20, 1972, Ser. No. 299,444
Int. Cl. F23d *13/12*
U.S. Cl. 431—347 **9 Claims**

A high velocity gas igniter for use in a high velocity flow stream and including a housing formed with axially aligned primary and secondary mixing chambers forming a flow stream. The primary mixing chamber has an upstream wall formed with a central gas inlet port surrounded by a plurality of primary air inlet ports. The partition dividing the primary and secondary chamber is formed with velocity reduction orifices having a relatively small composite cross-sectional flow area and the downstream end of such secondary chamber is in the form of an annular pressure drop ring forming a central outlet having a relatively large cross-sectional flow area. A vortex plate is disposed in confronting relationship with the velocity reduction ports for inducing mixing together of the air



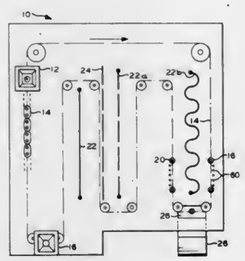
and gas, and a deflecting vane projects from the outlet to deflect the flow stream around such outlet port. Further, a flame retention ring is disposed in confronting relationship with and spaced from the outlet port to form a relatively protected flame retention zone. Thus, the gas port may be connected with a gas supply conduit and pressurized combustible gas applied thereto to initiate flow through the primary mixing chamber to draw ambient air through the air inlet port for initial mixing in the primary mixing chamber and flow through the pressure reduction orifices to impinge on the vortex plate to induce further mixing in the secondary mixing chamber. The relatively low pressure mixture flowing from the outlet port may be ignited to form an igniting flame and the entire igniter disposed in a high velocity flow stream.

3,787,170

RAPID HEATING OF PARISON PREFORMS

Dixie E. Gilbert, Pomona, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 143,006, May 13, 1971, Pat. No. 3,715,109. This application Oct. 20, 1972, Ser. No. 299,388
Int. Cl. F27b *9/24*
U.S. Cl. 432—5 **6 Claims**



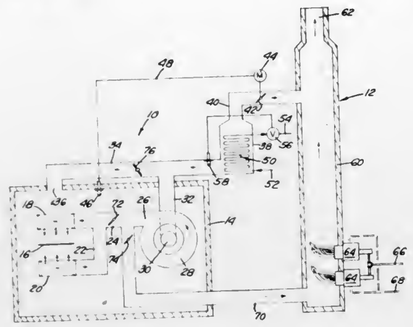
Tubular parison preforms are heated to orientation temperature by means of external radiant heat combined with affirmative heating of the parison on the inside.

3,787,171

CLOSED LOOP, INERT ATMOSPHERE, PAINT LINE OVEN HEAT SOURCE

Theodore Q. Cromp, Placentia, Calif., assignor to Hunter Engineering Co., Inc., Riverside, Calif.

Filed June 15, 1972, Ser. No. 262,969
Int. Cl. F27b *9/28*
U.S. Cl. 432—72 **7 Claims**



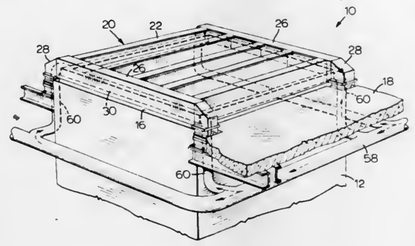
A paint line oven and heat source comprising a stack having fuel-fired burners in the lower portion thereof, and a closed loop conduit system with a circulating blower therein, which takes hot, inert stack gas from the stack above the burners, and circulates it through the oven, where paint solvent is evaporated from the painted product. Solvent-laden oven atmosphere is discharged into the stack below the burners and mixes with excess air supplied through the burners, where the solvent burns, adding its heat to the heat of the burners. Stack atmosphere at the conduit intake is substantially oxygen-free, and is hotter than the predetermined oven temperature. A water-cooled heat exchanger in the conduit cools the stack atmosphere down to the preselected oven temperature before discharging it into the oven. In one embodiment, temperature-controlled valves regulate the volume of stack atmosphere delivered to the oven, and the rate of flow of coolant in the heat exchanger, so that uniform temperature is maintained automatically.

3,787,172

REFRACTORY FURNACE

Andrew G. Sanderson, 178 Patton St., King City, Ontario, Canada

Filed Apr. 2, 1973, Ser. No. 346,954
Claims priority, application Canada, May 11, 1972, 141864
Int. Cl. F27b *3/16*
U.S. Cl. 432—250 **5 Claims**



A refractory furnace having a cover resting on supports outside the furnace and sealed by an air curtain, in which the peripheral duct in the cover frame supplying the air curtain is fed through the support means from a remote source of pressurized air.

3,787,173

NEW COLOURATION PROCESS

James Nairn Greenshields; Ida May Jones; John Lewis Moilliet, and Victor David Poole, Manchester, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Mar. 7, 1972, Ser. No. 232,640
Claims priority, application Great Britain, Mar. 30, 1971, 8161/71; Dec. 15, 1971, 58227/71
Int. Cl. D06p *1/38*
U.S. Cl. 8—1 E 5 Claims

Colouration of textile materials capable of forming hydrogen bonds with amines, especially cellulosic or cellulose/polyester union materials, by impregnating the material with a water-soluble or water-dispersible compound of molecular weight above 600 containing amino or imino groups, especially a poly(ethylene imine), and subsequently contacting the material with a fibre-reactive dye; or a modification of this process wherein the material is padded or printed with a padding solution or printing paste containing a water-in-oil-in-water emulsion having the dyestuff and the compound containing amino or imino groups dissolved or dispersed in separate aqueous phases.

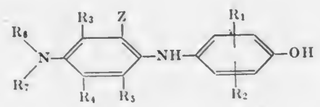
3,787,174

DIPHENYLAMINES FOR DYEING KERATINOUS FIBERS

Gregoire Kalopissis, Paris; Andree Bugaut, Boulogne-sur-Seine, and Francoise Estradier, Paris, all of France, assignors to L'Oreal, Paris, France

Continuation-in-part of Ser. No. 61,833, Aug. 6, 1970. This application July 11, 1972, Ser. No. 270,650
Claims priority, application Luxembourg, Aug. 11, 1969, 59265
Int. Cl. D06p *1/32*; C07c *91/42*
U.S. Cl. 8—11 15 Claims

Diphenylamines of the formula



wherein R_1 and R_2 each independently represent hydrogen, halogen or lower alkyl containing one to four carbon atoms with at least one of R_1 and R_2 being other than hydrogen; R_3, R_4, R_5, R_6, and R_7 each independently represent hydrogen, methoxy, or lower alkyl optionally substituted with hydroxy, carbamyl, piperidinyl or acylamino; R_3 and R_6 or R_4 and R_7 also optionally forming together with the carbon and nitrogen atoms to which they are attached, a dihydrooxazine or pyrroline heterocycle; and Z represents amino, acylamino or hydroxy; and the acid salts of said diphenylamines. These diphenylamines are usefully employed in cosmetic compositions for the hair including hair dye compositions and hair setting lotion compositions.

3,787,175

SPACE-DYEING CELLULOSE FIBERS BY IMPREGNATING WITH MIXTURE OF DIAZONIUM

Hans-Ulrich Von der Eltz, and Doris-Jutta Fink, both of Frankfurt/Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Nov. 18, 1971, Ser. No. 200,166
Claims priority, application Germany, Nov. 20, 1970, 2057230
Int. Cl. D06p *3/68*
U.S. Cl. 8—14 1 Claim

Process for the space-dyeing of yarn or sliver made from cellulose fibers, wherein a wound package of the said textile material is first impregnated with an aqueous liquor containing an alkaline substance and at least one component capable of entering into azo coupling, and subsequently — at least at one selected portion of the bobbin — one or several weakly acid aqueous solutions each containing a mixture of at least two diazonium compounds of aromatic amines having different diffusibility are injected into the goods so treated for development of the azo dyestuffs.

3,787,176

PROCESS FOR SPACE-DYEING OF CELLULOSE FIBERS

Hans-ulrich von der Eltz, and Doris-Jutta Fink, both of Frankfurt/Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Nov. 18, 1971, Ser. No. 200,191
Claims priority, application Germany, Nov. 20, 1970, 2057236
Int. Cl. D06p *1/12*; D06p *1/14*
U.S. Cl. 8—14 2 Claims

Process for the space-dyeing of yarn or sliver made from cellulose fibers, wherein a wound package of the said textile material is first impregnated with an aqueous liquor containing an alkaline substance and at least one component capable of entering into azo coupling, then — at least at one selected portion of the bobbin — one or several acid aqueous solutions each containing at least one diazonium compound of an aromatic amine and at least one phthalocyanine dyestuff having quaternary ammonium groups are injected, and finally the goods so treated are exposed to the action of heat for fixation of the phthalocyanine dyestuffs and for development of the azo dyestuffs.

3,787,177

AROMATIC POLYESTER TEXTILE FIBERS DYED WITH NAPHTHYLOXYANTHRAQUINONE DYES

Guido R. Genta, Lock Haven, Pa., assignor to American Aniline Products, Inc., Patterson, N.J.

Division of Ser. No. 75,705, Sept. 25, 1970. This application Jan. 4, 1973, Ser. No. 320,845
Int. Cl. D06p *3/52*
U.S. Cl. 8—39 3 Claims

New anthraquinone dyes, 1-amino-2-naphthyloxyalkoxy-4-hydroxy anthraquinones, are provided. Synthetic textile fibers, in particular, polyethylene terephthalate fibers, when dyed with the new dyes, are colored in bright pink shades which are substantive, light fast, and sublimation resistant.

3,787,178

POLYESTER TEXTILE FIBERS DYED WITH THIAZOLE OR BENZOTHIAZOLE CARBAZOLE DYES

Edgar Earl Renfrew, Lock Haven, Pa., assignor to American Aniline Products, Inc., Lock Haven, Pa.

Filed Feb. 28, 1972, Ser. No. 230,111
Int. Cl. D06p *3/52*; C09b *29/36*
U.S. Cl. 8—41 C 3 Claims

A new series of azo dyes is produced by coupling a diazotized heterocylic amine base with a carbazole coupler. The compounds of the invention are excellent dyes for polyester fabrics and also are pigments for rigid plastic materials.

3,787,179

PROCESS FOR THE MANUFACTURE OF INSOLUBLE AZO DYESTUFFS ON CELLULOSE FIBERS

Lowenfeld, Rudolf, Buchschlag, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Dec. 10, 1971, Ser. No. 206,904
Claims priority, application Germany, Dec. 12, 1970, 2061357
Int. Cl. D06p *1/12*; C09b *27/00*
U.S. Cl. 8—45 3 Claims

Process for the preferably continuous manufacture of water-insoluble azo dyestuffs on textile materials made of cellulose fibers, which comprises carrying out, after the application of the coupling component and of the diazo component from an aqueous dye bath, the finishing operation of the dyeings in organic solvents. The diazo component is in the form of a diazo-amino compound capable of being split up or of an anti-diazotate of a primary aliphatic amine. The organic solvent a hydrocarbon which may be halogenated, aromatic or cycloaliphatic.

3,787,180

PROCESS FOR THE NON-AQUEOUS CONTINUOUS DYEING AND PRINTING OF FIBRE MATERIAL MADE FROM SYNTHETIC POLYAMIDE

Hans Wegmuller, Riehen, and Alois Kleemann, Basel, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Apr. 9, 1971, Ser. No. 132,809
Claims priority, application Switzerland, Apr. 10, 1970, 5312/70
Int. Cl. D06p *1/68*
U.S. Cl. 8—172 12 Claims

A process for the non-aqueous, continuous dyeing or printing of synthetic polyamide fibre material is disclosed, which comprises impregnating or printing this material with a solution of at least one dye salt consisting of the anionic radical of an anionic dyestuff and the cationic radical of an isothiourea derivative capable of salt formation, in a halogenated aliphatic hydrocarbon, optionally containing thickener, on its own or in admixture with a liquid, water-soluble organic solvent, removing excess dye liquor from the material and fixing the dyestuff by a heat treatment of the impregnated or printed fibre material at temperatures below the softening point of the fibre material, thereby obtaining a finished dyeing or print on said fibre material. By this process, on the stated fibre material are obtained deeply coloured, even and well developed dyeings having good fastness properties, such as fastness to wet processing, rubbing and dry cleaning.

3,787,181

DYEING SYNTHETIC HYDROPHOBIC FIBERS WITH LOWER ALKYL BIPHENYL CARRIERS

Kurt A. Dellian, Spring Valley, N.Y., and Samuel Lee, Fairlawn, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed June 29, 1971, Ser. No. 158,082
Int. Cl. D06p *1/68*
U.S. Cl. 8—174 6 Claims

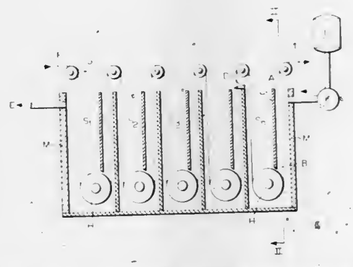
A technique for coloring hydrophobic textile fibers with a disperse or basic dyestuff utilizing an alkyl biphenyl carrier.

3,787,182

PROCESS FOR THE DYEING OF TOW IN HYDRATED CONDITION

Gottfried Eigenmann, Therwil; Leo E. Kaiser, Aesch, and Otto Nothiger, Oberwil, all of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation of Ser. No. 150,754, Dec. 22, 1970, abandoned. This application Oct. 31, 1972, Ser. No. 302,504
Claims priority, application Switzerland, Dec. 23, 1969, 19173/69
Int. Cl. D06p *3/70*
U.S. Cl. 8—177 1 Claim



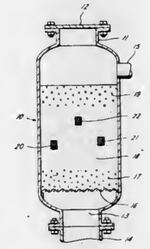
A process for the continual dyeing of fibres produced by a wet spinning process, in particular for the continual dyeing of polyacrylonitril tow in a hydrated condition is disclosed in that the fibre or the fibre strand after fibre formation without previous drying is passend through a dyestuff solution or suspension which is flowing in counter current. Said process is very economical and provides without the use of any electronic controls the continual dyeing of said fibres with almost 100 percent exhaustion.

3,787,183

METHOD OF ANALYZING CATALYST ACTION

Alvin B. Kennedy, Jr., Alvin, Tex., assignor to Catalyst Services, Inc., Alvin, Tex.

Filed Feb. 9, 1972, Ser. No. 224,733
Int. Cl. B01j *9/04*; G01n *1/00*, *31/10*
U.S. Cl. 23—230 R 8 Claims



Small samples of catalyst are individually segregated in durable perforate containers located at known positions

within the main body of catalyst. After a suitable period of time the samples are individually analyzed to determine the effect thereon of the process.

3,787,184
METHOD AND COMPOSITION FOR DETECTING AMINE COMPOUNDS

Thaddeus J. Novak, and Edward J. Poziomek, both of Bel Air, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

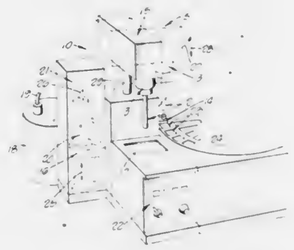
Filed Mar. 23, 1970, Ser. No. 24,918
Int. Cl. G01n *31/00*
U.S. Cl. 23—230 R **7 Claims**

A method for detecting nitrogen containing compounds the steps comprising contacting a sample comprising said compounds with a signalling composition containing a capped copolymer and dye and producing a visible detecting signal.

3,787,185
DISRUPTOR MODULE

Donald Gene Rohrbaugh, Santa Ana; Everett James Petersen, Jr., Glendora, and Charles Peter Chase, Brea, all of Calif., assignors to Beckman Industries, Inc., Fullerton, Calif.

Filed Mar. 2, 1972, Ser. No. 231,268
Int. Cl. B01f *1/00*; **G01n** *1/10*
U.S. Cl. 23—253 R **15 Claims**



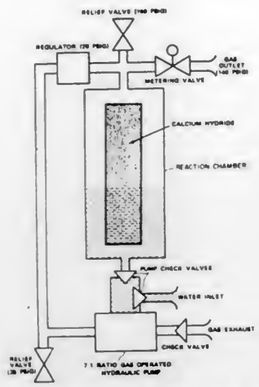
An automated device on signal serially dispenses a precise solvent volume into an individual chemical sample reactor module containing a single sample solid composition, provides agitation for disrupting and dissolving the sample, and supplies an aliquot filtered solution sample. The tablet disruptor device functioning in the reactor module is automatically programmed to disrupt the sample and to stir and dissolve it in the turbulent solvent. The disruptor device is then solvent washed, prior to being utilized again in the serialization disruption and solution of successive samples in successive solvent volumes in individual chemical reactor sample modules.

3,787,186
CALCIUM HYDRIDE GAS GENERATOR

Robert J. Geres, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 2, 1972, Ser. No. 222,833
Int. Cl. B01j *7/02*; **C10h** *5/00*
U.S. Cl. 23—282 **5 Claims**

A differential area gas operated hydraulic pump used in a bootstrap mode to pump water into a reaction chamber. Water is pumped into the reaction chamber until the level reaches a quantity of calcium hydride (CaH_2) and reacts to produce just enough gas to exceed the operating pressure, whereupon the pump will stall. No further hydrolysis takes

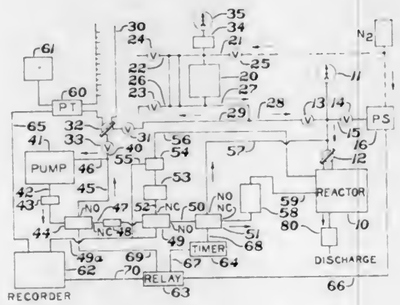


place until the chamber pressure is relieved at which time the pump again operates to raise the water level into contact with unreacted CaH_2.

3,787,187
CONVERSION-CONTROLLED APPARATUS FOR POLYMERIZATION OF MONOMERIC MATERIALS IN LIQUID MEDIA

Elmer J. De Witt, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, NY

Filed Apr. 1, 1970, Ser. No. 24,476
Int. Cl. C08f *1/98*
U.S. Cl. 23—285 **2 Claims**

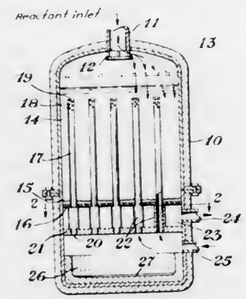


Improved apparatus for polymerizing liquid monomeric materials in liquid reaction media include a reaction vessel communicating with one or more liquid and/or vapor supply vessels and a pressure-sensing flow-control means associated with the reaction vessel which operates to control the supply of one or more liquids from the supply vessel or vessels to the reaction vessel in response to shrinkage of the charge therein attending conversion of liquid monomer to solid polymers as polymerization proceeds thereby maintaining the reaction vessel in an essentially completely-filled condition. A sensing device or devices such as a pressure- or weight-sensitive transducer associated with one or more of the supply vessels senses the weight or volume of liquid thus delivered to the reaction and is employed to initiate the addition from a supply to the reaction vessel of a liquid or gaseous short stop material yielding automatic and accurate termination of the polymerization reaction at a predetermined degree of conversion. Where two or more liquid supply vessels are thus employed, a proportioning device operated by the pressure-sensing flow-control means can be employed to effect a division of the total liquid delivered to the reaction vessel in any predetermined proportion between two or more different liquids such as between liquid monomers and aqueous medium or between two liquid monomers thus effecting control of the composition of the medium in the vessel as polymerization proceeds.

3,787,188
APPARATUS FOR CATALYTIC REACTIONS

George W. Lyon, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 26, 1971, Ser. No. 202,375
Int. Cl. B01j *9/04*; **C07c** *15/02, 15/10*
U.S. Cl. 23—288 R **6 Claims**

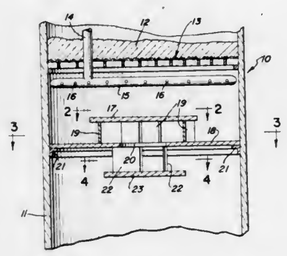


A catalytic reactor has separate inlet ports for a hydrocarbon stream which is to be dehydrogenated and for a heated fluid stream which maintains the reaction temperature such that the hydrocarbon and the heat maintaining fluid are mixed in the presence of catalyst. One of the streams flows through the catalyst linearly and the other flows radially. The method of dehydrogenating ethyl benzenes and ring substituted derivatives thereof to the corresponding styrenes using a hot fluid stream as a means for maintaining the reaction temperature, and using the above reactor, reduces the cracking of the ethyl benzenes and corresponding styrenes to benzene and its homologs and to carbonaceous products.

3,787,189
APPARATUS FOR MIXING FLUIDS IN A VESSEL BETWEEN BEDS OF SOLIDS

Donald L. Muffat, Lansing, Ill.; John B. Clark, Hammond, and Lyle M. Lovell, Portage, both of Ind., assignors to Standard Oil Company, Chicago, Ill.

Filed Dec. 17, 1971, Ser. No. 209,290
Int. Cl. B01j *9/04*; **B05b** *1/26*
U.S. Cl. 23—288 R **19 Claims**

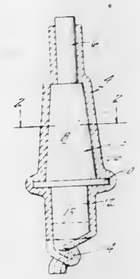


The apparatus comprises a plurality of baffles positioned in the vessel so as to be perpendicular to the flow of fluids through said vessel and a plurality of sets of swirl vanes that are assembled in such a manner that a fluid medium being introduced into the vessel between beds of solids will be intimately admixed with other fluids that are passing through the vessel from one bed of solids to another.

3,787,190
DIRECTIONALLY SOLIDIFIED ARTICLE

Anthony F. Giamei, Middletown; Merton F. Hornbecker, Woodbury, and Bruce E. Terkelsen, Cheshire, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Division of Ser. No. 42,423, June 1, 1970, Pat. No. 3,627,015.
This application Sept. 16, 1971, Ser. No. 181,184
Int. Cl. B22f *5/00*
U.S. Cl. 29—183 **4 Claims**



Unidirectionally solidified articles either columnar grained or single crystal are investment cast by enclosing the mold for the articles in a surrounding mold arranged to make a control casting of two separable parts located on opposite sides of the article cast in the article mold. This permits more precise control of the thermal gradient in the article mold during solidification of the cast material and provides removal of the cast article from the surrounding material.

3,787,191
METHOD OF PRODUCING REFLECTIVE SURFACES AND ARTICLE

Leon L. Duncan, 811 Duncan Ave., Washington, Mo.

Continuation-in-part of Ser. No. 840,442, July 9, 1969, abandoned, which is a continuation-in-part of Ser. No. 804,364, Feb. 25, 1969, Pat. No. 3,545,996, which is a continuation of Ser. No. 332,230, Dec. 20, 1963, abandoned.
This application Mar. 3, 1971, Ser. No. 120,663
Int. Cl. C23b *5/48*
U.S. Cl. 29—191 **10 Claims**

Electroplating a metal surface which has previously been, or is thereafter peened with high velocity, microscopic, spherical glass bodies to produce microscopic craters thereon, and optionally, removing a portion of the plating so peened by dissolving same with acid. By plating an already peened surface with a reflective material, the zone and/or intensity of reflectivity of the plated surface is increased and/or controlled.

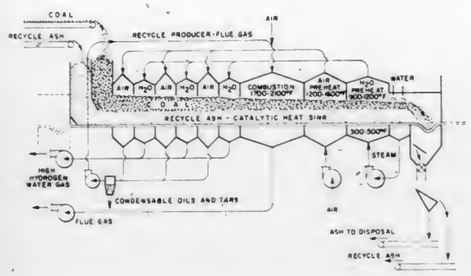
3,787,192
PROCESS FOR COAL GASIFICATION

Thomas E. Ban, South Euclid, Ohio, assignor to McDowell-Wellman Engineering Company, Cleveland, Ohio

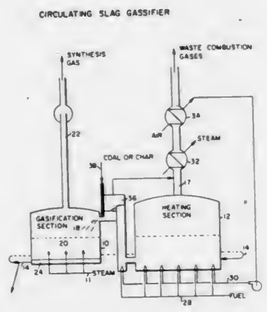
Filed Mar. 2, 1972, Ser. No. 231,354
Int. Cl. C01j *3/06*; **C10j** *3/16*
U.S. Cl. 48—202 **10 Claims**

There is provided a process for producing water gas containing a large quantity of hydrogen and involving the forma-

tion of a moving quiescent gas-permeable bed composed of both particles of coal and particles of spent coal or ash. The bed is passed through a series of zones in which, in a succession of cycles, the bed is permeated with an oxygen-containing gas preheated to a predetermined temperature and then a moisture-laden gas also preheated to a predetermined temperature. These gases are collected separately after they traverse the moving quiescent bed. The water gas may be used as an industrial gas, and the producer-flue gas resulting from the portions treated with oxygen-containing gas may be recycled through the bed at a point downstream. The process provides a continuous economic procedure for gasification of coal.

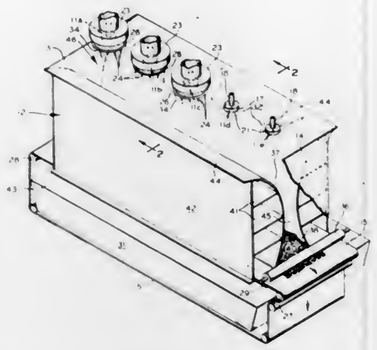


3,787,193
PRODUCTION OF WATER GAS
Leonard Seglin, New York, N.Y., and Charles A. Gray, Charleston, W. Va., assignors to FMC Corporation, New York, N.Y.
Filed Nov. 18, 1971, Ser. No. 200,152
Int. Cl. C10j *3/00*
U.S. Cl. 48—204 **3 Claims**



Water gas is produced by blowing steam through carbon suspended in a coal ash melt in a gasification section, the endothermic heat of reaction being supplied by the ash melt, which is continuously recirculating through a separate superheating section where the ash is superheated by burning fuel separately introduced into that section; the superheated ash is then conveyed to the gasification section, substantially free of oxidative gas, preferably by means of a heated gas lift.

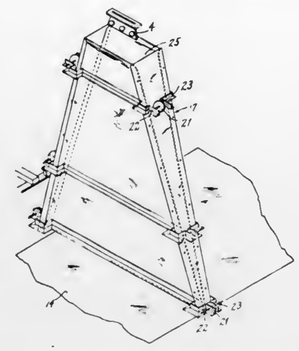
3,787,194
COLLECTION CHAMBER FOR MAKING MATS OF INORGANIC FIBERS
Brian James Rayle, Toledo, Ohio; Lester Fisher, Centerville, and Harvell Morton Smith, Richmond, both of Ind., assignors to Johns-Manville Corporation, Greenwood Village, Arapahoe County, Colo.
Filed May 16, 1972, Ser. No. 253,708
Int. Cl. C03b *37/04*
U.S. Cl. 65—9 **8 Claims**



A collection chamber located between a source of gas entrained inorganic fibers and a collection surface upon which mats of the fibers are formed. The side walls of the chamber in various configurations enhance the mixing of cooling gas, binder and the entrained fibers while reducing turbulence and enhancing control of fiber deposition. Divergent side walls above the collection surface diffuse the binder coated fiber and reduce its velocity so that it is deposited in a blanket of uniform density and thickness across the collection surface. Convergent side walls from a region adjacent the fiber source reduce turbulence and back flow in this region while facilitating the mixing of cooling air with the hot fiber entraining, high velocity blast, and the distribution of binder in the mixed fiber-gas stream. A collection chamber having walls of the general form of a hyperbola is disclosed with given height, width of collection surface, throat dimensions and throat location relationships for superior results. Compromise collection chamber forms to accommodate plant and equipment restrictions are discussed.

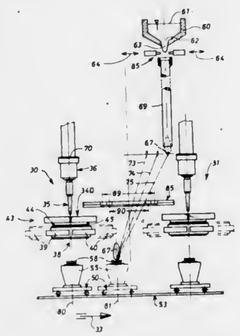
3,787,195
APPARATUS FOR THE PRODUCTION OF SHEETS OR MATS FROM FIBERS OF THERMOPLASTIC MATERIAL
Jean-Jacques Kirchheim, Saint-Maur-des-Fosses, France, assignor to Saint-Gobain, Neuilly-Sur-Seine, France
Filed Apr. 21, 1971, Ser. No. 136,132
Claims priority, application France, Apr. 29, 1970, 70.15678; Sept. 18, 1970, 70.33876
Int. Cl. C03b *37/06*
U.S. Cl. 65—9 **17 Claims**

The invention concerns the production of homogeneous and structurally resistant sheets or mats of thermoplastic fibers, such as glass fibers, issuing from one or more spinnerettes above a travelling conveyor. The fibers are deposited on the conveyor after being blown through a stationary skirt or conduit formed essentially of a pair of large plane surfaces having critically controlled spacings therebetween to attain predetermined cross-sectional areas between the inlet and outlet end of the conduit, as well as adjustable outlines of the outlet. These variable and/or adjustable sectional areas serve to control the pattern and area of deposition of the fibers on the conveyor. A plurality of spinnerettes and guide conduits may be arranged in different patterns and alignments relative to the direction of travel of the conveyor to control the laying-up of the fibers and consequently the physical characteristics of the deposited mat. Additional trapezoidally shaped shaping members, also each formed essentially of a pair of large plane surfaces with an inlet and outlet, as well as intermediate sections of predetermined or adjustable areas, may be used in lieu



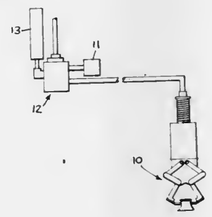
of or in conjunction with the above-mentioned skirts or conduits. These shaping members are fitted with openings and/or blowers for air or gaseous currents to afford a convenient control of the entrainment of the dropping fibers passing therethrough, which discharge from the outlet ends of said members, which are spaced a slight distance above the travelling conveyor.

3,787,196
APPARATUS FOR FEEDING GOBS OF MOLTEN VITREOUS OR PLASTIC MATERIAL INTO MOLDS OF A MACHINE FOR FORMING BOTTLES OR SIMILAR CONTAINERS WITH CONTROL MEANS FOR CONTROLLING THE MOVEMENT OF THE MOLDS
Kurt Becker, Obernkirchen, and Hans-Georg Seidel, Rinteln, both of Germany, assignors to Hermann Heye, Obernkirchen, Germany
Division of Ser. No. 163,171, July 16, 1971, abandoned. This application Mar. 1, 1973, Ser. No. 337,193
Claims priority, application Germany, July 20, 1970, 2035926
Int. Cl. C03b *5/30*
U.S. Cl. 65—164 **13 Claims**



Apparatus for feeding gobs of molten vitreous or plastic material into molds of a machine for forming bottles or similar containers from such material in which the molds are moved along an endless path past a loading station at which gob-feeding means are stationarily arranged above the path of the molds, and in which each mold is momentarily arrested when axially aligned with the gob-feeding means so that a gob may be dropped in vertical direction into the respective mold. The molds are transported along a major portion of the endless path with uniform speed equally spaced from each other, but upstream and downstream of the loading station decelerated or accelerated in such a manner so as to arrive at a point downstream of the loading station at the same time as if they would have been moved continuously with said uniform speed.

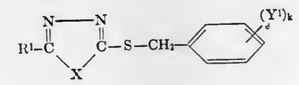
3,787,197
APPARATUS FOR INTRODUCING MEASURED VOLUMES OF GASES TO INTERIORS OF GLASS CONTAINERS
Herbert C. Snyder, and Urbano J. DeSantis, both of Brockway, Pa., assignors to Brockway Glass Company Inc., Brockway, Pa.
Filed Sept. 2, 1971, Ser. No. 177,380
Int. Cl. C03b *9/00, 9/44*
U.S. Cl. 65—260 **5 Claims**



The takeout mechanism for a glass container forming machine has an operating rod movable axially toward the container to engage the takeout mechanism with the container at the final mold of the forming machine. This rod comprises a treatment gas conduit and is extended to project into the container when the takeout mechanism is in gripping engagement with the container. Valve means are provided for supplying a measured quantity of treatment gas under pressure to the conduit while the same is projected into the container during a takeout operation. The measured quantity is supplied to the conduit by making equal the pressure in an accumulator of gas and a pressure source by way of the valve means, and then allowing the gas to pass from the accumulator to the conduit.

3,787,198
HERBICIDAL COMPOSITIONS CONTAINING VARIOUS BENZYLTHIODIAZOLES AND TRIAZINES
Hiroshi Hagimoto; Toshiharu Arai; Harutoshi Yoshikawa; Mitsuo Watanabe, all of Kyoto, and Yoshiyuki Okada, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Filed Mar. 31, 1970, Ser. No. 24,386
Claims priority, application Japan, July 1, 1969, 44-51950
Int. Cl. A01n *9/22*
U.S. Cl. 71—93 **4 Claims**

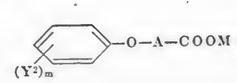
Herbicidal compositions comprise a compound of the formula



(I)

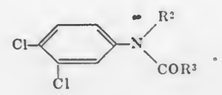
wherein R^1 is hydrogen or alkyl, X is oxygen or sulfur, Y^1 is halogen, lower alkyl, lower alkoxy or nitro, and k is zero or an

integer from 1 to 5, or such compound in combination with one or more of salt or ester thereof which is represented by the general formula:



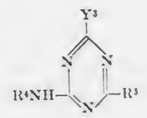
(II)

wherein A is lower alkylene, Y^2 is chlorine or methyl, M is hydrogen, alkali metal, lower alkyl or lower alkenyl, and *m* is zero or an integer from 1 to 5; a 3,4-dichloroanilide which is represented by the general formula:



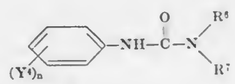
(III)

wherein R^2 and R^3 respectively are hydrogen or lower alkyl; a 1,3,5-triazine compound which is represented by the general formula:



(IV)

wherein Y^3 is chlorine or lower alkylthio, R^4 is lower alkyl, and R^5 is azido or lower alkylamino, or a phenylurea compound which is represented by the general formula:



(V)

wherein Y^4 is halogen or halogen-substituted lower alkyl, R^6 and R^7 respectively are lower alkyl or lower alkoxy, and *n* is zero, 1 or 2.

3,787,199

HERBICIDE BASED ON CYANOALKYLAMINOTRIAZINES

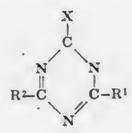
Werner Schwarze, Frankfurt am Main, Germany, assignor to Deutsche Gold-Und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, Germany

Division of Ser. No. 804,718, March 5, 1969, Pat. No. 3,629,259. This application Aug. 12, 1971, Ser. No. 171,330. The portion of the term of this patent subsequent to Mar. 24, 1987, has been disclaimed.

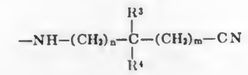
Int. Cl. A01n 9/22

U.S. Cl. 71—93 **26 Claims**

A herbicide in which the active agent is a substituted s-triazine of the formula:



wherein X is halogen, alkoxy or alkylmercapto, alkyl in alkoxy and alkylmercapto having one to six carbon atoms; R^1 is



wherein *n* and *m* are zero or 1 with the provision that only one of n and m may be zero; R^3 and R^4 are the same or different and are straight-chain or branched-chain alkyl having from one to four carbon atoms and wherein either R^3 or R^4 may also be hydrogen; and R^2 is



wherein R^5 is hydrogen or straight-chain or branched-chain lower alkyl.

3,787,200

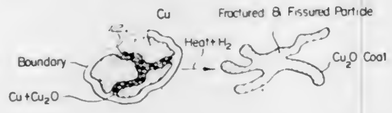
METAL POWDERS FOR ROLL COMPACTING

Walter L. Finlay, New York, N.Y.; Harbhajan S. Nayar, Maynard, and Donald A. Hay, Medfield, both of Mass., assignors to Copper Range Company, New York, N.Y.

Division of Ser. No. 665,332, Sept. 5, 1967, Pat. No. 3,632,697. This application May 25, 1971, Ser. No. 146,789

Int. Cl. B22f 9/00

U.S. Cl. 75—.5 B **3 Claims**



Dispersoid strengthened copper metals characterized by a copper matrix and a refractory dispersoid are produced by roll compacting particles characterized by certain spatial and metallurgical relationships. The spatial considerations are characterized by practicable relationships in copper particles between surface area and overall dimensions. The metallurgical relationships are characterized by critical limits of dimensions and spacing of dispersoid subparticles or components thereof on or in the copper matrix particles either before or after roll compacting.

3,787,201

HIGH TENSILE STRENGTH STEEL PLATE FOR COLD-FORMING

Kameo Matsukura; Tuyoshi Kawano, and Toshio Kikuma, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Sept. 16, 1968, Ser. No. 762,340

Claims priority, application Japan, Sept. 18, 1967, 42-59727

Int. Cl. C22c 39/14

U.S. Cl. 75—125 **2 Claims**

A high tensile strength steel of low carbon Si-Cr series for use in frames of automobile which has a tensile strength of 50 to 65 kg/mm² and is particularly excellent in the cold press-formability and fatigue strength, containing Cr and Si in more amounts than conventional high tensile strength steels of this kind and further Cu, Ti, Nb and V besides said elements to obtain above-mentioned characteristics, said steel plate being applicable as hot-rolled.

3,787,202

HIGH TEMPERATURE CHROMIUM-NICKEL ALLOY

Charles P. Mueller, and Gunes M. Ecer, both of Pittsburgh, Pa., assignors to Cyclops Corporation, Pittsburgh, Pa.

Filed Nov. 18, 1970, Ser. No. 90,847

Int. Cl. C22c 19/00, 29/00

U.S. Cl. 75—134 F **2 Claims**

An alloy containing 45 to 55 percent chromium, 45 to 55 percent nickel, 0.003 to 0.4 percent cerium, up to 1.5 percent titanium, up to 1.5 percent zirconium, and up to 1.5 percent hafnium. The titanium, zirconium and hafnium may be present separately in amounts up to 1.5 percent or they may be present in combination in an amount up to 3.0 percent.

3,787,203

WEAR-RESISTANT, CORROSION-RESISTANT COBALT BASE ALLOY

Minoru Yokota, and Morimichi Tanaka, both of Fukuoka, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Nov. 24, 1972, Ser. No. 309,002

Claims priority, application Japan, Nov. 26, 1971, 46-94456

Int. Cl. C22c 19/00

U.S. Cl. 75—171 **3 Claims**

This invention relates to a novel cobalt-base alloy having good wear resistance and good corrosion resistance characteristics, which consists of 5.00 – 10.00 percent by weight of Cr, 2.50 – 4.00 percent by weight of B, 0.20 – 2.00 percent by weight of Mn, 0.20 – 2.00 percent by weight of Si, up to 1.00 percent of Fe and up to 2.00 percent by weight of Ni, the balance being Co. When this alloy is used as a lining material for a machine part, such as a steel cylinder or the like, the life of the machine part combined with the alloy can be greatly prolonged.

3,787,204

PRODUCTION OF COMPOSITE MATERIALS CONTAINING COATED INORGANIC FIBERS

Kurt Sachs, Brierley Hill; Frederick Arthur Foreman, Stafford, and John Barlow, Wolverhampton, all of England, assignors to G.K.N. Group Services Limited, Smethwick, Warley, England

Filed July 22, 1971, Ser. No. 165,369

Claims priority, application Great Britain, July 24, 1970, 35932/70

Int. Cl. B22f 1/00

U.S. Cl. 75—212 **13 Claims**

A method of making a composite material comprising a metal matrix reinforced with fibres including the steps of producing an intimate mixture of fibre reinforcement and an organic acid salt of a metal, the salt being such that it can be decomposed on heating to form the metal, heating the intimate mixture so that the salt decomposes to give the metal in finely divided form and then applying pressure to the resulting mixture under temperature conditions to form a consolidated matrix reinforced by the fibres.

The organic acid salt may be lead formate.

3,787,205

FORGING METAL POWDERS

Nathan Lewis Church, Warwick, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed May 30, 1972, Ser. No. 257,793

Int. Cl. B22p 3/14

U.S. Cl. 75—226 **9 Claims**

Alloy metal powders are forged over a controlled temperature range such that at the forging temperature the alloy powders are characterized by a microstructure comprised of at least two metallic phases which coact to retard grain growth during recrystallization.

3,787,206

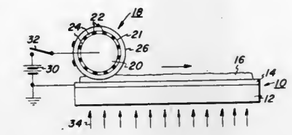
PHOTOELECTRICPHORETIC IMAGING METHOD INCLUDING AT LEAST ONE ELECTRODE CARRYING A PATTERN

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 21, 1971, Ser. No. 191,300

Int. Cl. G03g 13/00

U.S. Cl. 96—1.2 **8 Claims**



A photoelectrophoretic color imaging system employing an imaging suspension comprising a plurality of colored electrically photosensitive pigment particles in a carrier liquid positioned between two electrodes wherein the imaging suspension is exposed to flood illumination of activating electromagnetic radiation in the presence of an electric field. Imaging is effected by means of imagewise patterns carried by at least one of the electrodes. The color and/or density of the reproduced images are controlled by the color and the intensity of the activating electromagnetic radiation.

3,787,207

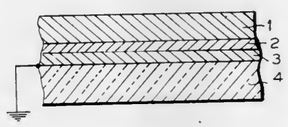
ELECTROPHOTOGRAPHIC PHOTOSENSITIVE PLATE HAVING A POLYIMIDE INTERMEDIATE LAYER

Masanaru Hasegawa; Yoshiki Hayashi, both of Hirakata, and Toichi Matsumura, Ikeda, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed Dec. 16, 1971, Ser. No. 208,708

Int. Cl. G03g 5/00

U.S. Cl. 96—1.5 **4 Claims**



This invention provides an improved electrophotographic photosensitive plate with excellent durability and electrophotographic characteristics.

The plate comprises a multilayered electrophotographic photosensitive plate comprising, from the top; a first layer including an organic photoconductive insulating material, a second layer including vitreous selenium, a third layer including a polyimide material and the fourth layer of an electrically conductive backing.

3,787,208

XEROGRAPHIC IMAGING MEMBER HAVING PHOTOCONDUCTIVE MATERIAL IN INTER-LOCKING CONTINUOUS PATHS

Robert N. Jones, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 627,664, April 3, 1967, abandoned. This application Sept. 25, 1970, Ser. No. 75,390

Int. Cl. G03g 5/04

U.S. Cl. 96—1.8 **18 Claims**

A xerographic photoreceptor layer which comprises photoconductive particles dispersed in an insulating resin matrix, the photoconductive particles are present in an amount from about 1 to 25 percent by volume of the layer,

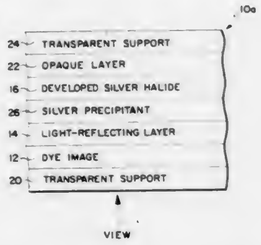
and are dispersed in a controlled manner to form a plurality of continuous paths through the thickness of said layer. Methods of making and imaging the photoreceptor layer are also disclosed.

3,787,209

COLOR DIFFUSION TRANSFER COLOR PROCESS AND FILM WITH SILVER PRECIPITATING LAYER

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 24, 1972, Ser. No. 246,671
Int. Cl. G03c 7/00
U.S. Cl. 96—3 59 Claims



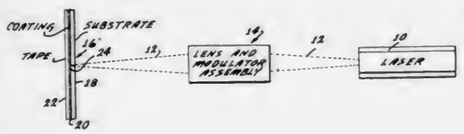
Diffusion transfer color processes are disclosed wherein the color image is retained with the developed silver halide emulsion(s) as part of an integral negative-positive reflection print. Provision of a silver precipitating layer between the developed silver halide emulsion layer(s) and a light-reflecting layer substantially reduces discoloration of the color transfer image highlights resulting from undesired transfer of silver ion after formation of the color image.

3,787,210

LASER RECORDING TECHNIQUE USING COMBUSTIBLE BLOW-OFF

Donald Lee Roberts, Cypress, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Filed Sept. 30, 1971, Ser. No. 185,026
Int. Cl. G03c 5/04
U.S. Cl. 96—27 E 6 Claims



A recording technique using a laser beam for image recording on a film. In the preferred embodiment, the film comprises a transparent substrate coated with heat absorbing particles, dispersed in a self-oxidizing binder. Contrary to the present practice of directing the laser beam on the coating itself, the laser beam is directed through the substrate with its energy focused on the boundary interface between the substrate and coating. This causes the coating to be removed, as by blow-off or explosion, leaving a clear area on the substrate forming a positive image of the recorded material.

If a negative is desired, the removed material can be collected on a backing, such as Scotch Brand tape, preferably in contact with the coating to thus provide both a positive and a negative of the written information from one and the same operation.

In both instances the laser beam can be scanned or incrementally positioned and a modulating device can gait the laser beam to record machine or human readable characters.

3,787,211

MAKEREADY FOIL FOR RELIEF PRINTING

Otto Volkert, Ludwigshafen; Gerd Schrodt, and Manfred Zuerger, both of Mannheim, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

Filed Dec. 10, 1971, Ser. No. 206,660
Int. Cl. G03c 1/84, 1/70
U.S. Cl. 96—35.1 10 Claims

The invention relates to a process for the manufacture of a makeready foil for relief printing. A multilayer sheet consisting of a dimensionally stable base which transmits acting light; a non-photopolymerizable intermediate layer which is soluble in solvents and absorbs actinic light; and a photopolymerizable layer which contains a compound capable of absorbing actinic light, is exposed through a negative from the base side and the unexposed portions of the photopolymerizable layer and of the intermediate layer are washed out with a solvent from the photopolymerizable-layer side.

The makeready foil of the invention greatly simplifies the makeready process for the printer.

3,787,212

POLYMERIC PHOTOSENSITIVE COMPOSITIONS AND METHODS USING SAME

Robert A. Heimsch, St. Louis, Mo.; John S. Bartosczewicz, Pennsacola, Fla., and Robert J. Slocombe, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 40,417, May 25, 1970, abandoned. This application Aug. 4, 1972, Ser. No. 277,964
Int. Cl. G03c 1/70
U.S. Cl. 96—35.1 37 Claims

Photosensitive compositions of solid, solvent-soluble acrylonitrile/diene interpolymers with activated aromatic ketone sensitizers, e.g. polynuclear quinones, and applications as photoresists.

3,787,213

PROCESS FOR MODIFYING SURFACES USING PHOTOPOLYMERIZABLE ELEMENTS COMPRISING HYDROPHILIC COLLOIDS AND POLYMERIZABLE MONOMERS

Joseph Edmund Gervay, 283 Spring St., Red Bank, N.J., and Peter Walker, 81 Hialeah Dr., Colts Neck, N.J.

Continuation-in-part of Ser. No. 864,206, Oct. 6, 1969, abandoned, which is a continuation-in-part of Ser. No. 849,297, Aug. 7, 1969, abandoned, which is a continuation-in-part of Ser. No. 766,329, Oct. 9, 1968, abandoned. This application Jan. 19, 1972, Ser. No. 219,165
Int. Cl. G03c 5/00
U.S. Cl. 96—36 12 Claims

A photopolymerizable dispersion coated on a hydrophobic strippable support and comprising a continuous phase with a hydrophilic organic, macromolecular polymer dispersion medium, e.g., gelatin, and a dispersed phase including at least one addition polymerizable ethylenically unsaturated monomer, e.g., an acrylic or methacrylic acid polyester such as pentaerythritol triacrylate, and a photoinitiator is used to make diffusion resist layers suitable for modifying imagewise, surfaces by diffusion etching, plating, dyeing, alteration of sensitivity of radiation-sensitive layers, etc. On exposure to actinic radiation, the dispersed monomer droplets, having a light-activatable initiating system in active association therewith, polymerize or harden to various degrees depending on the amount of actinic radiation received and the layer becomes resistant to diffusion of aqueous, or other normally gelatin diffusible liquids used to make solutions of materials used to modify a surface by diffusion treatment. Exposure may be through any suitable photographic stencil or pattern and this leaves an image in the resist-forming layer. The exposed resist layer may be pressed against and transferred to a moistened surface, e.g., a metal plate, and the hydrophobic support stripped off. The resist-bearing surface is then modified by diffusion of an aqueous, e.g., aqueous ferric chloride, etching solution to produce a permanently modified surface such as, in the case of using an aqueous ferric chloride etching solution applied to a copper surface, a gravure printing plate. The photopolymerizable dispersion may be coated directly on a surface to be modified and exposed through a suitable transparent photographic image, e.g., a halftone image or a gravure screen and a continuous tone image and etched and the resist removed. The photopolymerizable layer on the hydrophobic support may be laminated to the surface to be modified, and before or after removal of said support, the layer is exposed. The resist bearing surface can then be modified by diffusion etching, plating, e.g., electroplating, dyeing, alteration of the sensitivity of radiation-sensitive layers, etc.

3,787,214

PROCESS FOR UNDERCOATING A SUPPORT OF PHOTOGRAPHIC MATERIAL

Nobuhiko Minagawa, Fujinomiya, Japan, assignor to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

Filed Sept. 24, 1971, Ser. No. 183,656
Claims priority, application Japan, Sept. 24, 1970, 45-83649
Int. Cl. G03c 1/80, 1/86
U.S. Cl. 96—87 R 7 Claims

A process for undercoating a support of a photographic material is disclosed comprising providing an undercoat layer containing gelatin and a basic substance, such as sodium hydroxide, on an activated surface of a support comprising a polyolefin film or a polyolefin-coated film, said basic substance being included therein so as to maintain the hydrogen ion concentration (pH) of the surface of the undercoat layer at a level of from 6.6 to 9.5. A photographic emulsion adheres firmly to the undercoated surface of the support with a markedly increased bond strength.

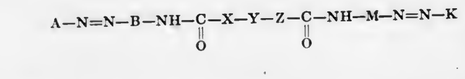
3,787,215

PHOTOGRAPHIC MATERIAL WITH BLEACHABLE DYE

Bernhard Piller, Marly-le-Petit, Switzerland

Continuation-in-part of Ser. No. 46,453, June 15, 1970, abandoned, which is a continuation-in-part of Ser. No. 734,205, June 4, 1968, abandoned. This application Jan. 27, 1972, Ser. No. 221,429
Claims priority, application Switzerland, June 7, 1967, 8065/67; Jan. 18, 1968, 757/68
Int. Cl. G03c 1/10
U.S. Cl. 96—99 13 Claims

Photographic, light-sensitive material is provided which contains on a support at least one silver halide layer and at least one layer containing a dyestuff of the formula



wherein A, K, B, M, X and Z each denotes an aromatic residue, the residues A—N=N—B—NH—CO— and K—N=N—M—NH—CO contain groups which confer solubility in water, and Y denotes a water solubility imparting bridging group consisting of at most 4 members.

Above all this photographic material is suitable for the silver dyestuff bleaching process and the dyestuffs are incorporated therein mainly as yellow, magenta or cyan image dyestuffs.

3,787,216

POWDERED FAT COMPOSITION

Winston Harold Wingerd; Russell Damisch, both of Elgin, Ill., and Marshall Bozzi, Valley Stream, L.I., N.Y., assignors to The Borden Company, New York, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,871
Int. Cl. A23g 3/00
U.S. Cl. 99—139 17 Claims

A composition which can be used to prepare a whipped topping by reconstituting it with milk or water after adding sugar, and whipping the mixture, includes, on dry basis, (a) 1–15 percent film-forming substance, (b) 10–60 percent edible fats, (c) 10–60 percent dextrin, (d) 1–12 percent conventional edible emulsifiers, and (e) 0.1–4 percent polyglycerol esters of fatty acids derived from butter. The novel aspect is in the use of the polyglycerol esters which impart excellent whippability and shorter whipping periods.

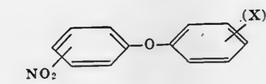
3,787,217

METHOD FOR CONTROLLING SEA ORGANISMS

Koyata Nitta; Hironari Sugiyama; Kiyoshi Takita, and Hideo Itoh, all of Shimizu, Japan, assignors to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan

Filed Dec. 17, 1971, Ser. No. 209,337
Claims priority, application Japan, Dec. 25, 1970, 45-123985
Int. Cl. C09d 5/14
U.S. Cl. 106—15 AF 10 Claims

The adherence of sea organisms, such as Blue mussel, Balanus, Oysters, Hydrozoa and the like to pipes for supplying sea water and the other articles in sea water can be prevented by using a diphenyl ether having the general formula



wherein X is a halogen, methyl, a lower alkoxy or amino group and *n* is 1 to 3 as an active ingredient. The present invention relates to compositions for combatting sea organisms and a method for combatting sea organisms.

3,787,218

ZIRCON CONTAINING PRINTING PASTE FOR OVERGLAZE COATING OF MICROELECTRONIC CIRCUITS ON CERAMIC SUBSTRATES

Raymond Louis Dietz, Toledo, Ohio, and Allan L. McFadden, Monroe, Conn., assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 84,541, Oct. 27, 1970, Pat. No. 3,759,727. This application Aug. 28, 1972, Ser. No. 284,428
Int. Cl. C03c 3/22, 3/12, 3/30
U.S. Cl. 106—39.5 10 Claims

Provided is an overglaze composition particularly useful for protecting a microelectronic circuit from environmental shock and contamination. Such an overglaze comprises by weight about 15–60 percent PbO, 12–40 percent B_2O_3, 5–45 percent ZnO and produces, upon being fired from a printed paste at a firing temperature below about 650°C., a vitreous glass coating which is substantially hermetic in its sealing characteristics. The overglaze composition may optionally accommodate up to 12 percent by weight of other various oxides such as, for example, SiO_2, CuO, V_2O_5, BaO, Bi_2O_3, TiO_2, ZrO_2 and/or may optionally accommodate up to 25 percent by weight of dispersed particulate ceramic materials. In addition, the coating so formed, when fired upon a ceramic substrate having a coefficient of thermal expansion of less than about 100×10^{-7} in./in./°C., exhibits a tenacious bond and a structural stress at the bond interface of between about 2000 psi in

compression to about 1200 psi in tension. Printing pastes are formed from these compositions by admixing the glass produced, in particulate form, with a conventional liquid organic vehicle in amounts sufficient to render the pastes printable.

3,787,219

CATIO$_3$-CRYSTALLIZABLE GLASS DIELECTRIC COMPOSITIONS

Rajnikant Babubhai Amin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 22, 1972, Ser. No. 291,174
Int. Cl. C03c *3/22*
U.S. Cl. 106—73.3 **10 Claims**

Powder compositions useful for producing dielectric layers in electronic devices at firing temperatures below 1000°C. The resultant dielectrics exhibit high Q (above 700) and reduced, or even negative, TCC. The compositions comprise 1-40% by weight of calcium titanate and 99-60% of certain lead-free crystallizable glasses and are optionally dispersed in an inert liquid vehicle.

3,787,220

MOLDED ARTICLES AND FILMS

George G. Maher, Dunlap, Ill., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 190,319, Oct. 18, 1971, Pat. No. 3,730,829. This application Jan. 24, 1973, Ser. No. 326,220
Int. Cl. D21h *3/28*; **C08b** *25/02*, *27/04*, *27/14*
U.S. Cl. 106—214 **5 Claims**

A method is disclosed for the preparation of a variety of molded articles and films prepared from gels of crosslinked starch xanthate.

A nonexclusive, irrevocable, royalty-free license in the invention herein described, throughout the world for all purposes of the United States Government, with the power to grant sublicenses for such purposes, is hereby granted to the Government of the United States of America.

3,787,221

PELLETS OF PRECIPITATED SILICA

Barry Topcik, Somerville, N.J., assignor to Cities Service Company, New York, N.Y.

Division of Ser. No. 887,403, Dec. 22, 1969, Pat. No. 3,646,183. This application July 9, 1971, Ser. No. 161,944
Int. Cl. C08h *17/02*; **C08j** *11/18*; **C09c** *1/28*
U.S. Cl. 106—288 B **3 Claims**

Precipitated silica pigments are pelletized employing from about 0.25 to about 3.0 percent by weight of a surface active agent as a binding agent. The bulk density of the silica is thereby increased, and by means of these pellets the silica can be incorporated into rubber much faster and with greatly reduced fly-loss.

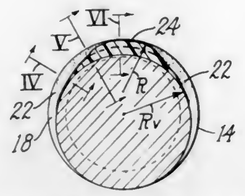
3,787,222

METHOD OF MAKING SELF-LOCKING THREADED ELEMENT WITH LOCKING PATCH EFFECTIVE OVER A WIDE RANGE OF CLEARANCES

Richard J. Duffy, Salem, Mass., assignor to USM Corporation, Flemington, N.J.

Filed Nov. 30, 1971, Ser. No. 203,130
Int. Cl. B44d *1/94*
U.S. Cl. 117—21 **5 Claims**

Method of making a self-locking threaded element, e.g. a screw, including a strongly adhered plastic body or locking patch on its threaded surface where the locking patch is formed with a special configuration for effective locking engagement over a wide range of clearances between the element and mating threaded surfaces, in which method a stream of fine particles of heat softenable resin is directed against a threaded surface portion of a heated metallic element at a temperature lower than that effective to form a continuous convex curved deposit of resin. The threaded portion is kept



in the stream of resin particles for a time sufficient to fill the valleys between threads to an extent of at least one-third in areas of the valleys adjacent the central line of the locking patch and to form thin resin deposits in areas spaced from the central line to give in effect an interupted ridge or bar useful to provide locking action over a wide range of clearances.

3,787,223

CHEMICAL VAPOR DEPOSITION COATINGS ON TITANIUM

Carl D. Reedy, Jr., Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 821,506, May 2, 1969, Pat. No. 3,656,995. This application Aug. 9, 1971, Ser. No. 170,345
Int. Cl. C23c *11/14*
U.S. Cl. 117—69 **3 Claims**

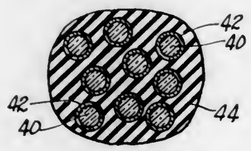
A process for coating titanium-containing substrates with a dense, adherent, chemically vapor deposited coating by initially effecting a pro-tective, adhesion-promoting, intermediate layer on the titanium surface and subsequently depositing from the vapor phase a metal nitride, carbide, or carbonitride coating on the intermediate film. For example, a titanium article may be initially nitrided to provide a titanium nitride protective layer and titanium nitride, titanium carbide, or titanium carbonitride may subsequently be deposited from the vapor phase onto this film to provide a dense, adherent, protective coating on the titanium article. The barrier layer serves to pro-mote adhesion between the titanium substrate and the final overlay and to prevent reaction between the substrate and such a reaction ingredient as titanium tetrachloride, which is a preferred constituent for supplying titanium in the titanium carbide, nitride, or carbonitride final coating.

3,787,224

GLASS FIBER REINFORCED ELASTOMERS

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Apr. 24, 1972, Ser. No. 230,723
Int. Cl. B32b *17/10*, *25/02*
U.S. Cl. 117—72 **17 Claims**



This invention is addressed to the improvement in the bonding relationship between glass fibers and elastomeric materials, wherein glass fibers are treated with a composition formulated to contain a resorcinol-aldehyde resin, a butadiene-styrene vinyl pyridine terpolymer, an incompatible wax and a dicarboxylated butadiene-styrene resin.

3,787,225

ALUMINUM PLATING PROCESS

Charles B. Roberts, Midland, and Frederick L. Acker, Saginaw, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 10, 1971, Ser. No. 141,957
Int. Cl. C23c *11/00*
U.S. Cl. 117—47 R **10 Claims**

Described is a closed loop method of producing a volatile aluminum hydride trimethylamine complex, depositing aluminum from the complex onto a substrate, and recycling trimethylamine vapor released during deposition to produce additional aluminum hydride trimethylamine complex.

3,787,226

METHOD OF TREATING TUBULAR GOODS WHILE SIMULTANEOUSLY TESTING THE INTERIOR THEREOF

Jesse H. Iglehart, and Hilary H. Iglehart, both of Odessa, Tex., assignors to Spinning Pipe Service, Inc., Odessa, Tex.

Filed Nov. 23, 1971, Ser. No. 201,448
Int. Cl. B44d *1/02*
U.S. Cl. 117—66 **7 Claims**



A method of treating tubular goods with an inhibitor which comprises forcing the inhibitor into intimate contact with the surface area of the metal goods to be treated by utilizing high pressure techniques. The inhibitor is forced into the multitude of cracks and minute voids located in the irregular surface of the metal, so that after the pressure is removed and the inhibitor drained from the surface, a coating of the inhibitor is left within the outer boundary of the metallic surface, thereby forming a protective film on the surface of the metal.

Advantage is taken of this expedient to provide a method of simultaneously treating pipe surfaces with an inhibiting agent, while at the same time the pipe joints are hydrostatically tested.

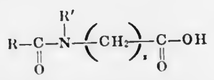
3,787,227

RUST PREVENTATIVE COMPOSITIONS

Nelson S. Marans, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed June 29, 1972, Ser. No. 267,721
Int. Cl. C23f *11/14*; **C23d** *3/00*
U.S. Cl. 117—75 **4 Claims**

This invention relates to rust preventative compositions comprising an aqueous emulsion of a compound of the general formula:



wherein R′ is hydrogen or a lower alkyl containing one to six carbon atoms; R is either C_nH_{2n+1}, C_nH_{2n-1} or C_nH_{2n-3}; n is an integer from 11 to 23 and x is an integer from 1 to 4.

3,787,228

METHOD OF FORMING DIFFUSION COATINGS

John J. Rausch, Antioch, and Ray J. Van Thyne, Oak Lawn, both of Ill., assignors to Surfalloy Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 768,187, Oct. 16, 1968, Pat. No. 3,620,816. This application Nov. 12, 1971, Ser. No. 198,403
Int. Cl. C23c *9/00*
U.S. Cl. 117—114 R **13 Claims**

A method of diffusing elements into a ferrous substrate using molten lead as the transport medium for the elements being diffused. Such diffusion coatings containing chromium, cobalt, manganese, and other elements that improve corrosion resistance of ferrous materials have considerable utility.

3,787,229

LOW-FRICTION, WEAR-RESISTANT MATERIAL

Robert G. Rudness, Indianapolis, Ind., assignor to Union Carbide Corporation, New York, N.Y.

Filed Feb. 17, 1971, Ser. No. 116,180
Int. Cl. B65h *57/24*; **B23p** *3/00*; **B32b** *27/20*
U.S. Cl. 117—132 BE **10 Claims**

A material, and the process therefor, having at least a surface layer of highly densified, uniformly disposed spheres or spheroids partially embedded in a matrix with the exposed segments thereof forming a uniformly wavy finish with low-friction and wear-resistant characteristics.

3,787,230

METHOD OF APPLYING POWDER PAINT

Edward P. Hoffman, St. Louis, Mo., and Robert P. Sikorski, Clawson, Mich., assignors to Grow Chemical Corp., New York, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,137
Int. Cl. B05c *11/10*; **B44d** *1/06*, *1/08*
U.S. Cl. 117—102 A **7 Claims**

Powder paint is applied to an article to be coated by forming a slurry of substantially uniformly suspended non-water soluble powder paint in water, while maintaining the powder in such substantially uniform suspension coating the surface to be painted with said slurry, and thereafter evaporating the water from the slurry coating and curing the powder paint to form a substantially continuous uniform paint film on the article. Where the slurry is applied by spraying, overspray is collected, the powder paint filtered therefrom and re-mixed in the slurry being sprayed.

3,787,231

DENTURES HAVING A DIALKYLPOLYSILOXANE COATING

Constantin Lebel, Paris, and Pierre Pruvost, Lyon, both of France, assignors to Rhone-Poulenc S.A., Paris, France

Filed Oct. 14, 1971, Ser. No. 189,397
Claims priority, application France, Oct. 15, 1970, 70.37259
Int. Cl. A61c *13/24*
U.S. Cl. 117—138.8 A **5 Claims**

Dentures are coated with a film, preferably 0.25–5.0μ, of a dialkylpolysiloxane of viscosity 300–100,000 centipoise at 25°C. The coating improves the retention of the denture in the mouth and minimizes food adhesion.

3,787,232
LOW TEMPERATURE CURING POLYMERS USED AS COATINGS FOR FIBROUS MATERIALS

Bela K. Mikofalvy, Sheffield Lake, and Donald P. Knechtges, Middleburg Heights, both of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

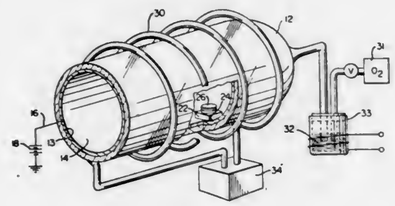
Division of Ser. No. 216,819, Jan. 10, 1972, Pat. No. 3,748,295. This application Mar. 19, 1973, Ser. No. 342,745
Int. Cl. D21h *1/40*
U.S. Cl. 117—155 UA **7 Claims**

Vinylidene halide polymers capable of being cured at low temperatures are prepared by the emulsion polymerization of one or more vinylidene halide monomers with a carboxylic acid monomer and an N-alkylol amide monomer in an aqueous system. The resulting polymers develop optimum or near optimum physical properties upon curing at room temperature or at temperatures up to about 225°F. These polymers may be used as coatings for fibrous materials.

3,787,233
METHOD OF GROWING MOBILE POSITIVE ION FREE SiO_2 FILMS

Ronald L. Koepp, Dayton, and Stanley J. Dudkowski, Kettering, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Division of Ser. No. 866,185, Oct. 14, 1969, Pat. No. 3,645,695. This application Aug. 5, 1971, Ser. No. 169,546
Int. Cl. B44c *1/18;* **C23c** *11/00*
U.S. Cl. 117—201 **5 Claims**

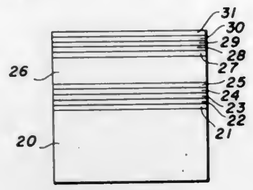


The present invention relates to a process for growing and annealing a silicon dioxide insulator layer to obtain a mobile positive ion free silicon dioxide insulator layer. A mobile positive ion free silicon dioxide insulator layer is required in order to make a stable insulated gate field effect transistor. The processing apparatus comprises a non-oxidizing, high-melting-point platinum metal film coated quartz furnace tube, potential means for placing a positive potential upon the platinum metal film coating of the platinum metal film coated quartz furnace tube to repel mobile ions therefrom, heater means for heating the interior of the quartz furnace tube, and gas means for passing oxygen gas through the platinum metal film coated quartz furnace tube. A silicon wafer may be oxidized in said processing apparatus to form a relatively mobile positive ion free silicon dioxide insulator layer of an insulated gate field effect transistor upon the silicon wafer. The silicon dioxide insulator layer is relatively uncontaminated by mobile positive ions which exist to the outside of the platinum metal film coated quartz furnace tube. A silicon wafer which previously has been coated by a silicon dioxide insulator layer may be processed to remove mobile ions within the silicon dioxide insulator layer. Mobile positive ions are repelled by the positive potential applied to the platinum metal film away from the outside of the quartz furnace tube, and mobile positive ions of the silicon dioxide insulator layer within the platinum metal film coated quartz tube are removed by the flowing oxygen gas due to the low vapor pressure of the mobile positive ions.

3,787,234
METHOD OF PRODUCING A THIN FILM LASER

Vern N. Smiley, San Diego; Adolph L. Lewis, La Mesa, and David K. Forbes, San Diego, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 18, 1969, Ser. No. 842,916
Int. Cl. B44d *1/14*
U.S. Cl. 117—217 **14 Claims**



A thin layer of laser material is deposited on an appropriate substrate with a second layer of a suitable activator material such as silver or copper, for example, deposited thereover. The deposition of laser material is accomplished at as high a temperature as possible while maintaining a practicable deposition rate. The combination of layers is then baked at a high temperature in air or an inert atmosphere for several hours and slowly reduced to room temperature. The method transforms the film of laser material into a single crystal or several smaller crystallites capable of desirable laser action. In its preferred embodiment reflective coatings, anti-reflective coatings, and multi-layers may be employed to enhance the laser performance.

3,787,235
METHOD OF ELECTROPHOTOGRAPHIC SENSITIVE PAPER

Satoru Honjo, and Yasuo Tamai, both of Osaka, Japan, assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 52,311, July 6, 1970, Pat. No. 3,720,514. This application Sept. 22, 1972, Ser. No. 291,437
Int. Cl. B44d *1/18;* **G03g** *5/00;* **B44d** *1/10*
U.S. Cl. 117—218 **2 Claims**



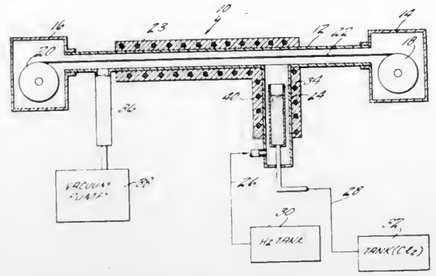
Electrophotographic paper is provided which comprises a waterproof paper treated with inorganic colloidal oxide dispersion having an electroconductive layer coated on the treated surface and a photoconductive insulating layer residing on the surface of the electroconductive layer.

3,787,236
TUNGSTEN COATED GLASS FIBER

Romeo G. Bourdeau, Wapping, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Continuation-in-part of Ser. No. 864,839, Oct. 8, 1969, abandoned. This application Nov. 11, 1971, Ser. No. 197,913
Int. Cl. B44a *1/02*
U.S. Cl. 117—227 **1 Claim**

A composite fiber adapted for usage as a resistively heated substrate in a continuous boron deposition process is described. The fiber has a glass filamentary core provided with a uniform continuous coating of tungsten, the glass core having a coefficient of thermal expansion of 3.5 to 5.0×10^{-6} in./in./° C so as to match that of the tungsten.



3,787,237
METHOD OF MAKING A THIN FILM HAVING A HIGH COERCIVE FIELD

Georges Grunberg; Igor Melnick, both of Grenoble, and Jean Pierre Lazzari, Seyssinet, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Continuation of Ser. No. 689,931, Dec. 12, 1967, abandoned. This application June 22, 1971, Ser. No. 155,640
Claims priority, application France, Dec. 23, 1966, 66.88714
Int. Cl. H01f *10/02*
U.S. Cl. 117—239 **10 Claims**



An isotropic thin film having a high coercive field for use as a magnetic memory, and comprising a non-ferromagnetic substrate, at least one chromium layer having a thickness smaller than 10,000 A overlying said substrate and at least one cobalt layer having a thickness smaller than 1,000 A overlying the chromium layer. In a process for the fabrication of the thin film, the chromium layer or layers and the cobalt layer or layers are deposited on the non-ferromagnetic substrate by evaporation under a vacuum.

3,787,238
FLUORESCENT SCREENS

Peter C. Juliano, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 10, 1971, Ser. No. 206,609
Int. Cl. H01j *1/54;* **C08g** *47/10;* **C09k** *1/00*
U.S. Cl. 117—335 R **8 Claims**



A fluorescent screen for use as an image intensifying screen is provided having a support, a light reflecting layer, a layer of fluorescent particles and an outer protective coating. The protective coating is a polymeric material having incorporated therein an effective amount of a transparent binary polydimethylsiloxane-polyalkylmethacrylate block copolymer.

ERRATUM

For Class 127—1 see:
Patent No. 3,787,241

3,787,239
CHEMICAL STRIPPERS AND METHOD OF USING

Kenneth H. Schroeder, Wilmington, Del., and George J. Kelly, Jr., Port Murray, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

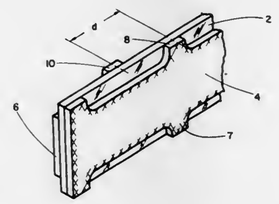
Continuation-in-part of Ser. No. 75,660, Sept. 25, 1970, Pat. No. 3,676,219, which is a continuation-in-part of Ser. No. 866,036, Oct. 13, 1969, abandoned. This application July 10, 1972, Ser. No. 270,125. The portion of the term of this patent subsequent to July 11, 1989, has been disclaimed.
Int. Cl. C23g *1/02*
U.S. Cl. 134—2 **9 Claims**

Strippers for removal of organic films and deposits, such as the polymeric etch resists employed in the manufacture of semiconductors from inorganic surfaces commonly encountered in the electrical and electronic industries, are composed of solutions of chromium trioxide in mixtures of strong nitric and sulfuric acids containing about 2 percent to about 20 percent water.

3,787,240
COMPOSITION SEPARATOR WITH MEMBRANCE EXTENSION

Leland M. Gillman, Denver, and Robert E. Stark, Littleton, both of Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed July 2, 1971, Ser. No. 159,125
Int. Cl. H01m *3/04*
U.S. Cl. 136—30 **19 Claims**



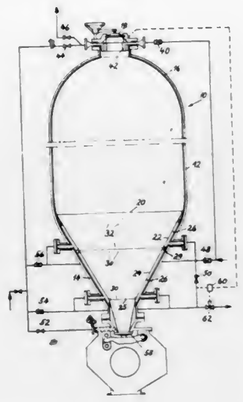
A composite multi-layer separator for use in alkaline electrochemical cells is disclosed including at least two bibulous layers sandwiching at least one semi-permeable membrane. The membrane layer marginally extends beyond at least one of the adjacent bibulous layers at each point along the margin of the composite separator. Mechanical strength and ease of handling are supplied to the separator membrane by providing marginally extending supporting means along the edges of the bibulous layer(s). The separator layers may also be laminated together for further mechanical integrity.

These separators find use in a variety of alkaline galvanic cells, particularly in rechargeable cells such as nickel-cadmium, nickel-zinc, silver-zinc, manganese dioxide-zinc, and similar cells.

3,787,241
APPARATUS FOR PROCESSING DEGRADATION OF CELLULOSIC MATERIALS

Rudolf Eickemeyer, Torwangerstr. 10, Munich, Germany

Division of Ser. No. 767,669, Oct. 15, 1968, Pat. No. 3,640,768. This application July 19, 1971, Ser. No. 163,728
Claims priority, application Germany, Oct. 17, 1967, P 15 67 335.5
Int. Cl. C13k 1/02
U.S. Cl. 127—1 **14 Claims**

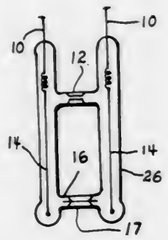


An apparatus, for decomposing cellulosic materials, in the form of a percolator vessel, has a conical filter disposed with apertures which is mounted on the lower portion of the vessel. A system of liquid and steam valves controlling the inlets and outlets to the percolator vessel is used to treat cellulosic material in a series of steps with resulting decomposition of almost the entire load of material initially placed into the percolator.

3,787,242
ELECTROCHEMICAL CELL WITH ALUMINUM ELECTRODES AND DIFFERENT ELECTROLYTE CONCENTRATION IN TWO COMPARTMENTS

David W. Seegmiller, QTRS 4200A, USAF Academy, and Lowell A. King, QTRS 4182, USAF Academy, both of Colo.

Filed Apr. 15, 1971, Ser. No. 134,281
Int. Cl. H01m 11/00
U.S. Cl. 136—83 T **1 Claim**

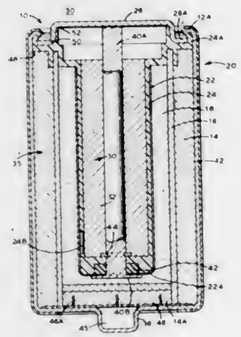


An improved electrochemical cell of the thermal type is described. The improved cell comprises two interconnected compartments with separate aluminum electrodes and separate solid electrolytes positioned in each compartment. The solid electrolytic material positioned within each compartment consist essentially of a mixture of aluminum chloride and sodium chloride having proportions such that the gross stoichiometric composition of the electrolyte in one compartment is less than 50 mole percent aluminum chloride while the gross stoichiometric composition of the electrolyte in the other compartment is greater than 50 mole percent aluminum chloride. The difference in the relative concentrations of aluminum chloride in the two compartments provides an unexpected improvement in the operating characteristics of the improved cell of this invention.

3,787,243
ENERGY CELL

John Zaleski, Pleasantville, N.Y., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed May 8, 1972, Ser. No. 255,881
Int. Cl. H01m 1/06
U.S. Cl. 136—107 **17 Claims**



An electric cell having a hermetic pressure seal, and subject to development of high internal gas pressure in the normal operating region, and provided with an auxiliary venting region at atmospheric pressure separated from the operating region with a frangible disc in a separating wall between operating and venting regions with cotton flock in the venting region to retard any high pressure gas and electrolyte injected after fracture of the disc by high pressure in operating region.

3,787,244
METHOD OF CATALYZING POROUS ELECTRODES BY REPLACEMENT PLATING

Lee F. Schulmeister, Wallingford, and Richard C. Nickols, Jr., South Windsor, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 2, 1970, Ser. No. 8,035
Int. Cl. H01m 13/04
U.S. Cl. 136—120 FC **3 Claims**

A porous or sintered fuel cell electrode which is catalyzed by means of a replacement plating process. An acidic plating solution containing a salt of a noble metal catalyst is forced through the pores of a nickel electrode substrate and the noble metal ions from the dissolved salt replace a thin layer of the nickel surface within the pores.

3,787,245
METHOD FOR THE BORATION OF TITANIUM AND TITANIUM ALLOYS

Helmut Eduard Kunst, Osterholz-Scharmbeck, Germany, assignor to Institut Fur Harterei-Technik, Bremen-Lesum, Germany

Filed Oct. 26, 1970, Ser. No. 84,229
Int. Cl. C23f 7/00
U.S. Cl. 148—6 **5 Claims**

Metals, especially titanium and titanium alloys, are borated with a borating agent prepared by annealing amorphous boron at a temperature between 850°C and 1,300°C in an inert gas, especially a noble gas. The boration is best accomplished by packing the metal into the borating agent and heating it to a temperature between 900°C and 1,400°C while passing a noble gas through the borating agent. Activators and inert substances can be added to the borating agents.

3,787,246
PROCESS FOR PRODUCING A PROTECTIVE COLOR FILM ON AN ALUMINUM SUBSTRATE

Hideo Tagai, No. 4-1 Den-en Chofu, Ohta-ku, Tokyo; Toshiro Takahashi, No. 2-100 Magarigane, Shizuoka-shi, Shizuoka-ken; Toshihiro Nagano, No. 2-100 Magarigane, Shizuoka-shi, Shizuoka-ken; Matsuo Suzuki, No. 2-100 Magarigane, Shizuoka-shi, Shizuoka-ken; Katsushige Ikeda, No. 2-389 Nishi Awaji-cho, Higashi Yodogawa, Osaka-shi, Osaka-fu; Takashi Kato, No. 2-389 Nishi Awaji-cho, Higashi Yodogawa, Osaka-shi, Osaka-fu, and Nobuo Minagawa, No. 2-389 Nishi Awaji-cho, Higashi Yodogawa, Osaka-shi; Osaka-fu, all of Japan

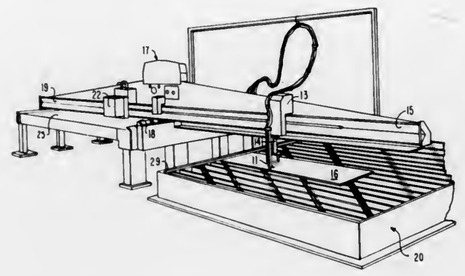
Filed July 6, 1971, Ser. No. 160,110
Claims priority application Japan, July 7, 1970, 45-59267.
Int. Cl. C23f 7/06
U.S. Cl. 148—6.27 **4 Claims**

A process is disclosed for producing a firmly adhered colored film on an aluminum substrate without anodization. The process is carried out at certain temperatures and in the presence of specified quantities of organic amines which amines act to cause a coating to adhere intimately to the aluminum surface and impart a clear amber color to the coating.

3,787,247
WATER-SCRUBBER CUTTING TABLE

Richard W. Couch, Jr., Hanover, N.H., assignor to Hypertherm Incorporated, Hanover, N.H.

Filed Apr. 6, 1972, Ser. No. 241,783
Int. Cl. B23k 7/10
U.S. Cl. 148—9 R **9 Claims**

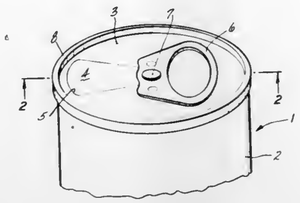


The cutting table disclosed herein is particularly adapted for use in conjunction with a plasma arc cutting torch in a system in which the torch is traversed in a pattern over a metal plate workpiece to perform a desired cutting operation. The cutting table supports the workpiece at a multiplicity of points and includes means for containing a body of water with a surface in contact or at least close proximity with the bottom of the plate. Accordingly, as the high velocity gases performing the cutting impinge upon the body of water, they are forcefully intermixed therewith. Accordingly, the particulate pollutants entrained in the gas jet are effectively scrubbed out, rather than being carried into the atmosphere.

3,787,248
PROCESS FOR PREPARING ALUMINUM ALLOYS

William C. Setzer, Hamden; Harvey P. Cheskis, Woodbridge, and Joseph Winter, New Haven, all of Conn.

Filed Sept. 25, 1972, Ser. No. 291,835
Int. Cl. C22f 1/04
U.S. Cl. 148—11.5 A **12 Claims**



The present invention teaches a process for preparing high strength, improved formability aluminum base alloys suitable for use as can end stock, said high strength aluminum material of the present invention being readily compatible with aluminum can body material. The present invention also teaches an improved aluminum can having ends and body of substantially the same aluminum base alloy, which can as a whole is especially convenient to process in scrap reclamation procedures.

3,787,249
ALUMINUM ALLOY

Andrew J. Brock, Cheshire, and Michael J. Pryor, Woodbridge, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Division of Ser. No. 148,582, June 1, 1971, Pat. No. 3,720,508. This application Oct. 24, 1972, Ser. No. 299,917
Int. Cl. C22f 1/04
U.S. Cl. 148—11.5 A **5 Claims**

This disclosure teaches a novel aluminum alloy having high resistance to oxidation during hot rolling, improved surface appearance and improved bright anodizing characteristics and the method of processing same. The alloy contains from 0.5 to 3 percent magnesium, from 0.02 to 0.5 percent silver, from 0.001 to 0.2 percent iron, from 0.001 to 0.15 percent silicon, balance essentially aluminum, wherein the silver is substantially dissolved in solid solution in the matrix.

3,787,250
CORROSION-RESISTANT HIGH-STRENGTH LOW-ALLOY STEELS

Michael Korchynsky, Bethel Park; John R Bell, and Richard J. Cover, both of Pittsburgh, all of Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 123,470, March 11, 1971, Pat. No. 3,711,340. This application Oct. 5, 1972, Ser. No. 296,721
Int. Cl. C21d 7/14
U.S. Cl. 148—12 **4 Claims**

Low-alloy steels having five to eight times the atmospheric corrosion resistance of carbon steels, 80,000 psi minimum yield strengths and an overall desirable balance of mechanical properties produced directly off the hot-mill have the following chemistry: carbon, .04 percent to .10 percent; manganese, .40 percent to 1.80 percent; sulfur, .03 percent maximum; aluminum, .015 percent minimum; chromium, .90 percent to 1.20 percent copper, .30 percent to .50 percent; silicon, .50 percent to 1.20 percent; phophorus, .10 percent to .15 percent; columbium, .015 percent to .040 percent; and zirconium, .04 percent to .12 percent ona total content of rare earth elements, such as cerium and lanthanum, such that the weight

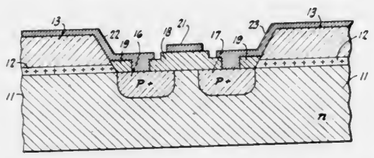
ratio of total rare earths to sulfur is at least 2.8 to 1. In processing the steel to strip or plate, it is hot-rolled so as to have a finishing temperature between its A_3 temperature and 1,700° F, cooled at a rate between 20° F/sec. and 45° F/sec. and coiled or piled at a temperature of 1,100° F ± 100° F.

3,787,251

MOS SEMICONDUCTOR STRUCTURE WITH INCREASED FIELD THRESHOLD AND METHOD FOR MAKING THE SAME

Warren L. Brand, Saratoga, and Farajollah Kashkooli, San Jose, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Filed Apr. 24, 1972, Ser. No. 246,918
Int. Cl. H01l *7/44*
U.S. Cl. 148—187 **4 Claims**



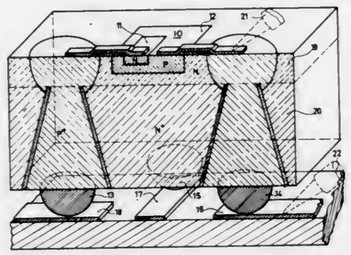
An MOS semiconductor structure and method for making the same in which a semiconductor wafer is treated to form an thin oxide layer having a net charge. In a specific embodiment a positive net charge is introduced into the oxide layer through introduction of chrome ions. Field oxide is then grown over the thin oxide layer. The field oxide and thin oxide layers are removed from selective portions of the semiconductor wafer. Source and drain diffusions are made into the semiconductor wafer and a gate oxide along with gate source and drain electrodes are formed. The introduction of the positive oxide charge over the field region increases the field voltage threshold and permits use of a thinner field oxide.

3,787,252

CONNECTION MEANS FOR SEMICONDUCTOR COMPONENTS AND INTEGRATED CIRCUITS

Franco Filippazzi, Milano, and Franco Forlani, Rho, both of Italy, assignors to Honeywell Information Systems Italia S.p.A., Milan, Italy

Continuation of Ser. No. 838,221, July 1, 1969, abandoned. This application Nov. 8, 1971, Ser. No. 196,380
Claims priority, application Italy, July 5, 1968, 18595A/68
Int. Cl. H01l *19/00, 7/36, 5/00*
U.S. Cl. 148—175 **3 Claims**



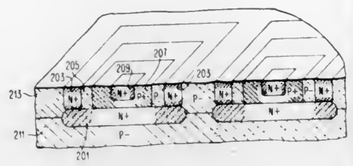
In a semiconductor wafer having an epitaxial layer on which circuit elements are formed, through-connections for said circuit elements to contacts formed on the opposite surface of the layer are provided by tapered high conductivity semiconductor regions insulated from the body by a thin layer of dielectric material and in contact with suitably doped portions of the epitaxial layer to provide insulation by means of reversely biased junctions.

3,787,253

EMITTER DIFFUSION ISOLATED SEMICONDUCTOR STRUCTURE

Kanu Ashar, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,237
Int. Cl. H01l *7/36, 19/00*
U.S. Cl. 148—175 **2 Claims**



An improved self-isolated semiconductor integrated circuit structure is formed by a novel process beginning with diffusing a plurality of N-type buried layers onto a P-type substrate and epitaxially growing a thin P-type layer over the surface of the P-type substrate. Base regions are formed by diffusing.a plurality of P-type regions into the P-type epitaxial layer. Collector contact regions and emitter regions are formed by simultaneously diffusing a plurality of N-type regions into the P-type epitaxial layer, the collector contact regions being spaced from the P-type base region and diffused through the epitaxial layer to contact the N-type buried layer, and the emitter regions being diffused within the P-type base regions. A semiconductor integrated circuit structure results having base regions with controllable wide range concentration levels, formed with only three selective diffusion process steps.

3,787,254

EXPLOSIVE COMPOSITIONS CONTAINING CALCIUM NITRATE

Melvin A. Cook; Lex L. Udy, both of Salt Lake City; Mark J. Hagmann, Midvale, and Harvey A. Jessop, Murray, all of Utah, assignors to Ireco Chemicals, Salt Lake City, Utah

Filed June 1, 1971, Ser. No. 148,941
Int. Cl. C06b *1/04*
U.S. Cl. 149—60 **19 Claims**

Water-containing explosive compositions, substantially stable against gravitational segregation of the ingredients and degasification, comprise a homogenous emulsion-like dispersion of (1) inorganic nitrate oxidizer, e.g., ammonium nitrate, (2) finely dispersed particles of liquid hydrocarbon fuel, e.g., fuel oil, (3) calcium nitrate and (4) an agent to sufficiently thicken said composition to substantially inhibit such gravitational segregation during formulation and/or use and improve the water resistance of the composition.

3,787,255

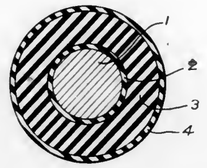
INSULATED CABLE WITH SHEATH OF CONTROLLED PEEL STRENGTH AND METHOD

Francis F. Carini, Pittsburgh, Pa., and Steven R. Abbott, Vincennes, Ind., assignors to Essex International, Fort Wayne, Ind.

Filed May 30, 1972, Ser. No. 258,077
Int. Cl. H01b *13/14*
U.S. Cl. 156—51 **5 Claims**

A high voltage electrical cable having at least two layers of

cross-linked polyolefin insulation, i.e. polyethylene; the external layer being semi-conductive and strippable from the internal layer. Controlled strippability is accomplished by sulfonating the respective layers at their contact interface.



3,787,256

NONWOVEN SHEET STRUCTURES FROM MODIFIED POLYOLEFIN FIBERS

Kurt A. Nowotny, Camas, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Sept. 13, 1971, Ser. No. 180,212
Int. Cl. D21j *3/00*
U.S. Cl. 156—62.2 **8 Claims**

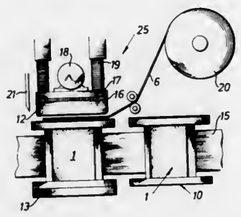
A sheet structure prepared from modified polyolefin fibers and a method of preparation of the structure. The fibers are modified by introducing thereinto halide groups and acid groups with disassociatable hydrogen ions, and from this a stabilized water dispersion is prepared. A mat is prepared from the dispersion of fibers.

3,787,257

METHOD TO SEAL TWO MATERIALS TO EACH OTHER AND A DEVICE TO CARRY OUT THE METHOD

Jan Akerlund, Malmo, Sweden, assignor to AB Akerlund & Rausing, Lund, Sweden

Filed Nov. 30, 1971, Ser. No. 203,151
Claims priority, application Sweden, Dec. 7, 1970, 16509/70
Int. Cl. B32b *31/16, 31/00*
U.S. Cl. 156—73 **15 Claims**



Two sheets of packaging material at least one of which has a plastic surface on at least one side are sealed together by moving them past a vibrating heater block which vibrates in a plane normal to the plane of the sheets. The sheets are located between the vibrating heater block and a support for these.

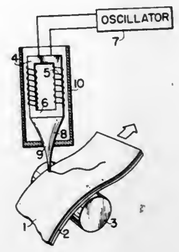
3,787,258

METHOD AND APPARATUS FOR DEPICTING LETTERS, PATTERNS AND THE LIKE ON SUBSTRATES

Tadao Takahashi, and Shoji Kitabayashi, both of Tokyo, Japan, assignors to Iwatsu Electric Company Limited, Tokyo, Japan

Filed Sept. 18, 1969, Ser. No. 859,052
Claims priority, application Japan, Sept. 24, 1968, 43-68233
Int. Cl. B32b *31/16*
U.S. Cl. 156—73 **4 Claims**

Apparatus for depicting letters or patterns on the surface of a substrate with a metal foil comprises a vibrator energized by a current of supersonic frequency, and a pointed amplitude magnifying horn secured to the vibrator. To depict letters or patterns, a metal foil is placed on either side of the substrate, the horn is urged under slight pressure against the surface of the metal foil or substrate and the vibrator is moved by hand in the X and Y directions to depict letters or patterns whereby portions of the metal foil are separated and are firmly adhered to the surface of the substrate.

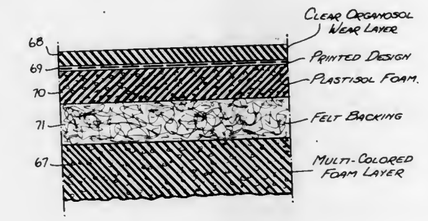


3,787,259

VINYL CHLORIDE RESIN BACKED FLOOR COVERING

Martin J. Kleinfeld, Woodbridge, and Alfred J. Heinrichs, Hamden, both of Conn., assignors to Uniroyal Inc., New York, N.Y.

Continuation-in-part of Ser. No. 73,452, Sept. 18, 1970, abandoned. This application Nov. 10, 1971, Ser. No. 197,303
Int. Cl. B32b *5/20, 31/26*
U.S. Cl. 156—78 **6 Claims**



Floor covering is backed by applying to the back of the floor covering dry, solid fragments of prefluxed plasticized vinyl chloride resin compound, in the form of granules or dice, for example. Heat is applied to melt the prefluxed vinyl granules or the like in situ on the back of the floor covering to form a continuous backing sheet which is firmly adhered to the floor covering. The backing thus formed can serve to lock the tufts in place in a tufted carpet. The prefluxed granules or fragments can contain a chemical blowing agent which decomposes during the heating, producing a resilient vinyl foam backing. Since the vinyl granules can be of various colors, a tweed or multi-colored backing can be produced.

3,787,260

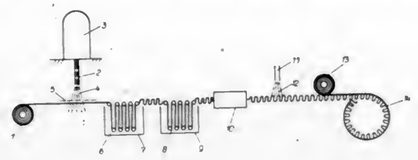
PROCESS FOR MAKING COMPOUND TEXTILE MATERIALS

Helmar Passler; Adolf Heger, and Sabine Fronius, all of Dresden, Germany, assignors to VEB Textilkombinat Cottbus, Cottbus, Germany

Filed Jan. 27, 1972, Ser. No. 221,253
Int. Cl. D06m *11/00*
U.S. Cl. 156—84 **17 Claims**

Compound textiles, particularly compound sheet materials as used in the garment and interior decorating arts, are made

by causing free radicals to form in selected areas of a polymeric textile sheet; then contacting the sheet with a shrinking agent which preferentially affects the said selected areas by



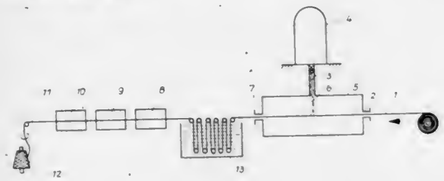
reaction with said free radicals; and finally uniting the selectively shrunken sheet on one or both of its major faces with another fabric.

3,787,261

PROCESS FOR TEXTURIZING FIBERS OBTAINED BY SPLITTING SYNTHETIC FOILS AND PRODUCTS MADE THEREFROM

Adolf Heger; Helmar Passler, and Ellen Patitz, all of Dresden, Germany, assignors to VEB Textilkombinat Cottbus, Cottbus, Germany

Filed Jan. 27, 1972, Ser. No. 221,362
Int. Cl. D02g *1/00*
U.S. Cl. 156—84 **14 Claims**



Fibers obtained by splitting synthetic foils and the resulting products are texturized by subjecting the foil or the fibers obtained after splitting and prior to their separation to a cross-sectionally differential modifying action, and thereafter contacting the modified foil or fibers with a shrinking agent, or subjecting the foil or fibers to stretching.

3,787,262

TIRE BUILDING DRUM

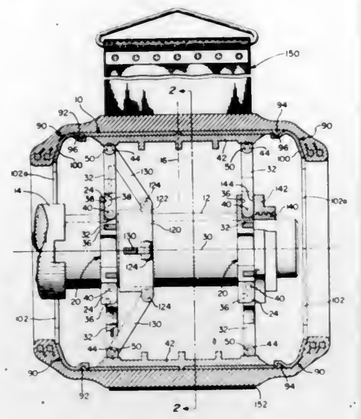
Paul E. Appleby, Cuyahoga Falls; Max D. Brinkley, North Canton, and Robert I. Griffiths, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sept. 24, 1971, Ser. No. 183,484
Int. Cl. B29h *17/16*
U.S. Cl. 156—123 **18 Claims**

Method and apparatus for removing a tire too large for unassisted manual handling from a collapsible building drum. The drum comprises both articulated and individually removable segments and is collapsed after removal of certain segments by supporting the tire externally as by a crane sling, and moving the tire axially, axial movement of the tire being sufficient alone to cause the articulated segments to be collapsed permitting continued movement of the tire completely off the drum.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

The invention relates to building massive tires such as for earthmoving vehicles, and particularly to a method of and apparatus for removing such tires in the uncured state from a high-crowned drum on which the same are built.



3,787,263

METHOD OF AND APPARATUS FOR STICKING AN APEX RUBBER STRIP ON BEAD RINGS FOR USE IN PNEUMATIC TIRES

Hisashi Yonekawa; Minoru Miyaoka, and Norio Abe, all of Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Dec. 15, 1971, Ser. No. 208,237
Claims priority, application Japan, Dec. 19, 1970, 45-113587
Int. Cl. B29h *17/34*
U.S. Cl. 156—136 **2 Claims**



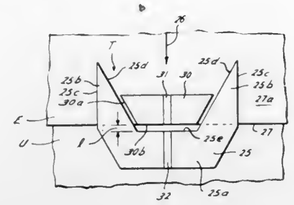
A method of and apparatus for automatically sticking an apex rubber strip on bead rings for use in pneumatic tires on mass production basis are provided whereby a number of bead rings may be fed to and disposed on a pair of driving rollers one by one and a continuous apex rubber strip may be fed to the outer periphery of each bead ring. Successive steps of sticking the forward end of the apex rubber strip on the outer periphery of each bead ring, rotating the driving rollers, detecting the arrival of the forward end of the apex rubber strip stuck on the outer periphery of each bead ring at its final position around the bead ring, obliquely cutting the rear end of one turn of the apex rubber strip, re-starting the rotation of the driving rollers and sticking the rear end of the apex rubber strip thus cut on the bead ring, and replacing the bead ring with a new bead ring, are performed automatically.

3,787,264

WEB SPLICING METHOD AND APPARATUS

Jereld L. Underwood, Houston, Tex., assignor to Houston Chronical Publishing Company, Houston, Tex.

Filed May 25, 1972, Ser. No. 256,988
Int. Cl. B65h *19/00*
U.S. Cl. 156—157 **10 Claims**



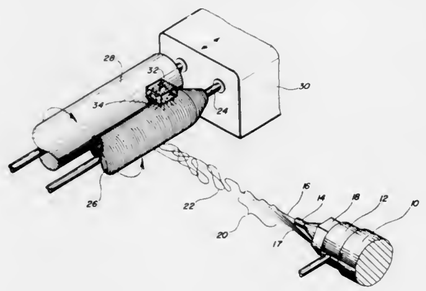
Apparatus for splicing the leading end of a rotating replacement roll to the moving web of an expiring supply roll of sheet material including a main tab member adhesively attached to the underlying layer of said replacement roll and having spaced portions adhesively attached to the leading end; and, a reinforcing tab adhesively attached to the leading end substantially between the spaced portions whereby, upon the application of adhesive and upon the adhesive engagement of the leading end with the moving web, the leading end is torn away from attachment with the main tab member.

3,787,265

PROCESS AND APPARATUS FOR PRODUCING FIBROUS STRUCTURES

Paul H. McGinnis, Kings Mountain; William D. McLaughlin, Jr., and Robert E. Swander, both of Charlotte, all of N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Mar. 24, 1972, Ser. No. 237,832
Int. Cl. D04h *3/16*
U.S. Cl. 156—167 **6 Claims**



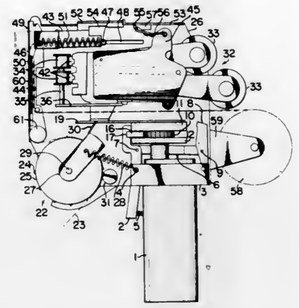
Apparatus and method for producing filamentary material by extruding substantially axially through an orifice comprising contacting the extruded filament stream downstream of the orifice and prior to hardening with a plurality of converging, substantially planar, high velocity gas streams, each moving substantially in the direction of the filament stream such that they converge upon the filament stream at an angle of from about 45° to 5° from the axis of the polymer extrusion nozzle. The planes of the gas streams intersect at a point which is at a distance measured perpendicularly from the axis of the extrudate stream at least equal to the diameter of the extrudate stream.

3,787,266

LABELLER WITH PUSHING-OUT MEANS

Tokio Wada, Tokyo, Japan, assignor to Ceiko Ceiki Co., Ltd., Tokyo, Japan

Filed Aug. 5, 1971, Ser. No. 169,214
Claims priority, application Japan, Aug. 14, 1970, 45-70955; Nov. 6, 1970, 45-97193; Dec. 29, 1970, 45-132946
Int. Cl. B65h *25/00*; **B65c** *9/08*
U.S. Cl. 156—361 **4 Claims**



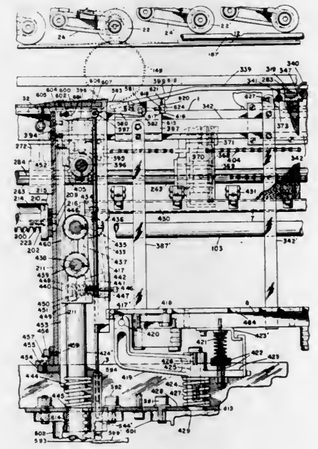
A labeller comprising a casing which is provided with a tape support supporting a tape carrying labels, means for detaching each label by the reverse turning of the tape, a tape feed means, a window supporting the detached label, and a holding portion; a label pushing-out means having a pushing-out portion corresponding to said opening and having at least one pushing-out spring; and a movable member engaging and disengaging said tape feed means and said pushing-out means, said movable member being adapted to engage said pushing-out means to move together therewith and to disengage said pushing-out member at a predetermined position of said pushing-out member while said spring is in a tensioned condition.

3,787,267

LABELLING MACHINE

Clifford H. Neer, Baltimore, Md., assignor to Burt Machine Company, Incorporated, Baltimore, Md.

Division of Ser. No. 605,279, Dec. 28, 1966, Pat. No. 3,648,823. This application Dec. 24, 1969, Ser. No. 888,092
Int. Cl. B65c *9/42*, *9/12*
U.S. Cl. 156—363 **5 Claims**



A labeling machine having primary and secondary label feed assemblies provided in the present labeler with a com-

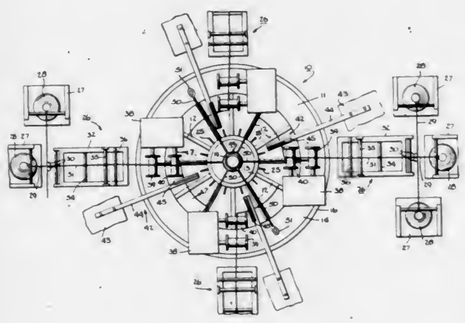
mon source of intermittent power for feeding labels that can be selected to actuate either assembly from a reciprocating power driven member through over-running clutches to give a positive label feeding movement without and to prevent backlash to the label pack supporting and feeding elements. The assemblies may operate independently of each other or/and in an interdependent manner to maintain the top or operating label pickup level of the label pack at a substantially constant operating level. With the present label feed mechanism the operating of the labeler may be continuous without the necessity to stop the labeling operation when introducing a fresh pack of labels to the machine. The primary label pack feeding mechanism stops automatically upon the exhaustion of the labels of the pack. The secondary label pack feeding mechanism also stops automatically upon reaching a predetermined feeding height rather than to a point of complete exhaustion of its respective labels or label pack to prevent breakdown clashing between the primary and secondard feeding mechanisms.

3,787,268

HANK FORMING MACHINE FOR A POLE CONSTRUCTION AND A METHOD OF FORMING A POLE

Arthur Leslie Scott, Columbia; J. Hilton Parsons, Jr., and John S. Hammond, Newberry, all of S.C., assignors to Shakespeare Company, Columbia, S.C.

Filed Nov. 22, 1971, Ser. No. 200,874
Int. Cl. B65h *54/56*
U.S. Cl. 156—425 **25 Claims**



The roving is fed between the spokes of the rotatable member of the hank forming machine to form a plurality of drapes of variable lengths. The drapes are thereafter lifted and pressed against the mandrel for subsequent movement through the deformable orifice. After wrapping with cellophane, the assembly is cured so as to form a self-supporting pole. The length of the drapes between the spokes can be varied so as to form a tapered pole or a pole of variable thickness.

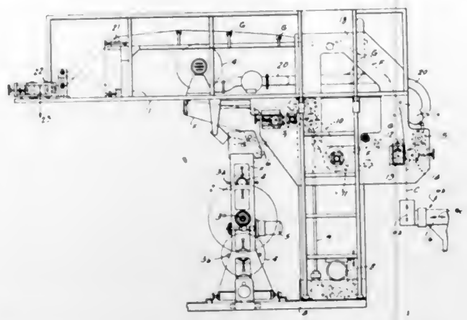
3,787,269

APPARATUS FOR MAKING A FLEXIBLE CLOSURE

Tanashi Noguchi, Seisan Nippon Sha Ltd. New Kohjimachi Bldg. No. 3 5-chome, Tokyo, Japan

Filed Sept. 7, 1971, Ser. No. 178,086
Int. Cl. B32b *31/30*
U.S. Cl. 156—498 **14 Claims**

A mechanism and method for attaching strips such as those having an interlocking profile thereon to a laminated sheet of plastic wherein the sheet is preheated by passing it over a heated roller and then passed over a heated joining roll having



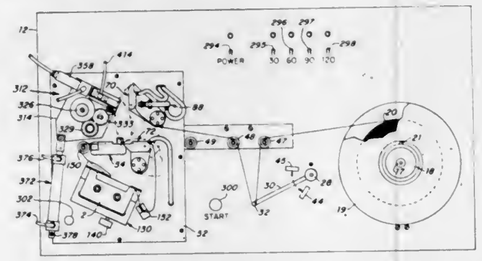
a nip formed with a pressure roll and feeding a freshly extruded hot strip into the nip and onto the sheet and thereafter applying localized cooling after the strip.

3,787,270

SPLICING TAPE DISPENSER

James L. King, Sudbury, Mass., assignor to King Instruments Corp., Waltham, Mass.

Division of Ser. No. 9,552, Feb. 9, 1970, Pat. No. 3,637,153.
This application Apr. 28, 1971, Ser. No. 138,033
Int. Cl. B31f *5/06*; **B65h** *19/28*
U.S. Cl. 156—506 **16 Claims**



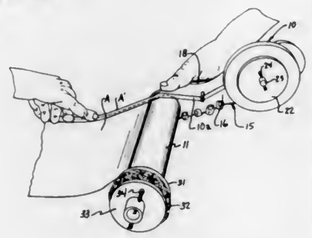
Apparatus for dispensing and applying adhesive splicing tape comprising means for feeding splicing tape from a spool, means for severing said tape, and means for applying the severed tape to two tapes to be spliced.

3,787,271

TAPE AND APRON DISPENSING APPARATUS

Stanley L. Wahlquist, 3203 S. Main St., Rockford, Ill.

Filed Aug. 14, 1972, Ser. No. 280,562
Int. Cl. B32b *31/08*
U.S. Cl. 156—554 **8 Claims**



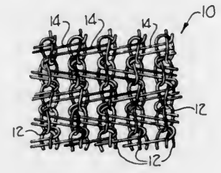
A tape and apron dispensing apparatus in which the apron roll and tape roll are mounted for rotation about spaced, relatively parallel axes at one side of an elongated body member and the portion of the body member intermediate the tape and apron rolls is shaped to provide a handgrip paralleling the path of withdrawal of the taped apron and adapted to be grasped in one hand to enable hand manipulation of the tape and apron dispensing apparatus when applying the taped apron to a surface to be masked.

3,787,272

GLASS FABRIC SUITABLE FOR CASTS, BANDAGES, AND THE LIKE

John L. Nisbet, and Hubert C. Woodall, Jr., both of Winston-Salem, N.C., assignors to Carolina Narrow Fabric Company, Winston-Salem, N.C.

Division of Ser. No. 888,447, Dec. 29, 1969, Pat. No. 3,686,725. This application Aug. 23, 1972, Ser. No. 282,927
Int. Cl. A61l *15/00*
U.S. Cl. 161—89 **9 Claims**



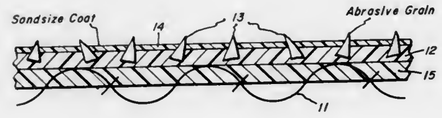
A relatively open air permeable glass fiber fabric for use in orthopedic casts, bandages and the like and comprising interlaced chemically desized glass yarns consisting essentially of filaments having an average diameter not greater than about 0.00021 inches.

3,787,273

LOW STRETCH SECTIONAL ABRASIVE BELTS

John Okrepkie, Troy, N.Y., and Henry J. Swiatek, Mentor, Ohio, assignors to Norton Company, Troy, N.Y.

Filed June 7, 1971, Ser. No. 150,306
Int. Cl. B24d *11/00*
U.S. Cl. 161—87 **6 Claims**



A relatively heavy woven fabric is provided of such construction and finish that, when used as a backing member for coated abrasive material, a sectional abrasive belt can be manufactured of desirably low stretch characteristics.

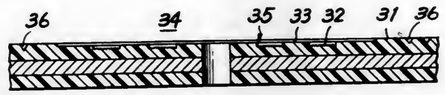
3,787,274

PHONOGRAPH RECORD DISC

Susumu Genma, Tokyo, Japan, assignor to Victor Company of Japan, Yokohama-city, Kanagawa-ken, Japan

Filed May 21, 1971, Ser. No. 145,688
Claims priority, application Japan, May 25, 1970, 45/44660; May 25, 1970, 45/44659
Int. Cl. B32b *3/00*
U.S. Cl. 161—116 **4 Claims**

A synthetic resin moulded product has a moulded label equivalent portion. A mirror-like, smooth surface on the product has a predetermined pattern. A coarse surface on other parts are formed with a pattern having extremely minute and fine projections and depressions. The label equivalent



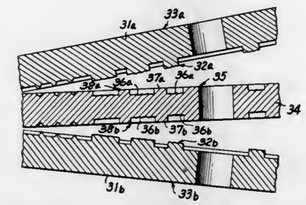
portion indicates the predetermined pattern by a contrast of lusterless parts and lustrous parts. The manufacturing method produces the synthetic resin moulded product with the label equivalent portion.

3,787,275

PHONOGRAPH RECORD DISC

Susumu Genma, Tokyo, Japan, assignor to Victor Company of Japan, Ltd., Yokohama-city, Kanagawa-ken, Japan

Filed May 24, 1971, Ser. No. 146,045
Claims priority, application Japan, May 25, 1970, 45/44661
Int. Cl. B32b *3/00*
U.S. Cl. 161—116 **3 Claims**



A synthetic resin moulded product has a moulded label equivalent portion having mirror-like smooth surface parts with a pattern and coarse surface parts in parts other than the pattern. The coarse surface parts have extremely small minute projections and depressions over the whole surface thereof, and also undulating uneven parts with another pattern. The label equivalent portion indicates the one pattern by a contrast of the lusterless parts formed by the coarse surface and the lustrous parts of the smooth surface, and at the same time indicates another pattern by the undulating uneven contour in the coarse surface. The manufacturing method forms the synthetic resin moulded product with the label equivalent portion.

3,787,276

CORRUGATED CARDBOARD CONTAINING SULPHUR FOAM

Guy J. Jacquelin, Boulevard du Marechal Joffre, 38 Grenoble, France

Filed Apr. 12, 1971, Ser. No. 133,016
Claims priority, application France, Apr. 13, 1970, 7013233
Int. Cl. B32b *1/00, 3/28*
U.S. Cl. 161—137 **2 Claims**



This invention relates to a new elementary material which is a corrugated cardboard comprising a corrugated sheet, made

of cellulosic material, with parallel corrugations, covered with at least one coating sheet and in which at least a part of the space between a face of said corrugated sheet and the corresponding coating sheet comprises a sulphur foam. The invention also relates to a process of manufacturing the above-defined material.

3,787,277

MONO-GRAIN LAYER MEMBRANE

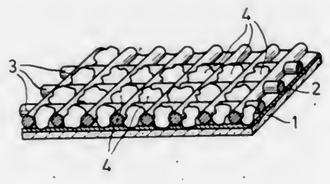
Joris Jan Cornelis Oomen, and Donald Robert Wolters, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 71,467, Sept. 11, 1970, abandoned. This application May 12, 1972, Ser. No. 252,669

Claims priority, application Netherlands, Sept. 18, 1969, 6914202

Int. Cl. B32b *5/16*

U.S. Cl. 161—87 **3 Claims**



A membrane comprising a film of synthetic resin in which a piece of wire gauze is embedded. The apertures of the piece of wire gauze accommodate grains which protrude through the surface on one or both sides of the film. Such a membrane may be used as a partition between two compartments. Dependent on the properties of the grains, molecules, ions and/or electrons may be transported selectively from one compartment to the other.

3,787,278

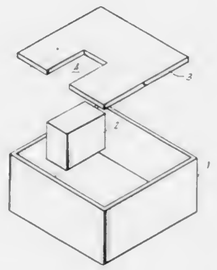
MOLDED MULTIPLE DENSITY POLYURETHANE FOAM

William C. Ready, East Haven; John E. Puig, Wallingford, and Bruce G. Van Leuwen, Hamden, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Division of Ser. No. 41,372, May 28, 1970, Pat. No. 3,658,972. This application Jan. 24, 1972, Ser. No. 220,517

Int. Cl. B32b *3/26*

U.S. Cl. 161—159 **4 Claims**



Molded, multiple density polyurethane foams and a process for their preparation are disclosed. The free rise of a polyurethane foam forming reaction mixture, placed in a mold, is constrained or limited in one or more sections of the mold. Then, after completion of the foam rise but before substantial curing, the foam, or a section thereof, is compressed to a fraction of its free rise volume and thereafter curing of the foam is completed.

Molded, multiple density foams are of particular utility in making bucket seats for use by the automotive industry.

3,787,279

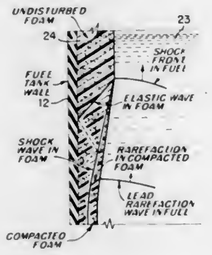
SHOCK AND FIRE ATTENUATING FUEL TANK

Henry F. Winchester, Cerritos, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 22, 1972, Ser. No. 255,369

Int. Cl. B32b *5/04*

U.S. Cl. 161—160 **2 Claims**



A self-sealing fuel tank subject to penetration by projectiles that is improved with the addition of a layer of rigid, fiber-reinforced foam material attached contiguous to the outside wall surface of the fuel tank to enhance the resealing of the punctured tank wall and to reduce the vulnerability of fires external and internal to the tank, and further improved by the application of a layer of a similar foam material as a liner inside the tank to reduce damage caused by hydraulic ram pressure effects.

3,787,280

RESINOUS PRODUCT HAVING SHARP COLOR DEFINITIONS THEREIN

Robert P. Conger, Park Ridge, and Seevaram N. Varadhacnary, North Plainfield, both of N.J., assignors to Congoleum Industries, Inc., Kearny, N.J.

Filed Mar. 16, 1971, Ser. No. 124,930

Int. Cl. B32b *5/16*; **B44f** *1/00*

U.S. Cl. 161—168 **14 Claims**

A method of producing extruded resinous products from a blend of variously colored resinous granules which contain multifunctional monomers which have been crosslinked in the formation of the chips together with other chips having no cross-linking monomer present, and the product so produced.

3,787,281

FORMING A HYDROLYTICALLY STABLE BOND BETWEEN GLASS AND POLYTETRAFLUOROETHYLENE

John A. Effenberger, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

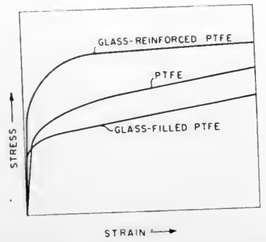
Filed Oct. 29, 1968, Ser. No. 771,574

Int. Cl. B32b *17/04*, *27/28*

U.S. Cl. 161—188 **18 Claims**

Polytetrafluoroethylene is contacted with glass fiber coated

with either an amino-functional, water-hydrolyzable organo silane or methacrylato chromic chloride and sintered under an



inert atmosphere to obtain bonding between the glass and the polytetrafluoroethylene.

3,787,282

POLYESTERAMIDES PREPARED BY REACTING BETA-PROPIOLACTONE WITH AN AZIRIDINE SALT, A POLYCARBOXYLIC ACID, AND A POLYHYDRIC ALCOHOL

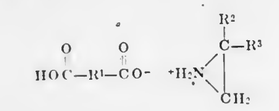
Ray C. Christena, Wichita; Earnest L. Johnston, Clearwater, and Ronald W. Whobrey, Wichita, all of Kans., assignors to Vulcan Materials Company, Birmingham, Ala.

Filed Oct. 20, 1971, Ser. No. 190,819

Int. Cl. C08g *20/30*

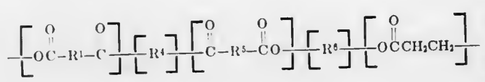
U.S. Cl. 161—195 **10 Claims**

An improved polyesteramide is produced by reacting beta-propiolactone with an aziridine salt represented by the structural formula:



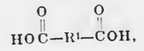
wherein R^1 represents a divalent radical such as alkylene, arylene, or aralkylene, wherein one or all of the hydrogen atoms thereof can be substituted with F, Cl, Br, lower alkyl and/or lower alkoxy; and where R^2 and R^3 represents monovalent radicals such as hydrogen, alkyl, or aryl;

and with a polycarboxylic acid, such as maleic or dimer acid, and with a polyhydric alcohol, such as castor oil or 1,6-hexane diol; the thus formed polyesteramide contains repeating units which may be represented by the structural formula:

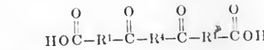


wherein R^1 has the meaning given above; R^4 represents a divalent radical such as aminoalkyleneoxy or oxyalkyleneamino; R^5 represents a divalent radical such as alpha-beta ethylenically unsaturated alkylidene; and R^6 represents a divalent radical such as alkylene or alkylidene.

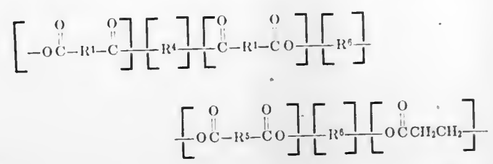
The above aziridine salt may also be reacted with an acid represented by the structural formula



wherein R^1 has the meaning given above, to yield a diacid represented by the structural formula



where R^4 has the meaning given above. The above diacid may then be reacted with beta-propiolactone, the polycarboxylic acid and the polyhydric alcohol to form an improved polyesteramide containing repeating units which may be represented by the structural formula



where R^1, R^4, R^5 and R^6 have the meanings given above.

3,787,283

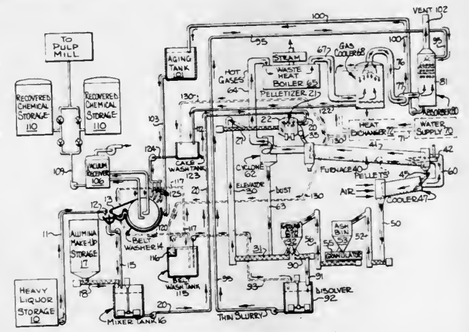
TREATMENT OF WASTE LIQUOR FROM PULP PRODUCTION

Donald R. Sheeley; James H. Rion; William R. Cook, and William A. Biggs, Jr., all of Hartsville, S.C., assignors to Sonoco Products Company, Hartsville, S.C.

Continuation-in-part of Ser. No. 37,184, May 14, 1970, abandoned. This application Mar. 28, 1972, Ser. No. 238,776

Int. Cl. D21c *11/02*, *11/12*

U.S. Cl. 162—36 **9 Claims**

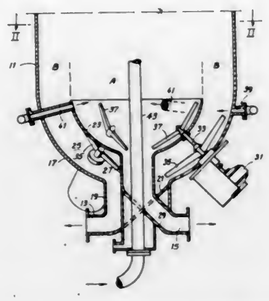


A process and apparatus for treating concentrated spent liquor from a soda-based pulping process to recover sodium for reuse in the pulping process and to prevent the usual pollution of streams and air caused by the usual effluent from the pulping process. The process and apparatus comprises the following steps and apparatus. Concentrated spent liquor containing sodium is mixed with recycled finely-divided reactive alumina hydrate and formed into solid pellets by spraying the concentrated liquor-aluminum hydrate mixture onto a bed of recycled sodium aluminate furnace ash in an enclosed rotating container and tumbling the mixture and ash. The solid pellets are combusted and reacted by feeding the pellets through a furnace operating at a temperature below the fusion temperature of sodium aluminate and at a sufficiently high temperature to combust the organic portion of the pellets and react the sodium content thereof with the alumina to form additional sodium aluminate as a particulate unfused ash. The resulting furnace ash is pulverized and a portion thereof is recycled for subsequent reuse in the treating process. The remaining portion of the ash is dissolved in water to form a solution of sodium aluminate. The sodium aluminate solution is reacted with either sulphur dioxide or carbon dioxide or both to form sodium sulfite and/or sodium carbonate pulping chemical and alumina and alumina is separated for reuse in the treating process.

3,787,284
DEVICE FOR DISCHARGING CELLULOSIC PULP FROM A DIGESTER

Johan C. F. C. Richter, St. Jean Cap Ferrat, France, assignor to Kamyr Aktiebolag, Karlstad, Sweden

Filed June 19, 1972, Ser. No. 264,240
Claims priority, application Sweden, June 22, 1971, 8073/71
Int. Cl. D21c 7/08
U.S. Cl. 162—246 2 Claims

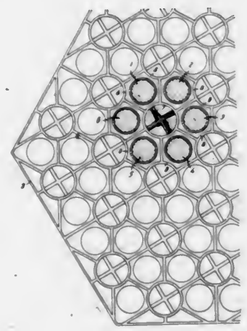


At least three sets of scraper devices are inserted in the bottom of a continuous cellulose digester for forwarding pulp passing along the axis of the digester and within a partition therein through a first discharge outlet, and pulp passing along the shell of the digester and outside said partition through a second discharge outlet. Each scraper device comprises a radially directed inclined shaft extending through the digester shell and said partition, said shaft carrying scraper arms sweeping the inside of a calotte-shaped portion of said partition as well as scraper arms sweeping the inside of a hemispherical bottom portion of the digester shell.

3,787,285
FUEL ASSEMBLY FOR A NUCLEAR REACTOR AND A NUCLEAR REACTOR CORE COMPRISING SUCH FUEL ASSEMBLIES

Jorgen Marstrand, Gentofte, Denmark, assignor to Atomenergikommissionen, Copenhagen, Denmark

Filed Feb. 8, 1971, Ser. No. 113,242
Claims priority, application Denmark, Feb. 13, 1970, 721
Int. Cl. G21c 3/32
U.S. Cl. 176—78 8 Claims

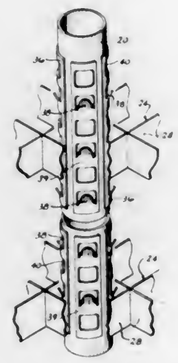


A fuel assembly in which the fuel rods are arranged in a hexagonal or square, regular pattern, but in which single rods are omitted systematically and deflectors substituted therefor, each deflector normally being situated in a duct, the partition of which consists of six or eight fuel rods, respectively. The deflectors are rigidly connected to grids between the fuel rods so that the rods may expand freely in the grids.

3,787,286
FUEL ASSEMBLY FLOW REDISTRIBUTION

Andrew James Anthony, Tariffville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 17, 1971, Ser. No. 209,081
Int. Cl. G21c 3/32, 15/24
U.S. Cl. 176—78 5 Claims



Flow deflector apparatus is provided in fuel assemblies of a nuclear reactor to effect mixing of the coolant flowing in channels between adjacent members thereof. The apparatus comprises metal strips containing pre-punched tab projections that are attached to at least some of the members that comprise the fuel assemblies.

3,787,287
PROCESS FOR THE PRODUCTION OF L-TYROSINE

Hirohsi Hagino, Tokyo; Kiyoshi Nakayama, and Hajime Yoshida, both of Sagamihara, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed July 8, 1971, Ser. No. 160,933
Claims priority, application Japan, July 17, 1970, 45-62062
Int. Cl. C12d 13/06
U.S. Cl. 195—29 15 Claims

L-tyrosine is produced by culturing an L-tyrosine-producing strain of coryneform glutamic acid-producing bacteria represented by *Corynebacterium glutamicum* in a nutrient medium, accumulating L-tyrosine in the medium and recovering the L-tyrosine therefrom.

3,787,288
METHOD FOR PREPARING ALPHA-AMINOBENZYLPENICILLIN

Yoshinobu Miyamura, Hofu; Fumio Kato, Shizuoka, and Ryo Okachi, Tokyo, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Oct. 14, 1970, Ser. No. 80,773
Claims priority, application Japan, Oct. 16, 1969, 44-82241
Int. Cl. C12d 9/20
U.S. Cl. 195—36 P 10 Claims

A process for the selective production of α-amino-benzylpenicillin from 6-aminopenicillanic acid, functional derivatives thereof and acid addition salts thereof whereby the reaction takes place in the presence of an α-aminobenzylpenicillin producing enzyme derived from a microorganism belonging to the genum Pseudomonas. Especially suitable are *Pseudomonas melanogenum* and *Pseudomonas ovalis*.

3,787,289
METHOD OF PRODUCING DEXTRANASE

Randall Scott Davis, La Habra, and Don Lee Isenberg, Irvine, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Aug. 30, 1971, Ser. No. 176,314
Int. Cl. C12d 13/10
U.S. Cl. 195—65 9 Claims

The instant disclosure relates to a method of obtaining an extracellular endodextranase enzyme. The method involves inoculating into an aqueous nutrient medium containing dextran and an assimilable nitrogen source, thereby forming a culture, an aerobic bacterial strain which has the following characteristics:

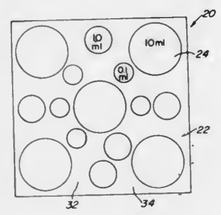
gram reaction — positive
shape — rods
motility — positive
spores — sporulation difficult to demonstrate in nutrient agar but easier in growth limiting medium such as citrate, sporangia definitely swollen
agar colonies — round, opaque
glucose agar — positive for growth, acid from glucose using peptone as a source of nitrogen
growth factors — slight if any growth in minimal media
catalase — positive
lecithin — no hydrolytic zone formed
milk agar — positive zone of hydrolysis
starch — positive zone of hydrolysis
gelatine agar — positive zone of hydrolysis
glucose asparagine agar — scant growth
soybean agar — positive for growth
nutrient broth — uniform turbidity followed by clearing and formation of sediment
sodium chloride (NaCl) broth — after 2 days incubation, growth in 5% NaCl broth, no growth in 7% NaCl broth
nitrites — not produced from nitrates
citrate — not utilized
tyrosine agar — red-brown pigment after 2 days.

The culture is then incubated until extracellular endodextranase is elaborated therein. The bacteria are thereafter separated, thereby leaving a solution containing the extracellular endodextranase enzyme. The aerobic bacterial strains used in this method are also disclosed.

3,787,290
METHOD AND MEANS FOR ASSAYING BIOLOGICAL FACTORS DEMONSTRATING QUANTAL RESPONSE

Saul Kaye, 1001 Ridge Ct., Evanston, Ill.

Filed Apr. 10, 1972, Ser. No. 242,707
Int. Cl. C12k 1/04
U.S. Cl. 195—103.5 R 11 Claims

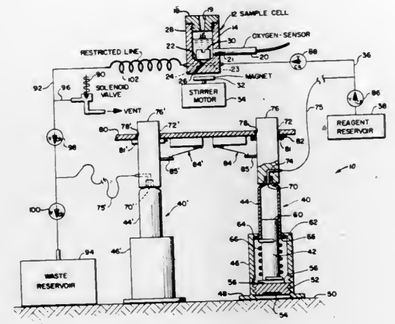


Method and apparatus for sampling a system to obtain a series of aliquots from the system in a single step and for inoculating a correlated series of sample-accepting zones in a single procedural step, each zone including indicator means for manifestation of organism growth in the zone, whereby quantal response and a measure of the concentration of biologically active entities contained in the system being analyzed may be conveniently and accurately determined.

3,787,291
LIQUID ANALYSIS APPARATUS

Rudolf Deuringer, El Toro; Robert A. Ray, and James C. Sternberg, both of Fullerton, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Division of Ser. No. 816,329, April 15, 1969, Pat. No. 3,701,716. This application Nov. 29, 1971, Ser. No. 203,094
Int. Cl. C12k 1/10
U.S. Cl. 195—127 2 Claims

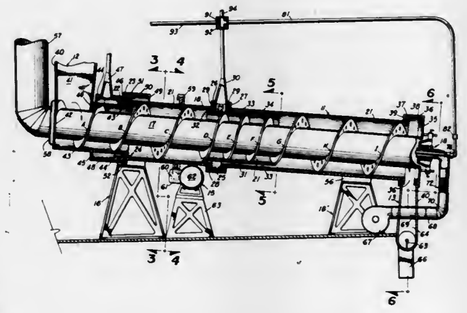


An apparatus for batch analysis of liquid samples wherein syringes are employed for delivering repeatable volumes of reagent to a cell prior to the addition of a sample and for withdrawing liquid from the cell after analysis thereof. Sensing means, such as a polarographic oxygen sensor, is mounted in the side wall of the cell with it sensing end contacting the liquid therein. A stirring element is positioned within the cell and rotated about the vertical axis of the cell so that a high tangential stirring force is produced to promote mixing of sample with reagent and to optimize sensor performance, yet only small sample volumes are required. The apparatus is particularly suited for rate sensing batch analysis of biological fluids such as blood or urine.

3,787,292
APPARATUS FOR PYROLYSIS OF WASTES

Ernest W. Keappler, 1015 Pegg Rd., East Point, Ga.

Filed Aug. 13, 1971, Ser. No. 171,480
Int. Cl. C10b 1/10
U.S. Cl. 202—118 9 Claims



Method and apparatus for the pyrolysis of solid wastes including a retort defining a plurality of interior temperature zones, a heating means disposed through said retort, a means

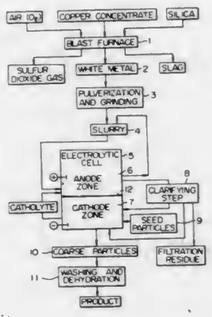
for rotating said retort about said heating means, a waste infeed, a residue outlet, and at least one fluid exhaust means communicating with the interior of said retort.

3,787,293

METHOD FOR HYDROELECTROMETALLURGY

Hiroshi Kametani, Hatogaya, Japan, assignor to Director of National Research Institute for Metals, Tokyo, Japan

Filed Feb. 3, 1971, Ser. No. 112,180
Int. Cl. C22d 1/16, 1/14, 1/18
U.S. Cl. 204—1 R 9 Claims



A hydroelectrometallurgy method comprising suspending particles of a crude metal or metal sulfide in the anode zone and seed particles of pure metal in the cathode zone, causing such particles to collide with the surfaces of the anode and cathode, respectively, and thereby effecting the corresponding electrochemical reaction on each of the particles, whereby metal ions are formed in the anode zone and the seed particles grow into coarse particles in the cathode zone as the result of precipitation of the metal thereon. According to this method, since the total surface area of the particle is very large, a greater electric current can be applied as compared with the conventional electrolytical refining or winning method, and the manufacturing rate of pure metal can be increased greatly.

3,787,294

PROCESS FOR PRODUCING A SOLID LUBRICANT SELF-SUPPLYING-TYPE CO-DEPOSITED METAL FILM

Shigehiko Kurosaki, 8-14 Nagisa Higashi-machi, Hirakata, and Yoichiro Okamoto, 609 Gakuen Asahi Moto-machi, Nara, both of Japan

Filed Dec. 7, 1971, Ser. No. 205,726
Int. Cl. C23b 7/00; B01k 5/00
U.S. Cl. 204—16 4 Claims

A process for producing a solid lubricant self-supplying-type co-deposited metal film in which fine powder of inorganic polymer of graphite fluoride is dispersed in a metal plating bath in the presence of a co-deposition assisting surfactant having C - F bond in molecules selected from the group comprising cationic surfactants, nonionic surfactants and amphoteric surfactants which exhibit cationic characteristic at the pH value of a particular plating bath employed with or without levelling and brilliance imparting agents and a metal coating or film is deposited on a substrate so as to co-deposit graphite fluoride in the metal coating. A mechanical part having a graphite fluoride co-deposited metal coating thereon produced by the process. A metal plating bath employed in the process.

3,787,295

METHOD OF ELECTROLYTIC COLORING OF OXIDE LAYERS ON ALUMINUM AND ALUMINUM BASE ALLOYS

Fritz Endinger; Walter Zweifel, both of Neuhausen, and Fritz Schneeberger, Schaffhausen, all of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Apr. 1, 1971, Ser. No. 130,484
Claims priority, application Switzerland, Apr. 2, 1970, 4867/70
Int. Cl. C23b 9/02
U.S. Cl. 204—35 N 7 Claims

Method for electrolytic coloring of oxide layers produced by anodisation on aluminum and aluminum alloys, in at least two color sequences, consisting in using one coloring electrolyte which contains at least two metal salts of which each one renders different colors to the others, for example copper and tin salts, the different color sequences being obtained by adjusting the electrolysis AC-current voltage adequately. The counter electrode may be of the same metal that is dissolved in form of a salt in the electrolyte.

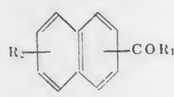
3,787,296

NON-POISONOUS ZINC PLATING BATHS

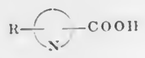
Hidenori Hayashida, 210 Higashi Amakawa-cho, Takatsuki, and Ryoji Nakahara, 440 Deguchi, Hirakata, both of Japan

Filed Apr. 7, 1971, Ser. No. 132,218
Claims priority, application Japan, Apr. 24, 1970, 45-34717
Int. Cl. C23b 5/12, 5/46
U.S. Cl. 204—55 R 5 Claims

A non-poisonous zinc plating bath comprising a fundamental plating composition including zinc salt and ammonium salt with or without hydroxy carboxylic acid; a sulfate compound or compounds having the general formula $A - B - CH_2CH_2O_{2\text{-}100}SO_3M$; an alkylnaphthylketon compound or compounds having the general formula



and a nitrogen-containing heterocyclic ring compound or compounds substituted with carboxyl group having the general formula



or mixture thereof.

3,787,297

ZINC PLATING BATH AND METHOD

Merton M. Beckwith, and Grace F. Hsu, both of Rockville, Conn., assignors to Conversion Chemical Corporation, Rockville, Conn.

Filed Oct. 26, 1971, Ser. No. 192,624
Int. Cl. C23b 5/12
U.S. Cl. 204—55 R 21 Claims

An aqueous bath for producing zinc electrodeposits upon metallic surfaces has a pH of 4.0 to 9.0 and contains zinc ion, chloride ion, and a surface-active constituent including at least one N-acylated sarcosine derivative. Preferably, the bath also contains one or more auxiliary surface-active agents, and it may in addition include brighteners, buffering agents, chelating agents, etc.

3,787,298

ANODIZING ALUMINUM FOAMS

Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

Filed Aug. 9, 1971, Ser. No. 170,335
Int. Cl. C23b 9/02
U.S. Cl. 204—58 3 Claims

Strength of metal foams is enhanced by anodizing. The strength increase may not be immediately apparent, but may require aging. Anodization is preferably carried out by applying voltage across a cathode (in contact with the electrolytic bath) and the foam anode and then immersing the anode in the bath. Improved results are also obtained if surfaces not to be anodized are not contacted with the electrolytic bath. The electrolyte can optionally contain a fluorine acid such as HF and HBF_4. These tend to make the foam less porous. Preferred foams are made of aluminum base metals.

3,787,299

ELECTROLYTIC CONDENSATION OF CARBOXYLIC ACIDS

Fritz Beck, Ludwigshafen; Juergen Haufe, Lambsheim, and Heinz Nohe, Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda- Fabrik Aktiengesellschaft, Ludwigshafen/Rhein, Germany

Filed Mar. 22, 1971, Ser. No. 126,943
Claims priority, application Germany, Mar. 28, 1970, 2014985
Int. Cl. C07c 69/34, 67/00; C07b 29/06
U.S. Cl. 204—59 R 7 Claims

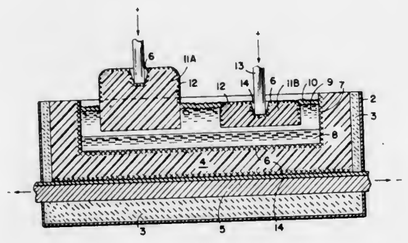
Process for the electrochemical condensation of carboxylic acids in a solvent, in which the electrolyte is caused to flow at a rate of from 0.05 to 2 m/sec between pairs of electrodes which are impermeable to liquids and are spaced from 0.1 to 2 mm apart.

3,787,300

METHOD FOR REDUCTION OF ALUMINUM WITH IMPROVED REDUCTION CELL AND ANODES

Arthur F. Johnson, 203 Creole Ln., North Gate Urban Farms, Franklin Lakes, N.J.

Division of Ser. No. 172,047, Aug. 16, 1971. This application Sept. 13, 1972, Ser. No. 288,706
Int. Cl. C22d 3/12; B01k 3/04, 3/08
U.S. Cl. 204—67 4 Claims



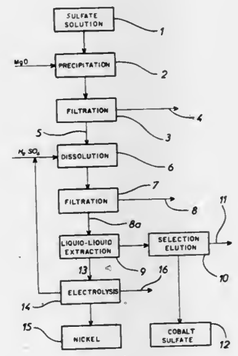
A system for the fused floride electrolysis of aluminum in a potcell wherein a carbonaceous anode and potlining are preserved against deterioration by impregnating their respective surfaces with a pitch-fluoride mixture and a pitch-graphite mixture. Atmospheric oxidation of anode surfaces is prevented so maximum anode cross sectional area is preserved and, hence, has minimum resistance for current travel through the anode and through the underlying electrolyte. The more dense carbon surface also reduces corner erosion of anodes. Impregnation is preferably carried out with one or more applications of aluminum fluoride suspended in a high melting, low volatile coal tar pitch. An improved potlining protects against electrolyte penetration and circulating metal erosion of the potlining surface, and improves conductivity; the lining bottom is sealed and smoothed with graphite suspended in molten pitch, which is absorbed by capillary attraction, and which increases conductivity. The lining walls are sealed and smoothed with a similar mixture of fluorspar and pitch, which decreases conductivity.

3,787,301

ELECTROLYTIC METHOD FOR PRODUCING HIGH-PURITY NICKEL FROM NICKEL OXIDE ORES

Christian H. Bozec; Bernard G. Dulong, both of Le Havre, and Robert Y. Lemarinel, Sainte-Adresse, all of France, assignors to "Le Nickel," Vervile Propriete, Paris, France

Filed Mar. 28, 1972, Ser. No. 238,774
Claims priority, application France, Mar. 29, 1971, 71.10924
Int. Cl. C22d 1/14; C22b 23/06
U.S. Cl. 204—112 7 Claims



A method for recovering nickel from nickel containing ores comprises:

lixiviating the ore in sulphuric acid and neutralizing the resulting solution until it reaches a pH between 3.5 and 4;

adding to said solution a precipitation agent to obtain a nickel hydroxide precipitate;

dissolving said precipitate in a slight excess of sulphuric acid, and removing the dissolution residue;

purifying the solution resulting from the preceding step by liquid-liquid extraction with an organic phase containing a sulphonium salt, and eluting said organic phase to recovering cobalt; and

subjecting said solution to an electrolysis to recover high-purity nickel.

3,787,302

PHOTO-SENSITIVE CROSS-LINKING AGENTS FOR HIGH MOLECULAR WEIGHT MATERIALS

Ichiro Ijichi; Sajiro Maeda; Satoru Kubo, and Takamori Tomomoto, all of Osaka, Japan, assignors to Nitto Electric Industrial Co., Ltd., Osaka, Japan

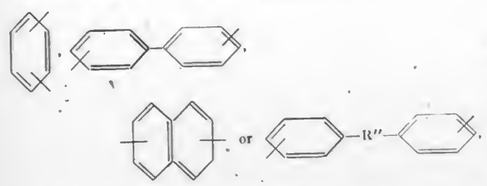
Filed Oct. 19, 1970, Ser. No. 82,219
Int. Cl. B01j 1/10; C08f 1/20
U.S. Cl. 204—159.2 8 Claims

The present invention provides novel photo-sensitive cross-linking agents for high molecular weight materials comprising

aromatic polyaldehydes and derivatives thereof, of the formula:

CHO–R–CHO

wherein R is an aromatic radical of the formulae:



a divalent benzene ring, a substituted divalent benzene ring or a divalent polycyclic aromatic ring. The afore-mentioned formulae may be substituted by a variety of groups described hereinafter in the specification. However, ortho-dialdehydes are excluded from the scope of the present invention.

3,787,303

RADIATION CURABLE POLYENE-POLYTHIOL COATING COMPOSITIONS

James L. Guthrie, Ashton, and Francis J. Rendulic, Ellicott City, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,369

Int. Cl. B01j *1/10, 1/12*

U.S. Cl. 204—159.15 **8 Claims**

The invention disclosed is directed to a method for overcoating which includes applying to a substrate a novel photocurable lacquer composition having as essential ingredients a polyene selected from a particular group of polyenes which contain at least 2 reactive unsaturated carbon-to-carbon bonds per molecule, a polythiol containing 2 or more thiol groups per molecule and a resin component; and thereafter exposing the applied composition to actinic radiation for a period of time sufficient to photocure the applied composition to provide an overcoating. Optionally, a sensitizer may be included if desired to decrease curing time and improve efficiency. The method is particularly useful for high speed overcoating printed metal articles such as cans. Overcoatings thus provided are found to be characterized by high strength, good scratch resistance, freedom from tackiness and excellent transparency.

3,787,304

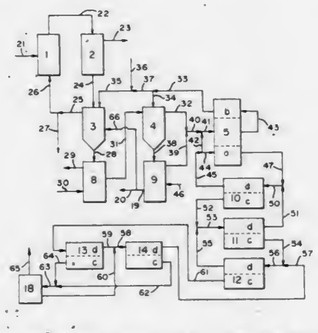
PRODUCTION OF HF FROM FLUORINE BY-PRODUCTS

Frederick P. Chlanda, Rockaway, and Kang-Jen Liu, Somerville, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,013

Int. Cl. B01d *13/02*

U.S. Cl. 204—180 P **5 Claims**



Fluorine values are recovered from fluosilicic acid aqueous streams by electrodialytic water-splitting of fluoride salt to hydrofluoric acid and hydroxide base and further optionally concentration of the hydrofluoric acid via membrane electrodialysis, to produce anhydrous HF.

3,787,305

METHOD OF APPLYING A COATING TO A PART

Norman Edmund Ballard, Derby, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed June 12, 1972, Ser. No. 261,814

Claims priority, application Great Britain, June 17, 1971, 28369/71

Int. Cl. C23b *13/00*

U.S. Cl. 204—181 **14 Claims**

The invention comprises a method of applying a coating to a steel part in which a coating of aluminium powder and organic resin is electrophoretically applied to the part, the coating is heated to drive off the resin, and the aluminium coating is impregnated with a high temperature resistant base material.

3,787,306

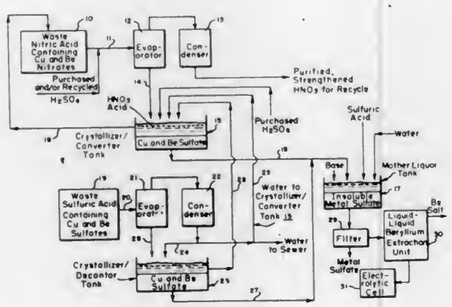
PROCESS FOR THE CONCURRENT RECOVERY OF ACID AND METAL VALUES FROM SPENT PICKLE ACID CONTAINING THE SAME

Franklin C. Senior, Phoenix, Ariz., and Douglas MacGregor, Murray, Utah, assignors to Cationic Corporation, New York, N.Y.

Filed Oct. 20, 1971, Ser. No. 190,882

Int. Cl. C22d *1/14, 1/16, 1/24*

U.S. Cl. 204—105 R **13 Claims**



A process for the concurrent recovery of acid and metal values from spent pickle acid containing the same which comprises:

a. adding a quantity of sulfuric acid to the spent pickle acid other than sulfuric acid at least sufficient to convert the soluble salts in the pickle acid to soluble metal sulfates and at the same time, regenerate the pickle acid;

b. recovering the pure pickle acid by distillation;

c. oxidizing the soluble metal sulfates if iron sulfate is present to insoluble metal hydroxides;

d. neutralizing any excess sulfuric acid which may be present with a base to form an insoluble metal sulfate;

e. adding a quantity of sulfuric acid sufficient to convert the insoluble metal hydroxides other than ferric hydroxide which may be present to soluble sulfate salts;

f. removing the insoluble ferric hydroxide and/or insoluble metal sulfate, is present, by filtration to result in a filtrate containing iron-free soluble metal sulfates;

g. adjusting the pH and the concentration of the filtrate to that suitable for an electroplating solution; and

h. recovering the metals from the electroplating solution by electrolysis.

3,787,307

SENSING ELEMENT TO SENSE IONS IN LIQUIDS

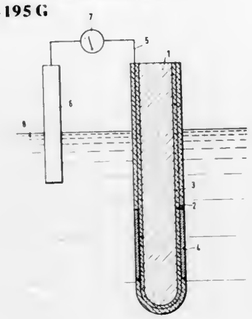
Alfred Schwab, Ketsch, and Rudolf Ehret, Schwetzingen, both of Germany, assignors to Pfaudler-Werke AG, Schwetzingen, Germany

Filed Oct. 13, 1971, Ser. No. 188,885

Claims priority, application Germany, July 15, 1971, 2133419

Int. Cl. G01n *27/36*

U.S. Cl. 204—195 G **13 Claims**



A mechanically stable, solid, rod-like metallic carrier body has a base enamel layer fused thereover, on a portion of which a glass electrode is fused as a top cover; a top enamel layer is fused to the remainder of the base enamel layer, the base enamel layer can be of sufficient conductivity so that an electric potential can be sensed from the metallic body, or an electrical conductor, in contact with the glass, which can be fused between the enamel layers. A plurality of glass electrodes, of different response to ions can be placed on the same enameled metal carrier and separately connected to sensing apparatus.

3,787,308

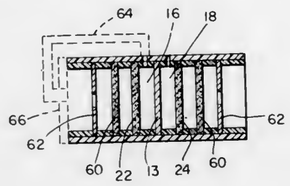
OXYGEN SENSOR

Francis P. Malaspina, Yardley; Wesley E. Aker, Malvern, both of Pa., and John Werth, Princeton, N.J., assignors to ESB Incorporated, Philadelphia, Pa.

Filed Feb. 16, 1972, Ser. No. 226,937

Int. Cl. G01h *27/26, 27/28*; **G01n** *27/46*

U.S. Cl. 204—195 P **20 Claims**



A comparator element for gaseous oxygen comprises a first and a second oxygen-inert metal electrochemical cell. The first cell is fed with an oxygen containing gas of known oxygen content and the second cell is fed with a gas of unknown oxygen content. The design of the electrochemical cells is such that their electrical resistance when current is passed therethrough is inversely proportional to the oxygen content of the feed gas over a useful range. By comparing the resistances of the two cells, an accurate determination of the oxygen content of the unknown gas may be made with self compensation for ambient temperature. The range of the instrument may be increased by restricting the flow of gas to the oxygen electrodes. This may be accomplished by flowing the gas through a diffusion membrane and an orifice. Oxygen evolved from the metal electrode of the standard cell may be used to feed the oxygen electrode of the same cell thus providing a self sustaining standard atmosphere. The comparator may be compensated for pressure by providing pressure equalizing means between the gas feed to the first cell and the gas feed to the second.

3,787,309

SPECIFIC ION ELECTRODE AND METHOD OF MAKING SAID ELECTRODE

Radhakrishna Murty Neti, Brea; Kenneth B. Sawa, Buena Park, and Colin C. Bing, Placentia, Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Continuation of Ser. No. 68,587, Aug. 31, 1970, abandoned. This application May 30, 1972, Ser. No. 257,987

Int. Cl. G01n *27/46*

U.S. Cl. 204—195 M **20 Claims**

A diffusion membrane material for a specific ion electrode which comprises a polymeric resin and a substantially water insoluble salt of the ion to be detected in admixture therewith. A method of making a diffusion membrane material for a specific ion electrode is also disclosed. The method comprises the steps of mixing a polymeric resin with a substantially insoluble salt of the ion to be detected. The resultant mixture is molded and sintered to provide a bar stock and the bar stock is formed into a diffusion membrane material.

3,787,310

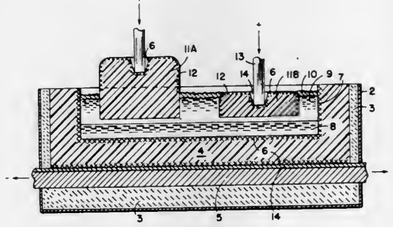
REDUCTION OF ALUMINUM WITH IMPROVED REDUCTION CELL AND ANODES

Arthur F. Johnson, 203 Creole Ln. North Gate Urban Farms, Franklin, N.J.

Division of Ser. No. 172,047, Aug. 16, 1971. This application Sept. 13, 1972, Ser. No. 288,600

Int. Cl. C22d *3/02*; **B01k** *3/06, 3/08*

U.S. Cl. 204—243 R **6 Claims**

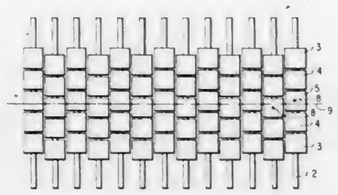


A system for the fused floride electrolysis of aluminum in a potcell wherein a carbonaceous anode and potlining are preserved against deterioration by impregnating their respective surfaces with a pitch-fluoride mixture and a pitch-graphite mixture. Atmospheric oxidation of anode surfaces is prevented so maximum anode cross sectional area is preserved and, hence, has minimum resistance for curfent travel through the anode and through the underlying electrolyte. The more dense carbon surface also reduces corner erosion of anodes. Impregnation is preferably carried out with one or more applications of aluminum fluoride suspended in a high melting, low volatile coal tar pitch. An improved potlining protects against electrolyte penetration and circulating metal erosion of the potlining surface, and improves conductivity; the lining bottom is sealed and smoothed with graphite suspended in molten pitch, which is absorbed by capillary attraction, and which increases conductivity. The lining walls are sealed and smoothed with a similar mixture of fluorspar and pitch, which decreases conductivity.

3,787,311
CATHODE FOR THE WINNING OF ALUMINUM

Hubert Wittner, Ludwigshafen-Mundenheim, and Kurt Lauer, Schriesheim, both of Germany, assignors to Gebr. Giulini GmbH, Ludwigshafen am Rhein, Germany

Filed Dec. 13, 1971, Ser. No. 207,457
Claims priority, application Germany, Dec. 12, 1970, P 20 61 263.9
Int. Cl. B01k 3/08; C22d 3/02
U.S. Cl. 204—294 2 Claims

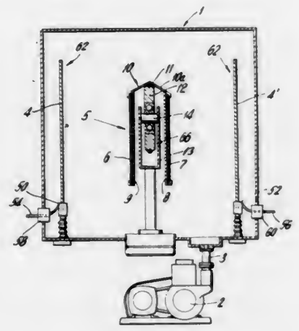


In the winning of aluminum by the electrolysis of alumina dissolved in molten electrolyte, wherein the electrolysis current passes through the surface of a carbon cathode, the electrolysis current is equalized over the surface of the carbon cathode.

3,787,312
DEVICE FOR PASSING SUBSTRATES THROUGH A VAPOR DEPOSITION ZONE

Rudolf Wagner, Buchs, and Roman Schertler, Wolfurt, both of Switzerland, assignors to Balzers Patent-und Beteiligungs Aktiengesellschaft, Balzers, Liechtenstein

Filed Sept. 14, 1972, Ser. No. 289,066
Claims priority, application Switzerland, Sept. 21, 1971, 13822/71
Int. Cl. C23c 15/00
U.S. Cl. 204—298 8 Claims

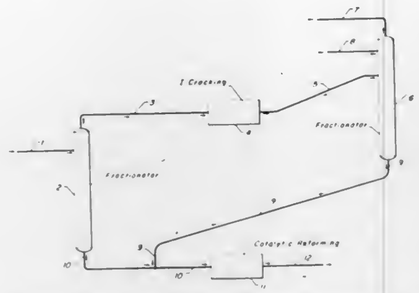


A device for coating substrates in a vacuum plant comprising a vacuum chamber which is adapted to be subjected to reduced pressures and which includes at least one pair of laterally spaced sources for producing a deposition vapor current of the material to be coated in a deposition zone therebetween. A conveyor is movable through the chamber and through the deposition zone. A slider shield carrier extends over the conveyor and is supported thereon for movement through the deposition zone and provides a covering to shield the conveyor parts against the deposition of the material thereon. The substrates are supported preferably on each side of the slider shield carrier and they are moved with the carrier on the conveyor to expose them to the vapor deposition current.

3,787,313
PRODUCTION OF HIGH-OCTANE, UNLEADED MOTOR FUEL

Ernest L. Pollitzer, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 21, 1972, Ser. No. 308,352
Int. Cl. C10g 39/00
U.S. Cl. 208—60 10 Claims

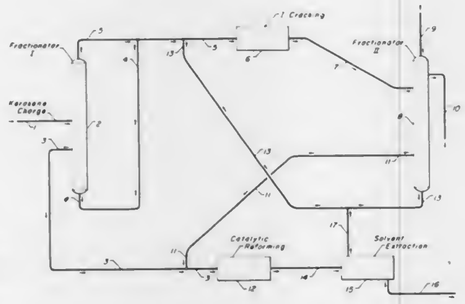


A naphtha boiling range charge stock is converted into a motor fuel which does not necessitate the incorporation of metal-containing additives otherwise required for suitable anti-knock characteristics. The process involves a combination of hydrocracking and catalytic reforming, and is effected in a manner which significantly decreases the quantity of methane and ethane produced. The novel form of hydrocracking results in a product predominantly comprising naphthenic hydrocarbons and highly branched paraffins, the latter being predominantly isobutane. Following separation to recover the isobutane, catalytic reforming is utilized to dehydrogenate the naphthenic compounds to produce an aromatic concentrate.

3,787,314
PRODUCTION OF HIGH-OCTANE, UNLEADED MOTOR FUEL

George R. Donaldson, Barrington, and Ernest L. Pollitzer, Skokie, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 21, 1972, Ser. No. 308,353
Int. Cl. C10g 39/00
U.S. Cl. 208—60 10 Claims



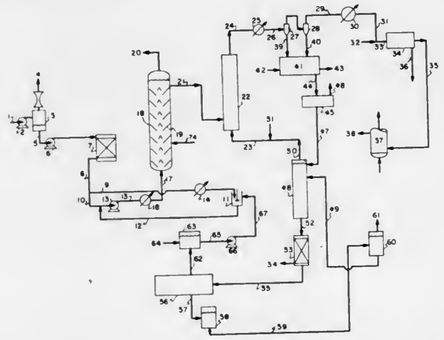
A charge stock containing kerosene boiling range hydrocarbons is converted into a high-octane motor fuel which does not require the use of metal-containing additives otherwise needed for suitable anti-knock characteristics. The process involves a combination of hydrocracking and catalytic reforming, and is effected in a manner which significantly increases the quantity of normally liquid motor fuel product. The novel

form of hydrocracking results in a product predominantly comprising naphthenic hydrocarbons and highly-branched paraffins, the latter being rich in isobutane. Following separation to recover the isobutane, catalytic reforming is utilized to dehydrogenate the naphthenic compounds, and dehydrocyclisize paraffinic hydrocarbons, to produce an aromatic concentrate.

3,787,315
ALKALI METAL DESULFURIZATION PROCESS FOR PETROLEUM OIL STOCKS USING LOW PRESSURE HYDROGEN

Roby Bearden, Jr., and Thomas E. Fink, both of Baton Rouge, La., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed June 1, 1972, Ser. No. 258,555
Int. Cl. C10g 19/00, 17/00
U.S. Cl. 208—208 M 19 Claims



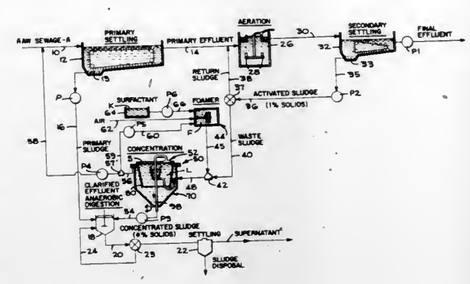
Low sulfur-content petroleum oil stocks are prepared by contacting a sulfur-containing oil stock with an alkali metal, preferably sodium, or an alkali metal alloy, preferably sodium/lead, thereby producing a mixture comprising a low sulfur content oil containing alkali metal salts dispersed therein. The alkali metal treating step is conducted in the presence of low pressure hydrogen, i.e., 25 to 500 psig. The resulting mixture is then treated with either water or H_2S thereby disengaging a substantial portion of the salts from the oil. The salt phase is then blended with a molten sulfur-rich alkali metal polysulfide thereby forming a sulfur-depleted alkali metal polysulfide which is subsequently decomposed electrolytically to form alkali metal.

3,787,316
FOAM FLOTATION CONCENTRATION OF SEWAGE

Edwin H. Brink, San Jose, and Warren G. Palmer, Santa Clara, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Division of Ser. No. 6,868, Jan. 29, 1970, Pat. No. 3,642,617.
This application Nov. 22, 1971, Ser. No. 200,841
Int. Cl. C02c 1/14, 1/26
U.S. Cl. 210—6 2 Claims

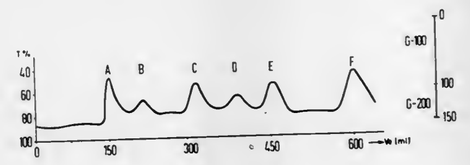
A suspension of activated sludge from a secondary settling tank is concentrated by a bubble flotation process. Air is forced through a mixture of water and a surfactant in a shear type foamer at low pressure to produce a stable foam of small air bubbles in water. The foam is pumped into the suspension entering the concentrator and the bubbles attach to the solids in the suspension. The mixture of foam and suspension is released within a baffle in the concentrator tank, causing the surfactant shielded air bubbles to lift the solids to which they have become attached and form a blanket of concentrated sludge. A rotating skimmer head removes an upper layer of the sludge blanket whereas the clarified effluent flows under the baffle and out over an annular weir for discharge. The concentrated sludge removed from the concentrator is introduced into an anaerobic digester, along with primary sludge from the primary settling tank of the system. One overall effect is to reduce the size required for the digester.



3,787,317
PROCESS FOR THE CHROMATOGRAPHIC SEPARATION OF MIXTURES

Dieter Jaworek, Tutzing/Obb, Germany, assignor to Boehringer Mannheim GmbH, Mannheim, Germany

Filed Apr. 15, 1971, Ser. No. 134,256
Claims priority, application Germany, Apr. 28, 1970, P 20 20 789.0
Int. Cl. B01d 15/08
U.S. Cl. 210—31 C 13 Claims



Mixtures of substances are resolved into their components by use of molecular sieve and/or ion exchangers wherein at least two different molecular sieve chromatographic separation materials, and optionally an ion exchange chromatographic separation material; are arranged directly behind one another, at least one ion exchange material and/or molecular sieve material being followed by at least one molecular sieve material. Examples of materials separated are dextran blue (A), catalase (B), haemoglobin (C), chymotrypsin (D), cytochrome C (E), and dinitrophenyl-asparaginic acid (F).

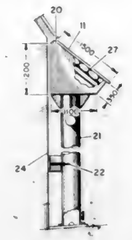
3,787,318
SOLIDS-LIQUID SEPARATOR

John R. Coleman, Jr., Burghausen, Germany, assignor to Marathon Oil Company, Findlay, Ohio

Filed Apr. 20, 1972, Ser. No. 246,036
Int. Cl. B01d 39/10
U.S. Cl. 210—65 6 Claims

Wet lumps of solid, together with free liquid, e.g., coke from a coke drum, fall onto a sloped deflector formed of parallel

spaced angle irons or bars. The solids bounce off the deflector onto a storage plow while the free liquid, together with liquids



shaken from the solids, run downward between the spaced angle irons or bars.

3,787,319

AMINE/PHOSPHATE COMPOSITION USEFUL AS CORROSION AND SCALE INHIBITOR

Arthur Lee Larsen, Denver, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Division of Ser. No. 812,847, April 2, 1969, abandoned. This application Oct. 18, 1971, Ser. No. 190,266
Int. Cl. C23f 11/16
U.S. Cl. 252—8.55 E 10 Claims

A composition useful as a corrosion and scale inhibitor is obtained by reacting an N-secondary alkyl alkylene diamine (e.g., contains an average of eight–20 carbon atoms in the alkyl group and two–four carbons atoms in the alkylene group) and a phosphate ester, obtained for example by reacting about equal molar amounts of polyphosphoric acid and a condensation product of an aliphatic primary alcohol (preferably contains three–six carbon atoms) and at least 1 mole (preferably 1–10 moles) of an alkylene oxide (preferably ethylene oxide). Final reaction product can have a pH of 5-9.

3,787,320

OILS RESISTANT TO HIGHLY REACTIVE CHEMICALS

Dietrich Erdmann; Istvan Namenyi; Bruno Hampel, all of Darmstadt, and Werner Herbert, Markdorf, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

Filed Feb. 17, 1971, Ser. No. 116,230
Claims priority, application Germany, Feb. 18, 1970, P 20 07 245.1
Int. Cl. C10m 1/30
U.S. Cl. 252—54 12 Claims

Perfluoropolyether lubricating oils resistant to degradation by a variety of corrosive chemicals, including boron trifluoride, sulfur tetrafluoride and uranium hexafluoride, are characterized by being substantially free from components reactive to uranium hexafluoride.

3,787,321

CALIFORNIUM-PALLADIUM METAL NEUTRON SOURCE MATERIAL

Burton L. Dahlen, Aiken; Wilbur C. Mosly, Jr., New Ellenton; Paul K. Smith, and Edward L. Albenesius, both of Aiken, all of S.C., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed July 1, 1971, Ser. No. 158,999
Int. Cl. C01g 56/00
U.S. Cl. 252—301.1 R 4 Claims

Californium, as metal or oxide, is uniformly dispersed throughout a noble metal matrix, provided in compact, rod or wire form. A solution of californium values is added to palladium metal powder, dried, blended and pressed into a compact having a uniform distribution of californium. The californium values are decomposed to californium oxide or metal by heating in an inert or reducing atmosphere. Sintering the compact to a high density closes the matrix around the dispersed californium. The sintered compact is then mechanically shaped into an elongated rod or wire form.

3,787,322

CATALYST FOR PURIFICATION OF EXHAUST GASES FROM MOTOR VEHICLES AND INDUSTRIAL PLANTS

Edgar Koberstein, Alzenau, and Eduard Lakatos, Hurth-Hermulhein, both of Germany, assignors to Laporte Industries Limited, London, England and Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Germany

Continuation-in-part of Ser. No. 827,136, May 23, 1969, abandoned, and a continuation-in-part of Ser. No. 523,564, Jan. 28, 1966, abandoned. This application Jan. 25, 1971, Ser. No. 109,617
Int. Cl. B01f 11/06, 11/22
U.S. Cl. 252—465 18 Claims

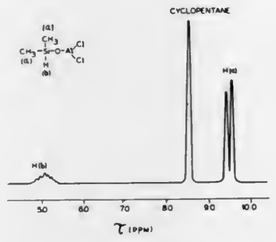
This invention provides a catalyst composition for use in oxidative reactions at high temperatures e.g., the oxidation of exhaust gases from internal combustion engines, which catalyst comprises an at least substantially homogeneous mixture of aluinium oxide of cubic structure (i.e., of the gamma series) oxide of copper and chromium, and optionally at least one compound of at least one other element of Group IIa of the Periodic Table, the proportion of the aluminium xoide being from 20 percent to 45 percent by weight of total catalyst weight, together with said at least one other compound, expressed as oxide, the mole ratio of copper oxide to chromium oxide in the oxide of copper and chromium, expressed as $CuO:Cr_2O_3$, being from 1.2:1 to 2.2:1, and the majority of oxide of copper and chromium being of a size of from 0.5 to 5μ. The invention also provides a process for making such a catalyst.

3,787,323

PRODUCTION OF ETHYLENE POLYMERS AND ETHYLENE COPOLYMERS

Itsuho Aishima, Tokyo; Hisaya Sakurai; Yukichi Takashi, both of Kawasaki; Hideo Morita; Yoshiyuki Hirotsu, both of Yokohama, and Tetsuo Hamada, Kawasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 840,187, July 9, 1969, abandoned. This application Nov. 17, 1971, Ser. No. 199,785
Claims priority, application Japan, July 16, 1968, 43/49654
Int. Cl. C08f 1/44, 3/06, 15/04
U.S. Cl. 260—88.2 F 7 Claims



The polymerization of ethylene and the copolymerization of ethylene with one alpha-olefin having three to 10 carbon

atoms in the presence of a catalyst prepared by the reaction between (A) at least one compound of the general formula;

$$R^1R^2HSiOAlX^1X^2$$

wherein R^1 and R^2 represent independently members selected from the group consisting of alkyl groups having one to five carbon atoms, cyclohexyl, phenyl and 1-naphthyl; X^1 and X^2 represent members selected from the group consisting of alkyls having one to five carbon atoms, cycloalkyls having four to six carbon atoms, phenyl, p-tolyl and halogens selected from the group consisting of Cl, Br and I and at least one of X^1 and X_2 represents said halogen, and (B) at least one compound selected from the group consisting of

1. TiX^3_p, VX^3_p, $TiX^3_{4-q}(OR^3)_q$, $VOX^3_{3-r}(OR^3)_r$ and VOX^3_3 wherein X^3 represents halogen selected from the group consisting of Cl, Br, and I; R^3 represents one member selected from the group consisting of alkyls having one to six carbon atoms, cyclohexyl, phenyl and p-tolyl; p is an integer of 2 to 4, q is an integer of 1 to 3; r is an integer of 1 to 2; and

2. the solid compounds obtained by the reaction between one member selected from the group consisting of TiX^3_4, VX^3_4, $TiX^3_{4-q}(OR^3)_q$, $VOX^3_{3-r}$and VOX^3_3 and one member selected from the group consisting of $AlR^4_s(OR^5)_kX^3_{3-u}$, SiR^6_2H, $(R^7HSiO)_z$, $R^8R^9R^{10}SiO–(R^{11}HSiO)_t$-$SiR^{10}R^9R^8$ and a combination of one member selected from SiR^6_2H, $(R^7HSiO)_z$ and $R^8R^9R^{10}SiO–(R^{11}HSiO)_t$-$SiR^{10}R^9R^8$ and one member selected from $AlCl_3$, $AlBr_3$and $FeCl_3$ wherein R^3 and X^3 represent independently the same groups as defined above; R^4 and R^5 represents independently the same groups above-defined R^3; R^6, R^7, R^8, R^9, R^{10} and R^{11} represent independently the same groups as above-defined R^1 or R^2; q and r represent independently the same integers as above-defined; v is an integer of 1 to 3, w is 0 or an integer of 1 to 2, y is an integer of 1 to 3 and $v+w+y=3$; s is an integer of 3 to 6; t is at least one and the viscosity of $R^8R^9R^{10}SiO–(R^{11}HSiO)_t$-$SiR^{10}R^9B8$ is at most 2,000 centistrokes, the mole ratio of the compound (A) to the compound (B) being 0.5 – 5 : 1.

3,787,325

ALKYLAMINO SPIRO [12-H[1]BENZOPYRAN [3,2F]QUINOLINE-12,1'PHTHALIDE

Troy Eugene Hoover, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Nov. 16, 1970, Ser. No. 90,098
Int. Cl. C07d 33/48
U.S. Cl. 260—287 R 2 Claims

A chromogenic compound of normally colorless form is disclosed which is colorable to forms such as orange-red or red when brought into reactive contact with an acidic material. Examples of these chromogenic compounds include 6'-diethylamino-2'-thiomethylfluoran, 6'-diethylamino-2',3'-methylenedioxyfluoran or 9-ethylamino-spiro[12-H-benzo[1]xanthene-12, 1'-phthalide].

3,787,326

CHROMIUM (III) COMPOSITIONS AND THEIR PREPARATION

Alden J. Deyrup, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 119,608, March 1, 1971, abandoned, which is a continuation-in-part of Ser. No. 25,097, April 2, 1970, abandoned. This application Dec. 22, 1971, Ser. No. 210,833
Int. Cl. C07f 11/00
U.S. Cl. 260—438.5 R 43 Claims

Coordination complexes of chromium (III) and fumaric acid and certain substituted fumaric acids; the preparation of aqueous solutions of such complexes; and the use of such solutions for treating metal, metal oxide and glass substrates for the purpose of improving the bonding thereto of subsequently applied organic polymer adhesives. Preferred coordination compounds of fumaric acid have the approximate formulas $[Cr(H_2O)(C_4H_3O_4)]_nX_2$, $[Cr(H_2O)_4(C_4H_2O_4)]_nX$, and $[Cr_2(H_2O)_{10}(C_4H_2O_4)]_nX_4$, where X is a noncoordinated anion and a is its valence. The preferred anion is nitrate. Also a method for treating substrates to improve adhesion of polymers thereto, by contacting the substrate with an aqueous solution of fumaric acid or certain substituted fumaric acids and a Cr^{+3} salt which yields the $Cr(H_2O)_6^{+3}$ ion, at 90°–100°C. and a pH of 1.8–2.4.

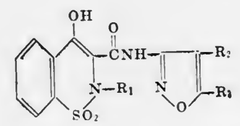
3,787,324

4-HYDROXY-3-(3-ISOXAZOLOCARBAMYL)-2H-1,2-BENZOTHIAZINE 1, DIOXIDES AND PROCESS FOR THEIR PRODUCTION

Harold Zinnes, Rockaway; Martin L. Schwartz, Gillette, and John Shavel, Jr., Mendham, all of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Mar. 1, 1971, Ser. No. 119,967
Int. Cl. C07d 93/02
U.S. Cl. 260—243 R 4 Claims

Compounds having the following structural formula are disclosed:



I

wherein R_1 is hydrogen or methyl and R_2, and R_3 are hydrogen or alkyl. These compounds are useful as anti-inflammatory agents, antipyretics, analgesics.

3,787,327

PROCESS FOR MANUFACTURING MINUTE CAPSULES HAVING POLYNITRILE CAPSULE WALLS

Donald D. Emrick, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Feb. 22, 1972, Ser. No. 228,228
Int. Cl. B01j 13/02; B44d 1/02
U.S. Cl. 252—316 2 Claims

A process is disclosed by which minute capsules can be manufactured, en masse, and wherein the capsule wall material includes a polymeric nitrile composition. The process is disclosed to be one of liquid-liquid phase separation of the polymeric nitrile capsule wall material and the phase separation is disclosed to be accomplished from a vehicle of an aqueous solution relatively concentrated in inorganic salt. The phase separation is accomplished by diluting the vehicle to a point where the nitrile polymer is no longer soluble.

3,787,328

METHOD OF REDUCING EMISSION OF POLLUTANTS IN EXHAUST GAS FROM AN INTERNAL COMBUSTION ENGINE AND MATERIAL THEREFOR

John W. Deline, 6100 E. Sixth Ave., Denver, Colo.

Filed July 23, 1971, Ser. No. 165,495
Int. Cl. B01d 53/34
U.S. Cl. 252—427 5 Claims

A method for reducing emission of pollutants in the exhaust gas from an internal combustion engine comprising removing

from said exhaust gases a portion of the hydrocarbons contained therein and reducing the amount of carbon monoxide gas contained therein by contacting said hydrocarbons and said carbon monoxide gas with a porous cellulosic material such as rice hulls and ground corn cobs thereby absorbing and adsorbing said hydrocarbons within and upon said rice hulls and using said absorbed and adsorbed hydrocarbons to oxidize the carbon monoxide gas. The process also includes removing from said exhaust gas a portion of those gases contributing to the production of photochemical smog and, also, reducing the amount of carbon monoxide gas by contacting said gases with a chemical activator selected from the group consisting of copper oxide, copper chloride, and compounds of the transitional elements thereby oxidizing said portion of said gases. The cellulosic material may be moistened and a portion thereof is preferably charred.

3,787,329
SILICON CONTAINING MOLYBDENUM CATALYSTS

Stanley Bruce Cavitt, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

Filed Dec. 28, 1970, Ser. No. 102,137
Int. Cl. C07d *1/08*
U.S. Cl. 252—431 R **7 Claims**

Stable, homogeneous silicon-containing molybdenum catalysts are prepared by incorporating silicon ligands into molybdenum compounds prepared by reacting an ammonia-containing molybdate with a hydroxy compound, for example, an organic primary or secondary alcohol, a glycol or a phenol. The hydrocarbon-soluble, silicon-containing molybdenum solutions are useful as homogeneous oxidation catalysts, particularly for the oxidation of olefins to olefin oxides. Olefin oxides are useful in the manufacture of non-toxic antifreeze urethanegrade polyols and many other applications. The silicon-containing molybdenum catalysts of the invention may also be used as metal plating solutions, lubricant additives, pigments, ammoxidation catalysts, printing inks, or solution components for organic laser devices. They may also be used as catalysts or co-catalysts for various polymerization processes, such as homopolymerization of isocyanates, isocyanate-polyol reactions, or olefin oxide polymerization reactions.

3,787,330
REFINING AGENT FOR OILY SUBSTANCES

Yujiro Sugahara, Tokyo; Koulchi Usui, Tsuruoka-shi; Hiroyuki Naito, Tsuruoka-shi, and Syoji Matuzawa, Tsuruoka-shi, all of Japan, assignors to Mizusawa Kagaku Kogyo Kabushiki Kaisha, Higashi-ku, Osaka, Japan

Filed Sept. 26, 1969, Ser. No. 861,494
Claims priority, application Japan, Oct. 1, 1968, 43-70809; Aug. 14, 1969, 44-63837
Int. Cl. B01j *11/62*
U.S. Cl. 252—437 **3 Claims**

A refining agent for oily substances comprising granules or small aggregates of an acid-treated product of clay consisting predominantly of montmorillonite having a specific surface area of at least 120 square meters per gram and a pore volume of at least 0.7 milliliter per gram, said pore volume being defined by the equation:

$$nx(1/d_1)/(1/d_2)$$

wherein d_1 is the apparent density of the small aggregates, d_2 is the true density of the acid-treated product of montmorillonitic clay, and n is the pore volume in milliliters per gram. Such granules or small aggregates are prepared by a process comprising intimately contacting a clay consisting predominantly of montmorillonite and containing acid-soluble basic constituents with an acid or aqueous solution thereof and forming a small aggregrate-like solid product therefrom; drying the product; extracting the basic constituents from the solid product; and thereafter recovering the small aggregates.

3,787,331
CATALYST BASED ON ALUMINUM FLUORIDE FOR THE FLUORINATION IN GASEOUS PHASE OF HYDROCARBONS

Giovanni Groppelli; Vittorio Fattore; Martino Vecchio, all of Milan, and Arsenio Castellan, Bollate, all of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed Oct. 7, 1969, Ser. No. 864,519
Claims priority, application Italy, Oct. 10, 1968, 22295/68
Int. Cl. B01j *11/78*
U.S. Cl. 252—442 **1 Claim**

A catalyst is disclosed for the preparation of fluroinated or chlorofluorinated hydrocarbons through fluorination or chlorofluorination reactions in gaseous phase, the catalyst comprising aluminum fluoride or fluorinated alumina containing minor quantities of manganese, chromium and preferably also nickel compounds present in quantities corresponding to the following percentages by weight of metal based on the total: from 0.05 to 5% of Mn, from 0.1 to 5% of Cr, and up to 5% of Ni. The manganese, the chromium and (when present) the nickel are at least partially present in the form of halides, and in particular the fluorides, or as oxides or as oxy-halides.

3,787,332
CARBON MONOXIDE CONVERSION CATALYSTS

Andre Sugier, Ruel Malmaison, France, assignor to Institut Francas du Petrole, Des Carburants et Lubrifiants, Bois-Preau, France

Filed July 21, 1970, Ser. No. 56,974
Claims priority, application France, July 25, 1969, 69.25671
Int. Cl. B01j *11/22, 11/06, 11/22*
U.S. Cl. 252—443 **30 Claims**

This invention relates to a catalyst, to a process for the manufacture thereof and to a process for manufacturing hydrogen by reacting carbon monoxide with water at 150°–550°C in the presence of the above catalyst. This catalyst comprises an active phase consisting of the mixed oxides of (a) copper and (b) a trivalent metal selected from aluminum, chromium, manganese, iron and cobalt, at least 60% by weight of said mixed oxides having a spinel structure. The catalyst is manufactured by admixing the catalyst components in solution with a heat-decomposable complexing organic compound or with a heat-decomposable gel-forming compound, the solvent being evaporated thereafter and the mixture being finally roasted at a temperature of at least 200°C.

3,787,333
METHOD FOR THE PRODUCTION OF AN AUTOMOTIVE EXHAUST GAS CATALYST

Shoichi Ichihara, Ibaraki; Hauruichi Hara, Toyonaka, and Takashi Ohara, Nishinomiya, all of Japan, assignors to Nippon Shokubai Kogyo Co., Ltd., Higashi-ku, Osaka, Japan

Filed Nov. 16, 1971, Ser. No. 199,378
Int. Cl. B01j *11/06, 11/12*
U.S. Cl. 252—465 **26 Claims**

A method for preparing a catalyst suitable for use in a catalytic system for oxidation of air pollutants in automotive exhaust gases, such method comprising, in combination, the steps of mixing and kneading a nickel source and a chromium source, and, as a binder, a member selected from the group consisting of an alumina sol and a soluble aluminum hydroxide, and, as a carrier, activated alumina, molding the resulting mixture with a catalyst molder into a desired shape, drying the formed material, impregnating the dried formed material with a solution of a palladium salt, drying the thus impregnated formed material, and thereafter calcining same.

3,787,334
PROCESS FOR PREPARATION OF OXIDATION CATALYST

Keisho Yamada; Sumio Umemura; Kyoji Ohdan, all of Ube; Mikio Hidaka, Shimonoseki; Yasuo Bando, Ube; Kazuo Fukuda, Ube, and Masao Sawazi, Ube, all of Japan, assignors to UBE Industries, Ltd., Yamaguchi-ken, Japan

Filed Nov. 23, 1971, Ser. No. 201,391
Claims priority, application Japan, Dec. 1, 1970, 45-105441
Int. Cl. B01j *11/06, 11/32*
U.S. Cl. 252—468 **7 Claims**

A process for the preparation of an oxidation catalyst, consisting of molybdenum, bismuth, a group II metal of the periodic table and oxygen, which comprises in combination the steps of combining (a) a dispersion in which a member selected from the group consisting of the oxides of antimony and bismuth antimonate has been suspended, (b) a solution of a salt of a group II metal of the periodic table, (c) a solution of a member selected from molybdic acid and the salts thereof, and (d) a solution of a bismuth salt; adjusting the pH of the combined solution to a value of 1 – 8 to thereby cause the formation of a coprecipitate containing the four components of molybdenum, antimony, bismuth and group II metal; separating the resulting coprecipitate from the mother liquor; washing the coprecipitate; and thereafter calcining the washed coprecipitate at a temperature ranging from 400° and 800°C.

3,787,335
PRE-REDUCTION OF AMMONIA SYNTHESIS CATALYST USING HYDROGEN

Robert Murphy Yarrington, Old Greenwich, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed June 2, 1971, Ser. No. 149,348
Int. Cl. B01j *11/22;* **C23c** *11/12;* **C21c** *15/00*
U.S. Cl. 252—472 **2 Claims**

A process for reducing an iron oxide catalyst material useful in ammonia synthesis employing a gas consisting essentially of hydrogen and substantially no gaseous component which will react under the conditions of reduction, a temperature of at least 450°C. and a pressure of at least 45 psig.

3,787,336
ELECTRODES FOR ARC FURNACES

John David Sharp, Birmingham, England, assignor to Foseco International Limited, Birmingham, England

Filed Apr. 21, 1971, Ser. No. 136,188
Claims priority, application Great Britain, Apr. 21, 1970, 19041/70
Int. Cl. H01b *1/06*
U.S. Cl. 252—511 **2 Claims**

Lateral arcing in arc furnace may be reduced by using an electrode having a bonded carbonaceous core containing a nitrogen-generating material.

3,787,337
WHOLE PROTEIN SHAMPOO COMPOSITION

William D. Goodwin, Decatur, Ga., assignor to The Athlon Corporation, Atlanta, Ga.

Filed Oct. 22, 1971, Ser. No. 191,780
Int. Cl. C11d *1/20*
U.S. Cl. 252—545 **11 Claims**

A shampoo is prepared by incorporating into a shampoo base a whole protein composition obtained by solubilization of a keratin protein material particularly chicken feathers, and an alkanolamine, such as triethanolamine, or with N,N-dimethylformamide, and a surfactant.

ERRATA

For Classes 260—88.20 F thru 260—438.50 R see: Patents Nos. 3,787,323 thru 3,787,326

3,787,338
AQUEOUS DISPERSIONS OF FINELY DIVIDED LUBRICANTS IN POLYAMIDE ACID

David W. Skelly, Burnt Hills, and Bernard C. Wagner, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,591
Int. Cl. C08g *51/24;* **C08j** *1/48;* **C23b** *13/00*
U.S. Cl. 260—29.2 **1 Claim**

Substantially uniform aqueous dispersions are provided of a finely divided solid, such as a pigment or a lubricant, for example, polytetrafluoroethylene particles, in a polyamide acid. These aqueous polyamide acid dispersions can be employed to make polyimide-metal composites exhibting improved lubricity.

3,787,339
PROCESS FOR DEFOULING ANION EXCHANGE RESINS WITH CHLORINE DIOXIDE

Russell B. Hodgdon, Jr., Sudbury, and Edward T. Roach, Arlington, both of Mass., assignors to Ionics, Incorporated, Watertown, Mass.

Filed Sept. 7, 1972, Ser. No. 286,849
Int. Cl. B01d *15/06;* **C02b** *1/76*
U.S. Cl. 260—2.1 R **9 Claims**

A process for treating fouled anion exchange resins with a stabilized chlorine dioxide solution for the purpose of regenerating the same for reuse. The process is especially useful for treating anion exchange membranes which have become fouled when employed in the electrodialysis of solutions containing large organic molecules.

3,787,340
SELF CROSSLINKING POWDER COATING COMPOSITIONS II

Santokh S. Labana, Dearborn Heights, and Yun Feng Chang, Plymouth, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1971, Ser. No. 172,237
Int. Cl. C08f *19/14*
U.S. Cl. 260—23 XA **7 Claims**

Powder coating compositions are disclosed. In general, individual powder coating compositions of this invention are a mixture of several materials. The most significant materials employed in the powder coatings include the following. A copolymer containing hydroxy and carboxy crosslinkable, functional groups, forms the most important constituent of the powder coating. This copolymer has a glass transition temperature in the range of 40°to 90°C and a molecular weight ($\overline{M}_n$) in the range from about 2,000 to about 15,000. Another material of an individual composition is a flow control agent which forms at least 0.05% by weight of the mixture. The flow control agent is a polymer having a molecular weight ($\overline{M}_n$) of at least 1,000. Also, the flow control agent has a glass transition temperature at least 50°C lower than the glass transition temperature of the copolymer. Other materials which may be employed in individual powder coating compositions are catalysts, pigments, antistatic agents and plasticizers.

3,787,341
NOVEL PROCESSING AIDS FOR NATURAL AND SYNTHETIC RUBBER COMPOUNDS

Erwin Aron, Clifton, N.J., assignor to Technical Processing, Inc., Paterson, N.J.

Filed June 12, 1972, Ser. No. 263,752
Int. Cl. C08d *7/18*
U.S. Cl. 260—23.7 M **10 Claims**

This invention is directed to novel compositions which aid in the processing of natural and synthetic rubber by permitting

the usual peptizing step of such processing to be omitted These compositions contain salts of aromatic sulfonic acids as well as long chain (fatty) acids as essential ingredients.

3,787,342

HOT-MELT ADHESIVE COMPOSITION CONTAINING GLYCEROL ESTER OF FUMARIC-MODIFIED ROSIN

David A. Berry; Albert R. Bunk, both of Columbus, Ohio; Noah J. Halbrook, Walter H. Schuller, and Ray V. Lawrence, all of Lake City, Fla., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Feb. 27, 1970, Ser. No. 15,233
Int. Cl. C08c *9/18*; C08d *3/40*
U.S. Cl. 260—24 6 Claims

Hot-melt adhesive composition consisting essentially of a substantially linear polyamide resin, having an average molecular weight between 3,000 and 10,000 and a Ball and Ring softening point between 45° and 190° C, and between 5 and 30 parts by weight of glycerol ester of fumaric-modified rosin for each 100 parts by weight of the linear polyamide resin; with a preferred composition containing between 10 and 20 phr of the glycerol ester of fumaric-modified rosin and up to 10 phr of a petroleum-derived wax selected from the group of paraffin and microcrystalline waxes.

3,787,343

TREATMENT OF COAL EXTRACTS

Joseph Gordon Robinson, Winchcombe, and William Sydney Durham Wise, Tewkesbury, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Mar. 11, 1971, Ser. No. 123,423
Claims priority, application Great Britain, Mar. 17, 1970, 12755/70
Int. Cl. C08g *51/52*
U.S. Cl. 260—28 8 Claims

Phenolic compositions which may be reacted with aldehyde or aldehyde donors, e.g., formaldehyde or hexamine, to form resinous or resinifiable compositions may be manufactured by reacting a solution or extract of coal with a phenol.

3,787,344

HIGH BUFFING VINYL AROMATIC RESIN-WOOD COMPOSITES

Duane L. Kenaga, and Richard H. Hall, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 2, 1970, Ser. No. 94,621
Int. Cl. C08f *45/28*, *45/52*; B28k *3/50*
U.S. Cl. 260—28.5 A 5 Claims

A wood product having a self-polishing, lubricated, water-resistant surface and a method for accomplishing the same which method comprises impregnating wood with a solution of a vinyl aromatic monomer, a low melting wax, a cross-linking agent such as a dimethacrylate or diacrylate of a glycol or a polyglycol, divinylbenzene, dimethacrylate or a polyester of maleic anhydride with or without a catalyst, the impregnation being conducted after evacuation of the wood, the cure being accomplished by heating the wood to between about 80° and 150°C. for from 10 to 60 minutes.

3,787,345

STICK FOR THE APPLICATION OF ADHESIVE TO SUBSTRATES

Heinz Hermann Dickman, Buehl/Baden; Richard Krattner, Neusatz/Baden, both of Germany, and Hans-Dieter Mobius, deceased, late of Buehl/Baden, Germany (by Isolde Mobius nee Diehnelt, executor), assignors to UHU-Werk H.u.M. Fischer G.m.b.H., Buehl/Baden, Germany

Filed Oct. 26, 1971, Ser. No. 192,340
Claims priority, application Germany, Nov. 5, 1970, 2054503
Int. Cl. C08f *45/36*; C08q *51/36*
U.S. Cl. 260—28.5 R 6 Claims

Gluestick adhesive compositions for adhesively securing together two substrates comprise a solution or dispersion of an adhesive of N-vinyl-pyrrolidone polymer or co-polymer and wax acids, or esters of such acids with alcohols having one to eight carbon atoms, in sufficient amount for the composition to be moulded in stick form as a self-supporting gel.

3,787,346

STICK FOR THE APPLICATION OF ADHESIVE TO SUBSTRATES

Heinz Hermann Dickmann, Buhl/Baden, and Richard Krattner, Neusatz/Baden, both of Germany, assignors to UHU-Werk H.u.M. Fischer G.M.b.H., Buhl/Baden, Germany

Filed Apr. 17, 1972, Ser. No. 244,950
Claims priority, application Great Britain, Apr. 23, 1971, 11214/71; July 9, 1971, 32246/71
Int. Cl. C08f *45/36*; C08g *51/36*
U.S. Cl. 260—28.5 R 5 Claims

Adhesive glue sticks are formed from an adhesive dissolved or dispersed in a solvent containing an anionic non-soap surfactant and mixed with aliphatic carboxylic acids having 24 – 50 carbon atoms, and/or esters thereof with alcohols having 1 – 8 carbon atoms, as structuring substance.

3,787,347

NOVEL RESINOUS COMPOSITIONS AND METHOD FOR PRODUCING SAME

Leo X. Mallavarapu, Suffern, N.Y., assignor to Reichhold Chemicals, Inc., White Plains, N.Y.

Filed Feb. 18, 1972, Ser. No. 227,656
Int. Cl. C08g *51/26*, *51/34*, *51/30*
U.S. Cl. 260—30.4 EP 4 Claims

This invention relates to certain novel curable resinous compositions of matter comprising (A) an organic polyepoxide having a molecular weight ranging from about 1000–2000 and (B) a primary or secondary amine containing hydroxyl groups and a method for producing the same. These resinous compositions of matter may be cured into useful protective coatings at low ambient temperatures through the use of polyisocyanates as curing agents.

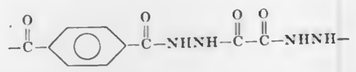
3,787,348

N,N-DIMETHYLACETAMIDE SOLUTIONS OF POLYHYDRAZIDES

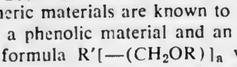
Frank Dobinson, Gulf Breeze, and Chris A. Pelezo, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 20, 1972, Ser. No. 290,597
Int. Cl. C08g *51/44*
U.S. Cl. 260—32.6 NA 11 Claims

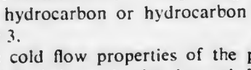
Stable, N,N-dimethylacetamide/lithium chloride spinning solutions comprised of a high-molecular weight polymer consisting essentially of recurring structural units of which at least 90 mol percent are of the formula



and 10 mol percent or less are of the structure



where R is



each Ar and Ar′ is a divalent aromatic radical, the chain-extending covalent bonds of which are oriented meta or para to one another, and X is a covalent bond or a said divalent aromatic radical with the proviso that when Ar is a para-phenylene radical X is a said divalent aromatic radical. These solutions are useful for making shaped articles such as fibers and films having excellent tensile properties.

3,787,349

COLD-SETTING ROAD-MARKING MATERIAL

Arne Lennart Eliasson, Hasslelholm, Sweden, assignor to Svenska AB Cleansol, Kristianstad, Sweden

No Drawing. Filed Feb. 9, 1972, Ser. No. 224,931
Claims priority, application Sweden, Feb. 10, 1971, 1,629/71
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 EP 9 Claims

A cold-setting, sprayable and extrudable road-marking material consisting of binder, pigment, filler and aggregate, said binder being constituted by a curable epoxy resin, hardener and, if desired, accelerator and plasticizer.

3,787,350

PHENOL-ARALKYL ETHER RESINS

Glyn Islwyn Harris, Stourbridge, and Alfred Gerald Edwards, Stourport-on-Severn, England, assignors to Albright & Wilson Limited, Oldbury, Warwickshire, England

No Drawing. Filed Jan. 19, 1972, Ser. No. 219,160
Claims priority, application England, Jan. 21, 1971, 2,907/71
Int. Cl. C08g *5/06*, *23/00*, *37/06*
U.S. Cl. 260—38 7 Claims

Polymeric materials are known to be made by reacting together a phenolic material and an aralkyl ether of the general formula $R'[-(CH_2OR)]_a$ where R′ is an aromatic hydrocarbon or hydrocarbon ether radical and *a* is 2 or 3.

The cold flow properties of the polymers can be improved if their production is carried out using a copper, mercuric, mercurous or silver salt or a sodium hydrogen sulphate as catalyst.

Polymers made by this method are particularly suitable for use in moulding compounds or coating materials for application by fluidized bed techniques.

3,787,351

USE OF SOLUBLE FLUOROALIPHATIC OLIGOMERS IN RESIN COMPOSITE ARTICLES

Maynard H. Olson, St. Paul, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Feb. 28, 1972, Ser. No. 230,063
Int. Cl. C08g *51/10*; C08f *45/10*
U.S. Cl. 260—40 R 18 Claims

Mechanical properties of shaped articles of self-supporting structural filled or reinforced resin composites, such as glass fiber reinforced polyesters or epoxy resin composites, are improved by incorporating in the composite soluble fluoroaliphatic radical-containing oligomers.

3,787,352

METHOD OF PREPARING GLASS FIBER-ELASTOMER COMPOSITIONS

Alfred Marzocchi and John C. Martineau, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation

Filed Sept. 2, 1971, Ser. No. 177,237
Int. Cl. C08f *45/04*
U.S. Cl. 260—41 AG 5 Claims

This invention is addressed to a method for the preparation of molding compounds formed of an elastomeric material reinforced with glass fibers wherein bundles of glass fibers which have been impregnated with an elastomer component are chopped to shorter lengths and then combined with elastomeric material while working the elastomeric material to separate the fibers forming the bundle each from the other and to uniformly distribute the fibers throughout the elastomeric material. The molded compositions of the present invention are characterized by significantly improved hysteresis characteristics when subjected to deformation under stress.

3,787,353

STABILIZED POLYOXYMETHYLENE COMPOSITIONS

Takami Ishii, Ichihara, Toshio Yoshikawa, Chiba, and Toshihiro Inaike, Kazuhiro Kuroda, Kunio Kido, and Kiyoaki Tokunaga, Ichihara, Japan, assignors to Ube Industries, Ltd., Ube-shi, Yamaguchi-ken, Japan

No Drawing. Filed June 1, 1971, Ser. No. 148,978
Claims priority, application Japan, June 2, 1970, 45/46,926
Int. Cl. C08g *51/58*, *51/60*
U.S. Cl. 260—45.9 P 18 Claims

A stabilized polyoxymethylene composition which comprises polyoxymethylene and 0.01 to 10% by weight to the polyoxymethylene of a compound of the formula,

$$R(NHCOOH_2X)_n$$

in which

R is a hydrocarbon group of 2 to 20 carbons, or a hydrocarbon group of 2 to 40 carbons containing oxygen or sulfur as an intermediary atom,
X is cyano or carbamoyl group, and
n is an integer of 2 to 6.

3,787,354

STABILIZATION OF SOLID POLYMERS WITH A BIS-(N,N-DIHYDROCARBYL-AMINOALKYL) ETHER

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Original application July 15, 1970, Ser. No. 55,262, now abandoned. Divided and this application Feb. 16, 1972, Ser. No. 226,979
Int. Cl. C08g *51/60*
U.S. Cl. 260—45.9 R 10 Claims

Stabilization of organic substances against deterioration due to UV light, oxidation, heat, etc., by incorporating therein a bis-(N,N-dihydrocarbyl-amino-alkyl) ether in which the hydrocarbyl is sec-alkyl of from 3 to about 20 carbon atoms or cycloalkyl having 4 to about 12 carbon atoms in the ring. In one embodiment the compounds are used as weathering stabilizers for plastics.

3,787,355

STABILIZING OF POLYAMIDES

Helmut Linhart, Reinach, and Helmut Mueller, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,467
Claims priority, application Switzerland, Dec. 7, 1970, 18,131/70
Int. Cl. C08g *51/58*, *51/60*, *51/62*
U.S. Cl. 260—45.75 R 16 Claims

Disclosed are stabilizing systems comprising (a) a phenolic antioxidant, (b) a derivative of phosphorus and (c)

a salt of divalent manganese with inorganic or organic acids.

Polyamide stabilized therewith are less yellowed under thermofixing conditions and they show a good light resistance and excellent long term protection against loss of tensile properties.

3,787,356
FIRE RETARDANT COMPOSITIONS
Jerome A. Gourse, Chicago, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Filed May 8, 1972, Ser. No. 251,722
Int. Cl. C08f *45/62*
U.S. Cl. 260—45.75 B **6 Claims**

This invention discloses new fire retardant polymeric compositions which comprise a combustible polymer and the compound 1,2-dibromo-4,5,6,7,8,8-hexachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane.

3,787,357
SYNERGISTIC MERCAPTO ORGANOTIN STABILIZERS
Lawrence Robert Brecker, Brooklyn, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y.
No Drawing. Filed Sept. 7, 1972, Ser. No. 287,118
Int. Cl. C08f *45/62*
U.S. Cl. 260—45.75 K **29 Claims**

A synergistic stabilizer composition which is liquid at ambient temperature is provided for increasing resistance to early discoloration of polyvinyl chloride resins heated to 400° F. and for improving their processability comprising: (1) at least one monoalkyltin mercaptocarboxylic acid ester having tetravalent tin linked directly to carbon and to sulfur, (2) at least one dialkyltin compound, having tetravalent tin linked directly to carbon and to sulfur, for example, organotin sulfide, a mercaptocarboxylic acid ester or an ester sulfide, (3) barium carbonate and (4) an organic salt acting as a liquifier for the barium carbonate.

3,787,358
PROCESS FOR PRODUCING POLYPHENYLENE OXIDES
Akinori Nishioka and Shigeo Kawatani, Yokohama, and Mitsuo Ichikawa, Tokyo, Japan, assignors to Japan Synthetic Rubber Company Limited, Tokyo, Japan
No Drawing. Filed Nov. 5, 1971, Ser. No. 196,187
Claims priority, application Japan, Nov. 12, 1970, 45/99,668
Int. Cl. C08g *23/18*
U.S. Cl. 260—47 ET **5 Claims**

A process for producing polyphenylene oxides which comprises reacting a 2,6-disubstituted phenol with oxygen in the presence of cupric sulfide, an amine, and a metallic salt, other than a cuprous salt, which is soluble in said amine.

3,787,359
CONTINUOUS MANUFACTURE OF HIGH MOLECULAR WEIGHT LINEAR POLYCARBONATES
Peter Horn and Ludwig Schuster, Ludwigshafen, Georg Falkenstein, Neustadt, and Hans-Ingo Joschek, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Jan. 11, 1972, Ser. No. 216,949
Claims priority, application Germany, Jan. 15, 1971, P 21 01 700.5
Int. Cl. C08g *17/13*
U.S. Cl. 260—47 XA **9 Claims**

Continuous manufacture of high molecular weight linear polycarbonates of high purity from organic dihydroxy compounds and phosgene in one or more packed reactors, wherein the reaction is carried out under "transition flow" conditions, conveniently with recycling of the reaction mixture.

3,787,360
PHOSPHORUS CONTAINING AROMATIC POLYMERS AND PROCESS FOR PRODUCING FLAME-RESISTANT TEXTILES
Donald J. Daigle, New Orleans, and George L. Drake, Jr., and Wilson A. Reeves, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Original application May 7, 1971, Ser. No. 141,356. Divided and this application Mar. 28, 1972, Ser. No. 238,929
Int. Cl. C08g *33/16*
U.S. Cl. 260—47 P **2 Claims**

Soluble methylol phosphine adducts are prepared by reacting tris(hydroxymethyl)phosphine with substituted or unsubstituted phenol which contains one or more hydrogens ortho or para to the phenolic hydroxyl group. These adducts are convenient and useful for (a) the preparation of flame resistant polymers and (b) the preparation of flame- and glow-resistant organic fibrous materials and flame-, glow-, wrinkle-, and shrink-resistant woven and knit textiles which contain about 25% or more cellulosic fibers.

3,787,361
PROCESS FOR PRODUCTION OF POLYPHENYLENE OXIDE COMPOUNDS
Seizo Nakashio, Nishinomiya, Toshio Takemura, Kyoto, and Takashi Maruyama, Kunio Ota, and Tetsuki Seto, Takatsuki, Japan, assignors to Sumitomo Chemical, Limited, Osaka, Japan
No Drawing. Continuation of abandoned application Ser. No. 97,372, Dec. 11, 1970. This application July 7, 1972, Ser. No. 269,551
Claims priority, application Japan, Dec. 16, 1969, 44/101,434
Int. Cl. C08g *23/18*
U.S. Cl. 260—47 ET **23 Claims**

A process is provided in which polyphenylene oxide polymers are readily prepared in high yields by oxidative polymerization of phenols with oxygen in the presense of a novel ternary catalyst system composed of a manganese compound, a primary amine, and an alcohol. Compared with polymers obtained with known catalysts, the present polymer has narrower molecular weight distribution and is thermally more stable and more resistant to oxidation so that no special stabilizing treatment is necessary. The polymer shows improvement in creep resistance, dimensional stability, environmental stress cracking, etc.

3,787,362
PREPARATION OF POLYPHENYLENE ETHERS WITH DIALKYLFORMAMIDE PROMOTED COPPER-AMINE CATALYSTS
James G. Bennett, Menands, and Arthur Katchman, Delmar, N.Y., assignors to General Electric Company
No Drawing. Original application Apr. 30, 1971, Ser. No. 139,216, now Patent No. 3,730,944. Divided and this application Feb. 14, 1973, Ser. No. 332,384
Int. Cl. C08g *23/18*
U.S. Cl. 260—47 ET **13 Claims**

Process for the preparation of high molecular weight polyphenylene ethers by oxidatively coupling a di-ortho-substituted phenolic precursor in a reaction system containing oxygen and a complex catalyst formed from a copper salt and either a primary, secondary or tertiary amine and an alkylene carbonate or a dialkyl sulfoxide promotor or a primary or tertiary amine and a dialkyl formamide promoter. Use of the promotors results in the formation of higher molecular weight polymer in a given reaction time or polymer of comparable molecular weight in substantially decreased reaction time.

3,787,363
AROMATIC POLY SULFONES
Philip Anthony Staniland, Welwyn Garden City, and Graham Jarrett, Hitchin, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Dec. 14, 1971, Ser. No. 207,958
Int. Cl. C08g *49/00, 49/04*
U.S. Cl. 260—49 **5 Claims**

Aromatic polymeric materials of increased molecular weight are obtained by heating at temperatures between 300° C. and 450° C. a mixture comprising 95 to 99.99% by weight of at least one thermoplastic aromatic polysulphone containing repeat units —Ar—SO_2— (where Ar is a bivalent aromatic residue which may vary from unit to unit in the polymer chain and at least some of the Ar units have an aromatic ether group in the polymer chain ortho or para to at least one —SO_2— group) and 5 to 0.01% by weight of sulphur present as elemental sulphur, sulphide or disulphide in at least one compound selected from the class consisting of elemental sulphur, aliphatic and aromatic dithiols, and aliphatic and aromatic polydisulphides.

3,787,364
PROCESS FOR MAKING POLYETHERIMIDES
Joseph G. Wirth and Darrell R. Heath, Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed Sept. 1, 1971, Ser. No. 177,165
Int. Cl. C08g *20/32, 23/00*
U.S. Cl. 260—61 **13 Claims**

Polyetherimides are prepared from the reaction of a bis(chlorophthalimide) with an alkali metal salt of a divalent carbocyclic aromatic radical in the presence of an appropriate solvent.

3,787,365
PROCESS FOR THE BULK POLYMERIZATION OF ACRYLONITRILE
Paolo Melacini, Luigi Patron, Alberto Moretti, and Raffaele Tedesco, Mestre, Venice, Italy, assignors to Montefibre S.p.A., Milan, Italy
No Drawing. Filed Apr. 23, 1971, Ser. No. 136,901
Claims priority, application Italy, Apr. 28, 1970, 23,963/70
Int. Cl. C08f *3/76, 15/22*
U.S. Cl. 260—63 N **8 Claims**

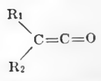
Free-radical bulk polymerization of acrylonitrile with or without another copolymerizable ethylenically unsaturated monomer, using a free-radical catalytic system having a decomposition rate constant (K_d) greater than 1 $hr.^{-1}$ at the polymerization temperature, a reaction time (Q) sufficient to semi-decompose the catalyst, and a catalyst concentration $(C)_o$ equal to or greater than 2.10^{-3} Q moles/liter, wherein "Q" is the residence time expressed in hours.

3,787,366
REACTIVE BETA-LACTONE-CONTAINING POLYMERS AND A METHOD FOR THEIR PREPARATION
Walter L. Vaughn, Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of abandoned application Ser. No. 11,362, Feb. 9, 1970. This application Feb. 10, 1972, Ser. No. 225,299
Int. Cl. C08g *15/00*
U.S. Cl. 260—64 **10 Claims**

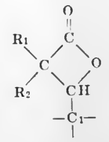
Polyalkylene copolymers containing pendant beta-lactone groups are prepared by treating a polyalkylene copolymer, containing at least one pendant aldehyde group of the formula



with a ketene of the formula



to form one or more pendant beta-lactone groups of the formula



wherein C_1 is a carbon atom in the polyalkylene molecule and R_1 and R_2 are H, alkyl, aryl, aralkyl, alkaryl and the like. The resulting beta-lactone groups are easily cross-linked to form insoluble films and coatings.

3,787,367
SOLUBLE COPOLYIMIDES
William J. Farrissey, Jr., Northford, and Philip S. Andrews, Hamden, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Nov. 29, 1972, Ser. No. 310,398
Int. Cl. C08g *20/32*
U.S. Cl. 260—65 **7 Claims**

Copolyimides are prepared from pyromellitic dianhydride (PMDA) or mixtures of pyromellitic dianhydride with 3,3',4,4'-benzophenone tetracarboxylic acid dianhydride (BTDA), and mixtures of 4,4'-methylenebis (phenyl isocyanate) (MDI) and toluene diisocyanate (TDI) (2,4-, or 2,6-isomer or mixtures thereof). The mixture of anhydrides is used in a molar percent ratio of PMDA to BTDA of 100 to 75/25 respectively. The mixture of isocyanates is used in a molar percent ratio from about 10/90 to 35/65 of MDI to TDI respectively. The copolyimides of the invention are soluble in their organic reaction solvents but retain their high thermal stability. The solubility allows for the facile preparation of films, laminates, coatings, fibers, and the like. The improvement in heat stability over previously known polyimides is achieved without any loss in solubility properties. The copolyimides can be used in the preparation of high temperature resistant polymer articles and in the various applications for which polyimides are known to be especially adapted.

3,787,368
PROCESS FOR PREPARING A POLYMER COMPRISING REACTING A METAL HALIDE WITH AN AMIDE FOLLOWED BY CONDENSATION WITH AN ALDEHYDE, SAID METAL BEING ZIRCONIUM, HAFNIUM OR TITANIUM
Harry L. Lander, Trenton, N.J., assignor to Poly-Chem Industries, Inc., Saddle Brook, N.J.
No Drawing. Continuation-in-part of application Ser. No. 100,805, Dec. 22, 1970, which is a continuation-in-part of application Ser. No. 9,076, Feb. 5, 1970, both now abandoned. This application Aug. 4, 1971, Ser. No. 169,092
Int. Cl. C08g *9/10, 9/12, 9/30*
U.S. Cl. 260—67.6 R **14 Claims**

Polymeric materials are prepared by polymerizing an organic compound containing at least two labile hydrogens in the presence of a zirconium, hafnium or titanium halide. The labile hydrogen atoms are provided by amides, including aminoplasts, carboxylic acids, polyhydroxy compounds or other compounds capable of forming reactive complexes with zirconium, hafnium and titanium halides. Aqueous media can be employed.

3,787,369

PROCESS FOR PREPARING FIRE RETARDANT POLYESTERS

Walter M. Zimberg, Tonawanda, Arthur C. Schulz, North Tonawanda, and George C. Woehr, Buffalo, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,178

Int. Cl. C08g *17/12*

U.S. Cl. 260—75 H 15 Claims

An improved process for the preparation of unsaturated polyesters is provided. The process comprises the steps of:

(a) Forming a 1:1 adduct of a polyhalogenated cyclopentadiene and a polycarboxylic acid anhydride in which the latter is used in excess, and preferably the former is employed in a highly purified form, the adduction reaction being carried out in an atmosphere of an oxygen containing gas and preferably at relatively low temperature within the range of about 110 to about 145 degrees centigrade;

(b) Reacting the adduct mixture from step (a) with a polyol or polyol forming material, e.g., an alkylene oxide, preferably in the presence of phosphoric acid to catalyze the esterification reaction;

(c) Interrupting the reaction of Step (b) after the formation of the half ester but before the acid number of the reaction mixture is decreased to about 40, and distilling the mixture with steam until substantially all of the steam volatile components have been removed; and

(d) Continuing the esterification of the adduct and polyol until an unsaturated polyester product having an acid number below about 40 is obtained, said

(e) Unsaturated polyester having a light color, low corrosivity to mild steel and which is copolymerizable with ethylene monomers to form light colored infusible fire retardant polymers.

3,787,370

PROCESS FOR THE PREPARATION OF SUBSTANTIALLY LINEAR POLYESTERS OF LOW FREE CARBOXYL GROUP CONTENT

Takeo Shima, Takanori Urasaki, and Isao Oka, Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed Mar. 14, 1972, Ser. No. 234,643

Int. Cl. C08g *17/015*

U.S. Cl. 260—75 R 16 Claims

A process for the preparation of substantially linear, fiber-forming or film-forming polyesters from a dicarboxylic acid or its ester-forming derivative, or a hydroxycarboxylic acid or its ester-forming deriyative, and a glycol or its ester-forming derivative, such process being characterized by addition of at least one specific orthocarbonate at a certain stage of the polycondensation reaction to thereby form polyesters having a low free carboxyl group content.

3,787,371

CRYSTAL-CLEAR POLYAMIDES PREPARED BY CONDENSING BIS(AMINOMETHYL)-TRICYCLODECANE WITH AROMATIC DICARBOXYLIC ACIDS

Ludwig Brinkmann and Walter Herwig, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 8, 1971, Ser. No. 206,137

Claims priority, application Germany, Dec. 10, 1970, P 20 60 703.8

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R 6 Claims

There are disclosed and claimed novel polyamides, which are obtained by polycondensating (a) bis-(aminomethyl)-tricyclodecanes and, optionally, aliphatic diamines, cycloaliphatic diamines or araliphatic diamines, (b) aliphatic saturated or aromatic dicarboxylic acids, and, optionally, (c) aliphatic amino-carboxylic acids, and the process for making the same.

3,787,372

PROCESS FOR THE PREPARATION OF AROMATIC COPOLYAMIDE-PHOSPHONAMIDES

Erich Blocker, Weilbach, and Peter Eckardt, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,932

Claims priority, application Germany, Dec. 19, 1970, P 20 62 774.1

Int. Cl. C08g *20/34*

U.S. Cl. 260—78 R 12 Claims

New film- and fiber-forming high molecular weight aromatic copolyamide-phosphonamides are obtained by adding a phosphonic acid dihalide at elevated temperature to a melt of at least one aromatic diamine in excess, by dissolving the reaction product, after complete reaction, in a solvent of the amide kind, by adding at least one aromatic dicarboxylic acid halide to this solution at a temperature of from about −20° to +30° C., and thus polycondensing it to form a high molecular weight aromatic copolyamide-phosphonamide. Shaped articles made from these copolyamide-phosphonamides are distinguished by their good affinity to dyestuffs and poor flammability.

3,787,373

TERPOLYAMIDES WITH HEXAMETHYLENE TEREPHTHALAMIDE, HEXAMETHYLENE ISOPHTHALAMIDE AND CAPROAMIDE UNITS

James S. Ridgway and Oscar A. Pickett, Jr., Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 535,338, Mar. 18, 1966. This application Aug. 6, 1968, Ser. No. 750,490

Int. Cl. C08g *20/04, 20/12*

U.S. Cl. 260—78 A 3 Claims

Fiber-forming terpolyamides consisting of hexamethylene terephthalamide units, hexamethylene isophthalamide units and caproamide units. The properties of fibers formed from these terpolymers may be controlled by varying the mole proportion of the components from which they are prepared. The terpolymers are particularly useful in forming textile fibers and transparent films and castings.

3,787,374

PROCESS FOR PREPARING HIGH MOLECULAR WEIGHT CARBOXYLIC COMPOSITIONS

Charles Wesley Adams, Painesville, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 30,991, Apr. 22, 1970. This application Sept. 7, 1971, Ser. No. 178,503

Int. Cl. C08f *27/00*

U.S. Cl. 260—78.4 D 34 Claims

This invention relates to a process and the products obtained therefrom for preparing a high molecular weight substantially saturated, hydrocarbon-substituted carboxylic composition and more specifically to an oil soluble carboxylic composition obtained by reacting at least one halogenated substantially-saturated hydrocarbon having at least 25 aliphatic carbon atoms per molecule with an effective amount of at least one low molecular weight, alpha or beta halogenated saturated-aliphatic carboxylic acid or a derivative thereof. The carboxylic compositions of this invention are particularly useful as additives, e.g., dispersants, etc. in various oleaginous materials including, for example, lubricating oils, hydraulic fluids, fuels, etc.

3,787,375

HIGH MOLECULAR WEIGHT, HIGH MELTING, LINEAR POLYAMIDES PREPARED FROM TRANS,TRANS-4,4'-DIAMINOBICYCLOHEXYL

Ronald Gene Blecke, Shawnee Mission, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 13, 1971, Ser. No. 189,035

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 R 5 Claims

Fiber and film forming linear polyamides having unusually high melting points are prepared by effecting polymerization of the salt formed between an equimolar mixture of trans,trans-4,4'-diaminobicyclohexyl and an alpha, omega aliphatic dicarboxylic acid containing up to 12 carbon atoms. The polyamide prepared from trans, trans - 4,4' - diaminobicyclohexyl and dodecanedioic acid has a softening point of 360 to 380° C.

3,787,376

PROCESS FOR VULCANIZING POLYEPIHALOHYDRIN RUBBERS

Yoshiro Nakamura, Iwate, and Rikio Nagatomi, Tokyo, Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 3, 1972, Ser. No. 215,106

Claims priority, application Japan, Dec. 31, 1970, 46/123,524, 46/123,525

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 17 Claims

New process for vulcanizing polyepihalohydrin rubbers by heating in the presence of trithiocyanuric acid and/or its derivative such as sodium trithiocyanurate. The vulcanized product has excellent aging stability, especially good strength at break after aging. Vulcanized polyepihalohydrin rubbers concurrently having enhanced oxidation-preventing properties can be obtained by performing the vulcanization in the co-presence of a 2-mercaptoimidazoline such as 2-mercaptoimidazoline, or a carbamate of a polyamine such as hexamethylenediamine carbamate.

3,787,377

CONTINUOUS PROCESS OF COPOLYMERIZING BUTADIENE AND STYRENE

Adel F. Halasa, Bath, and Arthur E. Oberster, North Canton, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Dec. 16, 1971, Ser. No. 208,876

Int. Cl. C08f *19/08*

U.S. Cl. 260—83.7 3 Claims

Butadiene and styrene was copolymerized in a solution which is kept intact as it is passed through reactor means in a continuous process, using butyllithium as the initiator, with sodium or potassium t-amylate or mentholate as a modifier to produce a constant-composition copolymer rubber. A gel suppressant is used in the polymerization. The microstructure of the polybutadiene in the copolymer is not greatly different from that of the copolymer produced by butyllithium alone.

3,787,378

OPTICAL CONTACT LENSES AND RELATED DEVICES

Izhak Blank, Haifa, Israel, assignor to Hydrophilics International, Inc., New York, N.Y.

Application May 3, 1971, Ser. No. 139,545, which is a continuation-in-part of abandoned application Ser. No. 36,931, May 13, 1970. Divided and this application Jan. 24, 1973, Ser. No. 326,180

Int. Cl. C08f *15/14, 15/18*

U.S. Cl. 260—86.1 R 9 Claims

A copolymer having hydrophilic surfaces is formed through the bulk copolymerization of methyl methacrylate and acrylic acid, in particular ranges, followed by a treatment of the formed copolymer with a mild, basic material, such as ammonium hydroxide, in order to neutralize the acid groups present. The depth of penetration of the basic material determines the degree to which the material is hydrophilic. A therapeutic agent may be incorporated into the copolymer after treatment.

3,787,379

COPOLYMERS OF VINYL FLUORIDE AND HEXAFLUOROPROPENE

Richard Anthony Ferren, Ambler, and Daniel Ashton Dimmig, King of Prussia, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Filed Oct. 5, 1971, Ser. No. 186,806

Int. Cl. C08f *15/06*

U.S. Cl. 260—87.5 A 6 Claims

High molecular weight, heat stable, easily processable copolymers of vinyl fluoride and hexafluoropropene containing from 2 to 10 mole percent of polymerized units of hexafluoropropene are prepared by polymerizing the comonomers at pressures below 7000 p.s.i. in a reaction medium comprised of perfluoroalkane or perfluorochloroalkane solvent, or a mixture thereof with water, containing an effective amount of polymerization initiator having a ten-hour half life at a temperature between 0 and 50 C., within which range the polymerization is carried out.

3,787,380

POLYMERS OF N-VINYL OR N-ALLYL HETEROCYCLIC COMPOUNDS WITH MONOETHYLENICALLY UNSATURATED ESTERS AND GLYCIDYL ESTERS

Paul Stamberger, Baltimore, Md., assignor to Union Optics Corporation, Verona, Pa.

No Drawing. Filed Oct. 5, 1971, Ser. No. 187,131

Int. Cl. C08f *17/00, 19/00*

U.S. Cl. 260—80.72 22 Claims

Water insoluble but water swellable polymer comprising certain N-vinyl or N-allyl heterocyclic compounds; an unsaturated ester; and glycidyl methacrylate, and/or glycidyl acrylate and/or glycidyl crotonate. The polymer

may be swelled in aqueous solutions to provide a transparent hydrogel having excellent physical and optical properties, and suitable in an ophthalmic lens.

3,787,381

PROCESS FOR THE POLYMERIZATION WITH RING OPENING OF CYCLOPENTENE

Wolfgang Oberkirch, Cologne-Stammheim, Peter Gunther, Opladen, and Gottfried Pampus, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 877,007, Nov. 14, 1969. This application Aug. 4, 1971, Ser. No. 169,123

Int. Cl. C08f *1/56*

U.S. Cl. 260—87.5 C **5 Claims**

Catalyst combination for polymerizing cyclopentene comprising

(a) a compound of a metal of the 5th or 6th Group of the Periodic System,
(b) an organic aluminum compound,
(c) an aliphatic or aromatic hydrocarbon which contains one or more carbon-carbon double bonds and which is substituted

with halogen or at least one carbon atom of a double bond, and a polymerization process using this catalyst.

3,787,382

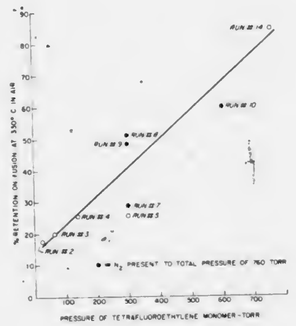
PHOTOPOLYMERIZATION OF TETRAFLUOROETHYLENE AND POLYMER AND PRODUCTS PRODUCED THEREFROM

Archibald N. Wright, Schenectady, N.Y., William R. Burgess, Woburn, Mass., and Edward V. Wilkus, Monroe, Conn., assignors to General Electric Company

Continuation of abandoned application Ser. No. 3,724, Jan. 19, 1970. This application Feb. 16, 1972, Ser. No. 226,947

Int. Cl. C08d *1/00;* **C08f** *3/24*

U.S. Cl. 260—92.1 R **2 Claims**



A process for producing novel white powdery tetrafluoroethylene polymer by irradiating tetrafluoroethylene monomer vapor at a temperature ranging from about 0° to about 200° C. and at a pressure of about 10 torr to 760 torr with ultraviolet light having a wave length in the range of about 1800 to 2400 angstroms. This polymer can be fused, generally at temperatures of about 350° C. and lower, to form coatings, particularly water-clear coatings, self-supporting films and other shaped products.

3,787,383

POLYMERIZATION OF OLEFINIC COMPOUNDS AND CATALYSTS THEREFOR

Edward H. Mottus, Ballwin, and Morris R. Ort, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of application Ser. No. 621,036, Mar. 6, 1967, which is a continuation-in-part of application Ser. No. 539,662, Apr. 4, 1966, both now abandoned. This application Dec. 27, 1971, Ser. No. 212,612

Int. Cl. C08f *1/28, 1/56*

U.S. Cl. 260—92.8 R **14 Claims**

An electrolytic process is described for making certain bis-(halometal)methanes such as bis(dichloroaluminum)-methane, $Cl_2AlCH_2AlCl_2$, which is a new compound, and these compounds can be combined with transition metal compounds such as $VOCl_3$ to make very active catalysts for polymerizing olefinic compounds such as ethylene. In the electrolytic process boron, a Group II, Group III–A or Group IV–A metal, e.g. aluminum, is used as an anode with an electrolyte such as $HOAlCl_2$ in the presence of a methylene dihalide such as CH_2Cl_2 or a gem dihalide which does not readily dehydrohalogenate or alkylate. It is preferred to carry out the electrolysis in the presence of ethylene or another olefinic compound to promote conductivity. Also, it is preferred that all reactants be substantially free of water, except for small known amounts of water which may be added to promote electrolysis. Also, it is preferred to blanket the electrolysis with ethylene which also serves to promote conductivity, or an inert gas to exclude moisture, oxygen and other undesirable materials. The catalysts polymerize olefinic compounds to liquid or solid polymers depending on the particular catalyst used and the olefin being polymerized. The catalysts are promoted or modified by small amounts of water or other electron donor compounds.

3,787,384

CATALYSTS AND PROCESS FOR THE POLYMERIZATION OF OLEFINS

Jacques Stevens, Braine-l'Alleud, and Michel George, Waterloo, Belgium, assignors to Solvay & Cie, Brussels, Belgium

No Drawing. Continuation-in-part of application Ser. No. 5,128, Jan. 22, 1970, now Patent No. 3,718,636. This application Mar. 5, 1971, Ser. No. 121,541

Claims priority, application France, Mar. 5, 1970, 7007852

The portion of the term of the patent subsequent to Feb. 27, 1990, has been disclaimed

Int. Cl. B01j *11/84;* **C08f** *1/56, 3/06*

U.S. Cl. 260—94.9 DA **4 Claims**

The catalyst for the polymerization and copolymerization of olefins is composed of (a) at least one organometallic compound and (b) a solid catalytic component obtained by reacting a support comprised of silica, alumina or both silica and alumina with a compound of the formula MR_nX_{m-n} in which M is aluminum or magnesium, R is a hydrocarbon radical, X is hydrogen or halogen, *m* is the valence of M and *n* is a whole number of not less than 1 nor greater than *m*, separating the solid product of the reaction, reacting this product with an excess of a halogen-containing transition metal compound and separating the solid reaction product. The polymerization of α-olefins and copolymerization of α-olefins with one another and with diolefins by means of the present catalysts are carried out with a high rate of productivity.

3,787,385

SYNTHETICALLY PRODUCED TETRAPEPTIDE HAVING THE ACTIVITY OF THE LUTEINIZING HORMONE RELEASING HORMONE

Karl Folkers, 6406 Mesa Drive 78731; Jaw-King Chang, 1500 E. Riverside Drive 78741; and Hans Sievertsson, 2217 S. Lakeshore Blvd. 78741, all of Austin, Tex.

No Drawing. Filed May 17, 1971, Ser. No. 144,294

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.5 **1 Claim**

A new tetrapeptide, L-p-glutamyl-L-tyrosyl-L-arginyl-L-tyrptophan amide, having the hormonal activity of the luteinizing hormone releasing hormone (LRH) of the hypothalamus gland of mammals is provided by utilizing as key starting materials, the amino acids, glutamic acid, tyrosine, arginine, and tryptophan. Synthesis of the new tetrapeptide, is accomplished by coupling, in appropriate free or protected forms, any combination of these four amino acids to obtain the L-p-glutamyl-L-tyrosyl-L-arginyl-L-tryptophan amide.

3,787,386

TRIPEPTIDE

George Rogelio Flouret, Waukegan, and John Wayne Cole, Deerfield, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Mar. 24, 1972, Ser. No. 237,876

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.5 **7 Claims**

The tripeptide (O—R′)Ser - (O—R″)Tyr - Gly-OR wherein R is hydrogen, methyl or benzyl and R′ and R″ are protective groups on the hydroxy group of the tyrosyl and seryl moieties is a valuable intermediate for the manufacture of the gonadotropin-releasing hormone. It can easily be reacted to form the Nα-blocked fragment Trp-(O—R′)Ser-(O—R″)Tyr-Gly-OH which reacts with Leu-(N^{α}-R‴)Arg-Pro-Gly-NH_2 carrying a protective group (R‴) in the Arg moiety to the corresponding octapeptide from which Gn-RH can be obtained by removing the blocking group of Trp, reacting the deprotected octapeptide with N-protected histidine, removing the protective group of the latter, subsequently reacting the nonapeptide with N-protected pyroglutamic acid and removing all the protective groups, leaving only the unsubstituted decapeptide chain pyro - Glu-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH_2.

3,787,387

2:1 METAL COMPLEXES OF 2,2′,4′-TRIHYDROXY-3,5-DINITROAZOBENZENE BOUND TO A DIPHENYLAMINE THROUGH AN AZO BRIDGE

Heinz Wicki, Allschwil, Basel-Land, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

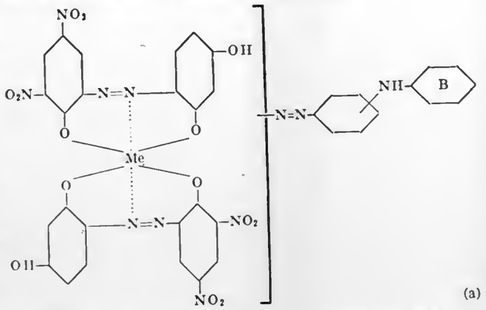
No Drawing. Filed Aug. 3, 1970, Ser. No. 60,748

Claims priority, application Switzerland, Aug. 7, 1969, 11,976/69

Int. Cl. C09b *45/26, 45/32;* **D06p** *3/32*

U.S. Cl. 260—145 A **12 Claims**

New metallized polyazo dyes which are notable for their improved power of exhaustion on leathers of low affinity and are used for dyeing and printing various types of leather. It is desirable for these dyes to contain as basic structural unit a group of the formula



(a)

in which the aromatic ring B bears preferably an

$$-SO_3H_{\frac{1}{2}}-$$

and an $-NO_2-$ group. The molecule may contain up to three additional arylazo groups but preferably not more than one.

3,787,388

THIAZOLYL-AZO-TETRAHYDROQUINOLINE COMPOUNDS

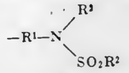
Max A. Weaver and David J. Wallace, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 590,188, Oct. 28, 1966. This application Apr. 19, 1972, Ser. No. 245,390

Int. Cl. C09b *29/36*

U.S. Cl. 260—155 **8 Claims**

Thiazolyl-azo-tetrahydroquinoline compounds in which the nitrogen atom of the tetrahydroquinoline coupling component is substituted with a group having the formula



wherein R^1 is alkylene and R^2 and R^3 each is alkyl, cycloalkyl or aryl. The disclosed compounds are useful for dyeing hydrophobic textile materials such as polyester fibers.

3,787,389

PYRAZOLIDONE DERIVATIVES

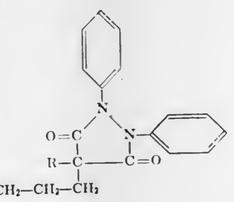
Georges Necrevergne, Bordeaux, France, assignor to The Purdue Frederick Company, Norwalk, Conn.

No Drawing. Application May 14, 1969, Ser. No. 856,508, now Patent No. 3,629,282, which is a division of application Ser. No. 691,197, Dec. 18, 1967, now Patent No. 3,487,046, which is a continuation-in-part of application Ser. No. 362,393, Apr. 24, 1964, which in turn is a continuation-in-part of application Ser. No. 121,796, Apr. 14, 1961, both now abandoned. Divided and this application Jan. 11, 1971, Ser. No. 105,714

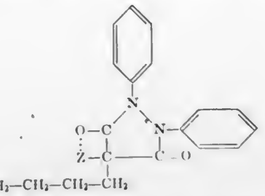
Int. Cl. C07c *47/18;* **C07d** *49/08*

U.S. Cl. 260—210 R **15 Claims**

Diphenylpyrazolidone derivatives, substituted on the 4 position and having the formula



wherein R is selected from the group consisting of glycoses of from 3 through 6 carbons in chain length, polyoxyethylene having a molecular weight of from 200 through 2000 and an ionic exchange resin which is a polymeric condensation product of a phenol, formaldehyde and an alkylene polyamine which are known in the trade as Amberlite resins, and hydrogen bonded compounds of the structure:



wherein Z is a compound of the group selected from align, gum guar, pectin, psyllium, dextran and polyvinylpyrrolidone and the methods for the preparation of the aforesaid compounds. The compounds are useful in achieving an anti-inflammatory effect.

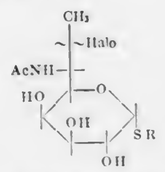
3,787,390

ANALOGS OF LINCOMYCIN AND PROCESS

Robert D. Birkenmeyer, Comstock, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed June 23, 1971, Ser. No. 156,099
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 R **6 Claims**

Clindamycin analogs of the formula



wherein Ac is the acyl of a 1-(2-hydroxyethyl)-L-2-pyrrolidinecarboxylic acid are prepared by N-alkylation of the corresponding 1-unsubstituted compounds. The compound has clindamycin-like antibacterial activity.

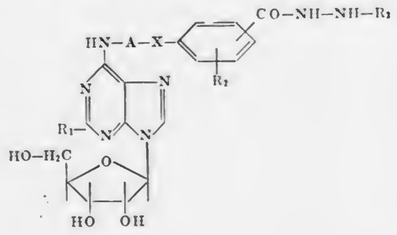
3,787,391

ADENOSINE COMPOUNDS AND THERAPEUTIC COMPOSITIONS

Werner Jahn, Heidelberg, Wolfgang Kampe, Heddesheim, Erich Fauland, Mannheim-Waldhof, Wolfgang Juhran, Mannheim, and Harald Stork, Mannheim-Feudenheim, Germany, assignors to Bohringer Mannheim GmbH, Mannheim, Germany

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,174
Claims priority, application Germany, Dec. 8, 1970, P 20 60 189.2
Int. Cl. C07d *51/54*
U.S. Cl. 260—211.5 R **13 Claims**

New adenosine compounds of the formula:



(I)

wherein R_1 is hydrogen or halogen; R_2 is hydrogen, halogen, hydroxyl, alkyl or alkoxy; R_3 is hydrogen or —CO—R_4, wherein R_4 is aryl which is optionally substituted one or more times by halogen and/or alkyl, alkoxy and/or hydroxyalkyleneoxy; A is a straight-chained or branched alkylene radical containing up to 3 carbon atoms and X is a valency bond or oxygen: and the physiologically compatible salts thereof,

exhibit remarkable effectiveness in improving the blood circulation of mammals and also bring about a depression of serum lipids.

3,787,392

PROCESS FOR THE PREPARATION OF NUCLEOSIDE DIPHOSPHATE ESTERS

Hans Ulrich Bergmeyer, Tutzing, Eric Haid, Weilheim, Michael Nelboeck-Hochstetter, Tutzing, and Gunter Weimann, Percha, Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Germany

No Drawing. Filed Nov. 26, 1971, Ser. No. 202,573
Claims priority, application Germany, Dec. 2, 1970, P 20 59 429.0
Int. Cl. C07d *51/50*
U.S. Cl. 260—211.5 R **14 Claims**

Nucleoside diphosphate esters are prepared by reacting a nucleoside monophosphate with a phosphoric acid ester in the presence of dicyclohexyl carbodiimide, wherein a methanol solution of a nucleoside monophosphoric acid and dicyclohexyl carbodiimide is slowly brought together with a 1 to 6.5 pH methanol solution of a phosphoric acid ester.

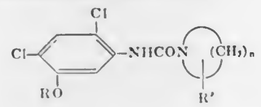
3,787,393

NOVEL UREA DERIVATIVES AND THEIR USE AS HERBICIDES

Masahiro Aya, Junichi Saito, Nobuo Fukazawa, Tatsuo Tamura, Kazuo Kurihara, and Norihisa Morishima, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 28, 1972, Ser. No. 266,876
Claims priority, application Japan, June 30, 1971, 46/47,162
Int. Cl. C07d *27/04, 29/30, 41/04*
U.S. Cl. 260—239 BF **22 Claims**

New urea compounds of the formula



wherein

R is unsaturated lower alkyl, i.e., lower alkenyl of from 2 to 6, preferably 2 to 4, carbon atoms, or lower alkynyl of from 2 to 6, preferably 2 to 4, carbon atoms,

R′ is hydrogen or methyl, and

n is 4, 5 or 6

are excellent herbicides, particularly selective herbicides usable in rice cultivation.

3,787,394

19-NOR-7α-METHYL OR 19 - NOR-20-SPIROX-4,14-DIEN-3-ONE AND 18-METHYL DERIVATIVES THEREOF

Glen E. Arth, Cranford, and Gary H. Rasmusson, Watchung, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 67,615, Aug. 27, 1970. This application Oct. 4, 1972, Ser. No. 295,090
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 R **7 Claims**

The compounds, 19-nor-7α-methyl, 18-hydrogen or methyl-20-spirox-4,14-dien-3-one and the corresponding

19-nor-spiro-lactones are provided, prepared from the corresponding 19-nor-3-oxo-spirox-4,14-dienes. The compounds are useful as orally-effective antiestrogens and are also anabolic agents having low androgenicity.

3,787,395

13-ETHYL-11-OXYGENATED GONENES

Gordon Alan Hughes, Haverford, and Herchel Smith, Wayne, Pa., said Hughes assignor to said Smith

Continuation of application Ser. No. 110,336, Jan. 27, 1971, which is a continuation of application Ser. No. 790,569, Jan. 13, 1969, which is a continuation-in-part of application Ser. No. 602,785, Dec. 19, 1966, all now abandoned, which in turn is a continuation-in-part of application Ser. No. 228,384, Oct. 4, 1962, and Ser. No. 401,891, Oct. 6, 1964, now abandoned. This application Feb. 16, 1973, Ser. No. 333,085
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 C **8 Claims**

11-oxygenated 13-ethyl-gon-5(10)-en-3-ones and 13-ethyl-gon-4-en-3-ones with corticoidal activity are prepared from 13-ethyl-gona-1,3,5(10),9(11)-tetraenes by hydroboration and oxidation to the corresponding 11-oxygenated gona-1,3,5(10)-triene, Birch reduction to the gona-2,5(10)-diene and hydrolysis.

3,787,396

17-HYDROXY - 7 - (LOWER ALKOXY)CARBONYL-3-OXO-17α-PREGN-4-ENE-21-CARBOXYLIC ACID γ-LACTONES AND CONGENERS

Richard M. Weier, Deerfield, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 174,922, Aug. 25, 1971. This application Oct. 2, 1972, Ser. No. 294,379
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.57 **21 Claims**

Preparation and valuable biological properties—especially diuretic activity—of 17-hydroxy - 7 - (lower alkoxy)carbonyl-3-oxo-17α-pregn - 4 - ene-21-carboxylic acid γ-lactones, hydroxy acids and their salts corresponding thereto, and Δ^1 and thio ester analogs of these lactones, acids, and salts are disclosed.

3,787,397

ACETALS AND METHODS FOR THEIR PREPARATION

Anthony W. McCollum, Longview, Tex., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,324
Int. Cl. C07d *13/04*
U.S. Cl. 260—240 E **9 Claims**

1,1,4,4-bis(ethylenedioxy) - 3,3-dimethyl-1-butene (referred to as ketene acetal) is prepared by reacting ethylene glycol with tetrahydro-2-isopropyl-6,6-dimethylfuro-(2,3-d)-1,3-dioxol-5-ol in the presence of an acid catalyst at a temperature of from about 110° to 170° C. The water of reaction is preferably removed by the use of a solvent which forms an azeotrope that boils between 110° to 170° C. In an alternative two-step process, tetrahydro-2-isopropyl-6,6-dimethylfuro-(2,3-d) - 1,3 - dioxol-5-ol is reacted with ethylene glycol in the presence of an acid catalyst at a temperature of from about 60° to 110° C. to form 2-hydroxy-3,3-dimethylsuccinaldehyde bis(ethylenedioxy)acetal (referred to as hydroxy acetal). The 2-hydroxy - 3,3 - dimethylsuccinaldehyde bis(ethylenedioxy) acetal is then heated to a temperature of from about 110° to 170° C. in the presence of an acid catalyst to give 1,1,4,4-bis(ethylenedioxy) - 3,3-dimethyl-1-butene. The water from the two-step process is preferably removed from the reaction as it is formed through the use of an azeotropic solvent. The ketene acetal is useful generally because of its reactive nature and for its ability to form oxetane polymers and polyesters. The hydroxy acetal is useful as a gel hardener, as a cross-linking agent for use with cellulose derivatives and polyols, and as a chemical intermediate.

3,787,398

3,4-DIHYDRO-2-(2-HYDROXY)ETHYL-1-(R-AMINO)-PYRAZINO[1,2-b] - 1,2 - BENZOTHIAZIN-11(2H)-ONE 6,6-DIOXIDES

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,116
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **4 Claims**

The compounds herein are 3,4-dihydro-2-(2-hydroxy) ethyl - 1 - (R-amino)-pyrazino[1,2-b]-1,2-benzothiazin-11 (2H)-one 6,6-dioxides, useful as anti-inflammatory agents and for other pharmacological properties.

3,787,399

3,4-DIHYDRO - 1 - METHYLPYRAZINO[1,2-b]-1,2-BENZOTHIAZIN-11(2H)-ONE 6,6-DIOXIDES

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,117
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **2 Claims**

The compounds herein are 3,4-dihydro-1-methyl-pyrazino[1,2-b] - 1,2 - benzothiazin-11(2H)-one 6,6-dioxides, useful for their ultra-violet absorbing properties.

3,787,400

1,2,3,4-TETRAHYDRO - 11 - HYDROXYPYRAZINO [1,2-b]-1,2 - BENZOTHIAZINE - 1,3 - DIONE 6,6-DIOXIDE

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,119
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **1 Claim**

The compound herein is 1,2,3,4-tetrahydro-11-hydroxy-pyrazino-[1,2-b]-1,2-benzothiazine-1,3 - dione 6,6-dioxide, useful for its ultra-violet absorbing properties.

3,787,401

NOVEL 1,2-BENZOTHIAZINE DIOXIDES

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,120
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **6 Claims**

The compounds herein are 1,2,3,4 - tetrahydro - 11-hydroxypyrazino[1,2-b] - 1,2 - benzothiazin - 1(2H) - one 6,6-dioxides, useful for their pharmacological properties and as precursors for useful compounds.

3,787,402

THIO-DERIVATIVES OF 1,2-BENZOTHIAZINE DIOXIDES

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,121
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **4 Claims**

The compounds herein are 1,2,3,4-tetrahydro-11-hydroxypyrazino[1,2-b]-1,2-benzothiazin-1(2H) - one 6,6-dioxides, useful for their ultraviolet absorption and central nervous system depressant activity.

3,787,403

AMINO-DERIVATIVES OF 1,2-BENZOTHIAZINE DIOXIDES

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,122
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **7 Claims**

The compounds herein are 1,2,3,4-tetrahydro-11-hydroxypyrazino[1,2-b]-1,2-benzothiazin-1(2H)-one 6,6-dioxides, useful for their ultra-violet absorption and pharmacological properties.

3,787,404
NOVEL 1,2-BENZOTHIAZINE DIOXIDES AND PRECURSORS THEREFOR

Chris Royce Rasmussen, Ambler, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,126
Int. Cl. C07d *93/02*
U.S. Cl. 260—243 R **3 Claims**

The compounds herein are:

(I) 2,3,5,6-tetrahydro - 13H - oxazolo[2',3',:3,4]pyrazino[1,2-b]-1,2-benzothiazin-13-one 8,8 - dioxide, useful for its anti-inflammatory and diuretic properties;

(II) (1,2,3,4-tetrahydro - 11 - hydroxy-1-oxopyrazino [1,2-b]-1,2-benzothiazin-2-yl)ethyl methanesulfonate 6,6-dioxide, useful as a precursor for making (I); and

(III) 1,2,3,4 - tetrahydro-11-hydroxy-2-(2-hydroxyethyl)pyrazino[1,2-b]-1,2-benzothiazin - 1 - one 6,6-dioxide, useful as a precursor for making (II).

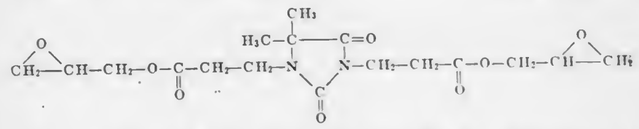
3,787,405
DIGLYCIDYL COMPOUNDS CONTAINING A N-HETEROCYCLIC RING

Daniel Porret, Binningen, and Willy Fatzer, Bottmingen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Nov. 9, 1971, Ser. No. 197,113
Claims priority, application Switzerland, Nov. 18, 1970, 17,022/70
Int. Cl. C07d *49/32, 51/18*
U.S. Cl. 260—260 **5 Claims**

Diglycidyl esters are produced by the reaction, in a known manner, of dicarboxylic acids of mononuclear N-heterocyclic compounds, e.g. N,N' - bis - (β - carboxyethyl) - 5,5 - dimethylhydantoin, with epihalogenhydrin, e.g. with epichlorohydrin.

Example: The new compound



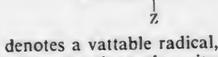
The new diglycidyl esters can be easily cured with all known epoxide resin curing agents, and are suitable for the production of moulded shapes possessing good mechanical properties.

3,787,406
TRIAZINYL VAT DYESTUFFS

Paul Ulrich and Max Staeuble, Basel, Fritz Kugler, Muttenz, and Max Jost, Oberwil, Basel-Land, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Apr. 16, 1970, Ser. No. 29,255
Claims priority, application Switzerland, Apr. 24, 1969, 6,356/69
Int. Cl. C07d *55/20*
U.S. Cl. 260—249 **5 Claims**

The invention relates to vat dyestuff of the general formula



(1)

wherein A denotes a vattable radical, X denotes a heterocyclic radical having three ring nitrogen atoms which is bounded to the —NH— group by a ring carbon atom, Y denotes an oxygen or sulphur atom, R denotes an aromatic radical free from azo groups which is bounded to the oxygen or sulphur atom Y by a carbon atom of the aromatic nucleus, which, when R represents a heterocyclic aromatic radical is an at least 6-membered heterocyclic aromatic radical, and Z denotes a radical

—NH—A'

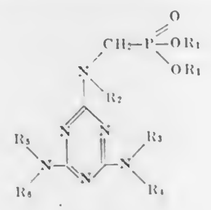
or a radical —Y—A', wherein Y has the above-mentioned significance and A' represents a vattable residue which are valuable dyestuffs for vat and pigment dyeing. The dyeings obtained are distinguished by very clear shades, interesting application properties and very good properties of wet fastness and fastness to light.

3,787,407
MELAMINE-DERIVATIVES

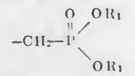
Udo Hendricks, Cologne, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 27, 1971, Ser. No. 175,720
Claims priority, application Germany, Aug. 28, 1970, P 20 42 661.3
Int. Cl. C07d *55/24*
U.S. Cl. 260—249.6 **4 Claims**

New melamine derivatives of the general formula



in which the radicals R_1, independently of one another, mean a lower alkyl radical; and R_2, R_3, R_4, R_5 and R_6, independently of one another, mean a hydrogen atom, a hydroxymethyl group or a radical of the formula



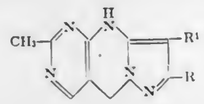
a process for their production and their use as flameproofing agents for textile materials.

3,787,408
CERTAIN PYRAZOLO[1,5-a]PYRIMIDO [4,5-d]PYRIMIDINES

Akira Takamizawa, 73–6 Shimohozumi, Ibaraki, Japan, and Hisao Sato, 767 Tonda-cho, Takatsuki, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 869,379, Oct. 24, 1969. This application Nov. 16, 1971, Ser. No. 199,367
Claims priority, application Japan, Oct. 28, 1968, 43/78,432, 43/78,433, 43/78,435
Int. Cl. C07d *51/12*
U.S. Cl. 260—256.4 F **5 Claims**

Pyrazolopyrimidopyrimidine derivatives of the formula:



wherein R represents a hydrogen, lower alkyl, phenyl or phenyl(lower)alkyl and R^1 represents a hydrogen or phenyl, being useful as medicaments such as antipyretics, analgesics or anti-inflammatory agents, are prepared by four different routes.

3,787,409
2,4-DIAMINO-5-(3-ALKOXY-4,5-METHYLENEDIOXYBENZYL)PYRIMIDINE

Emanuel Grunberg, North Caldwell, and Max Hoffer, Nutley, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 1, 1971, Ser. No. 203,869
Int. Cl. C07d *51/42*
U.S. Cl. 260—256.4 N **2 Claims**

2,4-diamino-5-(3-alkoxy - 4,5 - methylenedioxybenzyl)-pyrimidines, prepared such as for example, 2,4-diamino-5-(3-methoxy-4,5 - methylenedioxybenzyl)pyrimidine from the corresponding benzaldehydes, are described. The end products are useful as potentiators of the antibacterial activity of sulfonamides, as well as antibiotics.

3,787,410
CARBOXYAMIDO SUBSTITUTED-2-ALKYLTHIO-5-PYRIMIDINESULFONAMIDES

Paul L. Anderson, Dover, and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,296
Int. Cl. C07d *51/40, 51/42*
U.S. Cl. 260—256.5 R **1 Claim**

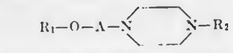
Carboxyamido substituted-2-alkylthio - 5 - pyrimidinesulfonamides, e.g., 4,6 - di - (p-chlorobenzoylamido)-2-methylthio-5-pyrimidinesulfonamide, are prepared by condensing 4,6-diamino-2-alkylthio-5-pyrimidinesulfonamides with benzoic or substituted benzoic acids or acid halides and are useful as anti-inflammatories.

3,787,411
HETEROCYCLIC ETHERS OF PIPERAZINE N ALKANOLS

Heinrich Ruschig, Bad Soden, Taunus, Karl Schmitt, Frankfurt am Main, Werner Mohler, Hofheim, Taunus, and Axel Göbel and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 8, 1970, Ser. No. 70,486
Claims priority, application Germany, Sept. 12, 1969, P 19 46 172.4
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 PH **5 Claims**

A heterocyclic ether of the formula



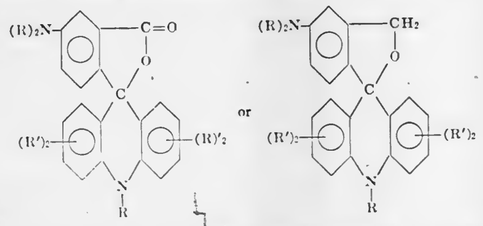
in which R_1 is 3-, 4- or 6-alkoxy-pyridyl-(2)-; 2-, 4-, 5-, or 6-alkoxy-pyridyl-(3); 2- or 3-alkoxy-pyridyl-(4) which have 1–4 carbon atoms in the alkoxy radical; 3-, 4-, 5- or 6-methyl-pyridyl-(2); 6 - ethyl - pyridyl - (4)-; 2,6-dimethyl-pyridyl-(4); R_2 is phenyl, o-tolyl, m-tolyl, p-tolyl, o-anisyl, m-anisyl, p-anisyl, o-chlorophenyl, m-chlorophenyl, p-chlorophenyl, pyridyl (2), pyridyl (3), pyridyl (4); 2-chloro-4-methyl-phenyl, 2-chloro - 4 - methoxyphenyl and 2-methoxy-4 - methyl - phenyl, 6 - methoxypyridyl (2), 2-methyl-pyridyl (4), 4,6-dimethyl-pyridyl (2) or their position isomers, and A is alkylene having from 2 to 6 carbon atoms wherein the same is ethylene, trimethylene, 2-methyl-ethylene, 3-methyl-ethylene, tetramethylene, 3-methyl-trimethylene, 2 - ethyl - ethylene, 1-ethyl-ethylene, pentamethylene, 4 - methyl - tetramethylene, 3-ethyl-trimethylene, 1-propyl - ethylene, 1 - isopropyl-ethylene, 1,2-dimethyl - ethylene, hexamethylene, 5-methyl-pentamethylene, 4 - ethyl - tetramethylene, 3 - propyl-trimethylene, 2-butyl-ethylene, 1 - butyl - ethylene or 1-methyl-3-ethyl-trimethylene; and physiologically tolerable acid addition salts thereof; these compounds have an α-sympatholytic action and are useful in the treament of shocks, migraine, hypertonia and blood circulation disorders of the extremities.

3,787,412
SUBSTITUTED DIALKYLAMINO-(PHTHAL(YL/AN) ACRIDAN COMPOUNDS

Troy Eugene Hoover, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Mar. 14, 1972, Ser. No. 234,664
Int. Cl. C07d *37/12*
U.S. Cl. 260—279 R **4 Claims**

Colorless, but colorable acridan compounds are disclosed, which are represented by the formula:



wherein each R is an alkyl radical having 1 to 5 carbon atoms and each R' is hydrogen, an alkyl radical having 1 to 5 carbon atoms, an alkoxy radical having 1 to 5 carbon atoms, a dialkylamino radical wherein each alkyl radical has 1 to 5 carbon atoms, an amino radical, a nitro radical or a halogen. These compounds are used in pressure-sensitive record material and in mark-forming manifold systems.

3,787,413
10-CARBAMOYL-PHENOTHIAZINE-3-SULFONAMIDE

Kenji Naka, Negaya, Masayasu Sugiyama, Osaka, and Saiko Nishibori, Takatsuki, Japan, assignors to Ono Pharmaceutical Co., Ltd.

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,533
Claims priority, application Japan, Dec. 26, 1970, 45/128,980
Int. Cl. C07d *93/14*
U.S. Cl. 260—243 A **1 Claim**

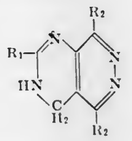
This invention relates to a novel compound i.e. 10-carbamoyl-phenothiazine-3-sulfonamide and also to a method for producing the same.

3,787,414
DIHYDROPYRIMIDOPYRIDAZINE DERIVATIVES

Shojiro Yurugi, Kyoto, and Shintaro Kikuchi, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,447
Claims priority, application Japan, Oct. 14, 1970, 45/90,713
Int. Cl. C07d *87/40*
U.S. Cl. 260—246 B **14 Claims**

Compounds of the formula



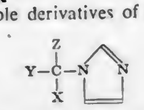
wherein R_1 is an aromatic hydrocarbon or heterocyclic group, such as phenyl or thienyl, and R_2 is a secondary or tertiary amine group, such as piperidino, cyclohexylamino, anilino or isopropylamino, have effective diuretic activity.

3,787,415
N-METHYL-IMIDAZOLE DERIVATIVES AND THEIR PRODUCTION

Wilfried Draber, Karl Heinz Büchel, Erik Regel, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 2, 1971, Ser. No. 120,333
Claims priority, application Germany, Mar. 23, 1970, P 20 13 793.3
Int. Cl. C07d *51/76*
U.S. Cl. 260—250 R **11 Claims**

N-methyl-imidazole derivatives of the formula:



(I)

or a pharmaceutically acceptable non-toxic salt thereof, wherein

X is an unsubstituted or substituted 6-membered heteroaromatic moiety having two nitro heteroatoms,

Y is an unsubstituted or substituted aliphatic moiety, an unsubstituted or substituted cycloaliphatic moiety, an unsubstituted or substituted aralkyl moiety or an unsubstituted or substituted aryl moiety, and

Z is an unsubstituted or substituted aliphatic moiety, an unsubstituted or substituted cycloaliphatic moiety, an unsubstituted or substituted aralkyl moiety, an unsubstituted or substituted aryl moiety, an unsubstituted or substituted pyridyl moiety or an alkoxycarbonyl moiety,

are useful as antimycotic agents.

3,787,416
N-OXYALKYL-N'-HYDROCARBYL-HEXAHYDRO-PYRIMIDINES

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 826,721, May 21, 1969, now Patent No. 3,673,186, dated June 27, 1972, which is a continuation-in-part of application Ser. No. 370,079, May 25, 1964, now Patent No. 3,446,808, dated May 27, 1969. This application Dec. 30, 1971, Ser. No. 214,387
Int. Cl. C07d *51/18*
U.S. Cl. 260—251 R **8 Claims**

N-hydroxyalkyl-N'-hydrocarbyl - hexahydropyrimidines or N-alkoxyalkyl - N' - hydrocarbyl-hexahydropyrimidines in which the hydrocarbyl is sec-alkyl or cycloalkyl. A representative compound is N-methoxyethyl-N'-cyclohexyl-hexahydropyrimidine. The novel compounds possess utility as additives to retard deterioration of organic substances due to weathering, oxidation, corrosion, etc., curing catalysts for urethanes, intermediates for preparing pharmaceutcials, etc.

3,787,417
DIALKYLTIN SALTS OF SUBSTITUTED PYRIDINE-1-OXIDES

Charles W. Kaufman, Hamden, Conn., assignor to Olin Corporation

No Drawing. Application July 18, 1969, Ser. No. 843,218, now Patent No. 3,705,943, which is a continuation-in-part of abandoned application Ser. No. 596,801, Nov. 25, 1966. Divided and this application June 28, 1972, Ser. No. 266,948
Int. Cl. C07d *29/36*
U.S. Cl. 260—270 R **8 Claims**

Certain dialkyltin salts of 2-mercaptopyridine-1-oxide and 2-hydroxypyridine-1-oxide are prepared by reacting the respective oxides with a dialkyltin salt of a low molecular weight organic or inorganic acid. The resulting salts are highly effective bactericides and fungicides which have especially low toxicity to higher animals.

3,787,418
6-ALKYL-3-METHYLQUINALDINIC ACIDS

Michael Pang, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application Feb. 17, 1971, Ser. No. 116,065, now Patent No. 3,697,400. Divided and this application Apr. 5, 1972, Ser. No. 241,477
Int. Cl. C07d *33/48*
U.S. Cl. 260—287 R **3 Claims**

New 6-alkyl-3-methylquinaldinic acids and methods of synthesis are disclosed, which acids are useful in extracting copper from acidic leach solutions.

New quinaldinic acids and methods of synthesis are disclosed.

3,787,419
N-SUBSTITUTED-α,α,α-TRIFLUORO-m-TOLUAMIDES

William F. Bruce, Havertown, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed July 1, 1971, Ser. No. 159,059
Int. Cl. C07d *29/28, 29/30, 41/08*
U.S. Cl. 260—293.77 **1 Claim**

Disclosed are α,α,α-trifluoro-m-toluamides wherein the N is substituted with groups such as di(lower)alkylamino-(lower)alkyl, morpholino(lower)alkylamino, N-substituted-3 or 4-piperidylamino, piperidino(lower)alkylamino and N-substituted-1,3 or 1,4-hexahydro-1-H-diazepine. The compounds disclosed possess utility as central nervous system depressants useful in calming animals.

3,787,420
CYANOALKOXY (TRIFLUOROMETHYL) PYRIDINES

Florence E. Torba, Clayton, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Application Mar. 17, 1969, Ser. No. 77,736, now Patent No. 3,705,170, which is a division of application Ser. No. 807,980, Mar. 17, 1969, now Patent No. 3,609,158. Divided and this application July 14, 1972, Ser. No. 272,017
Int. Cl. C07d *39/28*
U.S. Cl. 260—294.9 **2 Claims**

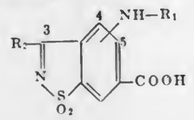
Disclosed as novel compounds are (trifluoromethyl) pyridine derivatives which are substituted by a hydroxy, mercapto, alkoxy, loweralkenoxy, aryloxy, alkylthio, alkylsulfonyl, arylsulfonyl, amino, hydrazino or oxylower-alkanoic acid or acid derivative group and optionally by chlorine and/or fluorine. Any remaining positions on the pyridine ring are taken up by hydrogen. The compounds have utility as herbicides and as active constituents of various miticidal, anthelmintic, fungicidal and bacteriocidal compositions.

3,787,421
SUBSTITUTED 6-CARBOXY-1,2-BENZISO-THIAZOLE-1,1-DIOXIDES

Peter Werner Feit, Gentofte, and Ole Bent Tvaermose Nielsen, Vanlose, Denmark, assignors to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Filed June 16, 1971, Ser. No. 153,878
Claims priority, application Great Britain, June 30, 1970, 31,718/70
Int. Cl. C07d *91/12*
U.S. Cl. 260—294.8 C **29 Claims**

The invention relates to a series of new compounds, their salts and esters and to methods for the preparation of the compounds having the general formula:



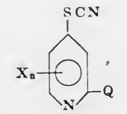
in which the NH-R_1 group can be in the 4- or 5-position, R_1 represents an aliphatic radical with from 3 to 8 carbon atoms in the chain, or a mononuclear aromatically or a mononuclear heterocyclically substituted methyl or ethyl group, and R_2 represents an unsubstituted or substituted phenyl group.

3,787,422
HALOPYRIDYL THIOCYANATES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application June 30, 1971, Ser. No. 158,568. Divided and this application Feb. 9, 1973, Ser. No. 331,090
Int. Cl. C07d *31/48*
U.S. Cl. 260—294.8 F **2 Claims**

Compounds corresponding to the formula



wherein each X independently represents chloro or bromo; *n* represents an integer of from 1 to 3; and Q represents cyano (—CN), trifluoromethyl (—CF_3), methylsulfonyl (—SO_2CH_3), chloro or bromo are prepared and are useful as bactericides and fungicides.

3,787,423
β-PICOLYLOXY ESTER OF (3-TRIFLUORO-METHYLPHENOXY) (4-CHLOROPHENYL) ACETIC ACID AND DERIVATIVES

William A. Bolhofer, Frederick, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Mar. 8, 1972, Ser. No. 232,966
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 R **3 Claims**

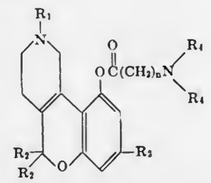
Heterocyclic methyl esters and N-(lower alkanesulfonyl) or N-(2-sulfoethyl)amides of (3-trifluoromethylphenoxy) (4-chlorophenyl)acetic acid which are useful in the treatment of atherosclerosis. The heterocyclic methyl esters and N-(lower alkanesulfonyl) or N-(2-sulfoethyl)-amides of (3-trifluoromethylphenoxy) (4-chlorophenyl)-acetic acid are prepared by reacting a (3-trifluoromethylphenoxy) (4-chlorophenyl)acetyl halide with a hydroxymethyl substituted heterocycle, with an alkali metal salt of a lower alkanesulfonamide or 2-aminoethanesulfonic acid.

3,787,424
DIALKYLAMINO ESTERS OF BENZOPYRANO-PYRIDINES

Harry George Pars, Lexington, and Raj Kumar Razdan, Belmont, Mass., assignors to Sharps Associates, Cambridge, Mass.

No Drawing. Filed May 8, 1972, Ser. No. 251,618
Int. Cl. C07d *31/34*
U.S. Cl. 260—295 T **6 Claims**

Dialkylamino esters of benzopyranopyridines represented by the formula



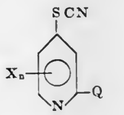
wherein R_1 is hydrogen, loweralkanoyl, cycloalkyllower-alkyl, loweralkyl, cycloalkylloweralkanoyl, loweralkenyl, loweralkynyl, haloloweralkenyl, phenylloweralkyl, phenyl-loweralkenyl or phenylloweralkynyl; R_2 is loweralkyl; R_3 is C_1–C_{20} alkyl or cycloalkylloweralkyl; *n* is an integer from 1 to 6; and R_4 is hydrogen or loweralkyl; and the pharmaceutically acceptable acid addition salts thereof.

3,787,425
HALOPYRIDYL THIOCYANATES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application June 30, 1971, Ser. No. 158,568. Divided and this application Feb. 9, 1973, Ser. No. 331,091
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 G **3 Claims**

Compounds corresponding to the formula



wherein each X independently represents chloro or bromo; *n* represents an integer of from 1 to 3; and Q represents cyano (—CN), trifluoromethyl (—CF_3), methylsulfonyl (—SO_2CH_3), chloro or bromo are prepared and are useful as bactericides and fungicides.

3,787,426
MANUFACTURE OF 1,1-DISUBSTITUTED-4,4-BIPYRIDYLIUM SALTS

John Edward Colchester and Thomas Blundell, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Feb. 24, 1971, Ser. No. 118,565
Claims priority, application Great Britain, Mar. 5, 1970, 10,679/70
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 D **25 Claims**

A process for the manufacture of a 1,1'-di(hydroxyalkyl)-4,4'-bipyridylium salt wherein each of the hydroxyalkyl substituents contains up to 10 carbon atoms which comprises reacting an N-hydroxyalkyl pyridinium salt with a cyanide under basic conditions and subsequently oxidizing the resulting interaction product to produce the bipyridylium salt.

3,787,427
PROCESS FOR THE MANUFACTURE OF BIPYRIDYLS

Sheila Antoinette Potter, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,349
Claims priority, application Great Britain, Aug. 17, 1970, 39,481/70
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 D **8 Claims**

A process for the manufacture of bipyridyls which comprises heating a pyridine with a halogen, a 4-halopyridine or a 1-(4-pyridyl)-pyridinium halide at a temperature of at least 150° C.

3,787,428

U.V.-ABSORBING ORTHO-HYDROXYPHENYL SUBSTITUTED BIPYRIDINES

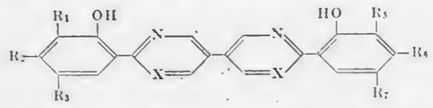
Jan-Erik Anders Otterstedt, Simrishamn, Sweden, and Richard Pater, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Feb. 24, 1969, Ser. No. 801,842, now Patent No. 3,660,404, dated May 2, 1972. Divided and this application Dec. 13, 1971, Ser. No. 207,616

Int. Cl. C07d *31/28, 31/46*

U.S. Cl. 260—296 D **8 Claims**

Ultraviolet absorbing bipyridyl of the formula



wherein R_{1-3} and R_{5-7} are selected from H, Cl, OH, C_{1-18} alkyl, C_{1-18} alkoxy and C_{1-18} acyloxy, and process for preparing same.

3,787,429

2-BENZYL AMINOPYRIDINE HAVING AT LEAST THREE SUBSTITUENTS IN THE BENZYL GROUP

Kurt Thiele and Walter E. von Bebenburg, Frankfurt, Germany, assignors to Deutsche Gold - und Silber-Scheideanstalt vormals Roessler, Frankfurt, Germany

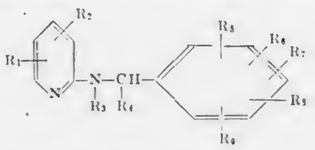
No Drawing. Application July 11, 1969, Ser. No. 842,438, now Patent No. 3,712,900, which is a continuation-in-part of abandoned application Ser. No. 762,321, Sept. 16, 1968, which in turn is a continuation-in-part of application Ser. No. 637,322, May 10, 1967, now Patent No. 3,481,743. Divided and this application Oct. 7, 1971, Ser. No. 187,543

The portion of the term of the patent subsequent to May 19, 1987, has been disclaimed

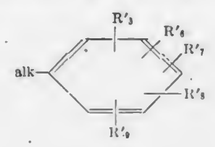
Int. Cl. C07d *31/36*

U.S. Cl. 260—295.5 C **8 Claims**

There are prepared pharmacological compounds of the formula



and their pharmacological acceptable acid addition salts wherein R_1 is amino, lower alkylamino, or amino acylated by carbonic acid, lower aliphatic monoesters of carbonic acid, aromatic monoesters of carbonic acid, benzoic acid, substituted benzoic acid, saturated or unsaturated straight or branched chain lower aliphatic mono or dicarboxylic acids, carbonic acid semi morpholide or carbonic acid semi piperidide, R_2 is hydrogen or R_1, R_3 is hydrogen, lower alkyl or acyl as defined for R_1, R_5, R_6, R_7, R_8 an R_9 are hydrogen, halogen, alkyl, trifluoromethyl, hydroxy, alkoxy, hydroxyalkyl, aliphatic acyl, carboxy or carboxyalkyl, R_4 is hydrogen, alkyl or



where alk is a 1 to 3 carbon atom straight or branched chain alkylene group which can be substituted with hydroxy, lower alkyl, lower alkoxy and R'_5, R'_6, R'_7, R'_8 and R'_9 have the same meaning as R_5, R_6, R_7, R_8 and R_9, when alk is unsubstituted at least one of R'_5, R'_6, R'_7, R'_8 or R'_9 is not hydrogen and if R_4 is hydrogen or alkyl at least 3 or R_5, R_6, R_7, R_8 and R_9 are not hydrogen.

3,787,430

DERIVATIVES OF DIPYRAZOLO[3,4-b; 3',4'-d] PYRIDINES

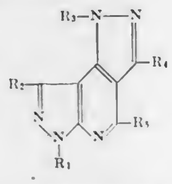
Hans Hoehn, Tegernheim, and Theodor Denzel, Nuremberg, Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed July 13, 1972, Ser. No. 271,477

Int. Cl. A61k *27/00;* **C07d** *49/18*

U.S. Cl. 260—296 H **12 Claims**

New derivatives of dipyrazolo[3,4-b; 3',4'-d]pyridines have the general formula



They and salts thereof are useful as central nervous system depressants. These compounds also increase the intracellular concentration of adenosine 3',5'-cyclic monophosphate.

3,787,431

CERTAIN 3,4,5-TRIPHENYLTHIAZOL-2-ONES

Siegfried Linke, Rudiger Sitt, Harald Horstmann, and Karl Meng, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 12, 1971, Ser. No. 188,533

Claims priority, application Germany, Oct. 14, 1970, P 20 50 439.6

Int. Cl. C07d *91/24*

U.S. Cl. 260—306.7 **29 Claims**

4,5-diphenylthiazolones-(2) bearing an unsubstituted or substituted aryl group in the 3-position are prepared from the reaction of a desyl halide and an N-arylthiocarbamic acid O-ester. The compounds, of which 3-(4-nitrophenyl)-4,5-diphenylthiazolone-(2) is a representative embodiment, are hypolipemic agents.

3,787,432

DIALKYL ACETALS OF 2 - [3-(2-t-BUTYL-1,3,4-THIADIAZOL-5-YL)UREIDO] ACETALDEHYDE

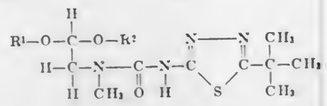
John Krenzer, Oak Park, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,944

Int. Cl. C07d *91/62*

U.S. Cl. 260—306.8 D **4 Claims**

This invention discloses new chemical compounds of the formula



wherein R^1 and R^2 are each alkyl of up to 3 carbon atoms. Further disclosed are herbicidal compositions utilizing the above defined compounds.

3,787,433

2-SUBSTITUTED - 4,5,6,7 - TETRAHYDROBENZOTHIAZOLE-4-CARBOXYLIC ACIDS AND THEIR ALKYL ESTERS

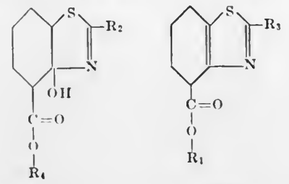
Peter H. L. Wei, 430 Ridge Lane, Springfield, Pa. 19064

No Drawing. Original application Mar. 17, 1971, Ser. No. 125,413, now Patent No. 3,694,450. Divided and this application May 31, 1972, Ser. No. 258,288

Int. Cl. C07d *91/46*

U.S. Cl. 260—306.8 R **5 Claims**

Novel pharmacologically active compounds have been prepared which have the general formulae:



(I) (II)

wherein R_1 is selected from the group consisting of hydrogen and (lower)alkyl; R_2 is selected from the group consisting of phenyl, halophenyl and (lower)alkylphenyl; R_3 is selected from the group consisting of phenyl, halophenyl, (lower)alkylphenyl, pyridyl, amino, anilino, hydrazino, benzylidenehydrazino, halobenzylidenehydrazino, nitrobenzylidenehydrazino and (lower)alkylbenzylidenehydrazino; R_4 is (lower)alkyl; and the pharmaceutically acceptable salts thereof.

3,787,434

HERBICIDAL 1,2,3-THIADIAZOL-5-YL UREAS

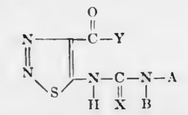
Gert Paul Volpp, Princeton, and Harry Dounchis, Lawrence Township, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 156,125, June 23, 1971. This application Mar. 27, 1972, Ser. No. 238,664

Int. Cl. C07d *91/54*

U.S. Cl. 260—306.8 D **17 Claims**

A new class of herbicidal compounds of the formula:



where A is lower alkyl or alkenyl radical, B is —H or $—CH_3$, X is oxygen or sulfur, and Y is an alcohol or amine residue, and the metallic and amine salts thereof, has selective pre-emergence and post-emergence herbicidal activity. The synthesis of members of this class is described in detail, and the utility of representative compounds is exemplified.

3,787,435

4,5-BIS-(TRIFLUOROMETHYLIMINO)-DIAZOLES

Hans-Joachim Scholl, Cologne, Erich Klauke, Odenthal, Ferdinand Grewe, Burscheid, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

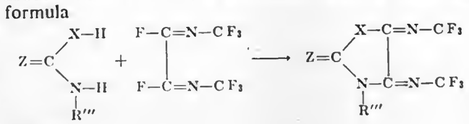
No Drawing. Filed Dec. 8, 1971, Ser. No. 206,159

Claims priority, application Germany, Dec. 18, 1970, P 20 62 346.5

Int. Cl. C07d *49/34, 57/02*

U.S. Cl. 260—309.2 **9 Claims**

4,5-bis-(trifluoromethylimino)oxazoles or diazoles are prepared by reacting the enol form of an amide or an imide of a carboxylic acid or carbonic acid, having at least one hydrogen atom on each of an oxygen and nitrogen or two nitrogen atoms vicinal to the amide carbon atom, with perfluoro-2,5-diazahexa-2,4-diene in the presence of a hydrogen fluoride acceptor at a temperature of about —50 to 120° C., in accordance with the following formula



in which

Z is oxygen, R—N= or



and X is oxygen or



and R, R', R'' and R''' each is hydrogen or various optionally substituted hydrocarbon or heterocyclic radicals, several of them together possibly forming a heterocyclic ring.

The invention also extends to compositions containing, and methods of using, the new compounds to combat fungi, insects and acarids.

3,787,436

2-(DIPHENYL AMINO-ALKYL AMINO)-2-IMIDAZOLINES

Claude Louis Clément Carron, Chatenay-Malabry, Bernard Philippe Bucher, L'Hay-les-Roses, and Alexandra Francine Jullien, Paris, France, assignors to Synthelabo S.A., Paris, France

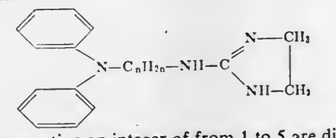
No Drawing. Filed Mar. 9, 1971, Ser. No. 122,515

Claims priority, application France, Mar. 12, 1970, 7008877

Int. Cl. C07d *49/34*

U.S. Cl. 260—309.6 **3 Claims**

2-(diphenyl amino-alkyl amino)-2-imidazolines having the formula



with *n* representing an integer of from 1 to 5 are disclosed. The acid addition salts from pharmaceutically acceptable organic and mineral acids are also disclosed. The materials have a bronchodilatory, anti-tussive and spasmolytic activity.

3,787,437

2-SILYL-1-METHYL IMIDAZOLES

Sandor Barcza, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,249

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 **7 Claims**

Substituted 2-silyl-1-methyl imidazoles, e.g., 2-(phenyldimethyl)silyl-1-methyl imidazole, are prepared by reacting substituted silyl halides with metalated imidazole, and are useful by reason of their pharmacological activity in animals, e.g. as sedative-hypnotics.

3,787,438

4,6-DIHYDROXY-N,N'BIS(3-OXO-1-ISOINDOLINYLIDENE)ISOPHTHALAMIDE AND SUBSTITUTION PRODUCTS

Daniel Walter Thomas, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 13, 1972, Ser. No. 234,329

Int. Cl. C07d *27/50*

U.S. Cl. 260—325 **5 Claims**

The 4,6 - dihydroxy - N,N'bis(3 - oxo - 1 - isoindolinylidene) isophthalamides, both unsubstituted, and in

which the isophthalic acid ring is substituted in the 2 and/or 5 position by independently, chlorine, bromine and lower alkyl, and in the isoindole rings in one or more of the 4, 5, 6, and 7 positions by chlorine or bromine are yellow compounds which in pigmentary size are excellent yellow pigments.

3,787,439

IMIDO-SUBSTITUTED ORGANOPOLYSILOXANE COMPOSITIONS

Fred P. Holub and Milton L. Evans, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Original application May 5, 1969, Ser. No. 821,966, now Patent No. 3,558,741. Divided and this application Aug. 26, 1970, Ser. No. 67,210

Int. Cl. C07d *27/52*

U.S. Cl. 260—326 E **11 Claims**

Curable organopolysiloxane compositions are provided and a method for making them, comprising organopolysiloxane having one or more aliphatically unsaturated imido organo radicals attached to silicon through a carbon-silicon bond. The curable organopolysiloxane compositions can be in the form of blends of such imido-substituted organopolysiloxane in combination with at least one olefinically unsaturated monomer, such as N-phenylmaleimide, bismaleimide, styrene, etc., or at least one polymer, such as polycarbonate, polyvinylchloride, etc., or mixtures thereof.

3,787,440

3-SULFAMYL-4-CHLOROBENZOIC ACID DERIVATIVES

Sachiyuki Hamano and Takaharu Nakamura, Tokyo, Shizuo Kuriyama, Saitama Prefecture, and Motosuke Yamanaka, Tokyo, Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

No Drawing. Filed Nov. 9, 1971, Ser. No. 197,119

Claims priority, application Japan, Nov. 9, 1970, 45/97,931

Int. Cl. C07d *27/48*

U.S. Cl. 260—326.1 **5 Claims**

New 3-sulfamyl-4-chlorobenzoic acid derivatives, more particularly, 2-chloro-5-{2-[4,7-methano-Δ^5-tetrahydro (or 4,7-methanohexahydro)-isoindolinocarbonyl (or isoindolino-aminocarbonyl)]}benzene sulfonamide having marked diuretic and anti-hypertensive activities with low toxicity, as well as the synthetic preparation thereof are provided. The new compounds may advantageously be administered per os for therapeutical treatment of diseases such as cardiac, renal and hepatic edemas and also of hypertensions such as essential, renal and juvenile hypertensions.

3,787,441

SULTONE RECOVERY

Carl D. Kennedy, Claude D. Butler, Delmar D. Krebbiel, and Gene E. Nicks, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed May 3, 1971, Ser. No. 139,910

Int. Cl. C07d *89/06, 89/12*

U.S. Cl. 260—327 S **4 Claims**

A sultone is recovered from a mixture consisting essentially of a sultone and an alkenesulfonic acid by dissolving the mixture in a solution consisting essentially of a lower alcohol plus water or a ketone plus water, cooling the resulting second solution to precipitate the sultone, and separating the precipitated sultone from the mother liquor, as by filtration or centrifugation.

3,787,442

TETRAHYDRO-2H-THIOPYRAN-4-SULFAMIC ACIDS AND SALTS

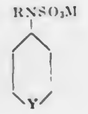
Gerhard R. Wendt, Havertown, and Michael W. Winkley, Malvern, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Jan. 26, 1973, Ser. No. 326,703

Int. Cl. C07d *65/04*

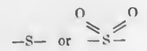
U.S. Cl. 260—327 TH **8 Claims**

Compounds of the formula:



in which

R is hydrogen, lower alkyl or hydroxy(lower)alkyl;
M is hydrogen, an alkali metal or an alkaline earth metal; and
Y is



are non-nutritive artificial sweeteners.

3,787,443

ARYLOXY EPITHIO ETHERS

Donald W. Erickson, Cupertino, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,042

Int. Cl. C07d *1/18, 59/00*

U.S. Cl. 260—327 E **10 Claims**

Novel phenyl ethers, phenyl thioethers and derivatives thereof having a side chain of six to twelve carbon atoms with lower alkyl substituent at C–2 and C–5 or C–3 and C–6 which is saturated, mono-unsaturated or substituted with oxido, epithio or halo useful for insect control.

3,787,444

DIBENZO[b,f]THIEPIN-10-CARBOXYLIC ACIDS

Jacques Gosteli, Basel, Switzerland, assignor to Ciba-Geigy Corporation

No Drawing. Filed Dec. 30, 1971, Ser. No. 214,475

Claims priority, application Switzerland, Jan. 8, 1971, 243/71

Int. Cl. A61k *27/00;* **C07d** *67/00*

U.S. Cl. 260—327 B **3 Claims**

A new process for the production of N-substituted dibenzo[b,f]thiepin-10-methylamines and closely related compounds is provided, which process consists essentially in reducing corresponding amides of dibenzo[b,f]thiepin-10-carboxylic acids with complex hydrides. Further are provided processes for the production of dibenzo[b,f]thiepin-10-carboxylic acids used for the preparation of said amides. The dibenzo[b,f]thiepin-10-carboxylic acids are novel compounds which also possess pharmacological, particularly anti-inflammatory properties and are active ingredients for pharmaceutical compositions. A typical embodiment is the condensation of O-(phenylthio)-benzaldehyde with hippuric acid, which leads with or without isolation of intermediates to dibenzo[b,f]thiepin-10-carboxylic acid, conversion thereof into its chloride, reaction of the latter with dimethylamine and reduction of the dimethylamide obtained with lithium aluminium hydride in the presence of an ethereal solvent to N,N-dimethyldibenzo[b,f]thiepin-10-methylamine.

3,787,445

THIENOBENZAZEPINES

Lucien Nedelec, Le Raincy, Jacques Guillaume, Aulnay-sous-Bois, and Andre Allais, Les Lilas, France, assignors to Roussel-UCLAF, Paris, France

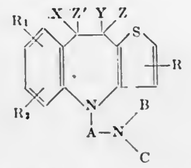
No Drawing. Filed Feb. 28, 1972, Ser. No. 230,124

Claims priority, application France, Mar. 1, 1971, 7106917

Int. Cl. A61k *27/00;* **C07d** *63/18*

U.S. Cl. 260—332.3 P **11 Claims**

Novel 4-(alkyaminoalkyl)-[4H]-thieno-[3,2-b][f]benzazepines of the formula



(I)

wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, $—CF_3$, lower alkoxy optionally substituted, lower alkylthio, lower alkyl, optionally substituted sulfonamide, diloweralkylamino and acylamino wherein the acyl is derived from an organic carboxylic acid of 1 to 18 carbon atoms, R is selected from the group consisting of hydrogen and lower alkyl, A is alkylene of 2 to 5 carbon atoms, optionally substituted by lower alkyl, B is selected from the group consisting of hydrogen, lower alkyl and arloweralkyl, C is selected from the group consisting of lower alkyl and arloweralkyl and B and C taken together are alkylene of 2 to 6 carbon atoms optionally interrupted with 1 or 2 heteroatoms, Y is selected from the group consisting of hydrogen, hydroxy, lower alkoxy and lower alkanoyloxy, X is hydrogen and taken together with Y forms a carbon-carbon double bond, Z' is selected from the group consisting of hydrogen and lower alkyl and Z is selected from the group consisting of hydrogen, lower alkyl and lower alkoxy and taken with Y forms a member of the group consisting of =O, lower alkylenedioxy, lower alkylenedithio and thioloweralkyleneoxy and their non-toxic, pharmaceutically acceptable acid addition salts having antidepressant activity with a large therapeutic index and their preparation and novel intermediates.

3,787,446

PROCESS FOR PRODUCING 3,5-DIHYDROXY 1,2-DIOXOLANES

Wolfgang Edl, Munich, Germany, assignor to Peroxid-Chemie GmbH., near Munich, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 798,833, Nov. 20, 1968. This application Aug. 23, 1971, Ser. No. 174,262

Claims priority, application Netherlands, Nov. 23, 1967, 6715914

Int. Cl. C07d *13/00*

U.S. Cl. 260—340.9 **18 Claims**

3,5-dihydroxy 1,2-dioxolanes are prepared by reacting in the presence of a catalytic quantity of a base, a diketone having the formula



and hdyrogen peroxide wherein R and R^1 are alkyl groups having from 1 to 6 carbon atoms and R^2 is selected from the group consisting of hydrogen and alkyl groups having from 1 to 6 carbon atoms. When the reaction is conducted in the presence of an organic diluent in which the reaction product is insoluble, it is desirable to use concentrations of hydrogen peroxide in excess of 50% w./w. and the use of such diluents is desirable due to the formation of a granular product. The reaction may also be conducted in the presence of an organic solvent such as an organic acid corresponding to the diketone reactant which dissolves the dioxolane product. The use of an organic solvent is advantageous for producing substantially pure products with minimum purification. The 3,5-dihydroxy-1,2-dioxolanes are useful in the polymerization of vinyl compounds or in the cross-linking of unsaturated polyester resins.

3,787,447

PROCESS FOR THE PREPARATION OF 3-ACETOXY PHTHALIDE

Pierre Raoul, Epinay-sur-Orge, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed May 25, 1970, Ser. No. 41,159

Claims priority, application France, June 3, 1969, 6918215

Int. Cl. C07d *5/32*

U.S. Cl. 260—343.3 **9 Claims**

This invention is addressed to a new and improved process for the preparation of 3-acetoxy phthalide from orthoxylene in which orthoxylene in acetic acid or a mixture of acetic acid and acetic anhydride is oxidized to form the 3-acetoxy phthalide and phthalic anhydride.

3,787,448

10-OXAPROSTANOIC ACID DERIVATIVES

Junichi Himizu, Urawa, Shoichi Harigaya, Kawasaki, Akihiko Ishida, Ageo, Kaoru Yoshikawa, Omiya, and Masanori Sato, Kuki, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

No Drawing. Filed June 8, 1972, Ser. No. 260,963

Claims priority, application Japan, June 15, 1971, 46/42,722

Int. Cl. C07d *5/06*

U.S. Cl. 260—343.6 **11 Claims**

Lower-alkyl 7-(4β-formyl-oxolane-2-one-3α-yl)-heptanoate is condensed with 2-oxo-heptylene triphenyl phosphate or di-lower-alkyl 2-oxo-heptyl-phosphate. Lower-alkyl 9,15-dioxo-13,14-didehydro-10-oxaprostanoate (A) thus obtained is hydrogenated to give lower-alkyl 9,15-dioxo-10-oxaprostanoate (B) in the presence of a catalyst (e.g., palladium, palladium-carbon). The resultant compound (A) or (B) is further reduced with a metal borohydride to give lower-alkyl 9-oxo-13,14-didehydro-15-hydroxy-10-oxaprostanoate (D) or lower-alkyl 9-oxo-15-hydroxy-10-oxaprostanoate (C), followed by optional acylation of the compound (D) to give lower-alkyl 9-oxo-13,14-didehydro-15-acyloxy-10-oxaprostanoate (G). Furthermore, 9-oxo-15-hydroxy-10-oxaprostanoic acid (E) or 9-oxo-13,14-didehydro-15-hydroxy-10-oxaprostanoic acid (F) is prepared by hydrolyzing the compound (C) or (D). The 10-oxaprostanoic acid derivatives (A), (B), (C), (D), (E), (F) and (G) are all useful for treatment of gastro-intestinal dissorders, blood pressure disorders and as stimulating agents for childbirth, abortion and labor.

3,787,449

MANUFACTURE OF 2-(3-HYDROXY-3-OPTIONALLY ALKYLATED-1-ALKYNYL)-3-HYDROXY-5-OXOCYCLOPENT-1-ENEALKANOIC ACIDS AND ESTERS

Paul W. Collins, Deerfield, and Raphael Pappo, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed July 10, 1972, Ser. No. 270,434

Int. Cl. C07d *7/04*

U.S. Cl. 260—345.7 **9 Claims**

Treatment of 2-alkoxy-4-hydroxy-5-oxocyclopent-1-enealkonic acids and their lower alkyl esters with lithium tetra(3-[tetrahydropyran-2-yl]oxy-1-alkynyl) aluminate affords the corresponding 2-(3-[tetrahydropyran-2-yl]oxy-1-alkynyl)-3-hyrdoxy-5-oxocyclopent-1-enealkanoic acids and esters. Subsequent cleavage of the ether function yields the 2-(3-hydroxy-1-alkynyl)-3-hydroxy-5-oxocyclopent-1-enealkanoic acids and esters. The latter compounds are

useful as pharmacological agents as is evidenced by their anti-ulcerogenic, hypotensive and smooth muscle-stimulating properties.

3,787,450
METHOD OF PRODUCING SODIUM ALUMINUM HYDRIDES

Bohuslav Casensky, 6 E. Kransnohorske, Praha, Czechoslovakia; Jiri Machacek, 66 Hlavni, Krumvir, Czechoslovakia; and Jaroslav Vit, % Peter Andrews, P.O. Box 8145 SW. Station, Washington, D.C.

No Drawing. Application Mar. 25, 1970, Ser. No. 22,669, now Patent No. 3,728,272, which is a division of application Ser. No. 626,664, Mar. 24, 1967, now Patent No. 3,507,895, which in turn is a continuation-in-part of abandoned application Ser. No. 611,845, Jan. 26, 1967. Divided and this application Apr. 22, 1971, Ser. No. 136,595
Claims priority, application Czechoslovakia, Jan. 31, 1966, 604/66
Int. Cl. C07d *9/00*; C07f *5/06*
U.S. Cl. 260—345.9 **7 Claims**

(A) Compounds of the formula $NaAlH_x(OR)_{4-x}$ wherein R is



x is 1 or 2, z is an integer from 2 to 4 and R^1 and R^2 are the same or different and are selected from the group consisting of alkyl of 1 to 4 carbon atoms and an aliphatic ether alkyl group having a total of 2 to 4 carbon atoms and z has the same meaning as above, and

(B) Compounds of the formula $NaAlH_x(OR^3)_{4-x}$, wherein x is 1 or 2 and R^3 is (alkylene O)$_yR^4$, wherein alkylene has 2 to 4 carbon atoms, y is 1 to 4 and R^4 is selected from the group consisting of alkyl of 1 to 4 carbon atoms, phenyl,



are formed by hydrogenating sodium, aluminum and

(a) in case of Compounds A: a compound selected from the group consisting of $AlH_m(OR)_{3-m}$,

$$NaAlH_m(OR)_{4-m}$$

and ROH, R having the meaning as above.

(b) in case of Compounds B: a compound selected from the group consisting of $AlH_m(OR^3)_{3-m}$,

$$NaAlH_m(OR^3)_{4-m}$$

and R^3OH, R^3 having the same meaning as above and m in both cases being 0, 1 or 2,

the said reaction being carried out at an elevated temperature and pressure in an inert aromatic hydrocarbon or ether medium, and the ratio of Na to R in the reaction being between 1:1 and 1:3.

The invention also embraces certain liquid reactants comprising one of the above compounds in solution in an aromatic hydrocarbon or ether medium.

3,787,451
EPOXIDES OF ALKOXY-SUBSTITUTED TRI(HYDROXYPHENYL)ALKANES

Raymond W. Mah, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 19, 1971, Ser. No. 173,257
Int. Cl. C07d *1/18*
U.S. Cl. 260—348 R **3 Claims**

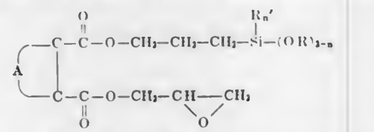
The invention comprises polyglycidyl ethers of alkoxy-substituted tri(hydroxyphenyl)alkanes, their blends with other epoxy compounds and their cured products. These epoxides are prepared by a process wherein the coupling reaction is carried out under different conditions than the subsequent dehydrohalogenation step. The resulting epoxides demonstrate superior and unexpected combinations of high-temperature properties and flex strengths.

3,787,452
EPOXYSILANES

Ernst Leumann, Arlesheim, and Hans Lehmann, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 23, 1972, Ser. No. 265,919
Claims priority, application Switzerland, June 29, 1971, 9,527/71
Int. Cl. C07d *1/18*
U.S. Cl. 260—348 SC **4 Claims**

The invention relates to epoxysilanes of the Formula I



(I)

in which A denotes a cycloaliphatic five-membered or six-membered ring or an aromatic ring, R and R′ each denote an alkyl group with 1 to 4 carbon atoms and n denotes 0, 1 or 2, and their use in adhesives, to which they impart increased resistance to tropical conditions and to water. Embodiments of the invention are glycidyltrieth-oxysilyl esters of tetra- or hexa-hydrophthalic acid.

3,787,453
STEROID CARBAMATES

Kenneth Earl Fahrenholtz, Bloomfield, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,306
Int. Cl. C07c *169/20*
U.S. Cl. 260—397.4 **19 Claims**

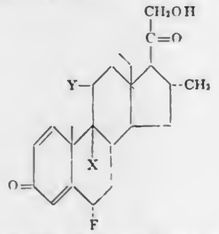
Carbamic acid esters of 3β-hydroxy-Δ^4 or Δ^5-steroids, which can be optionally substituted with chlorine in the 4 and/or 6-positions and which are useful as progestational, androgenic, anabolic, antiestrogenic and/or antigonadotropic agents, and a process for preparing these carbamic acid esters.

3,787,454
NOVEL 6α-FLUORO-16α,18-DIMETHYL-1,4-PREGNADIENE-3,20-DIONES

Ulrich Kerb, Rudolf Wiechert, Karl Petzoldt, Klaus Kieslich, and Karl Heinz Kolb, Berlin, West Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,711
Claims priority, application West Germany, Dec. 30, 1970, P 20 64 859.3
Int. Cl. G07c *169/32*
U.S. Cl. 260—397.45 **13 Claims**

6α - fluoro - 16α,18 - dimethyl - 1,4 - pregnadiene-3,20-diones of the formula



wherein X is a halogen atom and Y is a hydroxy group or a halogen atom having an atomic weight no greater than X, and physiologically acceptable 21-esters thereof, possessing anti-inflammatory activity, especially topical anti-inflammatory activity.

3,787,455
VINYL CHLORIDE PLASTIC COMPOSITIONS AND CERTAIN PLASTICIZERS THEREFOR

Robert R. Mod, Frank C. Magne, and Evald L. Skau, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Dawing. Application Nov. 13, 1969, Ser. No. 876,556, now Patent No. 3,644,478, which is a division of application Ser. No. 683,060, Oct. 12, 1967, now abandoned, which in turn is a division of application Ser. No. 529,652, Feb. 24, 1966, now Patent No. 3,403,126. Divided and this application May 7, 1971, Ser. No. 141,361
Int. Cl. C07c *103/30*
U.S. Cl. 260—404 **5 Claims**

The invention provides an N-alkyl-N-2-acetoxyethyl-oleamide wherein the alkyl group contains from 1–4 carbon atoms, which is useful as a plasticizer for vinyl chloride resins.

3,787,456
VINYL CHLORIDE PLASTIC COMPOSITIONS AND CERTAIN PLASTICIZERS THEREFOR

Robert R. Mod, 4550 Arthur Drive 70127; Frank C. Magne, 2330 Franklin Ave. 70117; and Evald L. Skau, 6473 Memphis St. 70124, all of New Orleans, La.

No Drawing. Application May 7, 1971, Ser. No. 141,361, which is a division of application Ser. No. 876,556, Nov. 13, 1969, now Patent No. 3,644,478, which is a division of application Ser. No. 683,060, Oct. 12, 1967, now abandoned, which in turn is a division of application Ser. No. 529,652, Feb. 24, 1966, now Patent No. 3,403,126. Divided and this application Sept. 13, 1972, Ser. No. 288,840
Int. Cl. C07c *103/30*
U.S. Cl. 260—404 **1 Claim**

The invention provides N-benzyl-N - 2 - acetoxyethyl-oleamide, which is useful as a plasticizer for vinyl chloride resins.

3,787,457
VINYL CHLORIDE PLASTIC COMPOSITIONS AND CERTAIN PLASTICIZERS THEREFOR

Robert R. Mod, 4550 Arthur Drive 70127; Frank C. Magne, 2330 Franklin Ave. 70117; and Evald L. Skau, 6473 Memphis St. 70124, all of New Orleans, La.

No Drawing. Application May 7, 1971, Ser. No. 141,361, which is a division of application Ser. No. 876,556, Nov. 13, 1969, now Patent No. 3,644,478, which is a division of application Ser. No. 683,060, Oct. 12, 1967, now abandoned, which in turn is a division of application Ser. No. 529,652, Feb. 24, 1966, now Patent No. 3,403,126. Divided and this application Sept. 13, 1972, Ser. No. 288,802
Int. Cl. C07c *103/30*
U.S. Cl. 260—404 **1 Claim**

The invention provides an N-alkyl-N-3-ethoxypropyl-oleamide, wherein the alkyl group contains 1–4 carbon atoms, which is useful as a plasticizer for vinyl chloride resins.

3,787,458
OIL-SOLUBLE ALIPHATIC ACID MODIFIED HIGH MOLECULAR WEIGHT MANNICH CONDENSATION PRODUCTS

Edmund J. Piasek, Chicago, and Robert E. Karll, Batavia, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 54,558, July 13, 1970. This application Aug. 31, 1970, Ser. No. 68,469
Int. Cl. C09f *7/00*
U.S. Cl. 260—404.5 **10 Claims**

The thermal oxidation stability of aliphatic acid-modified high molecular weight Mannich condensation products, which are prepared by reacting (1) a high molecular weight alkyl-substituted hydroxy aromatic compound, in which the alkyl-substituent has an average molecular weight of from about 600 to about 100,000, (2) an amine compound containing at least one HN< group, (3) an aliphatic aldehyde, and (4) an aliphatic acid containing at least six carbon atoms, in the reactant molar ratio of 1:0.1–10:1–10:0.014–1.0, respectively, are improved by reacting such modified Mannich condensation products with from about 2 to about 6 moles of an aliphatic aldehyde per mole of the alkyl-substituted hydroxy aromatic compound used in preparing the modified Mannich condensation product. The products of the herein-described invention are oil-soluble, and are highly effective additives for imparting dispersant-detergent properties to lubricant oil compositions. Lubricants containing these products provide a high degree of protection against the deposition of sludge and varnish, and corrosion when used as crankcase lubricant additives.

3,787,459
SELECTIVE HYDROFORMYLATION OF UNSATURATED FATTY COMPOUNDS

Edwin N. Frankel, Peoria, Ill., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Oct. 23, 1970, Ser. No. 83,618
Int. Cl. C07c *59/28, 69/66*; C11c *3/00*
U.S. Cl. 260—410.7 **11 Claims**

A process is described for converting unsaturated vegetable oil material without isomerization into high yields of formyl products which can be subsequently reduced to the corresponding hydroxymethyl products or oxidized to the corresponding carboxy products. The conversion is accomplished by reacting vegetable oil material with hydrogen and carbon monoxide in the presence of a highly selective catalyst system.

3,787,460
PROCESS FOR SPLITTING SOAPSTOCK AND APPARATUS THEREFOR

Roger Gadefaix, Issy-les-Moulineaux, and Jean Klere, Colombes, France, assignors to Lever Brothers Company, New York, N.Y.

Filed Dec. 17, 1969, Ser. No. 885,762
Int. Cl. C11c *1/00*
U.S. Cl. 260—418 **8 Claims**



The invention provides a process and apparatus for splitting soapstock by acid treatment to liberate free fatty acids in the form of acid oil. The reactants are aspirated one into the other, preferably by the use of the Venturi principle, particularly in an arrangement in which two Venturi pipes, each with its own induction manifold, are

arranged in tandem to deliver into a collection vessel. First one reactant liquid and then the other is aspirated through the separate manifolds by the action of an aspirating fluid such as steam serving the system and are thereby intimately admixed with one another. The arrangement minimizes the heavy corrosive effects which result from the use of mechanical mixing devices.

3,787,461

ORGANOMETALLIC DERIVATIVES OF PERFLUOROCYCLOALKENES

Joseph D. Park, Boulder, Colo., and Sam Kwon Chol, Stamford, Conn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 8,687, Feb. 4, 1970. This application Aug. 25, 1971, Ser. No. 174,991

Int. Cl. C07f *7/00, 3/10*

U.S. Cl. 260—429 R **4 Claims**

Organometallic compounds in which olefinically unsaturated fluoroalicyclic groups are bonded to two metal radicals through two of the vinylic carbon atoms. The compounds can be prepared by metal interchange with an alkali metal derivative of the fluoroalicyclic olefin. The compounds are useful as thermally and hydrolytically stable plasticizers for polymers, as lubricants and as lubricant additives for cryogenic equipment.

3,787,462

PROCESS FOR THE PRODUCTION OF PALLADIUM ACETYL ACETONATE OF LOW CHLORINE CONTENT

Wolfgang Swodenk, Odenthal-Globusch, Gerhard Scharfe, Leverkusen, and Wolfram Dornfeldt, Leichlingen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 11, 1972, Ser. No. 225,677

Int. Cl. C07f *15/00*

U.S. Cl. 260—429 J **4 Claims**

A high purity palladium acetyl acetonate is obtained at low reaction times by precipitating a palladium compound from an aqueous alkali palladium chloride solution with an alkali metal hydroxide, converting the precipitate to the palladium acetyl acetonate with acetyl acetone, and washing and drying the acetonate.

3,787,463

AMINE GOLD COMPLEX USEFUL FOR THE ELECTRODEPOSITION OF GOLD AND ITS ALLOYS

Franco Zunfini, Giuseppe Aliprandini, Jean-Michel Gioria, Andre Meyer, and Salvatore Losi, Geneva, Switzerland, assignors to Oxy Metal Finishing Corporation, Warren, Mich.

No Drawing. Continuation-in-part of application Ser. No. 61,868, Aug. 6, 1970. This application Feb. 24, 1972, Ser. No. 229,165

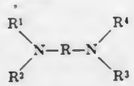
Int. Cl. C07f *1/12*

U.S. Cl. 260—430 **9 Claims**

Disclosed is a gold amine complex useful for the electrodeposition of gold and its alloys. The complex has the formula:

$$Me[AAu(SO_3)_2]_pX_q$$

wherein Me is a mono- or polyvalent cation, A is a polyamine having the formula



wherein R^1, R^2, R^3 and R^4 are individually H or C_1 to C_4 linear or branched monovalent radicals substituted or not with —OH, —CO or —COOH; or R^1 and R^4 taken together, or R^2 and R^3 taken together are divalent C_2 to C_6 alkylene or alkenylene radicals substituted or not with —OH, —CO or —COOH; R is a C_2 to C_6 alkylene or alkenylene radical substituted or not with —OH, —CO, —COOH, or is part of an aromatic ring, or is a radical of the formula

$$—(CH_2—CH_2—NR^5)_mCH_2CH_2—$$

wherein m is the integer 1, 2 or 3, and R^5 is H or a C_1 to C_4 linear or branched monovalent radical substituted or not with —OH, —CO or —COOH, X is an anion; p is 1, 2, or 3; and q is 0, 1, or 2, the sum of $p+q$ being equal to the valence of Me.

3,787,464

PROCESS FOR THE PREPARATION OF TRIVALENT COBALT COMPLEXES

Carlo Neri and Emilio Perrotti, San Donato, Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

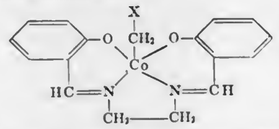
No Drawing. Filed Dec. 30, 1970, Ser. No. 102,975

Claims priority, application Italy, Dec. 30, 1969, 26,425/69

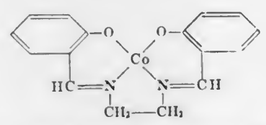
Int. Cl. C07c *11/26*

U.S. Cl. 260—439 R **5 Claims**

A process is disclosed for preparing trivalent cobalt derivatives of the formula



wherein X is NO_2. CN. CH_3CO or CHO which comprises reacting a suspension or solution containing a divalent cobalt complex of the formula



methanol and a reactant of the formula $CH_3—X$ wherein, X is as defined above, at a temperature from 0° C. to 80° C. while simultaneously introducing oxygen gas into said suspension or solution.

3,787,465

ESTERS OF PENTAERYTHRITOL AND PROCESS FOR PREPARING

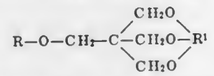
Travis E. Stevens, Huntsville, Ala., assignor to Rohm & Haas Company, Philadelphia, Pa.

No Drawing. Filed May 5, 1960, Ser. No. 27,217

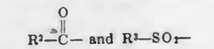
Int. Cl. C07d *105/06*

U.S. Cl. 260—440 **6 Claims**

1. Pentaerythritol compounds of the formula

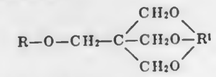


in which R is selected from the group consisting of

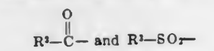


in which R^2 is selected from the group consisting of alkyl, aryl and alkenyl and R^3 is aryl and R^1 is arsenic.

4. A process for the preparation of pentaerythritol compounds of the formula



in which R is selected from the group consisting of



in which R^2 is selected from the group consisting of alkyl, aryl, and alkenyl and R^3 is aryl and R^1 is selected from the group consisting of arsenic and



in which R^4 is selected from the group consisting of alkyl and aryl which comprises reacting pentaerythritol arsenite with a compound selected from the group consisting of R^2COCl, $(R^2CO)_2O$, and R^3SO_2Cl in which compounds R^2 and R^3 are as defined hereinbefore at a temperature in the range 0 to 100° C.

3,787,466

N-ACETYL-L-GLUTAMINE ALUMINUM SALT

Tsuneo Kagawa, Tokyo, Kyoichi Fuji, Sakai, and Masao Tanaka and Hiroshi Tanaka, Sunto, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed June 2, 1971, Ser. No. 149,336

Claims priority, application Japan, June 5, 1970, 45/48,031

Int. Cl. C07f *5/06*

U.S. Cl. 260—448 R **3 Claims**

Aluminum salts of N-acetyl-L-glutamine are prepared by reacting N-acetyl-L-glutamine with an aluminum alkoxide in water. The aluminum salts are useful in the treatment of gastric ulcers.

3,787,467

PERFLUORO - ALKANE - SULPHONAMIDO SUBSTITUTED ORGANO-SILICON COMPOUNDS AND THEIR PRODUCTION

Hans Joachim Lucking, Bergisch-Neukirchen, Walter Noll, Opladen, Werner Buchner, Leichlingen, Klaus Friederich, Leverkusen, and Hans Niederprum, Monheim, Rhineland, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

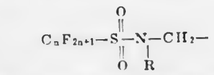
No Drawing. Filed Jan. 25, 1972, Ser. No. 220,689

Claims priority, application Germany, Jan. 18, 1971, P 21 07 758.7

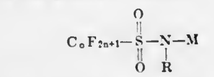
Int. Cl. C07f *7/18*

U.S. Cl. 260—448.8 R **4 Claims**

Novel organo-oxysilanes and organo-polysiloxanes having at least one Si-bonded substituent of the general formula



wherein n is an integer from 1 to 18 and R is a hydrogen atom or a hydrocarbon radical are produced by reacting a halomethyl organo-oxy silane or a halomethyl-substituted organo-polysiloxane with a perfluoro-alkane-sulphonamide of the general formula



in which M is a hydrogen atom or an alkali metal atom, at a temperature of between 20 and 200° C., and in the case where M is a hydrogen atom in the presence of a tertiary nitrogen base.

The products are suitable as oil-, dirt- and water-repellent coating agents.

3,787,468

METHANATION OF CARBON MONOXIDE AND CARBON DIOXIDE

Donald Kingsley Fleming, Park Ridge, Sarabjit Singh Randhava, Evanston, and Elias Humberto Camara, Hickory Hills, Ill., assignors to Institute of Gas Technology

Filed Sept. 1, 1970, Ser. No. 68,632

Int. Cl. C07c *1/02, 1/04, 1/12*

U.S. Cl. 260—449 M **6 Claims**

Process of preferential, selective and sequential methanation for reaction of gases containing CO, and/or CO_2 in the presence of hydrogen, using catalysts of Rh and Ru metals, and alloys thereof with Pt, beneficiated with admixitures of tungsten oxide. Precise control of the product gas composition is obtained by predetermined control of process parameters of input gas flow rate and temperature conditions in the methanation reactor. Product gas containing substantially no CO is useful in ammonia synthesis and fuel cells.

3,787,469

POLYISOCYANATE ADDUCTS

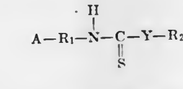
Burns Davis and Charles J. Kibler, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,062

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 A **4 Claims**

Polyisocyanate adducts of 1,3- and 1,4-cyclohexanebis-(methylisocyanate) and an aminoalcohol having the structure



where X is 0 or 1 to 8 and Y is alkyl containing 1 to 4 carbon atoms. These polyisocyanate adducts are useful in the preparation of polyurethane coatings, adhesives, foams and elastomers.

3,787,470

PREPARATION OF THIOLHYDROXAMATE ESTERS FROM NITROALKANES

James B. Buchanan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of abandoned application Ser. No. 702,084, Jan. 31, 1968, which is a continuation-in-part of abandoned application Ser. No. 626,469, Mar. 28, 1967. This application June 29, 1970, Ser. No. 50,898

Int. Cl. C07c *119/18*

U.S. Cl. 260—453 R **9 Claims**

Thiolhydroxamate esters such as methyl thiolacetohydroxamate are prepared by reaction of a nitroalkane such as nitroethane with an alkyl mercaptan such as methyl mercaptan in the presence of a potassium base and a lower alkanol diluent at a temperature of between 40° C. and 120° C.

3,787,471

DITHIO- AND THIONO-CARBAMATE MINERAL VALUE COLLECTORS

Guy H. Harris, Concord, Calif., and Terry D. Filer, Idaho Falls, Idaho, assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Feb. 13, 1969, Ser. No. 799,071, now Patent No. 3,590,997. Divided and this application Mar. 4, 1971, Ser. No. 121,212

Int. Cl. C07c *155/08*

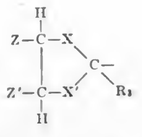
U.S. Cl. 260—455 A **8 Claims**

A new composition of matter and an improvement in the concentration of ores by flotation which comprises subjecting a sulfide ore in the form of a pulp to a flotation process in the presence of an effective quantity of a flotation collector comprising a new composition of matter corresponding to the formula

wherein A is a radical corresponding to the formula



or



X and Y consist of —S— or —O—; R, R', Z, Z' and R_2 are hydrocarbyl groups, R_1 is an alkylene group and R_3 is H or a lower alkyl group. Certain of the indicated compounds provide for enhanced selectivity and/or recovery of sulfide minerals of Cu, Zn, Mo, Co, Ni and Pb over iron sulfide.

3,787,472

PROCESS FOR THE PRODUCTION OF ALKYL ISOTHIOCYANIC ACID ESTERS

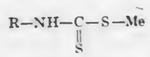
Gunter Giesselmann, Heusenstamm, Werner Schwarze, Frankfurt, and Wolfgang Weigert, Offenbach, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Jan. 28, 1972, Ser. No. 221,802
Claims priority, application Germany, Feb. 5, 1971, P 21 05 473.9
Int. Cl. C07c *161/04*
U.S. Cl. 260—454 **13 Claims**

Process for the production of an alkyl isothiocyanic acid ester of the general formula

$$R—N=C=S \qquad (I)$$

in which R is a straight or branched alkyl radical having about 1–6 carbon atoms, said process comprising reacting an aqueous solution of about one mole of a dithiocarbamate of the general formula



(II)

in which Me is an NH_4 group, an alkyl ammonium group, an alkaline earth metal atom, or an alkali metal atom, with at least one mole of an aqueous hydrogen peroxide solution, said reaction conducted at about 50°–120° C., and at a pH of about 5–9, and isolating the resulting isothiocyanic acid ester. The esters are useful as intermediate in the preparation of other compounds and are biologically active.

3,787,473

THIOETHER SUBSTITUTED THIOLCARBONATES

Arnoldus van der Heijden and Leonard Schutte, Zevenaar, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Dec. 3, 1971, Ser. No. 204,692
Claims priority, application Great Britain, Dec. 7, 1970, 57,986/70
Int. Cl. C07c *154/00*
U.S. Cl. 260—455 B **1 Claim**

Foodstuffs with improved flavor properties are obtained by incorporation of a diester of monothiocarbonic acid containing radicals characteristic of a flavoring thiol, a secondary or tertiary alcohol and carbonic acid.

These diesters were found to be excellent precursors of flavoring thiols, releasing the thiols at a controlled rate under mild conditions. Particularly suitable diesters have the general formula $R^1—S—CO—O—R^2$, in which

R^1 represents an optionally substituted alkyl, homo- or heterocyclic radical which contains 1–10, preferably 3–7 carbon atoms and not more than 2 hetero atoms which are either oxygen or sulphur and

R^2 represents a secondary or tertiary hydrocarbyl group containing 3–20 carbon atoms, preferably an alkyl group containing 3–8 carbon atoms.

3,787,474

CROSS-LINKED POLYMERS

Peter Daniels, Sawbridgeworth, and Alexander Kennedy Sim, Falkirk, Scotland, assignors to Inveresk Research International, Musselburgh, Scotland

No Drawing. Filed Sept. 10, 1970, Ser. No. 71,274
Claims priority, application Scotland, Sept. 12, 1969, 45,168/69
Int. Cl. C07c *69/54, 141/02*
U.S. Cl. 260—459 **8 Claims**

The invention relates to novel cross-linked polymers which, when administered to humans have the property of lowering and controlling the cholesterol level of the blood. The invention provides novel polymers which are derived from a polymerizable monomer containing a quaternary ammonium group cross-linked with a polyfunctional monomer containing two or more unsaturated groups.

3,787,475

PROCESS FOR MAKING ARYLOXY DERIVATIVES OF AROMATIC DIESTERS AND DINITRILES

Darrell R. Heath and Joseph G. Wirth, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Jan. 20, 1971, Ser. No. 108,151
Int. Cl. C07c *69/84, 121/74*
U.S. Cl. 260—465 F **11 Claims**

Aryloxy derivatives of aromatic diesters and dinitriles are prepared from reaction of a nitro-substituted phenyl diacid ester or a nitro-substituted phenyl dinitrile with a metal salt of monovalent or divalent aryloxy radicals in the presence of a dipolar aprotic solvent. The invention also includes novel compositions of matter of a difunctional nature prepared in accordance with the above-described process.

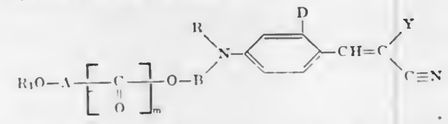
3,787,476

STYRYL DYESTUFFS

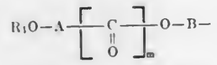
Ernst-Heinrich Rohe and Roderich Raue, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 6, 1966, Ser. No. 518,981
Claims priority, application Germany, Jan. 12, 1965, F 44,930
Int. Cl. C07c *121/70*
U.S. Cl. 260—465 D **6 Claims**

Dyestuffs of the formula



wherein R_1 is alkyl, alkenyl, aralkyl, aryl, cycloalkyl, acyl, or carbalkoxy; m is 0 or 1; A is aryl; B is alkylene having 2 to 4 carbon atoms; R is alkyl, aralkyl, or cycloalkyl or



D is hydrogen, alkyl, alkoxy, or halogen; Y is



R_4 and R_5 are hydrogen, alkyl, aralkyl, cycloalkyl, or aryl; and R_2 and R_3 are alkyl, aralkyl, cycloalkyl, or aryl. The dyestuffs are free from sulphonic acid and carboxylic acid groups and are useful for dyeing cellulose triacetate, polyamide, polyester, and polyurethanes.

3,787,477

PREPARATION OF CYANOHYDRINS

Gary J. Matthews, Boulder, Colo., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Feb. 18, 1972, Ser. No. 227,605
Int. Cl. C07c *121/74*
U.S. Cl. 260—465 F **8 Claims**

Disclosed is a process for preparing cyanohydrins involving the step of treating an aldehyde with sodium cyanide and acetic acid. The preparation of α-hydroxy-α-phenylacetonitrile from benzaldehyde is illustrated. The products are known and can be converted, for example, to α-aminoacids.

3,787,478

NOVEL N-HALOALKYLATED ANILINES

Ladislav Dolejs, Pavel Beran, Karel Slama, and Frantisek Sorm, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,221
Claims priority, application Czechoslovakia, May 5, 1970, 3,122/70
Int. Cl. C07c *101/58*
U.S. Cl. 260—471 R **13 Claims**

Novel N-haloalkylated anilines prepared by reaction of N-alkenyl anilines with hydrogen halide useful for the control of insects.

3,787,479

PROCESS FOR THE CONTINUOUS TRANSESTERIFICATION OF DICARBOXYLIC ACID ALKYL ESTERS WITH DIOLS

Wolfgang Grehl, Chur, Grisons, Switzerland, Wolf-Diether Hahn, Frankfurt am Main, Germany, and Bernhard Stoll, Domat-Ems, Grisons, Switzerland, assignors to Inventa A.G. fur Forschung und Patentverwertung, Zurich, Switzerland

Filed May 20, 1970, Ser. No. 47,782
Int. Cl. C07c *69/82*
U.S. Cl. 260—475 P **18 Claims**

Transesterification of alkyl esters of a dicarboxylic acid and a diol aided by a metal salt catalyst wherein the reaction medium is passed through an elongated reaction zone in plug-like flow (little back-mixing of the reaction medium), wherein some of the transesterification product is maintained present at the inlet end of the reaction zone. Thereby inactivation of the catalyst is prevented.

3,787,480

METHOD OF SEPARATING UNREACTED TEREPHTHALIC ACID

Yataro Ichikawa, Michiyuki Tokashiki, and Osamu Kobayashi, Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed Nov. 2, 1971, Ser. No. 195,033
Claims priority, application Japan, Nov. 4, 1970, 45/96,409; Nov. 9, 1970, 45/98,416
Int. Cl. C07c *69/82*
U.S. Cl. 260—475 PR **8 Claims**

A method of separating unreacted terephthalic acid from a reaction mixture containing bis-(β-hydroxyethyl) terephthalate obtained by the ethylene oxide process which comprises treating the reaction mixture to form a suspension containing molten bis-(β-hydroxyethyl) terephthalate heated at 85° C. to 180° C. and solid unreacted terephthalic acid, in which suspension

(a) The content of unreacted ethylene oxide is less than 2% by weight based on the bis-(β-hydroxyethyl) terephthalate, and

(b) The content of an inert organic liquid medium in the suspension is 1–100% by weight based on the bis-(β-hydroxyethyl) terephthalate; and separating the unreacted terephthalic acid from this suspension. The recovery of the unreacted terephthalic acid is almost 100%.

3,787,481

METHOD FOR THE CONTINUOUS PERFORMANCE OF ESTERIFICATION UNDER THERMAL CONDITIONS

Francesco Siclari, Cesano Maderno, and Franco Magnoni and Sergio Fulmini, Milan, Italy, assignors to Snia Viscosa Societa, Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

Filed Apr. 7, 1969, Ser. No. 813,914
Claims priority, application Italy, Apr. 11, 1968, 15,145/68, Patent 829,159
Int. Cl. C07c *69/82*
U.S. Cl. 260—475 P **5 Claims**

A device for continuously performing chemical processes and reactions which require heat administration from the outside and are conducive to the evolution of volatile by-products, such as the processes leading to the production of spinnable polyesters. The device comprises a reactor having substantially vertical metal walls, means for introducing the reactant and the reacted product which is recycled at the reactor top, centrifuging means for hurling the products introduced at the top of said walls for causing them to descend in the form of a liquid film therealong, and means for recycling a fraction of the product which has been collected at the base of the reactor, towards the top thereof. A chemical process utilizing such a reactor and involving the removal of the by-products, set free in their volatile form at the top of the reactor as they are evolved and set free from said liquid film.

3,787,482

METHOD OF SYNTHESIZING HYDRAZINE COMPOUNDS CARBOXYLIC ACIDS

Frederick C. Bersworth, 120 Washington St., East Orange, N.J. 07017

No Drawing. Continuation-in-part of application Ser. No. 661,204, Aug. 17, 1967, now Patent No. 3,507,892, which is a continuation-in-part of application Ser. No. 580,829, Sept. 20, 1966, now Patent No. 3,351,658, which in turn is a continuation of abandoned application Ser. No. 446,120, Apr. 6, 1965. This application Feb. 20, 1970, Ser. No. 13,189
Int. Cl. C07c *101/26*
U.S. Cl. 260—482 P **2 Claims**

A process for the preparation of hydrazides of amino polycarboxylic acids, particularly dihydrazides, wherein the acid is esterified with a low boiling alcohol in strongly acidic media and the reaction mixture is then made to react with an increased amount of the amino polycarboxylic acid to form a reactive material in solution, whereupon the reaction product ester-acid mixture is reacted with a hydrazine in appropriate molar amount to form mono-, di-, tri-, etc., up to one hydrazide moiety less than the completely converted hydrazide. The carboxylate moieties not converted to hydrazides are converted to hydrazinium salts. The resulting compounds are useful as chelating agents.

3,787,483

VINYL ACETYLENIC CARBAMATES

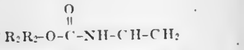
James T. K. Woo and Dietrich H. Heinert, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,717
Int. Cl. C07c *125/06*
U.S. Cl. 260—482 B **3 Claims**

Novel carbamates are disclosed having the formula



or



wherein R_1 and R_2 are hydrogen, lower alkyl groups, or R_1 and R_2 are joined to form a cycloalkyl group. The carbamates are useful herbicides and fungicides.

3,787,484

CARBOXYLIC DIESTERS AND THE METHOD FOR PREPARING THE SAME

André Bader and Francis Weiss, Pierre-Benite, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Feb. 2, 1968, Ser. No. 702,524
Claims priority, application France, Feb. 8, 1967, 94,173
Int. Cl. C07c *67/00, 69/16, 69/28, 69/52, 69/74, 69/78, 69/80*
U.S. Cl. 260—488 H 9 Claims

Carboxylic diesters of 1,5-hexadiene-1,6-diol such as 1,6-diacetoxy-1,5-hexadiene and 1,6-di-isobutyryloxy-1,5-hexadiene are prepared by heating to a temperature, e.g., 150°–450° C. sufficiently high for a Cope transposition of the corresponding carboxylic diester of 1,5-hexadiene-3,4-diol.

3,787,485

PROCESS FOR PREPARING VINYL ACETATE

Remigio Fernandez, Tenafly, N.J., assignor to Halcon International, Inc.

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,903
Int. Cl. C07c *67/00*
U.S. Cl. 260—491 7 Claims

Process for producing vinyl acetate which comprises subjecting a feed-stock consisting essentially of ethylene glycol diacetate to vapor phase pyrolysis within a pyrolysis zone having surfaces in direct contact with the reaction mixture during the pyrolysis consisting essentially of an austenitic stainless steel.

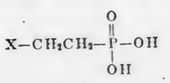
3,787,486

PREPARATION OF HALOETHANE PHOSPHONIC ACIDS

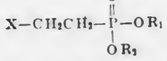
David I. Randall, Calvin Vogel, and Robert W. Wynn, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Oct. 17, 1969, Ser. No. 867,357
Int. Cl. C07f *9/38*
U.S. Cl. 260—502.4 R 6 Claims

2-haloethylphosphonic acids of the formula:



wherein X is chlorine or bromine, useful as plant growth stimulants, are prepared by hydrolysis of a compound of the formula:



wherein X is as above and R_1 and R_2 are haloalkyl, alkyl or hydroxyalkyl, by treatment with 20–45% aqueous hydrochloric acid under autogenous or greater pressure at a temperature of about 100–145° C.

3,787,487

PREPARATION OF METAL SALT SLURRIES FROM METAL SALT SOLUTIONS

Fred T. Sherk, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed June 25, 1971, Ser. No. 157,748
Int. Cl. C07c *63/14, 63/26*
U.S. Cl. 260—515 P 8 Claims

A water solution of a metal salt of a carboxylic acid is contacted with a liquid dispersant to form a mixture; the mixture is then heated to drive the water substantially therefrom to thereby form a slurry of the solid metal salt in the dispersant.

3,787,488

ACRYLIC COMPOSITIONS

George L. Greenfield, Houston, Tex., assignor to Milchem Incorporated, Houston, Tex.

No Drawing. Filed Apr. 17, 1972, Ser. No. 244,952
Int. Cl. C07c *149/20*
U.S. Cl. 260—537 S 6 Claims

A product of the process for preparing an acrylic composition which is formed from about 80 to 90 parts by weight acrylic acid, about 7 to 15 parts by weight of 2-mercaptoethanol, and about 1.5 to 5 parts by weight ammonium persulfate. The produced material has particular utility as a scale inhibitor in hard water environments.

3,787,489

FLUORINATION PROCESS

Albert Antonini and Robert Putters, Paris, and Georges Wetroff, Le Thillay, France, assignors to Societe Rhone-Progil, Courbevole, France

No Drawing. Filed May 1, 1972, Ser. No. 249,195
Claims priority, application France, May 6, 1971, 7116334
Int. Cl. C07c *53/18*
U.S. Cl. 260—544 F 11 Claims

A process for the perfluorination of perchloro compounds containing a trichloromethyl and/or pentachloroethyl group by reaction with anhydrous HF in the vapor phase in the presence of a fixed bed catalyst, wherein the perchloro compound and HF are passed through a first reaction zone at an elevated temperature to convert the perchloro compound to at least the corresponding difluoro derivative, the reaction gases are passed to a second zone to produce a reaction mixture in which the intermediate chlorofluoro compounds contain an average ratio of F atoms to Cl atoms of at least 1.5, and the reaction mixture is passed to a third zone maintained at a higher temperature, with the pressure in each zone being within the range of 1–4 bars and the termperature in each zone being at least 10° C. higher than that in the preceding zone.

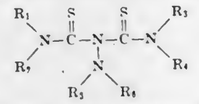
3,787,490

METHOD FOR PREPARING SUBSTITUTED DITHIOBIURETS

James Zielinski, Kenilworth, N.J., assignor to Esso Research and Engineering Company

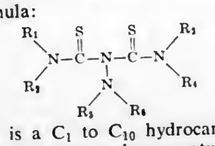
No Drawing. Continuation-in-part of applications Ser. No. 732,858, May 29, 1968, and Ser. No. 821,975, May 5, 1969. This application Nov. 5, 1970, Ser. No. 87,301
Int. Cl. C07c *157/02*
U.S. Cl. 260—552 R 2 Claims

This invention relates to various methods for preparing 1,1,5,5-tetrasubstituted-3-substituted amino dithiobiurets and for preparing other pentasubstituted dithiobiurets. In one embodiment, the method comprises the steps of preparing 1,1,5,5-tetrasubstituted-3-disubstituted amino dithiobiurets characterized by the following formula:



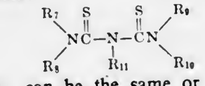
wherein R_1 to R_6 can be hydrogen or C_1–C_3 alkyl, said method comprising the step of reacting an unsymmetrical C_1–C_3 disubstituted hydrazine, said hydrazine being present in excess, with C_1 to C_3 disubstituted thiocarbamoyl chlorides in the presence of water under suitable reaction conditions.

A second embodiment involves preparing 1,1,5,5-tetrasubstituted-3-disubstituted amino dithiobiurets characterized by the formula:



wherein R_1–R_6 is a C_1 to C_{10} hydrocarbyl group, said group including (1) saturated or unsaturated acyclic or cyclic, aliphatics such as e.g. ethyl propargyl, cyclohexyl, cyclohexenyl, etc. and (2) aromatic or hetero-aromatic radicals, such as phenyl, pyridyl, etc. said method comprising the step of reacting either a semicarbazide, thiosemicarbazide or an unsymmetrical disubstituted hydrazine with thiocarbamoyl chloride in the presence of a trialkyl amine dissolved in a polar aprotic solvent having a pKa in the range of from 3 to 45.

A third embodiment involves a method for preparing other pentasubstituted dithiobiurets characterized by the following formula:



wherein R_7–R_{11} can be the same or different and are C_1–C_{10} alkyl, C_6–C_{10} cycloalkyl, aralkyl, alkylthioalkyl, alkoxythioalkyl, alkylaminoalkyl and aromatic or heteroaromatic radicals such as phenyl pyridyl, etc. R_7–R_{11} may totally add up to 5 to 50 carbon atoms.

3,787,491

SUBSTITUTED SULFONYL UREA AND ITS STEREOISOMERS

Hermann Bretschneider, 11 Nikodemweg; Klaus Grassmayr, 65 Sistrans, near Innsbruck; and Kraft Hohenlohe-Oehringen, 26 Kartnerstrasse, all of Innsbruck, Austria; and Andre Grussner, 53 Oberer Rheinweg, Basel, Switzerland

No Drawing. Filed Sept. 29, 1971, Ser. No. 184,902
Int. Cl. C07c *127/00*
U.S. Cl. 260—553 D 3 Claims

A hypoglycemic agent, 1-(p-toluenesulfonyl)-3-(2-hydroxy-3-bornyl)-urea, is prepared, for example, from tosyl ethyl urethane and 3-amino-borneol or 3-amino-isoborneol. One of the isomers, i.e., 1-[(1R)-2-endo-hydroxy-3-endo-bornyl] - 3 - (p-tolylsulfonyl)-urea, is particularly useful as a hypoglycemic agent.

3,787,492

OIL-SOLUBLE CONDENSATION PRODUCTS OF ALPHA-NITRO ALKYL CHLORIDES AND POLYAMINO UREAS, AND THE METHOD OF PREPARING SAME

Richard J. Lee, Downers Grove, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,332
Int. Cl. C07c *127/12*
U.S. Cl. 260—553 R 6 Claims

Oil-soluble products useful as lubricating oil additives to impart detergency and dispersant properties thereto are prepared by the condensation of alpha-nitro alkyl chlorides, having at least 10 carbon atoms in the alkyl substituent, with polyamino ureas in the molar ratio of from about 1.0:0.5 to about 1.0:1.0, respectively.

3,787,493

PROCESS FOR THE PREPARATION OF 3-CYCLOPENTENE-1,1-DICARBOXAMIDE

Dong H. Kim, Wayne, and Stanley C. Bell, Penn Valley, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 19, 1971, Ser. No. 190,641
Int. Cl. C07c *103/19*
U.S. Cl. 260—557 R 4 Claims

A process for the preparation of 3-cyclopentene-1,1-dicarboxamide is described which comprises reacting malonamide with a cis 1,4-dihalo-2-butene in the presence of a strong base.

3,787,494

N-(N,N-DIETHYLENEDIAMINE) SUBSTITUTED AMIDES OF 1 - AMINOCYCLOPENTANECARBOXYLIC ACID

Harvey E. Alburn, 1420 Carroll Brown Way, West Chester, Pa. 19380, and Norman H. Grant, 2 Downs Circle, Wynnewood, Pa. 19096

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,782
Int. Cl. C07c *103/86*
U.S. Cl. 260—557 R 8 Claims

The compounds are amides of 1-aminocyclopentanecarboxylic acid, having valuable pharmacodynamic properties in that they have both anti-inflammatory and immuno-suppressive activity in warm-blooded animals.

3,787,495

5-(ALPHA-AMINO BENZYL) - 10,11 - DIHYDRO- AND 5H - DIBENZO[a,d]CYCLOHEPTEN-5-OLS AND THE SALTS THEREOF

William J. Houlihan, Mountain Lakes, and Jeffrey Nadelson, Lake Parsippany, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Apr. 26, 1972, Ser. No. 247,545
Int. Cl. C07c *87/28*
U.S. Cl. 260—570.5 R 4 Claims

Substituted benzyl-10,11-dihydro and corresponding 10,11-unsaturated dibenzocycloheptenols, e.g. 5-(α-amino benzyl) - 10,11 - dihydro - 5H-dibenzo[a,d]cyclohepten-5-ol, useful as diuretics, prepared from a series of reactions starting with a dibenzo-cycloheptenone and lithiated N-benzyl benzamides.

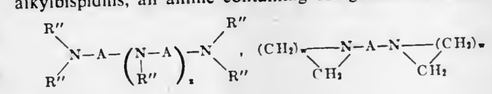
3,787,496

PREPARATION OF AROMATIC COMPOUNDS VIA BENZYNE INTERMEDIATES

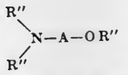
Thomas A. Whitney, Linden, and Arthur W. Langer, Jr., Watchung, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed Apr. 29, 1971, Ser. No. 138,766
Int. Cl. C07c *85/04*
U.S. Cl. 260—577 8 Claims

A process for synthesizing substituted aromatic compounds characterized by the formula $Ar(ZR_2')_y$, said process comprising reacting a halogenated aromatic compound in the presence of HZR_2' with an alkali metal compound having the formula MZR_2' and a tertiary amine selected from the group consisting of tris-(2-C_1–C_4-dialkylaminoethyl)amine, sparteine, C_1 to C_4-dialkylbispidins, an amine containing bridgehead nitrogen,



and



where M is Li or Na; R' is an inert monovalent radical containing 1 to 20 carbon atoms having a pK_a greater than about 30; Z is an element selected from the group consisting of nitrogen, phosphorus and arsenic, y is an integer of 1 to 6 incuusive; R'' are the same or different C_1–C_4 alkyl radicals; x is an integer from 0 to 3 inclusive; w is an integer from 1 to 5; A is a nonreactive radical selected from the group consisting of (1) cycloaliphatic radicals and their lower alkyl derivatives having ring structures containing from 4 to 7 carbon atoms, wherein said radicals are attached to the nitrogen atoms at 1, 2 or 1, 3 positions on the rings, and (2) 1 to 4 methylenic radicals inclusive, wherein each methylenic radical contains 0 to 2 monovalent hydrocarbon radicals of 1 to 6 carbon atoms; Ar is an aryl group.

3,787,497
METHOD FOR RECOVERING ASHLESS LUBRICATING OIL DISPERSANT
Walter W. Hellmuth and Edward F. Miller, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 23, 1971, Ser. No. 211,774
Int. Cl. C07c *85/16*
U.S. Cl. 260—583 N **10 Claims**

Method of recovering polyisobutenyl-substituted polyalkylenepolyamine ashless nitrogen-containing dispersants for lubricating oil compositions employing alcohol extraction.

3,787,498
PROCESS FOR PREPARING 3'-OXO-RETINENE
Jacques Morel, Choisy-le-Roi, France, assignor to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Dec. 29, 1970, Ser. No. 102,557
Claims priority, application France, Dec. 31, 1969, 6945665
Int. Cl. C07c *47/42*
U.S. Cl. 260—586 B **7 Claims**

3'-oxo-retinene, which can be converted into canthaxanthine useful as a coloring agent for foods, is made by oxidizing retinene with a meta-periodate in the presence of, as catalyst, a halogen or a metal oxide of Group V–A, VI–A, VII–A, or VIII of the Periodic Table.

3,787,499
EXTRACTION OF PURE BITTER ACIDS FROM HOPS OR CRUDE HOP EXTRACTS
Herbert L. Grant, Yakima, Wash., assignor to Hops Extract Corporation of America, Yakima, Wash.
Filed Sept. 3, 1971, Ser. No. 177,652
Int. Cl. C07c *45/24*
U.S. Cl. 260—586 R **11 Claims**

A novel process for the extraction of pure alpha acids from hops is described.

3,787,500
DISUBSTITUTED CYCLOPROPENONES AND METHOD OF PRODUCTION
Stephen W. Tobey, Sudbury, Mass., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application May 3, 1968, Ser. No. 726,549, now Patent No. 3,657,348, dated Apr. 18, 1972. Divided and this application Jan. 20, 1972, Ser. No. 219,584
Int. Cl. C07c *49/44*
U.S. Cl. 260—590 **2 Claims**

New disubstituted cyclopropenones and a new method of preparing said cyclopropenones comprising reacting a halocyclopropenium Lewis acid salt with a substituted olefin containing a carbon to carbon double bond wherein one terminal carbon atom of the double bond is sterically accessible to attack by the cyclopropenium ion, and the other terminal carbon atom of the double bond bears substituents contributing to the formation of a stable carbonium ion.

3,787,501
3,5-DISUBSTITUTED-2-HYDROXY-ACETOPHENONES
Andrew G. Kallianos, Albert H. Warfield, and Melvyn I. Simpson, Durham, N.C., assignors to Liggett & Myers Incorporated, New York, N.Y.
No Drawing. Original application Sept. 11, 1969, Ser. No. 857,211, now Patent No. 3,605,760, dated Sept. 20, 1971. Divided and this application Oct. 7, 1970, Ser. No. 78,913
Int. Cl. C07c *49/78*
U.S. Cl. 260—592 **5 Claims**

3,5-disubstituted-2-hydroxyacetophenones, such as 3,5-diisopropyl-2-hydroxyacetophenone, are prepared by the base-catalyzed reaction of a 2,4-disubstituted-2-butenal, e.g., 2,4-diisopropyl-2-butenal, with an ester of acetoacetic acid. The thus-produced substituted 2-hydroxyacetophenones are useful as tobacco flavorants.

3,787,502
METHOD OF PURIFYING PETROLEUM-ORIGIN MERCAPTANS
Antonina Ivanovna Vorobeva, Pervomaiskaya, ulitsa 58, kv. 14, and Vera Mikhailovna Gorina, Kharkovskaya ulitsa 101, kv. 15, both of Ufa, and Roman Dmitrievich Obolentsev, deceased, and Vera Nikolaevna Sedova, Lenina ulitsa 84, kv. 28, Ufa, and Elena Romanovna Obolentseva, Rabochaya ulitsa 41, kv. 1, Saratov, and Natalia Romanovna Popodko, Lenina ulitsa 84, kv. 28, Ufa; said Sedova, Obolentseva, and Popodko also administrators for said Roman Dmitrievich Obolentsev, all of U.S.S.R.
No Drawing. Filed Nov. 18, 1970, Ser. No. 90,866
Int. Cl. C07c *149/04*
U.S. Cl. 260—609 R **5 Claims**

A method of purifying mercaptans isolated from petroleum distillates, from the admixture of the aromatic and acid nature, in which mercaptans are treated with an aqueous alkaline solution to eliminate the acid-nature admixtures, then with an organic solvent inert with respect to mercaptans and selective for the aromatic admixtures to be eliminated. The instant method is instrumental in achieving 99-percent degree of purity of mercaptans. The purified mercaptans are effective substitutes for synthetic mercaptans.

3,787,503
PEROXYGEN COMPOUNDS
Robert C. P. Cubbon, John E. Braid, and Alfred E. Oates, Luton, and Ronald Preston, Dunstable, England, assignors to Laporte Chemicals Limited
No Drawing. Filed Aug. 14, 1967, Ser. No. 660,199
Claims priority, application Great Britain, Aug. 16, 1966, 36,641/66
Int. Cl. C07c *73/06*
U.S. Cl. 260—610 R **13 Claims**

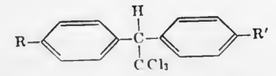
The invention relates to novel ketone peroxides, compositions containing them and processes for producing the peroxides and the compositions. The ketone peroxides are those with an alkoxy or hydroxy substituent in the α,β- or γ-position. The compositions contain (1) the peroxides and (2) water which may be in admixture with a hydrophobic or hydrophilic solvent or (3) a hydrophobic solvent. The peroxides are produced by reacting the α,β- or γ-alkoxy or hydroxy ketone with aqueous hydrogen peroxide and a source of hydrogen ions, for example a mineral acid.

3,787,504
PROCESS FOR PREPARING ORGANIC DIPEROXIDES
Cesare Augusto Peri, Spartaco Fontani, and Franco Ladavas, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Continuation-in-part of abandoned application Ser. No. 507,054, Nov. 9, 1965. This application Dec. 26, 1968, Ser. No. 787,243
Int. Cl. C07c *73/00*
U.S. Cl. 260—610 R **6 Claims**

An isomeric mixture of 60–70% of 1,3- and 40–30% of 1,4-isomers of α,α'-bis(di-tert.butylperoxy)diisopropylbenzene is prepared by reacting an isomeric mixture of 60–70% of 1,3- and 40–30% of 1,4-isomer of α,α' dihydroxy - diisopropylbenzene with tert.butylhydroperoxide in the presence of di-tert.butylperoxide solvent and sulfuric acid catalyst.

3,787,505
INSECTICIDAL BIODEGRADABLE ANALOGUES OF DDT
Robert L. Metcalf, Inder Kapoor, and Asha Hirwe, Urbana, Ill., assignors to University of Illinois Foundation, Urbana, Ill.
No Drawing. Filed May 26, 1971, Ser. No. 147,247
Int. Cl. C07c *43/20*
U.S. Cl. 260—612 R **4 Claims**

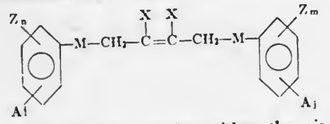
Asymmetrical, biodegradable insecticides having the formula:



where R and R' are different and R is selected from the group consisting of $—CH_3$, $—CH_3O$, $—C_2H_5O$, $—C_3H_7O$, and R' is selected from the group consisting of $—SCH_3$, and $—CH_3$; and methods for providing and selectively controlling the biodegradability of DDT analogue insecticides.

3,787,506
FIRE RETARDANTS FOR POLYMERS
Gary A. Ungefug, R. Garth Pews, and Richard T. Dickerson, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 876,998, Nov. 14, 1969. This application Sept. 4, 1970, Ser. No. 69,927
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 R **11 Claims**

Compounds having the general formula

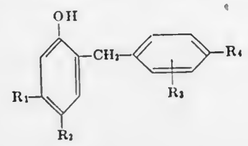


each X independently, forming either the cis or trans isomer, is F, Cl, Br, I or H where not more than one X is H,
each M independently is O or S,
each Z independently is Cl or Br,
each A independently is an inert substituent, such as F, I, methyl, phenyl, hydroxy, methoxy, nitro, carboxy, acetoxy, cyano, amino or sulfo,
n and m are integers of 1 to 5 provided that when $n=m=1$ then each Z and X is Br and M=O and provided that when one X is H then n and m are integers of 3 to 5, and
i and j are integers of 0 to 2 where $i \leq n-1$ and $j \leq m-1$

impart excellent fire retarding properties to polystyrene and are stable when extruded or molded with polystyrene at temperatures above 200° C.

3,787,507
HALOGENATED BENZYLPHENOLS HAVING BACTERIOSTATIC ACTIVITY
Jacques Debat, Paris, France, assignor to Institut de Recherches Chimiques et Biologiques Appliquees (I.R.C.E.B.A.), Paris, France
No Drawing. Filed Feb. 5, 1971, Ser. No. 113,057
Claims priority, application France, Feb. 13, 1970, 7005194
Int. Cl. C07c *39/12, 39/24*
U.S. Cl. 260—619 A **6 Claims**

Halogenated benzylphenols of the formula:



in which R_1 is a hydrogen atom when R_2 is a bromine or fluorine atom, or R_1 is a trifluoromethyl group when R_2 is a hydrogen atom; R_2 is a hydrogen or chlorine atom in the 2'-position or 3'-position and R_4 is a chlorine or fluorine atom having bacteriostatic properties. Also disclosed are their use in the treatment of angina and bronchopulmonary and stomatological disorders and a process of preparation of these compounds by the Friedel-Crafts type reaction between the corresponding phenol and substituted benzyl chloride.

3,787,508
SOLID, CURABLE POLYEPOXIDES MODIFIED WITH HYDROLYZED LIQUID POLYEPOXIDES
Eddie Bob Walker, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Oct. 25, 1968, Ser. No. 770,857, now Patent No. 3,632,836. Divided and this application Apr. 1, 1971, Ser. No. 130,540
The portion of the term of the patent subsequent to Oct. 8, 1985, has been disclaimed
Int. Cl. C07c *41/00*
U.S. Cl. 260—613 R **3 Claims**

A solid curable polyepoxide is rendered of greater reactivity to curing and esterification, while maintaining its other desirable properties by the addition thereto of minor amounts of hydrolyzed or partially hydrolyzed epoxide product, or by preparing a solid curable polyepoxide from a liquid epoxy resin by reacting the liquid resin with a diphenolic compound and a catalyst in the presence of said hydrolyzed product.

3,787,509
STABILIZATION OF 1,1,1-TRICHLOROETHANE
Herman Richtzenhain, Cologne-Suelz, and Rudolf Stephan, Ranzel Ober Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft Patentabteilung, Troisdorf, Cologne, Germany
No Drawing. Division of application Ser. No. 805,923, Jan. 5, 1969, now Patent No. 3,590,088, which is a division of application Ser. No. 609,681, Jan. 16, 1967, now Patent No. 3,445,532, which in turn is a continuation of application Ser. No. 316,772, Oct. 16, 1963. Divided and this application June 29, 1970, Ser. No. 60,173
Claims priority, application Germany, Oct. 18, 1962, D 40,087
Int. Cl. C07c *17/42, 19/02*
U.S. Cl. 260—652.5 R **1 Claim**

The stabilization of 1,1,1-trichloroethane by admixing such with 0.5 to 10 wt. percent of a mixture of acetonitrile, 1,4-dioxane and ethylenediamine.

3,787,510
MULTIFUNCTIONAL POLYMERIZATION INITIATORS
Ralph C. Farrar, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Original application Feb. 3, 1969, Ser. No. 796,204, now Patent No. 3,644,322, dated Feb. 22, 1972. Divided and this application Aug. 20, 1971, Ser. No. 173,643
Int. Cl. C07f *1/02*
U.S. Cl. 260—665 R **9 Claims**

A multifunctional polymerization initiator prepared in a two-step process by reacting an organomonolithium compound with a polymerizable conjugated diene or polymerizable monovinyl-substituted aromatic compound and then

contacting the reaction mixture with a polyvinyl aromatic compound.

3,787,511

SELECTIVE HYDROGENATION EMPLOYING NICKEL ARSENIDE CATALYST

Marvin M. Johnson, Donald C. Tabler, and Gerhard P. Nowack, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Application June 8, 1970, Ser. No. 44,665, now Patent No. 3,697,448, which is a continuation-in-part of abandoned application Ser. No. 6,971, Jan. 29, 1970. Divided and this application May 2, 1972, Ser. No. 249,726

Int. Cl. C07c *13/02, 13/26*

U.S. Cl. 260—666 A 5 Claims

A method and catalysts for selective hydrogenation and isomerization which involves contacting a feedstream with hydrogen and with various supported catalysts of metallic arsenides and antimonides, with carbon monoxide being optionally introduced into the reaction as a modifier.

3,787,512

PREPARATION OF AROMATIC HYDROCARBONS

Gunner E. Nelson, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Continuation-in-part of application Ser. No. 813,340, Apr. 3, 1969, which is a continuation-in-part of application Ser. No. 598,779, July 29, 1966, both now abandoned. This application Mar. 10, 1971, Ser. No. 123,037

Int. Cl. C07c *15/12*

U.S. Cl. 260—668 C 11 Claims

Process for alkylating an aromatic hydrocarbon by reacting a haloalkane with either benzene or an alkyl benzene and conducting the reaction in the presence of an alkylaluminum halide catalyst without deliberately adding heat to elevate the temperature of the reaction.

3,787,513

ARYL SUBSTITUTED METHANE COMPOUNDS

Paul R. Stapp, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed June 9, 1971, Ser. No. 151,587

Int. Cl. C07c *15/12*

U.S. Cl. 260—668 C 7 Claims

Aryl substituted methane compounds are prepared by contacting an aromatic aldehyde with an aromatic hydrocarbon in the presence of boron trifluoride.

3,787,514

CATALYSTS FOR SELECTIVE HYDROGENATION OF HYDROCARBONS

Philippe Bernusset, Rue Maurice Fournier, Salindres, France

No Drawing. Continuation-in-part of abandoned application Ser. No. 52,727, July 6, 1970. This application July 19, 1972, Ser. No. 273,328

Int. Cl. C07c *11/00*

U.S. Cl. 260—677 H 8 Claims

The removal of unsaturated impurities in the purification of ethylenic gases by selective hydrogenation with a catalyst of palladium having an addition of vanadium as a promoter.

3,787,515

ISOPRENE POLYMERIZATION INHIBITOR

Boris Nikolaevich Gorbunov, ulitsa Lenina 5, kv. 41, Volgograd, U.S.S.R.; Anatoly Ivanovich Lukashov, prospekt Lenina 32, kv. 20, Volzhsky, U.S.S.R.; and Tamara Ivanovna Mukhortova, ulitsa Borovskogo 2; and Alexandr Pavlovich Khardin, ulitsa Mira 26, kv. 101, both of Volgograd, U.S.S.R.

No Drawing. Filed May 19, 1971, Ser. No. 145,037

Int. Cl. C07c *7/00, 7/18*

U.S. Cl. 260—681.5 3 Claims

An isoprene polymerization inhibitor, characterized in that it is o-nitrophenol and is effective in preventing polymer clogging in the column during purification of isoprene by rectification.

3,787,516

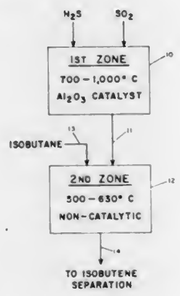
CONVERSION OF ISOBUTANE TO ISOBUTENE

Roger M. Bean, Glen Mills, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

Filed Sept. 28, 1972, Ser. No. 293,193

Int. Cl. C07c *5/20*

U.S. Cl. 260—683.3 7 Claims



Isobutane is dehydrogenated to produce isobutene by establishing in a first zone a dehydrogenating agent consisting essentially of sulfur at 700–1000° C. and then directly contacting same non-catalytically in a second zone at 500–630° C. with isobutane. Establishment of the dehydrogenating agent can be done either by catalytically reacting SO_2 and H_2S at 700–1000° C. or by heating sulfur to 700–1000° C.

3,787,517

OXIDATIVE DEHYDROGENATION OF PARAFFINS

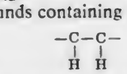
Werner O. Haag and Joseph N. Miale, Trenton, N.J., assignors to Mobil Oil Corporation

No Drawing. Filed Feb. 9, 1970, Ser. No. 10,023

Int. Cl. C07c *5/18*

U.S. Cl. 260—683.3 3 Claims

Organic compounds containing at least one



grouping, e.g. ethylbenzene, are dehydrogenated by reacting with carbonyl sulfide in the vapor phase in the presence of a heavy metal catalyst on a carrier, for example, iron on silica or silica alone.

3,787,518

PLURAL STAGES OF HF ALKYLATION OF ISOPARAFFIN WITH BUTYLENE AND PROPYLENE REACTANTS

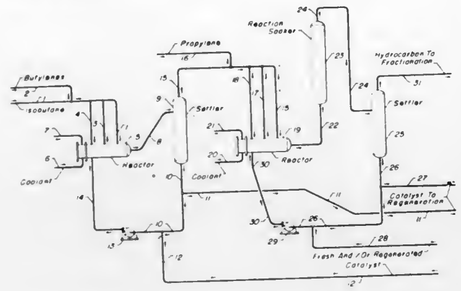
Robert F. Anderson, La Grange Park, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 20, 1972, Ser. No. 236,049

Int. Cl. C07c *3/54*

U.S. Cl. 260—683.45 4 Claims

Plural stages for alkylating an isoparaffin with a butylene reactant and with a propylene reactant utilizing hydrogen fluoride catalyst, the butylene reactant is reacted initially with a catalyst containing 70–95 wt. percent HF and the separated hydrocarbon phase is then reacted with the propylene reactant with a catalyst of higher HF concentration than that utilized in the initial reaction. The catalyst in the second reacion contains 80–99 wt. percent HF. An optimum yield of high quality alkylate product is recovered from the butylene and propylene stages of alkylation.



3,787,519

HYDROXYL CONTAINING COPOLYMERS

Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

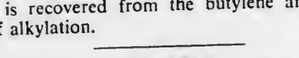
No Drawing. Original application Oct. 8, 1970, Ser. No. 79,348, now Patent No. 3,679,642. Divided and this application May 11, 1972, Ser. No. 252,353

Int. Cl. C08g *45/10*

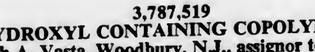
U.S. Cl. 260—834 8 Claims

Polymers of ethylenically unsaturated monomers, containing

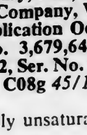
(A) at least 5% of ethylenically unsaturated carboxylic acid monomer units having active hydrogen atoms replaced with



and/or



radicals, wherein R is a tertiary aliphatic hydrocarbon radical having the structure



where R_1 is $-CH_3$ and R_2 and R_3 are alkyl groups of 1–12 carbon atoms; and

(B) up through 10% of vinyl pyrrolidone units,

and coating compositions containing such polymers.

3,787,520

POWDERED COATING COMPOSITIONS CONTAINING A GLYCIDYL ESTER COPOLYMER, A PHENOLIC HYDROXY CROSSLINKING AGENT, AND A FLOW CONTROL AGENT

Santokh S. Labana, Dearborn Heights, and Ares N. Theodore, Farmington, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,225

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 22 Claims

Powder coating compositions are disclosed. In general, individual powder coating compositions are a mixture of the following materials. A copolymer of glycidyl methacrylate and an ethylenically unsaturated compound is formed in such proportions as to obtain a copolymer with a glass transition temperature in the range of 40° C. to 90° C. and a molecular weight ($\overline{M}_n$) in the range of 2500 to 8500. The glycidyl methacrylate is present in the copolymer from at least about 8% by weight to no more than about 30% by weight. Another material of the coating composition is a cross linking agent formed of a phenolic hydroxy terminated resin present in the amount of 0.8 to 1.1 phenolic hydroxy groups for each epoxy group in the copolymer. A third material used in forming the powder coating mixture is a flow control agent which forms at least 0.05% by weight of the mixture. The flow control agent is a polymer having a molecular weight ($\overline{M}_n$) of at least 1000. The flow control agent also has, at the baking temperature of the powder coating composition, a lower surface tension than the surface tension of the copolymer.

3,787,521

METHOD OF PREPARING A POWDER COATING COMPOSITION CONTAINING GLYCIDYL ACRYLATE COPOLYMERS AND DICARBOXYLIC ACID CROSSLINKING AGENT

Santokh S. Labana, Dearborn Heights, and Amos Golovoy, Westland, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed Feb. 22, 1971, Ser. No. 228,262

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 4 Claims

A powder coating composition whose principal ingredients are (a) a copolymer of glycidyl acrylate or glycidyl methacrylate and an ethylenically unsaturated compound, (b) a dicarboxylic acid cross linking agent, and (c) other suitable materials such as a pigment, a flow control agent, a catalyst and such, is manufactured by a process which includes the following general steps. A solution of the copolymer in a solvent is prepared. A solution of the dicarboxylic acid in an alcohol having a boiling point in the range of 60° C. to 120° C. is also prepared. The alcohol acts as a solvent for the acid. The copolymer solution is mixed with the dicarboxylic acid solution to form an intermediate solution. The other suitable materials for the powder coating composition are mixed with the intermediate solution to form a final solution. The solvents are evaporated from the final solution to form the powder coating composition.

3,787,522

ACRYLATE POLYMER PARTICLES COMPRISING A CORE, AN OUTER SHELL, AND AN INTERMEDIATE LAYER

Ray A. Dickie, Birmingham, and Seymour Newman, Southfield, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,464, Dec. 21, 1970. This application Nov. 1, 1972, Ser. No. 302,700

Int. Cl. C08f *15/18*

U.S. Cl. 260—836 18 Claims

Novel thermoplastic materials in particulate form have (1) a core of crosslinked acrylic polymer formed from a major amount of monofunctional, monoacrylate and a crosslinking amount of a di- or tri-functional monomer containing two or more non-conjugated terminal ethylenic groups, (2) a polymeric outer shell formed by polymerizing monomers of methyl methacrylate or a mixture of methyl methacrylate and monomers copolymerizable therewith and (3) an intermediate layer consisting essentially of the copolymerization product of additional monomers of the type used to form the crosslinked acrylic polymer and additional monomers of the type used to form said outer shell. Said intermediate layer is formed by introducing said shell-forming monomers into the polymerization of said core-forming monomers when polymerization of said core-forming monomers is between about 50 and about 90 percent complete. The particles

can be molded so as to form transparent articles of manufacture and the relative proportions of their components can be varied to produce moldings having a wide variety of tensile properties. The particles also have utility as unique modifiers for thermoplastic and thermosetting materials. The outer layer can be prepared so as to provide reactive functional groups on its surfaces.

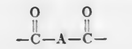
3,787,523

ANTISTATIC POLYAMIDE FIBER CONTAINING SULFONIC ACID POLYETHER REACTION PRODUCT

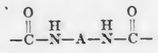
Lamberto Crescentini and Rodney Lee Wells, Chester, Va., assignors to Allied Chemical Corporation, Morristown, N.J.

No Drawing. Filed Sept. 29, 1972, Ser. No. 293,614
Int. Cl. C08g *41/04*
U.S. Cl. 260—857 PG **10 Claims**

It has been suggested that the antistatic properties of synthetic fibers of polyamide could be improved by dispersing in the polyamide a minor proportion of a chain-extended polymeric reaction product of (1) a high molecular weight polyether compound that is an adduct of an amine having at least one primary group with at least one alkylene oxide having 2 to 4 carbon atoms, with (2) a chain extending compound selected from the group consisting of diepoxides and compounds which yield the following radicals:

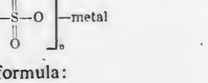


and



where A is a divalent radical.

It has now been found that the viscosity of said chain-extended polymeric reaction product can be substantially increased by reacting it with a compound of the formula:



or a compound of the formula:



wherein R is selected from the group consisting of alkyl, cycloalkyl, aryl and arylalkyl, *n* is a whole number corresponding to the valence of the metal, and Z is selected from the group consisting of hydrogen, ammonium cation and substituted ammonium cation. Said higher viscosity is a primary requirement for improved dispersion of the antistatic additive into molten polyamide during spinning of antistatic fiber. Moreover, it has been found that the antistatic properties and dyeability of the polyamide fiber are improved.

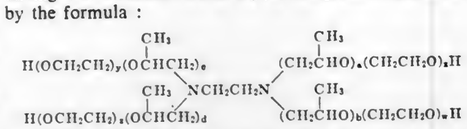
3,787,524

ANTISTATIC POLYAMIDE FIBER CONTAINING SULFONIC ACID POLYETHER REACTION PRODUCT

Lamberto Crescentini and Rodney Lee Wells, Chester, Stanley David Lazarus, Petersburg, and Gene Clyde Weedon, Richmond, Va., assignors to Allied Chemical Corporation, Morristown, N.J.

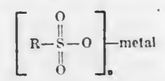
No Drawing. Filed Sept. 29, 1972, Ser. No. 293,613
Int. Cl. C08g *41/04*
U.S. Cl. 260—857 PG **10 Claims**

It has been suggested that the utility of synthetic fibers of polyamide could be increased by dispersing in the polyamide a minor proportion of an antistatic polyether compound derived from the reaction of an amine having at least one primary group with at least one alkylene oxide having 2 to 4 carbon atoms, e.g., a compound represented by the formula :

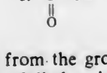


where *a*, *b*, *c*, *d* *w*, *x*, *y* and *z* are each a whole number and the total of *a*, *b*, *c*, and *d* is between 8 and 850 and the total of *w*, *x*, *y*, and *z* is between 8 and 1,000.

However, with incorporation of this antistatic additive in the polyamide, serious problems have been encountered in melt-spinning due to the frequent occurrence of "drips" of the molten polymer as it emerges from the spinneret. It has now been found that the occurrence of said drips can be eliminated or greatly reduced by reacting the antistatic polyether additive with a compound of the formula:



or a compound of the formula:



wherein R is selected from the group consisting of alkyl, cycloalkyl, aryl and arylalkyl, *n* is a whole number corresponding to the valence of the metal, and Z is selected from the group consisting of hydrogen, ammonium cation and substituted ammonium cation.

Moreover, it has been found that the antistatic properties and dyeability of the resulting polyamide fiber are improved.

3,787,525

MANUFACTURE OF POLYURETHANE POWDERS USING POLYVINYL PYRROLIDONE HAVING SIDE CHAINS FROM COPOLYMERIZATION WITH ALKYLATED OLEFINS

John J. McGarr, Beverly, Mass., assignor to USM Corporation, Boston, Mass.

No Drawing. Filed Aug. 7, 1972, Ser. No. 278,611
Int. Cl. C08g *41/04*
U.S. Cl. 260—859 R **10 Claims**

Method for preparing polyurethane resins directly in finely divided form by reaction in an inert organic liquid medium of a first reactant, miscible with the organic liquid medium, and a second reactant immiscible and emulsified as fine droplets in a continuous phase of the liquid medium with the aid of special surfactants. The reaction forms a finely divided reaction product insoluble in the liquid medium.

3,787,526

NON-LINEAR POLYESTERS FROM A DICARBOXYLIC ACID, ETHERIFIED DIPHENOL AND AN ALKOXYLATED POLYHYDROXY COMPOUND

Joseph P. Burns, Joseph Feltzin, and Erich Kuehn, Wilmington, Del., assignors to ICI America Inc., Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 97,393, Dec. 11, 1970. This application Oct. 22, 1971, Ser. No. 191,839
Int. Cl. C08g *39/10*
U.S. Cl. 260—860 **18 Claims**

New polyester compositions which contain residues of polyfunctional polyhydroxy materials as chain branching members thereof, solutions of said polyester compositions in unsaturated monomers and the cured product of said solutions are disclosed. The polyester compositions as a class are characteristically tough and have liquid and tack points within a specific temperature range.

3,787,527

PROCESS FOR THE SETTING OF UNSATURATED POLYESTER RESINS

Heinz Meyer, Munich, Dieter Schmid, Pullach, near Munich, Hans Schwarzer, Krailling, and Hans Joachim Twittenhoff, Strasslach, Germany, assignors to Electrochemische Werke Munich AG, Hollriegelskreut, near Munich, Germany

No Drawing. Original application June 2, 1969, Ser. No. 829,766, now abandoned. Divided and this application Oct. 14, 1971, Ser. No. 189,408
Int. Cl. C08f *21/02*
U.S. Cl. 260—861 **7 Claims**

Process for setting unsaturated polyester resins which comprises contacting such a polyester resin with a mixture of a perester and a tertiary hydroperoxide as setting catalyst, the weight ratio of the perester to said tertiary hydroperoxide being from 90:10 to 10:90.

3,787,528

NOVEL FLAME RETARDANT COMPOSITIONS

Isaac Benghiat, Mentor, Ohio, assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 888,965, Dec. 29, 1969, now Patent No. 3,691,275, dated Sept. 12, 1972. This application June 5, 1972, Ser. No. 263,357
Int. Cl. C09k *3/28*
U.S. Cl. 260—865 **9 Claims**

Novel flame retardant compositions of matter comprising a mixture of a polymer and diester of a polyhalo-substituted alkylphosphonate containing dissimilar halogen atoms as exemplified by polypropylene and dimethyl 3-chloro-2,3-dibromopropylphosphonate will possess useful and desirable physical characteristics of flame retardancy or fire resistance.

3,787,529

NOVEL FLAME RETARDANT COMPOSITIONS

Isaac Benghiat, Mentor, Ohio, assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 888,966, Dec. 29, 1969, now Patent No. 3,700,760. This application June 5, 1972, Ser. No. 263,358
Int. Cl. C09k *3/28*
U.S. Cl. 260—865 **11 Claims**

Novel flame retardant compositions of matter which comprise a mixture of a polymer and a diester of a halo-substituted alkyloxyalkylphosphonate containing at least two halogen atoms as exemplified by polypropylene and dimethyl 3-chloro-2,3-dibromopropoxymethylphosphonate will possess useful and desirable physical characteristics of flame retardancy and fire resistance.

3,787,530

CRYSTAL-CLEAR THERMOPLASTIC MOULDING COMPOSITIONS OF LINEAR POLYESTER AND STYRENE-ACRYLONITRILIC COPOLYMER MIXTURES

Lothar Bohn, Glashutten, Taunus, Harald Cherdron, Naurod, Taunus, Manfred Fleissner, Niederhochstadt, Taunus, and Walter Herwig, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 28, 1972, Ser. No. 230,097
Claims priority, application Germany, Mar. 1, 1971, P 21 09 560.3
Int. Cl. C08g *39/10*
U.S. Cl. 260—873 **10 Claims**

Crystal-clear thermoplastic moulding compositions consisting of a mixture of linear saturated polyesters, the diol component of which consists of ethylene glycol and a diol of the formula $HO—CH_2—CR_1R_2—CH_2—OH$, wherein R_1 represents a hydrogen atom or a linear or branched aliphatic radical having up to 4 carbon atoms, and R_2 represents a linear or branched aliphatic radical having up to 4 carbon atoms, and of a styrene/acrylonitrile copolymer. From these crystal-clear thermoplastic moulding compositions, shaped articles having a high transparency and a high gloss can be manufactured, in particular according to the injection-moulding process. Owing to their good mould release properties, their excellent dimensional stability, as well as their high impact strength, together with favourable hardness values, the moulding compositions are particularly suitable for the manufacture of high-quality shaped articles.

3,787,531

PRESSURE-SENSITIVE ADHESIVES COMPRISING A BLOCK COPOLYMER AND A TACKIFIER

Carl A. Dahlquist, Roseville, and Vasant V. Kolpe, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 813,735, Apr. 4, 1969. This application May 24, 1971, Ser. No. 146,473
Int. Cl. C08f *41/12*
U.S. Cl. 260—876 B **12 Claims**

Normally tacky pressure-sensitive adhesives and adhesive tapes having excellent shear strength and creep resistance, particularly at elevated temperatures, together with good peel strength and tack properties, are obtained by combining tackifying resin with low molecular weight A–B block copolymer. The copolymer A block is normally glassy and has a glass transition temperature above 75° C. while the copolymer B block is amorphous and elastomeric at temperatures above —20° C. Shear strength of the adhesive may be increased by addition of block copolymers containing three or more blocks.

3,787,532

POLYPHENYLENE ETHER COMPOSITIONS

Donald D. Carmelite, Slingerland, N.Y., Morton Kramer, Pittsfield, Mass., and Gim F. Lee, Jr., Albany, N.Y., assignors to General Electric Company

No Drawing. Filed Dec. 3, 1971, Ser. No. 204,719
Int. Cl. C08c *9/14*; C08d *9/08*
U.S. Cl. 260—876 R **17 Claims**

There are provided high impact strength thermoplastic compositions comprising in combination (a) a polyphenylene ether resin, (b) a polystyrene resin and (c) an interpolymer of 30 to 70 parts by weight of a diene rubber with 70 to 30 parts by weight of (i) a vinyl aromatic compound or (ii) a mixture of a vinyl aromatic compound and an acrylic ester, the compositions having a dispersed elastomeric phase with at least 85% of the number of particles being about 0.5 micron or less in size and less than 15% of the number of particles being greater than about 0.5 micron in size. The compositions provide molded articles with substantial and unexpected improvements in impact resistance—especially at low temperatures—and enhanced surface appearance.

3,787,533

N-SECONDARY-ALKYL ALKYLENE DIAMINE SALTS OF PHOSPHATE ESTER ACIDS

Arthur Lee Larsen, Denver, Colo., assignor to Marathon Oil Company, Findlay, Ohio

No Drawing. Continuation-in-part of application Ser. No. 190,266, Oct. 18, 1971. This application Jan. 3, 1972, Ser. No. 215,094
Int. Cl. C02b *5/06*; C07f *9/08*
U.S. Cl. 260—924 **13 Claims**

A composition useful as a corrosion and scale inhibitor is obtained by reacting a N-secondary alkyl alkylene diamine (e.g. contains an average of 8–20 carbon atoms in the akyl group and about 2–4 carbon atoms in the alkylene group) and a phosphate ester, obtained for example by reacting about equal molar amounts of poly-

phosphoric acid and a condensation product of an aliphatic primary alcohol (preferably contains 3–6 carbon atoms) and at least one mole (preferably 1–10 moles) of an alkylene oxide (preferably ethylene oxide). Final reaction product can have a pH of 5–9.

3,787,534
PHOSPHATED MIXED ESTERS OF HYDROXY AMINES

James R. Stanford, Sugar Land, and Paul G. Vogelsang, Jr., Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Continuation of abandoned application Ser. No. 796,183, Feb. 3, 1969, which is a division of application Ser. No. 600,354, Dec. 9, 1966, now Patent No. 3,477,956. This application Sept. 15, 1971, Ser. No. 180,865
Int. Cl. C02b *3/06*; C07f *9/08*
U.S. Cl. 260—928 **4 Claims**

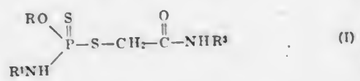
Phosphated hydroxy amines obtained by reacting polyphosphoric acid or phosphorus pentoxide with hydroxyamines, e.g., diethanolamine or triethanolamine, with or without neutralization, are used as scale inhibitors in brines, especially in oil wells, where calcium and barium salts are present.

3,787,535
O-ALKYL(ALKENYL)-N-MONOALKYL(ALKENYL)-S - [N' - MONOALKYL (ALKENYL)-CARBAMYLMETHYL] - THIONOTHIOLPHOSPHORIC ACID ESTER AMIDES

Claus Stölzer, Wuppertal-Vohwinkel, Ingeborg Hammann, Cologne, and Günter Unterstenhofer and Bernhard Homeyer, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 8, 1971, Ser. No. 160,963
Claims priority, application Germany, July 11, 1970, P 20 34 482.5
Int. Cl. A01n *9/36*; C07f *9/24*
U.S. Cl. 260—943 **9 Claims**

O-alkyl(alkenyl)-N-monoalkyl(alkenyl)-S-[N' - monoalkyl(alkenyl) - carbamylmethyl] - thionothiolphosphoric acid ester amides of the general formula



(I)

in which

R and R^2 each is an alkyl or alkenyl radical with up to 6 carbon atoms, and

R^1 is a methyl, ethyl, isopropyl or an alkenyl radical with up to 4 carbon atoms,

which possess nematocidal, insecticidal and acaricidal properties.

3,787,536
3-PHOSPHORYLTHIO ACRYLAMIDES

Horst O. Bayer, Levittown, and William S. Hurt and Harold E. Aller, Norristown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 162,010, July 12, 1971, which is a continuation-in-part of application Ser. No. 22,660, Mar. 25, 1970, which in turn is a continuation-in-part of application Ser. No. 807,445, Mar. 14, 1969, both now abandoned. This application Dec. 21, 1971, Ser. No. 210,619
Int. Cl. A01n *9/36*; C07f *9/16*
U.S. Cl. 260—943 **11 Claims**

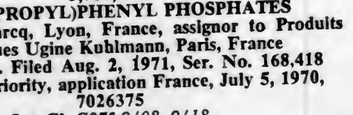
New compounds belonging to the general class of 3-phosphorylthio acrylamides. They can be prepared by reaction of a phosphorous acid derivative with an isothiazolone hydrochloride. They are broad spectrum insecticides, miticides and nematocides.

3,787,537
TRI(ISOPROPYL)PHENYL PHOSPHATES

Michel De Marcq, Lyon, France, assignor to Produits Chimiques Ugine Kuhlmann, Paris, France

No Drawing. Filed Aug. 2, 1971, Ser. No. 168,418
Claims priority, application France, July 5, 1970, 7026375
Int. Cl. C07f *9/08, 9/18*
U.S. Cl. 260—954 **10 Claims**

Hydrolysis stable phosphorous esters are disclosed corresponding to the general formula



(I)

wherein the group C_3H_7 is an isopropyl radical, x is the integer 1,2 or 3 and R is an aryl or alkaryl radical containing from 6 to about 30 carbon atoms or an aliphatic, cycloaliphatic or arylaliphatic radical containing from 2 to about 30 carbon atoms and from 0 to 2 chlorine atoms, 0 or 1 bromine atom and 0 to 6 oxygen atoms. Compositions of matter comprising the phosphorous esters (I) containing less than about 5% by weight of amines having boiling points greater than about 150° C. and processes for preparing the phosphorous esters (I) are also disclosed.

3,787,538
PHOSPHORO-AMIDO-THIOATES

Gerhard Schrader, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, and Selichi Hirane, Masahiro Aya, Shigeo Kishino, and Nobuo Fukazawa, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 9, 1970, Ser. No. 10,052
Claims priority, application Japan, Feb. 8, 1969, 44/9,106
The portion of the term of the patent subsequent to Jan. 18, 1989, has been disclaimed
Int. Cl. A01n *9/36*; C07f *9/24*
U.S. Cl. 260—954 **16 Claims**

Phosphoro-amido-thioates, i.e. O-alkyl-O-[2-nitro-4-(alkyl, alkoxy and chloro)-phenyl]-N-alkyl-phosphoro-amido-thioates and O-alkyl-O-[2-nitro-4-(optionally alkyl, alkoxy and chloro) - phenyl] - N-cycloalkyl-phosphoro-amido-thioates, or O-alkyl-O-[2-nitro-4-(alkyl, alkoxy and chloro)-phenyl]-N-alkyl-amido-thionophosphates and O-alkyl-O-[2-nitro-4-(optionally alkyl, alkoxy and chloro)-phenyl]-N - cycloalkyl - amido - thionophosphates, which possess herbicidal properties and which may be produced by conventional methods.

3,787,539
THIONOTHIOLPHOSPHORIC ACID O,S-DIESTER AMIDES

Reimer Colln, Wuppertal-Elberfeld, Ingeborg Hammann, Cologne, Gunter Unterstenhafer, Opladen, and Wolfgang Behrenz, Cologne-Stammheim, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Aug. 1, 1969, Ser. No. 846,939, now abandoned. Divided and this application Dec. 8, 1971, Ser. No. 206,179
Int. Cl. A01n *9/36*; C07f *9/16, 9/24*
U.S. Cl. 260—959 **8 Claims**

Reacting gaseous ammonia, thionothiolphosphoric acid S-ester dichloride and a hydroxy compound;

I.e. gaseous ammonia, thionothiolphosphoric acid-S-(alkyl, alkenyl, haloalkyl, alkoxy-alkyl, alkylmercapto-

akyl, cycloalkyl, phenylalkyl, phenyl and halophenyl)-ester dichloride, especially thionothiolphosphoric acid-S-(alkyl, phenylalkyl, phenyl and chlorophenyl)-ester dichloride, and an alkanol, alkenol, haloalkanol, alkoxy-alkanol, alkylmercapto-alkanol, cycloalkanol, phenylalkanol, phenol or halophenol, especially an alkanol, alkenol, chloroalkanol, alkoxy-alkanol, alkylmercapto-alkanol, cycloalkanol, phenol or chlorophenol;

By introducing gaseous ammonia until saturation into a mixture of such S-ester dichloride and hydroxy compound, at a temperature of about −10 to +20° C., optionally in the presence of an inert organic solvent or diluent;

To form the corresponding thionothiolphosphoric acid O,S-di(alkyl, alkenyl, haloalkyl, alkoxy-alkyl, alkylmercapto-alkyl, cycloalkyl phenylakyl phenyl and/or halophenyl) ester amides some of which are new compounds and all of which possess insecticidal acaricidal and bird and rodent-repellent properties.

3,787,540
BENZYLATION OF DIALKYL PHOSPHITES WITH DITHIOURETHANES

Andreas Schmidt, Reinach, Kurt Schwarzenbach, Aesch, and Heimo Brunetti, Reinach, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed May 5, 1972, Ser. No. 250,539
Claims priority, application Switzerland, May 12, 1971, 6,972/71
Int. Cl. C07f *9/40*
U.S. Cl. 260—970 **10 Claims**

Esters of p-hydroxybenzylphosphonic acids are prepared by reacting p-hydroxybenzyldithiourethans with esters of phosphonic acids in the presence of a base. The esters of p-hydroxybenzylphosphonic acids are stabilizers for polymers.

3,787,541
GRAPHITIZATION OF MESOPHASE PITCH FIBERS

Lloyd I. Grindstaff, Rte. 7, Box 733, Elizabethton, Tenn. 37643, and Mack P. Whittaker, 1 Woodland Circle, Johnson City, Tenn. 37601

No Drawing. Continuation-in-part of application Ser. No. 84,953, Oct. 28, 1970, which is a division of application Ser. No. 830,931, June 4, 1969, both now abandoned. This application Oct. 26, 1971, Ser. No. 192,639
Int. Cl. C01b *31/07*
U.S. Cl. 264—29 **4 Claims**

Single phase graphite is obtained by extruding mesophase preparing by heating a carbonaceous material such as a hydrocarbon coker feed, coal tar pitch, ethylene tar pitch, etc. at a temperature above 400° C. until at least 75 percent quinoline-insoluble mesophase has been formed, extruding the resultant material at a temperature between the softening point of the mesophase and 700° C. and subsequently carbonizing the formed product by heating it in a non-oxidizing atmosphere to temperatures from about 1000° C. to about 3000° C. High density material can thus be obtained with controlled alignment of the graphitic structure.

3,787,542
PRODUCTION OF EXTRUDED FOAMED SYNTHETIC THERMOPLASTIC POLYMERIC MATERIALS

Brendan Gallagher, Welwyn, and Anthony Graham Marshall Last, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 14, 1971, Ser. No. 189,135
Int. Cl. B29d *27/00*; B29h *7/20*
U.S. Cl. 264—51 **12 Claims**

Producing foamed thermoplastics by extrusion using a liquid/gas 2 component blowing agent system wherein the gaseous component is injected through a flow restricting device across which there is a pressure gradient of at least 100 lbs./in.^{2}.

3,787,543
PROCESS FOR THE PREPARATION OF LOW DENSITY MICROCELLULAR FOAM SHEETS EXHIBITING HIGH WORK-TO-TEAR VALUES

Robert Guy Parrish, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Application Dec. 27, 1968, Ser. No. 797,312, now Patent No. 3,637,458, which is a continuation-in-part of abandoned application Ser. No. 664,781, Aug. 31, 1967. Divided and this application Dec. 23, 1970, Ser. No. 101,144
Int. Cl. B29d *7/02, 27/00*
U.S. Cl. 264—53 **15 Claims**

A low density foam sheet of a high work-to-break value thermoplastic crystalline polymer comprising polyhedral shaped closed cells having a median diameter of at least 500 microns and a process for its preparation by flash extrusion with reduced bubble nuclei formation.

3,787,544
METHOD OF MAKING PLASTIC ARTICLES WITH A PARTIALLY ENVELOPED CORE

Stanley Ronald Barnette, 90 Cherokee St., Miami Springs, Fla.

Continuation of application Ser. No. 484,162, Aug. 23, 1965, which is a division of application Ser. No. 251,432, Jan. 14, 1963, and refiled as a continuation of application Ser. No. 646,435, June 15, 1967, now Patent No. 3,457,133, which in turn is a continuation-in-part of application Ser. No. 808,599, Apr. 24, 1959, now Patent No. 3,072,973. This application June 4, 1970, Ser. No. 41,771
The portion of the term of the patent subsequent to Jan. 15, 1980, has been disclaimed
Int. Cl. B29d *3/00*
U.S. Cl. 264—69 **12 Claims**



A plastic article with a partially enveloped core is made by removably attaching the core to the base of a mold and embedding the core in curable material. A second layer of the material may be introduced after inverting the mold. Orientable material may be dispersed in the curable material.

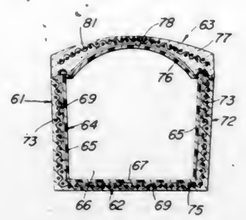
3,787,545
BURIAL VAULTS

Wesley M. Chandler and Paul F. Heuser, St. Paul, and Bernard T. Juba, White Bear Lakes, Minn., assignors to Wilbert, Inc., Broadview, Ill.

Division of application Ser. No. 717,517, Apr. 1, 1968, now Patent No. 3,439,461, and a continuation-in-part of application Ser. No. 513,397, Dec. 13, 1965. This application Oct. 25, 1968, Ser. No. 798,825
Int. Cl. B32b *31/12*
U.S. Cl. 264—135 **1 Claim**

A method for making a composite burial vault comprising an open-topped box like structure and cover therefore wherein preformed liners for each of the box like structure and core are each coated with a wet, tacky adhesive such as epoxy resin. While the epoxy resin is maintained in a wet, tacky state a damp concrete mix is applied directly on the wet, tacky adhesive coating with

the adhesive coating and the concrete component intermingled at their contacting adjacent surfaces and curing



in situ the concrete component and the adhesive coating on each of the box-like structure and cover.

3,787,546

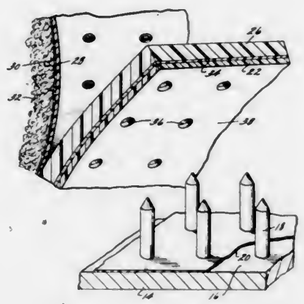
METHOD FOR MAKING A PERFORATED PLASTIC ARTICLE

Richard D. Pratt and Kenneth W. Ewing, Cincinnati, Ohio, assignors to General Electric Company

Filed Dec. 21, 1970, Ser. No. 100,218

Int. Cl. B29h *3/06*

U.S. Cl. 264—156 **3 Claims**



A perforated plastic article such as a perforated reinforced laminated plastic sheet is made on a studded mold by applying pressure to the plastic to press the sheet toward the mold through a pressure transmitting material, for example, hair felt. One form of the method includes making a perforated reinforced plastic composite article having an improved erosion resistant elastomer surface through use of a compatible tack coat such as of the erosion resistant elastomer between a reinforced plastic sheet and the erosion resistant elastomer.

3,787,547

METHOD OF MANUFACTURING A REFORMED PLASTIC ARTICLE

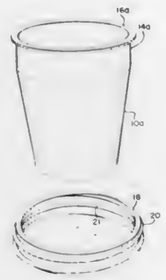
Leslie Stephan Marco, Oaklawn, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Mar. 7, 1972, Ser. No. 232,456

Int. Cl. B29c *27/00*

U.S. Cl. 264—249 **4 Claims**

A composite container with a lightweight and relatively thin plastic body portion having an open neck portion around which is fixed a separate and rigid annular ring member with threads or other fastening means for cooperative attachment of a closure member thereto; the container body portion being initially a plastic preform with an outward flange rim at the open end and the annular ring member being assembled with the preform to a position around the neck portion and in engagement with the flange rim; and with the preform then reformed with the body wall expanded beneath the adjacent end of the ring member to trap the same in engagement with the flange rim.



There are conventional plastic glass jars and bottles with relatively thick walls and resultantly of relatively increased weight to provide a threaded finish of sufficient strength to properly secure and seal a threaded cap thereon. Also, there are containers of various types having threaded members of various types separately secured thereto. In some of these types, as where plastic materials are employed, there is a mold formation of the parts with a welding of the materials of the container and threaded members; in others, there is mechanical interlocking between the container and the threaded member.

3,787,548

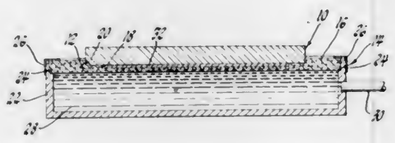
METHOD OF APPLYING PRESSURE SENSITIVE ADHESIVE TO AN ARTICLE

James P. Harris, Troy, and Seymour Katz, Oak Park, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 24, 1970, Ser. No. 101,259

Int. Cl. B29c *1/04*

U.S. Cl. 264—259 **2 Claims**



In a preferred embodiment a uniform film of tacky, pressure sensitive adhesive is applied to an article by employing a special mold having a porous cavity defining member arranged and constructed to receive a predetermined amount of pressure sensitive adhesive and at least the surface of the article to be coated, and a reservoir beneath the porous member; introducing a liquid into the reservoir in which the pressure sensitive adhesive is insoluble under sufficient pressure to cause the liquid to flow through the porous member and form a liquid film on the cavity surface; placing a predetermined amount of pressure sensitive adhesive in the mold cavity and then placing the article to be coated into the cavity against the adhesive. The adhesive is molded into a thin film against the surface to be coated and adheres thereto but does not stick to the mold because it will not wet the liquid film.

3,787,549

MOULDING PLASTIC ARTICLES

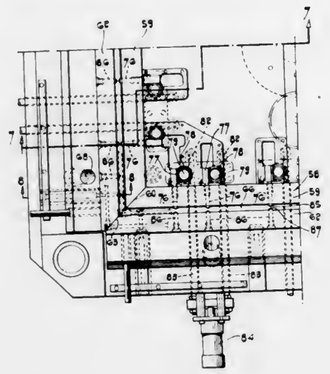
Victor William Stanley Humphrey, Radlett, England, assignor to GKN Sankey Ltd., and Aro Plastic Building Supplies, Ltd., London, England

Filed May 3, 1971, Ser. No. 139,376

Claims priority, application Great Britain, May 5, 1970, 21,517/70

Int. Cl. B29f *1/10*

U.S. Cl. 264—274 **4 Claims**



The specification discloses a method of making an aperture-defining frame member, particularly a window-frame, comprising a rigid frame-shaped reinforcement made of e.g. a solid metal section embedded in synthetic resinous material. The method comprises placing the reinforcement in a mould cavity having the shape of the required frame member and locating the reinforcement in the cavity solely by engaging complementary interfitting formations on the reinforcement and on pin-like projections which extend from the cavity walls, e.g. recesses on the reinforcement engaging the ends of the projections. The longitudinal axes of all the projections are parallel to a predetermined plane and the engagement of the end of each projection with the complementary recess of the reinforcement prevents movement of the latter at least in first directions perpendicular to the plane. The projections are located around the reinforcement to prevent movement of the reinforcement in second directions parallel to the plane. The mould cavity is filled with synthetic resinous material to embed the reinforcement therein while the reinforcement is located in the cavity by the projections, and the cavity is subsequently opened and the projections withdrawn from the completed frame member which is then removed from the cavity.

3,787,550

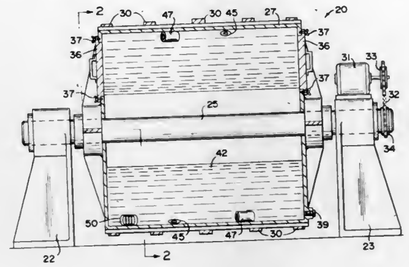
METHOD OF CURING AND/OR SUBJECTING TO PRESSURE AN ELASTOMERIC ARTICLE

Daniel Ross McGillvary, Jackson Township, Stark County, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed July 6, 1971, Ser. No. 159,973

Int. Cl. B29c *25/00*

U.S. Cl. 264—88 **5 Claims**



The invention involves subjecting an article of manufacture to pressure and/or curing conditions by placing it in a stabilizing liquid of approximately the same specific gravity and subjecting the stabilizing liquid to the action of centrifugal force.

3,787,551

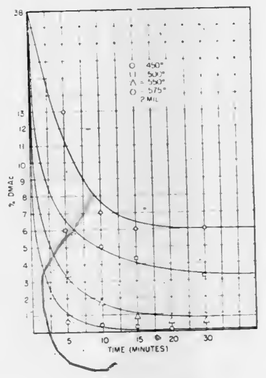
SOLVENT REMOVAL FROM AROMATIC POLYAMIDE FILM

Elliot A. Vogelfanger, Edison, and Richard L. Markham, North Plainfield, N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,666

Int. Cl. B29c *25/00*; **B01d** *1/22*

U.S. Cl. 264—345 **9 Claims**



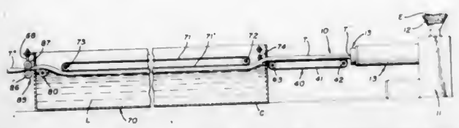
A process for removal of residual organic solvents included in wholly-aromatic polyamide film by subjecting the film containing the residual solvent to a temperature in the range of above the glass transition temperature.

3,787,552

METHOD AND APPARATUS FOR FORMING THINWALLED TUBULAR ARTICLES

Richard R. Spencer, Hot Springs, Ark., and William C. Penny, Alliance, Ohio, assignors to Alliance Rubber Company, Alliance, Ohio

Filed Dec. 21, 1970, Ser. No. 100,038
Int. Cl. B29c *25/00*; B29d *23/04*; B29h *5/28*
U.S. Cl. 264—40 11 Claims



Apparatus for producing thinwalled tubing of elastic material formed by a method including. die forming a mass of the elastic material into thinwalled tubing. supplying a pressurizing fluid and a non-adhesive material through a conduit to the interior of the tubing, and passing the tubing through a curing medium while venting the pressurizing fluid in the tubing through both of its extremities to maintain the tubing uniformly expanded and stabilized in the curing medium.

ERRATUM

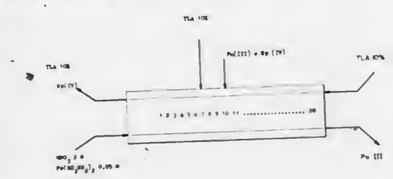
For Class 423—610 see:
Patent No. 3,787,139

3,787,553

PROCESS FOR THE SEPARATION OF NEPTUNIUM FROM PLUTONIUM BY LIQUID-LIQUID EXTRACTION

Jean Yves Espie, Sceaux, Claude Jouan, Fontenay-aux-Roses, and Gerard Koehly, Maisons-Alfort, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed May 27, 1971, Ser. No. 147,518
Claims priority, application France, May 28, 1970, 7019504
Int. Cl. C01g *56/00*
U.S. Cl. 423—9 4 Claims



The process for separating neptunium and plutonium contained in nitric acid solutions comprises the steps of endowing the starting solution with a reducing action, contacting the solution with an organic phase consisting of trilaurylamine in solution in an inert solvent in order to extract neptunium of valence IV while the plutonium of valence III remains in an aqueous phase, adding capric acid to the loaded organic phase and washing this latter with a reducing aqueous solution.

3,787,554

PROCESS FOR THE SEPARATION OF IRIDIUM AND RHODIUM

Max Ziegler, Gottingen-Herberhausen, Germany, assignor to W. C. Heraeus GmbH, Hanau, Germany

No Drawing. Filed Aug. 2, 1972, Ser. No. 277,209
Claims priority, application Germany, Sept. 3, 1971, P 21 44 151.0
Int. Cl. C01g *55/00*
U.S. Cl. 423—22 9 Claims

Iridium is separated from aqueous mineral acid solutions containing iridium and rhodium using an organically substituted ammonium salt and extracting the iridium complex that is formed with an organic solvent. Trialkyl ammonium halides are used to form the iridium complex and aliphatic or aromatic halogenated hydrocarbon, a carboxylic acid ester or a slightly water-soluble alcohol are used to extract the iridium complex.

3,787,555

PROCESS FOR RECOVERING CHROMIUM VALUES FROM CHROME ORE

Charles Patrick Bruen, Bernardsville, N.J., and Christian Albert Wamser, Camillus, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 16, 1972, Ser. No. 226,931
Int. Cl. C01g *37/14, 49/00*
U.S. Cl. 423—54 13 Claims

Chromium values from chrome ore are solubilized in an aqueous solution which comprises digesting the ore with an aqueous chromic acid solution at elevated temperatures to produce a solution of the dichromates of the metal values in the chrome ore, separating the digested solution from the insoluble material, oxidizing the trivalent chromium present in the digested solution to the hexavalent state, and recovering the chrome values. Oxidation of the chrome ore prior to the digestion step sufficient to oxidize at least 40% of the ferrous iron to the ferric state in the ore increases the dissolution rate of the metal values in the chrome ore.

3,787,556

METHOD FOR PREPARING TITANIUM TETRACHLORIDE

Luigi Piccolo and Benedetto Calcagno, Milan, and Marcello Ghirga, Bresso, Italy, assignors to Societa Italiana Resine S.p.A., Milan, Italy

Filed May 11, 1971, Ser. No. 142,326
Claims priority, application Italy, May 12, 1970, 24,458/70
Int. Cl. C01g *23/02*
U.S. Cl. 423—77 8 Claims

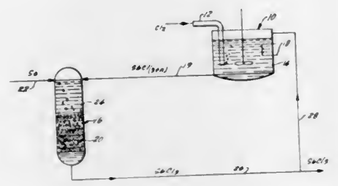
Titanium tetrachloride is made by feeding powdered ilmenite or titanium slag to a reactor with reagent and heating gas streams of chlorine and the combustion products of coal.

3,787,557

PROCESS FOR MANUFACTURING OF ANTIMONY TRICHLORIDE

Robert D. Stewart, La Habra, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

Continuation-in-part of abandoned application Ser. No. 179,827, Sept. 13, 1971. This application Apr. 16, 1973, Ser. No. 351,372
Int. Cl. C01b *29/00*
U.S. Cl. 423—87 12 Claims



There is provided a two-stage process for the production of antimony trichloride from antimony. First, antimony trichloride is reacted with chlorine to form antimony pentachloride in a first reaction zone. Particulate antimony metal and the antimony pentachloride formed

in the first reaction zone are then reacted in a second reaction zone to form antimony trichloride. A portion of the antimony trichloride formed is collected as product and the balance recycled for conversion to antimony pentachloride.

3,787,558

MAGNESIUM HYDROXIDE PRODUCTION

Charles Clifford Briggs, North Anston, and Trevor Wilkinson Lythe, Worksop, England, assignors to Steetley (Mfg.) Ltd., Nottinghamshire, England

No Drawing. Filed Oct. 14, 1970, Ser. No. 80,758
Claims priority, application Great Britain, Oct. 17, 1969, 51,019/69
Int. Cl. C08f *5/22*
U.S. Cl. 423—164 9 Claims

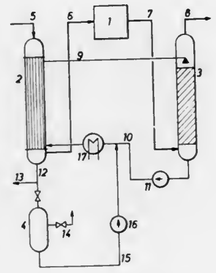
A process for producing magnesium hydroxide having a low boron content from brines or sea water comprising the steps of precipitating magnesium hydroxide from the brine or sea water with alkali and subsequently washing the precipitated magnesium hydroxide with aqueous alkali. The precipitation of the magnesium hydroxide may be carried out in two stages.

3,787,559

DESULFURIZATION OF WATER-CONTAINING HOT COMPRESSED GASES

Paul Rudolph, Bad Homburg, Ernst Kapp, Frankfurt am Main, Georg Kempf, Budesheim, and Wolf-Rudiger Farana, Frankfurt am Main, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt, Germany

Filed Sept. 22, 1971, Ser. No. 182,807
Claims priority, application Germany, Sept. 23, 1970, P 20 46 753.2; Aug. 20, 1971, P 21 41 878.0
Int. Cl. B01d *53/54*
U.S. Cl. 423—222 19 Claims



In the desulfurization of hot water-containing compressed raw gas, such as is produced by distillation of solid or liquid fuels with air or steam, wherein the raw gas is washed with an absorption agent to remove the sulfur therefrom and leave substantially sulfur-free gas, the improvement which comprises cooling the raw gas prior to desulfurization by heat exchange with condensate produced from said raw gas, the heated condensate resulting from said heat exchange being contacted with clean gas leaving said desulfurization so that said condensate is thereby at least partially revaporized. The absorption agent may comprise an aqueous alkaline solution such as alkali arsenite or an alkali salt of an amino acid, or an alkyl- or alkylolamine. Preferably the raw gas is initially cooled to a temperature below that at which it is contacted with the absorption agent.

3,787,560

METHOD OF DECOMPOSING NITROGEN OXIDES

Ruth E. Stephens, Royal Oak, Mich., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Continuation-in-part of abandoned application Ser. No. 60,650, Aug. 3, 1970, which is a division of abandoned application Ser. No. 692,587, Dec. 22, 1967. This application Jan. 24, 1972, Ser. No. 220,440
Int. Cl. B01d *53/34*
U.S. Cl. 423—239 6 Claims

The oxides of nitrogen content of a gas stream can be reduced by contacting the gas stream with a catalyst consisting essentially of neodymium oxide and barium oxide on a suitable support at elevated temperatures. The catalysts are especially useful in reducing the nitric oxide content of the exhaust gas of internal combustion engines.

3,787,561

LOOSELY AGGREGATED 100 MILLIMICRON MICELLULAR SILICA

Ellsworth G. Acker, Baltimore, and Milton E. Winyall, Ellicott City, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed May 5, 1971, Ser. No. 140,569
Int. Cl. C01b *33/12, 33/18*
U.S. Cl. 423—339 8 Claims

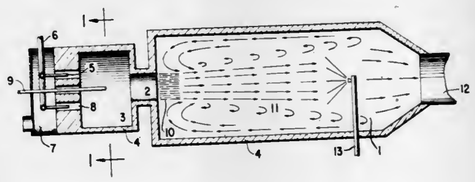
Ultrafine silica materials are produced by first forming a lossely aggregated approximately 100 millimicron micellular silica and fluid energy milling this silica to an ultrafine silica. The loosely aggregated 100 millimicron micellular silica is produced by acid neutralizing a concentrated silicate solution in a two step procedure followed by a hot aging at about 70 to 100° C. for ¼ to 5 hours to yield the silica product. This silica is washed and then may be dried or directly fed to a fluid energy mill for deaggregation and drying to form the ultrafine size silica.

3,787,562

CARBON BLACKS HAVING IMPROVED DISPERSION AND PLATEWEAR CHARACTERISTICS

George L. Heller, Monroe, La., Frank J. Eckert, Morrisville, Pa., and Charles L. De Land, West Monroe, and Robert W. Dingman, Monroe, La., assignors to Cities Service Company, New York, N.Y.

Original application Jan. 2, 1969, Ser. No. 788,491, now Patent No. 3,642,446. Divided and this application May 14, 1971, Ser. No. 143,610
Int. Cl. C09c *1/48, 1/50*
U.S. Cl. 423—445 2 Claims



A reaction mixture is formed of a feedstock hydrocarbon and hot combustion gases, the mixture having a composition and sufficient heat content for formation of a carbon black of specific particle size and structure characteristics upon decomposition of the hydrocarbon within the mixture. Before the carbon black is completely formed, the mixture is diluted with a gas which is substantially nonreactive with the carbon black and cooler than the mixture. Agglomeration of the particles of carbon black

within the mixture is reduced, and the resultant dispersion and platewear characteristics of the carbon black in printing inks are greatly improved.

3,787,563

PROCESS FOR PURIFYING SULFURIC ACID FOR THE CATALYTIC SYNTHESIS OF HYDROXYLAMMONIUM SULFATE

Klaus Kartte, Frankenthal, Kurt Jockers and Hermann Meier, Ludwigshafen and Ludwig Taglinger, Gruenstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 3, 1972, Ser. No. 231,721

Claims Priority, application Germany, Mar. 9, 1971, P 21 11 118.2

Int. Cl. C01b *17/90, 31/02*

U.S. Cl. 423—531 **3 Claims**

Process for the purification of sulfuric acid to be used in the manufacture of hydroxylammonium sulfate by reduction of nitric oxide in contact with platinum catalysts. The process consists in diluting the sulfuric acid with water, adding such an amount of sulfur dioxide that after treatment with activated carbon it still has a content of at least 5 mg. of SO_2 per liter of dilute acid and then treating the sulfuric acid together with air, oxygen or hydrogen peroxide again with activated carbon. The activated carbon can be regenerated by treatment with alkaline substances such as caustic soda solution, aqueous ammonia solution or sodium carbonate solution.

3,787,564

PROCESS FOR PRODUCING FERROMAGNETIC CHROMIUM DIOXIDE

Tatsuji Kitamoto, Mahito Shimizu, and Goro Akashi, Kanagawa, Japan, assignors to Fuji Photo Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 14, 1971, Ser. No. 207,995

Claims priority, application Japan, Dec. 14, 1970, 45/110,489

Int. Cl. C01g *37/02;* **B01j** *1/00*

U.S. Cl. 423—607 **8 Claims**

Ferromagnetic chromium dioxide is produced without adverse affects on its characteristics by using a reaction vessel at least the inner wall of which is chromium.

ERRATUM

For Class 423—339 see:
Patent No. 3,787,501

3,787,565

METHOD OF PRODUCING A DIAGNOSTIC PREPARATION ON THE BASIS OF AN IRON COMPLEX LABELLED WITH 99m Tc

Jean-Paul Nouel, Bolsguillaume, and Henry Emile Edouard Renault, Paris, France, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed May 24, 1971, Ser. No. 146,543

Claims priority, application France, May 22, 1970, 7018792

Int. Cl. A61k *27/04*

U.S. Cl. 424—1 **4 Claims**

A method of producing a technetium labelled iron complex in which a solution of a technetium compound is reacted with ferrous ascorbate, the resultant solution is made alkaline and the solution is then agitated in the presence of air until a violet color appears.

3,787,566

DISINFECTING AEROSOL COMPOSITIONS

Claude Gauvreau, Laval, Quebec, Canada, assignor to Holliston Labortories, Inc., Waltham, Mass.

No Drawing. Continuation-in-part of application Ser. No. 854,009, July 29, 1969, now Patent No. 3,595,975, which is a continuation of application Ser. No. 500,225, Oct. 21, 1965, which in turn is a continuation of application Ser. No. 179,778, Mar. 14, 1962, both now abandoned. This application Mar. 29, 1971, Ser. No. 129,254

The portion of the term of the patent subsequent to July 27, 1988, has been disclaimed

Int. Cl. A01n *9/22, 9/24, 9/26*

U.S. Cl. 424—45 **11 Claims**

Disinfecting aerosol compositions comprising pyridinium halide salts admixed with a terpene, together with a propellant in an aerosol container provide effective synergized bacteriostatic action. In particular, effective disinfecting aerosol compositions of both a residual and an air-santizing type are prepared by a sprayable composition comprising cetyl pyridinium bromide, citral and a propellant.

3,787,567

OCTADADECYLAMMONIUM DIETHOXYDITHIOPHOSPHATE USED IN THE TREATMENT OF DERMATOMYCOSES

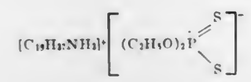
Nikolai Nikolaevich Melnikov, ulitsa D. Ulyanova, 4/3, korpus A, kv. 96; Boris Abramovich Khaskin, Novo-Alexeevskaya ulitsa, 3a, kv. 61; Grigory Nikolaevich Pershin, Novo-Peschanaya, 19, kv. 75; and Sofia Nikolaevna Milovanova, Kutuzovsky prospekt, 5/3, korpus 2, kv. 57, all of Moscow, U.S.S.R.

No Drawing. Filed Sept. 12, 1969, Ser. No. 857,572

Int. Cl. A01n *9/36;* **A61k** *27/00*

U.S. Cl. 424—199 **5 Claims**

A drug for treatment of dermatomycoses whose active ingredient is 1–5% by weight of octadecylammonium diethoxydithiophosphate of the following formula:



3,787,568

ARTHRITIC COMPOSITIONS COMPRISING AN S-(PHOSPHINO- OR PHOSPHITOAUROUS)-THIOURONIUM HALIDE AND METHOD OF PRODUCING ANTI-ARTHRITIC ACTIVITY

Blaine M. Sutton, Hatboro, and Joseph Weinstock, Phoenixville, Pa., assignors to Smithkline Corporation, Philadelphia, Pa.

No Drawing. Filed May 1, 1972, Ser. No. 249,280

Int. Cl. A61k *27/00*

U.S. Cl. 424—211 **17 Claims**

Pharmaceutical compositions having anti-arthritic activity comprising an S-(phosphino- or phosphitoaurous)-thiouronium halide and methods of producing anti-arthritic activity by administering internally, preferably orally, said compositions.

3,787,569

2-p-NITRO- OR p-CHLOROBENZAMIDO-ACETOHYDROXAMIC ACID

Roland N. Johnson and Jon A. Anderson, Norwich, N.Y., assignors to Morton-Norwich Products, Inc.

No Drawing. Original application May 17, 1971, Ser. No. 144,322, now Patent No. 3,728,380. Divided and this application Aug. 14, 1972, Ser. No. 280,563

Int. Cl. A61k *21/00, 27/00*

U.S. Cl. 424—229 **1 Claim**

Novel benzamidoacetohydroxamic acids of the formula:



wherein R is nitro or chloro are potent inhibitors of urease. Combined with urinary tract antibacterials an improvement in the prevention of formation of urinary calculi in the presence of urea splitting organisms is observed.

3,787,570

SUBSTITUTED PHENYLSULFAMYL SALICYLIC ACIDS AND DERIVATIVES THEREOF IN THE TREATMENT OF INFLAMMATION

Tsung-Ying Shen, Bruce E. Witzel, and Gordon L. Walford, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application June 25, 1969, Ser. No. 836,605, now Patent No. 3,700,773. Divided and this application July 12, 1972, Ser. No. 278,701

Int. Cl. A61k *27/00*

U.S. Cl. 424—233 **2 Claims**

Substituted phenyl sulfamyl or sulfonamido salicylic acids and non-toxic pharmaceutical accepted salts, esters, amides and various derivatives thereof are claimed. Also a method of treating inflammation which comprises administering various substituted phenyl sulfamyl or sulfonamido salicylic acids and the various derivatives are also claimed. The substituted phenyl sulfamyl or sulfonamido salicylic acids described herein have anti-inflammatory, anti-pyretic and analgesic activity.

3,787,571

TRICHLOROETHANOL AND TRIFLUOROETHANOL TOPICAL AND PERCUTANEOUS STEROID ADSORPTION PROMOTERS

Takeru Higuchi, Lawrence, Kan., assignor to Alza Corporation, Palo Alta, Calif.

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,919

Int. Cl. A61k *17/00*

U.S. Cl. 424—239 **3 Claims**

Dermal compositions are disclosed which comprise trichloroethanol or trifluoroethanol as one component of a vehicle having solubilized therein a drug or other beneficial chemical compound. Also disclosed is a method for administering a drug or other beneficial chemical compound to the body which comprises contacting the skin with the drug or compound in the presence of trichloroethanol or trifluoroethanol which acts as an absorption promoter to enhance the topical or percutaneous absorption of the active drug or compound.

3,787,572

N-DISUBSTITUTED 3-AMINO-1,2-BENZISOTHIAZOLES AS ANTIMYCOTIC AGENTS

Horst Böshagen, Haan, Rhineland, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

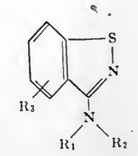
No Drawing. Original application June 26, 1968, Ser. No. 740,020, now abandoned. Divided and this application Sept. 29, 1971, Ser. No. 182,246

Claims priority, application Germany, Mar. 9, 1968, F 53,242

Int. Cl. A61k *27/00*

U.S. Cl. 424—244 **15 Claims**

Compounds and their production are provided wherein the compounds have anti-fungal activity against pathogenic fungi in animals and humans. The compounds are N-disubstituted 3-amino-1,2-benzisothiazoles of the formula:



in which

R_1 and R_2 are each individually aryl, aralkyl or an aliphatic radical, and when each of R_1 and R_2 is alkyl, the two aliphatic radicals together are linked to form a heterocycle with a nitrogen heteroatom, and

R_3 is at least one hydrogen or halogen atom or a lower alkyl or alkoxy group, or nitro.

More generally, the compounds are made up into antimycotic compositions with a suitable carrier or vehicle.

3,787,573

PYRIDINE SULFONIC ACIDS AS DIURETICS

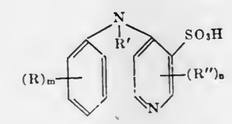
Renat Herbert Mizzoni, 90 Valley Brook Road, Long Valley, N.J. 07853, and Herbert Morton Blatter, 851 Springfield Ave., Apt. 22M, Summit, N.J. 07901

No Drawing. Continuation-in-part of application Ser. No. 20,833, Mar. 18, 1970, now Patent No. 3,674,794, which is a continuation-in-part of abandoned application Ser. No. 876,038, Nov. 12, 1969. This application Aug. 26, 1970, Ser. No. 67,205

Int. Cl. A61k *27/00*

U.S. Cl. 424—263 **3 Claims**

New 4-arylamino-3-pyridinesulfonic acids, e.g. those of the formula



R=H, alkyl, free, esterified or etherified OH, CF_3,NO_2, amino, free of functionally converted carboxy or sulfo;

R′=H, alkyl or acyl;

R″=H or alkyl;

m=1–3;

n=1 or 2;

the N-oxide, esters and salts thereof, and a process for their preparation, are diuretics.

3,787,574

P-AMINOALKYLBENZENESULFONAMIDE DERIVATIVES FOR TREATING DIABETES MELLITUS

Henri Dietrich, Arlesheim, Basel-Land, and Claude Lehmann, Basel, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Original application Sept. 11, 1970, Ser. No. 68,794, now Patent No. 3,712,899. Divided and this application Sept. 18, 1972, Ser. No. 290,041

Claims priority, application Switzerland, Sept. 4, 1969, 13,399/69

Int. Cl. A61k *27/00*

U.S. Cl. 424—266 **6 Claims**

Compounds of the class of 1-[p-(carboxamidoalkyl)-phenylsulfonyl]-2-imino-imidazolidines and the pharmaceutically acceptable acid addition salts thereof have hypoglycemic activity; these compounds are active ingredients of pharmaceutical compositions and are useful for the treatment of diabetes mellitus; a typical embodiment is 1-[p-(2-(3-furancarboxamido)-ethyl)-phenylsulfonyl]-2-imino-3-cyclohexyl-imidazolidine.

3,787,575
N-SUBSTITUTED-2-ARYLIMINO-OXAZOLIDINES USED AS ACARICIDES

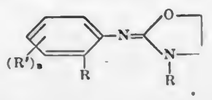
Hartmund Wollweber, Rudolf Hiltmann, and Wilhelm Stendel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Dec. 17, 1970, Ser. No. 99,227, now Patent No. 3,686,199, dated Aug. 2, 1972. Divided and this application Jan. 24, 1972, Ser. No. 220,419

Int. Cl. A01n *9/22*

U.S. Cl. 424—272 8 Claims

N-substituted-2-arylimino-oxazolidines of the formula



(I)

in which

R denotes a halogen atom, or an optionally halogen-substituted lower alkyl, alkenyl or alkoxy radical,

R′ denotes a halogen atom or an alkyl, alkoxy, alkenyl or fluoromethyl radical,

R″ denotes an alkyl, alkenyl or alkynyl radical containing up to 7 carbon atoms, the alkenyl radical optionally being substituted at the double bond by 1 or 2 chlorine or bromine atoms, and

n denotes 0, 1 or 2,

and salts thereof, which possess acaricidal properties.

3,787,576
COMBATING ANIMAL ACARID ECTOPARASITES WITH 2-PHENYLIMINOPYRROLIDINES

Edgar Enders, Cologne-Flittard, and Wilhelm Stendel, Wuppertal-Vohwinkel, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application June 18, 1969, Ser. No. 834,537, now abandoned. Divided and this application June 9, 1971, Ser. No. 151,516

Int. Cl. A01n *9/22*

U.S. Cl. 424—274 6 Claims

2-phenyliminopyrrolidines, i.e. 1-[alkyl and alkenyl]-2-[di and tri(halo and alkyl substituted)-phenylimino]-[optionally 3-, 4- or 5 - allyl substituted]-pyrrolidines, which possess parasiticidal properties, especially animal acarid ectoparasiticidal properties, and which may be produced by conventional methods.

3,787,577
METHOD OF TREATING DEPRESSION WITH CERTAIN DIAZEPINOINDOLES AND ANTI-DEPRESSANT COMPOSITIONS THEREOF

Joseph Francis Gardocki, Doylestown, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed Sept. 30, 1971, Ser. No. 185,361

Int. Cl. A61k *27/00*

U.S. Cl. 424—274 12 Claims

The anti-depressant activity of 2,3,4,5-tetrahydro-1H-1,4-diazepino[1,2-a]indoles, including those substituted in the 9-position with halo or lower alkoxy, and in the 11-position with lower alkyl.

3,787,578
METHOD OF TREATING HELMINTHIASIS

James W. McFarland, Lyme, Conn., assignor to Pfizer Inc.

Application Apr. 24, 1970, Ser. No. 12,552, now Patent No. 3,684,802, which is a division of application Ser. No. 675,285, Oct. 16, 1967, now Patent No. 3,629,423, and which in turn is a continuation-in-part of abandoned application Ser. No. 580,856, June 27, 1966. Divided and this application Mar. 10, 1972, Ser. No. 233,763

Int. Cl. A61k *27/00*

U.S. Cl. 424—263 3 Claims

New 1-(2-arylvinyl) and 1-(2-arylacyl)pyridinium and α-picolinium salts and their use as anthelmintic agents.

3,787,579
MALONONITRILE OXIME DERIVATIVES AS FUNGICIDAL AGENTS

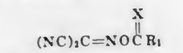
John E. Engelhart, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Original application Apr. 15, 1970, Ser. No. 28,982, now Patent No. 3,694,482. Divided and this application June 15, 1972, Ser. No. 263,034

Int. Cl. A01n *9/12, 9/24*

U.S. Cl. 424—301 1 Claim

Deriatives of malononitrile oxime characterized by the following structural formula:



wherein X can be oxygen or sulfur; R_1 is taken from the group consisting of OR_2, SR_3, NR_4R_5 and C_1–C_{10} alkyl, C_2–C_{10} alkenyl, C_2–C_{10} alkynyl or C_3–C_{10} cycloalkyl; R_2, R_3, R_4 and R_5 can be hydrogen or C_1–C_{10} alkyl, C_2–C_{10} alkynyl or C_3–C_{10} cycloalkynyl or C_3–C_{10} cycloalkyl. The above-mentioned C_1–C_{10} alkyl, C_2–C_{10} alkenyl, C_2–C_{10} alkynyl and C_3–C_{10} cycloalkyl in R_1, R_2, R_3, R_4 and R_5 may be unsubstituted or substituted by halogen, nitrile, nitro, thiocyano, perhaloalkyl, C_1–C_4 alkoxy and C_1–C_4 thioalkyl.

3,787,580
2-(6′-METHOXY-2′-NAPHTHYL)PROPIONIC ACID AND -1-PROPANOL DERIVATIVES HAVING ANTI-INFLAMMATORY, ANALGESIC AND ANTI-PYRETIC ACTIVITIES

John H. Fried and Ian T. Harrison, Palo Alto, Calif., assignors to Syntex Corporation, Panama

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,651

Int. Cl. A61k *27/00*

U.S. Cl. 424—308 4 Claims

2-(6′-methoxy-2′-naphthyl)-1-propyl 2″-acetoxybenzoate and 2″-carboxyphenyl 2-(6′-methoxy - 2′ - naphthyl) propionate have anti-inflammatory, analgesic and anti-pyretic activities.

3,787,581
PHARMACEUTICAL COMPOSITIONS AND METHODS OF TREATMENT

Merton Sandler, 10 Kilmorey Road, East Twickenham, Middlesex, England

No Drawing. Filed Mar. 22, 1971, Ser. No. 127,017

Claims priority, application Great Britain, Mar. 24, 1970, 14,365/70; July 28, 1970, 36,430/70

Int. Cl. A61k *27/00*

U.S. Cl. 424—319 9 Claims

m-Tyrosine and other compounds of the formula m-$HO.C_6H_4.CH_2.CHR_1.NHR$ where R is H or alkoxycarbonyl and R_1 is H, COOH or COOAlkyl are advanced for the treatment of depression, alone or concomitantly with dopa or other catecholic analogues of the foregoing compunds. Pharmaceutical compositions containing both types of compound are described, as is also the treatment of Parkinsonism using the two types of compound concomitantly.

3,787,582
PECTINASE ENZYME TREATING PROCESS FOR PREPARING HIGH BULK DENSITY TEA POWDERS

Gary Warner Sanderson, Englewood, N.J., and William Shaw Simpson, Charleston, S.C., assignors to Thomas J. Lipton, Inc., Englewood Cliffs, N.J.

No Drawing. Filed June 23, 1971, Ser. No. 156,028

Int. Cl. A23f *3/00*

U.S. Cl. 426—50 8 Claims

Tea extracts, specifically, solubilized add-back tea extracts, are treated with a pectinase enzyme preparation, cooled and spray-dried to a high bulk density to form an instant tea product with improved clarity and color and which has a low tendency to form foam upon reconstitution with cold water.

3,787,583
LIVESTOCK FEED PROCESS

Frank J. Hruby, 2809 County Road 18, Ravenna, Ohio 44263

Continuation of abandoned application Ser. No. 500,798, May 17, 1966. This application Mar. 9, 1970, Ser. No. 70,763

Int. Cl. A23k *1/10, 1/06, 1/08*

U.S. Cl. 426—53 2 Claims

A method for making livestock feed from a raw garbage mass by screening, grinding, pressure-cooking with steam at 15–20 p.s.i. for about two hours, closed cooling and fermenting, continuously drying while separately flashing and extracting alcohol and water vapor, and comminuting.

3,787,584
INSTANT GRITS

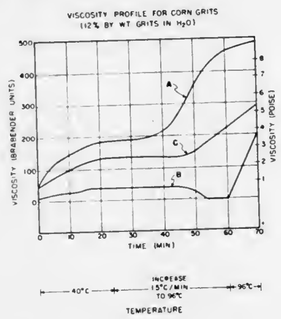
Roy G. Hyldon, Crystal Lake, Ill., assignor to The Quaker Oats Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 2,939, Jan. 14, 1970, now Patent No. 3,664,846. This application Nov. 9, 1971, Ser. No. 196,945

The portion of the term of the patent subsequent to May 23, 1989, has been disclaimed

Int. Cl. A23l *1/10*

U.S. Cl. 426—208 3 Claims



An emulsifier free instant-type corn grits food product produced by the process comprising the steps: (A) admixing corn grits, critical amounts of water, and critical amounts of polysaccharide gum; (B) heating the mixture in a first heating step which consists of a critical temperature range for a critical time period; (C) heating the above heated mixture in a second heating step which consists of a critical temperature range; (D) drying the mixture by forming the heated mixture in a thin sheet on a drum drier with the forming being conducted within a critical time period from the last heating step; and (E) comminuting the cooked, dried sheet.

3,787,585
STABLE LACTONE SOLUTION

Ryuzo Ueno, 10–27, Nango-cho, Nishinomiya-shi, Tetsuya Miyazaki, 4–12, Inano-cho, Itami-shi, and Shigeo Inamine, 7–14, Takatsuka-cho, Nishinomiya, Hyogo-ken, Japan, and Saburo Kishi, 1–4–5, Kiyosu, Kashiwara-shi, Osaka-fu, Japan

No Drawing. Filed Nov. 19, 1971, Ser. No. 200,622

Claims priority, application Japan, Nov. 25, 1970, 45/103,259; July 15, 1971, 46/52,091

Int. Cl. 23b *3/10, 1/12;* A21d *2/14*

U.S. Cl. 426—212 3 Claims

Preparation of a stable solution of a lactone of an aldonic acid or uronic acid, which comprises dissolving the lactone in an alcohol together with at least one salt selected from the group consisting of alkali metal salts, alkaline earth metal salts and ammonium salts of organic acids or inorganic acids, and acid addition salts of amino acids.

3,787,586
DENSIFIED HOP PRODUCTS AND PROCESS FOR PRODUCING SAME

Allan E. Hokanson, 6550 Willow Hollow Lane, Madeira, Ohio 45243; Raphael Katzen, 2868 Alpine Terrace, Cincinnati, Ohio 45208; and Bernard W. Schwartz, 63 Willow Road, New Shrewsbury, N.J. 07724

Filed Oct. 8, 1971, Ser. No. 187,681

Int. Cl. C12c *3/04*

U.S. Cl. 426—221 11 Claims

The present invention relates to a process for transforming hops into a densified form without losing the valuable bittering contents during the processing operation. The invention also provides a pelletized or densified product which has long shelf life and offers improved utilization of the bittering values in the hops. In addition the process can be modified to produce hops in the form of pellets having a highly enriched resin content.

3,787,587
ACCELERATED AGING OF ALCOHOLIC BEVERAGES

George Robert Weber, 16 Chemin Rojoux, 1211, Geneva-Conches, Switzerland

Continuation-in-part of abandoned application Ser. No. 835,536, June 23, 1969. This application Dec. 22, 1971, Ser. No. 210,925

Int. Cl. C12h *1/16*

U.S. Cl. 426—248 6 Claims

A process for the accelerated aging and maturation of alcoholic beverages normally subject to prolonged periods of aging, i.e., beers, distilled spirits, wines, etc., which comprises continuously passing actinic light into the beverage in substantially the wave-length range of about 4000 A. to 5500 A. at an irradiation dosage of about 1×10^{-1} to about 1×10^{-3} watts-sec./cm.^{3}. The resulting beverage has substantially the same chemical constituency and characteristics as the conventionally aged product.

3,787,588
METHOD OF MAKING SNACK FOOD

Evelyn Turitz, 2419 46th St., Meridian, Miss. 39301

No Drawing. Continuation-in-part of abandoned application Ser. No. 814,460, May 8, 1969. This application Feb. 9, 1972, Ser. No. 224,988

Int. Cl. A23l *1/36*

U.S. Cl. 426—302 4 Claims

A snack food is prepared by wrapping a nut with a thin shell of a dough consisting of a mixture of wheat flour and corn flour so that said dough contacts the skin of the nut and then baking the dough wrapped nut.

3,787,589
PROCESS FOR PREPARING CARROT JUICE

Thomas S. Stephens, Weslaco, Guadalupe Saldana, McAllen, and Harold E. Brown, Weslaco, Tex., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Oct. 12, 1972, Ser. No. 297,123

Int. Cl. A23l *1/02, 3/34*

U.S. Cl. 426—325 3 Claims

An improved process for preparing carrot juice which process incorporates a process step of cooking in an acidic aqueous solution the whole carrots immediately prior to juice extraction.

3,787,590

METHOD FOR SOLUBILIZING TEA CREAM

Bert Borders, Keyport, N.J., Harold Rivkowich, Ossining, N.Y., and Warren C. Rehman, Montvale, N.J., assignors to Tetley, Inc., New York, N.Y.

No Drawing. Filed Jan. 27, 1971, Ser. No. 110,328

Int. Cl. A23f *3/00*

U.S. Cl. 426—366 6 Claims

An increased yield of tea solubles is obtained by subjecting the insoluble precipitate or tea cream obtained by cooling a dilute tea extract to an oxidizing treatment in the absence of added alkali.

3,787,591

PROCESS FOR PRODUCING POWDERS OF GREEN LEAVES OF WHEAT AND BARLEY

Yoshihide Hagiwara, Takarazuka, Japan, assignor to Japan Natural Food Co., Ltd., Osaka, Japan

No Drawing. Filed Sept. 16, 1971, Ser. No. 181,196

Int. Cl. A23l *1/00*

U.S. Cl. 426—373 4 Claims

Green juice is obtained by mechanically pulverizing the green leaves of barley or wheat in the pre-ripe stage. Course solid materials are removed from the juice and the pH is adjusted to 6.5 to 7.5. The treated juice is then spray dried or lyophylized to a powder. The powder can be incorporated into various foods and beverages and is a source of various proteins, vitamins, and minerals.

3,787,592

FIXED VOLATILE FLAVORS AND METHOD FOR MAKING SAME

William Alexander Mitchell, Lincoln Park, N.J., and Howard Dave Stahl, Tarrytown, and William Charles Seidel, Monsey, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed May 12, 1970, Ser. No. 36,666

Int. Cl. A23l *1/26*

U.S. Cl. 426—380 11 Claims

Volatile flavoring compounds such as acetaldehyde are fixed in low amounts by having the compound present in solution during the crystallization of such edible materials as sucrose, mannitol, and sodium chloride. It is believed that the volatile flavors are entrapped as impurities within the crystal structure. The resulting compositions have excellent stability over a wide range of humidities, are soluble in both hot and cold water, and have application as flavor and aroma modifiers for foods.

3,787,593

METHOD OF PRODUCING ENHANCED CITRUS JUICE ESSENCE

Cedric D. Atkins, Little Lake Elosie, and John A. Attaway, P.O. Box 205, both of Winter Haven, Fla. 33880

Original application Jan. 26, 1971, Ser. No. 109,922.

Divided and this application Sept. 6, 1972, Ser. No. 286,791

Int. Cl. A23l *1/26*

U.S. Cl. 426—429 12 Claims

An aqueous citrus essence is prepared having an enhanced content of components which contribute to the natural flavor of the citrus juice, particularly certain aldehyde type compounds and a decreased content of components, such as easily oxidized fatty substances, which detract from the flavor of the juice. Preparation of the enhanced citrus essence is accomplished by increasing the alcoholic content of the aqueous phase of the essence so that its capacity for desirable aldehyde type components is increased. The increase in alcoholic content is effected by recirculation under appropriate conditions of temperature and pressure of the aqueous phase of the essence in contact with fresh essence. An apparatus is specifically disclosed for effecting the process of the invention. Enhanced essence produced by the present invention is particularly useful for reconstituting the flavor of citrus juice concentrates such as orange juice.

3,787,594

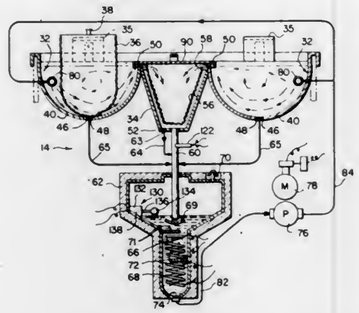
METHOD OF COOKING COMESTIBLES

Einar H. Palmason, Fort Lauderdale, Fla., assignor to Parkson Industrial Equipment Company, Fort Lauderdale, Fla.

Filed July 30, 1968, Ser. No. 748,743

Int. Cl. A23l *1/00*; A47j *37/12*

U.S. Cl. 426—438 2 Claims



A method and apparatus for "deep-fat" cooking of comestibles in which the comestibles are immersed in a bath of a hot cooking medium maintained in a cooking vessel in which the heated medium is being continuously changed while cooking is taking place by flowing the heated medium into the bath and through and around the comestibles, overflowing it from the surface of the bath into a heating reservoir and reheating and recirculating it in a manner so as to sweep from the bath loose particles of comestibles so as to maintain the bath at the required cooking temperature. The overflow of the heated medium is filtered to remove the loose particles of comestibles before the medium is reheated and returned to the bath, and a small quantity of the oil is continuously drained from the cooking vessel during cooking operation and completely drained from the vessel when the cooking operation is stopped so as to return the cooking medium to the heating reservoir.

3,787,595

PROCESSING OF BEANS AND PEAS BY FREEZE DRYING

Robert G. Folzenlogen, Green Township, Hamilton County, and James P. Smith, North College Hill, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Nov. 17, 1971, Ser. No. 199,739

Int. Cl. A23l *1/20*

U.S. Cl. 426—441 12 Claims

A process for producing nut meat substitutes from edible leguminous seeds comprising the steps of soaking in an aqueous medium, freeze drying, and roasting said seeds; additionally, when it is desired to obtain a nut meat substitute having a particular form such as the physical dimensions of various expensive nut meats, the steps of comminuting and forming are interposed between the soaking step and the freeze drying step.

3,787,596

TREATMENT OF WASTEWATERS FROM THE PROCESSING OF FISH

Edgar H. Pavia and Amulya D. Tyagi, New Orleans, La., assignors to Pavia-Byrne Engineering Corporation, New Orleans, La.

Filed Mar. 8, 1972, Ser. No. 232,717

Int. Cl. A22c *25/00*

U.S. Cl. 426—488 10 Claims

A method for treating emulsified wastewater from fish processing plants by (1) degassifying the wastewater to break the emulsion and to remove any toxic gases and (2) separating the fish solids and oil from the deemulsified wastewater. This method allows the safe reuse of transport water used in the unloading of fish from boats.

3,787,597

CONTINUOUS PROCESS FOR PREPARING RELATIVELY DENSE BAKERY GOODS

William R. Dryg, Tofte, and Charles N. Standing, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Nov. 26, 1971, Ser. No. 202,488

Int. Cl. A21d *13/08*, *13/00*

U.S. Cl. 426—496 8 Claims

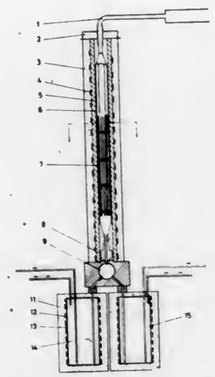
Dense bakery goods such as brownies, cocoanut bars, cookies, are prepared by mixing together dough ingredients and passing the mixed dough continuously through a cooker in which mixing is carried out during heating until the product reaches a temperature on the order of at least 200° F. to give the product a cooked or baked character. If the product is to be porous, pressurized gas is introduced either before or after heating. In the second stage of the process, the cooked material is unified by placing relatively large pieces on a flat supporting surface where the product is held in a quiescent condition as its consistency becomes firm. Its exposed surface can be treated by the application of heat to provide a dried surface crust similar to that which forms when bakery goods are oven-baked conventionally.

3,787,598

FURNACE AND METHOD FOR THE PYRO-CHEMICAL PROCESSING OF NUCLEAR REACTOR FUEL ELEMENTS

Joseph Wurm, Mol-Donk, Belgium, assignor to European Atomic Energy Community (Euratom), Luxemburg, European Center, Kirchberg, Luxembourg

Filed Jan. 25, 1971, Ser. No. 109,111
Claims priority, application Netherlands, Feb. 9, 1970, 7001798
Int. Cl. F27d 7/06, 11/02
U.S. Cl. 13—22 4 Claims



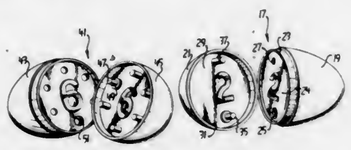
A furnace for the pyrochemical processing of nuclear reactor fuel elements comprises a vertical tube which is adapted to receive the fuel element. The bottom of the tube has a graphite filter element connected to at least one closable aperture through which, in turn, molten metal and molten salts may be introduced firstly to effect dissolution of the stainless steel sheaths of the fuel rods and secondly to pulverize and remove the fuel in the molten salts through the filter.

3,787,599

EDUCATIONAL TOY FOR THE TEACHING OF NUMERICAL RECOGNITION

George Castanis, New York, N.Y., assignor to Questor Corporation, Toledo, Ohio

Filed Feb. 7, 1973, Ser. No. 330,438
Int. Cl. G09b 19/02
U.S. Cl. 35—31 R 5 Claims



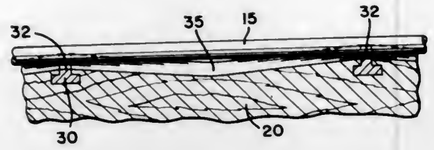
A plurality of egg-shaped articles which may be placed in a series of wells in a container. Each of the egg-shaped articles are comprised of half-sections which may be frictionally mated in a male-female manner. The inner face of one half-section includes a fixed number of holes and the inner face of the other half-section includes a like number of pegs. Each of said articles contain a different number of peg-hole combinations. A numeral indicia may be placed on the inner faces of the half-sections.

3,787,600

GUITAR FRET BOARD

Gary O. Muncy, 1015 Skyview Dr., West Carrollton, Ohio

Filed Apr. 23, 1973, Ser. No. 353,403
Int. Cl. G10d 3/06
U.S. Cl. 84—314 14 Claims



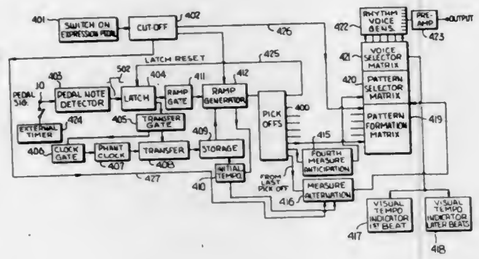
A guitar provided with an improved fret board construction for easy fingering and faster action, in which grooves are formed in underlying relation to the strings, the diameter of the grooves being related to that of the strings so that when a string is depressed in the groove approximately 80 percent of the string is received in the groove. The grooves undulate from high regions at the fret to depressed regions between the frets to provide portions which slope away from the frets defining fingering regions. The metal frets are formed with essentially the same configuration as that of the fret board in that the exposed surfaces are flush with the fret board at the bottom of the groove, so that when the string is fingered there is a minimum of protrusion of the string and thus a minimum of discomfort. The increased action is due to the absence of obstacles by reason of absence of protruding frets.

3,787,601

RHYTHMIC INTERPOLATORS

Donald J. Campbell, Cincinnati, Ohio, assignor to D. H. Baldin Company, Cincinnati, Ohio

Division of Ser. No. 619,381, Feb. 28, 1967, Pat. No. 3,522,358, Continuation of Ser. No. 45,675, June 12, 1970, abandoned. This application Feb. 7, 1972, Ser. No. 224,364. The portion of the term of this patent subsequent to July 28, 1987, has been disclaimed.
Int. Cl. G10f 1/00
U.S. Cl. 84—1.03 10 Claims



A system for development of rhythmic patterns in which repetitive ramp wave forms are developed, the repetition rate of which is controlled, pulses being developed by sampling the ramp wave forms at predetermined levels, certain of the pulses being selected by means of a matrix to form each required pattern. The minima and maxima of the ramps are maintained at fixed levels and the slopes of the ramps are conformed to the desired repetition rates in accordance with the tempo of a

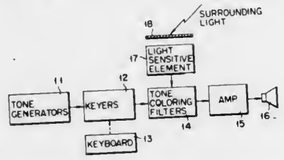
player controlled instrument, such as an electric organ. Provision is made for extending rhythm patterns over two measures, each different from the other, for inserting additional beats near the end of each fourth measure of a piece of music, provision of visual tempo indication, and provision of a cutoff for instant abortion of the presently played measure, allowing rapid changes of tempo.

3,787,602

ELECTRONIC MUSICAL INSTRUMENT WITH SURROUNDING LIGHT SENSITIVE MUSICAL EFFECT CONTROL

Mitsuo Okudaira, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Oct. 11, 1972, Ser. No. 296,597
Claims priority, application Japan, Oct. 21, 1971, 46/82876
Int. Cl. G10h 1/02
U.S. Cl. 84—1.24 11 Claims



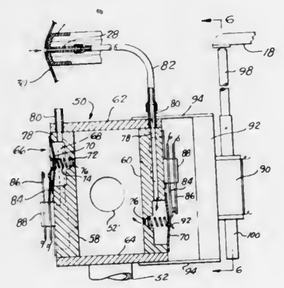
An electronic musical instrument comprising a light-sensitive variable resistor whose resistance varies with the intensity of surrounding light and a musical effect control circuit for controlling musical effects such as the volume and color of tones in accordance with the varying resistance of the variable resistor. The musical effect control circuit comprises a variable gain amplifier, tone coloring filter, vibrato oscillator or tremolo oscillator, and the light-sensitive variable resistor is used in the musical effect control circuit to vary, for example, the volume and color of tones, and the speed of vibrato and tremolo according to the condition of surrounding light.

3,787,603

AUTOMATIC PLAYER FOR MUSICAL INSTRUMENTS

Morris Ghere, 1234 S. Lincoln, Centralia, Ill.

Filed June 22, 1973, Ser. No. 372,777
Int. Cl. G10f 1/02
U.S. Cl. 84—19 11 Claims



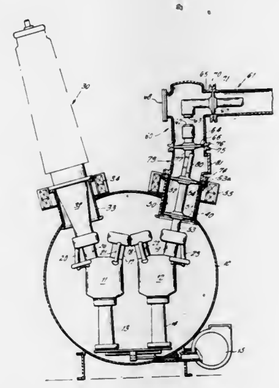
An automatic musical instrument, such as a player piano, having a tracker with openings over which a music roll, having apertures corresponding to music notes, is fed by operation of pneumatic or electric motor means, and hammers and hammer jacks operable to sound the musical notes, is provided with an elongated box having a pair of opposed thickened walls and forming a vacuum chamber, evacuating means for the chamber, a plurality of cavities formed in the thickened walls, one for each note to be played, said cavities being closed by diaphragms, a small vent passage communicating each cavity with the interior of the vacuum chamber, a separate air passage, preferably within the thickened walls, communicating each cavity with a respective opening in the tracker, a weak spring in each of said cavities biasing its diaphragm outwardly but allowing movement of the diaphragm inwardly of the cavity when the vacuum chamber is evacuated, and a pair of electric contact members for each cavity mounted on one of said thickened walls and having one contact member engaging the diaphragm so as to make or break contact between the pairs of members when the diaphragm moves from a position inwardly of the cavity to a distended position outwardly of the cavity, a solenoid associated with each cavity and diaphragm and having a plunger arranged to lift a respective one of the hammer jacks, and electric circuit means connecting the pairs of contact members, the solenoids and a source of electric power in such manner that each of the pairs of contacts serves to energize and de-energize one of the solenoids.

3,787,604

CONDUCTOR SUPPORT FOR TRANSITION FROM GAS BUS ENCLOSURE TUBE TO POWER CIRCUIT BREAKER

Giovanni Paolo Guaglione, Irvine, Calif., assignor to I-T-E Imperial Coroporation, Philadelphia, Pa.

Filed Oct. 27, 1972, Ser. No. 301,643
Int. Cl. H01h 33/02; H01b 17/26
U.S. Cl. 174—18 8 Claims



An insulation disk or cone supports the conductor extending from a power circuit breaker to a gas-filled bus, and also serves as a gas barrier.

3,787,605

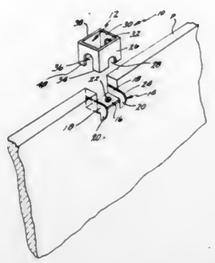
WIRING ACCESS MEANS

Robert C. Van Gessel, Grand Rapids, and Dirk J. Van Kuik, Jenison, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed July 14, 1972, Ser. No. 271,811
Int. Cl. A47b 13/00
U.S. Cl. 174—48 24 Claims

A wiring access enclosure for insertion into a wiring access opening in a desk or the like. The enclosure is adapted to accept and secure various wire sizes and includes a generally cube-shaped plug member having wire-receiving apertures of different sizes on each of its several sides. A mounting member fixed in an access opening or recess formed in the fur-

niture is adapted to releasably secure the plug member in any one of several positions so that a selected aperture is positioned for passage of a wire. One side of the plug is solid to close the access opening when desired.

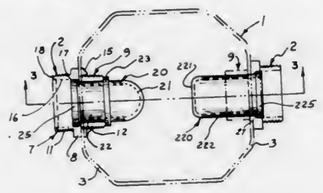


3,787,606

CONNECTOR ASSEMBLY AND METHOD OF USE

Charles H. Schaeffer, 3144 Ringer Rd., Mehlville, Mo.

Filed Apr. 12, 1973, Ser. No. 350,331
Int. Cl. H02g *3/02*
U.S. Cl. 174—65 R **10 Claims**



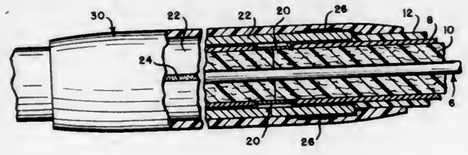
In a combination of electrical connector fitting of the type used to connect conduit to a junction box, the connector fitting having an externally threaded, open mouth throat end and a plug mounted in the throat, the plug has an open-ended throat-engaging tube section, a closed hollow dome projecting outwardly from and substantially beyond the mouth, and an external annular shoulder engaging an annular radial surface of the connector. In the process of construction, the plug is first mounted in the connector, then the connector is mounted in a junction box or the like. After the junction box is emplaced, the part of the plug dome which projects in the box is cut off, providing both a passageway and an insulative throat.

3,787,607

COAXIAL CABLE SPLICE

Hubert J. Schlafly, Fort Lee, N.J., assignor to Teleprompter Corporation, New York, N.Y.

Filed May 31, 1972, Ser. No. 258,435
Int. Cl. H02g *15/08*
U.S. Cl. 174—88 C **14 Claims**



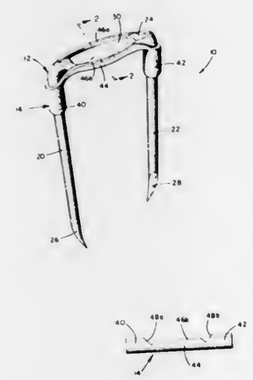
Coaxial cables are spliced together by laying bare a length of center conductor on one end of each cable, joining the center conductors coaxially, enclosing the joined lengths of center conductor in dielectric material of substantially the same outer diameter as the inside diameters of the outer conductors of the cables being spliced, and providing at least one layer of conductive material over the dielectric material to extend lengthwise of the cable from one outer conductor to the other and circumferentially of the cable substantially over the entire circumference thereof. The conductive material may include sections of flexible foil intimately conformable to the shape of the outer conductors of the cable in order to insure transmission of radio frequency energy across the splice, either capacitively or conductively, and it may include splints in the form of substantially semi-cylindrical shells extending from the outer conductor of one cable to that of the other and conductively connected thereto in order to insure transmission of low frequency or direct current energy across the splice.

3,787,608

INSULATED STAPLING DEVICE

Harold S. Colby, Bloomfield, Conn., and Raymond H. Landry, South Ashburnham, Mass., assignors to Emhart Corporation, Bloomfield, Conn.

Filed Feb. 22, 1972, Ser. No. 227,842
Int. Cl. H01b *17/00*; **F16b** *15/00*
U.S. Cl. 174—159 **11 Claims**



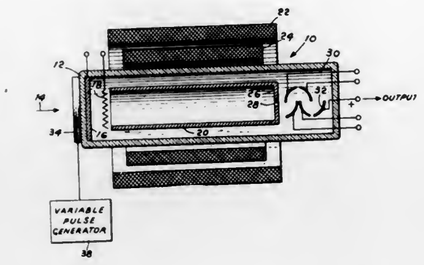
An insulated staple is formed by a U-shaped body member and a piece of flexible, plastic tubing bent in a U-shaped configuration and installed on the body member. The plastic tubing is cut along a longitudinal wall portion to form a longitudinally extending opening at the central region of the tubing. The insulated staple is then assembled by inserting the opposed and parallel legs of the body member through the longitudinal opening and out through the axial ends of the tubing so that the body member is lined along its inner periphery between the end portions of the tubing mounted on the opposed and parallel legs. The method for making the insulated staple comprises cutting the longitudinal opening in the tube, bending the tube in a U-shaped configuration and inserting the legs of the body member through the axial ends of the tubing so that the pointed tips are exposed and the inner periphery of the staple is lined between the end portions of the tubing on the parallel legs.

3,787,609

ELECTRONIC COLOR FILTER SYSTEM

Charles A. Plumeau, Plano, Tex., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 13, 1972, Ser. No. 262,401
Int. Cl. H04n *9/06*
U.S. Cl. 178—5.4 ST **7 Claims**



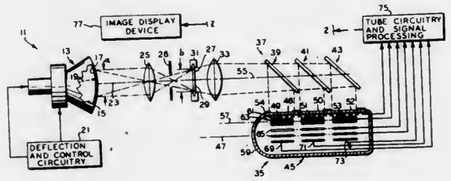
An image scanning system employs a solid state color filter providing a plurality of selectable discrete colors which are produced by voltage pulses of different amplitudes applied to the filter in a predetermined sequence. The filter is disposed on the faceplate of an image dissector tube which scans a scene and provides an output signal carrying the color information. A single camera tube with one electron multiplier can generate the three primary colors using a frame sequential, line-sequential, element-by-element or a random scanning system. The output signal may be transmitted to a receiver display tube having a like color filter with synchronized switching voltages or a standard three gun color cathode ray tube.

3,787,610

SIGNAL TRANSDUCER INCORPORATING A MULTI-CHANNEL PHOTOMULTIPLIER TUBE

William D. Murphy; George Norman Williams; Robert F. Wilson, and Edward I. Zmuda, all of Seneca Falls, N.Y., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed July 10, 1972, Ser. No. 270,217
Int. Cl. H04n *9/04*
U.S. Cl. 178—5.4 E **10 Claims**



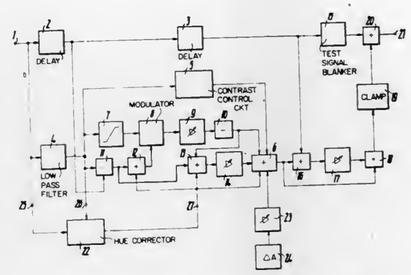
A multi-channel photomultiplier tube is utilized in a compact optical-to-electrical signal transducer system employed for displaying a film image on the screen of a CRT display device. Optional information derived from scanning the film area with a beam of radiant energy is translated to electrical signals and suitable processed to effect the display imagery. The radiant energy modified by passage through the film image is directed through a condensing lens and a mirror system to convey discrete components of the scanning energy to separate cathode areas of the multi-channel tube, the longitudinal axis of which is substantially in a common plane with the optical axis of the transducer. Utilization of the multi-channel tube promotes compact packaging and provides improved quality of the output of the system.

3,787,611

SYSTEM FOR CORRECTING COLOR TELEVISION SIGNALS

Dieter Poetsch, and Heinz Hess, both of Darmstadt, Germany, assignors to Robert Bosch Fernsehanlagen GmbH, Darmstadt, Germany

Filed Aug. 31, 1972, Ser. No. 285,230
Claims priority, application Germany, Sept. 7, 1971, P 21 44 745.0
Int. Cl. H04n *9/12*
U.S. Cl. 178—5.4 AC **4 Claims**



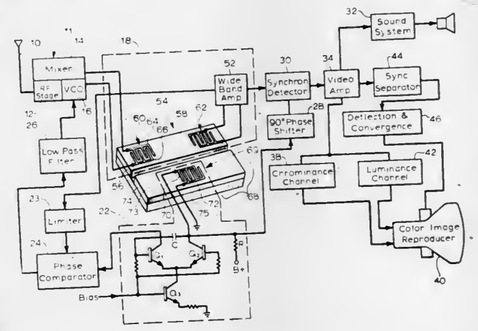
A system for correcting complete color television signals, including luminance, color saturation and hue signals. A first channel delays the signal while a second channel derives the necessary corrections for the delayed first channel signal.

3,787,612

SIGNAL PROCESSING SYSTEM FOR TELEVISION RECEIVER HAVING ACOUSTIC SURFACE WAVE DEVICES FOR IMPROVED TUNING AND VIDEO DEMODULATION

Adrian J. DeVries, Elmhurst, and Jouke N. Rypkema, Lombard, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed July 3, 1972, Ser. No. 268,280
Int. Cl. H04n *5/50*
U.S. Cl. 178—5.8 AF **11 Claims**



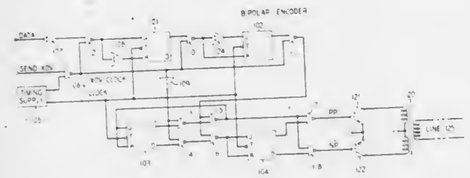
This disclosure depicts a number of signal processing circuits for a television receiver which include acoustic surface wave devices for improved tuning and video demodulation. In each embodiment an IF stage has an acoustic surface wave bandpass filter. In one embodiment a reference oscillator forming part of a synchronous video detector and also part of an APC loop has a frequency-selective surface wave filter for establishing its frequency of oscillation. Another embodiment has an AFC circuit including a surface wave discriminator. In all embodiments the acoustic surface wave devices have

similar thermal characteristics and thermal exposure so as to cause temperature tracking of the frequency characteristics thereof and thereby to temperature stabilize the receiver. The surface wave filter devices which are associated in the disclosed systems may utilize thermally homogeneous piezoelectric substrate means.

3,787,613
PULSE TRANSMISSION SYSTEM FOR CONVEYING DATA AND CONTROL WORDS BY MEANS OF ALTERNATING POLARITY PULSES AND VIOLATIONS THEREOF

Wayne David Farmer, Matawan; Joseph George Kneuer, Fair Haven, and William Joseph Lawless, Middletown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 27, 1972, Ser. No. 266,685
Int. Cl. H03r 5/20
U.S. Cl. 178—2 R **4 Claims**

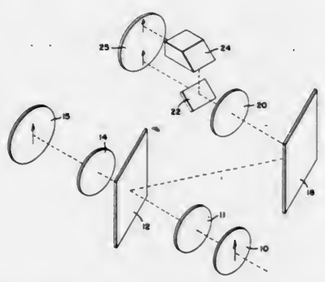


The data bits of data words are encoded into bipolar pulses, the polarity of each pulse differing from the polarity of the prior pulse. When the data bits of a control word are encoded, there is also generated a bipolar pulse violation, the pulse having the same polarity as the prior pulse. Additional bipolar pulses may be inserted to insure that an odd number of bipolar pulses separate pulse violations, successive violations thereby having opposite polarities. A remote decoder converts the bipolar pulses to data bits and the data bits of each control word are recovered from the decoder when the bipolar pulse violation is received.

3,787,614
TWO-TUBE COLOR TELEVISION CAMERA

Edward C. Waldspurger, Dayton, Ohio, assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Apr. 20, 1972, Ser. No. 246,071
Int. Cl. H04n 9/04
U.S. Cl. 178—5.4 R **5 Claims**

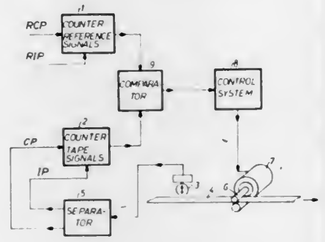


A color television camera uses two pick-up tubes with the full scene imaged on one tube and red and blue color components of the scene imaged in vertically aligned relation on the other tube. Standard scanning is employed for the one tube, and the same horizontal scan is used for the other tube, with its vertical scanning being changed on a line sequential basis between the red and blue images by causing a vertical scan deflection from one to the other of the two image areas.

3,787,615
METHOD AND APPARATUS FOR SYNCHRONIZING A VIDEOSIGNAL REPRODUCED FROM A TAPE BY MEANS OF A ROTATING HEAD WHEEL

Hubert Foerster, Darmstadt, and Ulrich Brauch, Nieder-Beerbach, both of Germany, assignors to Robert Bosch Fernsehanlagen GmbH, Darmstadt, Germany

Filed May 19, 1972, Ser. No. 254,911
Claims priority, application Germany, May 19, 1971, P 21 24 923.0
Int. Cl. H04n 5/76; G11b 5/00
U.S. Cl. 178—6.6 P **8 Claims**

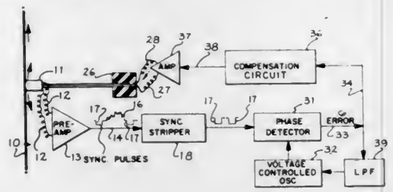


Method and apparatus for synchronizing a video signal with reference signals to shorten the run-in period of video tape recorders.

3,787,616
TIME BASE ERROR CORRECTION SYSTEM AND METHOD

Mervin L. Falk, Sunnyvale, and Louis Olah, San Jose, both of Calif., assignors to Newell Industries Inc., Sunnyvale, Calif.

Filed June 5, 1972, Ser. No. 259,980
Int. Cl. H04n 5/76
U.S. Cl. 178—6.6 A **7 Claims**

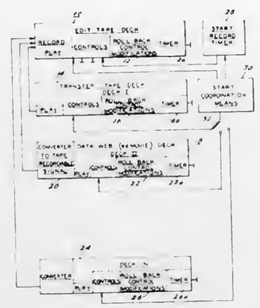


A time base error correction system particularly useful in a magnetic recording or playback system for transducing signals relative to a magnetic record medium prepared with discrete signals thereon, or being applied thereto, at substantially regular, predetermined intervals along with information signals all to be transduced as the medium moves in a predetermined direction. A magnetic transducer cooperates with the medium to sense these signals to provide a first train of electric signals. Means are provided for generating a second train of signals at a desired repetition rate. A comparing means is coupled to receive both the first and second trains of signals and arranged to provide an output control signal representative of the phase difference between the two trains. Finally, means supporting the transducer means and responsive to the control signal adjusts the phase of the first train of signals by advancing or retarding the position of the transducer means along the direction of movement of the medium.

3,787,617
MAGNETIC TAPE EDITING METHOD AND SYSTEM

Anthony M. Fiori, Schwenksville, Pa., assignor to Spectra-Vision Corporation, Philadelphia, Pa.

Filed May 15, 1972, Ser. No. 253,577
Int. Cl. G11b 5/00
U.S. Cl. 179—100.2 B **16 Claims**

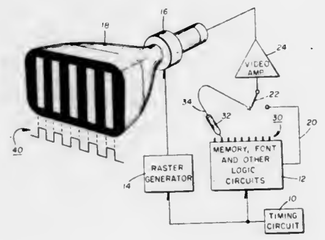


In making a composite edited tape from at least one master tape, back-spacing of both the master and edit tapes is accomplished by positive fixed speed drives on each tape deck, each in combination with a timer precisely measuring back-spacing distance so that the tape back-spacing will be the same from one time to another, the time in each case being that time which is necessary for its associated tape deck to reach proper speed for recording at the point of edit. The back-spacing times of decks requiring less back-spacing are increased to correspond to that of the slowest to respond. A timing mechanism is started at the same time both tape decks are started causing the edit tape deck to start to record when the decks are up to speed and ready for recording at the point of edit.

3,787,618
CATHODE RAY TUBE DISPLAY DEVICE INCLUDING TEST PROBE ADAPTER

Harold D. Cook, Wheaton, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Oct. 24, 1972, Ser. No. 299,974
Int. Cl. G01r 29/02
U.S. Cl. 178—6.8 **2 Claims**

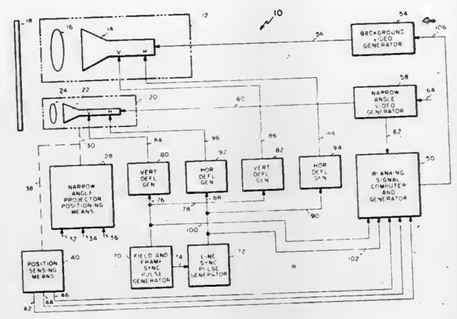


A system for using the video amplifier and the X and Y axis raster scanning circuits of a CRT display device in conjunction with a measuring probe to form a Z-axis oscilloscope observing the output of intermediate signals in the CRT display logic circuit in order to obviate a separate service-man-supplied oscilloscope.

3,787,619
WIDE ANGLE DISPLAY SYSTEM

Hanns H. Wolff, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 7, 1972, Ser. No. 260,616
Int. Cl. H04n 7/00
U.S. Cl. 178—6.8 **9 Claims**

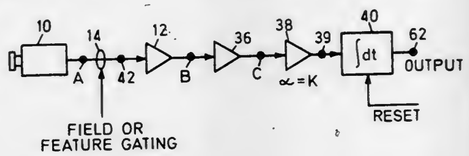


A wide angle display system wherein a wide angle background scene has a hole cut therein to receive a narrow angle computer generated insert picture. The necessary blanking signals are computed and generated for each wide angle field based on the narrow angle picture data for the immediately preceding field.

3,787,620
DENSITY MEASUREMENT BY IMAGE ANALYSIS

Leon Andre Pieters, Cambridge, and David Charles Ward, Melbourn, near Royston, both of England, assignors to Image Analysing Computers Limited, Melbourn, Royston, England

Filed Mar. 24, 1972, Ser. No. 237,724
Claims priority, application Great Britain, Apr. 17, 1971, 9,739/71; Apr. 17, 1971, 9,740/71; Apr. 17, 1971, 9,737/71
Int. Cl. H04n 3/16
U.S. Cl. 178—7.1 **21 Claims**



A first system is described for analysing features according to their optical density in which an image of the features is formed on a television camera tube target and a video signal is generated by scanning in known manner. The video signal is subsequently amplified to produce an output voltage which is logarithmically related to the video signal and integration of the output signal pulses provides a measure of the total integrated density of the detected feature content in the field. The invention thus utilises the light integrating properties of a television camera tube.

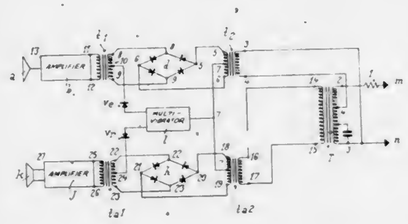
Two methods of removing amplitude excursions relating to unwanted regions and features of the field are also described.

A signal corresponding to the mean density of detected feature content is obtained by dividing the total integrated density signal by one relating to the area of the detected features.

A method is disclosed for relating the density information arising during a field scan to the features in the field from which the information arises and releasing the accumulated density information for each feature at a unique point in the

line scan. This is achieved by employing an associated parameter computer such as is described and claimed in British Patent Specificiations Nos. 1,264,804 and 1,264,805.

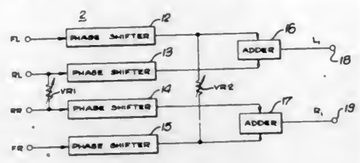
3,787,621
TELEPHONE SET WITH TRANSMISSION BY MICROPHONE AND AMPLIFIER AND RECEPTION BY LOUDSPEAKER
Albert Barok, 36, Ave. d'estrienne d'Orves, Nice, France
Filed Aug. 6, 1971, Ser. No. 169,770
Claims priority, application France, Aug. 6, 1970, 7029610
Int. Cl. H04m *9/08*
U.S. Cl. 179—1 HF **4 Claims**



A telephone set has sound transmission by a microphone and amplifier over a transmission circuit, and sound reception by loudspeaker over a reception circuit. Each circuit includes an input transformer and an output transformer, and both circuits are connected, through a telephone transformer, to the line. The telephone set includes an arrangement for preventing the Larsen effect and other interference between the two circuits. This arrangement includes respective sets of four diodes or transistors, connected as a Wheatstone bridge, each connected between an input transformer and the associated output transformer. A square wave multi-vibrator is connected in parallel to the output transformer of the transmission circuit and to the input transformer of the reception circuit, and is connected, through respective diodes or transistors to the input transformer of the transmission circuit and to the output transformer of the reception circuit. The multi-vibrator supplies alternating positive and negative square wave pulses, at a frequency very substantially higher than the frequency of the sound waves, to the two Wheatstone bridges, with one Wheatstone bridge receiving a positive square wave pulse at the same time the other Wheatstone bridge receives a negative square wave pulse. The multi-vibrator is continuously operative, and, in effect, chops the modulated currents in the two circuits at a very high frequency of the order of 0.5 MHz.

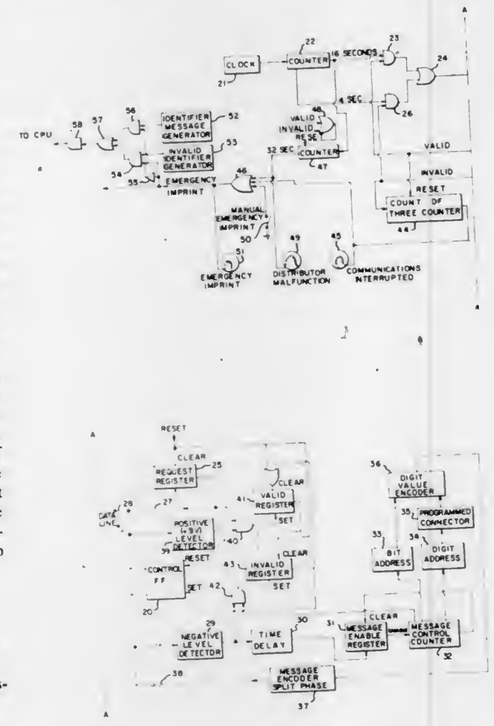
3,787,622
QUADRASONIC SOUND SYSTEM FOR TWO CHANNEL TRANSMISSION
Ryosuke Itoh, and Toshiaki Ishida, both of Tokyo, Japan, assignors to Sansui Electric Co., Ltd., Tokyo, Japan
Filed Feb. 1, 1972, Ser. No. 222,516
Claims priority, application Japan, Feb. 5, 1971, 46-4440; Sept. 1, 1971, 46-79136; Sept. 1, 1971, 46-79137
Int. Cl. H04r *5/00*
U.S. Cl. 179—1 GQ **30 Claims**

A signal transmission system comprising microphones for obtaining 4-channel signals by collecting sounds produced in a sound source room, an encoder for producing 2-channel signals by combining the 4- channel signals with such a phase relationship as prevents them from offsetting each other, means for transmitting said 2-channel signals, a decoder for producing 4-channel signals by combining said 2-channel signals with such a phase relationship as prevents them from offsetting each other so as to form signals representing the



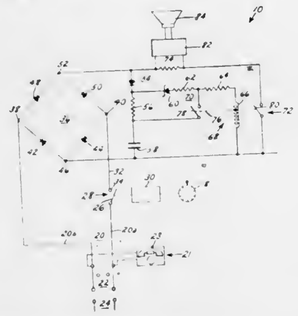
sum and balance or difference of 2-channel signals, and speakers for reproducing sounds from 4-channel signals reproduced in the decoder.

3,787,623
SYSTEM MONITOR FOR CREDIT SYSTEM
Kenrick O. Stephenson, Jr., 79 Edgemont Rd., Upper Montclair, N.J.
Filed Mar. 9, 1971, Ser. No. 122,467
Int. Cl. H04m *11/06*
U.S. Cl. 179—2 DP **3 Claims**



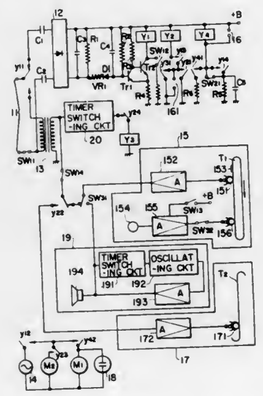
In a credit checking system, a system monitor tests the communications link between counter units in outlying stores and a central location. The system monitor periodically sends Request signals over a telephone line to the central processing unit. In response to an unconditionally valid account number encoded by the system monitor and transmitted to the control processing unit (CPU), a valid signal is returned to the monitor. If this valid signal is not received, the counter units are switched to an emergency imprint mode which allows all counter units to operate as if the CPU were transmitting valid signals to the units. Indicating devices are provided at the central processor and at the stores for indicating the nature of the malfunction in communications and to facilitate troubleshooting.

3,787,624
REMOTE CONDITION MONITORING DEVICE
Arnold Spitalny, Dix Hills; George Brettbart, New York, and Stanley R. Sporn, Oceanside, all of N.Y., assignors to Atron Industries, Inc., Dix Hills, N.Y.
Filed May 22, 1972, Ser. No. 255,662
Int. Cl. H04m *11/04*
U.S. Cl. 179—2 A **14 Claims**



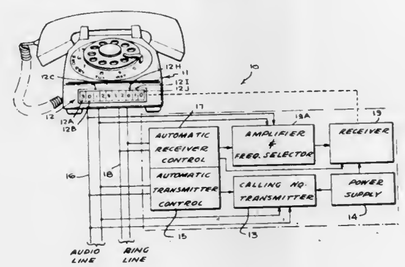
A remote condition monitoring device is operative to connect into preexisting telephone station lines when a monitored physical condition exceeds preset limits. An incoming call causes completion of the calling circuit by simulating the lifting of a receiver at the called station. A warning tone is produced which is audible to the caller over the completed telephone calling circuit.

3,787,625
AUTOMATIC TELEPHONE ANSWERING APPARATUS WITH CONFIRMATION OF ANSWER GAP LENGTH FOR MIDCYCLE SWITCHING
Takashi Sato, Kawasaki, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed July 14, 1971, Ser. No. 162,599
Claims priority, application Japan, July 18, 1970, 45/63023 [U]
Int. Cl. H04m *1/64*; **G11b** *27/22*
U.S. Cl. 179—6 R **3 Claims**



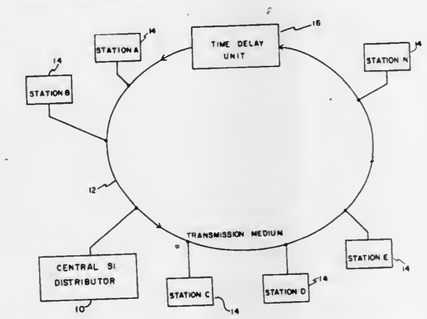
Disclosed herein is an automatic telephone answering apparatus which sends out an outgoing message to a calling party in a minimum time period and automatically switches to a recording state to record an incoming message from the calling party in response to the end of the outgoing message even though the tape which carries the outgoing message has not completed an entire revolution.

3,787,626
SYSTEM FOR AUTOMATIC IDENTIFICATION OF CALLING PARTY'S TELEPHONE NUMBER TO RECEIVING PARTY
Carlos Subieta, 11000 Newpor Mill Rd., Kensington, Md.
Filed Apr. 23, 1971, Ser. No. 136,810
Int. Cl. H04m *15/06*
U.S. Cl. 179—5.5 **11 Claims**



An automatic system for displaying the calling party's telephone number at the telephone set of the called party when the circuit therebetween is initiated, including apparatus associated with each telephone subscriber's lines activated automatically responsive to signals indicating connection with the called telephone to generate pulse trains signifying the telephone number of the calling party. Readout display devices and pulse receiver equipment at the called telephone respond to the pulse trains to display the telephone number signified thereby.

3,787,627
CENTRAL ADDRESS DISTRIBUTOR
Carl Newton Abramson, Somerville, and Mark T. Nadir, Warren, both of N.J., assignors to Adaptive Technology, Inc., Piscataway, N.J.
Filed Dec. 15, 1971, Ser. No. 208,261
Int. Cl. H04j *5/00*
U.S. Cl. 179—15 BA **29 Claims**



An address-coded communication system is disclosed wherein the size of the address set required in the system is reduced essentially to the maximum number of stations communicating at any time, as contrasted with requiring an address set size equal to the number of stations located in the

system. Specifically, a central address distributor is provided which distributes available identifying address codes on the transmission medium in a manner which makes such address codes available to communicating stations for the duration of a link. In one embodiment, a station desiring to go on line makes a bid for an identification address from the central address distributor and by means of a special handshaking technique, the central address distributor assigns an identification address to that user. When such station terminates the call, it returns its assigned address to the central address distributor so that such address can subsequently be re-assigned to another station or user. Special subperiods are assigned within a period for both sending addresses being distributed from the central address distributor, and for returning the addresses from the stations to the central address distributor after use. In another embodiment, the central address distributor continuously polls the stations of the system to determine which addresses are in use at a given time. This is accomplished by generating addresses at the distributor and inserting the addresses, one at a time, into a special polling subperiod which is sent around the entire system. If this address is removed from the transmission line and absorbed by a station or mutilated by the system and therefor not returned to the central address distributor, then it is assumed the address is in use. On the other hand, if this address returns on the line to the central address distributor, this indicates that the address is not in use and, consequently, is placed in a storage register containing available addresses. The available addresses are subsequently sent by the distributor on the line in designated address distributor subperiods from which any station can remove and use an address on a first come basis. In this embodiment, after a station terminates a call and is through using an address, it need not return the address directly to the central address distributor since such distributor is continuously polling the stations to determine which addresses are in use. The central address distributor permits reduction of the size of the address set required, resulting in economizing on system bandwidth and increased system efficiency.

3,787,628

COMMUNICATION SYSTEM FOR THE TRANSMISSION OF INFORMATION BETWEEN TWO TERMINAL STATIONS BY PULSE CODE MODULATION

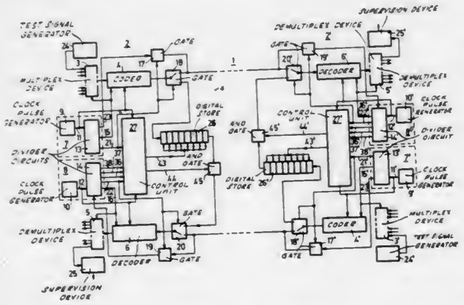
Leonardus Petrus Jozef Van Dijk; Jan Verhagen, both of Hilversum, Netherlands; Georg Feutsch, Dietikon, Switzerland, and Geerlof Jan Korevaar, Hilversum, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 6, 1972, Ser. No. 215,818

Claims priority, application Netherlands, Jan. 8, 1971, 7100210

Int. Cl. H04j *3/14*

U.S. Cl. 179—15 BF **5 Claims**



A time division multiplex PCM transmission system in which the coder and decoder present in one and the same terminal station are supervised on conversion accuracy with the interposition of a test signal generator connected to at least one of the incoming channels, a digital store arranged between coder output and decoder input, and a supervision device connected to at least one of the outgoing channels. The digital store is provided with a separate control unit controlling writing and reading of amplitude samples of the test signal converted into a coded form and selecting the consecutive writing and reading intervals in such a manner that they cannot overlap one another in spite of their mutually varying time relation.

3,787,629

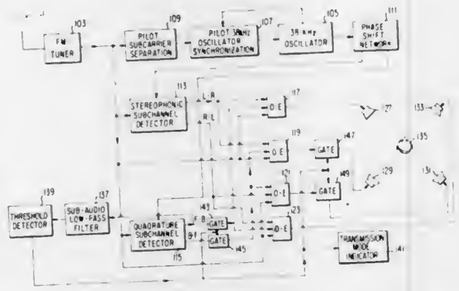
APPARATUS FOR DISTINGUISHING BETWEEN VARIOUS FM BROADCAST MULTIPLEX TRANSMISSIONS

Allen Le Roy Limberg, Lambertville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 9, 1972, Ser. No. 251,771

Int. Cl. H04h *5/00*

U.S. Cl. 179—15 BT **6 Claims**



A 38kHz flag subcarrier accompanying an FM multiplex transmission identifies whether such multiplex transmission includes two channel or surround stereophonic information. Apparatus to provide such a flag subcarrier comprises, for example, a source of direct potential to unbalance a then unused balanced quadrature subchannel modulator within the transmitter during two channel transmission. Receiver apparatus to detect the transmission of such a flag subcarrier comprises a threshold detector coupled by a subsonic low pass filter to the corresponding synchronous subchannel detector. Indicating and/or automatic switching apparatus responsive to the detector output is provided.

3,787,630

TIME DIVISION COMMUNICATION SYSTEM

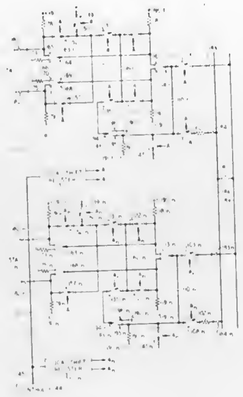
Robert Lawrence Carbrey, Boulder, Colo., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed July 31, 1972, Ser. No. 276,896

Int. Cl. H04j *3/02*

U.S. Cl. 179—15 AT **22 Claims**

A time division communication system wherein a plurality of time slots occurs in repetitive cycles includes a plurality of stations, first and second buses, a control signal source and a coupling circuit operative in each time slot to sum all signals applied to the second bus and to apply the resultant signal to the first bus. Each station has an associated circuit including first, second and third stores. The first bus signal is applied to the first store in response to the control signal. The first store signal is coupled via a first coupler to the second store and via a second coupler to the station and the third store. The third store also receives the station outgoing signal. In response to the control signal, the second and third stores are disconnected from the first and second couplers; the second and third stores are connected series opposing; and the station outgoing signal from the third store is applied to the second bus and the first store wherein it is subtracted from the first bus



signal. The control signal is applied to the selected station circuits in a distinct time slot whereby signals are exchanged among the selected stations.

3,787,631

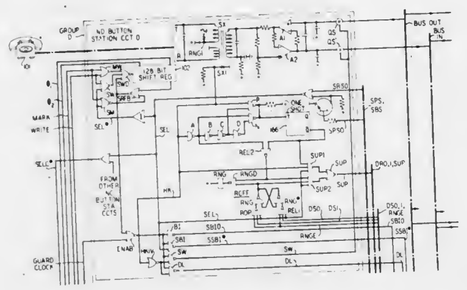
TIME SLOT NUMBER COMPENSATING ARRANGEMENT

Theras Gordon Lewis, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 11, 1972, Ser. No. 313,953

Int. Cl. H04q *3/54*

U.S. Cl. 179—15 AT **5 Claims**



An electronic key telephone system is disclosed in which connections among the station sets and telephone lines are made in a central time division switching network remote from the station sets. Each station set and line is equipped with a port circuit having an individual shift register for defining the time slot interval during which a connection may take place. To assign a time slot to a port circuit, the main controller interrogates the network to find an idle time slot, registers in a time slot reporting register the time slot count accruing when an idle time slot is detected, and then furnishes that time slot number to the network controller. The time slot reporting register is equipped with a downcounter to compensate for the time it takes to prepare a port shift register to accept the circulating bit that assigns the port to the specific time slot.

3,787,632

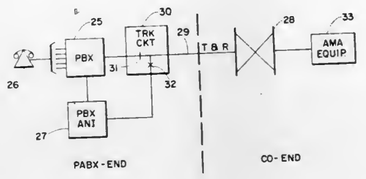
AUTOMATIC NUMBER IDENTIFICATION FOR PRIVATE TELEPHONE EXCHANGES

Charles Colin Male, Stittsville, and John Melvin Wallis, Hazeldean, both of Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed June 28, 1971, Ser. No. 157,344

Int. Cl. H04q *3/72*

U.S. Cl. 179—18 FH **6 Claims**



An automatic number identification system for identifying the calling station of a branch telephone exchange and transferring the information via the normal talking path connection through the central office. Briefly, the invention provides for the connection of the calling station to the central office for the dialling of a called number; disconnection of the station after the called number is transmitted to the central office; connection of the calling station identification apparatus to the central office for transmission of the calling station identity; followed by disconnection of the identification apparatus and reconnection of the calling station. Various alternative arrangements are described for adapting the invention to the various switching systems, accounting systems and whether "ground" or "loop" start is used.

3,787,633

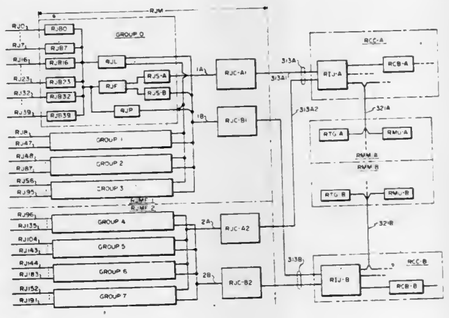
MULTIPLEXING ARRANGEMENT FOR A COMMUNICATION SWITCHING SYSTEM

John E. Busch, Claredon Hills, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Nov. 30, 1972, Ser. No. 311,027

Int. Cl. H04m *3/00*

U.S. Cl. 179—18 J **16 Claims**



The register-sender subsystem comprises duplicated common logic and memory, and a maximum of 192 register junctors. Each register junctor is assigned an individual time slot in a time division multiplex cycle. The junctor multiplexing apparatus coupling the register-junctors to the common logic is not duplicated; but to minimize the effect of a gate failure the multiplexing apparatus is divided into eight separate groups each providing multiplexing circuits for 24 register-junctors. The groups are designed to be independent of one another.

Multiplexing provides for control signals from the common logic to set control latches in buffers of the individual register-junctor during their time slots; and scan signals from the register-junctors set scan latches in the multiplex circuits with eight scan latches in each group, each serving three junctors with OR circuitry from three junctors before the scan latch, and duplicated OR circuitry following the scan latches. The system is normally configured so that one common logic unit serves junctors in even-numbered multiplex groups and the other serves junctors in odd-numbered groups. Reconfiguration makes it possible for either common logic unit to serve the junctors in any group.

3,787,634

SYSTEM FOR CONTROLLING THE TRANSMIT TIME OF STATIONS WHICH ARE IN COMMUNICATION WITH ONE ANOTHER VIA A SATELLITE

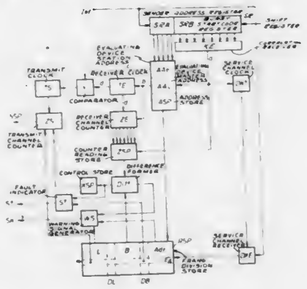
Heinz Haberle, and Eberhard Herter, both of Stuttgart, Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 83,912, Oct. 26, 1970, abandoned. This application Oct. 13, 1972, Ser. No. 297,554

Claims priority, application Germany, Nov. 12, 1969, P 19 56 867.3

Int. Cl. H04j *3/06*

U.S. Cl. 179—15 BS **8 Claims**



This relates to timing control of message bursts in a TDMA communication satellite system. Each ground station stores information as to both its time slot of transmission and duration of transmission as determined by a master station. The timing control is derived by comparing the received timing information with the stored timing information. When a difference is detected, the transmit timing is altered as required to carry on communication and maintain complete frame fill even when certain stations of the system are not involved in communication.

3,787,635

METHOD AND APPARATUS FOR MONITORING CONNECTIONS IN A PROGRAM CONTROLLED PROCESSING SYSTEM

Anton Kammerl, Grobenzell, and Hasso Steigenberger, Unterhaching, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

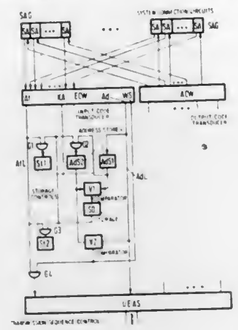
Filed Apr. 19, 1972, Ser. No. 245,551

Claims priority, application Germany, Apr. 19, 1971, P 21 18 930.0

Int. Cl. H04m *3/12*

U.S. Cl. 179—18 ES **4 Claims**

A method and apparatus for monitoring system connection units in program controlled telecommunications exchange systems to determine which units are producing connection requirements is described. Incoming and outgoing connections are identified over input and output code transducers. A storage cell in the central memory is permanently assigned to each incoming connection, and this storage cell can be accessed on the basis of the identification process carried on in the input code transducer. An operating cycle is simultaneously requested, and the system connecting unit generating a requirement is interrogated. The address of the system connection unit producing a request is identified and placed in a first address store. The address of an immediately preceding request is placed in a second address store. The contents of the two stores are compared, and in case of lack of identity the address in the first store is transferred to the second store. If



identity is determined, an indication thereof is forwarded to a store for continuous requirements, and this causes the production of a signal for blocking the inputs to the second address store. A second comparison process then takes place between the address in the second address store and the addresses which are assigned to the succeeding connection requests. In case of a determination of identity in this second comparison process the connection requirement is blocked from being forwarded to the transmission sequence control and an advancing signal arrives at the input code converter.

3,787,636

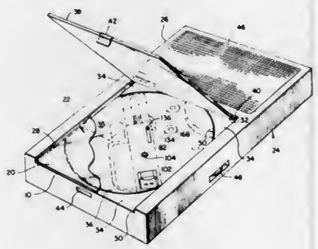
MAGNETIC RECORDING AND PLAYBACK SYSTEM FOR USE WITH RECORDING RECORDS ADAPTED FOR USE IN CONJUNCTION WITH A PHOTOGRAPH

Edison R. Brandt, Boca Raton, Fla., and Christopher R. Rice, Wakefield, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 7,809, Feb. 2, 1970. This application Apr. 18, 1972, Ser. No. 245,277

Int. Cl. G11b *21/06*

U.S. Cl. 179—100.2 T **11 Claims**



Magnetic sound recording and reproducing system incorporating a rectangular recording member having a planar face within which is formed a spirally grooved track. A magnetic recording surface surrounds the spiral track and the member is arranged for attachment to the rearward side of a photograph. The recording member is receivable within a recording-playback unit which rotates a magnetic head about the

magnetic recording surface of the recording member. The locus of the magnetic head is established by a connection of a follower pin with a spiral track.

3,787,637

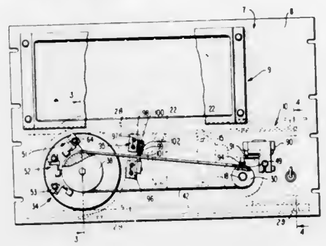
ANNOUNCING SYSTEM

John O. McCarty, Atlanta, and Leary W. Smith, Chamblee, both of Ga., assignors to The Audichron Company, Atlanta, Ga.

Filed July 26, 1971, Ser. No. 165,902

Int. Cl. G11b *5/74, 5/56, 23/18*

U.S. Cl. 179—100.2 MD **7 Claims**



An announcing system for providing recorded messages to a telephone system comprising a driving pulley, a driven pulley, an endless record belt extending about the pulleys, a flywheel connected to the driven pulley, a motor connected to the driving pulley, and dampening means for dampening the motor vibrations from the driven pulley. A plurality of banks of reading heads are mounted adjacent the driven pulley and are arranged to read the message tracks on the record belt as the record belt moves about the driven pulley, and switches are actuated by depressions in the record belt as the depressions pass around the driving pulley. The switches connect and disconnect the telephone system to the reading heads in timed relationship with the messages imposed on the record belt.

3,787,638

HALL ELEMENT MAGNETIC HEAD HAVING INTEGRAL MEANS FOR DETECTING THE AMOUNT OF HEAD MATERIAL GROUND AWAY DURING A MACHINE OPERATION

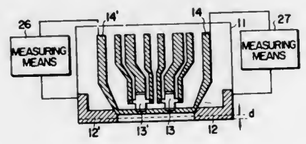
Masayuki Murai, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Apr. 25, 1972, Ser. No. 247,294

Claims priority, application Japan, Apr. 29, 1971, 46/28393

Int. Cl. G11b *5/38, 5/42, 5/46*

U.S. Cl. 179—100.2 CH **8 Claims**



A magnetic head having one or more magneto-electric converting elements, for example, a Hall element, comprises one or more leads which are used, when the magnetic head is manufactured, for measuring the amount of head material ground away from between a front surface of the magnetic head and the front edge of the magneto-electric converting element.

3,787,639

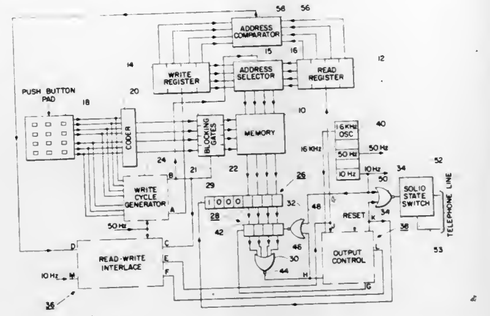
PUSHBUTTON ELECTRONIC PULSING DIAL

Peter Edward Battrick, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Nov. 16, 1972, Ser. No. 307,064

Int. Cl. H04m *1/30*

U.S. Cl. 179—90 K **14 Claims**



An electronic pushbutton dial, which generates dial pulse type signals on a telephone line in response to a digit selected on a pushbutton pad, for signalling step-by-step switching offices. The digit selected is coded and stored in a non-destructive read-write memory and is subsequently loaded into a presettable counter. A pulse generator is arranged to generate and feed dial-pulse-timing signals simultaneously into the presettable counter and to a solid state switch which is in series with the telephone line. The digit selected is transmitted to the central office by interrupting the telephone line current at the dial-pulse-timing signal rate until the count in the presettable counter reaches a predetermined value. The interdigit interval is generated by loading a fixed number into the presettable counter and feeding dial-pulse-timing signals into the presettable counter, while disabling the solid state switch, until the count in the presettable counter again reaches said predetermined value.

3,787,640

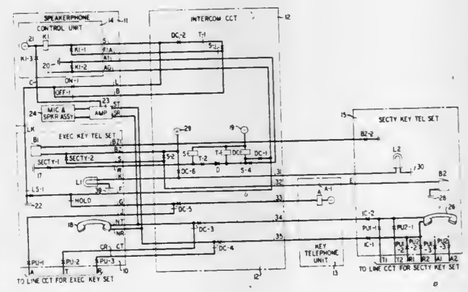
KEY TELEPHONE INTERCOM CIRCUIT

Stanley Edward Bush, and Kenneth Joseph Roberge, both of Boulder, Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 26, 1972, Ser. No. 318,188

Int. Cl. H04m *1/00*

U.S. Cl. 179—99 **10 Claims**



A key telephone arrangement for controlling intercom and speakerphone connections over an intercom line, wherein a

single nonlocking key is utilized for establishing, signalling, and releasing the intercom connections, as well as for activating and deactivating the speakerphone.

3,787,641

BONE CONDUCTION MICROPHONE ASSEMBLY

Charles M. Santori, San Jose, Calif., assignor to Setcom Corporation, San Jose, Calif.

Filed June 5, 1972, Ser. No. 259,489
Int. Cl. H04r *25/00*
U.S. Cl. 179—107 BC **7 Claims**



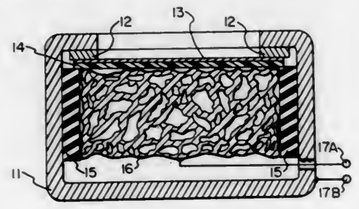
A bone conduction microphone assembly with a transducer mounted in a transducer mount supported from a surrounding support member by spring means which yieldably urges the transducer mount against the user's head with predetermined pressure.

3,787,642

ELECTROSTATIC TRANSDUCER HAVING RESILIENT ELECTRODE

Robert F. Young, Jr., Northfield, Ill., assignor to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed Sept. 27, 1971, Ser. No. 183,899
Int. Cl. H04r *19/00*
U.S. Cl. 179—111 E **23 Claims**



An electro-acoustic transducer having a flexible diaphragm and a backplate of resilient construction and a front element of metalized foil. In a preferred embodiment of the invention the transducer is a condenser microphone wherein the insulating film that comprises the diaphragm is an electret. In alternate embodiments the foil element may be replaced by an element constructed of resilient foam-like material.

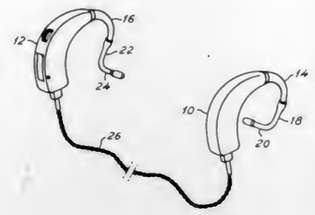
3,787,643

HEARING AID DEVICE

Torben Elof Nielsen, Holte, Denmark, assignor to American Danish Oticon A/S, Copenhagen, Denmark

Continuation of Ser. No. 882,150, Dec. 4, 1969, abandoned. This application Nov. 7, 1972, Ser. No. 304,314
Int. Cl. H04r *25/02*
U.S. Cl. 179—107 E **6 Claims**

The present invention relates to a hearing aid device having a sound receiving transducer with an acoustic inlet in the form of a relatively narrow aperture and means for locating said sound receiving transducer in a position relatively to the head of the user with the acoustic inlet being located substantially at a zone of the ear where increased sound pressure is built up



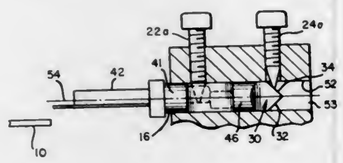
in response to sound signals received. The signals from the signal receiving transducer are through suitable adjustable amplification means routed to the other ear and processed in a sound reproducing transducer from which the sound signals are supplied to the other ear.

3,787,644

MAGNETIC HEAD ADJUSTMENT ASSEMBLY

Guenter E. Schneider, Concord, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed July 12, 1972, Ser. No. 271,135
Int. Cl. G11b *5/56*
U.S. Cl. 179—100.2 CA **5 Claims**



Alignment apparatus for a pair of transducers in a magnetic memory having a single magnetic disk. An elongated mount for each transducer extends along a normally horizontal suspension axis. The two mounts are spaced vertically in a carriage to position the respective transducers adjacent opposite disk surfaces. Each mount has a semi-cylindrical positioning surface on which a pair of flats are formed. Radially extending lugs with semi-cylindrical surfaces and the positioning surface constitute a cylinder which fits in a bore in the carriage. A positioning screw and locking screw are oriented to engage a wedging surface and a flat associated with the upper mount. Another positioning screw and locking screw are vertically offset from lugs on the upper mount. They engage a wedging surface and flat of the lower mount because it is rotated 180° with respect to the upper mount.

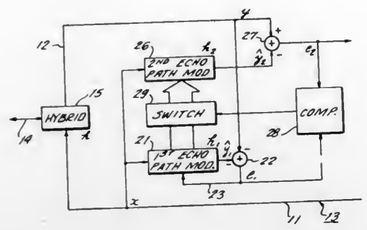
3,787,645

ECHO CANCELLER HAVING TWO ECHO PATH MODELS

Kazuo Ochiai, and Takashi Araseki, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed May 17, 1972, Ser. No. 254,071
Claims priority, application Japan, May 19, 1971, 46/33858; Aug. 13, 1971, 46/61736
Int. Cl. H04b *3/20*
U.S. Cl. 179—170.2 **6 Claims**

An echo canceller having self-adaptive means retaining a first echo path model is comprised of means retaining a second echo path model, means for subtracting the output signal of the second echo path model means from the send-in signal to produce the send-out signal, means for comparing



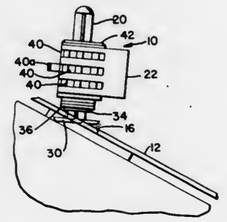
the first and the second echo path models, and means responsive to the results of comparison for transferring the echo path model from one of the first and the second echo path model means to the other.

3,787,646

DIAL TELEPHONE LOCK

James S. Kalfsbeek, College City; Peter C. Kalfsbeek, and Robert S. Goodrich, both of El Segundo, all of Calif., assignors to James S. Kalfsbeek, College City and Peter C. Kalfsbeek, Williams, both of, Calif.

Filed Apr. 18, 1972, Ser. No. 245,067
Int. Cl. H04m *1/66*
U.S. Cl. 179—189 D **11 Claims**



A dial telephone locking device having a shaft extending through a combination lock mechanism. One end of the shaft has an elongate foot for engagement in a hole in the dial. The shaft is transversely movable in the combination lock when the lock is open, but such movement is prohibited when the lock is locked. Thus, the foot may be received in the hole in the dial when the lock is open, and the shaft thereafter drawn inwardly through the lock body to center the foot in abutting engagement beneath the hole with the lock body abutting the other side of the dial. The lock protrudes above the telephone dial and thereby prevents rotation of the dial beyond the finger stop.

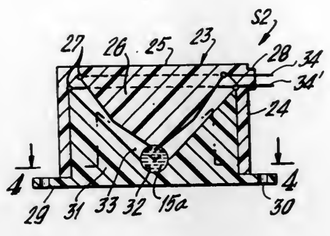
3,787,647

CONDUCTING FLUID TYPE GRAVITY SAFETY SWITCH WITH SPIRAL CONTACTS

Benjamin F. Hughes, Rt. 1, Box 120, Morris, Ala.

Filed July 7, 1972, Ser. No. 123,987
Int. Cl. H01h *35/02*
U.S. Cl. 200—61.47 **8 Claims**

An improved gravity operated switch includes a movable electrically conductive member in a housing normally on a central seat when in a normal horizontal position out of the circuit. When the housing is tilted, the movable conductive member moves out of the seat to bridge a pair of fixed spaced electrical contacts in an associated electrical circuit to control



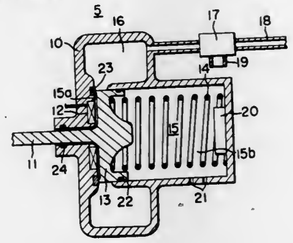
the flow of fuel to the engine of the vehicles, ignition, or other engine control components. The switch has particular utility in engine powered vehicles, such as tractors.

3,787,648

TANK-TYPE GAS-BREAK CIRCUIT BREAKER

Kikuo Kawasaki, Kawasaki, Japan, assignor to Fuji Denki Seizo Kabushiki Kaisha, Kawasaki-shi, Japan

Filed Dec. 29, 1971, Ser. No. 213,456
Claims priority, application Japan, Dec. 29, 1970, 45-127251; Dec. 29, 1970, 45-127254
Int. Cl. H01h *33/86*
U.S. Cl. 200—148 J **7 Claims**



The break contacts in a tank-type gas-break circuit breaker are disposed in a high-pressure gas chamber formed in a sectionalized state within a tank constituting a low-pressure gas chamber and are coupled via an operating rod of insulative material passing through the low-pressure gas chamber to a piston of a piston mechanism disposed outside of the tank, a driving device operating in response to a tripping command to impart an initial impulsive driving force for opening the break points to the piston.

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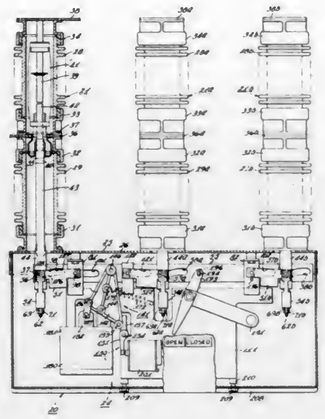
VACUUM SWITCH CAM OPERATING MECHANISM WITH CONTACT LOADING COMPRESSION SPRING

Edwin C. Goodwin, Jr., Canton; Oscar L. Larkin, Saugus, both of Mass., and Heinrich H. Erni, Turgi, Switzerland, assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Aug. 4, 1972, Ser. No. 278,177
Int. Cl. H01h *33/42, 33/66, 3/42*
U.S. Cl. 200—153 LA **20 Claims**

A single reciprocable cam bar simultaneously operates three vacuum interrupters. Cam follower motion is transmitted by precompressed contact loading springs to the movable contacts to assure high contact pressure, and the precompressed contact laoding springs exert substantially constant force regardless of the amount of contact erosion or overtravel. The cam bar is latched in switch closed position, and

the forces of the three contact loading springs are additive to the force of the cam bar return springs to effect switch opening. Contact closing position is adjustable for each switch at a single point by varying deflection of the precompressed con-



tact loading springs to thereby assure synchronized closing of the three interrupters. The motion of the contact operating rods is guided by pivoted yokes along a line substantially axial of the contacts to compensate for contact erosion.

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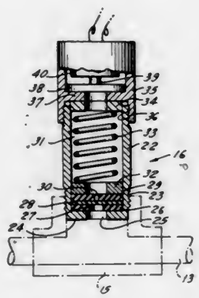
WATER DETECTION DEVICE FOR FUEL LINE

Warren J. Lewis, 132 Britannia, Meriden, Conn.

Filed Sept. 21, 1972, Ser. No. 291,073

Int. Cl. H01h *35/38, 35/00*

U.S. Cl. 200—61.04 **3 Claims**



A warning mechanism is used to indicate the presence of an impurity in a tube carrying a fluid, for example, to warn of water in a hydrocarbon fuel line. The mechanism includes a thin plastic disk which is insoluble in the fluid but soluble in the impurity, a chamber filled by the mixture after partial dissolving of the disk, and a pressure responsive transducer.

3,787,651

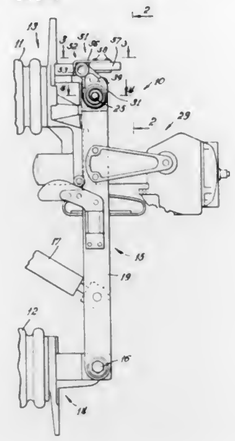
HIGH VOLTAGE SWITCH WITH HIGH CURRENT CLOSING CONTACTS

Leonard V. Chabala, Maywood, and David M. Evans, Palatine, both of Ill., assignors to S & C Electric Company, Chicago, Ill.

Filed June 8, 1972, Ser. No. 261,074

Int. Cl. H01h *33/12*

U.S. Cl. 200—146 R **3 Claims**



A high voltage switch for closing on high current flow has a pair of arcing contacts spaced apart at the distal end of a switch blade for engaging therebetween a graphite arcing tip prior to engagement by the switch blade of a stationary metallic contact.

3,787,652

ELECTRIC COMPRESSED GAS CIRCUIT BREAKER

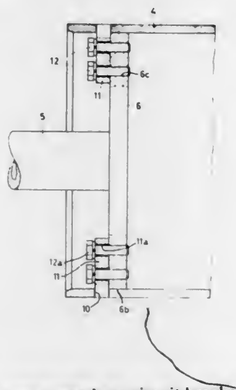
Wolfgang Konczal, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 17, 1972, Ser. No. 281,495

Claims priority, application Germany, Aug. 31, 1971, P 21 44 215.9

Int. Cl. H01h *33/88*

U.S. Cl. 200—148 A **6 Claims**



An electric compressed gas circuit breaker has cooperating stationary and movable contacts and an arc blasting assembly including a stationary blast piston and cooperating therewith, a blast cylinder made of electrically insulating material and having a bottom to which the movable contact is mounted.

During circuit breaking, the cylinder's bottom is moved to separate the contacts, the cylinder having an end provided with a nozzle which, due to the cylinder's simultaneous movement relative to the stationary piston, further compresses the gas in which the assembly operates, so that an arc extinguishing blast is ejected through this nozzle. The cylinder is made from electrically insulating material and the bottom removably connects with the cylinder's end remote from its nozzle, by the cylinder's inside having a keyway and its bottom having a key cooperating with this keyway in a removable manner. Preferably a plurality of keyways and keys are provided which are circumferentially interspaced uniformly so that the mechanical stress resulting from the transmission of force between the bottom and the cylinder is distributed uniformly throughout the cylinder.

3,787,653

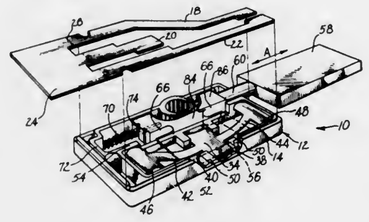
ELECTRICAL SWITCH ASSEMBLY

Robert L. Maher, Somers, N.Y., assignor to Donald P. Mossman, Inc., Brewster, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,640

Int. Cl. H01h *15/24*

U.S. Cl. 200—153 K **7 Claims**



An electrical switch assembly having a non-conductive switch body and three spaced conductor strips mounted therein is provided with a rockable contact member positioned adjacent the conductor strips for selectively bridging contact zones thereon. The contact member has first and second contact elements at opposite ends thereof, with first and second conductor strips disposed in the body to be engaged with the first contact element in one position of the contact member and the first and third conductor strips disposed to be engaged with the second contact element in another position of the contact member. In one embodiment, manually operable means is provided for selectively rocking the contact member between its respective positions to selectively engage or disengage the contact elements with their associated conductor strips.

3,787,654

BOLTED CONTACT SWITCH WITH CAM MEANS FOR OVERCOMING MAGNETIC PINCH FORCES ON CONTACT BLADES

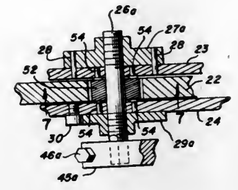
Tadeusz J. Rys, Monroe, Ohio, assignor to Square D Company, Park Ridge, Ill.

Filed Feb. 26, 1973, Ser. No. 336,147

Int. Cl. H01h *1/50*

U.S. Cl. 200—170 A **1 Claim**

Two flat movable contact blades are mounted adjacent first ends thereof in spaced parallel relationship respectively on opposite sides of a flat stationary mounting blade for edgewise pivotal movement of their other end portions into and out of engagement respectively with opposite sides of a flat stationary contact blade aligned with the mounting blade. Threaded stud and nut clamping means are provided for automatically clamping the movable contact blades adjacent opposite ends respectively to the mounting blade and to the stationary contact blade after the movable contact blades reach a fully closed position. Cam means carried by the movable contact



blades overcomes static friction and high magnetic forces to prevent welding of the blades in closed position upon flow of excessively high currents.

3,787,655

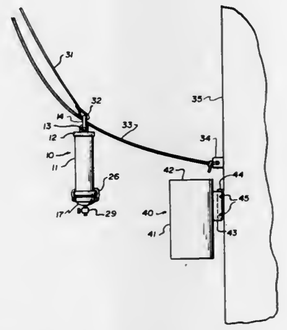
METHOD OF UNDERWATER WELDING

Dale R. Anderson, Zachary, La., and Conway E. Grubbs, Glenn Ellyn, Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed June 5, 1972, Ser. No. 259,544

Int. Cl. B23k *9/16*

U.S. Cl. 219—72 **8 Claims**



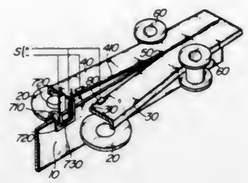
Flux-coated electrodes pressure equalized to an underwater welding depth in contact with a fluid other than water before the electrodes are contacted with water at the welding site are used in wet welding.

Flux-coated electrodes are preconditioned by pressurizing them in a fluid other than water to a pressure substantially equal to an underwater pressure where the electrodes are to be used in wet welding.

At a location above sea level, placing a plurality of flux-coated welding electrodes in a water proof container containing a fluid other than water, delivering the container to an underwater welding site with the electrodes in the container substantially pressurized to the pressure at the welding site, and removing the electrodes from the container at the welding site and placing the electrodes in a storage chamber adjacent the welding site, said storage chamber containing a fluid, other than water, at a pressure substantially equal to the underwater pressure at the welding site.

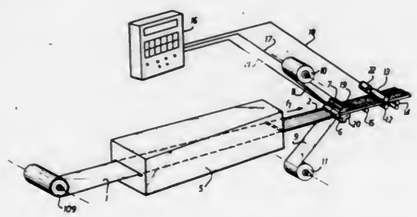
An electrode pressure preconditioning container having walls capable of withstanding pressure equal to the pressure at an underwater welding site, a removable closure for closing an opening in the container, a conduit outside the container communicating with the container interior space, and a valve in the conduit.

3,787,656
CONTINUOUS WELDING METHOD AND APPARATUS THEREOF FOR METAL PLATES
Tatsuji Matsumoto, 7-96 Sakurazuka Hondori, Toyonaka-shi, Osaka-fu, Japan
Filed Feb. 22, 1972, Ser. No. 228,131
Int. Cl. B23k *11/02*
U.S. Cl. 219—104 2 Claims



The continuous welding method comprised the steps of feeding or forwarding three metal plates continuously together with approaching them one another so as to unite them at the predetermined position through a high frequency induction heating device and contractors positioned in front of the uniting position, passing the feeding metal plate vertically through the high frequency induction heating device of a predetermined width without contacting them each other, and advancing the two remaining metal plates with contacting the welding end edges of the remaining metal plates with the contractors so as to weld the three metal plates one another at the uniting position. The continuous welding apparatus for three metal plates comprises a high frequency induction heating device having two heating side plates, two contractors arranged on the two metal plates, pressure rollers integrating and uniting the three metal plates at a predetermined uniting position, and holding rollers holding the vertical plate in vertical position so as to weld the three metal plates one another at the uniting position.

3,787,657
APPARATUS FOR MANUFACTURING SANDWICH PANELS
Jean Francois Denis, Lesigny; Serge Yvan Ozalba-Lyndis, Villejuif; Maurice Henri Louis Fremont, Clamart; Edward Krajewski, Yerres, and Jean-Pierre Julien Marcel, Morland, Clamart, all of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France
Filed Mar. 2, 1973, Ser. No. 337,422
Claims priority, application France, Mar. 3, 1972, 7207583
Int. Cl. B23k *9/02*
U.S. Cl. 219—117 HD 14 Claims



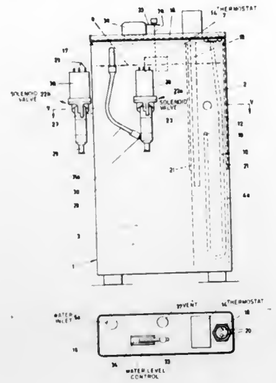
A welding machine for fabricating metal sandwich panels having corrugated core, comprising a set of rules for offering up the core, TIG welding blowpipes positioned in a channel at the location where the core is covered with skin strip, HF-ignition welding generators, HF generators in immediate vicinity to the blowpipes, a weld sequencing block, said machine being disposed in order that the core strip is covered subsequent to being corrugated and is then welded beneath the TIG welding blowpipes, electrodes being positioned outside the core.

3,787,658
TUBULAR ARC WELDING ELECTRODE
Paul A. Kammer, Springettsbury Township, York County, and Robert B. Duttera, Springfield Township, York County, Pa., assignors to Teledyne, Inc., Los Angeles, Calif.
Filed Nov. 3, 1971, Ser. No. 195,486
Int. Cl. B23k *35/22*
U.S. Cl. 219—146 5 Claims

A bare continuous tubular electrode consisting of a metallic outer sheath and a core within and enclosed by the sheath, the electrode consisting essentially of, by weight: 0.05 to 0.36 per cent. of at least one fluxing agent selected from the group consisting of lithium fluoride, cryolite, potassium silicofluoride and sodium silicofluoride; 0.01 to 1.8 per cent. in total of slag former selected from the group consisting of titanium dioxide, potassium permanganate, sodium feldspar, zirconium silicate, calcium silicate, magnesium oxide, manganese oxide and calcium carbonate, but no more than 1.2 per cent. of any individual slag former; 0 to 0.012 per cent. of arc stabilizer comprising potassium titanate; the balance of the electrode being metal-bearing material; said metal-bearing material containing, by weight of the electrode, 1.5 to about 10 per cent. alloying ingredients and deoxidizer, said alloying ingredients and deoxidizer comprising 0.6 to 1.8 per cent. manganese and 0.25 to 0.9 per cent. silicon, the balance of the metal-bearing material being essentially iron. The fluxing agent desirably comprises 0.12 per cent. cryolite and the slag former desirably includes titanium dioxide, sodium feldspar, zirconium silicate and calcium silicate. The electrode preferably contains up to 0.2 per cent. carbon, 0 to 4 per cent. nickel, 0 to 6 per cent. chromium and 0 to 1.3 per cent. molybdenum. The fluxing agent may be selected from lithium fluoride, potassium silicofluoride and sodium silicofluoride and the slag former may comprise 0.024 per cent. calcium carbonate while the electrode may contain up to 0.2 per cent. carbon, 0 to 4 per cent. nickel, 0 to 6 per cent. chromium and 0 to 1.3 per cent. molybdenum.

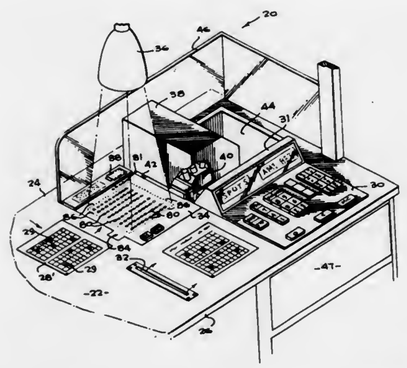
3,787,659
APPARATUS FOR SUPPLYING EITHER HOT OR WARM WATER IN A VENDING MACHINE
Frederik Walraven Olland, Bilthoven, Netherlands, assignor to Olland Industrie-en Handelmaatschoppij N.V., DeBilt, Netherlands
Filed Jan. 12, 1972, Ser. No. 217,101
Claims priority, application Netherlands, Aug. 17, 1971, 7111342
Int. Cl. H05b *1/00*; F24h *1/20*
U.S. Cl. 219—314 4 Claims.

A machine for vending warm drinks selectively (*a*) by extracting extractable ingredients and (*b*) by dissolving soluble ingredients comprises an apparatus for supplying both hot water for extracting and warm water for dissolving. A tank for holding a supply of warm water is separated from a substantially smaller second tank for holding a supply of hot water by a heat-conducting wall. An electrical heating coil in the second tank is provided with a thermostatic control responsive to the water temperature in the second tank for maintaining said water temperature slightly below the boiling point. Means are provided for maintaining the transfer of heat from the second tank to the first tank at rate such as to maintain a water temperature of 70°–75° C. in the first tank when the water temperature in the second tank is slightly below the boiling point. A valve-controlled outlet is provided for withdrawing



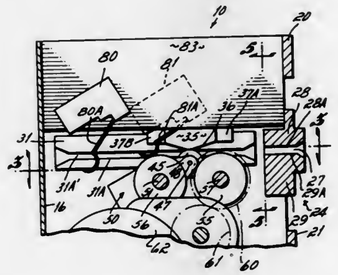
hot water from the second tank for extracting, and a separate valve-controlled outlet is provided for withdrawing warm water from the first tank for dissolving.

3,787,660
GAME CONTROL SYSTEM
Laverne H. Meyers, Newport Beach, Calif.; Frank L. Kagele; Edward J. Trent, both of Reno, Nev.; Jerry T. Fridenberg, Westminster, Calif.; Frederick J. Alberty, Hollywood, Calif., and Bloyce D. Fitzgerald, Long Beach, Calif., assignors to said Intercontinental Services, Inc., by said Kagele, Meyers, Trent, Fridenberg and Alberty, Sparks, Nev.
Filed Nov. 16, 1971, Ser. No. 199,222
Int. Cl. G06k *3/02*
U.S. Cl. 235—61.9 R 31 Claims



A system is disclosed for expediting and monitoring customer transactions in the game of keno including a plurality of transaction terminals or stations each including scanner means for sensing marked number spots of a customer marked keno ticket, a manually operable keyboard for receiving entries of the price of a transaction and the nature of the transaction and a duplicate receipt ticket providing means including printing means controlled by the scanner and the keyboard for rapidly providing a duplicate ticket with brush mark replicas in the same number spots as those of the customer marked ticket and for also imprinting additional information such as the nature and price of the transaction. Another aspect of the invention resides in the provision of a control and data processing system interconnecting the plurality of terminal stations to a central control for controlling and monitoring all of the transaction terminals and storing all transactions of all transaction terminals. An additional feature resides in the provision of a back printer for imprinting the back of a customer marked ticket with all information, such as the amount of the transaction and the nature of the transaction, imprinted on the receipt ticket.

3,787,661
MAGNETICALLY ENCODED CARD READER AND/OR WRITER
Charles J. Moorman, Cincinnati; Martin R. Meyer, Mt. Healthy, and Frederick A. Reuter, Cincinnati, all of Ohio, assignors to The Mosler Safe Company, Hamilton, Ohio
Filed May 30, 1972, Ser. No. 258,017
Int. Cl. G06k *7/08*, *13/08*; G11b *5/48*; B65h *29/00*
U.S. Cl. 235—61.11 D 1 Claim

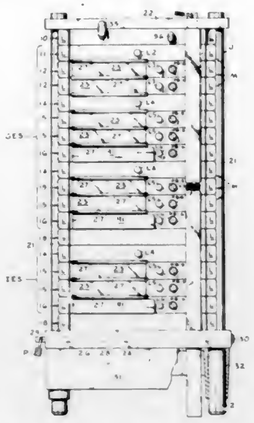


A reader and/or writer for magnetically encoded cards including a frame structure, a guide assembly for guidably supporting a card manually inserted into the reader, a transducer for reading and/or writing the magnetically encoded data on the inserted card, a pair of rolls underlying an inserted card and displaced laterally of, but symmetrical to, the transducer for supporting the card in the region thereof proximate the transducer, and a motor to drive one of the support rolls for returning the card to the user and effecting reading and/or writing thereof by the transducer.

3,787,662
VOTING MACHINE
Roy A. Martin, and Clarence E. Pittman, both of Atlanta, Ga., assignors to Lectra Data, Inc., Atlanta, Ga.
Division of Ser. No. 755,688, Aug. 27, 1968, abandoned. This application Apr. 28, 1972, Ser. No. 248,673
Int. Cl. G07c *13/00*
U.S. Cl. 235—54 F 15 Claims

Apparatus for selectively producing electrical pulses representative of a particular selection made by the operator of the apparatus. The apparatus is disclosed in the form of a voting machine built up of modular components which fit together to form any of a plurality of different voting arrangements. The voting machine is substantially tamper-proof and has the following basic components: an input module, a frame assembly, a first control module, a first vote module, a second control module, a second vote module, a terminal module, a write-in module, a slave input module, and a third control module. The modules may be placed together in selected fashion to define a voting machine for voting in any type of political race and which will prevent overvoting. The difference modules fit together in such manner that they cannot

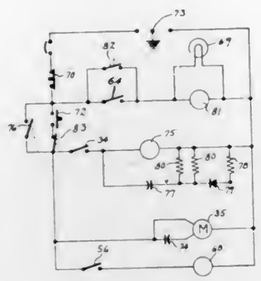
be separated without a key to unlock the same, thereby reducing the possibility of tampering with the election results. Moreover, each module is constructed in such manner that



the module may be checked prior to assembly of the voting machine to insure proper functioning of the module once it is assembled.

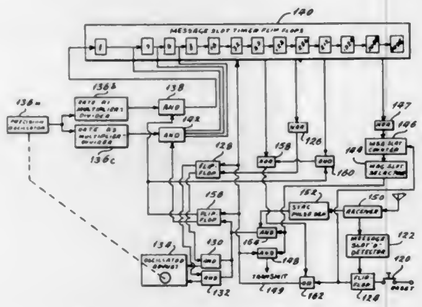
3,787,663
COUNTING DEVICE
Arthur W. Haydon, Middlebury, Conn., assignor to Tri-Tech, Inc., Waterbury, Conn.
Filed Nov. 10, 1971, Ser. No. 197,343
Int. Cl. H03k *21/16*
U.S. Cl. 235—92 C **8 Claims**

which the stack of bills to be counted is placed. The bills are removed one at a time from the receiving compartment and are passed through a counting section and elevated up to a discharge compartment. The bills are counted by the actuation of a count switch as they pass through the counting section with the count recorded visually on a counter. The machine is set in operation by the depression of a start switch which will function to carry out the count of the stack of bills only if a stack switch is closed indicating that one or more bills

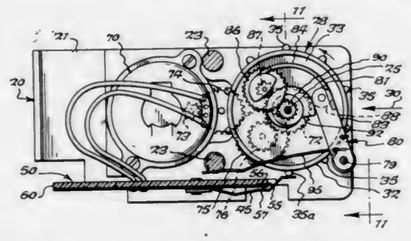


are present in the receiving compartment. The movement of the last bill of the stack out of the receiving compartment will open the stack switch but the circuit to operate the machine will remain energized for a sufficient time to permit the last bill of the stack to be transported to the discharge compartment. Overlapping, folded or double bills which would provide a false count are sensed in the counting section and a warning light alerts the operator to the fact that doubled bills have been counted. The operator must then depress a reset button before the machine can again be operated.

3,787,665
MEANS FOR SYNCHRONIZING REMOTELY POSITIONED TIMING DEVICES
Fred D. Watson, Ballwin, and John L. Mohr, Creve Coeur, both of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed July 17, 1972, Ser. No. 272,472
Int. Cl. G06f *15/48*
U.S. Cl. 235—150.23 **10 Claims**



Improvements in means for synchronizing remotely positioned timing devices including means to provide multiple error correction factors which are functions of the time error or time difference between the time keeping means in spaced systems or units being synchronized, said means being particularly useful in group synchronization by providing time convergence to a common synchronizing base. The use of multiple error correction factors restricts or limits relative timing errors between systems or units especially when in the process of changing from one reference time base location to another, and it provides means to bring timing devices at remote locations into closer synchronization on a continuing basis. The present means provide correction factors which are directly proportional to the synchronizing error including those cases where the correction versus error proportion is other than in a one-to-one relationship. This is especially advantageous in situations where there is a ground or master station responsibility that is shared on a rotating, shifting or location basis with other stations that are or may be synchronized but on a different time schedule or time base. Partial corrections in such situations can cause convergence of the synchronizing operation on a global or regional basis to a common time synchronization base and on a continuous and uninterrupted basis. The present means are also able to provide time synchronization of remotely located timing devices or units with or without the need to designate specific units or stations, or sets of units or stations, as masters and slaves. This means that the need for master or central accurately synchronized time references or stations which has characterized prior art time synchronized systems is no longer necessary.

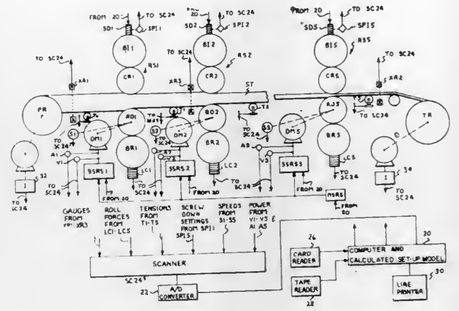


A transfer counter in which the higher order register drums are controlled by planetary gearing carried on flexible, resiliently biased transfer arms and in which lugs or depressions on the periphery of the drums actuate a series of switches to provide coded electrical signals which correspond to the angular positions of the drums. The switches are mounted on a single printed circuit read-out board for all of the drums which extends in a plane parallel to the drums' axis of rotation. The transfer of the drums is prevented during the electrical reading of the switches, and for resettable counters the switches are rendered inactive when the counters are being reset.

3,787,664
CURRENCY COUNT VERIFIER
George V. Johnson, Oconomowoc, and Charles T. Bergman, Watertown, both of Wis., assignors to Brandt, Inc., Watertown, Wis.
Filed Apr. 28, 1972, Ser. No. 248,557
Int. Cl. G06m *7/06*
U.S. Cl. 235—92 SB **7 Claims**

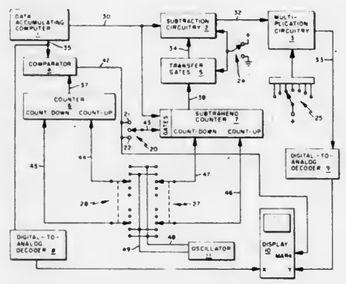
A machine for verifying the quantity of bills in a stack of bills of the same denomination has a receiving compartment in

3,787,667
COMPUTER CONTROLLED METAL ROLLING MILL
William D. King, Elnora; George D. Larson, Schenectady; Donald E. Steeper, Rexford, and Amos J. Winchester, Jr., Schenectady, all of N.Y., assignors to General Electric Company, Salem, Va.
Filed Jan. 6, 1971, Ser. No. 104,382
Int. Cl. G06f *15/46*; B21b *37/14*
U.S. Cl. 235—151.1 **7 Claims**



A computer controlled cold metal rolling mill is described wherein force and power curves stored within a calculated set-up model are adapted in response to sensed on-line rolling conditions to optimize power distribution between stands of the mill. For maximum storage capacity and simplification of the adaptive feedback calculations, the power curves are stored in the set-up model by two numerals representing the slope and base of a graph of power per unit volume flow against elongation as plotted on log-log-log scales. Thus, only the slope and base of the actual power curve need be calculated during operation to modify the power curves stored within the set-up model. Adaptation of the force curves within the model is accomplished in association with feedback logic for adjusting the value of the coefficient of friction (assumed for calculation of force) by an amount proportional to the difference between the observed and calculated force. Both fast and slow feedback terms are employed for this purpose with the fast feedback term approaching zero asymptotically as the slow feedback term approaches a coefficient of friction equating the measured and predicted forces. Integral scanning and comparison also are utilized to evaluate the quality of adaptive data before updating the stored curves. Also disclosed is the storage of mill stretch curves as functions of roll force against mill stretch for nominal constant roll force per unit width with a modifier being employed to correct for variations in force per unit width from nominal.

3,787,666
INFORMATION DISPLAY SYSTEM
Robert W. Schumann, Madison, and Arthur F. Smith, Verona, both of Wis., assignors to Nicolet Instruments, Inc., Madison, Wis.
Filed Oct. 19, 1971, Ser. No. 190,583
Int. Cl. G06f *15/20*
U.S. Cl. 235—151 **31 Claims**

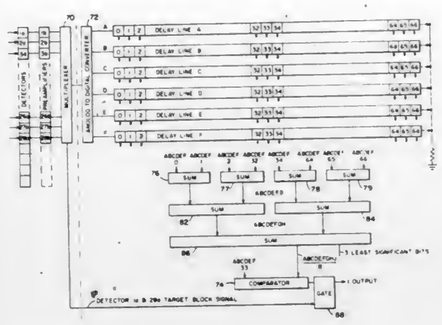


An information display system including display means for displaying a sequence of coordinate points, each point having an ordinate and an abscissa value. The system having means for subtracting a selectable constant from each ordinate value prior to display, and means for multiplying the difference of the subtraction before display. Pulse means are provided for selectively varying the constant to be subtracted at a selectable rate. Means are also provided for varying the multiplication factor. Also, means are provided for marking a coordinate point on the display means and for selectively using the ordinate value of the selected coordinate as the constant to be subtracted, thus centering or zeroing the displayed figures around the marked point. Finally, limit means are provided at the output of both the subtraction means and the multiplier means for providing maximum and minimum output numbers from each.

3,787,668
ADAPTIVE THRESHOLD UNIT
Richard W. Currie, and Teddy J. Peacher, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army
Filed Feb. 22, 1973, Ser. No. 334,826
Int. Cl. G06f *7/38*, *15/34*
U.S. Cl. 235—152 **6 Claims**

In conjunction with an infrared detection device, the adaptive threshold unit eliminates much of the clutter or false targets in the field of view of the detection device. This is accomplished by converting received analog intensities which represent the true target and clutter into digital form and processing them in a special purpose digital processor. The digital processor passes target or possible target pulses only

from those field of view segments which have a higher intensity than the average intensity of the eight surrounding segments. Each segment of space subtends a one milliradian by



one milliradian angle and each segment of the sector being viewed is periodically compared with the surrounding segments.

3,787,669

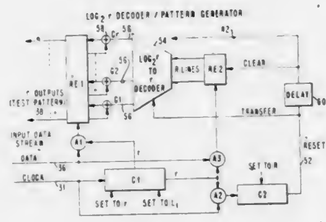
TEST PATTERN GENERATOR

Eugen Igor Muehldorf, Potomac, Md., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,875

Int. Cl. G06f 11/02

U.S. Cl. 235—152 **7 Claims**



A generic sequential digital pattern generator is disclosed for converting a serial data stream of n compacted pattern messages into a sequence of n parallel digital patterns. The generic invention comprises a decoding means connected to a serial data stream, for receiving a compacted pattern message and converting the message to a signal on one out of r decode lines, an output register having r binary storage cells connected to r output lines, and r modulo 2 adders in parallel. Each modulo 2 adder has an augend input and an addend input. Each augend input is connected to one decode line from the decoding means. Each addend input is connected to one input line from the register. When the decoding means receives a compacted pattern message, it executes a change in the binary state of a selected one of the r output lines. Two species of the invention are disclosed, a first digital pattern generator operating on a serial data stream of pattern messages compacted by a $\log_2 r$ encoding scheme, and a second digital pattern generator operating on a serial data stream of pattern messages compacted by the Shannon-Fano encoding scheme.

3,787,670

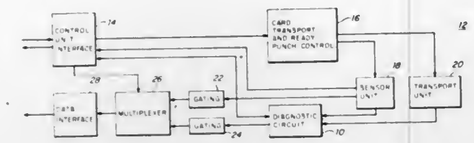
AUTOMATIC DIAGNOSTIC SYSTEM

Paul E. Nelson, Chelmsford, and Russell H. Peterson, Acton, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 20, 1971, Ser. No. 209,957

Int. Cl. G06f 11/04

U.S. Cl. 235—153 AC **16 Claims**



In a computer having a peripheral device and a central processor including a memory and an arithmetic unit, an anticipatory diagnostic system including a plurality of monitor units for observing operation of a peripheral device, gating means for selecting the monitor unit whose output is to be interrogated, means responsive to the gating means for quantizing the output of the selected monitor unit and means for storing the quantized output for redelivery to the central processor upon a subsequent command.

3,787,671

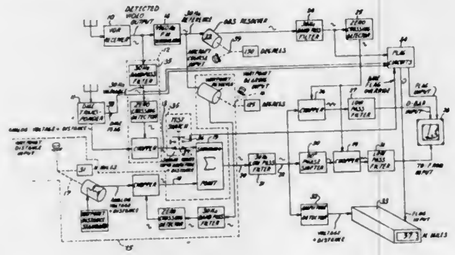
METHOD AND APPARATUS FOR TESTING AREA NAVIGATION COMPUTERS

Jerry C. Schmitt, Overland Park, Kans., assignor to King Radio Corporation, Olathe, Kans.

Filed Mar. 15, 1971, Ser. No. 124,299

Int. Cl. G06g 7/78

U.S. Cl. 235—150.26 **7 Claims**



A method and apparatus for testing area navigation computers and systems which incorporate the use of a test switch within the computer circuit to either pass or interrupt signals which correspond to the location of the aircraft utilizing the subject area navigation computer. This switching function is accomplished prior to same being summed together with signals representative of the corresponding waypoint location. Interruption of the aircraft location signals to the summing point artificially places the aircraft over a corresponding VORTAC station. Accordingly, the output from a properly operating computer will equal the waypoint data which is normally used to manually program the computer. Additional switch means override circuitry which would normally indicate a malfunction of the DME signal used with the computer circuitry in order that the pilot's navigation displays are not rendered inoperative.

3,787,672

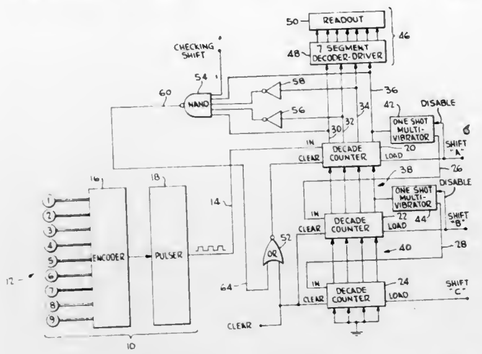
ELECTRONIC CALCULATING DEVICE HAVING ARITHMETIC AND ERROR-CHECKING OPERATIONAL MODES

John W. Stein, 17129 Chiswell Rd., Poolesville, Md.

Filed May 30, 1972, Ser. No. 257,544

Int. Cl. G06f 11/10

U.S. Cl. 235—153 BD **5 Claims**



A novel portable hand-held electronic calculating device is disclosed, the calculating device having arithmetic and error-checking operational modes. The device incorporates a keyboard having a plurality of keys thereon representative of different integers such as in the usual base 10 numeral system. Actuation of a key effects generation of an electrical pulse output. A conrollable electronic counter means is coupled to the keyboard for arithmetically counting the pulse output to thereby define the arithmetic mode of the device. The counter means can be controlled so as to selectively effect counting of the electrical pulse output of the keyboard in a different integer base, such as in a base 9 numerical mode. Answers obtained from arithmetic operations in a base 10 system can thereby be checked by the novel calculating device utilizing the so-called "casting of 9's" principle.

3,787,673

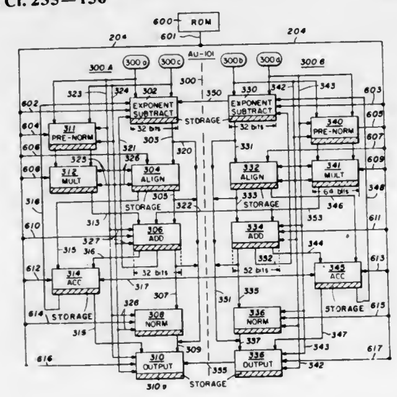
PIPELINED HIGH SPEED ARITHMETIC UNIT

William J. Watson, and Charles M. Stephenson, both of Austin, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 743,573, July 9, 1968, abandoned. This application Apr. 28, 1972, Ser. No. 248,690

Int. Cl. G06f 7/38

U.S. Cl. 235—156 **7 Claims**



A digital computer central processing unit is disclosed having an arithmetic unit which forms an element of an instruction processing pipeline. The arithmetic unit has within it a plurality of arithmetic subunits each with its own storage and partitioned on a functional basis for the simultaneous execution of a plurality of arithmetic steps within the arithmetic unit while a plurality of instructions are simultaneously processed in their flow to the arithmetic unit. The sections of the arithmetic unit are accessible to operand input channels, the arithmetic unit further being partitioned for simultaneous single length operand execution or for double length operand execution.

3,787,674

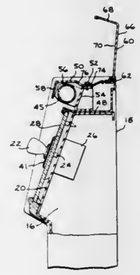
LIGHTED CONTROL CONSOLE WITH LIFT-UP INFORMATION PLATE

Thomas J. Binzer, Louisville, Ky., and Peter H. Wooding, Providence, R.I., assignors to General Electric Company, Louisville, Ky.

Filed Nov. 1, 1972, Ser. No. 302,658

Int. Cl. F21v 33/00

U.S. Cl. 240—2 PA **5 Claims**



An appliance control console having a hollow housing with a front control panel. An electrical lamp is located above the control panel for illuminating the panel. A lamp shield is assembled over the lamp so that the lamp is hidden from view. A hinged cover plate is attached to the housing and it has a first horizontal position superimposed over the lamp shield and a second vertical position for display purposes. The underside of the cover plate is provided with operational information for the controls. The lamp shield includes an opening for directing light rays onto the cover plate when it is in its vertical position for ease in reading the information.

3,787,675

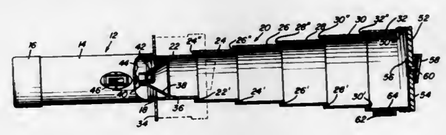
SIGNAL LIGHT

Wilford A. Rushing, 1120 Jefferson, Lockport, Ill., and Robert D. Sulzberger, 22311 Governor's Hwy., Richton Park, Ill.

Filed June 19, 1973, Ser. No. 371,417

Int. Cl. F21l 7/00

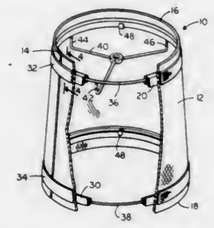
U.S. Cl. 240—10.6 SD **9 Claims**



A base structure is provided from which there is supported a controllable light source operative to case a beam of light outwardly from the base along a predetermined path. The base includes an extendible and retractable tube assembly supported therefrom in alignment with the aforementioned path for receiving the beam of light therethrough and the tube assembly includes a plurality of relatively telescopingly engaged

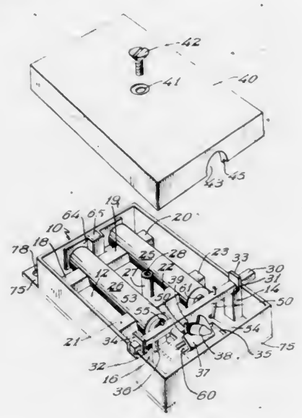
tube sections. An end cap is provided for the outer end of the tube assembly and includes a reflective inner surface for reflecting the beam of light cast thereon from the light source back toward the light source. In addition, the individual tube sections are constructed of color-tinted light transparent material. When the tube assembly is fully collapsed and the end cap is removed, a hand-supportable portable light is defined and when the tube assembly is extended and the end cap is secured over the outer end of the tube assembly an illuminated wand is provided.

3,787,676
COLLAPSIBLE LAMPSHADE
Irving S. Korach, 17135 Gunther St., Granada Hills, Calif.
Filed Oct. 30, 1972, Ser. No. 301,956
Int. Cl. F21v *1/06*
U.S. Cl. 240—108 R **12 Claims**



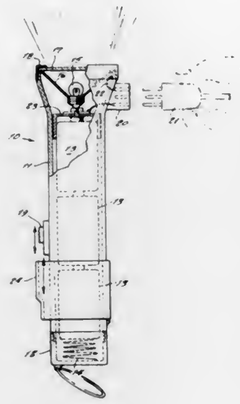
A lampshade comprising an outer covering of a flexible covering material permanently formed into a continuous, open-ended configuration having bonded to the inner surface thereof a set of preformed flexible retainers having endwise directed channels for each detachably receiving a separate wire lampshade hoop to form a collapsible and re-assemblible lampshade.

3,787,677
LOCK AND KEY LIGHT
Bernard A. Molitor, Saint Paul, Minn., assignor to Nu-Pro Corporation, St. Paul, Minn.
Filed Aug. 21, 1972, Ser. No. 282,425
Int. Cl. E05b *17/10*
U.S. Cl. 240—2.13 **3 Claims**



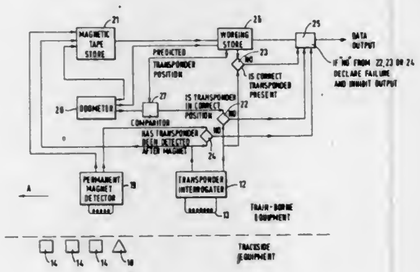
An automatic, door frame mounted, lock and key light having a button operated, battery powered light operable to illuminate the key and lock area upon opening of a screen door or the like. The button is spring loaded with the spring comprising part of the battery power circuit and moving into contact with a battery terminal upon movement of the button.

3,787,678
RECHARGEABLE BATTERY POWERED LIGHT
Robert R. Rainer, 204 Bertly, Moberly, Mo.
Filed Dec. 13, 1972, Ser. No. 314,787
Int. Cl. F21l *7/00*
U.S. Cl. 240—10.6 CH **1 Claim**



An improved flashlight that includes D.C. current dry cell batteries which can be readily replaced or which alternately can be easily recharged without need to be removed from the flashlight case; the device including a receptacle in circuit with the batteries, the receptacle being adaptable to receive a plug on an extension cord that can be connected to either a 6 or 12 volt D.C. direct current outlet such as on an automotive vehicle or portable battery charger.

3,787,679
TRAIN COMMUNICATION SYSTEM
Michael S. Birkin, and William T. Parkman, both of Derby, England, assignors to British Railways Board, London, England
Filed Jan. 26, 1972, Ser. No. 220,991
Int. Cl. B61l *3/00*
U.S. Cl. 246—30 **3 Claims**



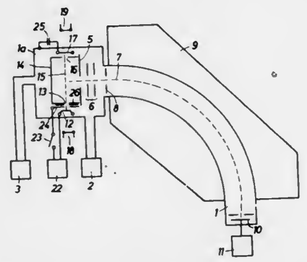
This invention relates to a train communication system in which trackside transponder devices containing coded information as to track gradient, speed restrictions etc, pass this information to receiver equipment on the train on receipt of an activating signal from a transmitter on the train. The system is operative to declare a fault if a transponder, at an expected location for said transponder, fails to respond to the activating signal so as to fail to pass information to the receiver equipment.

3,787,680
CAST STEEL RAILWAY CROSSING
Robert Perrot, Pont-de-Briques, France, assignor to Acieries De Paris & D'Ortreau, Paris, France
Filed June 16, 1972, Ser. No. 263,700
Claims priority, application France, June 21, 1971, 7122452
Int. Cl. E01b *7/10*
U.S. Cl. 246—377 **6 Claims**



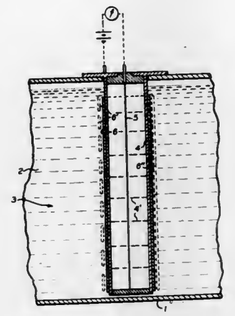
This cast steel crossing with movable point is characterized in that the heel portion of the point is clamped on a triangular boss projecting from the crossing proper on which it can swing from one position to the other position, and that a horizontal key having a part-spherical central portion is provided for holding said heel portion of the point on said crossing boss, in order to eliminate the so-called "gap" section in the central portion of the crossing and therefore avoid the abnormal stress heretofore exerted on the wheel tires on account of the insufficient rolling surface of conventional crossings.

3,787,681
METHOD FOR ANALYSIS BY PRODUCING A MASS SPECTRUM BY MASS SEPARATION IN A MAGNETIC SECTOR FIELD OF A MASS SPECTROMETER UTILIZING IONIZATION OF A SAMPLE SUBSTANCE BY ELECTRON BOMBARDMENT
Curt Brunnee, 282 Platjenwerbe uber Vegesach, Birkenweg, and Hans-Joachim Bultemann, Walliser Strasse 94, Bremen, both of Germany
Continuation-in-part of Ser. No. 817,123, April 17, 1969, abandoned. This application Apr. 14, 1971, Ser. No. 133,823
Int. Cl. H01j *37/08*
U.S. Cl. 250—41.9 SB **1 Claim**



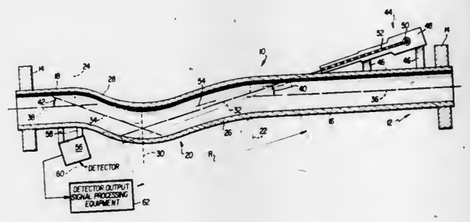
In an analysis of a sample substance by mass spectroscopy, the sample substance is bombarded in a high vacuum chamber by an electron beam to produce ionized mass particles. To minimize ion residence time in the high vacuum chamber, the bombarding electron beam is interrupted at intervals to permit the ionized mass particles to be quickly drawn out of the high vacuum chamber by a suction voltage.

3,787,682
APPARATUS FOR MEASURING THE FILLING LEVEL IN LIQUID RECEIVING CONTAINERS BY MEANS OF RADIO-ACTIVE RAYS
Erich Rudolf Bagge, Kiel; Joachim Trumper, Strande/Kiel, and Joachim Knaak, Erzhausen, all of Germany, assignors to Vdo Tachometer Werke Adolf Schindling GmbH, Frankfurt, Germany
Filed Apr. 29, 1970, Ser. No. 32,892
Claims priority, application Germany, Oct. 21, 1966, 1573106; Dec. 3, 1969, 1960582
Int. Cl. G01n *23/10*; G01t *3/00*
U.S. Cl. 250—43.5 FL **11 Claims**



An apparatus for measuring the volume of hydrogen-containing liquids in containers by means of radioactive rays by feeding energy-rich neutrons from neutron sources into the liquid and the intensity of said rays of the thermal neutrons, braked in the liquid to thermal energies, being measured by means of detectors, which comprises neutron sources and detectors. The neutron sources and the detectors are combined to rod-like measuring sondes, and at least one detector is formed for thermal neutrons as a straight or curved rod. The sources are disposed at least parallel to the axis of the rod selectively continuously or in a predetermined ma er discontinuously.

3,787,683
RADIATION GAUGE FOR MEASURING FLUID DENSITIES
Joseph F. Kishel, Clarks Summit, Pa., assignor to Weston Instruments, Inc., Newark, N.J.
Filed May 24, 1972, Ser. No. 256,315
Int. Cl. G01n *23/12*
U.S. Cl. 250—43.5 D **9 Claims**



A radiation gauge for measuring fluid densities is disclosed, which is particularly useful in monitoring the density of multiple regime fluids flowing through conduits. The gauge includes a radiation source which projects a radiation beam to a detector through a length of conduit or pipe containing a continuous stream of the fluid under investigation. The conduit or

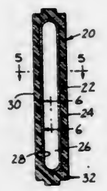
pipe includes a relatively gentle curve in the measuring area in order to minimize the disruption of the flow of fluid within the conduit, and in order to minimize the amount of steel or conduit wall material which must be penetrated by the radiation beam. The path length traversed by the radiation beam is selected to maximize both the magnitude and the signal-to-noise ratio of the output information signal, and to maximize the resolution of the gauge.

3,787,684

BETA ACTIVATED ULTRAVIOLET RADIATION SOURCE SURROUNDED BY A VISIBLE LIGHT PRODUCING FLUORESCENT AGENT

Sampson Isenberg, 2400 N. Lakeview, Chicago, Ill.

Filed Dec. 30, 1970, Ser. No. 102,785
Int. Cl. G01n *23/00*
U.S. Cl. 250—71 R **11 Claims**



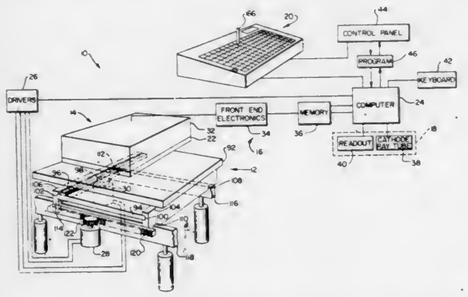
A device having utility as an ultraviolet radiation source comprising a hollow, translucent body formed of an ultraviolet radiation transmitting material. The inner walls of the body define a sealed chamber, and are provided with a thin layer, film, or coating of an ultraviolet radiation emitting phosphor. A low energy beta-electron emitting substance such as tritium is confined within the chamber and is positioned therein to enable the beta-electrons emitted by it to make direct contact with the phosphor. By embedding a fluorescent agent in the material of which the translucent body is formed, or by encapsulating the body in a material containing a fluorescent agent, the device may be utilized to transmit visible light.

3,787,685

ZONE GRID ASSEMBLY PARTICULARLY FOR HIGH RESOLUTION RADIOACTIVITY DISTRIBUTION DETECTION SYSTEMS

Raymond P. Grenier, Wilmington, Mass., assignor to Baird-Atomic, Inc., Bedford, Mass.

Filed May 30, 1972, Ser. No. 258,073
Int. Cl. G01j *39/18*
U.S. Cl. 250—71.5 S **7 Claims**



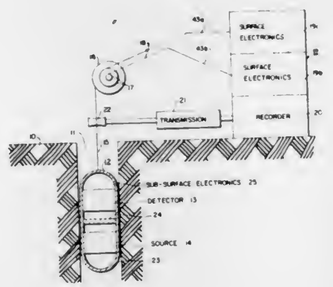
A zone grid assembly for flagging specified X,Y memory locations for accumulated data analysis and for presentation on a display in connection with a radioactivity distribution detection system. The zone grid assembly includes a printed circuit board formed with a plurality of holes and a pair of arcuate conductors disposed diametrically opposite one another about the periphery of each hole. A plurality of electrically conducting and magnetically responsive balls are slidably received within the zone grid assembly in such a manner that each ball is adapted for engagement and disengagement with one pair of conductors. A magnetic stylus held in spaced relationship with the zone grid assembly operates to actuate a ball in registration therewith into engagement with its associated pair of conductors. In consequence, the engaged pair of conductors are electrically connected and a signal denoting a particular X,Y position in the zone grid assembly is applied to the memory for processing, each X,Y grid position corresponding to an X,Y address location in the memory.

3,787,686

METHOD AND APPARATUS FOR LOGGING WELL BOREHOLES WITH GAMMA RAYS FROM THE INELASTIC SCATTERING OF FAST NEUTRONS

Richard B. Culver, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed May 24, 1971, Ser. No. 146,332
Int. Cl. G01v *5/00*
U.S. Cl. 250—83.3 R **32 Claims**



A fast neutron source is periodically switched between a pulsed mode and a continuous mode. A first gamma ray detection interval follows the pulsed mode to provide an indication of the capture gamma rays. A second detection interval occurs during the continuous mode to provide an indication of the capture gamma rays plus the gamma rays resulting from the inelastic scattering of fast neutrons. The first indication is subtracted from the second, resulting in an indication solely of the gamma rays from inelastic scattering. The pulses occurring in such intervals are further subjected to energy discrimination which provides information relating to carbon and oxygen content, such information being used with a ratio circuit to provide a carbon/oxygen ratio. In another embodiment, a pair of neutron sources, one pulsed, one continuous, provide analogous results. In still another embodiment, the borehole is first logged with a pulsed source and then later with a continuous source. In yet another embodiment, a shielding, rotating disk having alternate short and long windows is used between an alpha particle source and a neutron emitter to simulate the pulsed and continuous modes.

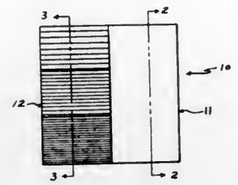
3,787,687

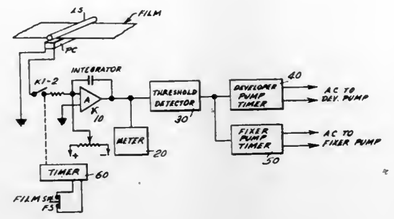
ULTRAVIOLET RADIATION DOSIMETER

Terry M. Trumble, 5718 Rockingham Dr., Dayton, Ohio

Filed Feb. 23, 1972, Ser. No. 228,644
Int. Cl. G01t *1/04*
U.S. Cl. 250—83 CD **13 Claims**

An ultraviolet radiation dosimeter is provided that comprises a transparent or white film containing a 1,3,3-trimethylindolinobenzopyrylospiran and adjacent to the film a color chart having at least two shades of the color to which the substituted spiropyran changes upon exposure to ultraviolet radiation.





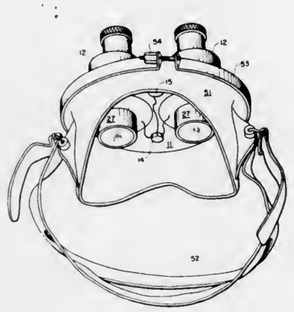
The exposure density accumulated by the integrator is applied to a threshold detector which controls a developer-replenisher-pump timer and a fixer-replenisher-pump timer. Developer and fixer replenisher bypasses are provided as well as a double replenisher option.

3,787,688

LOW LIGHT LEVEL, UNDERWATER, VIEWING DEVICE

Robert L. Stone, Oxon Hill, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 12, 1972, Ser. No. 262,165
Int. Cl. H01j *39/12*
U.S. Cl. 250—213 VT **6 Claims**



An underwater viewing system is described which provides enhanced viewing by means of an image intensification tube. The unit is binocular and permits wide angle direct viewing as well as the more narrow intensified field of view best suited for submerged operation at night or in a low light environment.

3,787,689

EXPOSURE SCANNER AND REPLENISHER CONTROL

David Fidelman, Roslyn Heights, N.Y., assignor to Henry Hope X-Ray Products, Inc., Huntington Valley, Pa.

Filed May 16, 1972, Ser. No. 253,789
Int. Cl. G01n *21/30*
U.S. Cl. 250—219 FR **13 Claims**

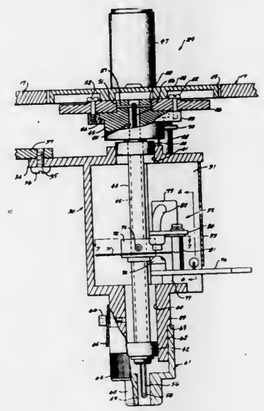
Apparatus for automatically replenishing developer and fixer solution in an automatic photographic film processor in response to accumulated exposure density of processed film. The exposure of the continuously moving film is electronically scanned at the dryer exit. The scanner, whose timing cycle is responsive to the film speed, controls the transmission of exposure signals from the scanner photocell to an integrator.

3,787,690

TENSION TRANSDUCER

Joseph J. Neff, Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Dec. 17, 1971, Ser. No. 209,173
Int. Cl. G01d *5/34*; **B65h** *25/22*; **G65h** *25/10*
U.S. Cl. 250—231 R **1 Claim**

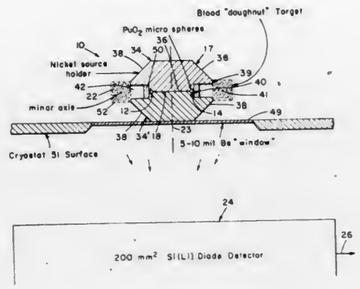


A strip tension transducer includes a pair of strip guide rollers around which strip material, in which tension is to be measured, is passed so that the strip path is through the axis of rotation of a guide roller carrier which has its axis parallel to and midway between the axes of the guide rollers. Resilient bias means are coupled to the carrier for biasing it to rotate toward a limit of its rotation against strip tension forces applied to the guide rollers. The bias means are disposed coaxially of the carrier and are adjustable for varying the bias force applied to the carrier. An electro-optical signal generator is coupled to the carrier for generating a signal indicative of the angular position of the carrier.

3,787,691
SOURCE HOLDER COLLIMATOR FOR ENCAPSULATING RADIOACTIVE MATERIAL AND COLLIMATING THE EMANATIONS FROM THE MATERIAL

Gerard R. Laurer, Monroe, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 31, 1973, Ser. No. 328,154
Int. Cl. G01r 23/22
U.S. Cl. 250—272 10 Claims

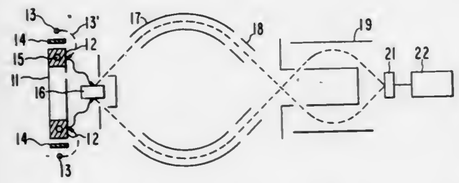


This invention provides a transportable device capable of detecting normal levels of a trace element, such as lead in a doughnut-shaped blood sample by X-ray fluorescense with a minimum of sample preparation in a relatively short analyzing time. In one embodiment, the blood is molded into a doughnut-shaped sample around an annular array of low energy radioactive material that is at the center of the doughnut-shaped sample but encapsulated in a collimator, the latter shielding a detector that is close to the sample and facing the same so that the detector receives secondary emissions from the sample while the collimator collimates the primary emissions from the radioactive material to direct these emissions toward the sample around 360° and away from the detector.

3,787,692
INDUCED ELECTRON EMISSION SPECTROMETER USING PLURAL RADIATION SOURCES

Weston A. Anderson, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed May 17, 1971, Ser. No. 144,106
Int. Cl. H01j 37/26
U.S. Cl. 250—305 11 Claims

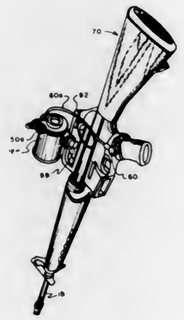


An induced electron emission spectrometer wherein different sources are employed to irradiate the sample from different energy sources to permit the operator to distinguish the photoelectron emission lines from the Auger electron emission lines. In one embodiment, the X-ray source employs two different X-ray energy emitting materials with means for selectively energizing one or the other of said materials to irradiate the sample under investigation with selective X-ray energies. In another embodiment the sample is first irradiated with X-rays and thereafter irradiated with electrons. In another embodiment, an X-ray source and then an ultraviolet radiation source are used.

3,787,693
BORESIGHT ALIGNMENT DEVICE

Robert L. Stone, Oxon Hill, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 14, 1972, Ser. No. 315,064
Int. Cl. G01t 1/16
U.S. Cl. 250—330 5 Claims



A means for zeroing a small caliber weapon on a target at night without firing the weapon. The means comprises using a boresight alignment light emitting a continuous infrared light that is mounted on a tapered mandrel with the mandrel inserted into the muzzle end of the weapon, an aiming light mounted on the weapon emitting intermittent pulses of infrared light, and a night viewing scope head worn by the weapon operator. The operator zeros the weapon on the target by superimposing the continuous and intermittent pulses of light onto each other. The operator aligns both lights by adjustment screws on the housings of the boresight alignment light and the aiming light.

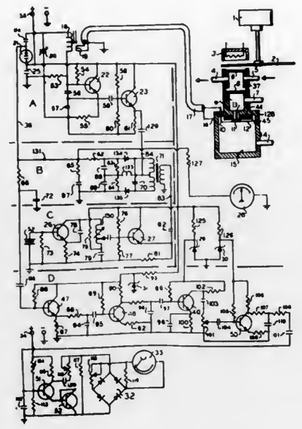
3,787,694
FLUIDIC DETECTOR FOR THE DETECTION OF RADIANT ENERGY AND FOR THE ANALYSIS OF GAS MIXTURES

Kenneth Owen, 6201 Hibbling Ave., Springfield, Va.

Continuation-in-part of Ser. No. 38,005, May 18, 1970, abandoned. This application July 11, 1972, Ser. No. 270,748
Int. Cl. G01n 21/26
U.S. Cl. 250—338 23 Claims

A radiation detector and gas analyzer of the kind wherein radiant energy is directed along one or more beam-paths into a corresponding number of detector cells containing substances selectively responsive to the radiant energy. Gas is free to flow from one compartment of the detector cell to the other and this flow is used to actuate a sensing element which consists of a variable inductance or capacitance actuated by a vane placed in the path of the gas flow between compartments of the detector cell. The sensing element is made a part of the frequency determining network of an electronic oscillator, and this oscillator is connected with a reference oscillator in

phase-lock loop so that when the sensing element moves and causes detuning of the detector oscillator, servo corrective

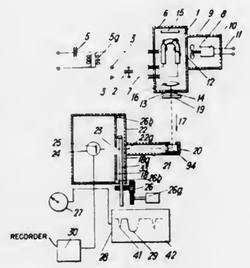


voltages are produced in the phase lock circuit which are proportional to the movement of the sensing element and thus an electrical output is produced which is measured or recorded.

3,787,695
SAMPLE IDENTIFICATION BY MEASUREMENT OF WAVELENGTH OF LUMINESCENCE UTILIZING PLASMA DISCHARGE LAMP EXCITATION AND CONTINUOUS INTERFERENCE FILTER

Michael Anthony West, Orpington, England, assignor to The Royal Institution of Great Britain, London, England

Filed Sept. 15, 1971, Ser. No. 180,628
Claims priority, application Great Britain, Sept. 17, 1970, 44524/70
Int. Cl. G01n 23/00
U.S. Cl. 250—365 10 Claims

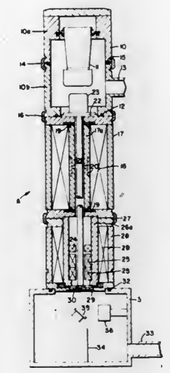


In an apparatus for detecting the intensity of luminescence at various wavelengths emitted by a sample under test, the sample is excited by light from a plasma discharge flash lamp coupled to an electrical supply circuit including means for storing electrical energy and repeatedly discharging rapidly the stored energy to produce flashes of high peak intensity over a continuous range of wavelengths in the exciting wavelength region. A continuous interference filter is movable across the path of luminescence from the sample to a detector for analysing the wavelength of luminescence emittal.

3,787,696
SCANNING ELECTRON MICROSCOPE ELECTRON-OPTICAL COLUMN CONSTRUCTION

James Dao, Alameda, and Nelson C. Yew, Los Altos, both of Calif., assignors to ETEC Corporation, Hayward, Calif.

Continuation-in-part of Ser. No. 75,899, Sept. 28, 1970, abandoned. This application Mar. 15, 1972, Ser. No. 234,977
Int. Cl. H01j 37/26; G01n 23/00
U.S. Cl. 250—311 15 Claims

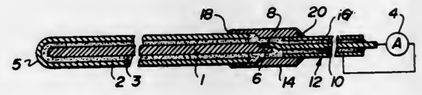


A scanning electron microscope in which the electron-optical column is formed by a plurality of magnetic coils disposed around a removable tube, an electron beam being directed axially through the tube. The tube is suitably sealed at respective ends to the electron gun and specimen-containing portions of the electron-optical column, and thus functions to contain the vacuum thereon. Preferably, the tube comprises a thin, non-magnetic stainless steel tube having a wall thickness of less than 10 mils, to prevent electrostatic charging while minimizing eddy current losses. Alternatively, the tube may comprise a thin metallic layer or inner tube within an insulating, reinforcing outer tube, to impart strength and rigidity to the tube structure.

3,787,697
NEUTRON AND GAMMA FLUX DETECTOR

Ross Bisbee Shields, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Oct. 8, 1971, Ser. No. 187,769
Claims priority, application Canada, Jan. 19, 1971, 103078
Int. Cl. G01t 3/00
U.S. Cl. 250—390 1 Claim



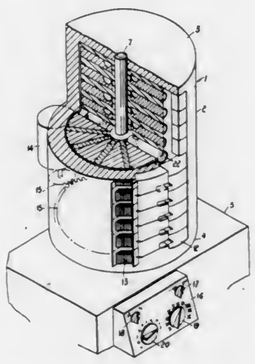
A neutron and gamma flux detector having a prompt response in providing an electrical current when disposed in neutron and gamma flux is provided, comprising a central emitter of platinum, cerium, osmiun or tantalum, compressed magnesium oxide electrical insulation around the emitter, and an Inconel outer tubular collector enclosing the emitter and spaced from it by the electrical insulation.

3,787,698
RECORDING OF FAST NEUTRON IMAGES
John J. Antal, Framingham, and Robert L. Becker, Ashland, both of Mass., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 11, 1972, Ser. No. 296,685
Int. Cl. G03b 41/16
U.S. Cl. 250—473 4 Claims



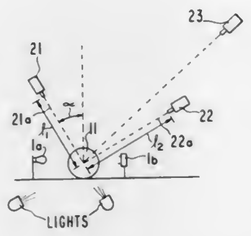
The formation of a permanent image of a fast neutron beam on cellulose nitrate film. The cellulose nitrate film is positioned between a converter film made of a suitable hydrogen-containing material, such as polyethylene, and the assembly attached to a back plate of aluminum. The neutron exposure is made with the neutrons impinging on the uncovered polyethylene face. Elastic scattering of fast neutrons by the nuclei of the hydrogen atoms in the polyethylene film produces protons which travel into the cellulose nitrate, leaving sensitized spikes therein. The cellulose nitrate film is etched by suspending in a sodium hydroxide solution and the image on the dry film viewed by transmitted light with the light source off the viewing axis.

3,787,699
ROTARY DRUM FOR STORING RADIO-ACTIVE OBJECTS
Surkes Menachem, Rishon-Lezion; Ivan Kis, Tel-Aviv, and Rosental Nathan, Givataim, all of Israel, assignors to The State of Israel, Atomic Energy Commission, Tel-Aviv, Israel
Filed June 24, 1971, Ser. No. 156,262
Claims priority, application Israel, Aug. 19, 1970, 35130
Int. Cl. G21h 5/00
U.S. Cl. 250—507 3 Claims



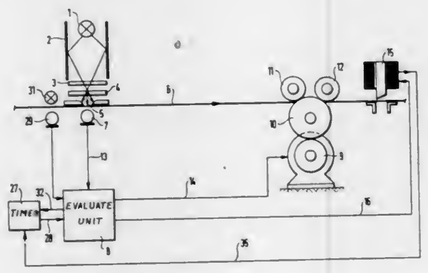
Apparatus for the storage of radio-active objects, such as, for example, radio-active needles or the like, comprising a cylindrical drum mounted for rotation about its axis within a cylindrical casing, a first plurality (m) of axially spaced tiers of radially directed cavities formed in said drum so as to join a second plurality (n) of radially spaced apart columns of cavities, an elongated opening formed in the casing, means for rotatably displacing the drum so as successively to bring successive cavity columns opposite said opening and a first plurality (m) of individual closure means associated with said opening and respectively adapted to close the cavities otherwise exposed by the opening.

3,787,700
AUTOMATIC SYSTEM FOR MEASURING SELECTED DIMENSIONS
Leon H. Chasson, Santa Clara, Calif., assignor to Atmospheric Sciences, Incorporated, Los Altos, Calif.
Filed July 27, 1971, Ser. No. 166,418
Int. Cl. G07b 11/10
U.S. Cl. 250—560 21 Claims



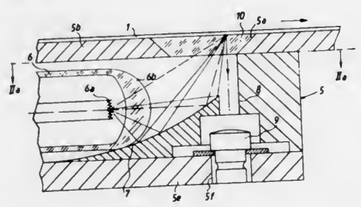
A plurality of discrete marker sensors and a multiplicity of linear arrays are used to measure selected dimensions of passing objects. One linear array is used in conjunction with selected marker sensors to measure the lengths of objects and the remaining marker sensors and linear arrays are used to measure selected dimensions of objects perpendicular to their lengths. The system is particularly useful in measuring the lengths and selected diameters of logs.

3,787,701
METHOD OF AND APPARATUS FOR DETECTING THE IMAGE FIELDS CONTAINED ON A STRIP OF FILM
Kurt Thaddey, Buchs/ZH, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland
Filed July 8, 1971, Ser. No. 160,609
Claims priority, application Switzerland, July 9, 1970, 10380/70; June 18, 1970, 7827/70
Int. Cl. B26d 5/34
U.S. Cl. 250—561 22 Claims



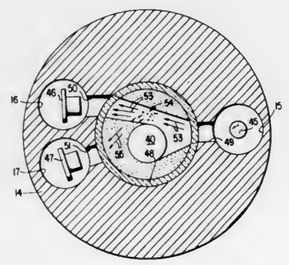
A film strip is moved lengthwise from a position at which the light transmission of the strip is measured to a punching station at which a predetermined type of mark or notch is formed in the film. The light transmission is measured by passing a beam of light through the film onto a number of photocells coupled to electronic circuits which binary code the signals from the cells. Those signals which exceed a predetermined first threshold value are allocated one binary signal and the simultaneous occurrence of such binary signals is taken to indicate the beginning or end of an image frame on the strip, the indication being subsequently utilised to activate the punching station.

3,787,702
APPARATUS FOR DETECTING AND EVALUATING INDICIA ON PROCESSED PHOTOGRAPHIC FILM OR THE LIKE
Friedrich Hujer, and Walter Knapp, both of Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 1, 1971, Ser. No. 176,924
Claims priority, application Germany, Sept. 5, 1970, 2044116; Sept. 5, 1970, 7033182
Int. Cl. G01n 21/30
U.S. Cl. 250—561 21 Claims



Graphite marks at one side of a travelling web of processed photographic film are tracked by a battery of photosensitive detectors each of which scans a discrete strip-shaped section of the web. The output signals from the light-sensitive elements of the detectors are transmitted to an OR-gate which controls an operational amplifier serving to arrest the web in response to detection of a mark by at least one detector. The width of the strip-shaped sections which are scanned by the detectors is a small fraction of the width of a graphite mark. The operational amplifier does not arrest the web when the detectors detect indicia other than the graphite marks which are applied to the web in order to insure stoppage of the web whenever a frame line between two film frames moves into register with a severing device.

3,787,703
OPTICAL SENSING SAMPLING HEAD
George J. Topol, Silver Spring, Md., assignor to Biospherics Incorporated, Rockville, Md.
Filed May 25, 1972, Ser. No. 256,821
Int. Cl. G01n 21/26
U.S. Cl. 250—574 9 Claims

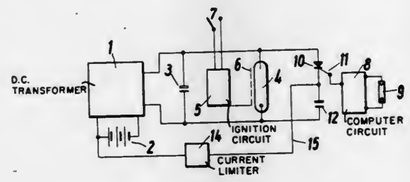


An optical sensing head which can be used with a probe and immersed in fluids and which operates to detect direct and refracted light transmission characteristics of the fluid and provide electrical signals representative thereof for further analysis. The apparatus includes a glass tube surrounded by an opaque cylindrical body having compartments to hold a light source and two photocells. The source and photocells lie in the same plane which is transverse with respect to the tube axis. An occluding pin is non-centrally disposed within the tube and is spaced from the interior walls of the tube. The body which holds the photocells and light source has openings which permit light from the source to illuminate the interior of the tube and which permits the photocells to sense light coming from within the tube, substantially all ambient light being excluded by the opaque body. The angular relationship of the openings to the photocells and source is critical, the path between one photocell and the light source being in a direct line with the occluding pin so that no light can pass directly from the source to that photocell. The other photocell, however, is disposed so that there is a direct linear light path between the source and that photocell. Thus, one cell receives direct light transmission and the other cell receives light only as a result of reflection and refraction by a fluid placed in the space in the plane containing the photocells. The apparatus includes a piston which surrounds the occluding pin within the tube and which is mounted for reciprocating movement therein to alternately block and unblock the light paths, draw fluid samples into the tube and then expel the samples, and to wipe the interior of the tube and the exterior of the occluding pin clean with sealing rings carried by the piston on each reciprocating motion. In a preferred embodiment the head is mounted on an elongated cylindrical housing so that it can be immersed to any desired depth in a body of fluid and can be cyclically driven to monitor the light transmission characteristics of the fluid while immersed.

ERRATA

For Classes 307—41 thru 315—169 TV see:
Patents Nos. 3,787,728 thru 3,787,753

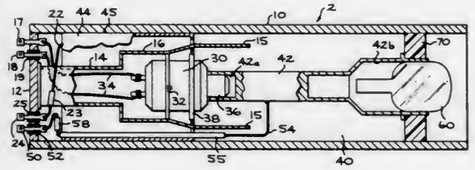
3,787,704
ELECTRONIC FLASH UNIT WITH CONTROLLED LIGHT ENERGY
Rolf Dieter Dennewitz, and Walter Schmidt, both of Berlin, Germany, assignors to Loewe-Opta GmbH, Kronach, Germany
Filed Feb. 16, 1971, Ser. No. 115,383
Claims priority, application Germany, Feb. 20, 1970, 2008801
Int. Cl. H05b 37/00, 41/32
U.S. Cl. 315—241 P 1 Claim



In an electronic flash unit circuit arrangement there is provided an electronic flash tube with a shunt circuit lying in parallel to said tube and becoming conductive in dependence on the quantity of light reflected from the subject to be photographed and then short-circuiting said flash tube. This shunt circuit comprises a series connection of an electronic switch element controllable by a control circuit operated by said reflected light quantity and of one or several auxiliary capacitors which take up the excess energy from the storage capacitor whose charge energizes said flash tube. This storage capacitor may be short-circuited by means of a switch or it

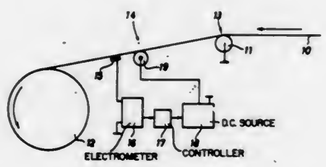
may be used for improving the energy balance of the entire flash circuit arrangement.

3,787,705
MICROWAVE-EXCITED LIGHT EMITTING DEVICE
Larry R. Bolin, Owensboro, Ky., and Shelby A. Jolly, Rockport, Ind., assignors to General Electric Company, Owensboro, Ky.
Filed Apr. 28, 1972, Ser. No. 248,477
Int. Cl. H05b 41/24
U.S. Cl. 315—248 4 Claims



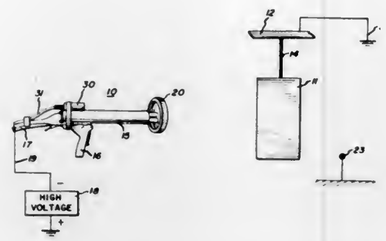
A microwave-excited light emitting device is provided comprising an electrodeless evacuated discharge lamp containing ionizable elements mounted in the frequency determining resonator of a microwave oscillator. The oscillator resonator is tuned to provide a microwave energy at a frequency sufficiently high to provide ionization and excitation of the elements within the electrodeless discharge lamp while mitigating deleterious ion bombardment of the walls of the electrodeless discharge lamp. By placing the lamp in the oscillator resonator any changes in the electrical characteristics of the lamp after firing will cause a frequency shift in the oscillator allowing the lamp and oscillator to remain in tuned relationship.

3,787,706
APPARATUS FOR THE CONTROL OF CHARGE ON A MOVING WEB
Wilfried Florent De Geest, Berchem, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium
Filed May 3, 1971, Ser. No. 139,745
Claims priority, application Great Britain, May 4, 1970, 21,365/70
Int. Cl. H05f 3/00
U.S. Cl. 317—2 R 2 Claims



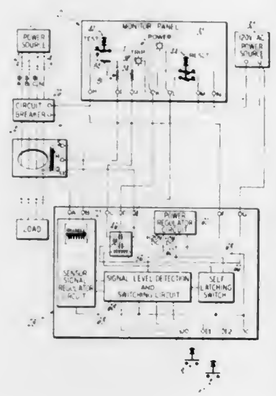
A method for controlling electrostatic charges on a web, wherein the web is pulled over a metal roller which is connected to a D.C. voltage supply, the electrostatic field of the web is measured, and the voltage supply is controlled as a function of the measured field to produce a voltage of a polarity whereby the electrostatic field produced by the web is greatly neutralized.

3,787,707
SPARK DETECTOR APPARATUS AND METHOD
Paul S. Gregg, Indianapolis, Ind., assignor to Ransburg Electro-Coacting Corp., Indianapolis, Ind.
Continuation of Ser. No. 77,299, Oct. 1, 1970, abandoned.
This application May 16, 1973, Ser. No. 360,896
Int. Cl. H02h 3/14
U.S. Cl. 317—9 R 7 Claims



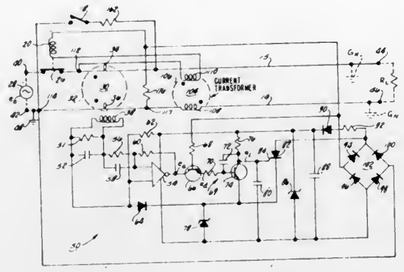
A spark detector for electrostatic coating apparatus which distinguishes disruptive discharges in the electrostatic system from a corona discharge or random sparking of other electrical equipment. A frequency selective radio wave receiver is connected with an envelope detector, the output of which is analyzed to detect the presence of repetitive discharges.

3,787,708
MONITOR SYSTEM FOR GROUND FAULT RELAY
Charles F. Hobson, Jr., Southington, Conn., assignor to General Electric Company, New York, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,537
Int. Cl. H02h 3/26
U.S. Cl. 317—18 D 6 Claims



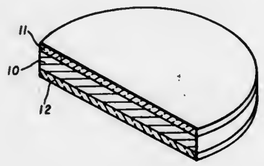
A ground fault responsive protection system having a ground fault trip relay operable by a ground fault current sensor for operating a circuit interrupter when the ground fault current reaches a pre-established trip level and a monitoring system operable for testing the operation of the ground fault trip relay with selective operation of the circuit interrupter.

3,787,709
GROUND FAULT-SENSITIVE DETECTOR AND CIRCUIT BREAKER DEVICE
Ronald J. Coe, Huntsville, Ala., assignor to SCI Systems, Inc., Huntsville, Ala.
Filed Dec. 13, 1971, Ser. No. 207,288
Int. Cl. H02h 3/26
U.S. Cl. 317—18 D 10 Claims



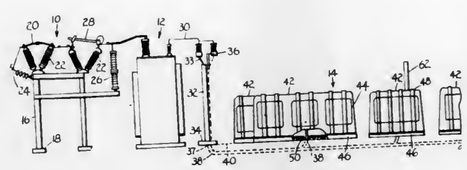
The device detects "ground faults" (short circuits to ground) in electrical wiring systems such as those used in household or factory wiring. The device causes disconnection of power if the fault current exceeds a relatively low value such as 5 milliamperes so as to minimize shock damage to the human being or other object causing the short circuit. Means are provided for detecting the grounding of the "hot" wire and/or the neutral wire at a point between the device and the load. A transformer with oppositely-wound primary windings, each connected in one of the lines, is connected in a bridge circuit in which the transformer normally is unbalanced. A ground fault adds the fourth leg to the bridge, balances the bridge, and a detector circuit causes the circuit breaker to open the line. The device also includes means for making it relatively insensitive to quadrature leakage currents; i.e., leakage currents which either lead or lag the alternating line current by 90°. This reduces the likelihood of "false tripping" of the device. A current transformer with its secondary winding in the neutral line and an independent source for energizing the primary winding helps make the device quite small in size and relatively inexpensive to manufacture.

3,787,710
INTEGRATED CIRCUIT STRUCTURE HAVING ELECTRICALLY ISOLATED CIRCUIT COMPONENTS
James A. Cunningham, 8434 Gladwood Ln., Richardson, Tex.
Division of Ser. No. 468,196, June 30, 1965. This application Jan. 25, 1972, Ser. No. 220,653
Int. Cl. H01l 19/00
U.S. Cl. 317—101 A 8 Claims



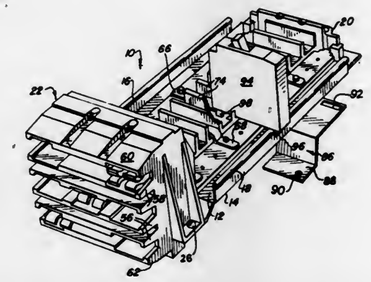
A method of fabricating an integrated circuit having interconnected circuit components adjacent one surface of a semiconductor body having its opposite surface disposed upon an insulating layer on a substrate wherein the semiconductor material between the circuit elements is removed to form a moat or channel between the circuit elements and electrically isolate them from one another by the space remaining after the removal and the insulating layer.

3,787,711
ELECTRICAL POWER SUBSTATION
William L. Bright, 605 S.W. Curry St., Portland, Oreg.
Filed Sept. 11, 1972, Ser. No. 287,752
Int. Cl. H02b 1/20
U.S. Cl. 317—103 8 Claims



An electrical power substation including a primary side, transformer means, and a secondary side. The primary side comprises a deadend tower to which the incoming lines are attached. The secondary side has a plurality of electrically insulated enclosures mounted on base pads. The enclosures house necessary elements on the secondary side with all bus work therebetween in underground cable.

3,787,712
PLUG-ON CIRCUIT BREAKER MOUNTING DEVICE, PLUGGABLE ONTO A BUS BAR STACK FOR RELATIVELY LARGE PLUG-ON CIRCUIT BREAKERS AND INCLUDING MEANS FOR MOUNTING RELATIVELY SMALL PLUG-ON CIRCUIT BREAKERS NOT PLUGGABLE DIRECTLY ONTO THE BUS BAR STACK
Raymond A. Diersing, Lexington, Ky., assignor to Square D. Company, Park Ridge, Ill.
Filed Oct. 17, 1972, Ser. No. 298,316
Int. Cl. H02b 1/04
U.S. Cl. 317—119 2 Claims

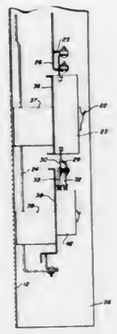


An electrical switchboard includes an enclosure and a plurality of flat bus bars arranged in a stack with flat sides parallel to a rear wall of the enclosure. Power is supplied to the bus bars through a main circuit breaker and fed to relatively large loads through relatively large circuit breakers pluggable onto the edges of the bus bars. Relatively small loads are fed through relatively small circuit breakers mountable on a mounting device which can be plugged onto the edges of the bus bars.

3,787,713
SERVICE SECTION SWITCHBOARD WITH HORIZONTALLY EXTENDING BUS BAR STACK AND MEANS FOR MOUNTING SOME CIRCUIT BREAKERS WITH LOAD TERMINALS FACING VERTICAL WIRING TROUGH AND OTHER CIRCUIT BREAKERS WITH LOAD TERMINALS FACING HORIZONTAL WIRING TROUGH

Raymond A. Diersing; Robert J. Morrill, and Harris I. Stanback, all of Lexington, Ky., assignors to Square D. Company, Park Ridge, Ill.

Filed Oct. 17, 1972, Ser. No. 298,320
Int. Cl. H02b *1/04*
U.S. Cl. 317—119 **4 Claims**



A box of the switchboard is generally of floor-to-ceiling height and contains an upper bussed current transformer compartment with provision for a watt-hour meter. A lower compartment contains a horizontally extending stack of bus bars fed by a main circuit breaker disposed adjacent one end and on the upper side of the stack. Branch circuit breakers for relatively large loads may be plugged on the bus bars from the lower side of the stack and the load wires extended therefrom toward the bottom of the box. If desired, branch circuit breakers for relatively small loads can be accommodated by distribution panels plugged on the bus bars adjacent the other end of stack from the main circuit breaker. The smaller branch circuit breakers can then be plugged on the distribution panels and the load wires run therefrom toward a side of the box.

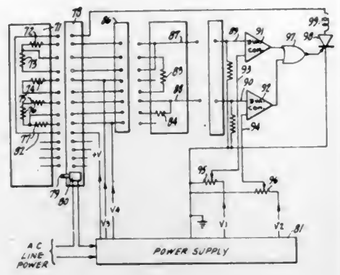
3,787,714
ELECTRONIC LOCK AND KEY SYSTEMS EMPLOYING PAIRED KEY AND MASTER CODING MODULES

Sam L. Resnick, 15-43 200th St., Bayside, N.Y., and Stephen Berens, Peekskill, N.Y., assignors to said Sam L. Resnick, by said Stephen Berens

Filed Aug. 25, 1972, Ser. No. 283,846
Int. Cl. E05b *49/00*
U.S. Cl. 317—134 **8 Claims**

There is disclosed an electronic key and lock system for activating an electric latch when a valid key is inserted into a key receiving receptacle. The system is energized by the insertion of the key into the receiving receptacle to energize both the key and a master coding card to cause a correlation sequence to be implemented to determine whether information contained on the key is valid by comparing this information with predetermined information on the master coding card.

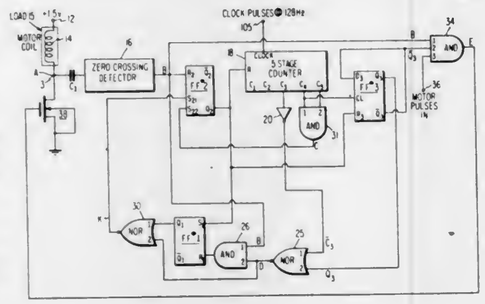
Various embodiments utilize key cards having light accommodating apertures operative in conjunction with photodetectors, key cards having electrical components operative in conjunction with voltage comparators and cards employing frequency determining elements.



3,787,715
CONTROL CIRCUIT EMPLOYING DIGITAL TECHNIQUES FOR LOADS SUCH AS BALANCE WHEEL MOTORS

Sargent Sheffield Eaton, Jr., Warren, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 284,907
Int. Cl. H02k *33/00*
U.S. Cl. 318—130 **9 Claims**



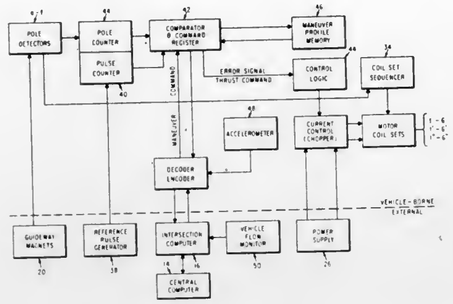
A circuit for supplying current pulses to a load which, for example, may be the coil of balance wheel motor, in response to selected control pulses derived from said coil and for inhibiting the supply of said current pulses in response to other pulses derived from said coil, where said other pulses include at least two closely spaced pulses and occur during the time interval between said selected control pulses.

3,787,716
LINEAR PULSED D.C. MOTOR AND CONTROLS THEREFOR

Robert C. La France, Los Angeles, Calif., assignor to The Aerospace Corporation, Los Angeles, Calif.

Filed Feb. 16, 1972, Ser. No. 226,749
Int. Cl. H02k *41/02*
U.S. Cl. 318—135 **8 Claims**

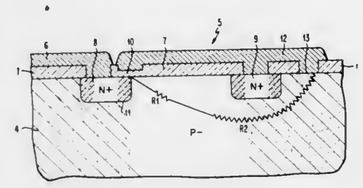
A linear D. C. motor for a track guided vehicle, the motor stator consisting of a series of uniformly spaced permanent magnets mounted along the track acting in conjunction with a vehicle attached elongated "rotor." A series of D. C. excited coils in slots across the face of the rotor react with the air gap flux between the magnets and the rotor to propel the vehicle. Automatic controls are provided to sequence excitation of the coils and control coil current to maintain precise selected vehicle velocity and position and also to respond to commands to incrementally change vehicle position with respect to another vehicle traveling at the same velocity and to effect other vehicle operations.



3,787,717
OVER VOLTAGE PROTECTION CIRCUIT LATERAL BIPOLAR TRANSISTOR WITH GATED COLLECTOR JUNCTION

Walter Fischer, Herrenberg-Affstaett, Germany; Aldo Josef Mastal, Zuerich, Switzerland, and Edouard Yves Rocher, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 9, 1971, Ser. No. 206,361
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R **3 Claims**

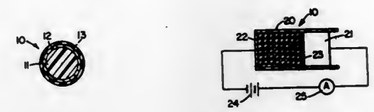


An over voltage protection circuit, especially adapted for the protection of field effect transistor gate dielectric material and other circuit structures against high voltage, high peak current, short duration impulses such as produced by static electricity. The gate of the protected FET is shunted to ground by a lateral bipolar transistor whose collector junction is passivated by a layer of silicon dioxide thinner than the passivation layer at other locations. The silicon dioxide layer is covered by a metallization layer which extends from above the collector junction and makes contact to the emitter and to the substrate. The substrate contact is connected to a source of fixed potential. The collector is connected to the gate of the protected FET.

3,787,718
SPHERICAL ELECTRONIC COMPONENTS

James A. Patterson, Santa Clara, Calif., assignor to Sondell Research & Development Co., Palo Alto, Calif.

Division of Ser. No. 731,241, May 22, 1968, abandoned. This application Aug. 8, 1972, Ser. No. 280,001
Int. Cl. H01l *5/00*; **H05b** *33/00*
U.S. Cl. 317—234 R **7 Claims**

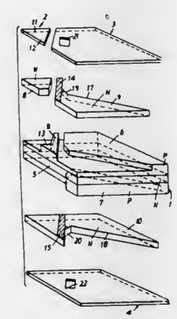


Electronic components are constructed from a solid spherical core of electrically nonconducting material such as a stabilized cross-linked copolymer plastic. The spherical core is coated with a plurality of concentric electrically functional layers to provide a variety of electronic components such as resistors and capacitors having pressure sensitive electrical characteristics. More complex electronic components such as transistors, thermistors, rectifiers and thermocouples may be provided depending upon the configuration and composition of concentric layers on the spherical core. A plurality of spheres may be combined in a pressure chamber to provide a variety of transducers and detectors such as a pressure transducer, photosensitive detector, infrared detector or memory cell bank.

3,787,719
TRIAC

Thomas Alexander Anderson, London, England, assignor to Westinghouse Brake English Electric Semi-Conductors Limited, London, England

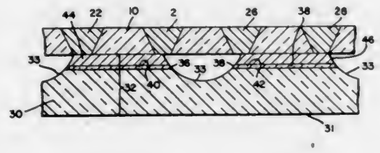
Filed Nov. 10, 1972, Ser. No. 305,577
Int. Cl. H01l *11/10*
U.S. Cl. 317—235 R **4 Claims**



A triac element, in plan view, has a first portion of each emitter region lying one over the other and a second portion of each emitter region spaced one from the other by a distance sufficiently greater that, in operation, carriers attempting to cross the space between the second portions re-combine before succeeding in crossing. The element has metallized contacts at least one of which is in ohmic contact with one of the emitter regions, and that contact has therein an aperture of dimensions comparable to that of the spacing between the second portions of the emitter regions and, in plan view, is located in line with those portions of the emitter regions which

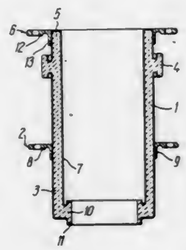
interconnect the first and second portions of each emitter region. There may be two such metallized contacts, one in ohmic contact with each of the emitter regions.

3,787,720
SEMICONDUCTOR VIDICON AND PROCESS FOR FABRICATING SAME
David A. Kiewit, Santa Monica, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Mar. 28, 1973, Ser. No. 345,631
Int. Cl. H01l *15/00, 17/00*
U.S. Cl. 317—235 R **11 Claims**



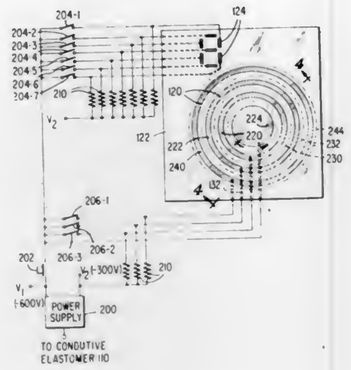
Disclosed is a semiconductor vidicon target structure and process for fabricating same wherein ohmic contact is made to active PN junction image sensing areas of the structure by means of a novel insulating interlayer through which a large plurality of highly packed metal pin connections extend. A very high packing density for these pin connections is achieved by the use of a selective anisotropic etch-out, metal backfill and lap or etch back process on a single crystal insulating wafer to obtain this thin interlayer. This interlayer eliminates the necessity for selective shielding of the vidicon semiconductor target structure with a dielectric coating or the like.

3,787,721
HIGH-VOLTAGE CAPACITOR
Vladislav Aloizovich Gedzjun, ulitsa Olminskogo, 16, kv. 50, and Petr Antipovich Yakovlev, ulitsa Vavilovykh, 15, korpus 1, kv. 21, both of Leningrad, U.S.S.R.
Filed Oct. 24, 1972, Ser. No. 300,304
Int. Cl. H01g *1/08*
U.S. Cl. 317—242 **1 Claim**



A high-voltage capacitor of high reactive power is disclosed said capacitor comprising a tube made from a dielecric material with an outward and an inward insulating projections and an external and an internal plates connected to leads on the outer surface of said tube the leads being in the form of flanges with contact plates.

3,787,722
PRINTING APPARATUS
William Alden Hatsell, Wayland, Mass., assignor to RCA Corporation, New York, N.Y.
Continuation of Ser. No. 204,891, Dec. 6, 1971, abandoned.
This application Nov. 16, 1972, Ser. No. 307,016
Int. Cl. G03g *15/00*; **G01d** *15/06*
U.S. Cl. 317—262 A **8 Claims**



Adjacent pattern-shaped electrographic electrodes are in motion in a plane parallel to the recording medium during the time they apply a charge to the medium. With the motion in a suitable pattern, such as an orbital pattern, the charge pattern laid down by an electrode may be spaced from that of an adjacent electrode less than the distance between these electrodes. Operating in this way makes it possible to have two adjacent electrodes spaced a sufficient distance from one another to avoid voltage breakdown between these electrodes, when one electrode is on and the other off, but still permits the respective charged patterns produced by these electrodes, when they are both on, to be closer than this distance to one another or even to overlap.

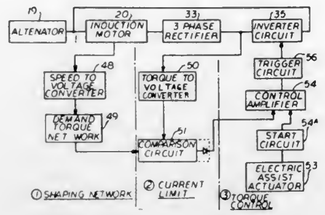
ERRATA

For Classes 318—130 and 318—135 see:
Patents Nos. 3,787,715 and 3,787,716

3,787,723
VEHICULAR DRIVE SYSTEM WITH ELECTRIC ASSIST
Lee T. Magnuson, Davenport, Iowa, and Alexander Kusko, Newton Centre, Mass., assignors to Deere & Company, Moline, Ill.
Division of Ser. No. 730,541, May 20, 1968. This application Mar. 2, 1970, Ser. No. 20,262
Int. Cl. H02p *5/28*
U.S. Cl. 318—230 **10 Claims**

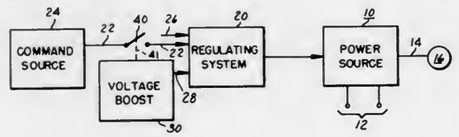
A vehicle is equipped with a main drive system and an electric assist drive system which is actuated by the operator when the vehicle speed falls below some predetermined speed. A prime mover for the vehicle, in addition to driving two wheels directly through a primary transmission, drives a three-phase electrical alternator. The alternator energizes an induction motor with a torque-regulating control system for independently driving two other wheels of the vehicle to provide greater traction at low speeds. The rotor circuit of the induction motor includes a rectifier bridge which feeds a line-commutated inverter for coupling the slip power back to the stator input. The control system determines the firing angle for conduction of the switches in the inverter to control the output torque of the induction motor as a function of speed. The system includes a shaping network which defines the desired

speed-torque characteristic for accelerating the vehicle; and it generates a signal representative of a demand torque for a given motor speed. Another circuit sensing rotor current generates a signal representative of the load torque. A comparison circuit receives the two signals representative respectively of the actual torque and the desired torque for that



speed; and it generates an error signal for controlling the firing angle of the switches in the inverter circuit such that the motor and vehicle are accelerated along the torque-speed envelope of the shaping network once the assisting system is actuated. Thus, the control system regulates the output torque of the assisting induction motor as a predetermined function of vehicle speed.

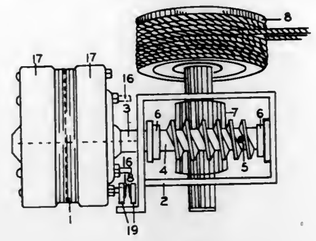
3,787,724
VOLTAGE CONTROL OF AN A.C. DRIVE SYSTEM DURING MOTOR STARTING
Niels P. Pedersen, Waterford, and Henry L. Schultz, Jr., Erie, both of Pa., assignors to General Electric Company, Salem, Va.
Filed Apr. 17, 1973, Ser. No. 351,824
Int. Cl. H02p *1/04*
U.S. Cl. 318—410 **15 Claims**



Method and apparatus for providing adequate breakaway torque for the a-c motors being started in a system in which a source of adjustable voltage a-c electric power such as an inverter supplies electric power to the motors being started. The output voltage of the source is substantially increased in a non-abrupt manner for an initial predetermined starting period to provide adequate break-away torque, the voltage thereafter being reduced to a level corresponding to a predetermined desired constant ratio relative to output frequency.

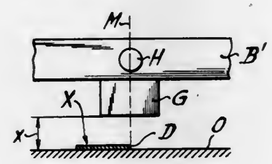
3,787,725
ELECTRIC GARAGE DOOR OPENER
Lucien Lafontaine, 637 Place Fleury, Montreal, Quebec, Canada
Filed Jan. 29, 1973, Ser. No. 327,642
Int. Cl. H02k *13/00*
U.S. Cl. 318—491 **2 Claims**

A mechanism for operating a door including a reversible electric motor composed of a rotatable armature and a rotatable rotor connected therewith to a rotatable shaft having a rotatable speed, a worm locked on said shaft in working engagement with said shaft, a worm gear in working engagement with said worm having a given rotational speed proportioned to the rotational speed of the worm, door closure actuating means operatively connected with the worm gear, limit switch means electrically connected to the motor and disposed in a



region adjacent to one of the screw holding end covers of the motor together said screw contacting the limit switch means when the rotational speed of said worm gear varies from the rotational speed of said rotor causing said armature and its screws to rotate in the opposite direction.

3,787,726
CONDUCTIVE LINE FOLLOWING DEVICE FOR STEERING A VEHICLE
Wolfgang Krapp, Im Eicken, Marienheide-Kalsbach, Germany
Filed Oct. 22, 1971, Ser. No. 191,650
Claims priority, application Germany, Oct. 23, 1970, P 20 52 102.2
Int. Cl. G05d *1/00*; **B64c** *13/18*
U.S. Cl. 318—587 **12 Claims**

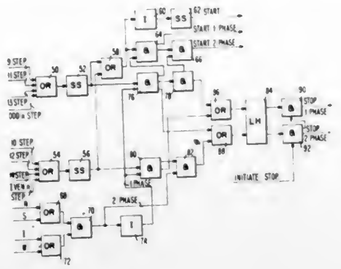


An electronic regulating arrangement in which an analog signal generator is either inductively or capacitatively coupled with an electrically conductive element having an edge displaceable with respect to a centerline of the active operating zone of the signal generator. When the edge is displaced with respect to the centerline of the active zone, when the edge is projected in the plane of the active zone, the generator emits a voltage proportional to the projected displacement of the edge relative to the centerline. The voltage increases positively or negatively in proportion to the displacement of the edge from the centerline, and dependent upon the direction of the displacement. A zero output voltage is obtained when the edge coincides, when projected, onto the centerline of the generator's active zone.

3,787,727
STEPPER MOTOR CONTROL
Ray A. McSparran, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 27, 1972, Ser. No. 319,100
Int. Cl. H02k *37/00*
U.S. Cl. 318—696 **5 Claims**

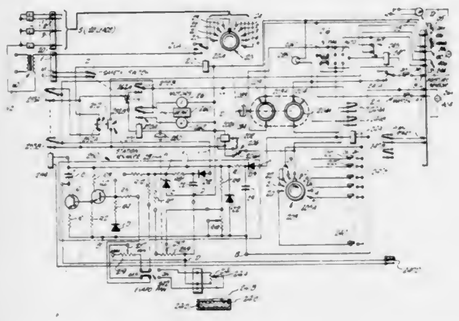
A half-step stepper motor control circuit in which the acceleration period is constant independent of whether the ad-

vance instruction occurs, (1) when the motor starts from 1 phase energization, or (2) when the motor starts from 2 phase



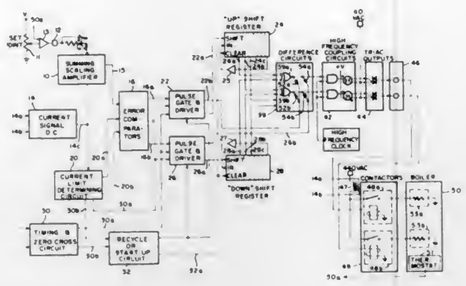
energization, and the deceleration period is constant and independent of whether (1) the motor stops in 1 phase energization or (2) the motor stops in 2 phase energization.

3,787,728
IRRIGATION AND SPRINKLER SYSTEM
Donald R. Bayer, Claremont; Lewis M. Ritchie, Los Angeles, and Jon A. Rivens, Upland, all of Calif., assignors to Clemar Manufacturing Corporation, Azusa, Calif.
Filed Dec. 30, 1971, Ser. No. 214,259
Int. Cl. H02j *3/14*
U.S. Cl. 307—41 **21 Claims**



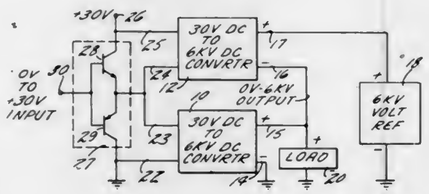
A watering system incorporates two selectable watering programs in one of which (Irrigation Mode) watering at each one of automatically sequentially selected stations occurs for a long time (each adjusted in the range of 1 hour to 24 hours) and in the other one of which (Environmental Mode) watering at each one of automatically sequentially selected stations occurs for a short time (each adjusted in the range of 1 minute to 30 minutes). The stations selected for watering in the irrigation mode may be different from those selected in the environmental mode. Automatic changeover from the irrigation to the environmental mode occurs in accordance with wind, heat or frost; for wind protection, crop cooling and frost protection and when the environmental program is completed the system automatically reverts back to the irrigation mode (except when the frost switch is operated, in which case a manual reset operation is required) which has memory in that the irrigation unit resumes watering under the same conditions which existed at the time of transition from the irrigation to the environmental mode. In case of rain, both systems are rendered inoperative and require manual resetting. The irrigation mode incorporates means whereby compensation may be effected in accordance with evaporation conditions.

3,787,729
SEQUENCING STEP CONTROL
Charles D. Bennett, Alderwood Manor, Wash., assignor to Cam Industries, Inc., Kent, Wash.
Filed July 13, 1972, Ser. No. 271,622
Int. Cl. H05b *1/02*
U.S. Cl. 307—41 **4 Claims**



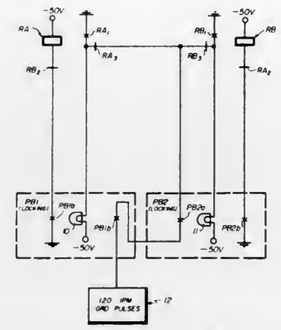
A control for varying loads such as heating elements in response to a change in an environmental variable such as temperature in which the first load to be energized is always the first load to be de-energized and the last load to be energized is always the last load to be de-energized.

3,787,730
BILATERAL HIGH VOLTAGE DC SYSTEM
Thomas J. Ray, Yonkers, N.Y., and Glenn C. Waehner, Riverside, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Dec. 29, 1971, Ser. No. 213,666
Int. Cl. H02m *3/22*
U.S. Cl. 307—77 **6 Claims**



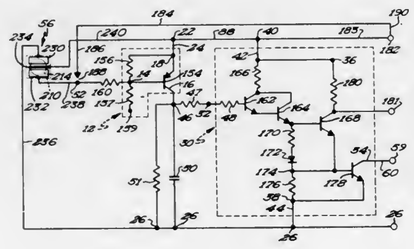
A load is connected across one DC source of a first polarity and is connected to the opposite polarity of a second DC source, the two sources being connected in series with a capacitor/resistor network, or other voltage maintaining circuit, connected in parallel with the series combination of the two sources. The first source drives the load in one polarity and the second source drives the load in the other polarity thereby to achieve rapid slewing of the voltage across the load. In another embodiment a fixed power source may be connected in series with the first power source so that the slewing of voltage across the load occurs above a given reference level. The first and second sources are driven in a complementary fashion so that the sum of their instantaneous output voltages is always constant and equal to the individual maximum voltage which each may obtain. Since the slewed sources comprise a high voltage bilateral system, feedback may be utilized for stability and accuracy.

3,787,731
ELECTRICALLY INTERLOCKING PUSHBUTTON CIRCUIT WITH ERROR INDICATION
Kurt F. Herr, Woodridge, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Apr. 6, 1973, Ser. No. 348,570
Int. Cl. H01h *47/00*
U.S. Cl. 307—115 **9 Claims**



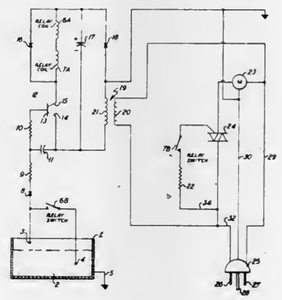
An electrically interlocking pushbutton circuit with error indication is disclosed, including two locking-type pushbuttons which are electrically interlocked such that a first operated pushbutton must be released before the second can be operated to initiate a related function. If the first pushbutton is not released, a flashing error indication is provided, by means of an indicator lamp associated with each of the pushbuttons.

3,787,732
ELECTRONIC SWITCH APPARATUS SENSITIVE TO AND ACTUATED BY TOUCH
Willis A. Larson, Wayzata, Minn., assignor to Magic Dot, Inc., Minneapolis, Minn.
Filed Dec. 18, 1972, Ser. No. 316,356
Int. Cl. H01h *35/00*
U.S. Cl. 307—116 **6 Claims**



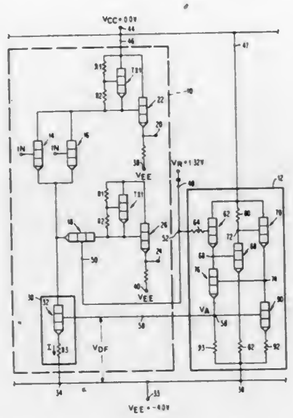
An electronic switch which has no moving parts and is actuated by the capacitance of an operator providing a connection between earth ground and an input to the electronics associated with the switch or is actuated by the skin resistance of an operator causing a lowering of D.C. resistance across the face of the switch, or both, is disclosed. The electronic switch, in the preferred embodiment shown, includes three electrodes arranged with respect to each other upon the top surface of an insulator in a laterally spaced, electrically insulated relation with the third electrode performing as a conductive electrical shielding electrode between the first and second electrodes. The first and second electrodes are exposed to the finger of an operator upon the top surface of the insulator in a manner to allow the bridging of the first and second electrodes to thus provide a direct current path to be set up laterally between the first electrode and the second electrode to thereby provide an activation of the switch through the lowering of the D.C. resistance across the face of the switch. When the operator's finger is removed, the shielding effect of the third electrode prevents any leakage currents from flowing between the first electrode and the second electrode from causing a switch activation. Further, the first and second electrodes are accessible to touch by the operator to thereby allow the operator's touch to provide an alternating voltage signal to provide an activation of the switch. Electronics which allows activation of the switch is shown in the form of a first amplifier accepting the electronic signal input provided by the operator's finger and providing a related signal to an integrator, shown in the preferred embodiment as a capacitor. A second amplifier is connected to the integrator to provide a switched output, with the switched output providing a first state for approximating an electrical short circuit and a second state for approximating an electrical open circuit.

3,787,733
LIQUID LEVEL CONTROL SYSTEM
Tony Peters, 235 E. Irving Pk. Rd., Wooddale, Ill.
Filed Jan. 5, 1973, Ser. No. 302,947
Int. Cl. H01h *29/00, 35/18*
U.S. Cl. 307—118 **5 Claims**



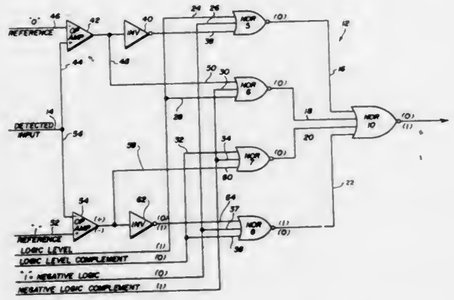
A liquid level control system for a sump pit utilizing solid state circuitry and being operable over a wide range of liquid resistances. A pair of electrodes are disposed in the sump pit at different depths. When the liquid rises to the height of the upper-most electrode, a transistor switch is triggered which energizes two relays connected in the collector circuit of the transistor. The energization of one of the relays activates a sump pump motor for emptying liquid from the sump pit and energization of the other relay connects the lower-most electrode to the circuitry so that transistor switch does not turn off until the liquid is emptied to a level beneath the lower-most electrode.

3,787,734
VOLTAGE REGULATOR AND CONSTANT CURRENT SOURCE FOR A CURRENT SWITCH LOGIC SYSTEM
Jack A. Dorler, and Donald J. Swietek, both of Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 26, 1972, Ser. No. 257,121
Int. Cl. H03k 17/00
U.S. Cl. 307—203 4 Claims



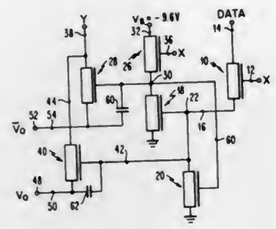
A voltage regulator circuit for energizing a constant current source for use in a current switch logic scheme.

3,787,735
LOGIC DETECTOR APPARATUS
Maurice J. DeWitte, Elmhurst, and Gerald L. Wojciechowski, Chicago, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Mar. 27, 1973, Ser. No. 345,425
Int. Cl. H03k 19/34, 19/00
U.S. Cl. 307—203 9 Claims



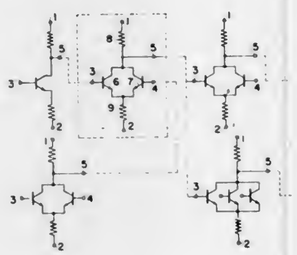
Logic detector apparatus for detecting positive and negative voltage levels with respect to "one" and "zero" reference levels in either positive or negative logic modes the apparatus including a NOR gate output stage coupled to the outputs of four selection NOR gates, respective selection NOR gates being associated respectively with detecting positive and negative voltage levels with respect to the reference levels in positive and negative logic modes, and a comparator for detecting positive and negative voltage levels, the output of the comparator being coupled to the selection NOR gates, whereby respective selected NOR gates control the output of the output NOR gate to provide respective outputs responsive to whether the logic signal detected is more or less positive than the respective "zero" or "one" reference level in either logic mode.

3,787,736
FIELD-EFFECT TRANSISTOR LOGIC CIRCUIT
William Benedict Chin, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 12, 1972, Ser. No. 261,768
Int. Cl. H03k 19/08
U.S. Cl. 307—205 2 Claims



A field-effect transistor logic circuit comprising a plurality of interconnected field-effect transistor devices connected between input and output terminals. A positive feedback path connected between the output terminals and a field-effect transistor device connected to the output terminal is operative to provide an output voltage, V_O, which is greater than the supply voltage V_S applied to the output device less the threshold voltage V_{TH} of the device, i.e., $V_O \geq V_S - V_{TH}$.

3,787,737
HIGH SPEED/LOGIC CIRCUIT
Hisakazu Mukai, Tokyo, Japan, assignor to Nippon Telephone and Telephone Public Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 826,317, May 21, 1969, abandoned. This application Nov. 24, 1971, Ser. No. 201,667
Int. Cl. H03k 19/08, 19/34, 19/30
U.S. Cl. 307—215 1 Claim



A high speed logic circuit comprising a plurality of unit gate circuits, wherein each transistor in the unit gate operates between cut-off and within an active region bounded by the saturation region of the gate transistor in response to first and second logic level input signals. Each transistor gate is connected in the common emitter configuration; the collector resistance is greater than the sum of the emitter series resistance and the incremental junction emitter resistance of the gate transistor with an input signal exceeding the base-to-emitter voltage of the gate transistor. The voltage source has a voltage which is insufficient for the gate transistor to which a first logic level signal is applied to be switched to an active state from a non-conducting state. Further, the collector current of the gate transistor is limited by the emitter series resistor when the second logic level signal is applied so that the collector junction thereof does not inject minority carriers. The potential difference between the voltage source terminals is defined by the formulas

$$V_1 - V_2 < V_{BEI} + V_L$$

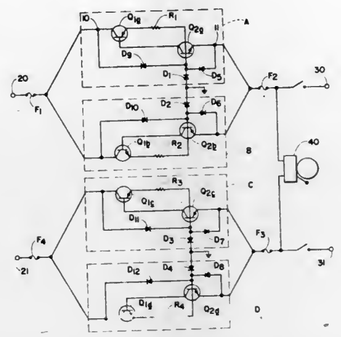
$$V_L < V_{BEI} - V_{CES}$$

wherein V_1 is the voltage at said first voltage source terminal and V_2 is the voltage at said second voltage source terminal, V_{BEI} is the base to emitter forward voltage of said gate transistors, V_L is the logic swing of said gate transistors, V_{CES} is the collector-emitter saturation voltage of said gate transistors and wherein said collector series resistor and said emitter series resistor are defined by

$$1 < R_C/R_E + r_e < V_{BEI} - V_{CES}/V_1 - V_2 - V_{BEI}$$

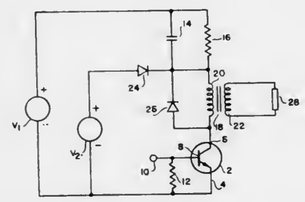
wherein R_C and R_E are said collector and emitter series resistors, respectively, and r_e is said incremental emitter junction resistance value. The high speed logic circuit is formed by directly coupling the output terminals of each of said logic gates to the input terminals of other of said logic gates whereby the signal levels at each of said input and output terminals of each of said logic gates are maintained at substantially constant binary values. The operation of the gate circuit as defined by the above equations results in a very short propagation delay time, low power dissipation, and enables the individual gate circuits to be directly coupled without the need for intervening coupling circuits to maintain the binary signal level.

3,787,739
COUPLER CIRCUIT FOR TELEPHONE NETWORKS AND THE LIKE
Michael C. J. Cowpland, and Feyyaz I. Zambakoglu, both of Ottawa, Ontario, Canada, assignors to Microsystems International Limited, Montreal, Quebec, Canada
Filed Dec. 29, 1972, Ser. No. 319,334
Int. Cl. H03k 17/00
U.S. Cl. 307—255 8 Claims



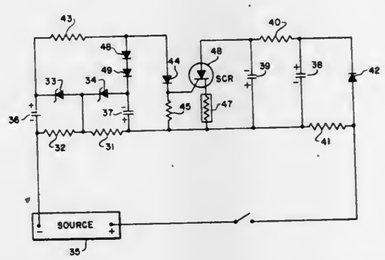
The present invention relates to a coupler circuit for insertion between a power supply circuit and a subscriber circuit connected thereto — particularly between a telephone line and a telephone set. The coupler is characterized by a thyristor-type transistor combination, the base of the second transistor of which is clamped through a breakdown device to a predetermined potential.

3,787,738
PULSE PRODUCING CIRCUIT
Tibor G. Horwath, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Sept. 28, 1972, Ser. No. 293,190
Int. Cl. H03k 17/00
U.S. Cl. 307—237 1 Claim



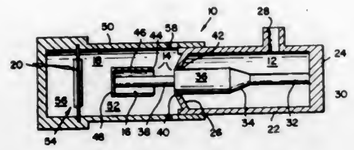
A circuit for producing pulses having a very high, steeply rising front portion of short duration, followed by a considerably longer portion of lower current is disclosed. The circuit utilizes a single transistor which is operated in the avalanche breakdown mode to provide the high, steeply rising, front portion of the output pulse and is then operated in the normal amplifier mode to provide the longer lower current rear portion of the output pulse. While the circuit has general utility as a pulse producing circuit, it is particularly useful as a thyristor firing circuit.

3,787,740
DELAY TIMER
Frank G. Salton, Annapolis, and Abraham Silverstein, Adelphi, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 4, 1972, Ser. No. 295,062
Int. Cl. H03k 17/26
U.S. Cl. 307—293 3 Claims



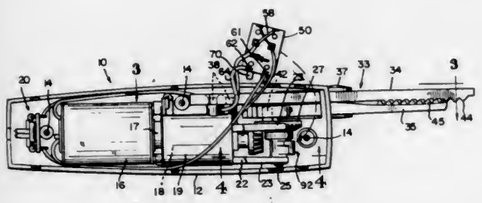
An electronic timer providing an accurate time delay comprising two oppositely charged capacitors connected in series with a resistor. One capacitor is smaller than the other and upon having the series circuit closed, it receives charge from the other capacitor. Upon passing through zero volts, an SCR is triggered setting off a squib.

3,787,741
FLUID ACTUATED ELECTRIC GENERATOR
Robert D. Gourlay, Canoga Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed June 8, 1967, Ser. No. 646,148
Int. Cl. H01v 7/00
U.S. Cl. 310—8.8 12 Claims



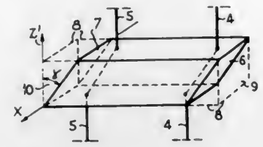
A fluid actuated electric generator embodying an edge-tone acoustic oscillator involving a jet of fluid directed upon a knife-edge from a nozzle in communication with a source of fluid under pressure to establish a source of acoustic energy, a resonant cavity for stabilizing the acoustic energy, a coupling device including a second resonant cavity proximate to the source of acoustic energy for coupling the acoustic energy to a transducer responsive to acoustic actuation to produce electrical energy, and an acoustic opaque exhaust arrangement for dissipating exhaust fluid with minimal acoustic dissipation.

3,787,742
ELECTRIC SHEARS
Timothy C. Murphy, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.
Filed Mar. 7, 1972, Ser. No. 232,446
Int. Cl. H02k 7/14
U.S. Cl. 310—50 19 Claims



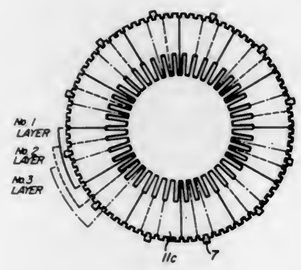
An electric shears in which there is provided a housing having swingably interconnected first and second cutting blades mounted therein and projecting outwardly therefrom. A gear train is mounted within the housing and is interconnected between a reversable electric motor and said second blade for moving said second blade with respect to said first blade. A manually manipulatable switch assembly is mounted on said housing and is coupled through a second switch assembly for actuating said motor to drive said gear train in a first direction to cause the cutting blades to open and close. A cam driven by the gear train is engageable with said second switch assembly for selectively opening and closing said assembly to control said motor to drive said gear train in a second direction for an interval sufficient to position the cutting blades in an open position and deactuate said motor.

3,787,743
FLEXION MODE CRYSTALLINE BAR FOR AN OSCILLATOR
Guy Gibert, and Pierre Vidal, both of Sartrouville, France, assignors to Compagnie d'Electronique et de Piezo Electricite C.E.P.E., Sartrouville, France
Filed Feb. 9, 1972, Ser. No. 224,704
Claims priority, application France, Feb. 26, 1971, 7106696
Int. Cl. H04r 17/00
U.S. Cl. 310—9.5 3 Claims



Crystalline parallelepiped bar oscillating piezoelectrically in a plane, in a flexion mode, whose terminal faces, are inclined by respect to the plane perpendicular to the longitudinal axis of symmetry of the bar, at an angle ranging between 0° and 60° measured in the flexion plane, and at an angle ranging between 0° and 45° measured in the plane perpendicular to the flexion plane.

3,787,744
LAMINATED IRON CORE OF ROTARY ELECTRIC MACHINES
Kiyoshi Saito, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed July 11, 1972, Ser. No. 270,871
Int. Cl. H02k 1/06
U.S. Cl. 310—217 7 Claims

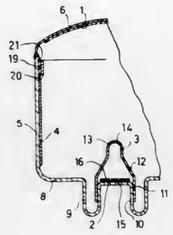


A newly developed laminated iron core is composed of number of unit segments, each of which is shaped such that one radial marginal periphery defines a half of a coil slot and the opposite periphery defines a half of a tooth between the two coil slots.

Accordingly, when such segments are juxtaposed to form a layer of an annular iron core, a pair of the segments constitute a sector having an odd number $(2n + 1)$ of coil slots, wherein n is the number of coil slots in a unit segment, whereas a pair of unit segments of ordinary type bears an even number of coil slots.

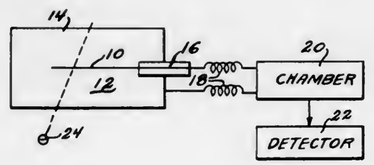
Assembled iron cores each using either one of the type mentioned above bear a different number of coil slots suitable for different frequencies such as 50 Hertz and 60 Hertz but has the same outside and inside diameter and the same number of dovetail notches, thereby permitting two kinds of iron cores to be supported within a stator frame of single unified type.

3,787,745
ELECTRON TUBE FOR ELECTRON-OPTICAL IMAGE CONVERSION
Christian J. G. H. Wulms, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 17,827, March 9, 1970, abandoned.
This application Apr. 6, 1972, Ser. No. 241,771
Claims priority, application Netherlands, Mar. 13, 1969, 6903860
Int. Cl. H01j 31/52
U.S. Cl. 313—65 R 7 Claims



Electron-optical image converting tube comprising a photoelectric cathode and a focusing electrode applied to the tube wall, the end of the focusing electrode facing the photocathode being separated from the wall by insulating material which increases the insulation resistance between the photocathode and the focusing electrode.

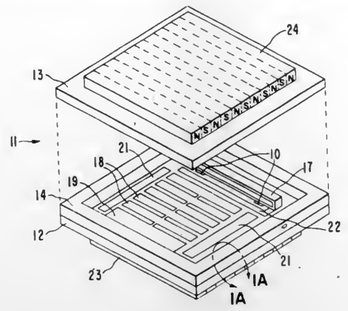
3,787,746
QUENCHING GAS FOR DETECTORS OF CHARGED PARTICLES
Muzaffer Atac, Wheaton, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed May 11, 1973, Ser. No. 359,396
Int. Cl. H01j 39/26
U.S. Cl. 313—93 7 Claims



Operation of detectors of charged particles such as wire counters and Geiger-Muller tubes is improved by filling the counters with a quenching-gas mixture of argon, isobutane and methylchloroform.

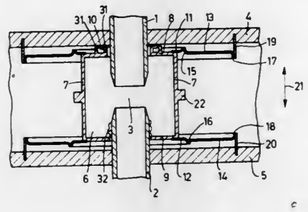
3,787,747
PERIODIC MAGNETICALLY FOCUSED BEAM TUBE
Allan W. Scott, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Aug. 7, 1972, Ser. No. 278,408
Int. Cl. H01j 25/34
U.S. Cl. 315—3.5 19 Claims

The periodic magnet structure for a periodically focused beam tube is formed by a single pair of homogeneous slabs of magnetizable material that are permanently magnetized with a pattern of magnetic poles of alternating polarity taken along the direction of the beam path. In a sheet beam tube of preferred geometry, a pair of ceramic slabs are disposed to straddle the sheet beam and the internal planar faces of the ceramic slabs have circuits printed thereon for: electrical connections to all elements, beam forming electrodes, microwave



interaction structure, edge focusing electrodes, and the beam collector electrode structure. The permanently magnetized slabs are disposed external to the vacuum envelope, straddling the printed circuit ceramic slabs, for focusing the beam.

3,787,748
FREQUENCY TUNER OF A RESONATOR FOR A KLYSTRON
Klaus Liepelt, Buxtehude, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 27, 1972, Ser. No. 301,531
Claims priority, application Germany, Nov. 4, 1971, P 21 54 745.5
Int. Cl. H01j 25/10
U.S. Cl. 315—5.46 6 Claims

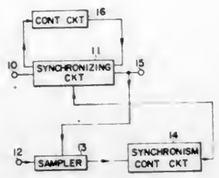


A non-deformable resonator surrounds high frequency interaction gap between two opposite drift members. Each drift member is secured to a fixed support. Resilient annular suspension discs are secured in vacuum tight manner between the resonator and the support member to allow position adjustment of the resonator along the axis of the drift members.

3,787,749
AUTOMATIC SYNCHRONIZING SYSTEM
Kozo Uchida; Naohisa Nakaya, and Koji Suzuki, all of Tokyo, Japan, assignors to Iwata Electric Company, Tokyo, Japan
Filed Aug. 20, 1969, Ser. No. 851,589
Claims priority, application Japan, Aug. 23, 1968, 43/59921
Int. Cl. H01j 29/70
U.S. Cl. 315—19 2 Claims

In an automatic synchronizing system comprising a synchronizing circuit including a variable element, a sampling device and a synchronism control circuit which operates to differentiate the output from the sampling device to vary the variable element, to stop the variation of the variable element and to maintain the stopped condition, there is provided a control circuit responsive to the cessation of operation of either one of the synchronizing circuit or the sampling device

to start either one of the synchronizing circuit, sampling device and the synchronism control circuit to continue to find a point of synchronism even in the absence of a synchronizing



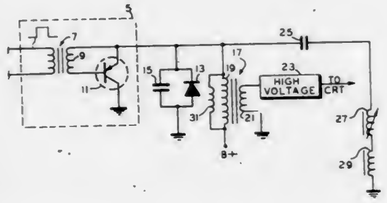
signal for a predetermined interval or even when the amplitude of the synchronizing signal is small. A time axis circuit may be added which may be controlled by the control circuit in the same manner.

3,787,750

FLYING SPOT SCANNER SYSTEM HIGH VOLTAGE AND HORIZONTAL DEFLECTION CIRCUITRY

William D. Murphy, and Edward I. Zmuda, both of Seneca Falls, N.Y., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed July 13, 1972, Ser. No. 271,630
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **7 Claims**



High voltage and horizontal deflection circuitry for a flying spot scanner system includes a first inductance associated with a flying spot scanner tube and having an inductance value in an amount sufficient to effect a desired horizontal deflection of an electron beam of the scanner tube and a second inductance which, in combination with the first inductance, provides an inductive value of an amount sufficient to cause development of a desired high voltage potential sufficient to operate the scanner tube.

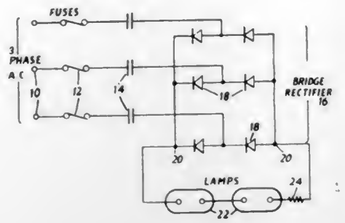
3,787,751

BALLAST CIRCUITS FOR DISCHARGE LAMPS

Victor Francis Farrow, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Aug. 10, 1972, Ser. No. 279,445
Int. Cl. H05b *41/16*
U.S. Cl. 315—137 **2 Claims**

A ballast circuit for a discharge lamp is arranged to supply a uni-directional voltage to the lamp which is made up of at least two current components which differ in phase. Flicker at the supply frequency f and at $2f$ is thus much reduced. A preferred ballast for use with a three-phase supply employs ballast capacitors in each of the three supply lines connected to a three-phase bridge rectifier, the output of which is applied to the lamp. A preferred ballast for use with a single phase supply



includes a ballast capacitor and a ballast inductor connected through respective bridge rectifiers which have some components in common.

3,787,752

INTENSITY CONTROL FOR LIGHT-EMITTING DIODE DISPLAY

Dennis G. Delay, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 28, 1972, Ser. No. 276,017
Int. Cl. H03k *19/14*
U.S. Cl. 315—169 R **6 Claims**

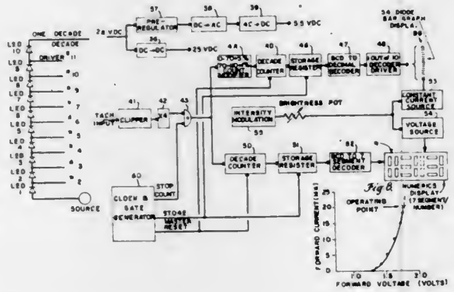


Fig 8

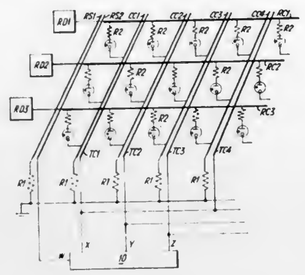
A plurality of light-emitting diode elements which are unmatched in light output at the lower portions of their forward current ranges and which form an integrated illuminated visual display are activated by a power supply arrangement which applies to each diode element a series of independent power pulses of sufficient power to activate each diode element to saturation and into light-emitting condition in a frequency range which appears to the human eye to be steady illumination, the power supply arrangement being provided with a control feature for selectively varying the duration of the power pulses in order to vary the apparent intensity of the illuminated display, and also provided with current limiting means to limit the current passed by each diode element, during each power pulse and its activation thereby, to a given upper range of forward current in which the light-emitting diode element light outputs are substantially matched and in which optimum light emission efficiency is achieved.

3,787,753

VISUAL DISPLAY DEVICES

Frank Walters, Bury, England, assignor to Ferranti Limited, Hollinwood, Lancashire, England

Filed Aug. 10, 1971, Ser. No. 170,474
Int. Cl. H05b *37/00*
U.S. Cl. 315—169 TV **8 Claims**



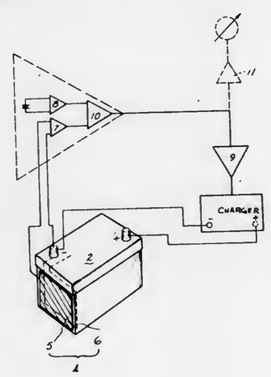
A visual display device includes a matrix of direct current gas discharge cells in a block of electrically insulating material. For each row and column of the matrix, all cells in that row or column are interconnected by a row or column conductor so that energisation of appropriate row and column conductors strikes the defined cells in the matrix. Scanning means is also provided by means of which each column conductor is energised in turn without the need for a driver for each column. Information may be written on the display device by energisation of the appropriate row conductors as each column conductor is energised, the information display remaining after the column conductor has subsequently been de-energised.

3,787,754

APPARATUS FOR CONTROLLING CHARGING OF STORAGE BATTERIES WITH SENSING THE D.C. OF THE ELECTROLYTE

Paul L. Seabase, Sterling Heights, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 16, 1972, Ser. No. 281,082
Int. Cl. H02j *7/04*
U.S. Cl. 320—43 **6 Claims**



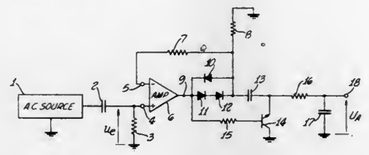
My invention relates to a device for the testing or analyzing of batteries to determine whether such is chargeable or unchargeable, and more particularly, it relates to an electronic sensing system for automatically conducting and providing a readout display which is instantly indicative of the state of a given battery with respect to its chargeability.

3,787,755

RECTIFIER

Heinz-Dieter Goldner, Schwalbach, Germany, assignor to Hartmann & Braun Aktiengesellschaft, Frankfurt/Main, Germany

Filed Feb. 14, 1973, Ser. No. 332,439
Claims priority, application Germany, Feb. 21, 1972, 2207990
Int. Cl. H02m *7/00*
U.S. Cl. 321—8 R **3 Claims**



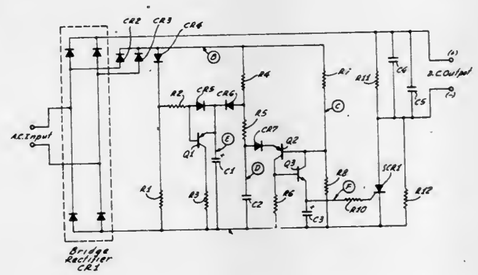
Disclosed is an electronic circuit for converting an a-c voltage into a d-c voltage. The a-c voltage is applied to a feedback amplifier incorporating a negative feedback loop having a plurality of diodes and resistances. The voltage across the diodes is used to derive a square wave signal from the amplifier, which renders a transistor switch conductive or non-conductive, depending on the polarity of the amplified signal. The amplifier output is also coupled to an RC circuit, whose capacitance is charged by alternating half-waves while the transistor switch suppresses the respective other half-waves.

3,787,756

INRUSH CURRENT LIMITING CIRCUIT

James K. Berger, Sherman Oaks, Calif., assignor to Pioneer Magnetics, Inc., Santa Monica, Calif.

Filed Jan. 19, 1973, Ser. No. 324,959
Int. Cl. H02m *1/18*
U.S. Cl. 321—11 **9 Claims**



An inrush current limiting circuit is provided for use with transistorized high voltage power supplies to permit such power supplies to use capacitor input filters. The inrush current limiting circuit of the invention prevents the creation of a large inrush charging current to the capacitor input filter when the power supply is first energized, and which would otherwise be liable to cause damage to switches and relays in the power supply. The current limiting circuit to be described includes one or more silicon controlled rectifiers in series with the input of the filter, and it also includes a control circuit connected to the silicon controlled rectifiers and to the capacitor input filters. The control circuit serves to control the firing

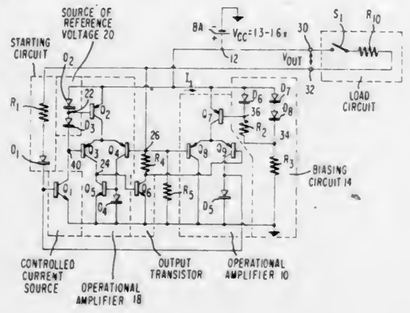
point of the silicon controlled rectifiers relative to successive half cycles of the rectified alternating current input when the power supply is first turned on, so as to cause the silicon controlled rectifier to fire at different points during each successive half cycle. This control serves to maintain the current flow into the filter at an acceptable level at all times.

3,787,757

CIRCUIT FOR SUPPLYING REGULATED POWER UPON DEMAND

Abel Ching Nam Sheng, Morris Plains, N.J., assignor to RCA Corporation, Princeton, N.J.

Filed Feb. 5, 1973, Ser. No. 329,618
Int. Cl. G05f 1/56, 1/66
U.S. Cl. 323—4 **30 Claims**



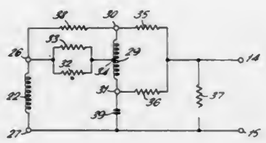
A load circuit requires regulated power during relatively short, relatively widely spaced, time intervals. In the absence of a demand for power, a control circuit drawing infinitesimal quiescent current inactivates a regulator circuit connected to the load circuit. When there is a demand for regulated power, the regulator circuit senses this demand and turns on and the control circuit senses a flow of current to the load circuit and in response thereto, locks the regulator in its "on" condition.

3,787,758

APPARATUS INCLUDING DISPLACEMENT-RESPONSIVE INDUCTIVE-TRANSDUCERS

Robin Ashby, Stroud, and Terence Ernest Adams, Cheltenham, both of England, assignors to Smiths Industries Limited, London, England

Filed Jan. 24, 1972, Ser. No. 220,093
Int. Cl. G01c 19/28
U.S. Cl. 323—51 **5 Claims**



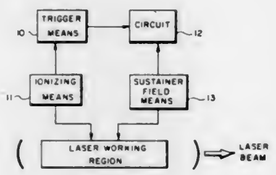
A rate gyroscope includes an inductive pick-off that has, in addition to a main secondary winding providing an output in accordance with input rate to the gyroscope, a further secondary winding that provides a signal to back off undesired output from the main winding at zero input-rate. A thermistor is connected in series with the main winding to compensate the gyroscope scale-factor for ambient temperature variations, and at least a proportion of the signal supplied by the further winding is applied in series with a resistor across the thermistor to compensate for variation from one temperature to another in the zero-rate output. The thermistor may be connected between one end of the main winding and a tap on the further winding or between one end of the further winding and an output terminal of the gyroscope. The further winding may be provided as a secondary winding of a separate transformer that is energized in parallel with the pick-off, and where the thermistor is connected to a center-tap of this winding the two ends of the winding may be connected to one output terminal of the circuit by two resistors respectively.

3,787,759

METHOD OF AND APPARATUS FOR MEASURING THE PURITY OF THE GASEOUS MEDIUM IN GAS LASERS

Diarmaid H. Douglas-Hamilton, Boston, Mass., assignor to AVCO Corporation, Cincinnati, Ohio

Filed Nov. 20, 1972, Ser. No. 308,272
Int. Cl. G01r 31/22
U.S. Cl. 324—25 **10 Claims**



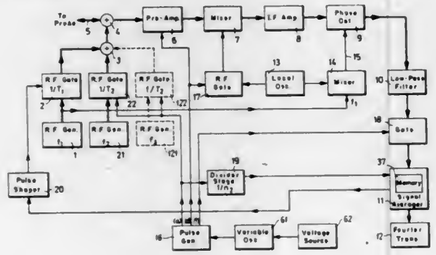
A method of and apparatus for determining the gas purity in gas lasers comprising means for producing free electrons or ionization as by a broad electron beam or the like in combination with further means for producing an electrical sustainer field, wherein in the presence of the sustainer field the production of free electrons or ionization is sharply terminated and the previously flowing sustainer field current is measured, the decay characteristics of the sustainer field current after termination of the production of free electrons being indicative of the presence or absence of substances adversely affecting the electron number density.

3,787,760

METHOD AND APPARATUS FOR RECORDING SPIN RESONANCE SPECTRA USING TWO SEQUENCES OF RF EXCITING PULSES

Toni W. Keller, Fallanden, and Werner H. Tschopp, Forch, both of Switzerland, assignors to Spectrospin A.G., Zurich, Switzerland

Filed June 2, 1972, Ser. No. 259,275
Claims priority, application Germany, June 9, 1971, 2128663
Int. Cl. G01n 27/78
U.S. Cl. 324—0.5 R **25 Claims**



A method and apparatus are described for performing pulsed double resonance analyses such as selective saturation and homonuclear decoupling. The method comprises exciting

the spins of a spin system in a sample with a series of RF pulses, exciting selected spins of the spin system with an RF signal having frequency components at approximately the Larmor (or resonance) frequencies of the selected spins, receiving the resultant free precession decay signals (or interferograms) of the resonant frequencies generated by the excitations, averaging a plurality of the free precession decay signals, and Fourier analyzing the mean value of the free precession decay signals to determine the spectral response. The excited spin system may be the set of spins associated with one type of nuclei in a sample. Apparatus for carrying out the method includes an RF generator and RF gate for producing a series of RF pulses to excite all the spins of the spin system, and at least one additional RF generator and RF gate for producing an RF oscillation to selectively excite only certain spins of the spin system.

3,787,761

METHOD OF DETECTING MAGNETIC ADDITIVES IN NUCLEAR FUEL MATERIAL BY NOTING CHANGE IN WEIGHT OF MATERIAL WHEN WEIGHED IN A MAGNETIC FIELD

Leonard N. Grossman, Livermore, and Douglas R. Packard, Sunol, both of Calif., assignors to General Electric Company, San Jose, Calif.

Filed May 15, 1972, Ser. No. 253,298
Int. Cl. G01r 33/12
U.S. Cl. 324—34 R **10 Claims**

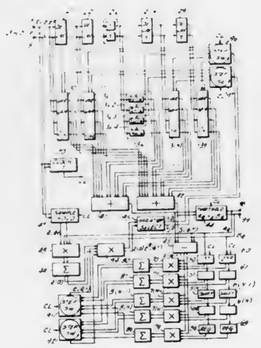
A rapid, non-destructive method of detecting additives in a qualitative and a quantitative manner in a nuclear fuel material is disclosed. This method is based upon the magnetic susceptibility of certain additives in nuclear fuel which are monitored for quality control purposes. The method gives a comparison of the weight of the nuclear fuel material versus the weight of the nuclear fuel material when disposed in a magnetic field. This enables a calculation of the change in weight of the nuclear fuel material in the presence of a magnetic field for comparison with a calibration of weight changes for known additions of the additive. In a particularly preferred embodiment of the invention, a method is used for the non-destructive qualitative and quantitative detection of gadolinium, a burnable poison additive in nuclear fuel materials.

3,787,762

SELF-ADAPTIVE EQUALIZER FOR QUADRATURE AMPLITUDE MODULATED SIGNALS

Yoichi Sato, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

Filed June 23, 1972, Ser. No. 265,714
Claims priority, application Japan, June 28, 1971, 46-46296
Int. Cl. H04b 1/10
U.S. Cl. 325—42 **8 Claims**



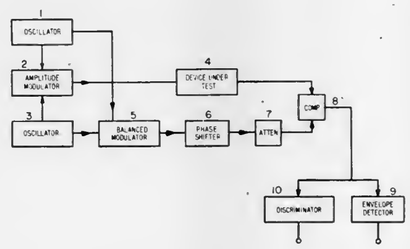
An equalizer for a demodulated quadrature amplitude modulated signal comprises first sampling means for deriving a sole demodulated signal sample $Z(kT)$ at each of the sampling times kT [$Z(t)$, a signal of complex amplitudes; T, the discrete code signal interval; $t = 0$, the time of occurrence of arbitrary one of maximum absolute values of the complex amplitude of the demodulated signal; k, integers], second sampling means for simultaneously deriving a predetermined number, $2N + 1$, of simultaneous demodulated signal samples $Z(kT - hT)$ at each of the sampling times [$h = -N, \ldots, 0, 1, \ldots N$], variable gain means for simultaneously deriving a plurality of amplitude varied signal samples $C_h \cdot Z(kT - hT)$ from the simultaneous samples at each of the sampling times, summing means for deriving a summation of the amplitude varied signal samples at each of the sampling times, and adjusting means for adjusting the variable gains C_h with reference to the sampling times, the sole demodulated signal samples, and the summations of the amplitude varied signal samples.

3,787,763

APPARATUS FOR MEASURING CONVERSION OF AMPLITUDE MODULATION TO PHASE MODULATION

Robert Coackley, Dalgety Bay, Scotland, assignor to Hewlett-Packard Ltd., South Queensferry, West Lothian, Scotland

Filed Aug. 24, 1972, Ser. No. 283,602
Claims priority, application Great Britain, Oct. 13, 1971, 47,552/71
Int. Cl. G01r 27/00
U.S. Cl. 324—57 R **8 Claims**



This apparatus measures conversion of amplitude modulation to phase modulation and is useful where resultant unwanted phase modulation is to be measured, but is mainly intended for testing devices used in 70 MHz frequency modulated communications systems where, for example, the amplitude modulation to phase modulation conversion of limiters and other devices cause distortion of the desired frequency modulated signal.

3,787,764

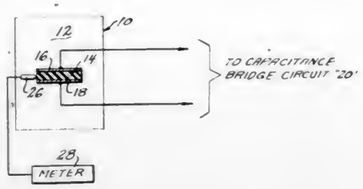
SOLID DIELECTRIC CAPACITANCE GAUGE FOR MEASURING FLUID PRESSURE HAVING TEMPERATURE COMPENSATION AND GUARD ELECTRODE

Carl G. Andeen, Euclid, Ohio; John J. Fontanella, Annapolis, Md., and Donald E. Schuele, Columbus, Ohio, assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 3, 1971, Ser. No. 204,578
Int. Cl. G01r 27/26
U.S. Cl. 324—61 P **4 Claims**

Pressure in a fluid is measured by measuring the dielectric constant of a solid dielectric disposed in the fluid. Two elec-

trodes are each mounted on an opposing side of the dielectric and the capacitance therebetween monitored to provide a

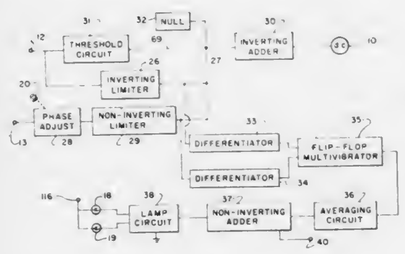


measure of the dielectric constant of the dielectric material and hence pressure in the fluid.

3,787,765
DIRECT READING PHASE METER

Robert S. Morrow, Columbus; Lloyd D. Penn, Johnstown, and Arthur D. Marcum, Gahanna, all of Ohio, assignors to IRD Mechanalysis Inc., Worthington, Ohio

Filed Jan. 12, 1972, Ser. No. 217,165
Int. Cl. G01r *25/00*
U.S. Cl. 324—83 A **8 Claims**



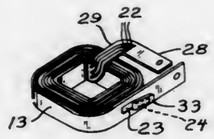
A direct reading meter for indicating the phase relationship of two input electrical signals having the same frequency. The meter employs a DC voltmeter with two scales over its range. The meter also is provided with an indicator, such as two different lamps, for indicating which one of the two scales is concurrently applicable to the meter indication.

A threshold limiter may be provided to deactivate the meter unless the amplitude of one of the input signals exceeds a preestablished minimum value.

3,787,766
METER MAGNET WITH STRIP-WOUND CURRENT COIL

Russell F. Graefnitz, Lafayette, and Glenn G. Lohrman, Delphi, both of Ind., assignors to Duncan Electric Company, Inc., Lafayette, Ind.

Filed Feb. 22, 1972, Ser. No. 228,094
Int. Cl. G01r *11/06*; H01f *15/10*
U.S. Cl. 324—137 **10 Claims**

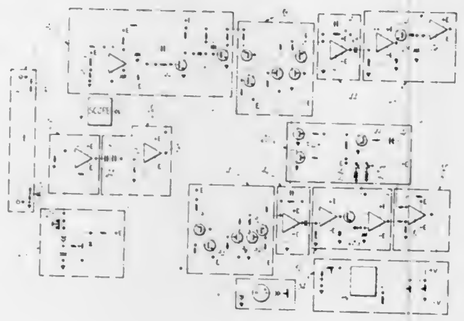


The coils for a meter current magnet are each formed from a strip of copper, with insulative coating, wound upon itself. A lead-in from its inner end is formed by the strip itself which is extended out around the coil. Flat bends (within the plane of the portion of bent strip) are made possible by forming the blank for the coil with parallel slots in the area to be thus bent. A tie for the outer layer comprises a tongue on the next layer extending through a slot in the outer layer, insulated from it by a plastic sleeve. The wound coils are insulatively coated and insulated from the magnet core and protected from its edges by molded nylon isolators of split-sleeve nature which, in final positioning, are interlocked with the coils for mutual positioning. The coil is outstandingly economical of copper without overheating.

3,787,767
DEFIBRILLATOR OUTPUT ENERGY MEASURING CIRCUIT

Leslie G. Hammer, Bristol, and Charles A. Reynolds, Jr., New Haven, both of Conn., assignors to Pioneer Medical Systems, Inc., New Britain, Conn.

Filed Oct. 15, 1971, Ser. No. 189,554
Int. Cl. G01r *21/00*
U.S. Cl. 324—142 **10 Claims**



A universal portable analyzer for defibrillators giving a direct readout, in watt-seconds, of electrical energy pulses regardless of wave shape and polarity. A voltage divider input attenuates the signal and feeds it through gain and buffer stages.

A zero crossing detector gates switching networks for sequentially passing positive and negative signal components respectively to separate integrators which generate outputs proportional to the total positive and negative current of the input pulse. These outputs are stretched so that they occur simultaneously, are added together and squared to provide a signal porportional to power which is applied to a watt-second meter for direct readout. The solid state circuits include automatic ON-OFF control, and automatic zero reset at the beginning of each test cycle makes analyzer suited for use by non-technical personnel.

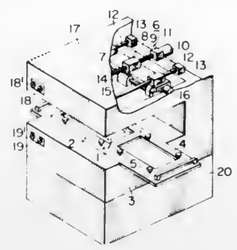
3,787,768
INSPECTION APPARATUS FOR PRINTED CIRCUIT BOARDS

Tadashi Kubota, Katano, and Michio Kato, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Dec. 21, 1971, Ser. No. 210,457
Claims priority, application Japan, Dec. 25, 1970, 45-130069; Dec. 25, 1970, 45-141212; Dec. 25, 1970, 45-141213; Dec. 25, 1970, 45-141214; Dec. 25, 1970, 45-141215
Int. Cl. G01r *31/28*
U.S. Cl. 324—158 F **6 Claims**

A printed circuit board inspection apparatus for automatically inspecting the electrical continuity of a printed circuit

printed on and through-holes formed in a substrate board according to a predetermined program prior to mounting electric parts in the through-holes to form a desired electric cir-

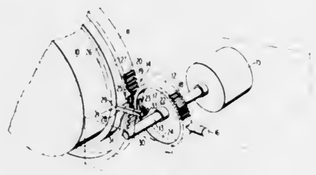


cuit, which is so constructed as to ensure the electrical continuity of the printed circuit printed on and through-holes formed in a substrate board.

3,787,769
NON-CONTACTING SHAFT RPM AND DIRECTION OF ROTATION MEASUREMENT SYSTEM

James R. Parkinson, R.D. 3, Vergennes, Vt.

Filed Aug. 1, 1972, Ser. No. 277,117
Int. Cl. G01p *3/54*
U.S. Cl. 324—174 **17 Claims**



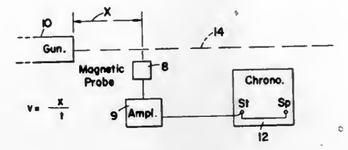
A toothed exciter wheel is rotatably driven continuously in close proximity to a toothed speed reference wheel mounted on a rotatably driven power shaft, the system having a first sensor to sense the algebraic sum of the speeds of the two wheels, a second sensor to sense the speed of the exciter wheel and a circuit arrangement that compares the output signals of the two sensors and provides an indication on a readout device of the speed and direction of rotation of the power shaft.

3,787,770
METHOD AND APPARATUS FOR DETECTING A PROJECTILE LEAVING THE BARREL OF A GUN

Paul Cote, and Charles A. Roy, both of Quebec, Ontario, Canada, assignors to Her Majesty the Queen, in right of Canada as represented by the Minister of National Defence of Her Majesty's Canadian Government

Filed June 19, 1972, Ser. No. 264,222
Claims priority, application Canada, Sept. 23, 1971, 123,528
Int. Cl. G01p *3/66*; G04f *9/06*; G01l *5/14*
U.S. Cl. 324—178 **8 Claims**

A method and apparatus for detecting a projectile leaving a gun using a permanent horse-shoe magnet located at or near the muzzle of the gun whereby the projectile cuts some of the magnetic lines of force of the magnet. Resultant voltage pulses from the separation of the projectile from the gun and from the passage of the projectile above the permanent magnet are induced in a pick up winding wound on the magnet and these are fed through an amplifier to an oscilloscope and/or a

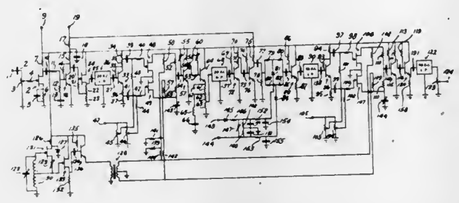


chronograph to provide an indication. The apparatus may also be utilized to measure the velocity of and to photograph the projectile as it leaves the muzzle of the gun.

3,787,771
SINGLE-CHANNEL NOISE SUPPRESSOR

Edward O'Connor, 10212 Plymouth Ave., Cleveland, Ohio

Filed Nov. 24, 1969, Ser. No. 879,332
Int. Cl. H04b *15/00*
U.S. Cl. 325—65 **6 Claims**



A signal containing low-level noise, whose frequency components are contained in a band of frequencies which may be considerably greater than one octave, as for example, audio from a phonograph record, is converted to a higher band of frequencies whose range is less than or equal to one octave, as for example, by a modulator and a high-pass filter. The converted band of frequencies is transmitted to a threshold device designed to reject any signal below a predetermined threshold value. The output of the threshold device is, accordingly, free of signals corresponding to the original low-level noise contained in the low-frequency band signal. The output of the threshold device is then reconverted to the original band of frequencies, as for example, by a modulator and low-pass filter, to produce an output identical to the original signal except for the absence of the low-level noise. This output signal is free of the harmonic distortion which would result if the original signal was merely applied directly to the threshold device.

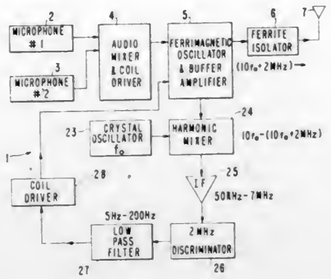
3,787,772
F. M. TRANSMITTER EMPLOYING MAGNETICALLY MODULATED FERRIMAGNETIC RESONATOR

James W. Sedin, Mountain View, Calif., assignor to Ryka Scientific, Inc., Sunnyvale, Calif.

Filed June 5, 1972, Ser. No. 259,485
Int. Cl. H04b *1/04*
U.S. Cl. 325—171 **6 Claims**

A ferrimagnetic crystal resonator is employed as the frequency determinative element of a radio frequency oscillator. The ferrimagnetic crystal is disposed in the gap of a magnet and the magnetic field is modulated in intensity in accordance with an audio AM signal to be impressed on the carrier. The audio AM modulation of the magnetic field of the magnet is converted into frequency modulation of the carrier frequency of the ferrimagnetic crystal controlled oscillator.

An internally generated stable reference radio frequency signal is compared with a sample of the FM output signal to



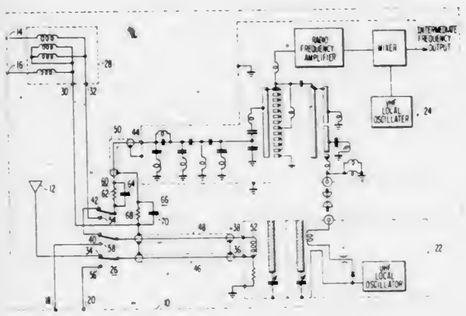
produce an error signal for correcting the average magnetic field intensity for controlling the average or carrier frequency of the FM transmitter.

3,787,773

SWITCHABLE ANTENNA CIRCUIT FOR TELEVISION PROVIDING FOR RECEPTION OF UHF AND VHF SIGNALS UTILIZING A SINGLE BUILT-IN MONOPOLE ANTENNA OR TWO EXTERNAL ANTENNAS

Eugene Ernst Janson, and Max Ward Muterspaugh, both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Sept. 11, 1972, Ser. No. 288,203
Int. Cl. H04b *1/06*
U.S. Cl. 325—370 **4 Claims**



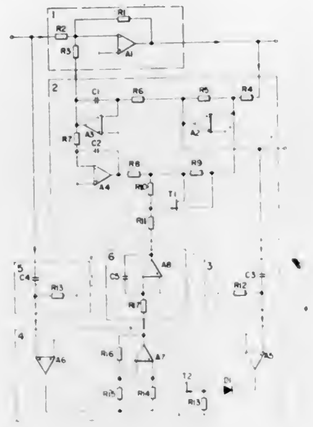
A television receiver for UHF and VHF television reception includes a built-in monopole antenna and first and second pairs of external antenna terminals for connection to external UHF and VHF antennas, respectively. A switch is provided which is operative in a first position to connect the monopole antenna through the input circuitry of the UHF tuner to the VHF tuner so that the monopole antenna provides UHF and VHF television signal inputs to UHF and VHF tuners. In the second position, the first and second pairs of external antenna terminals are individually connected to the appropriate one of the UHF and VHF tuners.

3,787,774

FILTER CIRCUITRY

Ulrich Tietze, Erlangen; Erich Courtin, Sindelfingen, and Stefan Traub, both of Boblingen, all of Germany, assignors to Hewlett-Packard GmbH, Boblingen, Germany

Filed Aug. 28, 1972, Ser. No. 284,389
Claims priority, application Germany, Aug. 31, 1971, 2143560
Int. Cl. H03b *1/04*
U.S. Cl. 328—167 **9 Claims**



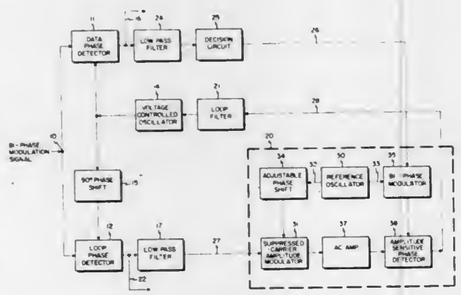
Circuitry for filtering a distinct variable spectral component includes a band-rejection filter formed by a summing amplifier with a feedback loop and a bandpass-filter connected to one of its inputs. The summing amplifier is connected to form the difference between the unfiltered spectrum at one of its inputs and the spectrum component to be suppressed at another of its inputs. The summing amplifier delivers the filtered signal spectrum at its output. A control circuit locks the common center frequency of the bandpass and band-rejection filters to the frequency of the spectral component to be suppressed.

3,787,775

PHASE CORRECTION CIRCUIT

Ronald L. Lanning, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Mar. 28, 1973, Ser. No. 345,668
Int. Cl. H03d *3/24*; **H03b** *3/04*
U.S. Cl. 329—122 **6 Claims**



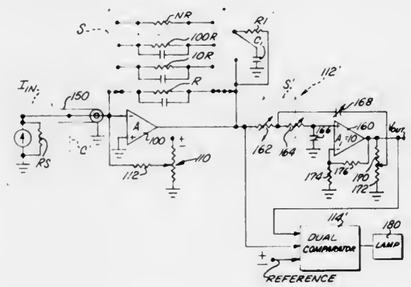
A phase correction circuit for a demodulator for a phase-shift keying, suppressed-carrier communication system. The demodulator for such a coherent phase detector requires means for reintroducing the carrier in proper phase and frequency. To this end a phase-locked loop demodulator is conventionally used including a phase correction circuit sometimes called an I-Q multiplier. The invention provides an improved phase correction circuit which will generate a phase-corrected loop error signal to keep the phase-locked loop locked in phase even during the period when the input signal reverses its polarity. The phase correction circuit includes a reference oscillator and hence operates at an alternating-current signal rather than a direct-current signal.

3,787,776

HIGH SPEED CURRENT AMPLIFIER

Pieter G. Cath, Orange Village, and Gary E. Angeline, Euclid, both of Ohio, assignors to Keithley Instruments, Inc., Solon, Ohio

Filed Oct. 6, 1971, Ser. No. 186,922
Int. Cl. H03f *19/00*
U.S. Cl. 330—2 **2 Claims**



A high speed current amplifier is disclosed for purposes of amplifying current signals from a current source over a wide frequency band while minimizing generated noise. The amplifier employs amplifying circuitry having an input adapted to be connected to a current source and an output, with the amplifying circuitry exhibiting an open loop gain of A. A resistive feedback path is employed, which exhibits a resistance R, connected between the input and output so that the amplifying circuitry would normally exhibit a useful band width extending to roll-off frequency F_1 where F_1 x A/(2πRC), with C being the shunt capacitance across the amplifier input. An attenuator is connected to the output of the amplifier for purposes of attenuating high frequency noise components above frequency F_2, where F_2 is less than frequency F_1 and at a rate greater than that of a single roll-off.

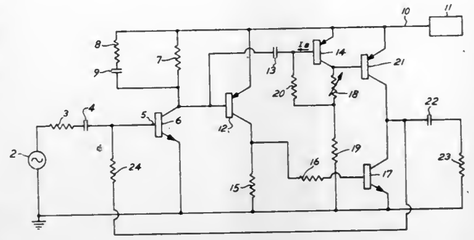
3,787,777

ELECTRIC AMPLIFIER

Peter A. Mercola, and William R. Jacobs, both of Wilmette, Ill., assignors to Beltone Electronics Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 61,196, Aug. 5, 1970, abandoned. This application Nov. 19, 1971, Ser. No. 200,544
Int. Cl. H03f *3/26*
U.S. Cl. 330—15 **7 Claims**

An electronic circuit for reducing the distortion and increasing the temperature stability of amplifying transistors arranged in a push-pull configuration. The circuit preferably uses a driver transistor that is matched to the push-pull transistor which it drives in order to increase temperature stability. A capacitor is connected in series with the input lead of the driver transistor. Due to the non-linearity of the drive transistor input characteristics, the d. c. voltage level stored on the capacitor is varied in proportion to the magnitude of the input signal. As a result, the operating point of the push-



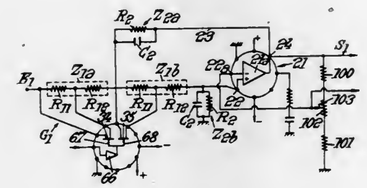
pull transistors is continuously adjusted in proportion to the magnitude of the input signal, whereby cross-over distortion is reduced.

3,787,778

ELECTRICAL FILTERS ENABLING INDEPENDENT CONTROL OF RESONANCE OF TRANSISITION FREQUENCY AND OF BAND-PASS, ESPECIALLY FOR SPEECH SYNTHESIZERS

Rene Carre; Jean-Pierre Beauviala, both of Grenoble, and Jean Paille, Seyssinet, all of France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Courbevoie, France

Continuation-in-part of Ser. No. 47,287, June 18, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,427
Claims priority, application France, Oct. 30, 1970, 7039299; June 20, 1969, 6920702
Int. Cl. H03f *1/36*
U.S. Cl. 330—86 **16 Claims**



The filter comprises an amplifier of gain G of which the input is connected to a first pair of similar series connected impedances and whose impedance values are related by a constant *a*, and a second pair of similar impedances whose impedance values are related by a constant *b*, one of the latter pair of impedances being provided in a negative feedback loop and the other being shunted between the amplifier provided in the input and reference potential. The filter G and the aforesaid impedance values are characterized by the relationship $1+a-b\,(G-1)=0$.

3,787,779

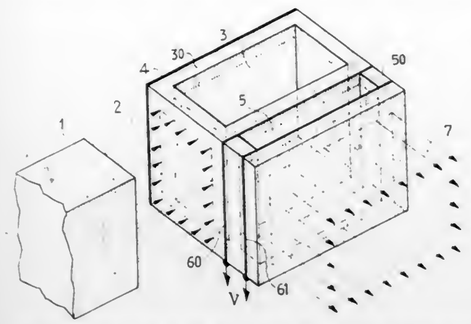
ADJUSTABLE WAVELENGTH OPTICAL SOURCE USING THE SIMULATED EMISSION EFFECT

Erich Spitz, and Daniel B. Ostrowsky, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Apr. 14, 1972, Ser. No. 243,948
Claims priority, application France, May 14, 1971, 7117558
Int. Cl. H01s *3/10*
U.S. Cl. 331—94.5 **1 Claim**

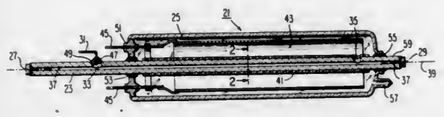
The present invention relates to stimulated emission radiation sources and, more precisely, to a dye laser in which the

wavelength of the radiation emitted is varied by modifying the voltage applied to a thin film of a cholesteric liquid crystal



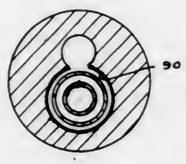
which replaces one of the mirrors of the resonant optical cavity. This invention can be used as an adjustable wavelength coherent radiation source.

3,787,780
ELECTRON TUBE HAVING INTERNAL GLASS MEMBER COATED WITH CRYSTALLINE CERAMIC MATERIAL
John Arthur Powell, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.
Filed July 24, 1972, Ser. No. 274,639
Int. Cl. H01s *3/02, 3/22*
U.S. Cl. 331—94.5 **8 Claims**



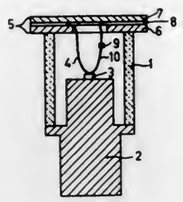
An electron tube comprising a gas-tight envelope containing an anode, a cathode and an elongated glass member which normally deforms when heated to about 450°C for 16 hours. A continuous layer of crystalline ceramic material is fused to a substantial portion of the surface of the elongated member to substantially reduce the deformation.

3,787,781
EXTERNAL CATHODE/INTERNAL ANODE FIGURE EIGHT LASER
Gustav K. Medicus, and Onezime P. Breaux, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Aug. 7, 1972, Ser. No. 278,330
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 D **2 Claims**



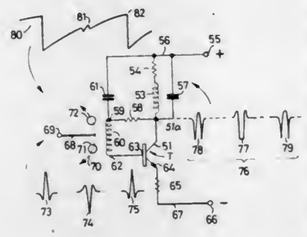
A transverse-discharge slotted hollow cathode gaseous laser having an external cathode with the anode contained within the confines of the cathode provides an easily cooled, stabilized (non-thermionic-emitting) cold-cathode, rugged, "all metal" laser.

3,787,782
MICROWAVE DEVICE
Hindrik Tjassens, Emmasingle, Eindhoven, Netherlands
Filed Aug. 15, 1972, Ser. No. 280,764
Claims priority, application Netherlands, Aug. 23, 1971, 7111600
Int. Cl. H03b *7/06*
U.S. Cl. 331—107 R **4 Claims**



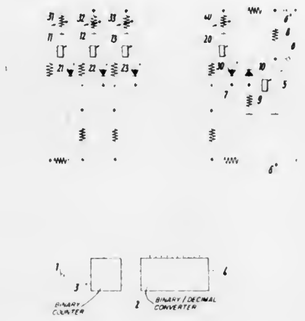
A microwave device comprising a hollow spacing cylinder of a dielectric material which is closed by electrically conductive contact members on its end faces, a first contact member being composed of two parts which are arranged to be insulated from each other, a semiconductor diode having a negative microwave resistance which is arranged inside the cylinder such that one side is directly connected to the second contact member and the other side is connected, via a first portion of a supply conductor, to one of the parts of the first contact member, and a capacitive semiconductor element which is incorporated in the second portion of the supply conductor, said second portion being provided between the other side of the diode having a negative microwave resistance and the second part of the first contact member.

3,787,783
TIME-KEEPING DEVICE WITH TRANSISTOR CONTROL USING OSCILLATING MAGNET
Edmund Ketterer, Hansjakob Strasse 7, 7712 Blumberg/Schwarzwald, Germany
Filed Apr. 21, 1972, Ser. No. 246,383
Claims priority, application Germany, Apr. 21, 1971, 2119299
Int. Cl. G04c *3/00;* **H03b** *5/30*
U.S. Cl. 331—116 M **18 Claims**



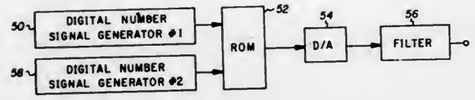
A drive arrangement for an electronic time-keeping device in which a rotor member is juxtaposed with a stator member, one of the members being provided with a pair of coils including a sensing coil (pick-up coil) and a drive coil. The other member carries a pair of oppositely poled magnets cooperating with the coils. A NPN transistor has a collector-emitter network in series with the direct-current source and the drive coil while the sensing coil is connected in a base-collector network of the transistor.

3,787,784
CIRCUIT ARRANGEMENT FOR APPLYING A TEMPERATURE STABILIZED VOLTAGE TO A VOLTAGE SENSITIVE COMPONENT
Hans Mangold, and Walter Klein, both of Fuerth, Germany, assignors to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig, Fuerth, Bayern, Germany
Filed Feb. 15, 1972, Ser. No. 226,464
Claims priority, application Germany, Feb. 18, 1971, 2107714
Int. Cl. H03b *5/00*
U.S. Cl. 331—177 V **8 Claims**



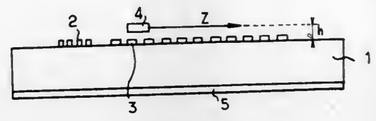
A selected one of a plurality of temperature stabilized tuning voltages is applied at a tuning output to a resonant circuit for varying the frequency thereof. Each tuning voltage is selectively applied to the tuning output by a switching transistor and an isolating diode. All isolating diodes have one electrode connected to a common line. A temperature compensating diode or the base emitter circuit of a temperature compensating transistor are connected between the common line and the tuning output. A single temperature compensating element thus compensates for temperature variations in any of the diodes.

3,787,785
PHASE REPRESENTATIVE DIGITAL SIGNAL MODULATING APPARATUS
Larry F. Bass, Mission Viejo, Calif., assignor to Collins Radio Company, Dallas, Tex.
Filed May 15, 1972, Ser. No. 253,094
Int. Cl. H04l *27/20*
U.S. Cl. 332—9 R **9 Claims**



Apparatus for combining two series of digital numbers from each of two different sources wherein the numbers represent phases of signals and for providing an output indicative of the modulation of one of the signals by the other signal with the output being an analog or digital number signal. The concept generally is shown in detail as applied to a differential phase shift keying transmitter where one of the sources of digital numbers is a time division multiplexed source of two signals and the other is a time base or clocking signal which modulates each of the time multiplexed signals from the first source on a raised cosine basis through the use of a look-up table in the form of a read only memory.

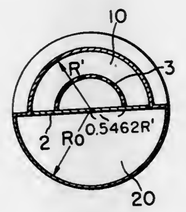
3,787,786
CONTINUOUSLY VARIABLE ULTRASONIC DELAY LINE
Andre Defebvre; Gerard Leman, and Jean-Francois Pouliquen, all of Lille, France, assignors to Etat Francais, Paris, France
Filed Nov. 9, 1972, Ser. No. 304,950
Claims priority, application France, Nov. 10, 1971, 71.40292; Oct. 31, 1972, 72.38716
Int. Cl. H03h *9/20, 9/30;* **H01v** *7/00*
U.S. Cl. 333—30 R **7 Claims**



Delay line comprising an extended piezoelectric element and two input and output electrode systems cooperating with the surface of this element, characterized in that at least one of the two systems comprises at least one movable part which follows the longitudinal direction of the piezoelectric element, this movable part forming an upper electrode situated close to the active face of the piezoelectric element.

Application to the realization of ultrasonic delay lines with continuous variation.

3,787,787
CIRCULAR WAVEGUIDE MODE FILTER
Sadakuni Shimada; Kunio Hashimoto; Ken Kondoh, all of Tokyo, and Masaki Koyama, Sayama, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan
Filed July 14, 1972, Ser. No. 272,037
Claims priority, application Japan, July 19, 1971, 46/53688
Int. Cl. H01p *1/16, 1/18*
U.S. Cl. 333—98 M **10 Claims**

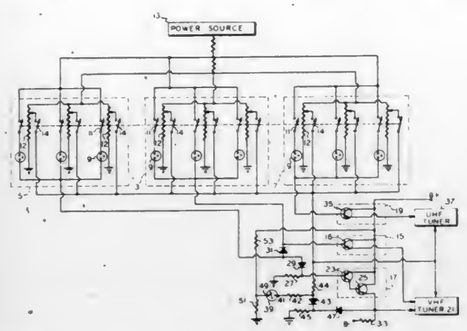


A circular waveguide mode filter is provided which comprises a circular waveguide consisting of an upper and lower semicircular waveguide sections and in which dielectrics or magnetic materials are disposed in either of the upper or lower waveguide sections or in both of them in a special spatial relation with them so that the desired TE_{01} signal mode may be propagated through the waveguide while the undesired TE_{0n} (where $n \geqq 2$) modes are absorbed.

3,787,788
VARACTOR TUNER BAND SWITCHING AND SIGNAL INDICATING CIRCUITRY
Paul Eshelman Le Fevre, Pavilion, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Filed Jan. 26, 1973, Ser. No. 326,829
Int. Cl. H03j *3/06*
U.S. Cl. 334—14 **9 Claims**

A signal receiver having VHF and UHF varactor tuners and a channel indicating group for the upper and lower VHF chan-

nels and for the UHF channel includes band switching circuitry for selectively coupling a plurality of power sources to the tuners in accordance with activation of a particular channel indicating group. Also, the band switching circuitry is utilized in conjunction with a channel indicating meter circuit for providing a visual indication of the channel selected in each one of the channel indicating groups.

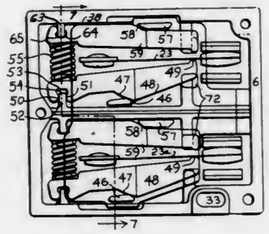


3,787,789

SWITCHING MECHANISM

John L. Harris, Clearwater, Fla., assignor to Deltrol Corp., Bellwood, Ill.

Filed Oct. 24, 1972, Ser. No. 300,122
Int. Cl. H01h *3/60*
U.S. Cl. 335—193 **19 Claims**



A plug in relay is provided in which the switches are mounted directly on the plug in base, the supports for the switch blades and stationary contacts extending through the base and forming the plug in terminals. The switches are positively operated by levers on each side of the blades. These levers have camming surfaces which are acted on by abutments formed on a slide attached to a solenoid. The camming surfaces are non-linear to cause contact closure at a relatively slow rate with high initial contact pressure to prevent contact bounce. Strain relief for overtravel is provided by movable pivots for the levers held in normal position by a spring.

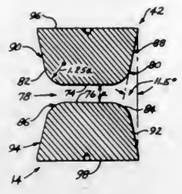
3,787,790

MAGNETIC MASS SPECTROMETER WITH SHAPED, UNIFORMLY SATURATING MAGNETIC POLES

Charles W. Hull, Sierre Madre, and Charles R. McKinney, Monrovia, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 15,186, Feb. 27, 1970, Pat. No. 3,699,332.
This application July 17, 1972, Ser. No. 272,647
Int. Cl. H01f *7/00*
U.S. Cl. 335—210 **6 Claims**

A magnetic mass spectrometer having a magnetic analyzing sector utilizing shaped magnet poles of a specific configuration so as to produce uniform magnetization of the pole material and constant flux distribution at all magnetic field strengths. The magnet poles are shaped such that the surfaces thereof conform to an exponential function. Magnetic shunts are located at a predetermined spacing from the entrance and exit end of the analyzing sector to locate the magnetic field boundary.

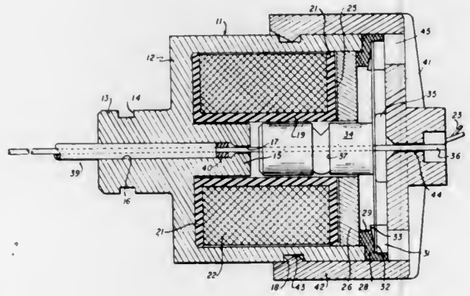


3,787,791

SOLENOID FOR WIRE PRINTER

Jurgen Herman Borger, and Rafael A. Castellanos, both of Chicago, Ill., assignors to Victor Comptometer Corporation, Chicago, Ill.

Filed Oct. 30, 1972, Ser. No. 301,774
Int. Cl. H01f *7/08*
U.S. Cl. 335—274 **11 Claims**



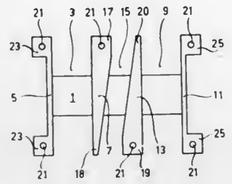
Solenoid for longitudinally actuating printing wire in high speed wire printer comprising metal housing open at one end, a coil in the housing, an annular pole piece substantially closing open end of housing to eliminate air gap in flux path, a plunger secured to print wire by swaging to avoid degrading its magnetic characteristics and movable within and axially of coil and pole piece, a flat tempered steel spring engaging plunger to retain same in inactive position and to return it thereto following energization of the coil, a plastic spring seat formed as a ring mounted in open end of housing with recesses receiving ends of spring, and a plastic cap mounted over open end of housing in snap-fit engagement therewith, the cap and housing having axial bores to accommodate printing wire, with an enlarged outer portion of housing bore receiving a plastic bearing and the end of a plastic tube slidably encasing a major portion of the wire.

3,787,792

COIL FORMER FOR A TRANSFORMER

Nicolaas Johannes DeJong, and Mannes Arie, both of Middelkamp, Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Filed Mar. 16, 1973, Ser. No. 341,984
Claims priority, application Netherlands, Mar. 22, 1972, 7203795
Int. Cl. H01f *15/10, 27/30*
U.S. Cl. 336—192 **4 Claims**



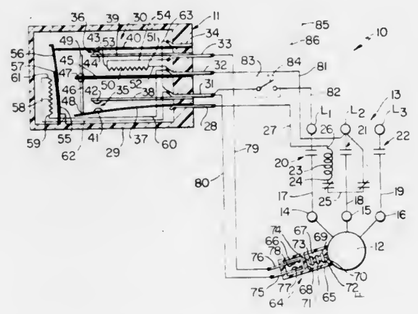
A coil former for a transformer having four flanges which are consecutively arranged on a central part, each of the two intermediate flanges having a thick edge in which a connection pin is connected. The two thick edges are diametrically arranged on opposite sides of the central part.

3,787,793

BIMETAL ELECTRICAL SWITCH

James R. Willson, Trumbull, Conn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 10, 1972, Ser. No. 216,685
Int. Cl. H01h *37/04, 37/52*
U.S. Cl. 337—44 **10 Claims**



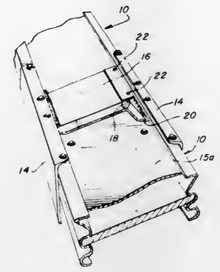
A control system for a motor having a required oil pressure for the safe operation thereof, the system having a time delay switch for interconnecting an electrical source to the motor to operate the same each time the time delay switch is initially activated by being placed across the power source. The time delay switch has a time delay bimetal means that is adapted to move and open the switch if the oil pressure of the motor does not reach the required value within a predetermined time period from the initial activation of the time delay switch. An oil pressure responsive switch is operatively interconnected to the time delay bimetal means and to the motor to terminate the switch opening movement of the time delay bimetal means if the oil pressure reaches the predetermined value thereof during the predetermined time period so that the motor will be continuously operated as long as the system is not manually or automatically turned off or the oil pressure does not fall below the predetermined value thereof.

3,787,794

TOP COVER FOR A BUS DUCT JOINT

John E. Schmidt, deceased, late of Oxford, Ohio; Margaret J. Schmidt, Legal Representative, Lexington, Ky., and George N. Jorgensen, Oxford, Ohio, assignors to Square D Company, Park Ridge, Ill., by said Jorgensen

Filed Jan. 12, 1973, Ser. No. 322,999
Int. Cl. H01r *13/60*
U.S. Cl. 339—22 B **3 Claims**



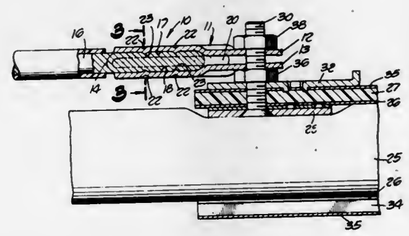
A two-part hinged cover is inserted between the opposite flanges of the tops of a pair of connected bus duct sections at the joint therebetween and straightened to abut their top surfaces. The cover is locked in the straightened position by a pair of screws. A gasket secured to the cover forms a seal between the top surfaces of the bus duct sections and the cover.

3,787,795

SOLDERLESS TERMINAL ASSEMBLY

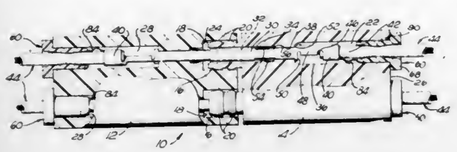
John T. Thompson, 244 Loring St., Los Angeles, Calif., and George W. Gillemot, 2331 20th St., Santa Monica, Calif.

Continuation of Ser. No. 80,993, Oct. 15, 1970, abandoned.
This application Apr. 7, 1972, Ser. No. 241,993
Int. Cl. H01r *7/08*
U.S. Cl. 339—14 R **27 Claims**



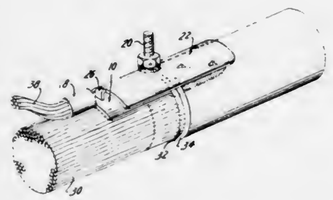
A solderless terminal strip of U-shaped, tempered, resilient metal having an opening in its bight for receiving the end of a conductor and clamping the same between the legs thereof as the latter are clamped together. Sharp edged pimple-like protruberances bite into the conductor to assure electrical contact and a strong mechanical anchorage. The clip legs are formed with channels, lengthwise thereof, preferably non-linear and of a size firmly seating the similarly shaped end of a conductor. Smaller sized conductors are accommodated by selecting a split sleeve adapter of suitable size to telescope over the conductor and be clamped between the legs of the clip.

3,787,796
LOW COST SEALED CONNECTOR AND METHOD OF MAKING SAME
John E. Barr, Brea, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Oct. 17, 1972, Ser. No. 298,416
Int. Cl. H01r 13/52
U.S. Cl. 339—60 R 12 Claims



A low cost sealed electrical connector and method of making the same in which a conductor terminating in an electrical contact is slidably mounted in the rear end of a passage in a connector body and a radially deformable sealing element surrounding the conductor is forced into the annular space between the conductor and the wall of the passage to provide a seal therebetween. Preferably, the sealing element is attached to the conductor-contact assembly prior to inserting the assembly into the connector body. The invention may be used in any application where it is desired to seal a conductor within a wall or body. A special form of a sealing element is disclosed which assures a moisture-tight seal between the conductor and the body in which it is mounted.

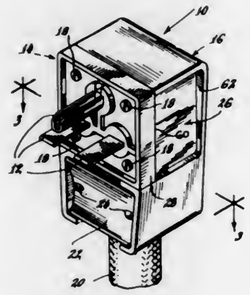
3,787,797
GROUNDING CONNECTORS FOR SHIELDED CABLE
Adolph Kurz, 10 Highpoint Dr., Mountainside, N.J.
Filed Dec. 29, 1972, Ser. No. 319,301
Int. Cl. H01r 11/20
U.S. Cl. 339—95 R 7 Claims



A grounding connector for shielded and insulation-sheathed cable includes upper and lower plates cylindrically curved about the axis of the cable. The lower plate is divided by an off-set into a contact portion that is slipped underneath the shield and bears against the bundle of cable conductors, and a clamp portion that is spaced out of potentially damaging contact with the cable wires. A stud projects from the clamp portion of the lower plate adjacent the off-set through the upper plate and bears a nut for drawing the plates toward each other. The clamp portion of the lower plate has an integral solderless connector for a grounding conductor, providing a solid metallic path from the shield to the grounding conductor. Differing from other connectors of this class, there is no tendency for stresses applied to the grounding conductor to loosen the disclosed connector.

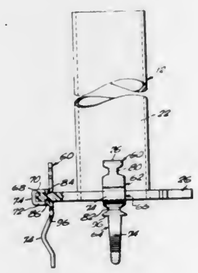
Special ridges are formed by grooves in the cylindrical outward-facing surface of the contact portion, one side of each ridge being in a plane perpendicular to the cylindrical axis and the other surface of each ridge sloping from the bottom of the groove toward the stud. There is a narrow crest between each groove and the next. The ridges facilitate insertion of the contact portion of the lower plate inside the cable shield, and yet the ridges resist mechanical pull-out stresses and provide stable electrical contact to the inside surface of the shield without cutting the shield.

3,787,798
HEAVY DUTY PLUG
Vincent L. Carissimi, Fairfield, Conn., and George H. Kress, Newark, N.J., assignors to Harvey Hubbell, Incorporated, Bridgeport, Conn.
Filed May 8, 1972, Ser. No. 251,347
Int. Cl. H01r 13/58
U.S. Cl. 339—107 6 Claims



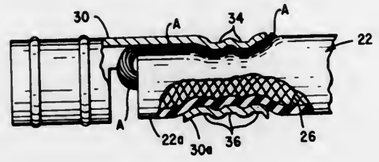
An apparatus for containing an electrical plug, particularly where a large force is required to either insert or withdraw the plug from a mating outlet. Gripping wells are disposed on opposite sides of the plug which provide both a protective lip and a gripping lip. The protective lip avoids arc burns and electrical shocks during plug insertion. The gripping lip facilitates the applicaton of force during plug withdrawal. Sophisticated fabricaton of parts and the need for additional parts are both avoided by constructing the plug from routine component parts which are cooperatively configured to create the gripping wells upon assembly.

3,787,799
MULTI-PIECE COIL FORM ASSEMBLY
Leroy F. McFarlane, St. Charles Township, Kane County, Ill., assignor to Coilform Company Inc., Geneva, Ill.
Continuation of Ser. No. 886,685, Dec. 19, 1969. This application Sept. 15, 1971, Ser. No. 180,813
Int. Cl. H01r 13/66
U.S. Cl. 339—214 R 4 Claims



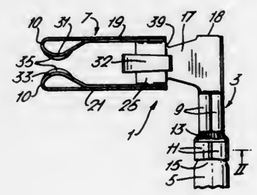
A coil form assembly of multi-piece construction which includes a tube of distortion resistant thermo-setting material to accommodate a coil wound thereabout, a thin washer of thermo-setting material secured intermediate the ends of the tube, and, for some installations, mounting means on the washer for connecting the assembly, for instance, to a pierced circuit board. The preferred mounting means are a plurality of lugs arranged in a pattern about the washer, each lug being of resilient material and having a jaw or mouthpiece provided with teeth to receive and to grip the peripheral margin of the washer. The lugs have a portion which, when so mounted to the washer, extend as legs in a pattern below the coil form assembly and are adapted to be received in the openings of a companionate pattern of a circuit board. The arrangement of the lugs circumferentially about the washer may be varied to meet any of the omnifarious conditions met in electronic or appliance installations.

3,787,800
RESISTOR IGNITION LEAD
Robert A. Barker, and John W. Shank, both of Port Huron, Mich., assignors to Eltra Corporation, Brooklyn, N.Y.
Division of Ser. No. 315,464, Oct. 11, 1963, Pat. No. 3,284,751. This application Nov. 7, 1966, Ser. No. 595,305
Int. Cl. H01r 15/12
U.S. Cl. 339—223 S 2 Claims



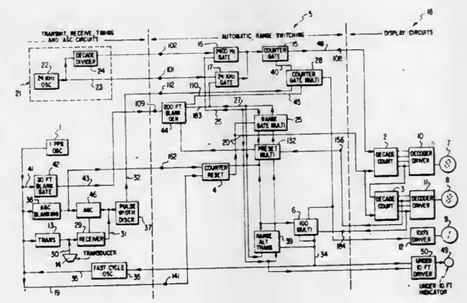
The invention is directed to a non-metallic resistor ignition cable having a core including a conductive coating over strands of non-conductive material. The strands are impregnated with a conductive medium prior to or at the time of application of the conductive coating. Outer insulation is supplied which is stripped off to expose the coated strands. A terminal is applied to the stripped end of the cable by crimping a ferrule portion around the end of the outer insulation and the folded back coated strands.

3,787,801
DOUBLE THICKNESS P.C.B. FLAG TERMINAL
Wladimiro Teagno, and Franco Trevisiol, both of Turin, Italy, assignors to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 9, 1972, Ser. No. 224,832
Claims priority, application Italy, Feb. 24, 1971, 20976 A/71
Int. Cl. H05k 1/07; H01r 11/22
U.S. Cl. 339—258 R 2 Claims



A unitary electrical terminal made from sheet material for a printed circuit board edge connector, comprising a contact part including a base member of a channel section and double thickness, sides of the channel being extended at one end of the base member to define a pair of resilient, parallel spaced contact arms for receiving between an edge of a printed circuit board, each arm being of double thickness, the thickness of each contact arm being formed at the free end of the contact arm remote from the base member.

3,787,802
AUTOMATIC RANGE SWITCHING FOR DIGITAL DEPTH SOUNDERS
Rodman S. Brahman, Berrien Springs, Mich., assignor to Heath Company, Benton Harbor, Mich.
Filed May 8, 1972, Ser. No. 250,921
Int. Cl. G01s 9/68; G04f 9/00
U.S. Cl. 340—3 R 5 Claims

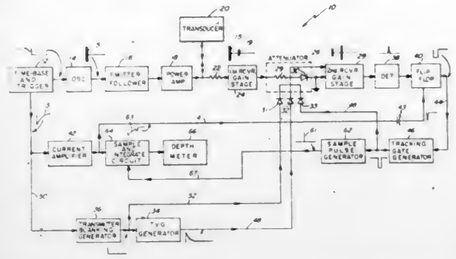


A depth sounder instrument having automatic range switching in which an oscillator and a divider produce timing pulse trains at two different frequencies which are related to the propagation velocity of the depth sounder transmitted pulse. A selected one of the pulse trains is delivered to a digital counter during the interval between the transmitted energy pulse and the received pulse, the latter having been reflected from the bottom of the body of water. The apparatus includes logic means responsive to the count arrived at during this interval to select the total instrument range for the next interval, this range being chosen by the selection of the pulse train. If the count accumulated during the interval is appropriate to the previously selected range, no change is made. However, if the count is either much smaller than, or greater than, the counter capacity, the other frequency is chosen, thereby causing the counters to accumulate at a faster or slower rate. The frequencies are preferably related by a power of 10 and a decimal point can then be illuminated or not, depending upon the range and frequency chosen.

3,787,803
HIGH PERFORMANCE METER DEPTH SOUNDER FOR AUTOMATICALLY INDICATING DEPTH WITHOUT MANUAL ADJUSTMENT
John N. Beebe, Londonderry, N.H., assignor to Raytheon Company, Lexington, Mass.
Filed Nov. 29, 1972, Ser. No. 310,300
Int. Cl. G01s 9/68
U.S. Cl. 340—3 R 15 Claims

A depth meter circuit which overcomes the usual necessity for manual adjustment of the sensitivity control to improve the signal-to-noise ratio and to prevent spurious meter response to wakes and debris at intermediate depths is achieved by a dynamically adjusted receiver attenuator circuit which is controlled by the combination of an automatic bottom tracking gate, a time varied sensitivity circuit and a transmission blank-

ing circuit operating in conjunction with a meter indicating circuit which is activated only during the time of return echoes by means of a ramp voltage sampling circuit actuated only by



the return echoes. The arrangement makes possible the use of maximum transmitted power for accurate measurement of deep bottoms and on the same nonlinear scale, provides accurate readings of shallow depths without manual adjustment.

3,787,804

APPARATUS FOR ENSURING OR ENCOURAGING THE WEARING OF SAFETY BELTS IN VEHICLES

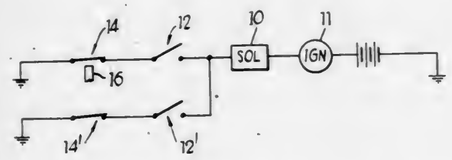
Kenneth Donald MacDonald, 16 Upper Garrabost Point, Isle of Lewis, Scotland

Filed Dec. 15, 1971, Ser. No. 208,265

Claims priority, application Great Britain, Dec. 18, 1970, 60,290/70; Apr. 23, 1971, 11,036/71; June 2, 1971, 18,657/71

Int. Cl. B60g *9/00*; **B60r** *21/10*

U.S. Cl. 340—52 E **10 Claims**



The invention provides a warning device which is operable by a driver or any of his passengers in a vehicle failing to fasten their safety belts, to limit the throttle opening of the vehicle engine to a predetermined maximum, which may be zero i.e. the idling condition. There is further provided a system in which the warning device is rendered inoperative by means of a switch associated with the driver's seat and so arranged that when the driver assumes an abnormal seating position on the seat this switch renders the warning device inoperative. There is also provided a system in which a further switch is associated with a safety belt, which further switch is sensitive to whether or not at least part of that safety belt is approximately in a predetermined position, whereby if a user is not wearing the belt in a normal position the switch will operate the warning device.

3,787,805

MECHANICAL EMERGENCY CENTRAL SWITCH ASSEMBLY FOR MOTOR VEHICLE

Hendrik Johannes Van Jaarsveldt Combrinck, Stand 44, Comptonville, Johannesburg, South Africa

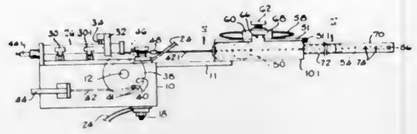
Filed Aug. 15, 1972, Ser. No. 280,749

Claims priority, application South Africa, Aug. 17, 1972, 5489

Int. Cl. H01h *35/02*

U.S. Cl. 340—52 H **4 Claims**

The invention is directed to the complete electrical disconnection of the battery of a motor vehicle by automatic or manual control devices to prevent a fire to be started in the event of an accident or when the vehicle is left unattended, while resetting of the automatic means and reconnection of the battery is by another manual control. The automatic con-



trol comprises a resiliently held and spring biassed mass which, when freed, opens at least one switch connected in a conductor leading from one of the terminals of the battery. The resetting manual control is preferably lockable.

3,787,806

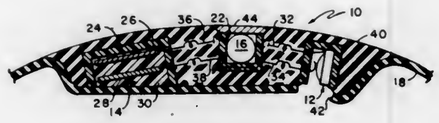
TIRE PRESSURE WARNING APPARATUS

Donald E. Church, Richmond, Ind., assignor to Avco Corporation, Richmond, Ind.

Filed June 26, 1972, Ser. No. 266,113

Int. Cl. B60c *23/04*

U.S. Cl. 340—58 **4 Claims**



A tire pressure warning apparatus for operation in a pneumatic tire in combination with an inner tube is disclosed. The warning apparatus comprises a pressure sensor, transmitter and a source of power scalingly adhered to an inner tube. The sensor assembly being in communication with the tire pressure for actuation of the transmitter in response to a drop in the tire pressure. Means are provided to protect the individual components while permitting the necessary flexibility to conform to the shape and motion of the inner surface of the tire.

3,787,807

MOUNTING FOR A SPEED DETECTOR

Giovanni Anselmino, and Emanuele Ravizza, both of Turin, Italy, assignors to FIAT Societa per Azioni, Turin, Italy

Filed July 12, 1972, Ser. No. 273,012

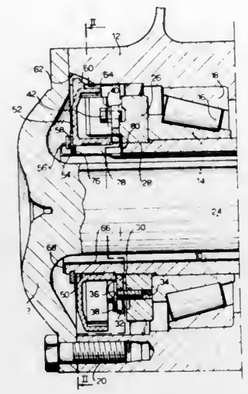
Claims priority, application Italy, July 20, 1971, 69436 A/71

Int. Cl. B60q *9/00*

U.S. Cl. 340—62 **2 Claims**

An assembly for mounting a detector sensitive to the speed of rotation and angular position of a wheel and which allows the detector to be readily accessible for maintenance is disclosed. In addition the detector is spaced from the brakes of the wheel so that it is protected from the heating effect of the brakes which might affect its performance. The detector comprises a phonic wheel which is mounted for rotation about a hollow boss on which the wheel is rotatably mounted and through which passes the half-shaft from the differential, and a magnetic sensor which is secured to the boss. The magnetic

sensor has an output lead which is guided by a groove formed by the co-operating longitudinal edges of a metal plate formed



into a tube and located on the inside of the hollow boss in such a way that the half-shaft which passes therethrough also passes through the tube.

3,787,808

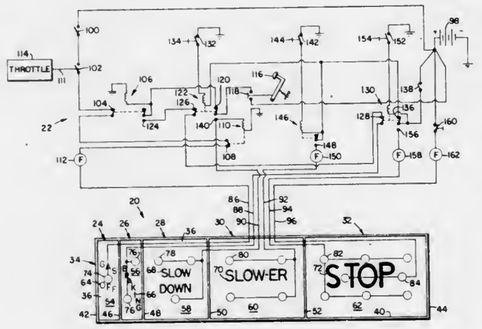
AUTOMOBILE SIGNALLING SYSTEM

Kenneth K. Knopf, 850 Chiltron Rd., Hillsborough, Calif.

Continuation of Ser. No. 883,848, Dec. 10, 1969, abandoned. This application Mar. 2, 1972, Ser. No. 231,432

Int. Cl. B60q *1/44*

U.S. Cl. 340—66 **4 Claims**



A signalling system for automobiles to visually warn following motorists of deceleration stages. A series of panels mounted on the rear of the automobile are illuminated by a control circuit in a predetermined program responsive to both throttling and braking operations. The control circuit is effective to actuate the panels throughout vehicle deceleration in a manner which generates signals proportioned in size, color, and intensity to the rate of change of deceleration. In one form, the circuit senses daylight intensity conditions to increase panel illumination for added signal contrast and effectiveness. In another form, the control circuit illuminates an additional information containing panel for a given time length following a deceleration stage.

3,787,809

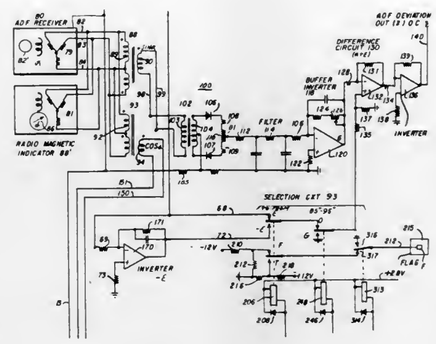
SYSTEM FOR DERIVING AZIMUTH STEERING COMMANDS FROM AUTOMATIC DIRECTION FINDING EQUIPMENT

Philip G. Cooper, Saratoga, Calif., assignor to Kaiser Aerospace & Electronics Corporation, Oakland, Calif.

Filed Sept. 22, 1971, Ser. No. 182,735

Int. Cl. G01s *3/42*

U.S. Cl. 343—117 R **18 Claims**



An airborne navigation system for deriving azimuth steering commands from automatic direction finding equipment which includes a receiver for selecting a commercial broadcast station, a selector dial for selecting a desired course or azimuth to such broadcast station, and circuitry for providing a left-right deviation signal which enables the pilot to fly the aircraft along the selected course line (azimuth). Associated circuitry provides signals which indicate whether the aircraft is approaching toward or departing from a station, whether the aircraft is over the selected broadcast station, and whether the selected broadcast station has a predetermined relative bearing, which signals are used to provide a more reliable display of azimuth steering commands.

3,787,810

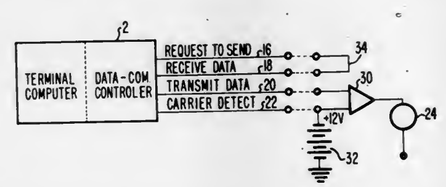
TEST METHOD FOR A PROGRAMMABLE DATA COMMUNICATION TERMINAL

Gerald N. Wiggins, Pinckney, and Jerome S. Rogers, Livonia, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Nov. 2, 1972, Ser. No. 303,129

Int. Cl. G08c *25/00*; **G05b** *23/02*

U.S. Cl. 340—146.1 E **11 Claims**

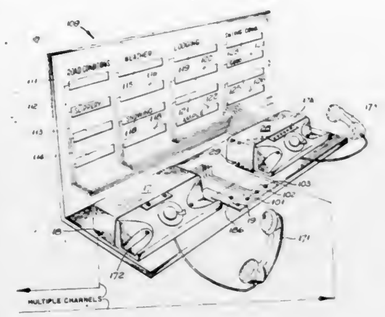


A method of testing the transmit and receive functions of a programmable data communications terminal. The transmit function is tested by having a program within the terminal computer continually transmit a known bit pattern and measuring the voltage output of the transmit line. The receive function is tested by connecting the request to send line to the receive data line and programmably generating a character on the request to send line that may be read via the receive data line.

3,787,811
REMOTE CONTROL SYSTEM

James R. Hilgedick, Oakland, Calif., assignor to Lloyd Bowen, Oakland, Calif.

Filed Feb. 3, 1971, Ser. No. 112,123
Int. Cl. H04m 1/00
U.S. Cl. 340—163 R 6 Claims

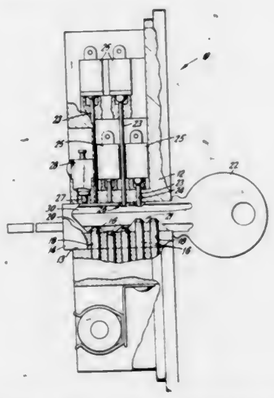


A remote control system for a power operated device having a plurality of positions. Telephone system connected and receiving apparatus at an attended station is combined with telephone system connected receiving and transmitting apparatus at the remote station for enabling an operator at the attended station to advance the device to any of its positions and to receive back information from the remote station indicating to the operator the precise extant position of the device.

3,787,812
PICK-PROOF LOCK

William H. Armstrong, Middlebury, Conn., assignor to The Waterbury Pressed Metal Company, Waterbury, Conn.

Filed Oct. 20, 1971, Ser. No. 190,905
Int. Cl. E05b 47/00, 45/10
U.S. Cl. 340—164 R 6 Claims

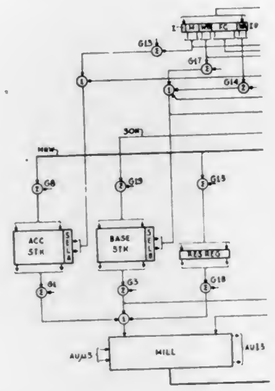


A pick-proof lock for use with a key having a double bitting. First means is included for reading the first bitting. Second means is included for reading the second bitting to open the lock only when the first bitting reading means and second bitting reading means are enabled by a key having the proper bittings. Unlocking preventing means prevents unlocking of the lock until the second bitting reading means is enabled. Responsive means disables the unlocking preventing means when the second bitting reading means is enabled.

3,787,813
DATA PROCESSING DEVICES USING CAPABILITY REGISTERS

Alun John Cole, Broadstone; John Michael Cotton, Windsor, and David Cockburn Cosserat, London, all of England, assignors to Plessey Handel Und Investments A.G., Zug, Switzerland

Filed May 24, 1971, Ser. No. 146,334
Claims priority, application Great Britain, May 26, 1970, 25,245/70
Int. Cl. G06f 9/20
U.S. Cl. 340—172.5 3 Claims



A data processing device, for use in a time-sharing computer system, comprises a central processing unit and a storage unit, the information in the storage unit being arranged in segments and the central processing unit includes a plurality of capability registers each arranged to store descriptor information indicative of the base and limit addresses of an information segment. One of the capability registers is arranged to hold information defining the base and limit addresses of an information segment which contains a segment pointer table, particular to the program currently being executed by the central processing unit and a further one of the registers is arranged to hold information defining the base and limit addresses of an information segment which contains a master capability table having an entry for each information segment in the storage unit composed of information defining the base and limit addresses of a segment. The segment pointer table comprises a list of data words which are used as pointers to define different entries in the master segment table.

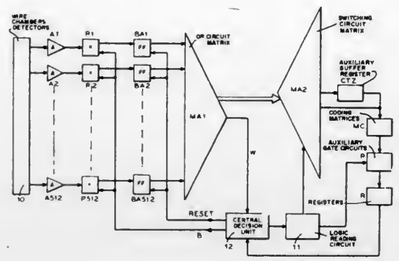
3,787,814
LOGIC SYSTEM FOR THE PROCESSING OF DATA DELIVERED BY NUCLEAR DETECTORS

Roland Pages, New York, N.Y., assignor to Schlumberger Instruments et Systemes, Paris, France

Filed June 22, 1971, Ser. No. 155,548
Claims priority, application France, June 23, 1970, 7023118
Int. Cl. G06f 7/00
U.S. Cl. 340—172.5 12 Claims

A logic system for processing data derived from a multiplicity of individual detectors for the purpose of detecting the presence of data generated by at least one of said detectors and for the purpose of identifying the detectors which have generated data. The disclosed logic system is particularly suited for use with nuclear detectors designed to detect the existence of particles with very short life times which could be of

the order of a nanosecond. The disclosed embodiment comprises a first pyramidal multilevel matrix of OR circuits and a second pyramidal multilevel matrix of switching circuits, with

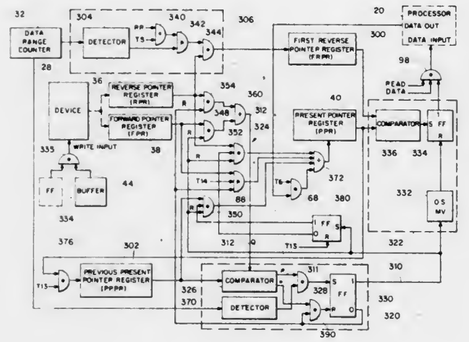


the two matrices being symmetrical, and with the first matrix serving primarily to detect the presence of data generated by a detector and the second matrix serving primarily to identify the detectors which have generated data.

3,787,815
APPARATUS FOR THE DETECTION AND CORRECTION OF ERRORS FOR A ROTATIONAL STORAGE DEVICE

William W. Farr, Jr., Holliston, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 24, 1971, Ser. No. 156,260
Int. Cl. G06f 11/04
U.S. Cl. 340—172.5 13 Claims

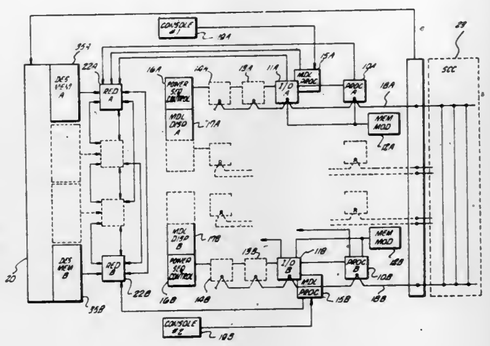


Pages included in a record and stored on a rotational storage device include data, a reverse pointer and a forward pointer, the reverse pointer linking to the previous page and the forward pointer linking to the next page. The reverse pointer of the current page operated on and the address of the previous page addressed are compared generating an error signal if such pointers are dissimilar. In response to the error signal, the page last addressed is readdressed following which the pages of the record are addressed in reverse order until the complete record is transferred to or from the device.

3,787,816
MULTIPROCESSING SYSTEM HAVING MEANS FOR AUTOMATIC RESOURCE MANAGEMENT

Erwin A. Hauck, Arcadia; Don M. Lyle, Huntington Beach, and James E. Wollum, Glendora, all of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 12, 1972, Ser. No. 252,875
Int. Cl. G06f 11/06
U.S. Cl. 340—172.5 10 Claims

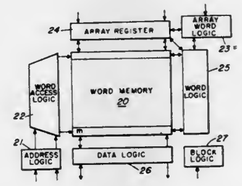


The disclosure relates to a multiprocessing system which may be reconfigured in a controlled manner to redesignate the functions assigned to particular similar units so as to provide continuous data processing capabilities. In certain circumstances, a failed unit or group of such units can be isolated from the system. Whenever a malfunction is sensed which requires corrective measures, the system operation is halted, the different operational units of each of the processing groups which make up the multiprocessing system are redesignated for different functional tasks, a new and reliable copy of the master control program is loaded into main memory and the system operation is reinitiated

3,787,817
MEMORY AND LOGIC MODULE

Jacob Goldberg, Palo Alto, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 21, 1972, Ser. No. 265,093
Int. Cl. G11c 11/34
U.S. Cl. 340—172.5 5 Claims

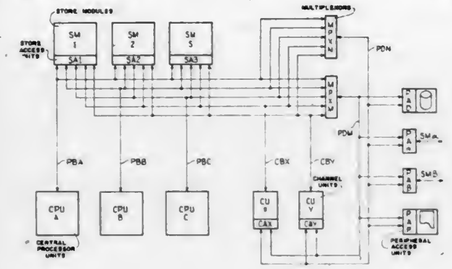


A system for augmenting a computer memory with storage and logic functions so as to provide parallel data processing and serial accessing capability consisting of a hybrid combination of a random-access memory and a cellular logic-in-memory array. The basic module of the system is a monolithic semiconductor array. Various other component parts, such as address logic, data logic and word logic may be included as part of the module.

3,787,818
MULT-PROCESSOR DATA PROCESSING SYSTEM

John Spencer Arnold; George Morland Beck; Roger John Boom; David Cockburn Cosserat; Kenneth James Hamer Hodges; Theodor Duncan Sandeman; Roger Morley Williams, all of Ilford, England, and Michael O'Halloran, Mittagong, Australia, assignors to Plessey Handel Und Investments AG, Zug, Switzerland

Filed June 22, 1972, Ser. No. 265,410
Claims priority, application Great Britain, June 24; 1971, 29,670/71
Int. Cl. G06f *15/16*
U.S. Cl. 340—172.5 17 Claims

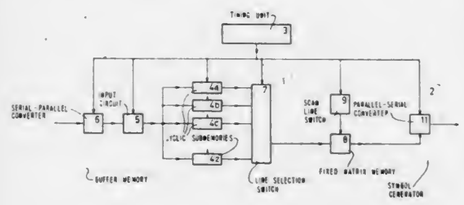


A data processing system includes a group of peripheral units, a plurality of memory modules, a plurality of input-output channel units for use in providing access to the group of peripheral units and a plurality of processor modules. It also includes a plurality of separate data communication paths, one for each processor module and one for each input-output channel unit and each of the data communication paths is separately connected to all the storage modules and to at least one multiplex unit and each of the multiplex units is connected by an individual data transfer path to all the peripheral units of the group and all of the input-output channel units.

3,787,819
DEVICE FOR THE PROCESSING OF DIGITAL SYMBOL DATA FOR THE PURPOSE OF DISPLAYING TEXT ON A TELEVISION MONITOR

Hendrik Busink, Eibergen, Netherlands, assignor to N.V. Hollandse Signaalapparaten, Hengelo, Netherlands

Filed July 19, 1972, Ser. No. 273,347
Claims priority, application Netherlands, July 23, 1971, 7110158
Int. Cl. G06f *3/14*; G08b *23/00*
U.S. Cl. 340—172.5 9 Claims

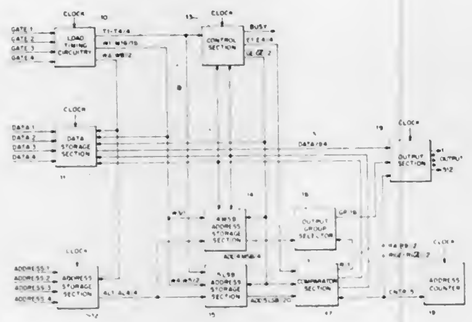


A computer terminal for the processing of supplied symbol data for the purpose of displaying lines of text on a television monitor. The buffer memory of the computer terminal comprises an input circuit and a plurality of cyclic submemories, where the input circuit provides for the storage of the data required for displaying one line of text in the respective submemory. The number of times this data is fed from the respective submemory to a symbol generator connected to the buffer memory, corresponds to the number of scan lines required for displaying one line of text, the symbol generator feeding the data of a desired scan line each time to said monitor.

3,787,820
SYSTEM FOR TRANSFERRING DATA

Frederick A. Sherman, Levittown, Pa., assignor to GTE Information Systems Incorporated, Stamford, Conn.

Filed Dec. 29, 1972, Ser. No. 319,507
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 5 Claims



Apparatus for transferring messages received at any of four inputs to any of 512 outputs. Messages of 64 bits each may be present on any of four data input lines simultaneously. A 9-bit address identifying an output line is provided with each message on an associated address line. The 64 data bits of each message received during a 64-bit message input period are stored in a memory array. The four most significant bits (MSB) of each address are stored in one memory array and the five least significant bits (LSB) of each address are stored in another memory array. During the next 64-bit period the five LSB's of the stored addresses are compared with the count of a 5-bit (32 count) counter. When a comparison occurs, the appropriate four MSB's of the address are read out of the memory array and the 64 data bits are also read out of the memory. The four MSB's of the address are decoded to select the proper one of 16 groups of 32 output lines to which the data is to be directed. The 64 bits of data are received in parallel and accepted by the proper output group. Under control of the 5-bit counter, the output group converts the data from parallel to serial form and demultiplexes the serial data to direct it to the proper one of the 32 output lines of the group. The apparatus includes a second set of data and address memories so that a second set of messages can be received and stored while the information in the first set is being read out.

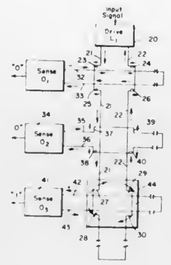
3,787,821
READ ONLY MEMORY

Billy H. Vinson, San Diego, Calif., assignor to Digital Scientific Corporation

Filed June 21, 1971, Ser. No. 155,201
Int. Cl. G11c *17/00*
U.S. Cl. 340—173 SP 19 Claims

A high speed semipermanent read only memory is described in which energy is coupled from a first drive line to an orthogonally positioned sense line. In the preferred embodiment, the drive lines are jogged at right angles and the sense lines are caused to cross at right angles to the drive lines and preferrably directly over the right angle jog. The jog is positioned so as to increase the distance between the parallel drive lines in the area of the crossing between the drive and the sense lines. The action of the jog has the effect of inducing a small voltage in the sense line and having a polarity that is opposite to the polarity of the output voltage in the sense line when a conductive patch is present. In those areas of crossing between the drive lines and the sense lines where a desired output is required, a small conductive nonmagnetic material is placed over the area of crossing. A current in the drive lines will induce an eddy current in the conductive patch which in turn induces a voltage in the associated sense line which has an opposite polarity to that caused by the jog and which will be called positive.

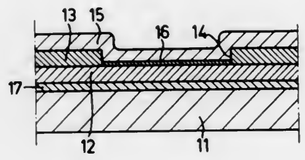
In the presence of a desired signal such as a "1", a strong positive signal is detected in the sense line and where a "0" output is desired, such as by having no conductive path over the crossing, a small negative signal will be detected thereby allowing a differential amplifier in the sense line to discriminate between "0" and "1" in a manner not heretofore possible.



3,787,822
METHOD OF PROVIDING INTERNAL CONNECTIONS IN A SEMICONDUCTOR DEVICE

Jean-Pierre Rioult, Epron, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 13, 1972, Ser. No. 243,814
Claims priority, application France, Apr. 23, 1971, 71.14550
Int. Cl. G11c *17/00*; H01l *7/02*
U.S. Cl. 340—173 SP 9 Claims



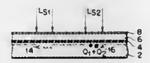
Method of providing interconnection in a monolithic planar semiconductor device, comprising forming first conductor pattern connected to circuit element, providing apertured insulating layer thereover, providing a dielectric oxide layer at first pattern portion exposed through insulating layer aperture and removed from circuit element, and providing second conductor pattern having portion thereof on dielectric oxide layer, the patterns being electrically connected by applying therebetween potential sufficient to cause electrical breakdown in oxide layer. Also, product made by method.

3,787,823
LIGHT CONTROLLABLE CHARGE TRANSFER DEVICE

Satoshi Negishi, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Saiwai-ku, Kawasaki-shi, Japan

Filed July 17, 1972, Ser. No. 272,721
Claims priority, application Japan, July 30, 1971, 46-56780
Int. Cl. G11c *11/34, 9/00, 11/42*
U.S. Cl. 340—173 LS 7 Claims



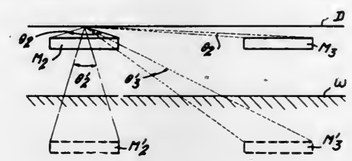


A light controllable charge transfer device wherein one surface of a monolithic semiconductor substrate is coated with a photoelectric conductive layer whose surface is covered with a transparent electrode; a bias voltage is applied across the transparent electrode and the opposite surface of said semiconductor substrate; and control light consisting of holding beams and transferring beams, after being introduced, is moved along the surface of the photoelectric conductive layer through said transparent electrode so as to form depletion layers in the semiconductor substrate for storing charged carriers representing bit information.

3,787,824
HIGH-DENSITY MAGNETIC MEMORY

Francis Blanchet, Bresson, and Georges Sauron, Meylan, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Mar. 6, 1972, Ser. No. 232,033
Claims priority, application France, Mar. 4, 1971, 71.07454
Int. Cl. G11c *11/14, 5/02*
U.S. Cl. 340—174 DC 3 Claims



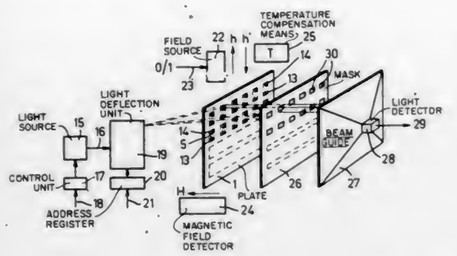
The memory comprises two orthogonal arrays of conductive elements and magnetic elements and a ground plane, the array of conductive elements being located between the array of magnetic elements and the ground plane at a distance from this latter which is such as to permit writing without any disturbance of information beneath the conductive element, while permitting a high memory-core density and low current consumption.

The method of fabrication of the memory consists in forming a substrate having a flat conductive face, in bonding to said face an insulator having a thickness equal to the distance aforesaid, in coating the insulator with adhesive material, in applying flat, parallel conductive elements on the adhesive material and in depositing parallel magnetic elements on the conductive elements at right angles thereto.

3,787,825
MAGNETIC DOMAIN STORE

Frederik Ate De Jonge, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 6, 1972, Ser. No. 303,980
Claims priority, application Netherlands, Nov. 12, 1971, 7115628
Int. Cl. G11c *11/14, 11/42*
U.S. Cl. 340—174 YC 7 Claims

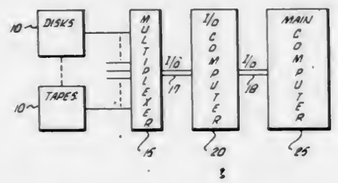


A magnetic store comprising a plate of magnetic material which has a compensation temperature for magnetization, and in which domains are situated in one of two possible positions of functionally determined bit locations. The displacement of a domain from a first position to a second position, or vice versa, is effected under the influence of a thermal-energy carrying beam, which can be positioned on at least one of the bit locations at a time. When the bit locations are heated, the section of a domain becomes strip-like. During cooling a magnetic field is applied which has a direction such that the relevant domain, assuming its original shape again, will be situated in the desired position of the two possible positions. Detection of the information contents is effected by means of light, which is transmitted through a mask which covers half the area of each bit location. The first and second domain positions are defined by elements of a readily magnetizable material or by an additional plate which is filled with domains.

3,787,826
SPLIT-PHASE ADAPTIVE DECODING ELECTRONICS

Kermit A. Norris, Azusa, Calif., assignor to Lockheed Electronics Company, Inc. a subsidiary of Lockheed Aircraft Corporation, Burbank, Calif.

Division of Ser. No. 766,531, Oct. 10, 1968, Pat. No. 3,646,546. This application Sept. 22, 1971, Ser. No. 182,915
Int. Cl. G11b *5/06*
U.S. Cl. 340—174.1 H 22 Claims



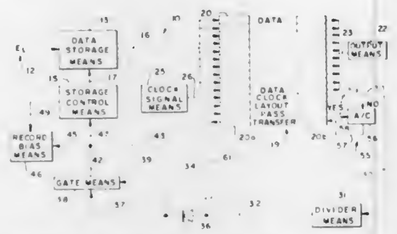
A decoding system for decoding split-phase signals is disclosed. The system is operative for decoding signals which include extreme zero-crossing variations at either a fixed bit rate or variable bit rates.

A one-bit delay is employed for decoding the split-phase signals. A phase comparison circuit restores the split-phase signal (such as split-phase mark, SØM) to standard digital format, (such as non-return-to-zero-change, NRZC). A digital aperture filter removes noise in the standard format. Delay times are variable via a frequency-located feedback loop so as to accommodate speed variation during fixed or variable data rates. Different data rates are also automatically decoded by the disclosed invention.

3,787,827
REAL TIME DATA COMPRESSION SYSTEM

Karl J. Stout, Lyndhurst, Ohio, assignor to Ohio Nuclear, Inc., Mentor, Ohio

Division of Ser. No. 168,845, Aug. 4, 1971. This application Oct. 5, 1972, Ser. No. 295,200
Int. Cl. G11b *5/00*
U.S. Cl. 340—174.1 P 11 Claims

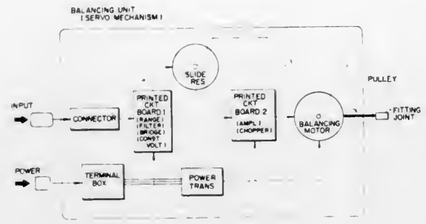


A real time data compression recording system particularly adapted for use in recording randomly-generated analog data. The system preferably comprises an endless loop tape transport system having a plurality of data recording tracks and a plurality of tracks containing information for controlling and monitoring the recording of the data. A clock track contains a recorded clock signal from a signal generator. The clock signal in the readout mode is divided into a lower frequency signal for recording a pass signal on a pass track on the tape to separate the endless tape into a plurality of data spaces. A layout signal on a layout track of the tape indicates whether data has been stored in a corresponding data space. A transfer signal is provided on the transfer track of the tape as a function of the layout signal and the pass signal to control the transfer of data to the tape. Input data are stored in an input data storage means to be read out for recording on the data tracks of the tape upon command from a signal from a storage control means. A gate means in circuit with the storage control means when enabled causes data to be stored on the data tracks when a signal from the data storage means indicates that data are present and available for recording. When data are read out of the input storage means, a signal is recorded on the layout track and the signal in the layout track is used in the readout cycle to prevent recording of additional data in a particular data space on subsequent passes of the tape. Since the pass signal when read out indicates the presence of a data space on the tape and the presence of a layout signal indicates that data has been stored in that space, the pass signal and the layout signal are used in the readout mode to record a transfer signal on the transfer track on the tape. In the readout mode, a signal on the pass track and the absence of a signal on the layout track will cause a signal to be recorded on the transfer track which is used during the record mode to enable data to be transferred from the input data storage means to the data tracks on the tape. On the other hand, if a data space previously had data recorded thereon, the presence of both a pass signal and a layout signal in the readout mode causes the absence of a signal on the transfer track which is used in the record mode in such a manner that even if data are present in the input data storage means for recording, the storage control means will not be enabled during a subsequent pass to record additional data in the occupied data space. The system is described in one embodiment in connection with the recording and display of randomly-generated tomographic data. Thus, randomly-generated data may be compressed in real time for recording in a data storage means, for example, an endless loop tape.

3,787,828
SELF-BALANCING INSTRUMENT

Takefumi Hasebe, and Toshiaki Ando, both of Tokyo, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Apr. 10, 1972, Ser. No. 242,585
Claims priority, application Japan, Oct. 28, 1971, 46-85765; Apr. 14, 1971, 46-27905
Int. Cl. G01d *15/00*
U.S. Cl. 340—187 7 Claims

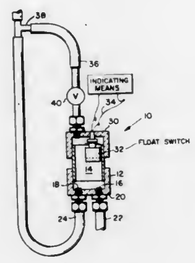


A recording and/or indicating instrument adapted to receive a measured quantity in the form of an electrical signal produced by a primary transducer such as a thermocouple, and to compare such signal with a known standard signal. The deviation between the compared values is amplified to drive a servomotor which alters the standard signal to make it equal to the measurement signal. The value of the standard signal at the balance point is indicated and/or recorded. The servomechanism balance unit, comprising an amplifier, a slide-wire rheostat, is wholly located on a single base plate.

3,787,829
DEPLETED LIQUID SUPPLY INDICATOR

Michael Lawrence Schneier, Pittsford, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed July 3, 1972, Ser. No. 268,716
Int. Cl. G08b *21/00*
U.S. Cl. 340—244 A 6 Claims

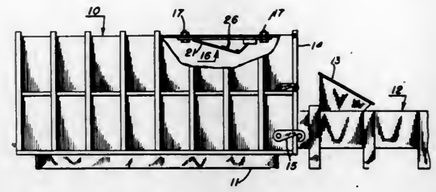


Means for indicating when a liquid supply, such as a drum or like container, is depleted. The means includes a chamber which houses a level indicator, the chamber having an inlet and an outlet. The chamber is arranged so that its inlet communicates adjacent the bottom of the drum. Liquid is then pumped from the drum through this chamber, so as to maintain the chamber filled while the drum is being emptied. When the liquid supply in the drum is sufficiently depleted, continued pumping results in at least partial emptying of the chamber, which in turn activates the level sensor to indicate that the supply has been depleted.

3,787,830
APPARATUS FOR INDICATING WHEN A ROLL-OFF CONTAINER IS FILLED WITH COMPACTED REFUSE

Joseph L. Cato, 1009 Sunset Dr., Brielle, N.J., and Theophilo A. Correia, 271 Pine Ave., Manasquan, N.J.

Filed Apr. 28, 1972, Ser. No. 248,568
Int. Cl. G08b *21/00*
U.S. Cl. 340—246 9 Claims

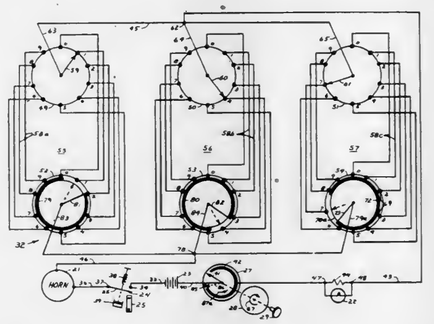


A pressure-actuated device is mounted inside a roll-off container into which bulk refuse is to be compacted. The device is contacted by the compacted material and includes means for effecting operation of signals to indicate when the material in the container is compacted to a predetermined extent.

3,787,831
ALARM SYSTEM

Claude E. Gordon, 4521 Blonigan Ave., Orlando, Fla.

Filed June 19, 1972, Ser. No. 264,034
Int. Cl. G08b *13/22*
U.S. Cl. 340—274 8 Claims

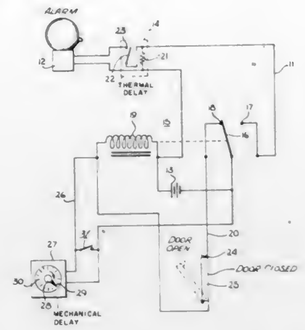


An alarm unit for hotel and motel rooms and the like is mounted on the closed door of the entranceway to the room and has series connected components that include an intruder actuated switch, a DC power source, an audible signaling device and a switching system for disarming the circuit that has an internally located array of switches which are manipulatable to establish a switching combination that can be matched by manipulating the switches of an exteriorly located array in order to gain access to the closed areas without setting off the alarm. The switching system includes parallel branch switching circuits and each circuit includes parallel branch conductors that are connected to one switch in each of the arrays and which are broken in the circuit by manipulating the pair of switches to select the same conductor. The alarm system is housed in a pair of internally and externally located housings and has a self contained power source with connective wiring between the housings extending through a tubular conduit. Provisions are also made for coin actuation and timed use of the unit and the switching arrays permit the occupant to have the sole knowledge of the combination permitting access to the room without energizing the alarm circuit.

3,787,832
TIME DELAY ALARM SYSTEM

William Russell Bolinger, 708 Oak Point, Lake Arrowhead, Calif.

Filed June 11, 1971, Ser. No. 152,229
Int. Cl. G08b 23/00
U.S. Cl. 340—276 4 Claims

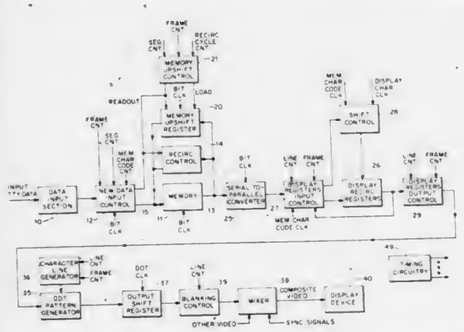


A burglar alarm system is disclosed wherein control means for temporarily deactivating a burglar alarm is located within the building being protected. The control means includes a time delay switch in a deactivating circuit which when manually closed operates to temporarily override a primary circuit which when opened results in the setting off of the alarm. Thus when an authorized person is ready to exit through a door of the building, he first manually closes the time delay switch before opening the door. Then upon the closing of the door, the system is automatically returned to its "on alert" condition at the end of the delay time manually set in the time delay switch. The alarm circuit includes a thermal delay device which delays the actual setting off of the alarm such as to give a person authorized to enter the door of the building just enough time after entering to manually close the time delay switch. The system, as when exiting, is then automatically returned to its "on alert" condition at the end of the delay time manually set in the time delay switch.

3,787,833
UPSHIFT CONTROL FOR VIDEO DISPLAY

William P. Rogers, Collingswood, N.J., assignor to GTE Information Systems Incorporated, Stamford, Conn.
Continuation-in-part of Ser. No. 58,030, July 24, 1970. This application May 4, 1973, Ser. No. 357,248

Int. Cl. G06f 3/14
U.S. Cl. 340—324 AD 8 Claims

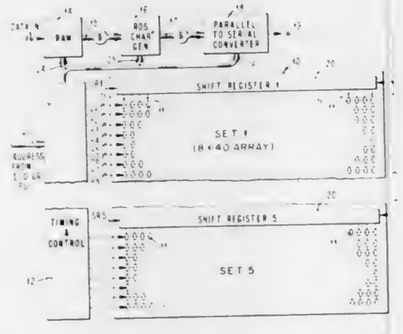


A video display system in which information from a teletype line is displayed in rows on the face of a video display device with new information first appearing on the bottom row, continually being upshifted row by row to the top row, and then disappearing. Information is continually advanced in a recirculating delay line memory by an upshifting arrangement coupled between the output and the input of the memory. Information is taken from the memory as it advances therethrough and is held in display registers from which it is read out at successively earlier times during succeeding frames.

3,787,834
LIQUID CRYSTAL DISPLAY SYSTEM

Joseph Charles Elliott, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,416
Int. Cl. G08b 5/36
U.S. Cl. 340—324 M 16 Claims

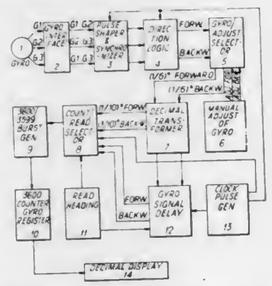


A system for displaying information on a large liquid crystal display unit, for example a 1,600 character unit. The unit is divided into separately addressed matrices of characters. A particular row in each matrix is addressed on a time-multiplex basis during each display cycle. During the succeeding cycle, the succeeding row in each matrix is addressed and so on. The multiplexing sequence uses the slow excitation time and slower de-excitation time of the liquid crystal element to advantage.

3,787,835
CONVERTER FOR GYRO-COMPASS DIGITAL DISPLAY

Odd Mathiesen, Oslo, Norway, assignor to International Standard Electric Corporation, New York, N.Y.

Filed May 5, 1972, Ser. No. 250,517
Claims priority, application Norway, May 7, 1971, 1731/71
Int. Cl. H03k 13/02
U.S. Cl. 340—347 SY 3 Claims

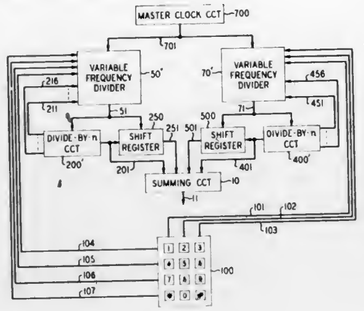


A gyro-compass (synchro) analog output data encoder system for open-loop control of a digital bearing angle indicator in degrees and decimal parts of degrees. Applicable, in general, to digital presentation of shaft angle changes at a remote location.

3,787,836
MULTITONE TELEPHONE DIALING CIRCUIT EMPLOYING DIGITAL-TO-ANALOG TONE SYNTHESIS

David William Hagelbarger, Morris Twp., Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkely Heights, N.J.

Filed June 15, 1972, Ser. No. 263,215
Int. Cl. H03k 13/02
U.S. Cl. 340—347 DA 5 Claims

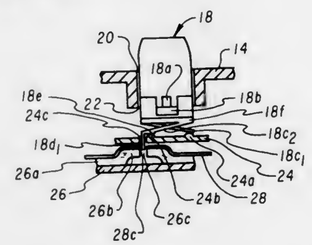


An circuit is provided for generating combinations of digitally synthesized sinusoidal waveforms used for voiceband signaling in multitone telephone station sets. The circuit features plural variable frequency dividers which function under the control of the station set keyboard to divide a single digital master clock signal into predetermined sequences of multifrequency digital components which are shifted in phase predetermined amounts. The shifted sequences of components are summed in suitable proportions to form acceptable approximations of the multitone dialing waveforms.

3,787,837
MODULAR OPTICAL APPARATUS

Charles A. Allen; Richard W. Bryant, both of Poughkeepsie; Thomas J. Delaney, Stanfordville; Vir A. Dhaka, Hopewell Junction; Robert M. Meade, Wassaic, and James D. Wharmby, Poughkeepsie, all of N.Y., assignors to Cogar Corporation, Wappinger Falls, N.Y.

Filed Apr. 19, 1971, Ser. No. 135,152
Int. Cl. G06f 3/02
U.S. Cl. 340—365 P 23 Claims

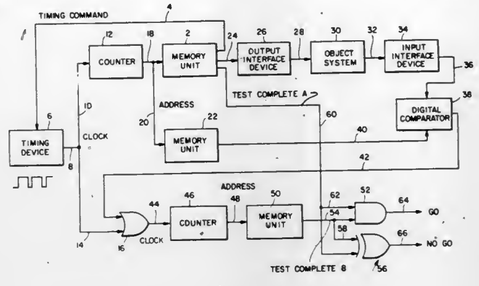


This is modular keyboard utilizing fiber optics for signalling. Each keyboard module includes a common light source for illuminating a group of optical fibers. One optical fiber is provided for each key, and transmission of light by the fiber is permitted only when the corresponding key is depressed, withdrawing a shutter element from a gap in the fiber. The coherent light outputs are furnished to a housing mounted in a ceramic module which couples the light outputs to respective photodetecting elements on a semiconductor chip which is also mounted on the ceramic module. The keyboard modules and individual keys are also replaceable, thus providing low out-of-operation time and character versatility.

3,787,838
FAIL SAFE BUILT-IN TEST EQUIPMENT

Martin W. Feintuch, Baramus, and Allen S. Silver, Oakland, both of N.J., assignors to The Bendix Corportion, Teterboro, N.J.

Filed June 29, 1972, Ser. No. 267,285
Int. Cl. G08b 21/00
U.S. Cl. 340—409 6 Claims

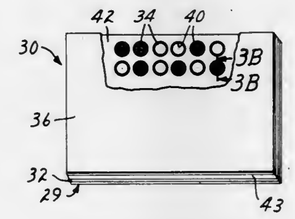


Built-in test equipment (BITE) for an electronic system is implemented in a fail safe manner, with the test equipment itself not having failure modes which might inhibit detection of a system failure. The equipment insures detection of any single system failure and is in a "No-Go" condition if any tests in a test sequence are skipped.

3,787,839
MAGNETIC VIEWER DEVICE HAVING MOVABLE ANISOTROPIC ELEMENTS

Richard E. Fayling, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 12, 1970, Ser. No. 88,708The portion of the term of this patent subsequent to June 6, 1989, has been disclaimed.
Int. Cl. G08b 5/22
U.S. Cl. 340—381 R 15 Claims



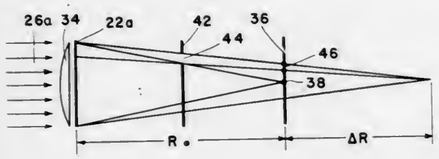
A magnetic data viewer device for providing a visual indication of data encoded in a magnetically encoded document, which data is represented by the magnetic polarity alignments at each of a plurality of disparate magnetized regions defining a fixed two-dimensional pattern. This device is a non-magnetizable board containing a plurality of sockets positioned in a fixed pattern. The sockets each contain a disk containing magnetically hard material which is magnetized to have a given magnetic polarity alignment. At least one broad surface of the disk has a visual indicator for providing an indication of the magnetic polarity alignment of the disk. Each of the disks is visible in its socket, is restrained from movement within its socket by only the dimensions of the socket, and is movable within its socket to assume an orientation corresponding to the magnetic polarity alignment at a said magnetized region. In one preferred embodiment, the magnetically hard material of each disk is magnetized to provide a polarity alignment wherein the opposite broad surfaces of each disk have op-

posite magnetic polarities; the broad surface of one polarity has a visual indicator of a first color and the broad surface of the opposite polarity has a visual indicator of a second color; and each disk is movable to assume any orientation within its socket. In another preferred embodiment, the manetically hard material is magnetized to provide a polarity alignment wherein one broad surface has a pair of magnetized sections of opposite polarities having a boundary therebetween, and the opposite broad surface has a visual indicator corresponding to the boundary for indicating the orientation of the boundary. In both embodiments, each disk preferably includes uniaxially anisotropic magnetically hard material oriented to have an easy axis of magnetization perpendicular to the broad surfaces of the disk. The magnetically hard material is magnetized in the direction of this easy axis. The residual induction B_r of each disk and the spacing of the sockets are so selected that, in the absence of an applied external magnetic field, the disks are attracted by each other to align themselves in a stable position wherein the broad surfaces of the disks are skewed in the sockets.

ERRATUM

For Class 340—172.5 see:
Patent No. 3,787,891

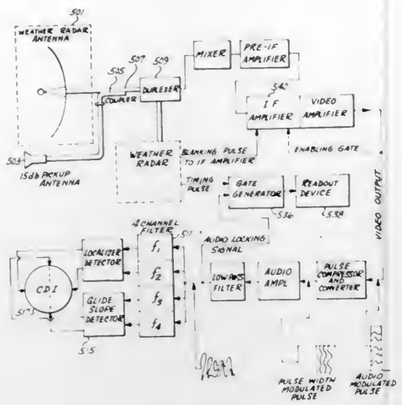
3,787,840
RADAR MOVING TARGET PROCESSING METHOD AND APPARATUS
Charles R. Dotson, Litchfield Park, Ariz., assignor to Goodyear Aerospace Corporation, Akron, Ohio
Filed Apr. 17, 1972, Ser. No. 244,365
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 **3 Claims**



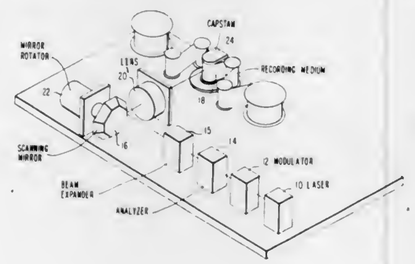
A method and apparatus of processing side looking radar data to detect moving targets in a high clutter environment independent of the direction of the motion of the target. The radar phase history generated by a synthetic aperture radar system is processed in a radar optical correlator which has a scanning aperture placed at the azimuth transform plane. The amount of movement of the image of the viewing plane of the correlator as the scanning aperture moves is directly proportional to the movement of the target.

3,787,841
AIRBORNE RADAR INSTRUMENT LANDING SYSTEM
Walter E. Buehler, Issaquah, and Clarence D. Lunden, Tacoma, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 21, 1971, Ser. No. 210,448
Int. Cl. G01s 9/06
U.S. Cl. 343—5 LS **10 Claims**

An ILS (instrument landing system) utilizing a modified weather radar system of the aircraft and a retrodirective antenna located at the touchdown point and modulated so as to generate conventional guidance commands (fly up/fly down and fly right/fly left) signals from signal processing of the video output of the weather radar aboard the aircraft. Main pulse blanking of the receiver to avoid saturation during video signal processing of close in guidance commands are applied, e.g., to the fourth I.F. stage.

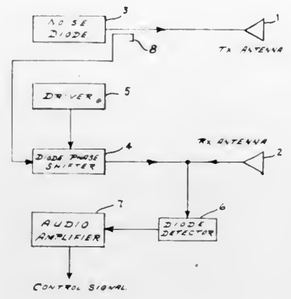


3,787,842
COHERENT OPTICAL RADAR PROCESSOR
Carlton E. Thomas, Van Nuys, Calif., assignor to KMS Industries, Inc., Ann Arbor, Mich.
Filed May 25, 1970, Ser. No. 40,265
Int. Cl. G01s 9/42
U.S. Cl. 343—5 PC **13 Claims**



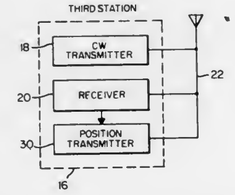
A radar processing system and method for extracting from received radar data information about moving targets even though the absolute energy reflected by these targets is much less than the energy reflected by the stationary background. The processing system includes an optical recorder for recording the magnitude of the reflected energy and a coherent optical processor for processing the recorded information by computing the power spectrum of the Doppler frequency shift in the recorded information and thereby distinguishing a true target from the stationary background. In addition, means are provided for eliminating from the recorded information any range ambiguities produced at higher pulse repetition frequencies because, at these higher frequencies, echoes from far ranges return at the same time as echoes generated by later radar pulses return from near ranges. The optical processor can operate on data from airborne or groundbased radars.

3,787,843
RADAR FENCE SYSTEM
Joseph L. Poirier, Chelmsford, Mass., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Dec. 11, 1972, Ser. No. 314,054
Int. Cl. G01s 9/02; G08b 13/22
U.S. Cl. 343—5 PD **4 Claims**



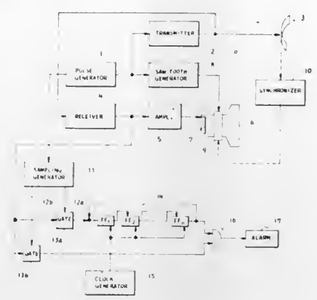
A radar fence system which distinguishes the location of a target of interest to be inside or outside of a predetermined distance (range fence). A noise signal is transmitted toward the target of interest. A portion of the transmitted signal is phase shifted periodically a predetermined amount and then mixed with a received target return signal to provide a resultant signal. It is required that the transmitted signal and received signal be separated. Only if the target of interest is within the range fence will the resultant signal be modulated.

3,787,844
RADIO NAVIGATION SYSTEM
Charles E. Hastings, Newport News; William A. Rounion, Tabb; Allen L. Comstock, Newport News, and Joseph T. Bradbury, Virginia Beach, all of Va., assignors to Teledyne, Inc., Los Angeles, Calif.
Filed May 8, 1972, Ser. No. 251,470
Int. Cl. G01s 9/02
U.S. Cl. 343—6 R **7 Claims**



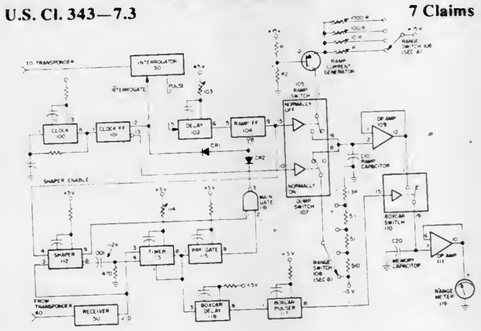
An improved iso-phase line-of-position navigation system for determining the position of a mobile station is disclosed which includes first and second transmitting base stations at respectively fixed locations and a third transmitting station positioned at a movable location. A mobile station is disclosed which includes a receiver for receiving signals from the two base stations and from the third station and means responsive to the signals received at the receiver for determining the position of the mobile station along first and second iso-phase lines-of-position relative to the first and second base stations and the third station. Computing means are provided which are responsive to the position of the mobile station relative to the first and second base stations and the third station and also to the absolute location of the third station for computing the position of the mobile station.

3,787,845
COLLISION ALARMING SYSTEM
Hiroshi Kubota, Takarazuka, and Tomohiko Suzuki, Kobe, both of Japan, assignors to Furuno Electric Company, Limited, Nagasaki-ken, Japan
Filed Oct. 17, 1972, Ser. No. 298,398
Int. Cl. G01s 9/02
U.S. Cl. 343—7 ED **6 Claims**



A collision alarm system for detecting the course of an object and producing an alarm should its course indicate the possibility of a collision with the vehicle carrying the system. It includes a transmitter for transmitting pulses and a receiver for receiving reflected pulses. The reflected pulses are detected at at least two successive points in time with the information first detected being stored and then fed out at a predetermined later time related to the sweep rate of the transmitted pulses. The fed out pulses and the pulses detected at the second time point are compared and an alarm is sounded when a coincidence is detected.

3,787,846
CLOSE-IN RANGER SYSTEM
Wilson P. Bishop, Ednor, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 10, 1972, Ser. No. 279,551
Int. Cl. G01s 9/14
U.S. Cl. 343—7.3 **7 Claims**

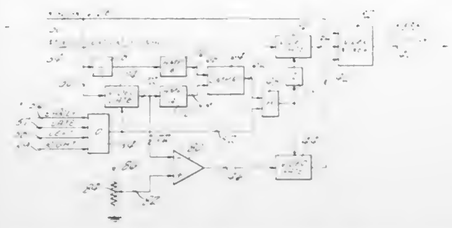


A range measuring system wherein a transponder at a remote location is interrogated by coded signals from a base location. If the interrogation is correctly coded the transponder replies. Receipt of a correct reply interrupts the generation of a ramp voltage at the base location. The ramp voltage is measured to determine the range from the base to the transponder. Novel circuitry including a ramp current generator, selectively variable impedance input range switch means, a selectively variable initial voltage ramp set range switch means, shaper gate means and a timer with pulse repetition frequency gate means, is provided to obtain superior accuracy in range measurements.

3,787,847
INTENSITY CURSOR FOR RADAR

Paul M. Danzer, 2 Dawn Rd., Norwalk, Conn.

Filed Feb. 9, 1973, Ser. No. 330,918
Int. Cl. G01s 7/22
U.S. Cl. 343—7.3 4 Claims

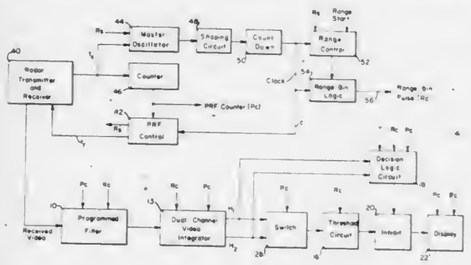


A radar, such as a track-while-scan radar, which is provided with early and late tracking gates interconnected with cursors, blanks out the electronic cursors presentation within the gate region of the display and, instead, modulates the intensity of targets within the tracking gates so that the more closely the cursors are positioned on the center of the target, the higher the intensity of the video in the vicinity of the cursors.

3,787,848
SYSTEM FOR DISCRIMINATING BETWEEN HIGH AND LOW SPEED TARGETS

Terrence H. Laundry, Culver City; Richard L. Luther, Thousand Oaks, and John S. Murray, Jr., Orinda, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 28, 1972, Ser. No. 285,284
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 16 Claims



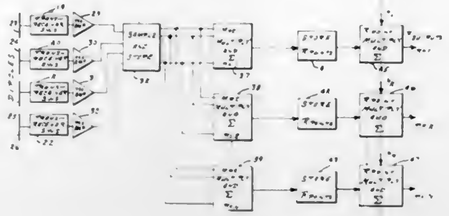
The disclosed system distinguishes between high and low speed targets by the resolution of frequency ambiguities in return signals from a repetition rate coded transmitted radar signal. The return signals are processed through a passband filter; and logic circuits, which monitor the filter's output, provide an indication of the speed range of the targets as a function of the presence or absence of modulation resulting from the repetition rate coding.

3,787,849
AIRBORNE DIGITAL MOVING TARGET DETECTOR

Carlyle J. Sletten, Acton, and William B. Goggins, Jr., Winchester, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 7, 1972, Ser. No. 304,584
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 4 Claims

A digital moving target detector in which the transmitter feeds a Butler matrix connecting a series of antennas. On reception the received signals are fed to a sample and store circuit, fed to a series of scaling multipliers, and then summed in N groups with each group including samples corresponding to range bins. The groups are stored at every pulse and then multiplied with a digital reference waveform and summed.

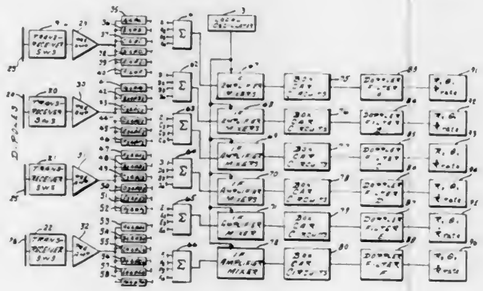


Also the received signals can be converted to a Fourier Transform by an FFT algorithm, multiplied by correlation complex numbers in sequence and then added to corresponding products of corresponding sequences, the inverse Fourier Transform thereof represents radar outputs.

3,787,850
AIRBORNE ANALOG MOVING TARGET DETECTOR

Carlyle J. Sletten, Acton, and William B. Goggins, Jr., Winchester, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 7, 1972, Ser. No. 304,583
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 2 Claims



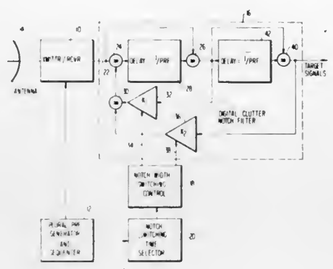
An analog moving target detector in which the transmitter feeds inputs to a Butler matrix connecting a series of antennas. On reception the received signals are fed to a plurality of series of scaling circuits, each series corresponding to one antenna. Corresponding circuits of each series are then summed, fed to intermediate frequency mixers, followed by box car circuits. The output of the box car circuits are fed to selected doppler filters and then to indicators to detect the range, angular position, and range rate.

3,787,851
LOW PRF PULSE DOPPLER RADAR HAVING LOW SPEED GROUND MOVING TARGET REJECTION

Robert B. Hughes, College Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 13, 1971, Ser. No. 207,253
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 11 Claims

An AMTI radar in which the transmitted pulse train is comprised of multiple PRFs which are sequentially switched in a predetermined order during a target dwell time. A digital MTI comb or notch filter having a controlled reject and pass band characteristic for each PRF is utilized such that when operating in one of the lower PRFs, a wide notch characteristic is used for a time after radar pulse transmission during the interval which will provide unambiguous range for the highest PRF, i.e. during the interpulse interval of the highest PRF

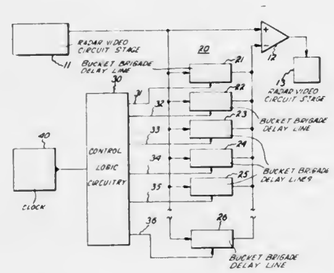


Then a narrower notch characteristic is used for the remainder of the interpulse period of the instant PRF. A composite notch filter characteristic is thus obtained for all of the PRFs during a specific target dwell time which will reject not only ground clutter, but also low speed ground moving targets while passing relatively high speed airborne target returns during at least one of the PRFs.

3,787,852
BUCKET BRIGATE DELAY LINE TIME MULTIPLEXED MTI CIRCUIT FOR RADAR

Charles M. Puckette, Scotia; Donald A. Smith, Schenectady, and Walter J. Butler, Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,441
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 10 Claims

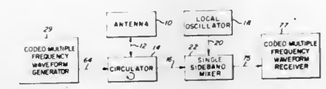


A plurality of bucket brigade delay line circuits are interposed in parallel in a radar receiver signal path. Sequential portions of the received signal are clocked into the bucket brigade delay line circuits serially, so that each radar pulse repetition period is divided into a plurality of subperiods and one such subperiod is stored in each bucket brigade delay line circuit. MTI effect is provided by combining the output of each bucket brigade delay line circuit with the signal in a corresponding subperiod of a preceding or following radar pulse repetition period.

3,787,853
CODED MULTIPLE FREQUENCY SIGNAL SYSTEM

Eli Brookner, Lexington, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 31, 1967, Ser. No. 628,252
Int. Cl. G01s 9/23
U.S. Cl. 343—8 6 Claims

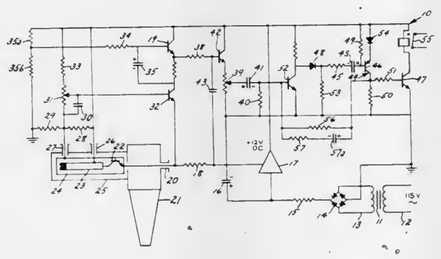


A Doppler radar system comprising a transmitter beaming coded multiple frequency signals and a receiver comprising a plurality of filter means each having a different frequency transfer characteristic and responsive to a different narrow band of echo signals. The simultaneous frequency signals or tones are coded such that the frequency difference between any two frequencies is unequal to the frequency difference between any other two frequencies. The filter means produce a plurality of tones each representing a different Doppler shift. The receiver further comprises a summing network for generating a signal indicative of range and Doppler shift.

3,787,854
NOISE CANCELLING SELF MIXING DOPPLER RADAR

Robert L. Friedman, 51-25 Van Kleeck St., Elmhurst, N.J., and Zeev Lieser, 1048 Coolidge Rd., Elizabeth, N.J.

Filed Aug. 31, 1972, Ser. No. 285,251
Int. Cl. G01s 9/42
U.S. Cl. 343—8 3 Claims

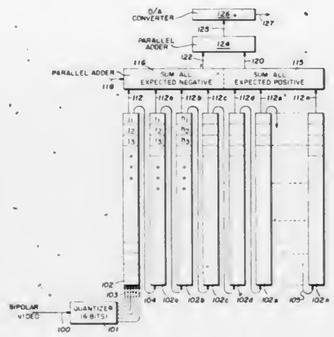


A noise cancelling self-mixing Doppler type microwave motion detector with greater detecting range and/or lower false alarm rate than prior art self-mixing techniques using equal radiated power is described. The device includes a three terminal microwave oscillator/mixer and a wave guide launched dielectric antenna in a single triaxial structure and a dual input signal processor that provides improved signal to noise ratio as a result of effective signal enhancement and noise cancellation. Separate, out of phase, Doppler output signals are derived from both the emitter and the base of the oscillator/mixer transistor and processed by a balanced amplifier which rejects in-phase noise components.

3,787,855
COHERENT DIGITAL RADAR TARGET SIGNAL ENHANCEMENT

Harvey G. Cragon, Dallas, and Russell H. Logan, Irving, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1966, Ser. No. 606,081
Int. Cl. G01s 7/28
U.S. Cl. 343—17.1 R 11 Claims

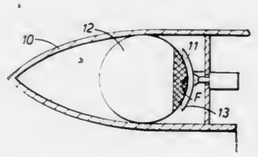


Return signals from successive radar pulses are continuously cross-correlated with a dynamic mask, variations in which are dependent upon velocity and the angle between radar bore site and the main radar beam and wherein a mask is selectively weighted.

3,787,856
SPHERICAL MICROWAVE LENSES

Patrick Frank Pyrah, Knebworth, England, assignor to British Aircraft Corporation Limited, London, England

Filed July 18, 1972, Ser. No. 272,804
Claims priority, application Great Britain, July 26, 1971, 34990/71
Int. Cl. H01q 15/02
U.S. Cl. 343—18 D 6 Claims



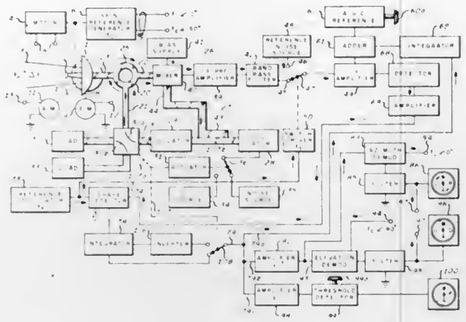
A spherical microwave lens and reflector arrangement in which the reflector is part-spherical and is mounted so as to be movable towards and away from the lens in order that variations in the phase or amplitude of a reflected signal may be produced.

3,787,857
DUAL MODE RADIOMETRIC SYSTEM

Robert E. Lazarchik, Largo; Robert S. Roeder, Dunedin, and Donald R. Runkle, Clearwater, all of Fla., assignors to Sperry Rand Corporation, New York, N.Y.

Filed May 18, 1972, Ser. No. 254,707
Int. Cl. G01w 1/00
U.S. Cl. 343—100 ME 10 Claims

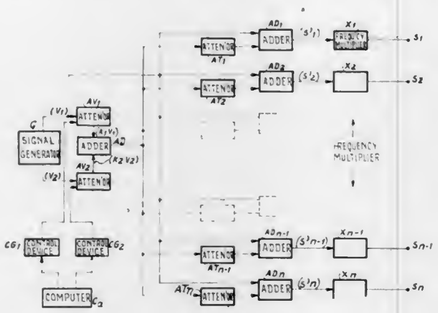
An improved microwave radiometric system features operation selectively in a passive mode and in an active mode providing incoherent noise illumination of a selected target for improving the measured radiometric temperature contrast between the target and its spatial background and for increasing the distance at which such a target may be detected. Broad band noise is continuously transmitted during the active mode and the receiver is continuously active.



3,787,858
ELECTRONIC-SCAN ANTENNA

Jacques Salmon, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Sept. 10, 1971, Ser. No. 179,428
Claims priority, application France, Sept. 11, 1970, 7033096
Int. Cl. H01q 3/26
U.S. Cl. 343—100 SA 6 Claims

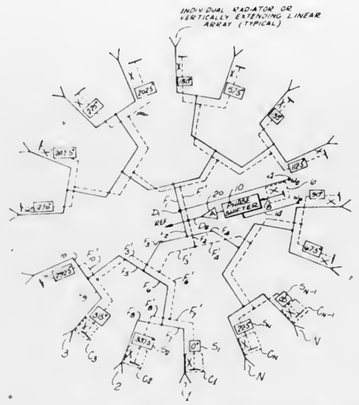


In an electronic scan modular antenna system operating at frequency F, a circuit supplies the n modules (where n is an integer) forming the antenna with n respective synchronization signals. The circuit comprises wave generating means supplying two component signals in phase quadrature in respect of each other, of frequency $f=F/p$ (where p is an integer), respective means varying respectively the amplitudes of said component signals as functions of the desired direction of radiation of the antenna beam axis, an adder forming the sum of the output signals of the amplitude varying means, n respective fixed gain attenuating means for attenuating said sum, n adding means for respectively adding the n output signals of said n attenuating means with one of said components,and multiplying means coupled respectively to the adding means outputs and supplying said synchronization signals.

3,787,859
SCANNING CYLINDRICAL ANTENNA FOR A PHASE COMPARISON GUIDANCE SYSTEM

Shirly L. Howard, Rolling Hills Estates, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Sept. 29, 1971, Ser. No. 184,880
Int. Cl. G01s 1/44
U.S. Cl. 343—106 R 6 Claims

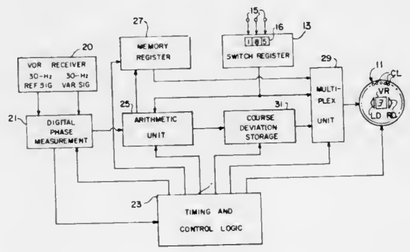


A circular or cylindrical scanning antenna array having circumferentially spaced radiating elements fed substantially in phase from a source of a carrier frequency with an imposed reference signal. In addition, an additional energy component is coupled in discretely to each radiating element through a fixed phase shifter for each such element. The fixed phase shifters have values beginning at zero for an arbitrary predetermined element location and then increasing in equal steps of θ where θ is the angular radiating element spacing about the perimeter. The additional energy fed through these phase shifters is modulated by a predetermined modulation signal to produce a single sideband. The result is a scanning, or rotating, amplitude modulated pattern similar to that used in the VOR or TACAN system.

3,787,860
AIRBORNE NAVIGATION APPARATUS

Stanley E. Greatline, Mount Carmel, and Fred Leland Grismore, Carbondale, both of Ill., assignors to Southern Illinois University Foundation, Carbondale, Ill.

Filed Oct. 20, 1971, Ser. No. 190,749
Int. Cl. G01s 1/08
U.S. Cl. 343—106 R 38 Claims

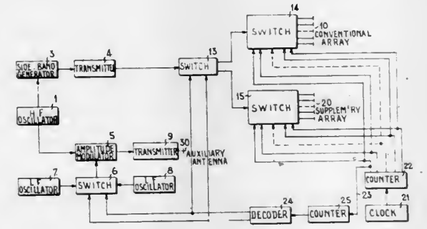


VOR navigation apparatus is provided with reference and variable phase signals from a received transmission of a VOR station, the phase difference between said signals being proportional to the actual station radial of an aircraft receiving the transmission. The apparatus includes digital phase measurement circuitry for repetitively calculating the digital phase difference between the signals. A solid state display arrangement is responsive to this digital phase difference and has an indicator format which graphically represents the actual radial so as to provide rapid pilot assimilation of aircraft position with respect to the VOR station.

3,787,861
IMPROVEMENTS IN DOPPLER INSTRUMENT LANDING SYSTEMS

Henri Becavin, and Bruno Letoquart, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 7, 1971, Ser. No. 205,527
Claims priority, application France, Dec. 11, 1970, 70.44760
Int. Cl. G01s 1/38
U.S. Cl. 343—106 D 7 Claims



A transmitter for a Doppler ILS system comprises two antenna systems operating in a diplex arrangement; the first antenna system is conventional, and is formed by an array of antennas regularly spaced and by an auxiliary antenna, it allows an angle measurement in a comparatively inaccurate fashion; the second antenna system is formed by an array of antennas regularly spaced with a spacing greater than in the first antenna system (the spacing being in either case being measured using as a unit the wavelength corresponding to the operating frequency of the considered antenna array), and by an auxiliary antenna; it would allow an accurate angle measurement were it not for an indetermination; in the Doppler ILS receiver co-operating with this transmitter the choice of the line carrying the information in the spectrum of the low frequency signal derived from the signals received from the second antenna system and permitting an accurate measurement is made by means of the information derived from the signal received from the first antenna system.

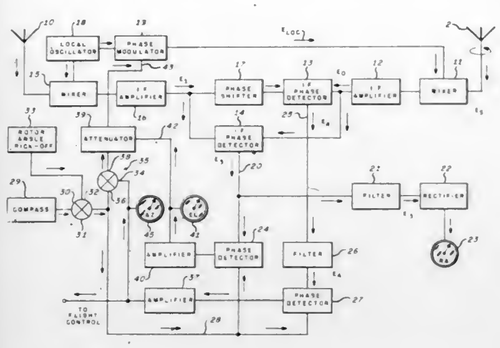
3,787,862
RADIO DIRECTION FINDER SYSTEM

Robert S. Jacobson, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 27, 1971, Ser. No. 183,934
Int. Cl. G01s 5/02
U.S. Cl. 343—113 DE 30 Claims

A radio direction finder system incorporating relatively small antennas is provided with a signal processing arrangement for artificially synthesizing variably shaped high frequen-

cy direction finding antenna receptivity patterns useful in a first mode for searching for the general location of a broad-



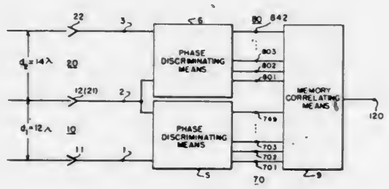
casting high frequency transmitter and in a second mode for precisely tracking such a transmitter for navigation purposes.

3,787,863

RADIO ANGLE MEASUREMENT APPARATUS

Masaru Watanabe; Nobuharu Yamauchi; Naoki Hashimto, and Tetsuo Tamama, all of c/o Communication Equipment Works of Mitsubishi Denki Kabushiki Kaisha, No. 80, Nakano, Minami Shimizu, Amagasaki, Hyogo Prefecture, Japan

Continuation of Ser. No. 854,406, Sept. 2, 1969, abandoned. This application Dec. 30, 1971, Ser. No. 214,495
Claims priority, application Japan, Sept. 5, 1968, 43/63940
Int. Cl. G01s *3/46*
U.S. Cl. 343—113 R **14 Claims**



This invention relates to a radio angle measurement apparatus, which is applicable to radar and other detection systems and which utilizes antenna array system(s) with radiator elements distributed at a spacing larger than one half of the propagation wavelength.

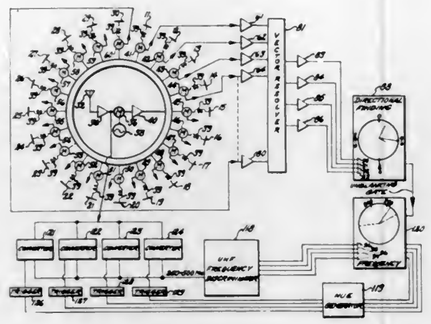
At least two values of d/λ (where d is the said radiator elements spacing, λ the propagation wavelength) are employed. There are, furthermore, a set of phase discriminating means, one for each one d/λ value, for discriminating the phase difference between the signals that are received by neighboring elements of antenna arrays, and a phase-difference-to-angle correlating means for correlating measured sets of said phase differences to the incident angle of the signal, making use of the either theoretically or experimentally known relationships between said sets of phase differences and the incident angle of the signal. In the above correlation process, a consideration of the role played by the resolution of phase discrimination is given, which helps to construct optimal embodiments of the invention, to maximize the possibility of accurate angle measurement.

3,787,864

INSTANTANEOUS SIGNAL RESOLUTION SYSTEM

Arthur L. Blymiller, Rome, and John E. Snodgrass, Oneida, both of N.Y., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed July 12, 1967, Ser. No. 653,307
Int. Cl. G01s *3/14*
U.S. Cl. 343—113 R **4 Claims**



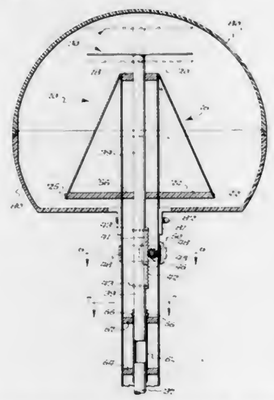
An apparatus for simultaneously and instantaneously determining direction and frequency of an unknown transmitted signal which is received by an omnidirectional antenna and mixed with a local oscillator, the output of which is again mixed in a plurality of mixers each fed by one of a plurality of directional antennas in a circular configuration. The output of the plurality of mixers, being the intermediate frequency, is fed into a vector resolver which controls deflection plates of a CRT and indicates the direction of the signal. The output of the omnidirectional antenna is also fed to a bank of frequency converters, each converter adapted to pass a section of the bandwidth being examined. The bandwidth section having the unknown signal triggers a hue generator controlling a CRT while a frequency discriminator determines the frequency and displays it on a CRT.

3,787,865

DISCONE ANTENNA

Warren L. MacDowell, East Amherst, and William F. Nailos, Snyder, both of N.Y., assignors to Namac Research Laboratories, Inc., Niagara Falls, N.Y.

Filed May 23, 1972, Ser. No. 255,988
Int. Cl. H01Q *13/00*
U.S. Cl. 343—703 **12 Claims**



An antenna comprising a conical element connected at the apex thereof to the outer conductor of an input transmission

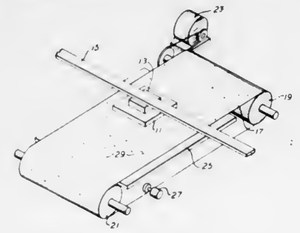
line, a disc-shaped antenna element connected to the transmission line inner conductor and positioned adjacent the apex of the conical element, and adjustment means mechanically connected to the line for adjusting the distance between the disc-shaped element and the conical element whereby the impedance match of the antenna to the line can be varied so as to obtain a desired level, preferably a minimum, of the standing wave ratio. The adjustment means can comprise a rack connected to the inner conductor of the line and a pinion engaging the rack whereby rotation of the pinion moves the inner conductor to change the position of the disc-shaped element. A coupling means in the transmission line maintains the electrical transmission path during the relative movement of the conductors. The adjustment means can be automatically operated under control of sensing means connected to the transmission line in response to changes in the standing wave ratio on the line.

3,787,866

DOPPLER ANTENNA CALIBRATION APPARATUS

George R. Gamertsfelder, Pleasantville; Gus Stavis, Croton-on-Hudson, and Leonard O. Vladimir, Chappaqua, all of N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed Dec. 15, 1972, Ser. No. 315,300
Int. Cl. G01s *7/40*
U.S. Cl. 343—703 **10 Claims**



Apparatus which permits near-field calibration of a doppler antenna in the laboratory avoiding the high costs and uncertainties of flight calibration is shown. The antenna and an associated transmitter are mounted over and very close to a scattering surface and means provided to effect relative motion between the antenna and the surface. In one embodiment the scattering surface is on an endless belt which is driven under the antenna and, in another, the antenna is placed on an arm and rotated over an annular trough containing granular material.

3,787,867

NAVIGATIONAL AID SYSTEM

Robert J. Dodge, and Wilson R. Huffer, both of Houston, Tex., assignors to Automatic Power Division, Pennwalt Corporation, Houston, Tex.

Filed Apr. 12, 1971, Ser. No. 133,190
Int. Cl. G08g *3/00*
U.S. Cl. 343—225 **16 Claims**



A navigational aid system is disclosed in which the operation of a plurality of navigational aid devices is synchronized by a distinctive radiated energy signal received by each of the devices so that the navigational signals emitted by the devices occur either simultaneously or in a predetermined sequence. The distinctive radiated energy signal may be provided by a radio beacon or a signal generated from a transmitter in one of the navigational devices of the system.

3,787,868

REMOTELY ACTUATED RELEASE APPARATUS FOR SKI BINDINGS

Jerome A. Camp, 7287 S. Chase Way, Littleton, Colo.

Filed June 25, 1971, Ser. No. 156,689
Int. Cl. H04b *7/00*
U.S. Cl. 343—225 R **18 Claims**



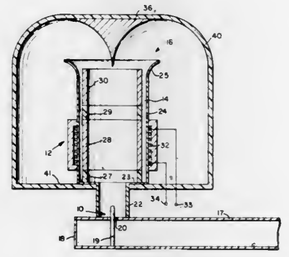
The remotely actuated release apparatus for ski bindings comprises a signal transmitter housed in a ski pole which is actuated by the skier to transmit a signal which is intercepted by receivers supported on the skis. The receivers are operatively connected to release the bindings by shifting part of the bindings relative to the boots through a mechanical linkage. In one embodiment, a radio frequency signal is provided and in a second embodiment, an audio (sonic) signal is provided. The release apparatus gives the skier the option of releasing the bindings in addition to the usual force release function built into the bindings.

3,787,869

INTEGRATED BEACON ANTENNA POLARIZATION SWITCH

Donald A. Charlton, Huntington Beach, and James S. Ajioka, Fullerton, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 11, 1972, Ser. No. 296,702
Int. Cl. H01q *19/00*
U.S. Cl. 343—756 **10 Claims**



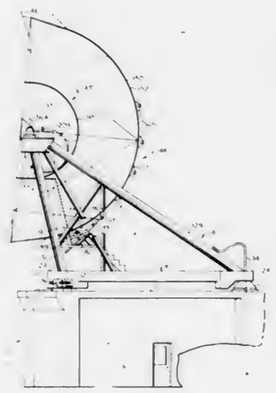
This invention relates to a compact integrated beacon antenna polarization switch which may be designed to be fed by

either coaxial line or circular waveguide and which provides a dual polarization radiating aperture having identical radiation beacon patterns for vertical and horizontal polarization and a ferrite mode switch capable of switching between the vertical, horizontal, right and left circular radiating mode.

3,787,870
LIMITED TRACKING REPOSITIONABLE AZ/EL TURRET TYPE ANTENNA

Salvatore A. Rocci, 1745 Naranca Ave., El Cajon, Calif.

Continuation-in-part of Ser. No. 789,786, Jan. 8, 1969, abandoned. This application Feb. 8, 1971, Ser. No. 113,524
Int. Cl. H01q *3/00*
U.S. Cl. 343—765 11 Claims



For tracking missiles, such as communication and navigation missiles, which orbit synchronously with the earth and therefore remain relatively fixed as to aximuth and elevation with respect to a selected point on the earth's surface, adjustments of only a few degrees in azimuth and elevation are usually sufficient to keep an antenna focused on the satellite once the latter has attained a satisfactory orbit. The present invention is directed to a limited tracking antenna for such satellites, and the present disclosure is of a preferred embodiment of the invention. A triangular turret base is pivoted at one apex thereof to swing about an azimuth axis on a flat, horizontal support, structure, and is supported at each of the other apexes for limited slidable movement along a pair of slide plates removably mounted at angularly selected locations on the base. Azimuth control power drive means acts between the turret base and the support structure to control azimuth adjustment of the turret within the limits of movement permitted by the length of the slide plates.

A usual antenna reflector bowl is pivoted on the turret to swing about an elevation axis, and a plurality of attachment means are provided at angularly spaced intervals along a circular mount on the antenna co-axial with the elevation axis.

Elevation control means acts between a fixed portion of the turret and a selected one of these attachment means, and controls adjustment of the elevation angle of the antenna within the limits of movement of the elevation control means.

A hemi-cylindrical walkway or work chamber is mounted on the back of the antenna bowl with its axis substantially coincident with the elevation axis. A door is mounted in a circular plate mounted for rotative adjustment over a hole in an end of the walkway to allow positioning the door upright, and a curved step plate is provided to bridge the gap between the door and a platform for safe ingress and exit of workers entering and leaving the chamber regardless of the elevation angle of the antenna bowl.

3,787,871
TERMINATOR FOR SPIRAL ANTENNA

Joe Reese, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 3, 1971, Ser. No. 121,606
Int. Cl. H01q *1/36*
U.S. Cl. 343—895 7 Claims

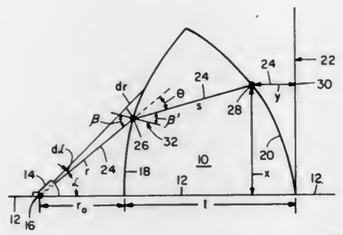


A spiral antenna wherein its radiating elements terminate in Archimedean spirals.

3,787,872
MICROWAVE LENS ANTENNA AND METHOD OF PRODUCING

James F. Kauffman, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y.

Filed Aug. 10, 1971, Ser. No. 170,569
Int. Cl. H01q *15/08*
U.S. Cl. 343—911 20 Claims



A microwave lens for use in the transmission of microwave energy, and a method of producing such a lens. The microwave lens of this invention transforms microwave energy passing through the lens to a desired specific phase and amplitude distribution. Both surfaces of the lens are contoured interdependently to provide the desired phase and amplitude distribution.

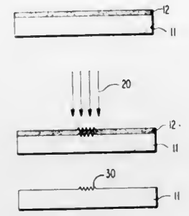
ERRATUM

For Class 343—117 R see:
Patent No. 3,787,809

3,787,873
LASER RECORDING METHOD AND MATERIAL THEREFOR

Masamichi Sato, and Akira Nabara, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 12, 1971, Ser. No. 188,066
Claims priority, application Japan, Oct. 12, 1970, 45-89563
Int. Cl. G01d *15/34*
U.S. Cl. 346—1 6 Claims

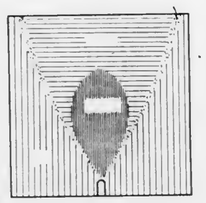


An improved recording method and recording material utilizing a laser beam is disclosed. A transparent method is recorded upon with a laser beam of comparatively little energy by providing the material with a light absorbing, deformation promoting, removable layer having a high absorption coefficient.

3,787,874
METHOD FOR MAKING BOUNDARY-LAYER FLOW CONDITIONS VISIBLE

Gerd Urban, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed July 7, 1972, Ser. No. 269,822
Claims priority, application Germany, July 7, 1971, 2133865
Int. Cl. G01d *5/42*
U.S. Cl. 346—1 23 Claims

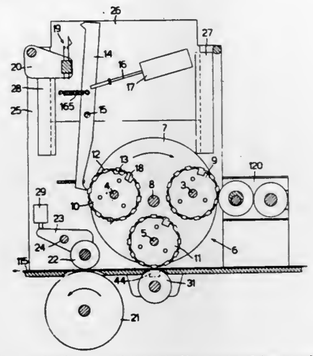


Boundary-layer flow conditions of gases are made visible by applying to the surface of a moving or stationary structural body to be exposed to the flow a reactive layer of at least one chemical color indicator, such as an acid-base indicator and/or a Redox indicator or a liquid-crystal indicator, such as a cholesterinic liquid. Then the body is exposed to a flow of gas, such as air, which gas may contain a reagent. The chemical color indicator can also be applied together with gelling means and a moisture binder. The chemical color indicator can also be absorbed by a high-contrast, absorbent paper which is then applied to the body. A metal or plastic foil coated with a binder and/or indicator can also be used for this purpose. A boundary-layer flow pattern image is produced, which can subsequently be recorded by known means.

3,787,875
MACHINE FOR RECORDING VISUALLY INTERPRETABLE DATA AND MACHINE READABLE INFORMATION ON A TICKET

Walter Gechele, Cascinette, and Bruno Piazza, Ivrea, both of Italy, assignors to Ing. C. Olivetti & Co., S.p.A., Ivrea, Turin, Italy

Filed Nov. 18, 1971, Ser. No. 199,968
Claims priority, application Italy, Nov. 24, 1970, 70917/70
Int. Cl. B41f *17/00*
U.S. Cl. 346—74 MP 6 Claims

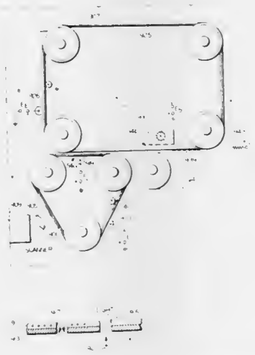


A ticket printing and recording machine prints rows of characters on a first portion of the ticket and magnetically records information corresponding to said characters on a second portion of the ticket. The printing device comprises a plurality of sets of typewheels mounted on a corresponding plurality of common shafts. The shafts are mounted on a support rotatable for causing each set of typewheels to print a corresponding row of characters. The recording device comprises a rotatable magnetic head and is operated in the interval of time comprised between the printing operations of two groups of characters, while the ticket is locked by a flange opposite to the head and by a rod entering a hole of the ticket.

3,787,876
APERTURE CONTROLLED ELECTROSTATIC IMAGE REPRODUCTION

Gerald L. Pressman, San Jose, and Thomas D. Kittredge, South San Francisco, both of Calif., assignors to Electroprint, Inc., Palo Alto, Calif.

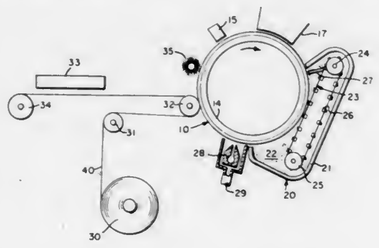
Division of Ser. No. 776,146, Nov. 15, 1968, Pat. No. 3,647,291. This application Jan. 5, 1972, Ser. No. 215,511
Int. Cl. G03g *5/04, 7/00*
U.S. Cl. 346—74 P 7 Claims



The invention basically comprises apparatus and methods relating to the field of electrostatics, and is concerned with

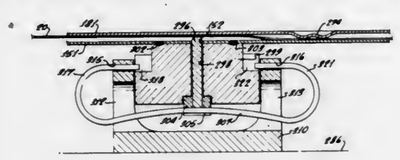
electrostatic reproducing or constituting. Apertured screen means carry charge distributions in accordance with a pattern such that particles directed at the screen means pass therethrough under modulation control dictated by the pattern.

3,787,877
DRY MAGNETIC COPYING PROCESS
George R. Nacci, Wilmington, Del., and Richard C. Toole, Kennett Square, Pa., assignors to E. I. Du Pont de Nemours and Co., Wilmington, Del.
Continuation-in-part of Ser. No. 37,706, May 15, 1970, Pat. No. 3,698,005. This application Apr. 3, 1972, Ser. No. 240,665. The portion of the term of this patent subsequent to Oct. 10, 1989, has been disclaimed.
Int. Cl. G01d *15/12*; H01v *3/04*
U.S. Cl. 346—74 MT 14 Claims



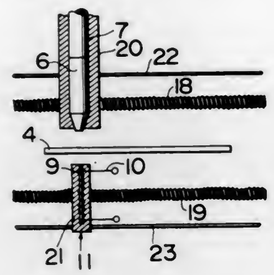
The use of a recording member comprising a transparent support, a stratum of magnetic material and a thin coating of polysilicic acid, in combination with a dry toner powder, preferably one comprising a plurality of toner particles each of which contains at least one ferromagnetic particle, a binder and a cationic surfactant, renders a dry magnetic copying process feasible.

3,787,878
DUAL CHANNEL STRIP CHART RECORDER
Richard S. Kampf, Costa Mesa, and Lisle W. Sultzbaugh, Whittier, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Filed July 3, 1972, Ser. No. 268,496
Int. Cl. G01d *9/30*
U.S. Cl. 346—49 12 Claims



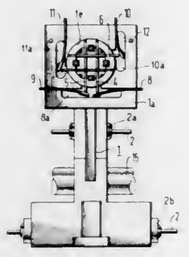
A dual channel strip chart recorder for providing two overlapping traces on a movable chart without time displacement therebetween. One trace is narrow and the other trace is wide to facilitate interpretation of the chart. The recorder utilizes pressure sensitive chart paper which can be written upon from either side and viewed from the front side. The recorder uses one stylus to write on the back of the paper and another opposed stylus to write upon the front of the paper. The styli are driven back and forth across the moving chart by two corresponding movable steel bands, each of which acts as a backup surface for the opposing stylus. A special styli design is provided to permit stylus crossover without hang-up and to prevent either stylus from punching through the chart paper.

3,787,879
MAGNETIC INK RECORDING SYSTEM
Satoshi Ichioka, and Shinjiro Takeuchi, both of Toda, Japan, assignors to Mishima Kosan Co., Ltd., Kitakyushu-City, Fukuoka Prefecture
Filed May 28, 1971, Ser. No. 148,014
Claims priority, application Japan, Dec. 3, 1970, 45-107017; Dec. 31, 1970, 45-123586
Int. Cl. G01d *15/16*
U.S. Cl. 346—140 2 Claims



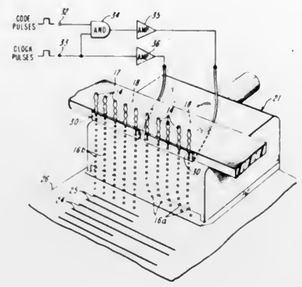
Recording of magnetic ink on a continuous moving recording paper inserted between magnetic ink supply nozzles and opposed magnetic heads is performed by producing a magnetic field sufficient to attract magnetic ink. Magnetic ink supply nozzles each contain magnetic ink and have a first coil wound thereon to assist the magnetic field and a second coil thereon to oscillate the magnetic ink in the nozzles. Magnetic ink supply means can be a honeycomb mesh and magnetic heads are integrated to produce a dense recording.

3,787,880
INK JET PRINTER INTERCHANGEABLE RECORDING HEAD
Erich Kattner, and Klaus Bork, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Aug. 15, 1972, Ser. No. 280,821
Claims priority, application Germany, Aug. 24, 1971, 2142409
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 12 Claims



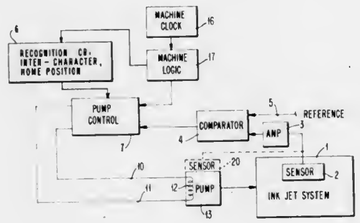
Ink jet printer shiftable along a sheet recorder. The printer has conventional deflection plates or electrodes which, when energized, create an electromagnetic field corresponding to the shape of the indicia to be recorded and cause the spray of ink issuing from the head to be deflected to assume the configuration of the magnetic field. The head is moved along a record sheet traveling about a roll and is connected to its carrier by plug in connections, to enable cleaning or exchanging of the head and to avoid all solder connections. The plug-in connections are so arranged to prevent the plugging forces from being transmitted to the recording head.

3,787,881
APPARATUS AND METHOD FOR BAR CODE PRINTING
Peter Leonard Duffield, Dayton, Ohio, assignor to The Mead Corporation, Dayton, Ohio
Filed Sept. 18, 1972, Ser. No. 289,772
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 13 Claims



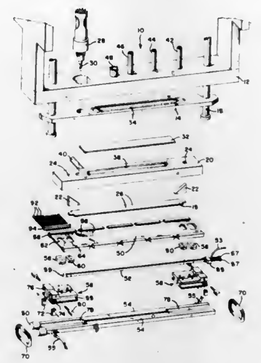
There is disclosed an apparatus and method for controlling a row of ink jet streams to produce printed bars. Ink drops generated by a first group of streams are periodically gang charged and caught under the control of an input clock signal. Those of the drops which are uncharged deposit upon a moving print receiving medium to print a series of regularly spaced bars. A second group of streams within the same row are gang switched and caught under the joint control of the clock signal and a binary code signal. This latter group of streams prints extensions on selected ones of the bars printed by the first group of streams. System operating conditions are adjusted to produce overlapping of the printed dots which collectively define the bars.

3,787,882
SERVO CONTROL OF INK JET PUMP
Gary L. Fillmore; Hugh E. Naylor, III, and Donald L. West, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 25, 1972, Ser. No. 293,300
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 13 Claims



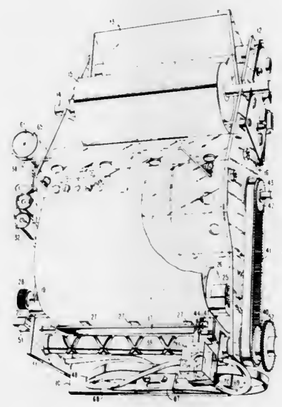
An important factor in quality of printing with an ink jet printing apparatus is the velocity of the ink jet stream. The present case describes a number of servo systems for controlling velocity of the stream. This can be done indirectly by sensing pressure and/or temperature or directly by sensing velocity of the stream and controlling the pump frequency or pump drive currents.

3,787,883
DEFLECTION ELECTRODE ASSEMBLY FOR A JET DROP RECORDER
William Guy Cassill, McArthur, Ohio, assignor to The Mead Corporation, Dayton, Ohio
Filed Dec. 20, 1972, Ser. No. 317,074. The portion of the term of this patent subsequent to Oct. 31, 1989, has been disclaimed.
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 8 Claims



There is disclosed a jet drop recorder which generates and switches two parallel rows of jets. The drops from the two rows of jets are selectively charged by two corresponding rows of charge rings and then pass on opposite sides of an electrically conductive strip which in cooperation with other elements of the generator provides an electrostatic deflecting field to deflect charged drops into one or another of a pair of drop catchers. The electrically conductive strip is relatively thin and is maintained in a straight, non-deformed configuration by taut stretching between the catchers.

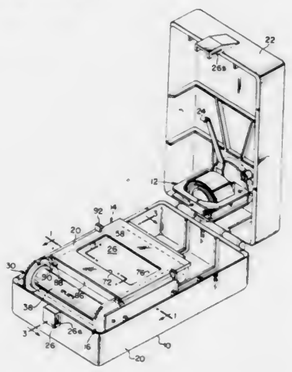
3,787,884
INK JET PRINTER
Frederick M. Demer, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 8, 1973, Ser. No. 321,890
Int. Cl. G01d *15/18*; B41j *3/04*; G06k *15/02*
U.S. Cl. 346—75 7 Claims



An ink jet printing system which writes on a record medium by expelling droplets of liquid ink from the cavity of a jet head

which is reciprocated repetitively along the printing line. A piezoelectric transducer is used to generate ink droplets on demand under control of suitable storage and character generating equipment. Characters are formed by generating dots in a 5 × 7 matrix as the head traverses back and forth. The record medium is stationary during printing and is advanced one row space at the completion of each horizontal row of dots and also one line space at the completion of each row of characters.

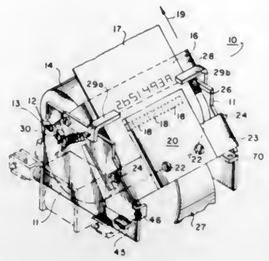
3,787,885
TRANSPORTABLE STRIP CHART RECORDER
Jerry E. Johnson, Bellevue, Wash., assignor to Ryan Instruments, Inc., Seattle, Wash.
Filed May 12, 1972, Ser. No. 252,929
Int. Cl. G01d *15/28*
U.S. Cl. 346—136 **4 Claims**



A readily transportable strip chart recorder includes a disposable strip chart dispenser. The dispenser holds one rolled end of the strip chart and the free end passes over a writing surface and beneath a window exposing the strip chart above the writing surface. The dispenser is detachably mounted in a case with the free end of the strip chart adjacent a drive spool to be wound thereon when in use. The drive spool is powered by a battery driven motor. Two switches are employed to close the circuit between the battery and the motor. One switch is closed when the dispenser is in place in the recorder case, whereas the second switch is closed only after the strip chart is manually advanced on the spool. Battery terminals are exposed externally of the case for checking the battery without opening the recorder case.

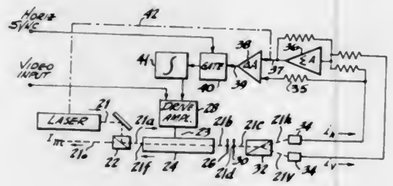
3,787,886
ADVANCING MECHANISM FOR THERMAL PRINT APPARATUS
John McCrady, Dallas, Tex., assignor to Displaytek Corporation, Dallas, Tex.
Filed Jan. 4, 1973, Ser. No. 320,990
Int. Cl. G01d *15/10, 15/28*
U.S. Cl. 346—76 R **20 Claims**

Disclosed is thermal printing apparatus a fixed row of thermal print heads and means for incrementally advancing thermally sensitive paper past and transverse to the thermal print heads for effecting a printout of lines of characters. The advancing mechanism advances the thermal paper while simultaneously releasing the print heads from engagement with the paper, and includes a paper gripping assembly comprising a



pair of pivotally mounted, uniquely cooperating, retaining members for pulling the record material a predetermined incremental distance past the row of print heads.

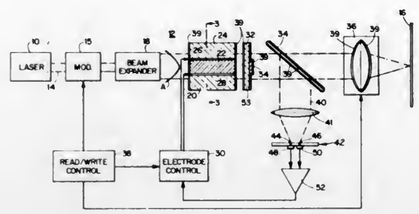
3,787,887
OPTICAL RECORDER WITH INTENSITY CONTROL
Gardner T. Burton, Runnemede, N.J., assignor to RCA Corporation, New York, N.Y.
Continuation of Ser. No. 769,292, Oct. 21, 1968, abandoned.
This application Apr. 29, 1971, Ser. No. 138,768
Int. Cl. G01d *15/14*
U.S. Cl. 346—108 **2 Claims**



Disclosed is a control circuit for establishing a reference level at the output of an optical modulator used to modulate the intensity of a laser beam. The modulated beam is sampled in the presence of a predetermined signal applied to the modulator to detect deviation from a known relationship; and means provided to correct for such deviation and re-establish said known relationship.

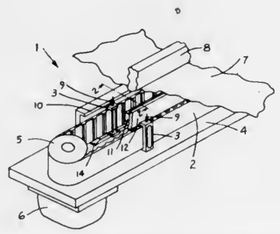
3,787,888
RECORDING APPARATUS WITH BEAM INTENSITY CONTROL MEANS
Haim Haskal, Brookline, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Division of Ser. No. 889,054, Dec. 30, 1969, Pat. No. 3,705,758. This application Oct. 15, 1971, Ser. No. 189,734
Int. Cl. G01d
U.S. Cl. 346—108 **7 Claims**

Focusing means in the path of a beam of coherent electromagnetic waves focus the beam on a focal plane. The beam intensity varies across its diameter. First transparent refractive means in the path of the more intense portion of the beam transmits the waveforms but retards their phase. Second transparent refractive means in the path of the less intense portion of the beam transmits the less intense waveforms but retards



their phase an amount different from that of the first refractive means. Interference at the focal plane between the phase changed waveforms alters the original intensity profile of the waveforms. By controlling the relative phase changes the intensity pattern can be altered to be substantially uniform across the beam with only small loss of energy.

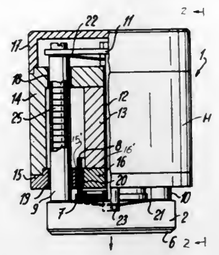
3,787,889
FACSIMILE RECORDER WITH GUIDED STYLI
David Shaler, Madison, and John H. Long, Oakland, both of N.J., assignors to Muirhead, Inc., Mountainside, N.J.
Filed Feb. 5, 1973, Ser. No. 329,575
Int. Cl. G01d *15/24*
U.S. Cl. 346—139 A **6 Claims**



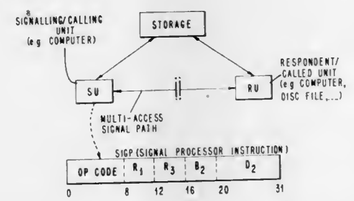
A stylus block for use with a belt-type drive in which guiding means is applied against one side of the stylus block while a resilient guiding force is applied against the other side thereof so that the stylus block is guided in both directions on either side of the scanning line.

3,787,890
STRIKER FOR PRINTING CHRONOCOMPARATOR DIAGRAMS
Jean-Pierre Bonny, La Chaux de Fonds, Switzerland, assignor to Portescap, La Chaux de Fonds, Switzerland
Filed June 14, 1972, Ser. No. 262,609
Claims priority, application Switzerland, June 16, 1971, 8768/71
Int. Cl. G01d *15/24*
U.S. Cl. 346—141 **8 Claims**

A striking device for use in printing diagrams in a chronocomparator includes a striker head and electromagnetic means responsive to electrical control pulses for moving said striker head into contact with a recording or printing web. The electromagnetic means includes a rigid metal frame having a central magnetic core mounted therein and cooperating therewith to define an annular gap in a magnetic circuit. An iron-less coil is movably mounted in this gap and rigidly secured to the striker head. The coil is adapted to be operatively connected to a source of control pulses whereby upon receipt of a control impulse the coil reciprocates in the gap to move the striker head.



3,787,891
SIGNAL PROCESSOR INSTRUCTION FOR NON-BLOCKING COMMUNICATION BETWEEN DATA PROCESSING UNITS
Brian B. Moore, Wappingers Falls; Andris Padegs, Poughkeepsie, and Ronald M. Smith, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1972, Ser. No. 268,268
Int. Cl. G06f *1/00*
U.S. Cl. 340—172.5 **17 Claims**



Control initiating instruction SIGNAL PROCESSOR is used to transfer a select control initiating order designated by the instruction from an initiating unit which executes the instruction to a designated respondent unit which interprets the order. If the respondent unit detects an invalid order or other specific exception circumstance it immediately returns indications of specific exception status to the initiating unit. This status is retained in a register specified by the instruction. The entire transaction is completed during the "short" control sequence of execution of the instruction. Hence the participating units and their interconnections are subject to efficient pre-emptive interruption without further delays for "sense" communication of specific exception status. The identity of the respondent unit and an addend factor of the control initiating order are prepared for quick transfer in registers of the initiating unit designated by information in the instruction. The order representation is formed by adding a portion of the immediate instruction and the above addend factor. Optionally contents of another prepared register designated by the instruction information are subject to transfer with the order code as an ancillary output parameter. Another option permits the user to direct the instruction order to itself for diagnostic or other program usage.

DESIGNS

JANUARY 22, 1974

229,989
SHOE
Abe Sedley, Beachwood, Ohio, assignor to International Seaway Trading Corporation, Cleveland, Ohio
Filed Oct. 29, 1971, Ser. No. 194,083
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—310

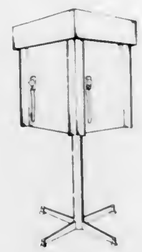


229,990
INDICATOR BELT
Sidney Perl, 15510 Hart St., Van Nuys, Calif. 91405
Filed June 5, 1972, Ser. No. 260,050
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D2—380

229,991
HAIRBRUSH
Douglas M. Small, Springfield, and Virginia Gosselin, West Springfield, Mass., assignors to Stanley Home Products, Inc., Westfield, Mass.
Filed Jan. 24, 1972, Ser. No. 220,544
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—13



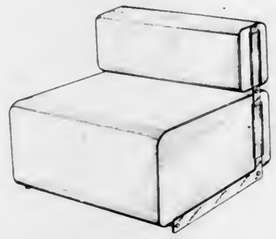
229,992
DISPLAY CABINET OR SIMILAR ARTICLE
Mel Kaiser, Teaneck, N.J., assignor to Automated Learning, Inc., Fairfield, N.J.
Filed June 1, 1972, Ser. No. 258,931
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—27



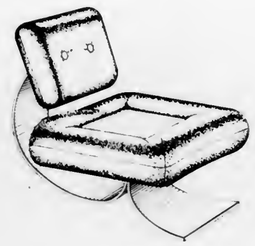
229,993
SEAT OR SIMILAR ARTICLE
Henning Korch, Lugano, Switzerland, assignor to Burris Industries, Incorporated, Lincolnton, N.C.
Filed Jan. 19, 1972, Ser. No. 219,211
Term of patent 7 years
Int. Cl. D6—*02*
U.S. Cl. D6—71



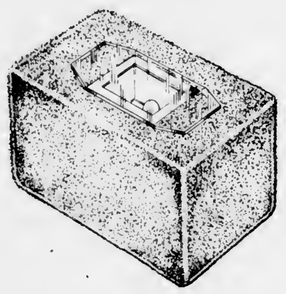
229,994
LOUNGE CHAIR
Richard W. Thompson, Lake Oswego, Oreg., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed June 1, 1972, Ser. No. 258,918
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



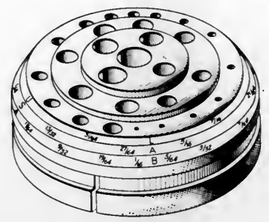
229,995
LOUNGE CHAIR
Oscar Niemeyer, Paris, France, assignor to Mobilier International S.A.
Filed Feb. 22, 1972, Ser. No. 228,428
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—78



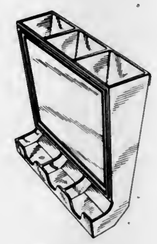
229,996
LAMP-TABLE
Trinie G. Reiter, 3405 Woodbine Ave., Baltimore, Md. 21207
Filed May 18, 1972, Ser. No. 254,830
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



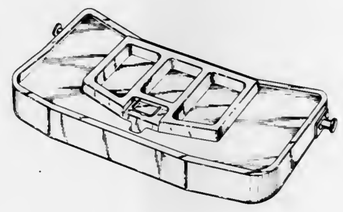
229,997
DRILL HOLDER
John T. Hoffman, 1604 E. Greenleaf St., Allentown, Pa. 18103
Filed Mar. 26, 1973, Ser. No. 345,192
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—188



229,998
DISPLAY RACK
Eugene Kleinman, Montvale, N.J., assignor to Kayser-Roth Corporation, New York, N.Y.
Filed July 27, 1972, Ser. No. 275,856
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—189



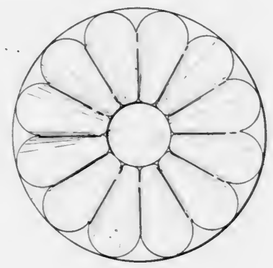
229,999
HIGH CHAIR TRAY WITH REMOVABLE INVERTIBLE INSERT
Lawrence Blazey, Bay Village, David Silverstrom, Lyndhurst, and Elmer Rocker, Shaker Heights, Ohio, assignors to Century Products, Inc., Cleveland, Ohio
Filed Mar. 22, 1972, Ser. No. 237,223
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—199



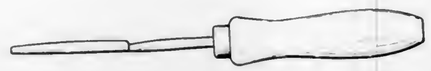
230,000
SHEET OR SIMILAR ARTICLE OF BED LINEN
Emeric Kanitz, Paris, France, assignor to Cannon Mills Company, Kannapolis, N.C.
Filed May 13, 1971, Ser. No. 143,292
Term of patent 14 years
Int. Cl. D6—*13*
U.S. Cl. D6—264



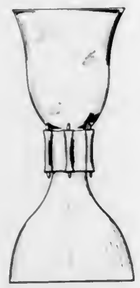
230,001
FOOD SERVING TRAY
June M. Wright, 1000 Judy Lane, Concord, Calif. 94520
Filed July 28, 1972, Ser. No. 276,220
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—38



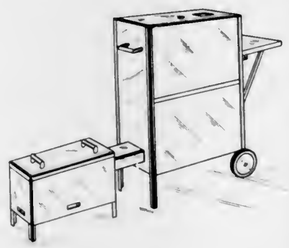
230,002
FISH SCALER
Lonnie G. Albright, Jr., 209 Lake Jeanette Road, Greensboro, N.C. 27405
Filed Mar. 30, 1972, Ser. No. 239,844
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—99



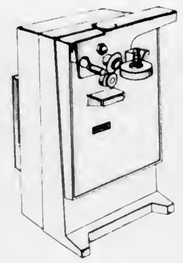
230,003
GOBLET
Maxine G. Levin, Westhill Drive, Gates Mills, Ohio 44040
Filed Dec. 11, 1972, Ser. No. 314,122
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—13



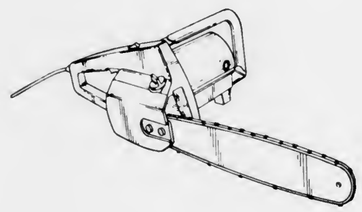
230,004
COMBINATION PORTABLE SMOKEHOUSE AND BAR-B-QUE GRILL
Paul A. Moltere, 2721 Will-o-Th-Green, Winter Park, Fla. 32789
Filed Nov. 24, 1972, Ser. No. 308,982
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—108



230,005
COMBINED CAN OPENER AND KNIFE SHARPENER
Harold Weiss, Fort Lee, N.J., assignor to Van Wyck International Corporation, New York, N.Y.
Filed June 29, 1972, Ser. No. 267,617
Term of patent 14 years
Int. Cl. D7—*99*; D8—*05*
U.S. Cl. D8—35



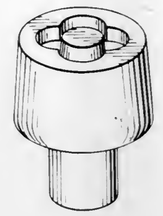
230,006
CHAIN SAW
Rodney L. Guthrie, St. Anne, Richard W. Condon, Frankfort, and Roscoe Combs, Jr., Kankakee, Ill., assignors to Roper Corporation, Kankakee, Ill.
Filed May 31, 1972, Ser. No. 258,479
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—65



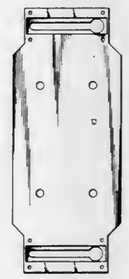
230,007
TAPE CUTTER
John F. Cramer, Shawnee, and James T. Cook, Gardner, Kans., assignors to Cramer Products, Inc., Gardner, Kans.
Filed Apr. 6, 1972, Ser. No. 241,861
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—98



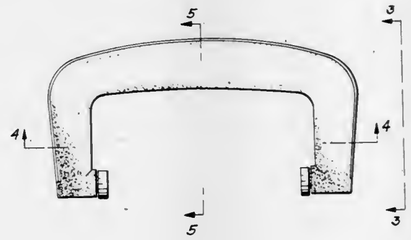
230,008
AUTOMOTIVE VEHICLE WHEEL LOCK
Frederick O. Gibbons, Whittier, Calif., assignor to Orion Industries, Inc., Los Angeles, Calif.
Filed Aug. 14, 1972, Ser. No. 280,711
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—113



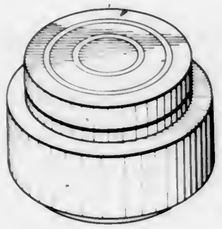
230,009
PLATE FOR CHAIN DOOR LOCKS
Ronald B. Royster, Sr., 1301 South Carolina Ave. SE., Apt. 2, Washington, D.C. 20003
Filed July 3, 1972, Ser. No. 268,615
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—137



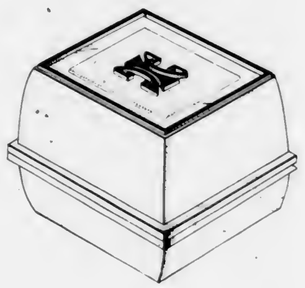
230,010
LUGGAGE HANDLE
Morton H. Baker, Pittsburgh, Pa., assignor to Bruce Plastics, Inc., Pittsburgh, Pa.
Filed June 5, 1972, Ser. No. 260,033
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—154



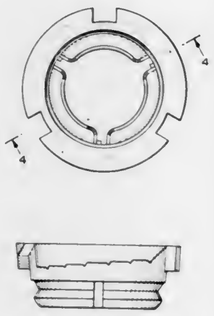
230,011
JAR OR THE LIKE
Elton Cohen Toland, 691 Irola, Los Angeles, Calif. 90005
Filed July 14, 1972, Ser. No. 271,809
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—164



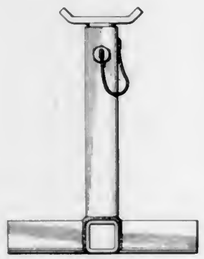
230,012
JEWELRY BOX OR SIMILAR ARTICLE
Richmond L. Chipman, Jr., Montville, N.J., assignor to The Alston Company, Jersey City, N.J.
Filed Feb. 23, 1972, Ser. No. 228,798
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D9—235



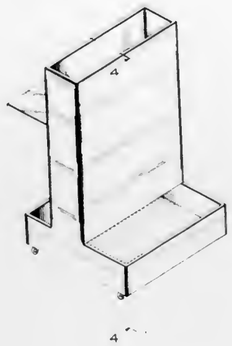
230,013
ADAPTER FOR INSTALLING AN AEROSOL CAN IN A DISPENSING MECHANISM
Richard Emerson, Melville, N.Y., assignor to Auto Comp Devices, Inc., Lynbrook, N.N.Y.
Filed Apr. 14, 1972, Ser. No. 244,352
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—253

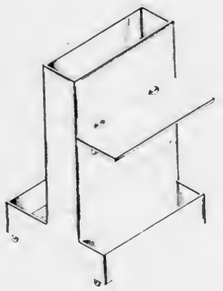


230,014
JACK STAND
George P. Edgell, Sr., Harrison, Ark., assignor to W. J. Stout Company, Inc., Western Grove, Ark.
Filed Oct. 16, 1972, Ser. No. 297,854
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D12—55

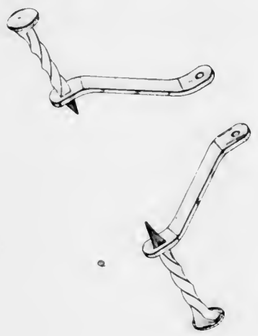


230,015
COMBINED MOBILE LOG CARRIER AND BAR
Milton D. Hatfield, 1204 Roseway SE., Warren, Ohio 44484
Filed Jan. 16, 1973, Ser. No. 324,090
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—29

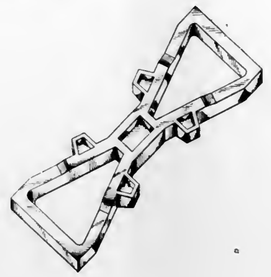




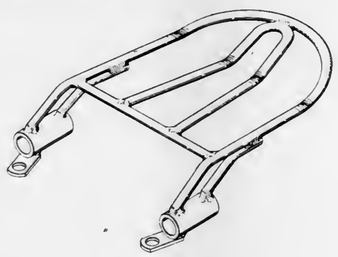
230,016
MOTORCYCLE FOOTPEG
John L. Corey, 21329 S. Martin St., Carson, Calif. 90744
Filed Jan. 2, 1973, Ser. No. 320,078
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—114



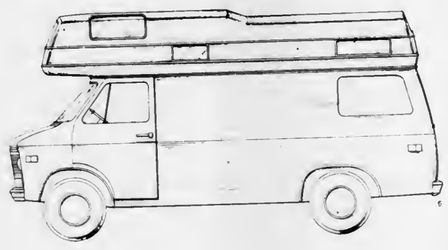
230,017
TRACTION LINK FOR AUTOMOBILE TIRES
Rolf Pfoertner, 2176 E. 29th Ave., Vancouver 12, British Columbia, Canada
Filed Mar. 13, 1972, Ser. No. 234,467
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—154



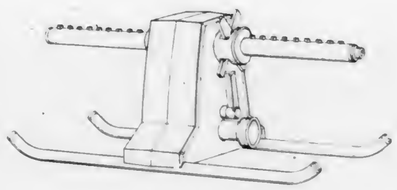
230,018
MOTORCYCLE LUGGAGE CARRIER
Raymond K. Abrams, Redwood City, Calif., assignor to Motorcraft, Inc., Redwood City, Calif.
Filed July 10, 1972, Ser. No. 270,251
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—158



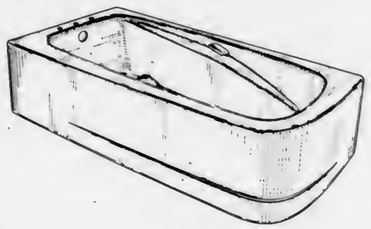
230,019
VAN
Donald H. Cox, Lima, Ohio, assignor to Sheller-Globe Corporation, Toledo, Ohio
Filed Mar. 27, 1972, Ser. No. 238,725
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D14—3 J

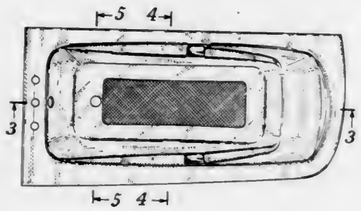


230,020
LAWN SPRINKLER
Douglas W. Anderson, deceased, late of Palatine, Ill., by Elizabeth A. Anderson, administratrix, Palatine, Ill., assignor to Burgess Vibrocrafters, Inc., Grayslake, Ill.
Filed Jan. 3, 1972, Ser. No. 215,236
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—8

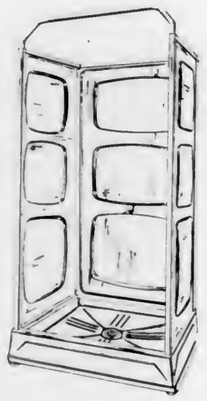


230,021
BATHTUB
Andre Primault, Noyon, France, assignor to Societe Generale de Fonderie, Paris, France
Filed Aug. 7, 1972, Ser. No. 278,692
Claims priority, application France May 26, 1972
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—55

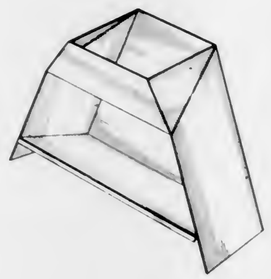




230,022
SHOWER STALL OR SIMILAR ARTICLE
Stig Tore Johannes Löfgren, Taby, Sweden, assignor to Innovare Aktiebolag, Taby, Sweden
Filed Mar. 30, 1972, Ser. No. 239,834
Claims priority, application Sweden Sept. 30, 1971
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—57



230,023
COMBINED FIREPLACE SMOKE CHAMBER AND DOWNDRAFT SHELF
George F. Haney, 536 S. Indiana, Anaheim, Calif. 92805, and Woody G. McClain, 4377 S. Huron, Englewood, Colo. 80110
Filed Dec. 23, 1971, Ser. No. 211,832
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94



230,024
DEVICE FOR TEACHING THE TELLING OF TIME
Carroll E. Sand, Wheaton, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed Mar. 15, 1972, Ser. No. 235,097
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1 R



230,025
VISUAL PROOF TERMINAL FOR ALUMINUM WIRE CONDUCTOR
Ronald Clarence Hoffman, Williamstown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Jan. 14, 1972, Ser. No. 218,042
Term of patent 14 years
The portion of the term of the patent subsequent to June 12, 1987, has been disclaimed
Int. Cl. D13—*03*
U.S. Cl. D26—1 A

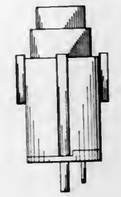


230,026
VIDEO MONITOR UNIT
John Davis Sims, Cary, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 27, 1971, Ser. No. 175,812
Term of patent 14 years
Int. Cl. D14—*02, 03*
U.S. Cl. D26—5 C





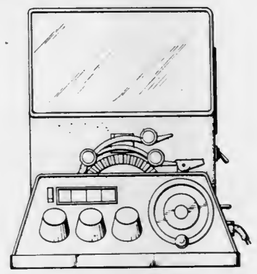
230,027
PUSH-BUTTON SWITCH
Edward G. Mueller, Council Bluffs, Iowa, assignor to George Risk Industries, Inc., Kimball, Nebr.
Continuation-in-part of design application Ser. No. 24,714, Aug. 26, 1970, now Patent No. 224,114, dated July 4, 1972. This application June 23, 1972, Ser. No. 265,800
Term of patent 14 years
The portion of the term of the patent subsequent to July 4, 1986, has been disclaimed
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



230,028
REED SWITCH ENVELOPE
Bernard Edward Shlesinger, Jr., 9411 Macklin Court, Alexandria, Va. 22309
Filed July 27, 1972, Ser. No. 275,839
Term of patent 14 years
The portion of the term of the patent subsequent to Oct. 13, 1984, has been disclaimed
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



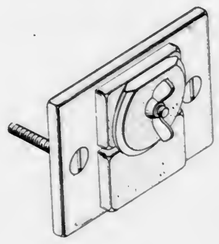
230,029
PICTURE-SOUND RECORDING APPARATUS
Dennis Knife, Wantagh, and Bernard A. Stone, New York, N.Y., assignors to Syncro-System Corp., New York, N.Y.
Filed Aug. 21, 1972, Ser. No. 282,149
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 B



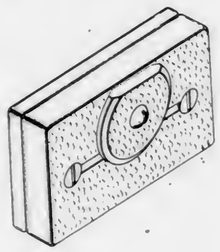
230,030
FIBER OPTIC DECORATIVE ORNAMENT
Jeffrey L. Monroy, Santa Ana, Calif., assignor to Poly-Optics, Inc.
Filed June 11, 1971, Ser. No. 152,482
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B



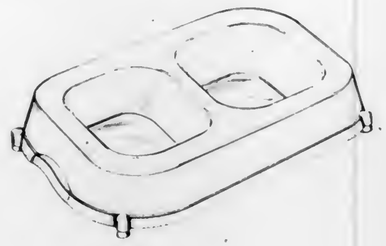
230,031
HOLDER FOR FOOD BOWL FOR PETS
Tony Robert, 5701 Southwest Freeway, Houston, Tex. 77027
Filed July 10, 1972, Ser. No. 269,953
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



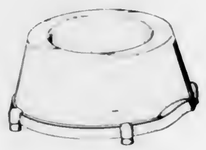
230,032
HOLDER FOR A FOOD BOWL FOR PETS OR SIMILAR ARTICLE
Tony Robert, 5701 Southwest Freeway, Houston, Tex. 77027
Filed Nov. 15, 1972, Ser. No. 306,568
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—13



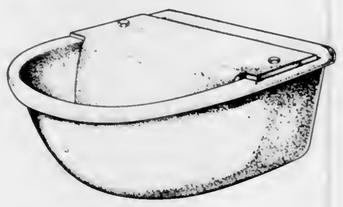
230,033
TWIN COMPARTMENT ANIMAL FEEDING BOWL
Marvin A. Goldman, Great Neck, and Jerome N. Goldman, New York, N.Y., assignors to Penn Plax Plastics, Inc., Jamaica, N.Y.
Filed Jan. 6, 1972, Ser. No. 215,989
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16



230,034
ANIMAL FEEDING BOWL
Marvin A. Goldman, Great Neck, and Jerome N. Goldman, New York, N.Y., assignors to Penn Plax Plastics, Inc., Jamaica, N.Y.
Filed Jan. 6, 1972, Ser. No. 215,707
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16



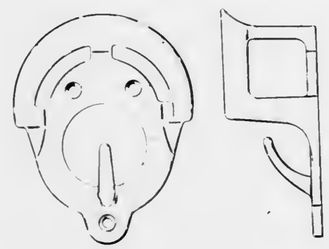
230,035
AUTOMATIC ANIMAL WATERING APPARATUS
Jay D. Bowman, 2271 Hillside, Norco, Calif. 91760
Filed Apr. 10, 1972, Ser. No. 242,892
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16



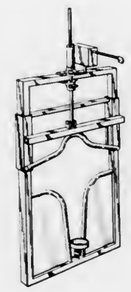
230,036
TAIL ENGAGED DOG CONTROL HARNESS
John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Filed Apr. 28, 1972, Ser. No. 248,778
Term of patent 14 years
Int. Cl. D30—*04*
U.S. Cl. D30—38



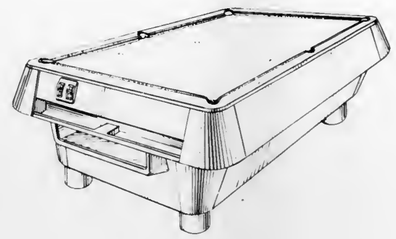
230,037
BRIDLE HOLDING DEVICE
William H. Hawn, Corpus Christi, Tex., assignor to Hawn Arabian Ranch, Corpus Christi, Tex.
Filed June 29, 1972, Ser. No. 267,698
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—45



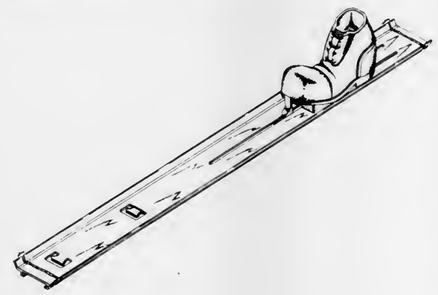
230,038
ANIMAL SECURING GATE
Cecil L. Tansel, Rte. 4, Box 165, Chandler, Okla. 74834
Filed July 3, 1972, Ser. No. 268,881
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—99



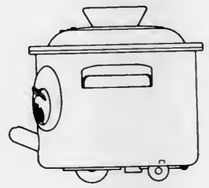
230,039
BILLIARD TABLE
Philip E. Crossman, 1435 E. Mason, Green Bay, Wis. 54301
Filed Mar. 8, 1972, Ser. No. 233,996
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—3



230,040
TOY VEHICLE LAUNCHER
Raymond M. Toy, Los Angeles, Alan W. B. Nash, Torrance, and Brian S. Prodger, Los Angeles, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 13, 1971, Ser. No. 207,725
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



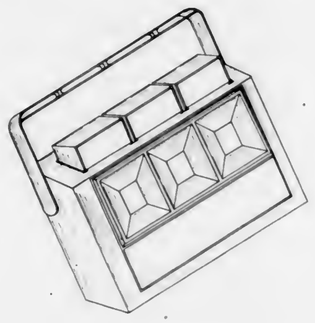
230,041
TOY COOKING POT
Shigeru Saito, 6-4, 2-chome, Kuramae, Tokyo, Japan
Filed Mar. 1, 1972, Ser. No. 231,067
Claims priority, application Japan Nov. 9, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



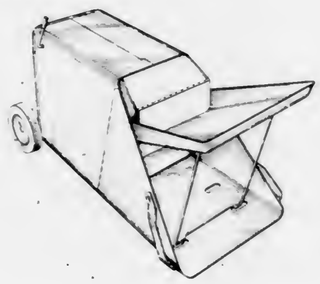
230,042
TOY TEA POT
Shigeru Saito, 6–4, 2-chome, Kuramae, Tokyo, Japan
Filed Mar. 1, 1972, Ser. No. 231,068
Claims priority, application Japan Nov. 9, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



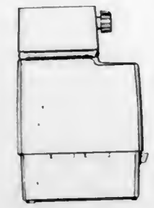
230,043
EDUCATIONAL TOY ADDING MACHINE
Michael Langieri, Jr., Butler, N.J., assignor to Questor Corporation, Toledo, Ohio
Filed Jan. 31, 1972, Ser. No. 222,431
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 A



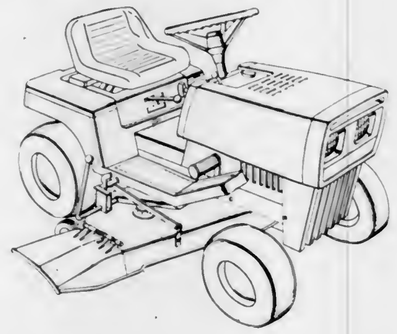
230,044
HOUSING OF A LEAF MILL OR THE LIKE
Daniel C. Koturov, Sheboygan, Wis., assignor to Gilson Bros. Co., Plymouth, Wis.
Filed Apr. 19, 1972, Ser. No. 245,685
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D35—2 A



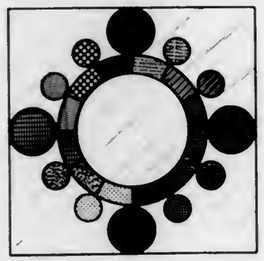
230,045
DRILL BIT SHARPENER
Michael P. Ballone, Baltimore, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed Nov. 1, 1971, Ser. No. 194,792
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D37—1 A



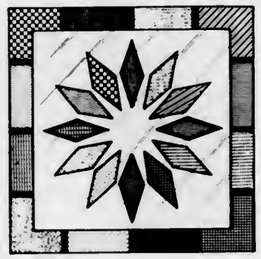
230,046
RIDING MOWER
William L. Manofsky, Nashville, Tenn., assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.
Filed Feb. 20, 1973, Ser. No. 334,097
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D40—1 D



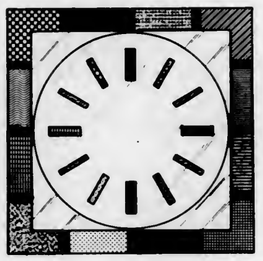
230,047
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Higashinada-ku, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,054
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



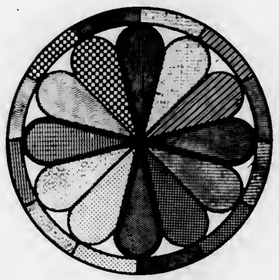
230,048
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Higashinada-ku, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,055
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,049
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,056
Claims priority, application Japan Oct. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



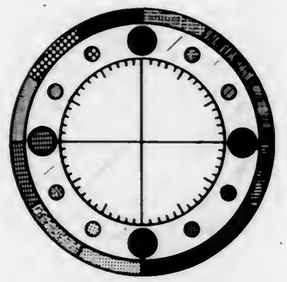
230,050
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,058
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



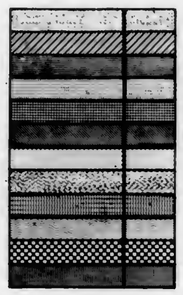
230,051
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,059
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,052
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1972, Ser. No. 189,061
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,053
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,062
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



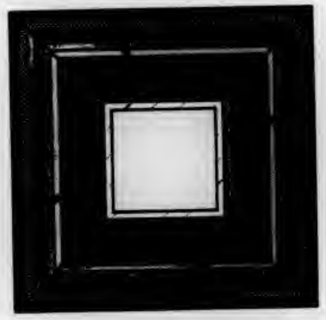
230,054
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,063
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,055
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,064
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



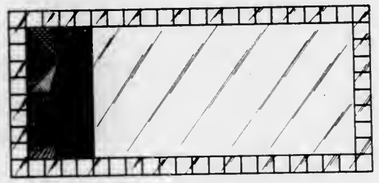
230,056
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 13, 1971, Ser. No. 189,065
Claims priority, application Japan Apr. 15, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



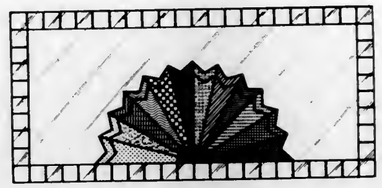
230,057
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,678
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



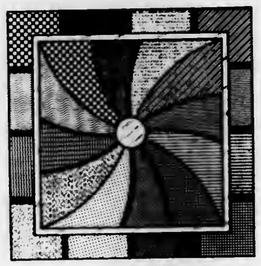
230,058
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,679
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



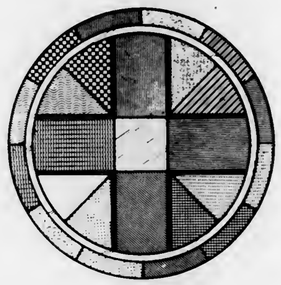
230,059
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,680
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,060
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,681
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



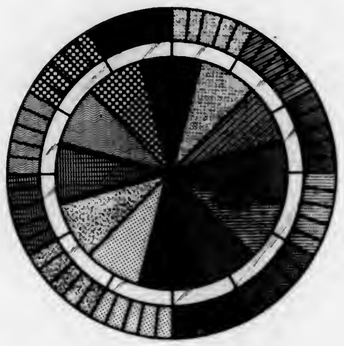
230,061
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,682
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



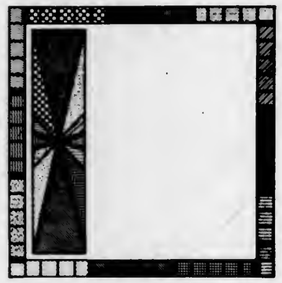
230,062
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,683
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,063
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,684
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



230,064
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,685
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



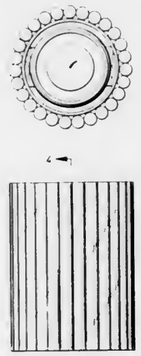
230,065
TIME-INDICATING FACE FOR A HOROLOGE
Shigeru Fukumoto, Nishinomiya, Japan, assignor to Kabushiki Kaisha Suncrux Research Office, Kobe, Japan
Filed Oct. 26, 1971, Ser. No. 192,686
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D42—1 B



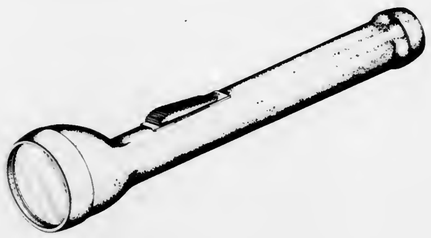
230,066
JEWELRY FINDING OR SIMILAR ARTICLE
Robert S. Grandy, 731 S. Vine St., Hinsdale, Ill. 60521
Filed Sept. 16, 1971, Ser. No. 163,115
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



230,067
COMBINED CANDLE AND HOLDER THEREFOR
Roy Van Horn, Jr., Houston, Tex., assignor to Van Horn Hayward, Houston, Tex.
Filed Oct. 27, 1971, Ser. No. 193,229
Term of patent 14 years
Int. Cl. D26—*01*
U.S. Cl. D48—2



230,068
FLASHLIGHT
Jody L. Numbers, Scottsdale, Ariz., assignor to Daco Safety Products, Inc., Tempe, Ariz.
Filed Nov. 27, 1972, Ser. No. 309,763
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 A

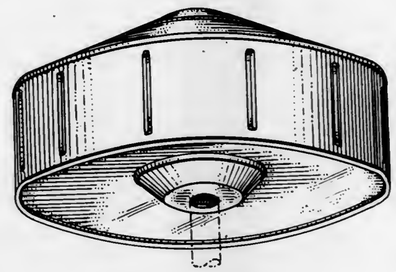


230,069
CIGARETTE LIGHTER
Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Taito-ku, Japan
Filed Apr. 27, 1972, Ser. No. 248,339
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R



230,070
HEAD FOR CIGARETTE LIGHTER FOR TABLE USE
Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Tokyo, Japan
Filed Dec. 6, 1972, Ser. No. 312,599
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R

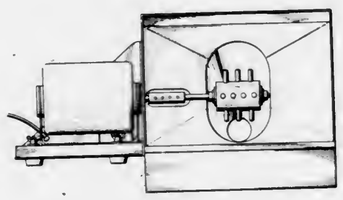
230,071
LUMINAIRE
Eldon L. Anderson, Jr., Fletcher, N.C., assignor to General Electric Company
Filed May 4, 1972, Ser. No. 250,472
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



230,072
FOOD WARMER
Roderick J. Chaudoir, Milwaukee, Wis., assignor to Hatco Corporation, Milwaukee, Wis.
Filed Aug. 2, 1971, Ser. No. 168,523
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D55—1 J



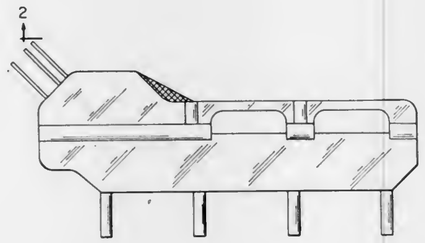
230,073
FEATHER PLUCKING MACHINE
Raleigh F. Lane, Jr., % Third National Bank, and Alexander J. Baird, 3503 Echo Hill Road, both of Nashville, Tenn. 37215
Filed Feb. 2, 1972, Ser. No. 223,047
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D55—1 E



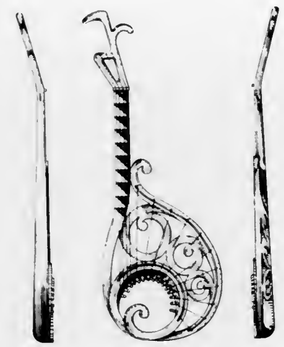
230,074
PAPERBOARD BLANK FEEDER BAR WITH LONGITUDINALLY ALIGNED AND SPACED FEED CLIPS
Clyde B. Garrett, Lanham, Albert L. Lulie, Baltimore, and William S. Thayer, Luthervillle, Md., assignors to Koppers Company, Inc.
Filed Oct. 4, 1971, Ser. No. 186,581
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 H



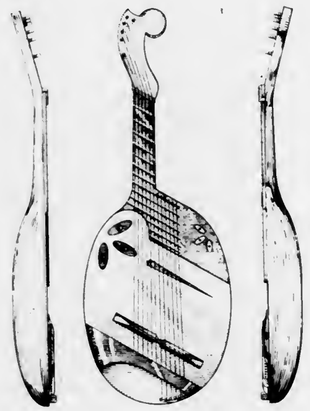
230,075
PACKAGING MACHINE
Earle C. Sherman, Monroe, La., assignor to Olinkraft, Inc.
Filed Feb. 11, 1972, Ser. No. 225,696
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 C



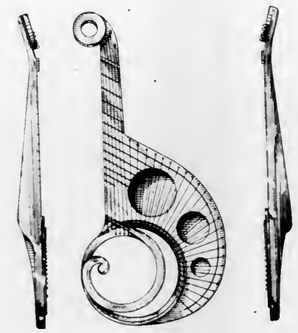
230,076
STRINGED MUSICAL INSTRUMENT
Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
Filed May 9, 1972, Ser. No. 251,854
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1 A



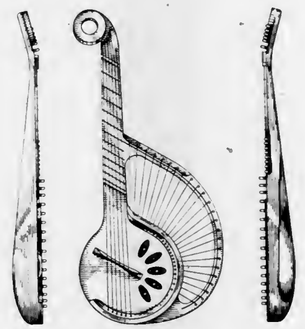
230,077
STRINGED MUSICAL INSTRUMENT
Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
Filed May 16, 1972, Ser. No. 253,921
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1 A



230,078
STRINGED MUSICAL INSTRUMENT
Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
Filed May 16, 1972, Ser. No. 253,923
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1 A



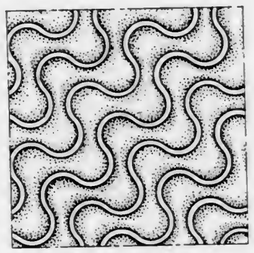
230,079
STRINGED MUSICAL INSTRUMENT
Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
Filed May 16, 1972, Ser. No. 253,924
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1 A



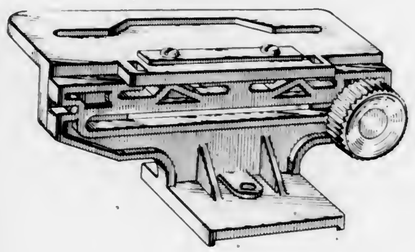
230,080
PAIR OF SPECTACLES
Richard R. Maiese, Sturbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed Jan. 24, 1972, Ser. No. 220,562
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 F



230,081
PAPER TOWELING OR SIMILAR ARTICLE
Gordon D. Thomas, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed June 19, 1972, Ser. No. 263,866
Term of patent 14 years
Int. Cl. D5—*06*
U.S. Cl. D59—2 B



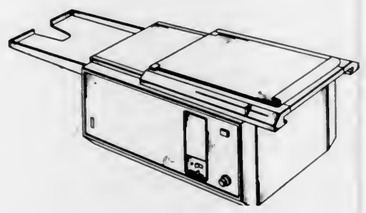
230,082
ADJUSTABLE CAMERA MOUNTING PLATFORM
Neil D. Adams, Baton Rouge, La.
(R.R. 2, Ste. Genevieve, Mo. 63670)
Filed Oct. 12, 1971, Ser. No. 188,638
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1 G



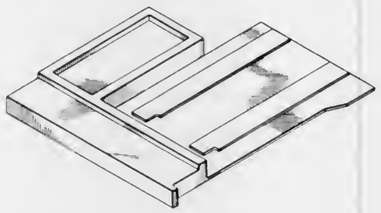
230,083
CAMERA HOLDER
Neil D. Adams, Baton Rouge, La.
(R.R. 2, Ste. Genevieve, Mo. 63670)
Filed Oct. 12, 1971, Ser. No. 188,639
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1 G



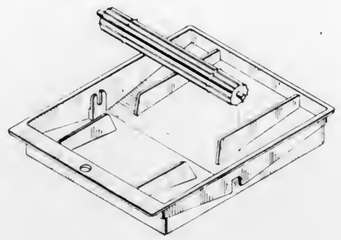
230,084
ELECTRONIC COPIER
Kazuteru Nagata, Fujisawa, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 26, 1971, Ser. No. 192,675
Claims priority, application Japan Apr. 27, 1971
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



230,085
COPY PAPER CASSETTE
James T. Alllis, 541 Adams Road; and Robert N. Beers, 111 Angean Drive, both of Webster, N.Y. 14580; and Louis Marth III, 1209 East Ave., Rochester, N.Y. 14607
Filed May 2, 1972, Ser. No. 249,744
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



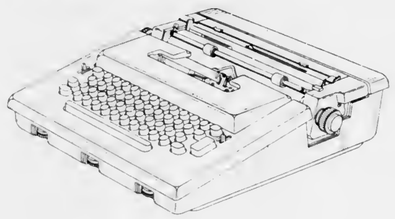
230,086
COMBINED RECEPTACLE AND ROLLER FOR A PAINT METERING DEVICE
Edward H. Meisner, Dumont, N.J., assignor to Red Devil Inc., Union, N.J.
Filed Jan. 17, 1972, Ser. No. 218,640
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D64—18



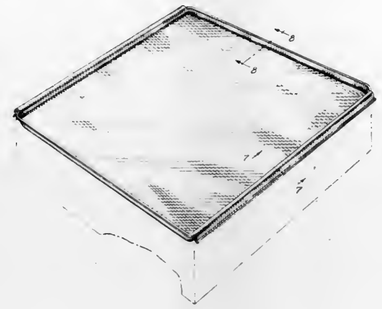
230,087
TYPEWRITER
Frank C Fusco, Monroe, and Bill Gold, Great Neck, N.Y., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Aug. 10, 1971, Ser. No. 170,530
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



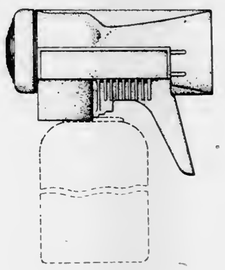
230,088
PORTABLE TYPEWRITER
Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Torino, Italy
Filed July 25, 1972, Ser. No. 274,943
Claims priority, application Italy Feb. 15, 1972
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



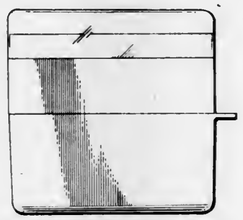
230,089
REFRIGERATOR DRAWER COVER
Harry R. Shanks, Glen Ellyn, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed June 12, 1972, Ser. No. 261,643
Term of patent 14 years
Int. Cl. D15—*07*
U.S. Cl. D67—3 B



230,090
POWER OPERATED HORN
Michael Pappas, Irvington, N.J., assignor to Falcon Safety Products, Inc., Mountainside, N.J.
Filed Aug. 16, 1971, Ser. No. 172,357
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D72—1 C



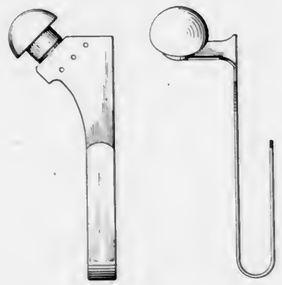
230,091
LIGHT FLASHER
Robert A. Redstone, West Covina, Calif., assignor to Survival & Rescue Inc., Sierra Madre, Calif.
Filed Mar. 29, 1972, Ser. No. 239,412
Term of patent 14 years
Int. Cl. D29—*02*; D26—*02*
U.S. Cl. D72—1 E



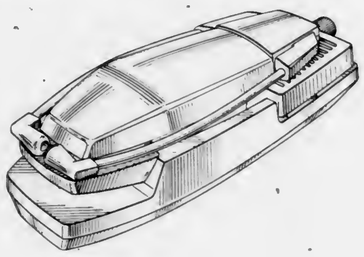
230,092
OBTURATOR FOR PEDIATRIC TRACHEOSTOMY TUBE
George M. Johnson, La Palma, Calif., assignor to Shirley Laboratories, Inc., Santa Ana, Calif.
Filed Mar. 30, 1973, Ser. No. 346,339
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D83—1 K



230,093
OFF-SET TRIAL PROSTHESIS DEVICE FOR USE IN HIP PROSTHESIS SURGERY
William Minor Deyerle, 2222 Monument Ave., Richmond, Va. 23220
Filed May 1, 1973, Ser. No. 356,365
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D83—1 E



230,094
STETHOSCOPE AND STAND
Stephen G. Hauser, Tarzana, Calif., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Sept. 15, 1972, Ser. No. 289,505
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12 R



230,095
EXTRACTOR FOR USE IN IMPLANTING PROSTHESIS IN TOTAL KNEE ORTHOPEDIC PROCEDURE
Robert T. Rylee II, 411 N. 3rd at Parkway, Memphis, Tenn. 38105
Filed Feb. 20, 1973, Ser. No. 332,250
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12



230,096
TEMPLATE FOR USE IN IMPLANTING PROSTHESIS IN TOTAL KNEE ORTHOPEDIC PROCEDURE
Robert T. Rylee II, 411 N. 3rd at Parkway, Memphis, Tenn. 38105
Filed Feb. 14, 1973, Ser. No. 332,251
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12



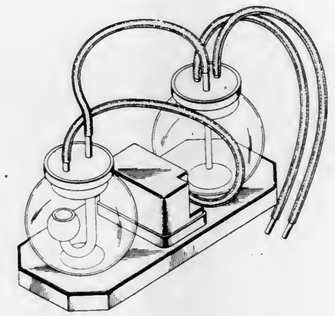
230,097
PUSHER FOR USE IN IMPLANTING PROSTHESIS IN TOTAL KNEE ORTHOPEDIC PROCEDURE
Robert T. Rylee II, 411 N. 3rd at Parkway, Memphis, Tenn. 38105
Filed Feb. 14, 1973, Ser. No. 332,252
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12 R



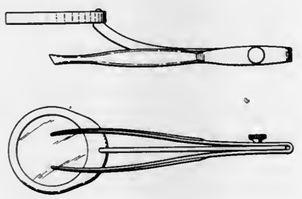
230,098
SAW GUIDE FOR USE IN IMPLANTING PROSTHESIS IN TOTAL KNEE ORTHOPEDIC PROCEDURE
Robert T. Rylee II, 411 N. 3rd at Parkway, Memphis, Tenn. 38105
Filed Feb. 14, 1973, Ser. No. 332,253
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12 R



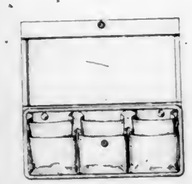
230,099
WATER PIPE
Edward R. Orr, 1424½ Portia, Los Angeles, Calif. 90026
Filed Dec. 18, 1972, Ser. No. 316,391
Term of patent 14 years
Int. Cl. D27—*02*
U.S. Cl. D85—8 A



230,100
COMBINED TWEEZERS AND MAGNIFYING GLASS
Pearley W. Hornbeck, 928 Wildwood Ave., Daly City, Calif. 94015
Filed Oct. 24, 1972, Ser. No. 300,169
Term of patent 7 years
Int. Cl. D8—*05*
U.S. Cl. D86—10 B

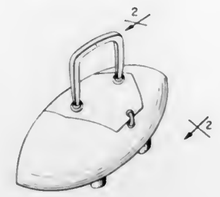


230,101
CARRYING CASE FOR CASSETTES
Morris L. Green, 239 Paramount Ave., Salt Lake City, Utah 84115
Filed May 10, 1971, Ser. No. 142,119
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1





230,102
LADY'S HANDBAG
Elton Reneau, Rte. 1, Box 302, Red Oak, Tex. 75154
Filed June 2, 1972, Ser. No. 259,360
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



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Bass, Larry F., to Collins Radio Company. Phase representative digital signal modulating apparatus. 3,787,785, Cl. 332-9.00r.

Batcheller, Roy W.: *See—*
Snyder, Donald E.; and Batcheller, Roy W., 3,787,033.

Battelle Memorial Institute: *See—*
Crites, Nelson A., 3,786,679.
Eggers, Philip E., 3,786,861.

Battrick, Peter Edward, to Northern Electric Company Limited. Push-button electronic pulsing dial. 3,787,639, Cl. 179-90.00k.

Bauer, Kurt: *See—*
Kohler, Alfred; and Bauer, Kurt, 3,787,129.

Bauer, Stuart M., to Pfizer Inc. Process for preparing pre-moistened antimicrobial towels. 3,786,615, Cl. 53-21.0fc.

Baumann, Andrew A. Expansible chamber device. 3,786,727, Cl. 91-493.000.

Baxter Laboratories, Inc.: *See—*
Lowy, George W.; Conlon, Joseph M.; and Marcus, Byron E., 3,787,121.
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Bayard, Lavern S.: *See—*
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Bayer Aktiengesellschaft: *See—*
Aya, Hasahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Norishima, Norihisa, 3,787,393.
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Bayer, Donald R.; Ritchie, Lewis M.; and Bivens, Jon A., to Clemar Manufacturing Corporation. Irrigation and sprinkler system. 3,787,728, Cl. 307-41.000.

Bayer, Horst O.; Hurt, William S.; and Aller, Harold E., to Rohm & Haas Company. 3-Phosphorylthio acrylamides. 3,787,536, Cl. 260-943.000.

Bean, Roger M., to Sun Research and Development Co. Conversion of isobutane to isobutene. 3,787,516, Cl. 260-683.300.

Bearden, Roby, Jr.; and Fink, Thomas E., to Esso Research and Engineering Company. Alkali metal desulfurization process for petroleum oil stocks using low pressure hydrogen. 3,787,315, Cl. 208-208.00m.

Beatrice Foods Company: *See—*
Keyes, Richard Martin; and Nelson, Bertel Swan, 3,787,145.

Becavin, Henri, to Thomson-CSF. Doppler instrument landing systems. 3,787,861, Cl. 343-106.00d.

Beck, Fritz; Haufe, Juergen; and Nohe, Heinz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Electrolytic condensation of carboxylic acids. 3,787,299, Cl. 204-59.00r.

Beck, George Morland: *See—*
Arnold, John Spencer; Beck, George Morland; Boom, Roger John; Cosserat, David Cockburn; Hodges, Kenneth James Hamer; Sandeman, Theodor Duncan; Williams, Roger Morley; and O'Halloran, Michael, 3,787,818.

Becker, Kurt; and Seidel, Hans-Georg, to Heye, Hermann. Apparatus for cutting off successive portions from a strand of plastic material such as a strand of viscous glass. 3,786,707, Cl. 83-299.000.

Becker, Kurt; and Seidel, Hans-Georg, to Heye, Hermann. Apparatus for feeding gobs of molten vitreous or plastic material into molds of a machine for forming bottles or similar containers with control means for controlling the movement of the molds. 3,787,96, Cl. 65-164.000.

Becker, Robert L.: *See—*
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Beckman Industries, Inc.: *See—*
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Beckman Instruments, Inc.: *See—*
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Neii, Radhakrishna Murty; Sawa, Kenneth B.; and Bing, Colin C., 3,787,309.

Beckwith, Merton M.; and Hsu, Grace F., to Conversion Chemical Corporation. Zinc plating bath and method. 3,787,297, Cl. 204-55.00r.

Beebe, John N., to Raytheon Company. High performance meter depth sounder for automatically indicating depth without manual adjustment. 3,787,803, Cl. 340-3.00r.

Beers, Albert Alvin, Jr.; Stoyer, Paul Eugene; and Lightner, Joseph Campbell, Jr., to Greenville Steel Car Company. Rapid discharge hopper car. 3,786,764, Cl. 105-240.000.

Beers, Ronald Wentworth: *See—*
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Behrenz, Wolfgang: *See—*
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Behunin, Gage B.; Cole, Eugene A.; and Staudt, Charles R., to Masonry Systems, Inc. Apparatus for dispensing flowable high-density material. 3,786,966, Cl. 222-387.000.

Bei, Pullach: *See—*
Meyer, Heinz; Schmid, Dieter; Bei, Pullach; Schwarzer, Hans; and Twittenhoff, Hans Joachim, 3,787,527.

Bell & Howell: *See—*
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Bell & Howell Company: *See—*
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Bell, Stanley C.: *See—*
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Bush, Stanley Edward; and Roberge, Kenneth Joseph, 3,787,640.
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Farmer, Wayne David; Kneuer, Joseph George; and Lawless, William Joseph, 3,787,613.
Giordmaine, Joseph Anthony; and Kleinman, David Allmond, 3,787,111.
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Bendix Corporation, The: *See—*
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Lademann, Ernest E.; and Iadarola, Ralph E., 3,786,685.

Bendror, Jack; and Venco, Gastone, to Robbins and Bendror Associates, Inc. Bookbinding machine with endleaf folding means. 3,786,529, Cl. 11-1.00r.

Beneficial Insect Control, Inc.: *See—*
Scott, Clarence A., Jr., 3,786,594.

Benghiat, Isaac, to Universal Oil Products Company. Novel flame retardant compositions. 3,787,528, Cl. 260-865.000.

Benghiat, Isaac, to Universal Oil Products Company. Novel flame retardant compositions. 3,787,529, Cl. 260-865.000.

Bennett, Charles D., to Cam Industries, Inc. Sequencing step control. 3,787,729, Cl. 307-41.000.

Bennett, James G., and Katchman, Arthur, to General Electric Company. Preparation of polyphenylene ethers with dialkyl formamide promoted copper-amine catalysts. 3,787,362, Cl. 260-47.0et.

Benwilco, Inc.: *See—*
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Beohringer Mannheim GmbH: *See—*
Bergmeyer, Hans Ulrich; Haid, Eric; Nelboeck-Hochstetter, Michael; and Weimann, Gunther, 3,787,392.

Beran, Pavel: *See—*
Dolejs, Ladislav; Beran, Pavel; Slama, Karel; and Sorm, Frantisek, 3,787,478.

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Delaquila, Gary; and Bercier, John R., 3,786,585.

Berens, Stephen: *See—*
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Berg, Lawrence F., to Caterpillar Tractor Company. Flow control valve. 3,786,827, Cl. 137-109.000.

Berger, James K., to Pioneer Magnetics, Inc. Inrush current limiting circuit. 3,787,756, Cl. 321-11.000.

Bergman, Charles T.: *See—*
Johnson, George V.; and Bergman, Charles T., 3,787,664.

Bergmeyer, Hans Ulrich; Haid, Eric; Nelboeck-Hochstetter, Michael; and Weimann, Gunther, to Beohringer Mannheim GmbH. Process for the preparation of nucleoside diphosphate esters. 3,787,392, Cl. 260-211.50r.

Berman, Richard M.; and Schwartz, Bernard, to Alphamedics Mfg. Corporation. Hand-operated pipette. 3,786,683, Cl. 73-425.40p.

Bernard, Jean Paul, to Societe Anonyme Aerazur Constructions Aeronautiques. Safety valve with inertial opening control. 3,787,067, Cl. 280-150.0ab.

Bernusset, Philippe. Catalysts for selective hydrogenation of hydrocarbons. 3,787,514, Cl. 260-677.00h.

Berreman, Dwight Winton; Meiboom, Saul; White, Donald Lawrence; and Kahn, Frederic Jay, to Bell Telephone Laboratories, Incorporated. Liquid crystal devices. 3,787,110, Cl. 350-160.01c.

Berry, David A.; Bunk, Albert R.; Halbrook, Noah J.; and Lawrence, Ray V., to United States of America, Agriculture. Hot-melt adhesive composition containing glycerol ester of fumaric-modified rosin. 3,787,342, Cl. 260-24.000.

Bersworth, Frederick C. Method of synthesizing hydrazine compounds carboxylic acids. 3,787,482, Cl. 260-482.00p.

Beutler, Hervey F., to Dow Corning Corporation. Shipping and display carton. 3,786,914, Cl. 206-44.00r.

Bieker, Ron D., and Rickel, E. O., to Rickel, Inc. Lift support device for use with truck weighing scales. 3,787,030, Cl. 254-8.00r.

Bielfeldt, Friedrich Bernd, to Eckert & Ziegler GmbH. Apparatus for injection molding with thermosetting resins. 3,787,159, Cl. 425-167.000.

Biggs, William A., Jr.: *See—*
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Bing, Colin C.: *See—*
Neii, Radhakrishna Murty; Sawa, Kenneth B.; and Bing, Colin C., 3,787,309.

Binzer, Thomas J., and Wooding, Peter H., to General Electric Company. Lighted control console with lift-up information plate. 3,787,674, Cl. 240-2.0pa.

Biospherics Incorporated: *See—*
Topol, George J., 3,787,703.

Birkenmeyer, Robert D., to Upjohn Company, The. Analogs of lincomycin and process. 3,787,390, Cl. 260-210.00r

Birkin, Michael S.; and Parkman, William T., to British Railways Board. Train communication system. 3,787,679, Cl. 246-30.000

Bishop, Wilson P., to United States of America, Navy. Close-in ranger system. 3,787,846, Cl. 343-7.300

Bivens, Jon A.: *See—*
Bayer, Donald R.; Ritchie, Lewis M.; and Bivens, Jon A., 3,787,728.

Bjork, Bengt Anders, to Domkraft AB Nike. Hydraulic garage jack. 3,786,692, Cl. 74-512.000.

Blaivas, Murray Aaron, to Hoffmann-La Roche Inc. Blood collection container. 3,786,985, Cl. 233-26.000.

Blanchet, Francis; and Sauron, Georges, to Commissariat a l'Energie Atomique. High-density magnetic memory. 3,787,824, Cl. 340-174.0dc.

Blank, Izhak, to Hydrophilics International, Inc. Optical contact lenses and related devices. 3,787,378, Cl. 260-86.10r

Blatter, Herbert Morton: *See—*
Mizzoni, Renat Herbert; and Blatter, Herbert Morton, 3,787,573.

Blecke, Ronald Gene, to Gulf Research & Development Company. High molecular weight, high melting, linear polyamides prepared from trans, trans-4,4-diaminobicyclohexyl. 3,787,375, Cl. 260-78.00r.

Block, Leo; and Shippey, Frank R., to Raypak, Inc. Means for sealing membrane carrying tubes. 3,786,925, Cl. 210-321.000.

Blocker, Erich; and Eckhardt, Peter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of aromatic copolyamide-phosphonamides. 3,787,372, Cl. 260-78.00r.

Blomberg, Peter Erik, to Aktiebolaget Electrolux. Absorption refrigeration system of the inert gas type. 3,786,653, Cl. 62-491.000.

Bloxsom, Joseph Thomas, to Lemay, A., Co., Inc. Contour grinder. 3,786,600, Cl. 51-101.01g.

Blundell, Thomas: *See—*
Colchester, John Edward; and Blundell, Thomas, 3,787,426.

Blymiller, Arthur L.; and Snodgrass, John E., to United States of America, Air Force. Instantaneous signal resolution system. 3,787,864, Cl. 343-113.00r.

Boardman Company, The: *See—*
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Bobst, J., & Fils, S.A.: *See—*
Bobst, Jacques; Gruetter, Walter; and Bollinger, Edwin, 3,786,731.

Bobst, Jacques; Gruetter, Walter; and Bollinger, Edwin, to Bobst, J., & Fils, S.A. Press for cutting sheet material. 3,786,731, Cl. 93-36.00a.

Bock, Wallace O. Exercise device. 3,787,048, Cl. 272-57.00r.

Bodway, George E. Fabrication of thin film resistors. 3,786,557, Cl. 29-620.000.

Boehringer Mannheim GmbH: *See—*
Jaworek, Dieter, 3,787,317.

Boeing Company, The: *See—*
Barrett, Lawrence D., Jr., 3,786,695.
Buehler, Walter E.; and Lunden, Clarence D., 3,787,841.

Boeticher, William A. Flooring sleeper assembly. 3,786,608, Cl. 52-480.000.

Bohn, Lothar; Cherdron, Harald; Fleissner, Manfred; and Herwig, Walter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Crystal-clear thermoplastic moulding compositions of linear polyester and styrene-acrylanitrilic copolymer mixures. 3,787,530, Cl. 260-873.000.

Bohringer Mannheim GmbH: *See—*
Jahn, Werner; Kampe, Wolfgang; Fauland, Erich; Juhran, Wolfgang; and Stork, Harald, 3,787,391.

Bolhofer, William A., to Merck and Company, Inc. B-picolyloxy ester of (3-trifluoromethyl phenoxy)(4-chlorophenyl) acetic acid and derivatives. 3,787,423, Cl. 260-295.50r.

Boliden Aktiebolag: *See—*
Melkersson, Karl-Axel; and Hedenas, Bo Gustav Valter, 3,786,619.

Bolin, Larry R.; and Jolly, Shelby A., to General Electric Company. Microwave-excited light emitting device. 3,787,705, Cl. 315-248.000.

Bolinger, William Russell. Time delay alarm system. 3,787,832, Cl. 340-276.000.

Bollinger, Edwin: *See—*
Bobst, Jacques; Gruetter, Walter; and Bollinger, Edwin, 3,786,731.

Bolynn, Andrew T. Refrigerating apparatus. 3,786,652, Cl. 62-243.000.

Bombardier, Jerome, to Bombardier Limited. Bracket assembly for snowmobile skis. 3,786,886, Cl. 180-5.00r.

Bombardier Limited: *See—*
Bombardier, Jerome, 3,786,886.

Bonny, Jean-Pierre, to Portescap. Striker for printing chronocomparator diagrams. 3,787,890, Cl. 346-141.000.

Boom, Roger John: *See—*
Arnold, John Spencer; Beck, George Morland; Boom, Roger John; Cosserat, David Cockburn; Hodges, Kenneth James Hamer; Sandeman, Theodor Duncan; Williams, Roger Morley; and O'Halloran, Michael, 3,787,818.

Borden Company, The: *See—*
Wingerd, Winston Harold; Damisch, Russell; and Bozzi, Marshall, 3,787,216.

Borders, Bert; Rivkowich, Harold; and Rehman, Warren C., to Tetley, Inc., mesne. Method for solubilizing tea cream. 3,787,590, Cl. 426-366.000.

Borg, John P. Portable self-cleaning door mat. 3,786,531, Cl. 15-310.000

Borg-Warner Corporation. *See—*
Newton, Alwin B., 3,786,650.

Borger, Jurgen Herman; and Castellanos, Rafael A., to Victor Comptometer Corporation. Solenoid for wire printer. 3,787,791, Cl. 335-274.000.

Borie, Robert. *See—*
Carbonnel, Henry, and Borie, Robert, 3,787,143.

Bork, Klaus: *See—*
Kattner, Erich; and Bork, Klaus, 3,787,880.

Bosch, Robert, Fernsehanlagen GmbH. *See—*
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Poetsch, Dieter; and Hess, Heinz, 3,787,611.

Bosch, Robert, G.m.b.H.: *See—*
von Loewis of Menar, Alexander, 3,787,095.

Bosch, Robert, Photokino GmbH. *See—*
Riedel, Wolfgang, 3,787,005.

Boshagen, Horst, to Farbenfabriken Bayer Aktiengesellschaft. N-disubstituted 3-amino-1,2-benzisothiazoles as antimycotic agents. 3,787,572, Cl. 424-244.000.

Boshinski, Edwin E.: *See—*
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Bosten, Donald R.: *See—*
Risko, Donald G.; Bosten, Donald R.; and Rusnak, Michael, 3,786,998.

Bostrowsky, Daniel: *See—*
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Bourdeau, Romeo G., to United Aircraft Corporation. Tungsten coated glass fiber. 3,787,236, Cl. 117-227.000.

Bowen, Lloyd: *See—*
Hilgedick, James R., 3,787,811.

Bowls, Victor C.; and Graham, D. Douglas. Emission control device for carburetor-equipped internal-combustion engines. 3,786,793, Cl. 123-119.00a.

Boylan, John R.: *See—*
Shufflebarger, Earl D.; Gallagher, Bernard J.; Simko, David M.; and Boylan, John R., 3,787,023.

Bozec, Christian H.; Dulong, Bernard G.; and Lemarinel, Robert Y., to Le Nickel. Electrolytic method for producing high-purity nickel from nickel oxide ores. 3,787,301, Cl. 204-112.000.

Bozzi, Marshall. *See—*
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Bradbury, Joseph T.: *See—*
Hastings, Charles E.; Rounion, William A.; Comstock, Allen L.; and Bradbury, Joseph T., 3,787,844.

Brahman, Rodman S., to Heath Company. Automatic range switching for digital depth sounders. 3,787,802, Cl. 340-3.00r.

Braid, John E.: *See—*
Cubbon, Robert C. P.; Braid, John E.; Oates, Alfred E.; and Preston, Ronald, 3,787,503.

Brand, Warren L.; and Kashkooli, Farajollah, to Signetics Corporation. Mos semiconductor structure with increased field threshold and method for making the same. 3,787,251, Cl. 148-187.000.

Brandt, Edison R.; and Rice, Christopher R., to Polaroid Corporation. Magnetic recording and playback system for use with recording records adapted for use in conjunction with a photograph. 3,787,636, Cl. 179-100.20t.

Brandt, Inc.: *See—*
Johnson, George V.; and Bergman, Charles T., 3,787,664.

Brauch, Ulrich: *See—*
Foerster, Hubert; and Brauch, Ulrich, 3,787,615.

Braun, Leonard A.: *See—*
Schafer, Robert P.; Braun, Leonard A.; and Maki, Terrence C., 3,786,877.

Brawn, Darrell S. Ski motion simulating training device. 3,787,047, Cl. 272-57.00b.

Breaux, Onezime P.: *See—*
Medicus, Gostav K.; and Breaux, Onezime P., 3,787,781.

Brecker, Lawrence Robert, to Argus Chemical Corporation. Synergistic mercapto organotin stabilizers. 3,787,357, Cl. 260-45.75k.

Breitbart, George: *See—*
Spitabny, Arnold; Breitbart, George; and Sporn, Stanley R., 3,787,624.

Breslow, Jeffrey D.; and Kaelin, Bette Marie, to Marvin Glass & Associates. Animated musical figure toy. 3,786,596, Cl. 46-98.000.

Breslow, Jeffrey D., to Glass, Marvin, & Associates. Launching platform, spring launching element and target area. 3,787,053, Cl. 273-101.000.

Bretschneider, Hermann; Grassmayr, Klaus; Hohenlohe-Oehringen, Kraft; and Grussner, Andre. Substituted sulfonyl urea and its stereoisomers. 3,787,491, Cl. 260-553.00d.

Breuer, Oswald: *See—*
Hauschopp, Alois; Langem, Werne Lippe; Breuer, Oswald; Ostrop, Berthold; and Steinkuhl, Bernd, 3,787;090.

Brewer Sewing Supplies Company: *See—*
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Bridgestone Tire Company Limited: *See—*
Muramatsu, Tateo; Aramaki, Kuninori; and Kundo, Yoshtkazu, 3,786,637.
Yonekawa, Hisashi; and Miyaoka, Minoru, 3,787,263.

Briggs, Charles Clifford; and Lythe, Trevor Wilkinson, to Steetley (Mfg.) Ltd. Magnesium hydroxide production. 3,787,558, Cl. 423-164.000.

Bright, William L. Electrical power substation. 3,787,711, Cl. 317-103.000.

Brink, Edwin H.; and Palmer, Warren G., to FMC Corporation. Foam flotation concentration of sewage. 3,787,316, Cl. 210-6.000.

Brinkley, Max D.: *See—*
Appleby, Paul E.; *Brinkley, Max D.; and Griffiths, Robert I., 3,787,262.

Brinkmann, Heinz: *See—*
Weegen, Lorenz; Luders, Albrecht; Brinkmann, Heinz; Herbst, Klaus; and Ernst, Gerd, 3,787,092.

Brinkmann, Ludwig; and Herwig, Walter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Crystal-clear polyamides prepared by condensing bis(aminomethyl)-tricyclodecone with aromatic dicarboxylic acids. 3,787,371, Cl. 260-78.00r.

British Aircraft Corporation Limited: *See—*
Pyrah, Patrick Frank, 3,787,856.

British Leyland Truck & Bus Division Ltd.: *See—*
Hemmings, Keith Reginald; and Fowler, Gerald, 3,787,130.

British Railways Board: *See—*
Birkin, Michael S.; and Parkman, William T., 3,787,679.

Broadbent, Thomas D.: *See—*
Nowicki, Thomas; Shipp, John I.; Hines, Robin H.; and Broadbent, Thomas D., 3,787,118.

Brock, Andrew J.; and Pryor, Michael J., to Olin Corporation. Aluminum alloy. 3,787,249, Cl. 148-11.50a.

Brockway Glass Company, Inc.: *See—*
Snyder, Herbert C.; and De Santis, Urbano J., 3,787,197.

Broes, Frank, to Stradco Inventions & Research Co. Catamaran ships structure. 3,786,772, Cl. 114-43.500.

Brookner, Eli, to Raytheon Company. Coded multiple frequency signal system. 3,787,853, Cl. 343-8.000.

Brown & Root, Inc.: *See—*
Good, Alan E.; and Ward, Delbert R., 3,786,642.

Brown, Boyd E.; and Brown, Eric A., to Ordeco, Inc. Fastening system for joining structural members. 3,786,611, Cl. 52-753.00j.

Brown, David A.: *See—*
Plumley, Elizabeth Emmett; and Brown, David A., 3,786,741.

Brown, Eric A.: *See—*
Brown, Boyd E.; and Brown, Eric A., 3,786,611.

Brown, Gaylord W.; and Pickard, George L., to Koehring Company. Twin sheet thermoformer. 3,787,158, Cl. 425-156.000.

Brown, Harold E.: *See—*
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Brown, Howard G.: *See—*
Albrecht, Clifford C.; and Brown, Howard G., 3,786,841.

Brown, Thomas A.; and Huber, Joseph B., to Kennametal Inc. Forming roll, especially for rod mills and the like. 3,786,546, Cl. 29-125.000.

Brown, Wayne; Fabere, Raymond W.; Grant, Gerald E.; and Sons, Charles C., to Caterpillar Tractor Company. Deflector ring for tire. 3,786,848, Cl. 152-209.00r.

Bruce, William P., to American Home Products Corporation. N-substituted -alpha, alpha, alpha-triflu oro-m-toluamides. 3,787,419, Cl. 260-293.770.

Bruen, Charles Patrick; and Wamser, Christian Albert, to Allied Chemical Corporation. Process for recovering chromium values from chrome ore. 3,787,555, Cl. 423-54.000.

Brunel, Roger L.; Fannon, Robert D.; and Legue, Ronald L., to Klenco Corporation. Overhead rail cleaner and oiler. 3,786,779, Cl. 118-4.000.

Brunetti, Heimo: *See—*

Schmidt, Andreas; Schwarzenbach, Kurt; and Brunetti, Heimo, 3,787,540.

Brunnee, Curt; and Bultemann, Hans-Joachim. Method for analysis by producing a mass spectrum by mass separation in a magnetic sector field of a mass spectrometer utilizing ionization of a sample substance by electron bombardment. 3,787,681, Cl. 250-41.9sb.

Bryant, Richard W.: *See—*
Allen, Charles A.; Bryant, Richard W.; Delaney, Thomas J.; Dhaka, Vir A.; Meade, Robert M.; and Wharmby, James D., 3,787,837.

Bryson, Wilmer G., Jr.; Lyle, Donald D.; and Wilda, Jack S., to Banner Industries, Inc. Blender with integral intensifier. 3,787,035, Cl. 259-16.000.

Buchanan, James B., to Du Pont de Nemours, E. I., and Company. Preparation of thiolhydroxamate esters from nitroalkanes. 3,787,470, Cl. 260-453.00r.

Buchel, Karl Heinz: *See—*
Draber, Wilfried; Buchel, Karl Heinz; Regel, Erik; and Plempel, Manfred, 3,787,415.

Bucher, Bernard Philippe: *See—*
Carron, Claude Louis Clement; Bucher, Bernard Philippe; and Jullien, Alexandra Francine, 3,787,436.

Bucher, David Hoffer; Christie, Craig Eugene; and Rasmussen, Don J., to Deere & Company. Tractor roll-over protective frame. 3,787,085, Cl. 296-28.00c.

Buchner, Werner: *See—*
Lucking, Hans Joachim; Noll, Walter; Buchner, Werner; Friederich, Klaus; and Niederprum, Hans, 3,787,467.

Buehler, Walter E.; and Lunden, Clarence D., to Boeing Company, The. Airborne radar instrument landing system. 3,787,841, Cl. 343-5.01s.

Bugaut, Andree: *See—*
Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, 3,787,174.

Bullard, Russell H.: *See—*
Zipser, David Bernard; and Bullard, Russell H., 3,786,862.

Bultemann, Hans-Joachim: *See—*
Brunnee, Curt; and Bultemann, Hans-Joachim, 3,787,681.

Bunk, Albert R.: *See—*
Berry, David A.; Bunk, Albert R.; Halbrook, Noah J.; and Lawrence, Ray V., 3,787,342.

Burge, Harland L., Jr.: *See—*
Koppang, Richard R.; and Burge, Harland L., Jr., 3,787,168.

Burgess, Brian; and Thorp, Geoffrey Philip, to Imperial Industries (Kynoch) Limited. Control systems for rocket motors. 3,786,993, Cl. 239-265.190.

Burgess, William R.: *See—*
Wright, Archibald N.; Burgess, William R.; and Wilkos, Edward V., 3,787,382.

Burgin, Gerard. Carrier structure particularly for office equipment assembly. 3,786,934, Cl. 211-182.000.

Burns, Joseph P.; Feltzin, Joseph; and Kuehn, Erich, to ICI America Inc. Non-linear polyesters from a dicarboxylic acid etherified diphenol and an alkoxylated polyhydroxy compound. 3,787,526, Cl. 260-860.000.

Burr, Alan Carleton, to Howe Folding Furniture, Incorporated. Carrel construction. 3,786,765, Cl. 108-60.000.

Burr, Alan Carleton, to Howe Felding Furniture, Incorporated. Pin for interconnecting two parts of a knockdown assembly. 3,787,134, Cl. 403-408.000.

Burroughs Corporation: *See—*
Hauck, Erwin A.; Lyle, Don M.; and Wollum, James E., 3,787,816.
Wiggins, Gerald N.; and Rogers, Jerome S., 3,787,810

Burt Machine Company, Incorporated, mesne: *See—*
Neer, Clifford H., 3,787,267.

Burton, Gardner T., to Radio Corporation of America. Optical recorder with intensity control. 3,787,887, Cl. 346-108.000.

Busch, John E., to GTE Automatic Electric Laboratories Incorporated. Multiplexing arrangement for a communication switching system. 3,787,633, Cl. 179-18.00j.

Bush, Stanley Edward; and Roberge, Kenneth Joseph, to Bell Telephone Laboratories, Incorporated. Key telephone intercom circuit. 3,787,640, Cl. 179-99.000.

Busian, Vincent V., to General Electric Company. Method for use in manufacturing dynamolectric machine. 3,786,561, Cl. 29-598.000.

Busink, Hendrik, to N.V. Hollandse Signaalapparaten. Device for the processing of digital symbol data for the purpose of displaying text on a television monitor. 3,787,819, Cl. 340-172.500.

Bussman, Dale R.; Bell, Frederick K.; and Filsinger, David E., to National Cash Register Company, The. Method and apparatus for breaking semiconductor wafers. 3,786,973, Cl. 225-2.000.

Buten, Norman: *See—*
Catalano, Paul D.; Buten, Norman; Eash, George H.; and Emanuel, Frank V., 3,787,114.

Buthe, Theo; Kugler, Manfred; and Rheinl, Lohmar, to Wallerscheild, Jean, GmbH, mesne. Alarm device on a clutch. 3,786,776, Cl. 116-67.00r.

Butler, Claude D.: *See—*
Kennedy, Carl D.; Butler, Claude D.; Krehbiel, Delmar D.; and Nicks, Gene E., 3,787,441.

Butler, Walter J.: *See—*
Puckette, Charles M.; Smith, Donald A.; and Butler, Walter J., 3,787,852.

Buys, Pieter; and Sonneborn, Lambertus, to Applied Power Industries, Inc. Vehicle having tiltable cabin and actuating device therefor. 3,787,087, Cl. 296-28.00c.

Cabell, Douglas N., to Ronson Corporation. Safety mechanism to prevent shaft coupling when blades are exposed in a blender. 3,786,999, Cl. 241-282.100.

Cailliot, Serge. Tape recorder utilizing resilient tape and cartridge having no moving parts. 3,787,057, Cl. 274-4.000.

Calcagno, Benedetto: *See—*
Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, 3,787,556.

Cam Industries, Inc.: *See—*
Bennett, Charles D., 3,787,729.

Camara, Elias Humberto: *See—*
Fleming, Donald Kingsley; Randhava, Sarabjit Singh; and Camara, Elias Humberto, 3,787,468.

Camco, Incorporated: *See—*
Tausch, Gilbert H., 3,786,863.
Tausch, Gilbert H., and Watkins, Fred E., 3,786,865.
Tausch, Gilbert H.; and Watkins, Fred E., 3,786,866.
Tausch, Gilbert H., Watkins, Fred E.; and Dietz, William H., 3,786,867.

Cammack, Thomas A.: *See—*
Donahue, William J., Gratton, Peter D., and Cammack, Thomas A., 3,786,754

Camp, Jerome A. Remotely actuated release apparatus for ski bindings. 3,787,868, Cl. 343-225.00r.

Campbell, Donald J., to Baldin, D. H., Company. Rhythmic interpolators. 3,787,601, Cl. 84-1.030.

Canada, as represented by the Minister of National Defence of Her Majesty's Canadian Government, Her Majesty, the Queen, in right of: *See—*
Cote, Paul; and Roy, Charles A., 3,787,770.

Canadian Patents and Development, Limited. *See—*
Astill, Cyril J., 3,787,060

Cann, Lyle L., to Chemetron Corporation. Apparatus for making compacted pellets of solid phase carbon dioxide. 3,786,645, Cl. 62-35.000.

Canon Kabushiki Kaisha: *See—*
Ito, Tadashi; and Sorimachi, Kanehiro, 3,787,108

Cantrell, Audrey M. Apparatus and method for treating hair. 3,786,819, Cl. 132-9.000.

Carbonnel, Henry; and Borie, Robert, to Gronpement Atomique Alsacienne Atlantique. Immersion pump for pumping corrosive liquid metals. 3,787,143, Cl. 417-50.000.

Carbrey, Robert Lawrence, to Bell Telephone Laboratories, Incorporated. Time division communication system. 3,787,630, Cl. 179-15.0at.

Carini, Francis F.; and Abbott, Steven R., to Essex International. Insulated cable with sheath of controlled peel strength and method. 3,787,255, Cl. 156-51.000.

Carini, Raymond N.: *See—*
Scheppe, John J.; and Carini, Raymond N., 3,786,573.

Carissimi, Vincent L.; and Kress, George H., to Harvey Hubbell, Incorporated. Heavy duty plug. 3,787,798, Cl. 339-107.000.

Carlson, Robert Edward, to THW Inc. Stack-up assembly. 3,787,151, Cl. 418-133.000.

Carmelite, Donald D., Kramer, Morton; and Lee, Gim F., Jr., to General Electric Company. Polyphenylene ether compositions. 3,787,532, Cl. 260-876.00r.

Carolina Narrow Fabric Company: *See—*
Nisbet, John L.; and Woodall, Hubert C., Jr., 3,787,272.

Caron, Joseph Adalbert. Vehicule vacuum chamber leak testing device. 3,786,671, Cl. 73-40.000.

Carre, Rene; Deauviala, Jean-Pierre; and Paille, Jean, to Agence Nationale de Valorisation de la Recherche (Anvar). Electrical filters enabling independent control of resonance of transition frequency and of band-pass, especially for speech synthesizers. 3787,778, Cl 330-86.000.

Carron, Claude Louis Clement; Bucher, Bernard Philippe; and Jullien, Alexandra Francine, to Synthelabo S.A. 2-(Diphenyl amino-alkyl amino)-2-imidazolines. 3,787,436, Cl. 260-309.600.

Carson, William S.: *See—*
Riblett, Edward L., 3,786,575.

Cascade Corporation: *See—*
Faust, Donald M., 3,786,937.

Casensky, Bohuslav; Machacek, Jiri; and Vit, Jaroslav. Method of producing sodium aluminum hydrides. 3,787,450, Cl. 260-345.900.

Cash Register Company: *See—*
Roberts, Donald Lee, 3,787,210.

Cassill, William Guy, to Mead Corporation, The. Deflection electrode assembly for a jet drop recorder. 3,787,883, Cl. 346-75.000.

Castanis, George, to Questor Corporation. Educational toy for the teaching of numerical recognition. 3,787,599, Cl. 35-31.00r.

Castellanos, Rafael A.: *See—*
Borger, Jurgen Herman; and Castellanos, Rafael A., 3,787,791.

Catalano, Paul D.; Buten, Norman; Eash, George H.; and Emanuel, Frank V., to Retention Communication Systems, Inc. Audio-visual system. 3,787,114, Cl. 352-31.000.

Catalyst Services, Inc.: *See—*
Kennedy, Alvin B., Jr., 3,787,183.

Caterpillar Tractor Company: *See—*
Berg, Lawrence F., 3,786,827.
Brown, Wayne; Fabere, Raymond W.; Grant, Gerald E.; and Sons, Charles C., 3,786,848.

Cath, Pieter B.; and Angeline, Gary E., to Keithley Instruments, Inc. High speed current amplifier. 3,787,776, Cl. 330-2.000.

Cationic Corporation: *See—*
Senior, Franklin C.; and MacGregor, Douglas, 3,787,306.

Cato, Joseph L.; and Correia, Theophilo A. Apparatus for indicating when a roll-off container is filled with compacted refuse. 3,787,830, Cl. 340-246.000.

Cavitt, Stanley Bruce, to Jefferson Chemical Company, Inc. Silicon containing molybdenum catalysts. 3,787,329, Cl. 252-431.00r.

Ceiko Ceiki Co., Ltd.: *See—*
Wada, Tokio, 3,787,266.

Celanese Corporation: *See—*
McGinnis, Paul H.; McLaughlin, William D., Jr.; and Swader, Robert E., 3,787,265.
Vogelfanger, Elliot A.; and Markham, Richard L., 3,787,551.

Celotex Corporation, The: *See—*
Kasprzak, David P., 3,786,603.
Wilkin, Joseph D., 3,786,602.

Ceskoslorenska akademie ved: *See—*
Dolejs, Ladislav; Beran, Pavel; Slama, Karel; and Sorm, Frantisek, 3,787,478.

Cevasco, Francis M.: *See—*
Christians, John A.; and Cevasco, Francis M., 3,786,525.

Chabala, Leonard V.; and Evans, David M., to B & C Electric Company. High voltage switch with high current closing contacts. 3,787,651, Cl. 200-146.00r.

Chance, A. B., Company: *See—*
Little, Jess C., 3,786,554.

Chandler, Wesley M.; Heuser, Paul F.; and Juba, Bernard T., to Wilbert, Inc. Burial vaults. 3,787,545, Cl. 264-135.000.

Chang, Jaw-King: *See—*
Folkers, Karl; Chang, Jaw-King; and Sievertsson, Hans, 3,787,385.

Chang, Yun Feng: *See—*
Labana, Santokh S.; and Chang, Yun Feng, 3,787,340.

Chapman, Harold Sherman. Dual concentric drillpipe. 3,786,878, Cl. 175-320.000.

Charlton, Donald A.; and Ajioka, James S., to Hughes Aircraft Company. Integrated beacon antenna polarization switch. 3,787,869, Cl. 343-756.000.

Charter Manufacturing Company, Inc.: *See—*
Eade, Maurice J.; and Mellowes, Charles N., 3,786,797.

Chase, Charles Peter: *See—*
Rohrbaugh, Donald Gene, Petersen, Everett James, Jr.; and Chase, Charles Peter, 3,787,185.

Chasson, Leon H., to Atmospheric Sciences, Incorporated. Automatic system for measuring selected dimensions. 3,787,700, Cl. 250-219.0th.

Chauncey, Edward W. Trailer hitch with auxiliary safety connections. 3,787,069, Cl. 280-486.000.

Cheetham, John Laurence, to Imperial Chemical Industries, Limited. Conjugate filaments apparatus. 3,787,162, Cl. 425-463.000.

Chemetron Corporation: *See—*
Cann, Lyle L., 3,786,645.

Cherdron, Harald: *See—*
Bohn, Lothar; Cherdron, Harald; Fleissner, Manfred; and Herwig, Walter, 3,787,530.

Cheskis, Harvey P.: *See—*
Setzer, William C.; Cheskis, Harvey P.; and Winter, Joseph, 3,787,248.

Chiariello, Ned. Collapsible table. 3,786,766, Cl. 108-115.000.

Chicago Bridge & Iron Company: *See—*
Anderson, Dale R.; and Grubbs, Conway E., 3,787,655.

Chin, William Benedict, to International Business Machines Corporation. Field-effect transistor logic circuit. 3,787,736, Cl. 307-205.000.

Chlanda, Frederick P.; and Liu, Kang-Jen, to Allied Chemical Corporation. Production of HF from fluorine by-products. 3,787,304, Cl. 204-180.00p.

Choi, Sam Kwon: *See—*
Park, Joseph D.; and Choi, Sam Kwon, 3,787,461.

Christena, Ray C.; Johnston, Earnest L.; and Whobrey, Ronald W., to Vulcan Materials Company. Polyesteramides prepared by reacting beta-propiolactone with an aziridine salt, a polycarboxylic acid, and a polyhydric alcohol. 3,787,282, Cl. 161-195.000.

Christeson, John H.: *See—*
Pray, Lester W.; Christeson, John H.; Prlston, Frederick A.; Sheron, Herman D.; Drake, William H.; and Anderson, Gordon C., 3,786,621.

Christians, John A.; and Cevasco, Francis M., to United States of America, Army. Transportable mooring body assembly. 3,786,525, Cl. 6-1-72.

Christie, Craig Eugene: *See—*
Bucher, David Hoffer; Christie, Craig Eugene; and Rasmussen, Don J., 3,787,085.

Church, Donald E., to Avco Corporation. Tire pressure warning apparatus. 3,787,806, Cl. 340-58.000.

Church, Nathan Lewis, to International Nickel Company, Inc., The. Forging metal powders. 3,787,205, Cl. 75-226.000.

Ciba-Geigy AG: *See—*
Eigenmann, Gottfried; Kaiser, Leo E.; and Nothiger, Otto, 3,787,182.
Piller, Bernhard, 3,787,215.
Porret, Daniel; and Fatzer, Willy, 3,787,405.
Thaddey, Kurt, 3,787,701.
Ulrich, Paul; Max, Basel; Kugler, Fritz; and Jost, Max, 3,787,406.
Wegmuller, Hans; and Kleemann, Alois, 3,787,180.

Ciba-Geigy Corporation: *See—*
Dellian, Kurt A.; and Lee, Samuel, 3,787,181.
Dietrich, Henri; and Lehmann, Claude, 3,787,574.
Gosteli, Jacques, 3,787,444.
Leumann, Ernst; and Lehmann, Hans, 3,787,452.
Linhart, Helmut; and Mueller, Helmut, 3,787,355.
Schmidt, Andreas; Schwarzenbach, Kurt; and Brunetti, Heimo, 3,787,540.

Ciccone, Thomas Q.; Hare, George F.; and Nimylowycz, Osyp, to United States of America, Army. Cartridge ignition system. 3,786,761, Cl. 102-45.000.

Ciszewski, Raymond S., to Western Electric Company, Incorporated. Method of fabricating a bobbin and core assembly. 3,786,562, Cl. 29-602.000.

Cities Service Company: *See—*
Heller, George L.; Eckert, Frank J.; De Land, Charles L.; and Dingman, Robert W., 3,787,562.
Topcik, Barry, 3,787,221.

Clark, Delia Margaret: *See—*
Wyatt, Derek Gerald; Clark, Delia Margaret; and Warne, Michael Anthony, 3,786,680.

Clark Equipment Company: *See—*
Cosby, Henry L., 3,787,086.

Clark, James R.; and Gearheard, Larry P., to Seattle Manufacturing Corporation. Adjustable crampons. 3,786,579, Cl. 36-7.600.

Clark, John B.: *See—*
Muffat, Donald L.; Clark, John B.; and Lovell, Lyle M., 3,787,189.

Clark, Thomas A.: *See—*
Phillips, John J.; and Clark, Thomas A., 3,787,011.

Clem, Chesley D., to Virginia Amusement Company. Carrousel-type amusement device. 3,787,046, Cl. 272-29.000.

Clemar Manufacturing Corporation: *See—*
Bayer, Donald R.; Ritchie, Lewis M.; and Bivens, Jon A., 3,787,728.

Clippard Instrument Laboratory, Inc.: *See—*
Clippard, Wm. L., III, 3,786,831.

Clippard, Wm. L., III, to Clippard Instrument Laboratory, Inc. Valve with modular manifold body. 3,786,831, Cl. 137-269.000.

Coackley, Robert, to Hewlett-Packard Ltd. Apparatus for measuring conversion of amplitude modulation to phase modulation. 3,787,763, Cl. 324-57.00r.

Coal Industry (Patents) Limited: *See—*
Robinson, Joseph Gordon; and Wise, William Sydney, 3,787,343.

Coanda, Henri, to Institutul Pentru Creatie Stiintifica Si Technica. System for pneumatically advancing a container within a duct. 3,787,006, Cl. 243-6.000.

Coburn, Theodore Robert: *See—*
Hyatt, Frederick; and Coburn, Theodore Robert, 3,786,706.

Coca-Cola Company, The: *See—*
Craft, James Pressley, III, 3,786,947.

Coe, Ronald J., to SCI Systems, Inc. Ground fault-sensitive detector and circuit breaker device. 3,787,709, Cl. 317-18.00d.

Cogar Corporation: *See—*
Allen, Charles A.; Bryant, Richard W.; Delaney, Thomas J.; Dhaka, Vir A.; Meade, Robert M.; and Wharmby, James D., 3,787,837.

Coilform Company, Inc.: *See—*
McFarlane, Leroy F., 3,787,799.

Colby, Harold S.; and Landry, Raymond H., to Emhart Corporation. Insulated stapling device. 3,787,608, Cl. 174-159.000.

Colchester, John Edward; and Blundell, Thomas, to Imperial Chemical Industries Limited. Manufacture of 1,1-disubstituted-4,4-bipyridylium salts. 3,787,426, Cl. 260-296.00d.

Cole, Alun John; Cotton, John Michael; and Cosserat, David Cockburn, to Plessey Handel und Investments A.G. Data processing devices using capability registers. 3,787,813, Cl. 340-172.500.

Cole, Eugene A.: *See—*
Behunin, Gage B.; Cole, Eugene A.; and Staadt, Charles R., 3,786,966.

Cole, John Wayne: *See—*
Flouret, George Rogelio; and Cole, John Wayne, 3,787,386.

Coleman, John R., Jr., to Marathon Oil Company. Solids-liquid separator. 3,787,318, Cl. 210-65.000.

Collet, Peter Jacobus, to Nederlandse Organisatie Voor Tolgepast Natuurwetenschappelijk Onderjoek ten Behoeve van Nijverheid, Handel en Verkeer. Refrigerating plant. 3,786,646, Cl. 62-115.000.

Collet, Peter Jacobus, to Nederlandse Organisatie Voor Toegepast. Centrifugal compressor meter. 3,786,647, Cl. 62-123.000.

Collins, Paul W.; and Pappo, Raphael, to Searle, G. D., & Co. Manufacture of 2-(3-hydroxy-3-optionally alkylated-1-alkynyl)-3-hydroxy-5-oxocyclopent-1-enealkanoic acids and esters. 3,787,449, Cl. 260-345.700.

Collins Radio Company: *See—*
Bass, Larry F., 3,787,785.

Colln, Reimer; Hammann, Ingeborg; Unterstenhafer, Gunter; and Behrenz, Wolfgang, to Bayer Aktiengesellschaft. Thionothiolphosphoric acid O,S-diester amides. 3,787,539, Cl. 260-959.000.

Colman, John M.: *See—*
Hagopian, Nubar D.; and Colman, John M., 3,786,802.

Combrinck, Hendrik Johannes Van Jaarsveldt. Mechanical emergency central switch assembly for motor vehicles. 3,787,805, Cl. 340-52.00h.

Combustion Engineering, Inc.: *See—*
Anthony, Andrew James, 3,787,286.

Commissariat a l'Energie Atomique: *See—*
Blanchet, Francis; and Sauron, Georges, 3,787,824.
Espie, Jean Yves; Jouan, Claude; and Koehly, Gerard, 3,787,553.
Grunberg, Georges; Melnick, Igor; and Lazzari, Jean Pierre, 3,787,237.
Hirco, Bernard, 3,787,120.

Compagnie d'Electronicque et de Piezo-Electricite-C.E.P.E.: *See—*
Gibert, Guy; and Vidal, Pierre, 3,787,743.

Comstock, Allen L.: *See—*
Hastings, Charles E.; Rounion, William A.; Comstock, Allen L.; and Bradbury, Joseph T., 3,787,844.

Concast AG: *See—*
Nishikawa, Tomio, 3,786,856.

Coneo Inc.: *See—*
Hathcock, James S., Jr., 3,786,929.

Conger, Robert P.; and Varadhachary, Seevaram N., to Congoleum Industries, Inc. Resinous product having sharp color definitions therein. 3,787,280, Cl. 161-168.000.

Congoleum Industries, Inc.: *See—*
Conger, Robert P.; and Varadhachary, Seevaram N., 3,787,280.

Conlon, Joseph M.: *See—*
Lowy, George W.; Conlon, Joseph M.; and Marcus, Byron E., 3,787,121.

Constructions Mills K: *See—*
Coppel, Georges, 3,786,943.

Container Corporation of America: *See—*
Potts, Herbert M.; and Trutna, Maynard A., 3,786,915.

Continental Can Company, Inc.: *See—*
Hilgenbrink, John T., 3,786,957.
Roth, Donald J., 3,786,662.

Continental Oil Company: *See—*
Kennedy, Carl D., Butler, Claude D., Krehbiel, Delmar D.; and Nicks, Gene E., 3,787,441.

Conversion Chemical Corporation: *See—*
Beckwith, Merton M.; and Hsu, Grace F., 3,787,297.

Cook, Harold D., to Teletype Corporation. Cathode ray tube display device including test probe adapter. 3,787,618, Cl. 178-6.800.

Cook, Melvin A.; Udy, Lex L.; Hagmann, Mark J.; and Jessop, Harvey A., to Ireco Chemicals. Explosive compositions containing calcium netrate. 3,787,254, Cl. 149-60.000.

Cook, William R.: *See—*
Sheeley, Donald R.; Rion, James H.; Cook, William R.; and Biggs, William A., Jr., 3,787,283.

Cooper, Lloyd'R., to Heppenstall Company. Production of large steel ingots using an electrode remelting hot top practice. 3,786,853, Cl. 164-52.000.

Cooper, Philip G., to Kaiser Aerospace & Electronics Corporation. System for deriving azimuth steering commands from automatic direction finding equipment. 3,787,809, Cl. 343-117.00r.

Cooper, Wayne E.: *See—*
Rakes, James L.; and Cooper, Wayne E., 3,786,982.

Coppel, Georges, to Constructions Mills K. Centralised control for an automatic system of handling pallets. 3,786,943, Cl. 214-16.40a.

Copper Range Company: *See—*
Finlay, Walter L.; Nayar, Harbhajan S.; and Hay, Donald A., 3,787,200.

Corkum, James L.; Schoepflin, David; and Taylor, Paul A., to Alden Self-Transit Systems Corporation. Transportation system electrical power distribution. 3,786,762, Cl. 104-148.00r.

Corning Glass Works: *See—*
Kauffman, James F., 3,787,872.

Correia, Theophilo A.: *See—*
Cato, Joseph L.; and Correia, Theophilo A., 3,787,830.

Cosby, Henry L., to Clark Equipment Company. Adjustable seat for an industrial vehicle. 3,787,086, Cl. 296-65.00r.

Cosserat, David Cockburn: *See—*
Arnold, John Spencer; Beck, George Morland; Boom, Roger John; Cosserat, David Cockburn; Hodges, Kenneth James Hamer; Sandeman, Theodor Duncan; Williams, Roger Morley; and O'Halloran, Michael, 3,787,818.
Cole, Alun John; Cotton, John Michael; and Cosserat, David Cockburn, 3,787,813.

Costa, Georges, to Paillard S.A. Device for the individual adjustment of the striking force in a typewriter. 3,786,905, Cl. 197-17.000.

Coston, Malcom M.: *See—*
Vlazny, Joseph J.; and Coston, Malcom M., 3,786,935.

Cote, Paul; and Roy, Charles A., to Canada, as represented by the Minister of National Defence of Her Majesty's Canadian Government, Her Majesty, the Queen, in right of. Method and apparatus for detecting a projectile leaving the barrel of a gun. 3,787,770 Cl. 324-178.000.

Cotton, John Michael: *See—*
Cole, Alun John; Cotton, John Michael; and Cosserat, David Cockburn, 3,787,813.

Couch, Richard W., Jr., to Hypertherm, Incorporated. Water-scrubber cutting table. 3,787,247, Cl. 148-9.00r.

Coulombe, Lionel J.; to Singer Company, The. Pattern selection system. 3,786,769, Cl. 112-158.00a.

Courtin, Erich: *See—*
Tietze, Ulrich; Courtin, Erich; and Traub, Stefan, 3,787,774.

Courtney-Pratt, Jeofry S.; and Schmidt, Alfred C., Jr., to Bell Telephone Laboratories, Incorporated. Fiber optic devices and method for making same. 3,786,840, Cl. 139-11.000.

Cover, Richard J.: *See—*
Korchynsky, Michael; Bell, John R.; and Cover, Richard J., 3,787,250.

Cowpland, Michael C. J.; and Zambakoglu, Feyyaz I., to Microsystems International Limited. Coupler circuit for telephone networks and the like. 3,787,739, Cl. 307-255.000.

Cox Manufacturing Co., Inc.: *See—*
Cox, Paul D., 3,786,799.

Cox, Paul D., to Cox Manufacturing Co., Inc. Pulse relief damper. 3,786,799, Cl. 128-91.00a.

Craft, James Pressley, III, to Coca-Cola Company, The. Movable shelf apparatus. 3,786,947, Cl. 214-75.00r.

Cragon, Harvey; and Logan, Russell H., to Texas Instruments, Incorporated. Coherent digital radar target signal enhancement. 3,787,855, Cl. 343-17.10r.

Crane-Veyor Corporation: *See—*
Snyder, Donald E.; and Batcheller, Roy W., 3,787,033.

Crawford, Donald. Artist's paint box. 3,786,913, Cl. 206-1.800.

Crawford Fitting Company. *See—*
Spontelli, Leonard P., 3,786,677.

Crees, Silas Ray. Cable bending apparatus. 3,786,668, Cl. 72-388.000

Crescentini, Lamberto, and Wells, Rodney Lee, to Allied Chemical Corporation. Antistatic polyamide fiber containing sulfonic acid polyether reaction product. 3,787,523, Cl. 260-857.0pg.

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Creusot-Loire: *See—*
Lhenry, Bernard, 3,786,824.

Creuzet, Robert Armand. Hot extrusion machine. 3,786,665, Cl. 72-259.000.

Crites, Nelson A., to Battelle Memorial Institute. Ratigue indication 3,786,679, Cl. 73-88.50r.

Croce, Nicola. Device for releasably connecting a sinker to a line 3,786,595, Cl. 43-44.870.

Cromp, Theodore O., to Hunter Engineering Company, Inc. Closed loop, inert atmosphere, paint line oven heat. 3,787,171, Cl. 432-72.000.

Crown Zellerbach Corporation: *See—*
Nowotny, Kurt A., 3,787,256.

Crum, Robert L., and Patel, Ishwarlal P., to Allis-Chalmers Corporation. Loader linkage. 3,786,953, Cl. 214-776.000.

Cubbon, Robert C. P.; Braid, John E., Oates, Alfred E.; and Preston, Ronald, to Laporte Chemicals Limited. Peroxygen compounds. 3,787,503, Cl. 260-610.00r.

Cullis, Herbert M.: *See—*
Lowy, George W.; Priarone, Paul, and Cullis, Herbert M., 3,787,124.

Culver, Richard B., to Dresser Industries, Inc. Method and apparatus for logging well boreholes with gamma rays from the inelastic scattering of fast neutrons. 3,787,686, Cl. 250-83.30r.

Cunningham, James A. Electrical isolation of circuit components of integrated circuits. 3,786,560, Cl. 29-577.000.

Cunningham, James A. Integrated circuit structure having electrically isolated circuit components. 3,787,710, Cl. 317-101.00a.

Curnow, John W.; and Nowicki, Harry J., to Sperry Rand Corporation Power transmission. 3,787,027, Cl. 251-63.000.

Currie, Richard W.; and Peacher, Teddy J., to United States of America, Army. Adaptive threshold unit. 3,787,668, Cl. 235-152.000.

Customcraft Nails, Inc.: *See—*
Noskin, Harold P., 3,786,821.

Cutler, Richard, to Gottfried Reuter GmbH. Ball joint. 3,787,127, Cl. 403-133.000.

Cyba, Henryk A., to Universal Oil Products Company. Stabilization of solid polymers with a bis-(N,N-dihydrocarbyl-aminoalkyl) ether. 3,787,354, Cl. 260-45.90r.

Cyba, Henryk A., to Universal Oil Products Company. N-oxyalkyl-N'-hydrocarbyl-hexahydropyrimidines. 3,787,416, Cl. 260-251.00r.

Cyclops Corporation: *See—*
Mueller, Charles P.; and Ecer, Gunes M., 3,787,202.

Dahlen, Burton L.; Mosly, Wilbur C., Jr.; Smith, Paul K.; and Albenesius, Edward L., to United States of America, Atomic Energy Commission. Californium-palladium metal neutron source material. 3,787,321, Cl. 252-301.10r.

Dahlquist, Carl A.; and Kolpe, Vasant V., to Minnesota Mining and Manufacturing Company. Pressure-sensitive adhesives comprising a block copolymer and a tackifier. 3,787,531, Cl. 260-876.00b.

Daigle, Donald J.; Drake, George L., Jr.; and Reeves, Wilson A., to United States of America, Agriculture. Phosphorus containing aromatic polymers and process for producing flame resistant textiles. 3,787,360, Cl. 260-47.00p.

Daigle, Jack R.; and Habegger, James D., to Rapistan, Incorporated. Apparatus and method for applying labels to articles in a warehouse system. 3,786,944, Cl. 214-16.40a.

Dailey, Louis E., Jr. Apparatus for tobacco harvesting. 3,786,941, Cl. 214-83.100.

Daimler-Benz Aktiengesellschaft: *See—*
Sommerfeld, Karl; and Zelldann, Herbert, 3,786,618.

Dalebout, Melvin W., to Tanner, Gold & Trask. Inner boot and method for forming the same. 3,786,580, Cl. 36-2.5al.

Damisch, Russell: *See—*
Wingerd, Winston Harold; Damisch, Russell; and Bozzi, Marshall, 3,787,216.

Dane, Ernest B., Jr. Dry sail marina. 3,786,942, Cl. 214-16.40a.

Dane, Oscar; Beers, Ronald Wentworth; and Levey, Gustave Stanley, to Levey, Gustave S., Trustee. Pump for zinc-rich materials or the like. 3,787,149, Cl. 417-554.000.

Dangay, Catherine: *See—*
Dangay, Jean Louis; Dangay, Philippe; and Dangay, Catherine, 3,786,567.

Dangay, Jean Louis; deceased (by Godard, Regine); Dangay, Philippe; and Dangay, Catherine. Apparatus for drawing the isometric perspective view of an object. 3,786,567, Cl. 33-23.00b.

Dangay, Philippe: *See—*
Dangay, Jean Louis; Dangay, Philippe; and Dangay, Catherine, 3,786,567.

Daniel, Brian Percy. Pipe couplings. 3,787,080, Cl. 285-341.000.

Daniels, Peter; and Sim, Alexander Kennedy, to Inveresk Research International. Cross-linked polymers. 3,787,474, Cl. 260-459.000.

Danly Machine Corporation: *See—*
Mehring, Lucien L., 3,786,846.

Danzer, Paul M. Intensity cursor for radar. 3,787,847, Cl. 343-7.300.

Dao, James; and Yew, Nelson C., to ETEC Corporation. Scanning electron microscope electron-optical column construction. 3,787,696, Cl. 250-311.000.

Darnbrough, Geoffrey: *See—*
Hutchinson, Peter; and Darnbrough, Geoffrey, 3,786,538.

David Kopf Systems: *See—*
Kopf, J. David, 3,787,148.

Davies, Robert H. Sundial. 3,786,570, Cl. 33-270.000.

Davis, Burns; and Kibler, Charles J., to Eastman Kodak Company. Polyisocyanate adducts. 3,787,469, Cl. 260-453.00a.

Davis, Dan Bryan, to Northern Electric Company Limited. Continuous soldering apparatus. 3,786,981, Cl. 228-4.000.

Davis, Lewis Kie, to Deere & Company. Trigger mechanism for fuel injection pump aneroid control. 3,786,794, Cl. 123-139.0st.

Davis, Randall Scott; and Isenberg, Don Lee, to Beckman Instruments, Inc. Method of producing dextranase. 3,787,289, Cl. 195-65.000.

Davis, Samuel L.: *See—*
Gregg, Jack C.; and Davis, Samuel L., 3,786,551.

Day, John H.: *See—*
Riblett, Edward L., 3,786,575.

Day, Wendall E. Temperature and humidity control and apparatus for residential buildings. 3,786,859, Cl. 165-21.000.

Dayton Manufacturing Company: *See—*
Materese, Vincent, 3,786,922.

Dayton Steel Foundry Company, The: *See—*
Walther, William D.; and Deregnaucourt, Robert A., 3,787,076.

De Boer, Harry F., and Spowart, Joseph A. N., to Servicemaster Hospital Corporation. Laundry hamper stand. 3,787,072, Cl. 280-79.100

De Geest, Wilfried Florent, to Agfa-Gevaert N.V. Apparatus for the control of charge on a moving web. 3,787,706, Cl. 317-2.00r.

De Jong, Nicolaas Johannes; and Middelkamp, Mannes Arie, to U.S. Philips Corporation. Coil former for a transformer. 3,787,792, Cl. 336-192.000.

De Jonge, Frederik Ate, to U.S. Philips Corporation. Magnetic domain store. 3,787,825, Cl. 340-174.0yc.

De Land, Charles L.: *See—*
Heller, George L.; Eckert, Frank J.; De Land, Charles L.; and Dingman, Robert W., 3,787,562.

De Marco, Michael, to Produits Chimiques Ugine Kuhlmann. Tri (isopropyl)phenyl phosphates. 3,787,537, Cl. 260-953.000.

De Morgan, Tita Zuccaro. Device for supporting and delivering containers in a controlled form. 3,786,958, Cl. 221-67.000.

De Santis, Urbano J.: *See—*
Snyder, Herbert C.; and De Santis, Urbano J., 3,787,197.

De Vines, Hollis L.: *See—*
Hofford, Thomas P.; and De Vines, Hollis L., 3,786,578.

De Vries, Adrian J.; and Rypkema, Jouke N., to Zenith Radio Corporation. Signal processing system for television receiver having acoustic surface wave devices for improved tuning and video demodulation. 3,787,612, Cl. 178-5.8af.

De Witt, Elmer J., to Goodrich, B. F., Company, The. Apparatus for conversion-controlled polymerization of monomeric materials in liquid media. 3,787,187, Cl. 23-285.000.

Deauviala, Jean-Pierre: *See—*
Carre, Rene; Deauviala, Jean-Pierre; and Paille, Jean, 3,787,778.

Debat, Jacques, to Institut de Recherches Chimiques et Biologiques Appliquee (I.R.C.E.B.A.). Halogenated benzylphenols having bacteriostatic activity. 3,787,507, Cl. 260-619.00a.

Debonte, Cornelius, Jr.: *See—*
Wahl, Eugene A.; Debonte, Cornelius, Jr.; and Winters, Ralph J., 3,786,961.

Deckert, Robert, to Sir Steak Machinery, Inc. Means for cutting and tenderizing meats. 3,786,536, Cl. 17-25.000.

Deere & Company: *See—*
Bucher, David Hoffer; Christie, Craig Eugene; and Rasmussen, Don J., 3,787,085.
Davis, Lewis Kie, 3,786,794.
Magnuson, Lee T.; and Kusko, Alexander, 3,787,723.
Rathe, Robert Allyn; and Miller, Lyle Eugene, 3,786,872.
Symonds, Dean Homer, 3,786,945.
Vogelaar, Bernard Francis; Doering, James Peter; and Pasturczak, Stanley, 3,786,891.

Defebvre, Andre; Leman, Gerard; and Pouliquen, Jean-Francois, to Etat Francais. Continuously variable ultrasonic delay line. 3,787,786, Cl. 333-30.00r.

Delaney, Thomas J.: *See—*
Allen, Charles A.; Bryant, Richard W.; Delaney, Thomas J.; Dhaka, Vir A.; Meade, Robert M.; and Wharmby, James D., 3,787,837.

Delaquila, Gary; and Bercier, John R., to Minnesota Mining and Manufacturing Company, mesne. Display sign structure. 3,786,585, Cl. 40-125.00h.

Delatorre, Leroy C.; and Rapson, William J., to Uson Corporation. Portable gas leak detector. 3,786,675, Cl. 73-27.00r.

Delay, Dennis G., to United States of America, Navy. Intensity control for light-emitting diode display. 3,787,752, Cl. 315-169.00r.

Deline, John W. Method of reducing emission of pollutants in exhaust gas from an internal combustion engine and material therefor. 3,787,328, Cl. 252-427.000.

Dellian, Kurt A.; and Lee, Samuel, to Ciba-Geigy Corporation. Dyeing synthetic hydrophobic fibers with lower alkyl biphenyl carriers. 3,787,181, Cl. 8-174.000.

Delro Inc., mesne: *See—*
Huffman, Lowell E., 3,786,924.

Deltrol Corporation: *See—*
Harris, John L., 3,787,789.

Demichelis, Jacques: *See—*
Jodet, Alain; Noret, Hubert; and Demichelis, Jacques, 3,786,874.

Denis, Jean Francois; Ozauba-Lyndis, Serge Yvan; Fremont, Maurice Henri Louis; Krajewski, Edward; and Marcel, Jean-Pierre Julien, to Societe Nationale Industrielle Aerospatiale. Apparatus for manufacturing sandwich panels. 3,787,657, Cl. 219-117.0hc.

Denison, Neil E.; and McCullough, Edward E. Powered ice cream dipper. 3,787,163, Cl. 425-280.000.

Dennewitz, Rolf Dieter; and Schmidt, Walter, to Loewe-Opta GmbH. Electronic flash unit with controlled light energy. 3,787,704, Cl. 315-241.00p.

Denzel, Theodor: *See—*
Hoehn, Hans; and Denzel, Theodor, 3,787,430.

DePriester, Donald Jack; Horney, David C.; and Mangels, Robert H. Hon Industries, Inc. Power driven material handling truck. 3,787,064, Cl. 280-93.000.

Deregnaucourt, Robert A.: *See—*
Walther, William D.; and Deregnaucourt, Robert A., 3,787,076.

Dereich, John E.; Gleeson, James E.; and Earle, Glenn J., to Robertson, H. H., Company. Military bomb and method of making same. 3,786,714, Cl. 86-23.000.

Deringer, Dewitt C., to Parker, Ben H., Jr. Method and apparatus for concentrating ore pulps. 3,786,919, Cl. 209-434.000.

Desoutter Brothers Limited: *See—*
States, Ronald Frederick, 3,786,845.

Deumu Deutsche Erzund Metall-Union Gesellschaft mit beschrankter Haftung: *See—*
Glatz, Horst, 3,786,610.

Deuringer, Rudolf; Ray, Robert A.; and Sternberg, James C., to Beckman Instruments, Inc. Liquid analysis apparatus. 3,787,291, Cl. 195-127.000.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Giesselmann, Gunter; Schwarze, Werner; and Weigert, Wolfgang, 3,787,472.
Koberstein, Edgar; and Lakatos, Eduard, 3,787,322.
Schwarze, Werner, 3,787,199.
Thiele, Kurt; and Von Bebenburg, Walter E., 3,787,429.

Dewitte, Maurice J.; and Wojciechowski, Gerald L., to GTE Automatic Electric Laboratories Incorporated. Logic detector apparatus. 3,787,735, Cl. 307-203.000.

Deyrup, Alden J., to Du Pont de Nemours, E. I., and Company. Chromium (III) compositions and their preparation. 3,787,326, Cl. 260-438.50r.

Dhaka, Vir A.: *See—*
Allen, Charles A.; Bryant, Richard W.; Delaney, Thomas J.; Dhaka, Vir A.; Meade, Robert M.; and Wharmby, James D., 3,787,837.

Diagrostic, Inc.: *See—*
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Diazit Company, Inc.: *See—*
Neeb, Robert P.; Patrick, Henry W.; and Mumford, Ray H., 3,786,736.

Dickerson, Richard T.: *See—*
Ungerug, Gary A.; Pews, R. Garth; and Dickerson, Richard T., 3,787,506.

Dickie, Ray A.; and Newman, Seymour, to Ford Motor Company. Acrylate polymer particles comprising a core, an outer shell, and an intermediate layer. 3,787,522, Cl. 260-836.000.

Dickmann, Heinz Hermann; Krattner, Richard; and Mobius, Hans-Dieter; deceased (by Diehnelt, Isolde Mobius Geb; executor), to UHU-Werk H.u.M. Fischer G.m.b.H. Stick for the application of adhesive to substrates. 3,787,345, Cl. 260-28.50r.

Dickmann, Heinz Hermann; and Krattner, Richard, to UHU-Werk H.u.M. Fischer G.m.b.H. Stick for the application of adhesive to substrates. 3,787,346, Cl. 260-28.50r.

Diebold Incorporated: *See—*
Barnett, Charles B.; and Ekama, Pieter J., 3,787,008.

Diehl, Henry T.; and Rouse, James D. Double ratchet wrench. 3,786,698, Cl. 81-57.390.

Diehnelt, Isolde Mobius Geb: *See—*
Dickmann, Heinz Hermann; Krattner, Richard; and Mobius, Hans-Dieter, 3,787,345.

Diersing, Raymond A., to Square D Company. Plug-on circuit breaker mounting device pluggable onto a bus bar stack for relatively large

plug-on circuit breakers and including means for mounting relatively small plugeon circuit breakers not pluggable onto th bus bar stack. 3,787,712, Cl. 317-119.000.

Diersing, Raymond A.; Morrill, Robert J.; and Stanback, Harris I., to Square D Company. Service section switchboard with horizontally extending bus bar stack and means for mounting some circuit breakers with load terminals facing vertical wiring trough andother circuit breakers with load terminals facing horizontal wiring trough. 3,787,713, Cl. 317-119.000.

Dietrich, Henri; and Lehmann, Claude, to Ciba-Geigy Corporation. P-aminoalkyl benzenesulfonamide derivatives for treating diabetes mellitus. 3,787,574, Cl. 424-266.000.

Dietz, Raymond Louis; and McFadden, Allan L., to Owens-Illinois, Inc. Zircon containing printing paste for overglaze coating of microelectronic circuits on ceramic substrates. 3,787,218, Cl. 106-39.500.

Dietz, William H.: *See—*
Tausch, Gilbert H.; Watkins, Fred E.; and Dietz, William H., 3,786,867.

Difazio, Joseph, to Acron Products Company. Cored insulated door. 3,786,609, Cl. 52-619.000.

Digital Equipment Corporation: *See—*
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Digital Scientific Corporation. *See—*
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Dils, Eugene W., Jr.; Ward, Larry A.; and Ward, Robert A., to Garon Company. Fish feeding apparatus. 3,786,784, Cl. 119-51.00r.

Dimmig, Daniel Ashton: *See—*
Ferren, Richard Anthony; and Dimmig, Daniel Ashton, 3,787,379.

Dingman, Robert W.: *See—*
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Director-General of Agency of Industrial Science and Technology: *See—*
Nishikawa, Shigeru; Akami, Hitoshi, and Shibuya, Atsuo, 3,786,987.

Dischler, Helmut, to Noropress GmbH Iressen und Presswerkzeuge & Co., KG. Spindle press. 3,786,743, Cl. 100-270.000.

Displaytek Corporation. *See—*
McCrady, John, 3,787,886.

Dixon, Lemuel Claude. Boot and shoe puller. 3,786,970, Cl. 223-15.000.

Dobinson, Frank; and Pelezo, Chris A., to Monsanto Company. N,N-dimethylacetamide solutions of polyhydrazides. 3,787,348, Cl. 260-32.6na.

Dodge, Robert J.; and Huffer, Wilson R., to Automatic Power Division. Navigational aid system. 3,787,867, Cl. 343-225.000.

Doering, James Peter. *See—*
Vogelaar, Bernard Francis, Doering, James Peter; and Pasturczak, Stanley, 3,786,891.

Dolejs, Ladislav; Beran, Pavel; Slama, Karel, and Sorm, Frantisek, to Ceskoslorenská akademie ved. Novel N-haloalkylated anilines 3,787,478, Cl. 260-471.00r.

Domenico, Penelope B., to Dow Chemical Company, The. Halopyridyl thiocyanates. 3,787,422, Cl. 260-294.80f.

Domenico, Penelope B., to Dow Chemical Company, The. Halopyridyl thiocyanates. 3,787,425, Cl. 260-294.80g.

Domkraft AB Nike: *See—*
Bjork, Bengt Anders, 3,786,692.

Donahue, William J.; Gratton, Peter D., and Cammack, Thomas A., to United States of America, Navy. Firing delay for point detonating fuze. 3,786,754, Cl. 102-79.000.

Donaldson Company, Inc.: *See—*
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Donaldson, George R.; and Pollitzer, Ernest L., to Universal Oil Products Company. Production of high-octane, unleaded motor fuel. 3,787,314, Cl. 208-60.000.

Dorfel, Gerhard Walter, to Osakeyhito, A. Ahlstrom Apparatus for slitting moving webs. 3,786,705, Cl. 83-71.000.

Dorion, Francis W., Jr.; Nissen, Warren I.; and Pomfret, Edward E., to Gillette Company, The. Shaving system. 3,786,563, Cl. 30-50.000.

Dorler, Jack A.; and Swietek, Donald J., to International Business Machines Corporation. Voltage regulator and constant current source for a current switch logic system. 3,787,734, Cl. 307-203.000.

Dornfeldt, Wolfram: *See—*
Swodenk, Wolfgang; Scharfe, Gerhard; and Dornfeldt, Wolfram, 3,787,462.

Dotson, Charles R., to Goodyear Aerospace Corporation. Radar moving target processing method and apparatus. 3,787,840, Cl. 343-7.700.

Douglas-Hamilton, Diarmaid H., to AVCO Corporation. Method of and apparatus for measuring the purity of the gaseous medium in gas lasers. 3,787,759, Cl. 324-25.000.

Dounchis, Harry: *See—*
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Dow Chemical Company, The. *See—*
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Domenico, Penelope B., 3,787,425.
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Lyon, George W., 3,787,188.
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Dow Chemical, The: *See—*
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Dow Corning Corporation: *See—*
Beutler, Hervey F., 3,786,914.

Draber, Wilfried; Buchel, Karl Heinz; Regel, Erik; and Plempel, Manfred, to Bayer Aktiengesellschaft. N-methyl-imidazole derivatives and their production. 3,787,415, Cl. 260-250.00r.

Drake, George L., Jr.: *See—*
Daigle, Donald J., Drake, George L., Jr.; and Reeves, Wilson A., 3,787,360.

Drake, William H.. *See—*
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Dresser Industries, Inc.: *See—*
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Dreyer, Floyd H., Sr. Motorcycle fairing. 3,787,088, Cl. 296-78.100.

Druhn, Max R. C., Jr., to Grand Haven Stamped Products Company Lift gate mechanism. 3,786,690, Cl. 74-476.000.

Dryo, William R., and Standing, Charles N., to Pillsbury Company, The. Continuous process for preparing relatively dense bakery goods. 3,787,597, Cl. 426-496.000.

Du Pont de Nemours, E. I., and Company. *See—*
Amin, Rajnikant Babubhia, 3,787,219.
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Otterstedt, Jan-Erik Anders; and Pater, Richard, 3,787,428.
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Dubin, Dale B. Disposable disphragm and insertion-removal unit therefor. 3,786,807, Cl. 128-127.000.

Dudkowski, Stanley J.: *See—*
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Duffield, Peter Leonard, to Mead Corporation, The. Apparatus and method for bar code printing. 3,787,881, Cl. 346-75.000.

Duffy, Richard J., to USM Corporation. Method of making self-locking threaded element with locking patch effective over a wide range of clearance. 3,787,222, Cl. 117-21.000.

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Duncan, Leon L. Method of producing reflective surfaces and article. 3,787,191, Cl. 29-191.000.

Dupke, Roger C. Fan guard. 3,787,142, Cl. 416-247.000.

Duttera, Robert B.. *See—*
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Dynamit Nobel Aktiengesellschaft: *See—*
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Dynamit Nobel Aktiengesellschaft Patentabteilung. *See—*
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Dzhanelidze, Vazha Venediktovich. *See—*
Alexandrov, Adolf Moritsovich; Balaian, Ruben Dzhangirovich, Suladze, Ippolit Davidovich; Aglitsky, Vladimir Efimovich, Kakhniashvili, Avtandil Semenovich; Kantor, Ilia Solomonovich; Dzhanelidze, Vazha Venediktovich; and Lachinov, Alexandr Alexandrovich, 3787,007.

Dzus Fastener Co., Inc.: *See—*
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Dzus, Theodore, Jr., to Dzus Fastener Co., Inc. Cam lock and bracket assembly. 3,787,024, Cl. 248-361.00b.

Eade, Maurice J.; and Mellowes, Charles N., to Charter Manufacturing Company, Inc. Valve spring retainer locks and method of assembling on a valve stem. 3,786,797, Cl. 123-90.670.

Earle, Glenn J.: *See—*
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Eash, George H.: *See—*
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Eastman Kodak Company: *See—*
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Finley, Donald L.; and Morehead, Edward A., 3,786,574.
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O'Connor, Robert J., 3,786,547.
Weaver, Max A.; and Wallace, David J., 3,787,388.

Eaton, Sargent Sheffield, Jr., to RCA Corporation. Control circuit employing digital techniques for loads such as balance wheel motors. 3,787,715, Cl. 318-130.000.

Ecer, Gunes M.: *See—*
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Eckert & Ziegler GmbH: *See—*
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Eckert, Frank J.: *See—*
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Eckhardt, Peter: *See—*

Blocker, Erich; and Eckhardt, Peter, 3,787,372.

Eckstein, George R.; and Bayard, Lavern S., to Remington Arms Company, Inc. Wad column for shotshells. 3,786,753, Cl. 102-42.00c.

Eckstein, George R.; and Moyher, William G., to Remington Arms Company, Inc. Plastic cartridge casing. 3,786,755, Cl. 102-43.00p.

Edl, Wolfgang, to Peroxid-Chemie GmbH. Process for producing 3,5-dihydroxy 1,2-dioxolanes. 3,787,446, Cl. 260-340.900.

Edstrom, Soren E. H., to Gardner-Dever Company. Rotor profiles for helical screw rotor machines. 3,787,154, Cl. 418-201.000.

Educational Toys Inc.: *See—*
Tepper, Sidney; and Fauls, Thomas J., 3,786,577.

Edward Williams Heldings, Limited: *See—*
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Eggers, Philip E., to Battelle Memorial Institute. Heat pipes. 3,786,861, Cl. 165-105.000.

Ehret, Rudolf: *See—*
Schwab, Alfred; and Ehret, Rudolf, 3,787,307.

Eickemeyer, Rudolf. Apparatus for processing degradation of cellulosic materials. 3,787,241, Cl. 127-1.000.

Eigenmann, Gottfried; Kaiser, Leo E.; and Nothiger, Otto, to Ciba-Geigy AG. Process for the dyeing of tow in hydrated condition. 3,787,182, Cl. 8-177.000.

Eisai Company, Ltd.: *See—*
Hamano, Sachiyuki; Nakamura, Takaharu; Kuriyama, Shizuo; and Yamanaka, Motosuke, 3,787,440.

Ekama, Pieter J.: *See—*
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Elder, George; and Lehnhuff, Hans F., to Schlage Lock Company. Lock key. 3,786,659, Cl. 70-395.000.

Electro-Matic Staplers, Inc., mesne: *See—*
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Electropring, Inc.: *See—*
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Eliason, Kay E.: *See—*
James, James R.; and Eliason, Kay E., 3,786,965.

Eliasson, Arne Lennart, to Svenska AB Cleansol. Cold-setting road-marking material. 3,787,349, Cl. 260-37.0ep.

Eliasson, Karl Bertil, to Granges Essem AB. Method and an apparatus for the continuous production of stranded wire. 3,786,623, Cl. 57-34.00r.

Elkhart, Bridge & Iron, Inc.: *See—*
Lievore, Silvano Giuseppe, 3,787,073.

Elliott, Joseph Charles, to International Business Machines Corporation. Liquid crystal display system. 3,787,834, Cl. 340-324.00m.

Eltra Corporation: *See—*
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Emanuel, Frank V.: *See—*
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Emhart Corporation: *See—*
Colby, Harold S.; and Landry, Raymond H., 3,787,608.

Emrick, Donald D., to National Cash Register Company, The. Process for manufacturing minute capsules having polynitrile capsule walls. 3,787,327, Cl. 252-316.000.

Enders, Edgar; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating animal acarid ectoparasites with 2-phenyliminopyrrolidines. 3,787,576, Cl. 424-274.000.

Endtinger, Fritz; Zweifel, Walter; and Schneeberger, Fritz, to Swiss Aluminium Ltd. Method of electrolytic coloring of oxide layers on aluminum and aluminum base alloys. 3,787,295, Cl. 204-35.00n.

Engedal, Knud: *See—*
Landa, Torstein; Johannsson, Paul; and Engedal, Knud, 3,787,156.

Engelhart, John E., to Esso Research and Engineering Company. Malononitrile oxime derivatives as fungicidal agents. 3,787,579, Cl. 424-301.000.

Erdmann, Dietrich; Namenyi, Istvan; Hampel, Bruno; and Herbert, Werner, to Merck Patent Gesellschaft mit beschrankter Haftung. Oils resistant to highly reactive chemicals. 3,787,320, Cl. 252-54.000.

Erickson, Donald W., to Zoecon Corporation. Aryloxy epithio ethers. 3,787,443, Cl. 260-327.00e.

Ericson, Richard E., to Bard, C. R., Inc., mesne. Radiopaque clamp. 3,786,815, Cl. 128-321.000.

Erikson, Carl: *See—*
Kukes, Charles E.; Volheim, Richard H.; and Erikson, Carl, 3,786,994.

Eriksson, Sven Evald, to Atlas Copco. Delivery control system for a motor driven compressor. 3,787,146, Cl. 417-299.000.

Erni, Heinrich H.: *See—*
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Ernst, Gerd: *See—*
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ESB Incorporated: *See—*
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Esghbaugh, John T.; and Lindahl, Gerbert S., to Gulf & Western Metals Forming Company, mesne. Refrigeration system. 3,786,651, Cl. 62-222.000.

Espie, Jean Yves; Jouan, Claude; and Koehly, Gerard, to Commissariat a l'Energie Atomique. Process for the separation of neptunium from plutonium by liquid-liquid extraction. 3,787,553, Cl. 423-9.000.

Essex International: *See—*
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Etat Francais: *See—*
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Etat Francais represente par le Ministre d'Etat charge de la Defense Nationale Delegation Ministerielle pour l'Armement Direction Technique des Engins Laboratoire de Recherches Balistiques et Aerodynamiques: *See—*
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Ethyl Corporation: *See—*
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European Atomic Energy Community (Euratom): *See—*
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Evans, Milton L.: *See—*
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Even, Georges. Rapid loading system for missiles. 3,786,715, Cl. 89-1.805.

Ewald, Ronald F., to Seaquist Valve Company. Childproof safety adaptor. 3,786,968, Cl. 222-402.110.

Ewing, Kenneth W.: *See—*
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Fabere, Raymond W.: *See—*
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Fabriques de Produits Chimiques de Thenn et de Mulhouse: *See—*
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Fagersta Aktiebolag Fagersta: *See—*
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Fahre, Tore, to Farex Fabrikker A/S. Vent opening grill. 3,786,738, Cl. 98-114.000.

Fahrenholtz, Kenneth Earl, to Hoffmann-La Roche Inc. Steroid carbamates. 3,787,453, Cl. 260-397.400.

Falk, Mervin L.; and Olah, Louis, to Newell Industries Inc. Time base error correction system and method. 3,787,616, Cl. 178-6.60a.

Falkenstein, Georg: *See—*
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Farmer, Wayne David; Kneuer, Joseph George; and Lawless, William Joseph, to Bell Telephone Laboratories, Incorporated. Pulse transmission system for conveying data and control words by means of alternating polarity pulses and violations thereof. 3,787,613,Cl. 178-2.00r.

Farnsworth, Lemoyne E.; Pitt, Bruce R.; and Wolf, John W., to Ro-Band Corporation. Wave form coil winding machine. 3,787,000, Cl. 242-1.10r.

Farr, William W., Jr., to Honeywell Information Systems, Inc. Apparatus for the detection and correction of errors for a rotational storage device. 3,787,815, Cl. 340-172.500.

Farrar, Ralph C., to Phillips Petroleum Company. Multifunctional polymerization initiators. 3,787,510, Cl. 260-665.00r.

Farrington Company, The: *See—*
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Farrissey, William J., Jr.; and Andrews, Philip S., to Upjohn Company, The. Soluble copolyimides. 3,787,367, Cl. 260-65.000.

Farrow, Victor Francis, to Thorn Electrical Industries Limited. Ballast circuits for discharge lamps. 3,787,751, Cl. 315-137.000.

Fatzer, Willy: *See—*
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Fauland, Erich: *See—*
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Faust, Donald M., to Cascade Corporation. Load-handling apparatus. 3,786,937, Cl. 212-59.000.

Fayling, Richard E., to Minnesota Mining and Manufacturing Company. Magnetic viewer device having movable anisotropic elements. 3,787,839, Cl. 340-381.00r.

Feintuch, Martin W.; and Silver, Allen S., to Bendix Corporation, The. Fail safe built-in test equipment. 3,787,838, Cl. 340-409.000.

Feit, Peter Werner; and Nielsen, Ole Bent Tvaermose, to Lovens Kemiske Fabrik Produktionsaktieselikeb. New substituted 6-carboxy-1,2-benzisothiazole-1,1-dioxides. 3,787,421, Cl. 260-294.0sc.

Feldmann, Fritz K., to Pacific Technica Corporation. Rotating band for projectile. 3,786,760, Cl. 102-93.000.

Feltzin, Joseph: *See—*
Burns, Joseph P.; Feltzin, Joseph; and Kuehn, Erich, 3,787,526.

Ferguson, Paul R. Center-top door pivot mounting mechanism. 3,786,534, Cl. 16-176.000.

Ferguson, Willie Douglas, to Neill, Scott E., Jr. Process and apparatus for universal joint disassembly and assembly. 3,786,544, Cl. 29-251.000.

Fernandez, Remigio, to Halcon International Inc. Process for preparing vinyl acetate. 3,787,485, Cl. 260-491.000.

Ferranti Limited: *See—*
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Ferren, Richard Anthony; and Dimmig, Daniel Ashton, to Pennwalt Corporation. Copolymers of vinyl fluoride and hexalfluoropropene. 3,787,379, Cl. 260-87.50a.

Feutsch, Georg: *See—*
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Fiat Societa per Azioni: *See—*
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Fidelman, David, to Hope, Henry, X-Ray Products, Inc. Exposure scanner and replenisher control. 3,787,689, Cl. 250-219.0fr.

Fife, Warren E.: *See—*
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Fik, Harris B.: *See—*
Petulla, Laurence R.; and Fik, Harris B., 3,786,803.

Filippazzi, Franco; and Forlani, Franco, to Honeywell Information Systems Italia S.p.A.. Connection means for semiconductor components and integrated circuits. 3,787,252, Cl. 148-175.000.

Fillmore, Gary L.; Naylor, Hugh E., III; and West, Donald L., to International Business Machines Corporation. Servo control of ink jet pump. 3,787,882, Cl. 346-75.000.

Filsinger, David E.: *See—*
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Finckh, Hermann, Metalltuch-und Maschinenfabrik: *See—*
Holz, Emil, 3,786,918.

Finger, John F., to Sioux Steam Cleaner Corporation. Pump control system. 3,786,835, Cl. 137-566.000.

Fink, Doris-Jutta: *See—*
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Von der Eltz, Hans-Ulrich; and Fink, Doris-Jutta, 3;787,176.

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Finlay, Walter L.; Nayar, Harbhajan S.; and Hay, Donald A., to Copper Range Company. Metal powders for roll compacting. 3,787,200, Cl. 75-.50b.

Finley, Donald L.; and Morehead, Edward A., to Eastman Kodak Company. Method for removing water from tow. 3,786,574, Cl. 34-23.000.

Finnemore, Harlan E., to Air Preheater Company, Inc., The. Self-compensating sector plate. 3,786,868, Cl. 165-9.000.

Fiori, Anthony M., to Spectra-Vision Corporation. Magnetic tape editing method and system. 3,787,617, Cl. 179-100.20b.

Firestone Tire & Rubber Company: *See—*
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Firestone Tire & Rubber Company, The: *See—*
McGillvary, Daniel Ross, 3,787,550.

Fischer, Joerg, to Bell & Howell. Indexing mechanism. 3,787,115, Cl. 352-123.000.

Fischer, Rainer: *See—*
Fischer, Stefan; and Fischer, Rainer, 3,787,165.

Fischer, Stefan; and Fischer, Rainer. Support device for a moulding press. 3,787,165, Cl. 425-450.000.

Fischer, Walter; Mastai, Aldo Josef; and Rocher, Edouard Yves, to International Business Machines Corporation. Over voltage protection circuit lateral bipolar transistor with gated collector junction. 3,787,717, Cl. 317-235.00r.

Fish, Daniel Cecil Edward. Inflatable dams and dam units. 3,786,638, Cl. 61-30.000.

Fisher, Lester: *See—*
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Fitzgerald, Bloyce D.: *See—*
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Fleissner, Manfred: *See—*
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Fleming, Donald Kingsley; Randhava, Sarabjit Singh, and Camara, Elias Humberto, to Institute of Gas Technology. Methanation of carbon monoxide and carbon dioxide. 3,787,468, Cl. 260-449.00m.

Flouret, George Rogelio; and Cole, John Wayne, to Abbott Laboratories. Tripeptide. 3,787,386, Cl. 260-112.500.

FMC Corporation: *See—*
Brink, Edwin H.; and Palmer, Warren G., 3,787,316.
Seglin, Leonard; and Gray, Charles A., 3,787,193.
Volpp, Gert Paul; and Dounchis, Harry, 3,787,434.

Foerster, Hubert; and Brauch, Ulrich, to Bosch, Robert, Fernsehanlagen GmbH. Method and apparatus for synchronizing a videosignal reproduced from a tape by means of a rotating head wheel. 3,787,615, Cl. 178-6.60f.

Folkers, Karl; Chang, Jaw-King; and Sievertsson, Hans. Synthetically produced tetrapeptide having the activity of the luteinizing hormone releasing hormone. 3,787,385, Cl. 260-112.500.

Folzenlogen, Robert G., and Smith, James P., to Procter & Gamble Company, The. Processing of beans and peas by freeze drying 3,787,595, Cl. 426-441.000.

Fontanella, John J.: *See—*
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Fontani, Spartaco. *See—*
Peri, Cesare Augusto; Fontani, Spartaco, and Ladavas, Franco, 3,787,504.

Foote, Daniel J., to Master Lock Company. Hasp and staple assemblage. 3,787,082, Cl. 292-281.000.

Forbes, David K.: *See—*
Smiley, Vern N.; Lewis, Adolph L.; and Forbes, David K., 3,787,234.

Forbes, Hampton E., Jr., to Westvaco Corporation. Cutting and scoring die. 3,786,732, Cl. 93-58.300.

Ford Motor Company: *See—*
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Labana, Santokh S.; and Chang, Yun Feng, 3,787,340.
Labana, Santokh S.; and Theodore, Ares N., 3,787,520.
Labana, Santokh S.; and Golovoy, Amos, 3,787,521.

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Foseco International, Limited: *See—*
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Fossard, Hubert Rene Louis; and Joly, Henriette Josephine. Warning system and method. 3,786,628, Cl. 58-152.00b.

Foster, Silvers A.; and Smith, Charles F. Muffler. 3,786,896, Cl. 181-53.000.

Fowler, Daniel L.: *See—*
Habegger, James D.; Huttula, Andrew B.; Fowler, Daniel L.; and Schrader, James T., 3,786,939.

Fowler, Gerald: *See—*
Hemmings, Keith Reginald; and Fowler, Gerald, 3,787,130.

Francis, Philip L., to General Motors Corporation. Steering wheel and column interface seal. 3,787,075, Cl. 280-150.0ab.

Frankel, Edwin N., to United States of America, Agriculture. Selective hydroformylation of unsaturated fatty compounds. 3,787,459, Cl. 260-410.700.

Freeman, Frank George, to Lucas, Joseph,(Industries), Limited. Rotary hydraulic machines. 3,786,726, Cl. 91-492.000.

Freitag, Herbert, to Stabilus Industrie- und Handelsgesellschaft mbH. Supporting element of adjustable length. 3,787,019, Cl. 248-188.200.

Fremont, Maurice Henri Louis: *See—*
Denis, Jean Francois; Ozauba-Lyndis, Serge Yvan; Fremont, Maurice Henri Louis; Krajewski, Edward; and Marcel, Jean-Pierre Julien, 3,787,657.

Frenkel, Mark Isaakovich. Direct-flow cylindrical valve. 3,786,833, Cl. 137-512.160.

Frick Company: *See—*
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Fridenberg, Jerry T.: *See—*

Meyers, Laverne H.; Kagele, Frank L.; Trent, Edward J.; Fridenberg, Jerry T.; Alberty, Frederick J.; and Fitzgerald, Bloyce D., 3,787,660.

Fried, John H.; and Harrison, Ian T., to Syntex Corporation. 2-(6'-Methoxy-2'-naphthyl)propionic acid and -i-propanol derivatives having anti-inflammitory, analgesic and anti-pyretic activities. 3,787,580, Cl. 424-308.000.

Friederich, Klaus: *See—*
Lucking, Hans Joachim; Noll, Walter; Buchner, Werner; Friederich, Klaus; and Niederprum, Hans, 3,787,467.

Friedman, Robert L.; and Lieser, Zeev. Noise cancelling self mixing doppler radar. 3,787,854, Cl. 343-8.000.

Fritz, Erich; and Bostrowsky, Daniel, to Thomason-CSF. Adjustable wavelength optical source using the simulated emission effect. 3,787,779, Cl. 331-94.500.

Fronius, Sabine: *See—*
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Fruehauf, Waldo G., to General Signal Corporation. Hydraulic oscillator. 3,786,723, Cl. 91-284.000.

Frye, James A.; and Morton, Ralph B., to Boardman Company, The. Carbon black pelletizer. 3,787,161, Cl. 425-222.000.

Fuji Denki Seizo Kabushiki Kaisha: *See—*
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Fuji Photo Co., Ltd.: *See—*
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Fuji Photo Film Company, Ltd.: *See—*
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Fujii, Kyoichi: *See—*
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Fujisawa, Hideya: *See—*
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Fujisawa, Yutaka. *See—*
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Fukuda, Kazuo: *See—*
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Fulmini, Sergio: *See—*
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Furuno Electric Company, Limited: *See—*
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G & H Technology, Inc.: *See—*
Phillips, John J.; and Clark, Thomas A., 3,787,011.

Gabel, William A. Airboat. 3,786,774, Cl. 114-66.50r.

Gadefaix, Roger; and Klere, Jean, to Lever Brothers Company. Process for splitting soapstock and apparatus therefor. 3,787,460, Cl. 260-418.000.

Gaerttner, Martin R., to United States of America, Atomic Energy Commission. Two-dimensional coils for electromagnetic generation and detection of acoustic waves. 3,786,672, Cl. 73-67.05r.

GAF Corporation: *See—*
Randall, David I.; Vogel, Calvin; and Wynn, Robert W., 3,787,486.

Galbarzyk, Leslie L.; Ross, Irving D., Jr.; and Madland, Thorvald, to Youngstown Steel Door Company, The. Tracking plug door. 3,786,599, Cl. 49-220.000.

Galion, Jeffrey, Inc.: *See—*
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Gallagher, Bernard J.: *See—*
Shufflebarger, Earl D.; Gallagher, Bernard J.; Simko, David M.; and Boylan, John R., 3,787,023.

Gallagher, Brendan; and Last, Anthony Graham Marshall, to Imperial Chemical Industries, Limited. Production of extruded foamed synthetic thermoplastic polymer materials. 3,787,542, Cl. 264-51.000.

Gallois, Jacques: *See—*
Kuhn, Karl Walter; and Gallois, Jacques, 3,786,630.

Gamer, Nicholas T.: *See—*
Mizuhara, Howard; and Gamer, Nicholas T., 3,786,854.

Gamertsfelder, George R.; Stavis, Gus; and Vladimir, Leonard O., to Singer Company, The. Doppler antenna calibration apparatus. 3,787,866, Cl. 343-703.000.

Gardner, Willis W., to Waukesha Bearing Corporation. Tilting pad journal bearing. 3,787,105, Cl. 308-73.000.

Gardner-Dever Company: *See—*
Edstrom, Soren E. H., 3,787,154.

Gardocki, Joseph Francis, to McNeil Laboratories, Inc. Method of treating depression with certain diazepinoindoles and anti-depressant compositions thereof. 3,787,577, Cl. 424-274.000.

Garland, Milton W., to Frick Company. Multiple wave form spring valve assembly. 3,786,834, Cl. 137-540.000.

Garlinghouse, Leslie H. Rubber cone concrete bucket. 3,787,084, Cl. 294-71.000.

Garnett, Charles Alexander, to Edward Williams Heldings, Limited. Clamping arrangement. 3,787,132, Cl. 403-290.000.

Garnett, Eubank W., Jr., to Reynolds Metals Company. Apparatus for and method of making a nestable container. 3,786,667, Cl. 72-348.000.

Garon Company: *See—*
Dils, Eugene W., Jr.; Ward, Larry A.; and Ward, Robert A., 3,786,784.

Garrett Corporation, The: *See—*
Lucas, Peter K., 3,787,031.

Garrett, Kenneth M.: *See—*
Miller, Jack E.; and Garrett, Kenneth M., 3,786,592.

Gasner, William Lavier, to McCulloch Corporation. Unitized clutch drum and sprocket. 3,786,687, Cl. 74-243.0cs.

Gates Rubber Company, The: *See—*
Gillman, Leland M.; and Stark, Robert E., 3,787,240.

Gauvreau, Claude, to Holliston Laboratories, Inc. Disinfecting aerosol composition. 3,787,566, Cl. 424-45.000.

Gavlick, John R., Sr. Pipe dryer and odorizer. 3,786,576, Cl. 34-104.000.

Gearheard, Larry P.: *See—*
Clark, James R.; and Gearheard, Larry P., 3,786,579.

Gebr. Giulini GmbH: *See—*
Wittner, Hubert; and Lauer, Kurt, 3,787,311.

Gebr. Isringhausen: *See—*
Sturhan, Klaus, 3,787,025.

Gechele, Walter; and Piazza, Bruno, to Olivetti, Ing., C., & C., S.p.A. Machine for recording visually interpretable data and machine readable information on a ticket. 3,787,875, Cl. 346-74.0mp.

Gedzjun, Vladislav Aloizovich; and Yakovlev, Petr Antipovich. High-voltage capacitor. 3,787,721, Cl. 317-242.000.

General American Transportation Corporation: *See—*
Mowatt-Larssen, Erling, 3,786,955.

General Connectors Corporation: *See—*
Yorke, Roy B.; and Greenwald, Fred A., 3,787,079.

General Electric Company: *See—*
Bennett, James G.; and Katchman, Arthur, 3,787,362.
Binzer, Thomas J.; and Wooding, Peter H., 3,787,674.
Bolin, Larry R.; and Jolly, Shelby A., 3,787,705.
Busian, Vincent V., 3,786,561.
Carmelite, Donald D.; Kramer, Morton; and Lee, Gim F., Jr., 3,787,532.
Grossman, Leonard N.; and Packard, Douglas R., 3,787,761.
Heath, Darrell R.; and Wirth, Joseph G., 3,787,475.
Hobson, Charles F., Jr., 3,787,708.
Holub, Fred P.; and Evans, Milton L., 3,787,439.
Juliano, Peter C., 3,787,238.
King, William D.; Larson, George D.; Steeoerm, Donald E.; and Winchester, Amos J., Jr., 3,787,667.
Pedersen, Niels P.; and Schultz, Henry L., Jr., 3,787,724.
Pratt, Richard D.; and Ewing, Kenneth W., 3,787,546.
Puckette, Charles M.; Smith, Donald A.; and Butler, Walter J., 3,787,852.
Rice, Milton J., 3,786,648.
Skelly, David W.; and Wagner, Bernard C., 3,787,338.
Watrous, Donald L., 3,787,167.
Wirth, Joseph G.; and Heath, Darrell R., 3,787,364.
Wright, Archibald N.; Burgess, William R.; and Wilkos, Edward V., 3,787,382.

General Foods Corporation: *See—*
Mitchell, William Alexander; Stahl, Howard Dave; and Seidel, William Charles, 3,787,592.

General Motors Corporation: *See—*
Barr, Paul N.; and Jagodzinski, Tim G., 3,786,789.
Francis, Philip L., 3,787,075.
Harned, John L.; and Johnston, Laird E., 3,787,094.
Harris, James P.; and Katz, Seymour, 3,787,548.
Shellhause, Ronald L., 3,787,029.
Shellhause, Ronald L., 3,787,096.

General Signal Corporation: *See—*
Fruehauf, Waldo G., 3,786,723.

Genma, Susumu, to Victor Company of Japan, Ltd. Phonograph record disc. 3,787,274, Cl. 161-116.000.

Genma, Susumu, to Victor Company of Japan, Ltd. Phonograph record disc. 3,787,275, Cl. 161-116.000.

Genta, Guido R., to American Aniline Products, Inc. Aromatic polyester textile fibers dyed with naphthyloxyanthraquinone dyes. 3,787,177, Cl. 8-39.000.

Gentex Corporation: *See—*
Aileo, Jackson Anthony, 3,786,519.

George, Michel: *See—*
Stevens, Jacques; and George, Michel, 3,787,384.

Gerbrandt, George. Foldable trap. 3,786,593, Cl. 43-100.000.

Geres, Robert J., to United States of America, Navy. Calcium hydride gas generator. 3,787,186, Cl. 23-282.000.

Gervay, Joseph Edmund; and Walker, Peter. Process for modifying surfaces using photopolymerizable elements comprising hydrophilic colloids and polymerizable monomers. 3,787,213, Cl. 96-36.000.

Geurts, Cletus J. Clamp and positioning structure. 3,787,133, Cl. 403-384.000.

Gewerkschaft Eisenhutte Westfalia: *See—*
Hauschopp, Alois; Langem, Werne Lippe; Breuer, Oswald; Ostrop, Berthold; and Steinkuhl, Bernd, 3,787,090.

Ghere, Morris. Automatic player for musical instruments. 3,787,603, Cl. 84-19.000.

Ghirga, Marcello: *See—*

Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, 3,787,556.

Giamei, Anthony F.; Hornbecker, Merton F.; and Terkelsen, Bruce E., to United Aircraft Corporation. Directionally solidified article. 3,787,190, Cl. 29-183.000.

Gibert, Guy; and Vidal, Pierre, to Compagnie d'Electronicque et de Piezo-Electricite-C.E.P.E. Flexion mode crystalline bar for an oscillator. 3,787,743, Cl. 310-9.500.

Gibson, Richard R.: *See—*
Pelizzoni, Winton J.; Greathouse, Jack F.; Pekar, Frank J., Jr.; and Gibson, Richard R., 3,786,792.

Giesselmann, Gunter; Schwarze, Werner; and Weigert, Wolfgang, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of alkyl isothiocyanic acid esters. 3,787,472, Cl 260-454.000.

Gilbert, Dixie E., to Phillips Petroleum Company. Rapid heating of parison preforms. 3,787,170, Cl. 432-5.000.

Gillemot, George W.: *See—*
Thompson, John T.; and Gillemot, George W., 3,787,795.

Gillette Company, The: *See—*
Dorion, Francis W., Jr.; Nissen, Warren I.; and Pomfret, Edward E., 3,786,563.

Gillman, Leland M.; and Stark, Robert E., to Gates Rubber Company, The. Composition separator with membrane extension. 3,787,240, Cl. 136-30.000.

Giocomo, James Donald; and Grosso, Harry Anthony, to American Can Company. Pressure relief system for an aerosol container 3,786,967, Cl. 222-397.000.

Giordmaine, Joseph Anthony; and Kleinman, David Allmond, to Bell Telephone Laboratories, Incorporated. Electrooptic grating for scanning a beam of light. 3,787,111, Cl. 350-160.00r.

Gioria, Jean-Michel: *See—*
Zuntini, Franco; Aliprandini, Giuseppe; Gioria, Jean-Michel; Meyer, Andre; and Losi, Salvatore, 3,787,463.

Gjerde, Erwin G. High velocity gas igniter. 3,787,169, Cl. 431-347.000.

G.K.N. Group Services, Limited: *See—*
Sachs, Kurt; Foreman, Frederick Arthur; and Barlow, John, 3,787,204.

GKN Sankey Ltd.: *See—*
Stanley, Victor William, 3,787,549.

Glass, Marvin, & Associates: *See—*
Breslow, Jeffrey D., 3,787,053.
Glass, Marvin L.; and McKay, Robert S., 3,787,052.

Glass, Marvin L.; and McKay, Robert S., to Glass, Marvin & Associates. Projector and target apparatus including projectile collecting clip which is also a magazine for the projector. 3,787,052, Cl 273-101.000.

Glatz, Horst, to Deumu Deutsche Erzund Metall-Union Gesellschaft mit beschrankter Haftung. Reinforcing element for concrete structures. 3,786,610, Cl. 52-661.000.

Gleeson, James E.: *See—*
Dereich, John E.; Gleeson, James E.; and Earle, Glenn J., 3,786,714.

Glevum Industrial Designers Limited: *See—*
Shaw, John, 3,786,882.

Globe-Union Inc.: *See—*
Rinnert, Helmut Kurt, 3,786,842.

Gluyas, William W., Jr.: *See—*
Riblett, Edward L., 3,786,575.

Gobel, Axel: *See—*
Ruschig, Heinrich; Schmitt, Karl; Mohler, Werner; Gobel, Axel, and Lindner, Ernst, 3,787,411.

Godard, Regine: *See—*
Dangay, Jean Louis; Dangay, Philippe; and Dangay, Catherine, 3,786,567.

Goffe, William L., to Xerox Corporation. Photoelectrophoretic imaging method including at least one electrode carrying a pattern. 3,787,206, Cl. 96-1.200.

Goggins, William B., Jr.: *See—*
Sletten, Carlyle J.; and Goggins, William B., Jr., 3,787,849.
Sletten, Carlyle J.; and Goggins, William B., Jr., 3,787,850.

Goldberg, Jacob, to United States of America, Navy. Memory and logic module. 3,787,817, Cl. 340-172.500.

Golden, Norman R. Material handling attachment. 3,786,948, Cl. 214-130.00c.

Goldfarb, Adolph E. Reaction game simulating release of treasure. 3,787,050, Cl. 273-1.00r.

Goldner, Heinz-Dieter, to Hartmann & Braun Aktiengesellschaft. Rectifier. 3,787,755, Cl. 321-8.00r.

Goldstein, Irving; Hayward, Gary G.; and Holt, Jon G., to Raytheon Company. Optical lens arrangement. 3,786,757, Cl. 102-70.20p.

Golovoy, Amos: *See—*
Labana, Santokh S.; and Golovoy, Amos, 3,787,521.

Good, Alan E.; and Ward, Delbert R., to Brown & Root, Inc. Method and apparatus for entrenching submerged elongate structures. 3,786,642, Cl. 61-72.400.

Goodrich, B. F., Company, The: *See—*
De Witt, Elmer J., 3,787,187.
Hotchkiss, Marvin E., 3,786,904.
Korolyshun, Russell T.; and Rehnborg, P. Mark, 3,786,676.
Mikofalvy, Bela K.; and Knechiges, Donald P., 3,787,232.

Goodrich, Robert S.: *See—*
Kalfsbeek, James S.; Kalfsbeek, Peter C.; and Goodrich, Robert S., 3,787,646.

Goodwin, Edwin C., Jr.; Larkin, Oscar L.; and Erni, Heinrich H., to Allis-Chalmers Corporation. Vacuum switch cam operating mechanism with contact loading compression spring. 3,787,649, Cl. 200-153.01a.

Goodwin, William D., to Athlon Corporation, The. Whole protein shampoo composition. 3,787,337, Cl. 252-545.000.

Goodyear Aerospace Corporation: *See—*
Dotson, Charles R., 3,787,840.

Goodyear Tire & Rubber Company, The: *See—*
Appleby, Paul E.; Brinkley, Max D.; and Griffiths, Robert I., 3,787,262.

Gorbunov, Boris Nikolaevich; Lukashov, Anatoly Ivanovich; Mukhortova, Tamara Ivanovna; and Khardin, Alexandr Pavlovich. Isoprene polymerization inhibitor. 3,787,515, Cl. 260-681.500.

Gordon, Claude E. Alarm system. 3,787,831, Cl. 340-274.000.

Gordon, Paul C.: *See—*
Scarnato, Thomas J.; Gordon, Paul C.; Sorensen, Robert; and Lawler, Craig M., 3,786,620.

Gorina, Vera Mikhailovna: *See—*
Vorobeva, Antonina Ivanovna; Gorina, Vera Mikhailovna; and Obolentsev, Roman Dmitrievich, 3,787,502.

Gosteli, Jacques, to Ciba-Geigy Corporation. Dibenzo[b,f]thiepin-10-carboxylic acids. 3,787,444, Cl. 260-327.00b.

Gottfried Reuter GmbH. *See—*
Cutler, Richard, 3,787,127.

Gourlay, Robert D., to Hughes Aircraft Company. Fluid actuated electric generator. 3,787,741, Cl. 310-8.800.

Gourse, Jerome A., to Velsicol Chemical Corporation. Fire retardant compositions. 3,787,356, Cl. 260-45.75b.

Grace, W. R., & Co.: *See—*
Acker, Ellsworth G., and Winyall, Milton E., 3,787,561
Guthrie, James L.; and Rendulic, Francis J., 3,787,303.

Grace, W. R., & Company. *See—*
Marans, Nelson S., 3,787,227.

Graco Inc. *See—*
Hagfors, Gerald D., 3,786,990.

Grad-Line Inc.: *See—*
Long, George E., Reesf, Dennis L.; and Johnson, Floyd C., 3,786,871.

Graefnitz, Russell F.; and Lohrman, Glenn G., to Duncan Electric Company, Inc. Meter magnet with strip-wound current coil 3,787,766, Cl. 324-137.000.

Graham, D. Douglas: *See—*
Bowls, Victor C., and Graham, D. Douglas, 3,786,793.

Grand Haven Stamped Products Company: *See—*
Druhn, Max R. C., Jr., 3,786,690.

Granges Essem AB: *See—*
Eliasson, Karl Bertil, 3,786,623.

Grant, Gerald E.: *See—*
Brown, Wayne, Fabere, Raymond W.; Grant, Gerald E., and Sons, Charles C., 3,786,848.

Grant, Herbert L., to Hops Extract Corporation of America. Extraction of pure bitter acids from hops or crude hop extract. 3,787,499, Cl 260-586.00r.

Grant, Norman H.: *See—*
Alburn, Harvey E.; and Grant, Norman H., 3,787,494.

Grapha Maschinenfabrik Hans Muller AG. *See—*
Muller, Hans, 3,786,979.

Grassmayr, Klaus: *See—*
Bretschneider, Hermann; Grassmayr, Klaus; Hohenlohe-Oehringen, Kraft, and Grussner, Andre, 3,787,491.

Gratton, Peter D.: *See—*
Donahue, William J.; Gratton, Peter D.; and Cammack, Thomas A., 3,786,754.

Gravos, Leif H. Animal feeder. 3,786,786, Cl. 119-52.00a.

Gray, Charles A.: *See—*
Seglin, Leonard, and Gray, Charles A., 3,787,193.

Greathouse, Jack F.: *See—*
Pelizzoni, Winton J.; Greathouse, Jack F.; Pekar, Frank J., Jr.; and Gibson, Richard R., 3,786,792.

Greatline, Stanley E.; and Grismore, Fred Leland, to Southern Illinois University Foundation. Airborne navigation apparatus. 3,787,860, Cl. 343-106.00r.

Greaves, Melvin J.; and Werner, Tage, to McKee, Arthur G., & Company. Supporting apparatus for vessels. 3,786,606, Cl. 52-223.000.

Greb, Daniel W.: *See—*
Greb, Kenneth W.; and Greb, Daniel W., 3,786,959.

Greb, Kenneth W.; and Greb, Daniel W. Paper clip dispenser. 3,786,959, Cl. 221-261.000.

Greenfield, George L., to Milchem Incorporated. Acrylic compositions. 3,787,488, Cl. 260-537.00s.

Greenleaf Holdings, Limited: *See—*
Mackin, Wilson Joseph, 3,786,712.

Greenshields, James Nairn; Jones, Ida May; Moilliet, John Lewis; and Poole, Victor David, to Imperial Chemical Industries, Limited. Colouration process. 3,787,173, Cl. 8-1.00e.

Greenville Steel Car Company: *See—*
Beers, Albert Alvin, Jr.; Stoyer, Paul Eugene; and Lightner, Joseph Campbell, Jr., 3,786,764.

Greenwald, Fred A.: *See—*
Yorke, Roy B.; and Greenwald, Fred A., 3,787,079.

Gregg, Jack C.; and Davis, Samuel L. Piston puller. 3,786,551, Cl. 29-266.000.

Gregg, Paul S., to Ransburg Electro-Coating Corp. Spark detector apparatus and method. 3,787,707, Cl. 317-9.00r.

Gregory, Alvin L. Power plant. 3,787,140, Cl. 415-80.000.

Grenier, Raymond P., to Baird-Atomic, Inc. Zone grid assembly particularly for high resolution radioactivity distribution detection systems. 3,787,685, Cl. 250-71.50s.

Grewe, Ferdinand: *See—*
Scholl, Hans-Joachim; Klauke, Erich; Grewe, Ferdinand; and Hammann, Ingeborg, 3,787,435.

Griehl, Wolfgang; Hahn, Wolfdiether; and Stoll, Bernhard, to Inventa A.G. fur Forschung und Patentverwertung. Process for the continuous transesterification of dicarboxylic acid esters with diols. 3,787,479, Cl. 260-475.00p.

Griffiths, Robert I.: *See—*
Appleby, Paul E.; Brinkley, Max D.; and Griffiths, Robert I., 3,787,262.

Grimm, Ronald F. Trailer for bicycles. 3,787,065, Cl. 280-204.000.

Grindstaff, Lloyd I.; and Whittaker, Mack P. Graphitization of mesophase pitch fibers. 3,787,541, Cl. 264-29.000.

Grismore, Fred Leland: *See—*
Greatline, Stanley E.; and Grismore, Fred Leland, 3,787,860.

Grohoski, Edward G.: *See—*
Morton, Robert D.; and Grohoski, Edward G., 3,786,527.

Gronpement Atomique Alsacienne Atlantique: *See—*
Carbonnel, Henry; and Borie, Robert, 3,787,143.

Grossman, Leonard N.; and Packard, Douglas R., to General Electric Company. Method of detecting magnetic additives in nuclear fuel material by noting change in weight of material when weighed in a magnetic field. 3,787,761, Cl. 324-34.00r.

Grosso, Harry Anthony: *See—*
Giocomo, James Donald; and Grosso, Harry Anthony, 3,786,967.

Grow Chemical Corporation: *See—*
Hoffman, Edward P.; and Sikorski, Robert P., 3,787,230.

Grubbs, Conway E.: *See—*
Anderson, Dale R.; and Grubbs, Conway E., 3,787,655.

Gruetter, Walter: *See—*
Bobst, Jacques; Gruetter, Walter, and Bollinger, Edwin, 3,786,731.

Grunberg, Emanuel; and Hoffer, Max, to Hoffmann-La Roche Inc. 2,4-Diamino-5-(3-alkoxy-4,5-methylenedioxybenzyl) pyrimidine. 3,787,409, Cl. 260-256.40n.

Grunberg, Georges; Melnick, Igor; and Lazzari, Jean Pierre, to Commissariat a l'Energie Atomique. Method of making a thin film having a high coercive field. 3,787,237, Cl. 117-239.000.

Grundig E.M.V. Elektro-Mechanische: *See—*
Mangold, Hans; and Klein, Walter, 3,787,784.

Grussner, Andre: *See—*
Bretschneider, Hermann; Grassmayr, Klaus; Hohenlohe-Oehringen, Kraft; and Grussner, Andre, 3,787,491.

GTE Automatic Electric Laboratories Incorporated: *See—*
Busch, John E., 3,787,633.
Dewitte, Maurice J.; and Wojciechowski, Gerald L., 3,787,735.
Herr, Kurt F., 3,787,731.
Young, Robert F., Jr., 3,787,642.

GTE Information Systems, Incorporated: *See—*
Rogers, William P., 3,787,833.
Sherman, Frederick A., 3,787,820.

GTE Sylvania Incorporated: *See—*
Le Fevre, Paul Eshelman, 3,787,788.
Murphy, William D.; Williams, George Norman; Wilson, Robert F.; and Zmuda, Edward I., 3,787,610.
Murphy, William D.; and Zmuda, Edward I., 3,787,750.

Guaglione, Giovanni Paolo, to I-T-E Imperial Corporation. Conductor support for transition from gas bus enclosure tube to power circuit breaker. 3,787,604, Cl. 174-18.000.

Guerrero, Michael Carl, to American Hospital Supply Corporation. Centrifuge rotor assembly. 3,786,986, Cl. 233-26.000.

Guillaume, Jacques: *See—*
Nedelec, Lucien; Guillaume, Jacques; and Allais, Andre, 3,787,445.

Gulf & Western Metals Forming Company: *See—*
Robertson, John M.; and Wyatt, Wilbur E., 3,786,555.

Gulf & Western Metals Forming Company, mesne: *See—*
Esghbaugh, John T.; and Lindahl, Gerbert S., 3,786,651.

Gulf Oil Canada Limited: *See—*
Taylor, Charles T., 3,786,826.

Gulf Research & Development Company: *See—*
Blecke, Ronald Gene, 3,787,375.

Gulick, Ronald A.: *See—*
Sheesley, John M.; and Gulick, Ronald A., 3,786,728.

Gunther, Peter: *See—*
Oberkirch, Wolfgang; Gunther, Peter; and Pampus, Gottfried, 3,787,381.

Guthrie, James L.; and Rendulic, Francis J., to Grace, W. R., & Co. Radiation curable polyene-polythiol coating compositions. 3,787,303, Cl. 204-159.150.

Haag, Werner O.; and Miale, Joseph N., to Mobil Oil Corporation. Oxidative dehydrogenation of paraffins. 3,787,517, Cl. 260-683.300.

Habegger, James D.: *See—*
Daigle, Jack R.; and Habegger, James D., 3,786,944.

Habegger, James D.; Huttula, Andrew B.; Fowler, Daniel L.; and Schrader, James T., to Rapistan, Incorporated. Method and apparatus for sorting articles on a conveyor utilizing a shift register and a time varying code control mechanism. 3,786,939, Cl. 214-1.00a.

Haberle, Heinz; and Herter, Eberhard, to International Standard Electric Corporation. System for controlling the transmit time of stations which are in communication with one another via a satellite. 3,787,634, Cl. 179-15.0bs.

Habermann, Helmut; Loyen, Roger; deceased (by Loyen, Ghislaine, nee Voisin; administratrix); Joly, Pierre; Auber, Yvan; and Malmaison, Rueil, to Etat Francais represente par le Ministre d'Etat charge de la Defense Nationale Delegation Ministerielle pour l'rmement Direction Technique des Engins Laboratoire de Recherches Balistiques et Aerodynamiques. Devices including rotating members supported by magnetic bearings. 3,787,100, Cl. 308-10.000.

Hack, Helmuth: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,787,538.

Hafele, James F.: *See—*
Riblett, Edward L., 3,786,575.

Haga, Shoji; and Komorizono, Kunichi, to Toyota Jidosha Kogko Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha. Clutch release cylinder for vehicles. 3,786,903, Cl. 192-91.00r.

Hagelbarger, David William, to Bell Telephone Laboratories, Incorporated. Multitone telephone dialing circuit employing digital-to-analog tone synthesis. 3,787,836, Cl. 340-347.0da.

Hagfors, Gerald D., to Graco Inc. Plural component gun. 3,786,990, Cl. 239-112.000.

Hagimoto, Hiroshi; Arai, Torhiharu; Yoshikawa, Harutoshi; Watanabe, Mitsuo; and Okada, Yoshiyuki, to Takeda Chemical Industries, Ltd. Herbicidal compositions containing various benzylthiodiazoles and triazines. 3,787,198, Cl. 71-93.000.

Hagino, Hiroshi: *See—*
Nakayama, Kiyoshi; Hagino, Hiroshi; and Yoshida, Hajime, 3,787,287.

Hagiwara, Yoshihide, to Japan Natural Food Co., Ltd. Process for producing powders of green leaves of wheat and barley. 3,787,591, Cl. 426-373.000.

Hagmann, Mark J.: *See—*
Cook, Melvin A.; Udy, Lex L.; Hagmann, Mark J.; and Jessop, Harvey A., 3,787,254.

Hagopian, Nubar D.; and Colman, John M., to Medical Innovations, Inc. Leg unit inserts. 3,786,802, Cl. 128-24.00r.

Hahn, Wolfdiether: *See—*
Griehl, Wolfgang; Hahn, Wolfdiether; and Stoll, Bernhard, 3,787,479.

Haid, Eric: *See—*
Bergmeyer, Hans Ulrich; Haid, Eric; Nelboeck-Hochstetter, Michael; and Weimann, Gunther, 3,787,392.

Halasa, Adel F.; and Oberster, Arthur E., to Firestone Tire & Rubber Company. Continuous process of copolymerizing butadiene and styrene. 3,787,377, Cl. 260-83.700.

Halbrook, Noah J.: *See—*
Berry, David A.; Bunk, Albert R.; Halbrook, Noah J.; and Lawrence, Ray V., 3,787,342.

Halcon International Inc.: *See—*
Fernandez, Remigio, 3,787,485.

Hall, Richard H.: *See—*
Kenaga, Duane L.; and Hall, Richard H., 3,787,344.

Hamada, Tetsuo: *See—*
Aishima, Itsuho; Sakurai, Hisaya; Takashi, Yukichi; Morita, Hideo; Hirotsu, Yoshiyuki; and Hamada, Tetsuo, 3,787,323.

Hamano, Sachiyuki; Nakamura, Takaharu; Kuriyama, Shizuo; and Yamanaka, Motosuke, to Eisai Company, Ltd. 3-Sulfamyl-4-chlorobenzoic acid derivatives. 3,787,440, Cl. 260-326.100.

Hammann, Ingeborg: *See—*
Colln, Reimer; Hammann, Ingeborg; Unterstenhafer, Gunter; and Behrenz, Wolfgang, 3,787,539.
Scholl, Hans-Joachim; Klauke, Erich; Grewe, Ferdinand; and Hammann, Ingeborg, 3,787,435.
Stolzer, Claus; Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, 3,787,535.

Hammer, Leslie G.; and Reynolds, Charles A., Jr., to Pioneer Medical Systems, Inc. Defibrillator output energy measuring circuit. 3,787,767, Cl. 324-142.000.

Hammond, John S.: *See—*
Scott, Arthur Leslie; Parsons, J. Hilton, Jr.; and Hammond, John S., 3,787,268.

Hampel, Bruno: *See—*
Erdmann, Dietrich; Namenyi, Istvan; Hampel, Bruno; and Herbert, Werner, 3,787,320.

Hanselmann, Daniel; and Wildbolz, Rudolf, to Maschinenfabrik Rieter AG. Apparatus for separating fiber flocks from a transporting air stream. 3,787,093, Cl. 302-61.000.

Hanson Scale Company: *See—*
Artwick, Kert E., 3,786,880.

Hara, Hauruichi: *See—*
Ichihara, Shoichi; Hara, Hauruichi; and Ohara, Tskashi, 3,787,333.

Hare, George F.: *See—*
Ciccone, Thomas Q.; Hare, George F.; and Nimylowycz, Osyp, 3,786,761.

Harigaya, Shoichi: *See—*

Himizu, Junichi; Harigaya, Shoichi; Ishida, Akihiko; Yoshikawa, Kaoru; and Sato, Masanori, 3,787,448.

Harmon, Jerome Z. Simulated pocket ornament and holder. 3,786,520, Cl. 2-279.000.

Harned, John L.; and Johnston, Laird E., to General Motors Corporation. Hydraulic anti-lock brake control system. 3,787,094, Cl. 303-10.000.

Harris, Glyn Islwyn; and Edwards, Alfred Gerald, to Albright & Wilson, Limited. Phenol-aralkyl ether resins. 3,787,350, Cl. 260-38.000.

Harris, Guy H., to Dow Chemical, The. Dithio- and thiono-garbamate mineral value collectors. 3,787,471, Cl. 260-455.00a.

Harris, James P.; and Katz, Seymour, to General Motors Corporation. Method of applying pressure sensitive adhesive to an article. 3,787,548, Cl. 264-259.000.

Harris, John L., to Deltrol Corporation. Switching mechanism. 3,787,789, Cl. 335-193.000.

Harrison, Ian T.: *See—*
Fried, John H.; and Harrison, Ian T., 3,787,580.

Hartford Special Machinery Company, The: *See—*
Morton, Robert D.; and Grohoski, Edward G., 3,786,527.

Hartmann & Braun Aktiengesellschaft: *See—*
Goldner, Heinz-Dieter, 3,787,755.

Harvey Hubbell, Incorporated: *See—*
Carissimi, Vincent L.; and Kress, George H., 3,787,798.

Hasebe, Takefumi; and Ando, Toshiaki, to Yokogawa Electric Works, Ltd. Self-balancing instrument. 3,787,828, Cl. 340-187.000.

Hasegawa, Masanaru; Hayashi, Yoshiki; and Matsumura, Toichi, to Matsushita Electric Industrial Company Ltd. Electrophotographic photosensitive plate having a polyimide intermediate layer. 3,787,207, Cl. 96-1.500.

Hashimoto, Kunio: *See—*
Shimada, Sadakuni; Hashimoto, Kunio; Kondoh, Ken; and Koyama, Masaki, 3,787,787.

Hashimto, Naoki: *See—*
Watanabe, Masaru; Yamauchi, Nobuharu; Hashimto, Naoki; and Tamama, Teteuo, 3,787,863.

Haskal, Haim, to Honeywell Inc. Recording apparatus with beam intensity control means. 3,787,888, Cl. 346-108.000.

Haskell, Robert E. Method of making prestressed/beams. 3,786,548, Cl. 29-155.00r.

Hastings, Charles E.; Rounion, William A.; Comstock, Allen L.; and Bradbury, Joseph T., to Teledyne, Inc. Radio navigation system. 3,787,844, Cl. 343-6.00r.

Hastings, Thomas C. Humidifier. 3,787,036, Cl. 261-29.000.

Hathcock, James S., Jr., to Conco Inc. Warehousing system using slow-down and stop bin indicators. 3,786,929, Cl. 214-16.40a.

Hatsell, William Alden, to RCA Corporation. Printing apparatus. 3,787,722, Cl. 317-262.00a.

Hauck, Erwin A.; Lyle, Don M.; and Wollum, James E., to Burroughs Corporation. Multiprocessing system having means for automatic resource management. 3,787,816, Cl. 340-172.500.

Haufe, Juergen: *See—*
Beck, Fritz; Haufe, Juergen; and Nohe, Heinz, 3,787,299.

Hauschopp, Alois; Langem, Werne Lippe; Breuer, Oswald; Ostrop, Berthold; and Steinkuhl, Bernd, to Gewerkschaft Eisenhutte Westfalia. Mineral mining installations. 3,787,090, Cl. 299-43.000.

Hautier, Claude. Gyroscopic device for the stabilization of laterally unstable vehicles. 3,787,066, Cl. 280-217.000.

Hay, Donald A.: *See—*
Finlay, Walter' L.; Nayar, Harbhajan S.; and Hay, Donald A., 3,787,200.

Hay, William D., to Unit Process Assemblies, Inc. Supporting device. 3,786,686, Cl. 74-33.000.

Hayashi, Yoshihiro; and Iwatsuki, Masahiro, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Emergency locking device for safety seat belt used in motor vehicles and the like. 3,787,002, Cl. 242-107.400.

Hayashi, Yoshiki: *See—*
Hasegawa, Masanaru; Hayashi, Yoshiki; and Matsumura, Toichi, 3,787,207.

Hayashida, Hidenori; and Nakahara, Ryoji. Non-poisonous zinc plating baths. 3,787,296, Cl. 204-55.00r.

Haydon, Arthur W., to Tri-Tech, Inc., mesne. Counting device. 3,787,663, Cl. 235-92.00c.

Haynes, Lincoln W. Fraction mat for automobiles. 3,786,989, Cl. 238-14.000.

Hayward, Gary G.: *See—*
Goldstein, Irving; Hayward, Gary G.; and Holt, Jon G., 3,786,757.

Heath Company: *See—*
Brahman, Rodman S., 3,787,802.

Heath, Darrell R.: *See—*
Wirth, Joseph G.; and Heath, Darrell R., 3,787,364.

Heath, Darrell R; and Wirth, Joseph G., to General Electric Company. Process for making aryloxy derivatives of aromatic diesters and dinitriles. 3,787,475, Cl. 260-465.00f.

Hebel, Ulrich: *See—*
Schulte, Erich; and Hebel, Ulrich, 3,786,568.

Hedenas, Bo Gustav Valter: *See—*
Melkersson, Karl-Axel; and Hedenas, Bo Gustav Valter, 3,786,619.

Heger, Adolf: *See—*
Passler, Helmar; Heger, Adolf; and Fronius, Sabine, 3,787,260.

Heger, Adolf; Passler, Helmar; and Patitz, Ellen, to VEB Textilkombinat Cottbus. Process for texturizing fibers obtained by splitting synthetic foils and products made therefrom. 3,787,261, Cl. 156-84.000.

Heimsch, Robert A.; Bartosczewicz, John S.; and Slocombe, Robert J., to Monsanto Company. Polymeric photosensitive compositions and methods using same. 3,787,212, Cl. 96-35.100.

Heinert, Dietrich H.: *See—*
Woo, James T. K.; and Heinert, Dietrich H., 3,787,483.

Heinrichs, Alfred J.: *See—*
Kleinfeld, Martin J.; and Heinrichs, Alfred J., 3,787,259.

Heller, Anton H., to Poweray Infrared Corporation. Asphalt storage and loading apparatus and method. 3,786,800, Cl. 126-343.50a.

Heller, George L.; Eckert, Frank J.; De Land, Charles L.; and Dingman, Robert W., to Cities Service Company. Carbon blacks having improved dispersion and platewear characteristics. 3,787,562, Cl. 423-445.000.

Hellmann, Richard L. Aircraft traffic control board game apparatus. 3,787,056, Cl. 273-134.000.

Hellmuth, Walter W.; and Miller, Edward F., to Texaco Inc. Method for recovering ashless lubricating oil dispersant. 3,787,497, Cl. 260-583.00n.

Helme Products, Inc.: *See—*
Scheppe, John J.; and Carini, Raymond N., 3,786,573.

Hemmings, Keith Reginald; and Fowler, Gerald, to British Leyland Truck & Bus Division Ltd. Motor vehicle joint. 3,787,130, Cl. 403-205.000.

Hendricks, Udo, to Bayer Aktiengesellschaft. Melamine-derivatives. 3,787,407, Cl. 260-249.600.

Hennessey, Russell J., to Hoerner Waldorf Corporation. Carton opener. 3,786,983, Cl. 229-51.0wb.

Henry, Nelson R., to Woodman Company, Inc., The. Web roll cradle with positive drive. 3,787,001, Cl. 242-75.430.

Heppenstall Company: *See—*
Cooper, Lloyd R., 3,786,853.

Hepworth and Grandage Limited: *See—*
Sutherland, Alan, 3,786,857.

Heraeus, W. C., GmbH: *See—*
Ziegler, Max, 3,787,554.

Herbert, Werner: *See—*
Erdmann, Dietrich; Namenyi, Istvan; Hampel, Bruno; and Herbert, Werner, 3,787,320.

Herbst, Klaus: *See—*
Weegen, Lorenz; Luders, Albrecht; Brinkmann, Heinz; Herbst, Klaus; and Ernst, Gerd, 3,787,092.

Herr, Kurt F., to GTE Automatic Electric Laboratories, Incorporated. Electrically interlocking pushbutton circuit with error indication. 3,787,731, Cl. 307-115.000.

Herter, Eberhard: *See—*
Haberle, Heinz; and Herter, Eberhard, 3,787,634.

Hertrich, Klaus, to VEB Polygraph Leipzig, Kombinat fur Polygraphische Maschinen und Austustungen. Device for adjusting the spring force on folding rollers. 3,786,742, Cl. 100-99.000.

Hertrich, Klaus, to Veb Polygraph Leipzig Kombinat fur polygraphische Maschinen und Austrustungen. Rotary folding apparatus. 3,787,041, Cl. 270-64.000.

Hertrich, Klaus, to Veb Polygraph Leipzig, Kombinat fur Polygraphische Maschinen und Austrustungen. Folding apparatus for web-fed rotary printing presses. 3,787,042, Cl. 270-70.000.

Herwig, Walter: *See—*
Bohn, Lothar; Cherdron, Harald; Fleissner, Manfred; and Herwig, Walter, 3,787,530.
Brinkmann, Ludwig; and Herwig, Walter, 3,787,371.

Hess, Heinz: *See—*
Poetsch, Dieter; and Hess, Heinz, 3,787,611.

Heuser, Paul F.: *See—*
Chandler, Wesley M.; Heuser, Paul F.; and Juba, Bernard T., 3,787,545.

Hewlett-Packard Company: *See—*
Smith, James M., 3,786,559.

Hewlett-Packard GmbH: *See—*
Tietze, Ulrich; Courtin, Erich; and Traub, Stefan, 3,787,774.

Hewlett-Packard Ltd.: *See—*
Coackley, Robert, 3,787,763.

Heye, Hermann: *See—*
Becker, Kurt; and Seidel, Hans-Georg, 3,786,707.
Becker, Kurt; and Seidel, Hans-Georg, 3,787,196.

Heymanns, Willia, to Jagenberg-Werk AG. Apparatus for broad-drawing sheet materials. 3,786,975, Cl. 226-194.000.

Hidaka, Mikio: *See—*
Yamada, Keisho; Umemura, Sumio; Ohdan, Kyoji; Hidaka, Mikio; Bando, Yasuo; Fukuda, Kazuo; and Sawazi, Masao, 3,787,334.

Higuchi, Takeru, to Alza Corporation. Trichlorsethanol and trifluroethanol topical and percutaneous steroid absorption promoters. 3,787,571, Cl. 424-239.000.

Hilgedick, James R., 1/2 to Bowen, Lloyd. Remote control system using frequency coding over telephone link. 3,787,811, Cl. 340-163.00r.

Hilgenbrink, John T., to Continental Can Company, Inc. Double stage necking. 3,786,957, Cl. 220-83.000.

Hiltmann, Rudolf: *See—*
Wollweber, Hartmund; Hiltmann, Rudolf; and Stendel, Wilhelm, 3,787,575.

Himizu, Junichi; Harigaya, Shoichi; Ishida, Akihiko; Yoshikawa, Kaoru; and Sato, Masanori, to Tanabe Seiyaku Co. Ltd. 10-Oxaprostanoic acid derivatives. 3,787,448, Cl. 260-343.600.

Hines, Robin H.: *See—*
Nowicki, Thomas; Shipp, John I.; Hines, Robin H.; and Broadbent, Thomas D., 3,787,118.

Hinz, Hans Dieter, to U.S. Philips Corporation. Durable registration template for electrostatic printers. 3,786,745, Cl. 101-1.000.

Hirane, Seiichi: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,787,538.

Hirco, Bernard, to Commissariat a l'Energie Atomique. Apparatus for atomic absorption spectrophotometry. 3,787,120, Cl. 356-85.000.

Hirotsu, Yoshiyuki: *See—*
Aishima, Itsuho; Sakurai, Hisaya; Takashi, Yukichi; Morita, Hideo; Hirotsu, Yoshiyuki; and Hamada, Tetsuo, 3,787,323.

Hirwe, Asha: *See—*
Metcalf, Robert L.; Kapoor, Inder; and Hirwe, Asha, 3,787,505.

Hitachi, Ltd.: *See—*
Saito, Kiyoshi, 3,787,744.

Hitachi Metals, Ltd.: *See—*
Yokota, Minoru; and Tanaka, Morimichi, 3,787,203.

Hobart Manufacturing Company, The: *See—*
Allen, Kenneth C.; and Boshinski, Edwin E., 3,786,881.

Hobson, Charles F., Jr., to General Electric Company. Monitor system for ground fault relay. 3,787,708, Cl. 317-18.00d.

Hodgdon, Russell B., Jr.; and Roach, Edward T., to Ionics, Incorporated. Process for defouling anion exchange resins with chlorine dioxide. 3,787,339, Cl. 260-2.10r.

Hodges, Kenneth James Hamer: *See—*
Arnold, John Spencer; Beck, George Morland; Boom, Roger John; Cosserat, David Cockburn; Hodges, Kenneth James Hamer; Sandeman, Theodor Duncan; Williams, Roger Morley; and O'Halloran, Michael, 3,787,818.

Hoehn, Arthur F., Trustee: *See—*
Richardson, Kay Keith, 3,786,791.

Hoehn, Hans, and Denzel, Theodor, to Squibb, E. R., & Sons, Inc. Derivatives of dipyrazolo (3,4-b, 3',4'-2) pyridines. 3,787,430, Cl. 260-296.00h.

Hoerner Waldorf Corporation: *See—*
Hennessey, Russell J., 3,786,983.

Hoffer, Max: *See—*
Grunberg, Emanuel; and Hoffer, Max, 3,787,409.

Hoffman, Edward P.; and Sikorski, Robert P., to Grow Chemical Corporation. Method of applying powder paint. 3,787,230, Cl. 117-102.00a.

Hoffmann-La Roche Inc.: *See—*
Blaivas, Murray Aaron, 3,786,985.
Fahrenholtz, Kenneth Earl, 3,787,453.
Grunberg, Emanuel; and Hoffer, Max, 3,787,409.

Hofford, Thomas P.; and De Vines, Hollis L., to Schlage Lock Company. Display mount for locks. 3,786,578, Cl. 35-49.000.

Hohenlohe-Oehringen, Kraft: *See—*
Bretschneider, Hermann; Grassmayr, Klaus; Hohenlohe-Oehringen, Kraft; and Grussner, Andre, 3,787,491.

Hohl Machine & Conveyor Co., Inc.: *See—*
Milazzo, Carl J., 3,786,911.

Hokanson, Allan E.; Katzen, Raphael; and Schwartz, Bernard W. Densified hop products and process for producing same. 3,787,586, Cl. 426-221.000.

Holbrook, Le Grand K., to Medical Development Corporation. Syringe construction. 3,786,811, Cl. 128-218.00p.

Holliston Laboratories, Inc.: *See—*
Gauvreau, Claude, 3,787,566.

Holson Company, The: *See—*
Holson, Sheldon, 3,786,584.

Holson, Sheldon, to Holson Company, The. Photo display frame and attachment means therefor. 3,786,584, Cl. 40-124.000.

Holt, Jon G.: *See—*
Goldstein, Irving; Hayward, Gary G.; and Holt, Jon G., 3,786,757.

Holub, Fred P.; and Evans, Milton L., to General Electric Company. Imido-substituted organopoly-siloxane compositions. 3,787,439, Cl. 260-326.00e.

Holz, Emil, to Finckh, Hermann, Metalltuch-und Maschinenfabrik. Pressure filter for fibrous suspensions. 3,786,918, Cl. 209-273.000.

Homeyer, Bernhard: *See—*
Stolzer, Claus; Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, 3,787,535.

Honeywell Inc.: *See—*
Haskal, Haim, 3,787,888.
Lazar, Jeffrey M., 3,787,026.
Vizenor, Richard P., 3,787,109.

Honeywell Information Systems, Inc.: *See—*
Farr, William W., Jr., 3,787,815.
Nelson, Paul E.; and Peterson, Russell H., 3,787,670.

Honeywell Information Systems Italia S.p.A.: *See—*
Filippazzi, Franco; and Forlani, Franco, 3,787,252.

Honjo, Satoru; and Tamai, Yasuo, to Xerox Corporation. Method of electrophotographic sensitive paper. 3,787,235, Cl. 117-218.000.

Hooker Chemical Corporation: *See—*
Zimberg, Walter M.; Schulz, Arthur C.; and Woehr, George C., 3,787,369.

Hoover, Troy Eugene, to National Cash Register Company, The. Alkylamino spiro [12-H[1] benfopyhan [3,2f]-quinoline-12,1'phthalide. 3,787,325, Cl. 260-287.00r.

Hoover, Troy Eugene, to National Cash Register Company, The. Substituted dialkylamino-phthol (yl/an) acridan compounds. 3,787,412, Cl. 260-279.00r.

Hope, Henry, X-Ray Products, Inc.: *See—*
Fidelman, David, 3,787,689.

Hope Kabushiki Kaisha: *See—*
Mochizuki, Tetsuya, 3,786,581.

Hops Extract Corporation of America: *See—*
Grant, Herbert L., 3,787,499.

Horn, Peter; Schuster, Ludwig; Falkenstein, Georg; and Joschek, Hans-Ingo, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Continuous manufacture of high molecular weight linear polycarbonates. 3,787,359, Cl. 260-47.000.

Hornbecker, Merton F.: *See—*
Giamei, Anthony F.; Hornbecker, Merton F.; and Terkelsen, Bruce E., 3,787,190.

Horney, David C.: *See—*
DePriester, Donald Jack; Horney, David C.; and Mangels, Robert H., 3,787,064.

Horst, Thomas A., to Western Sales and Supply Co. Binocular holder. 3,787,021, Cl. 248-316.00b.

Horstmann, Harald: *See—*
Linke, Siegfried; Sitt, Rudiger; Horstmann, Harald; and Meng, Karl, 3,787,431.

Horton, George F. Safety cut-off device for ignition switch. 3,786,892, Cl. 180-99.000.

Horwath, libor G., to United States of America, Army. Pulse producing circuit. 3,787,738, Cl. 307-237.000.

Hotchkiss, Marvin E., to Goodrich, B. F., Company, The. Segmented friction member assembly. 3,786,904, Cl. 192-107.00r.

Houe, Richard D., to Rockwell International Corporation. Single lever joy-stick apparatus. 3,786,689, Cl. 74-471.0xy.

Houlihan, William J.; and Nadelson, Jeffrey, to Sandoz-Wander, Inc. 5-(Alpha-amino benzyl)-10,11-dihydro- and -5H-dibenzo[a,d]cyclohepten-5-ols and the salts thereof. 3,787,495, Cl. 260-570.50r.

Housholder, Ross F. Optics index filing system. 3,786,931, Cl. 211-40.000.

Houston Chronical Publishing Company: *See—*
Underwood, Jereld L., 3,787,264.

Houston, Robert W., to Applied Power Industries, Inc. Tire changer apparatus. 3,786,851, Cl. 157-1.100.

Houston, Robert W., to Applied Power Industries, Inc. Tire changer apparatus. 3,786,852, Cl. 157-1.100.

Howard, Shirly L., to International Telephone and Telegraph Corporation. Scanning cylindrical antenna for a phase comparison guidance system. 3,787,859, Cl. 343-106.00r.

Howe Felding Furniture, Incorporated: *See—*
Burr, Alan Carleton, 3,787,134.

Howe Folding Furniture, Incorporated: *See—*
Burr, Alan Carleton, 3,786,765.

Hruby, Frank J. Livestock feed process. 3,787,583, Cl. 426-53.000.

Hsu, Grace F.: *See—*
Beckwith, Merton M.; and Hsu, Grace F., 3,787,297.

Huber, Joseph B.: *See—*
Brown, Thomas A.; and Huber, Joseph B., 3,786,546.

Huettner, Lothar A. Direct fired water heater. 3,786,798, Cl. 126-350.00r.

Huffer, Wilson R.: *See—*
Dodge, Robert J.; and Huffer, Wilson R., 3,787,867.

Huffman, Lowell E., to Delro Inc., mesne. Water purification system. 3,786,924, Cl. 210-257.000.

Huggins, Homer D., to Modine Manufacturing Company. Heating and air conditioning system. 3,786,860, Cl. 165-50.000.

Hughes Aircraft Company: *See—*
Charlton, Donald A.; and Ajioka, James S., 3,787,869.
Gourlay, Robert D., 3,787,741.
Kiewit, David A., 3,787,720.
Laundry, Terrence H.; Luther, Richard L.; and Murray, John S., Jr., 3,787,848.

Hughes, Benjamin F. Conducting fluid type gravity safety switch with spiral contacts. 3,787,647, Cl. 200-61.470.

Hughes, Gordon Alan; and Smith, Herchel, said Hughes assor. to said Smith, Herchel. 13-Ethyl-11-oxygenated gonenes. 3,787,395, Cl. 260-239.55c.

Hughes, Robert B., to Westinghouse Electric Corporation. Low PRF pulse doppler radar having low speed ground moving target rejection. 3,787,851, Cl. 343-7.700.

Hujer, Friedrich; and Knapp, Walter, to Agfa-Gevaert Aktiengesellschaft. Apparatus for detecting and evaluating indicia on processed photographic film or the like. 3,787,702, Cl. 250-219.00d.

Hull, Charles W.; and McKinney, Charles R., to Bell & Howell Company. Magnetic mass spectrometer with shaped, uniformly saturating magnetic poles. 3,787,790, Cl. 335-210.000.

Hunter Engineering Company, Inc.: *See—*
Cromp, Theodore O., 3,787,171.

Hurt, William S.: *See—*
Bayer, Horst O.; Hurt, William S.; and Aller, Harold E., 3,787,536.

Hurt, Zeno, to AGON Uhrenfabrik Robert Triebold AG. Digital watch. 3,786,626, Cl. 58-88.00r.

Hutchinson, Peter; and Darnbrough, Geoffrey, to I.W.S. Nominee, Company Limited. Textile crimping. 3,786,538, Cl. 28-1.600.

Huttula, Andrew B.: *See—*

Habegger, James D.; Huttula, Andrew B.; Fowler, Daniel L.; and Schrader, James T., 3,786,939.

Hyatt, Frederick; and Coburn, Theodore Robert, to Marhsall & Williams Company. Precision slitting machine for plastic sheeting. 3,786,706, Cl. 83-122.000.

Hydrophilics International, Inc.: *See*—
Blank, Izhak, 3,787,378.

Hyldon, Roy G., to Quaker Oats Company, The. Instant grits. 3,787,584, Cl. 426-208.000.

Hypertherm, Incorporated: *See*—
Couch, Richard W., Jr., 3,787,247.

I-T-E Imperial Corporation: *See*—
Guaglione, Giovanni Paolo, 3,787,604.

Iadarola, Ralph E.: *See*—
Lademann, Ernest E.; and Iadarola, Ralph E., 3,786,685.

Ichihara, Shoichi; Hara, Hauruichi; and Ohara, Tskashi, to Nippon Shokubai Kogyo Co., Ltd. Method for the production of an automotive exhaust gas catalyst. 3,787,333, Cl. 252-465.000.

Ichikawa, Mitsuo: *See*—
Nishioka, Akinori; Kawatani, Shigeo; and Ichikawa, Mitsuo, 3,787,358.

Ichikawa, Yataro; Tokashiki, Michiyuki; and Kobayashi, Osamu, to Teijin Limited. Method of separating unreacted terephthalic acid. 3,787,480, Cl. 260-475.0pr.

Ichioka, Satoshi; and Takeuchi, Shinjiru, to Mishima Kosan Company, Ltd. Magnetic ink recording system. 3,787,879, Cl. 346-140.000.

ICI America Inc.: *See*—
Burns, Joseph P.; Feltzin, Joseph; and Kuehn, Erich, 3,787,526.

Iglehart, Hilary H.: *See*—
Iglehart, Jesse H.; and Iglehart, Hilary H., 3,787,226.

Iglehart, Jesse H.; and Iglehart, Hilary H., to Spinning Pipe Service, Inc. Method of treating tubular goods while simultaneously testing the interior thereof. 3,787,226, Cl. 117-66.000.

Ijichi, Ichiro; Malda, Sajiro; Kubo, Satoru; and Tomomoto, Takamori, to Nitto Electric Industrial Co., Ltd. Photo-sensitive cross-linking agents for high molecular weight materials. 3,787,302, Cl. 204-159.200.

Illinois Tool Works, Inc.: *See*—
Marco, Leslie Stephan, 3,787,547.
Saari, Oliver E., 3,786,702.
Sygnator, Henry A., 3,786,713.

Image Analysing Computers Limited: *See*—
Pieters, Leon Andre; and Ward, David Charles, 3,787,620.

Imperial Chemical Industries, Limited: *See*—
Cheetham, John Laurence, 3,787,162.
Colchester, John Edward; and Blundell, Thomas, 3,787,426.
Gallagher, Brendan; and Last, Anthony Graham Marshall, 3,787,542.
Greenshields, James Nairn; Jones, Ida May; Moilliet, John Lewis; and Poole, Victor David, 3,787,173.
Potter, Sheila Antoinette, 3,787,427.
Staniland, Philip Anthony; and Jarrett, Graham, 3,787,363.

Imperial Industries (Kynoch) Limited: *See*—
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Inaike, Toshihiro: *See*—
Ishii, Takami; Yoshikawa, Toshio; Inaike, Toshihiro; Kuroda, Kazuhiro; Kido, Kunio, and Tokunaga, Kiyoaki, 3,787,353.

Inamine, Shiceo: *See*—
Nishinomiya, Ryuzo Ueno; Miyazaki, Tetsuya; Inamine, Shiceo; and Kishi, Saburo, 3,787,585.

Index-Werke KG: *See*—
Toll, Gerhard; and Lahm, Heinrich, 3,786,539.

Industrial Industries, Inc.: *See*—
Wright, John David, 3,786,739.

Information Design, Inc.: *See*—
Priest, Lyle Gilbert, 3,787,004.

Ingham, Lawrence Allister. Water sprinkler. 3,786,991, Cl. 239-236.000.

Inoura, Masato: *See*—
Kimura, Kanbei; and Inoura, Masato, 3,786,719.

Institut de Recherches Chimiques et Biologiques Appliquee (I.R.C.E.B.A.): *See*—
Debat, Jacques, 3,787,507.

Institut Francais du Petrole des Carburants et Lubrifiants: *See*—
Lebreton, Francisque, 3,786,894.
Sugier, Andre, 3,787,332.

Institut Fur Harterei-Technik: *See*—
Kunst, Helmut Eduard, 3,787,245.

Institute Europeen de Recherches et d'Applications Medicales "I.E.R.A.M.": *See*—
Tourin, Andre Marcel, 3,786,805.

Institute of Gas Technology: *See*—
Fleming, Donald Kingsley; Randhava, Sarabjit Singh; and Camara, Elias Humberto, 3,787,468.

Institutul Pentru Creatic Stiintifica Si Technica: *See*—
Coanda, Henri, 3,787,006.

Instrument Systems Corporation: *See*—
Loikitz, Frank F., 3,786,657.
Rodler, Waldo E., Jr., 3,786,634.
Svenson, Bert N., 3,786,688.

Intercontinental Services, Inc.: *See*—
Meyers, Laverne H.; Kagele, Frank L.; Trent, Edward J.; Fridenberg, Jerry T.; Alberty, Frederick J.; and Fitzgerald, Bloyce D. (said Kagele, said Meyers, said Trent, said Fridenberg and Alberty assors. to), 3,787,660.

International Basic Economy Corporation: *See*—
Raymond, Robert E., 3,786,920.

International Business Machines Corporation: *See*—
Appenzeller, Henry Albert; Miller, Joseph Charles; and Shea, Vincent, 3,786,660.
Ashar, Kanu, 3,787,253.
Chin, William Benedict, 3,787,736.
Dorler, Jack A.; and Swietek, Donald J., 3,787,734.
Elliott, Joseph Charles, 3,787,834.
Fillmore, Gary L.; Naylor, Hugh E., III; and West, Donald L., 3,787,882.
Fischer, Walter; Mastai, Aldo Josef; and Rocher, Edouard Yves, 3,787,717.
Kemer, Frederick M., 3,787,884.
Lorensen, Cletus E.; and Peterson, John A., 3,787,044.
McSparran, Ray A., 3,787,727.
Moore, Brian B.; Padegs, Andris; and Smith, Ronald M., 3,787,891.
Muehldorf, Eugen Igor, 3,787,669.

International Harvester Company: *See*—
Scarnato, Thomas J.; Gordon, Paul C.; Sorensen, Robert; and Lawler, Craig M., 3,786,620.

International Nickel Company, Inc., The: *See*—
Church, Nathan Lewis, 3,787,205.

International Standard Electric Corporation: *See*—
Huberle, Heinz; and Herter, Eberhard, 3,787,634.
Mathiesen, Odd, 3,787,835.

International Telephone and Telegraph Corporation: *See*—
Barr, John E., 3,787,796.
Howard, Shirly L., 3,787,859
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Inventa A.G. fur Forschung und Patentverwertung: *See*—
Griehl, Wolfgang; Hahn, Wolfdiether; and Stoll, Bernhard, 3,787,479.

Inveresk Research International: *See*—
Daniels, Peter; and Sim, Alexander Kennedy, 3,787,474.

Ionics, Incorporated: *See*—
Hodgdon, Russell B., Jr.; and Roach, Edward T., 3,787,339.

IRD Mechanalysis, Inc.: *See*—
Morrow, Robert S.; Penn, Lloyd D.; and Marcum, Arthur D., 3,787,765.

Ireco Chemicals: *See*—
Cook, Melvin A.; Udy, Lex L.; Hagmann, Mark J.; and Jessop, Harvey A., 3,787,254.

Isenberg, Don Lee: *See*—
Davis, Randall Scott, and Isenberg, Don Lee, 3,787,289.

Isenberg, Sampson. Beta activated ultraviolet radiation source surrounded by a visible light producing fluorescent agent. 3,787,684, Cl. 250-71.00r.

Ishida, Akihiko: *See*—
Himizu, Junichi; Harigaya, Shoichi; Ishida, Akihiko; Yoshikawa, Kaoru; and Sato, Masanori, 3,787,448.

Ishida, Toshiaki: *See*—
Itoh, Ryosuke; and Ishida, Toshiaki, 3,787,622.

Ishii, Takami; Yoshikawa, Toshio, Inaike, Toshihiro; Kuroda, Kazuhiro; Kido, Kunio, and Tokunaga, Kiyoaki, to Ube Industries, Ltd. Stabilized polyoxymethylene compositions. 3,787,353, Cl. 260-45.90p.

Ito, Tadashi; and Sorimachi, Kanehiro, to Canon Kabushiki Kaisha. Device for adjusting the focal point of a photographic lens. 3,787,108, Cl. 350-252.000.

Itoh, Hideo: *See*—
Nitta, Kuyata; Sugiyama, Hironari; Takita, Kiyoshi; and Itoh, Hideo, 3,787,217.

Itoh, Ryosuke; and Ishida, Toshiaki, to Sansui Electric Co., Ltd. Quadrasonic sound system for two channel transmission. 3,787,622, Cl. 179-1.0gq.

Ivanov, Alexandr Kornilovich: *See*—
Tesner, Pavel Alexandrovich; Makarov, Konstantin Ivanovich; Ivanov, Alexandr Kornilovich; Robin, Mark Anisimovich; Slavkin, Igor Sergeevich; Pischulin, Alexandr Petrovich; Pokrass, Leonid Mikhailovich; Pochtman, Alexandr Markovich; Sheinfain, Felix Isaakovch; Kondratiev, Evgeny Mikhailovich; Moiseevich, Grigory Isaevich; Osmaga, Igor Ivanovich; and Zhitnik, Greorgy Gavrilovich, 3,787,038.

Iwata Electric Company Limited: *See*—
Uchida, Kozo; Nakaya, Naohisa; and Suzuki, Koji, 3,787,749.

Iwatsu Electric Company, Limited: *See*—
Takahashi, Tadao; and Kitabayashi, Shoji, 3,787,258.

Iwatsuki, Masahiro: *See*—
Hayashi, Yoshihiro; and Iwatsuki, Masahiro, 3,787,002.

I.W.S. Nominee, Company Limited: *See*—
Hutchinson, Peter; and Darnbrough, Geoffrey, 3,786,538.

Jacobs, William R.: *See*—
Mercola, Peter A.; and Jacobs, William R., 3,787,777.

Jacobson, Robert S., to Sperry Rand Corporation. Radio direction finder system. 3,787,862, Cl. 343-113.0de.

Jacquelin, Guy J. Corrugated cardboard containing sulphur foam. 3,787,276, Cl. 161-137.000.

Jagel, Edward H.; and Purzycki, Joseph R. Towing ski attachment for snowmobiles and method of using same. 3,787,071, Cl. 280-28.000.

Jagenberg-Werk AG: *See*—

Heymanns, Willia, 3,786,975.

Jagodzinski, Tim G.: *See*—
Barr, Paul N.; and Jagodzinski, Tim G., 3,786,789.

Jahn, Werner; Kampe, Wolfgang; Fauland, Erich; Juhran, Wolfgang; and Stork, Harald, to Bohringer Mannheim GmbH. Adenosine compounds and therapeutic compositions. 3,787,391, Cl. 260-211.50r.

Jakob, Horst, to Societe Financiere Francaise de Licences et Brevets. Device for the manufacture of a row of linking components for a slide fastener. 3,787,164, Cl. 425-397.000.

Jakubowski, Thaddeus, Jr., to McDonnell Douglas Corporation. Internal ejector mechanism for stacked sequentially releasable separable units. 3,787,012, Cl. 244-137.00r.

James, James R.; and Eliason, Kay E., to Atlantic Richfield Company. Fluid dispenser manipulation. 3,786,965, Cl. 222-176.000.

Janson, Eugene Ernst; and Muterspaugh, Max Ward, to RCA Corporation. Switchable antenna circuit for television providing for reception of UHF and VHF signals utilizing a single built-in monopole antenna or two external antennas. 3,787,773, Cl. 325-370.000.

Japan Natural Food Co., Ltd.: *See*—
Hagiwara, Yoshihide, 3,787,591.

Japan Ship's Machinery Development Association: *See*—
Okazaki, Takeo, 3,786,796.

Japan Synthetic Rubber Company, Limited: *See*—
Nishioka, Akinori; Kawatani, Shigeo; and Ichikawa, Mitsuo, 3,787,358.

Jarrault, Maurice Louis, to Societe Civile d'Etudes et de Recherches pour. Process for manufacturing false teeth. 3,786,565; Cl. 32-8.000.

Jarrett, Graham: *See*—
Staniland, Philip Anthony; and Jarrett, Graham, 3,787,363.

Jaworek, Dieter, to Boehringer Mannheim GmbH. Process for the chromatographic separation of mixtures. 3,787,317, Cl. 210-31.00c.

Jefferson Chemical Company, Inc.: *See*—
Cavitt, Stanley Bruce, 3,787,329.

Jelicic, Dusan; and Jelicic, Ivan. Dental drill handgrip. 3,786,566, Cl. 32-29.000.

Jelicic, Ivan: *See*—
Jelicic, Dusan; and Jelicic, Ivan, 3,786,566.

Jessop, Harvey A.: *See*—
Cook, Melvin A.; Udy, Lex L.; Hagmann, Mark J.; and Jessop, Harvey A., 3,787,254.

Jockers, Kurt: *See*—
Kartte, Klaus; Jockers, Kurt; Meier, Hermann; and Taglinger, Ludwig, 3,787,563.

Jodet, Alain; Noret, Hubert; and Demichelis, Jacques, to Etat Francais, represented by Ministere de l'Equipement et du Logement, Laboratoire Central des Ponts et Chaussees. Universal drilling machine. 3,786,874, Cl. 173-49.000

Johannsson, Paul: *See*—
Landa, Torstein; Johannsson, Paul; and Engedal, Knud, 3,787,156.

Johns, Henry Van Dyke. Continuous fiber tennis racquet. 3,787,051, Cl. 273-73.00i.

Johns-Manville Corporation. *See*—
Rayle, Brian James; Fisher, Lester, and Smith, Harvell Morton, 3,787,194.

Johnson, Alan A.; and Alicandri, Frank P. Thermoconstrictive surgical appliance 3,786,806, Cl. 128-92.00d.

Johnson, Arthur F. Method for reduction of aluminum with improved reduction cell and anodes. 3,787,300, Cl. 204-67.000.

Johnson, Arthur F. Reduction of aluminum with improved reduction cell and anodes. 3,787,310, Cl. 204-243.00r.

Johnson, Charles S., to Baker Hydro, Inc. Heater bypass and shut-off valve. 3,786,921, Cl. 210-130.000.

Johnson, Floyd C.: *See*—
Long, George E.; Reesf, Dennis L.; and Johnson, Floyd C., 3,786,871.

Johnson, George V.; and Bergman, Charles T., to Brandt, Inc. Currency count verifier. 3,787,664, Cl. 235-92.0sb.

Johnson, J. Robert. Bicycle rack. 3,786,928, Cl. 211-5.000.

Johnson, Jerry E., to Ryan Instruments, Inc. Transportable strip chart recorder. 3,787,885, Cl. 346-136.000.

Johnson, Marvin M.; Tabler, Donald C.; and Nowack, Gerhard P., to Phillips Petroleum Company. Selective hydrogenation employing nickel arsenide catalyst. 3,787,511, Cl. 260-666.00a.

Johnson, Roland N.; and Anderson, Jon A., to Morton-Norwich Products, Inc. 2-p-Nitro- or p-chlorobenzamidoacetohydroxamic acid. 3,787,569, Cl. 424-229.000.

Johnson, William H., to Research Corporation. Apparatus for turgor conditioning tobacco. 3,786,818, Cl. 131-136.000.

Johnston, Earnest L.: *See*—
Christena, Ray C.; Johnston, Earnest L.; and Whobrey, Ronald W., 3,787,282.

Johnston, Laird E.: *See*—
Harned, John L.; and Johnston, Laird E., 3,787,094.

Jolly, Shelby A.: *See*—
Bolin, Larry R.; and Jolly, Shelby A., 3,787,705.

Joly, Henriette Josephine: *See*—
Fossard, Hubert Rene Louis; and Joly, Henriette Josephine, 3,786,628.

Joly, Pierre: *See*—
Habermann, Helmut; Loyen, Roger; Joly, Pierre; Auber, Yvan; and Malmaison, Rueil, 3,787,100.

Jones & Laughlin Steel Corporation: *See*—
Korchynsky, Michael; Bell, John R.; and Cover, Richard J., 3,787,250.

Jones, Charles H., to Van Brode Milling Co., Inc. Article handling device. 3,786,908, Cl. 198-33.0ab.

Jones, Donald A.; Orr, Howard S.; and Oually, Francis K., to United States Steel Corporation. Rolling mill modull. 3,786,664, Cl. 72-234.000.

Jones, Ida May: *See*—
Greenshields, James Nairn; Jones, Ida May; Moilliet, John Lewis; and Poole, Victor David, 3,787,173.

Jones, Robert N., to Xerox Corporation. Xerographic imaging member having photoconductive material in interlocking continuous paths. 3,787,208, Cl. 96-1.800.

Jones, Sterling B. Fastener applying tool. 3,786,550, Cl. 29-238.000.

Jorgensen, George N.: *See*—
Schmidt, John E.; and Jorgensen, George N., 3,787,794.

Joschek, Hans-Ingo: *See*—
Horn, Peter; Schuster, Ludwig; Falkenstein, Georg; and Joschek, Hans-Ingo, 3,787,359.

Jost, Max: *See*—
Ulrich, Paul; Max, Basel; Kugler, Fritz; and Jost, Max, 3,787,406.

Jouan, Claude: *See*—
Espie, Jean Yves; Jouan, Claude; and Koehly, Gerard, 3,787,553.

Joyce, Douglas D., Jr.; and Simpson, Anthony Y., to Textron, Inc. Air cushion vehicle with selectively operable surface traction means. 3,786,893, Cl. 180-119.000.

Juba, Bernard T.: *See*—
Chandler, Wesley M.; Heuser, Paul F.; and Juba, Bernard T., 3,787,545.

Juhran, Wolfgang: *See*—
Jahn, Werner; Kampe, Wolfgang; Fauland, Erich; Juhran, Wolfgang; and Stork, Harald, 3,787,391.

Juliano, Peter C., to General Electric Company. Fluorescent screens. 3,787,238, Cl. 117-335.00r.

Jullien, Alexandra Francine: *See*—
Carron, Claude Louis Clement; Bucher, Bernard Philippe; and Jullien, Alexandra Francine, 3,787,436.

Kaar, John F.: *See*—
Smearsoll, Wayne W.; and Kaar, John F., 3,786,844.

Kabushiki Kaisha Copal: *See*—
Okabe, Katsuhiko, 3,786,906.

Kabushiki Kaisha Fujii Kogyo: *See*—
Fujii, Shozo, 3,786,898.

Kabushiki Kaisha Hattori Tokeiten: *See*—
Kitai, Kiyoshi, 3,786,733.

Kabushiki Kaisha Nakamura Seisakusho: *See*—
Kobayashi, Seiichiro, 3,786,699.

Kabushiki Kaisha Negishi Kogyo Kenkyusho: *See*—
Negishi, Eizaburo, 3,786,622.

Kabushiki Kaisha Suwa Seikoska: *See*—
Uchiyama, Hideaki, 3,786,624.

Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Hayashi, Yoshihiro; and Iwatsuki, Masahiro, 3,787,002.

Kaelin, Bette Marie: *See*—
Breslow, Jeffrey D.; and Kaelin, Bette Marie, 3,786,596.

Kagawa, Tsuneo; Fujii, Kyoichi; Tanaka, Masao; and Tanaka, Hiroshi, to Kyowa Hakko Kogyo Co., Ltd. N-acetyl-L-glutamine aluminum salt. 3,787,466, Cl. 260-448.00r.

Kagele, Frank L.: *See*—
Meyers, Laverne H.; Kagele, Frank L.; Trent, Edward J.; Fridenberg, Jerry T.; Alberty, Frederick J.; and Fitzgerald, Bloyce D., 3,787,660.

Kahn, Frederic Jay: *See*—
Berreman, Dwight Winton; Meiboom, Saul; White, Donald Lawrence; and Kahn, Frederic Jay, 3,787,110.

Kaiser Aerospace & Electronics Corporation: *See*—
Cooper, Philip G., 3,787,809.

Kaiser, Leo E.: *See*—
Eigenmann, Gottfried; Kaiser, Leo E.; and Nothiger, Otto, 3,787,182.

Kakhniashvili, Avtandil Semenovich: *See*—
Alexandrov, Adolf Moritsovich; Balaian, Ruben Dzhangirovich; Suladze, Ippolit Davidovich; Aglitsky, Vladimir Efimovich; Kakhniashvili, Avtandil Semenovich; Kantor, Ilia Solomonovich; Dzhanelidze, Vazha Venediktovich; and Lachinov, Alexandr Alexandrovich, 3787,007.

Kalamazoo Manufacturing Company, mesne: *See*—
Vanlinder, Ronald C., 3,786,962.

Kalfsbeek, James S.: *See*—
Kalfsbeek, James S.; Kalfsbeek, Peter C.; and Goodrich, Robert S. (said Goodrich assor. to said), 3,787,646.

Kalfsbeek, James S.; Kalfsbeek, Peter C.; and Goodrich, Robert S., said Goodrich assor. to said Kalfsbeek, James S. and Kalfsbeek, Peter C Dial telephone lock. 3,787,646, Cl. 179-189.00d.

Kalfsbeek, Peter C.: *See*—
Kalfsbeek, James S.; Kalfsbeek, Peter C.; and Goodrich, Robert S., 3,787,646.

Kallianos, Andrew G.; Warfield, Albert H.; and Simpson, Melvyn I., to Leggett & Myers Incorporated. 3,5-Disubstituted-2-hydroxyacetophenones. 3,787,501, Cl. 260-592.000.

Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, to L'Oreal. Diphenylamines for dyeing keratinous fibers. 3,787,174, Cl. 8-11.000.

Kaltmann, Hans-Joachim, to Rheinmetall GmbH. Barrels for rifles and pistols with running lands and groves. 3,786,589, Cl. 42-78.000.

Kametani, Hiroshi, to National Research Institute for Metals, Director of. Method for hydroelectrometallurgy. 3,787,293, Cl. 204-1.00r.

Kammer, Paul A.; and Duttera, Robert B., to Teledyne, Inc. Tubular arc welding electrode. 3,787,658, Cl. 219-146.000.

Kammerl, Anton; and Steigenberger, Hasso, to Siemens Aktiengesellschaft. Method and apparatus for monitoring connections in a program controlled processing system. 3,787,635, Cl. 179-18.0es.

Kampe, Wolfgang: *See*—
Jahn, Werner; Kampe, Wolfgang; Fauland, Erich; Juhran, Wolfgang; and Stork, Harald, 3,787,391.

Kampf, Richard S.; and Sultzbaugh, Lisle W., to Beckman Instruments, Inc. Dual channel strip chart recorder. 3,787,878, Cl. 346-49.000.

Kamyr Aktiebolag: *See*—
Richter, Johan C. F. C., 3,787,284.

Kaneko, Yasuhisa; Komatsu, Yasuhiko; and Okada, Yasuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Cylinder head. 3,786,795, Cl. 123-193.00h.

Kantor, Ilia Solomonovich: *See*—
Alexandrov, Adolf Moritsovich; Balaian, Ruben Dzhangirovich; Suladze, Ippolit Davidovich; Aglitsky, Vladimir Efimovich; Kakhniashvili, Avtandil Semenovich; Kantor, Ilia Solomonovich; Dzhanelidze, Vazha Venediktovich; and Lachinov, Alexandr Alexandrovich, 3787,007.

Kapoor, Inder: *See*—
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Kapp, Ernst: *See*—
Rudolph, Paul; Kapp, Ernst; Kempf, Georg; and Farana, Wolf-Rudiger, 3,787,559.

Karll, Robert E.: *See*—
Piasek, Edmund J.; and Karll, Robert E., 3,787,458.

Kartte, Klaus; Jockers, Kurt; Meier, Hermann; and Taglinger, Ludwig, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Process for purifying sulfuric acid for the catalytic synthesis of hydroxylammonium sulfate. 3,787,563, Cl. 423-531.000.

Kashkooli, Farajollah: *See*—
Brand, Warren L.; and Kashkooli, Farajollah, 3,787,251.

Kasprzak, David P., to Celotex Corporation, The. Method of relieving strains in a wall and construction therefor. 3,786,603, Cl. 52-204.000.

Katchman, Arthur: *See*—
Bennett, James G.; and Katchman, Arthur, 3,787,362.

Kates, Frank F.; and Faber, George E., to Krun Corporation. Internal Combustion engine with modified and controlled exhaust. 3,786,635, Cl. 60-278.000.

Kato, Fumio: *See*—
Miyamura, Yoshinobu; Kato, Fumio; and Okachi, Ryo, 3,787,288.

Kato, Michio: *See*—
Kubota, Tadashi; and Kato, Michio, 3,787,768.

Kattner, Erich; and Bork, Klaus, to Siemens Aktiengesellschaft. Ink jet printer interchangeable recording head. 3,787,880, Cl. 346-75.000.

Katz, Seymour: *See*—
Harris, James P.; and Katz, Seymour, 3,787,548.

Katzen, Raphael: *See*—
Hokanson, Allan E.; Katzen, Raphael; and Schwartz, Bernard W., 3,787,586.

Kauffman, James F., to Corning Glass Works. Microwave lens antenna and method of producing. 3,787,872, Cl. 343-911.000.

Kaurman, Charles W., to Olin Corporation. Dialkyltin salts of substituted pyridine-1-oxides. 3,787,417, Cl. 260-270.00r.

Kawano, Tuyoshi: *See*—
Matsukura, Kameo; Kawano, Tuyoshi; and Kikuma, Toshio, 3,787,201.

Kawasaki, Kikuo, to Fuji Denki Seizo Kabushiki Kaisha. Tank-type gas-break circuit breaker. 3,787,648, Cl. 200-148.00j.

Kawatani, Shigeo: *See*—
Nishioka, Akinori; Kawatani, Shigeo; and Ichikawa, Mitsuo, 3,787,358.

Kaye, Saul. Method and means for assaying biological factors demonstrating quantal response. 3,787,290, Cl. 195-103.50r.

Keappler, Ernest W. Apparatus for pyrolysis of wastes. 3,787,292, Cl. 202-118.000.

Kearney & Trecker Corporation: *See*—
Kirkham, Edward E., 3,786,938.

Keipert, Hans K., to Teletype Corporation. Detent mechanism for releasably securing relatively rotatable members. 3,786,693, Cl. 74-527.000.

Keithley Instruments, Inc.: *See*—
Cath, Pieter B.; and Angeline, Gary E., 3,787,776.

Keller, Toni W.; and Tschopp, Werner H., to Spectrospin A.G. Method and apparatus for recording spin resonance spectra using two sequences of R.F. exciting pulses. 3,787,760, Cl. 324-.50r.

Kelley, Douglas M., to Euclid, Inc. Steerable load transporting vehicle. 3,786,889, Cl. 180-44.00e.

Kelly, Calvin E., to United States Steel Corporation. Sliding-gate closure construction for bottom-pour vessels. 3,786,969, Cl. 222-561.000.

Kelly, George J., Jr.: *See*—
Schroeder, Kenneth H.; and Kelly, George J., Jr., 3,787,239.

Kelman, Lloyd Sol. Audio compass. 3,786,571, Cl. 33-363.00k.

Kemer, Frederick M., to International Business Machines Corporation. Ink jet printer. 3,787,884, Cl. 346-75.000.

Kempf, Georg: *See*—
Rudolph, Paul; Kapp, Ernst; Kempf, Georg; and Farana, Wolf-Rudiger, 3,787,559.

Kenaga, Duane L.; and Hall, Richard H., to Dow Chemical Company, The. High buffing vinyl aromatic resin-wood composites. 3,787,344, Cl. 260-28.50a.

Kennametal Inc.: *See*—
Brown, Thomas A.; and Hubei, Joseph B., 3,786,546.

Kennedy, Alvin B., Jr., to Catalyst Services, Inc. Method of analyzing catalyst action. 3,787,183, Cl. 23-230.00r.

Kennedy, Carl D.; Butler, Claude D.; Krehbiel, Delmar D.; and Nicks, Gene E., to Continental Oil Company. Sultone recovery. 3,787,441, Cl. 260-327.00s.

Kerb, Ulrich; Wiechert, Rudolf; Petzoldt, Karl; Kieslich, Klaus; and Kolb, Karl Heinz, to Schering Aktiengesellschaft. Novel 6a-fluoro-16a,18-dimethyl-1,4-pregnadiene-3,20-diones. 3,787,454, Cl. 260-397.450.

Ketterer, Edmund. Time-keeping device with transistor control using oscillating magnet. 3,787,783, Cl. 331-116.00m.

Keyes, Richard Martin; and Nelson, Bertel Swan, to Beatrice Foods Company. Mixing pump assembly. 3,787,145, Cl. 417-250.000.

Khardin, Alexandr Pavlovich: *See*—
Gorbunov, Boris Nikolaevich; Lukashov, Anatoly Ivanovich; Mukhortova, Tamara Ivanovna; and Khardin, Alexandr Pavlovich, 3,787,515.

Khaskin, Boris Abramovich: *See*—
Melnikov, Nikolai Nikolaevich; Khaskin, Boris Abramovich; Pershin, Grigory Nikolaevich; and Milovanowa, Sofia Nikolaevna, 3,787,567.

Kibler, Charles J.: *See*—
Davis, Burns, and Kibler, Charles J., 3,787,469.

Kido, Kunio: *See*—
Ishii, Takami; Yoshikawa, Toshio; Inaike, Toshihiro; Kuroda, Kazuhiro; Kido, Kunio; and Tokunaga, Kiyoaki, 3,787,353.

Kiehn, Robert M., to SCI Systems, Inc. Electromagnetic wave modulation and measurement system and method. 3,786,681, Cl. 73-382.000.

Kieslich, Klaus: *See*—
Kerb, Ulrich; Wiechert, Rudolf; Petzoldt, Karl; Kieslich, Klaus; and Kolb, Karl Heinz, 3,787,454.

Kiewit, David A., to Hughes Aircraft Company. Semiconductor vidicon and process for fabricating same. 3,787,720, Cl. 317-235.00r.

Kiffmeyer, Vernon A.: *See*—
Traut, Bernard E.; and Kiffmeyer, Vernon A., 3,787,125.

Kikuchi, Shintaro: *See*—
Yurugi, Shojiro; and Kikuchi, Shintaro, 3,787,414.

Kikuma, Toshio: *See*—
Matsukura, Kameo; Kawano, Tuyoshi; and Kikuma, Toshio, 3,787,201.

Kim, Dong H., and Bell, Stanley C., to American Home Products Corporation. Process for the preparation of 3-cyclo-pentene-1,1-dicarboxamide. 3,787,493, Cl. 260-557.00r.

Kimura, Kanbei; and Inoura, Masato. Hobbing cutter. 3,786,719, Cl 90-1.600.

Kimura, Masanori: *See*—
Saito, Yuichi; Shikanu, Tokuzo, and Kimura, Masanori, 3,786,552.

Kimura, Nobuo; and Mizutani, Yukio, to Tokuyama Soda Kabushiki Kaisha and Toa Boshoku Kabushiki Kaisha. Artificial hair articles and process for the preparation thereof. 3,786,822, Cl. 132-53.000.

King, David P. Machine for finishing parts. 3,786,700, Cl. 82-1.00b.

King Instruments Corp.: *See*—
King, James L., 3,787,270.

King, James L., to King Instruments Corp. Splicing tape dispenser 3,787,270, Cl. 156-506.000.

King, Lowell A.: *See*—
Seegmiller, David W.; and King, Lowell A., 3,787,242.

King Radio Corporation: *See*—
Schmitt, Jerry C., 3,787,671.

King, William D.; Larson, George D.; Steeoerm, Donald E.; and Winchester, Amos J., Jr., to General Electric Company. Computer controlled metal rolling mill. 3,787,667, Cl. 235-151.100.

Kira, Alexander; and Scheuring, George R., to American Standard Inc. Toilet seat. 3,786,522, Cl. 4-237.000.

Kirchheim, Jean-Jacques, to Saint-Gobain. Apparatus for the production of sheets or mats from fibers of thermoplastic material. 3,787,195, Cl. 65-9.000.

Kirillovich, Anatoly: *See*—
Shvartsman, Valery Lvovich; and Kirillovich, Anatoly, 3,787,034.

Kirkham, Edward E., to Kearney & Trecker Corporation. Reversing drive for a tool changer. 3,786,938, Cl. 214-1.0bd.

Kirschner, Robert F., to Patterson-Kelly Company, The. Water chiller and storage system. 3,786,649, Cl. 62-201.000.

Kirshner, Joseph M.: *See*—
Manion, Francis M.; and Kirshner, Joseph M., 3,786,839.

Kis, Ivan: *See*—
Menachem, Surkes; Kis, Ivan; and Nathan, Rosental, 3,787,699.

Kishel, Joseph F., to Weston Instruments, Inc. Radiation gauge for measuring fluid densities. 3,787,683, Cl. 250-43.50d.

Kishi, Saburo: *See*—
Nishinomiya, Ryuzo Ueno; Miyazaki, Tetsuya; Inamine, Shiceo; and Kishi, Saburo, 3,787,585.

Kishino, Shigeo: *See*—
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,787,538.

Kitabayashi, Shoji: *See*—
Takahashi, Tadao; and Kitabayashi, Shoji, 3,787,258.

Kitai, Kiyoshi, to Kabushiki Kaisha Hattori Tokeiten. Illumination-time characteristic circuit for electric eye cameras. 3,786,733, Cl. 95-10.0ct.

Kitamoto, Tatsuji; Shimizu, Mahito; and Akashi, Goro, to Fuji Photo Co., Ltd. Process for producing ferromagnetic chromium dioxide. 3,787,564, Cl. 423-607.000.

Kitrilakis, Sotiris, to Tecna Corporation. Device for treating infants having breathing difficulties. 3,786,809, Cl. 128-191.000.

Kittredge, Thomas D.: *See*—
Pressman, Gerald L.; and Kittredge, Thomas D., 3,787,876.

Klauke, Erich: *See*—
Scholl, Hans-Joachim; Klauke, Erich; Grewe, Ferdinand; and Hammann, Ingeborg, 3,787,435.

Klaus, Kaspar. Garage for the storage of vehicles. 3,786,940, Cl. 214-16.1ed.

Kleemann, Alois: *See*—
Wegmuller, Hans; and Kleemann, Alois, 3,787,180.

Klein, Walter: *See*—
Mangold, Hans; and Klein, Walter, 3,787,784.

Kleinfeld, Martin J.; and Heinrichs, Alfred J., to Uniroyal Inc. Vinyl chloride resin backed floor covering. 3,787,259, Cl. 156-78.000.

Kleinman, David Allmond. *See*—
Giordmaine, Joseph Anthony, and Kleinman, David Allmond, 3,787,111.

Klenco Corporation. *See*—
Brunel, Roger L.; Fannon, Robert D.; and Legue, Ronald L., 3,786,779.

Klere, Jean. *See*—
Gadefaix, Roger; and Klere, Jean, 3,787,460.

Kleven, Lowell A., to Uniflo Systems Company. Pneumatic timer. 3,786,836, Cl. 137-624.200

KMS Industries, Inc.. *See*—
Thomas, Carlton F., 3,787,842.

Knaak, Joachim. *See*—
Bagge, Erich, Trumper, Joachim; and Knaak, Joachim, 3,787,682.

Knapp, Walter. *See*—
Hujer, Friedrich, and Knapp, Walter, 3,787,702.

Knechiges, Donald P. *See*—
Mikofalvy, Bela K., and Knechiges, Donald P., 3,787,232.

Kneuer, Joseph George. *See*—
Farmer, Wayne David, Kneuer, Joseph George; and Lawless, William Joseph, 3,787,613.

Knickerbocker Company, The. *See*—
Ramsey, Keith E., 3,786,902.

Knopf, Kenneth K. Automobile signalling system. 3,787,808, Cl. 340-66.000.

Knorr-Bremse GmbH. *See*—
Pollinger, Hans, 3,786,763.

Kobashi, Uichiro, to Aisin Seiki Kabushiki Kaisha. Hydraulic brake booster. 3,786,636, Cl. 60-548.000.

Kobayashi, Osamu. *See*—
Ichikawa, Yataro, Tokashiki, Michiyuki; and Kobayashi, Osamu, 3,787,480.

Kobayashi, Seiichiro, to Kabushiki Kaisha Nakamura Seisakusho. Predetermined torque release wrench. 3,786,699, Cl. 81-52.400.

Koberstein, Edgar, and Lakatos, Eduard, to Laporte Industries, Limited and Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Catalyst for purification of exhaust gases from motor vehicles and industrial plants. 3,787,322, Cl. 252-465.000.

Koehly, Gerard. *See*—
Espie, Jean Yves; Jouan, Claude; and Koehly, Gerard, 3,787,553.

Koehring Company: *See*—
Brown, Gaylord W.; and Pickard, George L., 3,787,158.
Mistarz, Robert J., 3,786,614.

Koepp, Ronald L.; and Dudkowski, Stanley J., to National Cash Register Company, The. Method of growing mobile positive ion free SiO_2 films. 3,787,233, Cl. 117-201.000.

Kohler, Alfred; and Bauer, Kurt, to SWF Spezialfabrik fur Autozubehor Gustav Rau GmbH. Universal joint ball mounting construction. 3,787,129, Cl. 403-135.000.

Kolb, Karl Heinz: *See*—
Kerb, Ulrich; Wiechert, Rudolf; Petzoldt, Karl; Kieslich, Klaus; and Kolb, Karl Heinz, 3,787,454.

Kolpe, Vasant V.: *See*—
Dahlquist, Carl A.; and Kolpe, Vasant V., 3,787,531.

Komatsu, Yasuhiko: *See*—
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Komorizono, Kunichi: *See*—
Haga, Shoji; and Komorizono, Kunichi, 3,786,903.

Konczal, Wolfgang, to Siemens Aktiengesellschaft. Electric compressed gas circuit breaker. 3,787,652, Cl. 200-148.00a.

Kondoh, Ken: *See*—
Shimada, Sadakuni; Hashimoto, Kunio; Kondoh, Ken; and Koyama, Masaki, 3,787,787.

Kondratiev, Evgeny Mikhailovich: *See*—
Tesner, Pavel Alexandrovich; Makarov, Konstantin Ivanovich; Ivanov, Alexandr Kornilovich; Robin, Mark Anisimovich; Slavkin, Igor Sergeevich; Pischulin, Alexandr Petrovich; Pokrass, Leonid Mikhailovich; Pochtman, Alexandr Markovich; Sheinfain, Felix Isaakovch; Kondratiev, Evgeny Mikhailovich; Moiseevich, Grigory Isaevich; Osmaga, Igor Ivanovich; and Zhitnik, Greorgy Gavrilovich, 3,787,038.

Kopf, J. David, to David Kopf Systems. Roller pump. 3,787,148, Cl. 417-477.000.

Kopfer, Rudolph J. Mixer and applicator for fingernail repair material. 3,786,820, Cl. 132-74.500.

Koppang, Richard R.; and Burge, Harland L., Jr., to THW Inc. Burner assembly for providing reduced emission of air pollutant. 3,787,168, Cl. 431-354.000.

Korach, Irving S. Collapsible lampshade. 3,787,676, Cl. 240-108.00r.

Korchynsky, Michael; Bell, John R.; and Cover, Richard J., to Jones & Laughlin Steel Corporation. Corrosion-resistant high-strength low-alloy steels. 3,787,250, Cl. 148-12.000.

Korevaar, Geerlof Jan: *See*—
Van Dijk, Leonardus Petrus Jozef; Verhagen, Jan; Feutsch, Georg; and Korevaar, Geerlof Jan, 3,787,628.

Korolyshun, Russell T.; and Rehnborg, P. Mark, to Goodrich, B. F., Company, The. Compression testing machine. 3,786,676, Cl. 73-94.000.

Kosrow, Robert L.; and Mrowczynski, Aloizy, to Union Special Machine Company. Automatic hemming apparatus. 3,786,768, Cl. 112-143.000.

Kostelecky, Clarence L.: *See*—
McClocklin, Samuel B.; and Kostelecky, Clarence L., 3,787,147.

Koyama, Masaki: *See*—
Shimada, Sadakuni; Hashimoto, Kunio; Kondoh, Ken; and Koyama, Masaki, 3,787,787.

Kraemer, Sandy F. Tilt board game. 3,787,055, Cl. 273-110.000.

Krajewski, Edward: *See*—
Denis, Jean Francois; Ozauba-Lyndis, Serge Yvan; Fremont, Maurice Henri Louis; Krajewski, Edward; and Marcel, Jean-Pierre Julien, 3,787,657.

Kramer, Fritz, to U. F. Chemical Corporation. Fire stop between floor slab and curtain wall of building. 3,786,604, Cl. 52-232.000.

Kramer, Morton: *See*—
Carmelite, Donald D.; Kramer, Morton; and Lee, Gim F., Jr., 3,787,532.

Krapp, Wolfgang. Conductive line following device for steering a vehicle. 3,787,726, Cl. 318-587.000.

Krattner, Richard: *See*—
Dickmann, Heinz Hermann; Krattner, Richard; and Mobius, Hans-Dieter, 3,787,345.
Dickmann, Heinz Hermann; and Krattner, Richard, 3,787,346.

Krause, Erich, to Universal Maschinenfabrik Dr. Rudolf Schieber KG. Control arrangement for a flat knitting machine. 3,786,655, Cl. 66-154.000.

Krechel, Joseph L. Compressor unloader and check valve unit. 3,786,828, Cl. 137-116.000.

Krehbiel, Delmar D.: *See*—
Kennedy, Carl D.; Butler, Claude D.; Krehbiel, Delmar D.; and Nicks, Gene E., 3,787,441.

Krenzer, John, to Velsicol Chemical Corporation. Dialkyl acetals of 2-[3-(2-t-butyl-1,3,4-thiadiazol-5-yl) Ureido] acetaldehyde. 3,787,432, Cl. 260-306.80d.

Kress, George H.: *See*—
Carissimi, Vincent L.; and Kress, George H., 3,787,798.

Kron, Martin W., to Eastman Kodak Company. Web edge guide system. 3,786,974, Cl. 226-19.000.

Kronprinz Aktiengesellschaft: *See*—
Weegen, Lorenz; Luders, Albrecht; Brinkmann, Heinz; Herbst, Klaus; and Ernst, Gerd, 3,787,092.

Krun Corporation: *See*—
Kates, Frank F.; and Faber, George E., 3,786,635.

Kubo, Satoru: *See*—
Ijichi, Ichiro; Malda, Sajiro; Kubo, Satoru; and Tomomoto, Takamori, 3,787,302.

Kubota, Hiroshi; and Suzuki, Tomohiko, to Furuno Electric Company, Limited. Collision alarming system. 3,787,845, Cl. 343-7.0ed.

Kubota, Tadashi; and Kato, Michio, to Matsushita Electric Industrial Co. Ltd. Inspection apparatus for printed circuit boards. 3,787,768, Cl. 324-158.00f.

Kuehn, Erich: *See*—
Burns, Joseph P.; Feltzin, Joseph; and Kuehn, Erich, 3,787,526.

Kugler, Fritz: *See*—
Ulrich, Paul; Max, Basel; Kugler, Fritz; and Jost, Max, 3,787,406.

Kugler, Manfred: *See*—
Buthe, Theo; Kugler, Manfred; and Rheinl, Lohmar, 3,786,776.

Kuhn, Karl Walter; and Gallois, Jacques, to Societe d'Etudes de Machines Thermiques. Device for connecting exhaust manifold sets to the turbo-blowers of a supercharged internal-combustion engine. 3,786,630, Cl. 60-130.000.

Kukes, Charles E.: *See*—
Kukes, Charles E.; Volheim, Richard H.; and Erikson, Carl, 3,786,994.

Kukes, Charles E.; Volheim, Richard H.; and Erikson, Carl, 60% to Scott, Alan and 40% to Kukes, Charles E. Adaptor unit for use with fluid nozzles. 3,786,994, Cl. 239-569.000.

Kumiai Chemical Industry Company, Ltd.: *See*—
Nitta, Kuyata; Sugiyama, Hironari; Takita, Kiyoshi; and Itoh, Hideo, 3,787,217.

Kundo, Yoshtkazu: *See*—
Muramatsu, Tateo; Aramaki, Kuninori; and Kundo, Yoshtkazu, 3,786,637.

Kunst, Helmut Eduard, to Institut Fur Harterei-Technik. Method for the boration of titanium and titanium alloys. 3,787,245, Cl. 148-6.000.

Kunz, Peter, to Mettler Instrumente, AG. Force measuring apparatus including electromagnetic load compensation. 3,786,678, Cl. 73-141.00r.

Kunz, Peter, to Mettler Instrumente, AG. Electromagnetically-compensated balance having series connected coils. 3,786,883, Cl. 177-164.000.

Kurihara, Kazuo: *See*—
Aya, Hasahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Norishima, Norihisa, 3,787,393.

Kurio, Noriyuki: *See*—
Mitsuyama, Masaru; and Kurio, Noriyuki, 3,787,152.

Kuriyama, Shizuo: *See*—
Hamano, Sachiyuki; Nakamura, Takaharu; Kuriyama, Shizuo; and Yamanaka, Motosuke, 3,787,440.

Kuroda, Kazuhiro: *See*—
Ishii, Takami; Yoshikawa, Toshio; Inaike, Toshihiro; Kuroda, Kazuhiro; Kido, Kunio; and Tokunaga, Kiyoaki, 3,787,353.

Kurosaki, Shigehiko; and Okamoto, Yoichiro. Process for producing a solid lubricant self-supplying-type co-deposited metal film. 3,787,294, Cl. 204-16.000.

Kurz, Adolph G. Grounding connectors for shielded cable. 3,787,797, Cl. 339-95.00r.

Kusianovich, John D. Safety step-in heel binding for skis. 3,787,062, Cl. 280-11.35t.

Kusko, Alexander: *See*—
Magnuson, Lee T.; and Kusko, Alexander, 3,787,723.

Kyowa Hakko Kogyo Co., Ltd.: *See*—
Kagawa, Tsuneo; Fujii, Kyoichi; Tanaka, Masao; and Tanaka, Hiroshi, 3,787,466.
Miyamura, Yoshinobu; Kato, Fumio; and Okachi, Ryo, 3,787,288.
Nakayama, Kiyoshi; Hagino, Hiroshi; and Yoshida, Hajime, 3,787,287.

La Barber, Joseph A. Apparatus for eviscerating poultry and the like. 3,786,535, Cl. 17-11.00r.

La France, Robert C., to Aerospace Corporation, The. Linear pulsed D.C. motor and controls therefor. 3,787,716, Cl. 318-135.000.

La Salle Steel Company: *See*—
Zavodny, George, Jr., 3,786,720.

Labana, Santokh S.; and Chang, Yun Feng, to Ford Motor Company. Self crosslinking powder coating Compositions II. 3,787,340, Cl. 260-23.0xa.

Labana, Santokh S.; and Theodore, Ares N., to Ford Motor Company. Powdered coating compositions containing a glycidyl ester copolymer, a phenolic hydroxy crosslinking agent, and a flow control agent. 3,787,520, Cl. 260-836.000.

Labana, Santokh S.; and Golovoy, Amos, to Ford Motor Company. Method of preparing a powder coating composition containing glycidyl acrylate copolymers and dicarboxylic acid crosslinking agent. 3,787,521, Cl. 260-836.000.

Lacharlotte, Pierre: *See*—
Rousselie, Claude Joseph; and Lacharlotte, Pierre, 3,786,917.

Lachaussee, Maurice; and Maigret, Andre. Method for manufacturing metallic objects from circular plates. 3,786,704, Cl. 83-39.000.

Lachinov, Alexandr Alexandrovich: *See*—
Alexandrov, Adolf Moritsovich; Balaian, Ruben Dzhangirovich; Suladze, Ippolit Davidovich; Aglitsky, Vladimir Efimovich; Kakhniashvili, Avtandil Semenovich; Kantor, Ilia Solomonovich; Dzhanelidze, Vazha Venediktovich; and Lachinov, Alexandr Alexandrovich, 3787,007.

Ladavas, Franco: *See*—
Peri, Cesare Augusto; Fontani, Spartaco; and Ladavas, Franco, 3,787,504.

Lademann, Ernest E.; and Iadarola, Ralph E., to Bendix Corporation, The. Combination permanent magnet torquer-eddy current damper for a gyro. 3,786,685, Cl. 74-5.500.

Lafontaine, Lucien. Electric garage door opener. 3,787,725, Cl. 318-491.000.

Lahm, Heinrich: *See*—
Toll, Gerhard; and Lahm, Heinrich, 3,786,539.

Lakatos, Eduard: *See*—
Koberstein, Edgar; and Lakatos, Eduard, 3,787,322.

Lamb, John F.: *See*—
McKee, James D.; and Lamb, John F., 3,786,661.

Lamey, Melvin A. Ring size cutter. 3,786,711, Cl. 83-628.000.

Lamkins, Douglas Wayne: *See*—
Vernon, John Pershing; and Lamkins, Douglas Wayne, 3,787,138.

Land, Edwin H., to Polaroid Corporation. Color diffusion transfer color process and film with silver precipitating layer. 3,787,209, Cl. 96-3.000.

Landa, Torstein; Johannsson, Paul; and Engedal, Knud, to Allmanna Svenska Elektriska Akyribolaget. Press for treating products under high isostatic pressure. 3,787,156, Cl. 425-77.000.

Landen, William James, to Eyelet Specialty Company. Safety mechanism for a liquid-dispensing container. 3,786,964, Cl. 222-153.000.

Lander, Harry L., to Poly-Chem Industries, Inc. Process for preparing a polymer comprising reacting a metal halide with an amide followed by condensation with an aldehyde, said metal being zirconium, hafnium or titanium. 3,787,368, Cl. 260-67.60r.

Landry, Raymond H.: *See*—
Colby, Harold S.; and Landry, Raymond H., 3,787,608.

Langem, Werne Lippe: *See*—
Hauschopp, Alois; Langem, Werne Lippe; Breuer, Oswald; Ostrop, Berthold; and Steinkuhl, Bernd, 3,787,090.

Langer, Arthur W., Jr.: *See*—
Whitney, Thomas A.; and Langer, Arthur W., Jr., 3,787,496.

Lanning, Ronald L., to TRW Inc. Phase correction circuit. 3,787,775, Cl. 329-122.000.

Laporte Chemicals Limited: *See*—
Cubbon, Robert C. P.; Braid, John E.; Oates, Alfred E.; and Preston, Ronald, 3,787,503.

Laporte Industries, Limited: *See*—
Koberstein, Edgar; and Lakatos, Eduard, 3,787,322.

Larkin, Oscar L.: *See*—
Goodwin, Edwin C., Jr.; Larkin, Oscar L.; and Erni, Heinrich H., 3,787,649.

Larsen, Arthur Lee, to Marathon Oil Company. Amine/phosphate composition useful as corrosion and scale inhibitor. 3,787,319, Cl. 252-8.55e.

Larsen, Arthur Lee, to Marathon Oil Company. N-secondary-alkyl alkylene diamine salts of phosphate ester acids. 3,787,533, Cl. 260-924.000.

Larson, Byron A. Gauge for use in straightening automative frames. 3,786,572, Cl. 33-288.000.

Larson, George D.: *See*—
King, William D.; Larson, George D.; Steeoerm, Donald E.; and Winchester, Amos J., Jr., 3,787,667.

Larson, Willis A., to Magic Dot, Inc. Electronic switch apparatus sensitive to and actuated by touch. 3,787,732, Cl. 307-116.000.

Last, Anthony Graham Marshall: *See*—
Gallagher, Brendan, and Last, Anthony Graham Marshall, 3,787,542.

Lauer, Kurt: *See*—
Wittner, Hubert; and Lauer, Kurt, 3,787,311.

Laundry, Terrence H.; Luther, Richard L.; and Murray, John S., Jr., to Hughes Aircraft Company. System for discriminating between high and low speed targets. 3,787,848, Cl. 343-7.700.

Laurer, Gerard R., to United States of America, Atomic Energy Commission. Source holder collimator for encapsulating radioactive material and collimating the emanations from the material. 3,787,691, Cl. 250-272.000.

Laval, Claude C., Jr. Rack for supporting cables and the like. 3,787,016, Cl. 248-49.000.

Lawler, Craig M.: *See*—
Scarnato, Thomas J.; Gordon, Paul C.; Sorensen, Robert; and Lawler, Craig M., 3,786,620.

Lawless, William Joseph: *See*—
Farmer, Wayne David; Kneuer, Joseph George; and Lawless, William Joseph, 3,787,613.

Lawrence, Ray V.: *See*—
Berry, David A.; Bunk, Albert R.; Halbrook, Noah J.; and Lawrence, Ray V., 3,787,342.

Layton, Jack D., to Layton Manufacturing Company. Vehicle and vibrating compactor combination. 3,787,135, Cl. 404-113.000.

Layton Manufacturing Company: *See*—
Layton, Jack D., 3,787,135.

Lazar, Jeffrey M., to Honeywell Inc. Chromatography valve. 3,787,026, Cl. 251-61.100.

Lazarchik, Robert E.; Roeder, Robert S.; and Runkle, Donald R., to Sperry Rand Corporation. Dual mode radiometric system. 3,787,857, Cl. 343-100.0me.

Lazarus, Stanley David: *See*—
Crescentini, Lamberto; Wells, Rodney Lee; Lazarus, Stanley David; and Weedon, Gene Clyde, 3,787,524.

Lazzari, Jean Pierre: *See*—
Grunberg, Georges; Melnick, Igor; and Lazzari, Jean Pierre, 3,787,237.

Le Fevre, Paul Eshelman, to GTE Sylvania Incorporated. Varactor tuner band switching and signal indicating circuitry. 3,787,788, Cl. 334-14.000.

Le Nickel: *See*—
Bozec, Christian H.; Dulong, Bernard G.; and Lemarinel, Robert Y., 3,787,301.

Lebel, Constantin; and Pruvost, Pierre, to Rhone-Poulene S.A. Dentures having a diolkylpolyoiloxane coating. 3,787,231, Cl. 117-138.80a.

Lebreton, Francisque, to Institut Francais du Petrole des Carburants et Lubrifiants. Acoustic sounding instrument. 3,786,894, Cl. 181-.5be.

Lectra Data, Inc.: *See*—
Martin, Roy A.; and Pittman, Clarence E., 3,787,662.

Lee, Gim F., Jr.: *See*—
Carmelite, Donald D.; Kramer, Morton; and Lee, Gim F., Jr., 3,787,532.

Lee, Raymond, Organization Inc., The: *See*—
Perlberg, Jack, 3,787,083.

Lee, Richard J., to Standard Oil Company. Oil-soluble condensation products of alpha-nitro alkyl chlorides and polyamino ureas, and the method of preparing same. 3,787,492, Cl. 260-553.00r.

Lee, Samuel: *See*—
Dellian, Kurt A.; and Lee, Samuel, 3,787,181.

Lee, William: *See*—
Appleby, Frank G.; Rodwan, Edmund J.; and Lee, William, 3,786,718.

Leggett & Myers Incorporated: *See*—
Kallianos, Andrew G.; Warfield, Albert H.; and Simpson, Melvyn L., 3,787,501.

Legue, Ronald L.: *See*—
Brunel, Roger L.; Fannon, Robert D.; and Legue, Ronald L., 3,786,779.

Lehmann, Claude: *See*—

Dietrich, Henri; and Lehmann, Claude, 3,787,574.

Lehmann, Hans: *See*—
Leumann, Ernst; and Lehmann, Hans, 3,787,452.

Lehnhuff, Hans F.: *See*—
Elder, George; and Lehnhuff, Hans F., 3,786,659.

Leister, Karl, to Bayer Aktiengesellschaft. Apparatus having extrusion and mixing zones. 3,787,160, Cl. 425-208.000.

Leman, Gerard: *See*—
Defehvre, Andre; Leman, Gerard; and Pouliquen, Jean-Francois, 3,787,786.

Lemarinel, Robert Y.: *See*—
Bozec, Christian H.; Dulong, Bernard G.; and Lemarinel, Robert Y., 3,787,301.

Lemay, A., Co., Inc.: *See*—
Bloxsom, Joseph Thomas, 3,786,600.

Lepper, James M., Jr., to Wehr Corporation. Light scattering particle analyzer. 3,787,122, Cl. 356-103.000.

Lerner, Irwin S., to Robins, A. H., Company, Incorporated. Intrauterine contraceptive device with scalloped edge appendages 3,786,808, Cl 128-130.000.

Leselear, Robert L., to T & S Equipment Company. Dock leveler. 3,786,530, Cl. 14-71.000.

Leumann, Ernst, and Lehmann, Hans, to Ciba-Geigy Corporation. Epoxysilanes. 3,787,452, Cl. 260-348.0sc.

Lever Brothers Company. *See*—
Gadefaix, Roger, and Klere, Jean, 3,787,460.
Van der Heijden, Arnoldus, and Schutte, Leonard, 3,787,473.

Levey, Gustave S., Trustee: *See*—
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Levey, Gustave Stanley: *See*—
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Levoy's, Inc.: *See*—
Pannier, Karl A., Jr.; Reynolds, Gordon S., and Sorenson, James L., 3,786,810.

Lewis, Adolph L.: *See*—
Smiley, Vern N.; Lewis, Adolph L.; and Forbes, David K., 3,787,234.

Lewis, Donald J. *See*—
Stephenson, Robert L., and Lewis, Donald J., 3,786,843.

Lewis, Donald J., and Stephenson, Robert L., to Allied Chemical Corporation. Multiple pyro system. 3,787,074, Cl. 280-150.0ab.

Lewis, Hector E., to Surgical Appliance Industries, Inc. Knee brace having torque pads for producing inward support pressure. 3,786,804, Cl. 128-80.00c.

Lewis, Theras Gordon, to Bell Telephone Laboratories, Incorporated. Time slot number compensating arrangement. 3,787,631, Cl. 179-15.0at.

Lewis, Warren J. Water detection device for fuel line. 3,787,650, Cl. 200-61.040.

Lhenry, Bernard, to Creusot-Loire. Chemical descaling apparatus for discontinuous automatic treatment of sheet metal. 3,786,824, Cl 134-62.000.

Liepelt, Klaus, to U.S. Philips Corporation. Frequency tuner of a resonator for a klystron. 3,787,748, Cl. 315-5.460.

Lieser, Zeev: *See*—
Friedman, Robert L.; and Lieser, Zeev, 3,787,854.

Lievore, Silvano Giuseppe, to Elkhart, Bridge & Iron, Inc. Suspension system. 3,787,073, Cl. 280-124.00a.

Lightner, Joseph Campbell, Jr.: *See*—
Beers, Albert Alvin, Jr.; Stoyer, Paul Eugene; and Lightner, Joseph Campbell, Jr., 3,786,764.

Limberg, Allen Le Roy, to RCA Corporation. Apparatus for distinguishing between various FM broadcast multiplex transmission. 3,787,629, Cl. 179-15.0bt.

Lindahl, Gerbert S.: *See*—
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Linder, Jacques Francois, to Northrop Corporation. Method of forming circuit structures by photo etching-electroforming process. 3,786,542, Cl. 29-25.170.

Linderholm, Gordon J., to Pyroil Company, Inc. Tire pump. 3,786,730, Cl. 92-169.000.

Lindner, Ernst: *See*—
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Lindsay, Edward W., to Vacu-Maid, Inc. Carpet sweeper. 3,786,532, Cl. 15-364.000.

Lindstrom, Bengt. Vehicle steering gear. 3,786,691, Cl. 74-493.000.

Lines, Raydon A., to Proline Industries Pty., Ltd. Hydraulic jointing press. 3,786,669, Cl. 72-453.000.

Lingens, Paul; and Martin, Gerhard, to Dynamit Nobel Aktiengesellschaft. Explosive charge with improved fragmentation effect. 3,786,752, Cl. 102-24.00r.

Linhart, Helmut; and Mueller, Helmut, to Ciba-Geigy Corporation. Stabilising of polyamides. 3,787,355, Cl. 260-45.75r.

Linke, Siegfried; Sitt, Rudiger; Horstmann, Harald; and Meng, Karl, to Bayer Aktiengesellschaft. Certain 3,4,5-triphenyl thiazol-2-ones. 3,787,431, Cl. 260-306.700.

Lipton, Thomas J., Inc.: *See*—
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List, Robert A. Debris removing apparatus. 3,786,870, Cl. 171-129.000.

Little, Jess C., to Chance, A. B., Company. Method of fabricating a field-applied gripping device. 3,786,554, Cl. 29-461.000.

Litton Systems, Inc.: *See*—
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Lohrman, Glenn G.: *See*—
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Loikitz, Frank F., to Instrument Systems Corporation. Slam-style safety lock. 3,786,657, Cl. 70-150.000.

Lojinger, Robert I. Shirt collar support. 3,786,971, Cl. 223-83.000.

Long, George E.; Reesf, Dennis L.; and Johnson, Floyd C., to Grad-Line Inc. Grader control. 3,786,871, Cl. 172-4.500.

Long, John H.: *See*—
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Long, Martin H., Jr.; and Pachynski, Alvin L. Underwater electronic flash actuator. 3,786,734, Cl. 95-11.00w.

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Looger, Lonnie L.: *See*—
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Looger, Lonnie L. Gaseous grenade. 3,786,756, Cl. 102-65.000.

Loqvist, Kaj-Ragnar, to Fagersta Aktieholag Fagersta. Tyre stud. 3,786,849, Cl. 152-210.000.

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Lorensen, Cletus E.; and Peterson, John A., to International Business Machines Corporation. Document controlled picking and feeding apparatus. 3,787,044, Cl. 271-27.000.

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Lowenfeld, Rudolf, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of insoluble azo dyestuffs on cellulose fibers. 3,787,179, Cl. 8-45.000.

Lowy, George W.; Conlon, Joseph M.; and Marcus, Byron E., to Baxter Laboratories, Inc. Multiple function spectrophotometer having an automatically stabilized chopped disc. 3,787,121, Cl. 356-93.000.

Lowy, George W.; Priarone, Paul; and Cullis, Herbert M., to Baxter Laboratories, Inc. Dual wavelength photometer for absorbance difference measurements. 3,787,124, Cl. 356-205.000.

Loyen, Ghislaine, nee Voisin: *See*—
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Lucas, Peter K., to Garrett Corporation, The. Cable drum highline system. 3,787,031, Cl. 254-172.000.

Lucking, Hans Joachim; Noll, Walter; Buchner, Werner; Friederich, Klaus; and Niederprum, Hans, to Bayer Aktiengesellschaft. Perfluoro-alkane-sulphonamido substituted organo-silicon compounds and their production. 3,787,467, Cl. 260-448.80r.

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Lundgren, Evert Gustav, to Sandvikens Vernverks Aktiebolag. Cutting inserts having two-stage chipbreaker. 3,786,541, Cl. 29-95.00r.

Luther, Richard L.: *See*—
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Lyle, Don M.: *See*—
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Lyle, Donald D.: *See*—
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Lyon, Charles E., Jr., to Motorola, Inc. Magnetic tape reproducting device. 3,787,058, Cl. 274-4.000.
Lyon, George W., to Dow Chemical Company, The. Apparatus for catalytic reactions. 3,787,188, Cl. 23-288.00r.
Lyons, John H. Apparatus and method for the self-examination of certain conditions of the eye. 3,787,112, Cl. 351-18.000.
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Ma, Lawrence K. C., to United States of America, Navy. Method of assembling transducer acoustically coupled by silicone grease. 3,786,553, Cl. 29-169.500.
MacDonald, Kenneth Donald. Apparatus for ensuring or encouraging the wearing of safety belts in vehicles. 3,787,804, Cl. 340-52.00e.
MacDowell, Warren L.; and Nailos, William F., to Namac Research Laboratories, Inc. Discone antenna. 3,787,865, Cl. 343-703.000.
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Macy, Carl L. Barrel knot tying device. 3,787,081, Cl. 289-17.000.
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Mah, Raymond W., to Dow Chemical Company, The. Epoxides of alkoxy-substituted tri (hydroxyphenyl)alkanes. 3,787,451, Cl. 260-348.00r.
Maher, George G., to United States of America, Agriculture. Molded articles and films. 3,787,220, Cl. 106-214.000.
Maher, Robert L., to Mossman, Donald P., Inc. Electrical switch assembly. 3,787,653, Cl. 200-153.00k.
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Malenge, Pierre, to S.A. Dite Societe d'Exploitation des Etablissements Malenge. Continuous strip envelopes. 3,786,984, Cl. 229-69.000.
Mallavarapu, Leo X., to Reichhold Chemicals, Inc. Resinous compositions and method for producing same. 3,787,347, Cl. 260-30.4ep.
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Manheim, Jay. Pilfer proof display unit for pack merchandise. 3,786,927, Cl. 211-4.000.
Manion, Francis M., and Kirshner, Joseph M., to United States of America, Army. High input impedance flueric amplifier. 3,786,839, Cl. 137-837.000.
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Mathou, Marcel. Beds with lateral sliding panels. 3,786,524, Cl. 5-108.000.
Matsukura, Kameo; Kawano, Tuyoshi; and Kikuma, Toshio, to Nippon Steel Corporation. High tensile strength steel plate for cold-forming. 3,787,201, Cl. 75-125.000.
Matsumoto, Mitsuo, to Nara Mishin Kogyo Kabushiki Kaisha. Means for imparting tention to the drawn-out thread for sewing machines. 3,786,771, Cl. 112-255.000.
Matsumoto, Tatsuji. Continuous welding method and apparatus thereof for metal plates. 3,787,656, Cl. 219-104.000.
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McClocklin, Samuel B.; and Kostelecky, Clarence L., to Owatonna Tool Company. Two-stage air-hydraulic booster. 3,787,147, Cl. 417-307.000.
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McFarlane, Leroy F., to Coilform Company, Inc. Multi-piece coil form assembly. 3,787,799, Cl. 339-214.00r.
McGarr, John J., to USM Corporation. Manufacture of polyurethane powders using polyvinyl pyrrolidone having side chains from copolymerization with alkylated olefins. 3,787,525, Cl. 260-859.00r.
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McGinnis, Paul H.; McLaughlin, William D., Jr.; and Swader, Robert F., to Celanese Corporation. Process and apparatus for producing fibrous structures. 3,787,265, Cl. 156-167.000.
McGlothlin, Charles J. Wire gripping tool. 3,786,670, Cl. 72-480.000.
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Melkersson, Karl-Axel; and Hedenas, Bo Gustav Valter, to Boliden Aktiebolag. Method of purifying gases containing mercury compounds and elementary mercury. 3,786,619, Cl. 55-72.000.
Mellen, George P.; and Schuster, William A., to United States of America, Army. Self-destruct fuze. 3,786,759, Cl. 102-71.000.
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Muncy, Gary O. Guitar fret board. 3,787,600, Cl. 84-314.000.

Murai, Masayuki, to Pioneer Electronic Corporation. Hall element magnetic head having integral means for detecting the amount of head material ground away during a machine operation. 3,787,638, Cl. 179-100.2ch.

Muramatsu, Tateo; Aramaki, Kuninori; and Kundo, Yoshtkazu, to Bridgestone Tire Company Limited. Oil fence. 3,786,637, Cl. 61-1.00f.

Murdoch, Henry W., to Reed Tool Company. Drill bit. 3,786,879, Cl. 175-374.000.

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Murphy, William D., and Zmuda, Edward L., to GTE Sylvania Incorporated. Flying spot scanner system high voltage and horizontal deflection circuitry. 3,787,750, Cl. 315-27.0td.

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Naka, Kanji; Sugiyama, Masayasu; and Nishibori, Saiko, to Ono Pharmaceutical Company, Ltd. 10-Carbamoyl-phenothiazine-3-sulfonamide. 3,787,413, Cl. 260-243.00a.

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Nakashio, Seizo; Takemura, Toshio; Mauyama, Takashi; Ota, Kunio; and Seto, Tetsuki, to Sumitomo Chemical, Limited. Process for production of polyphenylene oxide compounds. 3,787,361, Cl. 260-47.0et.

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Narean, Hale F. Solar evaporation controlled irrigation system. 3,786,832, Cl. 137-403.000.

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Nippon Shokubai Kogyo Co., Ltd.: *See—*
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Naka, Kanji; Sugiyama, Masayasu; and Nishibori, Saiko, 3,787,413.

Nishikawa, Shigeru; Akami, Hitoshi; and Shibuya, Atsuo, to Director-General of Agency of Industrial Science and Technology. Method of automatically making pattern cards for jacquard looms. 3,786,987, Cl. 234-2.000.

Nishikawa, Tomio, to Concast AG. Method for controlling a continuous casting installation in the event of molten metal breakout. 3,786,856, Cl. 164-4.000.

Nishinomiya, Ryuzo Ueno; Miyazaki, Tetsuya; Inamine, Shiceo; and Kishi, Saburo. Stable lactone solution. 3,787,585, Cl. 426-212.000.

Nishioka, Akinori; Kawatani, Shigeo; and Ichikawa, Mitsuo, to Japan Synthetic Rubber Company, Limited. Process for producing polyphenylene oxides. 3,787,358, Cl. 260-47.0et.

Nissen, Warren I.: *See—*
Dorion, Francis W., Jr.; Nissen, Warren I., and Pomfret, Edward E., 3,786,563.

Nitta, Kuyata; Sugiyama, Hironari; Takita, Kiyoshi; and Itoh, Hideo, to Kumiai Chemical Industry Company, Ltd. Method for controlling sea organisms. 3,787,217, Cl. 106-15.0af

Nitto Electric Industrial Co., Ltd.: *See—*
Ijichi, Ichiro; Malda, Sajiro; Kubo, Satoru; and Tomomoto, Takamori, 3,787,302.

Noguchi, Takashi. Apparatus for making a flexible closure. 3,787,269, Cl. 156-498.000.

Nohe, Heinz: *See—*
Beck, Fritz; Haufe, Jürgen; and Nohe, Heinz, 3,787,299

Noll, Walter: *See—*
Lucking, Hans Joachim; Noll, Walter; Buchner, Werner; Friederich, Klaus; and Niederprum, Hans, 3,787,467.

Noret, Hubert: *See—*
Jodet, Alain; Noret, Hubert, and Demichelis, Jacques, 3,786,874.

Norishima, Norihisa: *See—*
Aya, Hasahiro; Saito, Junichi, Fukazawa, Nobuo, Tamura, Tatsuo, Kurihara, Kazuo; and Norishima, Norihisa, 3,787,393.

Noropress GmbH Iressen und Presswerkzeuge & Co., KG. *See—*
Dischler, Helmut, 3,786,743.

Norris, Kermit A., to Lockheed Electronics Company, Inc., mesne. Split-phase adaptive decoding electronics. 3,787,826, Cl. 340-174.10h.

Northern Electric Company Limited. *See—*
Battrick, Peter Edward, 3,787,639
Davis, Dan Bryan, 3,786,981.
Male, Charles Colin; and Wallis, John Melvin, 3,787,632.

Northrop Corporation. *See—*
Linder, Jacques Francois, 3,786,542.
Wheldon, Wilbert G., 3,787,009.

Norton Company: *See—*
Okrepkie, John; and Swiatek, Henry J., 3,787,273.

Noskin, Harold P., to Customcraft Nails, Inc. Method and kit for forming an artificial nail. 3,786,821, Cl. 132-88.500.

Nothiger, Otto: *See—*
Eigenmann, Gottfried; Kaiser, Leo E.; and Nothiger, Otto, 3,787,182.

Nouel, Jean-Paul; and Renault, Henry Emile Edouard, to U.S. Philips Corporation. Method of producing a diagnostic preparation on the basis of an iron complex labelled with 99 mTc. 3,787,565, Cl. 424-1.000.

Novak, Thaddeus J.; and Poziomek, Edward J., to United States of America, Army. Method and composition for detecting amine compounds. 3,787,184, Cl. 23-230.00r.

Novelty Tool Company, Inc., mesne: *See—*
Albrecht, Clifford C., and Brown, Howard G., 3,786,841.

Nowack, Gerhard P.: *See—*
Johnson, Marvin M.; Tabler, Donald C.; and Nowack, Gerhard P., 3,787,511.

Nowicki, Harry J.: *See—*
Curnow, John W.; and Nowicki, Harry J., 3,787,027.

Nowicki, Thomas; Shipp, John I.; Hines, Robin H.; and Broadbent, Thomas D., to AGA Corporation. Compensation means for polarized light electro-optical modulator. 3,787,118, Cl. 356-5.000.

Nowotny, Kurt A., to Crown Zellerbach Corporation. Nonwoven sheet structures from modified polyolefin fibers. 3,787,256, Cl. 156-62.200.

Nu-Pro Corporation: *See—*
Molitor, Bernard A., 3,787,677.

Numertap, Inc.: *See—*
Steiner, Rudolpf, 3,787,136.

Nupro Company: *See—*
Shufflebarger, Earl D.; Gallagher, Bernard J.; Simko, David M.; and Boylan, John R., 3,787,023.

N.V. Hollandse Signaalapparaten: *See—*
Busink, Hendrik, 3,787,819.

Oates, Alfred F.: *See—*
Cubbon, Robert C. P., Braid, John E.; Oates, Alfred E., and Preston, Ronald, 3,787,503.

Oberkirch, Wolfgang; Gunther, Peter; and Pampus, Gottfried, to Farbenfabriken Bayer Aktiengesellschaft. Process for the polymerisation with ring opening of cyclopentene. 3,787,381, Cl. 260-87.50c.

Oberster, Arthur E.: *See—*
Halasa, Adel F., and Oberster, Arthur E., 3,787,377.

Obolentsev, Elena Romanovna: *See—*
Vorobeva, Antonina Ivanovna; Gorina, Vera Mikhailovna, and Obolentsev, Roman Dmitrievich, 3,787,502.

Obolentsev, Roman Dmitrievich: *See—*
Vorobeva, Antonina Ivanovna; Gorina, Vera Mikhailovna, and Obolentsev, Roman Dmitrievich, 3,787,502.

Obregon, Alejandro. Underground automatic parking system for vehicles. 3,786,930, Cl. 214-16.1cb.

O'Brien, Richard C., to O.K. Partnership, mesne. Document retrieval apparatus and method. 3,786,916, Cl. 209-80.500.

Occidental Petroleum Corporation. *See—*
Stewart, Robert D., 3,787,557.

Ochiai, Kazuo; and Araseki, Takashi, to Nippon Electric Company, Limited. Echo canceller having two echo path models. 3,787,645, Cl. 179-170.200.

O'Connor, Edward. Single-channel noise suppressor. 3,787,771, Cl. 325-65.000.

O'Connor, Robert J., to Eastman Kodak Company. Coating roller 3,786,547, Cl. 29-130.000.

O'Donnell, Thomas P. Door and window check. 3,786,533, Cl. 16-82.000.

Officina Tecnomeccanica Esecuzioni e Montaggi S.p.A., (O.T.E.M.) *See—*
Reda, Glauco, 3,786,909.

O'Halloran, Michael: *See—*
Arnold, John Spencer; Beck, George Morland, Boom, Roger John, Cosserat, David Cockburn, Hodges, Kenneth James Hamer, Sandeman, Theodor Duncan, Williams, Roger Morley, and O'Halloran, Michael, 3,787,818.

Ohara, Tskashi: *See—*
Ichihara, Shoichi, Hara, Hauruichi, and Ohara, Tskashi, 3,787,333.

Ohdan, Kyoji. *See—*
Yamada, Keisho, Umemura, Sumio, Ohdan, Kyoji, Hidaka, Mikio, Bando, Yasuo, Fukuda, Kazuo, and Sawazi, Masao, 3,787,334

Ohio Nuclear, Inc.: *See—*
Stout, Karl J., 3,787,827.

O.K. Partnership, mesne. *See—*
O'Brien, Richard C., 3,786,916.

Oka, Isao. *See—*
Shima, Takeo, Urasaki, Takanori, and Oka, Isao, 3,787,370.

Okabe, Katsuhiko, to Kabushiki Kaisha Copal. Printing ribbon feeding mechanism in a printer. 3,786,906, Cl. 197-161.000.

Okachi, Ryo: *See—*
Miyamura, Yoshinobu, Kato, Fumio, and Okachi, Ryo, 3,787,288

Okada, Yasuo: *See—*
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Okada, Yoshiyuki: *See—*
Hagimoto, Hiroshi; Arai, Torhiharu; Yoshikawa, Harutoshi; Watanabe, Mitsuo, and Okada, Yoshiyuki, 3,787,198

Okamoto, Yoichiro: *See—*
Kurosaki, Shigehiko; and Okamoto, Yoichiro, 3,787,294.

Okazaki, Takeo, 1/2 to Mitsui Shipbuilding and Engineering Company, Ltd. and Japan Ship's Machinery Development Association. Method and apparatus for taking out piston in trunk piston engine. 3,786,796, Cl. 123-195.00r.

Okrepkie, John; and Swiatek, Henry J., to Norton Company. Low stretch sectional abrasive belts. 3,787,273, Cl. 161-87.000.

Okudaira, Mitsuo, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with surrounding light sensitive musical effect control. 3,787,602, Cl. 84-1.240.

Olah, Louis: *See—*
Falk, Mervin L.; and Olah, Louis, 3,787,616.

Olde, Jarl Rune. Watering valve. 3,786,785, Cl. 119-75.000.

Olin Corporation: *See—*
Brock, Andrew J.; and Pryor, Michael J., 3,787,249.
Kaurman, Charles W., 3,787,417.
Ready, William C.; Puig, John E.; and Van Leuwen, Bruce G., 3,787,278.

Setzer, William C., Cheskis, Harvey P.; and Winter, Joseph, 3,787,248.

Oliver, Earl J. Shopping cart or the like. 3,787,063, Cl. 280-33.99f.

Olivetti, Ing., C., & C., S.p.A.: *See—*
Gechele, Walter; and Piazza, Bruno, 3,787,875.

Olland, Frederik Walraven, to Olland Industrie-en Handelmaatschoppij N.V. Apparatus for supplying either hot or warm water in a vending machine. 3,787,659, Cl. 219-314.000.

Olland Industrie-en Handelmaatschoppij N.V.: *See—*
Olland, Frederik Walraven, 3,787,659.

Olsen, Paul J. Laterally stabilized stepladder. 3,786,900, Cl. 182-172.000.

Olson, Maynard H., to Minnesota Mining & Manufacturing Company. Use of soluble fluoroaliphatic oligomers in resin composite articles. 3,787,351, Cl. 260-40.00r.

Ono Pharmaceutical Company, Ltd.: *See—*
Naka, Kanji; Sugiyama, Masayasu; and Nishibori, Saiko, 3,787,413

Oomen, Joris Jan Cornelis; and Wolters, Donald Robert, to U.S. Philips Corporation. Mono-grain layer membrane. 3,787,277, Cl. 161-87.000.

Ordeco, Inc.. *See—*
Brown, Boyd E.; and Brown, Eric A., 3,786,611.

Ordway, Fred: *See—*
Smith, Robert W.; Ordway, Fred, Taylor, Charles A.; and Zimmerman, William, III, 3,786,777.

Orient Watch Co., Ltd.: *See—*
Takagi, Fooru; Shinoyama, Tsuneyoshi; and Satoh, Setsuo, 3,786,627.

Orr, Bobby J., to Allis-Chalmers Corporation. Track idler mount and recoil adjuster. 3,787,097, Cl. 305-10.000.

Orr, Bobby J., to Allis-Chalmers Corporation. Track link with eccentric seal counterbore. 3,787,098, Cl. 305-11.000.

Orr, Howard S. *See—*
Jones, Donald A., Orr, Howard S., and Qually, Francis K., 3,786,664

Ort, Morris R. *See—*
Mottus, Edward H., and Ort, Morris R., 3,787,383.

Osakeyhito, A. Ahlstrom. *See—*
Dorfel, Gerhard Walter, 3,786,705

Osmaga, Igor Ivanovich. *See—*
Tesner, Pavel Alexandrovich, Makarov, Konstantin Ivanovich, Ivanov, Alexandr Kormilovich, Robin, Mark Anisimovich, Slavkin, Igor Sergeevich, Pischulin, Alexandr Petrovich, Pokrass, Leonid Mikhailovich, Pochtman, Alexandr Markovich, Sheinfain, Felix Isaakovich, Kondratiev, Evgeny Mikhailovich; Morseevich, Grigory Isaevich, Osmaga, Igor Ivanovich, and Zhitnik, Georgy Gavrilovich, 3,787,038

Oster, Felix, to Fabriques de Produits Chimiques de Thenn et de Mulhouse. Process for the preparation of titanium concentrates from iron-containing titanium ores. 3,787,139, Cl. 423-610.000.

Ostrop, Berthold. *See—*
Hauschopp, Alois, Langem, Werne Lippe, Breuer, Oswald, Ostrop, Berthold, and Steinkuhl, Bernd, 3,787,090.

Ota, Kunio. *See—*
Nakashio, Seizo, Takemura, Toshio, Mauyama, Takashi, Ota, Kunio, and Seto, Tetsuki, 3,787,361.

Otterstedt, Jan-Erik Anders, and Pater, Richard, to Du Pont de Nemours, E. I., and Company. U.V.-absorbing ortho-hydroxyphenyl substituted bipyridines. 3,787,428, Cl. 260-296.00d.

Owada, Akihito, to Nippon Piston Ring Kabushiki Kaisha. Oil draining valve for a compressed air container. 3,786,830, Cl. 137-204.000.

Owatonna Tool Company. *See—*
Anderson, Richard T., and Andrist, Willard L., 3,786,643.
McClocklin, Samuel B., and Kosteleeky, Clarence L., 3,787,147.

Owen, Kenneth. Fluidic detector for the detection of radiant energy and for the analysis of gas mixtures. 3,787,694, Cl. 250-338.000.

Owens-Corning Fiberglas Corporation: *See—*
Marzocchi, Alfred, and Martineau, John C., 3,787,352.

Owens-Corning Fiberglass Corporation. *See—*
Uffner, William E., 3,787,224.

Owens-Illinois, Inc.. *See—*
Dietz, Raymond Louis, and McFadden, Allan L., 3,787,218.
Schermerhorn, Jerry D., 3,787,106

Oxy Metal Finishing Corporation. *See—*
Zuntini, Franco; Aliprandini, Giuseppe, Gioria, Jean-Michel, Meyer, Andre, and Losi, Salvatore, 3,787,463.

Ozauba-Lyndis, Serge Yvan. *See—*
Denis, Jean Francois; Ozauba-Lyndis, Serge Yvan; Fremont, Maurice Henri Louis, Krajewski, Edward, and Marcel, Jean-Pierre Julien, 3,787,657.

Pachynski, Alvin L.: *See—*
Long, Martin H., Jr., and Pachynski, Alvin L., 3,786,734.

Pacific Technica Corporation: *See—*
Feldmann, Fritz K., 3,786,760.

Packard, Douglas R.: *See—*
Grossman, Leonard N.; and Packard, Douglas R.; 3,787,761.

Padegs, Andris: *See—*
Moore, Brian B.; Padegs, Andris; and Smith, Ronald M., 3,787,891.

Pages, Roland, to Schlumberger Instruments et Systemes. Logic system for the processing of data delivered by nuclear detectors. 3,787,814, Cl. 340-172.500.

Paillard S.A.: *See—*
Costa, Georges, 3,786,905.

Paille, Jean: *See—*
Carre, Rene; Deauviala, Jean-Pierre; and Paille, Jean, 3,787,778.

Palma, James R. Method and apparatus for aiding severed nerves to join. 3,786,817, Cl. 128-334.00r.

Palmason, Einar H., to Parkson Industrial Equipment Company. Method of cooking comestibles. 3,787,594, Cl. 426-438.600.

Palmer, Gary Ross: *See—*
Palmer, Steven Wayne; and Palmer, Gary Ross, 3,786,778.

Palmer, Steven Wayne; and Palmer, Gary Ross. Signal device for water skiing. 3,786,778, Cl. 116-132.000.

Palmer, Warren G.: *See—*
Brink, Edwin H.; and Palmer, Warren G., 3,787,316.

Pampus, Gottfried: *See—*
Oberkirch, Wolfgang; Gunther, Peter; and Pampus, Gottfried, 3,787,381.

Pan Nova, Inc., mesne: *See—*
Young, Robert B., 3,786,960.

Pang, Michael, to American Cyanamid Company. 6-Alkyl-3-methyl quinaldinic acids. 3,787,418, Cl. 260-287.00r.

Pannier, Karl A., Jr.; Reynolds, Gordon S.; and Sorenson, James L., to Levoy's, Inc. Placement apparatus for positioning an elongated element in a body lument. 3,786,810, Cl. 128-214.400.

Paolini, Alfred P.; and Fife, Warren E., to Galion, Jeffrey, Inc. Cutting chain. 3,787,091, Cl. 299-84.000.

Pappo, Raphael: *See—*
Collins, Paul W.; and Pappo, Raphael, 3,787,449.

Park, Joseph D.; and Choi, Sam Kwon, to Minnesota Mining and Manufacturing Company. Organo-metallic derivatives of perfluorocycloalkenes. 3,787,461, Cl. 260-429.00r.

Parker, Ben H., Jr.: *See—*
Deringer, Dewitt C., 3,786,919.

Parkinson, James R. Non-contacting shaft RPM and direction of rotation measurement system. 3,787,769, Cl. 324-174.000.

Parkman, William T.: *See—*
Birkin, Michael S.; and Parkman, William T., 3,787,679.

Parkson Industrial Equipment Company: *See—*
Palmason, Einar H., 3,787,594.

Parrish, Robert Guy, to Du Pont de Nemours, E. I., and Company. Process for the preparation of low density microcellular foam sheets exhibiting high work-to-tear values. 3,787,543, Cl. 264-53.000.

Pars, Harry George; and Razdan, Raj Kumar, to Sharps Associates. Dialkylamino esters of benzopyranopyridines. 3,787,424, Cl. 260-295.00f.

Parsons, J. Hilton, Jr.: *See—*
Scott, Arthur Leslie; Parsons, J. Hilton, Jr.; and Hammond, John S., 3,787,268.

Passer, La Roy B., to USM Corporation. Mechanism for feeding washer-carrying fasteners. 3,786,980, Cl. 227-120.000.

Passler, Helmar: *See—*
Heger, Adolf; Passler, Helmar; and Pattz, Ellen, 3,787,261.

Passler, Helmar; Heger, Adolf; and Fronius, Sabine, to VEB Textilkombinat Cotthus. Process for making compound textile materials. 3,787,260, Cl. 156-84.000.

Pasturczak, Stanley: *See—*
Vogelaar, Bernard Francis; Doering, James Peter; and Pasturczak, Stanley, 3,786,891

Patel, Arvind S.: *See—*
Story, Robert S.; and Patel, Arvind S., 3,787,014.

Patel, Ishwarlal P.: *See—*
Crum, Robert L.; and Patel, Ishwarlal P., 3,786,953.

Pater, Richard. *See—*
Otterstedt, Jan-Erik Anders; and Pater, Richard, 3,787,428.

Patitz, Ellen: *See—*
Heger, Adolf; Passler, Helmar; and Patitz, Ellen, 3,787,261.

Patrick, Henry W.: *See—*
Neeb, Robert P.; Patrick, Henry W.; and Mumford, Ray H., 3,786,736.

Patron, Luigi: *See—*
Melacini, Paolo, Patron, Luigi; Moretti, Alberto; and Tedesco, Raffaele, 3,787,365.

Patterson, James A., to Sondell Research & Development Co. Spherical electronic components. 3,787,718, Cl. 317-234.00r.

Patterson-Kelly Company, The: *See—*
Kirschner, Robert F., 3,786,649.

Pavia, Edgar H.; and Tyagi, Amulya D., to Pavia-Byrne Engineering Corporation, mesne. Treatment of wastewaters from the processing of fish. 3,787,596, Cl. 426-488.000.

Pavia-Byrne Engineering Corporation, mesne: *See—*
Pavia, Edgar H.; and Tyagi, Amulya D., 3,787,596.

Peacher, Teddy J.: *See—*
Currie, Richard W.; and Peacher, Teddy J., 3,787,668

Pecoraro, Ralph R.: *See—*
Nardo, Thomas P.; and Pecoraro, Ralph R., 3,786,829.

Pedersen, Niels P.; and Schultz, Henry L., Jr., to General Electric Company. Voltage control of an A.C. drive system during motor starting. 3,787,724, Cl. 318-410.000.

Pekar, Frank J., Jr.: *See—*
Pelizzoni, Winton J.; Greathouse, Jack F.; Pekar, Frank J., Jr.; and Gibson, Richard R., 3,786,792.

Pelezo, Chris A.: *See—*
Dobinson, Frank; and Pelezo, Chris A., 3,787,348.

Pelizzoni, Winton J.; Greathouse, Jack F.; Pekar, Frank J., Jr.; and Gibson, Richard R., to Mack Trucks, Inc. Variable valve timing system. 3,786,792, Cl. 123-97.00b.

Penn, Lloyd D.: *See*—
Morrow, Robert S., Penn, Lloyd D., and Marcum, Arthur D., 3,787,765.

Pennwalt Corporation: *See*—
Ferren, Richard Anthony, and Dimmig, Daniel Ashton, 3,787,379.

Penny, William C.: *See*—
Spencer, Richard R., and Benny, William C., 3,787,552.

Peri, Cesare Augusto, Fontani, Spartaco, and Ladavas, Franco, to Montecatini Edison S.p.A. Process for preparing organic diperoxides. 3,787,504, Cl. 260-610.00r.

Perlberg, Jack, 20% interest to Lee, Raymond, Organization Inc., The. Safety vehicle bumper. 3,787,083, Cl. 293-88.000.

Peroxid-Chemie GmbH: *See*—
Edl, Wolfgang, 3,787,446.

Perrine, Walter E. Silencer for gas discharging devices. 3,786,895, Cl. 181-49.000.

Perrot, Robert, to Aciéries de Paris & d'Outreau. Cast steel railway crossing. 3,787,680, Cl. 246-377.000.

Perrott, Emilio: *See*—
Neri, Carlo, and Perrott, Emilio, 3,787,464.

Pershin, Grigory Nikolaevich: *See*—
Melnikov, Nikolai Nikolaevich, Khaskin, Boris Abramovich, Pershin, Grigory Nikolaevich, and Milovanova, Sofia Nikolaevna, 3,787,567.

Peters, Tony. Liquid level control system. 3,787,733, Cl. 307-118.000.

Petersen, Everett James, Jr.: *See*—
Rohrbaugh, Donald Gene, Petersen, Everett James, Jr., and Chase, Charles Peter, 3,787,185.

Peterson, John A.: *See*—
Lorensen, Cletus F., and Peterson, John A., 3,787,044.

Peterson, Russell H.: *See*—
Nelson, Paul E., and Peterson, Russell H., 3,787,670.

Petulla, Laurence R., and Fik, Harris B. Apparatus for applying therapeutic traction in progressive intermittent increase of magnitude. 3,786,803, Cl. 128-75.000.

Petzoldt, Karl: *See*—
Kerb, Ulrich, Wiechert, Rudolf, Petzoldt, Karl, Kieslich, Klaus, and Kolb, Karl Heinz, 3,787,454.

Pews, R. Garth: *See*—
Ungerug, Gary A., Pews, R. Garth, and Dickerson, Richard T., 3,787,506.

Pezzino, Carmine. Portable canine toilet. 3,786,780, Cl. 119-1.000.

Pfizer Inc.: *See*—
Bauer, Stuart M., 3,786,615.
McFarland, James W., 3,787,578.

Pfoudler Werke AG: *See*—
Schwab, Alfred, and Ehret, Rudolf, 3,787,307.

Phillips, John L., and Clark, Thomas A.: to G & H Technology, Inc. Parachute release. 3,787,011, Cl. 244-150.000.

Phillips Petroleum Company: *See*—
Farrar, Ralph G., 3,787,510.
Gilbert, Dixie L., 3,787,170.
Johnson, Marvin M., Tablet, Donald C., and Nowack, Gerhard P., 3,787,511.
Rakes, James L., and Cooper, Wayne L., 3,786,982.
Sherk, Fred L., 3,787,487.
Stapp, Paul R., 3,787,513.

Piasek, Edmund J., and Karll, Robert L., to Standard Oil Company. Oil-soluble aliphatic acid modified high molecular weight mannich condensation products. 3,787,458, Cl. 260-404.500.

Piazza, Bruno: *See*—
Grechele, Walter, and Piazza, Bruno, 3,787,875.

Piccolo, Luigi, Caleagno, Benedetto, and Ghirga, Marcello, to Societa Italiana Resine S.p.A. Method for preparing titanium tetrachloride. 3,787,556, Cl. 423-77.000.

Pickard, George L.: *See*—
Brown, Gayford W., and Pickard, George L., 3,787,158.

Pickett, Oscar A., Jr.: *See*—
Ridgway, James S., and Pickett, Oscar A., Jr., 3,787,373.

Piel, David, to Round Dog Corporation of America. Frankfurter cutting and scoring apparatus. 3,786,703, Cl. 83-140.000.

Pierce, Irving L.: *See*—
Schenavar, Harold E., and Pierce, Irving L., 3,786,537.

Pieters, Leon Andre, and Ward, David Charles, to Image Analysing Computers Limited. Density measurement by image analysis. 3,787,620, Cl. 178-7.100.

Piller, Bernhard, to Ciba-Geigy AG. Photographic material with bleachable dye. 3,787,215, Cl. 96-99.000.

Pillsbury Company, The: *See*—
Dryo, William R., and Standing, Charles N., 3,787,597.

Pineno, Stephen, and Tamburro, Albert, said Pineno and said Tamburro. Method and apparatus for backfilling an underground cavity. 3,786,639, Cl. 61-35.000.

Pinior, Gernot: *See*—
Sick, Erwin, Pinior, Gernot, and Plockl, Johann, 3,787,107.

Pioneer Electronic Corporation: *See*—
Murai, Masayuki, 3,787,638.
Sato, Takashi, 3,787,625.

Pioneer Magnetics, Inc.: *See*—
Berger, James K., 3,787,756.

Pioneer Medical Systems, Inc.: *See*—
Hammer, Leslie G., and Reynolds, Charles A., Jr., 3,787,767.

Pipkins, David D., to Valspar Corporation, The. Filling apparatus. 3,786,837, Cl. 137-625.320.

Pischulin, Alexandr Petrovich: *See*—
Tesner, Pavel Alexandrovich, Makarov, Konstantin Ivanovich, Ivanov, Alexandr Kornilovich, Robin, Mark Anisimovich, Slavkin, Igor Sergeevich, Pischulin, Alexandr Petrovich, Pokrass, Leonid Mikhailovich, Pochtman, Alexandr Markovich, Sheinfain, Felix Isaakovich, Kondratiev, Evgeny Mikhailovich, Moiseevich, Grigory Isaevich, Osmaga, Igor Ivanovich, and Zhitnik, Georgy Gavrilovich, 3,787,038.

Pitt, Bruce R.: *See*—
Farnsworth, Lemoyne F., Pitt, Bruce R., and Wolf, John W., 3,787,000.

Pittman, Clarence F.: *See*—
Martin, Roy A., and Pittman, Clarence F., 3,787,662.

Plempel, Manfred: *See*—
Draber, Wilfried, Buchel, Karl Heinz, Regel, Erik, and Plempel, Manfred, 3,787,415.

Plessey Handel und Investments AG: *See*—
Arnold, John Spencer, Beck, George Morland, Boom, Roger John, Cosserat, David Cockburn, Hodges, Kenneth James Hamer, Sandeman, Theodor Duncan, Williams, Roger Morley, and O'Halloran, Michael, 3,787,818.
Cole, Alun John, Cotton, John Michael, and Cosserat, David Cockburn, 3,787,813.

Plevyak, Joseph B. Double chambered reciprocatable double-action piston internal combustion engine. 3,786,790, Cl. 123-58.00c.

Plockl, Johann: *See*—
Sick, Erwin, Pinior, Gernot, and Plockl, Johann, 3,787,107.

Pluck, Rene, to Schweizerische Industrie Gesellschaft. Device for the automatic filling of biscuits into packaging containers. 3,786,617, Cl. 53-154.000.

Plumeau, Charles A., to International Telephone and Telegraph Corporation. Electronic color filter system. 3,787,609, Cl. 178-5.4st.

Plumley, Elizabeth Emmett, and Brown, David A. Smoking and cooking apparatus. 3,786,741, Cl. 99-447.000.

Pochtman, Alexandr Markovich: *See*—
Tesner, Pavel Alexandrovich, Makarov, Konstantin Ivanovich, Ivanov, Alexandr Kornilovich, Robin, Mark Anisimovich, Slavkin, Igor Sergeevich, Pischulin, Alexandr Petrovich, Pokrass, Leonid Mikhailovich, Pochtman, Alexandr Markovich, Sheinfain, Felix Isaakovich, Kondratiev, Evgeny Mikhailovich, Moiseevich, Grigory Isaevich, Osmaga, Igor Ivanovich, and Zhitnik, Georgy Gavrilovich, 3,787,038.

Poetsch, Dieter, and Hess, Heinz, to Bosch, Robert, Fernsehanlagen GmbH. System for correcting color television signals. 3,787,611, Cl. 178-5.4ae.

Poirier, Joseph L., to United States of America, Air Force. Radar fence system. 3,787,843, Cl. 343-5.0pd.

Pokrass, Leonid Mikhailovich: *See*—
Tesner, Pavel Alexandrovich, Makarov, Konstantin Ivanovich, Ivanov, Alexandr Kornilovich, Robin, Mark Anisimovich, Slavkin, Igor Sergeevich, Pischulin, Alexandr Petrovich, Pokrass, Leonid Mikhailovich, Pochtman, Alexandr Markovich, Sheinfain, Felix Isaakovich, Kondratiev, Evgeny Mikhailovich, Moiseevich, Grigory Isaevich, Osmaga, Igor Ivanovich, and Zhitnik, Georgy Gavrilovich, 3,787,038.

Polaroid Corporation: *See*—
Brandt, Edison R., and Rice, Christopher R., 3,787,636.
Land, Edwin H., 3,787,209.
Seiden, Myron A., 3,786,735.
Van Allen, David F., 3,786,737.

Pollen, Eric V.: *See*—
Manoogian, Alex, and Pollen, Eric V., 3,786,995.

Pollinger, Hans, to Knorr Bremse GmbH. Pneumatic suspension and control system for railway vehicles. 3,786,763, Cl. 105-199.00b.

Pollitzer, Ernest L.: *See*—
Donaldson, George R., and Pollitzer, Ernest L., 3,787,314.

Pollitzer, Ernest L., to Universal Oil Products Company. Production of high-octane, unleaded motor fuel. 3,787,313, Cl. 208-60.000.

Poly-Chem Industries, Inc.: *See*—
Lander, Harry L., 3,787,368.

Pomfret, Edward F.: *See*—
Dorion, Francis W., Jr., Nissen, Warren I., and Pomfret, Edward F., 3,786,563.

Poole, Victor David: *See*—
Greenshields, James Nairn, Jones, Ida May, Modliet, John Lewis, and Poole, Victor David, 3,787,173.

Popodko, Natalia Romanovna: *See*—
Vorobeva, Antonina Ivanovna, Gorina, Vera Mikhailovna, and Obolentsev, Roman Dmitrievich, 3,787,502.

Porret, Daniel, and Fatzer, Willy, to Ciba-Geigy AG. Diglycidyl compounds containing a N-heterocyclic ring. 3,787,405, Cl. 260-260.000.

Portescap: *See*—
Bonny, Jean-Pierre, 3,787,890.

Pott, Richard, to Preeismeca Gesellschaft Fur Fordertechnik M.b.H. Article of manufacture. 3,786,549, Cl. 29-116.00r.

Potter, Robert M., Robinson, Eugene S., and Smith, Morton C., to United States of America, Atomic Energy Commission. Method of extracting heat from dry geothermal reservoirs. 3,786,858, Cl. 165-1.000.

Potter, Sheila Antoinette, to Imperial Chemical Industries, Limited. Process for the manufacture of bipyridyls. 3,787,427, Cl. 260-296.00d.

Potts, Herbert M., and Frutna, Maynard A., to Container Corporation of America. Display package for elongated articles. 3,786,915, Cl. 206-45.150.

Pouliquen, Jean-Francois: *See*—
Defehvre, Andre, Leman, Gerard; and Pouliquen, Jean-Francois, 3,787,786.

Poulsen, Gene M. Turtle tray and hood (a natural habitat). 3,786,781, Cl. 119-5.000.

Powell, John Arthur, to RCA Corporation. Electron tube having internal glass member coated with crystalline ceramic material. 3,787,780, Cl. 331-94.500.

Poweray Infrared Corporation: *See*—
Heller, Anton H., 3,786,800.

Poziomek, Edward J.: *See*—
Novak, Thaddeus J.; and Poziomek, Edward J., 3,787,184.

Pratt, Richard D., and Ewing, Kenneth W., to General Electric Company. Method for making a perforated plastic article. 3,787,546, Cl. 264-156.000.

Pray, Lester W.; Christeson, John H.; Prilston, Frederick A.; Sheron, Herman D.; Drake, William H.; and Anderson, Gordon C., to Maremont Corporation. Grapser bar positioning mechanism or automatic doffer. 3,786,621, Cl. 57-52.000.

Precismeca Gesellschaft Fur Fordertechnik M.b.H.: *See*—
Pott, Richard, 3,786,549.

Pressman, Gerald L., and Kittredge, Thomas D., to Electropring, Inc. Aperture controlled electrostatic image reproduction. 3,787,876, Cl. 346-74.00p.

Preston, Ronald: *See*—
Cubbon, Robert C. P.; Braid, John E.; Oates, Alfred E.; and Preston, Ronald, 3,787,503.

Preus, Paul. Hydrocarbon retainer for drydocks. 3,786,773, Cl. 114-45.000.

Priarone, Paul: *See*—
Lowy, George W.; Priarone, Paul, and Cullis, Herbert M., 3,787,124.

Priest, Lyle Gilbert, to Information Design, Inc. Spindle braking mechanism for microfilm reader. 3,787,004, Cl. 242-204.000.

Prilston, Frederick A.: *See*—
Pray, Lester W., Christeson, John H.; Prilston, Frederick A.; Sheron, Herman D.; Drake, William H.; and Anderson, Gordon C., 3,786,621.

Procter & Gamble Company, The: *See*—
Folzenlogen, Robert G.; and Smith, James P., 3,787,595.
Smearsoll, Wayne W., and Kaar, John F., 3,786,844.

Producto Machine Company, The: *See*—
Reda, Kazimierz J., 3,786,721.

Produits Chimiques Pecainey-Saint-Gobain: *See*—
Raoul, Pierre, 3,787,447.

Produits Chimiques Ugine Kuhlmann: *See*—
De Marco, Michael, 3,787,537.

Proline Industries Pty., Ltd.: *See*—
Limes, Raydon A., 3,786,669.

Prudential Insurance Company of America, The: *See*—
Stoller, Solomon, 3,787,045.

Pruvost, Pierre: *See*—
Lebel, Constantin, and Pruvost, Pierre, 3,787,231.

Pryor, Michael J.: *See*—
Brock, Andrew J.; and Pryor, Michael J., 3,787,249.

Puckette, Charles M., Smith, Donald A., and Butler, Walter J., to General Electric Company. Bucket brigade delay line time multiplexed MTI circuit for radar. 3,787,852, Cl. 343-7.700.

Puig, John E.: *See*—
Ready, William C.; Puig, John E.; and Van Leuwen, Bruce G., 3,787,278.

Purdue Frederick Company, The: *See*—
Necrevergne, Georges, 3,787,389.

Purolator, Inc.: *See*—
Wilhelm, John R., 3,786,926.

Purzycki, Joseph R.: *See*—
Jagel, Edward H., and Purzycki, Joseph R., 3,787,071.

Putters, Robert: *See*—
Antonini, Albert; Putters, Robert; and Wetroff, Georges, 3,787,489.

Pyrah, Patrick Frank, to British Aircraft Corporation Limited. Spherical microwave lenses. 3,787,856, Cl. 343-18.00d.

Pyrol Company, Inc.: *See*—
Linderholm, Gordon J., 3,786,730.

Quaker Oats Company, The: *See*—
Hyldon, Roy G., 3,787,584.

Qually, Francis K.: *See*—
Jones, Donald A.; Orr, Howard S.; and Qually, Francis K., 3,786,664.

Questor Corporation: *See*—
Castanis, George, 3,787,599.

Rabelow, Harold H., to Marsh Stencil Machine Company. Stencil assembly with foldable adhesive covering guardian strip. 3,786,748, Cl. 101-128.100.

Radio Corporation of America: *See*—
Burton, Gardner T., 3,787,887.

Rainer, Robert R. Rechargeable battery powered light. 3,787,678, Cl. 240-10.6ch.

Rakes, James L.; and Cooper, Wayne E., to Phillips Petroleum Company. Thermoformed snap closures. 3,786,982, Cl. 229-2.500.

Ralbowsky, Isivan. Illuminated pictorial display mechanism. 3,786,582, Cl. 40-31.000.

Raleigh Industries, Limited: *See*—
Arlen, Richard, 3,787,126.

Ramsey Corporation: *See*—
McCormick, Harold E., 3,787,059.

Ramsey, Keith E., to Knickerbocker Company, The. Load-lifting mechanism for a lift truck. 3,786,902, Cl. 187-9.000.

Randall, David L.; Vogel, Calvin; and Wynn, Robert W., to GAF Corporation. Preparation of haloethane phosphonic acids. 3,787,486, Cl. 260-502.40r.

Randell, Forrest Thomson, to Weir Pumps, Limited. Sealed lubricating system module. 3,786,901, Cl. 184-6.180.

Randhava, Sarabjit Singh: *See*—
Fleming, Donald Kingsley; Randhava, Sarabjit Singh; and Camara, Elias Humberto, 3,787,468.

Randolph Computer Corporation: *See*—
Stoller, Solomon, 3,787,045.

Ransburg Electro-Coating Corp.: *See*—
Gregg, Paul S., 3,787,707.

Raoul, Pierre, to Produits Chimiques Pecainey-Saint-Gobain. Process for the preparation of 3-acetoxy phthalide. 3,787,447, Cl. 260-343.300.

Rapistan, Incorporated: *See*—
Daigle, Jack R.; and Habegger, James D., 3,786,944.
Habegger, James D.; Huttula, Andrew B.; Fowler, Daniel L.; and Schrader, James T., 3,786,939.

Rapson, William J.: *See*—
Delatorre, Leroy C.; and Rapson, William J., 3,786,675.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. 3,4-Dihydro-2-(2-hydroxy)ethyl-1-(R-amino)-pyrazino (1,2-b)-1,2-benzothiazin-11(2H)-one 6,6-dioxides. 3,787,398, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. 3,4-Dihydro-1-methylpyrazino(1,2-b)-1,2-benzothiazin-11(2H)-one 6,6-dioxides. 3,787,399, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. 1,2,3,4 Tetra hydro-11-hydroxypyrazino (1,2-b)-1,2-benzothiazine-1,3-dione 6,6-dioxide. 3,787,400, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. Novel 1,2-benzothiazine dioxides. 3,787,401, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. Thio-derivatives of 1,2-benzothiazine dioxides. 3,787,402, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. Amino-derivatives of 1,2-benzothiazine dioxides. 3,787,403, Cl. 260-243.00r.

Rasmussen, Chris Royce, to McNeil Laboratories, Inc. Novel 1,2-benzothioazine dioxides and precursors therefor. 3,787,404, Cl. 260-243.00r.

Rasmussen, Don J.: *See*—
Bucher, David Hoffer; Christie, Craig Eugene; and Rasmussen, Don J., 3,787,085.

Rasmusson, Gary H.: *See*—
Arth, Glen E.; and Rasmusson, Gary H., 3,787,394.

Rathe, Robert Allyn; and Miller, Lyle Eugene, to Deere & Company. Extension assembly for a skidder tractor stacking blade assembly. 3,786,872, Cl. 172-801.000.

Raue, Roderich: *See*—
Rohe, Ernst-Heinrich; and Raue, Roderich, 3,787,476.

Rausch, John J.; and Van Thyne, Ray J., to Surfalloy Corporation. Method of forming diffusion coatings. 3,787,228, Cl. 117-114.00r.

Ravizza, Emanuele: *See*—
Anselmino, Giovanni, and Ravizza, Emanuele, 3,787,807.

Ray, Robert A.: *See*—
Deuringer, Rudolf; Ray, Robert A.; and Sternberg, James C., 3,787,291.

Ray, Thomas J.; and Waehner, Glenn C., to United Aircraft Corporation. Bilateral high voltage DC system. 3,787,730, Cl. 307-77.000.

Rayle, Brian James; Fisher, Lester; and Smith, Harvell Morton, to Johns-Manville Corporation. Collection chamber for making mats of inorganic fibers. 3,787,194, Cl. 65-9.000.

Raymond, Robert E., to International Basic Economy Corporation. Filter apparatus for hydraulic system. 3,786,920, Cl. 210-90.000.

Raypak, Inc.: *See*—
Block, Leo; and Shippey, Frank R., 3,786,925.

Raytheon Company: *See*—
Beebe, John N., 3,787,803.
Brookner, Eli, 3,787,853.
Goldstein, Irving; Hayward, Gary G.; and Holt, Jon G., 3,786,757.

Razdan, Raj Kumar: *See*—
Pars, Harry George; and Razdan, Raj Kumar, 3,787,424.

RCA Corporation: *See*—
Eaton, Sargent Sheffield, Jr., 3,787,715.
Hatsell, William Alden, 3,787,722.
Janson, Eugene Ernst; and Muterspaugh, Max Ward, 3,787,773.
Limberg, Allen Le Roy, 3,787,629.
Powell, John Arthur, 3,787,780.
Sheng, Abel Ching Nam, 3,787,757.

Reachek, Frederick S. Pipe anchor. 3,787,131, Cl. 403-234.000.

Ready, William C.; Puig, John E.; and Van Leuwen, Bruce G., to Olin Corporation. Molded multiple density polyorethane foam. 3,787,278, Cl. 161-159.000.

Reda, Glauco, to Officina Tecnomeccanica Esecuzioni e Montaggi S.p.A., (O.T.E.M.). Pallet coupling device for chain type conveyors. 3,786,909, Cl. 198-131.000.

Reda, Kazimierz J., to Producto Machine Company, The. Clamp for rotary tables. 3,786,721, Cl. 90-58.00b.

Reed Tool Company: *See*—
Murdoch, Henry W., 3,786,879.

Reedy, Carl D., Jr., to Texas Instruments Incorporated. Chemical vapor deposition coatingson titanium. 3,787,223, Cl. 117-69.000.

Reese, Joe, to United States of America, Navy. Terminator for spiral antenna. 3,787,871, Cl. 343-895.000.

Reesf, Dennis L.: *See—*
Long, George E.; Reesf, Dennis L.; and Johnson, Floyd C., 3,786,871.

Reeves, Wilson A.: *See—*
Daigle, Donald J.; Drake, George L., Jr.; and Reeves, Wilson A., 3,787,360.

Regel, Erik: *See—*
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Regu Nationale des Usines Renault: *See—*
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Rehnborg, P. Mark: *See—*
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Reichhold Chemicals, Inc.: *See—*
Mallavarapu, Leo X., 3,787,347.

Rellinger, Oscar A. Athletic training frame with pivoted board 3,787,049, Cl. 272-58.000.

Remington Arms Company, Inc.: *See—*
Eckstein, George R.; and Bayard, Lavern S., 3,786,753.
Eckstein, George R.; and Moyher, William G., 3,786,755.

Renault, Henry Emile Edouard: *See—*
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Rendulic, Francis J.: *See—*
Guthrie, James L.; and Rendulic, Francis J., 3,787,303.

Renfrew, Edgar Earl, to American Aniline Products, Inc. Polyester textile fibers dyed with thiazole or benzothiazole carbazole dyes 3,787,178, Cl. 8-41.00c.

Renner, Earl G., to McGraw-Edison Company. Adjustable lock for a column mounted tool. 3,787,137, Cl. 408-241.00r.

Research Corporation. *See—*
Johnson, William H., 3,786,818.

Research Engineering Company: *See—*
Sheesley, John M.; and Gulick, Ronald A., 3,786,728.

Resnick, Sam L.: *See—*
Resnick, Sam L.; and Berens, Stephen (said Berens, Stephen, assor. to said), 3,787,714.

Resnick, Sam L.; and Berens, Stephen, said Berens, Stephen, assor. to said Resnick, Sam L. Electronic lock and key systems employing paired key and master coding modules. 3,787,714, Cl. 317-134.000.

Retention Communication Systems, Inc.: *See—*
Catalano, Paul D.; Buten, Norman; Fash, George B.; and Emanuel, Frank V., 3,787,114.

Reuter, Frederick A.: *See—*
Moorman, Charles J.; Meyer, Martin R.; and Reuter, Frederick A., 3,787,661.

Revor, Arthur L. Air motion apparatus. 3,786,583, Cl. 40-39.000.

Reynolds, Charles A., Jr.: *See—*
Hammer, Leslie G.; and Reynolds, Charles A., Jr., 3,787,767.

Reynolds, Gordon S.: *See—*
Pannier, Karl A., Jr.; Reynolds, Gordon S.; and Sorenson, James L., 3,786,810.

Reynolds Metals Company. *See—*
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McKee, James D.; and Lamb, John F., 3,786,661.

Rheinl, Lohmar: *See—*
Buthe, Theo; Kugler, Manfred; and Rheinl, Lohmar, 3,786,776.

Rheinmetall GmbH. *See—*
Kaltmann, Hans-Joachim, 3,786,589.

Rhone-Poulenc S.A.: *See—*
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Rhone-Poulenc S.A.: *See—*
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Riblett, Edward L., 20% to Carson, William S., 10% to Hafele, James F., 10% to Wilson, Roderick T., 5% to Gluyas, William W., Jr. and 5% to Day, John H. Hanging lamp fixture. 3,786,575, Cl. 34-99.000.

Rice, Christopher R.: *See—*
Brandt, Edison R.; and Rice, Christopher R., 3,787,636.

Rice, Milton J., to General Electric Company. Cooling system with multiple evaporators. 3,786,648, Cl. 62-200.000.

Rich, Harold T.; and Wolf, Terrence L., to Airco, Inc. System for changing the static electrical charge of CO_2 ice particles. 3,786,644, Cl. 62-10.000.

Richardson, Kay Keith, to Hoehn, Arthur F., Trustee. Exhaust control method and apparatus. 3,786,791, Cl. 123-65.0em.

Richter, Harvey E., to Tec Group, Inc., The. Axial flow unit. 3,786,996, Cl. 241-46.170.

Richter, Johan C. F. C., to Kamyr Aktiebolag. Device for discharging cellulosic pulp from a digester. 3,787,284, Cl. 162-246.000.

Richtzenhain, Herman; and Stephen, Rudolf, to Dynamit Nobel Aktiengesellschaft Patentabteilung. Stabilization of 1,1,1-trichloroethane. 3,787,509, Cl. 260-652.50r.

Rickel, E. O.: *See—*
Bieker, Ron D.; and Rickel, E. O., 3,787,030.

Rickel, Inc.: *See—*
Bieker, Ron D.; and Rickel, E. O., 3,787,030.

Ridgway, James S.; and Pickett, Oscar A., Jr., to Monsanto Company. Terpolyamides with hexamethylene terephthalamide, hexamethylene isophthalamide and caproamide units. 3,787,373, Cl. 260-18.00a.

Riedel, Wolfgang, to Bosch, Robert, Photokino GmbH. Means for transporting motion picture film or the like. 3,787,005, Cl. 242-205.000.

Rieth, Kurt A., to Textron, Inc. Expansible linkage for use in making a watchband or similar article. 3,786,629, Cl. 59-79.00r.

Rinnert, Helmut Kurt, to Globe-Union Inc. Method for emptying and filling batteries and apparatus therefor. 3,786,842, Cl. 141-1.000.

Rion, James H.: *See—*
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Rioult, Jean-Pierre, to U.S. Philips Corporation. Method of providing internal connections in a semiconductor device. 3,787,822, Cl. 340-173.0sp.

Ripstein, Terryl J. Feed conveying and dispensing apparatus 3,786,783, Cl. 119-52.0af.

Risko, Donald G.; Bosten, Donald R.; and Rusnak, Michael, to Rockwell International Corporation. Comminution apparatus 3,786,998, Cl. 241-101.700.

Ritchie, Lewis M.: *See—*
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Rivkowich, Harold: *See—*
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Rizzone, Michael L., to United States Steel Corporation. Liner seal for reciprocating pumps. 3,786,729, Cl. 92-171.000.

Ro-Band Corporation: *See—*
Farnsworth, Lemoyne E.; Pitt, Bruce R.; and Wolf, John W., 3,787,000.

Roach, Edward T.: *See—*
Hodgdon, Russell B., Jr.; and Roach, Edward T., 3,787,339.

Robbins and Bendror Associates, Inc.: *See—*
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Robbins Company, The. *See—*
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Roberge, Kenneth Joseph. *See—*
Bush, Stanley Edward, and Roberge, Kenneth Joseph, 3,787,640.

Roberts, Cecil P., to Anchor Hocking Corporation. High speed article coding machine. 3,786,746, Cl. 101-35.000.

Roberts, Charles B., and Acker, Frederick L., to Dow Chemical Company, The. Aluminum plating process. 3,787,225, Cl. 117-47.00r.

Roberts, Donald Lee, 2ational Cash Register Company. Laser recording technique using combustible blow-off. 3,787,210, Cl. 96-27.00e.

Robertshaw Controls Company. *See—*
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Robertson, H. H., Company. *See—*
Dereich, John E.; Gleeson, James E.; and Earle, Glenn J., 3,786,714.

Robertson, John M., and Wyatt, Wilbur F., to Gulf & Western Metals Forming Company. Application of bearing material 3,786,555, Cl. 29-474.300.

Robin, Mark Anismovich. *See—*
Tesner, Pavel Alexandrovich; Makarov, Konstantin Ivanovich; Ivanov, Alexandr Kornilovich; Robin, Mark Anismovich; Slavkin, Igor Sergeevich; Pschulin, Alexandr Petrovich; Pokrass, Leonid Mikhailovich; Pochtman, Alexandr Markovich; Sheinfain, Felix Isaakovich; Kondratiev, Evgeny Mikhailovich; Moiseevich, Grigory Isaevich; Osmaga, Igor Ivanovich; and Zhitnik, Greorgy Gavrilovich, 3,787,038.

Robins, A. H., Company, Incorporated. *See—*
Lerner, Irwin S., 3,786,808.

Robinson, Eugene S. *See—*
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Robinson, Joseph Gordon, and Wise, William Sydney, to Coal Industry (Patents) Limited. Treatment of coal extracts 3,787,343, Cl. 260-28.000.

Robinson, Norman Robert, to Rolls-Royce (1971) Limited. Variable area nozzle for a gas turbine engine. 3,786,992, Cl. 239-265.390.

Rocci, Salvatore A. Limited tracking repositionable az/el turret type. 3,787,870, Cl. 343-765.000.

Rocher, Edouard Yves: *See—*
Fischer, Walter; Mastai, Aldo Josef, and Rocher, Edouard Yves, 3,787,717.

Rockwell International Corporation: *See—*
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Risko, Donald G.; Bosten, Donald R.; and Rusnak, Michael, 3,786,998.
Vir Singh, Mahendra, 3,786,749.

Rodler, Waldo E., Jr., to Instrument Systems Corporation. Cantilevered hydrokinetic converter having improved bearing structure. 3,786,634, Cl. 60-361.000.

Rodwan, Edmund J.: *See—*
Appleby, Frank G.; Rodwan, Edmund J.; and Lee, William, 3,786,718.

Roeder, Robert S.: *See—*
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Rogers, Jerome S.: *See—*
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Rogers, William P., to GTE Information Systems, Incorporated. Upshift control for video display. 3,787,833, Cl. 340-324.0ad.

Rohe, Ernst-Heinrich; and Raue, Roderich, to Bayer Aktiengesellschaft. Styryl dyestuffs. 3,787,476, Cl. 260-465.00d.

Rohm & Haas Company: *See—*

Bayer, Horst O.; Hurt, William S.; and Aller, Harold E., 3,787,536.
Stevens, Travis E., 3,787,465.

Rohrbaugh, Donald Gene; Petersen, Everett James, Jr.; and Chase, Charles Peter, to Beckman Industries, Inc. Disruptor module. 3,787,185, Cl. 23-253.00r.

Rolls-Royce (1971) Limited: *See—*
Anley, Donald Maynard, 3,786,632.
Ballard, Norman Edmund, 3,787,305.
Robinson, Norman Robert, 3,786,992.

Ronson Corporation: *See—*
Cabell, Douglas N., 3,786,999.

Rosenthal, Ben J.; and Matsuoka, Earl. Motorized wheel chair drive. 3,786,887, Cl. 180-6.500.

Ross, Irving D., Jr.: *See—*
Galbarzyk, Leslie L.; Ross, Irving D., Jr.; and Madland, Thorvald, 3,786,599.

Roth, Donald J., to Continental Can Company Inc. Electropneumatic or electrohydraulic cutoff, flanging and re-forming of tubing. 3,786,662, Cl. 72-55.000.

Round Dog Corporation of America: *See—*
Piel, David, 3,786,703.

Rounion, William A.: *See—*
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Rouse, James D.: *See—*
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Roussel-UCLAF: *See—*
Nedelec, Lucien; Guillaume, Jacques; and Allais, Andre, 3,787,445.

Rousselie, Claude Joseph; and Lacharlotte, Pierre, to S.I.C.A. "Pomanjou". Fruit-grading plant. 3,786,917, Cl. 209-123.000.

Roy, Charles A.: *See—*
Cote, Paul; and Roy, Charles A., 3,787,770.

Royal Institution of Great Britain, The: *See—*
West, Michael Anthony, 3,787,695.

Rudness, Robert G., to Union Carbide Corporation. Low-friction, wear-resistant material. 3,787,229, Cl. 117-132.0be.

Rudolph, Paul; Kapp, Ernst; Kempf, Georg, and Farana, Wolf-Rudiger, to Metallgeschaft Aktiengesellschaft. Desulfurization of water-containing hot compressed gases. 3,787,559, Cl. 423-222.000.

Ruff, Paul H., and Schnur, Jerome C., to Tryco Manufacturing Company, Inc. Modular structure transporting apparatus. 3,786,951, Cl. 214-512.000.

Ruhchemie Aktiengesellschaft: *See—*
Schaub, Franz; and Speth, Sebastian, 3,787,166.

Runkle, Donald R.: *See—*
Lazarchik, Robert E.; Roeder, Robert S.; and Runkle, Donald R., 3,787,857.

Ruschig, Heinrich; Schmitt, Karl; Mohler, Werner; Gobel, Axel; and Lindner, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Heters cyclic ethers of piperazine nalkanols. 3,787,411, Cl. 260-268.0ph.

Rushing, Wilford A.; and Sulzberger, Robert D. Signal light. 3,787,675, Cl. 240-10.6sd.

Rusnak, Michael. *See—*
Risko, Donald G.; Bosten, Donald R.; and Rusnak, Michael, 3,786,998.

Ryan Instruments, Inc.: *See—*
Johnson, Jerry E., 3,787,885.

Rybak, Boris. Catheterizable multiple photometer usable in any penetrable medium. 3,787,119, Cl. 356-73.000.

Ryka Scientific, Inc.: *See—*
Sedin, James W., 3,787,772.

Rypkema, Jouke N.: *See—*
De Vries, Adrian J.; and Rypkema, Jouke N., 3,787,612.

S.A. Dite Societe d'Exploitation des Etablissements Malenge: *See—*
Malenge, Pierre, 3,786,984.

Saari, Oliver E., to Illinois Tool Works, Inc. Method and tooling for cutting side seal grooves. 3,786,702, Cl. 83-5.000.

Sachs, Kurt; Foreman, Frederick Arthur; and Barlow, John, to G.K.N. Group Services, Limited. Production of composite materials containing coated inorganic fibers. 3,787,204, Cl. 75-212.000.

Saint-Gobain: *See—*
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Saito, Junichi: *See—*
Aya, Hasahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Norishima, Norihisa, 3,787,393.

Saito, Kimio; and Fujisawa, Yutaka. Rotary casting method of killed steel. 3,786,855, Cl. 164-126.000.

Saito, Kiyoshi, to Hitachi, Ltd. Laminated iron core of rotary electric machines. 3,787,744, Cl. 310-217.000.

Saito, Yuichi; Shikanu, Tokuzo; and Kimura, Masanori, to Mitsubishi Kinzoku Kogyo Kabushiki Kaisha. Method of manufacturing a composite bimetallic sleeve for a die-casting machine. 3,786,552, Cl. 29-420.500.

Sakurai, Hisaya: *See—*
Aishima, Itsuho; Sakurai, Hisaya; Takashi, Yukichi; Morita, Hideo; Hirotsu, Yoshiyuki; and Hamada, Tetsuo, 3,787,323.

Saldana, Guadalupe: *See—*
Stephens, Thomas S.; Saldana, Guadalupe; and Brown, Harold E., 3,787,589.

Salmon, Jacques, to Thomson-CSF. Electronic-scan antenna. 3,787,858, Cl. 343-100.0sa.

Salomon, Georges Pierre Joseph. Ski binding with lateral release. 3,787,070, Cl. 280-11.35t.

Salton, Frank G.; and Silverstein, Abraham, to United States of America, Navy. Delay timer. 3,787,740, Cl. 307-293.000.

Sandeman, Theodor Duncan: *See—*
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Sanders, Louis J. Anti-sway bar. 3,787,077, Cl. 280-446.00b.

Sanderson, Andrew G. Refractory furnace. 3,787,172, Cl. 432-250.000.

Sanderson, Gary Warner; and Simpson, William Shaw, to Lipton, Thomas J., Inc. A pectinase enzyme treating process for preparing high bulk density tea powders. 3,787,582, Cl. 426-50.000.

Sandler, Merton. Pharmaceutical compositions and methods of treatment. 3,787,581, Cl. 424-319.000.

Sandoz Ltd.: *See—*
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Sandoz-Wander, Inc.: *See—*
Anderson, Paul L.; and Manning, Robert E., 3,787,410.
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Sandvikens Vernverks Aktiebolag: *See—*
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Lundgren, Evert Gustav, 3,786,541.

Sano, Hiroshi, to Tomy Kogyo Co., Ltd. Amusement device. 3,786,597, Cl. 46-243.01v.

Sansui Electric Co., Ltd.: *See—*
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Santori, Charles M., to Setcom Corporation. Bone conduction microphone assembly. 3,787,641, Cl. 179-107.0bc.

Sarich, Tony Ralph. Rotary motor. 3,787,150, Cl. 418-61.000.

Sarns, Norman M. Shaft lock. 3,786,775, Cl. 115-.50r.

Sartorius, Otto W., to Diagrostic, Inc. Method and apparatus for aiding in the detection of breast cancer. 3,786,801, Cl. 128-2.00f.

Sato, Hisao: *See—*
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Sato, Masamich; and Nabara, Akira, to Fuji Photo Film Company Ltd. Laser recording method and material therefor. 3,787,873, Cl. 346-1.000.

Sato, Masanori: *See—*
Himizu, Junichi; Harigaya, Shoichi; Ishida, Akihiko; Yoshikawa, Kaoru; and Sato, Masanori, 3,787,448.

Sato, Shigeru, to Nippon Miniature Bearing Co. Ltd., Tanaka Diecast Co. Ltd. and Yokohama Diecast Co. Ltd. Method of producing rotating joint member by casting. 3,786,543, Cl. 29-149.50b.

Sato, Takashi, to Pioneer Electronic Corporation. Automatic telephone answering apparatus with confirmation of answer grip length for midcycle switching. 3,787,625, Cl. 179-6.00r.

Sato, Yoichi, to Nippon Electric Company Limited. Self-adaptive equalizer for quadrature amplitude modulated signals. 3,787,762, Cl. 325-42.000.

Satoh, Setsuo: *See—*
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Sauer, Richard W. Portable golf bag stand. 3,787,017, Cl. 248-96.000.

Sauron, Georges: *See—*
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Sauthier, Pierre, to Societe Suisse pour l'Industrie Horlogere Management Services S.A. Arrangement for correcting of seconds indication of a timepiece. 3,786,625, Cl. 58-23.00r.

Sawa, Kenneth B.: *See—*
Neii, Radhakrishna Murty; Sawa, Kenneth B.; and Bing, Colin C., 3,787,309.

Sawazi, Masao: *See—*
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Scarnato, Thomas J.; Gordon, Paul C.; Sorensen, Robert; and Lawler, Craig M., to International Harvester Company. Balanced mower. 3,786,620, Cl. 56-163.000.

Schaeffer, Charles H. Connector assembly and method of use. 3,787,606, Cl. 174-65.00r.

Schafer, Robert P.; Braun, Leonard A.; and Maki, Terrence C., to Longyear Company. Soil sampler apparatus. 3,786,877, Cl. 175-249.000.

Scharfe, Gerhard: *See—*
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Schaub, Franz; and Speth, Sebastian, to Ruhchemie Aktiengesellschaft. Process for the thermal treatment of rubber and other plastic materials. 3,787,166, Cl. 431-11.000.

Schenavar, Harold E.; and Pierce, Irving L. Gripper for elongated members. 3,786,537, Cl. 24-134.00r.

Scheppe, John J.; and Carini, Raymond N., to Helme Products, Inc. Method of and a device for controlling the process temperature in an air stream drying system. 3,786,573, Cl. 34-10.000.

Schera, Enos L., Jr. Safety sledge-hammer. 3,786,847, Cl. 145-29.00r.

Schering Aktiengesellschaft: *See—*
Kerb, Ulrich; Wiechert, Rudolf; Petzoldt, Karl; Kieslich, Klaus; and Kolb, Karl Heinz, 3,787,454.

Schermerhorn, Jerry D., to Owens-Illinois, Inc. Monolithically structured gas discharge device and method of fabrication. 3,787,106, Cl. 316-17.000.

Schertler, Roman; *See—*

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Scheuring, George R.: *See—*
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Schlage Lock Company: *See—*
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Hofford, Thomas P.; and De Vines, Hollis L., 3,786,578.
Schlegel Company Canada, Limited: *See—*
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Schlumberger Instruments et Systemes: *See—*
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Schmid, Dieter: *See—*
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Schmidt, Alfred C., Jr.: *See—*
Courtney-Pratt, Jeofry S.; and Schmidt, Alfred C., Jr., 3,786,840.
Schmidt, Andreas; Schwarzenbach, Kurt, and Brunetti, Heimo, to Ciba-Geigy Corporation. Benzylation of dialkyl phosphites with dithiourethanes. 3,787,540, Cl. 260-970.000.
Schmidt, Ferenc J., to Ametek, Inc. Marine waste disposal apparatus 3,786,923, Cl. 210-152.000.
Schmidt, John E.; deceased (by Schmidt, Margaret J., legal representative); and Jorgensen, George N., said Jorgensen assor to Square D Company. Top cover for a bus duct joint. 3,787,794, Cl. 339-22.00b.
Schmidt, Margaret J.: *See—*
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Schmidt, Walter: *See—*
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Schmitt, Jerry C., to King Radio Corporation. Method and apparatus for testing area navigation computers. 3,787,671, Cl. 235-150.260.
Schmitt, Karl: *See—*
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Schneeberger, Fritz: *See—*
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Schneider, Guenter E., to Digital Equipment Corporation. Magnetic head adjustment assembly. 3,787,644, Cl. 179-100.2ca.
Schneider, Richard N.: *See—*
Manning, Lindley, and Schneider, Richard N., 3,786,631.
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Schnur, Jerome C.: *See—*
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Schoepflin, David: *See—*
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Scholl, Hans-Joachim; Klauke, Erich, Grewe, Ferdinand, and Hammann, Ingeborg, to Bayer Aktiengesellschaft 4,5-Bis-(trifluoromethylimino) diazoles. 3,787,435, Cl. 260-309.200.
Schrader, Gerhard, Eue, Ludwig; Hack, Helmuth, Hirane, Seiichi, Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, to Bayer Aktiengesellschaft. Phosphoro-amido-thioates. 3,787,538, Cl. 260-954.000.
Schrader, James T.: *See—*
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Schrodt, Gerd: *See—*
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Schroeder, Kenneth H., and Kelly, George J., Jr., to Allied Chemical Corporation. Chemical strippers and method of using. 3,787,239, Cl. 134-2.000.
Schuele, Donald E.: *See—*
Andeen, Carl G.; Fontanella, John J.; and Schuele, Donald E., 3,787,764.
Schulmeister, Lee F., and Nickols, Richard C., Jr. Method of catalyzing porous electrodes by replacement plating. 3,787,244, Cl. 136-120.00fc.
Schulte, Erich; and Hebel, Ulrich. Geometry apparatus. 3,786,568, Cl. 33-76.00r.
Schultz, Henry L., Jr.: *See—*
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Schulz, Arthur C.: *See—*
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Schutte, Leonard: *See—*
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Schwab, Alfred; and Ehret, Rudolf, to Pfoudler-Werke AG. Sensing element to sense ions in liquids. 3,787,307, Cl. 204-195.00g.
Schwartz, Bernard: *See—*
Berman, Richard M.; and Schwartz, Bernard, 3,786,683.
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Schwartz, William H., Jr., and Maxwell, Billy D. Incinerator type environmental control system. 3,786,767, Cl. 110-8.00a.
Schwarze, Werner: *See—*
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Schwarze, Werner, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Herbicide based on cyanoalkylaminotriazines 3,787,199, Cl. 71-93.000.
Schwarzenbach, Kurt: *See—*
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Scott, Allan W., to Varian Associates. Periodic magnetically focused beam tube. 3,787,747, Cl. 315-3.500.
Scott, Arthur Leslie, Parsons, J. Hilton, Jr., and Hammond, John S., to Shakespeare Company. Hank forming machine for a pole construction and a method of forming a pole. 3,787,268, Cl. 156-425.000.
Scott, Clarence A., Jr., to Beneficial Insect Control, Inc. Method of raising and handling wasps. 3,786,594, Cl. 43-124.000.
Seabase, Paul L., to United States of America, Army. Apparatus for controlling charging of storage batteries with sensing the D C of the electrolyte. 3,787,754, Cl. 320-43.000.
Seals, William O., to United States of America, Army. Pressure sensitive mine insensitive to water deactivation. 3,786,751, Cl. 102-8.000.
Seaquist Valve Company: *See—*
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Clark, James R., and Gearheard, Larry P., 3,786,579.
Sedin, James W., to Ryka Scientific, Inc. F M transmitter employing magnetically modulated ferrimagnetic resonator. 3,787,772, Cl. 325-171.000.
Sedova, Vera Nikolaevna: *See—*
Vorobeva, Antonina Ivanovna, Gorina, Vera Mikhailovna, and Obolentsev, Roman Dmitrievich, 3,787,502.
Seegmiller, David W., and King, Lowell A. Electrochemical cell with aluminum electrodes and different electrolyte concentration in two compartments. 3,787,242, Cl. 136-83.000.
Segelhorst, August L. Drilling control device. 3,786,864, Cl. 166-187.000.
Seglin, Leonard, and Gray, Charles A., to FMC Corporation. Production of water gas. 3,787,193, Cl. 48-204.000.
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Seiden, Myron A., to Polaroid Corporation. Photographic apparatus 3,786,735, Cl. 95-49.000.
Seidensticker, Horst. Apparatus for de-burring or chamfering of gears 3,786,601, Cl. 51-129.000.
Sele, Georges J. F. Medical appliance. 3,786,523, Cl. 5-81.00b.
Semon, Albert L. Rotary plug valve. 3,787,028, Cl. 251-317.000.
Senior, Franklin C.; and MacGregor, Douglas, to Cationic Corporation. Process for the concurrent recovery of acid and metal values from spent pickle acid containing the same. 3,787,306, Cl. 204-105.00r.
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Sgrillo, John J., to Farrington Company, The. Latch seat for knitting needle. 3,786,654, Cl. 66-121.000.
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Scott, Arthur Leslie; Parsons, J. Hilton, Jr.; and Hammond, John S., 3,787,268.
Shaler, David; and Long, John H., to Muirhead, Inc. Facsimile recorder with guided styli. 3,787,889, Cl. 346-139.00a.
Shamaly, Thomas P., to USM Corporation. Explosive fastener driving tool. 3,786,977, Cl. 227-8.000.
Shank, Gerald G., to Textron, Inc. Snowmobile muffler and header assembly. 3,786,890, Cl. 180-64.00a.
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Shedrow, Sidney. Eyeglasses, and mounting means therefor. 3,787,113, Cl. 351-43.000.
Sheeley, Donald R.; Rion, James H.; Cook, William R.; and Biggs, William A., Jr., to Sonoco Products Company. Treatment of waste liquor from pulp production. 3,787,283, Cl. 162-36.000.
Sheesley, John M.; and Gulick, Ronald A., to Research Engineering Company. Actuator override. 3,786,728, Cl. 92-33.000.
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Shellhause, Ronald L., to General Motors Corporation. Open center control valve. 3,787,029, Cl. 231-333.000.
Shellhause, Ronald L., to General Motors Corporation. Inertia valve in a deceleration energized load controlled brake valve. 3,787,096, Cl. 303-24.00f.
Shen, Tsung-Ying, Witzel, Bruce E.; and Walford, Gordon L., to Merck & Co., Inc. Substituted phenylsulfamyl salicylic acids and derivatives thereof in the treatment of inflammation. 3,787,570, Cl. 424-233.000.
Sheng, Abel Ching Nam, to RCA Corporation. Circuit for supplying regulated power upon demand. 3,787,757, Cl. 323-4.000.
Shepheard, William L. Sheet metal door with foam plastic core. 3,786,613, Cl. 52-619.000.
Sherk, Fred T., to Phillips Petroleum Company. Preparation of metal salt slurries from metal salt solutions. 3,787,487, Cl. 260-515.00p.
Sherman, Frederick A., to GTE Information Systems, Incorporated. System for transferring data. 3,787,820, Cl. 340-172.500.
Sheron, Herman D.: *See—*
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Shields, Ross Bisbee, to Atomic Energy of Canada, Limited. Neutron and gamma flux detector. 3,787,697, Cl. 250-390.000.
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Shima, Takeo, Urasaki, Takanori; and Oka, Isao, to Teijin Limited. Process for the preparation of substantially linear polyesters of low free carboxyl group content. 3,787,370, Cl. 260-75.00r.
Shimada, Sadakuni; Hashimoto, Kunio; Kondoh, Ken; and Koyama, Masaki, to Nippon Telegraph and Telephone Public Corporation. Circular waveguide mode filter. 3,787,787, Cl. 333-98.00m.
Shimizu, Mahito: *See—*
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Shimizu, Tatsuro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Exposure controls for motion picture cameras. 3,787,116, Cl. 352-141.000.
Shinoyama, Tsuneyoshi: *See—*
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Shipp, John I.: *See—*
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Shufflebarger, Earl D.; Gallagher, Bernard J.; Simko, David M.; and Boylan, John R., to Nupro Company. Bellows valve. 3,787,023, Cl. 251-335.00b.
Shull, Robert W., to Anchor Hocking Corporation. Closure cap liner. 3,786,954, Cl. 215-40.000.
Shvartsman, Valery Lvovich; and Kirillovich, Anatoly. Device for continuous mixing of powdered materials. 3,787,034, Cl. 259-3.000.
S.I.C.A. "Pomanjou": *See—*
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Sick, Erwin; Pinior, Gernot; and Plockl, Johann, to Zellweger AG Apparate- und Maschinenfabrik Uster. Scanner apparatus for optically discernible characters. 3,787,107, Cl. 350-7.000.
Siclari, Francesco; Magnoni, Franco; and Fulmini, Sergio, to Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A. Method for the continuous performance of esterification under thermal conditions. 3,787,481, Cl. 260-475.00p.
Siemens Aktiengesellschaft: *See—*
Kammerl, Anton; and Steigenberger, Hasso, 3,787,635.
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Sigrist, Willy. Method and apparatus for measuring the weight of solid particles suspended in a carrier gas. 3,787,123, Cl. 356-103.000.
Sikorski, Robert P.: *See—*
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Skelly, David W.; and Wagner, Bernard C., to General Electric Company. Aqueous dispersions of finely divided lubricants in polyamide acid. 3,787,338, Cl. 260-29.20n.
Skujins, Romans, Jr., to United States of America, Army. Coaxial magnetostrictive accelerometer. 3,786,674, Cl. 73-71.400.
Slama, Karel: *See—*
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Slavkin, Igor Sergeevich: *See—*
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Sletten, Carlyle J.; and Goggins, William B., Jr., to United States of America, Air Force. Airborne digital moving target detector. 3,787,849, Cl. 343-7.700.
Sletten, Carlyle J.; and Goggins, William B., Jr., to United States of America, Air Force. Airborne analog moving target detector. 3,787,850, Cl. 343-7.700.
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Smiley, Vern N.; Lewis, Adolph L.; and Forbes, David K., to United States of America, Navy. Method of producing a thin film laser. 3,787,234, Cl. 117-217.000.
Smith, Arthur F.: *See—*
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Smith, Robert W.; Ordway, Fred; Taylor, Charles A.; and Zimmerman, William, III, to Artech Corporation. Irreversible warm-up indicator. 3,786,777, Cl. 116-114.0ab.
Smith, Ronald M.: *See—*
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Snyder, Donald E.; and Batcheller, Roy W., to Crane-Veyor Corporation. Joint for tubular structure. 3,787,033, Cl. 256-59.000.
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Societa Italiana Resine S.p.A.: *See—*
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Solvay & Cie: *See—*
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Sommerfeld, Karl, and Zelldann, Herbert, to Daimler-Benz Aktiengesellschaft. Installation for defoaming lubricants. 3,786,618, Cl. 55-159.000.
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Spontelli, Leonard P., to Crawford Fitting Company. Apparatus for testing swaged ferrules. 3,786,677, Cl. 73-88.00r.
Sporn, Stanley R.: *See—*
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Staniland, Philip Anthony; and Jarrett, Graham, to Imperial Chemical Industries, Limited. Aromatic poly sulfones. 3,787,363, Cl. 260-49.000.
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Stanley Works, The: *See—*
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Stephens, Thomas S.; Saldana, Guadalupe; and Brown, Harold E., to United States of America, Agriculture. Process for preparing carrot juice. 3,787,589, Cl. 426-325.000.
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Stephenson, Robert L.: *See—*
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Stevens, Jacques, and George, Michel, to Solvay & Cie. Catalysts and process for the polymerization of olefins. 3,787,384, Cl. 94-9.0da.
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Stolzer, Claus, Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, to Bayer Aktiengesellschaft. O-alkyl(alkenyl)-N-monoalkyl(alkenyl)-S-(N-monoalkyl (alkenyl)-carbamylmethyl)-thionothiolphosphoric acid ester amides. 3,787,535, Cl. 260-943.00.
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Stork, Harald: *See—*
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Sutton, Blaine M.; and Weinstock, Joseph, to Smith Kline & French Laboratories. Arthritic compositions comprising an s-(phosphine-or phosphitoaurous)-thiouronium halide and method of producing anti-arthritic activity. 3,787,568, Cl. 424-211.000.
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Suzuki, Koji: *See—*
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Swader, Robert E.: *See—*
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Swartz, Elmer L., to United States of America, Army. Fluid multi-and logical circuit. 3,786,838, Cl. 137-814.000.
SWF Spezialfabrik fur Autozubehor Gustav Rau GmbH: *See—*
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Symonds, Dean Homer, to Deere & Company: Spout control system. 3,786,945, Cl. 214-42.00a.
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Takagi, Tooru; Shinoyama, Tsuneyoshi; and Satoh, Setsuo, to Orient Watch Co., Ltd. Dial plates for timepieces. 3,786,627, Cl. 58-127.00r.
Takahashi, Tadao; and Kitabayashi, Shoji, to Iwatsu Electric Company, Limited. Method and apparatus for depicting letters patterns and the like on substrates. 3,787,258, Cl. 156-73.000
Takamizawa, Akira; and Sato, Hisao. Certain pyrazolo [1,5-a] pyrimido [4,5-d] pyrimidines. 3,787,408, Cl. 260-256.40f.
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Watrous, Donald L., to General Electric Company. Current-sensing circuit for determining flashing of a photoflash lamp. 3,787,167, Cl. 431-95.000.

Watson, Fred D., and Mohr, John L., to McDonnell Douglas Corporation. Means for synchronizing remotely positioned timing devices. 3,787,665, Cl. 235-150.230.

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Weeks, Cluster G. Fishing rod retrieving device. 3,786,590, Cl. 43-25.000.

Wegmuller, Hans; and Kleemann, Alois, to Ciba-Geigy AG. Process for the non-aqueous continuous dyeing and printing of fibre material made from synthetic polyamide. 3,787,180, Cl. 8-172.000.

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Weier, Richard M., to Searle, G. D., & Co. 17-Hydroxy-7-(lower alkoxy) carbonyl-3-oxo-17α-pregn-4-ene-21-carboxylic acidα-lactones and congeners. 3,787,396, Cl. 260-239.570.

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Wright, Archibald N.; Burgess, William R.; and Wilkos, Edward V., to General Electric Company. Photopolymerization of tetrafluoroethylene and polymer and products produced therefrom 3,787,382, Cl. 260-92.10r

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York, John J., Jr., to Schiefler Tool & Engineering, Inc. Metal bending machine. 3,786,666, Cl. 72-305.000.

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LIST OF DEFENSIVE PUBLICATIONS

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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687.

Blount, William W., Jr., R. H. Calendine, and J. L. Suggs. Molding resin compositions. T918,011, 1-22-74, Cl. 260—16.

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Davison, Gerald A., and E. J. Nauss, to International Business Machines Corp. Rescheduling of I/O interrupts. T918,015, 1-22-74, Cl. 444—1.

Dunham, Bradford, and J. H. North, to International Business Machines Corp. Natural selection program with randomization traffic-jam mechanism. T918,013, 1-22-74, Cl. 444—1.

Dunham, Bradford, and J. H. North. Natural selection method for design automation including a moving line scorer. T918,014, 1-22-74, Cl. D444—1.

Hartmann, Francis M., R. A. Jones, T. E. Larson, K. R. McNary, and J. T. Zahorsky, to International Business Machines Corp. Computer terminal message control. T918,012. 1-22-74, Cl. 340—172.5.

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Jones, Richard A.: *See*—
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Larson, Theodore E.: *See*—
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McNary, Kenneth R.: *See*—
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LIST OF REISSUE PATENTEES

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American Can Co.: *See*—
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Blake, Carl B., by Sinclair & Valentine Co., Inc. Heat transfer of indicia containing sublimable coloring agent. Re. 27,892, 1-22-74, Cl. 101—470.

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Murray Ohio Mfg. Co., The: *See*—
Manofsky, William L. 230,046.
Nagata, Kazuteru, to Tokyo Shibaura Electric Co., Ltd. Electronic copier. 230,084, 1–22–74, Cl. D61—1.
Nash, Alan W. B.: *See*—
Toy, Raymond M., Nash, and Prodger. 230,040.
Niemeyer, Oscar, Mobiller International S.A. Lounge chair. 229,995, 1–22–74, Cl. D6—78.
Nimmers, Jody L., to Paco Safety Products, Inc. Flashlight. 230,068, 1–22–74, Cl. D48—24.
Olinkraft, Inc.: *See*—
Sherman, Earle C. 230,075.
Olivetti, Ing., C., & C., S.p.A.: *See*—
Bellini, Mario. 230,088.
Orion Industries, Inc.: *See*—
Gibbons, Frederick O. 230,008.
Orr, Edward R. Water pipe. 230,099, 1–22–74, Cl. D85—8.
Pappas, Michael, to Falcon Safety Products, Inc. Power operated horn. 230,090, 1–22–74, Cl. D72—1.
Pelensky, Walter J. Stringed musical instrument. 230,076, 1–22–74, Cl. D56—1.
Pelensky, Walter J. Stringed musical instrument. 230,077, 1–22–74, Cl. D56—1.
Pelensky, Walter J. Stringed musical instrument. 230,078, 1–22–74, Cl. D56—1.
Pelensky, Walter J. Semi-fretted harp type Ukrainian bandura. 230,079, 1–22–74, Cl. D56—1.
Penn Plax Plastics, Inc.: *See*—
Goldman, Marvin A., and J. N. 230,033.
Goldman, Marvin A., and J. N. 230,081.
Perl, Sidney. Indicator belt. 229,990, 1–22–74, Cl. D2—380.
Pfoerfner, Rolf. Traction link for automobile tires. 230,017, 1–22–74, Cl. D12—154.
Poly-Optics, Inc.: *See*—
Monroy, Jeffrey L. 230,030.
Primault, Andre, to Societe Generale de Fonderie. Bathtub. 230,021, 1–22–74, Cl. D23—55.
Prodger, Brian S.: *See*—
Toy, Raymond M., Nash, and Prodger. 230,040.
Questor Corp.: *See*—
Langleri, Michael, Jr. 230,043.
Red Devil Inc.: *See*—
Mesiner, Edward H. 230,086.
Redstone, Robert A., to Survival & Rescue, Inc. Light flasher. 230,091, 1–22–74, Cl. D72—1.
Reiter, Trinie G. Lamp-table. 230,096, 1–22–74, Cl. D6—177.
Renean, Elton. Lady's handbag. 230,102, 1–22–74, Cl. D87—3.
Risk, George, Industries, Inc.: *See*—
Mueller, Edward G. 230,027.
Robert, Tony. Holder for food bowl for pets. 230,031, 1–22–74, Cl. D30—13.
Robert, Tony. Holder for a food bowl for pets or similar article. 230,032, 1–22–74, Cl. D30—13.
Rocker, Elmer: *See*—
Blazey, Lawrence, Silverstrom, and Rocker. D229,999.
Roper Corp.: *See*—
Guthrie, Rodney L., Condon, and Combs. 230,006.
Royster, Ronald B., Sr. Plate for chain door locks. 230,009, 1–22–74, Cl. D8—137.
Rylee, Robert T., II. Extractor for use in implanting prothesis in total knee orthopedic procedure. 230,095, 1–22–74, Cl. D83—12.
Rylee, Robert T., II. Template for use in implanting prosthesis in total knee orthopedic procedure. 230,096, 1–22–74, Cl. D83—12.
Rylee, Robert T., II. Pusher for use in implanting prosthesis in total knee orthopedic procedure. 230,097, 1–22–74, Cl. D83—12.
Rylee, Robert T., II. Saw guide for use in implanting prosthesis in total knee orthopedic procedure. 230,098, 1–22–74, Cl. D83—12.
Saito, Shigeru. Toy cooking pot. 230,041, 1–22–74, Cl. D34—15.
Saito, Shigeru. Toy tea pot. 230,042, 1–22–74, Cl. D34—15.
Sand, Carroll E., to Sears, Roebuck & Co. Device for teaching the telling of time. 230,021, 1–22–74, Cl. D25—1.
Sears, Roebuck and Co.: *See*—
Sand, Carroll E. 230,024.
Shanks, Harry R. 230,089.
Sedley, Abe, to International Seaway Trading Corp. Shoe. 229,989, 1–22–74, Cl. D2—340.
Shanks, Harry R., to Sears, Roebuck and Co. Refrigerator drawer cover. 230,089, 1–22–74, Cl. D67—3.
Sheller-Globe Corp.: *See*—
Cox, Donald H. 230,019.
Sherman, Earle C., to Olinkraft, Inc. Packaging machine. 230,075, 1–22–74, Cl. D55—1.
Shiley Laboratories, Inc.: *See*—
Johnson, George M. 230,092.
Shlosinger, Bernard E., Jr. Reed switch envelope. 230,028, 1–22–74, Cl. D26—13.
Silverstrom, David: *See*—
Blazey, Lawrence, Silverstrom, and Rocker. 229,999.
Sims, John D., to International Business Machines Corp. Video monitor. 230,026, 1–22–74, Cl. D26—5.
Small, Douglas M., and V. Gosselin, to Stanley Home Products, Inc. Hairbrush. 229,991, 1–22–74, Cl. D4—13.
Societe Generale de Fonderie: *See*—
Primault, Andre. 230,021.
Stanley Home Products, Inc.: *See*—
Small, Douglas M., and Gosselin. 229,991.
Stone, Bernard A.: *See*—
Knife, Dennis, and Stone. 230,029.
Stout, W. J., Co.: *See*—
Edgell, George P., Sr. 230,014.
Survival & Rescue, Inc.: *See*—
Redstone, Robert A. 230,091.
Synero-System Corp.: *See*—
Knife, Dennis, and Stone. 230,029.
Tansel, Cecil L. Animal securing gate. 230,038, 1–22–74, Cl. D30—99.
Thayer, William S.: *See*—
Garrett, Clyde B., Lulie, and Thayer. 230,074.
Thomas, Gordon D., to Kimberly Clark Corp. Paper toweling or similar article. 230,081, 1–22–74, Cl. D59—2.
Thompson, Richard W., to Litton Business Systems, Inc. Lounge chair. 229,994, 1–22–74, Cl. D6—78.
Tokyo Shibaura Electric Co., Ltd.: *See*—
Nagata, Kazuteru. 230,084.
Toland, Elton C. Jar or the like. 230,011, 1–22–74, Cl. D9—164.
Toy, Raymond M., A. W. Nash, B. S. Prodger, to Mattel, Inc. Toy vehicle launcher. 230,040, 1–22–74, Cl. D34—15.
Van Horn, Roy, Jr., to Hayward, Van Horn. Combined candle and holder therefor. 230,067, 1–22–74, Cl. D48—2.
Van Wyck International Corp.: *See*—
Weiss, Harold. 230,005.
Weiss, Harold, to Van Wyck International Corp. Electric can opener, or similar article. 230,005, 1–22–74, Cl. D8—35.
Wright, June M. Food serving tray. 230,001, 1–22–74, Cl. D7—38.
Yoshinaga Prince Co., Ltd.: *See*—
Yoshinaga, Sadao. 230,069.
Yoshinaga, Sadao. 230,070.
Yoshinaga, Sadao, to Yoshinaga Prince Co., Ltd. Cigarette lighter. 230,069, 1–22–74, Cl. D48—27.
Yoshinaga, Sadao, to Yoshinaga Prince Co., Ltd. Head for cigarette lighter for table use. 230,070, 1–22–74, Cl. D48—27.

CLASSIFICATION OF PATENTS

ISSUED JANUARY 22, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2		**CLASS 32**		88R	3,786,626	586	3,786,695	**CLASS 100**		**CLASS 123**	
6	3,786,519	8	3,786,565	127R	3,786,627	687	3,786,696	99	3,786,742	32EA	3,786,788
2.9	3,786,520	29	3,786,566	152B	3,786,628	**CLASS 75**		229A	3,786,744		3,786,789
CLASS 4		**CLASS 33**		**CLASS 59**		.5B	3,787,200	270	3,786,743	58C	3,786,790
172.015	3,786,521	23B	3,786,567	79R	3,786,629	125	3,787,201	**CLASS 101**		65EM	3,786,791
237	3,786,522	76R	3,786,568	**CLASS 60**		134F	3,787,202	1	3,786,745	90.67	3,786,797
CLASS 5		174E	3,786,569	13	3,786,630	171	3,787,203	35	3,786,746	97B	3,786,792
81B	3,786,523	270	3,786,570	26	3,786,631	212	3,787,204	128.1	3,786,748	119A	3,786,793
100	3,786,524	288	3,786,572	39.74R	3,786,632	226	3,787,205	247	3,786,749	139ST	3,786,794
CLASS 8		363K	3,786,571	255	3,786,633	**CLASS 81**		350	3,786,747	193H	3,786,795
1E	3,787,173	**CLASS 34**		278	3,786,635	9.51	3,786,697	470	Re.27,892	195R	3,786,796
1	3,787,174	10	3,786,573	361	3,786,634	52.4	3,786,699	**CLASS 102**		**CLASS 126**	
4	3,787,175	23	3,786,574	548	3,786,636	57.39	3,786,698	8	3,786,750	343.5A	3,786,800
	3,787,176	99	3,786,575	**CLASS 61**		**CLASS 82**			3,786,751	350R	3,786,798
39	3,787,177	104	3,786,576	1F	3,786,637	1B	3,786,700	24R	3,786,752	**CLASS 127**	
41C	3,787,178	**CLASS 35**		30	3,786,638	**CLASS 83**		42C	3,786,753	1	3,787,241
45	3,787,179	31R	3,787,599	35	3,786,639	1	3,786,701	43P	3,786,755	**CLASS 128**	
172	3,787,180	35D	3,786,577	37	3,786,640	5	3,786,702	45	3,786,761	2F	3,786,801
174	3,787,181	49	3,786,578	63	3,786,641	10	3,786,703	65	3,786,756	24R	3,786,802
177	3,787,182	**CLASS 36**		72.4	3,786,642	39	3,786,704	70.2P	3,786,757	75	3,786,803
CLASS 9		2.5AL	3,786,580	**CLASS 62**		71	3,786,705	70.2R	3,786,758	80C	3,786,804
8R	3,786,525		3,786,581	5	3,786,643	122	3,786,706	71	3,786,759	87R	3,786,805
307	3,786,526	7.6	3,786,579	10	3,786,644	299	3,786,707	79	3,786,754	91A	3,786,799
CLASS 10		**CLASS 40**		35	3,786,645	332	3,786,708	93	3,786,760	92D	3,786,806
76R	3,786,528	31	3,786,582	115	3,786,646	339	3,786,709	**CLASS 104**		127	3,786,807
169	3,786,527	39	3,786,583	123	3,786,647	406	3,786,710	148R	3,786,762	130	3,786,808
CLASS 11		124	3,786,584	200	3,786,648	628	3,786,711	**CLASS 105**		191	3,786,809
1R	3,786,529	125H	3,786,585	201	3,786,649	708	3,786,712	199R	3,786,763	214.4	3,786,810
CLASS 13		**CLASS 42**		209	3,786,650	**CLASS 84**		240	3,786,764	218P	3,786,811
22	3,787,598	42R	3,786,588	222	3,786,651	1.03	3,787,601	**CLASS 106**		260	3,786,812
CLASS 14		78	3,786,589	243	3,786,652	1.24	3,787,602	15AF	3,787,217		3,786,813
71	3,786,530	**CLASS 43**		491	3,786,653	19	3,787,603	39.5	3,787,218	303.1	3,786,814
CLASS 15		4	3,786,586	**CLASS 65**		314	3,787,600	73.3	3,787,219	321	3,786,815
310	3,786,531	6.5	3,786,592	9	3,787,194	**CLASS 85**		214	3,787,220	325	3,786,816
364	3,786,532	25	3,786,590		3,787,195	41	3,786,713	288B	3,787,221	334R	3,786,817
CLASS 16		35	3,786,587	164	3,787,196	**CLASS 86**		**CLASS 108**		**CLASS 131**	
82	3,786,533	44.87	3,786,595	260	3,787,197	23	3,786,714	60	3,786,765	136	3,786,818
176	3,786,534	66	3,786,591	**CLASS 66**		**CLASS 89**		115	3,786,766	**CLASS 132**	
CLASS 17		100	3,786,593	121	3,786,654	1.85	3,786,715	**CLASS 110**		9	3,786,819
11R	3,786,535	124	3,786,594	154A	3,786,655		3,786,718	8A	3,786,767	53	3,786,822
25	3,786,536	**CLASS 46**		**CLASS 70**		1.812	3,786,716	**CLASS 112**		74.5	3,786,820
CLASS 23		98	3,786,596	63	3,786,656	1.814	3,786,717	143	3,786,768	88.5	3,786,821
230R	3,787,183	243LV	3,786,597	150	3,786,657	**CLASS 90**		158A	3,786,769	**CLASS 134**	
	3,787,184	**CLASS 47**		333R	3,786,658	1.6	3,786,719	235	3,786,770	2	3,787,239
253R	3,787,185	38.1	3,786,598	395	3,786,659	24R	3,786,720	255	3,786,771	45	3,786,823
282	3,787,186	**CLASS 48**		**CLASS 71**		58B	3,786,721	**CLASS 114**		62	3,786,824
285	3,787,187	202	3,787,192	93	3,787,198	**CLASS 91**		43.5	3,786,772	95	3,786,825
288R	3,787,188	204	3,787,193		3,787,199	26	3,786,722	45	3,786,773	104	3,786,826
	3,787,189	**CLASS 49**		**CLASS 72**		284	3,786,723	66.5R	3,786,774	**CLASS 136**	
CLASS 24		220	3,786,599	12	3,786,660	395	3,786,724	**CLASS 115**		30	3,787,240
134R	3,786,537	**CLASS 51**		19	3,786,661	411A	3,786,725	.5R	3,786,775	83T	3,787,242
CLASS 28		101LG	3,786,600	55	3,786,662	492	3,786,726	**CLASS 116**		107	3,787,243
1.6	3,786,538	129	3,786,601	220	3,786,663	493	3,786,727	67R	3,786,776	120FC	3,787,244
CLASS 29		**CLASS 52**		234	3,786,664	**CLASS 92**		114AB	3,786,777	**CLASS 137**	
25.17	3,786,542	28	3,786,602	259	3,786,665	33	3,786,728	132	3,786,778	15	Re.27,895
27	3,786,539	204	3,786,603	305	3,786,666	169	3,786,730	**CLASS 117**		109	3,786,827
95R	3,786,541	223	3,786,606	348	3,786,667	171	3,786,729	21	3,787,222	116	3,786,828
95	3,786,540	232	3,786,604	388	3,786,668	**CLASS 93**		33.05R	3,787,238	202	3,786,829
105R	3,786,545	235	3,786,605	453	3,786,669	36A	3,786,731	47R	3,787,225	204	3,786,830
116R	3,786,549	474	3,786,607	480	3,786,670	58.3	3,786,732	66	3,787,226	269	3,786,831
125	3,786,546	480	3,786,608	**CLASS 73**		**CLASS 95**		69	3,787,223	403	3,786,832
130	3,786,547	619	3,786,609	27R	3,786,675	10CT	3,786,733	72	3,787,224	512.15	3,786,833
149.5B	3,786,543		3,786,613	40	3,786,671	11L	3,786,737	75	3,787,227	540	3,786,834
155R	3,786,548	661	3,786,610	67.2	3,786,673	11W	3,786,734	102A	3,787,230	566	3,786,835
169.5	3,786,553	753J	3,786,611	67.5R	3,786,672	49	3,786,735	114R	3,787,228	624.2	3,786,836
183	3,787,190	754	3,786,612	71.4	3,786,674	89R	3,786,736	114	3,786,882	625.32	3,786,837
191	3,787,191	**CLASS 53**		88B	3,786,677	**CLASS 96**		132BE	3,787,229	814	3,786,838
238	3,786,550	21FC	3,786,615	88.5R	3,786,679	1.2	3,787,206	138.8A	3,787,231	837	3,786,839
251	3,786,544	88	3,786,616	94	3,786,676	1.5	3,787,207	155UA	3,787,232	**CLASS 139**	
266	3,786,551	154	3,786,617	141R	3,786,678	1.8	3,787,208	201	3,787,233	11	3,786,840
420.5	3,786,552	167	3,786,614	194EM	3,786,680	3	3,787,209	217	3,787,234	**CLASS 140**	
461	3,786,554	**CLASS 55**		382	3,786,681	27E	3,787,210	218	3,787,235	119	3,786,841
470.1	3,786,559	72	3,786,619	421B	3,786,682	35.1	3,787,211	227	3,787,236	**CLASS 141**	
473.1	3,786,556	159	3,786,618	425.4P	3,786,683		3,787,212	239	3,787,237	1	3,786,842
474.3	3,786,555	**CLASS 56**		432R	3,786,684	36	3,787,213	**CLASS 118**		8	3,786,844
577	3,786,560	16.3	3,786,620	**CLASS 74**		87R	3,787,214	4	3,786,779	13	3,786,843
598	3,786,561	**CLASS 57**		5.5	3,786,685	99	3,787,215	**CLASS 119**		**CLASS 144**	
602	3,786,562	34R	3,786,623	33	3,786,686	**CLASS 98**		1	3,786,780	32	3,786,845
620	3,786,557	52	3,786,621	230.17M	3,786,688	114	3,786,738	5	3,786,781	251	3,786,846
630A	3,786,558	58.89	3,786,622	243CS	3,786,687	115K	3,786,739	14.08	3,786,782	**CLASS 145**	
CLASS 30		**CLASS 58**		471XY	3,786,689	**CLASS 99**		51R	3,786,784	29R	3,786,847
50	3,786,563	23C	3,786,624	476	3,786,690	139	3,787,216	52AF	3,786,783	**CLASS 148**	
124	3,786,564	23R	3,786,625	493	3,786,691	323.8	3,786,740	52A	3,786,786	6	3,787,245
				512	3,786,692	447	3,786,741	75	3,786,785	6.27	3,787,246
				527	3,786,693			95	3,786,787	9R	3,787,247
				573	3,786,694						

11.5A 3,787,248
3,787,249
12 3,787,250
175 3,787,252
3,787,253
187 3,787,251

CLASS 149
60 3,787,254

CLASS 152
209R 3,786,848
210 3,786,849
330 3,786,850
361DM 3,786,851

CLASS 156
51 3,787,255
62.2 3,787,256
73 3,787,257
3,787,258
78 3,787,259
84 3,787,260
3,787,261
123 3,787,262
136 3,787,263
157 3,787,264
167 3,787,265
361 3,787,266
363 3,787,267
425 3,787,268
498 3,787,269
506 3,787,270
554 3,787,271

CLASS 157
1.1 3,786,852

CLASS 161
87 3,787,273
3,787,277
3,787,272
89 3,787,274
116 3,787,275
137 3,787,276
159 3,787,278
160 3,787,279
168 3,787,280
188 3,787,281
195 3,787,282

CLASS 162
36 3,787,283
246 3,787,284

CLASS 164
4 3,786,856
52 3,786,853
80 3,786,854
126 3,786,855
350 3,786,857

CLASS 165
1 3,786,858
9 3,786,868
21 3,786,859
50 3,786,860
105 3,786,861
158 3,786,862

CLASS 166
72 3,786,863
187 3,786,864
224S 3,786,865
3,786,866
315 3,786,867

CLASS 169
24 3,786,869

CLASS 171
129 3,786,870

CLASS 172
4.5 3,786,871
801 3,786,872

CLASS 173
12 3,786,873
49 3,786,874
159 3,786,875

CLASS 174
18 3,787,604
38 Re.27,898
48 3,787,605
65R 3,787,606
88C 3,787,607
159 3,787,608

CLASS 175
18 3,786,876
249 3,786,877
320 3,786,878
374 3,786,879

CLASS 176
3,787,285
3,787,286

CLASS 177
3,786,880
3,786,881
3,786,883
3,786,884
3,786,885

CLASS 178
2R 3,787,613
5.4AC 3,787,611
5.4ST 3,787,609
5.4E 3,787,610
5.4R 3,787,614
5.8AF 3,787,612
6.6A 3,787,616
6.6P 3,787,615
6.8 3,787,618
3,787,619
7.1 3,787,620

CLASS 179
1GQ 3,787,622
1HF 3,787,621
2DP 3,787,623
2A 3,787,624
5.5 3,787,626
6R 3,787,625
15AT 3,787,630
3,787,631
15BA 3,787,627
15BF 3,787,628
15BS 3,787,634
15BT 3,787,629
18ES 3,787,635
18FH 3,787,632
18J 3,787,633
90K 3,787,639
99 3,787,640
100.2CA 3,787,644
100.2CH 3,787,638
100.2MD 3,787,637
100.2B 3,787,617
100.2T 3,787,636
107BC 3,787,641
107E 3,787,643
111E 3,787,642
170.2 3,787,645
189D 3,787,646

CLASS 180
5R 3,786,886
6.5 3,786,887
24.11 3,786,888
44E 3,786,889
64A 3,786,890
68R 3,786,891
99 3,786,892
119 3,786,893

CLASS 181
5BE 3,786,894
33G 3,786,898
49 3,786,895
53 3,786,896
54 3,786,897

CLASS 182
93 3,786,899
172 3,786,900

CLASS 184
6.18 3,786,901

CLASS 187
9 3,786,902

CLASS 192
91R 3,786,903
107R 3,786,904

CLASS 195
29 3,787,287
36P 3,787,288
65 3,787,289
103.5R 3,787,290
127 3,787,291

CLASS 197
17 3,786,905
161 3,786,906
181 3,786,907

CLASS 198
33AB 3,786,908
131 3,786,909
158 3,786,910
219 3,786,911
220CC 3,786,912

CLASS 200
61.04 3,787,650
61.47 3,787,647
146R 3,787,651
148A 3,787,652
148J 3,787,648
153LA 3,787,649
153K 3,787,653
170A 3,787,654

CLASS 202
118 3,787,292

CLASS 204
1R 3,787,293
16 3,787,294
35N 3,787,295
55R 3,787,296
3,787,297
58 3,787,298
59R 3,787,299
67 3,787,300
105R 3,787,306
112 3,787,301
159.15 3,787,303
159.2 3,787,302
180P 3,787,304
181 Re.27,896
3,787,305
195G 3,787,307
195M 3,787,309
195P 3,787,308
243R 3,787,310
294 3,787,311
298 3,787,312

CLASS 206
1.8 3,786,913
44R 3,786,914
45.15 3,786,915

CLASS 208
60 3,787,313
3,787,314
208M 3,787,315

CLASS 209
80.5 3,786,916
123 3,786,917
273 3,786,918
434 3,786,919

CLASS 210
6 3,787,316
31C 3,787,317
65 3,787,318
90 3,786,920
130 3,786,921
136 3,786,922
152 3,786,923
257 3,786,924
321 3,786,925
497 3,786,926

CLASS 211
4 3,786,927
5 3,786,928
40 3,786,931
60A 3,786,932
90 3,786,933
182 3,786,934

CLASS 212
11 3,786,935
3,786,936
59 3,786,937

CLASS 214
1BD 3,786,938
11A 3,786,939
16.1CB 3,786,930
16.1ED 3,786,940
16.4A 3,786,929
3,786,942
3,786,943
3,786,944
42A 3,786,945
75R 3,786,947
83.1 3,786,941
130C 3,786,948
152 3,786,946
302 3,786,949
506 3,786,950
512 3,786,951
731 3,786,952
776 3,786,953

CLASS 215
40 3,786,954

CLASS 219
72 3,787,655
104 3,787,656
117HD 3,787,657
146 3,787,658
314 3,787,659

CLASS 220
54 Re.27,897
55E 3,786,955
63R 3,786,956
83 3,786,957

CLASS 221
67 3,786,958
261 3,786,959

CLASS 222
2 3,786,960
55 3,786,961
56 3,786,962
136 3,786,963
153 3,786,964
176 3,786,965
387 3,786,966
397 3,786,967
402.11 3,786,968
561 3,786,969

CLASS 223
15 3,786,970
83 3,786,971

CLASS 224
31 3,786,972

CLASS 225
2 3,786,973

CLASS 226
19 3,786,974
48 3,786,976
194 3,786,975

CLASS 227
8 3,786,977
3,786,978
3,786,979
120 3,786,980

CLASS 228
4 3,786,981

CLASS 229
2.5 3,786,982
51WB 3,786,983
69 3,786,984

CLASS 233
26 3,786,985
3,786,986

CLASS 234
2 3,786,987

CLASS 235
54F 3,787,662
61.11D 3,787,661
61.9R 3,787,660
92SB 3,787,664
92C 3,787,663
150.23 3,787,665
150.26 3,787,671
151 3,787,666
151.1 3,787,667
152 3,787,668
3,787,669
153AC 3,787,670
153BD 3,787,672
156 3,787,673

CLASS 238
4 3,786,988
14 3,786,989

CLASS 239
112 3,786,990
236 3,786,991
265.19 3,786,993
265.39 3,786,992
428.5 3,786,995
569 3,786,994

CLASS 240
2PA 3,787,674
2.13 3,787,677
10.6C4 3,787,678
10.6SD 3,787,675
108R 3,787,676

CLASS 241
46.17 3,786,996
101.7 3,786,997
3,786,998
282.1 3,786,999

CLASS 242
1.1R 3,787,000
75.43 3,787,001
107.4 3,787,002
192 3,787,003
204 3,787,004
205 3,787,005

CLASS 243
6 3,787,006
33 3,787,007
35 3,787,008

CLASS 244
83E 3,787,009
137R 3,787,012
146 3,787,010
150 3,787,011
155R 3,787,013

CLASS 246
30 3,787,679
377 3,787,680

CLASS 248
14 3,787,014
43 3,787,015
49 3,787,016
96 3,787,017
165 3,787,018
188.2 3,787,019
316B 3,787,021
361B 3,787,024
399 3,787,025

CLASS 249
18 3,787,020

CLASS 250
41.9SB 3,787,681
43.5FL 3,787,682
43.5D 3,787,683
71R 3,787,684
71.5S 3,787,685
83CD 3,787,687
83.3R 3,787,686
213VT 3,787,688
219FR 3,787,689
231R 3,787,690
272 3,787,691
305 3,787,692
311 3,787,696
330 3,787,693
338 3,787,694
365 3,787,695
390 3,787,697
473 3,787,698
507 3,787,699
560 3,787,700
561 3,787,701
3,787,702
574 3,787,703

CLASS 251
61.1 3,787,026
63 3,787,027
212 3,787,022
317 3,787,028
333 3,787,029
335B 3,787,023

CLASS 252
8.55E 3,787,319
54 3,787,320
301.1R 3,787,321
316 3,787,327
427 3,787,328
431R 3,787,329
437 3,787,330
442 3,787,331
443 3,787,332
465 3,787,322
3,787,333
468 3,787,334
472 3,787,335
511 3,787,336
545 3,787,337

CLASS 254
8R 3,787,030
172 3,787,031
190 3,787,032

CLASS 256
59 3,787,033

CLASS 259
3 3,787,034
16 3,787,035

CLASS 260
2.1R 3,787,339
23XA 3,787,340
23.7M 3,787,341
24 3,787,342
28 3,787,343
28.5A 3,787,344
28.5R 3,787,345
3,787,346
29.2N 3,787,338
30.4EP 3,787,347
32.6NA 3,787,348
37EP 3,787,349
38 3,787,350
40R 3,787,351
41AG 3,787,352
45.75B 3,787,356
45.75K 3,787,357
45.75R 3,787,355
45.9P 3,787,353
45.9R 3,787,354
47ET 3,787,358
3,787,361
3,787,362
47XA 3,787,359
47P 3,787,360
49 3,787,363
61 3,787,364
63N 3,787,365
64 3,787,366
65 3,787,367
67.6R 3,787,368
75II 3,787,369
75R 3,787,370
78A 3,787,373
78R 3,787,371
3,787,372
3,787,375
3,787,374
78.4D 3,787,376
79 3,787,380
80.72 3,787,377
83.7 3,787,378
86.1R 3,787,379
87.5A 3,787,381
87.5C 3,787,323
88.2F 3,787,382
92.1R 3,787,383
92.8R 3,787,384
94.9DA 3,787,385
112.5 3,787,386
3,787,387
145A 3,787,388
155 3,787,389
210R 3,787,390
3,787,391
211.5R 3,787,392
3,787,393
239BF 3,787,395
239.55C 3,787,394
239.55R 3,787,396
239.57 3,787,397
240E 3,787,413
243A 3,787,324
243R 3,787,398
3,787,399
3,787,400
3,787,401
3,787,402
3,787,403
3,787,404
246B 3,787,414
249 3,787,406
249.6 3,787,407
250R 3,787,415
251R 3,787,416
256.4E 3,787,408
256.4N 3,787,409
256.5R 3,787,410
260 3,787,405
268BC 3,787,411
270R 3,787,417
279R 3,787,412
287R 3,787,325
3,787,418
293.77 3,787,419
294.08G 3,787,425
294.8C 3,787,421
294.8E 3,787,422
294.9 3,787,420
295T 3,787,424
295.5C 3,787,429
295.5R 3,787,423
296D 3,787,426
3,787,427
3,787,428
296H 3,787,430
306.7 3,787,431
306.8D 3,787,432
3,787,434
306.8R 3,787,433
309 3,787,437
309.2 3,787,435
309.6 3,787,436
325 3,787,438
326E 3,787,439
326.1 3,787,440
327.1H 3,787,442
327B 3,787,444
327E 3,787,443
327S 3,787,441
332.32R 3,787,445
340.9 3,787,446
343.3 3,787,447
343.6 Re.27,894
3,787,448
345.7 3,787,449
345.9 3,787,450
348SC 3,787,452
348R 3,787,451
397.4 3,787,453
397.45 3,787,454
404 3,787,455
3,787,456
3,787,457
404.5 3,787,458
410.7 3,787,459
418 3,787,460
429J 3,787,462
429R 3,787,461
430 3,787,463
438.5R 3,787,326
439R 3,787,464
440 3,787,465
448R 3,787,466
448.8R 3,787,467
449M 3,787,468
453A 3,787,469
453R 3,787,470
454 3,787,472
455A 3,787,471
455B 3,787,473
459 3,787,474
465D 3,787,476
465F 3,787,475
3,787,477
471R 3,787,478
475PR 3,787,480
475P 3,787,479
3,787,481
482B 3,787,483
482P 3,787,482
488H 3,787,484
491 3,787,485
502.4R 3,787,486
515P 3,787,487
537S 3,787,488
544F 3,787,489
552R 3,787,490
553D 3,787,491
553R 3,787,492
557R 3,787,493
3,787,494
570.5R 3,787,495
577 3,787,496
583N 3,787,497
586B 3,787,498

586R 3,787,499
590 3,787,500
592 3,787,501
609C 3,787,502
610R 3,787,503
3,787,504
612R 3,787,505
613R 3,787,506
3,787,508
619A 3,787,507
652.5R 3,787,509
665R 3,787,510
666A 3,787,511
668C 3,787,512
3,787,513
677H 3,787,514
681.5 3,787,515
683.3 3,787,516
3,787,517
683.45 3,787,518
834 3,787,519
836 3,787,520
3,787,521
3,787,522
857PG 3,787,523
3,787,524
859R 3,787,525
860 3,787,526
861 3,787,527
865 3,787,528
3,787,529
873 3,787,530
876B 3,787,531
876R 3,787,532
924 3,787,533
928 3,787,534
943 3,787,535
3,787,536
953 3,787,537
954 3,787,538
959 3,787,539
970 3,787,540

CLASS 261
29 3,787,036
130 3,787,037

CLASS 264
29 3,787,541
40 3,787,552
51 3,787,542
53 3,787,543
69 3,787,544
88 3,787,550
135 3,787,545
156 3,787,546
249 3,787,547
259 3,787,548
274 3,787,549
345 3,787,551

CLASS 266
24 3,787,038

CLASS 269
13 3,787,039
58 3,787,040

CLASS 270
64 3,787,041
70 3,787,042
71 3,787,043

CLASS 271
27 3,787,044
60 3,787,045

CLASS 272
29 3,787,046
57B 3,787,047
57R 3,787,048
58 3,787,049

CLASS 273
1R 3,787,050
73F 3,787,051
101 3,787,052
3,787,053
3,787,054
109 3,787,055
110 3,787,056
134C 3,787,057

CLASS 274
4B 3,787,057
4G 3,787,058

CLASS 277
1 3,787,059
69 3,787,060
164 3,787,061

CLASS 280
11.35T 3,787,062
3,787,070
28 3,787,071
33.99F 3,787,063
79.1 3,787,072
93 3,787,064
124A 3,787,073
150AB 3,787,067
3,787,074
3,787,075
204 3,787,065
217 3,787,066
435 3,787,076
446B 3,787,077
446R 3,787,068
486 3,787,069

CLASS 285
189 3,787,078
233 3,787,079
341 3,787,080

CLASS 289
17 3,787,081

CLASS 292
281 3,787,082

CLASS 293
88 3,787,083

CLASS 294
71 3,787,084

CLASS 296
28C 3,787,085
3,787,087
65R 3,787,086
78.1 3,787,088

CLASS 297
118 3,787,089

CLASS 299
43 3,787,090
84 3,787,091

CLASS 301
63R 3,787,092

CLASS 3o2
61 3,787,093

CLASS 303
10 3,787,094
21F 3,787,095
24F 3,787,096

CLASS 305
10 3,787,097
11 3,787,098
25 3,787,099

CLASS 307
41 3,787,728
3,787,729
77 3,787,730
115 3,787,731
116 3,787,732
118 3,787,733
203 3,787,734
3,787,735
205 3,787,736
215 3,787,737
237 3,787,738
255 3,787,739
293 3,787,740

CLASS 308
10 3,787,100
15 3,787,101
26 3,787,102
3,787,103
73 3,787,105
235 3,787,104

CLASS 310
8.8 3,787,741
9.5 3,787,743
50 3,787,742
217 3,787,744
234 Re.27,893

CLASS 313
65R 3,787,745
93 3,787,746

CLASS 315
3.5 3,787,747
5.46 3,787,748
19 3,787,749
27TD 3,787,750
137 3,787,751
169TV 3,787,753
169R 3,787,752
241P 3,787,704
248 3,787,705

CLASS 316
17 3,787,106

CLASS 317
2R 3,787,706
9R 3,787,707
18D 3,787,708
3,787,709
101A 3,787,710
103 3,787,711
119 3,787,712
3,787,713
134 3,787,714
234R 3,787,718
235R 3,787,717
3,787,719
242 3,787,720
245 3,787,721
262A Re.27,900
3,787,722

CLASS 318
130 3,787,715
135 3,787,716
230 3,787,723
410 3,787,724
491 3,787,725
587 3,787,726
696 3,787,727

CLASS 320
43 3,787,754

CLASS 321
8R 3,787,755
11 3,787,756

CLASS 323
4 3,787,757
51 3,787,758

CLASS 324
.5R 3,787,760
25 3,787,759
34R 3,787,761
57R 3,787,763
61P 3,787,764
83A 3,787,765
137 3,787,766
142 3,787,767
158F 3,787,768
174 3,787,769
178 3,787,770

CLASS 325
42 3,787,762
65 3,787,771
171 3,787,772
370 3,787,773

CLASS 328
167 3,787,774

CLASS 329
122 3,787,775

CLASS 330
2 3,787,776
15 3,787,777
86 3,787,778

CLASS 331
94.5P 3,787,781
94.5 3,787,779
3,787,780
107R 3,787,782
116M 3,787,783
177V 3,787,784

CLASS 332
9R 3,787,785

CLASS 333
30R 3,787,786
98M 3,787,787

CLASS 334
14 3,787,788

CLASS 335
193 3,787,789
210 3,787,790
274 3,787,791

CLASS 336
192 Re.27,891
3,787,792

CLASS 337
44 3,787,793

CLASS 339
14R 3,787,795
22B 3,787,794
60R 3,787,796
95R 3,787,797
107 3,787,798
214R 3,787,799
223S 3,787,800
258R 3,787,801

CLASS 340
3R 3,787,802
3,787,803
52E 3,787,804
52H 3,787,805
58 3,787,806
62 3,787,807
66 3,787,808
146.1E 3,787,810
163R 3,787,811
164R 3,787,812
172.5 3,787,813
3,787,814
3,787,815
3,787,816
3,787,817
3,787,818
3,787,819
3,787,820
3,787,891
173LS 3,787,823
173SP 3,787,821
3,787,822
174DC 3,787,824
174YC 3,787,825
174.1H 3,787,826
174.1P 3,787,827
187 3,787,828
244A 3,787,829
246 3,787,830
274 3,787,831
276 3,787,832
282 Re.27,899
324AD 3,787,833
324M 3,787,834
347DA 3,787,836
347SY 3,787,835
365P 3,787,837
381R 3,787,839
409 3,787,838

CLASS 343
5LS 3,787,841
5PC 3,787,842
5PD 3,787,843
6R 3,787,844
7ED 3,787,845
7.3 3,787,846
3,787,847
7.7 3,787,840
3,787,848
3,787,849
3,787,850
3,787,851
3,787,852
8 3,787,853
3,787,854
17.1R 3,787,855
18D 3,787,856
22.5R 3,787,868
100ME 3,787,857
100SA 3,787,858
106D 3,787,861
106R 3,787,859
3,787,860
113DE 3,787,862
113R 3,787,863
3,787,864
117R 3,787,809
225 3,787,867
703 3,787,865
3,787,866
756 3,787,869
765 3,787,870
895 3,787,871
911 3,787,872

CLASS 346
1 3,787,873
3,787,874
49 3,787,878
74MP 3,787,875
74MT 3,787,877
74P 3,787,876
75 3,787,880
3,787,881
3,787,882
3,787,883
3,787,884
76R 3,787,886
108 3,787,887
3,787,888
136 3,787,885
139A 3,787,889
140 3,787,879
141 3,787,890

CLASS 350
7 3,787,107
160LC 3,787,110
160R 3,787,111
252 3,787,108
302 3,787,109

CLASS 351
18 3,787,112
43 3,787,113

CLASS 352
31 3,787,114
123 3,787,115
141 3,787,116

CLASS 353
20 3,787,117

CLASS 356
5 3,787,118
73 3,787,119
85 3,787,120
93 3,787,121
103 3,787,122
3,787,123
205 3,787,124

CLASS 403
13 3,787,125
104 3,787,126
133 3,787,127
135 3,787,128
3,787,129
205 3,787,130
234 3,787,131
290 3,787,132
384 3,787,133
408 3,787,134

CLASS 404
113 3,787,135

CLASS 408
139 3,787,136
241G 3,787,138
241R 3,787,137

CLASS 415
80 3,787,140

CLASS 416
244 3,787,141
247 3,787,142

CLASS 417
50 3,787,143
74 3,787,144
250 3,787,145
299 3,787,146
302 3,787,147
477 3,787,148
554 3,787,149

CLASS 418
61 3,787,150
133 3,787,151
142 3,787,152
176 3,787,153
201 3,787,154

CLASS 423
9 3,787,553
22 3,787,554
54 3,787,555
77 3,787,556
87 3,787,557
164 3,787,558
222 3,787,559
239 3,787,560
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6 : 229,990
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55 : 230,039
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PLANT PATENTS

6 : 03,448

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

36 : T918,010
T918,012
T918,013
T918,014
T918,015
47 : T918,011

U. S. GOVERNMENT PRINTING OFFICE : O - 1974

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

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PATENT OFFICE NOTICES

Availability of Consolidated Listing

The "Consolidated Listing of Recent Official Gazette Notices—Re Patent Office Practices and Procedures" which appeared in the Official Gazette of January 1, 1974 (918 O.G. 3–97) is available in separate reprints at a price of $1.15 from the Superintendent of Documents, Washington, D.C. 20402.

RENE D. TEGTMEYER
Jan. 2, 1974. *Acting Commissioner of Patents.*

Bogsch Appointed Director General of World Intellectual Property Organization (WIPO)

Dr. Arpad Bogsch has been appointed by the General Assembly of the World Intellectual Property Organization as Director General of the Organization. The appointment was by acclamation of the General Assembly of WIPO on November 21, 1973, during the second ordinary session held in Geneva. He assumed his duties December 1, 1973.

Dr. Bogsch succeeds Professor G. H. C. Bodenhausen, a national of the Netherlands, who retired at the end of November after having directed the Organization since 1963.

RENE D. TEGTMEYER
Jan. 2, 1974. *Acting Commissioner of Patents.*

Time for Filing Opposition to Marks Published in the December 25, 1973 Issue of the Official Gazette

It has come to the attention of the Patent Office that there was a delay at the Government Printing Office in mailing to subscribers the Trademark Section of the OFFICIAL GAZETTE for December 25, 1973.

In view of the delay in mailing, the publication date for marks published for opposition in the December 25, 1973 issue will be deemed to be January 9, 1974. The opposition period for those marks will end on February 8, 1974.

JOSEPH F. NAKAMURA,
Jan. 9, 1974. *Acting Commissioner of Patents.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,765,699, J. La Torre, BLIND BOLT UTILIZING DISTORTABLE COLLAR AND DEFORMABLE LOCKING NUT MEMBER, **filed** Apr. 12, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71–877–HP, *National Screw & Manufacturing Co.* v. *Lockheed Aircraft Corp. et al.* Filed stipulation for dismissal of plaintiff's complaint with prejudice and defendant counterclaim dismissed with prejudice, July 2, 1973.

2,824,011, B. E. Williams, METHOD OF CLOTHING MEAT, **filed** June 28, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1482–LTL, *Bemis Company, Inc. and Beverly E. Williams* v. *Chromalloy American Corporation.*

2,973,643, Roderick and Gwathmey, AIRCRAFT RATE OF CLIMB INDICATING INSTRUMENTS, **filed** June 27, 1973, D.C. Kans. (Wichita), Doc. W–4728, *Teledyne, Inc.* v. *Aerosonics Corporation and MacLeod of Kansas, Inc., a division of Aerosonics Corporation.* Consent decree: Ordered, plaintiff owner of said patent, defendants have infringed said patent, counterclaims are dismissed with prejudice, June 26, 1973.

3,087,832, M. V. Fogle, TRANSFERABLE MAGNETIC COATING COMPOSITION AND TRANSFER WEB COATED THEREWITH, **filed** June 14, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1542, *The National Cash Register* v. *Allen Paper Co., Cardunal Office, comprises Charles A. Weightman, individual et al. and Clopay Corp.*

3,092,404, W. MacWilliam, PACKED SCREW THREADED GLAND TYPE TUBE COUPLING FOR THIN WALLED TUBING, **filed** June 29, 1973, D.C. Ohio (Toledo), Doc. C–73–267, *Scovill Manufacturing Company* v. *Fayette Tubular Products, Inc.*

3,163,645, De Stevens and Werner, DERIVATIVES OF 3,4-DIHYDRO - 2 - H-[1,2,4]-BENZOTHI[illegible]INE-1,1-DIOXIDES, **filed** June 8, 1973, D.C.N.J. (Newark), Doc. C–806–73, *Ciba-Geigy Corporation* v. *Zenith Laboratories, Inc. et al.*

3,268,636, R. G. Angell, Jr., METHOD AND APPARATUS FOR INJECTION MOLDING FOAMED PLASTIC ARTICLES, **filed** Nov. 22, 1972, D.C., N.D. Ohio (Toledo), Doc. C–72–426, *Union Carbide Corporation* v. *Borg-Warner Corporation.*

3,309,025, W. R. Malcolm, SELF-CLEANING SPRAY DEFLECTOR WEDGE FOR SPRINKLERS, **filed** June 12, 1973, D.C., E.D. Calif. (Fresno), Doc. F–818–C, *Rain Bird Sprinkler Mfg. Corp.* v. *Buckner Industries, Inc.*

3,357,561, Schmid and Anderson, ROOF DRAIN, **filed** May 17, 1971, D.C., N.D. Ohio (Cleveland), Doc. C–71–525, *Zurn Industries, Inc.* v. *Barrett-Rupp, Inc. and Jay R. Smith Mfg. Co.* Stipulation and order dismissing action without prejudice, June 18, 1973.

3,391,773, Nicole and Pylant, PROPORTIONAL SPACING EMBOSSING TOOL; **3,485,335,** J. McMahon, TAPE EMBOSSING MACHINE WITH SELECTIVELY VARIABLE TAPE FEED INCREMENTS, **filed** June 18, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1567, *W. H. Brady Co.* v. *Dymo Industries, Inc. and CT Corporation System.*

3,407,685, E. D. Prince, GROOVED TIE BAR ASSEMBLY FOR DIE CASTING MACHINES AND THE LIKE, **filed** June 15, 1973, D.C., W.D. Mich. (Grand Rapids), Doc. G145–73 CA, *Prince Corporation* v. *B & T Machinery Company.*

3,413,171, D. F. Hannon, PROCESS OF MAKING IDENTIFICATION CARDS; **3,417,497,** same, IDENTIFICATION CARD, **filed** June 15, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1554, *Laminex, Inc.* v. *Ronald C. Fritz et al.*

3,417,497. (See 3,413,171.)

3,485,335. (See 3,391,773.)

3,527,018, D. E. Jahnke, VACUUM PACKAGING OF POULTRY, **filed** July 6, 1971, D.C., E.D. Wis. (Milwaukee), Doc. 70C–535, *Vac-Air, Inc.* v. *John Mohr & Sons, Inc.* Judgment order: Complaint dismissed with prejudice, counterclaim against Vac-Air dismissed with prejudice, June 26, 1973.

3,570,018, Sargent, Sargent and Sargent, PORTABLE TOILET, **filed** May 30, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1205–AAH, *Monogram Industries, Inc.* v. *Thetford Corporation.*

3,575,196, Marrese and O'Sullivan, CLOSED EXHAUST DISCHARGE SYSTEM FOR ANESTHESIA MACHINES, **filed** Jan. 20, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c161, *Rocco Anthony Marrese and William T. O'Sullivan* v. *Richard's Medical Equipment Inc.* Final judgment against defendant, plaintiffs' patent invalid, action dismissed for want of equity, June 13, 1973. **Same, filed** Jan. 20, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c162, *Rocco Anthony Marrese et al.* v. *Air Reduction Co.* Final judgment, plaintiffs' patent is invalid, has not been infringed, action dismissed, June 13, 1973.

3,667,435, R. M. Bygdnes, VEHICULAR ENGINE BRAKE ASSEMBLY, **filed** June 25, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1453–RJK, *Rocky Cycle Co., Inc. and Richard M. Bygdnes* v. *Ralph D. Milligan.*

3,693,559, R. H. Allen, POLLUTION CONTROL APPARATUS FOR COMBUSTIVE DISMANTLING, **filed** June 14, 1973, D.C., S.D. Ind. (Evansville), Doc. EV 73–C–47, *The David J. Joseph Company* v. *Evans Products Company et al.*

Certificates of Correction for the Week of Jan. 29, 1974

D. 227,854	3,728,940	3,745,605	3,755,526
3,559,819	3,729,206	3,745,868	3,755,533
3,604,659	3,729,630	3,746,096	3,755,613
3,627,160	3,729,824	3,746,136	3,756,267
3,640,940	3,730,250	3,746,170	3,756,648
3,664,204	3,730,945	3,747,127	3,757,086
3,673,222	3,731,271	3,748,175	3,757,227
3,680,295	3,731,820	3,748,569	3,757,418
3,689,577	3,733,834	3,748,617	3,757,710
3,694,151	3,736,124	3,749,771	3,759,006
3,694,681	3,736,244	3,751,066	3,760,727
3,704,861	3,737,721	3,751,260	3,760,882
3,705,337	3,738,749	3,751,600	3,760,968
3,706,821	3,740,245	3,751,719	3,761,579
3,708,969	3,740,348	3,751,788	3,761,691
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3,718,746	3,741,854	3,753,746	3,762,029
3,718,878	3,741,983	3,753,804	3,762,203
3,720,095	3,742,759	3,754,012	3,762,289
3,722,690	3,743,268	3,754,152	3,762,800
3,723,465	3,743,496	3,754,153	3,764,799
3,723,830	3,744,489	3,754,313	
3,726,840	3,744,758	3,754,990	
3,726,919	3,744,776	3,755,495	

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JANUARY 5, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry, Metallurgy; Metal Stock, Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-02-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo, Sulfur; Misc. Esters, Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-25 73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming, Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-26-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding, Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	1-02-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus, Misc. Physical Processes.	9-01-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	5-30-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material	9-18-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion, Storage Devices and Related Arts.	3-26-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food, Agitating, Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling, Measuring and Testing, Indicating.	7-17-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices, Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring	1-15-73
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	4-11-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding, Dispensing, Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus, Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	3-15-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking, Tools; Cutlery; Jacks.	2-16-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices, Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry, Jewelry; Surgery; Toiletry, Printing, Typewriters, Stationery; Information Dissemination	3-02-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants, Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps, Heat Generation and Exchange; Refrigeration, Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements, Couplings; Gearing, Bearings; Clutches, Power Transmission; Fluid Handling and Control, Lubrication	3-12-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures, Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports, Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes, Sewing Machines	9-28-72

Expiration of patents: The patents within the range of numbers indicated below expire during January 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 2,775,762 to 2,779,941, inclusive

Plant Patents ..... Numbers 1,543 to 1,558, inclusive

REISSUES

JANUARY 29, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,901

WEAR COMPENSATING HIGH-PRESSURE GEAR PUMP

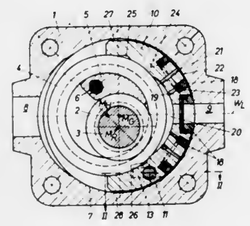
Otto Eckerle, Am Bergwald 3, 75 Malsch, Germany

Original No. 3,525,580, dated Aug. 25, 1970, Ser. No. 756,160, Aug. 29, 1968. Application for reissue Feb. 2, 1973, Ser. No. 329,181

Claims priority, application Germany, Sept. 1, 1967, P 16 53 826.4

Int. Cl. F01c *1/10*; F03c *3/00*; F04c *1/06*

U.S. Cl. 418—71 15 Claims



Wear [and-tear-] compensating high-pressure gear pump comprising a driven externally-geared pinion, a concomitantly rotating internally-geared [wheel] *ring*, a [movable] *pivotable* sickle-shaped filler member between the pinion and the internal gear *ring* and [either one or] two axial disks covering the gears laterally, as well as an insert member, called "control piston" being disposed on the pressure side of the gears and being radially displaceably arranged with respect thereto, enclosing the outer circumferential surface of the internal gear *ring* in a specific angular range and [touching] *positioning* the latter [as the sole stator part], said control piston containing the first portion of the [pressure] *fluid* outlet duct, *the control piston being* [relieved for the major part with regard to radial forces] *subjected to a radial pressure compensation field* and hence pressing against the circumference of the internal gear *ring* with only a limited amount of excess force so that as a result the internal gear *ring* is essentially supported only on the pinion, on the one hand, and on the filler member, on the other hand [characterized in that] the pump housing [(1) is] *being* eccentrically bored with respect to the pinion shaft [(3)] in such a manner that the center [(M_G)] of the housing bore [(7)] is positioned on the [hydraulic line of application or effective curve (W_L) which extends of necessity also through the internal gear center (M_H)] *center line of radial hydraulic thrust on the internal gear ring*, and [in that] the control piston [(10) is] *being* accommodated in the [sickle-shaped] space being formed [due to the eccentricity] between the internal gear [(4)] *ring* and the housing bore [(7), being essentially adapted to the configuration thereof].

27,902

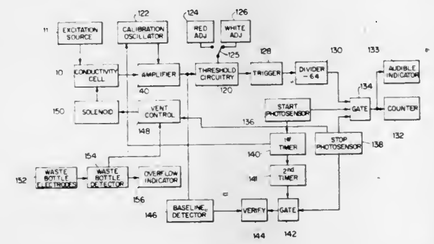
PARTICLE COUNTING SYSTEM

Weems E. Estelle, Southport, Henry R. Angel, Trumbull, and Pasquale M. Petrucci, Orange, Conn., assignors to General Science Corp., Bridgeport, Conn.

Original No. 3,657,725, dated Apr. 18, 1972, Ser. No. 32,582, Apr. 28, 1970. Application for reissue Feb. 16, 1973, Ser. No. 332,911

Int. Cl. G06m *11/04*

U.S. Cl. 235—92 PC 24 Claims



A particle counting system especially adapted for blood cell counting and which is essentially automatic in operation. The system includes an easily replaceable conductivity cell and electro-optical metering of a predetermined volume of sample fluid and also includes calibration and self-checking circuitry to enable reliable and accurate analysis.

27,903

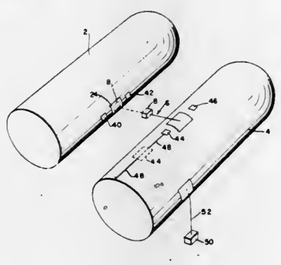
SPACE DELIVERY SYSTEM

Charles P. Fogarty, Box 254, Commack, N.Y. 11725

Original No. 3,478,986, dated Nov. 18, 1969, Ser. No. 691,107, Dec. 6, 1967, which is a continuation-in-part of abandoned Ser. No. 487,194, Sept. 14, 1965. Application for reissue Apr. 5, 1971, Ser. No. 131,044

Int. Cl. B64g *1/10*

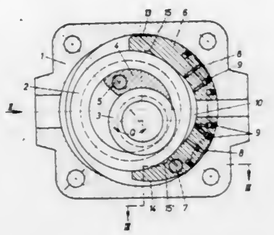
U.S. Cl. 244—1 SD 24 Claims



The present disclosure relates to a space delivery system for delivering items between space vehicles or for

coupling space vehicles. The device involves a flexible extensible cable fed from a reel and through which is delivered gas to the front of the cable where it is directed backwardly to propel the front end of the cable forwardly.

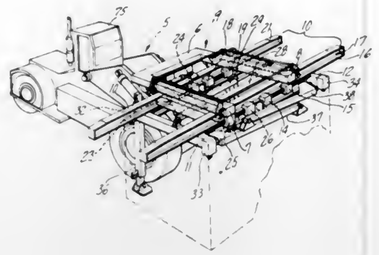
27,904
WEAR COMPENSATING HIGH-PRESSURE GEAR PUMP
Otto Eckerle, Am Bergwald 3, 75 Malsch, Germany
Original No. 3,525,581, dated Aug. 25, 1970, Ser. No. 756,169, Aug. 29, 1968. Application for reissue Feb. 2, 1973, Ser. No. 329,109
Claims priority, application Germany, Sept. 1, 1967, P 16 53 827.5
Int. Cl. F01c *1/10;* **F03c** *3/00;* **F04c** *1/06*
U.S. Cl. 418—71 **12 Claims**



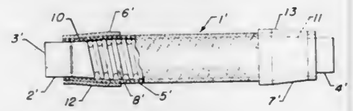
Wear [and tear-] compensating [heavy-duty] *high-pressure* gear pump comprising a driven externally-geared pinion, a concomitantly rotating internally-geared [wheel] *ring*, a [movable] *pivotable* sickle-shaped filler member between the pinion and the internal gear *ring*, and [either one or] two axial disks laterally covering the gears, as well as [an insert member called] *a* "control piston" being disposed on the pressure side of the gears and radially displaceably arranged with respect thereto, enclosing the outer circumferential surface of the internal gear *ring* within a specific angular range and [touching] *positioning* the latter [as the sole stator part], said control piston containing the first portion of the [pressure] *fluid* outlet duct, *the control piston* being [relieved for the major part with respect to radial forces] *subjected to a radial pressure compensation field* and hence pressing against the circumference of the internal gear *ring* with [only] a limited [excess] force, characterized in that the control piston [(6)] is [rotatably but not displaceably] *pivotably arranged inside the housing, the pivot point being* positioned in proximity to the tooth engagement of the two gears [(2, 3)] *and* that the [center of rotation] *pivot point* is disposed outside of the [relieving] *pressure compensation* field [(12) being under pressure] between the internal gear *ring* [(2)] and the control piston, and in that the [relieving] *pressure compensation* field is so [provided] *arranged* that the surface [center of gravity (S)] *centroid* thereof is positioned above the [line of application or effective curve (W_L)] *center line* of the radial [compensating forces] *hydraulic thrust on the internal gear ring.*

27,905
GRAPPLER-SPREADER FOR CANTILEVER-BOOM TRUCKS
Donald R. Whiteman, Roxboro, N.C., assignor to Midland-Ross Corp., Cleveland, Ohio
Original No. 3,606,053, dated Sept. 20, 1971, Ser. No. 884,986, Dec. 15, 1969. Application for reissue Apr. 12, 1972, Ser. No. 243,484
Int. Cl. B66c *1/30*
U.S. Cl. 214—147 G **11 Claims**

An expandable spreader and grappling device, termed herein a grappler-spreader, for top-lifting cargo containers and bottom-lifting containers, piggy-back trailers, etc. particularly adapted for use on large front or side lift trucks or other vehicles which provide a centilever-type lifting boom. For bottom-lifting, the device necessarily has grappling arms which are retractable in order that the top-lifting mechanism may be used more effectively. In the present instance, the arms, which are on the side of the spreader toward the supporting vehicle, are shortenable to a length within the height of a container.



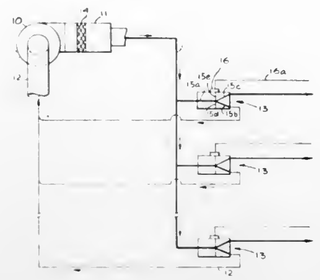
27,906
REINFORCED FLEXIBLE CONNECTOR
George G. Toepper, Elgin, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Original No. 3,627,354, dated Dec. 14, 1971, Ser. No. 23,354, Mar. 27, 1970. Application for reissue May 4, 1972, Ser. No. 250,452
Int. Cl. F16l *9/14*
U.S. Cl. 285—55 **7 Claims**



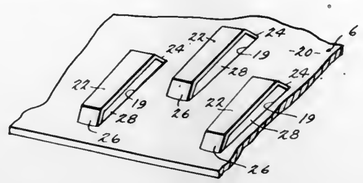
A flexible connector and the method of fabricating the same. The connector includes a tubular member having a central corrugated portion and uncorrugated end portions. A sleeve of braided strands is disposed around the tubular member to encompass the corrugated central portion and overlap at least a part of the uncorrugated end portions of the tubular member. A collar is disposed in a force-fit manner around each end of the sleeve to overlap the part covering an uncorrugated end portion to thus secure the sleeve in place and provide reinforcement for the corrugated portion of the tubular member.

27,907
APPARATUS FOR AIR-CONDITIONING SYSTEMS
Gene W. Osheroff, Las Vegas, Nev., assignor to Fluidtech Corporation, Inglewood, Calif.
Original No. 3,563,306, dated Feb. 16, 1971, Ser. No. 864,931, Sept. 15, 1969, which is a continuation-in-part of abandoned Ser. No. 801,930, Feb. 20, 1969, which in turn is a continuation-in-part of abandoned Ser. No. 640,578, May 23, 1967. Application for reissue Oct. 27, 1972, Ser. No. 301,599
Int. Cl. F24f *3/00*
U.S. Cl. 165—22 **12 Claims**

The present invention concerns the application of fluidic devices to air-conditioning systems. More specifically, the present invention encompasses the use of fluidic valves by means of which heating and cooling can be controlled without moving parts being involved. Through the use of such devices, throttling as a means for controlling flow is eliminated altogether and the control of multi-zone air conditioning is rendered more feasible.



27,908
FLUID CONTACT TRAY
Irvin Earl Nutter, deceased, late of Tulsa, Okla., by The First National Bank and Trust Co., executor, and Dale E. Nutter, Tulsa, Okla., assignors to Martha C. Nutter, Tulsa, Okla., and Nancy N. Pantaleoni, Tenafly, N.J., fractional part interest to each
Original No. 3,463,464, dated Aug. 26, 1969, Ser. No. 670,681, Sept. 26, 1967, which is a continuation-in-part of abandoned Ser. No. 360,494, Apr. 17, 1964. Application for reissue July 26, 1971, Ser. No. 166,323
Int. Cl. B01d *3/24*
U.S. Cl. 261—114 R **10 Claims**



A fluid contact tray having a plurality of tapering apertures therein, the major dimension of the apertures lying in the direction of liquid flow across the tray. A deflector is supported above each aperture by a pair of transversely extending baffles one at each end of each aperture.

PLANT PATENTS

GRANTED JANUARY 29, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,453
APPLE TREE
John Gould Hannaford, Mount Bera, Cudlee Creek, South Australia, Australia, assignor to Granny Spur Enterprises, Orondo, Wash.
Filed Mar. 1, 1972, Ser. No. 231,034
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—34 **1 Claim**

Originating as a genetic bud sport on a standard Granny Smith apple tree in the present discoverer's orchard at Mount Bera, Cudlee Creek, South Australia, this new Granny Smith mutation exhibits vigorous spur-type growth with foliage that is deep green and dense and fruit that is deeper green than that of the parent.

3,454
CHRYSANTHEMUM PLANT
Grace H. Mack, 108 Wahackme Road, New Canaan, Conn. 06840, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and said Duffett assignors to said Mack, New Canaan, Conn.
Filed May 15, 1972, Ser. No. 253,641
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared with the garden cultivar Early Gold by its flowers which are approximately ¼" larger; its stronger stems; its incurved individual petals with a longitudinal petal roll, thereby providing a more solid flower and a more formal flower form; its approximately six days longer keeping quality in the fall garden; its lighter gold flower color; its taller, more spreading habit with slightly more prolific branching in the fall garden, less leaf serration, and more prominent stipules.

3,455
CHRYSANTHEMUM PLANT
Barrie J. Machin, Chichester, and G. B. Hall, Ashley Green, Chesham, England, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed May 12, 1972, Ser. No. 252,949
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Pink Marble by its aproximately one-quarter inch larger flower, its very flat symmetrically petalled flowers which have no twisting or reflexing of the petals, its rose pink flower color, and approximately two inches more vigor.

3,456
RHUBARB PLANT
Harold B. Whitmore, 223 Walnut Lane NW., Vienna, Va. 22180
Filed Apr. 25, 1972, Ser. No. 247,340
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—89 **1 Claim**

1. A new and distinct variety of rhubarb plant of the type having relatively red stalks, particularly characterized by its unique disease-resistant ability to flourish in relatively southern climes; its relatively sweet taste; its rapid growth habit, and its continuous season-long harvest which permits succulent edible new stalks to be harvested continuously from spring until frost.

3,457
ROSE PLANT
David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed Apr. 19, 1972, Ser. No. 245,669
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—28 **1 Claim**

An asexually reproduced bush rose of the floribunda class particularly characterized in the color stability of

the bright reddish orange petals of the bloom, which undergo little or no change in coloration or shade from first opening to late maturity, although flowers blooming in cool gray weather may be somewhat darker in shade throughout their life.

The plant is moderately low growing and moderately spreading in habit, carrying most of its flowers in small irregular clusters with strong peduncles on short to medium stems.

Only occasionally do the sepals have foliaceous parts extending beyond the bud. The buds are small, but the bloom appears to grow in size until the flower is fully open, at slightly less than three or four inches. The petals tend to be ruffled and fluted in form. Flowers are semi-double to double, comprising 19–25 petals and 2–8 petaloids, with little fragrance. The plant blooms almost continuously throughout the growing season, but makes a moderately massive display only at the first Spring blooming. After the petals have dropped, the peduncle also falls off.

3,458
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Apr. 24, 1972, Ser. No. 247,193
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to uniqueness when compared to the parent cultivar Mountain Snow by its yellow flower color, and being unique relative to the cultivar Mountain Sun by its ¼"–1¼" larger flowers, 10–15% more petals which are approximately 5/16" broader in width, approximately ¾" longer leaves, by its approximately 2"–3" taller habit and 1" less spread as a pinched plant, by its somewhat earlier response, and by its more incurved flower form.

3,459
CHRYSANTHEMUM PLANT
Philip W. Holmquist, 4045 Highway 101, Hamel, Minn. 55340, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and said Duffett assignors to said Holmquist
Filed June 5, 1972, Ser. No. 259,996
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Nimbus and to the cultivar Nimrod by its yellow flower color.

3,460
CHRYSANTHEMUM PLANT
Grace H. Mack, 108 Wahackne Road, New Canaan, Conn. 06840, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and said Duffett, assignors to said Mack
Filed May 15, 1972, Ser. No. 253,638
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Yellow Butterscotch by its approximately ¼ inch smaller flower; its several days earlier response than Yellow Butterscotch in fall natural season flowering in the garden; its habit of not reflexing its flower form; its plant habit which is approximately five inches shorter, nine inches more spread and three to four more breaks per plant when grown from an outdoor natural season flowering, planted in mid-June and given a single pinch, and by its darker flower color.

3,461
GLADIOLUS PLANT
John R. Larus, West Hartford, and Charles T. Larus, Avon, Conn., assignors to Selected Glads, Inc., New Albany, Ind.
Filed Nov. 19, 1971, Ser. No. 200,623
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—85 **1 Claim**

1. A new and distinct variety of gladiolus plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its deep pink color, and its ability to open up to twelve florets at a time.

3,462
AZALEA PLANT
Raymond Yoshimura, San Gabriel, Calif., assignor to San Gabriel Nursery and Florist, San Gabriel, Calif.
Filed Mar. 27, 1972, Ser. No. 238,702
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—57 **1 Claim**

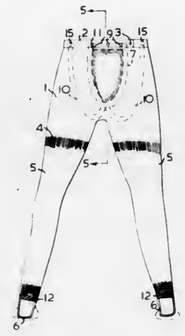
1. The new and distinct variety of azalea plant substantially as herein shown and described, characterized particularly as to novelty by the slightly double, campanulate, substantially Orient red blooms borne in profusion during the winter and spring months, there being many blooms on a stem, by its flowering habit that extends throughout a substantial portion of the year, and by its vigorous upright growth habit.

PATENTS

GRANTED JANUARY 29, 1974

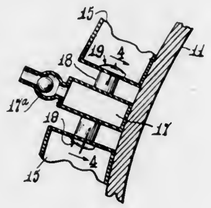
GENERAL AND MECHANICAL

3,787,892
ICE HOCKEY GARMENT
Peter H. Quinn, 1101-C Falaise Rd., Ottawa, Ontario, Canada
Continuation-in-part of Ser. No. 13,939, Feb. 25, 1970, abandoned. This application Mar. 13, 1972, Ser. No. 233,897
Claims priority, application Canada, Feb. 25, 1969, 043901
Int. Cl. A41d *13/00*
U.S. Cl. 2—2 **7 Claims**



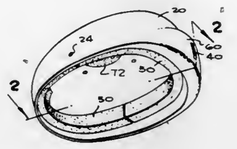
The present invention relates to a unitary hockey garment comprising a body portion adapted to snugly fit around the trunk of the body of the wearer from about the waist downwards said body portion including a portion adapted to grip the trunk of the body of the wearer forming an undergarment portion and a pair of leg portions, each leg portion extending from said body portion and having means at the free end thereof for gripping the foot of the wearer to maintain the leg portion under tension on the leg of the wearer forming an outer garment portion and detachable retaining means for releasably retaining a protective cup or plate in said crotch area, said leg portion including a pocket dimensioned for removable accommodation of a shin pad and disposed for location of the shin pad opposite the shin of the wearer.

3,787,893
PROTECTIVE HEADGEAR
Angelo C. Larcher, 8036 S. Western Ave., Chicago, Ill.
Filed May 4, 1972, Ser. No. 250,173
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 R **2 Claims**



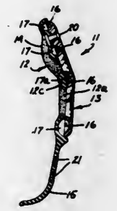
Protective headgear including a hard shell and a plurality of inflated fluid chambers on the outside surface of said shell. Fluid delivery means is connected to each chamber and valve means in said chambers prevents reverse flow of fluid.

3,787,894
EASILY ADJUSTABLE PROTECTIVE HEAD GEAR
James W. Goodman, Jr., Box 321, Kilmarnock, Va.
Filed Oct. 12, 1972, Ser. No. 297,047
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 A **2 Claims**



A protective helmet is dislosed in the form of a batting helmet comprising a shell formed of tough impact resistant plastic material with a flexible metal headband positioned in the shell interior with the ends of the band being connected to a threaded rod operable by rotation of a knurled knob positioned on the interior of a protrusion of the shell but externally accessible for manual rotation while the device is in place on the head of a wearer to accommodate the head size of the wearer; a band of foam rubber extends about the inner surface of the metal band and a crown cushion of foam rubber is positioned in the top of the shell; in a second embodiment, the knurled adjusting knob is positioned in a metal protrusion affixed to the exterior of the plastic shell as opposed to a unitary protrusion and shell construction of the first embodiment.

3,787,895
PROTECTIVE FACE MASK AND PADDING MATERIAL THEREFOR
Paul C. Belvedere, 2105 W. 61st St., Minneapolis, Minn.
Filed July 21, 1972, Ser. No. 273,864
Int. Cl. A41d *13/00*
U.S. Cl. 2—9 **21 Claims**



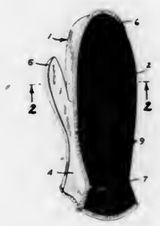
A protective face mask consisting of a soft, resilient inner member conforming in shape to a user's mouth and chin, and an outer member of hard, impact resistant material which is sized and shaped to fit over the user's mouth and mechanically secured to the inner member. The inner and outer members are constructed and arranged to define a plurality of cavities between them when secured together, and the thickness of the inner member permits it to deform resiliently in the area of the cavities when subjected to impact forces.

3,787,896
FRONT PLACKET FOR FEMALE'S BLOUSE
George Weiss, 520 Magnola Blvd., Long Beach, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,940
Int. Cl. A41b 1/20
U.S. Cl. 2—106 1 Claim



A front placket for a female's blouse having an outer fabric covering supported internally by an interlining strip, and wherein said interlining strip has (a) folded under marginal edges to increase its bulk and thus provide support to the corresponding marginal edges of the fabric covering so as to minimize wrinkling therein and (b) is oriented on the bias, i.e., the yarns thereof are aligned at a 45° angle to the placket length, so that despite the aforesaid increased marginal bulk of the interlining it does not inhibit flexing or draping of the placket, as is required to achieve proper fit of the garment.

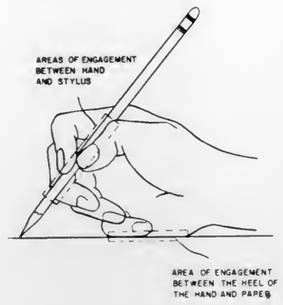
3,787,897
GLOVE OR MITTEN WITH COLORED MESH BACKING
David A. Sabin, 234 W. Main, and Mark A. Sabin, 116 W. Walnut, both of Manly, Iowa
Filed Nov. 13, 1972, Ser. No. 305,966
Int. Cl. A41d 19/00
U.S. Cl. 2—158 2 Claims



A hand covering, such as a workman's glove or mitten having a front portion of wear-resistant leather-like material for covering the palm, thumb and front surfaces of the fingers and wrist of a wearer, and a back portion for covering the back of the hand and fingers of the wearer. The back portion is of mono-filament material loosely woven or interlaced to provide open spaces for free movement of air therethrough, whereby the interior of the covering is effectively ventilated. The monofilament material is colored with high light-reflective coloring matter, and the back portion is formed to provide spaced ridges so that light is reflected at various angles from the back portion.

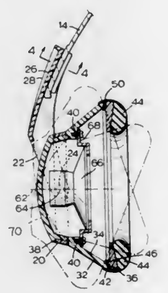
3,787,898
WRITING FACILITATING GLOVE
Charles F. Walker, 7047 Lincoln Dr., Philadelphia, Pa.
Filed Oct. 12, 1972, Ser. No. 296,845
Int. Cl. A41d 19/00
U.S. Cl. 2—163 6 Claims

A writing glove to facilitate the movement of a hand of a writer in the operation of writing with a pen on a writing surface includes an elongated smooth surface area on the glove, which smooth surface area has a low coefficient of friction and constitutes the area of contact between the glove and the writing surface, and selectively shaped and located adhesive areas



on portions of the glove,which adhesive areas have a high coefficient of friction and constitute the gripping areas that are substantially employed by a writer in holding a pen during the writing movement of the hand.

3,787,899
EAR MUFF ASSEMBLY
Alois Albin Krawagna, Toronto, Ontario, Canada, assignor to Imperial Optical Company Ltd., trading as Safety Supply Co., Toronto, Ontario, Canada
Filed July 11, 1972, Ser. No. 270,605
Int. Cl. A41d 21/00
U.S. Cl. 2—209 3 Claims

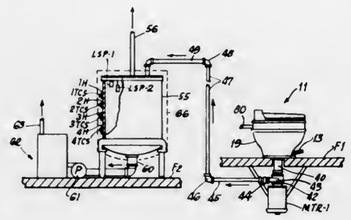


An ear muff assembly for use with a headband including an ear cup, a circumferentially extending first bearing, the ear cup being mounted in the first bearing for rotation about a first axis, a yoke, the circumferentially extending bearing being mounted in the yoke for rotation about a second axis which extends laterally of the first axis, the yoke being mountable on the headband.

3,787,900
ARTIFICIAL BONE OR TOOTH PROSTHESIS MATERIAL
Thomas D. McGee, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa
Filed June 9, 1971, Ser. No. 151,580
Int. Cl. A61c 13/08; A61f 1/00; C09k 3/00
U.S. Cl. 3—1 11 Claims

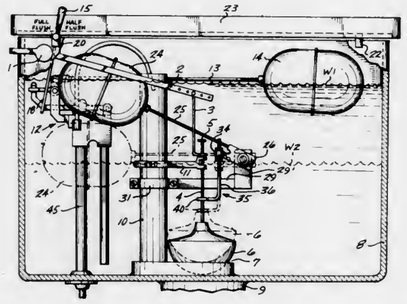
A prosthesis material useful for artificial bones or teeth is provided in the form of a heat-consolidated body composed essentially of a dense structurally integrated mixture of discrete microcrystals of a calcium phosphate compound together with discrete microcrystals of a refractory compound, such as the mineral spinel, aluminum phosphate, or aluminum oxide. The preferred calcium phosphate compound is whitlockite, but it can be used in combination with other more soluble calcium phosphate compounds.

3,787,901
TOILET AND WASTE STORAGE SYSTEM
Robert F. Wagner, Lombard; Edward J. Kubiak, Oakbrook, and Edward J. Rollo, Jr., Des Plaines, all of Ill., assignors to General American Transportation Corporation, Chicago, Ill.
Filed July 20, 1971, Ser. No. 164,261
Int. Cl. E03d 1/00
U.S. Cl. 4—10 21 Claims



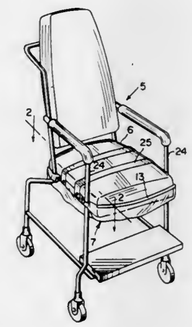
A system, that receives and treats human body waste added to a toilet, includes a toilet bowl with a bottom outlet, a storage tank, a heater for the tank to evaporate water from and thereby reduce volume of waste in the tank, a conduit communicating with the bowl outlet, a valve closing and opening that communication, means to open the valve, means to close the valve, transfer means between the conduit and the tank, and valved conduit means to provide a predetermined amount of flush water upon opening of the valve between the bowl outlet and the conduit. The transfer means is operative for a predetermined period of time after closing of the valve between the outlet and the conduit. The heater is operative when waste in the tank rises to a predetermined level and thereafter until solids content in the waste reaches a predetermined value. Operation of the transfer means is prevented when the level of waste in the tank exceeds a higher level. Flush water may be added to the bowl without opening the valve between the bowl outlet and the conduit.

3,787,902
FLUSH TANK WATER-REGULATING ATTACHMENT
Jay McCombs, Nordland, Wash.
Filed Dec. 6, 1971, Ser. No. 204,903
Int. Cl. E03d 1/34, 5/02, 5/10
U.S. Cl. 4—67 A 2 Claims



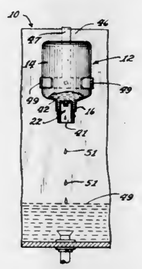
The volume of water supplied to flush a toilet bowl is selected by setting a handle mounted externally on a flush tank, which handle swings a support lever between a nonlimiting position and a position for limiting downward travel of an auxiliary float. A float-actuated lever carries adjacent to its pivot a link for engaging the flush tank discharge valve to limit upward travel of such valve. The valve thereby remains close to its valve seat so that the valve is closed more quickly by pressure of the water on its upper surface and suction created by water flowing through the valve port, thereby substantially reducing the volume of water supplied to the bowl.

3,787,903
URINE SHIELD
Marjorie A. Miller, Rt. 2, Box 414 A, Sleepy Hollow Rd., Dundee, Ill.
Filed Oct. 26, 1972, Ser. No. 300,900
Int. Cl. A47k 11/04, 11/06; A61g 7/04
U.S. Cl. 4—134 6 Claims



An inconspicuous urine collection shield for fitting underneath and around the sides of an upholstered or cushioned seat of a chair. When the chair is occupied by a person who has lost normal bladder control, the urine can run down any or all four sides of the chair seat and collect in the portion of the shield which fits underneath the seat. Suitable fastening means are provided for removably securing the shield in place so that it can be partially removed for draining or completely removed for cleaning purposes. If desired the shield may be provided with a tubular attachment for connection to an indwelling catheter. A simple drain tube may be attached to the shield so that urine collected therein may be drained from time to time without releasing and lowering any portion of the shield.

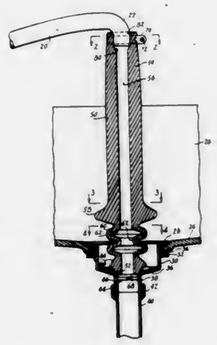
3,787,904
LIQUID DISPENSING AND METERING DEVICE
Nathan B. Lerner, Chicago, Ill., assignor to W. Braun Company, Chicago, Ill.
Filed Sept. 27, 1971, Ser. No. 184,022
Int. Cl. E03d 9/03
U.S. Cl. 4—227 1 Claim



A liquid dispensing and metering device for automatically and periodically dispensing a predetermined quantity of liquid

into a flush tank or the like, which device comprises an integrally formed member having a wall within the neck or discharge opening of the container so that the device does not extend outwardly beyond the neck or discharge opening of the container so as to minimize the overall height of the container, and in which the outlet or discharge end may be covered by a closure cap, said device having an opening in the wall thereof through which the liquid in the container is dispensed in measured amounts.

3,787,905
RUBBER PLUMBER
Joseph H. Curzon, 8103-14th Ave., Adelphi, Md.
Filed Apr. 20, 1971, Ser. No. 135,653
Int. Cl. E03c *1/306*
U.S. Cl. 4—256 **4 Claims**



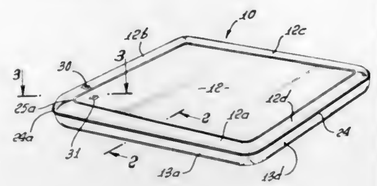
A molded element having a resilient portion and a tapered end and an outward extending flange adjacent opposite ends of the resilient portion for pressedly connecting a sink faucet with a drain pipe in fluid communication.

3,787,906
SLEEPING BAG CONSTRUCTION
Harry Hunt, 107 N. Walnut St., Ridgewood, N.J.
Filed Dec. 9, 1971, Ser. No. 206,345
Int. Cl. A47g *9/00*
U.S. Cl. 5—343 **10 Claims**



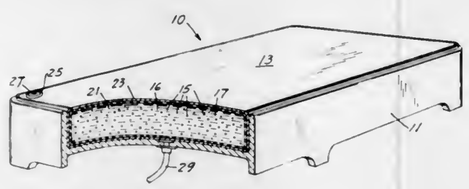
Mummy-type insulated sleeping bag, particularly for Winter, Alpine and other severe weather, providing unusual loft and warmth with minimal weight, elimination of coldspots and suitable for use in an emergency by two persons.

3,787,907
FRAMELESS WATER BED
William Pennington, and William Pennington, III, both of 30200 Oceanaire Dr., Palos Verdes, Calif.
Filed Jan. 28, 1972, Ser. No. 221,589
Int. Cl. A67c *27/08*
U.S. Cl. 5—348 WB **8 Claims**



A frameless water bed comprises primary plastic sheeting forming a tube extending in a loop, auxiliary plastic sheets extending across the loop interior and overlapping opposite extents of the tube for retaining it against outward deflection under the influence of water pressure exertion. The auxiliary sheets form with the tube a closed, water receiving interior hollow bounded by the tube.

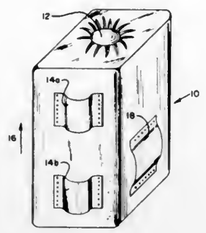
3,787,908
INCOMPRESSIBLE, CONFORMABLE STRUCTURE CONTAINING CELLULAR PARTICLES
Warren R. Beck, Saint Paul, and Norman P. Sweeny, North Oaks, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed July 1, 1971, Ser. No. 158,889
Int. Cl. A47c *27/08*
U.S. Cl. 5—348 WB **13 Claims**



The disclosed cushioning means comprises a flexible-walled container filled with a flowable liquid and, suspended in the liquid, tiny cellular particles having a low density. The cellular particles reduce the density of the liquid fill and also improve its thermal insulative properties. A viscosity modifier is preferably added to the flowable liquid fill to provide better dimensional stability characteristics, as compared to a conventional water bed.

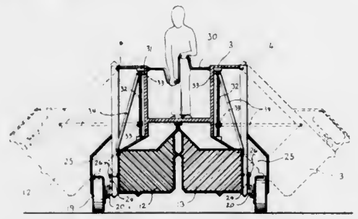
3,787,909
FURNITURE MODULE
Edward Johnson, 650 Huntington Ave., Boston, Mass.
Filed Nov. 3, 1971, Ser. No. 195,100
Int. Cl. A47c *17/40, 7/20*
U.S. Cl. 5—352 **10 Claims**

A furniture module is described comprising a rectangular block of deformable material. Mounted on one long side of the block are a plurality of belt loops with openings directed substantially along the long dimension of the block. At least one additional belt loop is mounted on an adjacent long side of the block with its opening substantially perpendicular to the long dimension of the block. Included with the module is a flexible elongated belt having a length at least equal to the longest periphery of the block, and dimensioned so as to allow it



to be threaded through the loops on the block. Fastening means are provided so that the ends of the belt can be joined together, or two or more belts can be joined end-to-end.

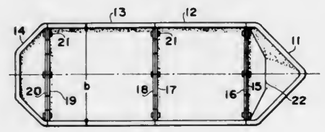
3,787,910
AMPHIBIOUS VEHICLE
James F. Taylor, Raleigh, N.C., assignor to Design Dimension, Inc., Raleigh, N.C.
Filed May 18, 1972, Ser. No. 254,713
Int. Cl. B60f *3/00;* **B63c** *13/00*
U.S. Cl. 9—1 T **7 Claims**



In abstract, a preferred embodiment of this invention is a towable, land type vehicle which is launchable and expansible for use as a stable watercraft with roomy, trailer-like accommodations.

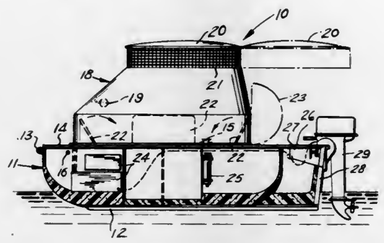
Basically the body of the vehicle comprises a central section having expandable wing sections disposed on each side thereof. Each wing section has a retractable wheel assembly incorporated therein. A retractable tow bar is provided about the front of the body which enables the tow bar to be moved inwardly relative to the body when the amphibious vehicle is used as a watercraft.

3,787,911
NESTABLE BOAT ON A KNOCK DOWN PLAN
Masami Miya, Tokyo, Japan, assignor to Nepon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 22, 1972, Ser. No. 308,901
Claims priority, application Japan, Dec. 22, 1971, 46-120630
Int. Cl. B63b *7/04*
U.S. Cl. 9—2 S **1 Claim**



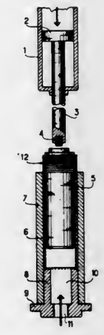
A nestable boat on a knock down plan comprising a bow, a minor body, a major body and a stern. These four members are individually floatable. The bow is juxtaposed with the stern and is adapted to be nested inside the minor body when the common axial line of the bow and the stern is arranged at an angle of 45° to the axial line of the minor body adapted to be nested inside the major body when the axial line of the former is arranged at a right angle to the axial line of the latter, and therefore, the telescoped boat is compact enough for transportation and storage.

3,787,912
FLOATING HUNTING BLIND
Stanton E. Huey, Jr., 2128 Maywood Dr., Monroe, La.
Filed Sept. 21, 1972, Ser. No. 291,048
Int. Cl. B63b *35/00*
U.S. Cl. 9—5 **1 Claim**



A one man containing hunting blind. This device consists primarily of a floating device with protective compartment means for a single hunter, the device including transom means for an outboard engine, the hull portion having compartment means for gas tanks, fire extinguisher and other necessary items for a hunter.

3,787,913
METHOD FOR MANUFACTURING WASHERS FROM A FLEXIBLE TUBE
Bernard Le Comte, Houilles; Jules Henry, Hillion, and Roger Pincemin, Ploufragan, all of France, assignors to Le Joint Francais, Paris, France
Filed June 23, 1972, Ser. No. 265,886
Claims priority, application France, June 24, 1971, 71.23095
Int. Cl. B21d *53/20;* **B23p** *19/04*
U.S. Cl. 10—86 B **4 Claims**



A method for manufacturing washers from a flexible tube consisting in engaging a tube on a mandrel, cutting up the tube into washers and withdrawing the washers produced from the mandrel, is characterized in that the engaging of a new tube to

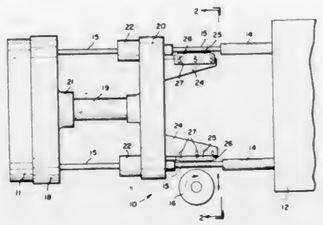
be cut up is effected on the mandrel bearing the washers produced from the previously cut-up tube, the relative movement of that new tube on the mandrel simultaneously causing the removal of the washers borne by that mandrel.

3,787,914

BAR EXCURSION CONTROLLER

Paul T. Heanue, Fayetteville, N.Y., assignor to Lipe Rollway Corporation, Syracuse, N.Y.

Filed Oct. 12, 1972, Ser. No. 296,807
Int. Cl. B21h *27/02*
U.S. Cl. 10—162 S **10 Claims**



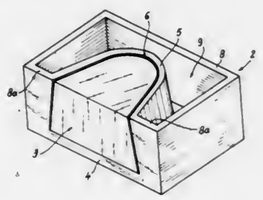
A bar excursion controller is applied to a multispindle screw machine having a bar feeder that uses a driven roller with spring-loaded flanges for straddling, squeezing and feeding the bars in time with the machine. The excursion controller is built on a base plate that is mounted concentric with the stock reel for indexing with the stock reel, and it carries a back-up plate for each bar of the machine. The back-up plates are mounted adjacent the bars and opposite the driven roller and are radially adjustable for normally clearing the bars by the amount of acceptable off-axis movement for the bars.

3,787,915

DEVICE FOR MOUNTING THE TOE AND HEEL ENDS OF A SHOE UPPER

Terence Albert Holt, and Jean-Gabriel Barre, both of Lyon, France, assignors to Centre Technique du Cuir, Lyon, France

Filed Nov. 17, 1972, Ser. No. 307,558
Int. Cl. A43d *21/12*
U.S. Cl. 12—8.1 **5 Claims**



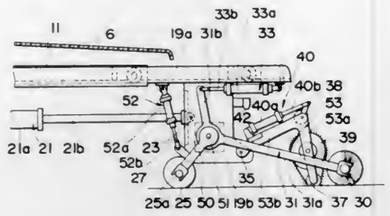
The toe and heel ends of the mounting last, in a shoe-making process, act as forming elements in the shaping of the upper in combination with a die comprising impressions of the shoe to be obtained. This die comprises on the one hand a frame element of semi-rigid but resilient material which includes a base carrying at least one curved rib corresponding substantially to the outer contour of the toe end of the shoe contemplated and on the other hand a filling element of flexible, soft and resilient material, fitted in the cavity formed by said curved rib.

3,787,916

FLOOR SURFACE CLEANING AND DRESSING APPARATUS

Kaoru Akagi, Osaka, and Katushi Tanaka, Nishinomiya, both of Japan, assignors to Daihatsu Kogyo Co., Ltd., Osaka and Kyokuto Kaihatsu Kogyo Co., Ltd., Nishinomiya-shi, Hyogo-ken, both of, Japan

Filed Aug. 7, 1972, Ser. No. 278,382
Claims priority, application Japan, Aug. 13, 1971, 46-61891
Int. Cl. A47l *11/282*; **A63d** *5/10*
U.S. Cl. 15—4 **16 Claims**



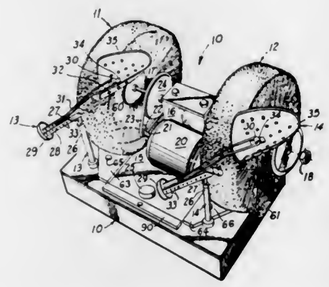
An apparatus for cleaning and applying dressing to a floor surface which comprises a battery operated, manned vehicle and a floor maintenance unit telescopically movably supported by the vehicle at the front thereof to enable the floor maintenance unit to enter, when projected, a narrow space where the vehicle cannot enter. The floor maintenance unit includes a rotatable brush, a rotatable polisher, a web of disposable sheet material and a liquid dressing applicator, a mode of operation of the floor maintenance unit being selected as desired.

3,787,917

SHOE SHINE APPARATUS

George D. Lashley, 3098 Old Norcross Rd., Tucker, Ga.

Continuation-in-part of Ser. No. 224,117, Feb. 7, 1972. This application Oct. 16, 1972, Ser. No. 297,877
Int. Cl. A47l *23/02*, *23/18*
U.S. Cl. 15—31 **12 Claims**



Apparatus for use in shining shoes, including a pair of power driven shoe brushing means rotatable about a common horizontal axis, with each shoe brushing means operatively associated with a shoe supporting means. Each of the shoe supporting means is mounted for power rotation about a vertically disposed axis and includes releasable retaining means for engaging the interior of a supported shoe. The shoe supporting means are detailed in location relative to the brushing means so that all polished surfaces of a pair of supported shoes are contacted during rotation of the brushing means and shoe supporting means. A single motor is operatively associated with the shoe brushing means and the shoe supporting means for automatically effecting simultaneous rotation thereof in a

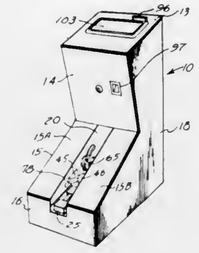
shoe shining operation. The shoe shining apparatus includes polish dispensing means operatively associated with each of the brushing means, with the polish dispensing means including cover means supported between the polish dispensing means and the shoe brushing means and selectively movable between closed and opened conditions to permit polish to be applied to shoes during rotation of the brushes.

3,787,918

SHOE POLISHING MACHINE

Robert J. Ebert, 9869 Strawberry Ln., Chesterland, Ohio

Filed Aug. 28, 1972, Ser. No. 283,947
Int. Cl. A47l *23/02*
U.S. Cl. 15—31 **11 Claims**



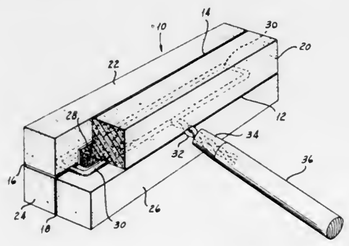
A coin controlled shoe shining machine having a shiftable shoe receiving carriage within a housing, the carriage being shiftable back and forth by an operator when his shoe is resting on the carriage. The coin initiates the operation of a timer which controls the operation of solenoids for activating polish dispensers positioned on each side of the carriage. The timer also controls the operation of the motors for two brushes which engage the side of the shoe as the carriage is advanced and retracted along the trackway. Additionally, the timer controls the operation of a third brush which engages the toe portion of a shoe as the carriage is advanced and retracted. The timer is set for controlling the operation of the solenoids and the brush motors for predetermined intervals of time. The invention also includes the use of two such units mounted side-by-side within a housing for shining black shoes and brown shoes, as well as one such unit with separate dispensers for black and brown polish on each side of the shoe, together with means for selectively operating the machine to shine brown or black shoes.

3,787,919

REVERSIBLE SPONGE RUBBER MOP, BRUSH OR DUSTER

Herbert A. Siemund, 2800 N. Lake Shore Dr. Apt. 320, Chicago, Ill.

Filed May 16, 1972, Ser. No. 253,880
Int. Cl. A47l *13/25*, *13/46*
U.S. Cl. 15—244 CH **2 Claims**



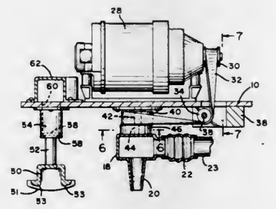
A reversible sponge rubber brush, mop or duster which includes a resiliently compressible rectangular block of a synthetic or sponge rubber having rectangular side portions and opposite end portions of a substantially square section with the length of the sponge rubber block being substantially greater than the width thereof, and in which rectangular block there may be provided peripherally extending slots which effectively divide the block into four rectangularly shaped sponge rubber portions which are interconnected within the block by an inner resilient web portion of the block located inwardly of the opposite end and side portions of the block and effectively defined by the slots extending peripherally of the side and end portions of the block. The peripheral slots in the resilient block are so arranged that a wire form or loop of a rigid material provides a holder for the resilient sponge rubber block. The wire loop may be selectively recieved in the slots extending peripherally in the sides and end portions of the block to present for use a work surface of one or another of the rectangularly shaped resilient sponge rubber portions of the sponge rubber block. Thus, there is provided a reversible sponge rubber brush, mop or duster including rectangular portions providing four working sides or surfaces, each of which may be selectively exposed to a surface to be cleaned.

3,787,920

VACUUM CLEANER SUCTION TOOL WITH ORBITAL NOZZLES FOR CLEANING DEEP PILE SHAG RUGS

Robert A. Evans, and Horace W. Brundage, both of Stamford, Conn., assignors to Consolidated Foods Corporation, Old Greenwich, Conn.

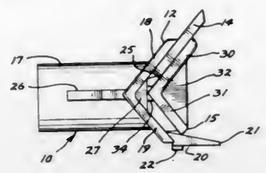
Division of Ser. No. 152,714, June 24, 1971, abandoned. This application Jan. 8, 1973, Ser. No. 321,806
Int. Cl. A47l *9/04*
U.S. Cl. 15—416 **5 Claims**



In accordance with the present invention there is provided a suction cleaning tool having a plurality of elongated tube-like nozzles extending downwardly from a manifold supported from a base member by rubber mounts and rapidly moved, either back and forth or orbitally, by a suitable electric motor secured to the base member, or the manifold may be mounted for reciprocating pivotal movement. An elongated suction nozzle is also supported beneath the base member in a manner permitting bertical movement of the nozzle.

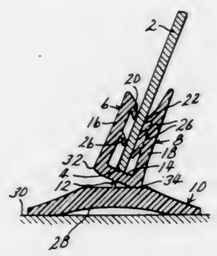
The base member is provided with a supporting wheel at each end and at the center with an elbow member to which may be coupled a hollow wand which serves as both a manipulating handle and suction conduit means to the opposite end of which may be connected a flexible suction hose leading to a source of suction in a vacuum cleaner. The elbow is connected to both the manifold and the elongated suction nozzle and valve means, operable by a control handle on the wand, is provided for selectively connecting the elbow to either the manifold or the nozzle, or to both.

3,787,921
WINDSHIELD SCRAPER
Robert G. Feldmann, Eden Prairie, Minn., assignor to Pyroil Company, Inc., La Crosse, Wis.
Filed June 12, 1972, Ser. No. 261,635
Int. Cl. A47l *1/06, 1/16*
U.S. Cl. 15—105 1 Claim



A scraper for an automobile windshield or the like with an elongated scraper head mounted crosswise at the end of an elongated handle. The head has a V-shape in cross section opening forwardly away from the handle. An ice scraper blade extends integrally from and along one wall of the head while a flexible scraper blade is held along the other wall of the head between said wall and a keeper member secured to the head, said keeper member having a plurality of sharp projecting teeth penetrating the flexible blade.

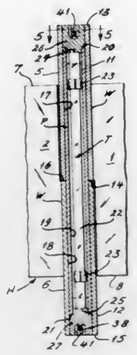
3,787,922
EDGE PROTECTOR
Charles L. Foy, Southfield, Mich., and Harmon W. Arnold, Carthage, Mo., assignors to Flex-o-Laters Inc., Carthage, Mo.
Filed July 21, 1971, Ser. No. 164,561
Int. Cl. A47g *1/10*
U.S. Cl. 16—1 5 Claims



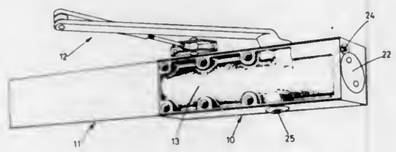
An edge protector adapted to be applied over the edges of metal, glass or other sheet materials to prevent damage to the edges of said sheets, and to prevent damage by said edges to adjacent sheets, consisting of continuously extruded section of resilient plastic including in cross-sectional contour, a U-shaped clip portion adapted to engage frictionally therein the edge portion of a sheet, a broad shock-absorbing head portion adjacent the closed edge of the clip portion, and a thin, narrow neck interconnecting the clip and head portions whereby the head portion can tilt laterally with respect to the clip portion.

3,787,923
HINGE WITH TORSION BAR
Francis C. Peterson, Affton, Mo., assignor to C. Hager & Sons Hinge Manufacturing Company, Saint Louis, Mo.
Filed Jan. 17, 1972, Ser. No. 218,151
Int. Cl. E05f *1/12*
U.S. Cl. 16—184 3 Claims

A torsion bar is provided within a hinge having leaves which fit on the same door as leaves presently used in this country, so as to bias the door toward a closed or open position. The torsion bar is mounted within a tubular pivot pin portion of the upper knuckle and the lower portion of the lower knuckle. The plugs do not extend above the upper knuckle or below the lower knuckle. The torsion bar is made from a plurality of thin spring steel members of predetermined length, which are connected together by bands. The ends of the torsion bar fit within slots in the inner ends of said plugs, which inner ends fit within the tubular pivot pin.

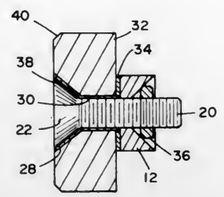


3,787,924
AUTOMATIC DOOR CLOSER WITH SUBSTANTIALLY PRISM-SHAPED HOUSING
Dietrich Jentsch, Ennepetal, Germany, assignor to Dorma-Baubeschlag GmbH & Co. KG, Ennepetal-Voerde, Germany
Filed Jan. 17, 1973, Ser. No. 324,518
Claims priority, application Germany, Jan. 18, 1972, 2202084
Int. Cl. E05f *3/00*
U.S. Cl. 16—49 9 Claims



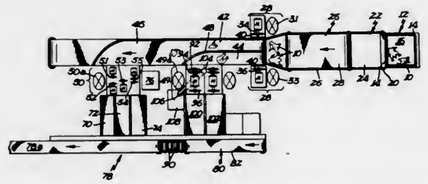
An automatic door closer includes a substantially prism-shaped housing adapted to be attached to the exterior of the upper edge of a door or a door frame. The housing is formed with a cylindrical bore in which a spring acting as energy storing means and a damping arrangement including a piston axially movable in the bore are located. The housing comprises a cylindrical portion with an outer substantially cylindrical surface coaxial with the cylindrical bore and substantially parallel plane top and bottom walls extending along the cylindrical portion integral therewith and having end edges located in two parallel planes normal to the top and bottom walls. A cover sheet is connected to those end edges which, in the attached position of the door closer, face away from the door or the door frame to which the housing is attached.

3,787,925
PLASTIC WHEEL ASSEMBLY FOR OVERHEAD CONVEYORS
Clarence G. Dawson, Dallas, Tex., assignor to FEI, Inc., Dallas, Tex.
Filed Dec. 7, 1972, Ser. No. 312,876
Int. Cl. A47h *15/00*
U.S. Cl. 16—107 8 Claims



The specification discloses a wheel assembly for attachment to an overhead conveyor bracket which includes a bolt having an outwardly conical head for being received at one end by the conveyor bracket. The assembly includes a ferrule comprising a cylindrical portion through which the bolt extends and an outwardly flared conical end portion for receiving the flared bolt head. A conveyor wheel having a generally cylindrical exterior and a central opening therethrough is dimensioned to receive the ferrule. The central opening through the wheel communicates with a conical portion for receiving the conical end portion of the ferrule. The conveyor wheel is constructed from a self-lubricating plastic having high abrasion resistance and a low coefficient of sliding friction. In the preferred embodiment, the wheel is comprised of an ultra-high molecular weight polymer having a coefficient of friction of about 0.11 and a specific gravity of about 0.945.

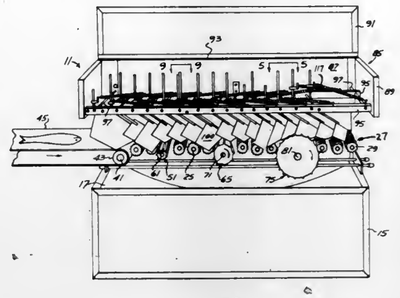
3,787,926
APPARATUS FOR CUTTING AND PACKING POULTRY
Henry Neil Schacht, Decatur, Ala., assignor to The Pillsbury Company, Minneapolis, Minn.
Division of Ser. No. 66,976, Aug. 26, 1970. This application May 24, 1972, Ser. No. 256,502
Int. Cl. A22b *3/08*
U.S. Cl. 17—11 R 8 Claims



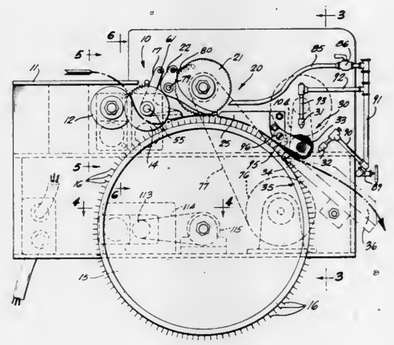
Chickens which have been eviscerated and chilled are transferred to a first handling station where they are cut in half transversely. They are then segregated into front and rear halves and transported via segregated channels to a second and a third handling station. The wings are removed at the second handling station and the legs are removed at the third handling station. The parts are then packed in plastic or fiber trays.

3,787,927
FISH SCALING MACHINE
Albert Simard, R.R. 01, Old Castle, Ontario, Canada
Filed May 26, 1972, Ser. No. 257,392
Int. Cl. A22c *25/02*
U.S. Cl. 17—64 5 Claims

In a fish scaling machine having a horizontally disposed fish conveyor with a series of spaced descaler rolls extending at right angles to the direction of feeding with the fish fed by the conveyor in a continuous manner, an improved hold down and guide mechanism operatively and yieldably engaging one side of the fish as they move thereunder which includes mounted upon a pair of spaced rails a series of spaced rock shafts journalled on said rails and supporting a series of fan-shaped longitudinally overlapped downwardly and rearwardly converging blades which are affixed to said rock shafts and with springs means for urging the undersurface portions of said blades into operative yieldable engagement with the fish as they pass thereunder.



3,787,928
SHRIMP SPLITTING AND CLEANING APPARATUS
Edward H. Domecki, 2140 N.E. 30th St., Lighthouse Point, Fla.
Filed June 19, 1972, Ser. No. 264,358
Int. Cl. A22c *29/00*
U.S. Cl. 17—71 19 Claims

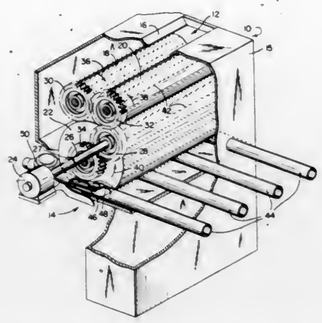


A shrimp splitting and cleaning machine in which the shrimp are mounted on a rotating transport wheel which feeds them through the splitting and cleaning mechanism. Flexible guide wheels position the shrimp on the transport wheel while a spring urged pressure fork forces the shrimp onto pins that protrude from the transport wheel. The latter then moves the shrimp through a saw which cuts through the center of the shrimp longitudinally without severing the bottom layer of its shell. The shrimp is then fed into a spreading knife which enters the cut shrimp and splits it open like a book. The wheel then moves the opened shrimp past a rotating brush while water under pressure is directed onto the shrimp to thoroughly clean out the vein and roe and loose particles of shell that may be present. A lifting fork then dislodges the shrimp from the pins on the transport wheel and a chute directs the cleaned shrimp onto a conveyor for removal from the machine.

3,787,929
COMPRESSED AIR SCUTCHER

Joon Woo Nam, and Ung So Choi, both of Seoul, South Korea, assignors to Korea Institute of Science and Technology, Cheng Ryang, Seoul, South Korea

Filed Feb. 14, 1972, Ser. No. 226,089
Int. Cl. D01b 9/00
U.S. Cl. 19—83 5 Claims

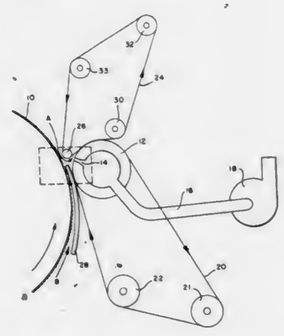


A device for and method of scutching short fibers by use of compressed air are provided. The device includes a scutching section comprising a plurality of pipes having entrance openings for receiving fibers to be separated and exit openings for discharging the fibers to a diffusion area. In operation, compressed air is applied to the pipes to produce an air flow to provide areas of low pressure adjacent to the entrance openings to produce an entrainment flow to draw the fibers through the openings into the pipes whereby the fibers are separated upon expansion of the air flow from the exit openings into the diffusion area. A preferred embodiment of the scutching device includes a supply section having a pair of feeder rollers and a feeder drum provided with a plurality of peripheral pins for partially separating the fibers and feeding the partially separated fibers to the scutching section.

3,787,930
PROCESS FOR RANDOMIZING CARD WEBS

George H. Allen; West Acton, Mass., assignor to The Kendall Company, Walpole, Mass.

Filed Aug. 12, 1971, Ser. No. 171,270
Int. Cl. D01g 15/46
U.S. Cl. 19—106 R 2 Claims

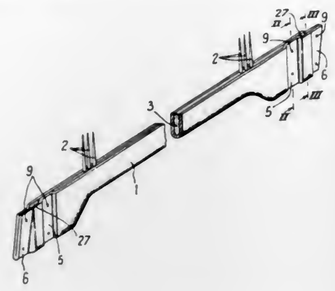


The generally parallelized orientation of fibers being removed from the doffer of a card is randomized by withdrawing the web of fibers by means of a pair of conveyor belts and a vacuum slot situated adjacent to the rotating doffer surface.

3,787,931
COMB FOR TEXTILE MACHINE

Jean Frederic Herubel, Guebwiller, France, assignor to N. Schlumberger & Cie, Guebwiller, Haut-Rhin, France

Filed Oct. 1, 1971, Ser. No. 185,522
Claims priority, application France, Oct. 6, 1970, 70.35964
Int. Cl. D01g 5/14
U.S. Cl. 19—129 R 2 Claims

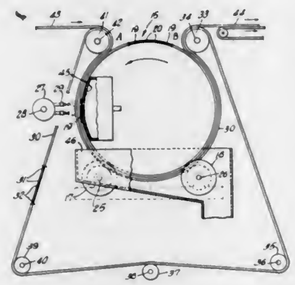


The needle bar which is constituted by a rectilinear metal body having a U-shaped cross-section in which the needles are anchored by means of a bonding agent and which is provided at each end with a lug and a guide heel having a greater height than said body and projecting only on the back side of the comb body is characterized in that the assembly formed by the needle-bar body and needle-bar lugs and heels constitutes a one-piece component of die-stamped sheet steel having a U-shaped cross-section, the lugs and heels being formed by suitable portions of one of the two walls of said component, said portions being flattened by compression against the other wall of said component.

3,787,932
METHOD AND APPARATUS (CONTINUOUS IMPERFORATE PORTIONS ON BACKING MEANS OF CLOSED SANDWICH)

Frank Kalwaites, Gladstone, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Continuation-in-part of Ser. No. 22,309, March 24, 1970, abandoned. This application Feb. 10, 1972, Ser. No. 225,331
Int. Cl. D04h 13/00
U.S. Cl. 19—161 P 4 Claims

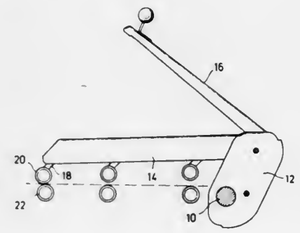


Method and apparatus for producing nonwoven fabrics that contain holes or other areas of low fiber density and have a plurality of patterns of groups of fiber segments that alternate and extend throughout the fabric. The method and apparatus include the steps of positioning the starting web between an apertured forming means and a backing means that has continuous imperforate portions that lie between and interconnect discontinuous foraminous portions, then directing fluid rearranging forces through the apertures of the forming means against the fibers of the starting web, causing some of the fluid streams to strike continuous imperforate portions of the backing means and all of the fluid streams ultimately to pass through the foraminous portions of the backing means.

3,787,933
APPARATUS FOR CARRYING AND LOADING TOP-ROLLERS IN A DRAWING MACHINE

Ernst Dausch, Stuttgart; Friedrich Kubler, Ludwigsburg; Theodor Hempel, Stuttgart-Weilimdorf, and Franz Fuchs, Magstadt, all of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

Filed Apr. 21, 1971, Ser. No. 135,869
Claims priority, application Germany, Apr. 22, 1970, 2019352
Int. Cl. D01h 5/46
U.S. Cl. 19—267 7 Claims

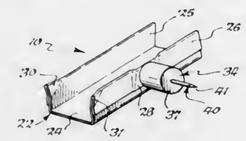


Apparatus for carrying and loading top rollers comprising a carrier arm and an operating lever movable about a fixed shaft. The carrier arm and the lever are interconnected for movement about the shaft. A second fixed point or shaft is provided which cooperates with the first shaft to convert the pivoting movement of the carrier arm into an upward movement, creating a partial load position in addition to a closed and open position.

3,787,934
DEVICE FOR JOINING CANVAS BOARDS

Edward F. Gross, 456 Capen Blvd., Eggertsville, N.Y.

Filed July 11, 1972, Ser. No. 270,664
Int. Cl. A44b 21/00
U.S. Cl. 24—85 R 10 Claims

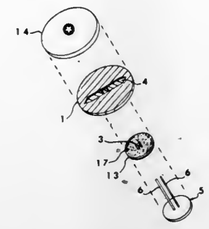


A device for joining one canvas board having a freshly painted surface to another board in spaced, substantially parallel relation thereto and protecting the freshly painted surface. A clip member in the form of a channel member is adapted to be fitted over an edge of one of the boards and an elongated spacer member is mounted on the clip member, in particular being secured at one end to a flange of the channel member, and is disposed so as to extend in a direction away from and generally perpendicular to the plane of the one canvas board. A pin member is secured to and extends from the spacer member in a direction away from and generally perpendicular to the plane of the one board and is adapted to be driven into the other board. Several devices, for example four, are used to join two canvas boards.

3,787,935
SELF-ATTACHING BUTTON

John R. Kapitan, 405 S. Kipling St., Lakewood, Colo.

Filed June 9, 1971, Ser. No. 151,316
Int. Cl. A44b 1/12
U.S. Cl. 24—113 MP 4 Claims

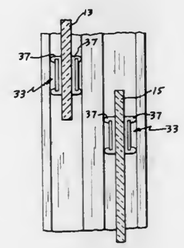


A self-attaching button assembly having a socketed body and a pronged bore. The prong is deformed in the course of engaging it in the socket to unite the parts. The assembly can be quickly attached to articles of clothing without needle and thread or other tools by individuals with no sewing training or experience. A decorative top covers the body which functions as a foundation for the decorative top.

3,787,936
SLIDING DOOR SILENCER

Arnold O. Rystad, Lakeport, Calif., assignor to Work Right Products Inc., Hayward, Calif.

Filed Oct. 16, 1972, Ser. No. 297,923
Int. Cl. A44b 21/00
U.S. Cl. 24—262 R 6 Claims



A silencer bearing element for use with a sliding glass door panel is adapted to be slid over the edge of the door in any desired position. The silencer includes a U-shaped retaining member having resilient sound damping bearing elements slid on and opposing each other on the upwardly extending opposite sides thereof to enable the silencer to be secured to the edge of the door panel with a minimum of effort.

3,787,937
METHOD OF PROCESSING A COLOR CATHODE-RAY TUBE

Kazimir Palac, Carpentersville, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Division of Ser. No. 138,073, April 28, 1971, Pat. No. 3,737,065. This application Feb. 7, 1973, Ser. No. 330,374
Int. Cl. H01j 9/18
U.S. Cl. 29—25.13 4 Claims

In one step of the screening process, the shadow mask of a color tube is mounted from studs provided in the faceplate

section. The faceplate is then introduced into an exposure chamber where it is supported at three points spaced along the sealing land near the locations of the support studs. This establishes the faceplate in a reference mode, free of twisting moments and elastic deformation. When the screening process is completed, the faceplate is superposed over the enlarged end of the funnel section of the tube envelope and supported therefrom at three spaced points similarly disposed along the sealing land of the funnel to engage the faceplate at the same spaced points of support effective in the exposure step. This re-establishes the faceplate in its reference mode. Frit sealing material is disposed between the sealing lands of the envelope sections and the assembly is heated to seal the faceplate and funnel to one another along the entirety of the sealing lands.

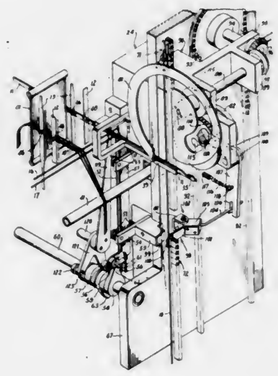


3,787,938

METHOD AND APPARATUS FOR DRAWING IN WARP THREADS

Charles B. Crandall, and Frederick L. Wieneke, both of Rockford, Ill., assignors to Barber-Colman Company, Rockford, Ill.

Filed June 12, 1972, Ser. No. 262,105
Int. Cl. D03j *1/16*
U.S. Cl. 28—44 **6 Claims**



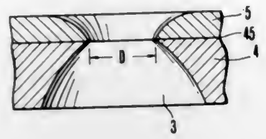
Mechanism for drawing short lengths of thread of yarn through the weaving elements of a loom in a preselected manner while leaving an end portion of each thread exposed for subsequent tying to the thread of yarn on a warp beam.

3,787,939

METHOD OF MANUFACTURING SHADOW MASKS

Yoshifumi Tomita, Mobara, and Masamoto Akeyama, Kokubunzi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 6, 1971, Ser. No. 140,917
Claims priority, application Japan, May 6, 1970, 45/38484
Int. Cl. H01j *9/14*
U.S. Cl. 29—25.11 **6 Claims**



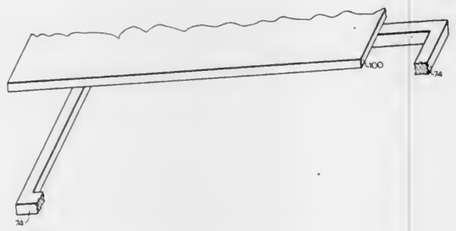
A shadow mask to be utilized in a color cathode ray tube is manufactured by the steps of preparing a shadow mask blank including laminated layers of a first metal and a second metal having different melting points, forming a plurality of small perforations through the shadow mask blank such that each perforation has a first predetermined diameter at the junction between the layers and a second predetermined diameter in the layer of the second metal, the second diameter being smaller than the first diameter and corresponding to the diameter of phosphor dots which are formed on a phosphor surface when the perforated shadow mask blank is used as a mask pattern for forming the phosphor dots by conventional photo-etching techniques and subjecting the perforated shadow mask to heat treatment for melting the layer of the second metal to enlarge the second diameter.

3,787,940

SEGMENT DISPLAY PANEL WITH CATHODE GROUPS

George Andrew Kupsky, Milford, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 97,886, Dec. 14, 1970, and a continuation-in-part of Ser. No. 61,642, Aug. 6, 1970, abandoned. This application Dec. 4, 1972, Ser. No. 312,838
Int. Cl. H01j *9/18*
U.S. Cl. 29—25.16 **8 Claims**



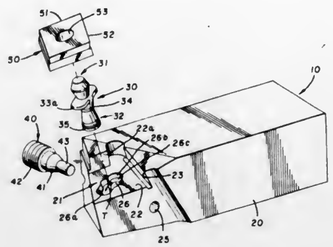
A gas-filled display panel includes a plurality of groups of cathode electrode segments, each group having an anode electrode, the cathodes in each group being selectively energizable, with the associated anode, to glow and display a character. The cathode electrode segments are made up of strips of conductive material covered by an insulating layer which has at least one aperture exposing each conductive strip and with a conductive member in each aperture in direct contact with the associated conductive strip. Each conductive member comprises a cathode which can glow, with the glow filling the aperture in which the conductive member is seated. The cathodes are selectively energized so that the combined glow represents a character.

3,787,941

LOCKING PIN MECHANISM FOR SECURING TOOL BITS TO TOOL HOLDERS

Raymond E. Novkov, Cuyahoga Falls, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed July 17, 1972, Ser. No. 272,428
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 **7 Claims**



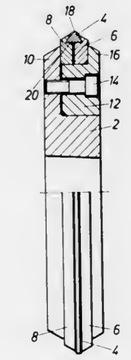
An improved locking arrangement for securing cutting tool bits to tool holders is provided by the use of a locking pin that is shiftably carried by the tool holder and has a projecting head portion that is received within the tool bit so that camming action on the pin shifts the tool bit between clamped and unclamped positions with respect to the tool holder. One unique feature of the improved locking mechanism is the use of an elongated flange on the pin that is received within a complementary shaped slot provided in the tool body, with this arrangement permitting a controlled tilting of the pin by the camming means to more efficiently draw the clamping bit into seated engagement with the tool holder. A second feature is the contouring of the tilting pin in such a manner that the same remains secured with regard to the tool holder even though it is in its loosened condition with the result that dropping or accidental displacement of the tilting pin is avoided during periods of tool bit changing or indexing.

3,787,942

ROLLS

Ali Bindernagel, Dusseldorf-Gerresheim, and Friedrich Karl Mattheis, Heiligenhaus, both of Germany, assignors to Firma Friedrich Kocks, Dusseldorf, Germany

Filed Feb. 9, 1972, Ser. No. 224,877
Claims priority, application Germany, Nov. 2, 1971, 2106549
Int. Cl. B21b *31/08*
U.S. Cl. 29—125 **10 Claims**



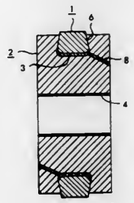
A roll is provided for metal rolling having a main rotary body, a hard tire providing a rolling surface and having a cross section which increases in width from the rolling surface toward the roll axis and two collars attached to the periphery of the main body and firmly enclosing a portion of the tire to secure said tire to the body while leaving the rolling surface exposed.

3,787,943

ROLLER FOR HOT AND COLD ROLLING AND METHOD OF MAKING THE SAME

Kaj Ragnar Loqvist, Fagersta, Sweden, assignor to Fagersta Aktiebolag, Fagersta, Sweden

Filed Dec. 21, 1971, Ser. No. 210,440
Claims priority, application Sweden, Jan. 8, 1971, 170/71
Int. Cl. B21b *31/08*
U.S. Cl. 29—125 **4 Claims**



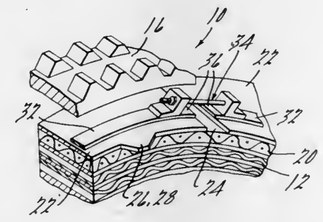
A roller for hot and cold rolling is made by taking a hard metal ring, the cross-section of which decreases radially outwardly, and casting around the inside and at least the inner part of the radial sides thereof an annular hub of ferro alloy. After casting, the hub and the hard metal ring are cooled, the hub shrinking more than the hard metal ring so as to exert compressive forces thereagainst to hold the same in place.

3,787,944

METHOD OF ASSEMBLING A GAS TURBINE REGENERATOR ASSEMBLY

Jerome J. Mittman, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 181,925, Sept. 20, 1971, Pat. No. 3,741,287. This application Nov. 8, 1972, Ser. No. 304,865
Int. Cl. B21d *53/02*; **B23p** *15/26*
U.S. Cl. 29—157.3 R **3 Claims**



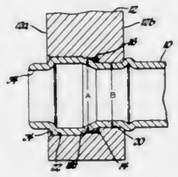
Assembly method for a gas turbine regenerator assembly are described. The regenerator assembly comprises a cylindrical regenerator core, an annular drive member surrounding the cylindrical surface of the regenerator core and separated from it to define an annular space, and a resilient material positioned in the annular space between the drive member and regenerator core. A mounting ring is also located in the annular space. The mounting ring has a discontinuity in it which permits its diameter to be varied to compress the resilient material during assembly. The assembly method includes the steps of surrounding the cylindrical surface of the regenerator core with the resilient material, placing the annu-

lar mounting ring around the resilient material and regenerator core, applying forces to the mounting ring to reduce its diameter, positioning the drive member around the mounting ring, and reducing the previously applied forces to permit the mounting ring diameter to increase.

3,787,945
METHOD OF FABRICATING AN EXPANDED TUBE CONNECTION

James E. Pasek; James M. Shea, and Michael F. Tobin, all of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 254,560, May 18, 1972, abandoned. This application May 14, 1973, Ser. No. 360,031
Int. Cl. B21d *53/02;* **B23p** *15/26*
U.S. Cl. 29—157.4 **5 Claims**

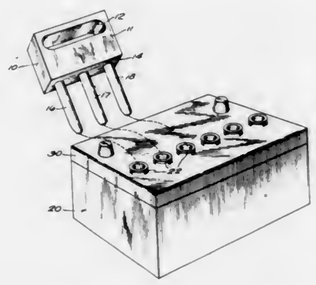


An expanded tube connection and method wherein a relative thin-walled tube extending through a counterbored tube block is upset on one side of the tube block to lock the tube to the tube block and wherein the tube is expanded within the apertured tube block to lock it to the tube block while at the same time providing a predetermined size cavity between the tube and the tube block for an O-ring seal.

3,787,946
PLUG REMOVER

Robert Schimek, Milwaukee, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed June 28, 1972, Ser. No. 267,129
Int. Cl. B23p *19/00;* **H01m** *35/18;* **B23p** *19/04*
U.S. Cl. 29—200 D **7 Claims**

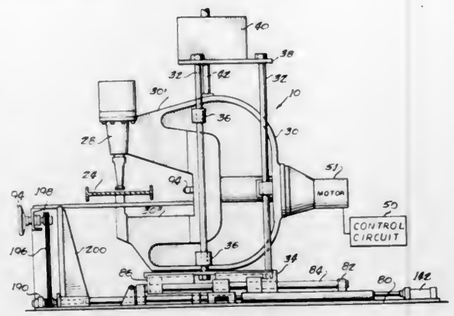


A device for removing resilient, cuplike sealing caps from sealing engagement with openings. A plurality of projections extend from a gripping member and are constructed to engage a multiplicity of the caps at one time, the ends of the projections engaging an inner wall surface of the cap near its bottom and being pivoted by means of an upper opposing wall surface to exert an upward force on the cap to remove it from sealing engagement. The plug remover is particularly adaptable for use in removing sealing plugs from the covers of lead acid storage batteries.

3,787,947
AUTO SPACE MECHANISM FOR FABRICATING APPARATUS

Raymond L. Valente, Kankakee, and Otto A. Bonomo, Matteson, both of Ill., assignors to Manco Mfg. Co., Bradley, Ill.

Filed Sept. 12, 1972, Ser. No. 288,256
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 C **4 Claims**

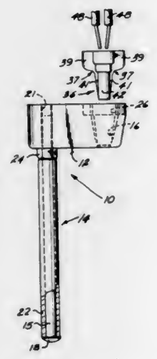


A machine is disclosed herein for effecting fabrication of structural members, or the like, the machine comprising a work station having tooling means, drive means for advancing the structural member longitudinally of said work station, and apparatus for properly positioning the tooling means with respect to a predetermined location at which tooling operations are to be performed on the structural member. The positioning apparatus includes an indexing arrangement, as well as gauge means which permits automatic operation of the machine, such that tooling means may be initially positioned with respect to a transverse axis of the structural member and then moved along this axis in short, controlled increments to and from the points at which the tooling operations are to be performed. The tooling means are positioned in response to the energization of a stepping motor controlling the short, controlled increments of movement.

3,787,948
WIRE NUT WRENCH

Charles H. Runge, 25755 Melba Ave., Homeland, Calif.

Filed Apr. 7, 1972, Ser. No. 241,909
Int. Cl. H05k *13/00*
U.S. Cl. 29—203 H **10 Claims**

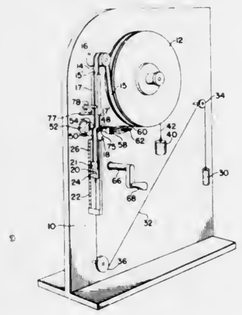


A wrench for forming pigtail splices in wire nuts between electrical conductors. The wrench has a plastic workhead in the form of a relatively narrow block. There is a wire nut socket running from top to bottom through the workhead, near one end. A thin metal handle extends downwardly from the workhead near the end opposite its wire nut socket end. To form a pigtail splice in a wire nut with the wrench, the wire nut is fitted into the socket in the workhead, and the bare ends of a pair of conductors are then inserted as far as they will go into the wire nut. These conductors are next held tightly with one hand near the wire nut, and the workhead is spun rapidly around the axis of the wire nut socket, by means of the wrench handle, with the other hand. This action twists the wire ends into a pigtail splice and tightens the wire nut firmly in place around the splice.

3,787,949
APPARATUS FOR ASSEMBLING AND WINDING A STRIP ABOUT LEAD WIRES

Charles C. Rayburn, Glenview, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Division of Ser. Nos. 4,386, Jan. 20, 1970, Pat. No. 3,576,481, and Ser. No. 104,887, Jan. 8, 1971, Pat. No. 3,715,784. This application Aug. 30, 1972, Ser. No. 284,855
Int. Cl. H05k *13/00*
U.S. Cl. 29—203 D **4 Claims**



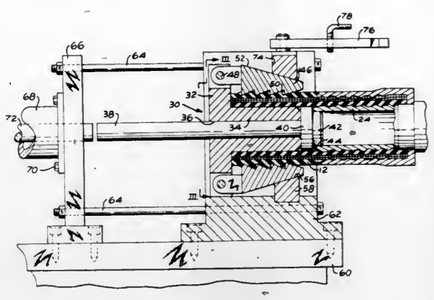
An apparatus for forming a miniature capacitor from a single strip of dielectric material metalized on each of its sides is disclosed. The strip passes from a supply reel over a guide roller and along a feed chute to a winding station, where it is initially located between the first lead wire and a retractable winding pin located adjacent an elongated slot. The strip then proceeds to a take-up block in a guide chute. The winding pin orbits so as to carry the strip around the first lead wire in the form of a loop which is wound into the capacitor after the second lead wire has been inserted. The first lead wire is loaded in an axial direction at one end of the slot and carried to the other end of the slot by the looped strip as the strip is carried around the lead wire by the orbiting of the winding pin and slot. The second lead wire is then fed into the slot along the same axis as the first lead wire was fed, and the winding pin is retracted, without any interruption in the winding. The leads are then retained in the capacitor by heat shrinking the dielectric strip.

3,787,950
APPARATUS FOR RECLAIMING COLLET HOSE FITTINGS

Thomas L. Bagby, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 1, 1972, Ser. No. 230,827
Int. Cl. B23p *19/04*
U.S. Cl. 29—237 **11 Claims**

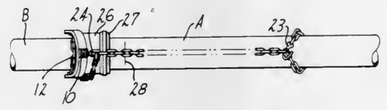
Certain collet type hose fittings have malleable fingers radially collapsed toward its stem to secure the skived end of hydraulic hose telescoped on its stem and subsequent to the removal of the finger constricting member of the fitting a short piece of hose adjacent to the fitting can be secured on a mandrel having a co-axial plunger and the plunger advanced to abut against the distal end of the stem to force the hose fitting off the skived end of the short piece of hose, without undue deflection of the malleable fingers.



3,787,951
TOOLS FOR JOINING OR DISCONNECTING PIPES

Charles W. Morphis, and Bennie D. Hilburn, both of Tyler, Tex., assignors to The Mead Corporation, Chillicothe, Ohio

Filed Apr. 14, 1972, Ser. No. 243,990
Int. Cl. B23p *19/04*
U.S. Cl. 29—237 **1 Claim**



A tool for joining or disconnecting lengths of pipe such as bell and spigot pipe in which the joints incorporate rubber-like gaskets. The tool has a handle with a yoke at its lower end disposed to fit about the pipe. A flexible member such as a length of chain is fixed at its ends to the legs of the yoke. The chain is adapted to engage the enlarged section of the pipe, that is, the bell or other enlargement, either at the rear or front thereof depending upon whether the pipe is to be joined or disconnected, respectively. The handle is connected to the plain end pipe either by a chain or a rigid bar-like member depending upon whether the pipe is to be joined or disconnected, respectively. The chain spanning the yoke acts as a fulcrum for the handle and permits one tool to be used for several sizes of pipe.

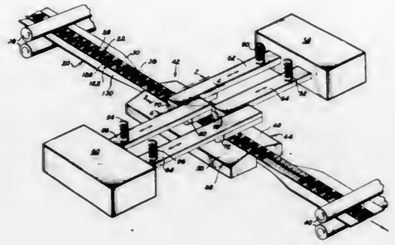
3,787,952
GAPPED AND CLEANED SEAM-TYPE SLIDE FASTENER CHAINS AND METHOD AND APPARATUS FOR MAKING THE SAME

George B. Moertel, Conneautville, and James R. Johnston, Meadville, both of Pa., assignors to Textron Inc., Providence, R.I.

Division of Ser. No. 33,419, April 30, 1970, abandoned. This application June 26, 1972, Ser. No. 266,095
Int. Cl. B23p *11/00, 19/04*
U.S. Cl. 29—408 **21 Claims**

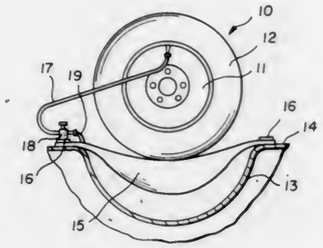
Gapped and cleaned slide fastener chains including a pair of carrier tapes having their inner edges folded upon themselves to provide a seam-like appearance and having a plurality of filamentary stringers attached to the folded portions of the carrier tape at intervals separated by gapped and cleaned

areas with stitching threads securing the stringers to the folded portions and running continuously through the gapped and cleaned areas. A method of making gapped and cleaned seam-type slide fastener chain of the above described type including supporting the slide fastener chain with the filamentary stringers exposed, positioned a plurality of vibrating heads over the exposed stringers in frictional engagement therewith, reciprocating the vibrating heads in a transverse direction relative to the slide fastener chain, and moving the slide fastener chain such that the filamentary stringers sequentially



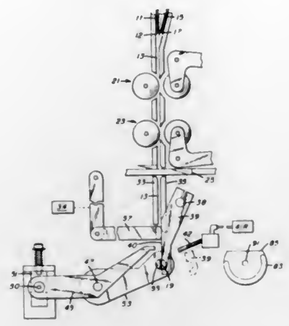
pass under each of the vibrating heads. Apparatus for making gapped and cleaned seam-type slide fastener chain of the above described type includes a guide for supporting the slide fastener chain, a plurality of vibrating heads disposed over the chain in frictional engagement with the filamentary stringers, drive rollers coöperating with the guide for moving the slide fastener chain such that stringers sequentially pass under each of the vibrating heads, and a vibrator for reciprocating the vibrating heads relative to the slide fastener chain to remove severed portions of the filamentary stringers.

3,787,953
SPARE TIRE REMOVAL SYSTEM
Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.
Filed Mar. 17, 1972, Ser. No. 235,596
Int. Cl. B23p *19/02*
U.S. Cl. 29—427 **3 Claims**



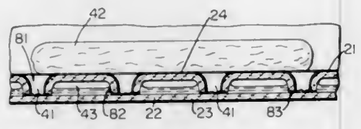
A spare tire and wheel is raised from the spare wheel well of a station wagon by using excess air from the spare tire for inflating an inflatable body in the wheel well under the spare tire. An air line connecting the spare tire and the inflatable body has a normally-closed valve that is operated to accomplish the inflation and raise the spare tire and wheel from the well.

3,787,954
SCROLL WINDING AND LOADING METHOD
John N. Gade, and James D. MacKay, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 15, 1971, Ser. No. 234,750
Int. Cl. B23p *19/00*
U.S. Cl. 29—340 **9 Claims**



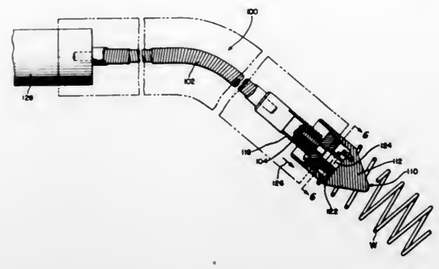
A method for use in a continuous process for winding a photographic web element into a scroll and inserting such scroll into an open-ended double-chambered film cartridge body is disclosed. Winding is facilitated by a winding mechanism that accurately positions the leading end of the element with respect to a winding mandrel from which mandrel a completed scroll is advanced into the cartridge supply chamber a distance sufficient to center the free end of the element with respect to a heat sealing head. A core support member then so positions the cartridge takeup core axially within the cartridge takeup chamber that the core is aligned precisely with the free end of the element for staking thereto by means of the heat sealing head.

3,787,955
METHOD OF MAKING ARTICLE-SUPPORTING WALL FOR COOKING PAN
Calvin L. Wilson, Richmond, Va., assignor to Reynolds Metal Company, Richmond, Va.
Division of Ser. No. 220,275, Jan. 24, 1972, which is a continuation-in-part of Ser. No. 844,442, July 24, 1969, Pat. No. 3,640,209. This application July 18, 1972, Ser. No. 272,771
Int. Cl. B23p *11/00*
U.S. Cl. 29—432.2 **11 Claims**



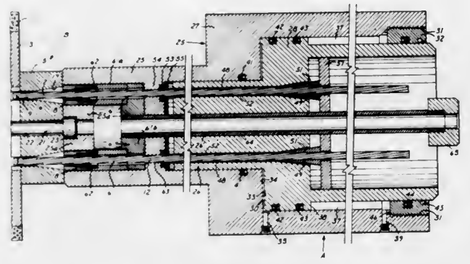
A disposable cooking pan which is particularly adapted for broiling food products is provided and such pan has metallic foil defining practically its entire exposed inside and outside surfaces. The pan has an article-supporting wall arranged above a bottom wall with a space provided therebetween for collecting juice, or the like, exuding from a product contained in the pan and the article-supporting wall has means for absorbing such juice. An improved apparatus for and method of making the article-supporting wall are also presented herein.

3,787,956
HOSE MANUFACTURE
Glenn A. Miller, Lincoln, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Dec. 22, 1971, Ser. No. 210,828
Int. Cl. B23p *19/04*
U.S. Cl. 29—451 **4 Claims**



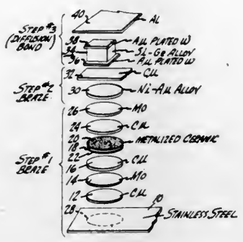
Method and apparatus for making hose, particularly for automotive use, in which a helical coil of stiff resilient wire is inserted and expanded into secure but non-adhered contact with the inside surface. The coil before or during insertion into the hose is reduced in diameter by effecting opposite rotations of spaced portions or turns of the coil.

3,787,957
METHOD AND APPARATUS FOR TENSIONING AND ANCHORING TENSIONING MEMBERS
James S. Andrews, Westminster, Colo., assignor to American Stress Wire Corporation, Englewood, Colo.
Filed July 6, 1971, Ser. No. 159,959
Int. Cl. B21d *39/00*
U.S. Cl. 29—452 **15 Claims**



An improved method and apparatus for tensioning and anchoring tensioning members in a concrete structure and the like wherein there is provided a wedge support member having wedge-receiving pockets coaxially aligned with the anchor seats in an anchor block permitting the anchor wedges to first be inserted into the pockets and the support member then threaded over the tensioning members for supporting the anchor wedges in a released position during tensioning. The wedge support member preferably is made as an integral part of the tensioning assembly and coaxially aligned therewith so that the entire integral assembly may be threaded over the tensioning members. The tensioning assembly applies the desired tension to the tensioning members and thereafter an advancing member moves the support member to forcibly insert the anchor wedges into the respective anchor seats whereby when the tensioning assembly is released from the tensioning members the anchor wedges clampingly engage the tensioning members to anchor them under tension. Automatic release apparatus in the tensioning assembly facilitates the release of the tensioning members from the tensioning assembly by a further release or relaxation of the tensioning assembly.

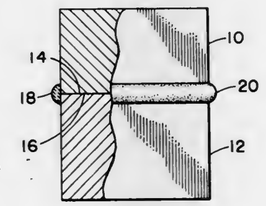
3,787,958
THERMO-ELECTRIC MODULAR STRUCTURE AND METHOD OF MAKING SAME
Norman S. Freedman, Berkeley Heights; Carel W. Horsting, Caldwell; Walter F. Lawrence, Verona, and John J. Carrona, Scotch Plains, all of N.J., assignors to Granted to the United States Atomic Energy Commission under the Provisions of 42 U.S.C. 2182, Washington, D.C.
Division of Ser. No. 162,281, Dec. 26, 1961. This application Aug. 18, 1965, Ser. No. 505,079
Int. Cl. B23k *31/02*
U.S. Cl. 29—472.3 **4 Claims**



1. A method of making a thermoelectric module with the aid of an insulating wafer having opposite metallized surfaces, a pair of similar equalizing sheets of metal, a hot-junction strap of metal, a thermoelectric element having hot- and cold-junction surfaces, and a radiator sheet of metal, said method comprising the steps of

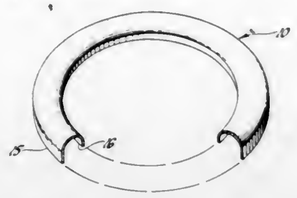
a. brazing said equalizer sheets to said opposite metallized surfaces, respectively, of said insulating wafer with pure copper in a non-oxidizing ambient,
b. brazing one surface of said hot-junction strap to one of the surfaces of said equalizing sheet with a nickel-gold alloy in a non-oxidizing ambient, and
c. diffusion bonding said hot-junction surface of said thermoelectric element to the other surface of said hot-junction strap and said radiator sheet to said cold-junction surface of said thermoelectric element, said diffusion bonding being carried out in a non-oxidizing ambient, under compressive loading, at a temperature of about 550°C., and for about one-half hour.

3,787,959
DIFFUSION WELDING IN AIR
Thomas J. Moore, Berea, and Kenneth H. Holko, Strongsville, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Apr. 24, 1972, Ser. No. 247,090
Int. Cl. B23k *31/02*
U.S. Cl. 29—482 **8 Claims**



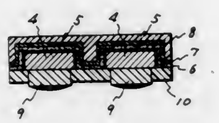
Solid state welding a butt joint by fusion welding the peripheral surfaces to form a seal, autogenetically cleaning the faying or mating surfaces of the joint by heating the abutting surfaces to 1,200°C., and heating to the diffusion welding temperature in air.

3,787,960
PROCESS FOR MANUFACTURING CURVED CHANNELED MEMBERS
Jack T. Greenleaf, Tipton, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 28, 1971, Ser. No. 193,496
Int. Cl. B23k 31/02
U.S. Cl. 29—477 5 Claims



Metallic strip stock preferably of rectilinear shape is formed into a cylindrical workpiece by joining its free end portions. The cylindrical workpiece is loaded into a die having a curl ring and a forming post and the die is actuated so that the sides of the cylindrical workpiece are progressively curled over the forming post preferably from the top edge as the die strokes to a stop point whereby the sides of the workpiece are curled into an annular and generally U-shaped configuration with the top and bottom edges of the workpiece coplanar or disposed in adjacent planes that intersect the axis of the cylindrical workpiece.

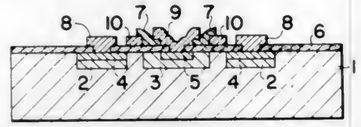
3,787,961
CHIP-SHAPED, NON-POLARIZED SOLID STATE ELECTROLYTIC CAPACITOR AND METHOD OF MAKING SAME
Hiroshi Tomiwa, Osaka, Japan, assignor to Matsuo Electric Company, Limited, Osaka-fu, Japan
Filed June 19, 1972, Ser. No. 264,070
Int. Cl. B01j 17/00
U.S. Cl. 29—570 5 Claims



A chip-shaped, non-polarized capacitor for use on printed circuit boards. It is formed from a metal laminate consisting of a layer of solderable material and a layer of film-forming material. The film-forming material is etched to provide islands and layers of metal oxide insulating material and a metal oxide semiconductor are applied thereto. A continuous cathode layer is formed over both semiconductor layers and a resin coating is applied over the cathode layer. The solderable layer is then etched to provide separate terminals.

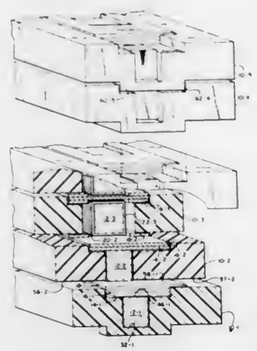
3,787,962
INSULATED GATE FIELD EFFECT TRANSISTORS AND METHOD OF PRODUCING THE SAME
Isao Yoshida, Kodaira; Takashi Tokuyama, Higashikurume; Shigeru Nishimatsu, Kokubunji, and Takahide Ikeda, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed May 13, 1971, Ser. No. 142,933
Claims priority, application Japan, May 13, 1970, 45/40114
Int. Cl. B01j 17/00
U.S. Cl. 29—571 10 Claims

An insulated gate field effect transistor formed on one main surface of a semiconductor substrate comprising: a drain region of which the concentration of impurity is lower than twice that of the semiconductor substrate and the conductivity type is reverse to that of the substrate; and a region with a high



concentration of impurity, formed in the low impurity concentration region, of which the conductivity type is the same as that of the low impurity concentration region.

3,787,963
METHOD OF FABRICATING A MULTI-HEAD MAGNETIC TRANSDUCER ASSEMBLY
William E. Guntrum, Mustang; Harold W. Pexton, and Michael R. Shores, both of Oklahoma City, all of Okla., assignors to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Feb. 5, 1973, Ser. No. 329,481
Int. Cl. G11b 5/42
U.S. Cl. 29—603 12 Claims

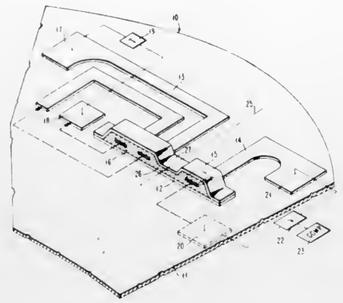


A method of fabricating a multihead magnetic transducer is disclosed herein. The method utilizes a number of modular fixtures each of which contains a first cavity which positionally orients a head core element and a second cavity which positionally orients a spacer-shield element. The spacer-shield and head core elements are so positioned within each modular fixture so as to be in contact with each other. The modular fixtures are mated together so as to position each core and spacer-shield element with respect to the core and spacer-shield element in the adjacent modular fixture. The core and spacer-shield elements within the mated modular fixtures form a stack of elements which are in immediate contact with each other.

3,787,964
METHOD FOR MANUFACTURING A MAGNETIC HEAD
Paul Simon, Palo Alto, and Robert E. Jones, Jr., San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 23, 1971, Ser. No. 211,554
Int. Cl. G11b 5/42
U.S. Cl. 29—603 10 Claims

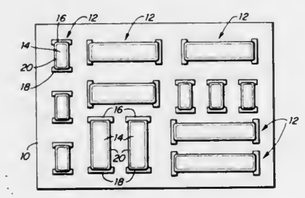
This disclosure relates to a method for manufacturing a magnetic head. The steps of the method comprise forming a

transformer having a first magnetic layer, a primary winding, a secondary winding separated from the primary winding, the primary and secondary windings being disposed on the first magnetic layer, and a second magnetic layer disposed over the primary and secondary windings. The first and second magnetic layers encircle portions of the primary and secondary



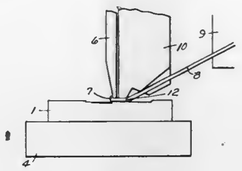
windings thus forming a continuous magnetic path. Tests determinative of its magnetic properties are made on the transformer. Thereafter, the transformer is severed between the primary and the secondary windings and the secondary is discarded. The primary is then lapped to form a thin-film magnetic head.

3,787,965
METHOD OF MAKING RESISTOR
Theodore F. Cocca, Everett, and Paul J. Sanders, Boston, both of Mass., assignors to Spacetac Incorporated, Bedford, Mass.
Filed July 21, 1971, Ser. No. 164,752The portion of the term of this patent subsequent to June 13, 1989, has been disclaimed.
Int. Cl. H01c 7/00
U.S. Cl. 29—620 1 Claim



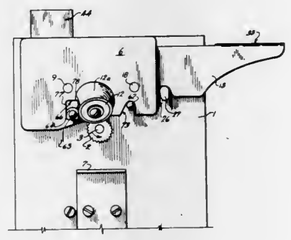
A method of manufacturing a precision resistor element of a predetermined resistance value, the resistor element including a quantity of resistive material extending between two terminals comprising removing a first portion of the resistive material in a first area between the terminals for substantially increasing the resistance to obtain a first resistance value for the resistor element, and removing a second portion of the resistive material in a second area alongside of the first area and between the first area and one of the terminals for slightly increasing the resistance to obtain the predetermined resistance value.

3,787,966
METHOD OF CONNECTING A CONTACTING WIRE TO A METAL CONTACT ON THE SURFACE OF A SEMICONDUCTOR ELEMENT
Walter Klossika, Heilbronn, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Jan. 21, 1972, Ser. No. 219,664
Claims priority, application Germany, Jan. 29, 1971, P 21 04 207.9
Int. Cl. H05k 3/00
U.S. Cl. 29—628 5 Claims



A method of connecting a contacting wire to a metal contact on the surface of a semi conductor element comprises heating the semiconductor element, retaining one end of a wire with an oxidized surface on a contact point of the metal contact, stretching the wire and simultaneously pressing the wire against the contact point and kinking the wire of this point.

3,787,967
CAN OPENER WITH POWER PIERCE, AUTOMATIC SHUT-OFF, AND REMOVABLE CUTTER MOUNTING PLATE
Robert E. McLean, Raytown, Mo., assignor to Rival Manufacturing Company, Kansas City, Mo.
Filed Apr. 17, 1972, Ser. No. 244,715
Int. Cl. B67b 7/38
U.S. Cl. 30—4 R 8 Claims

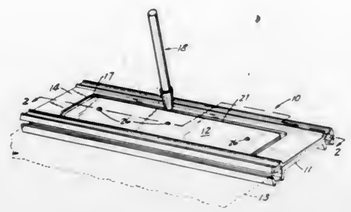


An electrically powered can opener has the features of power-pierce and automatic shut-off. A removable cutter mounting plate is separably mounted with respect to the can piercing hand lever to effectively utilize the above features. The cutter mounting plate is operatively connected to the frame with a spring biased latch member engaging cutter mounting plate and is removably located within an aperture in the hand lever. This second pin member-hand lever connection, in conjunction with the mounting means for the hand lever on can opener frame, enables the hand lever to effect the pivoting of the cutter element on the cutter mounting plate toward and away from the can feed wheel, and the appropriate orientation of a movable can guide with respect to the can feed wheel.

3,787,968
SEGMENT CUTTER

David Littmann, Needham Township, Norfolk County, Mass., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 15, 1972, Ser. No. 289,439
Int. Cl. B26d 7/02
U.S. Cl. 30—124 3 Claims

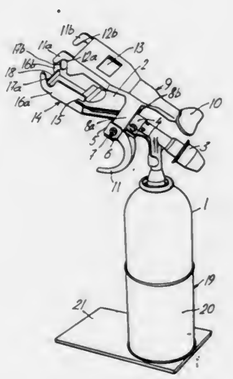


A segment cutter is formed suitable for cutting segments from a paper tape, such as encephalogram or electrocardiogram charts, which is of a compact and low-profile design. The segment cutter comprises a base member having disposed thereon one or more raised planar surfaces, a platen having an opening or openings corresponding to said planar surface and adapted to receive a length of material from which a portion is to be cut. The platen overlays the raised planar surface retaining the desired portion of the material to be cut and forming a track. A tool having a hard rotating spherical ball adapted to ride in the track is moved around the track the ball exerting pressure against the upper edge of the raised planar surface to effect cutting of the desired portion.

3,787,969
TOOL FOR REMOVING INSULATION FROM ELECTRICAL WIRES

Algot P. Hammar, P.O. Box 303, Bjursas, Sweden

Filed Feb. 14, 1972, Ser. No. 226,049
Int. Cl. H02g 1/12
U.S. Cl. 30—140 3 Claims

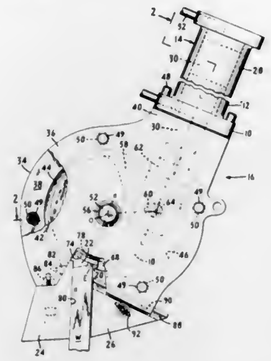


A tool for removing insulation from an electric wire comprises a gas burner having secured thereto a stationary sheet metal member and is pivotally connected to another sheet metal member which latter has a manually operable handle. The members are provided near their ends with semicircular recesses which when said members are pivoted together constitute circular cutting edges. A cutting edge extending between said circular cutting edges and in a plane perpendicular thereto is also employed. The cutting edges are located at such a distance from the burner that the flame thereof will not damage the wire to be deinsulated nor heat said edge portions to a degree which makes the de-insulation possible when said burner is set to run with a reduced fuel saving flame.

3,787,970
BEVELLING TOOL

Adrian H. Krieg, 2627 Dunning Dr., Yorktown, N.Y.

Filed Feb. 18, 1972, Ser. No. 227,449
Int. Cl. B26d 3/02
U.S. Cl. 30—272 R 15 Claims

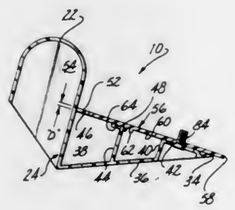


A tool for bevelling an edge of an elongated metal workpiece is provided comprising a head, a stirrup, depending from the head and a cutting member pivotally mounted within the stirrup. The stirrup defines an opening for receiving the workpiece. A hydraulic linear moving motor is mounted in the head and connected to the cutting element to swing it in an arcuate path through a corner of the opening to cut a curved groove or bevel in the workpiece.

3,787,971
CARPET TRIM CUTTER

Lawrence R. Sutton, Detroit; Carl P. Ranno, Grosse Point, and Kenneth E. Hewson, Farmington, all of Mich., assignors to Performance Industries, Inc., Pontiac, Mich.

Filed Oct. 6, 1972, Ser. No. 298,804
Int. Cl. B26b 3/08
U.S. Cl. 30—293 7 Claims

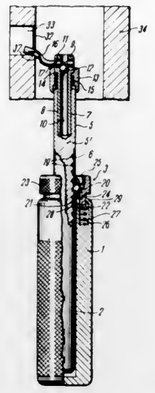


A carpet trim cutter having a blade holder which is adjustably mountable to the body of the carpet trim cutter such that a cutting blade carried by the blade holder may be selectively positioned to control the depth of cut by the cutting blade. Means are provided for selectively positioning the blade holder on the body of the carpet trim cutter including means for releasably attaching both the blade cutter and the blade to the carpet trim cutter. The carpet trim cutter is of an integral construction fabricated from a plastic material.

3,787,972
DEBURRING TOOL

Andre Carossino, Louveciennes, France, assignor to NEUMD Armaturenfabrik Apparatebau-Metallgiesserei GmbH, Knittlingen/Wurtt, Germany

Filed June 28, 1971, Ser. No. 157,092
Claims priority, application Israel, June 30, 1970, 34821
Int. Cl. B23d 79/08
U.S. Cl. 30—317 9 Claims

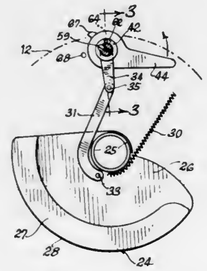


The invention relates to a manual deburring tool having a handle, a scraper blade and a blade-holder attached to the handle, and having a longitudinal bore into which a circular shank of the blade is rotatably inserted. To enable the tool to be used for working on internal edges as well as external edges, the blade-holder has a transverse bore which intersects the longitudinal bore and into which the shank of the blade is alternatively rotatably insertable. A releasable locking device is provided in the region of the intersection of the bores for holding the blade in the selected bore. The releasable locking device is in the form of a spring biased sleeve which normally holds a spherical detent member in engagement with a peripheral groove on the blade shank whether the blade shank is inserted in the longitudinal bore or the transverse bore. The blade-holder is itself releasably located in an adjusted position in the handle.

3,787,973
SAFETY RETRACTING MECHANISM FOR THE LOWER GUARD OF A PORTABLE SAW

Hanspeter E. Beisch, Buffalo Grove, and Frank A. Kaman, Prospect Heights, both of Ill., assignors to Skil Corporation, Chicago, Ill.

Filed Dec. 15, 1972, Ser. No. 315,307
Int. Cl. B27g 19/04
U.S. Cl. 30—391 7 Claims

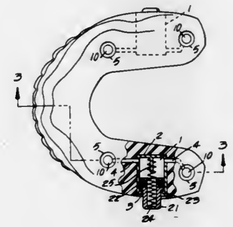


A manually operable actuator is connected to the lower guard retracting linkage by a releasable mechanism. Movement of the actuator causes swinging movement of the lower guard to its open position. Continued swinging movement of the lower guard to its open position as a result of being engaged by the work operates the releasable mechanism to disconnect the actuator from the lower guard, whereby spring means will automatically swing the lower guard to its closed position upon removal of the saw from the work irrespective of the position of the actuator. Return movement of the actuator to its closed position resets the releasable mechanism.

3,787,974
DENTURE HOLDING MEANS

John A. Gaylord, 12578 Nacido Ln., San Diego, Calif.

Filed Jan. 12, 1973, Ser. No. 323,282
Int. Cl. A61c 13/24
U.S. Cl. 32—3 9 Claims



A unit molded into the denture which includes a casing forming a pumping chamber in the denture and being open toward the exposed side of the denture with conduits connecting two receptacles in a suction chamber or chambers which latter are open toward the gum side of the denture; a resilient pumping element in the pumping chamber is adapted to produce a suction in each receptacle; at each receptacle is an enlarged suction cavity and a suction head secured in the receptacle projects into the suction cavity and has holes in its sides communicating through the receptacle with the conduits, whereby when by suction the system is filled with a fluid, and then placed over the gum, some of the moisture is expelled by the pumping means which when released produces a predetermined suction to suck the gum into the cavity and around the suction head; The suction head is replaceable by a cavity forming element which has a suitable wire adapted to be extended through the form of the gum on which the denture is molded, thereby to assist in holding the unit in position during the molding, and also in forming the said cavity.

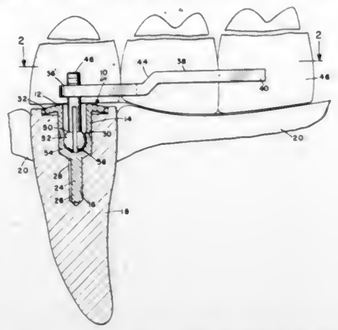
3,787,975
ANCHOR FOR ATTACHING DENTAL PARTIAL OR FULL ARTIFICIAL DENTURE

Max Zuest, 595 San Fernando, San Diego, Calif.

Continuation-in-part of Ser. No. 104,939, Jan. 8, 1971, abandoned. This application Sept. 18, 1972, Ser. No. 290,249
Int. Cl. A61c 13/22
U.S. Cl. 32—5 25 Claims

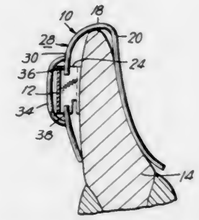
Method and apparatus for anchoring a dental partial or full artificial denture to the root of a natural tooth that nas been cut off at the tissue line during endodontic treatment. The anchor includes a sleeve which extends into the root, the sleeve including a retaining shoulder which cooperates with a

shoulder on a pin for removably retaining the pin within the sleeve and is provided with an arcuate rest for the pin, the pin



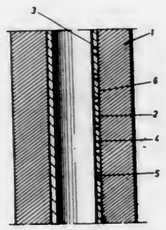
having complementing surface which bears on the rest. The pin is fixed to a dental partial or full artificial denture.

3,787,976
CALIBRATED BRACKET SECURING MEANS
Howard Cohen, 339 Forest Ave., Woodmere, N.Y.
Filed May 30, 1972, Ser. No. 257,918
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 A **11 Claims**



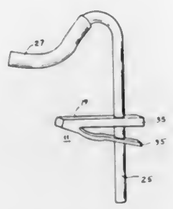
Disclosed is a generally U-shaped securing device for engaging the labial or buccal, lingual, and incisal or inclusal surfaces of a tooth and locating and clamping thereto an orthodontic attachment of the type which may be affixed to a tooth by an adhesive or the like. Disclosed as well is the method of applying the same.

3,787,977
DENTAL HANDPIECE OF STRAIGHT OR ANGLE TYPE
Gerhard Farian, and Willi Fink, both of Biberach/Riss, Germany, assignors to Kaltenbach & Voigt, Biberach/Riss, Germany
Filed Mar. 25, 1971, Ser. No. 128,035
Int. Cl. A61c *1/10*
U.S. Cl. 32—27 **10 Claims**



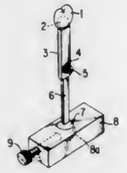
A bearing in a dental handpiece comprises a thin inner sleeve press-fitted in a thicker outer sleeve. The outer sleeve is porous and the inner sleeve impermeable, the inner sleeve having an axial groove with radial apertures leading from the groove to the outer surface of the inner sleeve to serve as channels for flow of lubricant from the outer sleeve to the inner surface of the inner sleeve.

3,787,978
SALIVA EJECTOR CHIN CLAMP
Winston L. Rogers, 7 Los Arbales, Orinda, Calif.
Filed Sept. 20, 1972, Ser. No. 290,566
Int. Cl. A61c *17/04*
U.S. Cl. 32—33 **3 Claims**



An adjustable chin clamp having a self locking arrangement designed inherent to the clamp for use with a saliva ejector.

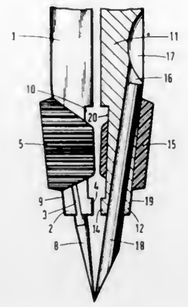
3,787,979
ORTHODONTIC DENTAL STUDY MODEL
Raul Acevedo, Arzuaga No. 9, Rio Piedras, San Juan, P.R.
Filed Feb. 2, 1973, Ser. No. 329,047
Int. Cl. A61c *19/00*
U.S. Cl. 32—71 **5 Claims**



An orthodontic study device is provided wherein the position of each tooth may be universally adjusted. The tooth, in the form of a crown, is connected by a ball and socket joint to one end of a post which is secured at its other end to a supporting base plate. The post is in the form of elongated telescopic members whereby the height thereof may be adjusted. The post is secured to the base plate by a ball and socket joint whereby its position may be adjusted. Set screw means are provided to hold the telescoping members and the post in their adjusted positions. A selected number of devices and their crowns may be assembled in a dental arch formation with the crowns adjusted to desired positions to illustrate various spatial relationships of the teeth.

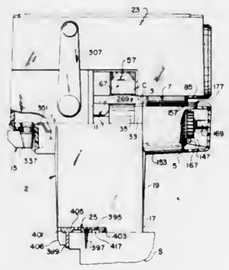
3,787,980
COMPASSES WITH RELEASABLE POINTS
Klaus Glombitza, Dallingerstrasse 17, 85 Nurnberg, Germany, assignor to J. S. Staedtler, Nurnberg, Germany
Filed Sept. 22, 1971, Ser. No. 182,700
Claims priority, application Germany, Oct. 29, 1970, P 20 53 253.0
Int. Cl. B43l *9/24*
U.S. Cl. 33—27 B **1 Claim**

A needle point or pencil point is releasably fastened to a leg or branch of compasses in a receptacle slotted transversely to the plane of relative movement of the two branches or legs, the receptacle being clamped about the point by sliding a plastic sleeve longitudinally of the metallic receptacle toward



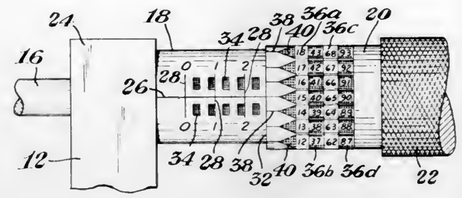
a position of camming engagement between converging inner walls of the sleeve with converging outer walls of the receptacle, the angles of convergence being such that the sleeve is locked by static friction in the clamping position.

3,787,981
FABRIC MEASURING AND COST COMPUTING APPARATUS
Steve Somogye, Jr., Jennings, Mo., assignor to The Measuregraph Company, St. Louis, Mo.
Filed Dec. 8, 1971, Ser. No. 205,883
Int. Cl. G01b *5/04*
U.S. Cl. 33—133 **11 Claims**



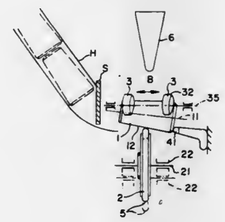
Apparatus for measuring out a length of fabric and for computing the cost of said length, having a measuring roller journalled for rotation on a horizontal shaft and a pressure roller resiliently contacting the measuring roller for gripping therebetween the fabric to be measured, the measuring roller rotating as the fabric is drawn between the rollers for driving indicating means which registers the length of the fabric measured out, and also for driving a cost computing double reel and web chart assembly for registering the cost of the fabric measured out. The apparatus has marking shears located in the vertical plane of the axis of the measuring roller permitting the true length of remnants to be directly registered by the indicating means. The cost computing chart assembly is removably carried by the apparatus for permitting quick removal of one chart assembly and replacement with another.

3,787,982
DIRECT READING MEASURING INSTRUMENTS
Robert F. Anderson, 3613 13th St., Menominee, Mich.
Filed Apr. 28, 1972, Ser. No. 248,539
Int. Cl. G01b *3/18*
U.S. Cl. 33—166 **5 Claims**



An improvement in a measuring means for micrometers, verniers and the like, having measuring indicia positioned in a unique manner so as to cooperate during operation to provide fast and accurate direct measurement readings.

3,787,983
ROLLER SUPPORT AND DRIVE ARRANGEMENT FOR ROLLER TESTING DEVICES
Rudolf Diem, Schweinfurt, Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany
Filed Jan. 26, 1971, Ser. No. 109,807
Claims priority, application Germany, Jan. 30, 1970, P 20 04 240.4; Feb. 3, 1970, P 20 04 629.1
Int. Cl. B24b *5/18;* **A61b** *5/10*
U.S. Cl. 33—174 Q **14 Claims**

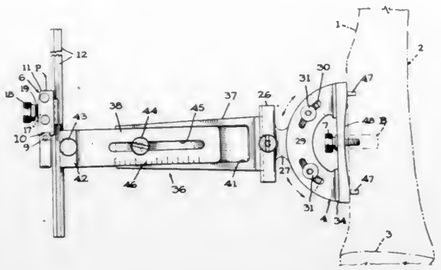


Support and drive means for use in apparatus for automatically inspecting the surface of bodies of rotation. The support means comprise a drive wheel and a plurality of rollers spaced therefrom. The body of rotation is arranged between the drive wheel and the rollers to rotate about its axis of rotation. Each of the rollers are independently mounted for free rotatary movement in contact with the surface of the body.

3,787,984
ADJUSTABLE BOW SIGHT
Fred B. Bear, and Owen E. Jefferey, both of Grayling, Mich., assignors to Victor Comptometer Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 68,425, Aug. 31, 1970, abandoned. This application Sept. 22, 1972, Ser. No. 291,324
Int. Cl. F41g *1/00;* **F41b** *5/00*
U.S. Cl. 33—265 **8 Claims**

A bow sight is provided with a sight mount which is both vertically and transversely adjustable with respect to a sup-

porting bar. An anvil and base assembly serve to attach the support bar to an archery bow and include fastening means



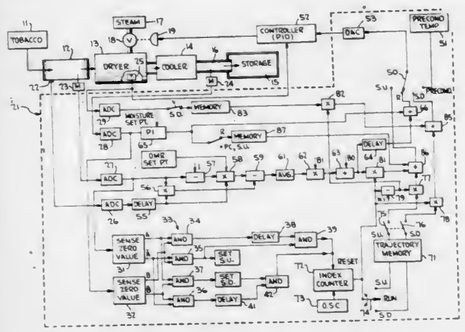
permitting of both forward and lateral tilting of the support bar and its sight mount.

3,787,985

DRYER CONTROL SYSTEM AND METHOD

Ronald James Fowler, Columbus; Edward James Freeh, Worthington, and David Mark Koenig, Columbus, all of Ohio, assignors to Industrial Nucleonics Corporation, Columbus, Ohio

Filed Aug. 14, 1972, Ser. No. 280,114
Int. Cl. A24b *9/20*; **F26b** *3/02, 17/32*
U.S. Cl. 34—45 **11 Claims**



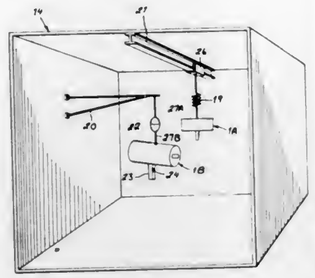
Moisture in tobacco flowing through a dryer is controlled so that it is maintained substantially at a desired amount during start up and shut down trasitional periods of the tobacco flow through the dryer. Trajectories for the dryer drying rate during the start up and shut down periods are provided in a computer memory. During start up, an indication of the moisture and flow rate of the tobacco flowing into the dryer is derived to enable the amount of moisture expected to be removed by the dryer (dryer duty) to be calculated. When shut down commences the temperature of the dryer is derived and stored in the memory. During start up, the trajectory and dryer duty are time weighted so that a weighting factor for the trajectory decreases as the transitional period progresses and a weighting factor for the dryer duty increases as the period progresses and the two time weighted indications are combined to control the dryer drying rate. During shut down, the shut down trajectory and stored drying rate indication are time weighted so that a weighting factor for the trajectory increases as the period progresses and a weighting factor for the drying rate indication decreases as the period progresses and the two time weighted indications are combined to control the drying rate of the dryer.

3,787,986

BLOWER FOR VEHICLE-DRYING INSTALLATION

Horst Burger, Neusass, Germany, assignor to Bowl, Bohler & Weber KG, Maschinenfabrik, Augsburg, Germany

Continuation of Ser. No. 854,431, Sept. 2, 1969, abandoned. This application Dec. 27, 1971, Ser. No. 219,592
Claims priority, application Germany, Aug. 30, 1969, 1780316; Oct. 14, 1969, 1809905
Int. Cl. F26b *19/00*
U.S. Cl. 34—229 **7 Claims**



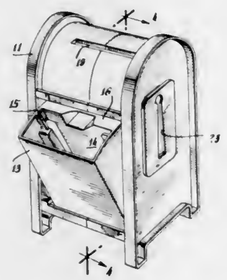
A blower, designed particularly for use in the air drying of vehicular surfaces in car-washing stations, has a cylindrical housing formed at one end with an outlet slot for the discharge of an air stream generated by a fan mounted within the housing near the other end thereof. A liner of soundproofing material, such as foam plastic, extends from the vicinity of the fan toward the discharge end and defines a progressively narrowing air channel terminating at the outlet slot.

3,787,987

TOY MAIL BOX

Robert L. Brass, 1 Fillow St., Westport, Conn.

Filed Jan. 31, 1973, Ser. No. 328,475
Int. Cl. G09b *3/00*
U.S. Cl. 35—1 **7 Claims**



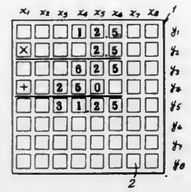
A toy mail box for developing the reading and manipulative abilities of a child. The toy includes several plastic blanks in the form of a letter, one of which is dropped into the upper slot of the mail box and a series of keys which correspond to each of the blanks. The child, by selecting the proper key, is able to open the mail box and remove the letter originally inserted into the box.

3,787,988

METHOD AND ELECTRONIC MACHINE FOR TEACHING ARITHMETIC COMPUTATION

Tohru Nakajima, and Masaaki Niiho, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Dec. 30, 1971, Ser. No. 214,169
Int. Cl. G09b *19/02*
U.S. Cl. 35—31 R **6 Claims**



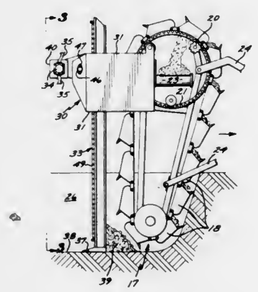
A method and machine for teaching students such as school children arithmetic computation. The machine has a display matrix provided with a plurality of display locations which can be selected by the student, and the student can select numerals to be displayed at selected display locations so that a given arithmetic problem can be set into the display matrix and the mental calculation performed by the student can be displayed to provide at the matrix an indication of a result to the problem as calculated by the student. An electronic structure automatically calculates the correct result to the problem introduced by the student, and at each stage of the computations performed by the student, as numerals selected by the student appear at the display matrix, there is an automatic indication of whether the correct calculations have been performed by the student, with the student also having the possibility of displaying the correct final result which may be compared with the result which the student has calculated.

3,787,989

TRENCHER WITH ADJUSTABLE STABILIZER BAR

Loyd E. Heckathorn, Garden Grove, Calif., assignor to Towner Manufacturing Company, Santa Ana, Calif.

Filed July 17, 1972, Ser. No. 272,238
Int. Cl. E02f *3/12*
U.S. Cl. 37—90 **5 Claims**



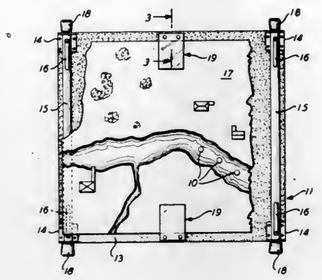
A trancher of the endless bucket or rotary wheel type has an adjustable crumbing stabilizer. The stabilizer is adjusted vertically by means of a chain and sprocket arrangement, the sprocket being fixed to the digger frame and the chain being fixed at both ends to the stabilizer. An hydraulic braking device is used to hold the stabilizer in adjusted position.

3,787,990

STRIP-CHART HOLDER

Frederick Silver, 430 Tillon Rd., South Orange, N.J.

Filed Mar. 3, 1972, Ser. No. 231,492
Int. Cl. G09f *11/29*
U.S. Cl. 40—86 R **1 Claim**



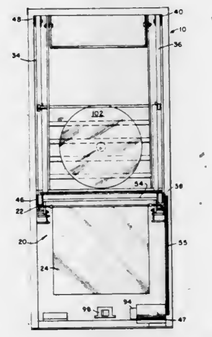
A holder for a roll-up strip-chart providing right side and left side rotatable rods for rolling up the strip-chart and transferring it from the right side to the left side of a board, the board being provided with a cork surface and overhanging stub-retainers to hold the strip-chart down, and a cork surface on the board that is receptive to the insertion of marker pins that may be inserted in the strip-chart to designate position and progress of the vehicle for which the chart is in use.

3,787,991

AUTOMATED ANIMATED DISPLAY DEVICE

Anthony Siksai, 2705 Lahser Rd., Bloomfield Hills, Mich.

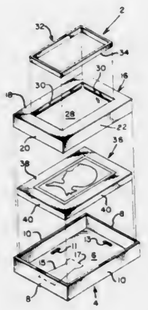
Filed Oct. 17, 1972, Ser. No. 298,349
Int. Cl. 350 *159*; **G09f** *11/32*
U.S. Cl. 40—106.52 **10 Claims**



A device for displaying and animating a plurality of transparencies in succession. A cabinet is provided with a polarizing light projection means located in its central section and an endless carrier for removing transparencies from a storage section to a viewing window and back to the storage section. A transfer section is provided so that the transparencies may be

moved to and from display and storage without interfering with the light projection. Animation is provided by a rotary polarizer, a stationary polarized sheet and transparencies carrying embossed motion lines.

3,787,992
DIMENSIONAL PICTURE FRAMES
Theodore C. Leonhardt, Seattle, Wash., assignor to O. K. Devin Inc., Seattle, Wash.
Filed July 24, 1972, Ser. No. 274,228
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **10 Claims**



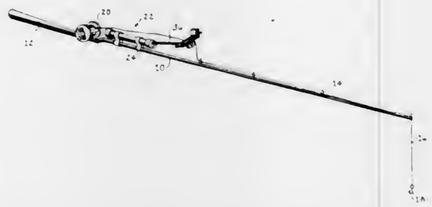
This invention relates to a picture frame assembly adapted to afford a depth dimension to a picture mounted therein. The picture frame assembly includes a frame member having bottom and side walls, a mat member having a top containing a window opening and having downwardly depending inner and outer side walls telescopically arranged within the frame member, and picture mounting means having vertical support flaps arranged between the top and bottom walls, whereby a picture mounted on the picture mounting means may be viewed through the window opening. In a first embodiment, the support flaps of the picture mounting means extend upwardly and have the same height as the outer side walls of the frame member and the inner and outer side walls of the mat member, whereby a picture, supported on the picture support means, will have a maximum depth relation relative to the mat top wall. In a second embodiment, the support flaps extend downwardly and terminate at the lower extremity in engagement with the bottom wall, the height of the support flaps and the mat inner side walls being equal to the height of the mat and frame side walls. In both embodiments, a trim member may be mounted about the entire periphery of the window opening, said frame, mat and trim members having contrasting colors to emphasize the depth dimension.

3,787,993
COLORED CODED GAS CONTAINER BANDS
George E. Lyon, Florence, Ala., assignor to The Raymond Lee Organization, Inc., New York, N.Y., by said George Lyon
Filed Aug. 21, 1972, Ser. No. 282,605
Int. Cl. G09f *3/00*
U.S. Cl. 40—306 **1 Claim**



A container of gas used for industrial commercial or home use has an upstanding portion with two like circular grooves in its outer periphery which are disposed horizontally and are vertically displaced, the grooves being separated by a horizontal circular ridge. An identification band, coded to indentify the type of gas, is disposed in one groove to indicate that the container contains a usable amount of gas and is disposed in the other groove to indicate that the container is empty. The band can also be reversed when moved from the one groove to the other.

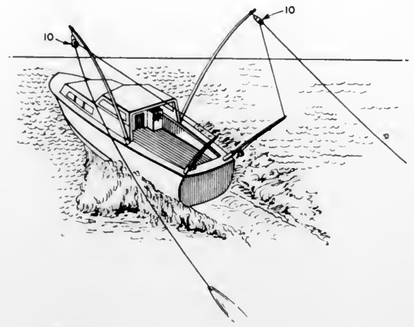
3,787,994
FISH HOOK SETTER
Olen J. Love, Tulia, Tex., assignor to H. H. Malone and Gary Malone, both of Tulia, Tex., part interest to each
Filed Dec. 14, 1972, Ser. No. 315,185
Int. Cl. A01k *97/12, 91/02*
U.S. Cl. 43—15 **7 Claims**



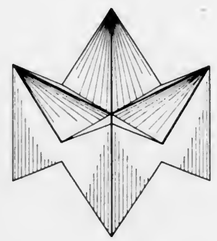
A fish hook setter has a capped barrel attached to a fishing rod with a notched plunger extending through a keyhole slot in the cap. A clip on the end of the plunger is above a line guide eye on the rod so a pull on the fish hook pulls the end of the plunger down and disengages the notch in the keyhole slot so the plunger may be spring retracted into the barrel.

3,787,995
OUTRIGGER LINE RELEASE
Mike Fukuichi Watanabe, P.O. Box 536, Paia, Hawaii
Filed June 22, 1972, Ser. No. 265,252
Int. Cl. A01k *91/00*
U.S. Cl. 43—43.12 **9 Claims**

A fishing line holding device to support a line from the end of an outrigger pole while permitting easy adjustment of the line length. The device has a bifurcated body with a frangible member such as a matchstick used to hold the line within the bifurcation.

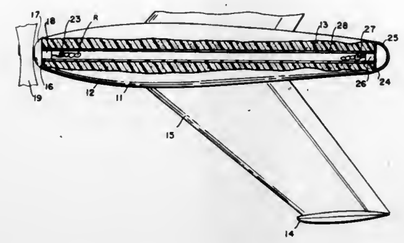


3,787,996
TOY BLOCKS HAVING PANELLED CONSTRUCTION
John A. Smith, Mercerville, N.J., and Stephen A. Miller, New York, N.Y., assignors to Columbia Broadcasting System Inc., New York, N.Y.
Filed Aug. 15, 1972, Ser. No. 280,835
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 **13 Claims**



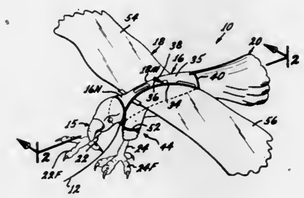
A construction toy which includes a plurality of similarly contoured molded plastic blocks that can be arranged in inverted triangles and other top heavy constructions. Each block comprises an outer shell of generally cubical shape with each of the end opposing surfaces having a pair of crossed V-shaped notches of right angular shape, the notches extending completely across the block so that the side surfaces of the shell are hourglass-shaped. Four triangular panels extend from the side edges of the shell and intersect at the center thereof, the exposed edges of the panels being oriented and dimensioned to lie in the planes defining the crossed V-shaped notches at both ends of the block. In a preferred embodiment of the invention, four elongated rectangular panels extend from the neck portions of the hourglass-shaped side surfaces of the shell and intersect the center of the shell. The invention particularly lends itself to being injection molded in a single-cavity mold.

3,787,997
MODEL AIRPLANE STRUCTURES
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.
Filed July 6, 1971, Ser. No. 160,005
Int. Cl. A63h *27/00*
U.S. Cl. 46—78 **10 Claims**



A rubber band powered model airplane is provided having an elongated body made substantially entirely of a lightweight expanded, cellular plastic. A passageway extends completely through the elongated body to accommodate a rubber band motor. In one form, the passageway is lined with a thin walled, non cellular tube of substantially greater rigidity than the material comprising the body. The tube serves to both longitudinally reinforce the body, and retain the nose and tail fittings for the propellor and rubber band motor.

3,787,998
GLIDING TOY
Eugene J. Kilroy, Jr., Inglewood; Philip B. Du Breuil, Redondo Beach, and Scott C. Dennison, Van Nuys, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 16, 1973, Ser. No. 324,039
Int. Cl. A63h *27/00*
U.S. Cl. 46—79 **7 Claims**



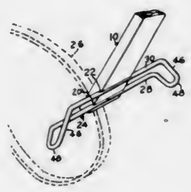
A combination glider and kite that can be towed to make it gain altitude and then detached from the tow line so it glides to the earth. The glider is in the shape of a bird, and has heavy bird-like legs extending downwardly and forwardly from the body, to move the center of gravity forwardly and downwardly so as to increase the glider stability, the legs also serving as a landing gear. A tow line is attached by a clip to the body of the glider, the clip having resilient arms that separate to detach from the body when the tow line is jerked hard after the glider has reached a high altitude.

3,787,999
COMBINATION FIGURE AND WALKING SIMULATOR WITH MEANS FOR SWIVELLING SAID FIGURE
Ian F. Ayton, Palos Verdes Estate; Donald C. Hartling, Huntington Beach; Joseph Kossoff, Hawthorne, and Brian G. Osborne, Manhattan Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 7, 1972, Ser. No. 216,086
Int. Cl. A63h *11/10*
U.S. Cl. 46—110 7 Claims



Foot clips receive doll's feet for reciprocating them by a drive connected to the foot clips and including a wheel which is swivelled by a mounting ring grasped and pushed to move the device over a supporting surface.

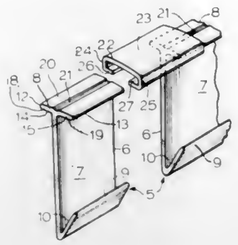
3,788,000
HOOP PUSHING TOY
Joe H. Jenkins, Franklin, Ark., assignor to Robert Clay and Kenneth F. King, both of Hardy, Ark., part interest to each
Filed Aug. 14, 1972, Ser. No. 280,148
Int. Cl. A63h *33/02*
U.S. Cl. 46—205 7 Claims



A wooden or other elongated body has one end acting as a handle and its other end provided with a transversely extending hoop engaging element formed of bent wire provided with loops at the ends of the portion projecting from the stick; the wire is relatively heavy and stiff and has portions adjacent the stick seating in grooves therein to assist in anchoring it, and the extremities of the wire body extend through openings in the stick and are fixed by headed tubular rivets driven through the top face of the stick to grip the edges of ribs formed on the wire extremities.

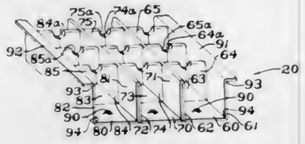
3,788,001
LAWN EDGING STRUCTURE
Glenn F. Balfanz, Jr., Hampton Ave., Western Springs, Ill.
Filed June 12, 1972, Ser. No. 262,117
Int. Cl. A01g *1/08*
U.S. Cl. 47—33 7 Claims

A plastic extruded lawn edging comprising a T-section including vertical wall and a wide transverse upper head portion which extends inwardly of the wall toward the flower bed and outwardly toward the grass and provides a shade area to prevent the growth of vegetation. In one embodiment a C-shaped connector interconnects the ends of adjacent sections.



Another embodiment utilizes a connector which bridges the wall portion of adjacent sections and is slidably fitted between the head of the T and an angled anchor flange at the bottom of the walls.

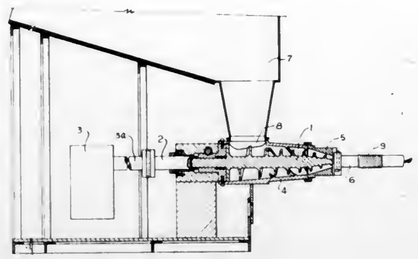
3,788,002
SEEDLING TRAY INSERT
Michael B. Suchka, Clinton, Ohio, assignor to Lakeland Enterprises Inc., Lakeland, Fla.
Filed Mar. 13, 1972, Ser. No. 233,965
Int. Cl. A01g *9/02*; B65d *1/36, 5/48*
U.S. Cl. 47—34.13 3 Claims



A collapsible insert for a seedling tray formed integrally from a single sheet of plastic material. The insert, in the folded position, has a plurality of adjacent parallel U-shaped channels each having a base with integrally folded sides. A plurality of integrally formed longitudinally spaced transverse dividers extend across each channel to form compartments therebetween. The sides of adjacent channels have the free longitudinal edge thereof integrally united for accordion folding. Pull tabs are provided on the edges of the farthest spaced sides. Upon removal of the folded insert from the tray and manual application of tension to the tabs, the sides of each channel fold open to become planar with the base and the dividers rotate with the sides about the folds, thus collapsing the compartments in each channel for enabling easy removal of seedlings.

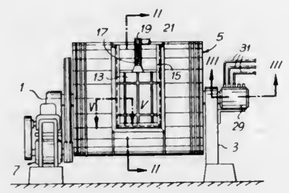
3,788,003
SEEDLING CONTAINER
Stephen Mark Creighton; David Lawrence Mitchell, and William Chee Kay, all of Edmonton, Alberta, Canada, assignors to Research Council of Alberta, Edmondson, Alberta, Canada
Filed July 19, 1971, Ser. No. 163,810
Int. Cl. A01c *1/04*
U.S. Cl. 47—56 2 Claims

Peat and water are mixed to form a thick paste which is extruded into a plastic film casing. The casing and filling are sliced into short, open-ended units. The units provide containers in which seedlings can be grown. When the seedlings



are to be planted, the casing is perforated or shredded with a knife and the peat plug and seedling root ball buried together.

3,788,004
SYSTEMS FOR OPENING AND CLOSING ACCESS APERTURES IN THE OUTER WALLS OF TANNERY PADDLE TUMBLES AND THE LIKE
Tullio Billeri, and Fulvio Billeri, both of Firenze, Italy, assignors to Billeri Riccardo & Figli S.n.c., Firenze, Italy
Filed Feb. 28, 1972, Ser. No. 229,795
Claims priority, application Italy, Mar. 10, 1971, 9406 A/71
Int. Cl. E06b *3/34*; E05f *15/08*
U.S. Cl. 49—41 3 Claims

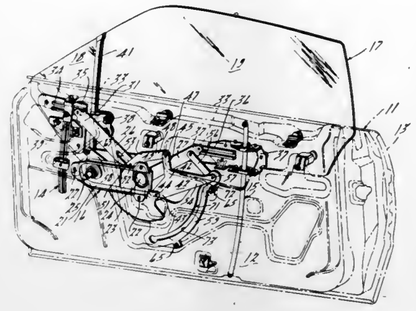


The invention provides systems for opening and closing access apertures in the outer walls of tannery paddle tumblers and the like. The system consists of a door which is slid in guides, the movement of the door being controlled by a fluid motor and fluid control. The movement of the door is effected by the fluid motor which moves a rack attached to the door. Means for providing a seal between the door and the access aperture are also described.

3,788,005
WINDOW REGULATOR MECHANISM
Chris Mistopoulos, Jr., Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Feb. 12, 1973, Ser. No. 331,929
Int. Cl. E05f *5/12*
U.S. Cl. 49—103 16 Claims

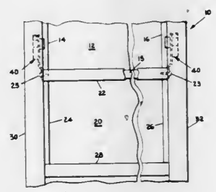
A window regulator mechanism adapted to lower or raise a window panel into and out of a window well between vehicle body panels, the window panel being vertically divided into separately movable ventilation and visibility sections. With the window panel in raised condition, the mechanism first may be actuated to lower the ventilation section into the window well to provide a ventilation exhaust opening in the vehicle body and then, if desired, further actuated to lower the visibility section into the window well. From a lowered condition, the sequence of movements to raise the panel sections is reversed.

Movement of the panel sections is controlled by a series or train of links effective to transmit movement of a gear sector to the window regulator arms coupled to the respective ventilation and visibility sections. Each train of links is controlled



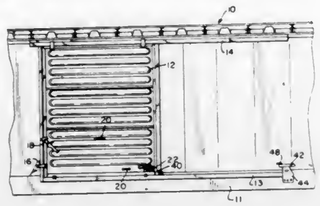
by a cam follower movable in a cam slot in a respective cam plate. The cam slots are programmed to permit or restrain vertical movement of the panel sections in a desired sequence in window panel lowering or raising directions.

3,788,006
SELF-RELEASING FRICTIONAL WINDOW SASH BALANCE
Claude Teggelaar, and William T. De Bruyn, both of Grand Rapids, Mich., assignors to Wolverine Industries, Inc., Grand Rapids, Mich.
Filed Feb. 16, 1972, Ser. No. 226,786
Int. Cl. E05d *13/08*
U.S. Cl. 49—417 16 Claims



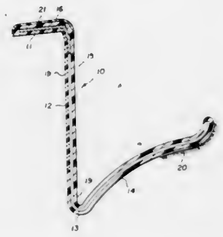
A shoe having a tapered aperture between resilient side walls which include friction pads on their outer surfaces has a size and shape to fit within the jamb channel. The shoe is mounted to the edge rail of a movable window sash by means of a bracket-retainer unit which movably retains a tapered resilient member within the tapered aperture of the shoe such that as the window is moved upward, the resilient tapered material moves relative to the tapered aperture in the shoe to minimize the force exerted by the shoe pads against the window jamb. When the window is stationary, however, the weight of the window causes the resilient tapered material to move relative to the side walls to forcibly engage them and push the associated pads against the sides of the jamb thereby holding the window in any desired raised position by the resulting frictional force between the pads and the sides of the jamb channel. The bracket-retainer can be adjusted to increase or decrease the frictional holding force as required in different installations, and the bracket is resiliently flexible to facilitate removal of the sash from its jamb.

3,788,007
FREIGHT CAR DOOR LATCHING DEVICE
John D. Bailey, Orland Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed Apr. 26, 1972, Ser. No. 247,644
Int. Cl. E05d 13/04
U.S. Cl. 49—449 8 Claims



A pivoted latch is positioned at the end of a sliding door supporting guide rail and engageable with a door mounted cooperating hook part to lock a sliding door of a freight car in the fully open position. A door mounted unlocking lever is positioned adjacent a door pusher block to thereby unlock the door from the open position when the pusher block is engaged by fork of a lift truck which may be used to push the door closed.

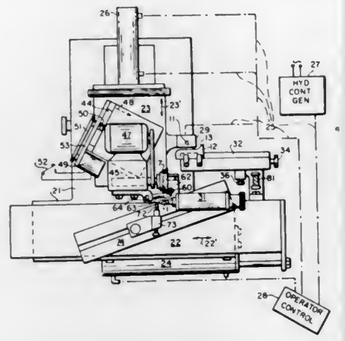
3,788,008
BELT LINE WEATHER SEAL
Charles Yackiw, Fairport, and Fred Williams, Pittsford, both of N.Y., assignors to The Schlegel Manufacturing Company, Rochester, N.Y.
Filed Oct. 4, 1972, Ser. No. 294,944
Int. Cl. E06b 7/22
U.S. Cl. 49—496 7 Claims



A belt line weather seal uses a spring metal core having spaced apart fingers that extend around the curve of the seal and into its resilient arm, and a plastic material covers the metal core and extends from the top of the seal to the tip of the resilient arm. The plastic is preferably relatively rigid in the portion of the seal that is fixed in place and is relatively flexible in the curve and the resilient arm. A pile material covers the glass-engaging outer region of the resilient arm.

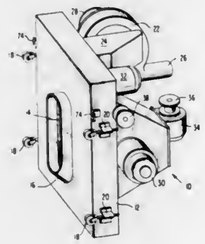
3,788,009
CONTROLLED TOOL FOR MACHINING COMPOUND SURFACES
Thurston V. Williams, Wilton, and Leo H. Cheever, South Lyndeboro, both of N.H., assignors to The O.K. Tool Company, Inc., Milford, N.H.
Division of Ser. No. 143,557, May 14, 1971, Pat. No. 3,713,254. This application Jan. 12, 1973, Ser. No. 323,112
Int. Cl. B24b 53/02
U.S. Cl. 51—5 8 Claims

A machine tool with a wheel for precision grinding of a ball end mill with cylindrically surfaced lands and a hemispherical end includes a template conforming to the lands and ball end mounted on a hydraulic driven workpiece table on which the ball end mill is held in a rotatable chuck. The grinding wheel is mounted on another hydraulically driven table, relative movement of the tables being hydraulically controlled by a stylus which senses the template. During grinding the ball end mill is supported and rotated by a finger mounted on the grinding wheel table which engages in the flutes between the lands of the ball end mill closely adjacent the wheel. The wheel grinds along the lands and then as grinding continues around the ball



end a sliding block supporting the finger engages a stop on the workpiece table and retracts the finger from the path of the wheel around the ball end. To maintain the same spacial relation between the wearing edge of the wheel and the ball end mill as the stylus has with the workpiece template, the wheel is dressed with a truing tool on the workpiece table under the control of a dressing template. The grinding wheel is first advanced toward the truing tool by a stepping motor independently of the hydraulic table drive so that when the wearing edge is trued, the original spacial relationship of wearing edge and ball end mill is restored.

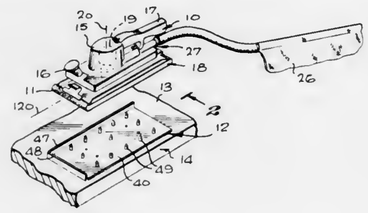
3,788,010
APPARATUS FOR TREATMENT OF VERTICALLY DISPOSED SURFACES
James R. Goff, Oklahoma City, Okla., assignor to Robert T. Nelson, Oklahoma City, Okla.
Filed Feb. 28, 1972, Ser. No. 229,842
Int. Cl. B24c 3/06; B24b 55/06
U.S. Cl. 51—9 14 Claims



A portable airless blasting head suitable for treatment of vertically disposed surfaces is described. The blast head comprises in combination an enclosure with an opening in one side adapted to contact the surface to be treated, projecting means within the enclosure for directing a stream of particulate abrasive material through the opening in the enclosure onto the surface to be treated, a resilient sealing means around the

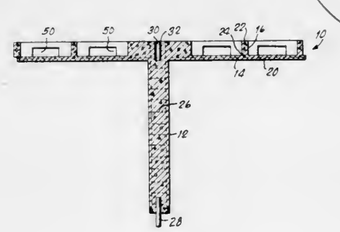
boundary of the opening in the opening of the enclosure which contacts the surface to be treated and retains the abrasive material in the apparatus, and a recirculation means to return the particulate abrasive material to the projecting means. Advantageously the apparatus of the present invention is self-propelled.

3,788,011
PIERCING OF AIR SUCTION HOLES IN ABRASIVE SHEET MATERIAL
Alma A. Hutchins, 49 North Lotus Ave., Pasadena, Calif.
Filed Aug. 21, 1972, Ser. No. 282,155
Int. Cl. B24b 23/00
U.S. Cl. 51—170 R 10 Claims



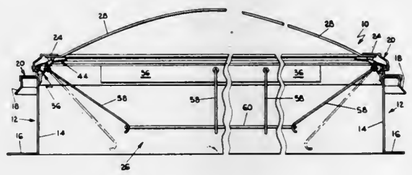
Apparatus including a portable sander having a power driven shoe adapted to carry a sheet of sandpaper or the like and containing suction holes through which air and abraded particles are drawn by suction to a collection bag, and a coacting piercing tool adapted to punch suction holes in a sheet of sandpaper carried by the shoe when the sander and piercing tool are moved relatively toward one another.

3,788,012
MODULAR BUILDING STRUCTURE ELEMENTS OF SLABS WITH CENTRAL SUPPORT POSTS
Steven Arnold, Westfield, N.J., assignor to Arnold Associates, Inc., Westfield, N.J.
Continuation-in-part of Ser. No. 71,636, Sept. 14, 1970, abandoned. This application Feb. 22, 1972, Ser. No. 227,855
Int. Cl. E04b 5/43
U.S. Cl. 52—73 16 Claims



A prefabricated element for modular building structures which comprises a column carrying at its top end a slab composed of a ceiling plate and a grid of joists integral with the ceiling plate and extending upwardly therefrom. The slab resembles an upside-down waffle type floor. The column is connected to a central portion of the slab such that the ceiling plate, which is at the bottom of the slab, takes compressive stresses and the joists, which are above the ceiling plate, take tensile stresses. The bottom end of the column is provided with a downwardly extending pin, and the slab is provided at its center with an opening adapted to receive the pin to allow for convenient and accurate vertical stacking of pluralities of structural elements. The slab may be square or rectangular, and may be provided at its lateral sides with connecting elements for attaching together adjacent slabs of different structural elements to form a load bearing building structure. A structural element comprising a column and a slab integral therewith may be prefabricated and transported to the construction site in one piece. Alternately, a modified column having a mushroom-shaped cap, and a modified slab having a conforming opening adapted to receive the mushroom cap, can be preformed separately, and may be transported to the construction site separately and assembled there.

3,788,013
DROP AWAY FIRE VENT
James C. Veen, Jr., Grand Rapids, Mich., assignor to Hillsdale Industries, Inc., Grand Rapids, Mich.
Filed June 7, 1972, Ser. No. 260,436
Int. Cl. E05f 15/20
U.S. Cl. 52—1 17 Claims



A fire vent having a closure panel or partition which normally closes a tubular vent chamber or passage defined by an annular frame, with a support means for normally holding the closure in place, even against direct loading, but which collapses in response to the presence of heat, as from a fire, to drop the closure out of the way and open up the tubular chamber and thus provide a vent.

3,788,014
ROOF
Gunter Semisch, Solingen/BRD, Germany, assignor to Firma August Steingass & Sohn, Solingen, Germany
Filed Sept. 13, 1972, Ser. No. 288,500
Claims priority, application Germany, Sept. 15, 1971, P 21 46 029.7
Int. Cl. E04b 7/10
U.S. Cl. 52—18 8 Claims



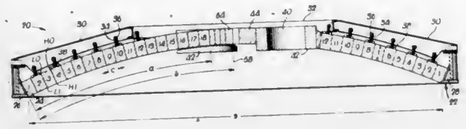
A roof for auditoriums, stadiums, et cetera, with a circular ground plan or a ground plan similar to a circle, which has a frustum or a trough-shaped roof ring with roof sheeting inclined downwards and inwards and which consists of an outside supported pressure ring and an inner pull ring and of pull elements connecting the pressure and pull rings.

3,788,015

DESIGNING AND BUILDING FURNACE STRUCTURES WITH SINGLE SIZE BRICK

John J. Musser, Kansas City, Mo., assignor to Geo. P. Reintjes Co., Inc., Kansas City, Mo.

Filed Feb. 5, 1970, Ser. No. 8,781
Int. Cl. E04b 1/32; F23m 5/02
U.S. Cl. 52—80 10 Claims



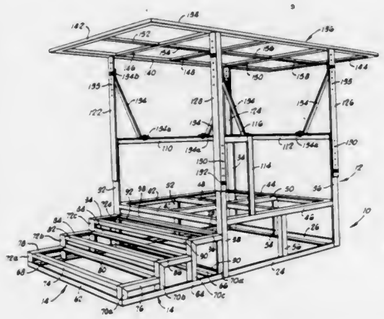
An electric furnace roof or other generally circular structure is formed by concentric rows of bricks disposed side by side in each row. Each brick is the same size throughout the entire structure or individual sections thereof and is tapered to present a pair of opposed, non-parallel sides, the single size being determined in accordance with the innermost radius of the inner row to permit such radius, or a preselected smaller radius, to be turned by bricks oriented in the regular position with the larger width across the taper at the outer periphery of the row. In order to turn the greater radii of the remaining, outer rows, certain of the bricks in each row are reversed to place the larger width at the inner periphery of the respective row. The number of reversed brick in each row is determined mathematically by initially assuming the existence of imaginary reversed bricks expanded in size to equalize the widths of all bricks, both real and imaginary, of a given row at the outer periphery thereof. A digital computer is programmed to provide output including the numbers of brick or each row in both regular and reversed positions, from input comprising design dimensions and conditions of the structure to be built.

3,788,016

PORTABLE PORCH UNIT FOR MOBILE HOMES

John Richardson, P.O. Box 291, Shattuck, Okla.

Filed May 17, 1972, Ser. No. 253,959
Int. Cl. E04b 7/16; E04f 11/00
U.S. Cl. 52—66 1 Claim



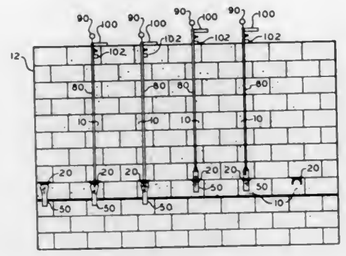
A portable porch unit for mobile homes comprising a step assembly including hand rails at opposite sides of a plurality of ascending steps, a porch, a porch supporting substructure assembly forming a rectangular enclosure and having a hinged door providing access to the interior of the enclosure and positioned at, and forming a portion of, one side of the porch, and a canopy assembly adjustably supported above said porch for vertical adjustment with respect thereto.

3,788,017

MORTER DEBRIS CLEANOUT APPARATUS

Charles E. Bachus, 1961 Alexander Dr., Escondido, Calif.

Filed June 5, 1972, Ser. No. 259,583
Int. Cl. E04g 21/20; E04f 17/10
U.S. Cl. 52—122 6 Claims



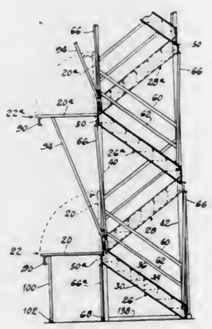
A morter debris collecting bag is supported in a vertical passage in a masonry block wall formed by vertically aligned holes in the blocks in which vertical reinforcing rods are to be installed. A metal frame with hooks supports the bag. The frame funnels debris into the bag which is belled. The bag has a drawstring and is withdrawn by a pole having extendible-retractable hooks at its lower end used to engage the drawstring.

3,788,018

PREFABRICATED MULTI-STORY STAIR ASSEMBLY

Smith H. Simmons, Largo, and Mitchell R. Caraway, Tampa, both of Fla., assignors to The Standard Fabricated Products Co., Clearwater, Fla.

Filed May 13, 1971, Ser. No. 143,115
Int. Cl. E04f 11/02
U.S. Cl. 52—185 8 Claims



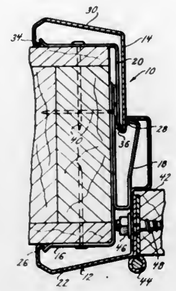
A prefabricated multi-story stair assembly in which the supporting members are all confined within the stair unit and which includes means for leveling the stair unit in its pre-installed arrangement and in which the platforms are pivotally mounted on the prefabricated stair unit for rocking movement between an unobstructed raised position to normal horizontal position to form the landing.

3,788,019

ADJUSTABLE METAL DOOR FRAME CONSTRUCTION

Donald L. Kiselewski, Palm Beach Gardens, Fla., assignor to The Binkley Company, Warrenton, Mo.

Filed Nov. 22, 1971, Ser. No. 201,125
Int. Cl. E06b 1/20
U.S. Cl. 52—212 7 Claims



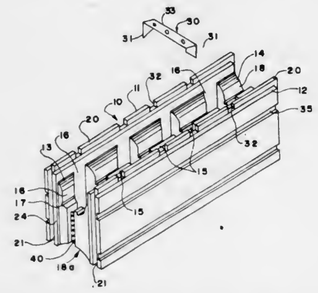
There is disclosed a novel adjustable metal door frame construction incorporating opposed telescoping frame and trim units which are mounted and retained in a door opening by retainer clips which are secured in predetermined positions. Each of the frame and trim units is independently snapped onto a set of clips and is maintained thereby against removal. The door may be pre-hung in the frame unit, if desired. The telescoping relationship of the frame and trim units permits use of the construction with a predetermined range of wall widths.

3,788,020

FOAMED PLASTIC CONCRETE FORM WITH FIRE RESISTANT TENSION MEMBER

Werner K. H. Gregori, Oakville, Ontario, Canada, assignor to Roher-Bohm Limited, Nassau, Bahamas

Continuation-in-part of Ser. No. 770,233, Oct. 24, 1968, Pat. No. 3,552,076, which is a continuation-in-part of Ser. No. 580,912, Sept. 21, 1966, abandoned, which is a continuation-in-part of Ser. No. 569,908, Aug. 3, 1966, abandoned. This application May 12, 1969, Ser. No. 823,800
Claims priority, application Canada, Mar. 22, 1966, 955,523
Int. Cl. E04b 2/20; E04c 2/20
U.S. Cl. 52—309 18 Claims



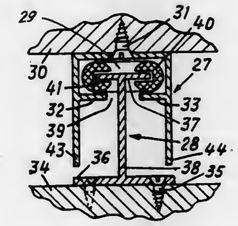
A self-supporting concrete form of foamed polymeric material to be left in place to provide insulation for a wall the form having two side walls joined by transverse tension members of sheet metal or other thin fire resistent material. The tension members are embedded in projections provided on inner faces of the two walls to provide substantially cylindrical vertically disposed cavities for concrete. The upper and lower edges of the tension members and projections are inwardly spaced from associated edges of the two side walls so that a horizontally disposed concrete beam will also be provided when the form and adjacent similar forms are filled with liquid concrete.

3,788,021

INTERCONNECTION SYSTEM FOR STRUCTURAL ELEMENTS

Balthasar Husler, Olten, Switzerland, assignor to Alphons Glutz-Blolzheim A.G., Solothurn, Switzerland

Filed Dec. 22, 1971, Ser. No. 210,933
Claims priority, application Switzerland, Jan. 8, 1971, 251/71
Int. Cl. E04b 2/32
U.S. Cl. 52—403 3 Claims



To interconnect structural elements, such as walls, wall studs, door frames and the like and permit relative movement of the interconnected elements, for example due to differential expansion upon temperature or humidity changes, the elements to be interconnected are formed with matching projections and recesses which are shaped to be interlocked, and a liner, or layer of insulating material, such as plastic, fibrous material, felt or the like, preferably fire resistant, is located between the interlock projections and recesses; in one form, the projections are formed as longitudinal rails, secured for example by screws to one of the members, the recess being either formed in the other member, or being provided by an interlocking longitudinal rail, the two elements being slid against each other. The liner itself may be an elastomer which is stretched, so as to reduce its cross section during insertion, and, after having been located, reverts to its normal size and thickness, thus securely locking the elements together. The projecting elements may be divergent, in cross section V-shaped units which engage in converging sections, the divergent units being resiliently deformable to snap into the converging recess. To hold the parts securely together, a spacer can be located in the divergent section after assembly.

3,788,022

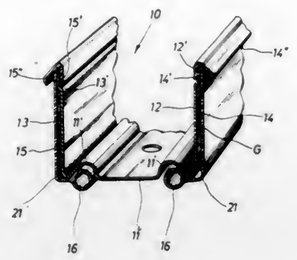
ELEMENT FOR BRIDGING THE JUNCTURE BETWEEN ADJACENT STRUCTURAL COMPONENTS

Helmut Epperlein, Dietersweiler, and Edgar Hoscheler, Freudenstadt, both of Germany, assignors to Christian Holzapfel K.G., Horb/Neckar, Germany

Filed May 12, 1972, Ser. No. 252,675
Claims priority, application Germany, May 28, 1971, 2126647
Int. Cl. E04h 1/12
U.S. Cl. 52—403 10 Claims

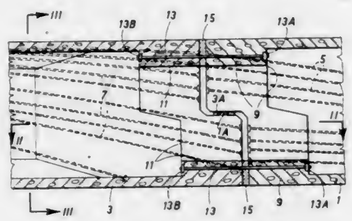
A U-shaped member has a bight portion and two wall portions which extend to one side of the bight portion normal thereto. The outer side of the bight portion is formed with two open channels extending along the juncture with the respec-

tive arm portion. Two sealing strips of elastomeric material are provided, each overlying the outer side of one of the arm portions and connected to the free edge of the same, with each sealing strip extending around the juncture of the arm portion



with the bight portion having a tubular bead received in part in the associated channel. Sealing lips are provided on and extend outwardly from the free edges of the sealing strips in the region of the free edges of the arm portions.

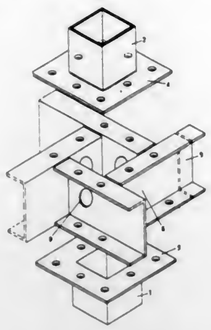
3,788,023
ASSEMBLY METHOD FOR BEAM STRUCTURES
Romualdo Macchi, Via S Paolo 31, Pisa, Italy
Filed July 28, 1972, Ser. No. 276,022
Claims priority, application Italy, Aug. 2, 1971, 9633/71
Int. Cl. E04c *3/26*
U.S. Cl. 52—741 **10 Claims**



A beam structure for a viaduct is disclosed in which hollow beams of reinforced concrete are joined in end to end relationship. The end portion of each beam has an internally extending flange in which the reinforcing members of the beam are anchored. Adjacent beams are inter-connected by reinforcing cables extending across the join and embedded in the adjacent flanges of the beams. The reinforcing cables and members together act to place each flange under compression. A hardenable mass injected between adjacent beams is also placed under compression by the reinforcing cables joining the two beams and provides a continuous beam structure.

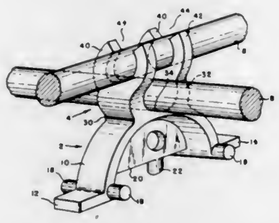
3,788,024
OPEN FRAMEWORK, ESPECIALLY FOR BUILDING PURPOSES
Jan F. De Hartog, Achterom, Netherlands, assignor to Fokker V.F.W. N.V., Schiphol-Oost, Netherlands
Filed Oct. 15, 1971, Ser. No. 189,599
Claims priority, application Netherlands, Dec. 18, 1970, 7018477
Int. Cl. E04b *1/24*
U.S. Cl. 52—648 **5 Claims**

Open framework with vertical columns and horizontal girders or supporting beams with junctions, showing an interconnection between two coaxial columns and up to four girders, whereby the end of each column is provided with a transverse flange, the end of each girder belonging to the junction point being taken up between the flanges of two adjoining columns in such a way that each end forms one side of a rectangle or a



square, and that for junctions with less than four girder ends the missing ends are replaced by short girder sections for completing the rectangle.

3,788,025
CHAIR SUPPORT FOR REINFORCING RODS
Stannard D. Holmes, P.O. Box 331, Naranjito, P.R.
Filed May 17, 1972, Ser. No. 254,132
Int. Cl. E04c *5/16*
U.S. Cl. 52—685 **1 Claim**

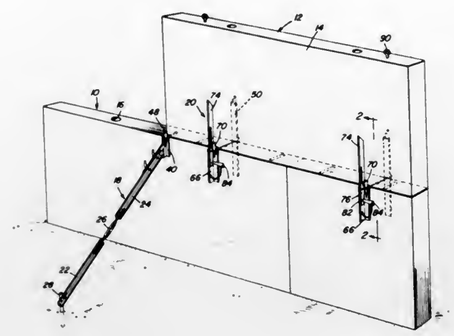


A chair for supporting in right angular relation two reinforcing rods used in construction of concrete slabs has a lower arched base part and an upper rod supporting part integral with the base. The base is an arched structure with means for providing lateral, longitudinal and vertical support and strength. The rod supporting part comprises two spaced arms the lower parts of which form a saddle for receiving one reinforcing rod and the upper part of each of which is formed by two spaced upstanding inwardly concave arms the upper ends of which are spaced to provide an opening through which a second reinforcing rod arranged at right angles to the first rod may be introduced. The chair is of integral construction and is formed of a material causing the arms of each pair to be biased toward each other to firmly hold a reinforcing rod between them.

3,788,026
STACK-WALL
James J. Cook, 200 Penn Square National Bank Building, Oklahoma City, Okla.
Filed Mar. 10, 1972, Ser. No. 212,290
Int. Cl. E04g *21/18, 21/22*
U.S. Cl. 52—127 **7 Claims**

A masonry wall construction of a plurality of preformed modules employed in lieu of conventionally used concrete block, brick or clay masonry wall structures. Knee braces are

provided for properly aligning the first course of modules and subsequent courses are set in a bed of mortar and properly aligned and positioned by the use of brackets and ties and



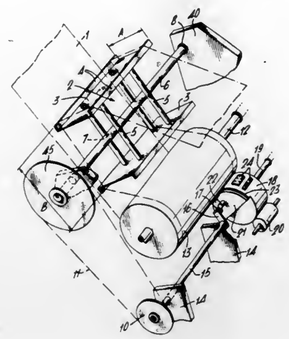
each module is set in place by a crane or other suitable lifting and manipulating device by engagement with eyebolts provided for erection only.

3,788,027
PROCESS FOR COLLECTION AND TREATMENT OF GARBAGE
Jorge Galvez Figari, Enrique Larreta St. No. 12, Madrid, Spain
Filed Apr. 17, 1972, Ser. No. 244,924
Int. Cl. B65b *1/24*
U.S. Cl. 53—24 **5 Claims**

A process for the collection, treatment and disposition of domestic garbage, wherein the garbage is dehydrated in a hydraulic press to remove excess fluids therefrom, and the dehydrated garbage is hermetically sealed in compact cases for subsequent transportation and handling. The containers are formed in two parts, one of which is placed in the cyclinder end of a ram-type press and the other in the piston end so that the garbage is compressed and dehydrated between the two parts of the container. Pressing the garbage together brings the two sections of the container into interlocking, sealing engagement so that one compression stroke of the press compresses and hermetically seals the garbage in the containers.

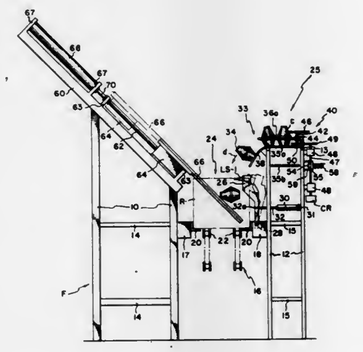
3,788,028
DEVICE FOR PACKING MACHINES
Bertil Folkesson; Lennart Nilsson, both of Lund, and Uno Sjostrand, Malmo, all of Sweden, assignors to Tetra Pak Developpment SA, Lausanne, Switzerland
Filed Oct. 24, 1972, Ser. No. 300,251
Claims priority, application Sweden, Nov. 25, 1971, 15079/71
Int. Cl. B65h *25/20, 57/00*
U.S. Cl. 53—51 **5 Claims**

A rotatable device operable by engagement with spaced, transverse creases in a longitudinal, moving web of packaging material, said device controlling means for performing an



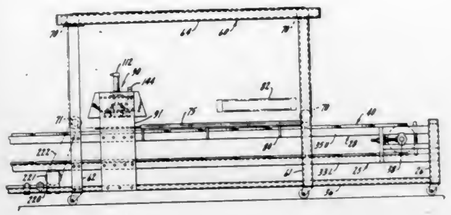
operation such as printing information on or punching holes in the web at specific places relative to the transverse creases.

3,788,029
TUMBLE PACKING APPARATUS
Charles F. Pokorney, Oak Lawn, Ill., assignor to Koehring Company, Milwaukee, Wis.
Filed July 28, 1972, Ser. No. 276,068
Int. Cl. B65b *57/06, 5/00*
U.S. Cl. 53—59 **5 Claims**



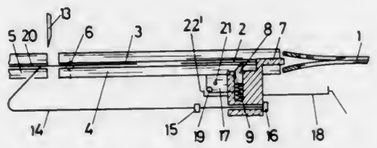
Tumble packing apparatus for filling a case with containers such as damageable, liquid-filled, lightweight plastic containers and the like including: apparatus for discharging containers in a free fall path of travel to a container case, and a cushioning pad which is selectively movable from a removed position into the path of initially charged, free falling containers to temporarily interrupt and cushion the free fall travel of the initial charge of containers before they impact the container case. Mechanism is provided to remove the pad, after a predetermined number of containers have been cushioned, to permit the initial charge of containers to move to a final position within the case and cushion the immediately following containers which fall to fill the case.

3,788,030
PIZZA PROCESSING MACHINE
Roy Virgil Moline, Duluth, Minn., assignor to Jeno's, Inc., Duluth, Minn.
Filed Apr. 12, 1972, Ser. No. 243,320
Int. Cl. B65b *5/08*
U.S. Cl. 53—123 13 Claims



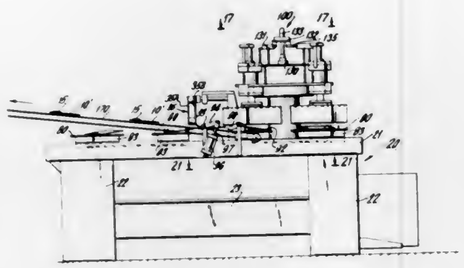
A method of processing a frozen pizza food product and a machine for performing the process. The pizza is cut into a plurality of sections while it is frozen and its temperature lowered to 20° to 24° F. A plurality of cutting knives on a cutting head cyclically cut the frozen pizzas into pie-shaped segments. The individual pizza segments are kicked out radially into a tray below the cutting die as each pizza is segmented. The machine then crimps a cover onto the tray and ejects the tray.

3,788,031
DEVICE FOR THE FRAMING OF PHOTOGRAPHIC SLIDES
Peter Florjancic, St.-Martinstrasse 12, Garmisch-Partenkirchen, Germany
Filed Mar. 22, 1972, Ser. No. 236,899
Claims priority, application Austria, Mar. 26, 1971, 2625/71
Int. Cl. B65b *39/12*
U.S. Cl. 53—123 13 Claims



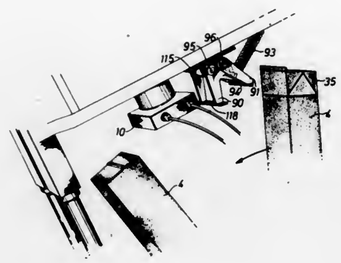
A device for the automatic framing of photographic slides comprises a slide feed way pivoted at the inlet end to be vertically reciprocated by a control cam between a "feed position" in which the outlet end faces into a slide frame holder and a "retracted position" in which the outlet end is displaced perpendicularly to the slide feeding axis. A pusher is arranged to push a slide in the feed position into a frame in the frame holder and to return in the retracted position to behind the trailing edge of another slide located in the slide feed way. Slides are cut with a cutting knife from a photographic film strip as it is moved into the slide feed way by a slide feeder and the slide feeder and slide pusher are operatively connected to one another to work substantially simultaneously.

3,788,032
METHOD AND APPARATUS FOR FORMING ARTICLE-HOLDING DISPLAY PACKAGES
William Heffernan, Westfield; George R. Hair, Clifton, both of N.J., and John G. Nielsen, Freeport, N.Y., assignors to International Inpak Incorporated, Saddle Brook, N.J.
Filed Dec. 8, 1971, Ser. No. 205,817
Int. Cl. B65d *47/02*
U.S. Cl. 53—141 17 Claims



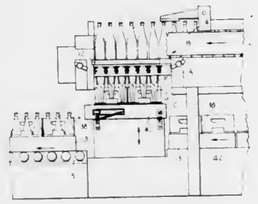
The articles are enclosed in pockets, formed and sealed in plastic windows, of a foldable paperboard blank which has window openings on opposite sides of a fold line, the blank being covered on one surface by a heat-deformable and heat-sealable plastic sheet, at least over that area having the openings or windows formed therein. A blank support, a molding station and a blank discharge station are arranged along a linear blank travel path at substantially equal spacings from each other. A carrier is oscillatable in a vertical plane including the center line of the travel path, and carries air-released vacuum pick-up means at longitudinal spacings substantially equal to the spacings between the support and the stations. The carrier is oscillated between a first position and a second position. In the first position, a first vacuum pick-up means grips a blank, which has already been heated and has pockets formed therein, at the molding station. As the carrier is moved toward its second position, the blanks are lifted and the first pick-up means heats its supported blank. At the second position, the first pick-up means, which includes male die means, positions its blank over a female die means at the molding station, and the second pick-up means releases its formed blank at the discharge station. The already heated blank at the molding station is vacuum deformed into the female die to form the pockets, is released and the cycle is repeated. A dwell station preferably is positioned between the support and the molding station. An endless chain conveyor is moved past the discharge station and carries removable tables for receiving the formed blank. Articles are placed in the pockets at any point along the endless conveyor, and the blanks, during travel along the conveyor on the tables, are folded over to enclose the article and held in closed position while they are delivered to a turret which is revolved in synchronism with the movement of the endless chain and carries one or more, preferably three, piston and cylinder operated heat sealing dies for sealing the two halves of the blank to each other to seal the article in a pocket. The dies are supplied with dielectric energy only after engagement with the folded blanks. The packaged articles are then released onto a conveyor belt for transport away from the apparatus. The heating means for heating the blank preferably is mounted on the carrier, or may be positioned fixedly at a heating station.

3,788,033
PACKAGING MACHINE
Kjell Halvard Martensson; Bjorn H:son Linde; Jan-Frederik Palsson, and Sven Torsten Jerre, all of Lund, Sweden, assignors to Tetra Pak International AB, Lund, Sweden
Division of Ser. No. 227,812, Feb. 22, 1972. This application July 18, 1972, Ser. No. 272,863
Claims priority, application Sweden, Mar. 25, 1971, 3864/71
Int. Cl. B65b *3/02, 43/26, 7/20*
U.S. Cl. 53—186 4 Claims



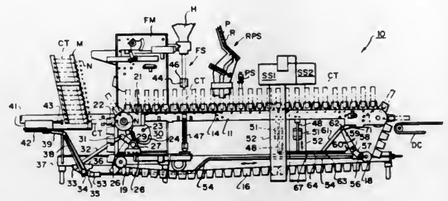
A packaging machine for successively erecting a package blank on a mandrel and subsequently folding and sealing the bottom members of the blank while the mandrel is moved intermittently from one station to another in which means are provided for folding in the first and second bottom flap members, prior to sealing, as the mandrel moves from one station to the next.

3,788,034
GRID SET FOR AN ARTICLE LOADING MACHINE
Thomas P. Hartness, 305 Bridgewater Dr., and Robert G. Hartness, 203 Wilmington Rd., both of Greenville, S.C.
Filed Apr. 3, 1972, Ser. No. 240,542
Int. Cl. B65b *39/02*
U.S. Cl. 53—248 11 Claims



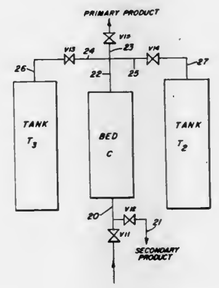
A grid set for use on a bottle loading machine having means for positioning bottles in aligned rows above the grid set and means for positioning empty cases below the grid set. A plurality of guide members are spaced along elongated spaced members defining passages through which the bottles pass for loading into the cases. The guide members include downwardly extending rigid arms which are carried in the corner of the passages for engaging the bottles to direct them into the case. The arms have carton opening means carried on the lower end thereof for engaging the walls of cardboard cartons for aiding in opening the compartments located therein.

3,788,035
CAULKING CARTRIDGE FILLING AND SEAMING MACHINE
Charles E. Geisel, Crestwood, Mo., assignor to Container Corporation of America, Chicago, Ill.
Continuation of Ser. No. 83,820, Oct. 26, 1970, abandoned. This application June 21, 1972, Ser. No. 264,929
Int. Cl. B65b *3/00, 25/00*
U.S. Cl. 53—282 7 Claims



Apparatus for filling empty caulking material cartridges movable in side-by-side rows along an endless conveyor and past a filling station and stations downstream therefrom where an extruding piston is placed on the cartridge tube and a ring is seamed to the opposite end of the cartridge tube. Structure is controlled by the power means for driving the endless conveyor for operation of means for loading the cartridge tubes on to the conveyor, seaming the tubes, and discharging the filled tubes from the conveyor.

3,788,036
PRESSURE EQUALIZATION AND PURGING SYSTEM FOR HEATLESS ADSORPTION SYSTEMS
Hanju Lee, 5158 Evangeline Way, Columbia, Md., and David E. Stahl, 8824-B Town & Country Blvd., Elliott City, Md.
Filed July 26, 1972, Ser. No. 275,398
Int. Cl. B01d *53/04*
U.S. Cl. 55—25 16 Claims

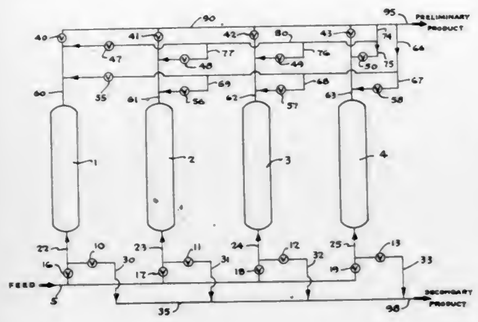


The present invention is concerned with an improved method for fractionating multicomponent gas mixtures. More specifically, the present invention is primarily concerned with the improved process wherein a multicomponent oxygen containing feed stream is fractionated into a stream relatively enriched in the oxygen component of the mixture. The present invention particularly concerns heatless fractionation systems for separating air into an oxygen enriched primary product stream and a nitrogen enriched secondary product stream.

3,788,037
SEPARATION PROCESS

Don C. Shell, 4709 Chad Dr.; David A. Tanner, Rt. 4, Columbia Dr., and Ronald D. Brazzel, 308 Vicksburg, all of Tyler, Tex.

Filed June 28, 1971, Ser. No. 157,234
Int. Cl. B01d *53/04*
U.S. Cl. 55—58 10 Claims



A continuous process for separating a gaseous mixture into a primary gaseous product stream and a secondary gaseous product stream utilizing four adsorbent-containing beds is disclosed.

3,788,038
PROCESS FOR SEPARATING URANIUM ISOTOPES

John C. Zahner, Princeton, N.J., assignor to Mobil Oil Corporation

Filed Jan. 12, 1972, Ser. No. 217,245
Int. Cl. B01d *57/00*
U.S. Cl. 55—17 5 Claims

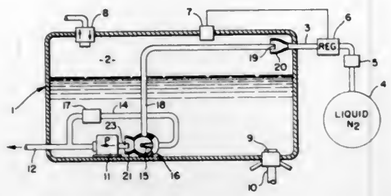
Uranium isotopes can be separated utilizing shock separation techniques by introducing gaseous uranium hexafluoride at supersonic velocity into a circular or elongated duct such that parallel flow streamlines are present; placing within the supersonic parallel flow stream a plurality of hollow probes at different distances along the axis of flow said hollow probes having critical dimensions relative to the mean free path of said flow stream in front of said probes so as to cause a detached stationary shock to form ahead of each of said probes leading edges and regulating the flow through the probes in relation to the flow through the duct to arrive at a process having enhanced economic benefit. In a preferred embodiment there is present a substantial number of probes in a given axial position.

3,788,039
FUEL TANK INERTING SYSTEM WITH MEANS TO IMPROVE THERMAL STABILITY OF FUEL

Kenneth R. Bragg, Redondo Beach, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

No Drawing. Filed Aug. 24, 1972, Ser. No. 283,332
Int. Cl. B01d *19/00*
U.S. Cl. 55—160 10 Claims

A fuel tank inerting system characterized in the provision of mixing means such as an aspirator or ejector to promote the diffusion equilibrium between the fuel and the nitrogen-rich ullage gas in the fuel tank to decrease the amount of oxygen dissolved in the fuel to just a few parts per million (ppm) thereby to improve the thermal stability of the fuel such that the temperature at which the fuel enters the engine can be increased without causing excessive coking, slugging and varnishing. Such improved thermal stability of the fuel allows

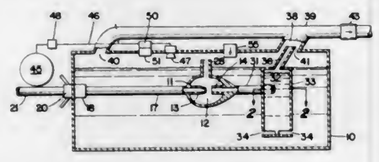


greater heat injection into the fuel or alternatively enables the use of a normally less thermally stable fuel at reduced fuel cost.

3,788,040
FUEL TANK INERTING SYSTEM

Kenneth R. Bragg, Redondo Beach, and Richard L. Kenyon, Los Angeles, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed June 9, 1972, Ser. No. 261,432
Int. Cl. B01d *19/00*
U.S. Cl. 55—160 25 Claims

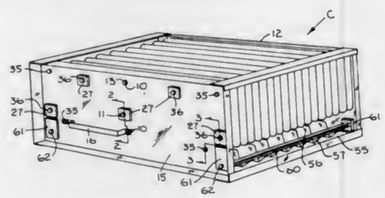


A method of maintaining the ullage of a previously inerted aircraft fuel tank in the inert condition under which combustion cannot take place within the tank during the after filling of the tank with liquid fuel, and during flight of the aircraft. The method utilizes the oxygen lean ullage gases for scrubbing oxygen from incoming fuel during filling of the tank, separating the gases having scrubbed oxygen therein from the incoming fuel and venting the same to the exterior of the tank so as not to raise the oxygen content of the gases remaining in the ullage.

3,788,041
ELECTROSTATIC PRECIPITATOR FOR HIGH TEMPERATURE OPERATION

Asa K. Gaylord, Portland, Oreg., assignor to Gaylord Industries, Lake Oswego, Oreg.

Filed Sept. 13, 1972, Ser. No. 288,651
Int. Cl. B03c *3/47*
U.S. Cl. 55—129 7 Claims

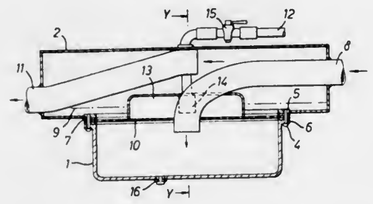


The precipitator has a series of flat vertical plates which are elongated in a horizontal direction. To prevent buckling of the plates from horizontal expansion when heated, the plates are fixedly mounted in their central portions and allowed to float on end supports so that the ends of the plates may expand freely in opposite directions away from their centers. The end supports comprise rods equipped with necked spacers which maintain uniform spacing of the plates while permitting horizontal movements on the rods during heating and cooling.

3,788,042
GAS-LIQUID CONTACTING APPARATUS

Yat Chuen Yuen, and Kin Sun Yuen, both of 17th Floor, Flat L, Phoenix Apartment 70, Lee Garden Rd., Hong Kong

Filed Mar. 16, 1972, Ser. No. 235,312
Claims priority, application Great Britain, Mar. 24, 1971, 7,704/71
Int. Cl. B01h *47/02*
U.S. Cl. 55—227 4 Claims

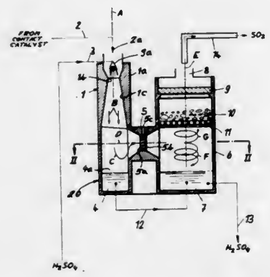


The invention provides device for cleaning exhaust gas, particularly automobile exhaust gas, which device includes a screen immersed in a liquid and surmounted by an inverted trough having closed ends such that at least a part of the gas fed to the trough will pass more than once through the screen before reaching the gas outlet.

3,788,043
ABSORBER FOR SULFUR TRIOXIDE

Karl-Heinz Dorr, Mainz; Hugo Grimm, Frankfurt am Main, and Rolf Kola, Homberg, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 12, 1971, Ser. No. 188,128
Claims priority, application Germany, Oct. 15, 1970, P 20 50 579.7
Int. Cl. B01d *47/06*
U.S. Cl. 55—237 3 Claims

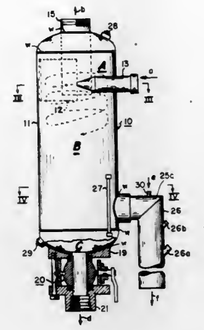


In a contact process for transforming sulfur dioxide to sulfur trioxide, between the contact stages there is provided an interstage absorber for removing sulfur trioxide for the gases emerging from a previous stage. The gases are passed by a venturi system in intimate contact with sulfuric acid into a settling chamber in which sulfuric acid is collected in the sump and then, by another gas/liquid contactor or reagitator, into a further settling chamber with an outlet at its upper end.

3,788,044
VORTEX FLASH SEPARATOR

John A. McNeil, 161 Franklin Ave., Brookville, Pa.

Filed Feb. 23, 1972, Ser. No. 228,502
Int. Cl. B01d *53/24*
U.S. Cl. 55—204 10 Claims

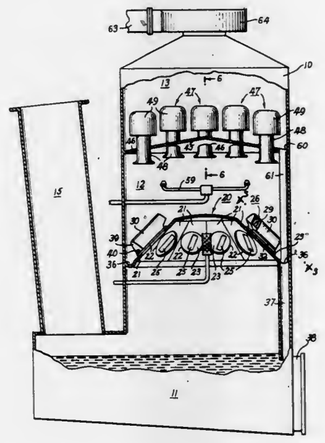


An improved apparatus has been devised for separating pure steam or dry vapor from a hot effluent being introduced under positive pressure and for enabling utilization of B.T.U.'s in an effluent fluid such as being supplied by a boiler or pressure vessel or a blow-down discharge. The flash or steam is removed by employing a centrally disposed vortex separating action in an upper sector or portion of and by moving the effluent in a cyclonic path through an intermediate sector of a chambered apparatus, with condensate and liquid as well as sludge being separated therefrom and collected in a lower sector thereof. A liquid level is maintained in the lower section and liquid being removed is cooled without adversely affecting the separating action, before its discharge from the apparatus.

3,788,045
GAS CLEANING APPARATUS

Orlan M. Arnold, Grosse Pointe Park, Mich., and Carlo A. Vancini, Stamford, Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed Sept. 13, 1971, Ser. No. 179,910
Int. Cl. B01d *47/06*
U.S. Cl. 55—238 12 Claims



Gas cleaning apparatus having at least two stages. In the first stage the gas is passed through a liquid spray for removing

particulate material. In the second stage any remaining particulate matter or droplets are removed. The stages involve combinations of slotted baffles with deflectors for stripping the gas and bonnet units with concentric passages for reversal of flow for removing particulate matter by centrifugal action and by impingement.

3,788,046

APPARATUS FOR FILTERING GASES HAVING A MOVABLE FILTER BAG UNIT

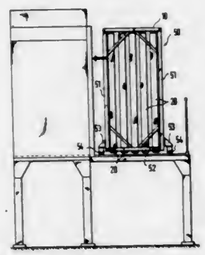
Gerhard Kaeppler, Cologne-Heimersdorf; Stefan Ficker, Urberach, and Wilfried Werner Pergande, Cologne-Brueck, all of Germany, assignors to The Slick Corporation, New York, N.Y.

Filed Dec. 2, 1971, Ser. No. 203,968

Claims priority, application Germany, Dec. 17, 1970, P 20 62 152.7

Int. Cl. B01d *46/02*

U.S. Cl. 55—341 **1 Claim**



Filter apparatus for the separation of gas from suspended solid particles by filter bags including a housing with a filter chamber therein. The filter chamber includes a first chamber into which particle laden gas is introduced and a second chamber from which cleaned gas is withdrawn after suspended solid particles have been removed by the filter bags. Advantageously a filter bag unit is constructed so that it is movable in and out of the filter chamber for convenient inspection, cleaning and repair. The movable unit includes a gas impermeable filter bag support sheet forming a dividing wall between the first and second chambers. The support sheet has a plurality of passages with filter bags mounted thereon adjacent to passages and extending into the first chamber. A frame supports the sheets with the free ends of the filter bags extending downwardly therefrom. A releasably sealing device on the housing aligned with the support sheet securely holds the filter bag unit in the chamber and provides an airtight seal for the support sheet between the first and second chambers.

3,788,047

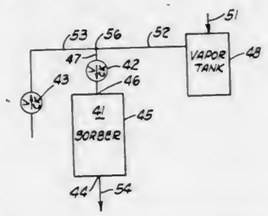
APPARATUS FOR SORPTION OF GAS

Merton H. Douthitt, Shaker Hts., Ohio, assignor to SCM Corporation, Cleveland, Ohio

Filed Nov. 4, 1971, Ser. No. 195,703

Int. Cl. B01d *53/02*; **F16k** *21/04*

U.S. Cl. 55—387 **4 Claims**



An improved apparatus containing activated carbon for the sorption of impurities from vapor-laden feed gas and a unitary fitting adapted for such apparatus are set forth. The improvement in the carbon sorber apparatus comprises a pair of check valves, the first disposed for permitting undirectional flow of laden feed gas from a supply line under superambient pressure into the inlet of a carbon sorber unit, and therein into contact with the bed of activated carbon sorbent, then out of said unit to ambient atmosphere as stripped exit gas, the second check valve disposed for supplying, in bypass of the carbon sorber unit and the first check valve, undirectional flow of ambient atmosphere into said supply line as subambient pressure occurs therein. The unitary fitting houses both said check valves disposed in proper interacting relationship for convenient, accurate, and compact installation of the apparatus.

3,788,048

TRASH SEPARATOR FOR SUGAR CANE HARVESTERS

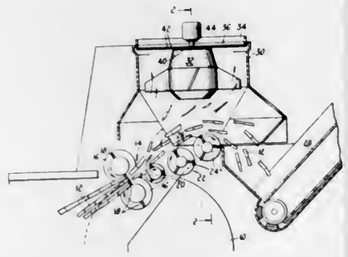
Rodney Allan Stiff, and Keith Leonard Ruback, both of Bundaberg, Australia, assignors to Massey-Ferguson (Australia) Limited, Victoria, Australia

Filed June 30, 1971, Ser. No. 158,239

Claims priority, application Australia, July 16, 1970, 1877/70

Int. Cl. B01d *45/14*

U.S. Cl. 55—406 **3 Claims**



A trash separation apparatus for a sugar cane harvester including an extractor fan for drawing light-weight material from an airborne stream of chopped cane, an outlet for air from the extractor fan, and a rotatable element to remove light-weight material from the air passing through the outlet. The extractor fan is mounted in a housing so as to draw air up through an airborne stream of chopped cane being conveyed through the housing by flipper rollers and to force the air through an outlet in the housing. Light-weight crop material is removed from the airborne stream of chopped cane by the air drawn through the airborne stream by the extractor fan. The light-weight crop material is removed from the air passing through the extractor fan by a rotatable wheel with a plurality of spokes. The spokes catch the light weight trash and throw it outwardly into trash discharge chutes.

3,788,049

WHEEL MOUNTING ASSEMBLY FOR LAWN AND GARDEN TYPE TOOLS AND THE LIKE

Stephen Jeffrey Ehrlich, Randallstown, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

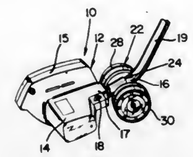
Filed Jan. 2, 1973, Ser. No. 320,487

Int. Cl. A01d *55/18*

U.S. Cl. 56—16.9 **10 Claims**

A trimmer edger including a motor and cutter head suspended from an elongated upstanding control handle. A one-piece bracket is releasably clamped to the handle and

secures an axle on which a pair of ground engaging wheels are journaled. The bracket is constructed to securely clamp the



handle to the wheel axle and locates the wheels and handle with respect to each other and to the motor and cutter head for optimum balance and control.

3,788,050

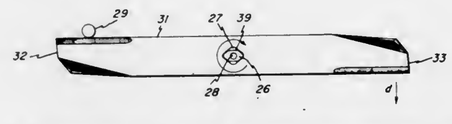
IMPACT ABSORBER FOR ROTARY MOWER BLADE

Douglas R. Houst, Pattersonville; Kenneth R. Jones, Elnora, and Bruce R. Laumeister, Rexford, all of N.Y., assignors to General Electric Company, Erie, Pa.

Filed Apr. 9, 1973, Ser. No. 348,881

Int. Cl. A01d *55/18*

U.S. Cl. 56—295 **14 Claims**



A resilient spacer element is inserted between the drive shaft mounting bolt and the central aperture of a horizontal cutting blade such that when one end of the rotating blade contacts a relatively immovable object the shear stress will cause the axis of the blade to shift relative to the axis of the shaft rather than break or bend the shaft and mounting bolt. The aperture and spacer are shaped such that a cavity exists therebetween on each side transverse to the blade, with the cavity decreasing in longitudinal cross section with increasing lateral distance from the blade center. As the spacer is displaced into the cavity, the degrees of elasticity is initially high and decreases with increased displacement.

3,788,051

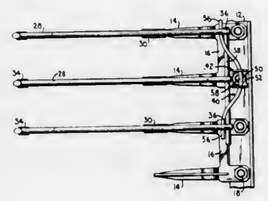
DEVICE FOR ATTACHING TINE EXTENSIONS TO CUTTER BAR

Raymond W. Richardson, Cawker City, Kans., assignor to Richardson Manufacturing Company, Inc., Cawker City, Kans.

Filed Jan. 17, 1973, Ser. No. 324,348

Int. Cl. A01d *65/02*

U.S. Cl. 56—318 **10 Claims**



A releasable fastening device of universal character which is employed to detachably secure sickle guard extensions to the cutter bar assembly of a combine. An elongated, resilient clip of heavy steel wire extends across a series of three of the extensions with its opposed end portions engaging the two outer extensions of the series. A catch is secured to the sickle guard support bar by the center sickle guard bolt, and the clip is flexed rearwardly into engagement with the catch. The central portion of the clip seats within notches provided in the catch to hold the clip in the flexed condition.

3,788,052

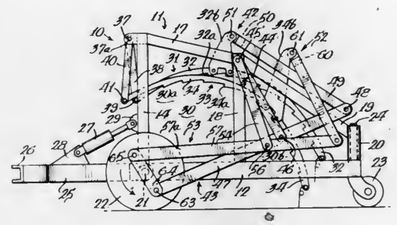
GROUND ENGAGING HAY BALE ROLLING APPARATUS

Keith D. Elwick, Vinton, Iowa, assignor to Starling, Inc., Harvard, Ill.

Filed Nov. 9, 1972, Ser. No. 305,152

Int. Cl. A01d *39/00*

U.S. Cl. 56—341 **13 Claims**



A hay bale rolling apparatus adapted to be moved along a windrow of hay to roll the windrow into a series of separate bales in contact with the ground. A bale rolling chamber is open at the bottom, and parallel, curved baling bars are suspended in the chamber, extending from the rear lower portion to the front upper portion. The bars are arranged alternately in two sets which are longitudinally oscillated in vertical planes in opposite phase so as to alternately contact the hay and push it forward with a rolling action as the apparatus moves along a windrow.

3,788,053

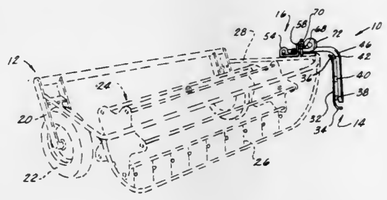
WINDROW CONTROLLER

Charles O. Bonnett, RR 1, Howard, Kans.

Filed May 30, 1972, Ser. No. 257,827

Int. Cl. A01d *77/06*

U.S. Cl. 56—399 **10 Claims**

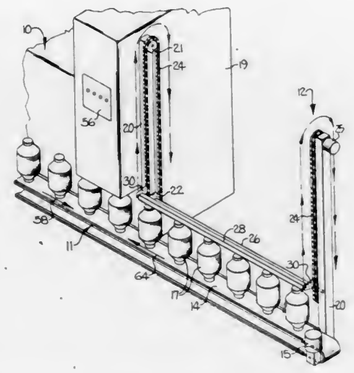


An upright shield is attached at the discharge end of a crop conditioning apparatus which is used in a field of previously cut crops to rake the crop transverse to the line of motion and discharge it to one end thereof. The shield is mounted transverse the crop conditioning apparatus. In operation it receives discharged material and limits the outward movement of the material relative the crop conditioning apparatus.

3,788,054
APPARATUS FOR TRANSPORTING AND STORING YARN PIRNS OR THE LIKE

Gerhard Haussmann, and Gunter Schulz, both of Ebersbach-Sulpach, Germany, assignors to Zinser-Tertilmaschinen Gesellschaft mit beschrankter Haftung, Ebersbach, Germany

Filed Aug. 2, 1972, Ser. No. 277,480
Claims priority, application Germany, Aug. 4, 1971, P 21 38 926.4
Int. Cl. D01h *13/26*
U.S. Cl. 57—34 R 20 Claims



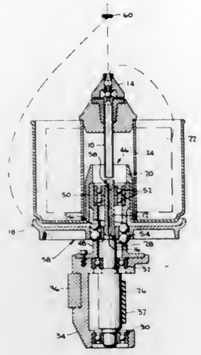
An apparatus for transporting and storing a plurality of yarn packages and/or pirns in a separated, non-contacting arrangement and including a portable storage unit which comprises a number of horizontally directed supports, each support being adapted to hold the lower end of a plurality of yarn packages. The supports are movable along an endless path of travel such that the supports may be individually brought to a transfer station. The apparatus further includes a conveyor extending along one side of a yarn processing machine and which is adapted to convey the doffed yarn packages in a separated arrangement to a loading station. A transfer apparatus is also provided which is cyclically operable to transfer a plurality of separated yarn packages between the transfer station on the storage unit and the loading station, the transfer apparatus serving to advance the storage unit during each cycle of operation to thereby bring a different support to the transfer station after each cycle of operation.

3,788,055
DEVICE FOR DOUBLE TWISTING TEXTILE YARN

Carlos Matas Gabalda, Le Grand duc-rue de Prague, Granges-Les-Valences, France

Filed Jan. 26, 1973, Ser. No. 326,744
Claims priority, application France, Jan. 27, 1972, 71.02804
Int. Cl. D01h *7/86*
U.S. Cl. 57—58.72 9 Claims

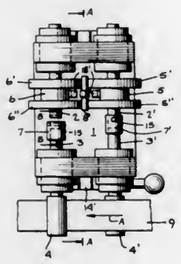
A device for double twisting textile yarn including a rotating assembly having a hollow spindle rod rotatable coaxially with a plate having a plurality of substantially cylindrical holes therethrough equally spaced around the axis of rotation and at least a pair of balls disposed in each of the holes in the plate, and a stationary winding support assembly including a pair of support members disposed on opposite sides of spaced plate and having edges forming eliptical ramps disposed in spacd parallel relation inclined relative to the plane of rotation of the plate, the plate extending within the space between the ramps such that the balls contact the ramps to prevent movement of the upper support member, the lower support member being fixed to a stationary frame. Yarn is supplied from a winding surrounding a spindle member coaxial with the spindle rod, the winding being mounted on a carrier fixed to the upper support member such that the winding is held stationary as the spindle rod and plate are rotated.



3,788,056
APPARATUS FOR SELECTIVELY CHANGING THE SENSE OF ROTATION OF THE TWIST TUBE OF A FALSE-TWIST MACHINE

Hans Burri, Adelaide, Australia, assignor to Heberlein & Co. AG, Wattwil, Switzerland

Filed Mar. 2, 1972, Ser. No. 231,294
Claims priority, application Switzerland, Mar. 24, 1971, 4325/71
Int. Cl. D02g *1/06*; D01h *1/24*
U.S. Cl. 57—77.45 6 Claims

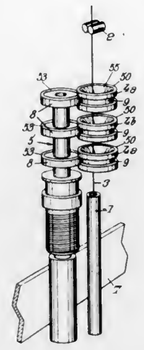


Apparatus for selectively changing the direction of rotation of twist tubes in a false-twist machine containing two axially parallel rollers in the cuneate throats of which at least one twist tube is supported comprising, support means, shafts rotatably carrying the rollers and supported in the support means, two further shafts also rotatably carried by the support means coaxial with the first shafts and spaced therefrom, driving rollers carried by the further shafts and adapted to be driven by a belt, and coupling means carried by the further shafts at the other ends thereof and which are adapted for selective coupling with opposite ends of the roller carrying shafts.

3,788,057
TWISTING DEVICES FOR FILAMENTS

Guy Batsch, Aubenas, France, assignor to Societe Civile Textile dite Socitex, Lyon, France

Filed Dec. 14, 1972, Ser. No. 315,166
Claims priority, application France, Jan. 5, 1972, 72.00168
Int. Cl. D02g *1/02*
U.S. Cl. 57—77.4 8 Claims

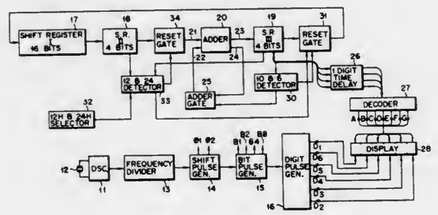


The device comprises at least one rotary ring against which the filament must be applied so as to be driven in rotation by the inner edge of the rotary ring to undergo twisting. This rotary ring is driven by a single drive roller and the rotary ring comprises an outer edge of magnetic material. It is supported on said single drive roller by a fixed support roller and by a magnetic device inserted between the fixed support roller and the single drive roller.

3,788,058
ELECTRONIC DIGITAL CLOCK APPARATUS

Gijun Idei; Atsushi Onoyama, both of Yokohama; Mitsuo Aihara, Tokyo; Seigo Suzuki, Yokohama; Hideharu Egawa, Tokyo, and Elichi Yamaga, Hatogaya, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed June 19, 1972, Ser. No. 264,185
Claims priority, application Japan, June 23, 1971, 46-44779
Int. Cl. G04c *3/00*; G04b *19/30*
U.S. Cl. 58—23 R 15 Claims

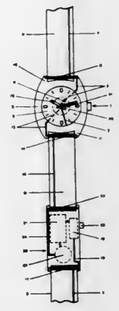


A plurality of shift registers for storing time information represented by numbers consisting of a plurality of digits are connected to an adder to form a closed loop. The time information stored in the shift registers is circulated through the closed loop in a minimum unit length of time. When the adder is supplied with information on the minimum unit length of time, it receives a single addition pulse per minimum unit length of time. A decoder is supplied with four bit outputs from a shift register corresponding to a particular digit position, and outputs from the decoder are supplied to a plurality of digit indicators in common. The digit indicators are successively impressed with operating voltage to display time information periodically.

3,788,059
ALARM WRIST WATCH

Paolo Spadini, 78, Ave. Leopold-Robert, La Chaux-de-fonds, Switzerland

Filed Oct. 16, 1972, Ser. No. 297,909
Int. Cl. G04c *3/00*; G04b *23/12*; G04c *21/34*
U.S. Cl. 58—23 BA 3 Claims

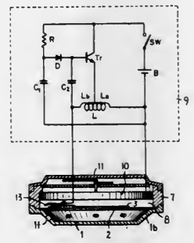


An alarm wrist watch incorporating a watch band, a watch casing and an electro-acoustical signal transmitter which can be activated by the watch movement or clockwork at preselected signalling times. The electro-acoustical signal transmitter is arranged at a part of the watch band removed from the watch case.

3,788,060
WATCH WITH AN ELECTRONIC BUZZER

Yasukazu Kawamura, 3-12-9-102 Narashinodai, Funabashi, Japan

Filed Nov. 22, 1972, Ser. No. 308,763
Claims priority, application Japan, Dec. 9, 1971, 46-116112[U]; Dec. 17, 1971, 46-101887[U]
Int. Cl. G04c *21/34*; G04b *23/12*
U.S. Cl. 58—38 3 Claims

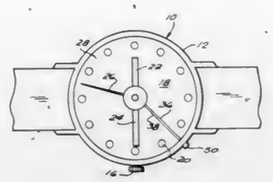


A watch with an electronic buzzer which comprises a double-constructed back cover including an inner back cover on which a piezoelectric element is mounted to produce a mechanical buzz sound when a voltage is applied thereto and an outer back cover provided with a plurality of small holes for enhancing transmission of the buzz. A driving circuit for actuating or energizing the piezoelectric element is disposed in the watch case releasably from the back cover and the piezoelectric element. This construction enables the watch to be made small in size and assures the watertightness of the watch.

3,788,061
ILLUMINATED DIAL WATCH

Nils M. Tornquist, Morgantown, Pa.; Howard Kneeland, Forestville, and William K. Sessions, Jr., Bristol, both of Conn., assignors to New England Clock Company, Farmington, Conn.

Filed Dec. 7, 1972, Ser. No. 312,805
Int. Cl. G04b *19/30, 37/08*
U.S. Cl. 58—50 R 4 Claims

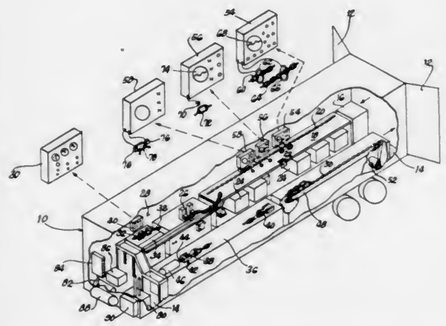


An improved watch is provided which includes a lamp mounted in the geometric center of the watch crystal. Light impervious reflecting means overlie the lamp and a minor portion of the crystal reflecting light from the lamp to the watch dial. A pair of electrically conductive leads extend from the lamp to a battery mounted in the watch case and a switch is provided for controlling current to the lamp. The crystal, lamp and leads are integrally formed into a single unit with the leads terminating in a pair of tabs adapted to meet in electrically conducting relationship with the terminals of the battery.

3,788,062
CHAIN INSPECTION AND REPAIR SYSTEM

Richard L. Booth, Munster, Ind., assignor to S. G. Taylor Chain Company, Inc., Hammond, Ind.

Filed Sept. 21, 1972, Ser. No. 290,872
Int. Cl. B21l *21/00*
U.S. Cl. 59—35 16 Claims

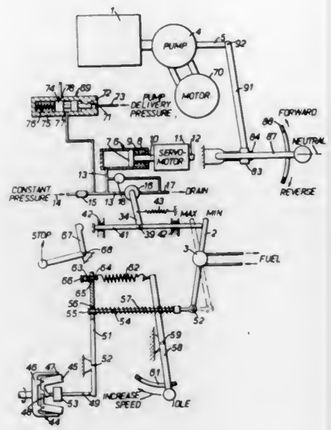


A system for inspecting and repairing lengths of chain wherein various structures are located on a portable bed such as a trailer whereby the inspection and repair means can be transported from one location to another for handling of the chain at the site of the user. The equipment on the portable bed comprises an inspection table and means for removing non-standard links. A splice welding apparatus is provided for replacing individual links, and a unique heat-treating means are provided for assuring that the proper strength level is attained for new links. Additional equipment is provided for strength-testing the lengths by pulling means and also providing non-destructive testing equipment.

3,788,063
HYDRAULIC APPARATUS

Bertram Carl Kempson, Merioneth, and James Andrew Nicholls, Cheltenham, both of England, assignors to Dowty Hydraulic Units Limited, Cheltenham, England

Filed July 3, 1972, Ser. No. 268,906
Int. Cl. F02b *41/00*
U.S. Cl. 60—19 18 Claims



This invention relates to a control system for an engine arranged to drive a load through a smoothly variable speed ratio transmission. A speed responsive member movable in accordance with engine speed operates jointly to adjust fuel flow to the engine and to control the speed ratio of the transmission. For a predetermined range of engine speeds over which the speed responsive member adjusts fuel flow to the engine to tend to maintain speed within the range the transmission is maintained at a fixed speed ratio. When the engine speed drops below a predetermined speed the speed responsive member operates to reduce speed ratio in accordance with reduction of engine speed below the predetermined speed. The predetermined range of speeds, the predetermined speed and the fixed speed ratio may each be separately adjustable.

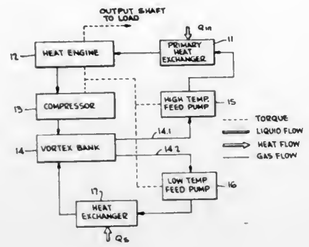
The invention may be applied to the propulsion of a vehicle such as a crawler tractor having spaced ground engaging elements individually driven by two variable speed ratio transmissions from a single engine. The speed ratios may be separately adjustable and the speed responsive member on the engine may operate jointly on the speed ratios when the speed falls below the predetermined speed to reduce the speed ratios, maintaining the selected steering proportionality between the speed ratios as they are reduced. In this way any selected steering path for the vehicle is maintained during speed ratio reduction by the engine speed responsive member.

3,788,064
SYSTEM FOR DRIVING HEAT MOTOR

Robert D. Hawkins, 2126 Raven Rd., Pleasanton, Calif.

Filed Jan. 26, 1972, Ser. No. 220,818
Int. Cl. F01k *25/00*
U.S. Cl. 60—36 19 Claims

A heat engine having a shaft output is connected to a vortex separating means, such as a bank of Ranque tubes, for deriving first and second gas flows respectively having higher and lower temperatures than input gas to the vortex separating means. The heat engine and a high temperature heat exchanger are in a first feedback loop responsive to the first gas flow. A second feedback loop, responsive to the second flow from the bank of vortex tubes, includes a low temperature heat exchanger responsive to scavenged or rejected heat of the system. The first feedback loop may include a second bank of vortex tubes which feeds hot and cold gases to a heat exchanger and vapor generator, respectively. The gases fed to the heat exchanger and vapor generator, after passing through

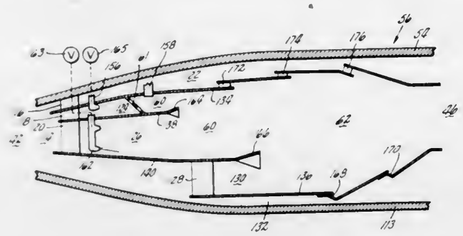


them, are condensed. The condensed gas is fed to the vapor generator and heat exchanger to the heat engine. The heat engine may be, e.g., a simple gas turbine or a compound turbine.

3,788,065
ANNULAR COMBUSTION CHAMBER FOR DISSIMILAR FLUIDS IN SWIRLING FLOW RELATIONSHIP

Stanley J. Markowski, East Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Oct. 26, 1970, Ser. No. 84,086
Int. Cl. F02c *3/00*
U.S. Cl. 60—39.02 74 Claims



The characteristics of thermodynamically and aerodynamically dissimilar fluids in swirling flow relationship are established and/or varied to accelerate mixing and hence combustion in the combustion zone and mixing and hence cooling of the products of combustion, in the dilution zone of an annular burner.

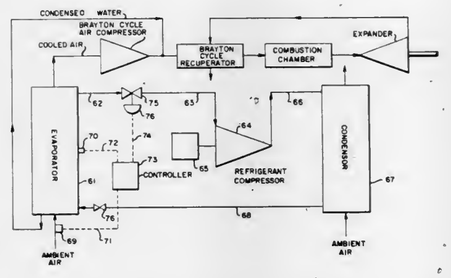
3,788,066
REFRIGERATED INTAKE BRAYTON CYCLE SYSTEM

William H. Nebgen, Woodside, N.Y., assignor to Brayton Cycle Improvement Associates, New York, N.Y.

Continuation-in-part of Ser. No. 34,717, May 5, 1970, Pat. No. 3,668,884. This application Sept. 14, 1971, Ser. No. 180,282
Int. Cl. F02g *3/00*
U.S. Cl. 60—39.05 10 Claims

In an open Brayton cycle, suction air is cooled by refrigeration to a predetermined temperature preferably to at least 50°F. below ambient air temperature. In the case of a conventional refrigeration system with refrigerant evaporation and condensation utilizes ambient air for condensation, the refrigeration is controlled to maintain a fixed temperature differential between the temperature at which the refrigerant evaporates and at which it condenses. If the temperature of the suction air is below the freezing point of water an aqueous solution of a water vapor pressure depressant such as glycol may be used under conditions which avoid, or control, freezing. This aqueous solution may be sprayed on cooling coils in indirect heat transfer or it may be cooled by circulation in indirect heat transfer and then used in direct contact to cool and condense water vapor from the suction air. The condensed water is vaporized, preferably with waste heat and injected into the compressed air stream.

The refrigeration system may be a conventional one driven by the shaft or from the power network or it may be one which is driven by a system utilizing waste heat of the Brayton cycle exhaust gases. In a conventional system, multistage refrigeration is preferred.



In the use of a solution of glycol the composition is maintained by distillation of water under pressure with utilization of the steam in the air stream between the Brayton cycle compressor and expander to improve output and thermal efficiency.

The advantages of suction air refrigeration are especially marked when in combination with regeneration in the Brayton cycle and the advantages of regeneration are greater when in combination with suction air refrigeration.

Still greater advantages result from a combination of suction air refrigeraton with both regeneration and gasification of fuels which contain sulfur and particulates.

A portion of the refrigeration capacity for suction air cooling may be used for the cooling of electric generators and transformers.

Suction refrigeration results in similar advantages when used with a closed Brayton cycle, wherein the working fluid is a dry gas, such as helium, or argon, or the like.

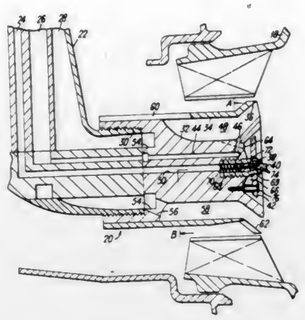
3,788,067
FUEL BURNERS

Denis Richard Carlisle, Risley, and John Joseph Nichols, Longbridge, both of England, assignors to The Secretary of State for Defense, in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, Whitehall, London, England

Filed Jan. 31, 1972, Ser. No. 221,954
Claims priority, application Great Britain, Feb. 2, 1971, 3657/71
Int. Cl. F02c *7/22*; F02g *3/00*
U.S. Cl. 60—39.74 B 3 Claims

A dual fuel burner assembly for a gas turbine engine has a fuel nozzle consisting of a central member in which ducts for the flow of liquid and gaseous fuel and a supply of air are formed and a shroud member. The outlets of the liquid fuel ducts communicate with the air supply ducts and the shroud member has a flared end formed with a number of equi-spaced slots which are aligned with the outlets of the gaseous fuel ducts. A supply of air is arranged to flow through the slots to stabilise the flow of gaseous fuel at low fuel flows.

. A heat shield is attached to the downstream face of the central member and the gap between the heat shield and the central member is in communication with the air supply ducts so that air can flow around the heat shield to prevent carbon deposition.



3,788,068

STEAM POWER PLANT, ESPECIALLY WITH A BOILING WATER NUCLEAR REACTOR

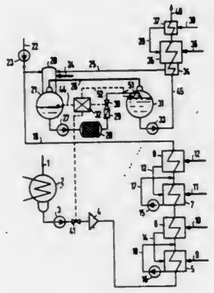
Hans-Gunter Heitmann, Buckenhof, and Fritz Kelp, Erlangen, both of Germany, assignors to Kraftwerk Union AG, Mulheim, Ruhr, Germany

Filed Mar. 17, 1971, Ser. No. 125,147

Claims priority, application Germany, Mar. 21, 1970, 2013679

Int. Cl. F22d *3/00, 11/00;* **B01d** *35/02*

U.S. Cl. 60—106 **7 Claims**



Steam power plant includes a feedwater flow path, feedwater receptacle means located in the flow path, and feedwater degassing means also located in the flow path in the vicinity of the feedwater receptacle means, the feedwater receptacle means being divided into two separate vessels connected in series in the feedwater flow path, and a precipitating device having a magnetic filter connected in the feedwater flow path between the separate vessels of the feedwater receptacle means.

3,788,069

LIQUID FUELED ROCKET ENGINE OF THE MAIN CURRENT TYPE HAVING SEPARATE CONTROL NOZZLES OPERATED FROM TURBINE EXHAUST GASES BRANCHED OFF FROM THE ROCKET PROCESS

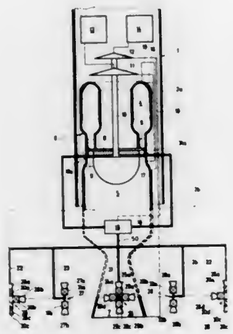
Gunther Schmidt, Ottobrunn, Germany, assignor to Messerschmitt-Bolkow-Blohm GmbH, Munchen, Germany

Filed Aug. 18, 1972, Ser. No. 281,647

Claims priority, application Germany, Sept. 8, 1971, P 21 44 819.1

Int. Cl. F02k *9/02*

U.S. Cl. 60—207 **9 Claims**



A liquid fueled rocket engine of the so-called main current type in which combustion gases are generated in a precombustion chamber and directed in series to a fuel component pump drive turbine and to a main combustion chamber for generating thrust gases, includes one or more control nozzles or control nozzle groups which are connected to receive the exhaust gases from the turbine with the addition of small partial amounts of a propellant component.

3,788,070

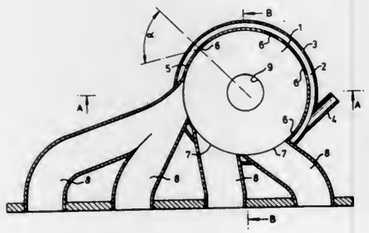
PURIFICATION OF INTERNAL COMBUSTION ENGINE EXHAUST GAS

Mario Camarasa, Ostia Lido Rome, Italy, and Bernhard Josef Kraus, Linden, N.J., assignors to Esso Research Engineering Company, Linden, N.J.

Filed June 12, 1972, Ser. No. 262,132

Int. Cl. F02b *75/10;* **F01n** *3/10*

U.S. Cl. 60—290 **13 Claims**



Thermal reactor for mitigating or eliminating pollutants in automotive exhaust gas comprising an inner reaction chamber, an outer sleeve enclosing the reaction chamber, means for supplying cool air to the annular space thus formed between the reaction chamber and the sleeve, the chamber wall being formed with longitudinal slots (parallel to the chamber's axis) which are inclined relative to their respective radii from the center of the chamber so that air enters the chamber from the annulus and some circulates generally around the interior wall of the chamber thereby to protect it from high interior temperatures. Exhaust gas is passed to one end of the chamber from exhaust conduit(s) which are inclined in the same sense as the longitudinal slots and at roughly the same angle so that vortex circulation of exhaust gas and air is promoted in the chamber. The exhaust gas/air mixture reacts in the chamber, and purified gas passes out of the chamber at the centre of the opposite end.

3,788,071

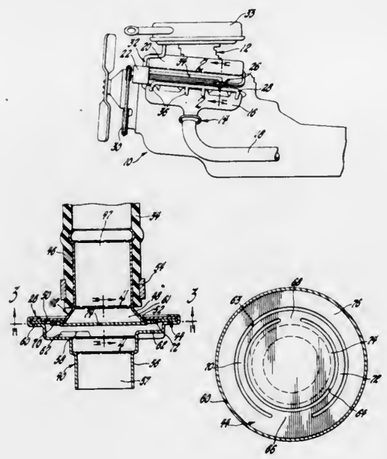
ALL-METAL CHECK VALVE FOR AIR INJECTION SYSTEM

Robert W. Brewer, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed June 29, 1972, Ser. No. 267,395

Int. Cl. F01n *3/02;* **F16k** *21/04*

U.S. Cl. 60—293 **1 Claim**



An all-metal check valve for an air injection system of an internal combustion engine includes a valve body defining a chamber between the valve inlet and the valve outlet in which a valve disc is operative to control fluid flow between an air pump and the exhaust manifolds. The valve disc has an outer ring attached to the valve body and a central valve element hingedly connected to the ring by a pair of arcuate flexible arms defined by a pair of concentric diametrically opposed C-shaped slots. The arms are normally flexed for biasing the valve element against a valve seat to block the reverse flow of exhaust gases therethrough. Injection air flow additionally flexes the arms to shift the valve element to an open position for permitting flow from the air pump to the exhaust manifolds.

3,788,072

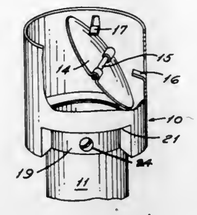
RAIN CAP FOR EXHAUST PIPE

Edgar P. Burger, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed May 3, 1972, Ser. No. 249,897

Int. Cl. F01n *7/00;* **F23l** *17/02*

U.S. Cl. 60—324 **1 Claim**



A rain cap for a vertical exhaust of an internal combustion engine is formed of an open-ended cylindrical body larger than the exhaust pipe and having a pivotally mounted cover opened by exhaust gases and closed by gravity. Portions struck from the body support it from the exhaust pipe.

3,788,073

APPARATUS FOR APPLYING A SUBSTANTIALLY CONSTANT TENSION TO AN ELONGATED MEMBER CONNECTED TO AN INSTALLATION SUBJECT TO ALTERNATING MOVEMENTS

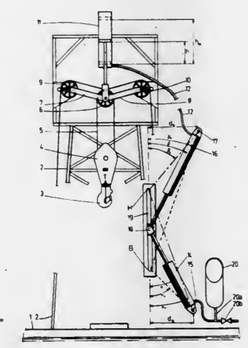
Andre Castela, Mesnil-Le-Roi, and Philippe Joubert, Meudon-La-Foret, both of France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

Filed Apr. 28, 1972, Ser. No. 248,727

Claims priority, application France, May 3, 1971, 7115911

Int. Cl. F15b *13/16*

U.S. Cl. 60—413 **1 Claim**

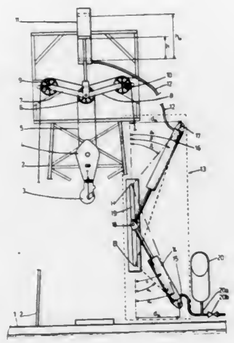


Apparatus for applying a substantially constant tension to an elongated member connected to an installation subjected to alternating movements which comprises the combination of at least one jack supporting said elongated member with regulating means located on the installation, supplying a determined working pressure with the use, as pressure source, of an accumulator delivering to a jack an auxiliary fluid under a pressure varying with the displacement of one element (piston or cylinder) of said jack, comprising at least two jacks, one of which has one element articulated to a fixed point and the other element articulated to one element of another jack through a movable articulation member compelled to be displaced along a predetermined path when one of the elements of a jack is displaced with respect to the other.

3,788,074
DEVICE SUPPLYING A WORKING FLUID UNDER A DETERMINED PRESSURE

Andre Castela, Mesnil-le-Roi, and Philippe Joubert, Meudon-la-Foret, both of France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants, Rueil-Malmaison, Hauts-de-Seine, France

Filed Apr. 28, 1972, Ser. No. 248,728
Claims priority, application France, May 5, 1971, 7115911
Int. Cl. F15b *1/02*; E21b *19/08*
U.S. Cl. 60—413 8 Claims

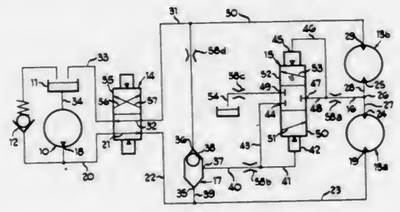


Device for supplying a working fluid under a determined pressure with the use, as pressure source, of an accumulator delivering to a jack an auxiliary fluid under a pressure varying with the displacement of one element (piston or cylinder) of said jack, comprising at least two jacks, one of which has one element articulated to a fixed point and the other element articulated to one element of another jack through a movable articulation member compelled to be displaced along a predetermined path when one of the elements of a jack is displaced with respect to the other.

3,788,075
VALVE MECHANISM

John W. Holdeman, Muncie, Ind.; Kenneth G. McMillen, deceased, late of New Castle, Ind., and Leanne S. McMillan, administratrix, Fort Wayne, Ind., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed July 13, 1972, Ser. No. 271,305
Int. Cl. F15b *11/16*
U.S. Cl. 60—424 18 Claims

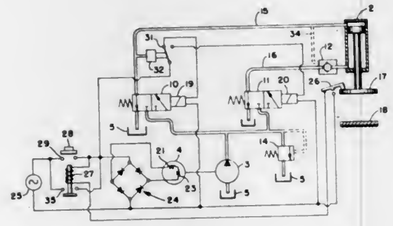


A pressure equalizer valve and reversible flow logic system are provided for reversible fluid motors that are connected in series. The pressure equalizer valve is effective to bypass a small quantity of fluid from the source of fluid pressure to the junction between the motors or from the junction between the motors to a low pressure conduit. This bypassing of fluid is effective to provide equal or proportional operating pressures across the fluid motors, to prevent cavitation of the downstream fluid motor, and to act as a fluid differential for the fluid motors when propelling a vehicle that is making a turn. The logic system provides reversible flow fluid communication between the fluid motors and the equalizer valve so that the equalizer valve functions properly when the fluid motors are reversed.

3,788,076
HYDRAULIC SYSTEM WITH SERIES WOUND PUMP DRIVE MOTOR

Zdenek J. Lansky, Solon, and Leslie M. Claar, Richmond Heights, both of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Mar. 20, 1972, Ser. No. 236,392
Int. Cl. F15b *11/04*
U.S. Cl. 60—452 6 Claims



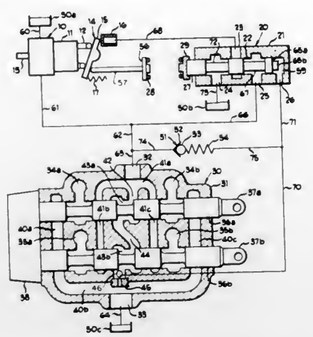
A hydraulic system for apparatus of the type wherein the load resistance during the working stroke of a fluid motor progressively increases from minimum to maximum, characterized in that a fixed displacement pump, driven by a series wound motor, which may be AC OR DC, actuates the fluid motor at high speed under low load resistance conditions (as during the return stroke or during the initial portion of the working stroke), and at progressively decreasing speed and increasing load pressure as the load resistance progressively increases during the remaining portion of the working stroke. The series wound pump drive motor operates at substantially full rated horsepower at all times such that the product of its speed S and torque T, and hence the product of the pump output flow Q and outlet pressure P is approximately equal to a constant K, that is, $QP = ST = K$.

3,788,077
OPEN CENTER CONTROL OF VARIABLE PUMPS

Raymond E. Johnson, Muncie; Wendell E. Miller, Warsaw, both of Ind.; Kenneth G. McMillen, deceased, late of New Castle, Ind., and Leanne S. McMillen, administratrix, Fort Wayne, Ind., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed July 13, 1972, Ser. No. 271,303
Int. Cl. F16h *39/46*
U.S. Cl. 60—452 20 Claims

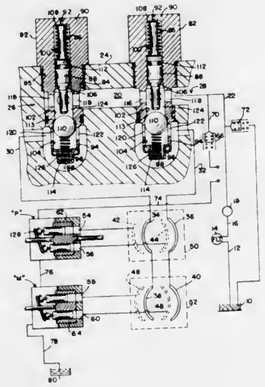
Control of the displacement of a variable displacement pump is achieved by the use of a standard opencenter type of control valve and pump displacement controls that include a sensor valve. The control functions that are achieved include system standby at low pressure and minimum displacement thereby minimizing power loss and heat rise.



3,788,078
HYDROSTATIC TRANSMISSION CHECK VALVES WITH AUTOMATIC UNLOADING

Raymond D. Rubenstein, La Grange Park, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Sept. 22, 1972, Ser. No. 291,499
Int. Cl. F16h *39/10*
U.S. Cl. 60—464 6 Claims



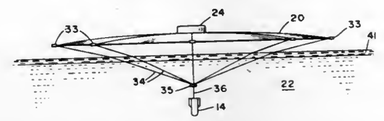
Hydrostatic transmission having a crossover which is provided with check valves. The check valves are automatically controlled by a series of power chambers that respond to different hydrostatic pressures.

3,788,079
METHOD AND APPARATUS FOR COLLECTING A FLOATING LIQUID

William P. Kirk, 22 Glenhaven Cir., Saco, and Dwight W. Reynolds, RFD 1, Box 49, Pownal, both of Maine

Filed May 26, 1972, Ser. No. 257,413
Int. Cl. E02b *15/04*
U.S. Cl. 61—1 F 13 Claims

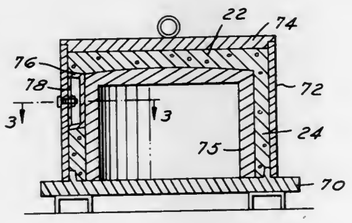
A floating liquid such as an oil spill is collected under a sheet with weighted periphery. The sheet is deployed by spreading it horizontally over the liquid surface, after which the periphery submerge, confining and centrally concentrating the liquid. The sheet retains the liquid for subsequent pumping into a vessel.



3,788,080
METHOD OF CONSTRUCTING CONCRETE MANHOLES HAVING SEALED JOINTS WITH PIPES CONNECTED THERETO

William E. Washabaugh, 5354 Hilltop Dr., and Edward Peter Washabaugh, Jr., 1701 Mosher, both of Bay City, Mich.

Filed June 16, 1971, Ser. No. 153,572
Int. Cl. E04b *1/16*
U.S. Cl. 61—2 7 Claims



A method of effecting a joint between a pipe and underground manhole walls or the like utilizes an adapter ring secured and sealed in an aperture of the manhole wall and having an internal diameter accommodating the particular diameter pipe to be sealed with a gasket surrounding the pipe and urged by a gland ring having fasteners cooperating with the adapter ring into fluid pressure sealed relation between the internal diameter of the adapter ring and a radially opposed peripheral surface of the pipe. The construction is such that a workman effecting the pipe joint may work within the safety of the manhole. The adapter rings and manholes have common matching bevelled surfaces and the adapter rings have various internal diameters such that a given manhole may be adapted to various size pipes by selecting the adapter ring having an internal diameter accommodating the particular pipe selected, thereby reducing manhole inventory.

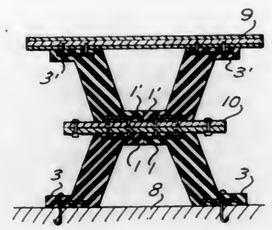
3,788,081
GROUTING COMPOSITION

Arthur Sarkisian, Cranford, and Charles F. Murphy, Morristown, both of N.J., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 284,942
Int. Cl. E02d *19/16*
U.S. Cl. 61—36 R 10 Claims

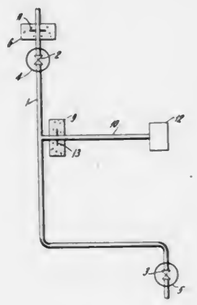
A grouting composition which, after setting, results in a grouted structure of improved dimensional and physical stability in air and of excellent stability in water comprising a mixture of (1) a gel-forming aqueous solution containing one part by weight solids content of (a) a vegetative polyphenolic material which is a tannin of the catechin or condensed type or an alkaline extract of coniferous tree barks, (b) an aldehye and (c) a water soluble catalyst and (2) from four to seven parts by weight of fly ash, or modified fly ash, having a pH of at least seven.

3,788,082
ASSEMBLED FENDER UNIT
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 23, 1969, Ser. No. 868,874
Claims priority, application Japan, May 8, 1969, 44-41695
Int. Cl. E02b 3/22
U.S. Cl. 61—48 3 Claims



The present invention relates to an assembled fender unit composed of a shock-receiver portion with a reinforcing piece embedded therein, a fixture portion with a reinforcing piece embedded therein, and an elastic intermediate section connecting the shock-receiver portion and the fixture portion with said section being inclined relative to the shock-receiver portion and the fixture portion.

3,788,083
METHOD OF FITTING PIPING FOR A HOT OR COLD FLUID
Jens Ove Lundgren, Orebro, Sweden, assignor to Rorkonsult For Fjarrvarmei Orebro AB, Orebro, Sweden
Filed Nov. 15, 1971, Ser. No. 198,644
Claims priority, application Sweden, Nov. 19, 1970, 15697/70; May 28, 1971, 6996/71
Int. Cl. F16l 27/00; F24d 3/00
U.S. Cl. 61—72.1 3 Claims



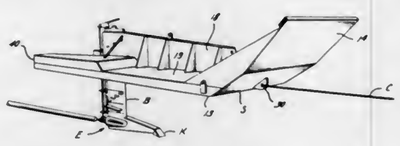
A piping for a hot or a cold fluid may be exposed to harmful stresses when the fluid in the piping changes its temperature. So-called compensators have been used for reducing said stresses. According to the invention the compensators may be omitted if the piping is heated to a temperature between its minimum and maximum operating temperature before it is fixed in the desired position.

3,788,084
RECOVERY OF MARINE PIPELINES
Jamie F. Matthews, Jr., Houston, Tex., assignor to Esso Production Research Company, Houston, Tex.
Filed June 23, 1972, Ser. No. 265,900
Int. Cl. F16l 1/00; B08b 9/04
U.S. Cl. 61—72.3 21 Claims



A liquid-filled pipeline is recovered from the bottom of a body of water by introducing gas into a submerged end of the line behind a one-way pigging device until a section of the line at least sufficiently long to reach to the surface of the body of water has been substantially voided of liquids and thereafter lifting the end of the pipeline to the water's surface. The procedure disclosed often reduces substantially the amount of liquid that must be removed from the line to permit lifting of the pipe without danger of buckling.

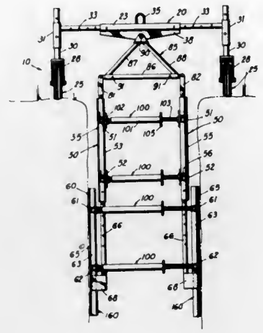
3,788,085
METHOD AND APPARATUS FOR LAYING A PIPE LINE
Robert E. Holberg, 608 W. Bough Lane, Houston, Tex.
Filed Dec. 6, 1971, Ser. No. 205,210
Int. Cl. E02f 5/02
U.S. Cl. 61—72.4 5 Claims



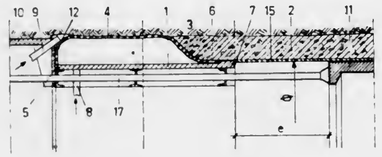
The present invention relates to a method and apparatus for laying a pipe line including a weighted sled having a vertical blade extending therebelow with an extruder cone affixed to its lower end for forming a subterranean tunnel for receiving a pipe. The blade is provided with a plurality of spaced jet nozzles connected to a fluid manifold for providing high pressure jet streams adjacent the leading edge of the blade to facilitate movement of the blade through earthen formations. Also, the blade is provided with a plurality of spaced inclined elevator devices for urging the soil adjacent the blade upwardly as the blade moves therethrough to relieve the soil adjacent the extruder cone and thereby facilitate formation of the tunnel passage therethrough. The method of the present invention includes treating the interior of the tunnel with a weighted low friction coefficient fluid or aqua gel to lubricate the passage to facilitate insertion of the pipe into the tunnel without damaging the coating on the pipe.

3,788,086
PROTECTIVE BARRIER
James I. West, Jr., Jonesboro, Ga., assignor to Charter Enterprises, Inc., Jonesboro, Ga.
Filed Apr. 13, 1972, Ser. No. 243,769
Int. Cl. E21d 19/00
U.S. Cl. 61—41 A 9 Claims

A barrier for use in protecting workmen against a cave-in while working in a trench, including a pair of spaced upright wall means defining a protective area in which workmen can work. The barrier includes a wheel supporting carriage operable for suspending the spaced upright wall means in a trench so that the wall means can be advanced to selected working positions along the trench. Adjustable strut means is connected between the spaced upright wall means so that the spacing can be adjusted, with the strut means being operable for maintaining the wall means in a set horizontal by spaced relationship during a working operation. The spaced upright wall means includes a plurality of selectively removable sections operable for increasing or decreasing the effective dimensions of the wall means so that the barrier can be utilized in a number of trenches of varying depths.



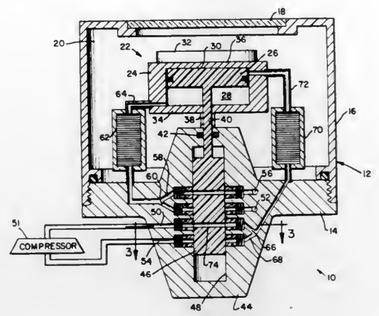
3,788,087
METHOD AND APPARATUS FOR USE IN TUNNELLING
Pierre Patin, 58, rue de Sevres, Boulogne-sur-Seine, France
Filed Apr. 25, 1972, Ser. No. 247,363
Int. Cl. E21d 19/04
U.S. Cl. 61—84 15 Claims



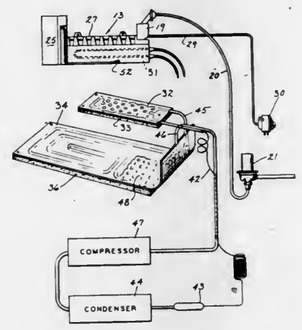
During tunnelling the terrain is supported by an annular fluid mass under pressure moved either continuously or stepwise. A lining compound is introduced outside the fluid mass and sets to form a tube. The tube may then be internally coated.

3,788,088
DOUBLE ACTING EXPANDER ENDING AND CRYOSTAT
Axel G. Dehne, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Claims priority, application France, May 6, 1971, 71.16398
Filed Nov. 29, 1972, Ser. No. 310,301
Int. Cl. F25b 9/00
U.S. Cl. 62—6 8 Claims

Double-acting expander engine minimizes shuttle losses by having a cylinder at low temperature along its entire length, and minimizes pumping losses by requiring only a thin piston and minimizes conduction losses by providing a thin piston rod. Refrigeration capacity is approximately doubled by the double-acting configuration.



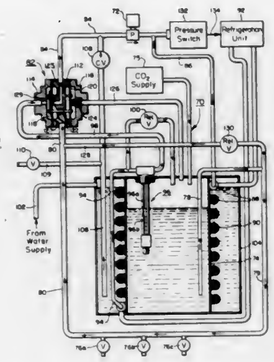
3,788,089
COMBINATION ICE CUBE MAKER AND REFRIGERATOR
Richard A. Graves, Menomonee Falls, Wis., assignor to U-Line Corporation, Milwaukee, Wis.
Filed Nov. 8, 1971, Ser. No. 196,498
Int. Cl. F25c 1/04
U.S. Cl. 62—137 9 Claims



A combination ice cube maker and refrigerator includes an insulated compartment having an open front normally closed by a door. An automatic ice cube maker unit is disposed in an upper corner of the compartment and a freezer zone is defined about the ice maker by an L-shaped bracket, the horizontal portion of which defines a shelf and an upright portion of which defines a vertical divider. The refrigerator zone is below and to one side of the bracket. A first stage evaporator is disposed beneath and against the ice cube mold of the automatic ice cube maker unit and a second stage evaporator is positioned above the shelf portion of the bracket and defines a platform for a container which holds ice cubes ejected from the ice cube maker unit. The first stage evaporator is insulated from the freezer zone and the second stage evaporator is partially insulated from the shelf portion of the bracket. The shelf portion of the bracket has a series of openings which permit a controlled passage of cold air to the refrigerator zone beneath the shelf, and the upright portion of the bracket is provided with openings adjacent its top for the circulation of warmer air

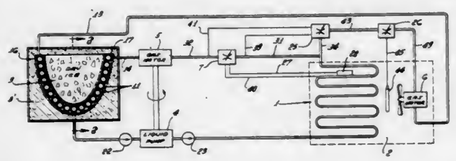
from the refrigerator zone to the freezer zone. The operation of the refrigeration system which includes the evaporators and the operation of the ice cube maker unit is controlled by a single thermostatic switch which senses the temperature in the mold of the ice maker.

3,788,090
FLUID CONTROL SYSTEMS
George B. Richards, Lake Forest, Ill., assignor to Fluid Device Corporation, Highland Park, Ill.
Division of Ser. No. 840,119, June 19, 1969, and a continuation-in-part of Ser. No. 724,385, April 26, 1968, abandoned. This application Apr. 5, 1972, Ser. No. 241,152
Int. Cl. F25c *1/00*
U.S. Cl. 62—139 7 Claims



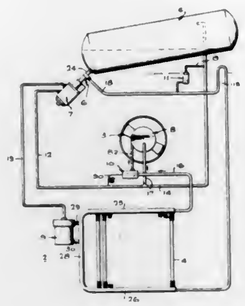
Temperature control of fluid flowing within a system is accomplished by sensing a change in fluid pressure loss in the system, as occurs on transition of the fluid in state, e.g., from liquid to solid or gas, or vice versa. In the preferred form, a refrigeration means cools fluid flowing through a conduit within the system. A pressure responsive control includes a pressure sensor coupled to the conduit for detecting a change in pressure loss attendant a change in fluid state and a signal developing element for regulating operation of the refrigeration unit according to the sensed pressure change.

3,788,091
THERMODYNAMIC CYCLES
David T. Miller, Torrance, Calif., assignor to Statham Instrument, Inc., Oxnard, Calif.
Continuation-in-part of Ser. No. 75,337, Sept. 25, 1970, Pat. No. 3,693,370. This application Aug. 12, 1971, Ser. No. 166,316. The portion of the term of this patent subsequent to Sept. 26, 1989, has been disclaimed.
Int. Cl. F25b *25/00*
U.S. Cl. 62—175 23 Claims



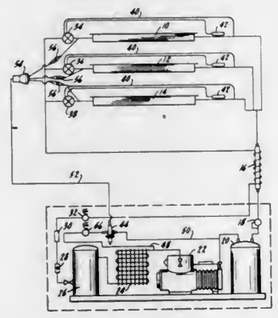
This invention relates to thermodynamic cycles operating between two levels of subatmospheric temperature, whereby power is generated and/or refrigeration obtained, in which a heat transfer liquid is employed having a relatively high vapor pressure at atmospheric temperature.

3,788,092
THERMODYNAMIC CYCLES
David T. Miller, Port Hueneme, Calif., assignor to Statham Instruments, Inc., Oxnard, Calif.
Continuation-in-part of Ser. Nos. 75,337, Sept. 25, 1970, Pat. No. 3,693,370, and Ser. No. 166,316, Aug. 12, 1971. This application July 18, 1972, Ser. No. 270,568The portion of the term of this patent subsequent to Sept. 26, 1989, has been disclaimed.
Int. Cl. F25b *25/00*
U.S. Cl. 62—175 10 Claims



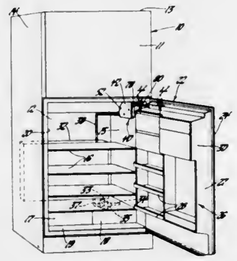
This invention relates to thermodynamic cycles operating between two levels of subatmospheric temperature, whereby power is generated and/or refrigeration obtained, in which a heat transfer liquid is employed having a relatively high vapor pressure at atmospheric temperature.

3,788,093
HOT GAS BYPASS SYSTEM FOR A REFRIGERATION SYSTEM UTILIZING A PLURALITY OF EUTECTIC PLATES
William E. Lauterbach, Evanston, Ill., assignor to Dole Refrigeration Company, Chicago, Ill.
Filed Apr. 21, 1972, Ser. No. 246,158
Int. Cl. F25b *41/00*
U.S. Cl. 62—200 1 Claim



A refrigeration system includes a plurality of hold-over plates of the type in which an eutectic is frozen by the use of a circulating refrigerant. The hold-over plates are in a closed refrigeration circuit with a compressor, condenser and receiver. In order to provide continuous compressor operation at the lowest safe suction pressure after the eutectic is frozen, there is a hot gas connection between the compressor output and the plate input to bypass compressor discharge gas through each plate. This increases the velocity of the refrigerant flowing through the plates, as well as insuring that the evaporating pressure of the refrigerant does not go below a predetermined minimum danger point. Instead of operating below the minimum danger point or shutting off on low-pressure cut-out, the compressor continues to operate at an acceptable suction pressure to effectively reduce the temperature of air and product within the space being refrigerated.

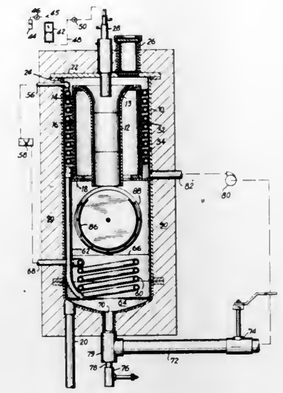
3,788,094
WATERLINE RETRACTOR FOR REFRIGERATOR CABINET
Louis D. Benasutti, Fairborn, and Joseph D. Chernek, Springfield, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 1, 1972, Ser. No. 311,309
Int. Cl. F25d *23/12*
U.S. Cl. 62—339 5 Claims



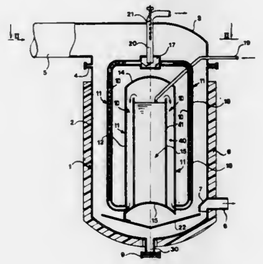
A refrigerator cabinet having a cold water service area located in the exterior of the door having a water line leading from a cold water storage tank within the cabinet to a dispensing valve in the service area. A water line retractor mechanism is positioned within the refrigerator cabinet and includes a water line takeup reel resiliently biased in a retracted position allowing the water line to slide into and out of the cabinet without undue wear or crimping when the door is opened and closed.

3,788,095
SPRAY-FREEZING APPARATUS AND METHOD
James L. Murphy, Jr.; Garland K. Grace, and Rudy E. Rogers, all of Huntsville, Ala., assignors to Thiokol Chemical Corporation, Bristol, Pa.
Filed May 25, 1971, Ser. No. 146,651
Int. Cl. F25c *1/00*
U.S. Cl. 62—347 10 Claims

An apparatus and method are disclosed for forming fine frozen particles of a solution by using a refrigerated liquid coolant in which the solution is insoluble and the coolant is continuously supplied to a downwardly sloping plate to form a thin film of coolant on a surface of the plate and a nozzle is positioned to spray droplets of the solution against the thin film of coolant whereby the spray droplets of said solution are frozen by the coolant.



3,788,096
CRYOGENIC GAS TRAPS
Jacques Brilloit, Grenoble, France, assignor to L'Liquide Societe Anonyme pour L'Etude et L'Exploitation des Procedes Georges Claude, Paris, France
Filed July 12, 1972, Ser. No. 271,166
Claims priority, application France, July 16, 1971, 7126161
Int. Cl. B01d *5/00*
U.S. Cl. 62—55.5 7 Claims

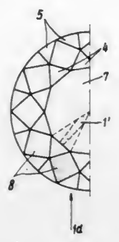


In a cryogenic gas trap for separating out at least one constituent from a flow of gas, the coefficient of exchange between a condensation surface and a cryogenic fluid which cools said surface is substantially improved by utilizing said fluid in the two-phase gas-vapour form. The gas trap comprises a first condensation surface formed by a nest of vertical metallic tubes arranged around ant at a distance from a second condensation surface constituted by a casing 12, in the interior of which is arranged a tank 15 containing the cryogenic liquid. The tubes communicate at one extremity with an annular conduit comprised between said casing and said tank, and at the other extremity with a manifold 17. The trap may be utilized in the general field of industrial vacuum: metallurgy under vacuum, metallization, distillation and vaporization under vacuum, drying under reduced pressure.

3,788,097
BRILLIANT HAVING PLURAL RINGS OF FACETS, EACH HAVING AN ODD NUMBER OF FACETS

Maximo Elbe, Hamburg, Germany, assignor to Firma Colorant Schmuckstein G.m.b.H., Hamburg, Germany

Filed Mar. 30, 1971, Ser. No. 129,421
Int. Cl. A44c 17/00
U.S. Cl. 63—32 5 Claims

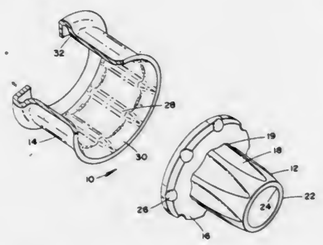


A brilliant gem having upper and lower facets which are inclined to a girdle plane and formed by lateral surfaces of pyramids. The angle between the lower facets and the girdle plane ranges from 37° to 45°, and is selected such that emerging light is dispersed in a dispersion angle of from 1° 20 minutes to 12° 57 minutes. The gem is also provided with a second plane parallel to the girdle plane, and contains an odd number of upper and lower facets in a ring of facets circling the gem.

3,788,098
END CAP FOR FLEXIBLE SHAFT COUPLINGS AND METHOD

Arthur W. Miller, Golden; Robert E. Stuemky, Elizabeth, and George E. Morse, Denver, all of Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed July 12, 1972, Ser. No. 271,096
Int. Cl. F16d 3/28
U.S. Cl. 64—11 R 10 Claims



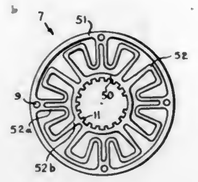
An end cap for flexible shaft couplings of the tubularly shaped flexible element type that includes a flanged tapered hub having a plurality of axial grooves, and a corrugated outer sleeve axially aligned with the hub and having an end portion attached to the flange.

3,788,099
FLEXIBLE COUPLING

Donald L. Miller, Horseheads, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed June 30, 1971, Ser. No. 158,352
Int. Cl. F16d 3/06
U.S. Cl. 64—12 3 Claims

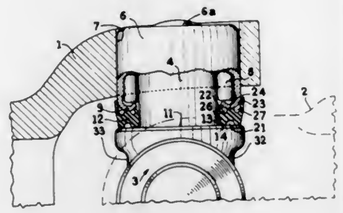
A flexible coupling for transmitting torque from an axially movable rotary driving member to a coaxially arranged rotary driven member. The coupling has an inner ring, an outer ring, and a plurality of generally S-shaped interconnecting resilient arms which permit axial flexibility while simultaneously providing reasonably stiff bi-directional torque transmission. The S-shaped arms automatically compensate for any radial lengthening of the coupling that occurs when the driving member moves axially relative to the driven member during torque transmission.



3,788,100
SEALING DEVICE FOR A UNIVERSAL JOINT

Alfred Pitner, Paris, France, assignor to Nadella, Rueil-Malmaison, France

Filed Jan. 14, 1972, Ser. No. 217,901
Claims priority, application France, Feb. 1, 1971, 7103272
Int. Cl. F16d 3/26
U.S. Cl. 64—17 A 23 Claims



Sealing device for a universal joint comprising a sealing ring of elastomer extending around each trunnion and compressed between a shoulder of the trunnion and the needle retaining flange of a needle bearing interposed between the trunnion and a bore of the yoke branch. Each ring has two concentric annular portions which are in sliding sealing contact with the flange and are separated by at least one continuous groove whereby a suction effect is created between the sealing ring and the flange.

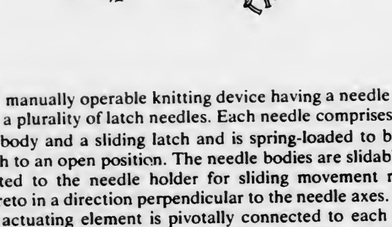
3,788,101
PATTERN DISC FOR TUBULAR MULTIPLE-DROP KNITTING MACHINES

Paolo Orizio, Via Statale per Iseo, Rodengo-Saiano, Italy

Filed Dec. 20, 1971, Ser. No. 209,950
Claims priority, application Italy, Oct. 16, 1971, 5220/71
Int. Cl. D04b 15/76
U.S. Cl. 66—50 A 7 Claims

The improved pattern disc of the knitting machine of the invention, wherein a pattern disc is circularly operative about a central hub, comprises a pair of jacks positioned within each radially inclined slot of the disc and capable of being positioned in either working or idle position without removal of the jacks and repositioning the same.

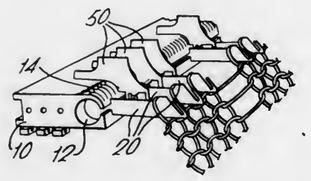
The pair of jacks are superimposed to each other, the upper having an intermediate tappet and a lower discharge slot and the lower jack having an intermediate tappet in juxtaposition with said discharge slot and a terminal tappet. The greater length of the lower jack with respect to the upper one and the greater width of the discharge slot with respect to its opposite tappet permit the independent radial displacement of the jacks without need of removal when the weft of the knitting fabric is altered in design.



3,788,102
HAND KNITTING DEVICE

Lilian Richardson, 1616 Pendrell St., Vancouver, B. C., Canada

Filed Nov. 3, 1972, Ser. No. 303,643
Claims priority, application Canada, Nov. 29, 1971, 128834
Int. Cl. D04b 7/00
U.S. Cl. 66—60 13 Claims

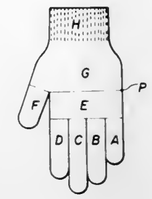


A manually operable knitting device having a needle holder and a plurality of latch needles. Each needle comprises a needle body and a sliding latch and is spring-loaded to bias the latch to an open position. The needle bodies are slidably connected to the needle holder for sliding movement relative thereto in a direction perpendicular to the needle axes. A needle actuating element is pivotally connected to each needle latch and is slidable therewith with respect to the needle body. Each needle body and the associated actuating element are provided with cooperating catch members which, when engaged, cooperate to hold the needle latch in a closed position against the biasing spring force. The needle holder is provided with a plurality of notches defining needle holding positions, and each needle actuating element has thereon a projection adapted to be engaged within one of the notches when the needle latch is in its open position. When engaged, the notch and projection elements prevent the needles from sliding relative to the needle holder.

3,788,103
METHOD OF KNITTING GLOVES

Fujio Asai, Anjo, Japan, assignor to Kabushiki Kaisha Matsuya Tekkoshe, Anjo-shi, Aichi, Japan

Continuation-in-part of Ser. No. 117,455, Feb. 22, 1971, abandoned. This application Nov. 13, 1972, Ser. No. 306,048
Int. Cl. D04b 7/34
U.S. Cl. 66—65 3 Claims

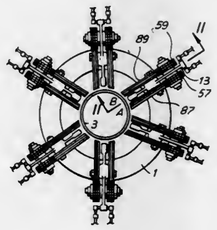


A glove is knitted with a continuous knitting thread by a knitting machine in such a way that the pockets for the little, ring, middle and index fingers are each formed starting at that corner of the tip of each pocket located on the side closer to the outer side of the little finger, that the knitting-ends at the base of the pockets for the little, ring and middle fingers and of the intermediate body portion are each positioned at that corner located on the side same as that mentioned above, that the knitting end of the final course of each of the index finger and thumb pockets is positioned on the side opposite to the aforesaid knitting-end locations, and that the pockets for the ring, middle and index fingers are knitted by coupling -- in superposed relation -- two to three stitches of the base of their preceding adjacent finger pocket to the same number of stitches of the base of the adjacent finger pocket respectively. This new knitting method permits full automatic knitting of gloves without requiring any manual stitching or drawing-in of the leading end of the thread and obviates the development of wide-looped stitches at the joints of pockets.

3,788,104
YARN CHANGER FOR MULTI-FEED CIRCULAR KNITTING MACHINES

Giorgio Billi, Fierenze, Italy, assignor to G. & C. Billi S.p.A., Firenza, Italy

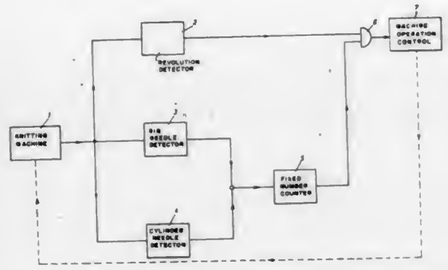
Filed Jan. 15, 1971, Ser. No. 106,767
Claims priority, application Italy, Apr. 10, 1970, 9445 A/70
Int. Cl. D04b 15/58
U.S. Cl. 66—138 1 Claim



A yarn changer for use upon a multi-feed circular knitting machine to present yarns to the needles of the machine at each of two adjoining feeds thereof, the yarn changer having a set of pivotally mounted yarn guides and a related indexable yarn guide control drum for each of the feeds; the sets of yarn guides being disposed on opposite sides of a central base support and pivotally supported on a first common shaft sup-

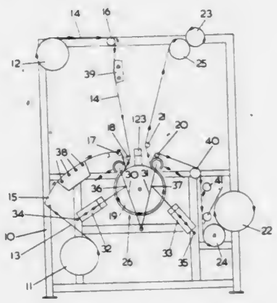
ported by, and extending outwardly, from both sides of the base, and the yarn guide control drums being disposed on opposite sides of the base and rotatably supported on a second common shaft, supported by, and extending outwardly from, both sides of the base.

3,788,105
NEEDLE MONITORING DEVICE FOR CIRCULAR KNITTING MACHINES
Peter Brose, Wolfratshausen, Germany, assignor to Firma Erwin Sick, An der Allee, Germany
Filed Mar. 8, 1972, Ser. No. 232,712
Int. Cl. D04b *35/10*
U.S. Cl. 66—157 **2 Claims**



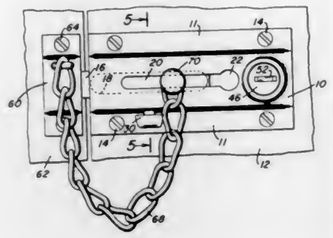
A needle monitoring device for circular knitting machines comprises a sensing device for detecting the needles moving past said sensing device and for generating an impulse for each detected needle, a preselection counter pre-set to the correct number of the needles, and a feeler detecting start and end of each machine revolution. A logic circuit receives signals from said preselection counter and said feeler and delivers a warning signal when the pre-set number has not been reached after one revolution of the machine.

3,788,106
APPARATUS FOR PRINTING ON TEXTILE FABRIC
Harry Edward True, Leicester, England, assignor to Harrico Developments Limited, Leicester, England
Filed Dec. 6, 1971, Ser. No. 205,006
Claims priority, application Great Britain, Dec. 9, 1970, 58427/70; May 13, 1971, 14860/71
Int. Cl. B44c *1/00*; **D06p** *7/00*; **B41m** *5/26*
U.S. Cl. 68—5 D **12 Claims**



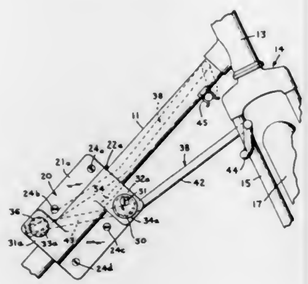
Printing of patterns on a textile fabric is performed by passing the fabric in continuous length together with a superposed heat activatable printing web around an arc of the periphery of a driven heated calender roller whilst being pressed against the roller around said arc by a stationary yieldable presser pad of complementary shape faced with heat resistant and substantially frictionless material, such as P.T.F.E. The invention provides apparatus for performing this procedure and also specially constructed presser pads.

3,788,107
DOOR LOCK
Aaron H. Lippman, Rochester, N.Y., assignor to Brainerd Manufacturing Co., Rochester, N.Y.
Filed June 9, 1972, Ser. No. 261,228
Int. Cl. E05b *65/06*; **E05c** *17/36*
U.S. Cl. 70—93 **3 Claims**



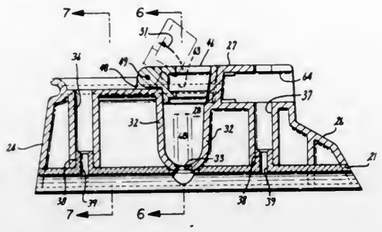
This is a three in one lock having a sliding bolt adapted to be engaged in a keeper, and having a keyed tumbler operated detent for locking the bolt against withdrawal from the keeper and for locking the bolt in released position, and having a headed pin which can be used as a chain door guard and which for this purpose is adapted to be inserted in an elongate slot in the bolt and which is secured to one end of a chain that is fastened at its other end to the keeper.

3,788,108
LOCK FOR WHEELED VEHICLE
Sterling E. Norcross, 19 Osborne St., Bloomfield, N.J.
Filed July 25, 1972, Ser. No. 274,861
Int. Cl. B62h *5/06*
U.S. Cl. 70—233 **7 Claims**



A device for holding at least one wheel assembly on a vehicle transverse to the longitudinal line of the frame of the vehicle has a support means connected to the frame on which is pivotly mounted an elongated locking bar movable from a disengaged position to a position of engagement with the wheel assembly. A locking assembly spaced from the pivotable connection of the locking bar includes, latching means to releasably hold the locking bar in the engaged position until the latching means is released. The latching means is operatively associated with a lock means for releasing the locking bar from the engaged position.

3,788,109
VEHICLE SECURING DEVICE
Gerald H. Lane, 1350 Holiday Lane No. 240, Fairfield, Calif.
Filed Dec. 5, 1972, Ser. No. 312,301
Int. Cl. E05b *71/00*; **B62h** *5/16*
U.S. Cl. 70—234 **4 Claims**



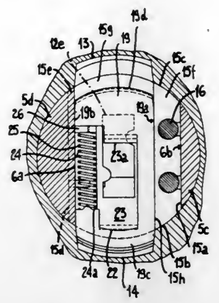
A vehicle securing device for attachment to the perimeter of a spoked vehicular wheel houses a bicycle lock, shielding it from tampering and disabling the wheel from rolling action.

3,788,110
PIN-TUMBLER LOCK CYLINDER
Kazuhiro Sugae, Osaka, Japan, assignor to Showa Sargent Ltd.
Filed Dec. 9, 1971, Ser. No. 206,397
Claims priority, application Japan, Dec. 9, 1970, 45/123514; Dec. 9, 1970, 45/123515
Int. Cl. E05b *27/06*
U.S. Cl. 70—358 **2 Claims**

A lock cylinder is formed having a plurality of projections extending from the periphery of its body in radial directions and having a plurality of pin bores spaced apart by a predetermined distance. The pin bores extend to a keyway in a rotatable barrel housed in the body. Tumbler pins, driver pins and springs are inserted in a desired number of selected pin bores, whereby the lock cylinder is adapted for a vast number of different locking combinations. The rear end of the barrel incorporated in the lock cylinder extends outward from the body of the lock cylinder. Within the keyway, at the extension thereof, there is provided a slidable locking plate which is usually urged by a spring into engagement with a latch portion formed in the body to prevent the rotation of the barrel. The locking plate thus serves as a pick-proof means and is freed from locking engagement when a key is inserted into the keyway and acts as an actuating member for the locking mechanism when the barrel is rotated.

3,788,111
KEYLOCK
Roger Ernest Parlier, Villa Prelac, Perroy, Switzerland
Filed Feb. 8, 1972, Ser. No. 224,534
Claims priority, application Switzerland, Feb. 24, 1971, 2636/71
Int. Cl. E05b *15/14*, *29/02*
U.S. Cl. 70—364 R **4 Claims**

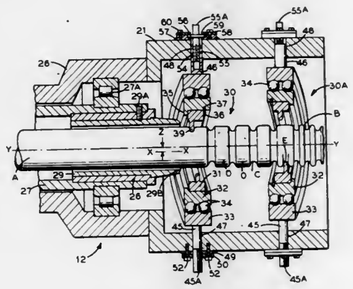
A lock of the pin tumbler type having locking blades within a rotating cylinder. The locking blades extend on both sides of the cylinder and lock the cylinder against rotation when the key is withdrawn. Locking grooves in the frame receive the blades to prevent rotation. The locking edges of the blades, and the groove edges, are inclined slightly from the axis motion of the blades so that, in the locking position, the edges of the blades are wedged against the groove edges, preventing even the slightest rotation of the cylinder.



3,788,112
MECHANICAL SHAPING
Jack M. Beigay, Freeport; Edward G. Choby, Jr., Pittsburgh, both of Pa., and Joseph S. Kaferle, Ashtabula, Ohio, assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 25,589, April 3, 1970, abandoned. This application Mar. 10, 1972, Ser. No. 233,783
Int. Cl. B21c *3/14*, *23/24*; **B21j** *3/00*
U.S. Cl. 72—46 **18 Claims**

A method of mechanically shaping a metallic object, which comprises the steps of, coating a metallic object with a ductile, polyvinyl acetate and/or polyvinyl alcohol, non-metallic polymer base material having a maximum thickness of 0.1 mil, and increasing the length of the coated metallic object while simultaneously reducing its cross-sectional area with a former which substantially surrounds its perimeter.

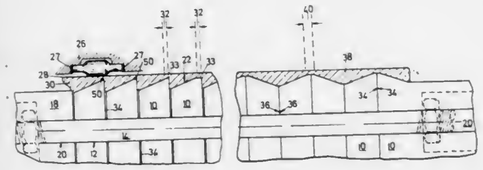
3,788,113
PROCESS AND APPARATUS FOR FORMING ANNULAR CORRUGATIONS IN METAL TUBING
Helmut Martin, Hannover, Germany, assignor to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
Filed Dec. 2, 1971, Ser. No. 203,953
Claims priority, application Germany, Dec. 5, 1970, 2060024
Int. Cl. B21d *15/06*
U.S. Cl. 72—77 **4 Claims**



A process and apparatus for forming annular corrugations in metal tubing, wherein a pair of corrugating die holders each carrying a corrugating die, are arranged in tandem relation; the metal tubing moving longitudinally for successive engage-

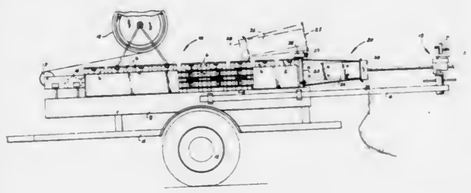
ment of the corrugating dies therewith to form successive sets of corrugations in the tubing, the corrugations of one set of corrugations alternating with corrugations of the other set of corrugations, whereby to maximize the speed of production of the corrugated tubing.

3,788,114
APPARATUS FOR AND METHOD OF ROLLING ARTICLES
Jacob Marcovitch, Johannesburg, South Africa, assignor to Rotary Profile Anstalt, Vanduz, Liechtenstein
Continuation of Ser. No. 2,060, Jan. 12, 1970, abandoned. This application Oct. 8, 1971, Ser. No. 187,860
Int. Cl. B21d *22/16*
U.S. Cl. 72—83 **6 Claims**



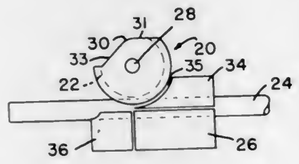
This invention relates to methods and apparatus for forming annular articles such as the outer bearing races for taper roller bearings which are profiled internally and in a radial plane of the members. The material is rolled on to a multipart mandrel and is cut therefrom. The mandrel parts are removed individually.

3,788,115
EXTENSION FOR A MOBILE CONTINUOUS SIDING MACHINE
Glen E. Beymer, 83363 N. Enterprise, Creswell, Oreg.
Filed Nov. 3, 1972, Ser. No. 303,381
Int. Cl. B21d *5/08*
U.S. Cl. 72—181 **4 Claims**



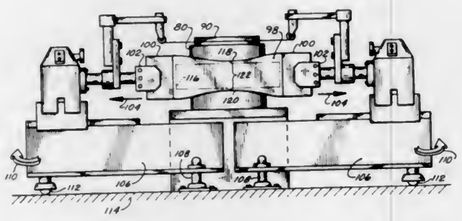
An extension embodying a plurality of roll sets which may be swung into alignment with the rolls of a supporting siding machine to modify siding discharged by the machine. A framework of the extension is swingably mounted on the siding machine and rotatably supports a series of roll sets which progressively modify the siding passing along the framework. Locking means secures the extension in place, while adjustment means assures proper alignment of the extension and roll sets therein with the siding discharged by the machine proper. The machine proper is returned to its original configuration by simple repositioning of the extension away from the path of the siding.

3,788,116
TAILPIPE FORMING MECHANISM
Raymond John Fazzani, Pawtucket, R.I., assignor to The Torrington Company, Torrington, Conn.
Filed Sept. 8, 1971, Ser. No. 178,631
Int. Cl. B21d *7/00*
U.S. Cl. 72—296 **2 Claims**



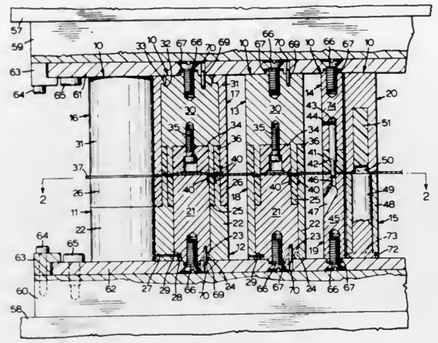
A forming die is described for producing compound bends in tubing without removal from the machine or the use of special fixtures. This arrangement is achieved by providing cut-away sections for clearance of the compound bend adjacent to the die.

3,788,117
METHOD OF FORMING HONEYCOMB
Frank S. Chester, Laguna Beach; Claude O. Johnson; Ira Keith Kavanagh, both of Fullerton, and Leonard R. Van Horik, Long Beach, all of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed June 19, 1972, Ser. No. 263,861
Int. Cl. B21d *11/02*, *47/00*
U.S. Cl. 72—296 **6 Claims**



A method of stretch forming arcuate lightweight, rigid, honeycomb-type panels by providing uniform controlled elongation of both skins of the panel being formed instead of stretching the outer skin while compacting the inner skin in forming the curved surface.

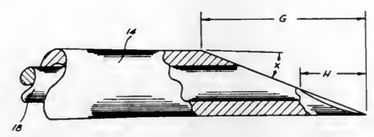
3,788,118
APPARATUS FOR PERFORMING FABRICATING OPERATIONS ON SHEET MATERIAL, AND A COMBINATION OF PUNCH AND DIE MEMBERS FOR INCORPORATION IN SUCH APPARATUS
Eugene Stephen Joseph, 120 Newport Ave., Scarborough, Ontario, Canada
Filed Dec. 30, 1971, Ser. No. 213,967
Int. Cl. 83 *695*; **B21d** *43/28*
U.S. Cl. 72—324 **24 Claims**



A press apparatus for forming knock-outs in sheet metal panels to be subsequently formed into electrical enclosures, in which the apparatus comprises a plurality of pairs of punch and die members with the punch and die members of each pair thereof being complementary. Each of these punch and die members is removably mounted in the apparatus by means of a screw-threaded member which is centrally located relative to the associated punch or die member and is disposed through a locating spigot which is presented by the punch or die member and is located within a complementary recess provided in the apparatus, at least some of these punch and die members each being further removably mounted in the apparatus by means of an anti-rotation locking pin which is disposed partially within a recess in the associated punch or die member and partially within a bore provided in the apparatus. The dimensions of and spacing between the screw-thread member and the anti-rotation locking pin by which each of the appropriate punch and die members are removably mounted in the apparatus are the same, so that the pairs of punch and die members, which are of different dimensions, may be removed and re-mounted in the apparatus in different positions, the screw-threaded member and anti-rotation locking pin by which each appropriate punch and die member is removably mounted in the apparatus being wholly within the periphery of said member as viewed in the direction in which said punch or die member and the other member of the appropriate pair thereof are operatively movable towards and away from one another, so that the punch and die members of adjacent pairs thereof may be disposed in contacting relationship with one another.

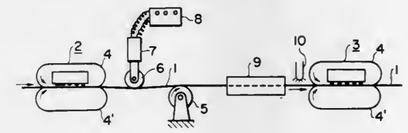
3,788,119
METHOD OF FORMING SPINAL NEEDLE
Anthony L. Arrigo, Libertyville, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Aug. 17, 1972, Ser. No. 281,573
Int. Cl. B21g *1/08*
U.S. Cl. 72—324 **5 Claims**

The present application discloses a procedure for forming a beveled tip on a needle assembly including a cannula and an obturator. The assembly is subjected to a swaging or drawing operation for drawing the cannula inner wall into substantial contact with the obturator thereby to frictionally immobilize the latter. In this condition the assembly is provided with a tip. Tipping results in the reduction of gripping friction so that the



obturator may be released. The procedure provides an assembly having no appreciable clearance or mismatch between cannula and obturator thereby to substantially reduce incidence of coring of tissue being punctured.

3,788,120
APPARATUS FOR HOT-STRETCHING STEEL WIRE AND CABLE
Keinosuke Takeo, Osaki; Tomoaki Katsumata, and Akimitsu Hijikata, both of Itami, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Aug. 7, 1972, Ser. No. 278,323
Claims priority, application Japan, Aug. 7, 1971, 46/70839
Int. Cl. B21f *9/00*
U.S. Cl. 72—342 **2 Claims**

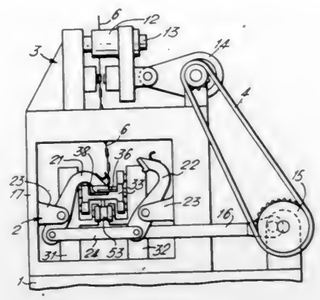


A pair of spaced caterpillars along a moving direction of steel wire or steel cable to be stretched, comprises a pair of chain-rollers which compressively contact each other and rotate in opposite directions. A heating apparatus is disposed between the caterpillars and a cooling apparatus is also disposed at another position between the caterpillars. One caterpillar is disposed forwardly of the other caterpillar in the moving direction of the steel wire or cable and driven at a higher velocity than that of the other caterpillar so that a predetermined tension is applied on the moving steel wire or cable between the caterpillars. Each chain-roller of the pair includes holder members which are provided in facing relation to and urged, under liquid pressure, against those of the other chain-roller. Each of the holder members has an upper part holding the steel wire or steel cable and a lower part connected to the chain-roller, the parts being formed of metal, and the upper part is supported by the lower part through a resilient plate.

3,788,121
APPARATUS FOR PRODUCING FOLDED STRIP MATERIAL
John Massey Trihey, Balwyn, Victoria, Australia, assignor to Vulcan Australia Limited, Burwood, Victoria, Australia
Filed Sept. 14, 1971, Ser. No. 180,438
Claims priority, application Australia, Sept. 14, 1970, 2511
Int. Cl. B21d *13/02*
U.S. Cl. 72—381 **13 Claims**

Apparatus for forming zig-zag folded strip in which the strip is folded about anvil plates by means of alternately acting fold-

ing dies. Two anvil plates are provided and are moved into and out of position in synchronism with successive folding operations of the folding dies. The movement of the anvil plates is effected in a direction transverse to the plane of the strip.

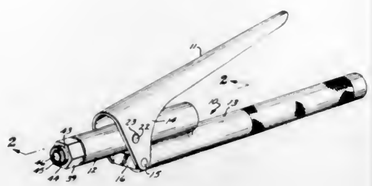


3,788,122
BENDING MACHINE FOR WIRE OR STRIP
Josef Ritter; Hans Gott; Klaus Ritter; Otto Gamillscheg; Wilhelm Boyer, and Gerhard Ritter, all of Graz, Austria, assignors to EVG Entwicklungs-und Verwertungsgesellschaft, M.b.H., Graz, Austria
Filed Dec. 12, 1972, Ser. No. 314,402
Claims priority, application Austria, Apr. 12, 1972, 3181
Int. Cl. B21d *17/02*
U.S. Cl. 72—384 **9 Claims**

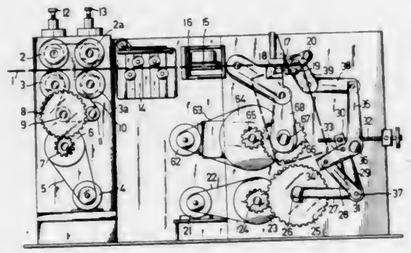
The invention is concerned with a bending machine for wire or strip in which the raw material is advanced through the machine step by step and, between each step, a bend is made by a mobile bending tool. The bending tool is driven through a linkage which incorporates a control that can be operated whilst the machine is working to make a continuous adjustment to the working stroke of the bending tool and thus to the angle of bend made.

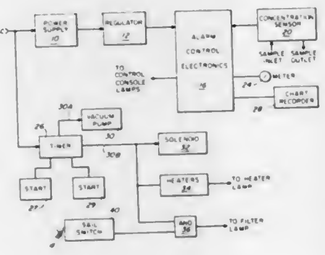
3,788,123
FLARING TOOL
Bulent Gulistan, Malibu, Calif., assignor to Deutsch Fastener Corp., Los Angeles, Calif.
Division of Ser. No. 59,273, July 29, 1970, Pat. No. 3,665,581, which is a division of Ser. No. 784,527, Nov. 29, 1968, Pat. No. 3,561,093, which is a continuation of Ser. No. 744,260, June 13, 1968, abandoned, which is a continuation of Ser. No. 578,728, Sept. 12, 1966, abandoned. This application Jan. 31, 1972, Ser. No. 221,934
Int. Cl. B21j *15/34*
U.S. Cl. 72—391 **9 Claims**

A flaring tool including a die adapted to engage the end of a sleeve and an element adapted to grip the shank of a fastener extending through the sleeve, with a tension force being applied to the shank and an inward force being applied to the die through the actuation of a lever. The gripping element is slidable in a body, with the lever being pivotally mounted on one side of the body. A spacer may be provided to render the die inoperative so that the tool may be used to force an interfering part into an opening in the workpiece without simultaneously bending the flange. Such a part may be a nut with a knurled exterior that becomes embedded in the workpiece to prevent the nut from rotating. A member may be substituted for the die to exert a pull on a fastener attached to the workpiece for accomplishing removal of the fastener.



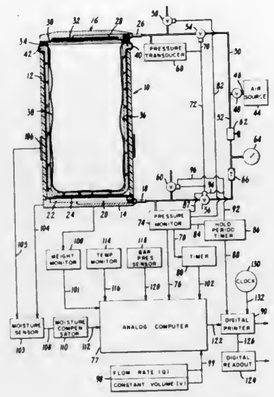
3,788,124
GAS CONCENTRATION MEASURING
Alvan Teton, 32 Connolly St., Randolph, Mass.
Filed Dec. 20, 1971, Ser. No. 209,867
Int. Cl. G01h *7/00*; **G08b** *21/00*
U.S. Cl. 73—19 **11 Claims**





A method and associated apparatus for detecting a safe low percentage residual concentration of a sterilizing gas such as ethylene oxide being eluted from an item previously sterilized by the gas. The elution of the gas from the item may be accomplished by a heated forced air technique or, alternatively, by a vacuum technique. A concentration sensor is subjected to a sampled amount of the eluted ethylene oxide and preferably forms a branch of a bridge circuit which includes means for registering the amount of ethylene oxide eluted which is a function of the amount of residue still retained by the item. The concentration of ethylene oxide is preferably indicated by a meter in parts per million. When a safe low level of residue, such as 500 ppm (parts per million), is detected a SAFE indicator light may be illuminated or an audible alarm sounded. One aspect of the present invention is the provision for a set point control which can be adjusted to change the SAFE/UNSAFE concentration level to, for example, 300 ppm, or any other level considered acceptable.

3,788,125
METHOD AND APPARATUS FOR MEASURING THE BULK DENSITY OF A MATERIAL UNDER PRESSURE
Werner P. Kirschstein, and John R. Wagner, both of Greensboro, N.C., assignors to Loew's Theatres, Inc., New York, N.Y.
Filed Jan. 28, 1972, Ser. No. 221,689
Int. Cl. G01n *9/32*
U.S. Cl. 73—32 **8 Claims**

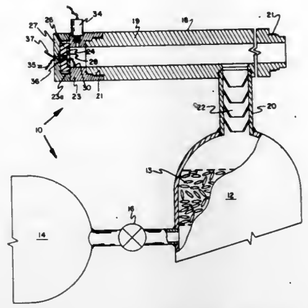


The bulk density of a body of tobacco or similar material maintained under pressure is determined by loading a body of the material of known weight into a flexible bag having an open end, sealing the open end of the bag to the walls of a container of a known volume, expanding the bag into engagement with the walls of the container to reduce the volume of the space between the bag and the container to substantially zero and then introducing a fluid into the space between the bag and the container at a controlled and known rate of flow for a time sufficient to compress the body of material under a known measured pressure. The time that it takes to reach the known pressure, multiplied times the flow rate of the fluid, yields the volume of the space between the container and the compressed body of material. The volume of that space is subtracted from the known volume of the container and divided by the known weight of the compressed material to yield the bulk density of the material. An automatic control system and monitoring and computer devices are employed to control the sequence of the method and to produce a final result as a digital print-out or readout.

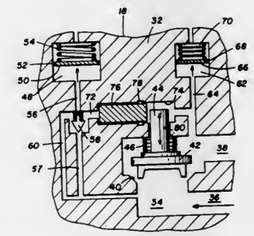
3,788,126
PULSED END-BURNING T-BURNER
Edward W. Price, 511 B Lexington, and Homer B. Mathes, 36 B Vieweg Circle, both of China Lake, Calif.
Filed Mar. 28, 1973, Ser. No. 345,620
Int. Cl. G01n *33/22*
U.S. Cl. 73—35 **13 Claims**

A device is provided for the purpose of measuring the oscillatory combustion response of burning propellants to imposition of incident pressure oscillations, and to measure the damping rate of imposed oscillations (primarily due to damping by particles or droplets of condensed phase reaction products). The method uses artificially imposed oscillations to permit measurement of effect of oscillation with propellants that do not spontaneously produce oscillations.

The propellant samples to be tested are bonded in place at opposite ends of a T-shaped burner such that burning takes place on the facing surfaces only. Samples are prepared with precise uniformity of thickness and ignited as uniformly as possible by igniting with a coating of "paint-on" pyrotechnic which ignites almost instantaneously when the pilot igniter material is started by an electrically heated bridge wire.



3,788,127
LEAK DETECTION APPARATUS
Barry T. Marsh, Bridgeport, Conn., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Dec. 28, 1971, Ser. No. 213,029
Int. Cl. G01m *3/26*
U.S. Cl. 73—40 **3 Claims**

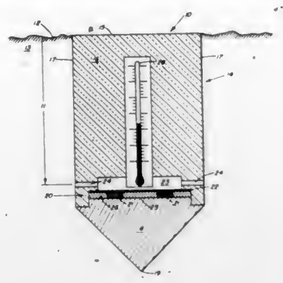


The improved fuel dispensing system described herein includes an improved leak detecting device located in a conduit between a remote fuel pump and a fuel dispenser. A valve is mounted in the dispenser to trap a portion of the fuel between the leak detection device and the valve. If a leak exists in the system, and that leak is above a predetermined rate, a piston in the leak detection apparatus shifts under a pressure differential to block a valve in the leak detection apparatus so that it cannot open and permit full flow. The operator of the dispenser will, upon the next operation of the dispenser, realize that a leak is present in the system due to the restricted flow. The leak detection apparatus is arranged so that the pressure of the trapped fluid is measured for a predetermined period of time. If a leak does not occur during this time, the system operates at full flow during subsequent operation. If a leak is detected during the measuring period, then the flow rate is severly reduced as previously mentioned.

3,788,128
HUMIDITY INDICATION
Daniel E. Strohecker, Galena, Ohio, assignor to Battelle Development Corporation, Columbus, Ohio
Filed Jan. 10, 1972, Ser. No. 216,711
Int. Cl. G01n *31/22*
U.S. Cl. 73—73 **17 Claims**

An enclosure comprises a cylindrical transparent plastic upper portion defining a cavity at its lower end, hermetically

sealed to a pointed aluminum lower portion carrying an indicator that changes color with humidity. A transparent membrane, permeable to moisture and impermeable to bulk liquid, covers the indicator at its interface with the cavity. The device is driven into a region of soil that is to be planted several hours later, until the upper face is flush with the surface of the soil to locate small passages, communicating between the cavity and



the surrounding soil, at a predetermined depth. The indicator thus provides a measure of the humidity at that depth and is visible from above. A thermometer indicates the temperature of the cavity and the soil at that depth.

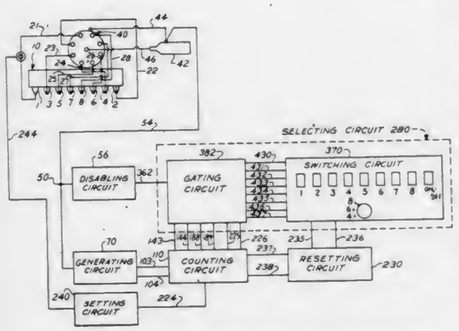
Just before planting, an optimum concentration of seeds is selected that will provide the desired yield at the relative humidity and temperature then indicated by the device.

3,788,129

SELECT SIGNAL ENGINE DIAGNOSING APPARATUS

Gerald C. Trussell, Chicago, Ill., assignor to Sun Electric Corporation, Chicago, Ill.

Filed June 24, 1971, Ser. No. 156,293
Int. Cl. G01l *3/26*
U.S. Cl. 73—116 **7 Claims**



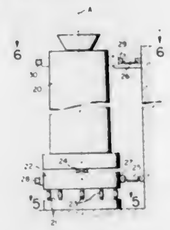
The disclosure describes apparatus for disabling selected cylinders of an internal combustion engine for diagnostic purposes. The system and apparatus are preferably used in connection with an engine that includes a source of periodic cycles of ignition signals. When used with such an engine, the apparatus prevents one or more predetermined ignition signals in each cycle from energizing engine components, such as spark plugs, which normally receive the ignition signals. In order to achieve this purpose, the preferred apparatus embodiment described in the disclosure comprises a clock pulse generator that generates a uniform pulse in response to the receipt of each ignition signal from the engine. Counting means, such as bistable flip-flop circuits, are used to produce counting states representative of the number of pulses received from the clock pulse generator. Adjustable resetting means are used to reset the counting means to a predetermined counting state after the counting means has counted through a predetermined number of counting states, such as the number of cylinders in the engine being diagnosed. Removable setting means are employed to set the counting means to an initial counting state in response to the receipt of an ignition signal from a predetermined engine component, such as a spark plug. Adjustable selecting means generate a disabling pulse in response to a predetermined counting state of the counter, so that a particular cylinder of the engine may be disabled. A disabling device, such as a triac, responsive to the disabling pulse, conditions a predetermined ignition signal in each engine cycle so that the corresponding engine cylinder is disabled, thereby aiding the diagnosis of the engine.

3,788,130

LOW INTERACTION MULTI LOAD CELL SYSTEM FOR MEASURING THRUST

Alfred Newman Ormond, 11969 Riveria Rd., Sante Fe Springs, Calif.

Filed Oct. 18, 1972, Ser. No. 298,480
Int. Cl. G01l *5/13*
U.S. Cl. 73—117.4 **4 Claims**



A plurality of vertically disposed load cells are positioned between a rigid plate and a platform riding on top of the load cells. A rocket engine whose thrust is to be measured has its nose coupled to the center point of the platform by a universal flexure and extends vertically above the platform. Additional load cells connect between a rigid structure and peripheral portions of the rocket for measuring side and roll forces. The plurality of load cells beneath the platform have end surfaces of convex configuration the radius of curvature of each which is preferably less than one-half the distance between the two bearing surfaces; that is, less than one-half the distance between the end engaging surfaces of the load cell. A negative coefficient of restitution to horizontal forces on the platform is thereby generated which effectively cancels the positive coefficient of restitution present when large forces are vertically applied to the platform.

This invention relates generally to load cell measuring techniques and more particularly to an improved low interaction multi load cell system for measuring thrust forces as might be generated by large solid propellant rocket engines.

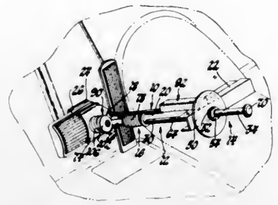
3,788,131

PEDAL TRAVEL MEASURING TOOL

Francis J. Markey, Lewisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 22, 1973, Ser. No. 325,512
Int. Cl. G01l *5/32*
U.S. Cl. 73—132 **3 Claims**

A brake system inspection tool which measures the travel of a vehicle brake pedal during application of a specified pedal force. The tool includes a tubular frame assembly which is clamped to the brake pedal and a rod which is slidable relative to the tubular frame assembly and extends into engagement of the vehicle floor. A tube is located within the tubular frame assembly, surrounds the rod, and has a circular dial mounted on the end thereof. A pin carried on the rod extends laterally thereof through a helical slot in the tube and a straight slot in the tubular frame assembly to impart rotary movement to the tube and dial upon movement of the tubular frame assembly relative to the rod and vehicle floor as the brake pedal is forcibly pivoted to actuate the brakes. The brake apply force



is applied against a force sensitive switch mounted on the frame assembly. The force sensitive switch is closed by a predetermined force applied thereagainst to signal the tool operator that the dial should be read.

3,788,132

TORQUE WRENCH

Lester B. Trimble, Downey, and Zygmunt J. Sopinski, Pico Rivera, both of Calif., assignors to Jo-Line Tools, Inc., Anaheim, Calif.

Filed Mar. 10, 1972, Ser. No. 233,577
Int. Cl. G01l *5/24*
U.S. Cl. 72—139 **1 Claim**



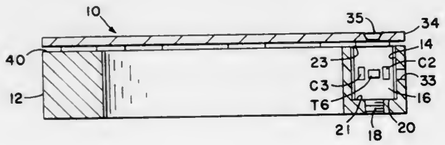
A torque wrench provided with a scale plate that is calibrated in both inch pounds and foot pounds or in both English and metric calibrations. A pointer extends through a slot formed in the plate and terminates in the same plate as the plate to thereby reduce parallax error in reading the torque indication.

3,788,133

FORCE SENSING TRANSDUCER

Owen Paelian; Donald R. Rister, and Richard L. Kellar, all of Huntsville, Ala., assignors to Toroid Corporation, Huntsville, Ala.

Filed Aug. 25, 1972, Ser. No. 283,780
Int. Cl. G01l *1/22*
U.S. Cl. 73—141 A **6 Claims**



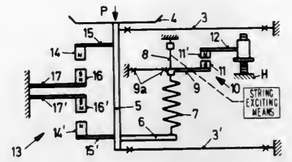
A force transducer consisting of a block of supporting material having a plurality of parallel cavities in which column shaped load cells having a small height to width ratio are mounted and wherein a thin hard sheet of material is bolted to the load cells. The load cells protrude over the surface of the block by an amount slightly larger than the deformation range of operation of the load cells.

3,788,134

TEMPERATURE COMPENSATED MEASURING APPARATUS

Eugen Meier, Meilen, Switzerland, assignor to Mettler Instrumente, AG, Zurich, Switzerland

Filed Nov. 10, 1972, Ser. No. 305,173
Claims priority, application Switzerland, Nov. 23, 1971, 17022/71
Int. Cl. G01l *1/04, 1/10*
U.S. Cl. 73—141 AB **5 Claims**



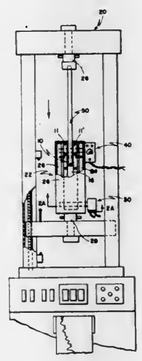
Force or length measuring apparatus including a movable member—such as a pan carrier—movably connected with a housing, and a measuring member—such as an oscillating string element or a traction spring—connected between said housing and said movable member for measuring the movement of said movable member, characterized by the provision of temperature compensation means including at least one pair of cooperating permanent magnets for applying to at least one of said movable and measuring members a biasing force of a magnitude and direction to compensate for temperature-responsive variations in a physical property of the measuring member, thereby to reduce the influence of variations in temperature on the resulting measurement.

3,788,135

PEEL ADHESION APPARATUS AND METHOD

Fred H. Hammond, Jr., Wellesley, Mass., assignor to The Kendall Company, Walpole, Mass.

Filed June 14, 1971, Ser. No. 152,559
Int. Cl. G01n *19/04*
U.S. Cl. 73—150 A **9 Claims**

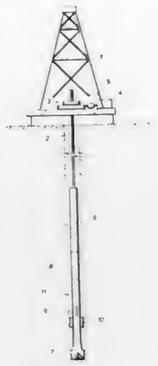


A peel adhesion test apparatus is disclosed which comprises a time-invariant linear temperature gradient member and a thermally conductive test specimen support removably associated with said temperature gradient member in a contiguous relationship therewith. The method for determining peel adhesion over a temperature range comprises affixing a composite comprising at least one peelable layer to a thermally conductive surface, providing said conductive surface with a time-invariant linear temperature gradient, peeling said peelable layer and measuring the peel adhesion along the direction of said temperature gradient.

3,788,136
METHOD AND APPARATUSES FOR TRANSMISSION OF DATA FROM THE BOTTOM OF A DRILL STRING DURING DRILLING OF A WELL

Jack H. Park, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,899
Int. Cl. E21b 47/12
U.S. Cl. 73—151 21 Claims

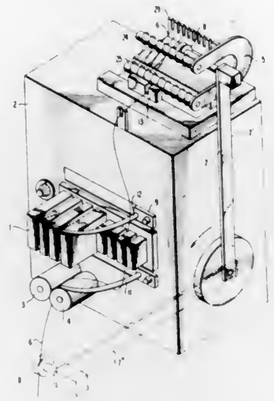


Disclosed are a data transmission method and several devices for carrying out the method for transmitting logging or other measurements made downhole during a drilling operation to the surface of the earth, either in real time without interruption of the drilling operation, or during brief interruptions of the drilling operation but without the necessity of removing the drill string from the borehole. The system employs means for momentarily engaging the borehole while rotating the drill string, and recording the torque being applied to the rotating drill string by means of a surface positioned dynamic torque meter. Measurements made downhole are converted to pulse time electrical signals, and these electrical pulses are employed to activate the borehole engaging means so that torque pulses are generated which travel up the drill string and are sensed on the surface by the torque meter. By measuring the time between torque pulses as recorded by the surface torque meter the intelligence becomes readily available on the surface without the necessity of pulling the drill string.

3,788,138
TEXTILE-TESTING APPARATUS FOR MEASURING THE CROSS-SECTION OF YARNS ROVINGS AND SLIVERS AND PARTICULARLY FOR DETECTING FLUCTUATIONS IN CROSS-SECTION

Eduard Heusser, Uster, Switzerland, assignor to Zellweger Ltd., Uster, Switzerland

Filed Aug. 27, 1971, Ser. No. 175,683
Int. Cl. G01n 27/24
U.S. Cl. 73—160 5 Claims

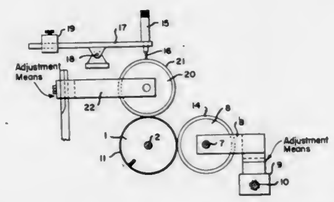


In a textile testing apparatus, a rocker arm is provided which is pivotable about a pivot point between a conveying point and a testing point and a yarn gripper is disposed on one end of the rocker arm for selectively grasping the yarn. A testing arrangement is provided at the testing point having a plurality of spaced test devices each relating to different ranges of yarn sizes and guide means adjustable as to position for guiding the yarn to a selected test device.

3,788,137
METHODS AND APPARATUS FOR PAPER TESTING

William B. Lyon, Bethel Park, and William D. Schaeffer, O'Hara Township, Allegheny County, both of Pa., assignors to Graphic Arts Technical Foundation, Pittsburgh, Pa.

Filed Feb. 14, 1972, Ser. No. 225,890
Int. Cl. G01n 19/04
U.S. Cl. 73—159 8 Claims



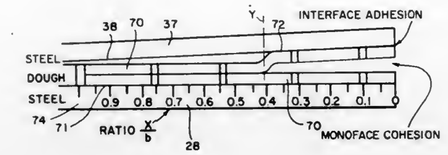
The specification discloses methods and apparatus to test the tendency of paper surfaces to be disrupted by the materials and forces applied to the paper during the printing process.

3,788,139
METHOD AND APPARATUS FOR TESTING ADHESIVE PROPERTIES OF DOUGH-LIKE MATERIAL

Manuel Jesus Rubio, Bridgeport, Conn., and Victor Mario Leal, Monterrey, N.L., Mexico, assignors to Roberto Gonzalez Barrera, Monterrey, Mexico

Filed Nov. 3, 1971, Ser. No. 195,306
Int. Cl. G01n 3/24, 33/10
U.S. Cl. 73—169 10 Claims

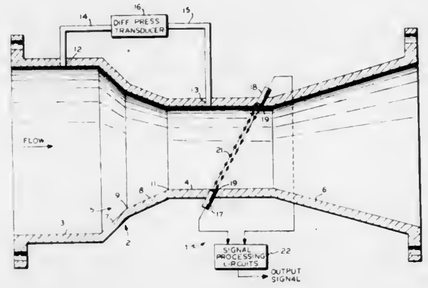
Process and machine for testing dough-like materials adhesively contacted to spaced bars in generally parallel relation, and having a cut on the sample cross section lengthwise which is variable from end to end intermediate between the bars. Areas of the sample adhesively contacted to the bars have uniform width in the apparatus shown. As the bars move apart and apply tension to the sample, the dough-like material begins failing under monoface cohesion at the point where the intermediate lengthwise section of the sample is narrowest, said failure progressing toward the point where the intermediate lengthwise section of the sample is widest, and it fails under interface adhesion at one of the bars where the sample is widest, progressing toward the point at which the intermediate lengthwise section of the sample is narrowest. When these two types of failures are superimposed or coincident, a point is determined at which the adhesion and cohesion are equal. The testing machine involves acute angled cutters which establish the variable cross section of the sample.



3,788,140
ELECTROACOUSTICAL FLOW METERING APPARATUS

Quentin C. Turtle, Cranston, R.I., assignor to General Signal Corporation, Rochester, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,352
Int. Cl. G01f 1/00
U.S. Cl. 73—194 A 4 Claims



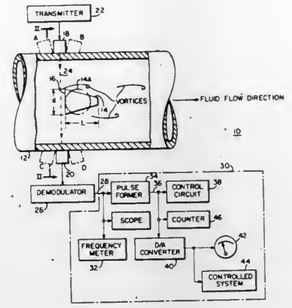
The disclosure concerns electroacoustical flow metering apparatus in which the transponder probes define an acoustic path located in the throat of a differential pressure-producing flow metering device.

3,788,141
FLOW METER

Robert E. Blackwell, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 27, 1971, Ser. No. 175,463
Int. Cl. G01f 1/00
U.S. Cl. 73—194 B 9 Claims

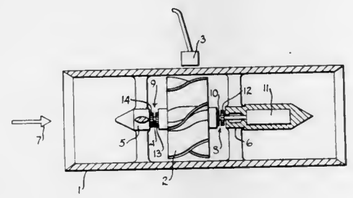
Disclosed are a method and apparatus for determining the velocity of relative movement between a fluid and a body in the fluid around which the fluid divides and in front of which oscillations are generated in the fluid as a result of the meeting between the fluid and the frontal aspect of the object. An acoustic signal is propagated toward the fluid oscillations in front of the object for interaction with the fluid oscillations to thereby modulate the acoustic signal, and the modulated acoustic signal is picked up by a transducer which converts it to a corresponding signal having a variable that is a function of the relative velocity between the fluid and the object. The corresponding signal is employed to determine the relative velocity by operating indicators in response to the signal or by controlling some process variable in response to the signal, for example a variable of relative fluid flow as by valve control of a fluid in a conduit, or speed control of an object in the fluid.



3,788,142
VELOCITY FLOWMETER

Nils Paul Goransson, Hjulsbro, Sweden, assignor to Saab-Scania Aktiebolag, Linkoping, Sweden

Filed June 7, 1972, Ser. No. 260,384
Claims priority, application Sweden, June 11, 1971, 7575/71
Int. Cl. G01f 1/12
U.S. Cl. 73—230 3 Claims

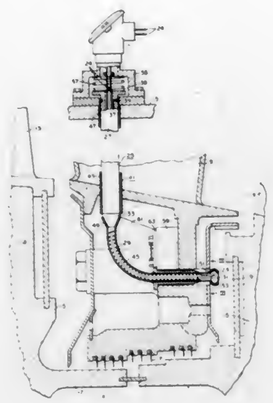


A flow meter comprises a screw turbine having its axis parallel to stream flow, to be rotated thereby. The turbine carries axially oppositely facing clutch members and is free for limited axial movement. When rotating too fast for stream flow, it moves upstream, engaging one clutch member against a cooperating fixed clutch element, and is thereby decelerated. Rotating too slowly, its downstream drift engages the other clutch member against a second cooperating clutch element which is motor driven to rotate faster than highest expectable turbine speed, for acceleration of turbine rotation.

3,788,143
INTERSTAGE DISC CAVITY REMOVABLE TEMPERATURE PROBE

Frank K. Gabriel, Springfield, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 17, 1972, Ser. No. 235,579
Int. Cl. G01k 1/14
U.S. Cl. 73—346 9 Claims

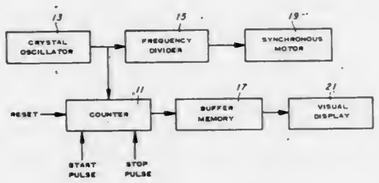


A temperature probe for gas turbines, the probe having a flexible end which is inserted through the casing, a stationary blade and an arcuate tubular guide to enter an interstage disc cavity adjacent a rotor blade disc to determine the temperature of a gaseous coolant within the cavity to indicate the temperature of the rotor blade disc.

3,788,144
PRESSURE MEASURING APPARATUS AND METHOD

Harold A. Armand, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 27, 1971, Ser. No. 212,455
Int. Cl. G01l 7/04
U.S. Cl. 73—411 10 Claims

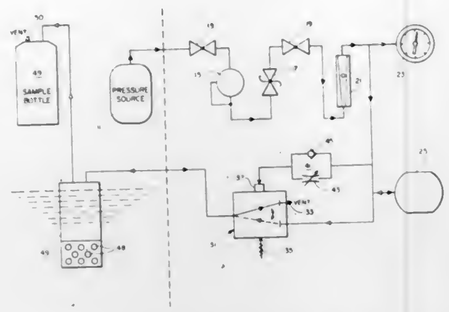


In a pressure measuring apparatus of the type wherein one end of a Bourdon tube spiral is deflected in response to pressure applied at the other end of the spiral, the applied pressure is measured as a function of the time required for a uniformly rotating object to rotate through the angle of deflection. An opto-electrical system is employed to optically detect the deflection angle and electronically count the number of pulses of a reference oscillator signal which occur during the time required to uniformly rotate through the detected angle. A display device is calibrated to display the count of the counter in actual pressure units.

3,788,145
LIQUID SAMPLING

Malcolm F. Irwin, West Chester, Pa., assignor to Pro-Tech Inc., Malvern, Pa.

Filed Mar. 14, 1973, Ser. No. 341,319
Int. Cl. G01n 1/14
U.S. Cl. 73—421 B 5 Claims

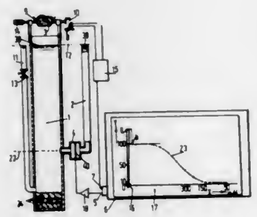


Equipment for sampling liquid at intervals controllable by adjusting the rate of accumulation of sample-propulsion fluid is provided with means for extending the intervals at which samples are taken and the duration of the taking of such samples. A pressure-responsive switching valve effective to interconnect accumulated propellant to a sampling locus in the liquid at a given accumulated pressure is partially shielded from sensing the pressure drop resulting from such interconnection, thus extending the period required for the pressure to reaccumulate to the switching level. The range from shortest to longest sampling interval is adjustable by varying the degree of such shielding.

3,788,146
DEVICE FOR ANALYSING THE GRAIN CLASSIFICATION OF A SOIL SAMPLE

Cornelius Hartman, Vreeswijk, Netherlands, assignor to Ballast-Nedam Groep N.V., Amsterdam, Netherlands

Filed May 9, 1972, Ser. No. 251,829
Int. Cl. G01n 15/06
U.S. Cl. 73—432 R 10 Claims

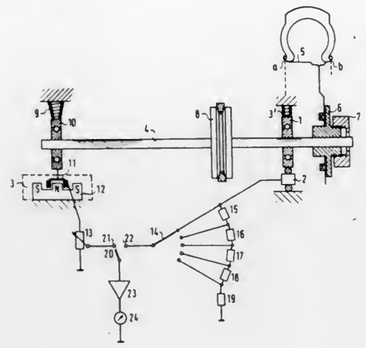


A device for analysing the grain classification of soil samples includes sedimentation and compensation pipes, both of which are filled to a common level with liquid. A pressure difference pick up device connects the compensation pipe to the sedimentation pipe at a region above the lower end of the latter and provision is made for dumping a soil sample into the sedimentation pipe. After the sample is dumped, the levels of liquid in the two pipes are equalized either by means of an overflow pipe and stop valve connected with the sedimentation pipe or by a throttle flow connection between the two pipes.

3,788,147
DEVICE FOR THE BALANCING OF OUT OF BALANCE BODIES ESPECIALLY VEHICLE WHEELS

Richard Muller, Worfelden, Germany, assignor to Gebr. Hofman KG Maschinenfabrik, Darmstadt, Germany

Filed July 29, 1971, Ser. No. 167,260
Claims priority, application Germany, July 29, 1970, P 20 37 732.6
Int. Cl. G01m 1/22
U.S. Cl. 73—459 7 Claims



This invention relates to a device for balancing out-of-balance bodies, particularly motor vehicle wheels, wherein the unbalance is determined in two planes of correction a and b, which has sliding and clamping means by which the out-of-balance body can be so displaced and clamped on a main shaft that the correction plane a will coincide with one of the two main shaft bearings, said bearing being adapted as a radially fixed swing bearing and the other bearing being radially movable and connected to a transducer and measuring means and an indicating instrument so that the out-of-balance is determined and eliminated in a first measuring run in correction plane b whereupon the out-of-balance is ascertained in correction plane a.

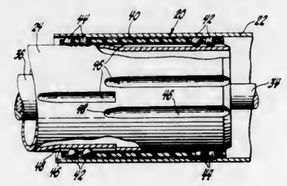
ERRATUM

For Class 73—517 see:
Patent No. 3,788,149

3,788,148
ENERGY ABSORBER FOR COLLAPSIBLE STEERING COLUMNS OR THE LIKE

Lehman J. Connell, Frankenmuth, and Jeffrey L. Johnson, Saginaw, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 10, 1972, Ser. No. 269,941
Int. Cl. B62d 1/18
U.S. Cl. 74—492 5 Claims

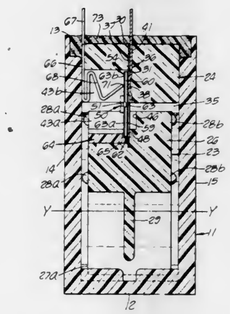


A collapsible steering column for automobiles includes an energy absorber of the rollable deformer ball type and in which certain of the complement of deformer balls are sized predeterminedly with relation to the remainder of the ball complement and located in preformed recesses between the two telescopic tubes of the absorber so as to be inactive during a first portion of column collapse in which the remainder of the ball complement are active to provide a first level of the ball complement are active to provide a first level of energy absorption, whereafter in a later portion of column collapse the said certain balls engage in interfering relation between the walls of the tubes to provide a second level of energy absorption.

3,788,149
LOW COST RESISTANCE GAUGE ACCELEROMETER

Leslie B. Wilner, Palo Alto, Calif., assignor to Becton, Dickinson Electronics Company, Pasadena, Calif.

Filed June 26, 1972, Ser. No. 266,410
Int. Cl. G01p 15/12
U.S. Cl. 73—517 R 27 Claims



A low cost accelerometer is provided for use in mounting on an automobile or other movable object to produce an output signal which will operate an emergency device if the acceleration of the object reaches or exceeds a predetermined unsafe value. The accelerometer employs a strain sensitive element in the form of a thin, and hence fragile, piezoresistive semiconductor element having its respective ends secured to a pair of hinged support members that rotate relative to each other thereby straining the element longitudinally in response to acceleration. An overload release engages the support structure to limit the hinge action to preclude straining the strain sensitive element beyond the breaking point when the accelerometer is subjected to acceleration forces in excess of the normal operating range for which the accelerometer is designed.

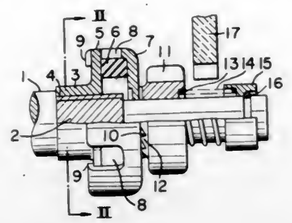
3,788,150
INERTIA SLIDING TYPE INTERNAL COMBUSTION ENGINE STARTER

Tsuyoshi Matsumoto, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 28, 1972, Ser. No. 293,000
Claims priority, application Japan, Jan. 25, 1972, 47/10567
Int. Cl. F02n 11/00
U.S. Cl. 74—7 R 3 Claims

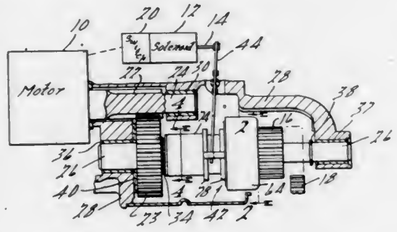
An inertia sliding type internal combustion engine starter having a rotary shaft upon which is located a driving plate, the two elements being interengaged via helical splines. A second plate is driven by the first plate, the second driven plate also interengaging a pinion via ratchet gear teeth. Rotation of the

rotary shaft rotates and translates the various components to their starter position, the pinion engaging an engine ring gear



to attain starting. If starting is incomplete, the inertia of the elements maintain such in their starter positions thus preventing the phenomenon of earlier retreat.

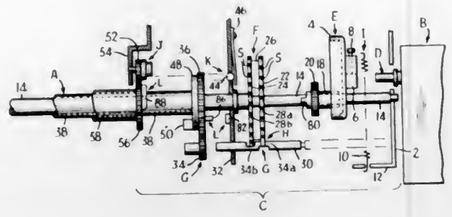
3,788,151
SHOCK ABSORBING STARTER CLUTCH MECHANISM
Walter J. Campau, Grosse Pointe Woods, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Oct. 6, 1972, Ser. No. 295,752
Int. Cl. F02n *11/00*
U.S. Cl. 74—7 A **7 Claims**



In a geared starter unit used in motor vehicles resilient shock absorbing members are interposed in the space between the driver and the driven members of the starter clutch unit for transmitting torque from the starter motor through the overrunning clutch to the ring gear and for absorbing the high impact loads developed by engine backfiring from being applied from the ring gear back through the clutch to the driver member.

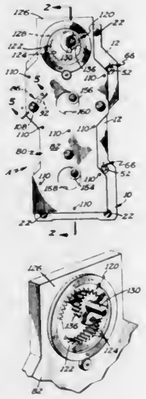
3,788,152
INDEXED TV TUNER
Carroll R. Miner, Wilbraham, Mass., assignor to General Instrument Corporation, Newark, N.J.
Filed July 17, 1972, Ser. No. 272,369
Int. Cl. F16h *35/18, 27/04*
U.S. Cl. 74—10.15 **46 Claims**

A tuner for tuning a TV set or the like to a selected one of a plurality of predetermined frequencies provides, between the tuning knob and the electrical tuning element, a transmission means which functions on an indexing basis, as distinguished from a detenting basis. The transmission means is biased to rotate in one direction and a plurality of stop surfaces are presented thereto, each of those stop surfaces corresponding to a particular predetermined frequency to be tuned, the biasing means urging the transmission means into engagement with the selected stop surface, thereby to appropriately position the tuning element. When, as is preferable, a display means is provided to indicate the channel or station tuned, a low-force detenting means may be associated with the display means, but it has no significant effect on the operation of the indexing feature of the transmission means. To that end, only a fraction of the total movement of the tuning knob for effecting a shift in tuning from one station to the next is actually employed to accomplish the tuning shift, the remainder of that motion being an idling motion. A crank operating against a plate having peripheral recesses defining the aforementioned stop surfaces enables the same structure to function both to move the index means carrying the stop surfaces from one



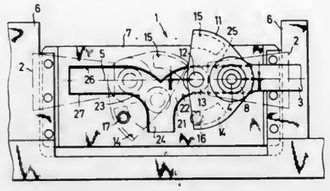
operative position to the next and to coact with the operative stop surface in order to accurately position the tuning element. Fine tuning means may be associated with the tuning means above described so functioning that a particular fine tuning adjustment, when once made, will remain effective as the tuner is shifted from one channel or station to the next. A novel positive stop permitting a very compact construction is also provided.

3,788,153
DEVICE FOR TRANSPORTING FILM THROUGH A SERIES OF ROLLERS
Conrad E. Lee, Mound, Minn., assignor to Pako Corporation, Minneapolis, Minn.
Filed Sept. 15, 1972, Ser. No. 289,435
Int. Cl. F16h *21/14*
U.S. Cl. 74—68 **3 Claims**



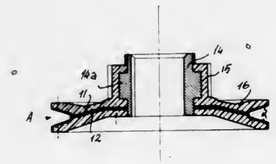
Driving means for transporting sheet material between a series of companion rollers rotatable in opposite directions and which are rotatably mounted in bearing means and rotated by cranks acting between certain of said rollers and a driving plate and gears between said driven rollers and the other rollers together with means for guiding the plate in circular and rectilinear movement, an internal ring gear fixed relative to said plate and a spur pinion whose pitch diameter is one half of that of the ring gear meshing with the ring gear and whose axis of rotation is fixed relative to the bearing means.

3,788,154
DEVICE FOR PRODUCING A SWIVELLING MOTION IN A LINEARLY MOVING MEMBER
Wilhelm Haberle, Industriegelande/Scheer, Germany
Filed Aug. 29, 1972, Ser. No. 284,629
Claims priority, application Germany, Sept. 13, 1971, P 21 45 700.1
Int. Cl. F16h *21/44*
U.S. Cl. 74—99 **7 Claims**



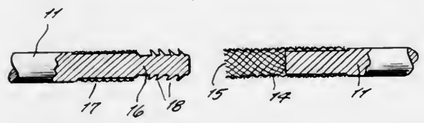
The present invention provides a device for producing a swivelling motion in a linearly movable structural member which is also rotatable. The structural member is provided with a guide member which, in turn, is arranged in such a manner that it is displaced with respect to the axis of rotation and bears against a cam.

3,788,155
REINFORCED MOLDED PLASTIC PULLEYS
Vincenzo Cigala, Strada Valpiana 13, and Emilio Alberto Bertinetti, via Alberto Picco 33, both of Torino, Italy
Filed Mar. 27, 1972, Ser. No. 238,330
Claims priority, application Italy, Sept. 7, 1971, 69971 A/71
Int. Cl. F16h *55/36*
U.S. Cl. 74—230.01 **5 Claims**



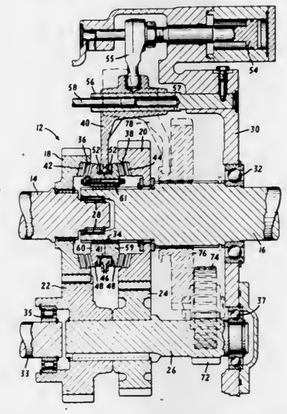
Pulleys made of plastic material may be improved in their stress - and heat resistance by embedding within the body of the pulley and parallel to the faces thereof a diaphragm suitably made of metal, fiber glass or mixtures thereof.

3,788,156
EASILY INSTALLED BELT
Burtis R. Jackson, c/o George Spector 3615 Woolworth Building 233 Broadway, New York, N.Y.
Filed June 26, 1972, Ser. No. 266,344
Int. Cl. G01f *3/02*; **F16g** *1/00*
U.S. Cl. 74—238 **1 Claim**



A temporary replacement for a car endless fan belt, the device consisting of a single length of durable rubber belt that can be stretched to fit around a pump pulley and a crank shaft pulley, so that the car can proceed to travel in case its regular fan belt is broken, thus permitting the automobile reach a Service Station for assistance, one end of the rubber belt having a tubular wire mesh secured therearound and extending therefrom, while the other end of the belt has a male member secured thereto which has a series of barbs projecting radially therefrom, so that when the male member is fitted in the tubular wire mesh on the other end of the belt, the barbs hold the ends securely together.

3,788,157
TRANSMISSION SHIFTING APPARATUS
Paul E. Carlson, Williamsport, and Ralph U. Schimmel, Hagerstown, both of Md., assignors to Mack Trucks, Inc., Allentown, Pa.
Filed May 15, 1972, Ser. No. 253,492
Int. Cl. F16h *3/08*; **F16d** *11/04, 23/12*
U.S. Cl. 74—364 **11 Claims**

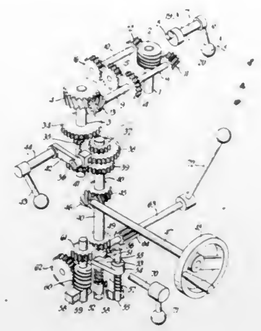


Apparatus for clutching two rotatable elements together. The rotatable elements are mounted for rotation about respective axes and are selectively coupled together by a shifter clutch member. The clutch member is preferably splined to one rotatable element so as to rotate therewith and be axially movable in and out of clutching engagement. The other rotatable element and the clutch member are provided with teeth on their facing sides which may be engaged to couple this element with the clutch member and, in turn, couple the two rotatable elements together. According to the invention, the clutch member is provided with two continuous, spaced, lateral engaging surfaces extending generally perpendicular to its axis of rotation. These surfaces coact with corresponding mating surfaces of an axially movable shifting element, preferably through the intermediary of antifriction bearings. The shifting element is thus effective to apply an axial force to the clutch member to shift the clutch member by applying uniform pressure against one of the clutch member engaging surfaces.

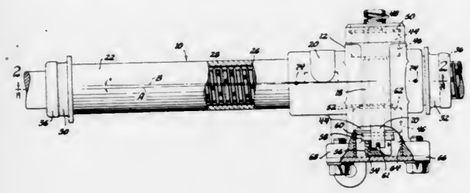
3,788,158
TRIP DEVICE FOR USE IN A FEED MECHANISM OF A MACHINE
Arthur Jose Firth, Colchester, England, assignor to 600 Machine Tools Limited, London, England
Filed Feb. 22, 1972, Ser. No. 227,805
Claims priority, application Great Britain, Feb. 25, 1971, 5431/71
Int. Cl. F16d *7/02*
U.S. Cl. 74—412 TL **7 Claims**

In the quill feed mechanism of a milling machine, a trip device which disconnects the drive if the quill meets an unyielding obstruction, comprising a pivoted housing carrying

a gear which forms part of the feed mechanism, an angled face clutch and a latch mechanism arranged so that when an abnormal torque is imposed on the said gear, the latch mechanism disengages so that the housing pivots to disconnect the feed drive.



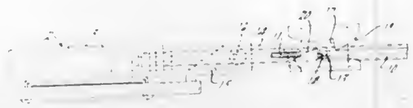
3,788,159
RACK AND PINION STEERING GEAR
Ernest M. Plant, II, Frankenmuth, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 30, 1972, Ser. No. 301,869
Int. Cl. F16h *1/04*; **B62d** *1/20*
U.S. Cl. 74—422 **8 Claims**



A rack and pinion steering gear for automotive vehicles and the like includes a relatively short pinion housing, an elongated rack guide tube received wwthin a somewhat overlarge longitudinal bore of the pinion housing and which in turn receives a reciprocable rack member meshingly engaged by a pinion on a pinion shaft mounted in a cross bore of the pinion housing, with the rack guide tube being adjustable positionally within the overlarge housing bore in directions radially, axially and tiltably therewithin to effect proper sdjustments of the mesh of the rack and pinion and the preload therebetween.

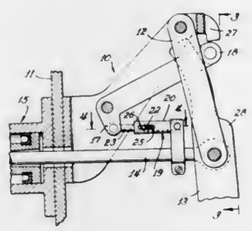
3,788,160
OPERATING MECHANISM FOR A MOTOR VEHICLE SLIDING ROOF
Werner Sielk, Cologne, Germany, assignor to Ford Motor Company, Dearborn, Mich.
Filed June 12, 1972, Ser. No. 261,897
Claims priority, application Germany, Nov. 24, 1971, 2158193
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 R **2 Claims**

An operating mechanism for the sliding roof panel of a motor vehicle, which roof panel can be moved through the medium of a push-pull cable itself displaceable by means of a hand-operated crank. Displacement of the cable in the forward direction when the sliding roof panel is closed, raises the rear edge of the roof. Displacement of the cable in the rearward direction, when the roof is closed, lowers the sliding roof and moves it rearwards.



The cable is provided with a projecting abutment cooperating with a lever arm provided with a pair of spaced stops selectively engageable by the cable carried abutment. By means of a lever operable manually, the position of the lever arm carrying the abutments may be altered so as to enable cable movement only in one direction.

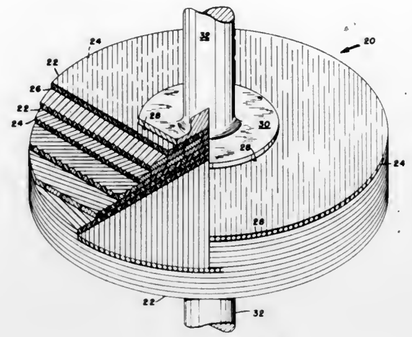
3,788,161
MECHANICAL LINKAGE
Frederick A. Krusemark, 303 S. Second Ave., Maywood, Ill.
Continuation-in-part of Ser. No. 86,080, Nov. 2, 1970, abandoned, which is a continuation-in-part of Ser. No. 524,115, Feb. 1, 1966, Pat. No. 3,410,152. This application Feb. 24, 1972, Ser. No. 229,001
Int. Cl. G05g *1/14*
U.S. Cl. 74—516 **20 Claims**



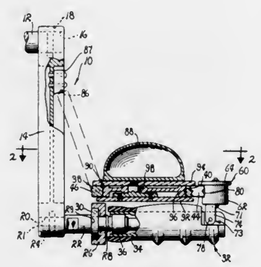
An arm connected to a push rod for moving a work load. The upper end of the arm is operably in contact with a movable fulcrum which is free to move downward whereby on its downward movement, the effort to move the work load is progressively reduced as the fulcrum moves downward.

3,788,162
PSEUDO-ISOTROPIC FILAMENT DISK STRUCTURES
David W. Rabenhorst, Clarksville; Alan Brandt, Columbia; Kenneth E. Darnell, Silver Spring, and James F. George, Bethesda, all of Md., assignors to The Johns Hopkins University, Baltimore, Md.
Filed May 31, 1972, Ser. No. 258,303
Int. Cl. F16c *15/00*
U.S. Cl. 74—572 **23 Claims**

The invention relates to inertial energy storage devices comprised of anisotropic filamentary elements and comprises several embodiments of a disc flywheel which, although consisting essentially of anisotropic elements, is effectively isotropic in total structural character. A preferred embodiment of the invention is generally formed by orienting several discrete annular layers of anisotropic filamentary elements at regular angles to each other, each anisotropic element in any one annular layer being parallel to the remaining elements in said layer. A second embodiment of the invention comprises randomly oriented anisotropic filamentary elements disposed within a rotary disc structure.

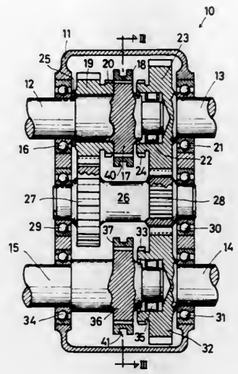


3,788,163
MANUAL ACTUATOR
Raymond L. Gause, Huntsville, and C. G. Glenn, Arab, both of Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed June 27, 1972, Ser. No. 266,771
Int. Cl. G05g *1/16*
U.S. Cl. 74—594.6 **4 Claims**



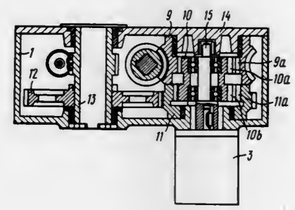
An actuator for an exercising machine employable by a crewman aboard a manned spacecraft. The actuator is characterized by a force delivery arm projected from a rotary input shaft of an exercising machine and having a force input handle extended orthogonally from its distal end. The handle includes a hand-grip configured to be received within the palm of the crewman's hand and a grid pivotally supported for angular displacement between a first position, wherein the grid is disposed in an overlying juxtaposition with the hand-grip, and a second position, angularly displaced from the first position, for affording access to the hand-grip, and a latching mechanism fixed to the sole of a shoe worn by the crewman for latching the shoe to the grid when the grid is in the first position.

3,788,164
TRANSFER GEAR ASSEMBLY
Kenji Ojima, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Aichi Pref., Japan
Filed June 28, 1972, Ser. No. 267,186
Claims priority, application Japan, July 7, 1971, 46/050613
Int. Cl. F16h *37/06, 3/08*
U.S. Cl. 74—665 T **6 Claims**



A transfer gearing assembly for a vehicle which provides a plurality of different speed ratio power trains, more particularly, only rear wheels drive and both front wheels and rear wheels drive selectively. The present invention particularly resides in improvement of two clutch means for connecting the input shaft with the output shafts or releasing it therefrom so that the operation of one of said two clutch means with a single manual actuation may cause the operation of the other clutch means.

3,788,165
TWO-SPEED DRIVE
Grigory Naumovich Klotsvog, ulitsa Mokhovaga, 26, kv. 9, Leningrad, U.S.S.R.
Filed Aug. 17, 1971, Ser. No. 172,414
Int. Cl. F16h *37/06*
U.S. Cl. 74—675 **3 Claims**



A drive for controlling valves comprising a worm-gear speed reducer whose worm is rotated by an electric motor and whose worm wheel is connected by a planetary reduction gear

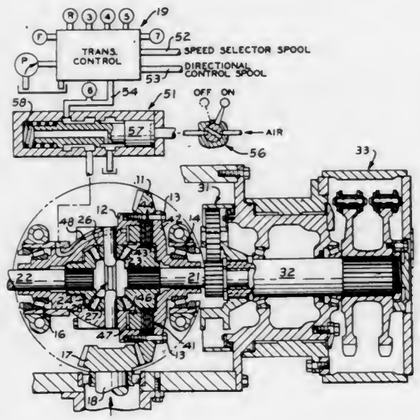
to the output shaft of the drive. The planetary reduction gear is comprised of a planet pinion engaged with internal tooth rims respectively formed on the worm wheel and on a gear wheel meshing with the output shaft of the drive. A change of the torque on the shaft switches the control circuit of the electric motor thus changing the rotation speed of the output shaft.

3,788,166

SPEED RESPONSIVE LOCKING DIFFERENTIAL

Cullen P. Hart, and Paul C. Rosenberger, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 28, 1972, Ser. No. 248,574
Int. Cl. F16h *1/44*
U.S. Cl. 74—710.5 **1 Claim**



A locking differential assembly for vehicles including a hydraulically operated disc clutch for locking the differential assembly and a control system for the clutch associated with a transmission having speed range selection means, the control system normally permitting differential operation in high operating speed ranges of the transmission while actuating the clutch to normally prevent differential operation in low operating speed ranges, the control system also including a manually operable override control to selectively establish differential operation in low speed range settings of the transmission.

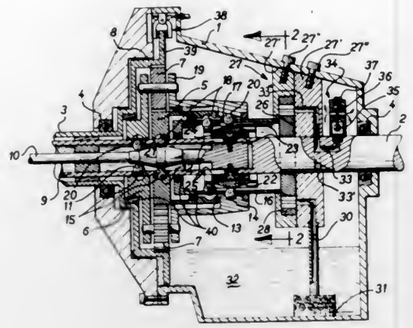
3,788,167

MULTIPLE-SPEED TRANSMISSION WITH REVERSE DRIVE

Yvon Beaudoin, and Claude A. Gingras, both of Dosquet, Quebec, Canada, assignors to said Gingras, by said Beaudoin

Filed Aug. 2, 1973, Ser. No. 277,309
Int. Cl. F16h *57/10*
U.S. Cl. 74—762 **6 Claims**

Transmissions adapted in particular for small and relatively inexpensive applications and particularly for a safe forward and reverse multiple-speed drive for snowmobiles, all terrain vehicles, passenger vehicles, trucks and the like. A transmission including a single planetary gear set with the output shaft directly secured to the ring gear and having one of the sun gear and the planet carrier selectively driven by an input shaft and a braking unit arranged to gradually brake the planet carrier, or the sun gear, for reverse drive or forward drive respectively. An axially displaceable control member selectively locks either of the sun gear and the planet carrier to the braking unit for braking action thereby. The braking unit consists of a gear pump having a stator secured to the transmission casing and a rotor which is gradually braked by the centrifugal action on a valve controlling the outflow of the gear pump.

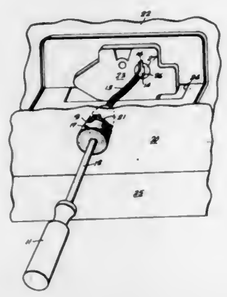


3,788,168

AUTOMOBILE TRUNK LOCK OPENING TOOL

Eugene B. Steinmann, Jr., 13100 N.W. 19 Ave., Miami, Fla.

Filed Nov. 27, 1972, Ser. No. 309,727
Int. Cl. B25b *13/50*
U.S. Cl. 81—3 R **8 Claims**



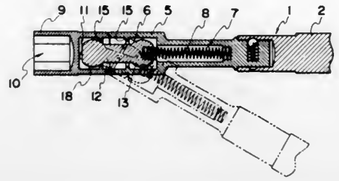
A tool for temporary use in unlocking automobile trunks during body repair for proper fit and alignment of a trunk door with respect to the associated car body is described. A rigid, elongated tool shank portion has a handle at one end and a flexible shaft portion at the other end terminating in a flat shaft tip portion adapted to be received within the rotary slot of the door catch release mechanism at the inner panel of the door. A resilient attachment member frictionally slidable along the rigid shank portion is provided with a plurality of grooves of graduated size adapted to inter-engage within the lock cylinder opening in the inner panel of the door for retaining the tool in place to permit unlocking of the lock mechanism in substitution for the lock cylinder by turning the tool handle.

3,788,169

BOX WRENCH

Eiji Nakayama, 1140, Nishiyokkamachi, Sanjo, Japan

Filed June 28, 1972, Ser. No. 266,896
Int. Cl. B25b *13/00*
U.S. Cl. 81—177 UJ **1 Claim**



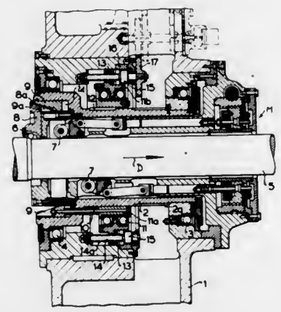
This invention relates to a box wrench comprising an operational rod of which a center portion is formed into an angled portion and which is provided at its lower end with an expanded portion having a concave chamber with an inner opening at its bottom, a box having a hexagonal chamber at one side and a concave chamber at an other side; the rear end of said box being butted to the lower end of said expanded portion of said operational rod, a joint member being provided at both ends with spherical portions being to be inserted respectively in said concave chambers, a spring being inserted in said inner opening and fixed to the bottom thereof at its one end and to one of said spherical portions of said joint member at its other end.

3,788,170

MECHANISM FOR RADIAL ADJUSTMENT OF TOOLS IN ROTARY TUBULAR TOOL HOLDERS OF SHAVING MACHINES OR THE LIKE

Franz Riedel, Solingen, Germany, assignor to Th. Kieserling & Albrecht, Sollingen, Germany

Filed Oct. 29, 1971, Ser. No. 193,858
Claims priority, application Germany, Dec. 3, 1970, 2059565
Int. Cl. B23b *5/00, 25/00*
U.S. Cl. 82—20 **8 Claims**



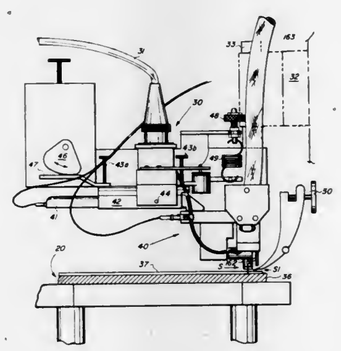
A shaving machine for tubular or rod-like workpieces has a tubular tool holder which is rotatable in two axially spaced main antifriction bearings installed in the machine frame. An auxiliary antifriction bearing surrounds the tool holder between the two main bearings and its inner race is coupled by rods with a sleeve which is movable axially of the tool holder in the region of one main bearing. The sleeve has a conical internal surface abutting against complementary conical surfaces of several equidistant supports for shaving tools which are caused to move radially in response to axial movement of the sleeve. The outer race of the auxiliary bearing carries several nuts which mesh with axially parallel feed screws mounted in the machine frame and coupled to each other for simultaneous angular movement by means of pinions provided on the feed screws and meshing with an internal gear which is rotatable in the frame. A reversible electric motor can be drivingly connected with a gear on one of the feed screws by way of either one of two gear trains which can rotate the one feed screw at different speeds. As the one feed screw rotates in the frame, it causes the other feed screws to rotate to the same extent and in the same direction to thereby move the outer race of the auxiliary bearing axially of the tool holder. The outer race shifts the inner race which changes the axial position of the supports for shaving tools so that the tools move radially outwardly or inwardly.

3,788,171

PROJECTION SCREEN FABRICATION APPARATUS AND METHOD

Harvey O. Hoadley; Robert N. Wolfe, both of Rochester; Beverly F. Palmer, Webster, and Roger S. Vanheyningen, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 13, 1971, Ser. No. 207,383
Int. Cl. B26d *3/06*
U.S. Cl. 83—5 **7 Claims**



A method and apparatus for fabricating projection screen masters from which highly efficient projection screens of improved aesthetic quality can be replicated. The cutting stylus of a sound-recording head is used to cut a plurality of contiguous grooves in the surface of a blank master. A signal of predefined waveform but of random frequency is applied to to the cutting stylus to modulate the cutting depth thereof in such a manner as to produce image light-redistribution microelements of various sizes but of substantially identical optical power.

3,788,172

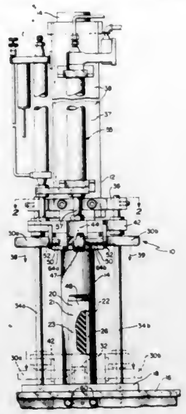
TEAR CUTTER

William T. Jones, Barberton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed June 26, 1972, Ser. No. 266,002
Int. Cl. B26d *3/08, 7/06*
U.S. Cl. 83—9 **3 Claims**

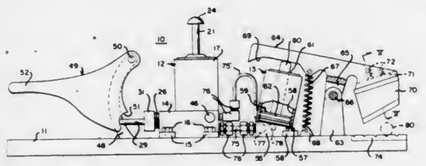
Apparatus for preparing a specimen of elastomeric compound for a physical test thereof in which the specimen in the form of a rectangular prism is split to provide an area subject to tearing as two portions of the prism are pulled apart by an Instron or like testing machine. A two-part fixture supports the specimen and two coplanar knives in spaced apart relation are moved longitudinally of the specimen and of the fixture to slit the narrow longitudinal edges of the prism leaving an uncut test area therebetween.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full



nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawing and the following detailed description.

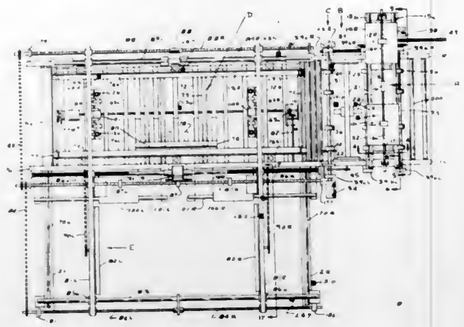
3,788,173
HYDRAULIC HAND TOOL
Ronald E. Keigley, 219 Laurel Ln., Clarksburg, W. Va.
Filed Dec. 15, 1972, Ser. No. 315,281
Int. Cl. B26d *5/12*
U.S. Cl. 83—554 **11 Claims**



The specification discloses a hydraulic pressure operated hand tool of the type in which manual pressure exerted on a small-area pump piston creates a hydraulic pressure which is communicated to a power cylinder for activating a hand tool jaw member, such as a cutter blade. Preliminary take-up movement of the cutter blade into contact with the object to be severed, such as cables, pipe etc., is effected by manual pressure applied to a second pump piston of relatively large area, which causes rapid displacement of the hydraulic medium from a reservoir to the power cylinder before exertion of manual pressure to the small-area pump piston. A push-button valve when pressed causes instant return displacement of hydraulic medium via a by-pass communication from the cylinder to the reservoir to relieve the activating pressure on the cutter blade and restore it promptly to normal position.

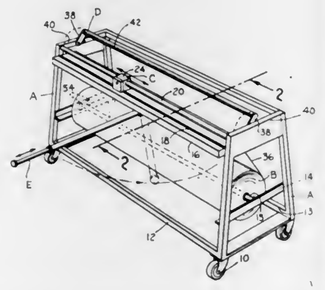
3,788,174
MACHINE FOR TRIMMING THE EDGES OF PANELS
Donald B. Morse, and Bernard A. Pribish, both of Joliet, Ill., assignors to Kemlite Corporation, Joliet, Ill.
Division of Ser. No. 99,135, Dec. 17, 1970. This application Dec. 15, 1972, Ser. No. 315,494
Int. Cl. B26d *1/12*; **B27b** *5/04*
U.S. Cl. 83—79 **10 Claims**

A machine for trimming the edges of panels wherein a first conveyor mechanism passes the panels past a pair of saws for trimming the side edges of the panels and a second conveyor mechanism passes the panels past a second pair of saws for trimming the end edges of the panels. The machine has transfer mechanism for transferring the panels from the first



conveyor system to the second conveyor system. The machine includes a device for severing the web between the panels as they pass through the machine, and includes also a device for turning the panels over when they have been trimmed.

3,788,175
CUTTING APPARATUS
Ira K. Davis, Columbia, S.C., assignor to Sam B. Fowler, Lugoff, S.C.
Filed Aug. 25, 1971, Ser. No. 174,617
Int. Cl. B26d *7/06*
U.S. Cl. 83—83 **4 Claims**

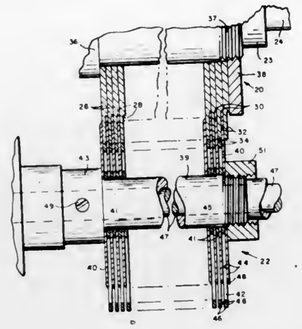


An apparatus for cutting and dispensing sheet material from a roll of material comprising tack means carried by a pair of standards for supporting an elongated roll of sheet material. The sheet material is fed over a cutting surface under a pressure bar which holds an end of the sheet material on the cutting surface after a cutting blade severs the sheet material. An arm extends outwardly from adjacent the middle of the cutting surface for measuring the length of the material to be cut. The arm also provides means over which the material can be automatically folded upon cutting.

3,788,176
CLAM SLICING MACHINE
Earl M. Glass, Baldwin, N.Y., assignor to Howard Johnson Company, Boston, Mass.
Filed May 24, 1972, Ser. No. 256,341
Int. Cl. B26d *4/04*
U.S. Cl. 83—114 **19 Claims**

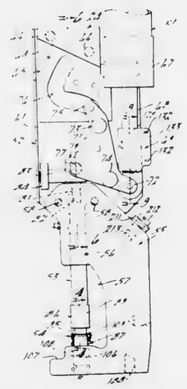
A feed cylinder comprising a plurality of spaced parallel discs providing peripheral slots of a predetermined depth and

a plurality of circular cutter blades supported for rotation in the slots. The feed cylinder and cutter blades are supported for rotation on spaced parallel shafts, the shaft supporting the cutter blades being movable relative to the shaft supporting the feed cylinder to permit adjusting the degree of intermesh of the slots and cutter blades. An adjustable stop provides for determining the degree of intermesh and a spring yieldably



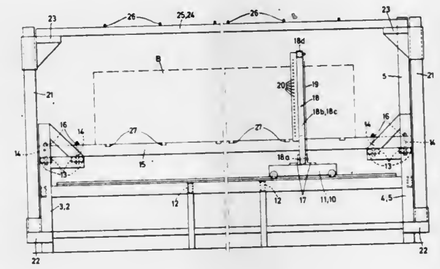
holds the cutter blades at a predetermined position of adjustment. There are stripper rings loosely mounted on the shaft on which the cutter blades are mounted between the cutter blades which are free to turn relative to the cutter blades for clearing the latter and a guide for controlling displacement of the stripper rings. The edges of the discs constituting the feed cylinder are perpendicular to the side surfaces and the edges of the cutter blades are inclined relative to the side surfaces.

3,788,177
FORMING TOOL AND FIXTURE THEREFOR
Robert W. Williamson, 62701 Haven Ridge Rd., New Haven, Mich.
Filed July 2, 1971, Ser. No. 159,176
Int. Cl. B26d *5/08*
U.S. Cl. 83—454 **13 Claims**



A forming tool and fixture therefor that is adapted to perform a variety of work functions on a workpiece and which lends itself to rapid relocation and change in function. A forming tool is constructed as a compact member including a force amplification device. Due to the compact construction, a number of the forming tools may be juxtaposed to each other so as to perform work functions on closely adjacent areas of the workpiece. The tool may function as a punch and an improved and simplified stripper arrangement is provided for the punch which stripper uses an elastomeric member. The tool may function as a punch and embodies a die structure that facilitates rapid and convenient adjustment in the location of the formed hole. The fixture for the tool includes a supporting or mounting bracket that facilitates convenient adjustment of the tool in a variety of planes. A novel clevis is also provided for accommodating a connection between the shaft of an actuator and the driven element.

3,788,178
MACHINE FOR CUTTING RIGID FOAM BLOCKS
Wolfgang Pantel, Stuttgart, Germany
Filed July 14, 1972, Ser. No. 272,048
Claims priority, application Switzerland, July 28, 1971, 11131/71
Int. Cl. B26d *7/10*
U.S. Cl. 83—171 **2 Claims**

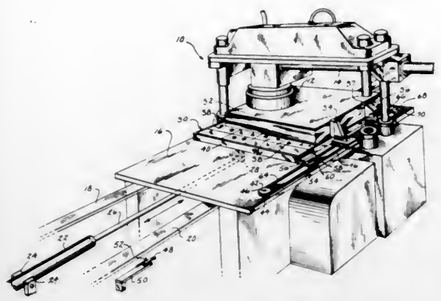


A machine for cutting elongate rigid foam blocks using cutting wires through which an electrical current flows for heating thereof. A first group of such cutting wires extending in transverse direction being arranged at a vertical support frame of a horizontal support mechanism of the machine frame, the support frame being displaceable in the lengthwise direction of a block which is to be cut. A second set of such cutting wires likewise extends in the transverse direction at a horizontal support frame which can be moved up and down at the machine frame. According to the invention the support mechanism consists of longitudinally extending beams arranged at a lateral spacing from one another, the end portions of which are mounted at transverse beams of the machine frame. A lower transverse portion of the vertical support frame extends beneath and past the lengthwise extending beams and a third set of cutting wires is present which are arranged at the vertical support frame and which extend from the top towards the bottom through the lengthwise extending beams of the support mechanism.

3,788,179
CUTTING PRESS
Raymond G. Vallier, Brookfield, Wis., assignor to Western States Envelope Company, Milwaukee, Wis.
Filed May 1, 1972, Ser. No. 249,092
Int. Cl. B26d *7/20*
U.S. Cl. 83—437 **7 Claims**

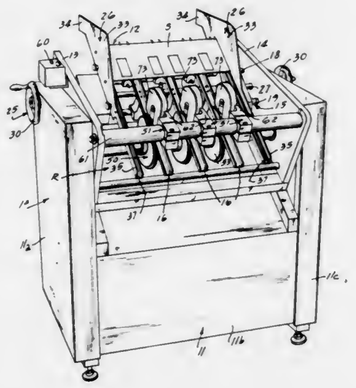
A cutting table is movably mounted on a frame for reciprocal movement between two positions, and a cutting die is positioned to overlie one position of the cutting table. A cutting board which is mounted on top of the cutting table comprises a plurality of rectangular sections which are positioned in side-by-side relationship in a substantially flat tray. The rectangular sections are fitted loosely enough into the tray so that they can be moved from position to position to present an altered cutting surface to the cutting die. An eccentric shaft driven by a chain is mounted on the cutting table and engages the cutting board to cause minor shifting of the cutting board

when the chain is moved. The chain engages a ratchet which is positioned to engage a pawl on the frame. The pawl moves the



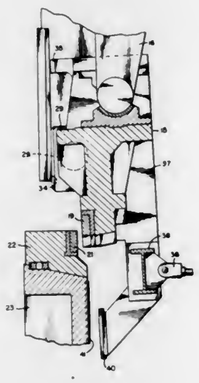
ratchet and thereby shifts the position of the cutting board every time the cutting table is reciprocated between its two positions.

3,788,180
SLITTER FOR DISPLAY PACKAGES AND SIMILAR PRODUCTS
George Potsch, Lake Zurich, and Karl Friedrich Poetsch, McHenry, both of Ill., assignors to Sun Industries Incorporated, Fox Lake, Ill.
Filed Nov. 10, 1971, Ser. No. 197,205
Int. Cl. B26d *1/24, 7/06*
U.S. Cl. 83—449 **12 Claims**



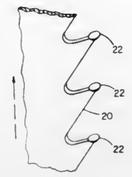
An apparatus for slitting sheets of material comprising a frame having an inclined flat stationary feed bed which is fixedly mounted on the frame. The bed includes a series of transversely spaced inclined rails and each rail is provided with a knife opening located intermediately relative to upper and lower ends of each rail. Cutting means are also supported on the frame and comprise a paired knife and anvil with each pair co-acting at each knife opening thereby providing a series of transversely spaced slitting stations for slitting a sheet as it moves downwardly along the inclined flat feed bed on the aforesaid rails. The lower ends of the rails extend beneath and below the slitting stations to support the sheet before and after slitting. Each paired knife and anvil are so constructed to shear cut the sheet and the knives are self-sharpening because of the manner in which they are mounted relative to the anvils. Product support guides are positioned between the inclined rails for supporting the contents contained within the "-blisters." A first sheet is employed carrying the blisters. The blisters in effect comprise a series of transparent open-ended pouches which are adapted to receive product and a closure sheet is secured to the first sheet to seal the product within the blister. The guides are used where the products being packaged are relatively heavy in weight.

3,788,181
SHEAR
James R. Adair, Pittsburgh, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.
Filed Jan. 22, 1971, Ser. No. 108,843
Int. Cl. B26d *5/08, 5/16*
U.S. Cl. 83—554 **10 Claims**



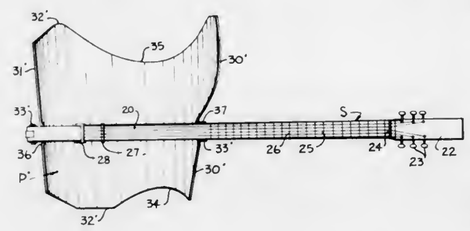
The disclosure of this invention relates to a shear for side trimming or dividing steel plates produced by a rolling mill. It illustrates and describes a stationary lower knife head to which there is secured a lower knife and a vertically movable upper knife head that support an upper knife. The upper knife head is connected to a crank shaft by pitmans and through which means the upper knife is moved towards and away from the lower knife to effect a cut. The path of the shearing and return stroke of the upper knife head is controlled so that during the cutting portion of the shearing stroke, the upper knife is caused to move perpendicular to the plate over the entire range of plate thicknesses adapted to be sheared, and immediately thereafter, at the commencement of the return stroke, the upper knife is displaced away from the sheared edge of the plate. This control is achieved by providing a pair of trunnions pivotally connected to the upper knife head in which the upper knife head is urged against a knife action control guiding surface during the shearing stroke and displaced laterally immediately after shearing and during the first portion of its return stroke in a manner that the lower portion of the head is tilted away from the sheared edge of the plate. A piston cylinder assembly connected to the upper knife head is employed to assist in the positioning of the head in timed sequence with the rotation of the crank.

3,788,182
CUTTING TOOLS WITH ROUND FACE TOOTH INSERTS
Robert P. Tyler, Westminister, Mass., assignor to Wallace-Murray Corporation, Fitchburgh, Mass.
Filed Sept. 7, 1972, Ser. No. 286,956
Int. Cl. B27b *33/02;* **B27g** *13/08*
U.S. Cl. 83—835 **5 Claims**



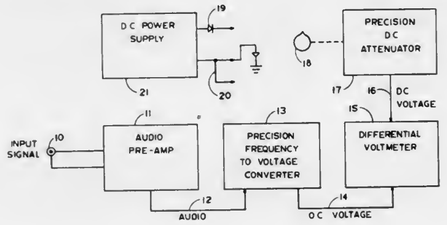
Saws have teeth inserts which present on each tooth a circular cutting edge resulting from truncating spheres of hard or hardenable material to form round surfaces facing the direction of sawing motion and presenting round cutting edges at the teeth tips having a positive or negative rake as desired.

3,788,183
STRINGED INSTRUMENT WITH A SOUNDING PLATE
Ralph E. Mariner, 2060 S. Patton Ct., Denver, Colo.
Filed Feb. 5, 1973, Ser. No. 329,682
Int. Cl. G10d *3/00*
U.S. Cl. 84—291 **10 Claims**



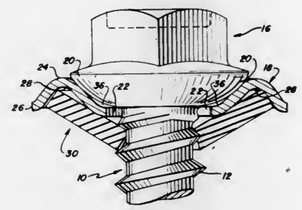
A stringed instrument having the strings carried on an extended stick, and a sounding plate affixed to the stick to amplify the vibrations of the strings. The sounding plate is a thin sheet of resilient material which is flexed when mounted upon the stick to impose bending stresses upon the plate.

3,788,184
PRECISION ELECTRONIC TUNING DEVICE
Donald K. Zeiser, 7425 Parkdale, Clayton, Mo.
Filed June 29, 1972, Ser. No. 267,648
Int. Cl. G10g *7/02*
U.S. Cl. 84—454 **21 Claims**



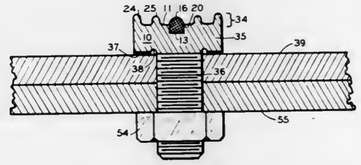
A precision electronic tuning device for tuning a musical instrument, having an audio pre-amplifier, a frequency to voltage converter, a D.C. attenuator and a differential voltmeter, the differential voltmeter connected between the outputs of the D.C. attenuator and the frequency to voltage converter as a null indicator to indicate the voltage difference between the two. The audio pre-amplifier amplifies the signal from the musical instrument and its output is connected to the input of the frequency to voltage converter. The frequency to voltage converter changes the amplified frequency to voltage proportionally.

3,788,185
CONTROLLED-DRIVE SEALING FASTENER
Charles E. Gutshall, Schaumburg, Ill., assignor to Elco Industries, Inc., Rockford, Ill.
Filed Feb. 1, 1972, Ser. No. 222,576
Int. Cl. F16b *43/00*
U.S. Cl. 85—1 JP **14 Claims**



This controlled-drive fastener which seals the aperture through which it is driven comprises an elongated shank having an entering end portion at one extremity, a head of expanded cross section integral with the shank adjacent the other extremity, a centrally-apertured, substantially-rigid backing member or washer assembled on the shank adjacent the head and a centrally-apertured, substantially-resilient sealing member or washer assembled on the shank adjacent the substantially-rigid washer. The substantially-rigid washer has an annular convex portion intermediate the radial peripheries and disposed generally towards the head and a complementary annular concave portion disposed generally towards the entering end portion. The substantially-resilient washer is dilated adjacent the inner periphery to accommodate the fastener shank and to impart an inverted frustoconical configuration to the washer. Specific embodiments include self-centering designs, bonded assemblies, and swiveling assemblies.

3,788,186
STRESS INDICATION
Nelson A. Crites, Columbus, Ohio, assignor to Battelle Memorial Institute, Columbia, Ohio
Filed Nov. 19, 1971, Ser. No. 200,321
Int. Cl. F16b *31/02*
U.S. Cl. 85—62 **17 Claims**

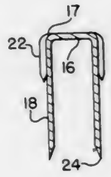


A member having a region that may be subject to compressive stress and means in the region for indicating that a predetermined magnitude of such stress has been encountered.

A cavity extending inward from a surface has a piece of brittle material fitted snugly in it against, and protruding beyond, the rim of the cavity. The predetermined stress causes the piece to shear and break apart at the rim.

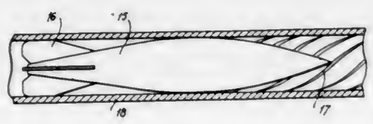
In a bolt, the cavity may be in the outer portion of the head, where the compression is responsive to tension in the shank. Or the cavity may be in the convex portion of a Belleville washer, to provide a measure of tension in the shank of a bolt that is tightened against it.

3,788,187
STAPLING SYSTEM AND METHOD
Friedrich Karl Knohl, Roselle, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Sept. 9, 1971, Ser. No. 178,956
Int. Cl. F16b *15/00*
U.S. Cl. 85—49 **10 Claims**



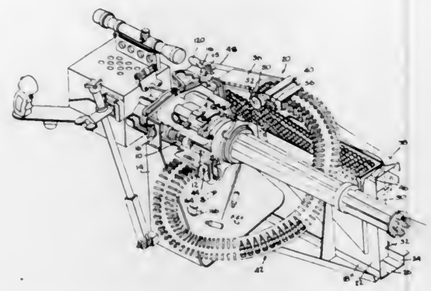
An attachment system in which a staple and staple diverging means cooperate in such a manner as to flare the penetrating legs of the staple as it enters a workpiece such as gypsum board. The diverging means is first placed in or on the workpiece and thereafter a staple, including a head portion and leg portion, is driven over the diverging means to diverge outwardly the legs of the staple and thereby provide substantial resistance to withdrawal of the staple, and additionally preventing the entering points of the staple from penetrating thru and protruding thru the opposite side of the workpiece.

3,788,188
COMBINATION MUZZLE-LOADING MORTAR BARREL AND PROJECTILE
Arno Sten Donner, P.O. Box 10032, Helsinki, Finland
Continuation of Ser. No. 801,712, Feb. 24, 1969, abandoned. This application Dec. 1, 1970, Ser. No. 94,194
Claims priority, application France, Apr. 27, 1967, 67104372
Int. Cl. F41j *1/06*
U.S. Cl. 89—1 F **1 Claim**



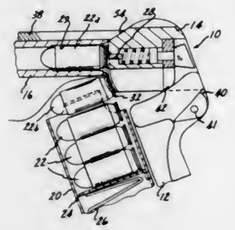
A combination of muzzle-loading mortar barrel and projectile characterized in that at least one of said elements has on its side face, disposed opposite that of the other element, projections adapted to come into sliding contact with said other element and to form with it passages for the escape of air during the loading of said projectile in the barrel.

3,788,189
AMMUNITION FEEDING SYSTEM
Harold G. Sachleben, Sr., Camden, N.J., and Robert Pettinga, Shelburne, Vt., assignors to General Electric Company
Filed July 12, 1972, Ser. No. 270,991
Int. Cl. F41d *9/06*
U.S. Cl. 89—34 **8 Claims**



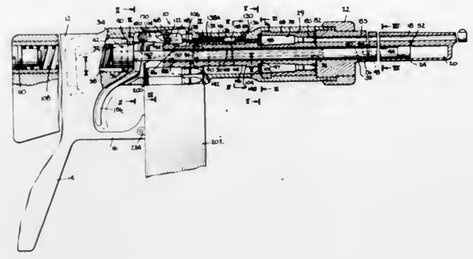
An ammunition handling system has a housing for storing the main quantity of a belt of rounds of ammunition and a flexible guide for leading the belt from the housing to the gun, and having means at the forward end of the gun for retaining the belt therein when separated from the gun, and for locking onto the feeder of the gun, engaging the lead round of the belt into the feeder, and releasing the belt for feeding in a single manual operation of the gunner.

3,788,190
AUTOMATIC FIREARM
Kenneth H. Dunn, 111 N.E. 27th St., Pompano Beach, Fla.
Filed Apr. 10, 1972, Ser. No. 242,346
Int. Cl. F41c *5/06*
U.S. Cl. 89—196 **5 Claims**



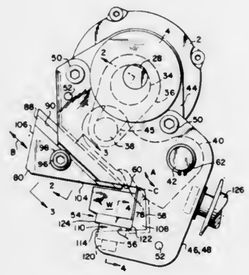
A firearm which utilizes the recoil of the explosion to automatically bring a new cartridge into position in the firing chamber and to discharge the spent cartridge. The loading mechanism includes a slide member having fingers which grip the rim of the cartridge and a cam means carried by the frame of the firearm and utilizing the rearward sliding motion between the slide member and the frame to produce upward movement of the cartridge from the magazine to the loading area and to produce alignment of the cartridge with the firing chamber of the firearm so that upon forward return movement of the slide member the cartridge is positioned in the firing chamber ready for firing.

3,788,191
BURST FIRING, SINGLE BARREL, ARMAMENT
Richard Stephen Rose, South Burlington, and Burton Parker Clark, St. George, both of Vt., assignors to General Electric Company
Filed Dec. 6, 1972, Ser. No. 312,763
Int. Cl. F41d *7/02*
U.S. Cl. 89—155 **9 Claims**



A single barrel rifle, has a plurality of chambers in a revolver drum which are loaded, chambered, extracted and ejected concurrently, and fired sequentially, under the control of a central actuation rod.

3,788,192
METAL FORMING TOOL
Adrian H. Krieg, 2627 Dunning Dr., Yorktown, N.Y.
Filed Nov. 1, 1971, Ser. No. 194,284
Int. Cl. B23d *3/04*
U.S. Cl. 90—40 **15 Claims**

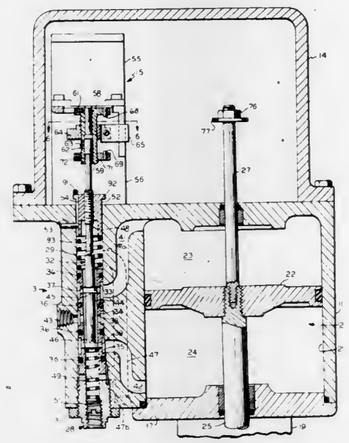


A tool for preparing beveled edges on metal workpieces having workpiece holding means and a cutting element. The cutting element being mounted in a carrier pivotally movable in an arc to form a curved bevel in the workpiece.

3,788,193
STEAM ENGINE
Chadwell O'Connor, 3490 E. Foothill Blvd., Pasadena, Calif.
Filed Oct. 4, 1971, Ser. No. 186,069
Int. Cl. F01l *21/02, 31/14*
U.S. Cl. 91—243 **4 Claims**

A steam engine of a modified uniflow type having a valve and valve actuating mechanism permitting double-acting cylinders to operate efficiently under high speed-low torque conditions and also to be smoothly adjusted, during engine operation, for lower compression-higher torque operation at low start-up speeds. A chain driven, double cam, valve actuating mechanism permits smooth variations in the timing of valve operation with a simple control system so that even unskilled operators can run the engine, without roughness, through its full speed and torque ranges. A novel cylinder design obtains what is substantially uniflow operation without undesirable high compression.

3,788,194
ACTUATOR UNIT
Louis G. Burns, Watertown, N.Y., assignor to General Signal Corporation, Watertown, N.Y.
Filed June 30, 1972, Ser. No. 268,013
Int. Cl. F15b *13/16*
U.S. Cl. 91—386 **9 Claims**

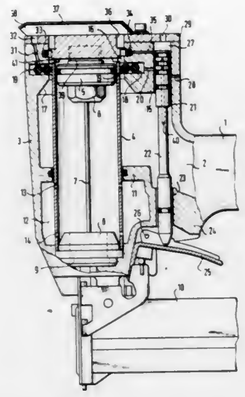


The disclosure concerns a unitized, proportional, electropneumatic linear actuator having a pneumatic power motor controlled by a position balanced servo valve which is actuated directly by an electrical stepper motor. Preferably, the position feedback linkage interconnecting the power motor and the valve comprises a pivoted lever system including springs for eliminating backlash, and a gain adjustment.

3,788,195
CONTROL VALVE ASSEMBLY FOR A PNEUMATICALLY OPERATED STAPLER

Wilfried Lange, Altenhagen, Germany, assignor to Bukama GmbH, Hannover, Germany

Filed Sept. 5, 1972, Ser. No. 286,335
Claims priority, application Germany, Sept. 10, 1971, P 21 45 302.1
Int. Cl. F15b *11/08, 13/042*
U.S. Cl. 91—457 10 Claims

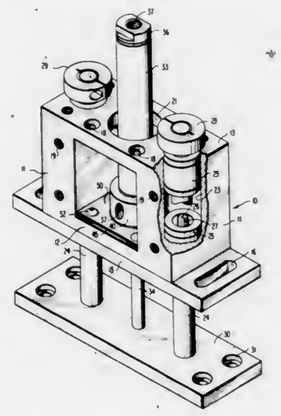


An annular chamber of the control valve of a pneumatically operated stapler communicates with a compressed air admission channel and contains an elastic O-ring which is deformable in a radial direction. The outer edge of this O-ring constitutes a control pressure zone which can be affected by an auxiliary valve, and the interior edge of said O-ring is a sealing element for the air admission channel.

3,788,196
LINEAR THRUSTER

William C. Sandlin, Waco, Tex., assignor to Ultramation Inc., Waco, Tex.

Filed Aug. 9, 1971, Ser. No. 169,933
Int. Cl. F01b *15/00, 29/00*
U.S. Cl. 92—13 21 Claims



A linear thruster comprising a housing supporting a power cylinder and piston, a thrust plate operated by said power cylinder and a pair of precision guide shafts slidably mounted in parallel bearings in the housing and attached to the thrust plate. The guide shafts insure that the thrust plate is moved very accurately in the desired direction. The guide shafts also resist torsional, lateral and tilting loads placed on the thrust plate. The cylinder is secured in an opening in the center of a rubberized fabric retainer. The retainer is then sandwiched between a mounting surface on the housing and a spring plate, each of which has an opening of radius slightly larger than the radius of the cylinder, through which the cylinder extends. The spring plate and retainer are fastened to the housing. The cylinder is thus attached to the retainer which in turn is attached to the housing. This allows the cylinder a slight amount of angular and axial movement, limited by the mounting plate and the housing, to provide compensation for inaccuracies in piston and cylinder manufacture, as well as lateral, torsional and shock loads.

3,788,197
FLUID LIFT MECHANISM AND UNDERGROUND HOUSING

Billy H. Bishop, 1111 S. Post Oak, Houston, Tex.

Filed Aug. 31, 1971, Ser. No. 176,480
Int. Cl. F01b *29/00*
U.S. Cl. 92—77 8 Claims



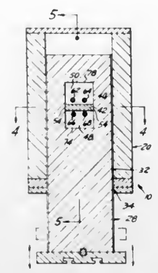
A pre-molded electrical insulating housing for receiving an underground metal portion of a fluid operated expansible chamber lift mechanism to protect the mechanism from corrosion. The housing includes means for protecting the associated piping effecting operation of the lift mechanism and the lift movement guiding assembly.

3,788,198
FLUID SUPPORTED RECTANGULAR SLIDE UNIT

John M. Check, Chelsea, and Donald R. Brettrager, Chesaning, both of Mich., assignors to Raycon Corporation, Ann Arbor, Mich.

Filed June 2, 1972, Ser. No. 259,019
Int. Cl. F01b *15/02, 31/00*
U.S. Cl. 92—86 3 Claims

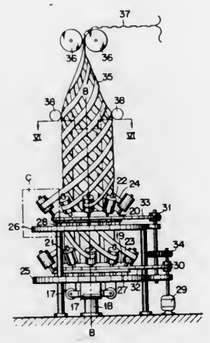
A fluid supported rectangular slide unit in which a rectangular cylinder member is telescoped in a rectangular housing member, and fluid under pressure is introduced to produce relative reciprocal movement of the members. The pressure fluid is also utilized to form a layer of fluid between the members which promotes accurate relative positions of the members and facilitates relative movement. Such a slide unit is suitable for accurately positioning a machine tool where rotational displacement between the tool and a workpiece cannot be tolerated.



3,788,199
METHOD FOR MANUFACTURING HEAVY DUTY BAGS

Wasuke Sato, Kawasaki; Fumio Iriko, Tokyo; Sadao Yamamoto, Kawasaki; Mitsumaro Fujisawa, and Shigeyuki Hatakeyama, both of Yokohama, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Division of Ser. No. 847,647, Aug. 5, 1969, Pat. No. 3,570,749.
This application Nov. 10, 1970, Ser. No. 88,381
Claims priority, application Japan, Aug. 9, 1968, 43-56113; Dec. 20, 1968, 43-11079; Dec. 20, 1968, 43-11079; Apr. 11, 1969, 44-32513; Apr. 11, 1969, 44-32514; Apr. 11, 1969, 44-32515
Int. Cl. B31c *1/00*
U.S. Cl. 93—80 3 Claims

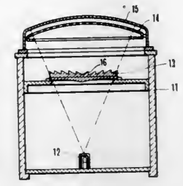


A method for manufacturing heavy duty bags wherein stretched tapes made of synthetic resin such as high density polyethylene or polypropylene are spirally wound in opposite directions in a manner to intersect each other to form a plurality of superposed cylindrical bodies. The superposed portions of the intersecting stretched tapes forming said cylindrical bodies are bonded together to form a cylindrical network, one end of which is sealed to provide a bottom.

3,788,200
EXPOSURE DEVICE FOR MANUFACTURING COLOUR PICTURE TUBES

Eiich Yamazaki, Ichihara; Koichi Maruyama, and Toshio Ueda, both of Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 2, 1972, Ser. No. 231,313
Claims priority, application Japan, Mar. 5, 1971, 46/11274
Int. Cl. G03b *27/16*
U.S. Cl. 95—1 7 Claims

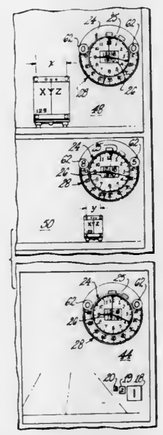


In an exposure device for manufacturing a colour picture tube of the type comprising a source of light, and a correction lens having an effective surface divided into a plurality of discontinuous regions surrounded by boundary lines and disposed between the panel of the tube and the source of light whereby the photosensitive film coated on the inner surface of the panel is exposed to the light emanating from the source and transmitted through the correction lens to form a fluorescent screen; there is provided means for the correction lens for restricting the light transmitted through the discontinuous regions thereby uniformly exposing the photosensitive film.

3,788,201
METHOD FOR ESTABLISHING VEHICLE IDENTIFICATION, SPEED AND CONDITIONS OF VISIBILITY

Frank Abell, 954 W. Hyde Road Blvd., Inglewood, Calif.

Continuation-in-part of Ser. No. 793,461, Jan. 23, 1969, abandoned. This application Dec. 14, 1970, Ser. No. 97,588
Int. Cl. G03b *17/24*
U.S. Cl. 95—1.1 4 Claims



A method is provided for producing a photographic record showing the identification of a moving vehicle, its speed, conditions of visibility, date and time. Conditions of visibility are established by periodically making a first photographic record of a target at a selected location along a highway. In one em-

bodiment, identification and speed are established in a second photographic record by simultaneously photographing a vehicle moving along the highway in the vicinity of the target and a radar speed meter indicating the speed of the photographed vehicle. In a second embodiment, identification and speed are established by taking two pictures with the same photographic means of the identical portion of a moving vehicle in the vicinity of the target at a known time interval in order to make up a second photographic record, and measuring the relative sizes of the image of the identical portion of the vehicle in the two pictures; and thereafter calculating the speed of the vehicle by interrelating the time interval and vehicle image sizes with the image size of an object in a picture taken by said photographic means located at a known distance from the object, the object having an actual dimension corresponding to an actual dimension of the portion of the moving vehicle appearing in the second photographic record. The first and second embodiments for establishing identification and speed can be combined for purposes of corroborating the speed of the moving vehicle. Date and time are established by simultaneously photographing in all exposures making up the first and second photographic records date and time means showing the date and time at which the exposures are made.

3,788,202

VIEWFINDER FOR SINGLE LENS REFLEX CAMERAS

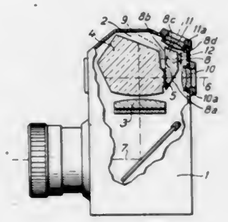
Willi Wiessner, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed Aug. 22, 1972, Ser. No. 282,702

Claims priority, application Germany, Aug. 27, 1971, P 21 42 888.6

Int. Cl. G03b *19/14*

U.S. Cl. 95—11 V **10 Claims**



A single lens reflex camera comprising a penta prism arranged above the reflex mirror is provided on the light emerging side of the prism with a light ray reflecting means. The reflecting means is movably mounted so that the light rays emerging from the prism may be directed into at least two different directions. It is thereby achieved that the camera may be used with at least two different viewing directions, e.g. mainly with a horizontal and with a vertical viewing direction.

3,788,203

JUSTIFICATION APPARATUS

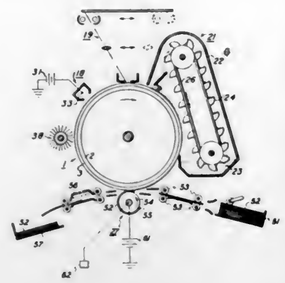
Warren L. Rhodes, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 115,299, Feb. 16, 1971. This application Oct. 27, 1972, Ser. No. 301,381

Int. Cl. B41b *23/00*

U.S. Cl. 95—4.5 **6 Claims**

A method for justifying a line of type from existing typographic material and a character generator is disclosed. An electrostatic charge pattern corresponding to at least a part of the image to be printed is formed. The image is developed and justification calculated. During the transferring process, the image-bearing member is selectively disengaged and re-engaged with the transfer member according to predetermined



values to obtain the effect of justifying the line. This process is applicable to generally any form of imaging involving a transferable image or character.

3,788,204

SWINGING-SECTOR CAMERA SHUTTER WITH WARNING INDICATOR

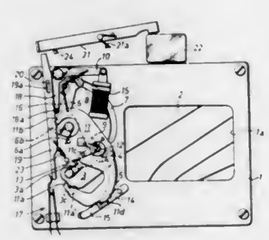
Peter Loseries, Diez, Germany, and Toshio Hayashi, Osaka, Japan, assignors to Minolta Camera Co. Ltd., Osaka, Japan and Ernst Leitz GmbH, Wetzlar, Germany

Filed Mar. 30, 1973, Ser. No. 346,575

Claims priority, application Japan, Apr. 11, 1972, 47/36248

Int. Cl. G03b *9/36*

U.S. Cl. 95—55 **4 Claims**



A swinging-sector camera shutter having a plurality of sectors. Each sector has a plurality of blades which execute a combined rotary-sliding motion. The shutter has a control lever which, when the shutter is cocked, successively engages the operating cranks of the first slide and the second slide and moves same. The second slide is held, in the initial position, by a pawl subjected to the force of a spring, which latter disengages the pawl and is hingedly connected with its other end to the control lever and is tensioned at the beginning of the operation of the control lever. The shutter has a holding magnet to which voltage is applied at least at the beginning of the operation of the control lever and this magnet holds the pawl in the locking position against the force of the spring until current is cut off by the timer control device. The shutter is provided additionally with a displaceable and pivotable warning lever, one end of which is held, by a pawl, in contact with the magnet by spring or magnetic force, outside of the range of motion of the operating crank of the first rotary slide. This warning lever is pulled into this range of motion by spring force and is shifted, by the operating crank into a viewing aperture when the pawl, during the operation of the control lever, is lifted off the magnet before the operating crank has reached its final position in the released position.

3,788,205

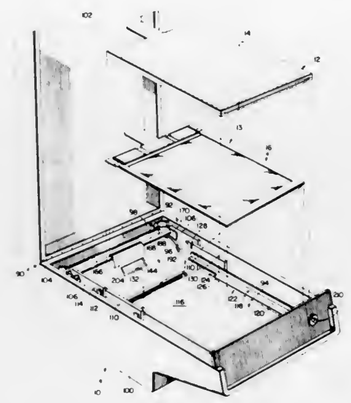
PHOTOGRAPHIC APPARATUS AND SYSTEM FOR PROCESSING LARGE FORMAT, SELF-DEVELOPING FILM UNIT

John F. Pasieka, Acton, and Duncan C. Sorli, Chelmsford, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed May 12, 1972, Ser. No. 252,566

Int. Cl. G03d *5/02*

U.S. Cl. 95—93 **48 Claims**



A compact drum processor for use in conjunction with a specially configured, large format, self-developing, film unit and film holding cassette to form a system for distributing a fluid processing composition between and in contact with preselected portions of two superposed elements forming the large format film unit.

3,788,206

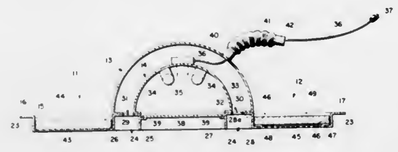
MODULAR CEILING CONSTRUCTION

Gerard Edmund Mulvey, 36 Castle Frank Rd., Toronto, Ontario, Canada

Filed Aug. 21, 1972, Ser. No. 282,247

Int. Cl. F21s *1/02*

U.S. Cl. 98—40 DL **9 Claims**



A modular construction unit for ceiling construction and having a unitary frame, ceiling fabric means supported by and incorporated in the frame, suspension attachment means defined by the frame, lighting fixture means attached to the frame and adapted to be supported thereby in position in the ceiling, and air handling means attached to said frame and adapted to be supported thereby when in position in the ceiling and electrical connection means and air handling connection means associated with the lighting fixture means and the air handling means for connection to services within the ceiling, and junction means formed on said frame means around the edges thereof for interfitting engagement with adjacent said units to form a complete ceiling.

3,788,207

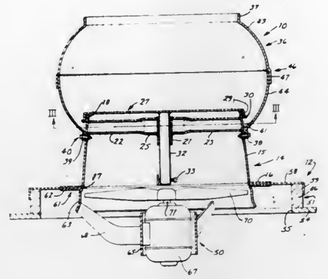
TOP DISCHARGE ROOF VENTILATOR

Lewis S. Doherty, II, Parish of East Baton Rouge, La., assignor to Doherty-Silentaire, Baton Rouge, La.

Filed May 26, 1972, Ser. No. 257,148

Int. Cl. F04d *25/14*

U.S. Cl. 98—42 **12 Claims**



A roof ventilator for exhausting air includes a tapered, upstanding, hollow stack for sealed securement on a roof at an air opening therein. A hollow, upstanding and semispherical outlet bell is telescoped in close spaced radial relation over the upper end of the stack and has an open upper end. A substantially flat damper pan normally rests upon and closes the upper stack end. A mounting sleeve is fixedly supported within the stack. A hollow guide element, pendently and coaxially fixed to the damper pan, is slidably located within the mounting sleeve and carries limiting means coacting with the mounting sleeve for limiting movement of the damper pan upwardly off the upper stack end, whereby a pressure drop from the stack to the bell causes the damper pan to lift from the upper end of the stack to vent the stack into the bell.

3,788,208

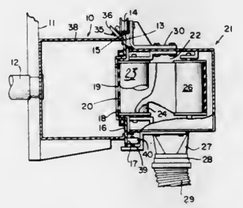
SPRING SECUREMENT MEANS FOR SEALING WEB

Billy M. Brumett, Indianapolis, Ind., assignor to Hawley Manufacturing Corporation, Indianapolis, Ind.

Filed Dec. 7, 1972, Ser. No. 313,183

Int. Cl. F23j *11/00*

U.S. Cl. 98—115 VM **7 Claims**

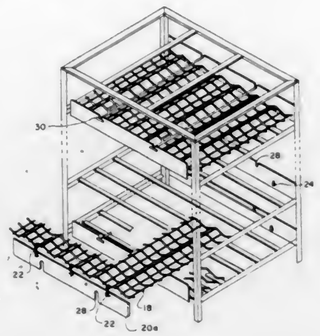


Bowed-spring means for releasably retaining the sealing web to the apertured header wall in a "TRAV-L-VENT" type of ventilating system.

3,788,209
SMOKEHOUSE RACK

Orhan G. Artar, Evanston, Ill., and Charles W. Ross, Pittsburgh, Pa., assignors to Armour and Company, Chicago, Ill.

Filed Mar. 11, 1970, Ser. No. 18,417
Int. Cl. A47j *43/00*
U.S. Cl. 99—349 8 Claims

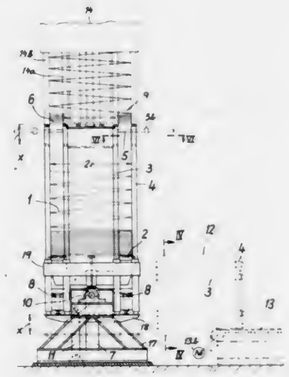


A smokehouse rack providing restrainers to compress the ends of sausages as they are smoked or cooked to reduce tapered ends and provide more uniform slices.

3,788,210
APPARATUS FOR FORMING PACKAGED COILS OF WIRE

Heinz Lingemann, Homberg, Germany, assignor to Fried Krupp Gesellschaft mit Beschrankter Haftung, Essen, Germany

Filed Oct. 24, 1972, Ser. No. 300,341
Claims priority, application Germany, Oct. 23, 1971, 2152953
Int. Cl. B65b *13/02*
U.S. Cl. 100—7 10 Claims
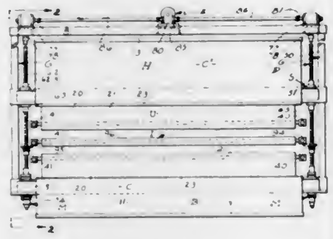


Two sets of parallel guide bars define with a displaceable lower platform a cylindrically annular spaced which can be tilted from a vertical to a horizontal position. A platform above the lower platform can be brought into position to close the end of the space when the space is vertical. Wire supplied continuously from above as a helix collects either on the lower platform in the space or, if the upper platform is in place on the upper platform. In operation a predetermined quantity of wire collects in the space, whereupon the upper platform is brought into place and the predetermined quantity is severed. The lower platform is then lifted to compress this quantity of wire against the underside of the upper platform and devices known per se are employed to tie up the so formed package. The guides and the lower platform are then lowered somewhat and then swung into a horizontal position whereupon the package is pushed out by the lower platform onto a waiting conveyor. The assembly is then swung back into the vertical position and the upper platform moved aside for formation of another package.

3,788,211
MULTIPLE PANEL LAMINATING PRESS

Wylie A. Mason, Jr., 354 Dawson Dr., Thousand Oaks, Calif.

Filed Mar. 23, 1972, Ser. No. 237,267
Int. Cl. B02c *11/08*; B30b *15/34*
U.S. Cl. 100—93 P 13 Claims

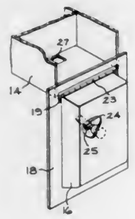


A building panel laminating press including a base comprising a concrete filled case and carrying a fabricated platen with a flat top surface and vertical columns about its perimeter, a weighted head comprising a concrete filled case and carrying a fabricated platen with a flat bottom surface and slidably coupled with the columns, power driven jack means to shift the head vertically relative to the base and one or more intermediate fabricated platens with flat top and bottom surfaces in vertical spaced relationship between the head and base and supported for limited yieldingly vertical movement; each platen having tubes therein to conduct a heated fluid medium therethrough; and vertically extensible shiftable heat insulated shielding means about and between each adjacent pair of platens and having sides adapted to be manually shifted to open positions to provide access to between the platens.

3,788,212
REFUSE COMPACTOR HAVING A PIVOTALLY ARRANGED RAM FACE MEMBER

Donald G. H. Doepke, Greenfield, Wis., assignor to General Electric Company, Louisville, Ky.

Filed Sept. 18, 1972, Ser. No. 289,645
Int. Cl. B30b *15/06*
U.S. Cl. 100—229 A 5 Claims

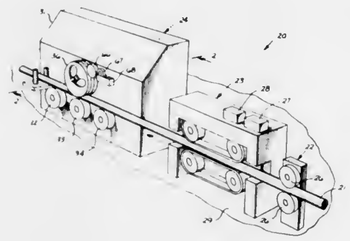


A household refuse compactor of the type having a receptacle wherein refuse is compacted by a movable ram body member. The ram body member has a ram face member normally carried in firm attachment thereto for compressing refuse in the receptacle. The ram face member is adapted to be manually released from its normal compressing position on the ram body member and swung to a more accessible position to enable removal of soil therefrom.

3,788,213
METHODS OF AND APPARATUS FOR MARKING SUCCESSIVE SECTIONS OF AN ELONGATED MATERIAL

William B. Brown, deceased, late of Pasadena, Md. (by Hazel V. Brown, representative); George Frank Besnyo, Towson, and Eugene Marshall Hornor, Baltimore, both of Md., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Jan. 17, 1972, Ser. No. 218,327
Int. Cl. B41f *17/10*
U.S. Cl. 101—37 24 Claims

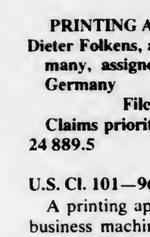


A first code printing head is removably attached to one end of an arm of a turret mounted rotatably at the center thereof within a drum mounted on a constantly rotating drum shaft having successive portions of the circumferential surface thereof moved adjacent a path of travel of successive suctions of a jacketed cable transverse of and spaced from the drum axis. When the first head is oriented radially of the drum, the head marks a code on the successive sections of the cable being advanced in engagement therewith. The other end of the arm is adapted to support a second code printer head so that as the first head is moved out of the radial or printing position, the second head is moved into the radial position where the second code printer marks a different code on a subsequent cable having a different construction.

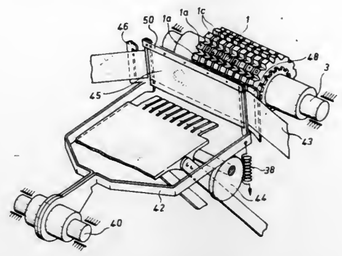
3,788,214
PRINTING APPARATUS FOR BUSINESS MACHINES

Dieter Folkens, and Rolf Moritz, both of Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany

Filed May 10, 1972, Ser. No. 252,015
Claims priority, application Germany, May 19, 1971, P 21 24 889.5
Int. Cl. B41j *27/00*
U.S. Cl. 101—96 9 Claims



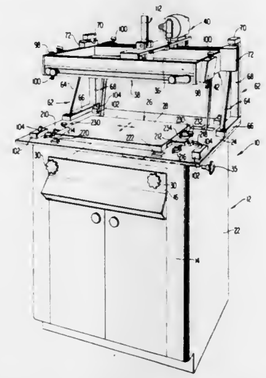
A printing apparatus for typewriters, calculators, and like business machines in which the resilient prongs of a comb shaped printing plate are operated to slide in frictional contact in slightly resiliently deformed condition over areas of pressure responsive sheets covering printing type faces so that imprints are made. The sheet means may include an ink ribbon, a paper sheet, and a stationary foil on which the resilient prongs slide while holding the ink ribbon on the papers sheet, and the paper sheet on the type face, or other pressure responsive imprint forming sheets may be used.



3,788,215
PRINTER WITH SCREEN FRAME LIFT AND SQUEEGEE SUPPORT PIVOT MEANS

Daryl Gene Lambert, Williamsport, Pa., assignor to The Dia-Print Company, Inc., Williamsport, Pa.

Filed Jan. 4, 1971, Ser. No. 103,457
Int. Cl. B41l *13/00*
U.S. Cl. 101—123 7 Claims



The master frame which supports a transversely movable squeegee assembly and a removable screen chase is coupled by blocks including slide bearings to a rearwardly upwardly inclined shafts forming one member of each support assembly fixed to opposite sides of the table top of the screen printer cabinet. This allows the master frame to be raised and lowered and simultaneously moved rearwardly to permit easy visual inspection of the platen supporting the screen print substrate. The squeegee assembly is supported for movement by yoke members carrying open sided ball bushings at 90° to each other, which in turn slidably receive a pair of mounting shafts fixed to a rack bar in cantilever fashion. The rack bar, being pivoted at its ends, pivots the squeegee assembly about a horizontal axis extending parallel to the front panel of the screen printer. A drive motor fixed to the squeegee assembly mounting plate rotates a drive pinion in mesh with the rack on a side of the bar opposite to that of the horizontal ball bushing. Paired, angled male locator members are inclined 60° to the horizontal, in the same manner as the guide shafts of the support assemboy for the blocks, to accurately locate the master frame relative to female locator members fixed to the top of the cabinet table. A single lifting cylinder centrally located

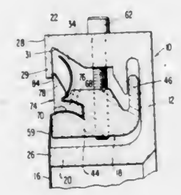
relative to the end bars of the master frame and the support assemblies effects equal force application to both sides of the master frame maintaining horizontal alignment between the same during complete lift of the master frame from the underlying table top. Rotatable clamping members, each carrying a torque screw, effect identical registration of the removable screen printing chase with the master frame during coupling of the chase to the frame. The platen is supported on the table top, beneath the master frame, by means allowing adjustment both fore and aft and to the right or left and dial indicators indicate the extent of shift from neutral positions in either direction for insuring proper relocation of the platen after removal and subsequent replacement.

3,788,216

ADJUSTABLE SCREEN PRINTING CHASE

Daryl G. Lambert, Phoenix, Ariz., assignor to The Dia-Print Company, Inc., Phoenix, Ariz.

Filed Dec. 8, 1971, Ser. No. 205,944
Int. Cl. B41n *1/24*
U.S. Cl. 101—127.1 **9 Claims**



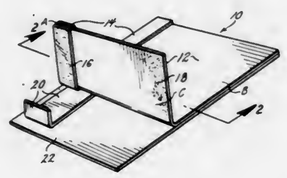
A laterally shiftable screen supporting bar within a U-shaped channel member of a screen printing frame assembly is provided with an arcuate slot extending inwardly from the surface of the bar which faces the channel opening and receives a similarly shaped arcuate screen clamping strip with the screen edge held therebetween such that the force acting through the screen on the strip tending to move it linearly out of the arcuate slot is resisted by the arcuate interlock formed thereby. A projection on the strip engages a flange on the channel member to prevent arcuate removal of the strip from the channel member slot.

3,788,217

REINFORCED STENCIL ASSEMBLY WITH FOLDABLE, ADHESIVE COVERING GUARDIAN STRIP

Harold H. Rabelow, Marion, Ill., assignor to Marsh Stencil Machine Company, Belleville, Ill.

Filed May 27, 1971, Ser. No. 147,395
Int. Cl. B41n *1/24*
U.S. Cl. 101—128.1 **12 Claims**



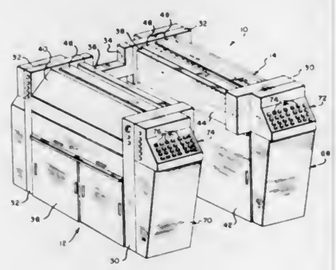
There is disclosed a novel stencil assembly employed in duplicating address and other information on cartons, packages, and the like. The assembly includes a stencil tissue or sheet, on one side of which is permanently secured a narrow ridigizing strip adjacent the top edge of the stencil tissue. A strip of pressure sensitive reusable adhesive is applied to the opposite side of the stencil tissue substantially coextensive with the narrow rigidizing strip. A carbon material covers the remainder of the opposite side of the stencil sheet. A narrow guardian strip engages the lower portion of the adhesive strip. A backing sheet removably engages the remaining upper portion of the adhesive strip. A modified structure includes a carbon sheet in lieu of the carbon on the back of the stencil sheet and the guardian strip, said carbon sheet having a perforation line facilitating tearing off of a substantial portion thereof to provide a guardian strip. The guardian strip and the retained carbon sheet segment are foldable over to cover the exposed adhesive strip bared by removal of the backing sheet.

3,788,218

WALK-IN ROTARY PRINTING MACHINE UNIT

Ralph L. Fusco, Commack, and Robert A. White, Plainview, both of N.Y., assignors to Wood Industries, Inc., Plainfield, N.J.

Filed Oct. 14, 1971, Ser. No. 189,140
Int. Cl. B41f *5/06*
U.S. Cl. 101—180 **2 Claims**



An improved perfecting unit of a rotary web printing machine having at least two printing couples where in the printing couples are separated such that they are in spaced apart relation with each other and including modular prewired housing sections, guards and shields for each couple thereby providing a configuration having a walk-in space which facilitates improved installation, operation, repair and maintenance.

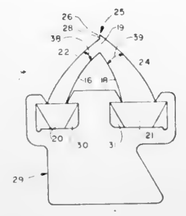
3,788,219

BLADE FOR SCRAPING LIQUIDS FROM A RELATIVELY MOVING SURFACE

John P. Gallagher, Park Ridge, Ill., assignor to A. B. Dick Company, Chicago, Ill.

Filed Apr. 4, 1972, Ser. No. 241,003
Int. Cl. B41f *35/04*
U.S. Cl. 101—425 **5 Claims**

This invention relates to a scraper blade assembly adapted to scrape liquids from a relatively moving surface, the blade having a triangular cross section including respective front and rear legs joined at an apex to form a scraping ledge, and each of the legs having their respective opposite ends anchored in a support bar adapted to move the scraping ledge toward and away from the relatively moving surface.

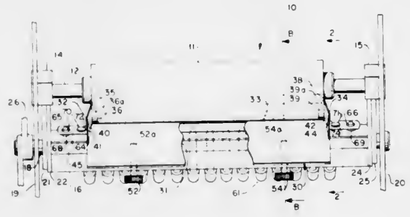


3,788,220

INK FOUNTAIN TROUGH WITH SEALS FOR FOUNTAIN ROLLER

Wallace J. Laben, Chicago, and Kenneth J. Tonkin, Glenview, both of Ill., assignors to A. B. Dick Company, Chicago, Ill.

Filed Apr. 4, 1972, Ser. No. 241,023
Int. Cl. B41f *31/02*
U.S. Cl. 101—363 **5 Claims**



The present invention relates to a replaceable and disposable ink fountain which can be manufactured of thermoplastic material, for example, and which is constructed as a one-piece item having edge and peripheral seals to engage an ink fountain roller in a sealing manner, and also a blade edge adjustable relative to the ink fountain roller to meter application of ink to the roller.

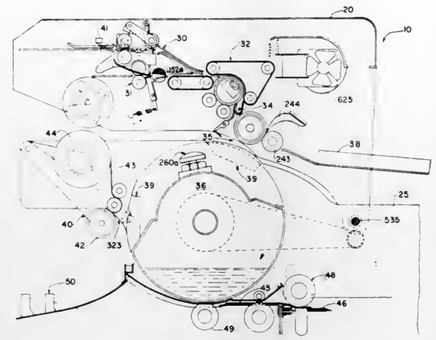
3,788,221

STENCIL DUPLICATOR WITH MASTER MAKING AND PNEUMATIC HANDLING FEATURES

Lawrence A. Borneman, Lombard, Ill., assignor to A.B. Dick Company, Chicago, Ill.

Filed Dec. 15, 1970, Ser. No. 98,260
Int. Cl. B41l *13/06*
U.S. Cl. 101—116 **17 Claims**

An improved reproduction system for making duplicates from an original having a printing cylinder provided with a clamp for selectively receiving, holding or ejecting a master, a take-up assembly adapted to cooperate with an eject mode of cylinder clamp operation to receive a discharged master, an original and master material feeding assembly adapted to bring the original and master into registry and carry the sandwiched original and master material into an imaging assembly to make a duplicating master, a transfer assembly adapted to transfer the imaged master toward the cylinder clamp, and the latter operating in a receiving mode adapted to draw the master to the printing cylinder, and to hold the imaged master during a print mode of cylinder operation in which reproductions are made. The system has controls for programming the machine through respective preparation, function and print cycles.

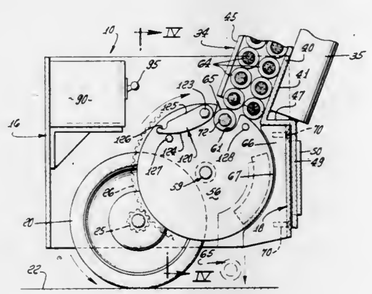


3,788,222

FUSEE IGNITING DISPENSER

Clarence F. Evans, 26801 Camargo Dr., Saugus, Calif.

Filed Dec. 4, 1972, Ser. No. 311,633
Int. Cl. C06d *1/04*
U.S. Cl. 102—37.4 **13 Claims**



A rollable cart with a telescoping handle to facilitate pushing by the user, and including a hopper for carrying a supply of fusees to be ignited, transport means operated in timed relation with rotation of the cart wheels for moving one fusee from the hopper so that its igniter end is forced into abutting contact with a heated member for igniting the fusee, and means for then dropping the ignited fusee onto the ground, as the cart is pushed therealong by the user. Disabling means are included to prevent the transporting, ignition and dispensing of fusees during rearward movement of the cart, as when being towed back to the starting point of fusee distribution. The handle and hopper form a unitary structure which is quickly and easily disassemblable from the cart proper, to facilitate packing in a small area such as in the trunk of a peace officer's automobile.

3,788,223
EXPLOSIVE PRIMER

William Edward Schaefer, Hagerstown, Md., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 13, 1972, Ser. No. 271,595
Int. Cl. F42b 3/10
U.S. Cl. 102—24 R 7 Claims

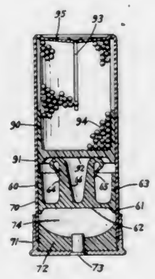


A priming device especially adapted for use in combination with a blasting cap to initiate relatively insensitive blasting agents in small-diameter boreholes comprising a cap-sensitive, flexible, self-supporting explosive charge; a thin-walled tubular member in fixed contact with the charge; and means for coaxially positioning a blasting cap in the tubular member so that the cap's base charge is in initiating relationship with the self-supporting explosive charge and both ends of the cap are protected from exposure, e.g., to potentially hazardous conditions. An assembly comprising the priming device and a blasting cap positioned therein, in which assembly the leg wires or fuse, which are adapted to connect the cap to an outside energy source, are secured to the tubular member so as to prevent the relative movement of cap and tubular member, and thereby maintain the initiating relationship between the cap's base charge and the self-supporting explosive charge.

3,788,224
NESTED WAD COLUMN AND METHOD OF SHOT SHELL LOADING

Edward E. Merritt, Anoka, Minn., assignor to Federal Cartridge Corporation, Minneapolis, Minn.

Continuation of Ser. No. 637,578, May 10, 1967, abandoned, which is a continuation-in-part of Ser. No. 560,221, June 24, 1966, abandoned. This application Dec. 6, 1968, Ser. No. 785,017
Int. Cl. F42b 7/08
U.S. Cl. 102—42 C 20 Claims

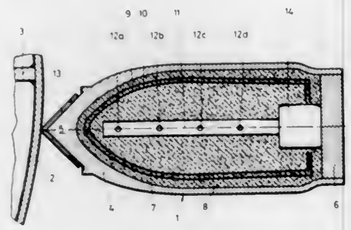


A wad column which is adjustable to an infinite variety of lengths, during loading of the shell, to accommodate any of several different loads. Also, a method of loading shot shells in which the effective height of an overpowder wad is varied, as the wad is seated, to accomodate a particular shot and powder charge combination within the shot shell case.

3,788,225
WARHEAD, PARTICULARLY FOR FIGHTING SHIPS

Manfred Held, Kuhbach, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft Mit Beschrankter Haftung, Munchen, Germany

Filed Oct. 20, 1971, Ser. No. 190,980
Claims priority, application Germany, Dec. 3, 1970, P 20 59 563.5
Int. Cl. F42b 13/04
U.S. Cl. 102—56 8 Claims

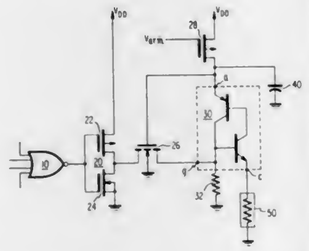


A warhead, particularly for fighting ships, has an explosive charge detonated, after a time interval, determined by a delay member, following activation of a release element, such as an impact contact or an inertial contact, by one or more priming elements located at a point ensuring optimum compression and/or fragmentation effects. This point preferably is the axis of a cylindrical cross-section explosive charge. At least two electrodes, of electrically conductive wire, nets, foil, or the like are installed in the warhead at a position where they are short circuited by combustion, deflagration, or detonation, the location being one other than the point at which the priming elements are installed, and preferably one spaced radially from the axis of the cylindrical cross-section explosive. The electrodes are so associated with the priming elements that, when the electrodes are short-circuited, the priming elements are energized substantially instantaneously and without delay.

3,788,226
ELECTRONIC FIRING CIRCUIT

Richard Plumb Fillmore, Plainfield, and Robert Charles Heuner, Bound Brook, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed July 18, 1972, Ser. No. 272,956
Int. Cl. F42c 11/06, 11/00
U.S. Cl. 102—70.2 R 15 Claims



In an electronic firing circuit including a firing capacitor the charge on the firing capacitor is used as a control signal to isolate a firing thyristor from an erroneous triggering signal.

3,788,227
JET IGNITION DEVICE FOR A PYROTECHNIC FUZE

John R. Clifton, and Gary S. Edwards, both of Bedford, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 5, 1973, Ser. No. 321,435
Int. Cl. F42c 19/08
U.S. Cl. 102—70 R 1 Claim

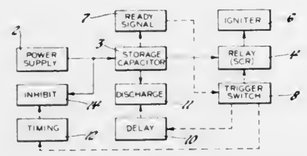


An ignition device having an open-ended case with a primer closing one end and a nozzle closing the opposite end. An orifice is provided in the nozzle and the orifice is closed by a frangible disk attached to the outer end of said nozzle. An ignition pellet is contained in said case adjacent said nozzle and detonation of said primer ruptures said frangible disk and ignites said ignition pellet.

3,788,228
FIRING CIRCUIT

Robert J. Wilson, Bolingbrook, Ill., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 27, 1972, Ser. No. 238,234
Int. Cl. F42c 11/06, 15/40, 11/00
U.S. Cl. 102—70.2 R 4 Claims



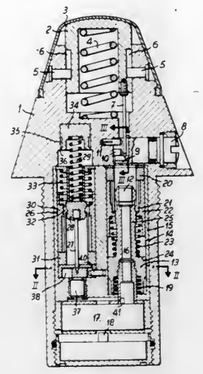
A firing circuit for a charge such as a round of ammunition includes a voltage regulated power supply effective to raise the voltage from the supply voltage available in the vehicle, a storage capacitor charged by the power supply, and means for discharging the capacitor through the igniter of the charge. A circuit responsive to the charge level of the capacitor indicates when it is ready and enables operation of a trigger switch to effect the firing. After a short time delay, the capacitor is drained of any residual charges due to the opening of the firing circuit. Also, for a time after initiation of firing, a timing circuit closes a shunt which disables the supply of the current to the capacitor, preventing further charge during this timing interval.

3,788,229
FUSE FOR NON-GYRATORY MISSILES

Robert Simmen, and Olivier Chabloz, both of Geneva, Switzerland, assignors to Mefina S.A., Fribourg, Switzerland

Filed Aug. 31, 1972, Ser. No. 285,123
Claims priority, application Switzerland, Sept. 10, 1971, 013289/71
Int. Cl. F42c 9/00
U.S. Cl. 102—74 5 Claims

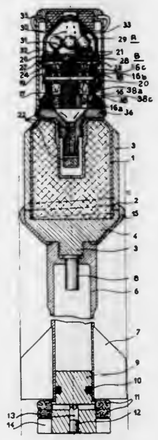
A fuse provided with two striker-and-detonator systems, one of which operates upon impact against a target and may be manually locked against operation and the other operates only with a predetermined lag after impact. The first system is adapted to be brought in all cases into a ready-for-operation condition at the moment of the firing of the missile, in which condition the member carrying the detonator of the first system is brought within reach of the corresponding striker while it simultaneously releases a safety interceptor extending between the striker and detonator of the system operating with a lag.



3,788,230
UNIVERSAL PROJECTILE

Andre Losfeld, 13 and 13 rue Thiebault, 94 Charenton, France

Filed Jan. 22, 1970, Ser. No. 4,829
Claims priority, application France, Jan. 29, 1969, 6901738; Nov. 28, 1969, 6941116
Int. Cl. F42c 9/14
U.S. Cl. 102—74 11 Claims

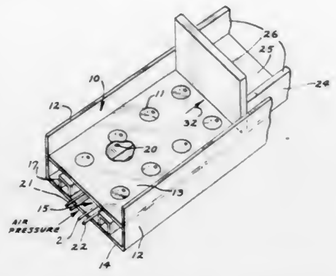


A universal projectile comprising a fuze, a body and a tail, wherein said body has at its upper part some means for removably fitting said fuze, and at its lower part some means for removably fitting said tail, and wherein said fuze has an autonomous impact system and an autonomous delay system.

3,788,231
VALVE FOR LEVITATED VEHICLE TRACK

Roger D. Bloomfield, Jackson, Wyo., assignor to Uniflo Systems Company, Edina, Minn.

Division of Ser. No. 37,691, May 15, 1970, Pat. No. 3,685,788.
This application May 8, 1972, Ser. No. 251,316
Int. Cl. B61b *13/08*
U.S. Cl. 104—23 FS **9 Claims**

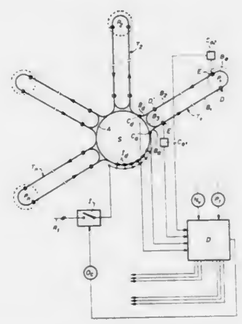


A pilot operated valve for use in combination with a track which supplies air for levitating a vehicle for movement along the track. The valve may be automatically actuated by pilot pressure built up underneath the vehicle, and is self-closing after the vehicle has passed. Pilot operation is provided to insure rapid and accurate operation, and also control pressure conduits can be provided for making the valve open in response to signals other than air pressure rise underneath a levitated vehicle.

3,788,232
TRANSPORT SYSTEM

Karl Schneider, Plan-les-Ouates/Geneve; Gerard Cuenoud, Grand-Lancy/Geneve; Gabriel Bouladon, Versoix/Geneve, and Paul Zuppiger, Athenaz/Geneve, all of Switzerland, assignors to Battells Memorial Institute, Carough, Geneva, Switzerland

Filed Apr. 17, 1972, Ser. No. 244,722
Claims priority, application Switzerland, Apr. 20, 1971, 5722/71
Int. Cl. B61g *3/00*
U.S. Cl. 104—88 **1 Claim**

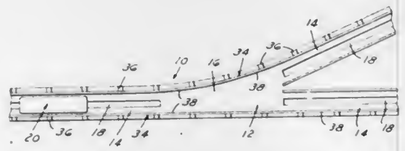


A transport system comprising a network of transport tracks and vehicles in the form of a U-shaped cabins movable on the transport track and into and from sunk positions on withdrawal and supply tracks located at a lower level than the transport track. The transport tracks are in the form of closed track loops with a recycling track section, a passenger entry station and a passenger exit station at each end of the track loop. At least one of the recycling track sections is connected through the vehicle withdrawal and supply tracks to a vehicle distribution and storage track. Each passenger entry station is provided with means for ascertaining the number of vehicles required by counting the number of arriving passengers and for feeding the corresponding data to a computer which accordingly transfers the required number of vehicles from the distribution and storage track to the transport tracks and controls the setting of shunting switches as required.

3,788,233
GUIDED TRANSPORTATION SYSTEM

Denny D. Colovas; John S. Logan, and Richard R. Skruch, all of Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 5, 1971, Ser. No. 169,396
Int. Cl. B61j *3/00*
U.S. Cl. 104—88 **5 Claims**



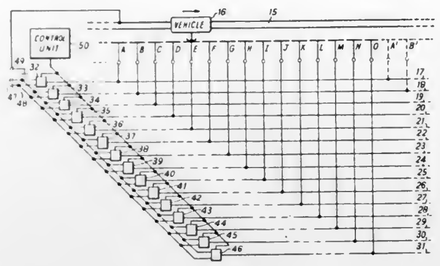
A guided transportation system is disclosed. This system comprises three basic elements. A first element is a substantially flat roadway. A second element is a guided vehicle which includes normal vehicle wheels as well as a plurality of aligning wheels mounted in a horizontal position in a space between the bottom of the vehicle and the roadway. These aligning wheels are located so that at least a portion of each wheel extends outwardly toward an associated side of the vehicle a distance greater than an associated one of the wheels supporting the vehicle. The guidable vehicle also includes at least a pair of switch wheels mounted for movement on opposite sides of the vehicle. These switch wheels are movable individually from a switching position to an inactive position. The third element of the system is a pair of sidewall assemblies which extend along the length of opposite edges of the roadway. Each of the sidewall assemblies includes a plurality of vertical supporting portions and an aligning wheel engageable surface mounted on the portions which functions to guide the vehicle along the roadway when contacted by the aligning wheels. Each sidewall assembly also has along at least the portions thereof associated with vehicle switches for the roadway, a switch wheel engageable surface which may be engaged by one of the switch wheels when in its switching position to guide the vehicle along a particular path through a switch.

3,788,234
VEHICLE-CONTROL APPARATUS

Thomas Oliver Jeffries, Uxbridge, England, assignor to Brunel University, Uxbridge, England

Filed Mar. 28, 1972, Ser. No. 242,877
Claims priority, application Great Britain, Mar. 30, 1971, 8,246/71
Int. Cl. B60l *15/04*
U.S. Cl. 104—152 **7 Claims**

In a transport system the movement of vehicles is controlled by a control wave travelling along a vehicle track. The vehicle has a pick-up device for picking up the travelling wave, and driving means responsive to the control wave and causing, or

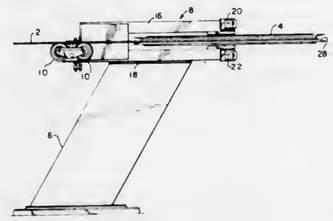


tending to cause, the vehicle to move along the track in register with, and hence at the same speed as, a predetermined region of the wave.

3,788,235
SUPPORT STRUCTURE FOR TURN WHEEL OF CABLE-DRIVEN CHAIR LIFT

Donald D. Bintrim, Harmony, Pa., assignor to Berry Metal Company, Harmony, Pa.

Filed Oct. 31, 1972, Ser. No. 302,612
Int. Cl. B61b *7/00*
U.S. Cl. 104—191 **8 Claims**

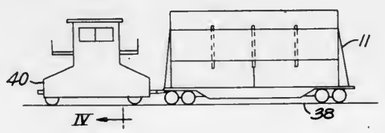


An improved turn wheel support structure for cable-driven chair lift, wherein the support structure is provided with a safety device in the form of a pair of wheel retention plates each having a saddle portion for grasping and retaining the hub portion of the return wheel should the shaft for the wheel break, the design being such that the wheel will be urged by the cable into the saddle portions of the plates should a fracture of the shaft occur.

3,788,236
COKE QUENCHING CAR

William D. Edgar, Allison Park; John D. Sustarsic, McKees Rocks, and Raymond C. Kinzler, Carnegie, all of Pa., assignors to Koppers Company, Inc., Pittsburgh, Pa.

Filed Dec. 27, 1971, Ser. No. 212,570
Int. Cl. B61d *3/16, 7/08;* **C10b** *39/14*
U.S. Cl. 105—254 **2 Claims**

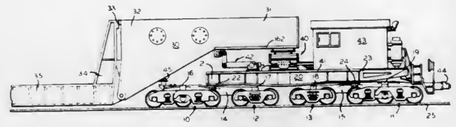


A coke quenching car is provided with a plurality of transversely extending baffles that reduce the gap between the quenching car and the coke guide hood. The end walls and one side of the car, like the baffles extend above the top of the quenching car locomotive.

3,788,237
SCHNABEL CAR

Robert W. Dieckman, Deerfield Beach, Fla.; Bernd G. Albers, and John W. Mrozek, both of New Castle, Pa., assignors to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Filed May 17, 1972, Ser. No. 254,073
Int. Cl. B61d *3/16*
U.S. Cl. 105—367 **27 Claims**

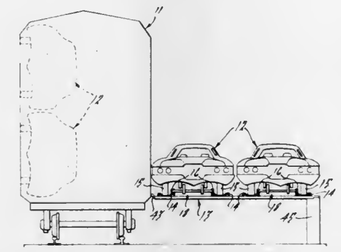


Two substantially similar vehicles are adapted for being separated to engage a load between them and for being connected together when returning without a load. Each vehicle has a plurality of wheeled trucks which support a bolster or equalizing beam. A beam-like body which engages the load extends over the bolster. Support means are interposed between the outboard end of the body and the midregion of the bolster. Support means include means for permitting yawing, rolling, pitching and straight line transverse movement of the load body with respect to the bolster. There are also jack means in the support means for raising and lowering the outboard end of the load body. A shift control is interposed between the load body and the bolster for controlling the angular relation between the bolster and load body.

3,788,238
CAR SHIPPING APPARATUS

James R. Bennett, New Boston, Mich., assignor to Evans Products Company, Plymouth, Mich.

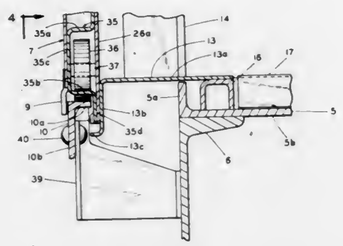
Filed Apr. 11, 1972, Ser. No. 242,924
Int. Cl. B60p *7/08;* **B61d** *45/00*
U.S. Cl. 105—368 R **8 Claims**



An apparatus for shipping automobiles or other motor vehicles in a larger transporting vehicle. The transporting vehicle has doors that are supported for pivotal movement about a horizontally disposed axis positioned at a lower corner of the vehicle. The doors are pivotable from an opened position in which the transported vehicles may be placed side-by-side on the doors to a closed positions in which the transported vehicles are disposed generally on their sides, one above the other. An improved arrangement is provided for tying down the cars or transported vehicles on the door so as to prevent damage when the door pivots to its closed position. This tie down arrangement simultaneously locks on to the vehicle frame or under carriage and draws the vehicle downwardly to compress

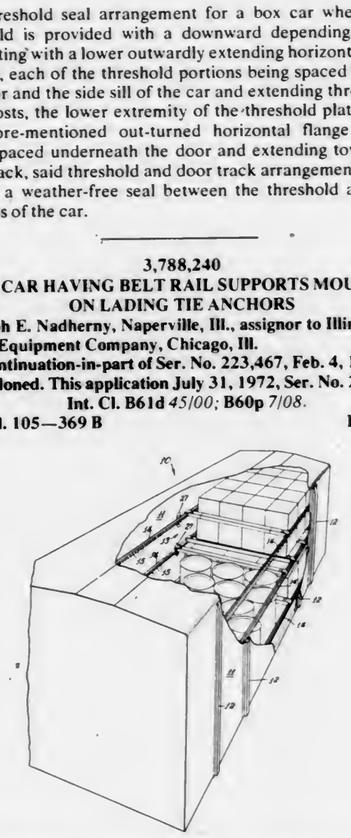
its suspension system during transit. The locking members of the tie down arrangement are positioned for access through openings in the door. In one embodiment of the invention, closures automatically cover these openings when the door moves to its closed position.

3,788,239
RAILROAD FREIGHT CAR DOOR TRACK AND THRESHOLD DESIGN
John D. Bailey, Orland Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed Dec. 20, 1971, Ser. No. 209,918
Int. Cl. B61d *17/00*
U.S. Cl. 105—378 **6 Claims**

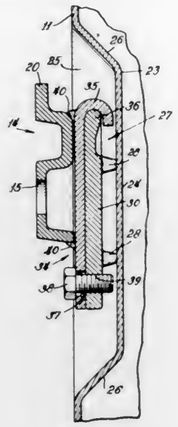


A threshold seal arrangement for a box car wherein the threshold is provided with a downward depending portion connecting with a lower outwardly extending horizontal flange portion, each of the threshold portions being spaced between the door and the side sill of the car and extending through the door posts, the lower extremity of the threshold plate having the afore-mentioned out-turned horizontal flange portion being spaced underneath the door and extending toward the door track, said threshold and door track arrangement providing for a weather-free seal between the threshold and door portions of the car.

3,788,240
BOX CAR HAVING BELT RAIL SUPPORTS MOUNTED ON LADING TIE ANCHORS
Rudolph E. Nadherny, Naperville, Ill., assignor to Illinois Railway Equipment Company, Chicago, Ill.
Continuation-in-part of Ser. No. 223,467, Feb. 4, 1972, abandoned. This application July 31, 1972, Ser. No. 276,404
Int. Cl. B61d *45/00*; **B60p** *7/08*.
U.S. Cl. 105—369 B **19 Claims**

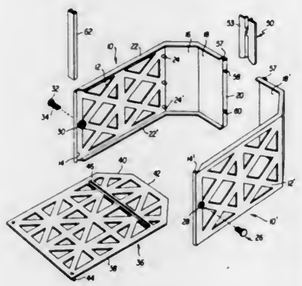


Lading transport means, such as a box car, is provided with lading tie anchors having associated therewith detachable belt rail supports in the form of inverted J-shaped plates, the hook portions of which overlie the upper ends of lading tie anchors secured to the car side walls. Various arrangements are employed for detachably securing the lower ends of the belt rail supports to the respective lading tie anchors. The belt rail may



be secured to the belt rail supports by welding and may be removed therewith as a unitary structure. Key shaped openings are formed in lading tie anchors to receive through the circular portion the head of a bolt having a square shank that interfits with a rectangular part of the key shaped op[e]ning. Also a "Huck" bolt pin can be employed.

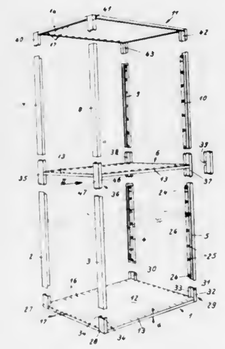
3,788,241
MODULAR SHOE RACK
Fred A. Ravreby, P.O. Box 357, Maynard, Mass.
Filed Apr. 14, 1972, Ser. No. 244,128
Int. Cl. A47f *5/12*
U.S. Cl. 108—6 **33 Claims**



A modular storage unit capable of being assembled into a wide variety of configurations without the use of tools or adhesives. Each individual module is formed of two identical opposing side panels and a central shelf section. The side panels are joined at the rear and open in front, thereby defining a plurality of cubicles or storage spaces. Each side panel comprises a vertical planar side portion having a ridge extending inwardly along at least a portion of the front thereof; a vertical angled portion extending inwardly from the rear edge of the side portion and joining the side portion with a rear portion; a vertical planar rear portion extending from a rear edge of the angled portion generally perpendicular to the side portion and having a locking ridge extending outwardly along at least a

portion of a rear edge thereof; and a pair of vertically spaced horizontal support flanges extending inwardly along at least a portion of the side panel.

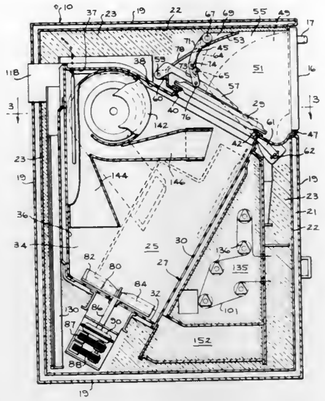
3,788,242
SHELVING UNITS
Ernst Hassel, Neunkirchen-Salchendorf, and Adolf Schmenn, Burbach-Niederdresselndorf, both of Germany, assignors to Fritz Schaefer GmbH, Neunkirchen Kreis Siegen, Germany
Filed July 19, 1971, Ser. No. 163,703
Claims priority, application Germany, July 22, 1970, G 70 27 533.1
Int. Cl. A47b *47/02*; **A47f** *5/16*
U.S. Cl. 108—111 **3 Claims**



A shelving unit comprising a top, a base and at least one intermediate shelf, all of which have vertical stubs at their corners for attachment to uprights consisting of sheet metal profiled sections, the stubs on the intermediate shelf projecting both above and below it and being continuous over their whole height on at least two of their faces, and the uprights being notched to fit around the intermediate shelf so that the lower ends of uprights above the intermediate shelf rest upon the upper ends of uprights below it, so as to transmit loads straight through the uprights to the base. The stubs may be U-sectioned, their walls being bent inwardly at their edges, and the uprights may be of G-section dimensioned to be a force fit over the stubs. The stubs may be spot-welded to vertical flanges on the top, base and intermediate shelf.

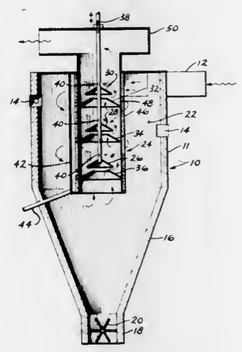
3,788,243
DOMESTIC SOLID WASTE INCINERATOR
Christian A. Eff, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Feb. 29, 1972, Ser. No. 230,283
Int. Cl. F23g *3/04*
U.S. Cl. 110—8 R **10 Claims**

An incinerator for use in a residential kitchen with a box-like housing enclosing a combustion chamber formed by an inner liner and a top-opening access cover. The inner liner has a forwardly inclined semi-cylindrical front wall and a bottom wall generally perpendicular to the said front wall, as well as generally vertical side and rear walls. A reversible, slow-motion, motor-driven agitator is present in the bottom of the combustion chamber to shift the position of the solid-combustible load, as well as to break up the carbonized residue. The front wall of the incinerator housing has a loading door



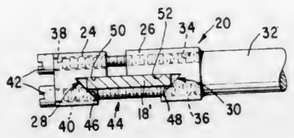
that is connected by a linkage mechanism to the access cover whereby they move in unison for ease in loading the combustion chamber.

3,788,244
COMBUSTION CHAMBER INCLUDING DRY AND WET COLLECTION OF PARTICULATE MATTER
Edwin Mark Polsak, South Euclid, and Donald Joseph Kalfas, Garfield Heights, both of Ohio, assignors to Combustion Engineering Inc., Windsor, Conn.
Filed Dec. 20, 1972, Ser. No. 316,791
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 R **4 Claims**



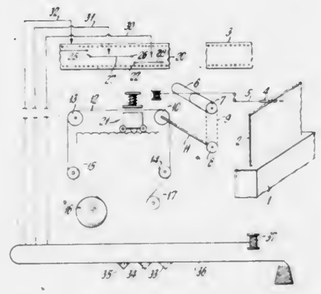
A combustion chamber having an upper cylindrical portion and a lower frustoconical portion, into which combustibles are tangentially introduced in the upper portion thereof. Incombustible solids centrifugally separated are removed through a lower outlet. An upper outlet duct means positioned within the upper cylindrical portion provides egress for the hot gases and entrained fines. A water spray and baffle arrangement located in the outlet duct means subjects the gases to a precooling and wet scrubbing action, for removing the fines therefrom.

3,788,245
UNIVERSAL KNIFE BLOCK FOR TUFTING MACHINES
Alvin T. Bonner, Sr., Chattanooga, Tenn., assignor to The Singer Company, New York, N.Y.
Filed May 8, 1972, Ser. No. 251,128
Int. Cl. D05c *15/24*
U.S. Cl. 112—79 R 5 Claims



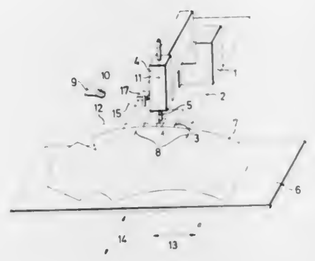
This disclosure relates to knife blocks for supporting the cutting knives in cut pile tufting machines and includes an adjustable knife clamping means which will accommodate a variety of sizes of cutting knives. The knife block generally comprises an elongated rectangular knife supporting body having a truncated knife supporting cavity and means for clamping a knife therein such that a knife supported in the cavity will be tightly wedged therein.

3,788,246
APPARATUS FOR PRODUCING COLORED PATTERNS IN EMBROIDERY MACHINES
Arnold Ochsner, Harriman, N.Y.
Continuation-in-part of Ser. No. 848,840, Aug. 1, 1969, abandoned. This application May 12, 1971, Ser. No. 142,646
Int. Cl. D05c *3/04*
U.S. Cl. 112—83 4 Claims



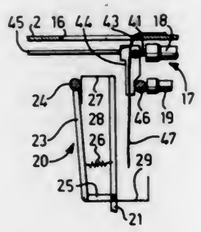
Apparatus for producing multi-colored yarn for use in Schiffli-type embroidery machines consisting of first producing a punched tape programmed according to color variations of a pattern to be embroidered on fabric material. The tape is cut simultaneously with a standard tape of the Jacquard type used on these machines. After the color tape is produced, it is used to control a multi-colored dye system where a continuously moving yarn has the different colored dyes applied thereto in accordance with the colored tape which controls the application of the dye selectively. After the yarn is completely and selectively dyed, it is inserted back onto the machine in proper sequence, and synchronized with the original standard tape so that the needle stitching produces a multi-colored embroidery according to the original design.

3,788,247
MACHINE FOR THE STITCHING OF BUTTONHOLES ON GARMENTS
Philipp Moll, and Wolfgang Goebbels, both of Aachen, Germany, assignors to Moll Apparatebau GmbH, Aachen-Brand, Germany
Filed Dec. 20, 1972, Ser. No. 316,925
Claims priority, application Germany, Dec. 22, 1971, P 21 63 728.5
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.12 11 Claims



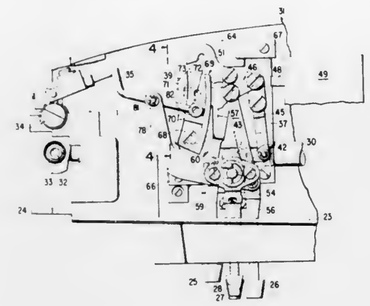
This disclosure relates in general to a machine for stitching buttonholes in the fabric of cut-out pieces of material, particularly outer garments such as jackets, coats, trousers, etc. The purpose of the invention is to automate as much as possible buttonhole stitching while protecting the garment being operated upon from damage which might arise from a defect in the associated control mechanisms.

3,788,248
SEWING APPARATUS WITH AUTOMATIC WORKPIECES STACKING MEANS
Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy
Filed May 17, 1972, Ser. No. 254,305
Claims priority, application Italy, June 18, 1971, 26012 A/71
Int. Cl. D05b *33/00*
U.S. Cl. 112—121.29 6 Claims



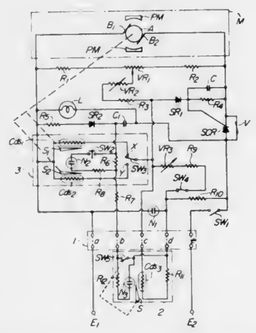
A workpiece stacking apparatus for a sewing machine for receiving workpieces after leaving the seaming area of the machine and stacking them in predetermined numbers on a movable support member in readiness for subsequent finishing operations.

3,788,249
SEWING MACHINE HAVING A PLURALITY OF INTELLIGENCE RECORD SYSTEMS ASSOCIATED THEREWITH
William Weisz, Rockaway, N.J., assignor to The Singer Company, New York, N.Y.
Filed Oct. 25, 1972, Ser. No. 300,537
Int. Cl. D05b *3/02*
U.S. Cl. 112—158 R 9 Claims



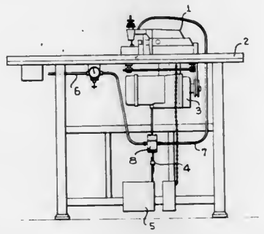
A sewing machine having stitch-forming instrumentalities, actuating mechanism for imparting operative stitch-forming movements to said stitch-forming instrumentalities and a control link operatively associated with said stitch-forming instrumentalities to thereby influence the formation of a pattern of stitches. A plurality of different intelligence record systems is provided each having its own output element which is separately connectable to said control link to impart a predetermined pattern of movements thereto, and operator influenced switching means is provided for effecting operative interconnection between the output element of any selected one of said intelligence record systems and said control link.

3,788,250
SYSTEM FOR STOPPING SEWING MACHINE NEEDLE AT PREDETERMINED POSITION
Katsuji Soeda, Sukagawa, Japan, assignor to Yamamoto Electric Industrial Co. Ltd., Sukagawa-shi, Japan
Filed May 10, 1971, Ser. No. 141,733
Claims priority, application Japan, June 19, 1970, 45/61255
Int. Cl. D05b *69/22*
U.S. Cl. 112—219 A 3 Claims



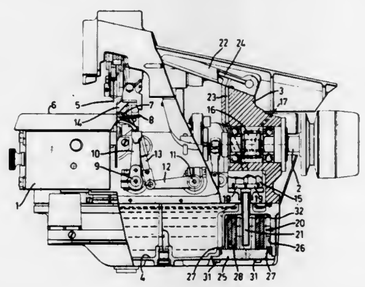
A system having means for automatically stopping the needle of an electric sewing machine at an upper or lower position in response to the stoppage of the machine during or upon completion of the sewing operation. After the stoppage, the needle can be moved to the other position and stay there by the manipulation of a change-over switch. Also, by the manipulation of a push-button switch, the needle can be stopped at such position after effecting one or more stitches at low speed. Another switch is further provided so as to cut off the needle stopping means from the power supply and stop the needle at any desired position instead of the stopping operation by the needle stopping means.

3,788,251
MULTISTAGE DEVICE FOR THE CONTROL OF THE AIR SUPPLY FOR PNEUMATIC ALIGNING MEMBERS
Gunter Haak, Stuttgart, Germany, assignor to Union Special Maschinenfabrik G.m.b.H., Stuttgart, Germany
Filed Nov. 28, 1972, Ser. No. 309,964
Claims priority, application Germany, Dec. 4, 1971, G 71 45 738.0
Int. Cl. D05b *65/02*
U.S. Cl. 112—252 12 Claims



This disclosure relates to a multistage control arrangement for the control of the air supply for a pneumatic aligning member for the alignment of the threads or chains of threads relative to a cutter of a sewing machine, which in the first flow controlling position blocks the air supply in the case of a stopped sewing machine, in the second flow controlling position releases the air supply approximately simultaneously with the starting of the sewing machine, and in the third flow controlling position again blocking the air supply generally at the time when the normal operating speed of the sewing machine is reached.

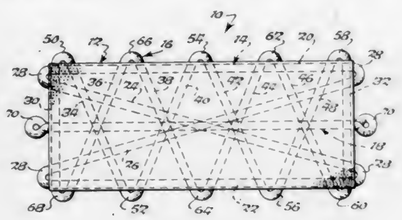
3,788,252
LUBRICANT PURIFICATION FILTER FOR SEWING MACHINES
Nerino Marforio, Milan, Italy, assignor to Virginio Rimoldi & C. S.p.A., Milan, Italy
Filed May 17, 1972, Ser. No. 254,041
Claims priority, application Italy, June 15, 1971, 25837/71
Int. Cl. D05f *71/00*
U.S. Cl. 112—256 3 Claims



An improved filtering device for use in sewing machines which comprises a member having a plurality of upstanding

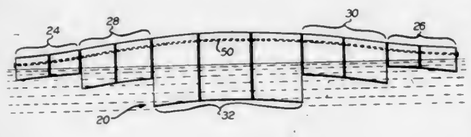
pegs disposed in two concentric series. This element is mounted on a supporting plug which seals the chamber contacting the lubricating fluid. A quantity of filtering material is supported between the rows of pegs.

3,788,253
FLEXIBLE BEARER
Donald F. Rickettson, Shepherd Hill Rd., East Aurora, N.Y.
Filed Apr. 3, 1972, Ser. No. 240,364
Int. Cl. D05b *93/00*; **B32b** *5/04*
U.S. Cl. 112—402 **3 Claims**



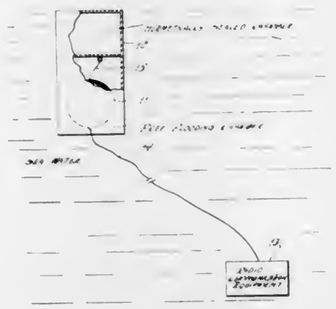
A flexible bearer adapted to be placed on a ground surface adjacent an excavation for supporting the loose material removed from such excavation and protecting the natural environment adjacent the excavation. The bearer comprises a body formed of a flexible sheet of material reinforced by relatively thick strips of material fixedly secured to the underside of the body. Loops are provided along the marginal edges of the body to receive hooks or other lifting means to raise portions of the bearer.

3,788,254
FLOATING PLATFORM
John E. Sheil, 196 Black Smith Rd., Levittown, N.Y.
Filed Dec. 28, 1971, Ser. No. 213,102
Int. Cl. B63b *35/00*
U.S. Cl. 114—0.5 F **15 Claims**



A floating platform having a plurality of float units which are interconnected together in end to end relation with their top surface portions being substantially flush with each other, each of the interconnected units having a predetermined buoyancy which is sufficient to float the platform in a flotation medium, such as water, wherein at least two of the units have a different relative predetermined buoyancy with respect to each other and the flotation medium prior to external loading thereof. The platform is arched along at least a predetermined portion of its length prior to external loading thereof. The arched portion may be either convex or concave or a combination thereof, depending on the relative buoyancy of the interconnected units and the intended use of the platform. Furthermore, if desired, the buoyancy of the various units may be chosen so as to float the platform below the surface of the flotation medium or to float the platform with at least a portion thereof above the surface of the flotation medium. The units are preferably interconnected by means of tension elements, such as rods or cables which are post-tensioned during the assembly of the platform. A floating platform may also be formed from a plurality of such float units which are interconnected together in side to side relation with their top surface portions being substantially flush with each other, in addition to having the units interconnected together in end to end relation. The relative buoyancies of the side to side interconnected units may also be different so as to provide a side to side arched portion as well as an end to end arched portion for the complete structure, or any combination thereof. The units are preferably interconnected in side to side relation by transverse tension elements in the same manner as the longitudinal end to end interconnections.

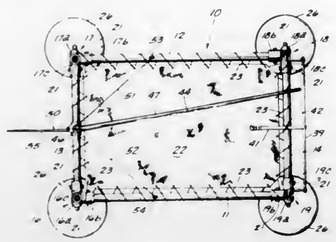
3,788,255
EXPENDABLE SUBMARINE RECEIVING ANTENNA
James J. Tennyson, Waterford, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 26, 1960, Ser. No. 24,856
Int. Cl. F42b *19/36*; **H01g** *1/34*, *1/04*
U.S. Cl. 114—20 R **6 Claims**



An expendable radio communication antenna for use by a submarine submerged at a depth at which its permanent antenna installation is ineffective, comprising a buoyant capsule, having an opening extending between the interior and exterior of the capsule, for release from an ejection chamber of the submarine, a coil of lead-in wire confined within said capsule and having electrical insulation suitable for use in sea water, and being of sufficient length to extend between said submerged submarine and the surface, a free end of said wire extending freely through said opening in said capsule for withdrawal and severance of a selected length of said wire and for connection at the free end to radio communication equipment aboard said submarine, and secured at its other end to said capsule, said coil being of the type whereby the wire pays out freely from said capsule by spiraling off said coil when a tensile force equal to the buoyance of said capsule is applied between said coil and said free end of the wire, whereby said expendable antenna including a selected length of lead-in wire may be disposed in said ejection chamber of the submerged site with the free end of the lead-in wire electrically coupled to said radio communication equipment and released to buoyantly rise to the surface and whereby said antenna may be disposed of by severing the lead in wire at the submarine.

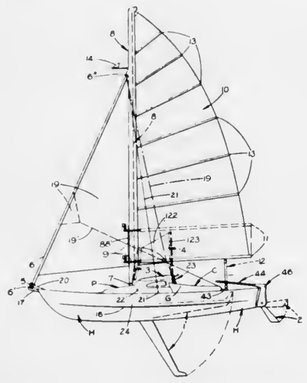
3,788,256
WATERCRAFT WITH ROTATABLE FLOATING PONTOONS
Arthur E. Bashaw, 16900 Parthenia, Apt. No. 9, Sepulveda, Calif.
Filed June 6, 1972, Ser. No. 263,373
Int. Cl. B63b *35/00*
U.S. Cl. 114—39 **4 Claims**

A watercraft is provided with a frame symmetrical about a longitudinal axis and having at least two pairs of freely rotatable floating pontoons. The pontoons have a generally circular disk-like configuration and a convex side in contact with the water. The disk-like pontoons are disposed so that the respective inboard portions thereof touch the water while the respective outboard portions lift out of the water, i.e., the disks



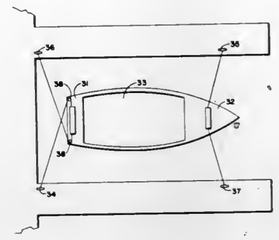
incline downwardly, inboard of the craft. To improve directional stability, rudder-like fins extend downwardly from the center of the convex surface and means are provided so that the fins, in at least one pair, are rotatable in unison about a substantially vertical axis to provide steering.

3,788,257
FIN-KEEL CATAMARAN
Reginald T. Miller, 700 Delaware St., Berkeley, Calif.
Filed Sept. 7, 1971, Ser. No. 177,930
Int. Cl. B63b *35/00*
U.S. Cl. 114—39 **25 Claims**



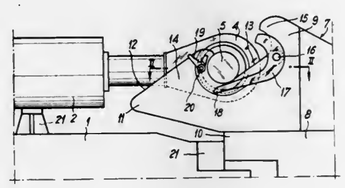
A catamaran type yacht is disclosed which is of very narrow overall beam, having an elongated fin-type keel adjustably mounted on the fore-to-aft center line between its dual hull sections; and this fin-keel is operated adjustably under the control of a simple manual retraction mechanism. The main or wing mast of the craft has means for pivotally mounting the same at a novel stepping sub-assembly; and the mainsail boom is connected to the mast by a gooseneck loop device which allows for a tilt at an acute angle to a vertical plane including the boom axis. Provision is also made for a vertical adjusting movement of the boom in a relatively limited degree. Each hull member is equipped with a pivotally mounted kick-up rudder, the rudders being coupled for conjoint tiller operation. A solid section forestay or job spar is employed in a novel procedure of facilitating raising of the main mast above its stepping unit; and a pop-top type cabin cover is provided for installation in small yachts, with a flexible tent auxiliary shelter operatively connected to the pop-top when the latter is erected.

3,788,258
MOORING DEVICE
George H. Odom, 208 Tuna, Galveston, Tex.
Filed Nov. 15, 1971, Ser. No. 198,557
Int. Cl. B63b *21/00*
U.S. Cl. 114—230 **8 Claims**



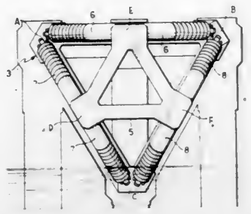
A mooring device comprising a tubular member having a rod member coaxially alligned therewith and lying partially therewithin and in slidable engagement therewith, a tension producing means operatively engaged with the tubular member and the rod member such as to force the two members in opposite directions from one another, a first block and tackle system having one pulling point anchored to a first anchor bar extending from the tubular member in substantial perpendicular relation thereto and the other pulling point anchored to a first anchor bar extending from the rod member in substantial perpendicular relation thereto, a second block and tackle system having one pulling point anchored to a second anchor bar extending from the tubular member in substantial perpendicular relation thereto and the other pulling point anchored to a second anchored bar extending from the rod member in substantial perpendicular relation thereto, the two first anchor means of the first block and tackle system being disposed on substantially opposite sides of the tubular and rod members from the two second anchor means of the second block and tackle system, and mooring line extending from each of the block and tackle systems.

3,788,259
COUPLING DEVICE OF USE INTER ALIA FOR THE CONNECTION BETWEEN A BARGE AND A PUSHER TUG
Jean Paul Colin, Nantes, France, assignor to Societe Financiere Et Industriele Des Ateliers Et Chantiers De Bretagne, Nantes, Loire Atlantique, France
Filed July 10, 1972, Ser. No. 269,979
Claims priority, application France, Feb. 16, 1972, 7205195
Int. Cl. B63b *21/62*
U.S. Cl. 114—235 A **5 Claims**



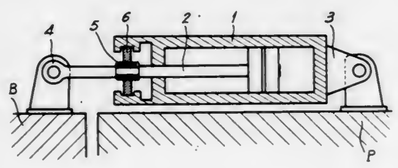
A coupling assembly for coupling a barge and pusher tug comprises a recess having at one end a hook and at the other an abutment. A pawl pivots to displace a coupling element from the hook.

3,788,260
SHOCK ABSORBER FOR USE AS A FENDER FOR SHIPS
Emilio Morini, Milan, Italy, assignor to Societa' Applicazioni Gomma Antivibranti "Saga" S.p.A., Milan, Italy
Filed Feb. 7, 1973, Ser. No. 330,347
Int. Cl. B63b *59/02*
U.S. Cl. 114—219 **2 Claims**



A shock absorber arrangement for use as a fender for ships and comprising a fixed plate mountable on a harbour wall and a movable plate connected thereto by an array of resilient shock absorbers of known type. The array of shock absorbers are coupled in three pairs to three points of the fixed plate, the three points lying at the apices of an equilateral triangle, and each pair of shock absorbers forms an isosceles triangle the base of which is formed by the fixed plate; the angle of the vertex of the isosceles triangle is greater than the angle of the other two apices. The three vertices of the pairs of shock absorbers are coupled to points lying at the apices of an equilateral triangle on the movable plate; the two equilateral triangles are positioned angularly displayed from one another by 60° and the two plates lie in substantially parallel planes when the arrangement is in a rest position.

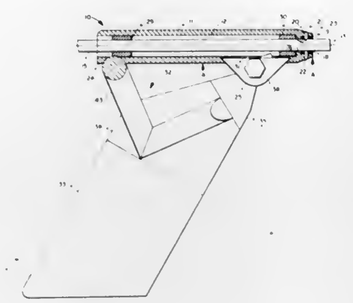
3,788,261
LOCKING DEVICE MORE PARTICULARLY FOR CONNECTION BETWEEN A BARGE AND A PUSHER TUG
Jean Paul Colin, Nantes, France, assignor to Societe Financiere Et Industrielle Des Ateliers Et Chantiers De Bretagne, Nantes, Loire Atlantique, France
Filed Feb. 10, 1972, Ser. No. 225,237
Claims priority, application France, Aug. 31, 1971, 7132331
Int. Cl. B63b *21/60*
U.S. Cl. 114—235 A **7 Claims**



A locking device more particularly for the connection between a barge and tug comprises an interrupted screw and nut assembly.

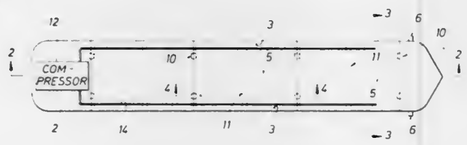
3,788,262
RECOVERY HOOK ASSEMBLY
Donald W. Roberts, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Dec. 4, 1972, Ser. No. 311,583
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 R **12 Claims**

A towable hook assembly for acquiring and capturing a line streamed within water with a ball stop mounted thereon is disclosed as having a barrel with a pair of bores therethrough separated by an apertured wall, with the aperture thereof in alignment with said pair of bores. A first slot extends through the entire length of the side wall of said barrel in such manner as to be in communication with said pair of bores and said aperture, and a second slot extends through the side of said barrel, so as to be in communication with the rearward one of



said pair of bores at a predetermined distance from the rear face of said wall. A fin having a cam at the forward upper end thereof is hinged for rotation in such manner with respect to said barrel as to allow the cam thereof to protrude through said second slot when rotationally urged by rearward drag thereon as a result of the tension being released from the tow line thereof, as said hook assembly is towed through said water, sea water, or other appropriate ambient fluid mediums.

3,788,263
INTEGRATED BARGE TOW WITH RECESSED BOTTOM
David C. McDermott, and Errol V. Seymour, both of Houston, Tex., assignors to Shell Oil Company, New York, N.Y.
Filed June 28, 1971, Ser. No. 157,211
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 R **7 Claims**

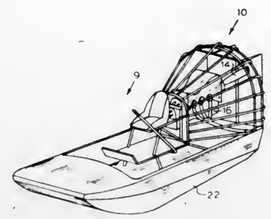


An integrated barge tow for use on inland waterways having disconnectable bow and towboat sections and a plurality of interior box barges with recessed bottoms to capture an air bubble reducing resistance to movement through the water.

3,788,264
COOLING SHROUD FOR AIRBOAT
Ivan A. Gibson, 1339 W. Washington St., Orlando, Fla.
Filed May 22, 1972, Ser. No. 255,346
Int. Cl. B60f *3/00*
U.S. Cl. 115—1 R **6 Claims**

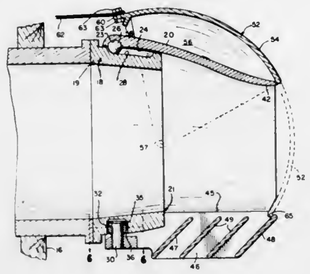
An airboat having an engine mounted thereon for driving a propeller and having an engine cooling shroud attached thereto is provided for cooling the engine more effectively with the air drawn thereacross. The shroud is shaped to form a

venturi between the air inlet and outlet to increase the velocity of the air over the engine and to draw air between the cooling



fins on the engine cylinders. Baffle plates are utilized to direct the flow of the air through the finned cylinders at an increased velocity.

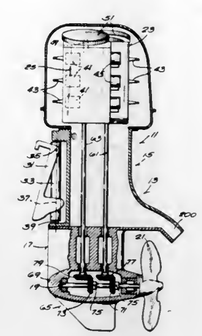
3,788,265
CONTROL ASSEMBLY FOR JET BOAT
Cecil L. Moore, 2801 Linda Ln., West Lafayette, Ind.
Filed Apr. 13, 1971, Ser. No. 133,670
Int. Cl. B63h *11/00, 11/10*
U.S. Cl. 115—12 R **5 Claims**



A control assembly for a boat having a water jet propulsion system in which the jet is moved successively through a discharge conduit and a nozzle movably mounted on said conduit. A bucket is mounted on said nozzle and is movable with and with respect to said nozzle whereby said nozzle and bucket can be moved into different positions of adjustment to control the jet for thus controlling the steering, fore and aft movements, and the desired planing of the boat.

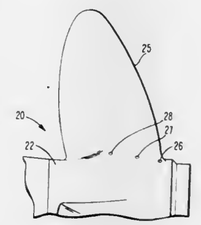
3,788,266
MULTI-POWERHEAD OUTBOARD MOTOR
Charles D. Strang, Lake Forest, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed Feb. 8, 1973, Ser. No. 330,597
Int. Cl. B63h *21/26*
U.S. Cl. 115—17 **18 Claims**

Disclosed herein is an outboard motor comprising a lower unit rigidly connected to the bottom of a drive shaft housing and including a rotatably mounted propeller shaft supporting a propeller, first and second engines respectively including first and second crankshafts and respectively mounted to the top of the drive shaft housing with the first and second crankshafts extending at an acute angle to each other, first and second drive shafts respectively drivingly connected to the first and second crankshafts and respectively extending in the drive shaft housing and in the lower unit in co-axial relation to



the first and second crankshafts, and gearing in the lower unit drivingly connecting the first and second drive shafts to the propeller shaft.

3,788,267
ANTI-CAVITATION MEANS FOR MARINE PROPULSION DEVICE
William A. Strong, Oshkosh, Wis., assignor to Brunswick Corporation, Chicago, Ill.
Filed Dec. 17, 1971, Ser. No. 209,131
Int. Cl. B63h *21/26*
U.S. Cl. 115—17 **7 Claims**

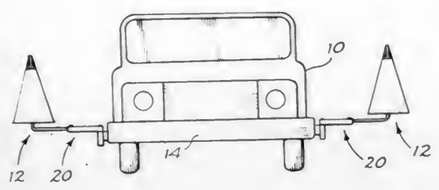


Cavitation eminating from the leading edge near the hub of a propeller of a marine propulsion device is prevented by introducing exhaust gas air adjacent the junction of the leading edge of each blade of the propeller and the propeller hub from the interior of the hub through which the exhaust gas or air flows.

3,788,268
TRAFFIC WARNING SIGNAL FOR USE ON VEHICLES
Frank S. Hiatt, and Milton Freewater, P.O. Box 436, both of Portland, Oreg.
Filed Nov. 29, 1972, Ser. No. 310,603
Int. Cl. B60q
U.S. Cl. 116—28 R **3 Claims**

A traffic warning signal for use on vehicles, particularly highway service trucks, comprises a bracket support attachable to the vehicle, a bracket, a pivotal mounting means mounting the inner end of the bracket on the bracket support for

free swinging movement of the bracket between extended and retracted positions. Detent means releasably lock the bracket



in the retracted position. A triangular signal support is attached vertically to the outer end of the bracket for mounting a brightly colored, traffic signal.

3,788,269

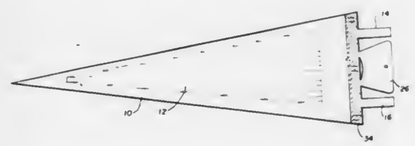
PENNANT AND METHOD OF MAKING A PENNANT

Ted Scarlet, 101 Lilac Ln., Bergenfield, N.J.

Filed May 31, 1973, Ser. No. 365,751

Int. Cl. G09f *17/00*

U.S. Cl. 116—173 **8 Claims**



An improved pennant and the method of making this pennant is disclosed. A strip of material is brought to a printing operation whereat the desired pennant design in the number of colors is applied. After drying the colored paint or ink the strip is brought to a die cutting station whereat the pennant is cut to the preselected outer configuration. At this same or another station at a position adjacent the long end of the pennant there is formed at least two pairs of substantially parallel cuts made through the pennant, each pair of cuts being disposed a short distance from the end edge. These cuts are at right angles to this end edge. One pair of cuts is near one side edge and another pair is near the opposite side edge. The strip portions between these parallel cuts may be displaced from the plane of the pennant to provide loops through which a stick or rod may be inserted for carrying and displaying the pennant in the usual manner. In the middle of the long end is a tab having a small hole which permits the pennant to be displayed on a small pin or rod prior to its sale. This tab is attached to the long end so as to provide a support for the pennant until the time of sale at which time it is detached from the pennant body.

3,788,270

GLUE APPLYING DEVICE

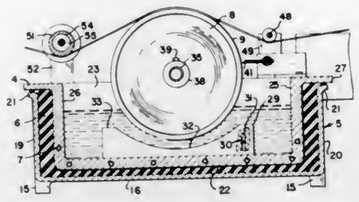
Boyd C. Blair, Topeka, Kans., assignor to Brackett Stripping Machine Co., Inc., Topeka, Kans.

Filed Mar. 3, 1972, Ser. No. 231,484

Int. Cl. B05c *1/08*

U.S. Cl. 118—5 **8 Claims**

A device for melting low temperature glue or hot-melt glue and for maintaining the melted glue at a substantially uniform temperature throughout a container and for applying a coating of substantially uniform thickness of such glue to articles, and edge of sheets to form books or tablets, one side of the elongated strip of material to form tape, and the like includes a pre-melting chamber for melting glue such as low temperature or animal glue, hot-melt glue or glue at temperatures therebetween and communicating with said container. The applying device having an inner chamber with walls spaced from walls of an outer housing and having temperature insulating material filling the space therebetween. Heating units are in the walls of the inner housing and in ribs therefrom to



maintain the glue within the inner housing at a substantially uniform temperature throughout the inner housing. Rollers are rotatably mounted on one of the outer housing and the inner housing and have means movable through the glue within the inner housing to apply a coating thereof to material moved into engagement with the peripheral edges.

3,788,271

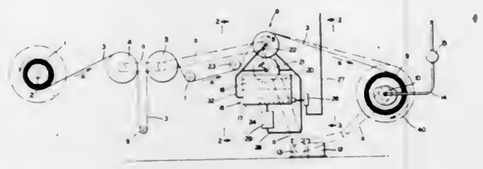
APPARATUS FOR APPLYING PRESSURE SENSITIVE ADHESIVE TO GLASS FIBER MESH MATERIAL

Guy H. Carpenter, Dover, and Ernest E. Ross, Dennison, both of Ohio, assignors to Perma Glas-Mesh Corporation, Dover, Ohio

Filed Apr. 14, 1971, Ser. No. 133,982

Int. Cl. B05c *1/12*

U.S. Cl. 118—33 **4 Claims**



Adhesive coating equipment having an adhesive reservoir heated by circulating electrically heated oil. A first lower hollow roller is mounted above the reservoir having a lower portion immersed in the adhesive contained in the reservoir. A power driven second hollow top roller is mounted above and in contact with the first roller and rotates the first roller transferring adhesive from the reservoir to the first roller and then to the top roller for coating a web passing over the top of the second roller. The rollers are heated by heated oil circulated through the interior of the rollers to maintain the rollers and adhesive at the same temperature and the adhesive at the same viscosity throughout the transfer of adhesive from the reservoir to the web. An idler roller is located adjacent to the lower and top rollers for maintaining at least a predetermined minimum arcuate length of web contact with the second or top roller.

A method of applying pressure sensitive adhesive to glass fiber mesh material by passing the mesh material over a heated rotating coating roller. Heated adhesive is applied to the coating roller which is transferred to the mesh material by contact with the roller as the mesh passes over the roller. The

length or duration of contact of the mesh material with the coating roller is controlled so that a uniform amount of adhesive is applied to the mesh material. The mesh material is maintained under constant tension as it is payed out from a supply roll and over the coating roller to a collection roll.

3,788,272

APPARATUS FOR TREATING A FLUX COATING

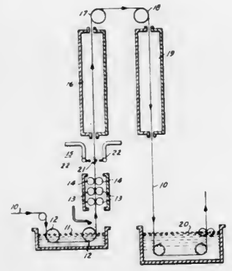
Richard A. Peoples, Hamburg, N.Y., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Division of Ser. No. 780,062, Nov. 29, 1968, Pat. No. 3,635,748.

This application Nov. 1, 1971, Ser. No. 194,593

Int. Cl. C23c *13/02, 3/00*

U.S. Cl. 118—47 **4 Claims**



An apparatus for providing a smooth coating of flux material uniformly distributed on a metal surface comprising directing a flame onto the flux coated surface. The apparatus comprises a flame distributor adapted to contact the surface of the flux coating with a high-heat flame. The impingement of the flame on the flux surface causes an initial set in the flux surface which is smooth and evenly distributed.

3,788,273

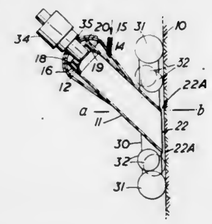
UNDERWATER SPRAYING APPARATUS

Nicholas Norbert Tusch, Marble Arch London; Robert Ian Watson, Blackburn, and Jack Taylor, Accorington, all of England, assignors to Colebrand Limited, London, England

Filed Aug. 24, 1971, Ser. No. 174,445

Int. Cl. B05c *5/00*

U.S. Cl. 118—50 **13 Claims**



Method and apparatus for applying paint or the like to a submerged surface and includes the provision of a hollow shield with an elongated opening which shield is purged of water by compressed air the resultant airfilled space being traversed by a sheet-like spray of the paint supplied from atomising means and formed so as to be substantially uninterrupted by the internal wall of the shield. Various means are described by way of elaboration of the actual margin of the shield to accommodate different surfaces; to provide for maintaining appropriate spacing between the margin of the shield and the surface and for affording mobility of the whole apparatus.

3,788,274

PROTECTIVE APPLIANCE FOR USE DURING PAINTING

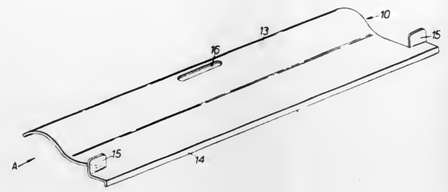
Andrew McNaughton, 6 Glamis Pl., and Bruce D. Hutchison, 39 Glendevon Rd., both of Perth, England

Filed Nov. 21, 1972, Ser. No. 308,444

Claims priority, application Great Britain, Nov. 23, 1971, 54,241/71

Int. Cl. B05c *11/00*

U.S. Cl. 118—504 **4 Claims**



An appliance for protecting edge portions of floor coverings, for example carpets, during the painting of adjacent parts of walls, skirting boards and the like is described. The appliance consists of a generally rectangular thin aluminum plate whereof one long edge is flanged through 90° to form a narrow lip for insertion between a carpet edge and an adjacent skirting board. On the plate, adjacent each end of the lip, stops projecting oppositely from the lip serve to prevent overreaching during painting. The plate is of shouldered configuration as seen in end elevation to facilitate hand-gripping through a slot in the shouldered portion. The stops are in the form of bent-up tags or in the form of posts.

3,788,275

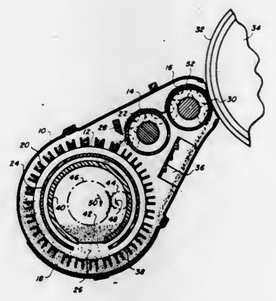
MAGNETIC SHIELDING APPARATUS

William J. Hanson, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed June 28, 1972, Ser. No. 266,905

Int. Cl. G03g *13/08*

U.S. Cl. 118—637 **14 Claims**



A device in which a magnetic flux field forms a shield of magnetic granules about a shaft member journaled for rotary movement. The shield is arranged to prevent contamination of the shaft member.

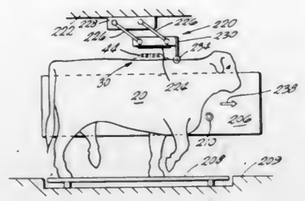
The foregoing abstract is neither intended to define the invention disclosed in the specification nor is it intended to be limiting as to the scope of the invention in any way.

3,788,276

ANIMAL MARKING APPARATUS AND METHOD

Robert L. Propst, and Howard B. Propst, both of Ann Arbor, Mich., assignors to Herman Miller, Research Corporation, Ann Arbor, Mich.

Division of Ser. Nos. 159,784, July 6, 1971, which is a continuation-in-part of Ser. No. 12,056, Feb. 17, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,631
Int. Cl. A01k 5/00
U.S. Cl. 119—1 16 Claims



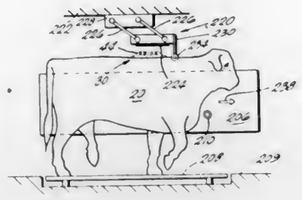
A record keeping and tagging system made possible by a machine readable tag implanted in an animal by a tagging gun. The tag comprises a portion which is both visually readable and machine readable, and a portion which includes barbs or spring-biased tines which lock it to the animal. The tagging gun comprises cocking means for moving the tag-like article into a firing position, releasing means for releasing the article from the cocking means, means for firing the article, and triggering means for activating the cocking means and releasing means in sequence by applying a force in a single direction. An information retrieval station features a chute with compressible sides and a weighing and measuring platform, and a machine reader which is automatically positioned with respect to the tag when the animal triggers a photoelectric sensing device, so as to read out the information coded therein while the animal is weighed and/or measured. A computer can be utilized to compare the animal's weight and measurement determined so as to further direct the processing of the animal.

3,788,278

ANIMAL MARKING APPARATUS AND METHOD

Robert L. Propst, and Howard B. Propst, both of Ann Arbor, Mich., assignors to Hermann Miller Research Corporation, Ann Arbor, Mich.

Division of Ser. No. 159,784, July 6, 1971, which is a continuation-in-part of Ser. No. 12,056, Feb. 17, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,352
Int. Cl. A01k 5/00
U.S. Cl. 119—51 R 15 Claims



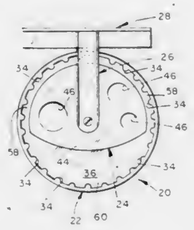
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3,788,277

ANIMAL EXERCISER AND ACTIVITY DEVICE

Allan H. Willinger, New Rochelle, and Albert J. Dinnerstein, Far Rockaway, both of N.Y., assignors to Metaframe Corporation, Clifton, N.J.

Filed Jan. 14, 1972, Ser. No. 217,872
Int. Cl. A01k 29/00
U.S. Cl. 119—29 12 Claims



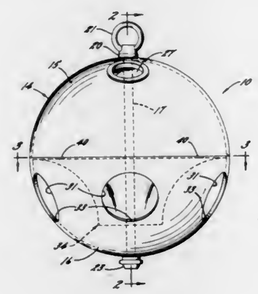
An activity device for animals of rodent variety, the device comprising a revolvable drum and a housing commonly supported so as to permit rotation of the drum relative to the housing as an animal moves along the interior of the drum.

3,788,279

FEEDER FOR CLINGING TYPE BIRDS

Robert R. Boehland, Jr., Linn, Wis., assignor to Feather Hill Industries, Inc., Zenda, Wis.

Filed July 14, 1972, Ser. No. 271,924
Int. Cl. A01k 39/00
U.S. Cl. 119—52 R 7 Claims



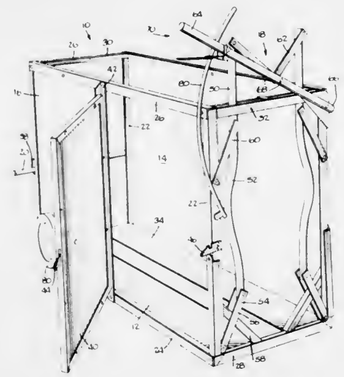
A bird feeder includes a hollow globe comprising upper and lower hemispherical sections held together by an elongated rod. A funnel mounted within the globe divides the interior into an upper storage area for bird feed and a lower feeding chamber. An orifice forming the lower end of the funnel is located above the bottom of the chamber to direct the flow of feed from the storage area into the chamber. A plurality of ports in the side of the lower hemispherical section communicate with the chamber and include bottom edges which are located in vertical relation to the position of the orifice whereby clinging birds may grasp on the edges and reach the feed within the chamber while other types of birds are discouraged from perching on the feeder and eating feed from the chamber.

3,788,280

ANIMAL ENCLOSURE AND GATE THEREFOR

Carl Van Gilst, Goshen, Ind., assignor to Bangor Punta Operation, Inc., Greenwich, Conn.

Filed Sept. 15, 1972, Ser. No. 289,495
Int. Cl. A61d 3/00
U.S. Cl. 119—99 6 Claims



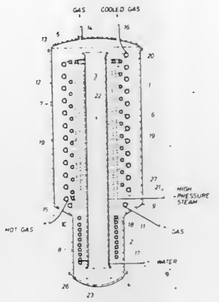
The enclosure includes bottom and upstanding side walls with the gate at one end, one of the side walls having a pivoted panel forming a door for access within the enclosure. Wheels are carried by the enclosure and are pivotable between a first position rendering the enclosure transportable and a second out-of-the-way position rendering it immobile. The gate includes a pair of upstanding animal restraining members movable toward and away from one another by pantographic linkages connected to the side frames of the gate, the members being bowed outwardly intermediate their lengths. A lever is pivotably connected to the frame and to like ends of a pair of links which are in turn pivotably connected at their opposite ends to the restraining members. Swinging movement of the lever in opposite directions operates to move the members toward and away from one another whereby the members can be spaced selected distances one from the other. An upstanding arcuate rod is mounted on one side of the frame. The operating lever carries a locking bar which releasably frictionally engages the rod whereby the locking lever can be locked in selected positions thereby locating the members at a selected distance one from the other and also locking the members from movement in a direction away from one another.

3,788,281

PROCESS AND WASTE-HEAT BOILER FOR COOLING SOOT-CONTAINING SYNTHESIS GAS

Nicolaas Van Lookeren Campagne, Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 19, 1973, Ser. No. 342,670
Claims priority, application Netherlands, Mar. 27, 1972, 7204070
Int. Cl. F22b 1/06
U.S. Cl. 122—7 R 16 Claims



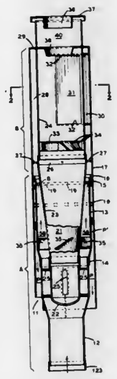
Hot, soot-containing synthesis gas obtained by the incomplete combustion of carbonaceous fuels is cooled and heat abstracted therefrom in a waste-heat boiler containing one or more helically coiled tubes through which the hot gas is passed and one or more additional tubes through which steam is passed, said tubes being in external, heat-exchanging contact with a molten metal, metal alloy or metal salt coolant medium. The disclosed process and apparatus permit the generation of high pressure, superheated steam from synthesis gas while avoiding excessive pressure differences across the helically coiled gas tubes.

3,788,282

VAPOR-LIQUID SEPARATOR

Thomas M. Modrak, Beloit, and Robert W. Curtis, Alliance, both of Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed June 27, 1968, Ser. No. 740,614
Int. Cl. B04c 5/26, 5/28
U.S. Cl. 122—34 5 Claims



A primary vapor-liquid separator apparatus having two cyclonic stages of separation which operate in series to

remove successive fractions of liquid from an inflowing vapor-liquid mixture. The first separating stage has a vertical, annular flow channel in which swirl vanes are installed to impart a whirling motion to the inflowing mixture to centrifugally separate therefrom the first fraction of liquid which is removed through a skimming slot opening within the flow channel wall. The second stage of separation is a tangential inlet cyclone mounted superjacent the first stage which allows the separated vapor to leave the second stage in an upwardly directed flow path coaxially aligned with that of the inflowing mixture to the first stage, while the separated liquid is discharged from the bottom of the cyclone into a collecting chamber from whence it passes to mix with the first separated liquid fraction within the water space of a steam generator.

3,788,283

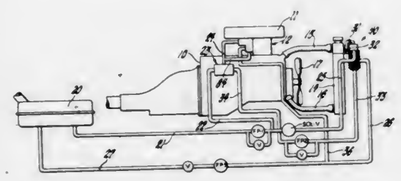
DUAL FUEL SYSTEM

James C. Perry, Almont, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 27, 1972, Ser. No. 301,653

Int. Cl. F02b *51/00*; **F02m** *33/00*; **F02n** *17/04*

U.S. Cl. 123—3 **3 Claims**



A dual fuel system for an internal combustion engine having a carburetor supplied with high volatility fuel for engine starting and then with regular fuel for continued normal engine operation, an on board still being used to distill the high volatility fuel from the regular fuel during engine operation, the thus distilled fuel being stored for use during the next engine start-up.

3,788,284

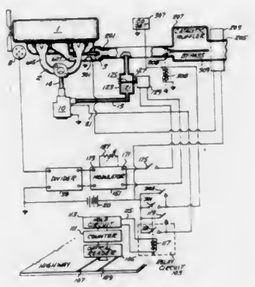
FEEDBACK MODULATION OF EXHAUST GASES IN INTERNAL COMBUSTION ENGINES

Conrad O. Gardner, 22905 108th West, Edmonds, Wash.

Filed May 22, 1972, Ser. No. 255,327

Int. Cl. F02b *33/00*

U.S. Cl. 123—119 A **18 Claims**



A system for modulation of the amplitude of engine exhaust feedback to the engine induction system during engine operation. The modulation system includes means for varying the amplitude of exhaust feedback in periodic manner at a frequency which is substantially constant or which may vary as a function of an engine operating parameter. The amplitude may vary as a step function between predetermined levels or continuously and may have a duty cycle (length of time at a predetermined level) which varies as a function of an engine operating parameter, e.g. exhaust manifold temperature. The modulation envelope is controlled by a modulator circuit controlling a valve position in the feedback path. The frequency of modulation is controlled by a divider or multiplier type circuit coupled between a pulse source e.g. the distributor and the modulator circuit.

3,788,285

ELECTRONIC FUEL INJECTION CONTROL DEVICE

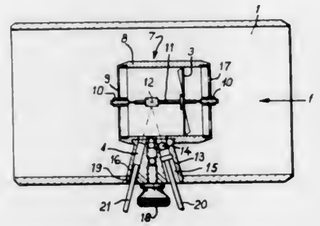
Jacques Andre Gelin, and Alain Joseph Dera, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault Billoncourt, Hauts-de-Seine, France

Filed Dec. 6, 1971, Ser. No. 204,970

Claims priority, application France, Dec. 11, 1970, 70.44781

Int. Cl. F02b *3/00*; **F02m** *39/00*; **B21d** *13/04*

U.S. Cl. 123—32 EA **5 Claims**



An electronic injection control device for an internal combustion engine comprising an air input pick-up consisting of a helix disposed within the air induction manifold, a photodiode cell and a light source, the pick-up delivering through the medium of an electronic generator signals in the form of gating pulses having a duration equal to a frequency proportional to the measured air input, an electronic power assembly responsive to the generator and an electronic corrective assembly for modifying the duration of the gates as a function of various parameters, the signals controlling the injection action of the fuel injector.

3,788,286

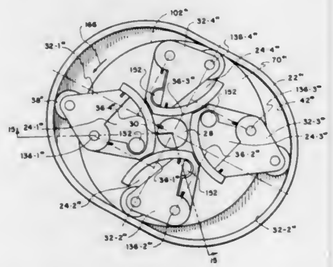
PISTON ENGINE

John A. Brewer, 2120 Kensington Blvd., Fort Wayne, Ind.

Continuation-in-part of Ser. No. 69,006, Sept. 2, 1970, abandoned. This application Apr. 2, 1971, Ser. No. 130,685

Int. Cl. F02b *57/00*

U.S. Cl. 123—43 C **13 Claims**



An internal combustion engine having a rotor member journaled in a casing member for rotation about a first axis. A

cylinder is provided on one of the members and has a piston received therein which oscilates between extended and retracted positions. The other of the members is provided with a cam surface having high and low extremities and there are means on the piston forcibly engaging the cam surface, the engaging means in the retracted and extended position engaging the high and low cam surface extremities respectively. The engaging means reacts against the cam surface along a force line laterally off-set from the axis of the rotor member and at generally right angles to a plane therethrough, whereby extension of the piston from its retracted to its extended position causes relative rotation of the rotor member with the engaging means moving over the cam surface from its high towards its low extremity and its point of engagement therewith at all rotational positions between the extremities of the cam surface being on the aforementioned force line.

3,788,287

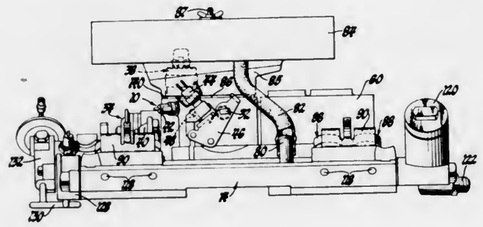
FUEL INJECTION SYSTEM

Walter S. Falen, Greece, and Anthony J. Giardina, Rochester, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 18, 1972, Ser. No. 227,428

Int. Cl. F02b *75/22*

U.S. Cl. 123—52 MV **1 Claim**



In an electronically controlled fuel injection system, the fuel injectors and other components are mounted on extruded rails each having a fuel passage and an atmospheric air gallery formed during extrusion.

3,788,288

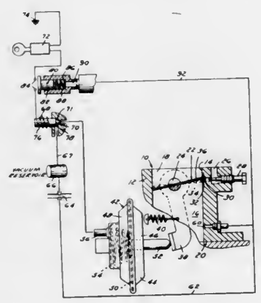
CARBURETOR THROTTLE VALVE POSITIONER

Robert S. Harrison, Detroit, and Max W. Lunsford, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 120,953, March 4, 1971, Pat. No. 3,682,148. This application June 23, 1972, Ser. No. 265,873

Int. Cl. F02d *11/08, 9/00*; **F02m** *7/00*

U.S. Cl. 123—97 B **8 Claims**



One embodiment of a downdraft type carburetor has an idle system discharge port that is straddled by the idle speed and closed throttle positions of the throttle valve so as to permit idle speed fuel and air flow in one position and no flow in the other position; another embodiment has a conventional idle system with a transfer port straddling the edge of the throttle valve in the idle speed position of the throttle valve so as to permit normal idle speed fuel and air flow in this position, while being closed off or having its area that is exposed to the vacuum signal reduced in the closed position of the throttle valve to reduce idle channel flow; the two positions being controlled by a servo operatively engaging the throttle valve; the servo operation being controlled by intake manifold vacuum during engine deceleration operation to close the throttle valve, or upon engine shut off interrupting the ignition circuit to close the throttle valve with a subsequent return of the throttle valve to its curb idle position for engine restarting.

3,788,289

AIR-COOLED INTERNAL COMBUSTION ENGINE WITH SPEED CONTROL

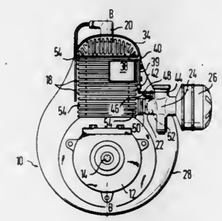
Bruno Pfister, Sennfeld, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany

Filed July 7, 1972, Ser. No. 269,763

Claims priority, application Germany, July 9, 1971, P 21 34 187.7

Int. Cl. F02d *11/08*

U.S. Cl. 123—103 B **12 Claims**



Air blown over the cooling fins on a cylinder of an internal combustion engine by an engine-driven blower moves a spring-loaded vane away from a position of abutment against the fins. The vane is linked to a throttle valve in the intake pipe for the fuel mixture and is located on the same side of a reference plane through the cylinder axis which is perpendicular to the axis of the intake pipe, thereby making the connecting linkage short and simple, or even permitting the vane to be mounted on the pivot shaft of the throttle valve. The virtual absence of friction losses in the linkage permits the engine speed to be held closely constant by the vane throttling the fuel supply when the engine speed, and therefore the blower output increases.

3,788,290

DISTRIBUTOR ACTUATOR UNIT WITH SOLENOID ADVANCE

Ivor W. Carter, Detroit, and Ian J. C. Scott, Madison Heights, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

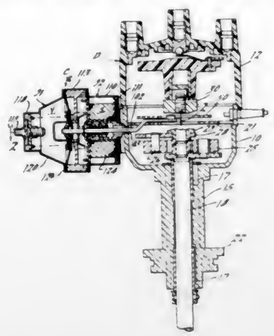
Filed Aug. 4, 1971, Ser. No. 168,880

Int. Cl. F02p *5/04*

U.S. Cl. 123—117 A **12 Claims**

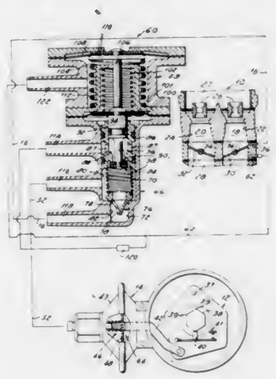
A combination vacuum and solenoid operated actuator unit attachable to an ignition distributor of an emissions controlled internal combustion engine and enabling selective independent spark advance adjustment of the engine timing mechanism between positively established differential stop positions from an initial setting for reduced emissions at engine idling conditions. The solenoid is of the continuous duty

variety energized through the vehicle ignition switch during starting operation of the engine and serves to provide a



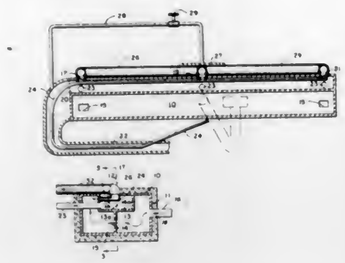
predetermined amount of spark advance during cranking of the engine to improve startability, especially with lean fuel air mixtures.

3,788,291
UNITIZED DISTRIBUTOR VACUUM SPARK ADVANCE CONTROL VALVE WITH REGULATOR
Tao-Yuan Wu, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 4, 1972, Ser. No. 295,049
Int. Cl. F02p *5/04*
U.S. Cl. 123—117 A **5 Claims**



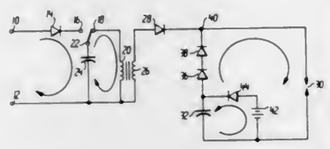
An engine spark timing control system includes a conduit connecting carburetor spark port vacuum to the distributor servo actuator in parallel paths one of which contains an orifice for normally slowly advancing the ignition timing as a function of changes in spark port vacuum; the system also includes a valve operable at low vacuum force levels in response to predetermined acceleration movements of the throttle valve to disconnect or block the direct connection from the spark port to the distributor servo while at the same time connecting a vacuum reservoir to the servo to artificially advance the ignition timing above the value that normally would be called for by the spark port vacuum level; the higher than normal advance decaying by bleed of the vacuum through the spark port line orifice until the vacuum level equals that at the spark port, at which time the ignition timing will be returned to normal; the device further including a vacuum relief valve to limit the maximum level of vacuum in the reservoir so as not to unduly advance the ignition timing beyond a desired value.

3,788,292
FUEL HEAT EXCHANGER FOR INTERNAL COMBUSTION ENGINE AND METHOD OF USE
Seth Lee, Jr., Rt. 1, Coats, N.C.
Continuation-in-part of Ser. No. 188,726, Oct. 13, 1971, abandoned. This application Oct. 5, 1972, Ser. No. 295,243
Int. Cl. F02m *31/08, 25/06*
U.S. Cl. 123—122 A **14 Claims**



Apparatus for gasifying a fuel and air mixture in an internal combustion engine comprising a baffled inlet chamber for receiving a fuel and air mixture essentially surrounding an exhaust chamber for receiving high temperature exhaust gases, thereby promoting temperatures in the baffled chamber sufficient to gasify said mixture prior to induction to said engine. Methods for gasifying fuels are also taught.

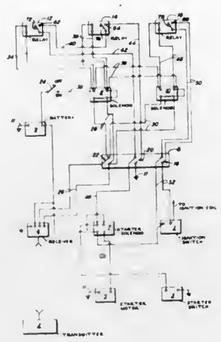
3,788,293
LOW IMPEDANCE CAPACITOR DISCHARGE SYSTEM AND METHOD
Harold E. Anderson, Los Angeles, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.
Filed Nov. 10, 1972, Ser. No. 305,308
Int. Cl. F02p *1/00*
U.S. Cl. 123—148 E **22 Claims**



A low impedance capacitor discharge ignition system and method in which a supplemental capacitor is utilized on the secondary winding side of the high voltage transformer to avoid the impedance of the transformer in sustaining the gap ionization potential of the ignition device.

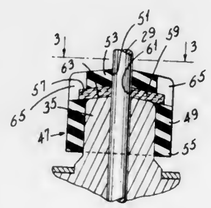
3,788,294
REMOTE CONTROL STARTING DEVICE FOR INTERNAL COMBUSTION ENGINE
Hubert Logan, Rt. 2, Athens, Ga.
Filed Dec. 21, 1971, Ser. No. 210,499
Int. Cl. F02n *11/00*
U.S. Cl. 123—179 BG **12 Claims**

A radio frequency remote control starting system for internal combustion engines is disclosed. A radio receiver is located at the engine that is to be started remotely and preferably mounted on or near the engine. The output of this receiver is connected to a plurality of solenoids and relays which are utilized to start the engine in response to an output signal from the receiver. The relays and solenoids are connected in parallel with the conventional starting system of the engine. An "on-off" switch is provided in the battery circuit of the engine. When the switch is in the "on" position, the engine can be started either remotely or by the conventional starting



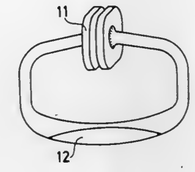
system. However, when the switch is in the "off" position, the engine can be started only by the conventional starting system. The receiver produces a signal to start the engine in response to a signal received from a small portable transmitter that is located remote from the engine.

3,788,295
VALVE STEM OIL SEAL AND LUBRICATOR
Steve Toth, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 11, 1972, Ser. No. 313,711
Int. Cl. F01l *3/00;* **F16k** *41/00*
U.S. Cl. 123—188 P **8 Claims**



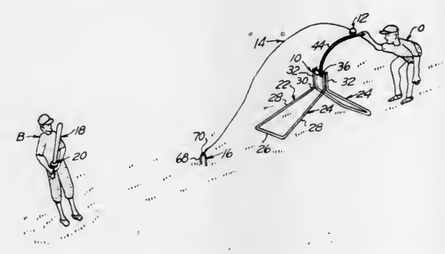
A valve stem oil seal and lubricator for an internal combustion engine intake or exhaust valve comprising a capillary member surrounding and slidably engaging the valve stem. The capillary member is enclosed and retained by a seal or scraper member positioned over and about the valve guide boss. The seal member has an orifice which strips oil from the reciprocating valve stem and directs it toward the periphery of the seal member. Limited portions of the capillary member are exposed to this oil flow and carry a regulated portion of the oil back to the valve stem for its lubrication.

3,788,296
DEVICE FOR APPLYING MEDICAL SUBSTANCES TO THE NASAL MUCOSA
Peter Klatt, Kelkheim, Taunus; Karl Seeger, Hofheim, Taunus, and Wolfgang Wilborn, Eppstein, Taunus, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany
Filed May 19, 1972, Ser. No. 255,077
Claims priority, application Germany, May 22, 1971, P 21 25 464.8
Int. Cl. A01k *15/00;* **A61m** *15/08*
U.S. Cl. 128—268 **11 Claims**



Device for the application of active substances via the mucosa or perorally and/or by aspiration, having a ring-like or clamp-like form suitable for being fixed in or on the nasal septum of animals and containing the active medical substance either applied to, imbedded in or incorporated into the body of said device.

3,788,297
BALL-PITCHING DEVICE
Walter Borst, 20919 Thiele Dr., St. Clair Shores, Mich.
Filed Aug. 14, 1972, Ser. No. 280,656
Int. Cl. A63b *69/40*
U.S. Cl. 124—7 **4 Claims**

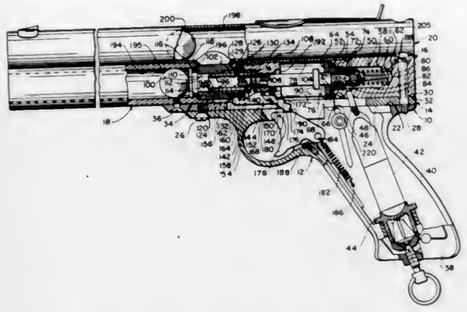


Mounted on a stand or supporting frame is the lower end of a leaf spring, to the upper end of which is attached a handle immediately below which is a ball-holding cup. To a ball adapted to be placed in the cup is connected one end of a cord, the other end of which is attached to a stake driven into the ground between the operator and the batter. In use, the handle is drawn backward and downward by the operator to bend the leaf spring into an arc, and the ball is then placed in the cup. The operator then releases the handle whereupon the force of the leaf spring upon its release pitches the ball toward the batter, who attempts to hit it. Whether he hits it or not, the cord tethered to the stake limits the flight of the ball, prevents loss of the ball and enables its easy recovery and retraction by the batter or operator for another pitch. An annular hand guard around the bat near the hand grip prevents winding of the cord around the batter's hands.

3,788,298
COMPRESSED GAS GUN WITH TRIGGER OPERATED HAMMER RELEASE LATCHING STRUCTURE

James C. Hale, Pea Ridge, Ark., assignor to Victor Comptometer Corporation, Chicago, Ill.

Filed June 19, 1972, Ser. No. 263,999
Int. Cl. F41b *11/06*
U.S. Cl. 124—11 R 14 Claims

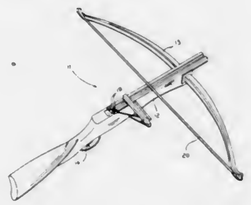


A gun operable by compressed gas held in a storage chamber by a selectively releasable valve and having valve operating structure comprising: a bolt member manually movable between a firing position and a loading position, a hammer member releasably held to the bolt member in the firing position against the bias of a compression spring operable to drive the hammer member away from the bolt member to a valve opening position, a valve operating stem engageable by the hammer member during movement to the valve opening position, and trigger operated releasable latching structure to releasably hold the hammer member to the bolt member.

3,788,299
AUTOMATICALLY RELEASABLE ARROW HOLDING DEVICE FOR A CROSSBOW

Frederic M. Mathews, Lumberton, N.C., assignor to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 167,190, July 29, 1971, abandoned. This application Feb. 16, 1973, Ser. No. 333,141
Int. Cl. F41b *5/00*
U.S. Cl. 124—35 R 4 Claims

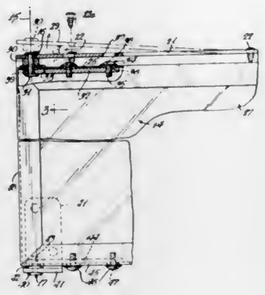


A device for attachment to a crossbow for preventing an arrow from falling off the crossbow when the crossbow is tipped or turned upside down. The device has a pivotally mounted finger that can be pivoted into engagement with an arrow in place on the crossbow. The finger has a colloidal material at one end that engages the arrow and absorbs motions and shock but does not pass them on to the arrow. Beneath and at the opposite end of the finger a resilient member biases the opposite end of the finger out of engagement with the arrow. A member is attached to the finger and to the trigger to prevent the finger from moving out of engagement with the inplace arrow. When the trigger is actuated the bow-string is released, the member attached to the trigger is then released, and the resilient member is freed to act on the finger and bias it out of engagement with the inplace arrow.

3,788,300
OVEN DOOR MOUNTING MEANS

John T. Doner, Marion, Ohio, assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Nov. 5, 1971, Ser. No. 196,071
Int. Cl. A21b *3/00*
U.S. Cl. 126—21 R 14 Claims

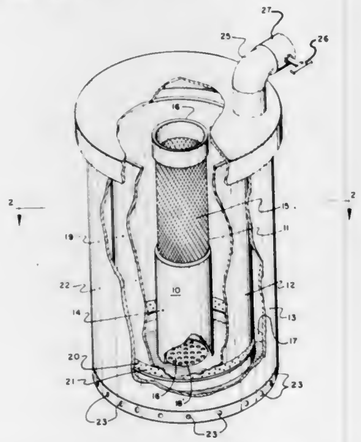


Means for mounting a door selectively across the front opening of an oven wherein pivot means are provided at one end of the door for mounting the door to a lower portion of the oven cabinet and to a trim strip at the top of the oven cabinet. The trim strip is arranged to define, with the door, a vent space for conducting hot gases from the oven forwardly therethrough. The trim strip is deflectible to permit facilitated removal of the door from the oven when desired. The trim strip is arranged to permit facilitated adjustment of the mounting of the upper pivot means on the door.

3,788,301
SMOKE GENERATOR

Raymond M. Terry, 1111 Aladdin Ave., San Leandro, Calif.

Filed July 31, 1972, Ser. No. 276,602
Int. Cl. A01g *13/06*
U.S. Cl. 126—59.5 3 Claims

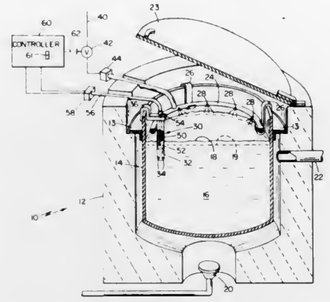


The smoke generator comprises a plurality of concentric chambers, the innermost of which fuel is provided to burn to produce aeromatic smoke and the outer chambers being operable to contain smoke produced by the fuel.

3,788,302
MAINTAINING THE WATER LEVEL IN BAKING BEANS

Samuel T. Malaney, Cape Elizabeth, and John W. McManus, Portland, both of Maine, assignors to William Underwood Company, Watertown, Mass.

Filed Oct. 29, 1971, Ser. No. 193,711
Int. Cl. A47j *27/00*
U.S. Cl. 126—374 6 Claims



Apparatus for baking a pot of beans comprising an oven for receiving therein and heating the pot, a water distributer to discharge water into the pot while the pot is in the oven, a water supply piped to the water distributer, a valve for regulating flow of water from the water supply to the distributer, a fluid level sensor for sensing the level of fluid in the pot while the pot is in the oven, a controller responsive to the sensor and controlling the valve, the controller being operatively connected to maintain during baking the level of fluid in the pot within a predetermined range. Method for baking a pot of food comprising the steps placing the pot in an oven, placing a water distributer in position to discharge water into the pot, installing a liquid level detector in position to detect the level of liquid in the pot while in the oven, connecting the level detector and the water distributer to automatic control equipment responsive to the level detector and operative to control flow of water to the water distributer to maintain the level of liquid in the pot between predetermined limits, applying heat to the pot for baking the food therein, removing from its installed position and cleaning the detector when the food is finished baking, removing from its installed position and cleaning the distributer when the food is finished cooking.

ERRRATUM

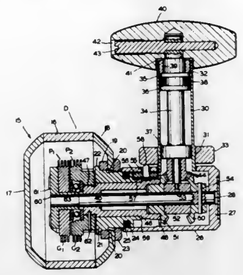
For Class 128—268 see:
Patent No. 3,788,296

3,788,303
ORTHOGONALLY DEFLECTABLE ENDOSCOPE

Richard W. Hall, New Canaan, Conn., assignor to American Cystoscope Makers Inc., Manor, N.Y.

Filed Jan. 24, 1972, Ser. No. 219,988
Int. Cl. A61b *1/00*
U.S. Cl. 128—4 7 Claims

A device for controlling movement of a plurality of cables including support means, a rotary first shaft and shaft means which are carried by the support means, the shaft means consisting of telescopically arranged second and third shafts which are rotatable about a common axis that is normal to the axis of the first shaft. The device also includes a pair of coaxial pulleys, one of the pulleys being secured to and rotatable with the second shaft and the other being secured to and rotatable with the third shaft. Each pulley is equipped with a pair of cables that are secured thereto and partly and oppositely wound thereon. Coupling means connect the first shaft to the shaft

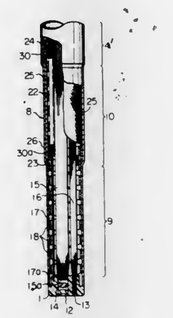


means and effect rotation of the shaft means and the pulleys in response to rotary movement of the first shaft about its axis and/or bodily movement of the first shaft about the axis of the shaft means.

3,788,304
ENDOSCOPE

Nagashige Takahashi, Tokyo, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan

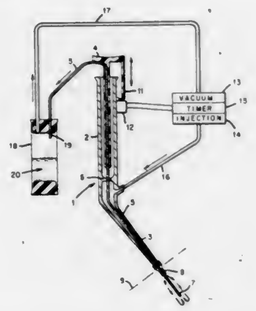
Continuation-in-part of Ser. No. 856,049, Sept. 8, 1969, abandoned. This application June 15, 1971, Ser. No. 153,341
Int. Cl. A61b *1/06*
U.S. Cl. 128—6 1 Claim



An endoscope includes a distal end portion adapted to be inserted into a hollow portion for the inspection thereof, a controllably bendable tube connected to the distal end portion, a yieldably flexible tube connected to the controllably bendable portion, and a proximal end portion including a control housing connected to the yieldably flexible tube. An image of an object formed in the distal end portion is transmitted through an image transmitting optical system extending through the controllably bendable tube and the yieldably flexible tube to the control housing thereby permitting the thus transmitted image to be viewed through ocular means or photographed by a camera in the control housing. The controllably bendable tube is controllably bent by string means connected at its distal end to the forward end portion and extending through the controllably bendable tube and the yieldably flexible tube to the control housing where the end of the string means is connected to a control mechanism so as to be actuated thereby for bending the controllably bendable tube. The forward end part of the yieldably flexible tube is made to have a greater pliability than that of the remaining part, and the pliability of the controllably bendable tube is selected to be greater than that of the forward end of the

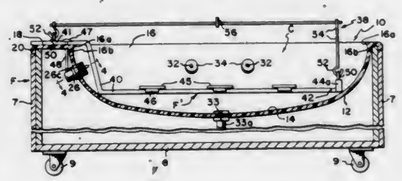
yieldably flexible tube, so that the distal end portion is easily inserted even into a narrow sharply bent passage having a substantially U-shape configuration with the portion thereof turned back upon itself by the angle of about 180° by virtue of the difference in the curvature of the controllably bendable tube and the forward end of the yieldably flexible tube and the remaining part thereof due to the difference in the pliability thereof when the controllably bendable tube is inserted into the narrow bent passage and bent by the actuation of the string means.

3,788,305
INTRATRACHEAL SAMPLING DEVICE
Hans Schreiber, Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Oct. 19, 1972, Ser. No. 298,983
Int. Cl. A61b *5/10*
U.S. Cl. 128—2 F **5 Claims**



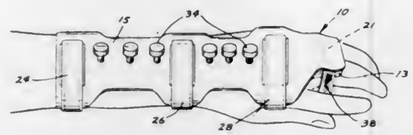
An intratracheal sampling device comprising an inner collection tube coextensively and retractably mounted within a hollow probe for insertion within the larynx of a subject animal with the collection tube in a retracted position. Depression of a plunger mounted at the external end of the probe extends the collection tube within the animal's trachea and at the same time activates means for supplying wash fluid to the probe as well as vacuum means communicating, via a sample collection vessel, with the collection tube. Wash fluid is ejected in a jetting action through an annular clearance between the distal end of the probe and the extended collection tube. The ejected fluid, together with constained exfoliated cells from the tracheal walls, is recovered in the sample collection vessel after returning through the collection tube.

3,788,306
HYDROTHERAPY BATH TUB
Frank A. Eberhard, 418 N. Birney St., Bay City, Mich.
Filed Mar. 6, 1972, Ser. No. 232,004
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **14 Claims**



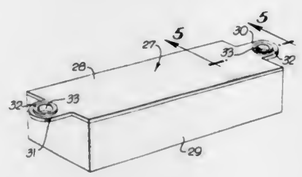
A hydrotherapy bath tub unit comprising a cavity defining a continuous wall mounting a plurality of liquid emitting nozzles for introducing therapeutic liquid to the cavity, each of the nozzles being mounted for universal movement to any selected one of a plurality of different positions to direct the therapeutic liquid in any selected one of a plurality of different paths of travel.

3,788,307
ORTHOPEDIC SPLINT
Howard M. Kistner, 233 Adams Ave., Dickenson, N. Dak.
Filed May 1, 1972, Ser. No. 248,978
Int. Cl. A61f *5/10*
U.S. Cl. 128—77 **2 Claims**



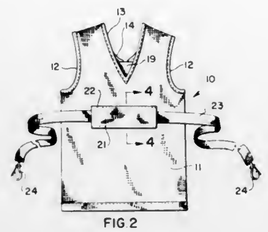
A dorsal or anterior splint for supporting the wrist and hand joints and substantially limiting the movement thereof while permitting some effective functioning of the limb extremity. A spine-like rigid plate laminate of aluminum is surrounded by and covered on its front surface by a cushioning pad laminate of neoprene foam. A leather-like flexible skin laminate covers the back of the plate and the pad. All three of the laminae are adhesively bonded to each other. A continuous elastic loop bonded between the plate and the skin at the distal end of the splint is for holding the middle two fingers snugly against the pad. Three straps extend transversely outwardly from the skin laminate to pass around the arm, wrist and hand, respectively, and to releasably fasten back on the skin laminate to hold those body parts snugly against the pad. The spine-like plate can be deformed before applying it to the limb extremity, so that when it is so applied, it will support the arm, wrist and hand in other than mutually aligned relation where that is desirable. To apply localized but evenly distributed pressure on the limb between it and the spine-like plate, a stiff, flexible, resilient slab is adhesively bonded to the pad between it and the plate. Thumb screws are threadably mounted in the plate to bear on the slab to deform it to put localized pressure on the limb.

3,788,308
NECK SLING PAD
Carl H. Simpson, 22724 Saticoy St., Canoga Park, Calif.
Filed Oct. 2, 1972, Ser. No. 294,152
Int. Cl. A61f *5/40*
U.S. Cl. 128—94 **4 Claims**



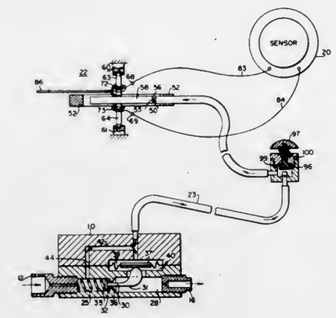
A neck pad for employment with a sling of the type made use of to support a broken arm has relatively large rings at respective opposite ends through which small ends of the sling are passed and then knotted so that the sling is held in position by the knot.

3,788,309
SAFETY SECURITY VEST
Mary C. Zeilman, 1167-25th Ave., N., St. Petersburg, Fla.
Filed Aug. 18, 1972, Ser. No. 281,906
Int. Cl. A61f *13/00*
U.S. Cl. 128—134 **3 Claims**


FIG 2

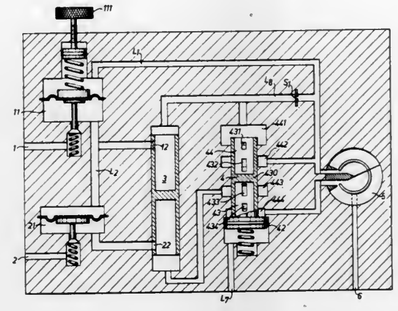
A garment apparatus including a generally tubular body adjustably fitted to a medical patient and having at least one restraining belt connected thereto for securing the patient to a supporting structure.

3,788,310
FLOW CONTROL APPARATUS
Lewis W. Fleischmann, Randallstown, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 25, 1970, Ser. No. 22,476
Int. Cl. A62b *7/02*; **F16k** *31/12*
U.S. Cl. 128—142 **9 Claims**



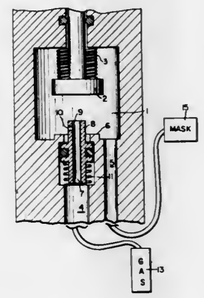
Oxygen gas admission into a breathing atmosphere is controlled by means of a flow control unit. A small quantity of the input oxygen gas is discharged through a discharge orifice against the edge surface of a disc forming part of an electric galvanometer movement. A partial pressure of oxygen sensor in the breathing atmosphere provides an output signal to the galvanometer movement to move the disc. Movement of the disc with respect to the discharge orifice changes the back pressure sensed at the flow control unit to govern the admission of new gas.

3,788,311
TUBULAR DIVING EQUIPMENT
Gosta H. Fahlman, Tsawwassen, British Columbia, Canada; Gunnar Lundborg, Vallingby, and Johan Eric Hayden, Westberg, Lidingo, both of Sweden, assignors to AGA Aktiebolag, Sweden
Filed Oct. 4, 1971, Ser. No. 186,258
Claims priority, application Sweden, Oct. 15, 1970, 13944/70
Int. Cl. A62b *7/02*; **B63c** *11/14*
U.S. Cl. 128—142.3 **6 Claims**



A tubular diving equipment for diving in water and providing the diver with a gas mixture consisting of a main gas and an auxiliary gas. Different gas mixtures may be considered as breathing gas depending on the diving depth. Said diving equipment has a manually controllable pressure regulator for the main gas and a pressure regulator for the auxiliary gas being controlled by the pressure of the main gas at the outlet of the main gas pressure regulator. The outlets on the respective pressure regulators are connected to a gas mixer chamber via a pressure equalizer. Between said mixer chamber and said pressure equalizer is an automatic control valve connected controlling the pressure of the gas mixture. An automatic correction of the mixing ratio for different depth of diving is obtained.

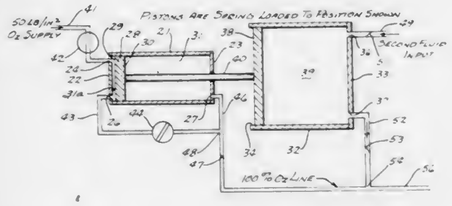
3,788,312
WARNING VALVE
Jan Erik Stellan Sandstrom, Djursholm, Sweden, assignor to AGA Aktiebolag, Sweden
Continuation of Ser. No. 94,769, Dec. 3, 1970, abandoned. This application Aug. 7, 1972, Ser. No. 278,186
Int. Cl. A62b *9/02*
U.S. Cl. 128—142.3 **6 Claims**



A warning valve having particular use in breathing apparatus comprising a chamber with a moveable valve body

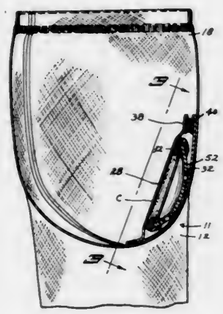
adapted to cooperate with a main valve seat in a feed line communicating with the chamber, characterized in that the feed line is connected to the chamber via on the one hand a main duct and on the other hand a bypass duct, the valve body being arranged so that in a first step it closes the main duct and in a second step it also closes the bypass duct.

3,788,313
RESPIRATOR APPARATUS
Leon J. Arp, Blacksburg, Va., and James M. Varnum, 428 Ash, Ames, Iowa, assignors to said Arp, by said Varnum
Division of Ser. No. 597,649, Nov. 29, 1966, Pat. No. 3,530,872. This application July 15, 1970, Ser. No. 62,753
Int. Cl. A61m *16/00*
U.S. Cl. 128—145.8 **7 Claims**



A respirator with a pair of cylinders having interconnected pistons. The cylinders are connected by appropriate valve means to provide a device capable of mixing two fluids.

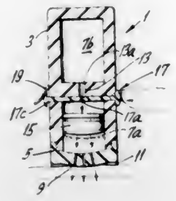
3,788,314
COMBINATION ATHLETIC GARMENT
Dennis L. Noreen, 3250 Miller Trunk Hwy., Duluth, Minn.
Filed Feb. 11, 1971, Ser. No. 114,540
Int. Cl. A61f *5/40*
U.S. Cl. 128—159 **1 Claim**



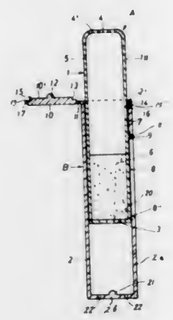
An athletic garment including a pair of stretchable units forming leg portions terminating in a hip portion which terminates in a waist portion together with a releasable closable open ended pouch secured to the garment and adapted to receive a protector cup.

3,788,315
DISPOSABLE CUTANEOUS TRANSJECTOR
Stephen Laurens, 148-15th 89th Ave., Jamaica, N.Y.
Filed Apr. 20, 1971, Ser. No. 135,727
Int. Cl. A61m *5/30*
U.S. Cl. 128—173 H **12 Claims**

A disposable cutaneous transjecting device is formed of a cylindrically shaped housing having an open end closed by a cover securely attached to the housing. The housing forms a chamber divided by a piston plunger into a subchamber for a liquid medication and another subchamber containing means, such as a compressed gas or a spring member, for displacing the piston plunger and forcing the medication through capillary openings in the cover. Prior to use the means are restrained from displacing the piston plunger. A removable cap forms a seal for the cover. On the exterior of the housing a trigger or similar member is located for releasing the means so that the piston plunger is displaced toward the cover and the medication is ejected through the openings in the cover.

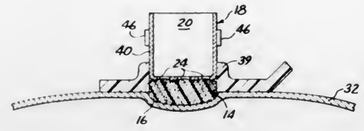


3,788,316
PACKET NASAL INHALER
Maria Mora, via Sercognani 15, Milan, Italy
Filed Apr. 12, 1971, Ser. No. 133,299
Int. Cl. A61m *15/08*
U.S. Cl. 128—200 **2 Claims**



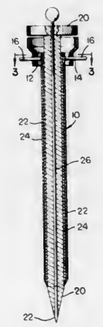
A pocket nasal inhaler comprising a case and a container for the drug to be inhaled slideably disposed therein. Said container includes a top wall having an outlet orifice formed therein for inhalation of the drug therein; said container has a cross section of such extent as to permit same to be freely axially reciprocally slideable within said case while being prevented from rotating. Said case has a cross section substantially the same as that of the container and is provided with an integrally formed cover. In one side wall of said case is a window-like opening permitting access to suitable gripping means formed on the confronting portion of the outer surface of the container whereby said container may be manipulated for movement relatively within said case. Means are provided on the case for limiting the travel of the container. Said gripping means and the associated structure are designed to permit movement of said inner container by the exertion of the thumb of the hand holding the inhaler. Said container and case are preferably fabricated from suitable plastics.

3,788,317
POROUS ABSORBENT PAD ELECTRODE FOR USE WITH AN ELECTROCARDIOGRAPH INSTRUMENT OR THE LIKE
James B. McCormick, 40 S. Clay St., Hinsdale, Ill., assignor to Pelam, Inc., Hinsdale, Ill.
Filed Jan. 12, 1972, Ser. No. 217,192
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 E **9 Claims**



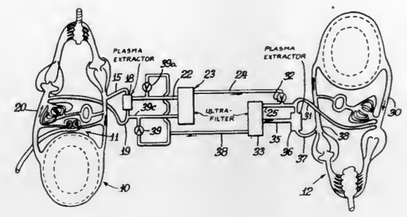
An electrode is provided for use with an instrument such as an electrocardiograph which employs a normally dry absorbant pad formed of a porous material and a cup supported above the pad, the cup being provided with passageways through which fluid may pass from the interior of the cup to the pad. In a preferred embodiment, the pad is impregnated with a material in a dry state which becomes electrically conductive when in solution with a selected liquid placed in the cup, and will expand when it absorbs the liquid to provide an intimate contact between the skin and the electrically conductive cup. Means are provided for connecting the cup to the appropriate recording instrument.

3,788,318
EXPANDABLE CANNULAR, ESPECIALLY FOR MEDICAL PURPOSES
Sung Soo Kim, 4724 Imperial Park Dr., Fort Wayne, Ind., and Andress Dusseau, R.R. No. 1, Geneva, Ind.
Filed June 12, 1972, Ser. No. 261,793
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **14 Claims**



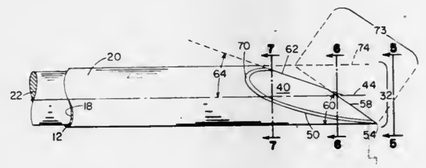
An expandable tube, referred to herein as a cannula, is formed by arranging at least one sheet of thin flexible material to form a tube while providing teeth or the like on the interengaging surfaces to permit controlled expansion of the tube by adjusting the surfaces over one another.

3,788,319
SYSTEM FOR EXCHANGING BLOOD ULTRAFILTRATE
Deighton D. Gillette, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
Filed July 30, 1971, Ser. No. 167,571
Int. Cl. A61m *01/02, 01/03*
U.S. Cl. 128—214 B **15 Claims**



An ultrafiltrate prepared from the blood of a host is put into the venous bloodstream of a recipient while simultaneously withdrawing an ultrafiltrate from the arterial bloodstream of the recipient at approximately the same rate. The ultrafiltrate intended for the recipient is prepared by withdrawing it from the arterial system of the host while simultaneously introducing the recipient's ultrafiltrate into the host's venous system for processing. The parabiotic exchanges for both host and recipient may be done simultaneously; but if they are not, it is preferred to collect the ultrafiltrate of each in a plurality of quantities. In the latter case, the exchange is effected by introducing the ultrafiltrate in inverse order of purity in the case of the recipient and by introducing the ultrafiltrate into the host in order of purity of the quantities to promote more efficient processing by the host. Preferred apparatus for a plasma extractor and continuous ultrafilter are also disclosed.

3,788,320
SPINAL NEEDLE
John F. Dye, Barrington, Ill., assignor to The Kendall Company, Boston, Mass.
Filed Feb. 25, 1972, Ser. No. 229,300
Int. Cl. A61m *5/32*; **A61b** *17/34*
U.S. Cl. 128—221 **7 Claims**



A spinal needle comprising a hollow outer needle having a stylet removably insertable within it. The stylet forward end and the outer needle forward end cooperate to provide a generally closed piercing end having two side bevel faces and a heel face. The side bevel faces each form an acute angle with the longitudinal axis of said spinal needle and intersect at an acute angle to form a straight cutting edge lying in a plane including the longitudinal axis of said spinal needle and inclined thereto. The side bevel faces also intersect the outer needle surfaces to form curved cutting edges which intersect to form a point. The heel face is inclined at an angle to the longitudinal axis of the spinal needle and joins the side bevel faces remote from the point.

3,788,321

HYPODERMIC SYRINGE WITH IMPROVED ADHESIVE

Thomas D. Reither, Pleasant Lake, Mich., and Ralph E. Trease, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 693,104, Dec. 26, 1967, Pat. No. 3,635,875. This application May 7, 1970, Ser. No. 35,550. The portion of the term of this patent subsequent to Jan. 18, 1989, has been disclaimed.

Int. Cl. A61m *5/32*

U.S. Cl. 128—221 8 Claims

This invention relates to an adhesive composition which contains at least one bisphenol-A/epichlorohydrin resin, a polyglycol diepoxide resin, dicyandiamide, glycidoxypropyltrimethoxysilane, and finely divided silica. The subject adhesive is useful in bonding stainless steel to glass.

3,788,322

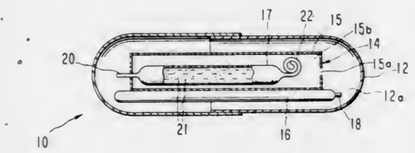
DRUG DELIVERY DEVICE WITH MEANS FOR MAINTAINING DEVICE IN ENVIRONMENT OF USE

Alan S. Michaels, Atherton, Calif., assignor to Alza Corporation, Palo Alto, Calif.

Continuation of Ser. No. 300,674, Oct. 25, 1972, abandoned. This application Dec. 27, 1972, Ser. No. 318,799

Int. Cl. A61m *31/00*

U.S. Cl. 128—260 6 Claims



A drug delivery device for the continuous administration of a drug at a controlled rate for a prolonged time is comprised of a drug delivery device attached to a support means for maintaining the device in the environment of use. The device is comprised of a housing with an internal space that acts as a reservoir for containing a drug and a discharge means communicating between the reservoir and the exterior of the device for releasing drug therefrom. The drug delivery device and the support are optionally contained in a container, and in the environment of use, the device is released from the container and the support inflated. Drug is discharged from the reservoir by the reservoir walls collapsing to exert an internal pressure against the drug to urge it through the discharge means. On completion of the drug discharge from the reservoir, the support collapses enabling the device to pass from the environment of use.

3,788,323

SANITARY WEAR

Charles Portland Robinson, Old Brampton, England, assignor to Robinson & Sons Limited, Wheat Bridge Mills, Chesterfield, England

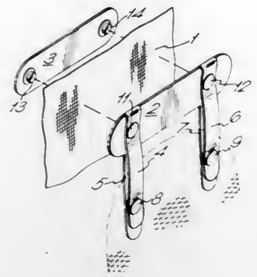
Filed Feb. 7, 1972, Ser. No. 223,938

Claims priority, application Great Britain, Mar. 2, 1971, 5826/71; Oct. 20, 1971, 48720/71

Int. Cl. A61f *13/16*

U.S. Cl. 128—291 8 Claims

A device for retaining a sanitary pad, incontinence pad or the like in position in a nether garment comprising a first element having means for attaching to the pad or the like, or to a loop or tab attached thereto, and a second element which may be press-fitted to the first element.



3,788,324

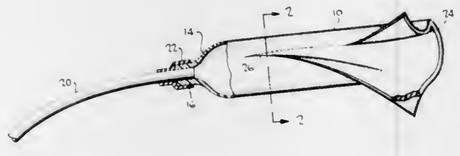
EXTERNAL CATHETER DEVICE

Pedro K. Lim, 516 Madison Ave., Huntington, W. Va.

Filed May 5, 1972, Ser. No. 250,508

Int. Cl. A61f *5/44*

U.S. Cl. 128—295 3 Claims



A novel external catheter for use by male patients is disclosed, the catheter comprising a flexible elongated tubular sheath which defines a body portion adapted to surround the male member, the body portion terminating in a coextensive and relatively stiffer dome-shaped distal end having an orifice therethrough allowing the discharge of urine to a remote collecting location. The entire inside length of the body portion is coated with an adhesive gel foam which adhesively contacts and adheres to the underlying skin of the male member so as to maintain the catheter in place. The coating further defines a liquid-tight seal for preventing urine in the dome-shaped distal end from contacting the skin of the male member underlying the body portion. In the preferred inventive embodiment, the body portion is itself longitudinally split along the top thereof such that the catheter can accommodate male members of various sizes.

3,788,325

VEIN STRIPPING SURGICAL INSTRUMENT

Bjarne Hamilton Jacobsen, Birkerod, Denmark, assignor to Astra-Sjuco a division under Astra-Gruppen A/S, Roskildevej, Albertslund, Denmark

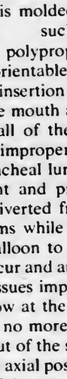
Filed Sept. 22, 1972, Ser. No. 291,192

Claims priority, application Denmark, Sept. 22, 1971, 4631/71

Int. Cl. A61b *17/00*

U.S. Cl. 128—303 R 12 Claims

The present invention relates to a surgical instrument for extracting or stripping of veins in connection with surgical treatment of varicose veins. The vein stripper comprises a string-shaped body which preferably has a uniform cross section along the whole length thereof except from a section of reduced width positioned at least at one and preferably at both end portions of said body and spaced from the adjacent free end thereof. The vein stripper also comprises an enlarged element or a stripper head having a longitudinally and radially extending slit or slot and preferably also a central non-through end bore or depression at least at one end surface and preferably at both end surfaces for receiving part of the string-shaped body in locking engagement. The opposite end surfaces of the stripper head may be shaped differently and may for example have a convex and a concave shape, respectively.



3,788,326

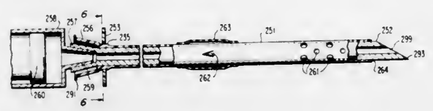
DISTALLY PERFORATED CATHETER FOR USE IN VENTILATING SYSTEM

Harvey Barry Jacobs, 116-13 Vantage Hill Rd., Reston, Va.

Continuation-in-part of Ser. No. 59,206, July 29, 1970, Pat. No. 3,682,166. This application Aug. 3, 1972, Ser. No. 277,627

Int. Cl. A61m *25/00*

U.S. Cl. 128—305 8 Claims



A balloon or cuff is combined with a distally perforated soft plastic tracheal catheter over a wedge in the middle part of the catheter. The catheter is molded from non-pyrogenic thermoplastic material such as polyethylene, polytetrafluorethylene, polypropylene, poly-carbonate or other readily sterilized orientable material which is precurved at its proximate end for insertion percutaneously or is straight for insertion through the mouth and is perforated at its distal end to divert part or all of the ventilating stream passing through the catheter. If improper positioning of the axial outlet in relation to the tracheal lumen occurs, these distal perforations in the straight and precurved species permit air under pressure to be diverted from the axial outlet thereby preventing air embolisms while the air passing through the wedge blows up the balloon to press it against the trachea. These air embolisms occur and are created due only to the diffusion of air into the tissues impinged upon by the high pressure oxygenated gas flow at the axial outlet. At normal flow with proper placement no more than ten to twenty-five percent of the air passes out of the sides and this diversion maintains the desired medial axial positioning of the catheter in the tracheal lumen. This high pressure is created cyclically, the wedge diverting pressure from within the catheter to blow up the balloon under the pressure cycle of the ventilator and to permit collapse in the succeeding cycle. When air flow ceases through the wedge of the catheter, the elasticity of the balloon is such as to cause the balloon to collapse and rest against the catheter, thereby providing the function of a cuff. The cuff function of the balloon minimizes retrograde air leak during the inflation cycle.

3,788,327

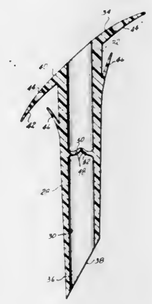
SURGICAL IMPLANT DEVICE

Howard Donowitz, Box 218, R.D. No. 1, and William J. O'Hara, 23 Hampton Dr., both of Freehold, N.J.

Filed Mar. 30, 1971, Ser. No. 129,384

Int. Cl. A61m *27/00*, *25/00*

U.S. Cl. 128—350 R 7 Claims



Disclosed implant device includes a valve and conduit means for controlling the intra-occular pressure build up in a diseased eye.

3,788,328

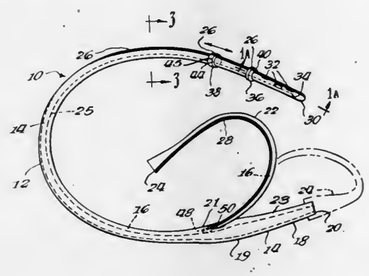
CARDIOVASCULAR CATHETER

Ralph D. Alley, Loudonville, and David S. Sheridan, Argyle, both of N.Y., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

Continuation of Ser. No. 843,863, March 3, 1969, abandoned. This application Apr. 29, 1971, Ser. No. 138,770

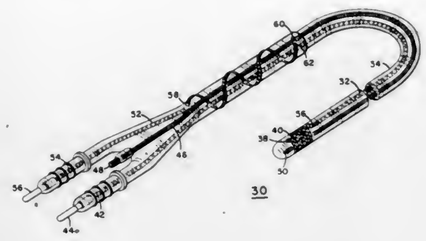
Int. Cl. A61m *27/00*

U.S. Cl. 128—350 R 4 Claims



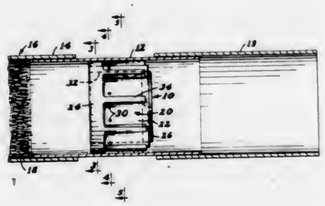
A cardiovascular catheter for use particularly in open heart surgery and related operations requiring varying forms of cardio-pulmonary bypass. The catheter has a fixed ring provided on the catheter proximal to drainage inlets and may have a sliding ring snug fit on the catheter proximal to the fixed ring for securing the catheter to a penetrated portion of the anatomy, such as the heart wall, between the two rings to assist in holding the catheter in place. In one form of the invention, the fixed ring is used alone to secure the catheter in place, for instance, during a drainage or perfusion application.

3,788,329
BODY IMPLANTABLE LEAD
Harry G. Friedman, Plymouth, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Apr. 17, 1972, Ser. No. 244,842
Int. Cl. A61n 1/04
U.S. Cl. 128—418 13 Claims



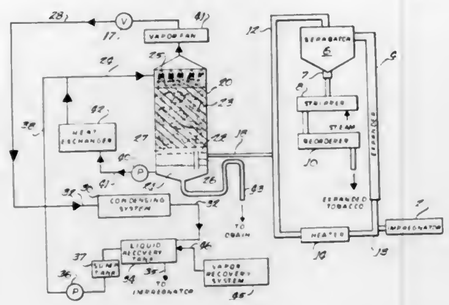
A flexible, body-implantable lead section which can be employed as an integral part of a monoplanar electrode system or alternatively as a separate means used to convert bipolar electrode system to a monopolar system. The lead section has at least one electrical conductor. The conductor is covered substantially over its entire length with an insulating material substantially inert to body fluids and tissue. The distal end of the conductor is adapted to be connected to an active electrode adapted to be located at a selected location inside the body. Indifferent electrode means are also provided. The indifferent electrode means are secured to at least a portion of the length along the surface of the inert material. In the preferred embodiment the indifferent electrode means is securely wrapped around at least a portion of the length of the inert material. This lead section with the indifferent electrode means can be employed with various configurations active electrodes for monitoring electrical activity and/or stimulating various types of tissue, including muscle and nerve tissue.

3,788,330
FILTER MEANS
David B. Griffith, 8050 Harrison Dr., Indianapolis, Ind.
Filed Sept. 25, 1970, Ser. No. 75,381
Int. Cl. A24d 01/04; A24f 07/04, 13/06
U.S. Cl. 131—10.5 17 Claims



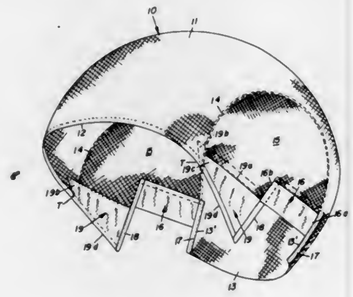
Small and transversely-extending openings in the wall of a hollow filter body carry the smoke to impinge upon an outer covering in a region thereof kept relatively cool by portions of the hollow filter body; and an effective smoke-filtering is obtained by what seems to be the combined effect of a mechanical filtering due to the forced change of path of the smoke stream and its said impingement, and a condensation of smoke vapors, the condensation and the filter residue then seeming to further filter and trap smoke particles and to yield a flavor to the smoke.

3,788,331
SOLVENT RECOVERY IN TOBACCO TREATING PROCESS
Robert M. Neel; Clarence Robert Lloyd, and Robert C. Johnson, all of Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed June 26, 1972, Ser. No. 266,416
Int. Cl. A24b 03/18
U.S. Cl. 131—143 8 Claims



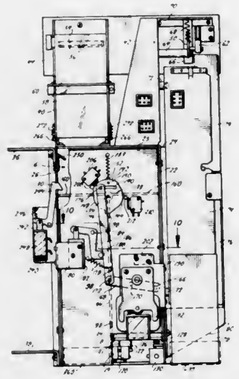
Recovery of impregnant in a process in which tobacco is impregnated with a water-immiscible organic impregnant and then subjected to a stream of gas heated to a temperature substantially above the boiling point of the organic impregnant whereby the organic impregnant is volatilized and the tobacco is expanded, with the expanded tobacco being then separated from the resulting impregnant-containing gas stream. Recovery of the organic impregnant is accomplished by passing a portion of the gas stream into a lower section of a packed tower and introducing into the upper section of said tower water at a controlled temperature to effect removal of tobacco fines in the gas stream, to cool the stream and condense a substantial proportion of the water present therein and to strip organic impregnant from process waste water introduced into the upper section of said tower. The organic impregnant is then condensed and recovered by conventional procedures for subsequent reuse.

3,788,332
WIG FOUNDATION AND WIG
Dominic C. Abbott, Pittsburgh, Pa., and Godfrey Chen, Hong Kong, assignors to Abbott Tresses Inc., Pittsburgh, Pa.
Continuation of Ser. No. 25,446, April 3, 1970, abandoned.
This application May 11, 1972, Ser. No. 252,944
Int. Cl. A41g 5/00
U.S. Cl. 132—54 5 Claims



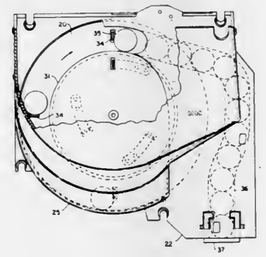
The wig foundation of stretch material has a center panel extending from forehead back over the crown of the head and terminating in a depending nape portion. A side panel of semicircular-like shape is attached to each edge of the center panel and two offset elongated elastic members offset at their adjacent ends are attached to the bottom edge of the side panels and ear slots are formed at each side with stiffener members along the forward and rear edges of the ear slots. A weft of hair is attached underneath and on top of the forehead edge of the center panel. A weft is attached in a spiral manner in the crown area and down to the forehead end. Groups of wefts are attached across the back of the foundation below the crown area and from side edge to side edge with some turned under a short amount at their ends. A group of wefts are also attached next above the nape portion which also has wefts attached extending from side edge to side edge.

3,788,333
MONEY-HANDLING DEVICE WITH PIVOTAL ESCROW PLATFORM
Raymond Arthur Johnson, Hot Springs, Ark., assignor to U. M. C. Industries, Inc., New York, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,733
Int. Cl. G07d 1/04
U.S. Cl. 133—2 7 Claims



A money-handling device has a platform which is rotatably mounted within a chamber and which receives bills that issue from a currency validator; and that platform holds those bills in escrow — responding to a vend signal to rotate in one direction to transfer bills thereon to a passage leading to a cash box, and responding to a cancel signal to rotate in the opposite direction to transfer bills thereon to a passage leading to a bill-return receptacle. Both the chamber and the platform are longer and much wider than any bill which can issue from the currency validator; and the walls of the chamber are vertical and are smooth and free of obstructions, and the upper surface of the platform is smooth and free of obstructions. As a result, that platform can receive bills and readily transfer them to the passage leading to the cash box or to the passage leading to the bill-return receptacle even if those bills are wet, torn, folded, split, wrinkled, rolled or otherwise difficult to transfer. One edge of that platform is spaced a short distance from the adjacent surface of that chamber, and a deflector overlies the resulting gap. If any bill that issues from the currency validator tends to approach and enter that gap, the deflector will intercept that bill and will keep it from entering and sticking in that gap. The bill-return receptacle is movably mounted within the passage which leads to that bill-return receptacle; and a gap is provided between one side of that bill-return receptacle and the adjacent surface of that passage to facilitate ready movement of that bill-return receptacle relative to that passage. A deflector is mounted within that passage so it overlies that gap; and that deflector will keep bills, which the platform transfers to that passage, from entering and sticking in that gap. The bill-return receptacle and a coin-return cup are both mounted adjacent an opening in the money-handling device, and that bill-return receptacle overlies that coin-return cup. Coins can enter that coin-return cup regardless of the position of the bill-return receptacle; but coins can be removed from that coin-return cup only when that bill-return receptacle is in or close to its normal bill-receiving position, and bills can be removed from that bill-return receptacle only when that bill-return receptacle in in or close to its moved bill-returning position. A motor and connecting linkage selectively rotate the platform in the said one direction or the other; and interlocks are provided to prevent movement of the bill-return receptacle out of its normal bill-receiving position while the motor is energized and to disable the motor whenever that bill-return receptacle is out of that position.

3,788,334
ROTARY DISK COIN DISPENSER WITH SPRING TABS
Ignatius B. Saraceno, Cambridge, and Gary R. Wegmiller, New Concord, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Aug. 5, 1971, Ser. No. 169,266
Int. Cl. G07d 1/02
U.S. Cl. 133—4 R 3 Claims

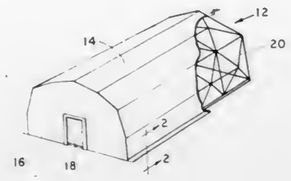


A coin dispenser which includes a rotating disc for transporting coins from the supply area to a stacking chute. The rotating disc includes a plurality of spring tabs which function to engage and hold the coins loosely on a ledge portion located on the rotating disc. As the coins are transported by the tabs to the stacking chute, the coins will roll off the ledge into the stacking chute. If the stacking chute is full, the coins upon engaging the coins in the chute, will deflect the tabs, thus releasing the coins so that they will fall back into the supply area. Thus the disc can be constantly rotated while the stacking chute is full.

3,788,335
ANCHOR MEANS FOR PORTABLE BUILDING STRUCTURE
Richard J. Hemmelsbach, Spring Lake, Mich., assignor to Space Age Industries, Inc., West Olive, Mich.
Filed Nov. 9, 1971, Ser. No. 197,094
Int. Cl. E04b 1/347
U.S. Cl. 135—1 R 11 Claims

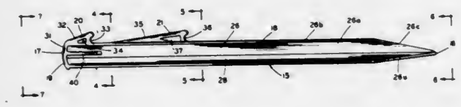
A building construction having a geodetic type metal frame and a cover of flexible plastic sheet material, the frame and the cover both being secured to the ground through an elongated plate and anchor rods which are driven through the

plate in close relationship therewith into the ground at an angle to the vertical. One group of anchor rods is secured to the lower end of the frame members and another group of anchor rods is secured to the lower end of the cover through an adjustable resilient biasing means which permits expansion and contraction of the cover with temperature changes while maintaining tension on the cover. The elongated plate is



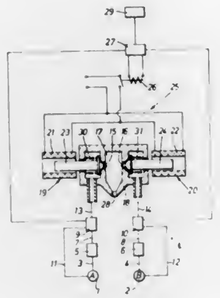
formed by angle iron and inverted with the first group of anchor rods driven through one side of the plate and the second group of anchor rods driven through the other side of the plate so that the rods are crossed with respect to each other. The anchor rods bear against the elongated plate so that the plurality of anchor rods hold the plate down tightly to the ground.

3,788,336
TENT STAKE
William J. Steffes, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed July 28, 1971, Ser. No. 166,830
Int. Cl. A45f *1/16*
U.S. Cl. 135—15 PE **9 Claims**



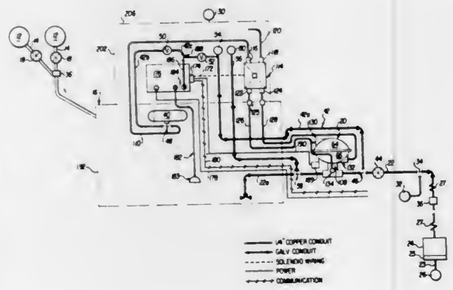
A tent stake is provided which may be advantageously molded integrally from plastic and which has good strength yet relatively small cross sectional area. The stake includes an elongated body formed by three longitudinally extending ribs which are spaced about 120° apart to provide a generally Y-shaped cross section. The ribs taper at one end of the body to form a ground-entering end, and the driving end of the stake terminates in a generally convex head. A hook is formed on one of the longitudinally extending ribs and extends angularly outwardly from the head toward the ground-entering end of the stake. If desired, a second hook spaced longitudinally from the first hook may be provided on the same longitudinally extending rib. The longitudinally extending rib from which the hook extends is strengthened by an outer end portion which extends perpendicularly to the outwardly extending portion of the rib, and the driving portion of the stake may be reinforced by reinforcing ribs which extend between the head and the longitudinally extending ribs.

3,788,337
APPARATUS AND PROCESS FOR MIXING COMPONENTS WHICH REACT QUICKLY WITH ONE ANOTHER, MORE ESPECIALLY FOR THE PRODUCTION OF FOAM MATERIALS
Karl Breer, Cologne, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation-in-part of Ser. No. 14,910, Feb. 27, 1970. This application Dec. 2, 1971, Ser. No. 204,319
Claims priority, application Germany, Mar. 13, 1969, P 19 12 734.5
Int. Cl. B28b *13/00*; **F16k** *11/24*
U.S. Cl. 137—1 **19 Claims**



Components which react quickly with one another, are mixed for the production of foam materials within a mixing chamber which is equipped with simultaneously acting electromagnetic actuating devices for the injectors.

3,788,338
VACUUM SEWAGE CONVEYING WITH VACUUM OPERATED VALVE
Bland Calvin Burns, P.O. Box 254, Woodbridge, Va.
Filed June 29, 1971, Ser. No. 157,936
Int. Cl. E03d *1/00*
U.S. Cl. 137—1 **28 Claims**

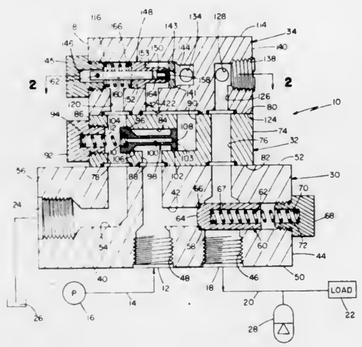


A method and apparatus for conveying sewage by vacuum induced plug flow wherein sewage is drawn from a sewage collecting region into a vacuum line conduit, through a vacuum operated valve in that conduit, and is conveyed toward the source of vacuum by vacuum induced plug flow involving the interposition of volumes of air between plugs of sewage. A control zone in an operator portion of the vacuum valve is controllable by a low pressure reservoir for opening the valve. The reservoir is maintained at a low pressure through a vacuum tap conduit communicable with the reservoir and the vacuum line conduit.

The sewage collecting region may be an underground collecting tank which contains, in a dry compartment, equipment for controlling operation of the vacuum valve which may be located outside the collecting region in a separate housing just below grade. Electrical power used at the collecting region may be supplied solely from a central panel through cable laid in a trench along the vacuum line conduit.

A rigid pipe assembly in the collecting tank is connected several feet above the tank bottom, but below grade, to a pipe assembly of the vacuum valve, and the orientation may be such as to permit disconnection of pipes at the vacuum valve without causing leakage in the region where workmen must stand.

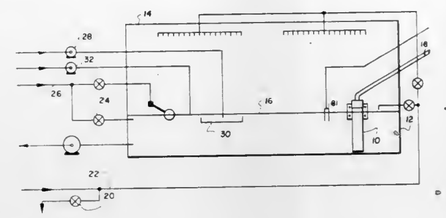
3,788,339
FLUID CONTROLLING
James M. Denker, Scituate, Mass., assignor to Nutron Corporation, Hingham, Mass.
Continuation-in-part of Ser. No. 230,561, March 1, 1972. This application Aug. 18, 1972, Ser. No. 281,966
Int. Cl. G05d *16/10*
U.S. Cl. 137—115 **18 Claims**



A fluid control circuit comprising a controller including a control element movable between first and second positions and operative for generating an output fluid signal dependent on the position of the control element, and first and second sensors arranged for sensing a pilot pressure, one of the sensors being operable for causing the control element to assume its second position when the sensed pilot pressure exceeds a predetermined upper level, and the other of the sensors being operable for causing the control element to assume its first position when the pilot pressure drops below a predetermined lower level.

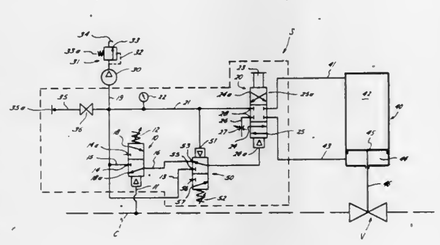
3,788,340
COOLING TOWER WATER CONTROL SYSTEM
Richard P. O'Leary, 15 Mariam Dr., Bellvale, N.Y., and Charles F. Kapr, 212 Woodland Rd., New Milford, N.J.
Filed June 28, 1971, Ser. No. 157,220
Int. Cl. G05d *11/08*; **H01h** *36/02*
U.S. Cl. 137—93 **10 Claims**

A cooling tower water control system operated by means of a ring float, a ring magnet fastened thereto, four magnetic reed switches enclosed by four individual tubes mounted in a parallel direction inside an enclosing tube, said ring magnet sliding freely along and around the enclosing tube in a vertical direction. The system is enclosed in a cylindrical case, closed at the top by a removable cap supporting electrical wires therethrough and having an orifice on the side wall and close to the bottom allowing sump water to enter and leave freely. The necessary support for mounting the system to the water sump is attached to the outer surface of the cylindrical case. Interlocking relays, A.C. valves, pumps, hydraulic valves, switches, solenoid valves, drivers and neon indicators are also basic parts of the control system.



The invention automatically and accurately controls the water level in the sump and the concentration of treating chemicals added thereto through a three-phase operation cycle. Said cycle comprises evaporation of a predetermined amount of water through the cooling action of the tower, flushing or blow-down of another predetermined amount of water along with used treatment chemicals, and replenishing of the sump water and treating chemicals to their initial level and concentrations respectively.

3,788,341
PRESSURE RESPONSIVE VALVE SYSTEM
Lawrence P. Athy, Jr.; Sandy S. Rushing, Jr., and Gordon B. Nicholson, III, all of Houston, Tex., assignors to Southwestern Manufacturing Company
Filed May 4, 1972, Ser. No. 250,215
Int. Cl. F16k *31/12*
U.S. Cl. 137—209 **10 Claims**

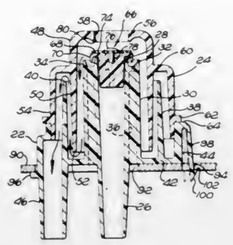


A new and improved system for controlling the operation of a valve, particularly adapted for use in remote locations such as remote pipeline block valves and the like.

3,788,342
VACUUM BREAKER VALVE
Kenneth A. Milette, Laguna Beach; Tim M. Uyeda, South San Gabriel, and Elias D. Quintana, Huntington Beach, all of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 14, 1973, Ser. No. 332,371
Int. Cl. F16k *45/00*
U.S. Cl. 137—218 **10 Claims**

A vacuum breaker valve for use with a toilet such as employed in recreational vehicles. The valve comprises a two-

piece plastic valve housing comprising a base member and a cap member sealed to one another. The base member includes a water inlet pipe and an outlet port. A valve element rests on the top of the water inlet pipe. The cap member has an at-



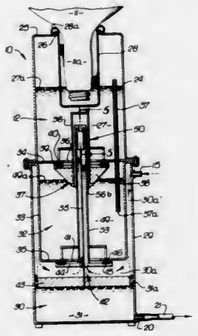
mospheric opening above the valve element. The base and cap members are formed with cylindrical walls positioned in nested coaxial relationship which define a tortuous path between the inlet and outlet port, which is greater than the actual vertical height of the valve.

3,788,343

LIQUID DISPENSING APPARATUS

Samuel W. Neidorf, Encino, and Howard K. Arnold, Venice, both of Calif., assignors to Bar-O-Matic Sales Co., Van Nuys, Calif.

Filed July 3, 1972, Ser. No. 271,261
Int. Cl. B65d *83/14*
U.S. Cl. 137—209 **17 Claims**



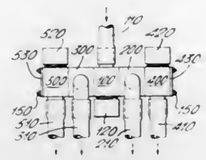
A liquid dispensing apparatus receives liquid at atmospheric or other reservoir pressure and dispenses the liquid at a higher pressure established by a supplied gas. The apparatus includes an inlet reservoir, a delivery chamber in which liquid is maintained under pressure, and a pressurizing chamber. As liquid is dispensed from the delivery chamber, appropriate valves cooperate repetitively to feed a quantum of liquid from the reservoir to the pressurizing chamber, to pressurize this quantum of liquid, and to provide the pressurized liquid to the delivery chamber to restore the level therein. This cyclic pressure amplification is powered only by the supplied gas pressure; no pump is used.

3,788,344

STACKED VALVE SYSTEM

Gerhard J. Dyck, Saskatoon, Saskatchewan, Canada, assignor to Dyckes Sprinkler Co. Ltd., Saskatoon, Saskatchewan, Canada

Filed July 7, 1972, Ser. No. 269,739
Claims priority, application Canada, Aug. 18, 1971, 120828
Int. Cl. F17d *1/00*; **F16k** *11/00*
U.S. Cl. 137—271 **9 Claims**



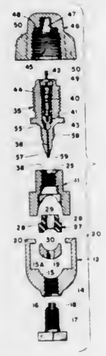
A stacked valve system is herein provided. It includes a plurality of plastic valve bodies interconnected together. Each plastic valve body includes a central bore, adapted, when a plurality of valve bodies are so interconnected together, to provide a straight throughflow internal valve conduit chamber. A second bore is provided at right angles to the central bore, such second bore extending through the valve body from one face to the diametrically opposed face. The second bore is provided, at one face thereof, with an externally threaded hollow valve barrel, and at the other face thereof with a hollow post. The internal face of the bore at the hollow post is provided with an integrally premolded valve seat. A valve is associated with the valve barrel and the valve includes an internally threaded operator threaded onto the valve barrel. The operator includes a valve stem and a depending valve head adapted to seat on the valve seat. One of the hollow posts serves as an inlet to the flow conduit, while the other posts serve as outlets.

3,788,345

DEVICES FOR PIERCING TUBES IN CLOSED PRESSURE SYSTEMS AND FOR CHARGING THE LATTER

Natale G. Tura, 343 Griswold St., N. E., Warren, Ohio

Filed Aug. 4, 1971, Ser. No. 168,958
Int. Cl. B23b *41/08*; **F16e** *41/04*
U.S. Cl. 137—318 **5 Claims**



A device which may not only be used to pierce a tube in a closed pressure system for the purpose of checking or recharging the pressure therein, but which may be left on the tube to seal the pierced hole and may be reused in the future for again checking the pressure or recharging the system.

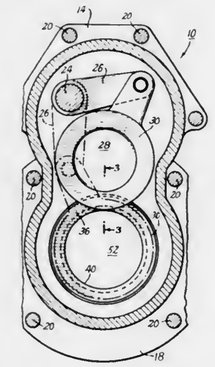
The device comprises a two part body, one part having ribs and the other having ledges to receive the ribs. The parts are held assembled with the tube by a simple set screw threaded through one part and engageable with the tube to draw the parts into interlocking relation. An injection needle is threaded through the other part to pierce the tube, such other part carrying a seal to prevent loss of pressure through the pierced opening. The piercing needle incorporates a valve, like a tire valve, so that the system may be checked or charged. A cap is threaded on the piercing needle and is used to thread the latter for piercing the tube.

3,788,346

FLANGELESS VALVE

Thomas W. Fitzgerald, Westfield, N.J., assignor to Everlasting Valve Company, Cranford, N.J.

Filed Oct. 27, 1971, Ser. No. 192,979
Int. Cl. F16k *29/00*
U.S. Cl. 137—330 **1 Claim**



The application for patent discloses a quick opening valve which provides a seat under sealing pressure which is exerted by an elastic material disposed between the valve body and the seal. The pressure is such that the shearing action of the gate against the spring-backed seat prevents any build up of carbon particles and the like which would otherwise impair the tight closure which is required in numerous valve applications. The spring action of the elastic material is provided by allowing a portion of the compressed material to vent out a narrow annular shaped opening between the seat and the valve body. A modified valve structure provides a gate having a rotatable member which on valve closure is turned in one direction within a non-rotating ring to assure even wear on the sealing surface.

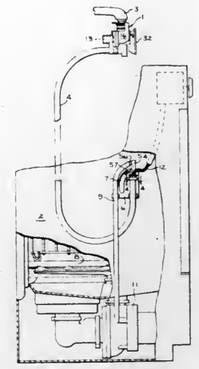
3,788,347

SINGLE HOSE COUPLING SYSTEM

Lauren W. Guth, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed July 27, 1972, Ser. No. 275,727
Int. Cl. B65h *75/36*
U.S. Cl. 137—355.17 **2 Claims**

By the present invention there is provided a system for connecting a sequentially controlled washing machine to a faucet supplying liquid under line pressure, including a coupling attachable to the faucet and a multipassageway conduit connecting the coupling to the machine. A solenoid controlled water valve is encapsulated in the housing between the line pressure faucet inlet area and an outlet area communicating with a passageway in the conduit for introducing water at flow pressure to the washing machine only when the solenoid controlled water valve is energized. The electrical wires necessary for energizing the solenoid valve at predetermined times in the machine cycle are brought to the solenoid from the machine



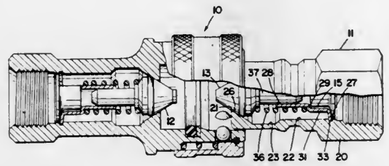
sequence control system through another passageway in the conduit. Effluent from the washing machine is directed through still another passageway in the conduit and discharged through an appropriate passageway in the housing.

3,788,348

VALVE GUIDE

Kenneth R. Johnson, Minneapolis, Minn., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Nov. 3, 1971, Ser. No. 195,141
Int. Cl. F16k *15/02*
U.S. Cl. 137—542 **2 Claims**



A valve device having a guide for a reciprocating valve element, the guide having a tubular portion of substantial length slidably receiving a stem on the valve element, radial flange portions at one end of the tubular portion, and circumferentially spaced fingers extending generally axially from said flange portions, the fingers having radially outwardly extending portions sprung into a groove around a bore in which the guide is mounted, and a spring over the tubular portion engaging the flange portions and valve element for urging the latter to closed position, the fingers between said flange portions and said extending portions having an outside diameter substantially the same as the outside diameter of said spring.

3,788,349

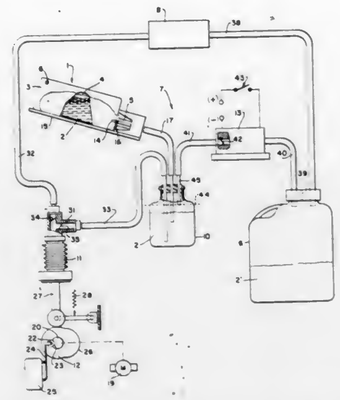
LIQUID CIRCULATION APPARATUS

Robert J. Meyer, and Harry L. Westacott, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 26, 1972, Ser. No. 266,168
Int. Cl. G03d *3/02*
U.S. Cl. 137—565 **6 Claims**

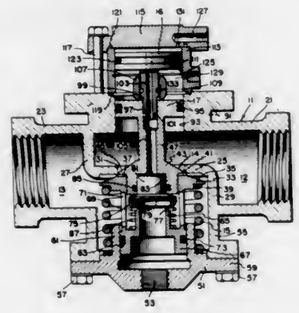
Liquid circulation apparatus is adapted to furnish metered quantities of photographic processing solution to a photo-

graphic material processing station, on a demand basis, and to accumulate spent solution emptying from the processing station in a waste container. In operation, the metered solution quantities are drawn from a fixed volume reservoir and fed to the processing station by means of a solution reservoir bellows and cam pump assembly. A processing solution storage bag of the kind which is to be discarded after completed removal of the processing solution, supplies the processing solution to the



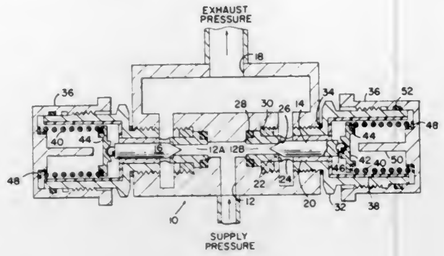
fixed volume reservoir for use at the processing station. For ecology purposes, any unused processing solution remaining in the solution supply bag is removed, prior to discarding such bag, by a scavenging pump which draws the unused solution into the fixed volume reservoir. If the amount of processing solution in the fixed volume reservoir exceeds a given quantity, then the excess solution will be fed by the scavenging pump from the fixed volume reservoir into the waste container.

3,788,350
BLOCK AND VENT VALVE
Benjamin W. West, 237 La Espiral, Orinda, Calif.
Division of Ser. No. 151,466, June 9, 1971, Pat. No. 3,741,245.
This application Apr. 9, 1973, Ser. No. 349,457
Int. Cl. F15b *11/08, 13/42*
U.S. Cl. 137—596.18 **1 Claim**



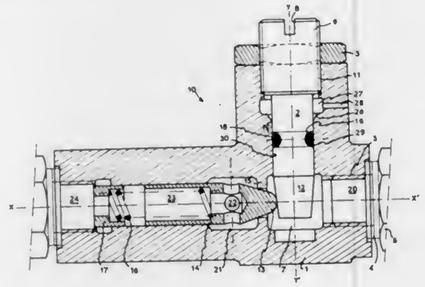
A valve assembly is described of the so-called block and vent type wherein the valve is normally closed with the downstream side vented. When a pilot pressure is applied, it first closes the vent and then opens the valve partially. On application of a second pilot signal from another source or from a suitable time delay network, the valve opens fully. On release of the pilot pressures, the valve closes first and then opens the downstream vent.

3,788,351
VALVE REFERENCE SYSTEM FOR HIGH ACCELERATION ENVIRONMENT
Clement L. Conklin, Jr., Windermere, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Nov. 21, 1972, Ser. No. 308,616
Int. Cl. F16k *51/00, 17/06*
U.S. Cl. 137—512.1 **1 Claim**



A valve reference mechanism for regulating a missile fluid or gas system that is subjected to high acceleration and vibration environments. The mechanism maintains the system at non-environmental performance levels by using two valves mounted in opposed relation to control the supply pressure inlet. When inertia forces are developed by environmental causes a compensating motion is developed which tends to close one valve orifice while opening the opposed valve orifice. The net effect of the compensating displacements is to keep the total passage area constant and reduce pressure change due to environmental causes.

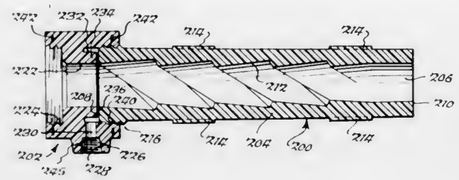
3,788,352
FLOW LIMITER
Jean-Pierre Ane, Jouy-en-Josas; Jean-Paul Teillard, Malakoff, and Emile Quere, Charenton, all of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France
Filed Nov. 6, 1972, Ser. No. 303,836
Claims priority, application France, Nov. 12, 1971, 7140663
Int. Cl. F16k *17/00*
U.S. Cl. 137—523 **6 Claims**



Precision flow limiter in which a single hydraulic conduit contains a non-return valve urged against its seat by a spring, while an adjusting screw having a tapering ramp is adapted to

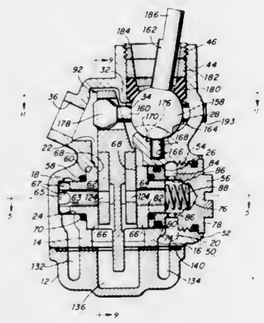
cooperate with an axial abutment of said valve whereby to space the latter from its seat as required and accurately adjust the throttled flow.

3,788,353
NOZZLE
Maurice C. Breunsbach, Hamburg, N.Y., assignor to Spirolet Corporation, North Tonawanda, N.Y.
Division of Ser. No. 7,747, Feb. 2, 1970, Pat. No. 3,692,243.
This application Apr. 24, 1972, Ser. No. 247,207
Int. Cl. F16k *19/00*
U.S. Cl. 137—604 **6 Claims**



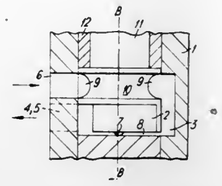
An elongated hollow body formed of a resiliently yieldable material having a bore therethrough. A thread formation of helical configuration is formed in the bore and the bore tapers gradually toward its outlet end. Passages formed in the inlet end of the nozzle are variable in size to control the rate of liquid flow into the bore.

3,788,354
SINGLE HANDLE WATER MIXING VALVE
Paul C. Symmons, King Ceaser Road, Duxbury, Mass.
Filed May 30, 1972, Ser. No. 257,880
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.4 **32 Claims**



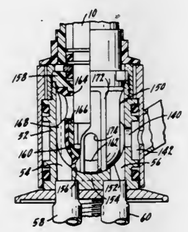
The invention is an improvement in water mixing valves and in a preferred embodiment it features ceramic valve members of unique design that are mounted so as to minimize damage by torsional forces or by engagement with other mechanical parts.

3,788,355
VALVE
Derek John Wood, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Sept. 24, 1971, Ser. No. 183,459
Claims priority, application Great Britain, Oct. 19, 1970, 49,448/70
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.11 **8 Claims**



A valve is provided having an inlet and a number of outlets any one of the outlets being closable while allowing flow through the others, there being no stagnant zones in the valve when liquid passes through all outlets.

3,788,356
FAUCET CONSTRUCTION
Alfred M. Moen, 25 Lakeview Drive, Grafton, Ohio
Division of Ser. No. 147,327, May 27, 1971. This application Aug. 3, 1972, Ser. No. 277,734
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.17 **7 Claims**

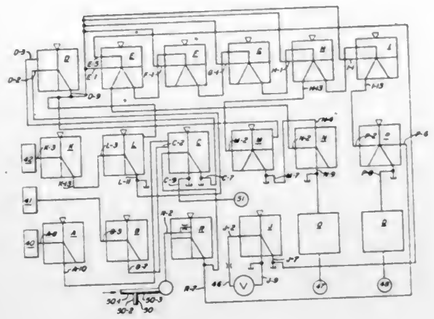


A single handle mixing faucet has a hollow stem positioned within a sleeve. The sleeve has a pair of water inlet openings and at least one discharge opening and the stem is reciprocal and rotatable relative to the sleeve to control the volume and temperature of water discharged from the sleeve. The sleeve is positioned within a retainer having bottom inlet openings with the exterior of the sleeve and the interior of the retainer cooperating to define passages from the retainer inlet openings to the sleeve inlets. A handle for the mixing faucet includes a cap and a lever, with the cap being attached to a stem and a portion of the lever being positioned within the cap and interlocked with the sleeve.

3,788,357
FLUIDIC DRIVER ALERTNESS SYSTEM
Horace B. Welk, Jr., Churchville, Pa., assignor to Casco Products Corporation, Bridgeport, Conn.
Filed Mar. 31, 1972, Ser. No. 240,151
Int. Cl. F15c *1/12*
U.S. Cl. 137—805 **5 Claims**

A flueric computer operates on specified fluidic input signals to produce output signals which will, in turn, activate

an audible warning sound, then a vehicle braking action if predetermined conditions are not satisfied. The computer uses



all fluidic digital logic and is comprised of an oscillator, multiple binary counter stages and the necessary digital logic elements to perform its function.

3,788,358

DEVICE FOR MOUNTING A BLADDER IN AN ACCUMULATOR

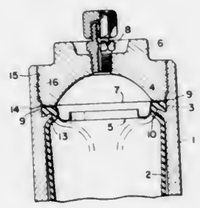
Hiroaki Taki, Shimizu, Japan, assignor to Nippon Accumulator Kabushiki Kaisha, Shimizu-shi, Japan

Filed Mar. 22, 1972, Ser. No. 236,927

Claims priority, application Japan, Mar. 30, 1971, 46/22685

Int. Cl. F16l *55/04*

U.S. Cl. 138—30 **1 Claim**



On an upper surface of a flange portion formed along an outer periphery of a mouth of a bladder, is disposed an antifriction washer portion of a centering ring member, on which antifriction washer portion is placed a lid for an outer shell, and said flange portion is urged against said outer shell by turning said lid. The arrangement is such that no torque is imposed to the flange portion even when said lid is turned. An arcuated portion is formed in the centering ring member, so that the bend portion of the bladder may be deformed along this arcuated portion, and thereby locally sharp bending of the bladder can be avoided. Then, a slight gap clearance formed between the inner surface of the outer shell and the outer peripheral surface of the lid is tightly sealed by said flange portion.

3,788,359

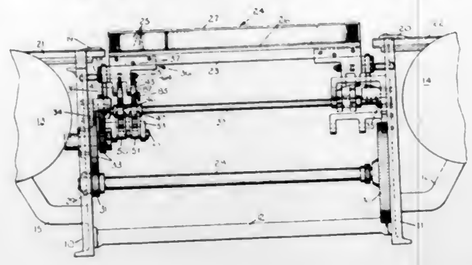
LOOM REED MOTION

Richard L. Volpe, Hopedale, Mass., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed July 10, 1972, Ser. No. 269,987

Int. Cl. D03d *49/60, 39/22*

U.S. Cl. 139—26 **7 Claims**



A reed control for weaving terry fabric in a loom of the type in which the lay and reed are reciprocated between upper and lower positions and the reed includes a cam face whereby it can be moved to beat-up picks of weft along a generally horizontally plane into the fell of the fabric.

3,788,360

WEFT NEEDLE HEAD OF SHUTTLELESS LOOM

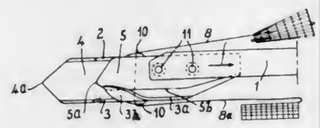
Maxime Guallo, Bourgoin-Jallieu, France, assignor to Ateliers Diedericks, Bourgoin-Jallieu, France

Filed Mar. 31, 1972, Ser. No. 240,077

Claims priority, application France, Apr. 5, 1971, 71.12626

Int. Cl. D03d *47/20*

U.S. Cl. 139—122 N **6 Claims**



This head of weft-yarn introducing needle for a shuttleless loom, which is adapted to introduce the yarn into the shed by developing a yarn loop having one end retained and the other end released, comprises a parallelipipedic tubular body of substantially rectangular cross-sectional configuration with horizontal walls formed with notches ; these notches have their bottom lined preferably with a ceramic material with their two pointed ends slightly recessed in relation to the notch bottom inlets ; on the feed side, the horizontal wall of the head adjacent the free end of the yarn loop is skew to the direction of travel and the wall portion bounded by the edge of said notch and the rear edge form together an upswept curved tongue terminating at a certain distance from the contiguous vertical wall.

3,788,361

SELVAGE NEEDLE MOTION IN A NARROW WARE LOOM

Clarence R. Kronoff, Worcester, and Donald F. Hayden, North Brookfield, both of Mass., assignors to Crompton & Knowles Corporation, Worcester, Mass.

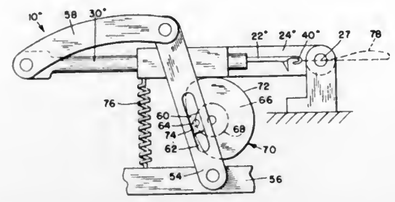
Filed June 21, 1971, Ser. No. 154,968

Int. Cl. D03d *47/24*

U.S. Cl. 139—124 **8 Claims**

A drive mechanism for the selvage knitting needle in a narrow ware loom which includes means for guiding the needle so

that it always intersects an axis coincident with the fell line of the cloth and means to reciprocate the needle forwardly and



rearwardly of the fell while simultaneously causing the hook of the needle to move vertically.

3,788,362

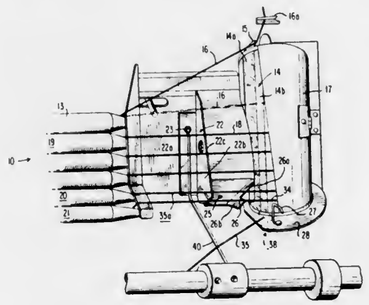
AUTOMATIC LOOM FILLING WINDER

James T. Blakely, Laurens, S.C., assignor to Blakely Industries, Greenville, S.C.

Filed Dec. 21, 1972, Ser. No. 317,152

Int. Cl. D03d *45/26, 45/02*

U.S. Cl. 139—247 **9 Claims**



An assemblage of several parts in the nature of guides or restrainers for yarn ends is attached to the magazine section of the automatic loom filling winder on a typical fly shuttle loom. These attachment parts greatly increase the efficiency of operation of the magazine section particularly at the critical time of transfer of fully wound bobbins from the magazine into the shuttle. The tendency for very fine filling yarns of the types possessing low coefficients of friction to move improperly across the yarn ends drum and to become entangled is successfully eliminated by the invention. Additionally, at the critical transfer time, each yarn end is directed to the center or region of maximum gripping pressure of a clamping means which must hold the yarn ends securely at the time of transfer. The invention in no way interferes with the normal cycle of operation of the automatic loom filling winder and, in fact, assists this cycle of operation.

3,788,363

CONTROL MEANS FOR TEXTILE PRODUCING MACHINES

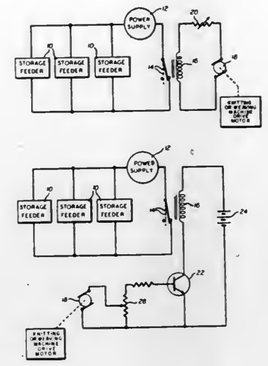
Edward M. Tellerman, Woodmere, N.Y., assignor to Stop-Motion Devices Corporation, Plainview, N.Y.

Continuation-in-part of Ser. No. 169,205, Aug. 5, 1971, Pat. No. 3,710,595. This application Jan. 12, 1973, Ser. No. 323,310. The portion of the term of this patent subsequent to Jan. 16, 1990, has been disclaimed.

Int. Cl. D03d *51/00*

U.S. Cl. 139—336 **7 Claims**

The disclosure relates to means for controlling the operation of components associated with a knitting or weaving machine, in response to the motion or absence of motion thereof. The components particularly, though illustratively, described are storage feeders associated with knitting or weaving machines whose operation is controlled so that their storage drums are prevented from being rotated when the knitting or weaving machine is not in operation. Generator



means or other electrical means responsive to the condition of the knitting or weaving machine energizes a solenoid which closes a normally open switch separating the storage feeder from its power supply. When the knitting or weaving machine is out of operation, the solenoid is de-energized and the normally open switch prevents power from being supplied to the storage feeder.

3,788,364

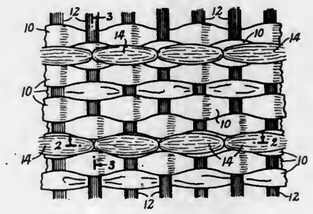
TUFTED PILE FABRICS AND BACKINGS THEREFOR

Henry D. Dawbarn, Waynesboro, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Division of Ser. No. 884,083, Dec. 11, 1969, abandoned, and a continuation-in-part of Ser. No. 487,402, Sept. 15, 1965, Continuation of Ser. No. 840,594, June 30, 1969. This application Sept. 13, 1971, Ser. No. 179,680

Int. Cl. D03d *15/00;* **D05c** *17/02*

U.S. Cl. 139—420 R **7 Claims**

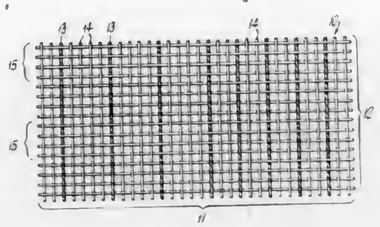


A primary backing adapted to be used in making tufted pile fabrics and woven from polyolefin yarns, the warp yarns being closely spaced flat ribbon monofilaments of substantially rectangular cross-section and the weft yarns being widely spaced relatively round multifilament or monofilament yarns. The warp yarns are crowded together to give a spacing index of 1.3 to 1.6. The weft or filling yarns are preferably untwisted multifilament yarns with a spacing index of 0.15 to 0.45. The tufted backing is also claimed.

3,788,365
NARROW ELASTIC FABRIC FOR USE AS WAISTBAND IN ARTICLES OF APPAREL

Roger G. Campbell, Sr.; Richard E. Goff, Jr., and Joseph A. Priestley, all of Barrington, R.I., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed May 26, 1971, Ser. No. 146,938
Int. Cl. D03d *15/08*; A41d *1/06*
U.S. Cl. 139—421 12 Claims

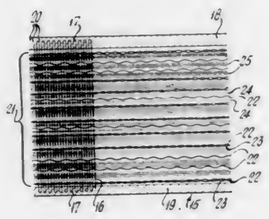


A narrow elastic fabric for use as a waistband in an article of apparel comprising a set of warp yarns running in the direction of the length of the fabric interwoven with a set of filling yarns running in the direction of the width of the fabric. From 10 to 50 percent of the number of yarns in the warp set being elastic yarns with the remaining yarns nonelastic. The elastic yarns having a spandex core initially wrapped with a settable yarn. The warp and filling yarns being woven in a pronounced rib weave over at least a portion of the width of the fabric with the ribs running in the direction of the width of the fabric.

3,788,366
NARROW ELASTIC FABRIC

Roger G. Campbell, Sr.; Richard E. Goff, Jr., both of Barrington, and Normand D. Guay, Woonsocket, all of R.I., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed Oct. 4, 1971, Ser. No. 186,364
Int. Cl. D03d *15/08*; A41d *1/06*
U.S. Cl. 139—421 9 Claims

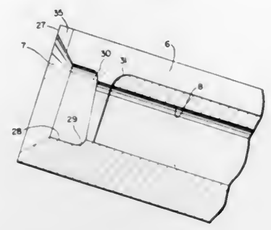


A narrow elastic fabric suitable for use in the band encircling portions of articles of apparel. The fabric has monofilament yarns in the transverse direction of the fabric and elastic yarns in the longitudinal direction of the fabric. The elastic yarns are woven under tension in a leno weave with longitudinally extending non-elastic yarns. The leno woven elastic yarns are on one surface of the fabric and the leno woven nonelastic yarns are on the opposite surface to provide the fabric with a transverse concave configuration.

3,788,367
WIRE WRAP TOOL

Daniel W. Ackerman, Binghamton, N.Y., assignor to Universal Instruments Corporation, Binghamton, N.Y.

Continuation-in-part of Ser. No. 195,252, Nov. 3, 1971, Pat. No. 3,756,522. This application May 15, 1972, Ser. No. 253,460
Int. Cl. B21f *15/00*
U.S. Cl. 140—124 7 Claims

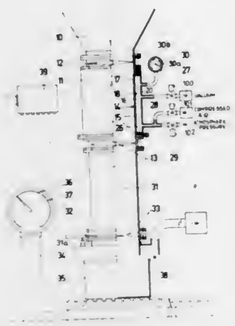


A wire wrap tool having an elongated cylindrical bit with an aperture in the end thereof for receiving a terminal stud and a wrapping sleeve which telescopes on the bit to lock a length of wire thereon, the telescoping of the bit and sleeve being accomplished on the tool by either a pneumatic, mechanical or similar type mechanism. The area of the bit between the end of the bit and the aperture has a concave conical section and a cylindrical section.

3,788,368
APPARATUS FOR FILLING A RECEPTACLE WITH COMPACTED PULVERULENT MATERIAL

Peter Geng, Allschwil; Robert Gueniat, Reinach; Alfred Zollinger, Fullinsdorf; Walter Luscher, Seltisberg; Hansjorg Schawalder, Zurich, and Hanspeter Tschanen, Dallikon, all of Switzerland, assignors to Gericke & Co., Regensdorf, Switzerland

Filed Dec. 20, 1971, Ser. No. 209,825
Claims priority, application Switzerland, Dec. 21, 1970, 18905/70
Int. Cl. B65b *1/16*
U.S. Cl. 141—67 20 Claims

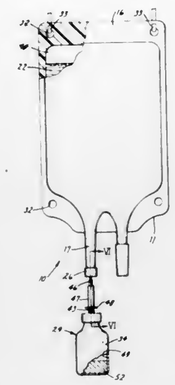


An apparatus for filing a receptacle with compacted pulverulent material comprising a compaction compartment equipped with a closable inlet and outlet. A negative pressure source, atmospheric pressure and/or an overpressure source can be connected via a filter mechanism with the compaction compartment. According to important aspects of the invention a supply compartment is connected following the compaction compartment, the outlet of the supply compartment being equipped with a dosing mechanism.

3,788,369
APPARATUS FOR TRANSFERRING LIQUID BETWEEN A CONTAINER AND A FLEXIBLE BAG

Fred M. Killinger, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed June 2, 1971, Ser. No. 149,321
Int. Cl. B65b *3/16*
U.S. Cl. 141—114 4 Claims

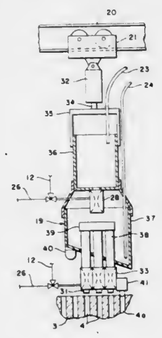


A resiliently flexible bag has a chamber with inlet and outlet passageways, the outlet passageway being connectible to a tube and the inlet passageway having perforable closure means. The chamber is normally filled with a liquid, such as a saline solution. A cannula is mounted upon a container for insertion through the closure member and communication between the chamber in the bag and the interior of the container. If the container holds a liquid, intermittent, manual compressing and releasing of the flexible bag causes the liquid within the bag to move into the container or the liquid in the container to move into the bag, depending upon their relative vertical positions. A special cannula and container therefor are provided to furnish filtered air to the bag prior to connection thereof with the container if such air is needed.

3,788,370
PARTICULATE SOLIDS TUBE LOADING APPARATUS

Thomas R. Hare, Oakland, and Clifford C. Segerstrom, Lafayette, both of Calif., assignors to Shell Oil Company, Houston, Tex.

Filed Feb. 10, 1972, Ser. No. 225,257
Int. Cl. B65b *1/06*
U.S. Cl. 141—125 12 Claims

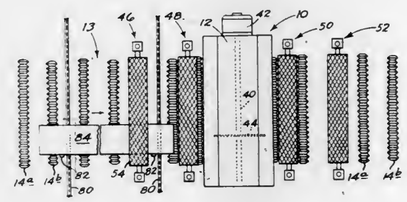


Vertical tubes are expeditiously filled to a predetermined depth with flowable, particulate solids by an apparatus which comprises (a) a temporary storage reservoir for the flowable, particulate solids; (b) conveying means for supplying the temporary storage reservoir with flowable, particulate solids; (c) an overflow reservoir supported by and vertically below the temporary storage reservoir; (d) a temporary storage reservoir flow control means for regulating the quantity of flowable, particulate solids passing out of the temporary storage reservoir and into the overflow reservoir; (e) at least one vertically oriented measuring tube secured to and passing through the bottom of the overflow reservoir, which measuring tubes are (i) located beneath the temporary storage reservoir flow control means; (ii) open at their upper ends for the receipt of flowable, particulate solids which pass through the temporary storage reservoir flow control means; and (iii) restricted at their lower ends by a measuring tube flow control means, to which an outlet nozzle of variable, restricted flow area is attached; (f) screeding means for leveling the flowable, particulate solids within the measuring tube; (g) positioning means for locating the outlet nozzles above the vertical tubes to be filled with flowable, particulate solids; and (h) conveying means for removing excess flowable, particulate solids collected in the overflow reservoir.

3,788,371
SAW APPARATUS WITH DISK BED SUPPORT FOR LUMBER

Howard C. Mason, Oregon City, Oreg., assignor to H. C. Mason & Associates, Inc., Gladstone, Oreg.

Filed June 26, 1972, Ser. No. 266,214
Int. Cl. B27b *1/00*
U.S. Cl. 144—312 9 Claims



Saw apparatus for cutting lumber along its length. The apparatus has a disk bed for supporting the lumber as the same moves during cutting, including multiple disks disposed in rows and spaced laterally from each other along the direction of travel of the lumber. The lumber is forced downwardly against the disks by pressure-applying instrumentalities, at a sufficient pressure to cause the disk edges slightly to penetrate the wood on the underside of the lumber without substantially exceeding the elastic limit of the wood. Cutting is performed while the forward travel of the lumber is so controlled. The pressure-applying instrumentalities are so adjusted as to permit the lead end of a lumber piece to pass therebeyond before coming down to produce the pressure. A method of cutting lumber along its length where the lumber is moved over a multiple-disk bed and the lumber is pressed downwardly against the disks in such bed with upper edges penetrating the wood in the lumber during the process of the cutting.

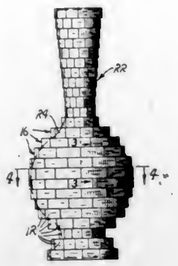
3,788,372
METHOD FOR MAKING A FABRICATED WOODEN PRODUCT

Amerigo Terenzoni, 821 Third St., Fresno, Calif.

Filed Jan. 21, 1972, Ser. No. 219,773
Int. Cl. B27d *1/08*
U.S. Cl. 144—316 6 Claims

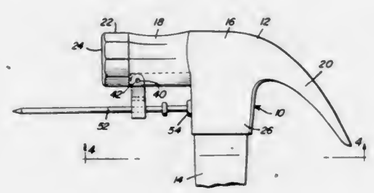
A wooden product and a method of fabricating the product characterized by the steps of forming a plurality of construc-

tion members of an annular configuration, each including a plurality of wooden blocks mated in an abutting, end-to-end relation, and adhesively uniting the construction members in a



coaxial and contiguous relationship, for thus forming a tubular body and thereafter finishing the external surfaces of the body to a predetermined configuration by removing therefrom excess material.

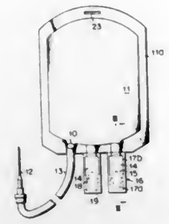
3,788,373
HAMMER WITH NAIL HOLDER
Daniel A. Aherin, 209-B Fowler St., China Lake, Calif.
Filed Apr. 7, 1972, Ser. No. 242,007
Int. Cl. B25d *1/04*
U.S. Cl. 145—30 R **5 Claims**



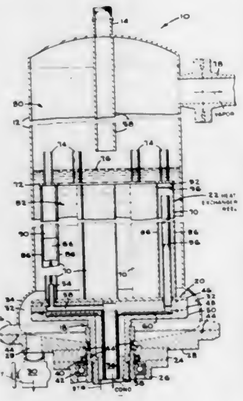
A pivotally retractible nail supporting clip mounted upon the neck of a conventional hammer whose free end defines a head. The clip is supported for swinging movement between a retracted position within a longitudinal groove cut in the neck of the hammer head and an extended position disposed at right angles relative to the hammer head neck and projecting toward the free end of the associated hammer handle. The clip clampingly engages an associated nail in position paralleling the neck and with the pointed end of the nail projecting outwardly beyond the head of the hammer while the head end of the nail is abutted against the sleeve portion of the hammer head in which the associated handle is secured.

3,788,374
PARENTERAL SOLUTION BAG
Mitsuaki Saijo, Fujinomiya, Japan, assignor to Jintan Terumo Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 71,309, Sept. 11, 1970, abandoned. This application Jan. 26, 1972, Ser. No. 220,763
Int. Cl. B65d
U.S. Cl. 150—1 **3 Claims**

A parenteral solution bag is provided with openings protruding from the perimeter of said bag for taking in or out parenteral solution and with a protective closure for hermetically enclosing this protruded portion. To the protective closure of the protruding portion is fused part of a tab for tearing said protective closure.



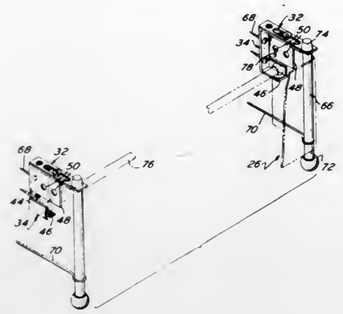
3,788,375
EVAPORATOR HAVING MOVING HEAT EXCHANGE TUBES
Samuel A. Mencacci, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed Nov. 15, 1972, Ser. No. 306,946
Int. Cl. B01d *1/00, 1/30;* **B01p** *7/16;* **B01f** *15/00;* **F28f**
U.S. Cl. 159—25 A **16 Claims**



An evaporator including a processing tank filled with a product to be evaporated. A reel is mounted for rotation within the tank and is formed, in part, of a plurality of spaced heated tubes which provide moving heat exchange surfaces and which, in motion, cavitate at their trailing edges. The heat exchange tubes are each formed with a cross-sectional configuration defining a pocket at the trailing edge thereof which maximizes the area of the cavitational void. Conduits are fixed at the ends of the tubes relative to each cavitation void to continuously evacuate the voids of vapors resulting from the evaporation of the product in the processing tank and to deliver the vapors to a location at one end of the tank where they can be withdrawn.

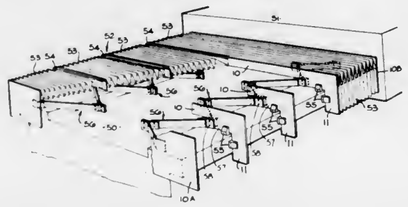
3,788,376
DRAPERY
Leo Mednick, deceased, late of Philadelphia, Pa. (by Shirley S. Shipon, executrix), 1040 Novelt Dr., Philadelphia, Pa.
Filed July 28, 1972, Ser. No. 276,182
Int. Cl. E06b *9/00;* **A47n** *5/32*
U.S. Cl. 160—19 **14 Claims**

A drapery comprising a pair of panels horizontally slidable on a supporting rod. Each of the panels has a string secured thereto at one edge. The edges of the panels having the secured strings thereon are positioned adjacent each other, and are slidable away from each other. Each string has two ends, with the ends extending across the width of both panels and being slidably supported exteriorly of the panels. The pulling of each string in one direction will pull a panel away



from the other. The pulling of the string in the other direction will pull the panel toward the other. In this way one or both panels of the drapery can be opened. The drapery further includes an associated valance which comprises a pair of rods which are vertically extending. The valance comprises a stretchable fabric which is stretched around the rods.

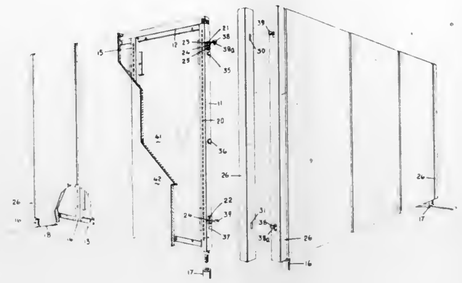
3,788,377
CORRUGATED COVERS FOR RECIPROCATING MACHINERY PARTS
Peter M. Knowles, Datum, England, assignor to Henry Beakbane (Fortox) Limited, Kidderminster, England
Continuation-in-part of Ser. No. 7,519, Feb. 2, 1970, abandoned. This application Feb. 1, 1972, Ser. No. 222,591
Int. Cl. A47h *5/00*
U.S. Cl. 160—84 R **4 Claims**



For use in a corrugated cover, a section which includes a corrugated body portion and extension control means contained in the corrugated body portion, the extension control means comprising a plurality of hingedly connected flat metal strips.

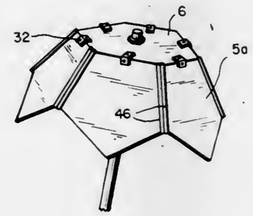
3,788,378
FLOOR AREA DIVIDER
Sydney Murray Sobel, Toronto, Ontario, Canada, assignor to OSF Industries Limited, Toronto, Ontario, Canada
Filed July 16, 1971, Ser. No. 163,368
Int. Cl. A47g *5/00*
U.S. Cl. 160—135 **4 Claims**

A floor area divider for use in planning and dividing the floor area of a room into a number of separate work spaces, each space being organized as to size and shape for the particular use to which the area is to be put. The divider may consist of a single free stand panel or a plurality of panels hingedly connected together to provide an enclosure which defines a particular space in relation to adjoining spaces. Each panel includes a rectilinear metal frame of rigid tubular material generally square in cross section with the frame subdivided into one or more panel sections. Each panel section is enclosed within a panel sleeve made in half-sections so that a pair of mating halves can be mounted on or removed from its



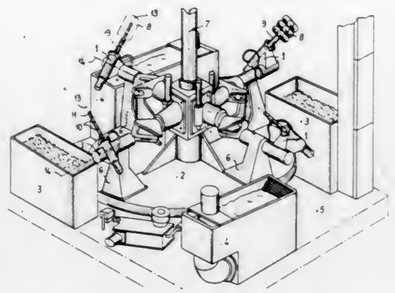
respective frame without the use of tools. Hinges allow two or more panels to be joined together and placed at any angle to one another. The panel sleeves are arranged in edge-to-edge relationship to completely conceal the frame. The partition is easily moved from place to place by manpower without the use of any tools. The components can be assembled to form the partition without the use of tools and can, likewise, be dismantled.

3,788,379
READILY RELEASABLE INTERCONNECTING MEANS FOR PANELS
Macon D. Rice, P.O. Box 1905, Hawthorne, Nev., and Emil G. Anderson, 707 Van Buren St. N.W., Washington, D.C.
Continuation-in-part of Ser. No. 854,442, Sept. 2, 1969, Pat. No. 3,614,835. This application Oct. 4, 1971, Ser. No. 186,056
Int. Cl. E06b *3/12*
U.S. Cl. 160—235 **7 Claims**



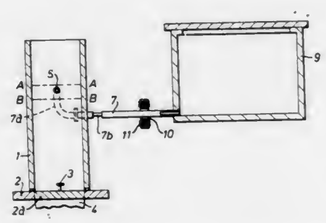
The interconnecting means between contiguous panels or sheets or between a panel and a support therefor is designed to facilitate the assembly of panels or sheets to form the desired structure. The means has a more or less rigid member with one or more slotted channels thereon which are adapted to receive resilient, or springy, slotted sleeves expandable into a tight fit in the channel when the panels are inserted in the slot in the sleeve.

3,788,380
METHODS OF MANUFACTURING SHELL MOULDS
Philippe Jasson, and Pierre Chatourel, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault, Billancourt, France
Filed June 15, 1971, Ser. No. 153,332
Claims priority, application France, July 3, 1970, 70.24842
Int. Cl. B22c 13/08
U.S. Cl. 164—26 2 Claims



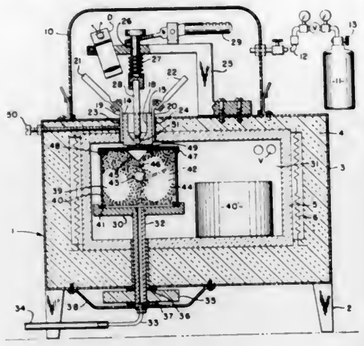
Method of manufacturing shell moulds wherein each disposable mould comprises a central core frame secured to an operating head utilized for immersing the pattern in succession into vessels containing alternately refractory slip and refractory grains in the form of fluidized suspension, respectively, said central core frame revolving automatically about the vertical axis of a turnstile adapted, through an intermittent rotation, to bring in succession said head above the vessels, about another axis of said core frame and finally about an axis perpendicular to said core frame axis for performing a limited pivotal movement sufficient however for immersing the pattern into each vessel and removing it therefrom during the pauses produced in the rotation of said turnstile, this method applying more particularly to precision foundry processes.

3,788,381
METAL REFINING PROCESS
Geoffrey Hoyle, and David Melvin Longbottom, both of Sheffield, England, assignors to The British Iron and Steel Research Associates, London, England
Filed May 22, 1972, Ser. No. 255,571
Claims priority, application Great Britain, June 8, 1971, 19449/71
Int. Cl. B22d 27/02
U.S. Cl. 164—52 12 Claims



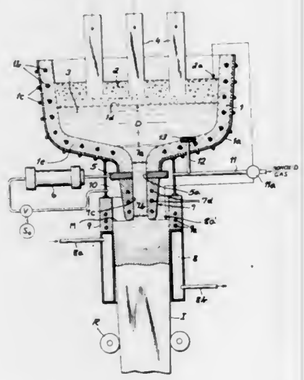
A process for refining metals in which metal introduced to a vessel is refined as it passes in droplet form through a bath of molten slag, comprising introducing the metal in molten state and at a controlled rate to the vessel through one or more apertures which are formed in that part of the vessel wall which confines the slag bath.

3,788,382
VACUUM METAL CASTING APPARATUS
Arnold Daniel, 2219 Devonshire Dr., and Joseph Burdette Richey, II, 2160 Demington Dr., both of Cleveland Heights, Ohio
Division of Ser. No. 92,583, Nov. 25, 1970, Pat. No. 3,712,364.
This application Oct. 26, 1972, Ser. No. 301,158
Int. Cl. B22d 27/16
U.S. Cl. 164—150 22 Claims



A metal casting apparatus especially adapted for the rapid melting and casting of small charges of metal, utilizing a metal-heating crucible in communication with a mold contained in a heated enclosure. The metal charge within the crucible is rapidly heated to melt the same to bring the molten metal to optimum casting temperature, whereupon the molten metal in the crucible is subjected to sufficient pressure differential to force the molten metal through a small opening in the crucible into the mold.

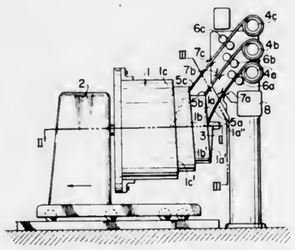
3,788,383
APPARATUS FOR THE CONTINUOUS EXTRACTION OF ELECTROSLAG REMELTED METALS
Paul Metz, Emile Metz, Luxembourg, assignor to Acieries Reunies de Burbach-Eich-Dudelange S.A., Luxembourg, Luxembourg
Filed Apr. 14, 1971, Ser. No. 133,993
Claims priority, application Luxembourg, Apr. 16, 1970, 60743
Int. Cl. B22d 17/32, 27/02
U.S. Cl. 164—156 10 Claims



An electroslag melting (e.g. remelting) of metal, under a slag or fused-flux layer, is carried out in a crucible provided

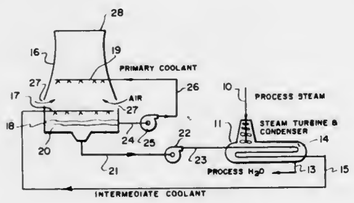
with a discharge neck which is received with clearance in a removable, replaceable and interchangeable continuous-ingot mold. The liquid/solid metal interface is maintained within the mold which has a liquid-free surface exposed to reducing or nonoxidizing gas pressure maintained to balance the hydrostatic pressure of the metal bath and flux layer in the melting chamber. As a consequence, the rate of flow of the metal from the melting crucible to the ingot mold is automatically controlled to equal the rate at which the ingot is withdrawn.

3,788,384
APPARATUS FOR CONSTRUCTING SUBSTANTIALLY CIRCULAR CROSS-SECTION VESSEL BY WELDING
Akira Ujile, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 5,311, Jan. 23, 1970, Pat. No. 3,665,143.
This application Oct. 18, 1971, Ser. No. 190,423
Int. Cl. B22d 27/02
U.S. Cl. 164—252 4 Claims



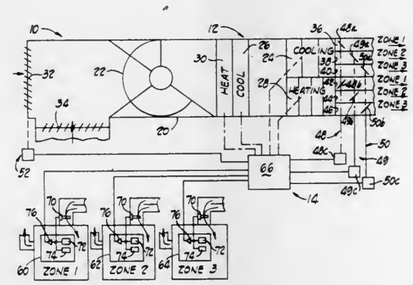
A multi-layer, thick wall, substantially circular cross-section metal vessel includes a plurality of concentric tubular layers formed by the progressive deposition of molten weld metal mainly provided by electroslag welding process to form continuous helical strips with the axially adjacent convolutions of each helical strip being contiguous. The several helical strips are formed simultaneously, and each helical strip is solidified in contact with solidified metal. Each strip of molten metal forming a tubular layer of a relatively larger diameter is deposited progressively and progressively solidified onto a tubular layer of smaller diameter with an axial offset corresponding to a predetermined pitch of a helix.

3,788,385
DRY TYPE, LIQUID-SOLID COOLING SYSTEM
Terry Wayne Delahunty, La Grange, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.
Filed Nov. 23, 1970, Ser. No. 91,931
Int. Cl. F25b 13/00
U.S. Cl. 165—2 29 Claims



To cool a hot first material it is brought into heat exchange with a particulate solid second material which liquefies through such heat exchange, the liquefied second material is removed from heat exchange with the first material, cooled and converted into solid particulates, and the solid particulates of the second material are brought into heat exchange recontact with the hot first material. The system is useful in the cooling of hot water from an electric power generating plant.

3,788,386
MULTIPLE ZONE AIR CONDITIONING SYSTEM
Merlin E. Demaray, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio
Filed Nov. 30, 1971, Ser. No. 203,329
Int. Cl. F24f 3/08
U.S. Cl. 165—2 7 Claims



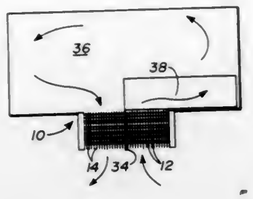
A multiple zone air conditioning system is disclosed having a control system in which heating or cooling equipment is controlled according to the maximum and minimum zone air conditioning loads. The control system is constructed using electronic components which are protected against damage due to improper installation.

3,788,387
Patent Not Issued For This Number

3,788,388
HEAT EXCHANGE SYSTEM
Herman G. Barkmann, Santa Fe, N. Mex., assignor to Q-dot Corporation, Santa Fe, N. Mex.
Continuation-in-part of Ser. No. 824,584, May 14, 1969, abandoned. This application Feb. 19, 1971, Ser. No. 116,758
Int. Cl. F28d 15/00
U.S. Cl. 165—32 21 Claims

A heat exchange system for transferring heat between intake air flowing into an enclosure and exhaust air flowing out of the enclosure. The system includes a plurality of fins and a plurality of heat pipes each extending into engagement with all of the fins. Half of the fins are positioned for engagement by

the intake air and half are positioned for engagement by the exhaust air. The heat pipes are bi-directional and self regulating so that both the direction and the rate of heat transfer in the system depend upon the relative temperatures of the in-

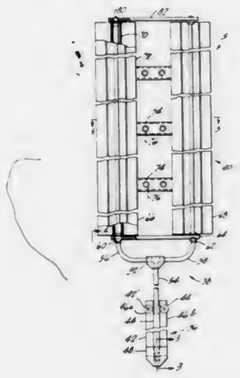


take air and the exhaust air. The efficiency of the heat pipes can also be regulated to control the temperature of the air entering the enclosure by elevating the ends of the heat pipes, either manually or automatically to control the temperature of the incoming air.

3,788,389
PERMAFROST STRUCTURAL SUPPORT WITH HEAT PIPE STABILIZATION

Elmer Dale Waters, Richland, Wash., assignor to McDonnell Douglas Corporation, Santa Monica, Calif. Canada

Filed Aug. 25, 1971, Ser. No. 174,687
Int. Cl. F28d *15/00*
U.S. Cl. 165—45 **9 Claims**

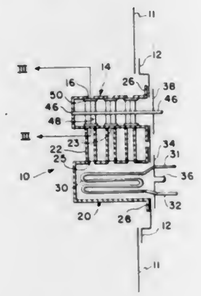


Structural support assembly for use in artic and subartic (permafrost) areas or in any areas where the upper ground layer is subject to a severe annual freeze-thaw cycle, including the cooperative combination of a support structure and a heat pipe element installed in generally frozen soil. The heat pipe is of a suitably complementary configuration and/or disposition with respect to the support structure to provide appropriate stabilization of the surrounding frozen soil. In one embodiment, the heat pipe element is disposed externally of the support structure and, in another embodiment, it is disposed internally of (and integrally combined with) such structure. The external embodiment further includes one version employing a linear (straight) heat pipe element and another version employing an angular (helical) element.

3,788,390
EMERGENCY MASTER CONTROL VALVE

William G. Lewers, Chincoteague, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 8, 1972, Ser. No. 313,390
Int. Cl. F28d *1/06*
U.S. Cl. 165—74 **10 Claims**



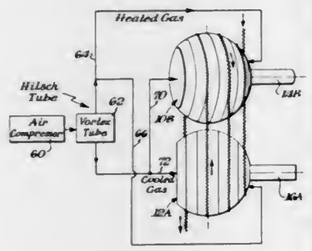
An improved tank heater for lowering the viscosity of liquids stored in tanks and for isolating the liquid such that the tank heater coils can be removed and repaired without having to drain the tank.

This improved tank heater has advantages over prior tank heaters in that it is mechanically simpler to build and operate and allows heating coil repairs to be performed without having to drain the tank in which the steam coil is located.

3,788,391
ROLL ASSEMBLY

J. Packard Laird, 915 Center Rd., Wilmington, Del.

Filed Aug. 18, 1971, Ser. No. 172,635
Int. Cl. F28d *11/02*
U.S. Cl. 165—65 **20 Claims**

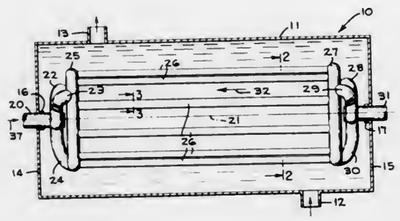


A roll assembly for receiving elongated material passing thereover comprises a pair of spaced rolls mounted on shafts which are skewed at an angle with respect to each other. The rolls are arranged to accept the material for travel over its ideal path wherein the points at which the material enters and leaves each roll are coarcuate with the path being disposed on each roll along lines of contact with that roll and with the lines of contact of each roll being disposed upon the surface of an imaginary sphere and each such line of contact being coplanar with the path of the material as it approaches and leaves said line of contact.

3,788,392
REVOLVING LINEAR TUBE HEAT EXCHANGER

John A. Abbott, Menlo Park, and Samuel A. Mencacci, Saratoga, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed July 6, 1971, Ser. No. 159,912
Int. Cl. F28d *11/04*
U.S. Cl. 165—92 **7 Claims**

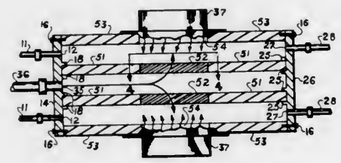


A linear tube through which heating fluid flows is mounted to revolve within an elongated tank containing a liquid to be heated. The tube extends longitudinally within the tank and moves transversely in an orbital path with the trailing portion of the tube formed to reduce the tendency for a film of liquid being heated to burn thereon. The tube can be formed in such a manner by either streamlining the transverse surface configuration thereof so that the tube will move through the liquid within the tank with a more nearly unbroken flow thereabout or by insulating the trailing portion of the tube to reduce heat transfer by conduction from the heating fluid within the tube. The tube is supported in a manner so as to remove heating fluid condensate and cause liquid being heated to flow longitudinally within the tank. An arrangement of a multiplicity of tubes for movement through the liquid being heated without elimination of flow thereabout is also provided.

3,788,393
HEAT EXCHANGE SYSTEM

Bruno T. Plizak, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 1, 1972, Ser. No. 248,885
Int. Cl. F28f *3/04, 13/02*
U.S. Cl. 165—109 **1 Claim**

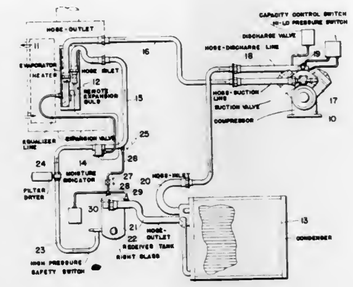


Heat transfer is accomplished by having two adjacent chambers with an outside partition of a first chamber made of heat conductive material for conducting heat inwardly into the first chamber which has a coolant liquid flowing through it. A second chamber has a gas at a pressure higher than the water in the first chamber. A partition between both chambers is made of a gas porous material so that the gas in the second chamber penetrates the connecting wall and flows through the coolant liquid breaking up the formation of liquid coolant film on the heat conductive material.

3,788,394
REVERSE BALANCE FLOW VALVE ASSEMBLY FOR REFRIGERANT SYSTEMS

Don C. Derragon, Jr., Pembina, N. Dak., assignor to Motor Coach Industries, Inc., Pembina, N. Dak.

Filed June 1, 1972, Ser. No. 258,870
Int. Cl. F25b *41/00*
U.S. Cl. 165—134 **3 Claims**

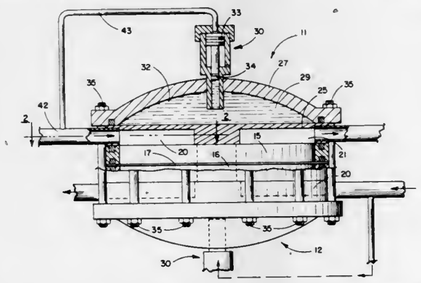


The reverse balance flow valve is used in circumstances using an expansion valve controlled evaporator where the air conditioner evaporator coils and the heater core are in a common plenum chamber. It is a one-way valve installed between the line extending from the expansion valve to the evaporator and the upper gas portion of the receiver tank on the high pressure liquid side of the condenser. It automatically relieves or balances the pressure in the system during non-air conditioning cycles (where the compressor is connected to the engine at all times), when and if the refrigerant on the evaporator side increases in pressure over the refrigerant on the condenser side thus preventing refrigerant and oil migration and subsequent flooded starts with possible damage to the compressor when the refrigerant unit is switched to the air conditioning cycle.

3,788,395
FLUID PRESSURIZED COVER DEVICE

Stellan Knoos, Malibu, Calif.; Soren F. S. Ljungdahl, Taby, and Bertil Ingemar Bostrom, Danderyd, both of Sweden, assignors to AGA Aktiebolag, Taby, Sweden, a part interest

Continuation-in-part of Ser. No. 259,009, June 2, 1972. This application Feb. 5, 1973, Ser. No. 329,539
Int. Cl. F28f *3/12*
U.S. Cl. 165—169 **6 Claims**



A cover assembly is used for retaining members such as the heat exchanger elements of a heat exchanger in clamping engagement with a diaphragm which is interposed therebetween.

The cover assembly has an inner plate and an outer plate which form a chamber within which a fluid medium is contained. The fluid is pressurized to provide force distributed uniformly over the surface of the inner plate, thereby enabling this plate to resist forces which would otherwise tend to cause it to buckle, and assuring clamping pressure to clamp the members together over their entire contact area to enable good thermal transfer therebetween.

3,788,396

WELL RE-ENTRY TOOL WITH BUMPERHEAD

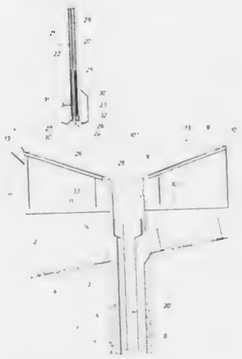
Howard L. Shatto, Jr., and Johannes A. W. J. Van Dommelen, both of The Hague, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed Dec. 2, 1971, Ser. No. 204,046

Claims priority, application Great Britain, Mar. 10, 1971, 6,446/71

Int. Cl. E21b *7/12, 33/035*

U.S. Cl. 166—.5 **9 Claims**



To prevent damage to an orienting device used for re-entry into wells located on the floor of a body of water on which a guide cone is mounted a bumperhead is mounted on the lower end of the tubing string carrying the orienting device.

3,788,397

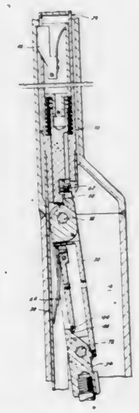
KICKOVER TOOL

Ben D. Terral, and Harold E. McGowen, Jr., both of Houston, Tex., assignors to Camco, Incorporated, Houston, Tex.

Filed Oct. 24, 1972, Ser. No. 299,812

Int. Cl. E21b *23/02*

U.S. Cl. 166—117.5 **7 Claims**



An improved kickover tool and well valve handling apparatus for placing a valve in or removing a valve from an offset side pocket in a well tubing and having a support body, a shifting tool pivotally supported from the support body with spring means yieldably urging the shifting tool into the side pocket by providing means for releasing the shifting force of the spring from the shifting tool after use whereby the shifting tool may become aligned in the well tubing for removal. The spring being a leaf spring with one end held under compression by shear means engageable by a valve handling support so as to be sheared when the valve handling support is pivoted relative to the shifting tool so that the shifting tool may become pivotally aligged in the tubing from the support body. Adjustable means for moving the valve handling support about a pivot from the shifting tool for engagement with the shearing means. A rotatable joint connected between the support body and the shifting tool secured by a shear pin to the shifting tool and sheared by movement of the shifting tool relative to the body for allowing greater lateral shifting movement of the shifting tool.

3,788,398

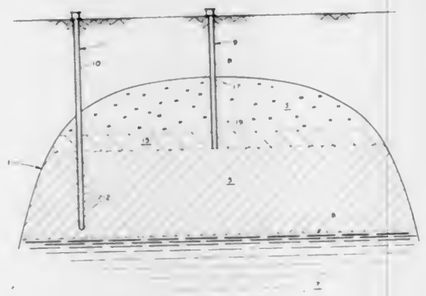
OIL RECOVERY PROCESS

Cecil A. Y. Shephard, Calgary, Alberta, Canada, assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,762

Int. Cl. E21b *43/16*

U.S. Cl. 166—269 **5 Claims**



This specification discloses a process of recovering oil from an oil-containing reservoir having a gas cap. In accordance with this process there is injected into the gas cap a fluid that is miscible with the oil in the reservoir and gas in the gas cap. Also injected into the reservoir are gas and water in an amount no greater than that amount which can be maintained within the gas cap without flowing into the oil zone. Oil is produced from the reservoir from locations that are structurally lower than the gas cap.

3,788,399

METHOD FOR INHIBITING ADSORPTION OF SURFACTANT IN SECONDARY OIL RECOVERY

David George Feuerbacher, Bellaire, and Mary Kay Hrncir Smith, Austin, both of Tex., assignors to Texaco Inc., New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,471

Int. Cl. E21b *43/22*

U.S. Cl. 166—274 **14 Claims**

A process for recovering petroleum from a subterranean reservoir by flooding with a surfactant wherein the adsorption of surfactant by the reservoir rock is inhibited by treating the reservoir with an aqueous preflush solution of a water soluble salt of a strong mineral acid having an oxygen containing anion prior to injecting the surfactant. Preferably, treatment is accomplished by injecting an aqueous solution of soluble nitrates, sulfates or phosphates into the reservoir in an amount sufficient to satisfy substantially all of the adsorption capacity of the reservoir matrix followed by injection of an aqueous solution of the surfactant. The preflush compound and the surfactant solution can be subsequently displaced through the formation by any convenient aqueous drive fluid including water.

3,788,400

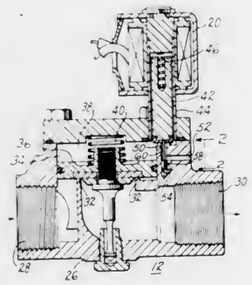
FIRE EXTINGUISHING SYSTEM AND VALVE FOR USE THEREWITH

Howard L. Tufts, Hingham, Mass., assignor to Pyrotector, Incorporated, Hingham, Mass.

Filed May 7, 1973, Ser. No. 357,924

Int. Cl. A62c *37/08*

U.S. Cl. 169—11 **6 Claims**



A fire extinguishing system and a valve for use therein, said system having both automatic and manual means for actuating the valve, said valve being designed for use in systems utilizing vaporizable extinguishants maintained under high pressure, and to give a very fast rate of extinguishant release, to allow the system to be used in applications where explosion suppression is desired. The valve is of the type utilizing a main valve and a pilot valve, in which the pilot valve is arranged to actuate the main valve by releasing the pressure on the back side thereof. In one embodiment of the invention pressure is supplied to the back side of the main valve piston only by leakage past the periphery of the piston. The pressure on the back side of the piston is released by the pilot valve to atmosphere rather than into the discharge line to avoid possible interference with said pressure release due to pressure buildup in the main discharge line. The pilot valve may be actuated by either a solenoid or mechanically by means contacting the face of the pilot valve covering the pilot valve discharge line, thereby avoiding sealing problems ordinarily encountered with such mechanical actuating means.

3,788,401

HYDRAULIC CIRCUIT WITH VALVE TO PROVIDE SEMI-FLOAT CONTROL OF A DOZER BLADE

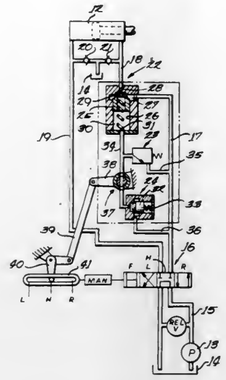
James E. Scheidt, and Robert W. White, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed July 17, 1972, Ser. No. 272,482

Int. Cl. E02f *3/76, 3/85;* **F15b** *13/04*

U.S. Cl. 172—801 **8 Claims**

There is disclosed a control circuit having a semi-float position for a bulldozer blade. The circuit includes selectively controllable check and relief valves operative to prevent the blade from dropping under the influence of gravity, but permits the blade to be moved under the influence of forces developed by a vehicle being pushed thereby.



3,788,402

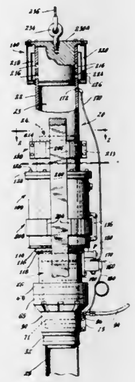
AUTOMATICALLY SELF-REGULATING VARIABLE-STROKE, VARIABLE-RATE AND QUIET-OPERATING PILE DRIVER APPARATUS

Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Division of Ser. No. 102,325, Dec. 29, 1970, Pat. No. 3,714,789. This application Aug. 14, 1972, Ser. No. 280,547

Int. Cl. E02d *7/10*

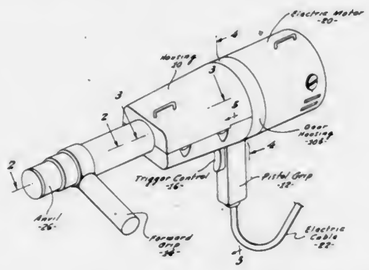
U.S. Cl. 173—91 **19 Claims**



Automatically self-regulating variable-stroke, variable-rate and quiet-operating pile driver apparatus are disclosed in which a massive piston weight is bounced upon a cushion of pressure fluid, the pile driver advantageously being adapted for operation in four different modes: (1) only double-acting, (2) single-acting automatically conyerting to double-acting at maximum stroke travel, (3) only single-acting, (4) pre-stressing plus impacting plus thrusting mode, and (5) pile extraction mode. The prolonged downward push resulting from the pressurized fluid-cushioned bouncing action is more

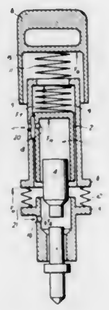
effective than the conventional sharp hammer-type blow resulting from impact of one solid mass against another. When the pile being driven encounters softer strata in the earth, in the single-acting mode, the stroke of the piston weight automatically shortens while the number of bounces per minute automatically increase thus increasing the rate of the quiet powerful bounce thrusts for driving the pile faster, and when harder strata are encountered, the piston weight automatically bounces higher providing a longer stroke with fewer bounces per minute, thus increasing the force of each quiet powerful thrust for overcoming the increased impedance being encountered. In the double-acting mode, when harder strata are encountered, the velocity and stroke length of the piston weight increase automatically to deliver more powerful thrusts. A relatively large number of driving thrusts per minute can be provided in the double-acting mode by changing the head plug mass to shorten the maximum stroke length to increase the frequency of thrusts per minute. By virtue of the pressure fluid bouncing action imparted to the massive piston weight, the noise of metal-to-metal contact blows can be avoided, and in addition a muffler housing surrounding the ports through which the expanded pressure fluid is released muffles the sound of the flow of the fluid, such as air or steam; this muffler also serving to separate lubricating oil from the released fluid. A cylinder bottom assembly below the bounce chamber is coupled to the pile being driven to transmit the quiet powerful bounce thrusts to the pile, moving in accordance with the pile motion, and a driving fluid storage chamber and valve mechanism associated with this assembly control the flow of the pressure fluid in an automatically self-regulating manner to seek the most effective driving action from moment-to-moment as the pile encounters different strata. If desired, the bouncing action of the cushion of pressure fluid can be altered to permit the piston weight to strike bottom slightly to provide the driving mode (4) above. A self-contained lubrication system may be actuated by the pressure impulses in the bounce chamber.

3,788,403
POWERED IMPACT TOOL
William C. Mitchell, 23152 Bigler St., Woodland Hills, Calif.
Filed May 15, 1972, Ser. No. 253,434
Int. Cl. B25d *11/04*
U.S. Cl. 173—115 **7 Claims**



A powered impact tool, such as an automatic hammer, chisel, star drill, or the like, is provided which comprises a spring loaded anvil mounted at one end of a housing; a spring loaded plunger, or piston, mounted within the housing; a carriage which slides reciprocally within the housing; a drive for the carriage which imparts the desired reciprocal movement to the carriage; and a pawl which releasably couples the piston to the carriage to permit the carriage to draw the piston back against its spring, and which releases the piston at a selected point of each stroke of the carriage so that the piston spring drives the piston against the anvil which in turn drives the anvil through the end of the housing so that the anvil may provide a high impacting force on the nail or other object being impacted by the tool. An adjustable trigger is also provided by which the displacement of each stroke of the piston, and thus the impact with which it strikes the anvil, can be controlled.

3,788,404
PNEUMATIC IMPACT TOOL
Vladimir Koudelka, Roztoky u Krivoklatu, and Mirko Lada, Prague, both of Czechoslovakia, assignors to Naradi, Narodni podnik, Prague, Czechoslovakia
Filed Jan. 28, 1972, Ser. No. 221,584
Claims priority, application Czechoslovakia, Feb. 1, 1971, 71703
Int. Cl. B25d *17/24*
U.S. Cl. 173—139 **3 Claims**



A penumatic impact tool, in which oscillations below the frequency of 1000 cycles per second, which are detrimental to the health of the operator, are substantially reduced by the arrangement of the working cylinder as a dilation cylinder, composed of two axially aligned parts, cushioned with respect to the body of the tool.

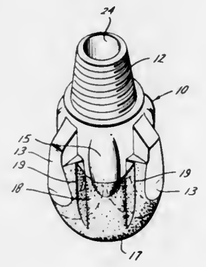
3,788,405
PROCESS FOR PLUGGING FORMATIONS
James B. Taylor, Calgary, Alberta, Canada, assignor to Trans-Canada Resources, Ltd., Vancouver, British Columbia, Canada
Filed Aug. 23, 1971, Ser. No. 174,086
Int. Cl. E21b *21/04*
U.S. Cl. 175—72 **13 Claims**

A composition for use in plugging porous strata encountered during the drilling of a wellbore into an underground formation which composition comprises a mixture of straw and chemical wood pulp fibers in a weight ratio of 1:9 to 9:1 as well as a method of plugging said porous strata by adding said mixture to the drilling fluid recirculating through the well bore.

3,788,406
LOST CIRCULATION CONTROL
Joseph U. Messenger, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,719
Int. Cl. E21b *21/04*
U.S. Cl. 175—72 **10 Claims**

This specification discloses a method of controlling the loss of drilling fluid into subterranean formations penetrated in the drilling of a well. An aqueous mixture comprising an emulsifying agent and preferentially oil-wettable granular particles in an amount greater than 100 pounds per barrel of mixture is introduced into the well. This aqueous mixture is circulated down the well and into the formation into which the drilling fluid is being lost. The high concentration of granular particles serves to plug the formation and prevent loss of circulation thereinto.

3,788,407
METHOD AND ARRANGEMENT FOR PROTECTING AND GUIDING DRILLING BITS
Howard I. Lorenz, and Eugene P. Rosser, both of Houston, Tex., assignors to Noble Drilling Corporation, Tulsa, Okla., by said Rosser
Continuation of Ser. No. 107,786, Jan. 19, 1971, abandoned, which is a continuation-in-part of Ser. No. 832,673, June 12, 1969, abandoned. This application Oct. 17, 1972, Ser. No. 298,298
Int. Cl. E21b *27/00*
U.S. Cl. 175—307 **20 Claims**

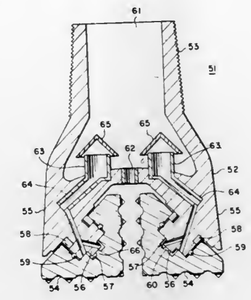


A drilling bit for use in drilling wells such as oil and gas well boreholes in the earth is protected from damage prior to actual use at the bottom of the hole by enclosing the drilling bit with a molded jacket arrangement of impact resistant material. The jacket arrangement includes a fluid passageway system which cooperates with the fluid outlets of the bit, to accommodate fluid communication between the well bore and the interior of the drill string with which the bit is connected. The jacket means is preferably generally convex so that its forward central portion projects beyond the surrounding edge portion. The passage means terminates in outlets in the central portion which further protects the bit, and aids in keeping it from becoming "balled up." The fluid passageway system also enables fluid under pressure to be discharged through the bit and jacket arrangement without premature removal of the jacket arrangement so that the streams of fluid act on any backfill and debris present in the well bore to circulate such debris and backfill as the bit is lowered in the well bore to properly position it for further drilling operations before removal of the protective jacket arrangement.

The fluid passageway system may include a pressure responsive arrangement to enable at least partial removal of the protective jacket arrangement at any desired position of the bit in the borehole, or the jacket arrangement may be drilled off when the bit reaches bottom, if desired.

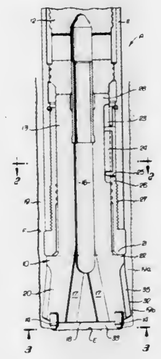
In one form of the invention, the protective arrangement is molded onto the bit. In another form of the invention, a pre-molded or pre-formed arrangement is provided which is expanded as it is forced over the bit and thereafter returns to its original configuration to retain the jacket arrangement on the bit. It may also be provided with portions which fit into the fluid outlets of the bit to further aid in supporting and retaining it in such position on the bit. In either case, the protective arrangement is constructed and arranged on the bit to also serve as a guide device for guiding the bit past various obstructions which may be present in a previously drilled portion of the earth borehole, or obstruction in the cased portion of the borehole. The invention also prevents balling of the drill bit and damage to the filter cake on the walls of the well bore.

3,788,408
ROCK BIT WATER DEFLECTOR AND SEPARATOR
Theodore R. Dysart, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Apr. 20, 1970, Ser. No. 29,980
Int. Cl. E21b *9/08*
U.S. Cl. 175—337 **2 Claims**



A rotary bit with passageways for conducting air or other gaseous fluid to cool the bearings and flush cuttings from the borehole includes means for separating liquid from the air or gas. The stream of air is directed through a system of baffles to insure that only dry air reaches the bearings.

3,788,409
PERCUSSION BITS
Alfred R. Curington, Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.
Filed May 8, 1972, Ser. No. 251,212
Int. Cl. E21c *13/08, 13/01*
U.S. Cl. 175—410 **12 Claims**

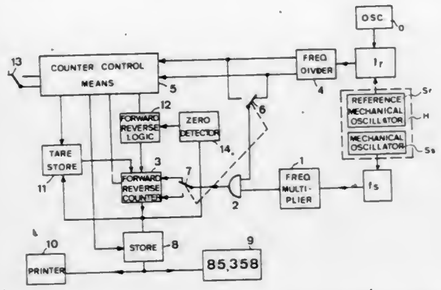


A percussion bit used in air hammer apparatus. The bit has a substantially flat, lower face in its main body portion from which compressed air discharges from bit passages to sweep formation cuttings or chips towards the sides of the bit body and upwardly around the exterior of the body. A multiplicity of tungsten carbide, or similar, buttons comprising rear or shank portions are embedded in the body, with tapered forward portions projecting substantially from the bit face for indenting and impacting upon the bottom of the bore hole being drilled in the formation, the forward portions of each button protruding from the bit face more than about 0.7 the diameter of its shank portion, whereby larger formation cuttings or chips are produced in the bottom of the bore hole, the bit drilling at a faster rate.

3,788,410
FORCE MEASURING APPARATUS INCLUDING SENSITIVITY SELECTION MEANS

Heinz Allenspach, Fallanden, and Eugen Meier, Meilen, both of Switzerland, assignors to Mettler Instruments AG, Zurich, Switzerland

Filed Aug. 2, 1972, Ser. No. 277,162
Claims priority, application Switzerland, Aug. 19, 1971, 012209/71
Int. Cl. G01g 23/22
U.S. Cl. 177—25 5 Claims

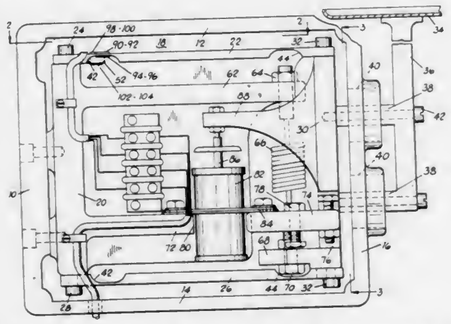


Force measuring apparatus of the type including a mechanical oscillator, such as a string, that vibrates under load to produce a signal voltage the frequency of which is a function of the force to be measured. The invention is characterized in that following multiplication of the signal frequency, the signal is fed to multi-stage counter means for selected long or short periods of time corresponding with the desired sensitivity of measurement. The duration of the period of connection is controlled by a gate timing switch which is operable simultaneously with a stage selection switch associated with the counter, whereby when the connection periods are alternately long and short, the signal to be counted is fed to lower and upper counter stages, respectively. The gate tuning switch is operable alternately by a reference signal supplied from a mechanical oscillator, such as a crystal, or a reference string contained in the same housing as the measuring string.

3,788,411
STRAINWEIGH BALANCE

Arthur R. Oxley, Battle Creek, Mich., assignor to Franklin Electric Subsidiaries, Inc., Bluffton, Ind.

Filed Nov. 1, 1972, Ser. No. 302,760
Int. Cl. G01g 1/12, 23/26
U.S. Cl. 177—211 16 Claims

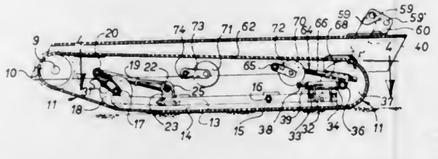


A weighing beam from which signals proportional to, or comparative with, applied weights, by means of strain measuring gauges attached to the beam consists of a pair of plates each having one edge supported along a horizontal line in vertically spaced parallel relation to each other. The opposite unsupported edges of the plates are rigidly connected by a platform support member having a load receiving platform rigidly secured thereto. Each plate has a first inner line of two holes formed symmetrically therethrough in laterally spaced relation to its supported edge, and the thickness of the plates is reduced along a line through the holes to produce a central and two laterally spaced flexing areas. Each plate has a similar outer line of two holes formed therethrough parallel to the inner line and adjacent the outer edges of the plates and the thickness of the plates is reduced along the line of the outer holes to form similar central and laterally spaced flexing areas. Electrically responsive strain gauges are secured to the upper and lower sides of the central flexing area at the inner side of one of said plates, and are connectable to amplifying and measuring devices for recording or indicating the amount of strain in proportion to the applied load or weight on the beam.

3,788,412
SNOWMOBILE SUSPENSION SYSTEM

Marcel Vincent, Vercheres, Quebec, Canada, assignor to The Coleman Company, Inc., Wichita, Kans.

Continuation-in-part of Ser. No. 179,780, Sept. 13, 1971, abandoned. This application May 17, 1972, Ser. No. 254,135
Int. Cl. B62d 27/02
U.S. Cl. 180—5 R 17 Claims

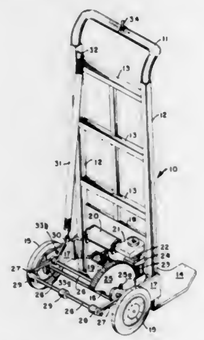


A suspension system for tracked vehicles, more particularly snowmobiles, provides improved operation together with a smoother ride. The rear suspension of the frame and slide bar assembly is suspended from the snowmobile chassis by combined shock absorber and axially deformable tubular coil spring units pivotally attached to extend upwardly and rearwardly so that the coil spring and shock absorber units act downwardly and forwardly on the rear idle wheels and slide bars.

3,788,413
STAIR TRAVERSING MECHANISM FOR HAND TRUCK

Leo C. Miller, 11110 Dodson Ln., Wheaton, Md.

Filed Sept. 8, 1972, Ser. No. 287,436
Int. Cl. B62b 5/02
U.S. Cl. 180—8 A 22 Claims

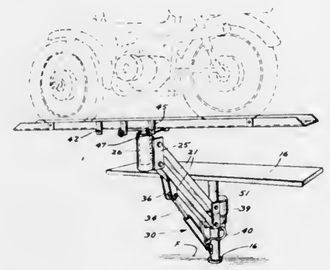


The present invention relates to a powered mechanism adapted to be attached to a standard hand truck to facilitate the ascending or descending of a stairway with a load. An auxiliary shaft, to which are attached two lifter or climber arms whose extending ends carry associated stair contacting roller means, is mounted parallel to but displaced from the main wheel-carrying axle of the hand truck and is gear-driven to rotate the attached arms and roller means between two predetermined angular limits, with the output of a reversible electric motor. The energizing circuit for the motor is designed so that the motor can only be rotated in the opposite direction after one of the limits has been reached and so that positive and abrupt dynamic braking of the motor occurs when either limit is reached. An energy storage element in the form of a tension spring is connected to receive and store energy from the motor preparatory to ascending a stair and subsequently releases this stored energy to assist the motor during the actual lifting operation.

3,788,414
SMALL VEHICLE LIFT

Felix P. Netter, 210-22nd Ave. N., Saint Cloud, Minn.

Filed Aug. 18, 1972, Ser. No. 281,659
Int. Cl. B60s 13/00
U.S. Cl. 187—8.71 9 Claims



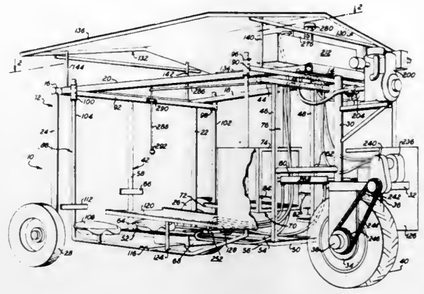
A small vehicle lift having a swiveling base embedded beneath the floor, a cantilever lifting arm including parallel links attached to the base, a hydraulic jack lifting the outer end of the arm, a vehicle support rack swiveling about a supporting bracket attached to the outer end of the cantilever arm and maintained level by the parallel links, the rack being tiltable relative to the support bracket for loading and unloading vehicles, and being shiftable to various positions over the bracket to more nearly center the weight of the vehicle over the bracket.

3,788,415
HYDRAULIC FRONT-WHEEL PROPULSION SYSTEM FOR HARVESTING VEHICLES

Henry T. Tilley, P.O. Box 23, Bullock, N.C.

Continuation of Ser. No. 3,004, Jan. 15, 1970, abandoned. This application Feb. 22, 1972, Ser. No. 233,379
Int. Cl. B62d 61/08; B60k 17/30
U.S. Cl. 180—26 R 7 Claims

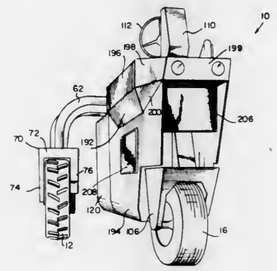
A hydraulic propulsion system utilized to propel and steer the front wheel of a harvesting vehicle under the control of a driver. The hydraulic system includes a manually operable forward-reverse-speed control mechanism, for selectively controlling a hydraulic motor which is operatively connected with the front wheel, as well as a foot-pedal operated steering mechanism whereby the driver can effectively control the propulsion of the vehicle and, at the same time, assist with the harvesting operation.



3,788,416
HIGH-CLEARANCE AGRICULTURAL VEHICLE

Charles E. Sorenson, and Jon M. Grimmer, both of Evansville, Ind., assignors to Hahn, Inc., Evansville, Ind.

Filed May 26, 1972, Ser. No. 257,137
Int. Cl. B62d 61/08
U.S. Cl. 180—27 12 Claims



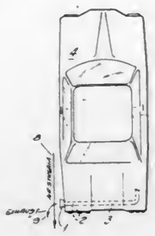
A high-clearance agricultural vehicle of the type used generally for spraying and otherwise treating row crops which grow to considerable height comprising a main frame extending longitudinally from the front to the rear of the upper portion of the vehicle, a pair of rear drive wheels disposed on opposite sides of and connected to the rear portion of the frame, a tank suspended from the frame to be disposed laterally between the rear wheels, a front wheel connected to the forward portion of the frame to be pivotally movable about a steering axis, an engine supported under the frame to be forwardly of the tank and behind the front wheel, and a transmission and axle assembly drivingly connecting the engine to the rear wheels. The main frame is defined by a pair of laterally spaced apart, longitudinally extending side members as the primary structural members. These members are formed to provide, above the engine, a cockpit for the operator of the vehicle, the rear portions of the members being laterally spaced apart by a distance approximately equal to the width of the tank. Each rear wheel is journal mounted by means of a yoke which is laterally adjustable relative to the frame. The engine is liquid cooled, and the radiator for the engine is disposed above the engine and in front of the cockpit in the frame. The fan associated with the radiator draws cooling air in from the side panels adjacent the engine and upwardly through the radiator and out through a grillwork in front of the radiator.

3,788,417

EXHAUST DEVICE FOR AUTOMOTIVE VEHICLES

Floyd H. Willis, Los Angeles, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Apr. 26, 1972, Ser. No. 247,863
Int. Cl. B60k 13/04
U.S. Cl. 180—64 A 1 Claim



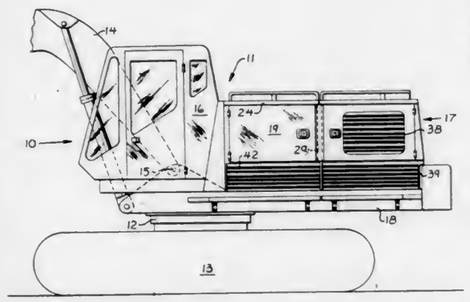
A funnel is affixed to and extends outward from the open free end of the tail pipe of the engine exhaust system of the engine of an automotive vehicle. A baffle is mounted in the throat of the funnel.

3,788,418

SYSTEM FOR COOLING AN HYDRAULIC EXCAVATOR

Lawrence F. Clancy, Peoria; Emil B. Lee, Jr., Morton; William O. Smart, Dunlap, and John W. Yancey, Aurora, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 6, 1972, Ser. No. 241,757
Int. Cl. B60k 11/00
U.S. Cl. 180—68 R 6 Claims



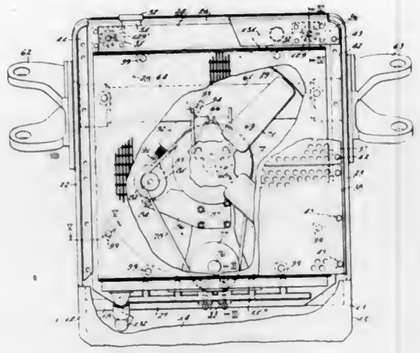
The body of an hydraulic excavator is divided into two separate compartments. The first and rearward compartment contains the prime mover engine with the hydraulic system pumps directly associated therewith. Air is drawn through one side inlet in the body across an hydraulic system heat exchanger and the engine coolant radiator by means of a fan mounted therebehind, and from thence across the engine and associated hydraulic pumping mechanisms. The air in this after compartment is thereafter exhausted through vents in the roof, the opposite side wall and the floor portions of the body. In a second compartment forward of the engine compartment is situated the hydraulic system fluid reservoir, valving and other hydraulic circuitry for the excavator vehicle. Openings in at least one side wall of the body, the roof and floor portions thereof permit air to circulate freely over these hydraulic components of the vehicle. A transverse fire wall separates the two compartments in the body and further serves to isolate engine and pump noise from the operator's station located in a cab portion at the front lefthand side of the body.

3,788,419

VEHICLE FRAME INCLUDING RADIATOR AND FAN MOUNTING

Gary A. Drone, and James M. Schnepp, both of Springfield, Ill., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 307,053
Int. Cl. B60k 11/04
U.S. Cl. 180—68 R 10 Claims



The vehicle frame has a radiator support including a pair of transversely spaced vertical walls rigidly interconnected by a transverse vertical wall with fan opening. A transverse beam is also rigidly interconnected to the spaced vertical walls and supports a radiator fan operatively disposed in the fan opening. The radiator is releasably secured to the transverse vertical wall on resilient mounts and is readily removable from the vehicle upon removal of protective panels. The transverse beam serves to support a tightener for a belt drivingly connecting the fan to an engine power takeoff shaft. The outer ends of the transverse beam carry brackets for the cylinders of a pair of bulldozer lift jacks.

3,788,420

DIFFERENTIAL TYPE DRIVING WHEELS SYSTEM

Jean Paul Lacroix, 12064 Taylor Blvd., Montreal, Quebec, Canada

Filed Jan. 27, 1972, Ser. No. 221,348
Int. Cl. B60k 23/00
U.S. Cl. 180—74 9 Claims



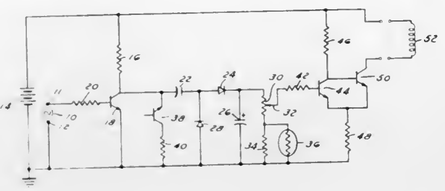
Two webbed driving wheels are rigidly secured at both ends of a rotating live axle, which axle, through a system of pullies and belt and a torque-converter, receives the rotating power generated by a motor. The webs of the driving wheels are made of resilient or flexible material and a certain number of these webs are in constant frictional engagement with two pairs of driven wheels. The power generated by the motor is transmitted to the driven wheels by the driving wheels and this, due to the frictional contact existing between them. When negociating curves the resilient webs of the driving wheels act as a differential system.

3,788,421

ELECTRIC CIRCUITRY FOR VEHICLE SPEED RESPONSIVE SYSTEM

Michael Bozoian, Ann Arbor; Allen D. Krugler, Jr., Livonia, and Bernard G. Radin, Oak Park, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed July 9, 1971, Ser. No. 161,145
Int. Cl. B60k 27/00
U.S. Cl. 180—105 R 3 Claims



A normally nonconducting input transistor receives an alternating signal having a frequency proportional to vehicle speed from a signal generator driven by a vehicle wheel. Positive portions of each cycle of the alternating signal switch the input transistor into its conducting state and a staircase converter connected to the input transistor converts the frequency of the signal into a voltage proportional to vehicle speed. The voltage is supplied to a trigger comprising a control transistor normally in the same nonconducting state as the input transistor and an output transistor connected in series with the winding of a solenoid that controls an item of vehicle equipment.

3,788,422

ANTI-THEFT SYSTEM INCLUDING A PUSHBUTTON ELECTRONIC COMBINATION IGNITION LOCK AND TRANSMISSION SHIFT CONTROL

Lauren L. Bowler, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 27, 1972, Ser. No. 301,620
Int. Cl. B60r 25/06
U.S. Cl. 180—114 10 Claims



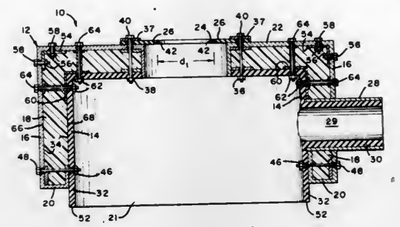
A pushbutton transmission selector mechanism and electronic lock and control logic for preventing unauthorized use of a motor vehicle by locking the ignition circuit and selector mechanism until a predetermined code number is entered by the operator through the selector mechanism. The PARK pushbutton selector controls locking of the vehicle steering column and automatic application of the vehicle parking brake assembly.

3,788,423

PLENUM CHAMBER

Russell H. Nittinger, Morristown, and Donald O. Taylor, Parsippany, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed June 7, 1972, Ser. No. 260,565
Int. Cl. E21b 41/00
U.S. Cl. 181—33 K 14 Claims



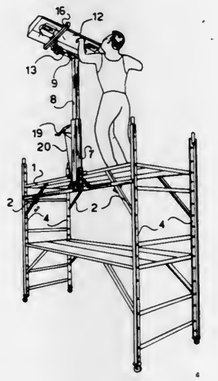
A plenum chamber for covering and sealing a bore hole opening at the surface of the ground and for reducing the noise produced during a drilling operation is provided. The plenum chamber has a housing means comprising an open bottom and a closed top having a port therein which is adapted to receive a drill shaft. A vibration damping and sound absorbing means is disposed between and contacts a substantial portion of the external and internal walls of the housing means. Sealing means are connected to the housing means for maintaining the top and the bottom thereof in sealing engagement with the drill shaft and the surface of the ground, respectively. Drilling cuttings and dust particles carried up the bore hole by a compressed air stream are trapped by the plenum chamber in a highly efficient manner. Mechanical vibrational energy imparted to the housing means by impact of the drilling cuttings thereagainst is dissipated by the vibration damping and sound absorbing means. The external wall operates as a reflective barrier means to confine noise within the plenum chamber until it is eventually absorbed. As a result, the noise produced during operation of rotary drilling machines is substantially reduced.

3,788,424

HOIST ASSEMBLY FOR USE ON SCAFFOLDS

Serge Chabot, 904 Martel St., Marieville, Quebec, Canada

Filed Sept. 11, 1972, Ser. No. 288,064
Claims priority, application Canada, Feb. 17, 1972, 134978
Int. Cl. E04g 1/00
U.S. Cl. 182—129 2 Claims



A hoist assembly to be used on scaffolds to support a fixture such as a fluorescent unit for the installation thereof and in-

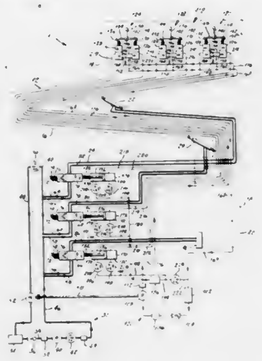
cluding a post holder, a post slidable upright into the post holder, a fixture carrying head rotatably mounted onto the upper end of the post, a winch to control the elevation of the post and carrying head, and brackets advantageously constructed and arranged to merely hook the hoist assembly to braces of the scaffold, thereby securing the same without any fastening, such as bolting, pinning or the like.

3,788,425

CONTROL SYSTEM FOR A DERRICK

Roy Balogh, Ladue, Mo., assignor to McCabe-Powers Body Company, St. Louis, Mo.

Filed Apr. 24, 1972, Ser. No. 247,017
Int. Cl. B66f *11/04*; **E04g** *1/18*
U.S. Cl. 182—148 **27 Claims**



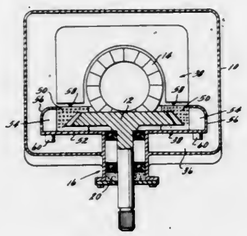
A derrick having hydraulically operable remote control and main control systems wherein the remote control system is separate from and hydraulically non-communicative with the main control system. The remote control system employs a hydraulic fluid that differs from that used in the main control system such that the most desirable fluid characteristics for each system can be independently selected.

3,788,426

LOW HEAT RISE GEARBOX

Thomas N. Hull, Jr., Marblehead, Mass., assignor to General Electric Company, Lynn, Mass.

Filed Jan. 21, 1970, Ser. No. 4,625
Int. Cl. F16n *7/26*
U.S. Cl. 184—1 E **7 Claims**



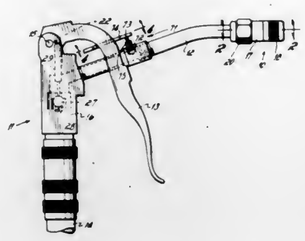
A gearbox structure adapted to preclude excessive heat input to the gear and bearing lubricant. The structure includes a stationary perforated screen surrounding at least one of the gears and adapted to collect oil droplets thrown tangentially and radially from the gear and direct them away from the gears to a scavenge outlet, from where the lubricant is transported to a lubricant supply pump and then recirculated through the gears and bearings.

3,788,427

GREASE GUN AND COUPLING

Everett D. Fox, South Bend, Ind.; John P. Schaefer, Edwardsburg, Mich., and Raymond M. Leliaert, South Bend, Ind., assignors to Wheelabrator-Frye Inc., Mishawaka, Ind.

Filed June 9, 1972, Ser. No. 261,431
Int. Cl. F16n *3/12*
U.S. Cl. 184—105 C **20 Claims**



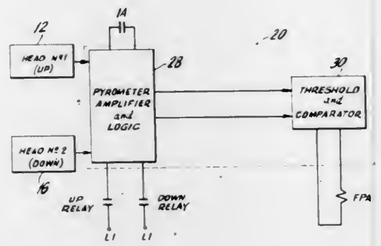
An improved high pressure grease gun and coupling unit for connecting the gun to a grease fitting. The coupling comprises a piston actuated collet type clamp which is normally spring biased to a position in which the collet is compressed. An axially movable valve element extends through the collet clamp and is engageable with the end of the grease fitting when the coupling is clamped onto a fitting. This valve is automatically opened by engagement with the fitting and is automatically closed by the pressure of the grease contained within the coupling when the coupling is removed from the fitting. The gun has a pressure relief valve and a pressure relief valve safety which prevents actuation of the gun whenever the relief valve is open.

3,788,428

ELEVATOR SAFETY CONTROL CIRCUIT FOR PREVENTING ELEVATOR DOOR FROM OPENING AT FLOOR WITH FIRE

David W. Fried, Kew Gardens, N.Y., assignor to Millar Elevator Industries, Inc., New York, N.Y.

Filed Dec. 22, 1972, Ser. No. 317,602
Int. Cl. B66b *13/24*
U.S. Cl. 187—29 R **15 Claims**



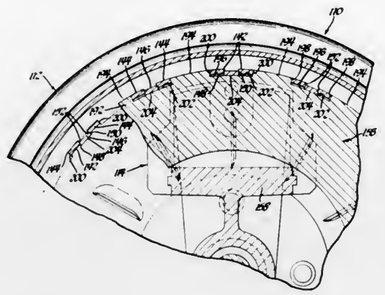
A sensor mounted on an elevator car senses the heat developed in the adjacent hallway as the car moves between the floors of a building. The heat sensor is connected to a relay circuit to operate a relay which prevents the car door from opening at any floor whenever excessive heat is sensed as a result of a fire in the hallway. That relay may also be employed to operate, when it is actuated in response to the detection of excessive heat, a fireman's return circuit to recall the elevator car to the lobby floor, and to provide an indication at the lobby floor of the existence and location of the fire.

3,788,429

DISC BRAKE AND WHEEL ASSEMBLY

Frank W. Brooks, and Thomas D. Naismith, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed July 14, 1972, Ser. No. 271,660
Int. Cl. B60t *1/06*
U.S. Cl. 188—18 A **1 Claim**



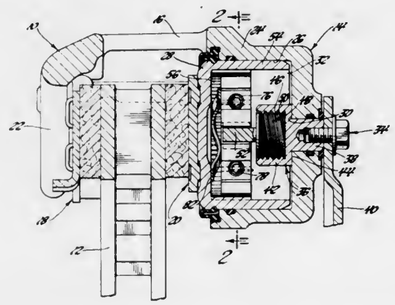
A disc brake and wheel assembly in which an annular brake disc has axially extending circumferentially spaced lands and grooves formed on its outer peripheral surface, and a brake disc support and drive member, provided as part of the wheel assembly, has a bell-like configuration, the generally radially extending portion of the member being mounted on the wheel assembly hub and the generally cylindrical portion of the member having circumferentially spaced projections received in the disc grooves and engaging the edges of the disc lands in rotary driving and axially relatively movable relation so that the disc is rotatably driven with the wheel assembly and is axially movable in relation thereto for brake adjustment. The brake caliper is of the fixed type, with one axially movable brake shoe and one fixed brake shoe arranged to frictionally engage opposite sides of the brake disc when actuated. A piston and cylinder arrangement in one side of the caliper housing is provided to move the movable brake shoe. It may also have a manually actuated mechanism so that the brake can also function as a parking brake, and may be provided with an automatic adjusting mechanism.

3,788,430

DISC BRAKE ACTUATOR

Harmon C. Hurt, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 17, 1971, Ser. No. 172,400
Int. Cl. F16d *55/26*
U.S. Cl. 188—72.6 **1 Claim**



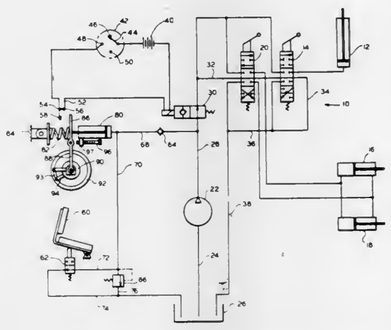
A hydraulically actuated disc brake includes a piston movable in a cylinder by hydraulic pressure. The brake also has a mechanically actuated mechanism which includes an expandable spline plate fitted within the piston and actuated by a cam to engage a spline on the interior of the plate. After such engagement, further movement of the mechanical actuating lever acts through a high lead screw arrangement to move the cam and the spline plate and the piston in a direction to mechanically apply the brake. Upon release, the interior splines retract radially to de-clutch from the piston.

3,788,431

SEAT SAFETY BRAKE CONTROL SYSTEM

Donald W. York, Battle Creek, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Aug. 10, 1972, Ser. No. 279,581
Int. Cl. B60t *7/02*
U.S. Cl. 188—109 **5 Claims**



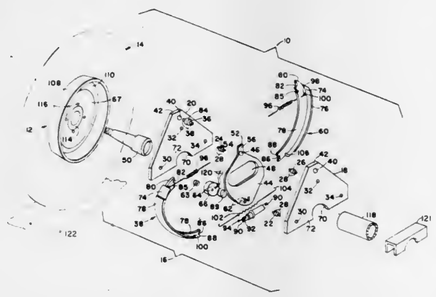
A vehicle operator's seat safety brake control combined in a vehicle hydraulic system responsive to apply the brake in the event that either the engine is not operating or the seat is not occupied, including interrelated solenoid valve, brake cylinder and vehicle ignition controls for insuring full hydraulic system pressure initially to release the brake by blocking off the vehicle hydraulic system from the brake control and for reconnecting the vehicle hydraulic system and brake control when the brake is released.

3,788,432

ELECTRICAL BRAKE ASSEMBLY

Milford F. Marti, 608 B Chateau Dr. S.W., Huntsville, Ala.

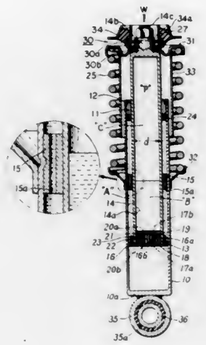
Filed Oct. 13, 1972, Ser. No. 297,331
Int. Cl. F16d *65/34*
U.S. Cl. 188—138 **11 Claims**



An electrical wheel brake assembly in which the webs of brake shoes and magnetically operated lever arm which

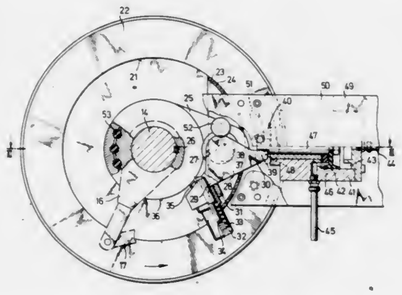
operates the brake shoes are held in a planer alignment between and supported by a pair of parallel spaced, interconnected, supporting plates, in turn supported by an axle, or spindle.

3,788,433
TELESCOPIC SUSPENSION UNIT
Teiji Katsumori, Yokohama, Japan, assignor to Tokico Limited, Kanagawa,ken, Japan
Continuation of Ser. No. 73,833, Sept. 21, 1970, abandoned.
This application June 28, 1972, Ser. No. 266,963
Int. Cl. F16f *9/19*
U.S. Cl. 188—314 **7 Claims**



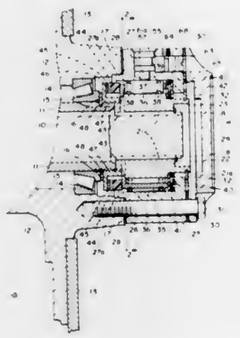
A suspension unit having a hollow cylinder and a hollow rod telescopically received therein is provided with fluid damping means in the end of the rod within the cylinder to control the flow of fluid between the cylinder and the rod. The cylinder and the end of the rod within the cylinder are filled with hydraulic fluid pressurized by a gas in the other end of the rod. The gas and hydraulic fluid may be in contact but to prevent formation of gas bubbles in the fluid a movable separator may be provided in the rod.

3,788,434
COUPLING
Wilhelm Haberle, Industriegelande, Scheer, Germany
Filed Aug. 2, 1972, Ser. No. 277,251
Claims priority, application Germany, Aug. 7, 1971, P 21 39 637.2
Int. Cl. F16d *13/02, 13/14*
U.S. Cl. 192—26 **9 Claims**



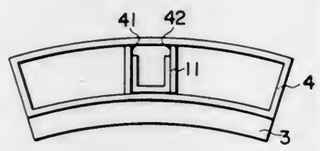
A coupling arrangement for coupling a driven shaft with a driving shaft in at least one coupling position in a releasable fashion having a crank fixedly coupled with the driven shaft, an excenter lever rotatably journaling a brake shoe and a hollow shaft cooperating with the brake shoe, a spring device operating on the excenter lever for effecting closing of the coupling arrangement and, a stopping arrangement associated with the excenter lines.

3,788,435
AUTOMATIC HUB FOR FOUR WHEEL DRIVE VEHICLES AND THE LIKE
Clarence M. Prueter, Cedar Rapids, Iowa, assignor to Cutlas Gear & Mfg., Inc., Vinton, Iowa
Filed Mar. 13, 1972, Ser. No. 233,928
Int. Cl. F16d *41/08*
U.S. Cl. 192—35 **4 Claims**



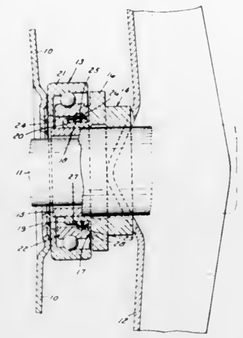
An automatic hub for each of the optionally driven wheels of a vehicle employs an annular brake shoe, axially spring loaded, to retard rotation of a sprag carrier relative to a pair of inner and outer clutch members, between which the sprag carrier operates, in order to cause the sprags to lock the wheels to their axles only when the latter are positively driven in either direction. The hub additionally incorporates a separate assembly which causes the sprags to lock the wheels to their axles on the overrun as well as when the axles are driven.

3,788,436
WEAR RESISTANT GUIDES FOR CLUTCH SHOE
Eisuke Sugahara, Akabanedai, Kita-ku, Tokyo, Japan
Filed June 9, 1972, Ser. No. 261,465
Claims priority, application Japan, July 10, 1971, 46/60786
Int. Cl. F16d *25/04*
U.S. Cl. 192—88 B **3 Claims**



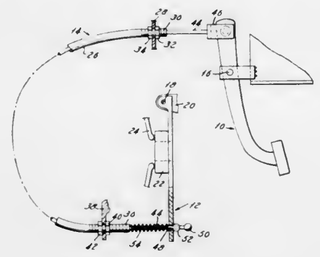
An air clutch is characterized in having abrasion resistant treatment of the guide walls containing the torque bar in a frictional contact element made of aluminum alloy.

3,788,437
CLUTCH RELEASE BEARING
John W. A. Camp, Colchester, England, assignor to Ford Motor Company, Dearborn, Mich.
Filed Jan. 21, 1972, Ser. No. 219,654
Claims priority, application Great Britain, Feb. 4, 1971, 3,862/71
Int. Cl. F16d *23/14, 27/00*
U.S. Cl. 192—98 **5 Claims**



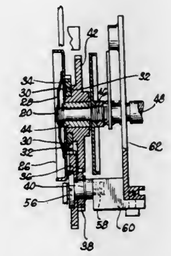
A clutch release mechanism having a self-centering clutch release bearing assembly. The bearing assembly has one portion engaging the clutch release fingers of a clutch pressure plate assembly and another portion engaging a bearing carrier. A split spring ring is interposed between the bearing and the carrier. The bearing is supported for limited radial movement and the spring urges the bearing into engagement with the bearing carrier.

3,788,438
CLUTCH ACTUATING MECHANISM WITH AUTOMATICALLY DETERMINED FREE PLAY
Frederick Reno, 26629 Dow St., Detroit, Mich.
Filed Dec. 6, 1972, Ser. No. 312,443
Int. Cl. F16d *21/04*; **G05g** *1/14*
U.S. Cl. 192—110 R **8 Claims**



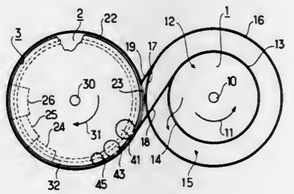
The present invention relates to a clutch actuating mechanism having a Bowden wire assembly interconnecting a clutch pedal and a clutch release lever. The mechanism is constructed to automatically establish an appropriate amount of free play in the system upon actuation of the clutch pedal for the first time. The Bowden wire assembly includes a tubular sheath that has one end secured to body structure adjacent to the pedal and its other end secured to chassis structure adjacent to the clutch release lever. A flexible cable is slidably supported in the sheath and has one end connected to the clutch pedal. The other end of the cable has spaced apart balls which form stop members secured to it. The outer ball is rigidly affixed to the cable and the inner ball is slidable on the cable when subjected to a force that exceeds a predetermined minimum value. The inner ball engages the clutch release lever. Upon installation, the sheath is attached to the body and the chassis in a manner to eliminate any slack or free play in the system. When the clutch pedal is depressed, the force will be transmitted to the inner ball causing it to slide into engagement with the outer ball. Free play will be automatically established in the mechanism by the displacement of the inner ball.

3,788,439
EXTENDED TIME METER CONSTRUCTION
Ronald J. Lugowski, Rolling Meadows, and Rinaldo Sciacero, Arlington Heights, both of Ill., assignors to Qonaar Corporation, Elk Grove Village, Ill.
Filed Nov. 21, 1972, Ser. No. 308,547
Int. Cl. G07c *1/30*
U.S. Cl. 194—61 **9 Claims**



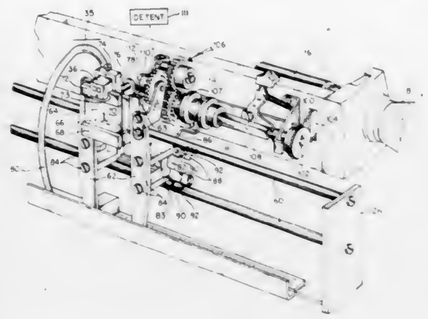
A coin controlled construction for obtaining the purchase of time on a timer mechanism adapted for recording many hours of time. The operation of the timer mechanism is provided by means of a winding ring movable in response to the insertion of coins. The drive shaft of the timer mechanism is connected to a drive gear through a one-way clutch. The drive gear is in turn operatively connected to the winding ring, and the clutch provides for rotation of the timer shaft upon movement of the winding ring. The clutch then permits the return of the winding ring and drive gear to the starting position whereby multiple winds of the gear shaft can be accomplished through repeated introduction of coins.

3,788,440
COIN OPERATED APPARATUS
Roger Propice, Courbevoie, and Carlos Da Rocha, Choisy-le-Roi, both of France, assignors to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France
Filed Oct. 20, 1971, Ser. No. 190,847
Claims priority, application France, Oct. 23, 1970, 7038391
Int. Cl. G07f *3/00*
U.S. Cl. 194—99 **7 Claims**



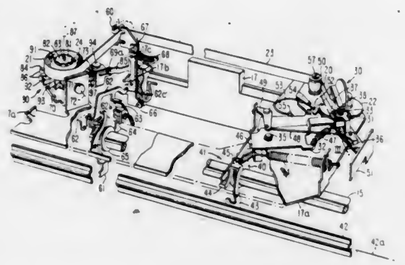
A coin collecting and counting device includes a turntable which directs coins by centrifugal force from a coin inlet to a coin path leading from the turntable periphery to respective coin outlets having coin validators for each type of coin along the path of coin movement.

3,788,441
EDITING TYPEWRITER WITH CORRESPONDING MOTION OF RECORDER ELEMENTS
Perry H. Vartanian, Jr., Woodside; Michael J. Markakis, and Carl P. Anderson, both of Palo Alto, all of Calif., assignors to SCM Corporation, New York, N.Y.
Filed Apr. 26, 1971, Ser. No. 137,165
Int. Cl. B41j
U.S. Cl. 197—1 R **11 Claims**



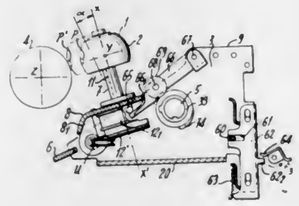
A machine is disclosed for simultaneously making type-written and magnetic records, for editing magnetic records, and for automatically making typewritten record copies of edited or unedited magnetic records. The editing typewriter comprises typewriter elements including a platen and printing type spaced from the platen. Means are provided for moving the typewriter elements into and out of positions of mutual contact and for laterally stepping one of the typewriter elements with respect to the other. The editing typewriter also comprises magnetic recorder elements including a magnetic head and a magnetic record support. Structural means are provided "pantographically" linking one of the typewriter elements with one of the magnetic recorder elements whereby one of the magnetic recorder elements may be stepped with respect to the other of the magnetic recorder elements when one of the typewriter elements is laterally stepped with respect to the other of the typewriter elements.

3,788,442
ERASE RIBBON FEED
Robert W. Lehnhardt, Jr., and John O. Schaefer, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 27, 1972, Ser. No. 266,764
Int. Cl. B41j *29/16*
U.S. Cl. 197—181 **6 Claims**



An erase ribbon feed mechanism incrementally feeds ribbon both before and after, but not during print impact to break an adhesive type erase ribbon loose from adjacent structures such as a card holder to which it may have become attached. The mechanism is thus made suitable for feeding an adhesive erase ribbon without creating shedding conditions that would make it unsuitable for feeding a cover-up type erase ribbon. Preferably, the card holder is made of polytetraflouroethylene and includes surface contact minimizing ridges adjacent the path of the erase ribbon. Where the ribbon lift action increases the span length of the erase ribbon, the feed occurring after impact is designed to take-up ribbon at a rate at least as great as the rate of decrease in ribbon span length to prevent accumulation of slack in the ribbon span.

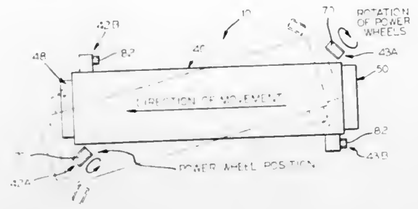
3,788,443
CHARACTER SELECTION AND IMPRESSION CONTROL MECHANISM FOR TYPEWRITER
Ulrich Menzi, Yverdon, Switzerland, assignor to Paillard S.A., Sainte-Croix, Vaud, Switzerland
Filed Feb. 11, 1972, Ser. No. 225,532
Claims priority, application Sweden, Feb. 12, 1971, 2119/71
Int. Cl. B41j *1/32*
U.S. Cl. 197—16 **9 Claims**



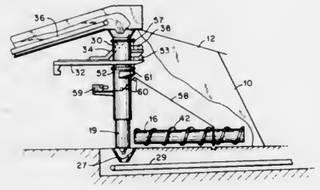
A character selection and impression control mechanism is provided with an integrated coded mechanical system of transmission for the orders controlling the character selection, the shift, the printing velocity and the "No-print" functions, between the frame of a typewriter and converter or decoding means supported on the carriage and controlling the devices performing these functions on said carriage. This system of transmission comprises a definite number of bails mounted on said frame for relative movements thereon and each adapted to cooperate with control means supported by the carriage for all the positions of said carriage along a line of writing. A number of said bails control the decoding device for the character selection and an additional bail controls the device for the "No-print" function. Still another bail controls the high and low printing velocity. One or the other of these two last mentioned bails, or both simultaneously, control equally the shift device for selecting one of two surface portions on the printing element.

3,788,444
STEERING CONTROL FOR POWER DRIVEN MOBILE CONVEYORS
Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill.
Filed Oct. 24, 1972, Ser. No. 299,680
Int. Cl. B60k *17/30, 17/34*; **B65g** *67/04*
U.S. Cl. 198—2 **7 Claims**

A steering control arrangement for power driven mobile conveyors in which the conveyor frame is provided with a pair of wheels at each end of same, which one wheel of each pair is power driven to move the conveyor frame, and is selectively power steerable about a vertical axis through a range of 180° or more relative to the transverse dimension of the frame, and the other wheel of each pair is of the idler caster type. The power steerable wheels may be positioned transversely, longitudinally, or diagonally of the conveyor frame to move the conveyor laterally or longitudinally of same, or turn the conveyor in either direction or end for end.



3,788,445
APPARATUS FOR RECOVERING BULK MATERIAL FROM A PILE
Francis Postel-Vinay, Paris, France, assignor to Fives Lille-Cail, Paris, France
Filed May 4, 1972, Ser. No. 250,140
Claims priority, application France, May 4, 1971, 7115937
Int. Cl. B65g *65/46*
U.S. Cl. 198—36 **7 Claims**

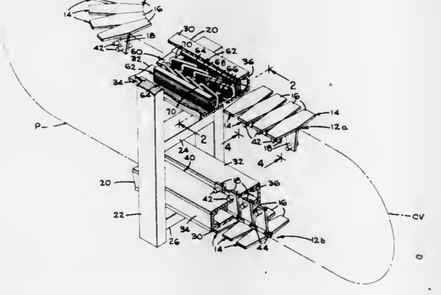


An apparatus for recovering bulk material from a pile having a center and a face from which the material is to be recovered comprises a tubular screw conveyor rotatable about its axis and extending in a radial plane from the center of the pile. A central column coaxial with the center and rotatable about its axis supports a pivot for one end of the screw conveyor for movement about a horizontal axis, and a hoist carried by the column supports the other end of the conveyor.

3,788,446
APPARATUS FOR RECOVERING BULK MATERIAL FROM A PILE
Francis Postel-Vinay, Paris, France, assignor to Fives Lille-Cail, Paris, France
Filed May 4, 1972, Ser. No. 250,141
Claims priority, application France, May 4, 1971, 7115936
Int. Cl. B65g *59/00*
U.S. Cl. 198—36 **4 Claims**

An apparatus for recovering bulk material from the face of a pile comprises a rotatable tube disposed with its axis parallel to the face of the pile. The tube wall has a plurality of ports and a like plurality of buckets are affixed to the outer surface of the tube wall in communication with respective ports. At least one helical discharge channel in the inner surface of the tube wall receives the material recovered by the buckets and passed through the ports into the interior of the tube to convey this material to an open discharge end of the tube.

3,788,447
LINEAR MOTOR CONVEYOR
Louis J. Stephanoff, Indianapolis, Ind., assignor to FMC Corporation, San Jose, Calif.
Filed July 3, 1972, Ser. No. 268,389
Int. Cl. B65g *17/46, 23/00*; **H02k** *41/02*
U.S. Cl. 198—41 **13 Claims**

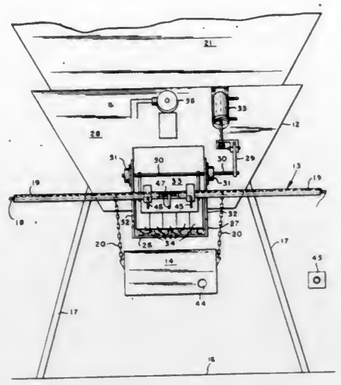


A linear motor conveyor has an endless guide support in which stators of linear motors are housed. Conveyor segments are pivotally linked together in an endless loop for articulating movement, either horizontally or vertically, or both, along the endless path defined by the guide support. The conveyor segments, which have an armature portion extending through slots in the guide support, are retained in the guide support in every orientation of the conveyor by laterally extending portions including a load bearing portion. The conveyor is propelled along the guide track by virtue of the electromagnetically coupling of the linear motor stators with the armature portions of the conveyor segment loop.

3,788,448
OYSTER HANDLING APPARATUS
William H. Harris, Rt. 1, Box 96, Chester, Md.
Filed Jan. 24, 1973, Ser. No. 326,287
Int. Cl. B65g *47/19*
U.S. Cl. 198—56 **5 Claims**

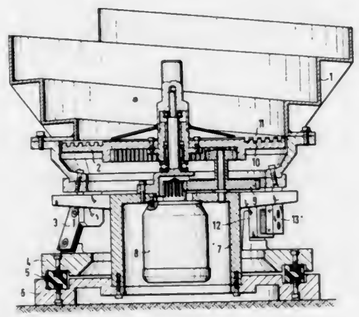
A material handling apparatus particularly adapted for the handling of oysters or like shell sea food, whereby the oysters

or the like are delivered into a hopper having a discharge located in the bottom wall thereof. An endless conveyor having a plurality of buckets suspended therefrom travels in a closed path and when a bucket which is empty of oysters



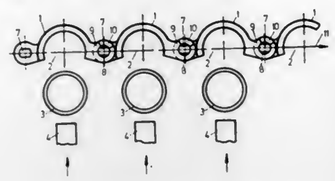
passes under the bottom discharge of the hopper, a flow of oysters is directed into the bucket. On the other hand, if the bucket is already filled with oysters, the same continues on its path without receiving any additional oysters from the bottom discharge of the hopper.

3,788,449
NOVEL VIBRATORY CONVEYOR
Waldemar Baberowski, and Karl Spiess, both of Herzogenaurach, Germany, assignors to Industriewerk-Schaeffler OHG, Herzogenaurach, Germany
Filed Sept. 20, 1972, Ser. No. 290,492
Claims priority, application Germany, Dec. 2, 1971, P 21 59 718.2
Int. Cl. B65g *27/02, 27/34*
U.S. Cl. 198—107 **4 Claims**



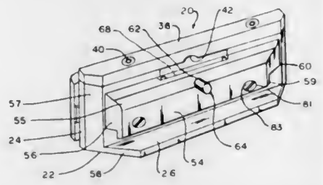
A novel vibratory conveyor comprising a conveyor bowl capable of periodic rotational and vertical vibrations, the bowl bottom being separate from its wall, the bowl wall supporting a helical conveyor track being connected by linkage springs to a counter vibrating mass supported on a fixed base plate, the bottom of the conveyor bowl being rotatably mounted on said base plate.

3,788,450
DEVICE FOR TRANSPORTING CONTAINERS
Edgar Tschunt, Erlangen, and Werner Dittrich, Nurnberg, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany
Filed Nov. 9, 1971, Ser. No. 197,110
Claims priority, application Germany, Nov. 18, 1970, P 20 56 664.7
Int. Cl. B65g *15/00*
U.S. Cl. 198—131 **2 Claims**



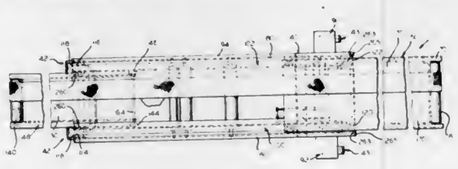
A transporting device for containers, particularly containers carrying liquid tests, consists of a chain the links of which have recesses for receiving the containers. The invention is particularly characterized in that each recess of links consisting of resilient material, has a side opening the width of which is somewhat smaller than the container, so that the container is fixed in the recess when it is pressed through the opening.

3,788,451
RECEPTACLE CARRIER FOR AN AUTOMATIC CONVEYING SYSTEM
Robert L. Cahn, 257 Grand Central Ave., Amityville, N.Y.
Filed Feb. 28, 1972, Ser. No. 229,735
Int. Cl. B65g *17/00*
U.S. Cl. 198—131 **9 Claims**



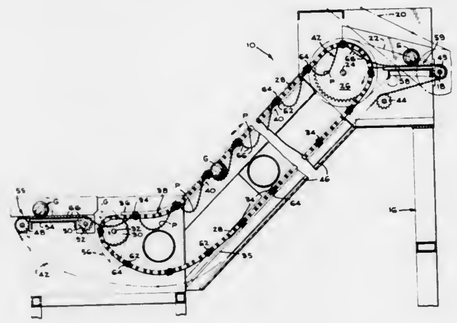
A carrier for an automatic conveying system includes an L-shaped support for a receptacle such as a tray. A flat plate movably mounted on the L-shaped plate is biased downwardly to engage the receptacle with a pushbuttom operated elevation means for raising the flat plate against the bias to release the receptacle.

3,788,452
BALANCED EXTENDIBLE MOBILE CONVEYOR
Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill.
Filed July 27, 1972, Ser. No. 275,791
Int. Cl. B65g *15/00*
U.S. Cl. 198—139 **5 Claims**



A balanced extendible mobile conveyor comprising a wheeled frame having a pair of oppositely directed retractable frames at opposed ends thereof that are mounted and may be driven for balanced and synchronized extending and retracting movement inwardly and outwardly of the wheeled frame ends, a single conveyor belt trained over the top of slider beds defined by said wheeled and retractable frames and provided with slack take up and let out trailing means to automatically take up and let out belt slack as the retractable frames are moved inwardly and outwardly of the wheeled frame, and a reversable drive for driving the belt. The wheeled frame includes drive wheels for selectively driving and steering the wheeled frame between desired positions of operation.

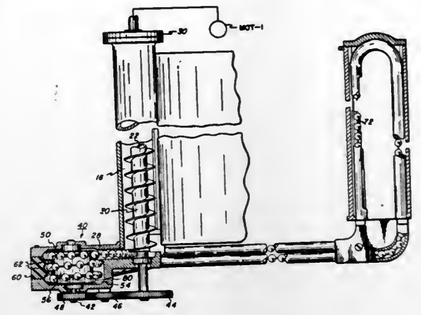
3,788,453
INCLINED CONVEYOR FOR HANDLING FRAGILE ARTICLES
Robert E. Varney, Lakeland, Fla., assignor to FMC Corporation, San Jose, Calif.
Filed Sept. 1, 1972, Ser. No. 285,712
Int. Cl. B65g *17/04*
U.S. Cl. 198—153 **14 Claims**



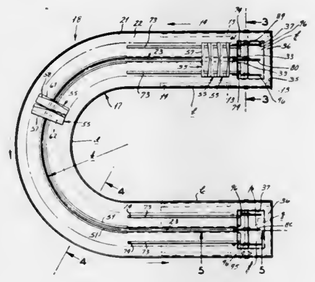
An inclined conveyor for elevating or lowering relatively fragile articles, such as whole peeled grapefruit, includes an endless flexible draper belt which is mounted for rotation in an inclined plane. The upper run of the draper belt is arranged to be engaged at spaced locations by a series of transversely extending rods which are moved in an endless loop path within the endless loop path of the draper belt. The linear speed of the rods is less than that of the draper belt and the upper run of the draper belt has end portions which extend in generally horizontal planes at the upstream and downstream ends of the endless loop path of the rods whereby a pendant pocket is caused to be gradually formed in the draper belt between each pair of adjacent rods which pocket is then elevated or lowered solely by means of the movement of the rods; thus, the fragile articles can be continuously supported by the belt while they are transferred to a different elevation without being unduly jostled or otherwise disturbed so as to cause damage thereto.

3,788,454
CHAIN BEAD DRIVE APPARATUS
William C. Emerson, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Sept. 15, 1972, Ser. No. 289,514
Int. Cl. B65g *19/00*
U.S. Cl. 198—168 **3 Claims**

An improved drive apparatus for transporting particulater material including a bead chain and capstan. The capstan is constructed of a resilient cylindrical member formed with a set of teeth on one end or rim to contact and positively drive the bead chain. The chain is wrapped around the member a plurality of times such that slight slippage of the beads can occur without binding.



3,788,455
CURVED-PATH SLAT BELT CONVEYOR
George W. Dieckmann, Jr., Riverview Gardens, Mo., assignor to Food Equipment Corporation, St. Louis, Mo.
Filed May 10, 1971, Ser. No. 141,484
Int. Cl. B65g *17/00*
U.S. Cl. 198—182 **3 Claims**

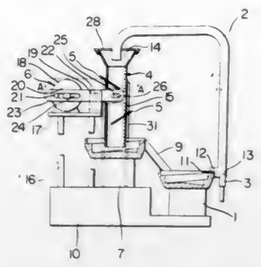


A sanitary conveyor of the overlapping slat belt type operates over a curved path of small radius and with minimum wear. Ordinary link chain is used in the conveyor drive. Its alternate links are held vertically by guide blocks beneath each slat, which glide in the central slot of the conveyor bed. The guide blocks and the links they hold vertically serve to present the intermediate links horizontally, for engaging the drive sprockets. Each link so held horizontally is free to pivot angularly relative to the adjacent vertical links, permitting turns of small radius. Provisions are made to minimize friction of the travelling slats and guide blocks.

3,788,456
METHOD AND APPARATUS FOR AUTOMATICALLY SEPARATING ENTANGLED SPRINGS
Keitaro Ashibe, c/o Tenryu Seiki Co., Ltd., 15853 Akaho, Nagano-ken, Komagane-shi, Japan
Filed Feb. 24, 1972, Ser. No. 228,883
Claims priority, application Japan, Feb. 27, 1971, 46-10286
Int. Cl. B65g *27/00*
U.S. Cl. 198—220 A **4 Claims**

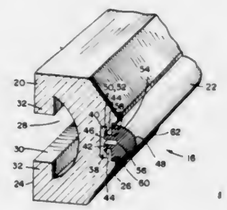
A method and apparatus for automatically separating entangled springs from one another, wherein the separating

operation of entangled springs is effected by dashing them against plates arranged fixedly within a tubular separating housing in vertically spaced and zigzag relation to one another. The separating operation is followed by a further



sorting of the springs to remove the individual springs which have been separated and to return the unseparated springs to a vibratory bowl sorter and feeder which has a connection to a pneumatic conveyor for returning springs still unseparated back to the separating housing.

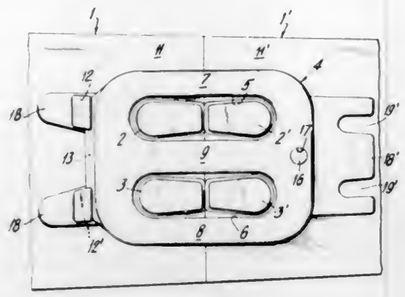
3,788,457
GUIDE RAIL FOR A CONVEYOR
Frank Valentino, Jr., Chicago, Ill., assignor to National Can Corporation, Chicago, Ill.
Filed Oct. 24, 1972, Ser. No. 300,105
Int. Cl. B65g *15/60*
U.S. Cl. 198—204 **4 Claims**



A guide rail for conveyors such as endless conveyors for containers, which includes a straight, solid bar having a mounting surface and an opposite guiding surface defining a lengthwise groove with an outer constricted portion, and an insert piece configured to be mated within the groove and having a slot in the inserted portion to facilitate insertion and removal and presenting a smooth protruding surface to provide a rail facing. Other features relate to a universal mounting groove in the surface opposite the guiding surface of the bar, and to a recess of the edges of the protruding surface of the insert piece.

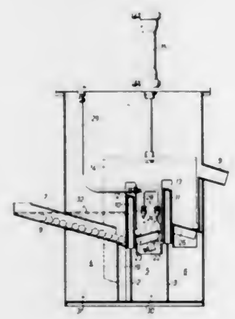
3,788,458
CONVEYOR TROUGH CONNECTING JOINT CONSTRUCTION
Gert Braun, and Ernst Braun, both of Essen-Heisingen, Germany, assignors to Halbach & Braun, Wuppertal-Barmen, Germany
Filed Jan. 12, 1973, Ser. No. 323,049
Claims priority, application Germany, Jan. 19, 1972, P 22 02 399.0
Int. Cl. B65g *17/06, 19/18*
U.S. Cl. 198—204 **4 Claims**

A conveyor trough connecting joint comprises two conveyor sections arranged in end-to-end abutting relationship and which have walls, such as the side walls, which carry joining means in the form of a pair of spaced apart tenons carried by each section, and with the corresponding tenons of one section being aligned and opposed to corresponding tenons of the other section. The sections are held together by a connecting plate having double eye openings and which is arranged to em-



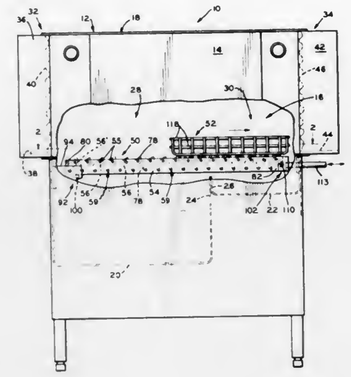
brace the tenons of adjacent trough sections with the opposed tenons of adjacent sections being positioned in respective ones of the eye openings. Both sets of tenons are surrounded by an upper and lower web portion of the connecting plate and the plate includes a central web which extends between the eye openings and embraces the opposed pairs of tenons from the interior.

3,788,459
CONVEYOR
Kurt Anders Holm, Skoghall, Sweden, assignor to Uddeholms Aktiebolag, Uddeholm, Sweden
Filed June 16, 1972, Ser. No. 263,654
Claims priority, application Sweden, July 6, 1971, 8869/71
Int. Cl. B65g *25/04*
U.S. Cl. 198—218 **6 Claims**



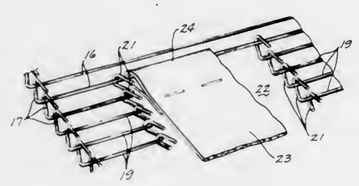
A conveyor is conveying ballbearing balls or the like without mutual contact through an apparatus for surface treatment as degreasing of the balls wtih a solvent. The conveyor comprises several stationary and movable support members, the latter being arranged between the stationary members and each member having surface which is inclining downwardly in the direction of transport. At least one of the movable support members is pivotably mounted so that its surface can alter its inclination to incline upwardly in the direction of transport. Spray guns are spraying solvent over a ball, which is rolling back and forth on the surface of the pivotably mounted member and the ball is thus treated on all sides.

3,788,460
PAWL BAR ASSEMBLY
Eugene Messersmith, Tampa, Fla., assignor to Synthane-Taylor Corporation, Valley Forge, Pa.
Filed May 17, 1972, Ser. No. 254,180
Int. Cl. B65g *25/08*
U.S. Cl. 198—221 **7 Claims**



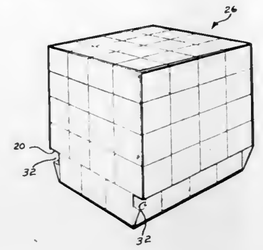
A removable pawl bar assembly is disclosed for use in dishwashing apparatus. The pawl bar mechanism is disposed in the dishwasher housing for reciprocating movement relative to inlet and outlet ends of the housing and is cooperable with receptacle means for articles to be cleaned to advance the receptacle means, intermittently, in the direction from the inlet toward the outlet end of the housing. Means is provided to support the opposite ends of the pawl bar assembly in a manner whereby the assembly can be reciprocated within the housing and is readily removable from the housing simply by lifting the assembly from the support means and withdrawing the assembly through an access opening in the housing.

3,788,461
SELF-CLEANING ENDLESS BELT
Theodore Friesen, 301 Colby Ave., Oakley, Kans.
Filed July 17, 1972, Ser. No. 272,534
Int. Cl. B65g *45/00*
U.S. Cl. 198—229 **6 Claims**



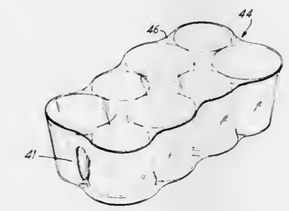
An endless belt having an upper train and a lower train and comprised of a plurality of spaced, parallel links running transversely to the direction of movement of the belt, and with at least one opening formed intermediate the side edges of the belt and having in conjunction therewith a single piece of material pivotally connected across the leading edge of the opening so as to pivot about an axis parallel to the transverse links, such that when the piece of material is riding about the upper train it covers the opening to aid in transporting that which is being moved by the belt, and when riding about the lower train it drops away from the opening and exposes the interior of the belt.

3,788,462
UNITIZED PALLETLESS LOAD
John H. Meincer, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Feb. 25, 1971, Ser. No. 118,664
Int. Cl. B65d *65/20, 71/00, 85/62*
U.S. Cl. 206—65 S **12 Claims**



A unitized, palletless plurality of articles grouped and arranged in transportable or storable units. A first layer of articles is built atop a strip of heat-shrinkable thermoplastic material. Subsequent layers, all of an equal circumference and of greater circumference than the first layer, are built atop the first layer. At least two free ends of the bottommost strip are tucked beneath one of the subsequent layers. When the layers have reached the desired height, a heat-shrinkable thermoplastic material, preferably in the form of a bag, is placed around the entire load. The load, so enclosed, is exposed to heat to cause the material to shrink, also causing the bottom strip to fuse into the overall wrapping. The result is a tightly confined unitized and stabilized load suitable for storage or shipment. The load may be lifted and transported by a fork lift at the ledge defined by the overhang of all of the upper layers over the first layer.

3,788,463
BUNDLING METHOD AND ARTICLE PRODUCED THEREBY
Stanley Ruff, New Rochelle, N.Y., assignor to Maryland Cup Corporation, Owings Mills, Mich.
Filed Jan. 31, 1972, Ser. No. 222,097
Int. Cl. B65d *65/16, 85/62*
U.S. Cl. 206—65 S **17 Claims**



In order to facilitate the handling of merchandise and to protect it during transit from the manufacturer to the wholesaler, jobber and retailer, an improved bundling method is provided for unitizing a plurality of light weight identical article-filled containers, each of which has at least one flat surface and preferably two parallel flat surfaces. The containers are delivered by a belt conveyor to a feed chute from which they are fed in a neat compact array into a bag made from a shrink film, e.g., a biaxially oriented heat shrinkable film. The bag with the ordered array of containers loosely filling it then is conveyed through a heated shrink tunnel wherein the bag is

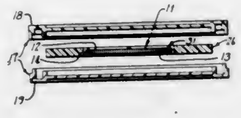
shrunk about the array to tightly enshroud and securely retain the containers in their prearranged compact formation. Prior to shrinking the bag has an open mouth and a closed bottom and the open mouth extends beyond the formation of containers inserted in the bag. Upon shrinking the bag mouth constricts on the formation to effectively close the mouth of the bag. Any construction of bag may be used.

3,788,464

HOLDER FOR DISC-LIKE OBJECTS

James R. Skinner, Cupertino, Calif., assignor to M. V. Engineering & Mfg., Inc., Mountain View, Calif.

Filed June 26, 1972, Ser. No. 265,958
Int. Cl. A45c *11/28*
U.S. Cl. 206—.82 **7 Claims**



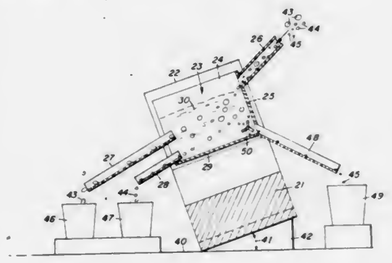
Holder for a disc-like object having a diameter which can vary within a predetermined range and having generally planar first and second spaced parallel surfaces and a circular edge extending at right angles to said generally planar surfaces of said object. The holder comprising a member having substantially planar first and second spaced parallel surfaces with said member having a generally circular hole therein extending through both of said surfaces for receiving one of said disc-like objects. The hole has a size so as to be able to accommodate an object of the largest diameter. The member is formed with at least three object-retaining portions extending into the hole which are adapted to be engaged by the edge of the object disposed in the hole to retain the object in said hole in said member. The member is formed of material whereby the portions can be deformed by said object as it is inserted to accommodate objects of varying diameters while retaining the object within the hole in the member.

3,788,465

DEVICE AND PROCESS FOR MAGNETO-GRAVIMETRIC PARTICLE SEPARATION USING NON-VERTICAL LEVITATION FORCES

George W. Reimers, Burnsville; Stephen A. Rholl, and Sanaa E. Khalafalla, both of Minneapolis, all of Minn., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Apr. 28, 1972, Ser. No. 248,705
Int. Cl. B03c *1/30*
U.S. Cl. 209—1 **18 Claims**



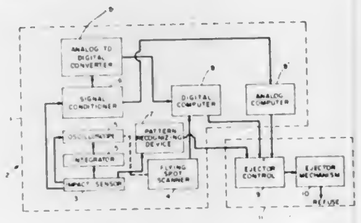
A volume of magnetic fluid is caused to function as a density spectrograph by impressing a magnetic field upon the fluid in an orientation such that non-vertical levitation forces are developed upon particles immersed in the fluid. Particles are separated according to their density by passing them through the magnetic fluid. Interaction of particles within the fluid with the vector sum of gravitational and levitation forces causes each particle to travel a trajectory through the fluid characteristic of its density. Particles exit from the fluid at different locations, according to their density, thus allowing collection of density-graded fractions.

3,788,466

IMPACT SENSOR AND CODER APPARATUS

David G. Wilson, Cambridge, Mass., and Ora E. Smith, Cincinnati, Ohio, assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 120,857, March 4, 1971. This application Oct. 10, 1972, Ser. No. 296,396
Int. Cl. B07c *5/34*
U.S. Cl. 209—79 **4 Claims**



Impact sensor and coder apparatus for use in a materials-sorting system. The embodiment described in greatest detail includes a movable rigid body adapted to strike individual pieces of the materials. An accelerometer associated with the rigid body measures the rate of deceleration of the rigid body, as a function of time, in terms of a voltage signal waveform. The waveform thus derived is compared with a group of typical waveforms to determine which of the waveforms of the group conforms most closely to that of the sample, thereby to identify the sample.

3,788,467

FLOTATION PROCESS FOR RECOVERING MOLYBDENUM

Michael Francis Werneke, Milford, Conn., assignor to American Cyanamid Corporation, Stamford, Conn.

Filed Apr. 27, 1972, Ser. No. 248,316
Int. Cl. B03d *1/06*
U.S. Cl. 209—167 **3 Claims**

A process for recovering molybdenite from a metallurgical concentrate comprising a major proportion of copper sulfide and other sulfides and a minor portion of molybdenum sulfide is provided, in which the copper and other sulfides are selectively depressed by employing a xanthate thereby enabling the molybdenite to be recovered by flotation.

3,788,468

PROCESS FOR INCREASING OXYGEN DIFFUSIVITY

John L. Gainer, Charlottesville, Va., assignor to The University of Virginia, Charlottesville, Va.

Filed May 1, 1973, Ser. No. 356,110
Int. Cl. C02b *3/08*
U.S. Cl. 210—59 **3 Claims**

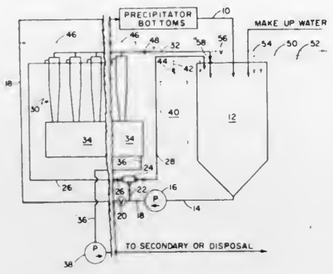
Diffusivity of oxygen in aqueous solutions has been increased by the introduction of a water soluble carotenoid into the solutions. Carotenoids have been found to be useful for increasing the diffusivity of oxygen in the blood, and hence are useful for the reduction of local hypoxia, which is believed to be one of the factors in development of atherosclerosis. The administration of these materials has resulted in reducing the incidence of atherosclerosis in mammals.

3,788,469

PROCESS FOR REMOVING ASH FROM PRECIPITATORS

Ernest G. Hirsch, Foxboro, and George L. Nelson, Westwood, both of Mass., assignors to New England Power Company, Westboro, Mass.

Filed July 13, 1972, Ser. No. 271,498
Int. Cl. B01d *21/26*
U.S. Cl. 210—73 **16 Claims**



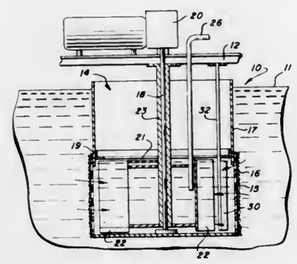
A process for removing fuel ash from precipitator bottoms circulates water through the bottoms to carry off the ash, then passes the water at least in part through a hydrocyclone separation stage to produce a major overflow fraction of reduced solids content and a minor overflow fraction of increased solids content, and recirculates the water withdrawn from the bottoms less the underflow fraction back through the bottoms at a rate to maintain the solids concentration less than that at which substantial settling out of solids will occur. Preferably, the recirculation is continuous, and the underflow from said hydrocyclone separation stage is subjected to secondary stage hydrocyclone separation from which the underflow may be subjected to tertiary stage solids separation, the overflow from one or both further separation stages being recirculated.

3,788,470

METHOD OF FILTERING LIQUIDS

John P. Pelmulder, Saratoga; Cornelius Meister, San Jose, both of Calif., and Darrell W. Monroe, Deerfield, Ill., assignors to FMC Corporation, Chicago, Ill.

Filed Sept. 20, 1971, Ser. No. 181,760
Int. Cl. B01d *33/02*
U.S. Cl. 210—78 **10 Claims**



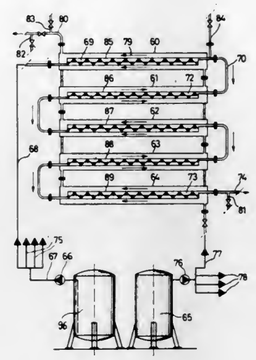
The method of straining suspended solids by rotating a filter at a high peripheral speed that is effective to maximize the effects of certain flow conditions in a liquid adjacent the filter. A layer is formed immediately adjacent the screen, which contains significantly less particulate matter than is contained in the suspension spaced from the screen to provide for a high throughput of the liquid being filtered that has a high percentage of the solids removed therefrom.

3,788,471

DIALYSIS APPARATUS

Paul Buchmann, Basel, Switzerland, and Monique Beringer, St. Louis, France, assignors to Solco Basel AG, Basel, Switzerland

Division of Ser. No. 48,113, June 22, 1970, Pat. No. 3,672,509. This application Feb. 2, 1972, Ser. No. 223,036
Int. Cl. B01d *31/00, 13/00*
U.S. Cl. 210—94 **2 Claims**



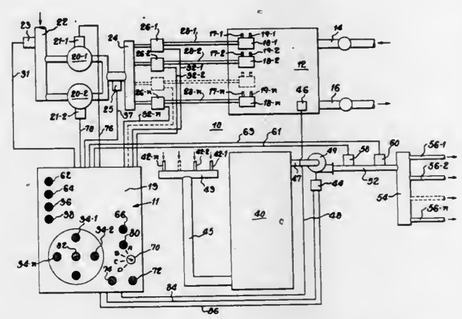
A dialysis apparatus having at least one unit in which an outer generally cylindrical tube forms a through-flow vessel closed at its ends with caps provided with inlet and outlet conduits for the fluid. A semipermeable foil or membrane forms an inner coaxial tube and is supported within the outer tube while having means for passing another liquid through its interior. The dialysis unit may be ganged in banks connected in cascade, the banks being shiftable to afford access to the individual units for replacement or otherwise.

3,788,472

WASTE WATER PROCESS TANK CONTROL FACILITY

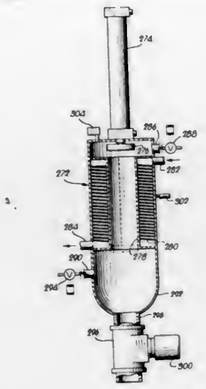
William O. Boschen, Tenafly, and Otto A. Grieshaber, Pompton Lakes, both of N.J., assignors to Ralph B. Carter Company, Hackensack, N.J.

Filed Feb. 3, 1972, Ser. No. 223,188
Int. Cl. B01d *21/24*
U.S. Cl. 210—103 **3 Claims**



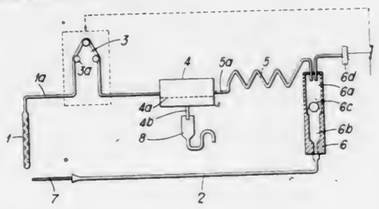
A control facility for a waste water process tank having a normal operating mode wherein the system shuts down and indicates "fault" on malfunction and provides a stepped, sequential trouble shooting procedure for determining the fault and provides for temporary operation or partial operation of the system until the fault is corrected. The system is directed toward use in waste water treatment plants which utilize liquid mixing or liquid mixing and heating tanks.

3,788,473
PARTICLE SEPARATOR
Arthur S. King, 1710 Baltimore, Kansas City, Mo.
Division of Ser. No. 100,221, Dec. 21, 1970, Pat. No. 3,718,256, which is a division of Ser. No. 727,835, May 9, 1968, Pat. No. 3,585,122, which is a continuation-in-part of Ser. No. 613,616, Feb. 2, 1967, abandoned. This application Jan. 15, 1973, Ser. No. 323,750
Int. Cl. B01d *43/00*
U.S. Cl. 210—112 2 Claims



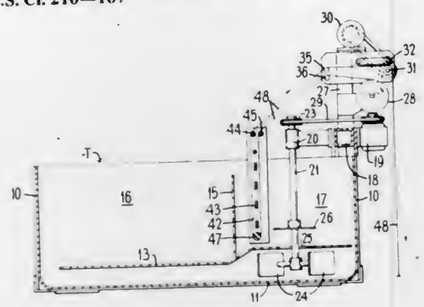
Particles are removed from fluids, such as water, previously subjected to electrostatic fields. When subjected to an initial electrostatic treatment, the fluid undergoes a reduction in surface tension and neutralization of charged, dissolved particles therein. Subsequent field treatments effect nucleation or coagulation of dissolved impurities and break molecule clusters to aid the nucleation or coagulation action. Suspended and nucleated or coagulated matter is removed from the fluid after the electric field treatments by discharging the fluid against an electrically conductive surface at ground potential maintained at a temperature different from that of the fluid. This causes the suspended and nucleated or coagulated matter to be deposited from the fluid and thus readily permits separation and removal.

3,788,474
APPARATUS FOR CONCENTRATING A LIQUID CONTAINING NON-ULTRAFILTRABLE ELEMENTS
Alain Granger, Lesigny, and Andre Sausse, Sceaux, both of France, assignors to Rhone-Poulenc S.A., Paris, France
Filed Oct. 12, 1971, Ser. No. 188,137
Claims priority, application France, Oct. 12, 1970, 70.36774
Int. Cl. B01d *31/00*
U.S. Cl. 210—137 3 Claims



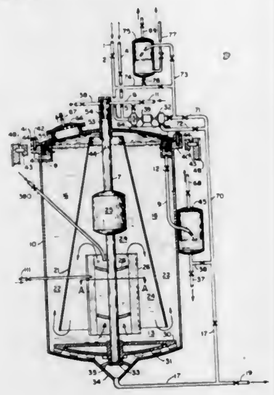
Apparatus and process for the concentration of a liquid containing non-ultrafiltrable elements, e.g. ascitic fluid in which liquid is fed to an ultrafilter having a membrane therein, and the concentrate and ultrafiltrate are withdrawn from the ultrafilter in which a pressure drop is induced in the concentrate by an auxiliary hydraulic resistance causing a pressure drop in concentrate which is proportional to the pressure drop exerted on the ultrafiltrate by the membrane in the inverse ratio to the ratio of the flow rates of the concentrate and of the ultrafiltrate.

3,788,475
CONTAINER
Joseph C. Gould, and Robert L. Hayes, both of Honea Path, S.C., assignors to The B. F. Goodrich Company, New York, N.Y.
Division of Ser. No. 94,482, Dec. 2, 1970, Pat. No. 3,694,117. This application Apr. 24, 1972, Ser. No. 246,821
Int. Cl. B01d *33/04*
U.S. Cl. 210—167 2 Claims



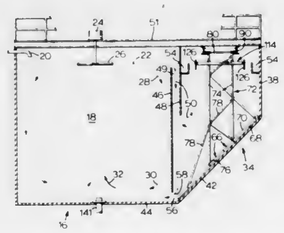
A tank apparatus used in the making of surgeons' gloves wherein the tank contains interconnected compartments so that there is continuous flow of solutions therethrough. A filter is movably mounted in the tank to strain the solution as it circulates.

3,788,476
SEWAGE TREATMENT SYSTEM
Donald F. Othmer, 333 Jay St., Brooklyn, N.Y.
Filed Sept. 23, 1971, Ser. No. 182,967
Int. Cl. B01d *21/06, 21/24*
U.S. Cl. 210—194 9 Claims



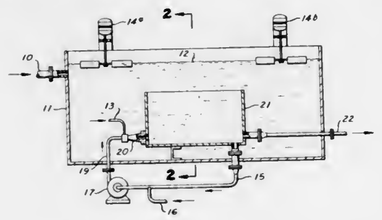
A system is described for removing pollutants of waste waters, including domestic and other sewage, by simultaneous oxidation of organic wastes, both soluble and insoluble, and by sedimentation of insoluble particles causing turbidity. This is essentially a conventional solids-liquid contactor clarifier with some additions to provide means for: (a) addition of air or purer oxygen to sewage waters; (b) pressurizing the sewage water up to 10 atmospheres to increase solubility and concentration of oxygen-hence velocity of chemical and/or aerobic reaction; (c) withdrawing and depressurizing the sewage water to atmospheric pressure to allow most of dissolved gases to be released and to be discharged because of lower solubility for gases at atmospheric pressure; (d) recycling the sewage water for from 2 to 50 times through this pressurizing-depressurizing cycle; and, when used aboard ship, (e) means for installation in the ship's hold to minimize effects of the ship's movements on the sedimentation operation. It is particularly useful for smaller installations, for use on ships, and other places where waste from not more than several thousand people is to be handled. It also may be used as a sedimentation system alone wherein insoluble solids are settled out to give a clear effluent. The sludge solids produced in an earlier sedimentation, either with or without oxidation, may be oxidized and sedimented in a separate step in the equipment.

3,788,477
TREATMENT APPARATUS
Leonard Sidney Love, 1457 Glen Rutley Cir., Mississauga, Ontario, Canada
Filed July 19, 1971, Ser. No. 163,907
Int. Cl. B01d *21/04, 21/18*
U.S. Cl. 210—195 5 Claims



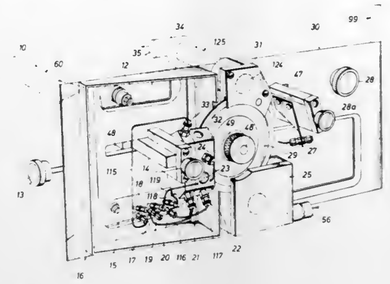
Treatment apparatus for aerating or mixing, and clarifying, liquids such as industrial and sanitary waste waters and for conducting chemical reactions, in which an aeration or mixing basin and a clarifier are formed as one integral unit, separated by a baffle. Flow from the aeration basin into the clarifier is limited by flow control plates. The clarifier has a bottom which slopes toward the aeration basin bottom, so that solids settling in the clarifier flow down the clarifier bottom towards the aeration basin, where they are picked up by circulation in the aeration basin and re-suspended. A sludge scraper scrapes the clarifier bottom periodically to dislodge sludge adhering to the bottom, and a scum skimmer skims the clarifier surface periodically to remove scum.

3,788,478
WASTE WATER TREATMENT
William E. Savage, Castro Valley, Calif., assignor to Shell Oil Company, New York, N.Y.
Filed Aug. 19, 1971, Ser. No. 173,058
Int. Cl. B01d *21/00*; B03d *1/00*
U.S. Cl. 210—197 1 Claim



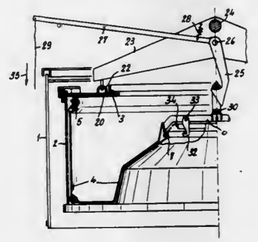
Waste water treating process wherein aeration and separation of bacterial matter to form a clarified effluent is accomplished in a single treating zone employing a submerged flotation cell.

3,788,479
DISC CONVEYOR FLAME IONIZATION DETECTORS
Julius J. Szakasits, Deer Park, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Apr. 13, 1972, Ser. No. 243,729
Int. Cl. B01d *15/08*
U.S. Cl. 210—198 C 8 Claims



Effluent to be tested is deposited on a porous alumina disc, the disc being rotated into a heater where the eluent is vaporized leaving a residue (the sample) whereupon the sample is then transported by the conveyor into a dual jet flame ionization detector (FID). After passing through the FID the disc then passes through an oxidizer where any remaining residue from the disc are removed by oxidation whereupon the disc then passes through a cooler, cooling the disc prior to the disc returning to a point where more effluent will be deposited for further analysis.

3,788,480
SECURING DEVICE FOR A REMOVABLE BAG FOR A CENTRIFUGE
Joseph Rousselet, Annonay, France, assignor to Etablissements Rousselet, Montalinet, Annonay, Ardeche, France
Filed Aug. 27, 1971, Ser. No. 175,551
Claims priority, application France, Sept. 3, 1970, 70.32813
Int. Cl. B01d *21/26*
U.S. Cl. 210—237 5 Claims



A securing device for a removable bag for a centrifuge having a vertical axis for its basket provided with a central cone, the bag comprising an outer cylindrical part to fit the outside wall of the basket, an intermediate part to fit the bottom of the basket, and a truncated conical part to fit the central cone and provided with a central opening. The securing device is constituted by a circular skirt to fit inside the perimeter of the basket, the skirt being connected to the upper edge of the cylindrical part of the bag, a crown to which the skirt is fixed, and a cruciform member connected to the edge of the central

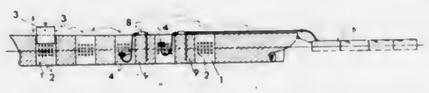
opening of the bag. A lifting assembly adapted to be suspended from a hoist can be detachably connected to the crown, the lifting assembly also being detachably engageable with the cruciform member. The device may either be supported on feet at a discharge station, with a central sliding rod of the lifting assembly then permitting the central opening of the bag to fall, or a manually operated lever may be provided on the lifting assembly to effect release of the central opening to permit it to fall.

3,788,481

METHOD FOR THE ELIMINATION AND POSSIBLE RECOVERY OF THE FLOATING POLLUTING SUBSTANCES, MINERAL OILS IN PARTICULAR, FROM SHEETS OF WATER AND BOAT FITTED TO THIS AIM

Andrea Lucio deAngelis, via F. 11i Coda 37/1, Genova, Italy

Filed June 10, 1971, Ser. No. 151,878
Claims priority, application Italy, June 11, 1970, 25830/70
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **5 Claims**



Method for the elimination and/or the recovery of floating polluting substances from liquid surfaces a, and boat for carrying out the method according to which:

the polluted liquid surface is successively, fully or in part, withdrawn from the action of the wind and, at least in part, from the natural wave motion, and segregated;

the segregated floating polluting substance is skimmed together with a minimum quantity of the underlying water;

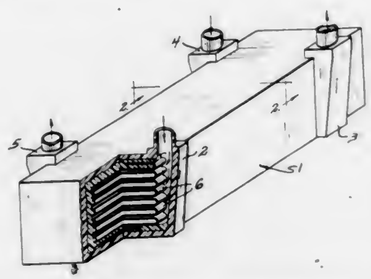
the liquid skimmed is collected and decanted while the floating substance is separated.

3,788,482

FOLDED MEMBRANE DIALYZER

Finley W. Markley, Naperville, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Mar. 10, 1972, Ser. No. 233,528
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **13 Claims**



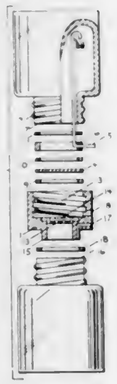
The present invention relates to an apparatus for the dialysis of two fluids and the method of making the same and is directed particularly to an apparatus for the dialysis of blood. The present invention uses a semipermeable membrane in sheet form, the membrane being folded into a large number of very closely spaced pleats. Support members are contained in all the pleats on one side of the membrane, all of the edges of which are sealingly embedded in a plastic material constituting at least a portion of the housing to give separate fluid chambers on the two sides of the membrane. A first fluid passes through the first such chamber within the pleats in a direction generally parallel to the creases of the pleats while a second fluid flows through the second chamber on the opposite side of the membrane pleats in a direction countercurrent to the first fluid. The apparatus is constructed either by placing the assembled folded membrane in a preconstructed rectangular casing and injecting a plastic material so as to surround and embed the edges of the membrane in the plastic material, or by placing the assembled folded membrane in a mold to form the housing by injecting a plastic material into the mold so as to surround and embed the edges of the membrane in the plastic material.

3,788,483

APPARATUS FOR FILTRATION

Walter D. Conway, 52 MacArthurville Drive, Williamsville, N.Y.

Filed May 26, 1972, Ser. No. 257,248
Int. Cl. B01d *29/00*
U.S. Cl. 210—416 **6 Claims**



The invention describes a device especially suited for laboratory scale filtration comprising a sample container, a filter element attached to the sample container by means of a threaded cap terminating in a funnel-shaped means which conveys the filtrate to a receiving vessel. Various embodiments of the invention allow the filtration to be accomplished either by centrifugal means, application of pressure to the atmosphere in the sample vessel, evacuation of the atmosphere within the receiving vessel, or by gravity flow. The entire assembly may be placed within a tubular-shaped heater to maintain an elevated temperature throughout the course of filtration.

3,788,484

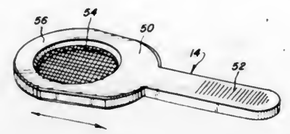
INLINE FLUID FILTER

Thomas J. Godin, West Hollywood, Fla., assignor to Coulter Electronics Inc., Hialeah, Fla.

Filed Aug. 23, 1971, Ser. No. 173,846
Int. Cl. B01d *27/08*
U.S. Cl. 210—447 **6 Claims**

A fluid filter to be used for inline installation or in systems which are not to be disturbed when it is desired to clean or

replace the filter member. An enclosed body has a lateral slot and the filter element is carried by a removable carrier



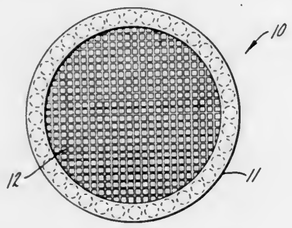
member which is engaged in the slot into filtering position. Seals are provided to prevent leakage when the carrier member is in operative position.

3,788,485

DRAIN GUARD FOR CONTACT LENS

Leslie Bruning, San Polo 2962, Venice, Italy

Filed July 20, 1972, Ser. No. 273,352
Int. Cl. E03c *1/26*
U.S. Cl. 210—474 **4 Claims**



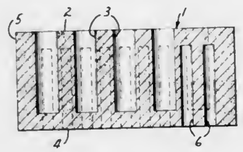
A flexible contact lens drain guard having a ring fabricated of rubber or plastic or the like. A mesh net extends across the ring opening and is bonded to or formed unitarily with the ring. Suction means are formed on the base of the ring and extend around its circumference.

3,788,486

FILTER

Theodore R. Bergstrom, Little Canada, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 30, 1971, Ser. No. 185,270
Int. Cl. B01d *27/02*
U.S. Cl. 210—496 **7 Claims**



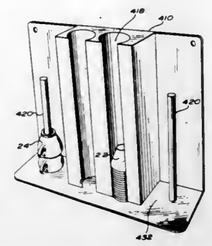
A rigid filter, useful for example for filtering molten thermoplastic resin as it is forced through a spinnerette head, comprising a rigid block of shaped uniformly permeable material, having continuity and identity of composition and having increased filtering capacity, with a plurality of filtration cavities extending into the block from the top surface and a plurality of drainage cavities extending into the block from the bottom surface.

3,788,487

CONTAINER WITH CUP LINERS AND CUP HOLDERS

Theodore R. Dawson, 3794 Blossom Ln., Odessa, Tex.

Filed Oct. 21, 1971, Ser. No. 191,330
Int. Cl. A47f *7/28*; **B42f** *13/12*
U.S. Cl. 211—49 D **10 Claims**



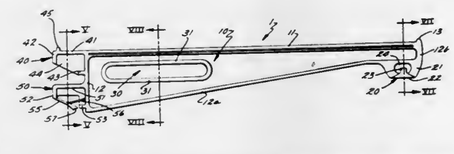
This container has an elongated, cylindrical cavity for positioning cup liners and either a cavity or a pintle for positioning cup holders neatly.

3,788,488

SLACK, TIE AND COAT HANGER

Judd F. Garrison, and John H. Batts, both of Grand Rapids, Mich., assignors to John Thomas Batts, Inc., Zeeland, Mich.

Filed Mar. 27, 1972, Ser. No. 238,182
Int. Cl. A47f *5/00*; **E06b** *7/28*
U.S. Cl. 211—123 **21 Claims**



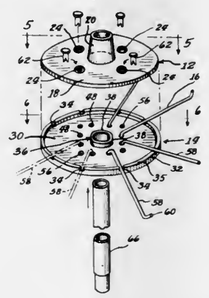
A clothing display bar having an elongated trouser-supporting body with a tie supporting aperture therethrough, a hook at one end thereof and a pair of vertically adjacent mounting heads at the other end thereof for mating insertion into a pair of mounting brackets.

3,788,489

SUPPORT MEANS FOR A DISPLAY STAND

Leon M. Le:inthal, Lincolnwood, Ill., assignor to RTC Industries Inc., Chicago, Ill.

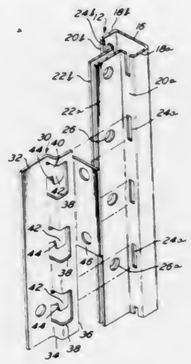
Filed Mar. 8, 1972, Ser. No. 232,760
Int. Cl. A47f *5/02*
U.S. Cl. 211—163 **1 Claim**



Support means for use in connection with an upright on a display stand, said support means comprising a pair of plastic

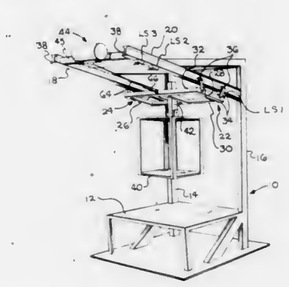
molded plate members each having a hub portion which engages the tubular upright on which the support means is positioned. Said plate members are adapted to support therebetween a plurality of radially extending arms on which objects to be displayed are hung and/or supported.

3,788,490
ERECTIBLE SHELVING
Daniel J. Featherman, Philadelphia, Pa., assignor to Featherman, Featherman and Featherman, Philadelphia, Pa.
Filed Aug. 22, 1972, Ser. No. 282,681
Int. Cl. A47f *5/10*
U.S. Cl. 211—176 **6 Claims**



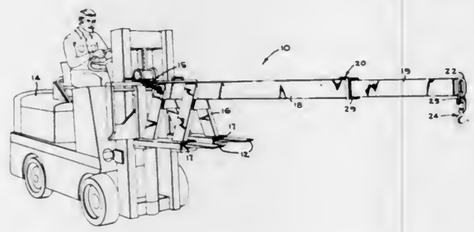
Erectible metal shelving having a plurality of verticle supporting posts and bracing members extending horizontally between and secured to the posts to brace the posts in an upright position. The bracing members are secured to the posts so that the shelving can be easily assembled or disassembled without the need of any special tools.

3,788,491
APPARATUS FOR MOVING AN OBJECT ALONG A PREDETERMINED PATH
Charles W. Stone, Garden City, Mich., assignor to D. W. Zimmerman Mfg., Inc., Madison Heights, Mich.
Filed May 28, 1971, Ser. No. 147,823
Int. Cl. B66c *17/00*
U.S. Cl. 212—25 **10 Claims**



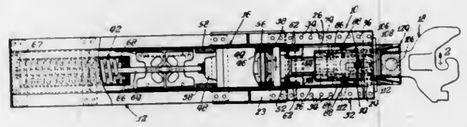
Improved drive apparatus for moving an object along a predetermined path is provided. The object to be moved is supported and guided by a member which also establishes the predetermined path with the drive apparatus moving the object between at least two given positions on the path. The drive apparatus constitutes a fluid-operated cylinder and piston combination which is effective to operate a cable drum and correspondingly move a cable which is connected to the object to be driven. The fluid-operated apparatus moves the object along the path toward the apparatus when the cable is under sufficient tension, while other means are provided for moving the object in the opposite direction. If the path is at an angle to the horizontal, the object can be moved in the direction away from the fluid-operated apparatus by gravity; if the path is horizontal or substantially so, a fluid-operated tensioning device can be provided for moving the object away from the fluid-operated apparatus.

3,788,492
LATCH MECHANISM FOR EXTENSIBLE BOOM
Robert E. Kraft, Naperville, Ill., assignor to FMC Corporation, San Jose, Calif.
Filed Jan. 14, 1972, Ser. No. 217,871
Int. Cl. B66c *23/06*
U.S. Cl. 212—55 **2 Claims**



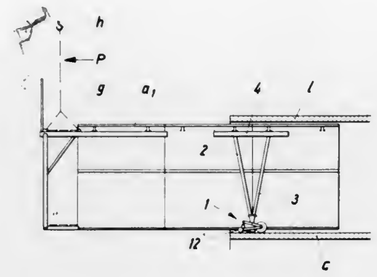
An automatic latch mechanism for an extensible boom attachment for portable vehicles such as fork lift trucks is disclosed. The extensible boom has a fixed outer section and a sliding inner section telescoping into the outer section. A lever carrying a pin projecting perpendicular to the lever near its lower end is pivoted on the top portion of the outer boom section. The pin on the lever protrudes through a slot in the outer boom section to engage one of a series of similar mating slots in the inner boom section. The pin automatically locks the inner boom to the fixed outer boom section at the selected position by the gravity action of the pivoted lever combined with the eccentric location of the hinge on the lever creating a torsional moment tending to rotate the lever to its fully engaged position.

3,788,493
COUPLER CENTERING DRAFT GEAR
Vaughn T. Hawthorne, Mechanicsburg, and Ronald H. Lundstrom, Dillsburg, both of Pa., assignors to Keystone Industries, Inc., Chicago, Ill.
Filed Oct. 26, 1971, Ser. No. 192,279
Int. Cl. B61g *7/12*
U.S. Cl. 213—20 **13 Claims**



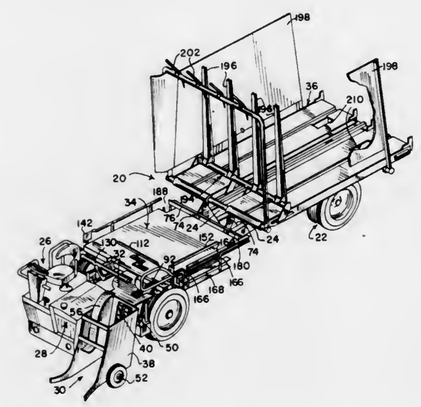
A draft gear for a railway car has an impact absorbing device mounted in a yoke to abut a pivotable coupler and provide coupler centering action, the magnitude of which increases as the draft gear moves toward its buff position. The yoke also has integral bracket portions for a retaining pin which holds in place a coupler pin on which the coupler pivots and a coupler carrier assembly which vertically supports the coupler in the yoke.

3,788,494
APPARATUS TO FACILITATE THE EXTRACTION OF A ROOM FORM
Wolfgang Markewitz, Hilden, and Fritz Mischke, Dusseldorf, both of Germany, assignors to Fa. Hunnebeck GmbH, Lintorf, Germany
Filed Feb. 22, 1972, Ser. No. 227,835
Claims priority, application Germany, Feb. 25, 1971, 2108815
Int. Cl. B66c *1/10*
U.S. Cl. 214—1 H **8 Claims**



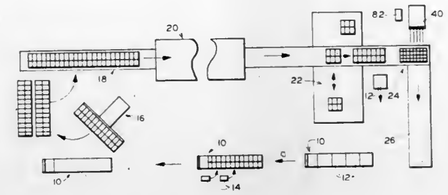
An apparatus to facilitate the extraction of a room form which comprises a frame for carrying said room form, said frame carried on a two-axled dolly and being pivotable with respect to said dolly.

3,788,495
AUTOMATIC BALE HANDLING DEVICE
Robert M. Fachini; Fenton L. Kenna, Jr.; Monroe C. Barrett; Louis E. Nickla, all of Memphis, Tenn., and Robert L. Graham, Houston, Tex., assignors to International Harvester Company, Chicago, Ill.
Filed July 6, 1971, Ser. No. 159,902
Int. Cl. B65g *57/28, 57/32, 57/22*
U.S. Cl. 214—6 B **14 Claims**



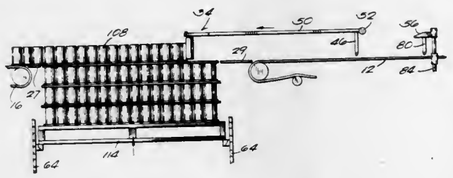
A bale wagon for mechanically accumulating a load of bales arranged in a cross-tied pattern, and including an accumulator table, bale transfer assemblies, and a load carrying bed. The bale transfer assemblies operate to arrange selected layers of bales in distinct patterns to provide a cross-tied stack. The accumulator table is pivotally movable to deposit layers as vertical tiers onto the load carrying bed which, in turn, is pivotally movable to deposit a bale stack onto the ground.

3,788,496
CAR LOADING APPARATUS
Wells A. Webb, 1788 Shattuck Ave., Berkeley, Calif., and Freling E. Baker, 2290 Stockton St., Apt. 203, San Francisco, Calif.
Filed July 12, 1971, Ser. No. 161,587
Int. Cl. B65g *57/28, 67/04*
U.S. Cl. 214—6 C **7 Claims**
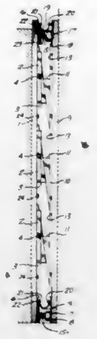


There is disclosed a method and apparatus for assembling and loading cartons into transport vehicles such as trucks and railway cars. The apparatus includes a turning mechanism in combination with a conveyor for orienting a plurality of cartons into unit stacks which are assembled into tiers of stacks having pre-selected dimensions to fit a given cargo space. Mechanical means are then used for inserting the assembled stacks into available cargo space to make a tight fit.

3,788,497
FLOW-THRU PALLETIZER AND DEPALLETIZER
Kenneth G. Carlson, 11350 N. Valley Dr. 18W, Mequon, Wis.
Filed Sept. 27, 1972, Ser. No. 292,571
Int. Cl. B65g *60/00*
U.S. Cl. 214—6 P **8 Claims**



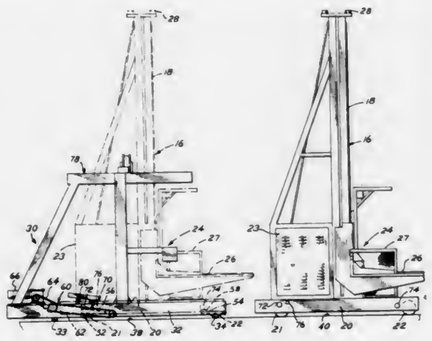
A conveying system including two conveyors for conveying empty cans from a can making machine to a can filling machine includes palletizing and depalletizing apparatus located intermediate the conveyors to palletize cans when desired and depalletize cans to regulate flow between the machines. Empty cans are moved from one conveyor to another in patterned complements by a sweep bar to supply the requirements of the can filling machine. When the can filling machine is not in operation, patterned complements are sequentially deposited in layers on pallets. The pallets are stored on a storage conveyor associated with the pallet loading bin. When cans are required at the can filling machine and the can making machine is not in operation, the cans stored on the pallets are raised in the pallet loading bin with the layers of patterned cans swept from the pallet onto the conveyor for the can filling machine. The sweep bar assembly includes pattern forming dies for initiating a honeycomb pattern of cans flowing toward the sweep bar and a set of can engaging fingers spaced from the pattern forming bar which are operative to engage the rear rank of cans of the patterned can complement to maintain the cans in the pattern as the can complement is moved horizontally onto a retractable apron over the pallet loading bin.

3,788,498
SELF-TIGHTENING DUNNAGE
Leonard G. Slusher, Seattle, Wash., assignor to Burlington Northern, Inc., St. Paul, Minn.
Filed May 2, 1972, Ser. No. 249,518
Int. Cl. B65g *1/14*
U.S. Cl. 214—10.5 R **10 Claims**



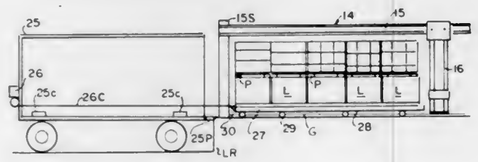
Compression springs engaged between the upper and lower ends of brace slats urge the slats apart and they are held in spaced relationship by pairs of interengageable wedges, each pair having a normally fixed wedge and a normally slidable wedge. Ties adjacent to the springs hold the slats in contracted relationship against the spring pressure until released for expansion of the dunnage. Tightening is effected by automatic downward sliding of the slidable wedges relative to the normally fixed wedges. The normally fixed wedges can be released for freeing the slidable wedges to retract such wedges for contraction of the dunnage from load-clamping condition and subsequent dunnage removal.

3,788,499
TRANSFER CAR ARRANGEMENT
William E. Burns, Ottawa, and Robin Taylor, Park Forest, both of Ill., assignors to Interlake Inc., Chicago, Ill.
Filed Jan. 17, 1972, Ser. No. 218,405
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 B **13 Claims**



In a transfer car arrangement, particularly for the use in a storage and retrieval system, a load carrier which is movable longitudinally in the aisles between storage frames is positionable upon a transfer car for transfer between the aisles. Both the load carrier and the transfer car are floor running upon a coplanar floor surface and the load carrier includes rollers which cooperatively engage inclined ramps on the transfer car and which support the load carrier during transfer and the load carrier is supportably positioned upon the transfer car by powered lugs which engage the load carrier such that the load carrier wheels are spaced above the floor surface when the load carrier is being transferred.

3,788,500
AUTOMATIC TRANSFER AND TRANSPORT SYSTEM
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.
Continuation-in-part of Ser. No. 806,501, March 12, 1969, abandoned. This application Apr. 27, 1971, Ser. No. 137,992
Int. Cl. B65g *67/04*
U.S. Cl. 214—41 **5 Claims**



An apparatus and system for automatically loading and unloading vehicles such as truck and trailer bodies, cargo aircraft, trains, boats and the like utilizing computer-controlled stacker cranes and specialized guidance means therefore to effect the direct or indirect transfer of palletized cargo to and from a loading ramp or ramp system and one or more vehicles which are prepositioned relative thereto.

In one form, a track system such as an overhead monorail trackway for guiding stacker cranes is provided to carry loads from temporary storage in racking located near or at a loading ramp to vehicles predeterminately disposed with respect to said ramp. Upon predeterminately aligning a vehicle with the ramp and crane trackway, one or more stacker cranes may be operated to automatically load and/or unload the vehicle by traveling adjacent thereto or into the vehicle.

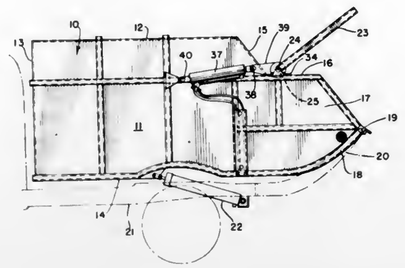
In another form, modular racks are provided which are portable and may be automatically winched or otherwise moved from the loading ramp into the vehicle in the act of loading the vehicle or from the vehicle onto the loading ramp when unloading the vehicle of a plurality of such portable racks.

Either the vehicle or a trackway may be moved to effect the movement of a materials handling device from the loading ramp into the vehicle and, in the act of unloading the vehicle from the vehicle onto the loading ramp. Means are provided in the vehicle for retaining loads or racks predeterminately disposed therein so as to prevent their shifting during movement of the vehicle.

3,788,501
ADJUSTABLE MOUNTING FOR REFUSE DUMP TRUCK PACKER PLATE
Douglas C. Steltz, Waukesha, Wis., assignor to Portec, Inc., Oak Brook, Ill.
Filed Oct. 28, 1971, Ser. No. 193,334
Int. Cl. B65f *3/00*
U.S. Cl. 214—83.3 **7 Claims**

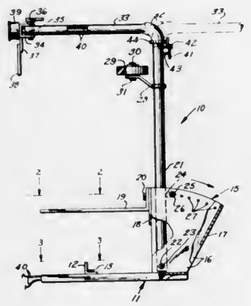
The packer door or plate of a refuse collection and dump truck is supported for swinging movement on a pair of pillow

blocks which are mounted adjustably on side ledges of the truck body. The pillow blocks are adjusted and locked in posi-



tion to provide a precise clearance between the packer plate and the rear mouth of the dump body.

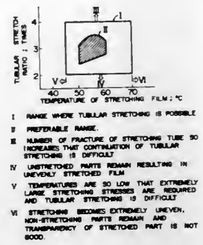
3,788,502
BOAT GUIDE DEVICE
Larry E. Bell, 6040 McMahon Dr., Sacramento, Calif.
Filed Jan. 17, 1973, Ser. No. 324,487
Int. Cl. B60p *3/10*
U.S. Cl. 214—84 **5 Claims**



A device for boats and trailers consisting primarily of a mounting channel and mounting bar secured to a base member carrying a pipe with a pivotable end having a tail and stop light secured to it, the pipe also having a protective rubber wheel and a locking handle for the upper pipe member.

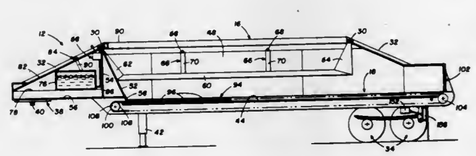
3,788,503
METHOD FOR PRODUCING BIAXIALLY MOLECULE-ORIENTED POLY-ε-CAPROAMIDE RESIN FILM
Hidenori Hirose; Masaaki Tsubosaki; Masayoshi Sugiyama; Akira Skkita, and Mitsuo Kito, all of Fujishi, Japan, assignors to Kabushiki Kaisha Kohjin, Tokyo, Japan
Filed Dec. 10, 1970, Ser. No. 96,741
Claims priority, application Japan, Dec. 30, 1969, 44-105459; Feb. 24, 1970, 45-15243
Int. Cl. B29c *17/06*
U.S. Cl. 264—95 **17 Claims**

A biaxially molecule-oriented film of poly-ε-caproamide resin having an improved dimensional stability and surface slip characteristic is prepared by extruding the molten resin downward through an annular die, quenching and solidifying the extruded film by means of an internally liquid-cooled, cooling mandrel having a specific shape to form a substantially amorphous, non-stretched tubular film substantially free of any hydrogen bond, allowing the thus obtained film to come in contact with a heating gas while heating the film at a temperature of from 45° to 70°C and keeping a water content of the film at not more than 2 % based on the weight of the film, biaxially stretching the heated film simultaneously at a stretching ratio of 2 to 4 in both longitudinal and transversal directions by introducing a pressurized gas into the tubular



film between a low speed feeding section and a high speed take-up section of the film, and heat-setting the thus stretched film while keeping a water content of the film at least at 1 % based on the weight of the film to an equilibrium water absorption content in water.

3,788,504
MATERIAL DELIVERY SYSTEM
John H. Holland, Norman, Okla., assignor to Arkansas Rockland Gravel Co., Murfreeshow, Ark.
Division of Ser. No. 852,345, Aug. 22, 1969, Pat. No. 3,647,096. This application Oct. 6, 1971, Ser. No. 187,185
Int. Cl. B60p *1/38*
U.S. Cl. 214—52 **2 Claims**

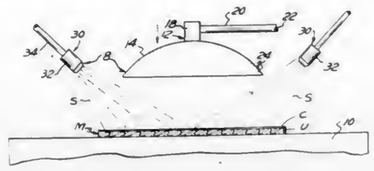


A delivery system for hot asphalt includes a plurality of semi-trailers. Each trailer includes a V-shaped hopper having an asphalt supporting beam extending longitudinally through it. A tube extends around the hopper for use in spraying lubricating oil into the hopper prior to the loading of asphalt. Each trailer further includes a conveyor for unloading asphalt from the hopper into a paving machine. The conveyor is driven by a hydraulic motor that is controlled by a valve. The valve is mounted in the trailer for activation by a prod mounted on the paving machine so that the operation of the conveyor is controlled from the paving machine.

3,788,505
METHOD FOR VACUUM PICK-UP OF POROUS MATERIALS
Jerry Kirsch, 36 Beacon Hill, Grosse Pointe Farms, Mich.
Division of Ser. No. 181,074, Sept. 16, 1971, Pat. No. 3,710,953. This application Nov. 3, 1972, Ser. No. 303,605
Int. Cl. B66c *1/02*
U.S. Cl. 214—152 **4 Claims**

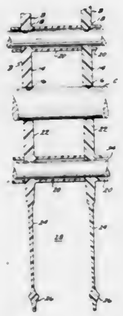
Porous materials, such as cloth or unglazed ceramics or porous plastics which on account of their porosity defy ordinary vacuum pick-up, are made temporarily imperforate by applying to them a temporary coating of liquid, such as water, whereupon their porosity is momentarily sufficiently inhibited

to permit their pick-up and transfer by suction, as by a suction cup device. The liquid coating is deposited either by rolling or



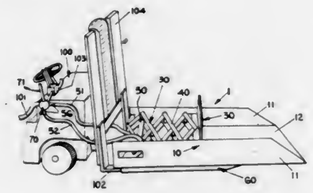
spraying the liquid onto the porous material either from above it (FIG. 1) or from beneath it either for a single layer (FIG. 2) or for a plurality of layers thereof (FIG. 3).

3,788,506
DEVICE FOR RETRIEVING SUBMERGED GOLF BALLS AND ON DRIVING RANGE
Delbert R. Lee, 20927 Flapjack Dr., Diamond Bar, Calif.
Continuation of Ser. No. 61,683, Aug. 6, 1970. This application Apr. 10, 1972, Ser. No. 242,871
Int. Cl. B60p *1/00*
U.S. Cl. 214—356 **1 Claim**



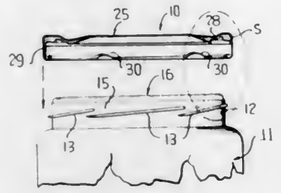
A lightweight, portable device that includes a number of longitudinally spaced resilient plastic discs, which device may be alternately drawn from one bank of a lake to the opposite bank, and when so drawn retrieve submerged golf balls in the lake as the disc's pressure contacts the ball. After the balls have been retrieved by the device, and the device positioned on dry land, the balls are removed from between the discs by laterally deforming the peripheral edge portions of the latter.

3,788,507
MATERIALS HANDLING SCOOP
Herman Voss, 155 Vista Ter., Muskegon, Mich.
Filed Aug. 25, 1971, Ser. No. 174,867
Int. Cl. B66f *9/19*
U.S. Cl. 214—620 **5 Claims**



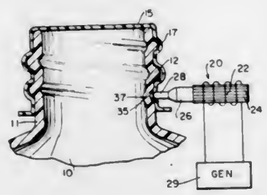
This materials handling apparatus includes a scoop, having a push plate slidably mounted therein. Lazy tongs connected to the back of the scoop and to the push plate are extended and retracted by a hydraulic cylinder which can be operably connected to the hydraulic system of a fork lift truck. The scoop includes channel shaped shoes projecting from the bottom thereof for receiving the forks of a fork lift truck such that the entire assembly can be mounted on a fork lift truck.

3,788,508
CLOSURES WITH CORROSION HALTING MEANS
Peter A. Vercillo, Oak Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Dec. 30, 1971, Ser. No. 213,912
Int. Cl. B65d *23/00*
U.S. Cl. 215—40 **2 Claims**



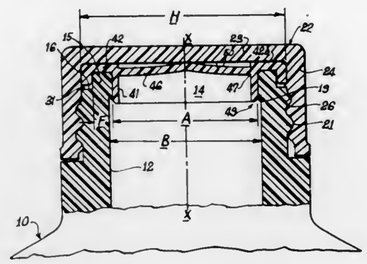
This disclosure relates to closures including means for halting corrosion, and more particularly to a closure which includes an end panel having a recessed radius which is disposed radially outboard of an inner surface of a container mouth with sealing compound between the radius and a lip of the container whereby the radius which is conventionally positioned radially inboard of the container mouth inner surface and is thus subjected to the corrosive effects of packaged products cannot now be so effected. In further accordance with this disclosure the container lip is at least in part defined by a radius opening generally concavely axially outwardly in opposed spaced relationship to the end panel radius, and the radii are complementary contoured.

3,788,509
METHOD AND APPARATUS FOR SEALING PLASTIC CLOSURES TO PLASTIC CONTAINERS
Frederick D. Keeler, Trumbull, Conn., assignor to The K.L.M. Company, Stratford, Conn.
Filed Jan. 28, 1972, Ser. No. 221,633
Int. Cl. B65d *41/20*
U.S. Cl. 215—42 **8 Claims**



A method and apparatus for sealing a plastic closure to a plastic container in which a tool is inserted through a portion, or portions, of the closure wall into the container wall after the closure has been fastened to the container. The tool produces energy of a type to distort the side wall of the closure and the corresponding portion of the container wall to form a projection on the closure and a mating depression on the container to provide a mechanical seal. In a preferred embodiment of the invention, ultrasonic energy is used to distort the necessary portions of the closure and container to form the mechanical seal and, in some cases, an ultrasonic workpiece produces heat at the interface between the closure and container to provide a weld.

3,788,510
CONTAINER CLOSURE
Arthur J. Collins, 6700 N. Edgebrook Ter., Skokie, Ill.
Filed Dec. 15, 1972, Ser. No. 315,592
Int. Cl. B65d *53/04*
U.S. Cl. 215—40 **4 Claims**



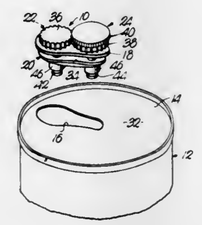
A closure of the type comprising an insert assembled with a cap, usually a screw-on cap, for effecting a reliable, leakproof seal between the closure and the pouring neck of a container. Included are means for rapid assembly of the parts into a commercial device ready for application to the container neck. The insert is constructed to deform when the cap is screwed down on the neck to conform the parts of the insert into leakproof relation with the neck.

3,788,511
PROTECTIVE JACKET AND BASE FOR PRESSURE VESSEL
Robert E. Marsh, 5521 Willow View Rd., Rasine, Wis.
Filed Aug. 16, 1971, Ser. No. 172,110
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 R **16 Claims**



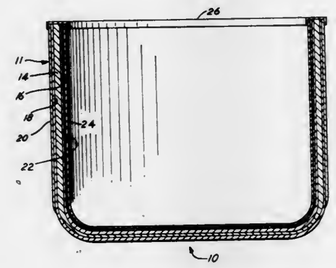
A pressure vessel, particularly of the type used in water softening service is encased in a light weight protective jacket preferably molded in one piece from a resilient plastic material. In cross section the jacket is of undulant configuration comprising longitudinally extending grooves and ridges with the inner surfaces of the groove portions in surface engagement with the outer surface of the tank and the inner surfaces of the ridge portions spaced from the surface of the tank, the jacket being capable of expansion and contraction in a radial direction in bellows or accordian fashion. The jacket fits over the tank from the top and at the bottom is provided with a tank supporting base that interlocks with the jacket to retain the tank within the jacket. At its opposite ends the jacket is provided with hand grip recesses to facilitate handling of the jacketed tank. Externally the jacket resembles a fluted column.

3,788,512
CONTAINER CLOSURE
George R. Brahler, 944 Kentucky, Lawrence, Kans.
Filed June 2, 1972, Ser. No. 258,958
Int. Cl. B65d *45/00*
U.S. Cl. 220—25 **8 Claims**



A closure for resealing an opening in a wall of a container, such as the access opening in the top wall of a beverage can, after the original flip top seal has been removed. A resilient, outer member is placed in overlying relationship to the opening and in engagement with the wall about the periphery of the opening, while a resilient, inner member having a size and configuration permitting insertion thereof through the opening and having a concave face normally disposed toward the opening, is placed in an underlying relationship to the opening and the outer member. Upon shifting of the inner member toward the outer member, through the use of a pair of thumbscrews, the inner member engages the wall about the periphery of the opening, and spreads to embrace the opening between the inner and outer members, thereby sealing the same. For removal, the inner member is shifted out of engagement with the wall at which time the inner member resumes its original size and configuration, thus enabling the inner member to be easily removed through the opening.

3,788,513
LAMINATED COOKWARE
Nick S. Racz, 4800 Chicago Beach Dr., Chicago, Ill.
Filed Jan. 15, 1970, Ser. No. 3,044
Int. Cl. B02d *20/14*
U.S. Cl. 220—64 **17 Claims**



A multiple ply laminated cookware container includes a core ply of high strength and relatively low thermal conduc-

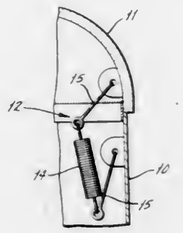
tivity, such as carbon steel, which is sandwiched between non-ferrous plies, such as aluminum. A frit anchor ply may be bonded upon the aluminum ply nearest the interior of the container and a non-stick coating, such as Teflon may be bonded to the frit ply. Preferably, a decorative coating, such as a porcelain enamel, is bonded to the aluminum ply nearest the exterior of the container. The thickness of the steel and non-ferrous plies may be varied so as to suit structural as well as thermal qualities of given areas of the container.

3,788,514

EXPLOSION RELIEF COVER RESTRAINT

Frederick Alfred Giacoma, Jr., Crestwood; Channing W. Godbold, St. Louis, and Richard Wilson Stephens, Bridgeton, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 29, 1969, Ser. No. 888,623
Int. Cl. B65d *51/16, 55/02*
U.S. Cl. 220—89 A **9 Claims**



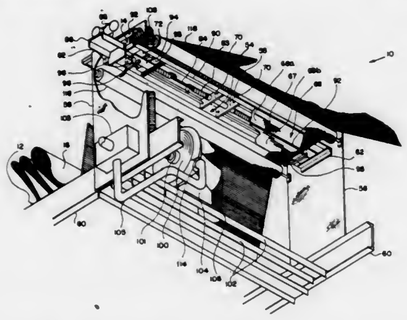
An explosion relief device comprises a displaceable cover of a vessel connected to a fixed base by an extensible restraint. Movement of the cover away from the vessel as a result of the force of an explosion within the vessel distorts the restraint beyond its elastic limit. The distortion of the restraint beyond its elastic limit absorbs the energy of the cover moving away from the vessel, safely stops the cover and does not substantially accelerate the cover's return after it has performed its venting function. The method of restraining the displaceable cover is also disclosed. This device and method are particularly useful with large vessels requiring full diameter venting.

3,788,515

METHOD AND APPARATUS FOR GUIDING AND TENSIONING A WEB

David Middleman, Baltimore, Md., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Mar. 20, 1972, Ser. No. 236,067
Int. Cl. B65h *23/24*
U.S. Cl. 226—1 **17 Claims**



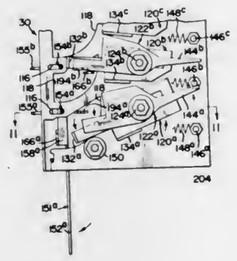
A method for guiding an advancing web of single face corrugated paperboard material and applying tension thereto along its path of advance comprising the steps of applying subatmospheric pressure to a smooth side of the web for tensioning the web, and guiding the web along the path of advance. The preferred apparatus for performing the method comprises a motorized suction device connected to a vacuum chamber for applying the subatmospheric pressure to the smooth side of the web for tensioning the web and guide plates for guiding the web during its contact with the vacuum chamber. By applying suction to the smooth side of the web, flute crush is avoided and no noise is generated by the flutes dragging across a stationary object.

3,788,516

DROP-SHELF DISPENSING MECHANISM

Karl Knickerbocker, 400 Baycrest Dr., Venice, Fla.

Filed Sept. 25, 1972, Ser. No. 282,277
Int. Cl. G07f *11/06*
U.S. Cl. 221—90 **13 Claims**



A drop-shelf dispensing mechanism configured for use in a dispensing machine comprising an upper housing including a plurality of pivotally mounted drop-shelves arranged vertically relative to each other for individually supporting products to he dispensed and a corresponding plurality of pivotally mounted actuation/lock-out elements operatively engaging each other and the shelves, a corresponding plurality of support ledges each in communicating relation to a corresponding drop-shelf to hold the drop-shelves in a substantially horizontal position, an actuating means in communicating relation to the actuation/lock-out elements and a lower housing including a dispensing chute means in communication with the upper housing such that upon actuation of the actuating means the retainer ledge of the lower most horizontal drop-shelf is disengaged from the corresponding support ledge to pivot downward dropping the product into the dispensing chute means and simultaneously arming the next adjacent drop-shelf for actuation whereby successive actuation of the actuating means progressively actuates the drop-shelves individually in accending order.

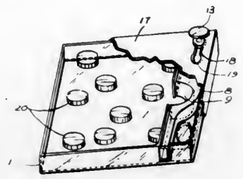
3,788,517

CHILD-SAFE PILL DISPENSER

Joseph M. Eannarino, 610 Highland Ave., Rome, N.Y.; Michael S. Granieri, Jr., 1805 N. James St., Rome, N.Y., and Henry W. Michaelson, 744 Birchwood Ct., Westbury, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,712
Int. Cl. B65d *83/04*
U.S. Cl. 221—154 **1 Claim**

A rectangular pill dispenser container having two compartments where one compartment contains pills and has a opening into a second compartment where a sliding bar with a cavity can accept one pill at a time and where pressing the bar releases the bar so it can be pushed with the pill in the cavity so that the pill is aligned with an opening on the bottom of the bar compartment so that the pill can be paid out. A pill dispenser of the type described including a resilient bar and a detent that prevents the bar from being moved, unless pressed,



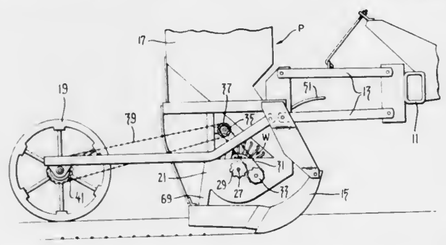
and the feature that allows paying out of one pill at a time making the dispenser child-safe are also enclosed.

3,788,518

PNEUMATIC SEED DISPENSER

Raymond A. Beebe, Detroit, Mich., assignor to Massey-Ferguson, Inc., Detroit, Mich.

Filed Jan. 15, 1973, Ser. No. 323,604
Int. Cl. A01c *7/04*
U.S. Cl. 221—211 **10 Claims**



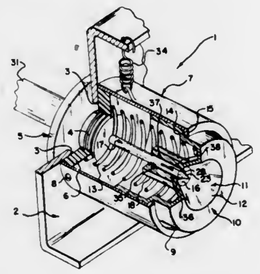
A seed dispenser has a wheel rotating in a seed housing with the wheel having a plurality of radially extending spoke-like seed selecting tubes connected to a common manifold in turn connected to a pressure source. The connection of the tubes in the passages forms a venturi throat in the passage thus causing a reduction of pressure in the tubes when air is flowing through the passages. Means are provided to selectively and sequentially cut off flow of air out of said passages so that air is forced to flow out of the tubes when the connected tube is at a predetermined circumferential position.

3,788,519

APPARATUS FOR PIERCING A CONTAINER

Lloyd A. Mengel, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 120,017, March 1, 1971, Pat. No. 3,688,399. This application May 26, 1972, Ser. No. 257,120
Int. Cl. B67b *7/24*
U.S. Cl. 222—83.5 **2 Claims**



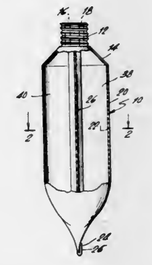
Container-piercing apparatus, wherein an inwardly tapered cup member is provided with an opening into the innermost region thereof for admitting a piercing member. The cup and the piercing member are supported for movement of one relative to the other so that the last-mentioned member can be admitted through the inner opening of the cup in a direction enabling engagement of the piercing member tip with a container received in the cup. Support of the piercing member and the cup for movement along a path transverse to the foregoing direction is provided so that the piercing member tip can be centered with respect to a predetermined location on the container as the container is received in the cup. For conveying fluid from or to a pierced container, the piercing member includes a chamber and a pair of spaced openings which commmunicate with such chamber.

3,788,520

MULTIPLE COMPARTMENT TUBE WITH RESILIENT DIVIDER

Joseph Dukess, 931 Greacen Pt., Mamaroneck, N.Y.

Filed July 21, 1971, Ser. No. 164,657
Int. Cl. B65d *35/24*
U.S. Cl. 222—94 **1 Claim**



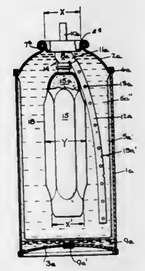
A squeezeable container in the form of a multiple compartment tube having a resilient bellows divider. One end of the bellows divider is secured to the neck and the other is crimped into the closed opposite end. The bellows have side pieces which lie flush against the inner side walls of the container so that two separate compartments are formed by the divider with the divider being deformable so as to permit variable amounts of material to be deposited in the several compartments.

3,788,521

AEROSOL PACKAGE

Robert H. Laauwe, 237 Ridge Rd., Franklin Lakes, N.J.

Filed July 10, 1972, Ser. No. 270,560
Int. Cl. B65d *35/24*
U.S. Cl. 222—94 **6 Claims**



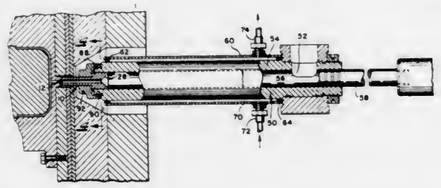
An aerosol package includes a rigid container having a dispensing valve and a collapsible flexible container inside of

this rigid container and internally fluid-connected to its valve, the flexible container containing an extrudable liquid product in which a liquified compressed gas is intimately widely dispersed or dissolved. The package features a liquified compressed gas propellant in the rigid container on the outside of the flexible container and having a vapor pressure greater than that of the product's liquified gas as it is dispersed or dissolved in the product. Therefore, when the product is dispensed through the valve, this propellant continuously maintains the product under compression, through its flexible container, to a degree preventing the formation of a vapor phase in the product while the latter is extruding under the pressure of the propellant. The result is that the product's gas remains intimately widely dispersed or dissolved in the liquid product until exposed to the atmosphere, at which time this gas converts to its vapor phase to provide an expanded product that is always of the same density until the product is completely forced from its container.

3,788,522
NOZZLE STRUCTURE FOR INJECTION MOLDING MACHINE

James R. Mercer, Akron, Ohio, assignor to McDowell-Welman Engineering Company, Cleveland, Ohio

Continuation of Ser. No. 802,785, Feb. 27, 1969, abandoned. This application Aug. 26, 1971, Ser. No. 175,296
Int. Cl. B29f *1/03*
U.S. Cl. 222—146 R **8 Claims**

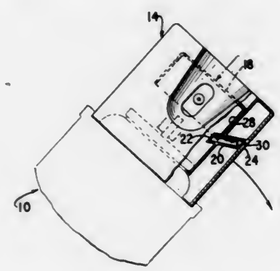


There is provided an improved nozzle structure for an injection molding machine characterized by a generally tubular body having a probe portion, a cylindrical plug portion, and a radial flange adapted for coaction with one end of a tubular heating cylinder of said machine to prevent axial movement thereof into the tubular heating cylinder.

3,788,523
OVERCAP SAFETY MECHANISM FOR AN AEROSOL CONTAINER

Douglas W. Thomas, Toms River, N.J., assignor to American Home Products Corporation, New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,376
Int. Cl. B65d *83/14*
U.S. Cl. 222—153 **5 Claims**

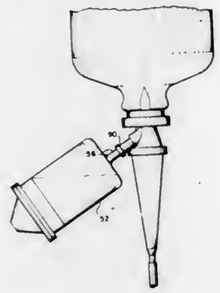


A childproof, safety overcap for aerosol containers is disclosed which has a closed end slotted conduit connected to the fixed member so that the movable member must pass through the slot to actuate the valve. A ball is free to roll in the conduit and to move in or out of the slot depending on the position of the container. The position of the ball in the slot permits or prevents the actuation of the valve and discharge of the contents. In a normally vertical discharge position, discharge of the contents is prevented, but is accomplished by rotating the container to an inverted position to roll the ball out of the slot and simultaneously depressing the first movable member into the slot and then righting the container to permit the discharge of the contents from the vertical position.

3,788,524
ADDITIVE CONTAINER

Loren Roger Davis, Rancho Cordova, and Walter Dean Kirkland, Walnut Creek, both of Calif., assignors to Cutter Laboratories Inc., Berkeley, Calif.

Filed Dec. 22, 1971, Ser. No. 210,848
Int. Cl. B65d *37/00*
U.S. Cl. 222—209 **15 Claims**



An additive container for supplying an additive material for mixing with a parenteral solution contained in a dispensing receptacle, characterized in that the additive container includes a hollow body member containing therein a chamber that defines at one end an end wall provided with a through opening, said body member including an integral tubular extension that communicates at one end with said opening and at the other end with conduit means having a pointed extremity. The open end of the body member is closed by closure means that are operable to effect flow of fluid through said tubular extension. According to a first embodiment, the closure means comprises a resilient closure member that is manually deformable to effect pumping of fluid through said tubular extension. In a second embodiment, the resilient closure member, in addition to being deformable to effect the aforementioned pumping operation, is also deformable to define a piston element that is longitudinally displaceable within the body member to force additive material through the opening. Finally, in a third embodiment, the closure member comprises the piston element of a syringe which may be adapted for operation by a sheath that normally protects the syringe needle element.

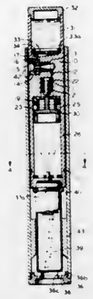
3,788,525
COMPRESSED AIR ASPIRATING AND PROPELLANT ACTUATED FLUID PRODUCT DISPENSER

Marvin L. Thornton, Candlewood Shores, Brookfield, Conn., and Pasquale R. Riccio, Salem, N.H., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 252,754, May 12, 1972. This application Mar. 8, 1973, Ser. No. 339,064
Int. Cl. B65d *83/14*
U.S. Cl. 222—193 **10 Claims**

A compressed air aspirating and propellant actuated dispenser for dispensing fluid products. A valve assembly has a

compressed air flow path therethrough with a valve member obturating the compressed air flow path. A product containing means in the device is connected to the aspirating means by a product flow path. A hollow enclosure surrounds the other end of the compressed air flow path and a piston is movable in the hollow enclosure toward the valve and engagable with the valve member after it has moved into the hollow enclosure for actuating the valve member for opening the compressed air flow path. An aerosol propellant cartridge having a spring loaded dispensing valve is mounted on the device for movement relative thereto for opening said dispensing valve, the

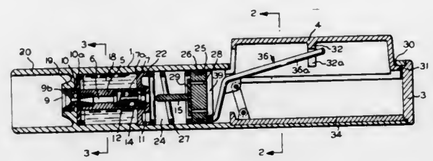


dispensing valve being directed into the hollow enclosure for moving the piston into the hollow enclosure. When the device is moved relative to the cartridge, propellant dispensed into the hollow enclosure drives the piston to compress air in the hollow enclosure ahead of the piston and the piston engages the valve member after it has moved into the enclosure sufficiently far to build up the desired pressure of air within the enclosure in order to open the valve member to allow the compressed air to flow along the compressed air flow path. The propellant is then vented away from the point of product dispensing.

3,788,526
COMPRESSED AIR OPERATED DISPENSER WITH MECHANICAL FORCE MULTIPLYING MEANS

Marvin L. Thornton, Brookfield, Conn., and Pasquale R. Riccio, Salem, N.H., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 240,725, April 3, 1972, abandoned. This application Feb. 12, 1973, Ser. No. 331,878
Int. Cl. B67d *5/54*
U.S. Cl. 222—193 **7 Claims**

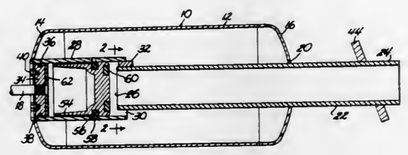


A compressed air actuated dispensing device has a valve assembly having a valve body with a compressed air flow path therethrough and a valve member movable in the valve body and obturating the compressed air flow path. Aspirating means is provided at one end of the compressed air flow path and a product containing means in the device feeds product through a product flow path to the aspirating means. A piston-cylinder means is provided around the other end of the compressed air flow path, and a mechanical force multiplying means having an actuating member projecting out of the device is engaged with the piston for compressing air, the piston engaging the valve member for opening the compressed air flow path only after air in the piston-cylinder means has been compressed.

3,788,527
QUICK-RELEASE AERATOR FOR INTRODUCING HIGH PRESSURE AIR INTO A CONTAINER TO FACILITATE DISPENSING

Carl G. Matson, Kawanee, Ill., assignor to Martin Engineering Company, Neponset, Ill.

Filed Jan. 22, 1973, Ser. No. 325,519
Int. Cl. B65g *3/12*
U.S. Cl. 222—195 **10 Claims**

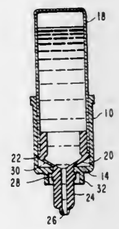


A container chargeable with a relatively large volume of air under significant pressure and including quick-release valve means for rapidly discharging the container via a self-contained tubular outlet for suddenly releasing energy into a receptacle for the purpose of accelerating the flow of granular and like materials.

3,788,528
MINI DROPPER

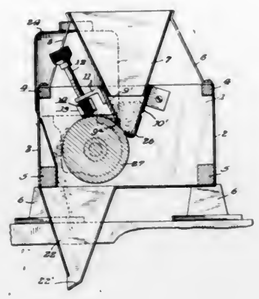
Robert W. Ogle, Newport Beach, Calif., assignor to IMS Limited, Wilmington, Del.

Filed Aug. 23, 1971, Ser. No. 173,783
Int. Cl. B65d *37/00, 47/18*
U.S. Cl. 222—209 **7 Claims**



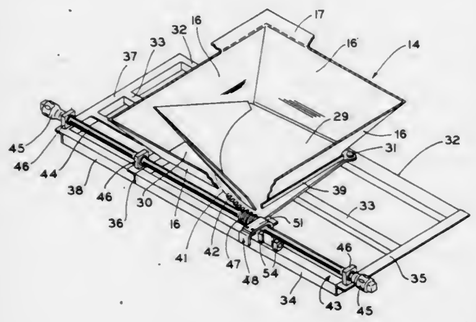
A device adapted to dispense reagents comprising an outer tubular member having an open end and a second end comprising an end wall having therein a concentric circular opening, a vial received in the open end of said tubular member having a resilient stopper sealing its open end, said stopper having an annular shoulder thereon to prevent reciprocation of said stopper in said vial, said stopper also having a projection thereon which is concentric with the stopper, a fluid passage through said stopper and projection, said projection extending through said concentric circular opening and beyond said end wall of the tubular member, said projection having an externally raised ring which forms a snap-fit on the exterior of the concentric circular opening to restrain the projection against longitudinal movement within the opening, said stopper also having an internally hollow convex dome-like configuration in proximity to the inner end of said projection and extending beyond the end of said vial which is adapted to be compressed when said vial is fully advanced within said tubular member to expel a drop of fluid from said vial through said fluid passage.

3,788,529
MACHINE FOR DISPENSING AND DISTRIBUTING DRY FLOWABLE MATERIALS
Daniel Lamar Christy, 118 Birchard Ave., Fremont, Ohio
Division of Ser. No. 641,725, April 26, 1967, Pat. No. 3,637,112. This application July 14, 1971, Ser. No. 162,337
Int. Cl. G01f *13/00*
U.S. Cl. 222—314 8 Claims



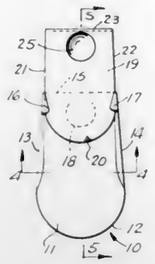
A machine for dispensing comminuted, granular, powdered, flaked, or otherwise divided dry flowable edible or non-edible materials onto the upper surfaces of edible or non-edible articles or products, with an adjustable material discharge flow, onto a rotatable roll which, in turn, carries the material thereover and discharges such material downwardly onto and over the articles or products therebelow in a substantially evenly disseminated and uniform manner.

3,788,530
GRAVITY DISCHARGE ARRANGEMENT FOR HOPPERS
Franklin P. Adler, Michigan City, Ind., assignor to Pullman Transport Leasing Company, Chicago, Ill.
Filed Dec. 17, 1971, Ser. No. 209,251
Int. Cl. B61d *7/18*
U.S. Cl. 222—508 13 Claims



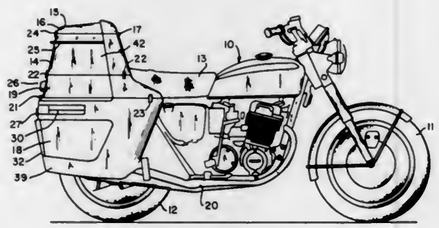
A gravity gate attached to the discharge end of a hopper includes a frame including converging walls sloping toward a discharge opening The gate consists of a sector shaped plate having an arcuate edge provided with a plurality of gear teeth which are driven by means of a spiral gear rotatable about a horizontal axis. One end of the sector shaped plate is pivotally connected to the frame for pivotal movement about a vertical axis.

3,788,531
COLLAPSIBLE SHOEHORN
Clarence E. Oldfield, 1726 Colorado St., Manhattan, Kans.
Filed Jan. 31, 1973, Ser. No. 328,275
Int. Cl. A47j *51/03*
U.S. Cl. 223—118 1 Claim



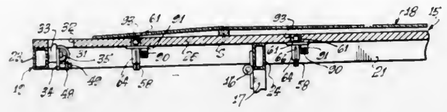
A collapsible shoehorn sometimes called a slipper spoon has a transversely curved lower portion having upturned side edges and a pair of ears bent inwardly at the upper edge thereof. A second arcuate portion is longitudinally slidably positioned under the ears and has tapering side edges so as to wedge against the ears as the second portion is withdrawn from the lower portion to lengthen the shoehorn. The lower portion has a detent socket formed therein and the upper portion has a detent dome which cooperates with the detent socket to releaseably secure the upper portion in collapsed position within the lower portion. A handle flange extends perpendicularly of the upper edge of the upper portion for moving the upper portion in and out of collapsed position within the lower portion and for handling the shoehorn in use.

3,788,532
SADDLEBAG-TRAVEL CASE FOR A MOTORCYCLE
Raymond C. Bish, 1502 Oliver Bldg., Brockway, Pa.
Filed June 22, 1972, Ser. No. 265,299
Int. Cl. B62j *9/00*
U.S. Cl. 224—31 9 Claims



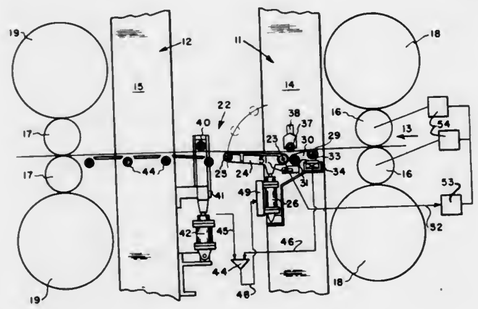
A saddlebag-travel case device for mounting on the rear portion of a motorcycle, comprising a unitary, lower baggage container unit which is adapted to be fixedly attached to the frame of the motorcycle, said lower container unit surrounding the sides and rear of the motorcycle in wrap-around fashion. The rear of the lower container unit may be provided with tail lights and other traffic safety equipment. A unitary upper container unit is provided and it is detachably secured to the top of the lower container unit. The upper and lower container units are provided with latching and locking means and may be independently opened or locked when the upper container unit is in place or when said upper container has been detached.

3,788,533
INDUSTRIAL PLATE GLASS CUTTER'S TABLE
Byron W. Allen, 188 South I Street, San Bernardino, Calif.
Filed June 9, 1972, Ser. No. 261,388
Int. Cl. C03b *33/02*
U.S. Cl. 225—96.5 7 Claims



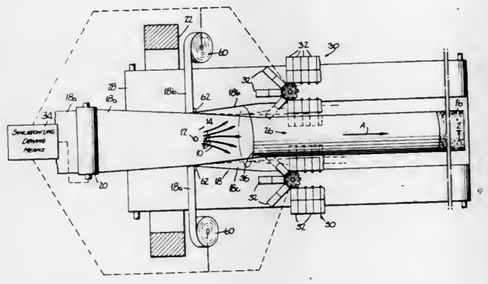
A flat 9 feet by 12 feet carpeted table having a series of retractable rollers along one edge and a field of pins concurrently extensible above or retractable flush with the carpeted face of the table, said table being tiltable between a position steeply inclined towards said rollers to receive on said table a sheet of plate glass resting edgewise on said rollers, and a horizontal table position in which said sheet is supported alternatively on said carpeted surface and on the extended pins to facilitate the manual scoring and then cracking of said plate along a line selectable from a wide variety of options. The retractability of said rollers beneath said carpeted face facilitates removing from the horizontal table the pieces into which said sheet is divided. Removal of the remnant of the sheet is facilitated by re-extending said rollers, shifting said remnant into edgewise contact with said rollers, tilting said table to maximum tilt and rolling said remnant over said rollers to a truck or to storage. The pins are provided optionally with freely rolling ball tips which facilitate horizontally shifting a glass piece while it is supported on said pins without scratching the same.

3,788,534
METHOD AND APPARATUS FOR TENSIONING STRIP
Charles Storer Shumaker, Glenshaw, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.
Filed Nov. 1, 1972, Ser. No. 302,687
Claims priority, application Great Britain, Jan. 21, 1972, 2,934/72
Int. Cl. B65h *23/22*
U.S. Cl. 226—4 5 Claims



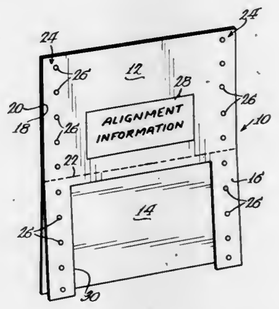
The disclosure of the present invention relates to a method and apparatus for controlling tension in a moving strip passing between two rolling mill stands. A piston cylinder assembly to which a strip-engaging roller is attached is employed to urge the strip away from a straight path of travel. On one side of the cylinder assembly roller a second roller is arranged to contact the strip and with which there is associated a load measuring device for measuring the tension in the passing strip. A signal representing the measured tension in the strip is compared with a signal representing a desired tension by a control that varies the operation of the piston cylinder assembly to reduce any difference between the two signals to a desired value, for example, a zero value.

3,788,535
WEB TRANSFER SYSTEM
Charles Ferstenberg, Paramus, N.J., assignor to Tenneco Chemicals, Inc., New York, N.Y.
Division of Ser. No. 191,054, Oct. 30, 1971, Pat. No. 3,726,623, which is a division of Ser. No. 54,048, June 1, 1970, Pat. No. 3,659,981, which is a division of Ser. No. 696,079, Jan. 5, 1968, abandoned. This application Nov. 6, 1972, Ser. No. 303,866
Int. Cl. B65h *23/34*
U.S. Cl. 226—88 4 Claims



Contouring of flexible webs to the interior of an elongated moving molding channel by the provision of specially located and specially shaped guiding devices, by the provision of special internal mold supports and by the selective overlapping of separate web sheets.

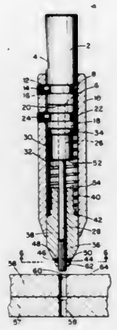
3,788,536
CONTINUOUS FORMS LEADER
William J. Brown, Palatine, Ill., assignor to Chemplex Company, Rolling Meadows, Ill.
Filed Mar. 30, 1973, Ser. No. 346,355
Int. Cl. B65h *5/28*
U.S. Cl. 226—91 3 Claims



A leader for use in the printing of continuous business forms assemblies for enabling alignment of the endmost form in the assembly with a printer without requiring the destruction of such form. A Y-shaped member formed of flexible material is employed, the legs of the member receiving the endmost form of a continuous forms assembly for holding the same enabling the base to be properly aligned with the printer and then fed through the printer after alignment has been achieved carry-

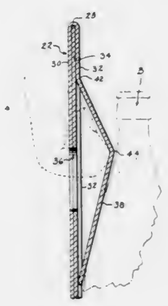
ing the continuous forms assembly through the printer. One of the legs of the Y-shaped member includes an enlarged cut out exposing the face of the form length held by the legs for printing by the printer.

3,788,537
HAND-LOADED PIN CHUCK
William P. Fox, c/o Mechanical Application Inc., Edgecomb, Maine
Filed July 31, 1972, Ser. No. 276,845
Int. Cl. B25c *1/00*
U.S. Cl. 227—142 **7 Claims**



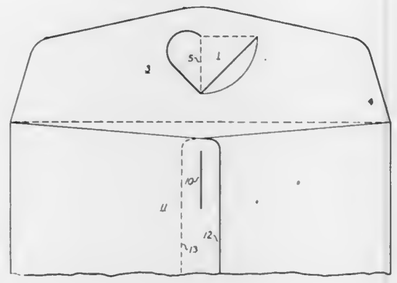
A pin chuck comprising a spring pin holder and punch for inserting the spring pin in a cooperating hole in a workpiece. The construction of the tool permits ready substitution of different sized pin holders and punches whereby a range of pin sizes may be inserted through the use of the same basic tool. The tool includes means for accurately controlling the extent of the pin insertion into the hole.

3,788,538
BEER CARTON
William A. Kuenzi, Wauwatosa, Wis., assignor to Miller Brewing Company, Milwaukee, Wis.
Filed Mar. 23, 1972, Ser. No. 237,408
Int. Cl. B65d *5/32, 5/46*
U.S. Cl. 229—23 R **4 Claims**



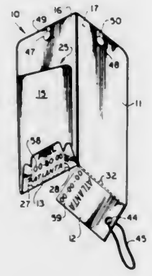
The entry of light into the interior of a beer carton through the handholes thereof is prevented by flaps, one of which is hingedly attached to the inner surface of each end panel above the upper margin of the handhole. The flaps are preferably wider than the handholes, extend downwardly below the lower margin of the handholes, and have a free lower edge. The flaps are preferably deflectable inwardly along a fold line opposite the upper margin of the handholes to permit entry of fingers around the upper margin of the handhole and between the inner surface of the end panel and the adjacent surface of the flap. Each end wall panel is preferably made of triple-folded material with the flap being cut out of the inside face of the material and the handhole being cut through the other two thicknesses.

3,788,539
ENVELOPE LOCK
Paul Vjecsner, 350 W. 51st St., New York, N.Y.
Filed Oct. 28, 1971, Ser. No. 193,325
Int. Cl. B65d *27/22*
U.S. Cl. 229—77 **3 Claims**



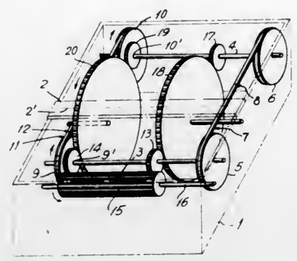
In an envelope, a lock which is an integral part of the material, comprising a locking-flap on the envelope-flap, and a locking-slit in the envelope-wall confronting it. After closing of the envelope, locking-flap is inserted into slit, and held secure in it due to the relative positions of the elements.

3,788,540
TRAVEL ENVELOPE WITH BAGGAGE TICKET AND BAGGAGE CLAIM TICKET
David G. Sammons, 5 Haynes St. S.W., Atlanta, Ga.
Filed Feb. 22, 1972, Ser. No. 227,815
Int. Cl. B65d *27/08*
U.S. Cl. 229—72 **6 Claims**



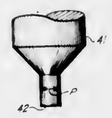
A travel envelope for enclosing an airline ticket is disclosed which includes as an integral part thereof a baggage ticket which can be torn away therefrom and attached to the baggage of the traveler with a string. A baggage claim ticket is also detachably connected to the envelope. Duplicate indicia are applied to both the baggage ticket and baggage claim ticket for identifying purposes.

3,788,541
COMPUTATION DEVICE AND METHOD
Norman Garner, 69-10 Yellowstone Blvd., Forest Hills, N.Y.
Filed Sept. 15, 1972, Ser. No. 289,279
Int. Cl. G06c *29/00, 27/00, 3/00*
U.S. Cl. 235—61 R **17 Claims**



A computation device for performing the mathematical operations of multiplication and division is disclosed. The device has a housing in which an indicator is fixedly located. There is a first logarithmic scale mounted in the housing so as to be movable with respect to the indicator. A second logarithmic scale is mounted so as to be movable adjacent the first scale and a gearing arrangement is provided which is engageable with the first and second scales for fixing the positions of the scales with respect to each other and for jointly moving the scale with respect to the indicator. The computation device can be used for converting a value in one set of units directly into a value in another set of units by providing a third logarithmic scale movable in fixed relation with the first scale. A method of converting from a value in one set of units to a value in another set of units using the computation device according to the invention is also disclosed.

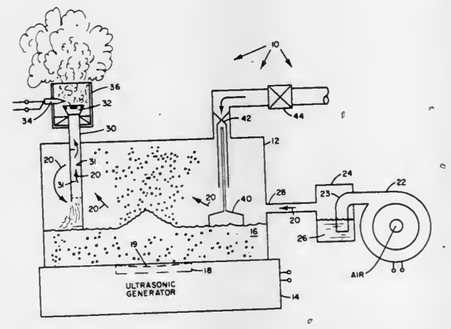
3,788,542
ENVIRONMENTAL CONTROL METHOD AND APPARATUS
Thomas R. Mee, Altadena, Calif., assignor to Mee Industries, Inc., Altadena, Calif.
Filed Dec. 31, 1970, Ser. No. 103,170
Int. Cl. E01h *13/00;* **A01g** *15/00;* **B05b** *1/26*
U.S. Cl. 239—2 R **20 Claims**



Control of the temperature and humidity of an environment is obtained by injecting a large volume of water droplets into the air with a major portion of the water droplets being in the range of from about 5 to 50 microns in diameter and with an average diameter in the range of from about 10 to 30 microns. In one embodiment such environmental control is employed for cooling an outdoors area wherein the droplets provide evaporative cooling. When temperatures are low a fog of water droplets essentially opaque to infrared is provided as a cover to crops for preventing frost damage. In another embodiment means for injecting water droplets are arranged within a roofed shelter having sides open at the top and bottom for permitting air circulation. In another embodiment a visible cloud is provided for decorative effect or as a medium on which an image can be projected.

Fog having droplets in the above-mentioned size range is produced by impacting a stream of water having a diameter in the range of from about 125 to 400 microns at a velocity in excess of about 135 feet per second against a smooth, solid surface. Such impact causes the stream of water to separate into droplets in the selected size range. In one embodiment a nozzle having an orifice in the range of from about 125 to 400 micron diameter and operated at a pressure in excess of about 350 psi is used to create a water jet. A flat surface having substantially the same diameter as the orifice, normal to the orifice, closely aligned with the orifice, and spaced only a short distance from the orifice is employed for impacting the stream coming out of the orifice. In another embodiment a surface having compound convexity is arranged in front of the orifice at a distance of up to about four millimeters. A complete system involves a large plurality of such nozzles supplied with water substantially free of particles having a size larger than about 1/10 the diameter of the orifice, and at a pressure in excess of about 350 psi. Automatic control of such a system in response to temperature and wind velocity and direction is also provided.

3,788,543
UNIFORM SIZE PARTICLE GENERATOR
Pierre St. Amand, and Irwin Koff, both of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 14, 1972, Ser. No. 289,202
Int. Cl. A01g *15/00*
U.S. Cl. 239—2 R **10 Claims**

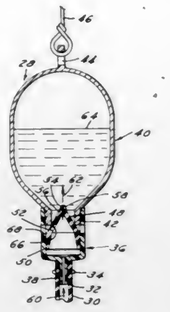


A method and apparatus is disclosed for generation of fine particles, for example of silver iodide, from a nebulizer for cloud seeding. The nebulizer comprises a large container in which is maintained a constant level of a combustible or highly volatile solution such as an acetone solution of silver iodide. An ultra-sonic generator in the base of the container produces micron size droplets of the solution in the airspace above the solution. The droplets are forced out of the container by a stream of solvent laden air into a burner or vent which burns or evaporates the solvent. Fine particles of the solute silver iodide remain for the cloud seeding operation.

3,788,544
AGRICULTURAL IRRIGATION SYSTEM
Onni S. Koskinenm, West Bloomfield, Birmingham, Mich.
Filed Feb. 2, 1973, Ser. No. 328,950
Int. Cl. B05b *17/04*
U.S. Cl. 239—11 **16 Claims**

An agricultural irrigation system is provided wherein a plurality of relatively small water storage emitters are located in a

land area to be irrigated. Means are provided to simultaneously fill all of the emitters from a central source of water



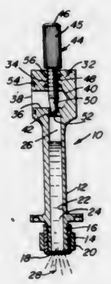
pressure and them simultaneously to actuate each emitter for flow of water therefrom for irrigation purposes.

3,788,545

GAS PERMEATION TUBE AND METHOD FOR THE FILLING THEREOF

Allan L. Budd, San Diego; Robert E. Foster, Delmar, both of Calif., and Jonathan S. Greenberg, Arlington, Va., assignors to Monitor Labs Inc., San Diego, Calif.

Filed Dec. 27, 1971, Ser. No. 212,272
Int. Cl. A24f *25/00*; **A61l** *9/04*
U.S. Cl. 239—34 **6 Claims**



A first permeation tube embodiment has a housing with exterior circular grooves at one end thereof. A gas permeable, Teflon membrane is fitted over the grooved end and an annular retaining ring is then press fitted over the grooved end to create a tortuous seal. An opposite end of the housing contains a needle valve inlet through which a precisely metered volume of gas is introduced by a gas transfer technique.

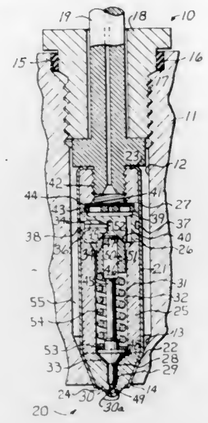
A second permeation tube embodiment includes a container from which liquified gas flows to envelop the exterior surface of a tubular membrane. Air flows through the membrane to dilute gas permeating inwardly through the membrane.

3,788,546

FUEL INJECTION SYSTEM

John M. Bailey, Dunlap; Stanley J. Kranc, Morton, and Richard A. De Keyser, Edelstein, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed June 26, 1972, Ser. No. 266,137
Int. Cl. B05b *1/30*
U.S. Cl. 239—120 **8 Claims**



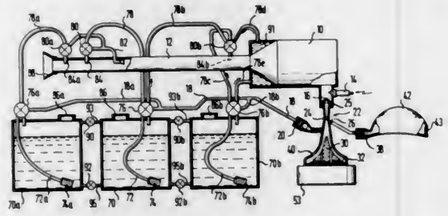
There is disclosed a fuel injection nozzle and valve assembly having a closed leakage collection chamber surrounding the valve assembly. The collection chamber comprises an annular chamber defined by the valve housing and a bore formed in the cylinder head of an engine.

3,788,547

SPRAYING APPARATUS

Karl-Heinz Stahl, Zum Felchen 20, Nussdorf/Bodensee, Germany; Werner Stahl, Nussdorf/Bodensee, and Fritz Fend, Regensburg, both of Germany, assignors to said Karl-Heinz Stahl, by said Werner Stahl and Fritz Fend

Filed Mar. 30, 1973, Ser. No. 346,284
Claims priority, application Germany, Apr. 5, 1972, P 22 16 415.4
Int. Cl. B05b *1/24, 7/28, 9/00*
U.S. Cl. 239—129 **3 Claims**



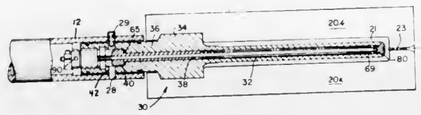
In a spraying apparatus in which a liquid is atomized by a pulsating stream of combustion gases discharged through an elongated exhaust pipe from a combustion chamber equipped with a carburetor for use of liquid fuel, the exhaust pipe is equipped with at least two atomizing nozzles. One nozzle near the free orifice of the exhaust pipe is fed the active agent to be sprayed, and the other nozzle near the combustion chamber is supplied with water or similar cooling liquid which evaporates in the combustion gases and cools the same sufficiently to permit a dispersion of heat-sensitive insect pathogens, such as *Bacillus thuringiensis*, to be atomized at the nozzle near the exhaust pipe orifice.

3,788,548

CONTROL TEMPERATURE BLOW STICK FOR INJECTION MOLD APPARATUS

Helmut O. Hentsch, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 5, 1972, Ser. No. 259,893
Int. Cl. B05b *15/00*
U.S. Cl. 239—132.3 **5 Claims**



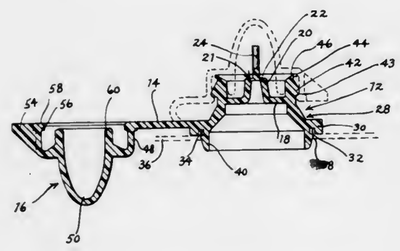
An improved blow stick for receiving and forming a thermoplastic parison within an injection mold and includes elongated core forming member having a bore therethrough. A second hollow member is carried within said bore and is provided with an exterior surface which mates with the surface of the bore to form cooling passages for the circulation of a cooling fluid. Additionally, sources of cooling fluids and expansion fluids are connected to said cooling passages and to said hollow member for respectively transferring heat from a parison formed on the core forming member and for subsequently expanding the parison against an expansion mold.

3,788,549

PLASTIC DISPENSING NOZZLE WITH POURING SPOUT WITH REMOVABLE SEAL

Efrem M. Ostrowsky, Highland Park, Ill., assignor to Federal Tool & Plastics, a Division of VCA Corporation, Chicago, Ill.

Continuation of Ser. No. 165,674, July 23, 1971, abandoned.
This application Dec. 15, 1972, Ser. No. 315,344
Int. Cl. B65d *17/24*
U.S. Cl. 239—309 **2 Claims**



A plastic nozzle in combination with a closure cap in which the mouth of the nozzle has a central pouring spout and removable sealing means therefor, which when removed opens the pouring spout.

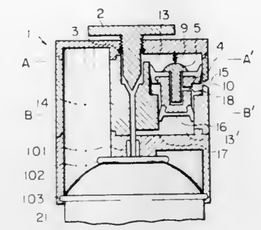
3,788,550

AUTOMATIC INTERMITTENT SPRAY VALVE FOR PRESSURIZED PACKAGING

Shigeo Nishiguchi, Shimo-Tsuga, and Masahiko Okatani, Fujisawa, both of Japan, assignors to Tokusyu Aerosol Company, Ltd., Tokyo, Japan

Filed Oct. 6, 1972, Ser. No. 295,789
Int. Cl. B65d *83/14*
U.S. Cl. 239—337 **5 Claims**

An automatic intermittent spray valve for pressurized packaging or aerosols comprising a piston cylinder which is composed of a greater diameter section and a smaller diameter section, both sections being communicated with the discharge valve of a pressurized package container. A channel connecting said discharge valve and the greater diameter section is choked by a flow regulating means, a needle valve for instance. As the contents of the pressurized package container (liquefied gas composition) enters the greater diameter section of the piston cylinder at a controlled rate, the free piston



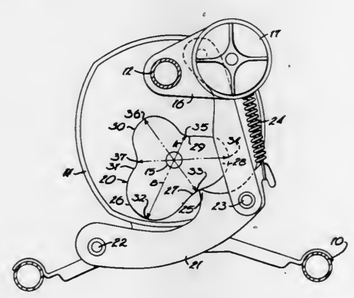
moves toward the smaller diameter section and effects spraying when the piston has moved to some extent. After the spraying is effected, the free piston returns to the initial position and thus intermittent spraying is repeated. This valve can be used for the conventional pressurized packaging and intermittent spraying is effected at constant intervals regardless of change in the ambient temperature.

3,788,551

SPRINKLER DRIVE

George M. Standal, 1916 San Fernando Pl., Victoria, B.C., Canada

Filed Oct. 24, 1972, Ser. No. 299,751
Int. Cl. B05b *3/16*
U.S. Cl. 239—242 **9 Claims**

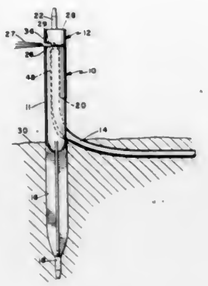


An oscillating sprinkler drive for pivotally moving the spray tube of an oscillating sprinkler in partial overlapping oscillational movements to facilitate even distribution of water over a rectangular area. The drive primarily comprises a drive cam and a follower arm which are operatively connected to the spray tube through conventional linkage. The cam is designed to reverse movement of the spray tube at preselected angular positions between angular limits set by the conventional linkage. By strategically locating these reversing points, more water may be directed toward the center of the spray pattern to compensate for the dwell of the spray tube at the angular limits.

3,788,552
SPRINKLER UNIT

James C. Roberts, 530 Broadway, Escondido, Calif.

Filed Apr. 6, 1973, Ser. No. 348,761
Int. Cl. A62c 31/22
U.S. Cl. 239—276 4 Claims

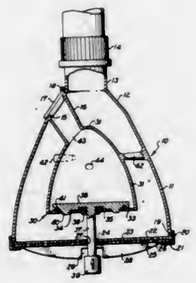


A sprinkler unit having a tubular portion supported in the ground for passing a water supply conduit from the ground to a sprinkler cap to direct water against an inverted platform on the cap that is open to one side.

3,788,553
SHOWER WITH OIL RESERVOIR

Gertrude E. Heckman, 4395 W. 4th St., Reno, Nev.

Filed Feb. 28, 1973, Ser. No. 336,822
Int. Cl. B05b 1/18, 7/28
U.S. Cl. 239—315 7 Claims

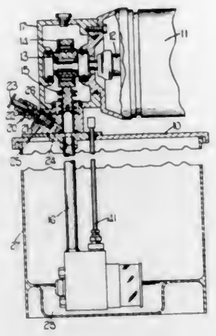


This specification discloses a shower with oil reservoir comprising two basic elements. These are a shower head that is generally conventional and a reservoir for bath oil mounted within the head. A tubular filling spout extends from the reservoir to the head, adjacent to the upper end of these members with its outer end having a removable closure. A perforated plate constitutes the lower end of the reservoir and cooperating therewith is a valve plate within the reservoir and mounted on the upper end of a plunger that is reciprocal in a central opening in the perforated plate and extends through a hole in the end plate assembly of the head. The lower end of the shower head takes the form of a pair of perforated plates, the inner of which is fixed while the outer plate is rotatable by a fin depending therefrom to adjust the amount and character of the oil water mixture emitted from the head.

3,788,554
LIQUID SPRAYING APPARATUS

Frank Guise, Tamworth, England, assignor to Binks-Bullows Limited, Brownhills, Staffordshire, England

Filed Aug. 4, 1972, Ser. No. 278,051
Claims priority, application Great Britain, Aug. 6, 1971, 37,030/71
Int. Cl. B05b 9/04
U.S. Cl. 239—332 4 Claims

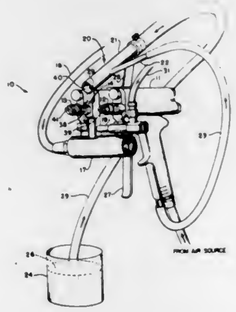


Liquid spraying apparatus especially, but not exclusively for use in paint spraying operations, the apparatus comprising a conduit which has at one end a piston reciprocable by power-operated means and which is connected at its other end to a diaphragm pump, said pump being actuable by pressure applied to a column of liquid in said conduit by said piston, the diaphragm having a liquid inlet which is disposed adjacent to the pump and having an outlet which is connected to one end of a further conduit adapted at its other end to be connected to a spray gun.

3,788,555
APPARATUS FOR PROJECTING PLURAL COMPONENT MATERIAL UPON A SUITABLE BASE

David Harrison, Fort Lauderdale, and Paul R. Sainz, Miami, both of Fla., assignors to Ransburg Electro Coating Corp., Indianapolis, Ind.

Division of Ser. No. 32,064, April 27, 1970, Pat. No. 3,676,197. This application May 1, 1972, Ser. No. 248,968
Int. Cl. B05b 7/14
U.S. Cl. 239—336 4 Claims

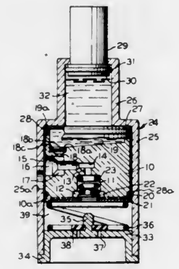


An apparatus for and a method of providing a mixed spray of a plural component material and curing agent with granular material entrained in the mixed spray. The apparatus includes curing agent spray means, outboard plural component material spray means flanking the curing agent spray means and granular material dispensing or emitting means. The outboard spray means includes a plurality of spaced apart spray nozzle means inclined toward each other so as to provide converging sprays of the plural component material. The sprays are adapted to converge and intersect externally of the apparatus prior to deposition upon a surface. The curing agent spray means provides a spray of curing agent which intersects and mixes with the sprays of the plural component material. Granular material entrained in a fluid medium mixes with the sprays of plural component materials so as to provide a mixed spray of plural component material and curing agent with granular material entrained therein.

3,788,556
COMPRESSED AIR OPERATED DISPENSER WITH HYDRAULIC FORCE MULTIPLYING MEANS

Pasquale R. Riccio, Salem, N.H., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 240,026, March 31, 1972, abandoned. This application Feb. 28, 1973, Ser. No. 336,699
Int. Cl. B05b 11/00
U.S. Cl. 239—349 3 Claims



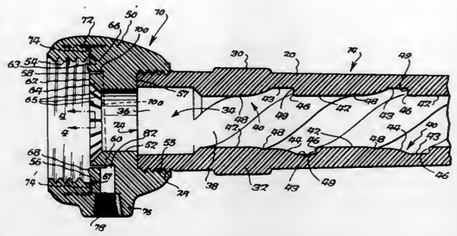
A fluid product dispenser using compressed air as a dispensing medium. The device has a valve assembly with a valve body which has a compressed air flow path therethrough and a valve member movable in the valve body and obturating said compressed air flow path. Aspirating means is provided at one end of the compressed air flow path, and a product flow path extends from a product containing means to the aspirating means. The device has a hollow enclosure around the other end of the compressed air flow path, and a piston means closes the hollow enclosure. Either the piston means or the valve body is movable relative to the other for reducing the size of the hollow enclosure and for bringing the piston means and the valve member into engagement to move the valve member to open the compressed air flow path. Hydraulic force multiplying means is operatively associated with the piston means and valve body for moving the piston means and valve body relative to each other. The piston means engages the valve member for opening the compressed air flow path only after air between the piston and the valve body has been compressed.

3,788,557
LIQUID INJECTION ADAPTOR

Maurice C. Breunsbach, Hamburg, N.Y., assignor to Spirolet Corporation, North Tonawanda, N.Y.

Continuation-in-part of Ser. Nos. 247,207, April 24, 1972, and Ser. No. 266,393, June 26, 1972, Pat. No. 3,743,187, said Ser. No. 247,207, is a division of Ser. No. 7,747, Feb. 2, 1970, Pat. No. 3,692,243, said Ser. No. 266,393, Continuation of Ser. No. 77,880. This application Apr. 18, 1973, Ser. No. 352,193
Int. Cl. B05b 7/10; F16k 19/00
U.S. Cl. 239—401 15 Claims

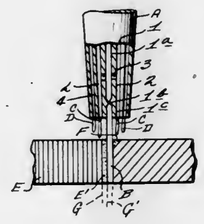
A resiliently yieldable adaptor having a bore therethrough is provided with a liquid manifold passage at the inlet end thereof having a progressively diminishing depth to effect uniform flow of liquid through radial passages leading into the bore. Means are provided at the inlet end of the adaptor to insure centering of the hose coupling attached thereto.



3,788,558
CUTTING TORCH

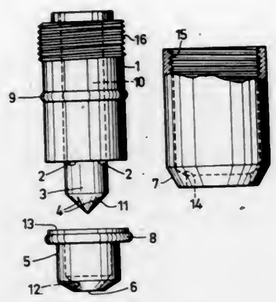
Akira Ujiie, Kobe; Hiroshi Shimoyama, Kakogawa, and Nanji Ueda, Tokyo, all of Japan, assignors to Mitsubishiki Jukogyo Kabushiki Kaisha and Koike Sanso Kogyo Kabushiki Kaisha, 03

Filed Oct. 27, 1972, Ser. No. 301,369
Claims priority, application Japan, Oct. 27, 1971, 46/84681
Int. Cl. B05b 1/34
U.S. Cl. 239—424 1 Claim



A cutting torch of divergent nozzle type having a primary cutting oxygan passage, a plurality of secondary cutting oxygen passages arranged in a ring-like form surrounding said primary cutting oxygen passage at the cutting tip, and at least one preheating flame passage arranged to surround said secondary cutting oxygen passages, said primary cutting oxygen passage having an intermediate reduced diameter portion terminating in a flared portion open at a circular nozzle outlet, and the jet of the secondary cutting oxygen from said secondary cutting oxygen passages being adapted to provide an apparent cutting oxygen outlet with a diameter equal to the inner diameter of the ring defined by said secondary cutting oxygen passages.

3,788,559
INJECTION NOZZLE FOR LIQUID FUEL
Johan Holger Graffman, 9, Blomsterstigen, Danderyd, Sweden
Filed Aug. 29, 1972, Ser. No. 284,493
Claims priority, application Sweden, Mar. 20, 1972, 3557/72
Int. Cl. B05b *1/30*
U.S. Cl. 239—533 5 Claims

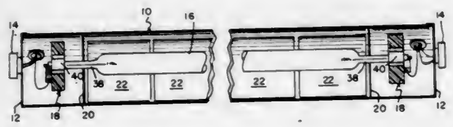


An injection nozzle for liquid fuel supplied under pulsating pressure and atomized at the nozzle opening formed between a fixed valve seat and a movable valve body which includes a fixed valve seat in the shape of a cone, a movable valve body of corresponding shape and an annular spring supported on the valve body at a distance from the nozzle opening. The nozzle opening is concentric with relation to the annular spring which supports the valve body in its cooperation with the valve seat.

ERRATUM

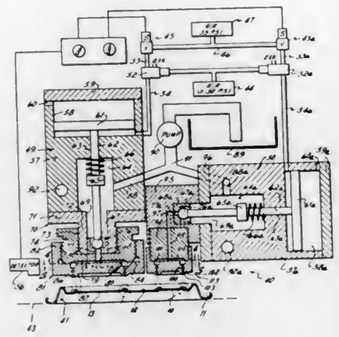
For Class 239—553 see:
Patent No. 3,788,561

3,788,560
LIGHTING FIXTURE
Harold L. Hough, Beverly, and Julian J. Wierzbicki, Peabody, both of Mass., assignors to GTE Sylvania Incorporated
Filed Oct. 16, 1972, Ser. No. 297,940
Int. Cl. H05b *33/02*
U.S. Cl. 240—51.11 R 3 Claims



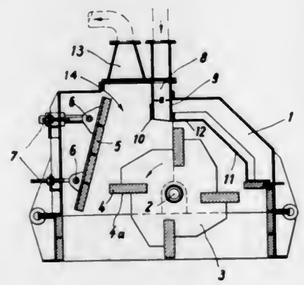
An ultraviolet lighting source for curing organic coatings is disclosed herein. The high intensity lamp of the fixture is held in a temperature resistant lamp holder that allows the lamp freedom for expansion and contraction. Also, a shield is provided to protect the critical lamp seal from the high operating temperatures generated by the lamp.

3,788,561
APPARATUS FOR EMPLOYING SEALS TO CLOSURES FOR CONTAINERS
Burton J. Vilagi, Amherst, and William C. Stumphauzer, South Leffield Lake, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio
Filed Aug. 10, 1972, Ser. No. 279,327
Int. Cl. B05b *1/14*
U.S. Cl. 239—553.5 9 Claims



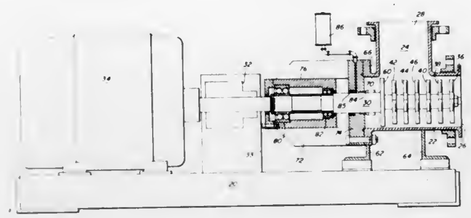
Apparatus for emplacing a seal on a closure for a container in which a seal forming material is deposited on the surface of the closure initially in a pattern of discrete droplets and fused to form a homogeneous layer.

3,788,562
RECOVERY OF ASBESTOS FIBERS FROM ASBESTOS ORE
Charles A. Greenlay, Asbestos, Quebec, Canada, and Ehrhardt Andreas, Munster, Germany, assignors to Hazemag Hartzerkleinerungs-Und Zement-Maschinenbau-Gesellschaft mbH, Munster, Germany
Filed Feb. 16, 1972, Ser. No. 226,887
Int. Cl. B02c *13/09*
U.S. Cl. 241—4 9 Claims



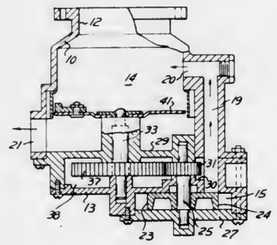
An apparatus and a method are disclosed. Asbestos ore chunks are admitted into a housing in a vertical or near vertical path and into the orbit of striking bars on a rotor which turns about a horizontal axis in the housing. Downstream of the point of contact of each chunk with the striking bars, as seen with reference to the direction of rotation of the rotor, is an impact plate and the arrangement is such that each chunk will be struck only once by the striking bar of the rotor and flung only once against the impact plate, thereby becoming crushed by the impact. A suction conduit communicates with the housing in the region where the crushing takes place so as to immediately withdraw asbestos fibers which are liberated by the crushing.

3,788,563
COMMINUTER WITH HIGH SHEAR ROTOR AND STATOR
Robert E. Adams, Hudson, N.Y., assignor to Columbia Precision Corporation, New York, N.Y.
Filed Feb. 2, 1972, Ser. No. 222,887
Int. Cl. B02c *13/06*
U.S. Cl. 241—46.11 5 Claims



A comminuter, particularly for blending the components of liquid adhesives, includes an axial series of impeller blades rotating on a shaft at high speed, and a peripheral series of baffle teeth stationary among the impeller blades and clearing the impeller blades by small tolerances. The arrangement is such that an adhesive mixture of organic solvent and elastomeric solid, when fed through an axial input, is blended at high speed by the impeller blades and baffles for exit through a transverse outlet that is adjacent to the innermost of the impeller blades.

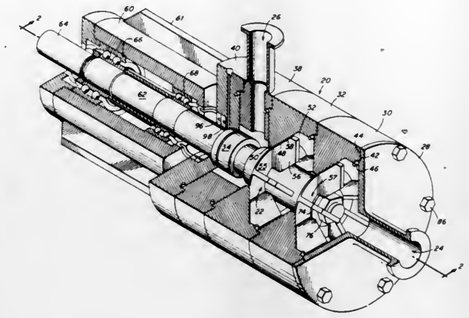
3,788,564
WATER POWERED GARBAGE DISPOSAL UNIT
Zennon Kokorzycki, deceased, late of 15254 Eastburn Ave., Detroit, Mich. (by Genevieve Kokorzycki, Special Administratrix)
Filed Aug. 10, 1972, Ser. No. 279,683
Int. Cl. B02c *18/40*
U.S. Cl. 241—46 A 2 Claims



A water powered garbage disposal unit characterized by the fact that all of the water that is used for flushing the garbage shredder is first used for driving such shredder, the admitted water first passing into an impeller chamber for driving the impeller and a shredder connected to it, and then passing into the shredder chamber for flushing the shredder.

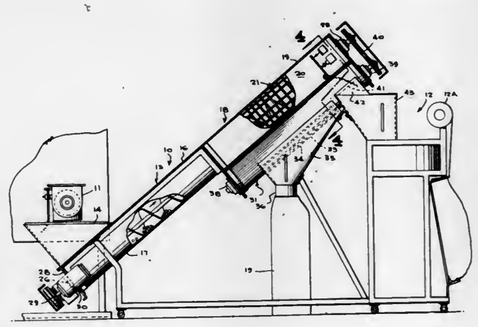
The device is further characterized by the fact that it employs driving gears which are sealed from communication with the shredder area or chamber so that garbage within such shredder chamber will not come in contact with the driving gears. Equally, the impeller chamber is sealed from the shredder chamber so that garbage in the shredder chamber will not come in communication with the impeller.

3,788,565
ULTRA FINE COLLOID MILL
Robert E. Adams, Hudson, N.Y., assignor to Columbia Precision Corporation, New York, N.Y.
Filed Feb. 2, 1972, Ser. No. 222,884
Int. Cl. B02c *21/00*
U.S. Cl. 241—46.11 16 Claims



A colloid mill is characterized by a stator and a rotor disposed along an axis. The stator has a re-entrant conical surface with grooves extending from the outer periphery to an inner axial opening. The rotor is keyed to a shaft that extends through the axial opening of the stator and has vanes with outer edges that are closely adjacent to and in registration with the conical surface of the stator. The arrangement is such that the high speed rotation of the rotor causes fragmentation of colloid particles in a fluid that is driven under pressure from an inlet through the small clearance between the conical surface of the stator and the vanes of the rotor and through the clearance between the axial opening of the stator and the shaft of the rotor.

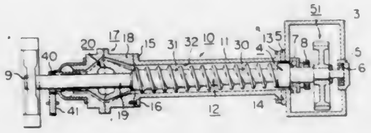
3,788,566
CUBE ICE SEPARATOR AND SCREENING APPARATUS
William F. Morris, Jr., 801 Fayetteville St., Raleigh, N.C.
Filed May 15, 1973, Ser. No. 360,613
Int. Cl. B02c *9/04*
U.S. Cl. 241—73 16 Claims



A cube ice separator and screening machine for subdividing plural cube ice segments of connected cubes into disconnected individual cubes and separating smaller size fine pieces of ice therefrom, including an upwardly inclined conveyor screw and housing for feeding the ice along an upwardly inclined feed path. A network of rods forms an open ended cylindrical cage surrounding the conveyor screw along the upper portion of the feed path for breaking up the ice frag-

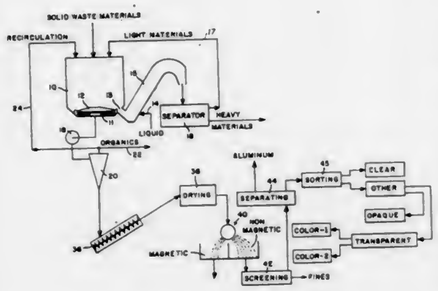
ments into individual cubes and passage of the cubes through sized openings between the rods to a second conveyor station where the cubes and fine ice pieces are discharged along separate paths.

3,788,567
DISPOSING DEVICE FOR SYNTHETIC RESIN WASTE
Masatora Yamada, Iwata, Japan, assignor to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan
Filed Oct. 22, 1971, Ser. No. 191,754
Claims priority, application Japan, Oct. 23, 1970, 45/093733
Int. Cl. B02c *23/02*
U.S. Cl. 241—247 **3 Claims**



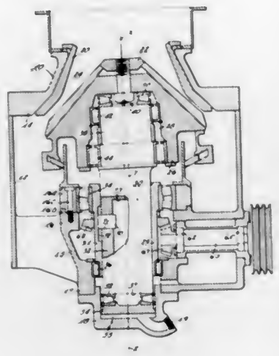
Device for disposing of synthetic resin waste wherein the waste material of different kinds, such as polyvinyl chloride resin waste, and polyethylene resin waste mixed with sand, paper, metal pieces, etc. is processed by melting and binding the synthetic resin component in such waste material for subsquent use.

3,788,568
RECOVERY OF SALVAGEABLE COMPONENTS FROM WASTE MATERIAL
Paul G. Marsh, Middletown, Ohio, assignor to Black Clawson Fibreclaim, Inc., New York, N.Y.
Division of Ser. No. 99,986, Dec. 21, 1970, Pat. No. 3,720,380. This application Jan. 2, 1973, Ser. No. 320,445
Int. Cl. B02c *18/40*
U.S. Cl. 241—69 **2 Claims**



Glass and aluminum are recovered from a mixture of solid waste, such as municipal waste, by reducing the frangible portions of the waste to a size less than a preselected maximum size, centrifugally treating the reduced portions to divide the glass, aluminum and other inorganics from the fibrous and other organic components, separating the aluminum from the glass and other inorganics, and segregating the colorless glass from the remaining, relatively opague inorganics.

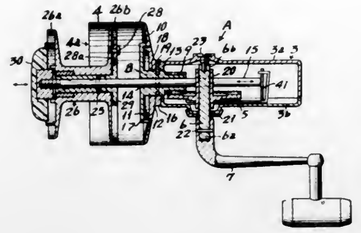
3,788,569
CRUSHER WITH HYDRAULICALLY ADJUSTED ROTARY ASSEMBLY FOR SUPPORTING AND GYRATING A CONICAL HEAD
Robert H. Kemnitz, Appleton, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 16, 1972, Ser. No. 307,049
Int. Cl. B02c *2/04*
U.S. Cl. 241—214 **5 Claims**



A gyratory crusher is disclosed having a two-piece central upright rotating cam assembly for supporting and camming a crushing head to gyrate relative to a surrounding stationary concave carried by a frame. The two-piece rotating assembly comprises a cylindrical sleeve journaled in a lower portion of the crusher frame to rotate about a vertical axis, and a shaft having a lower portion journaled in the sleeve for vertical movement relative to the sleeve and with the lower shaft portion keyed to the sleeve to rotate with the sleeve. An upper portion of the shaft cams the head to gyrate by being inclined relative to the lower and vertical portion of the shaft, with a central axis of the upper shaft portion intersecting a vertical central axis of the lower shaft portion at a point above the shaft. A piston is arranged beneath the lower portion of the shaft, operable by fluid pressure to move vertically relative to the frame to raise and lower the rotating head camming shaft within the rotating sleeve, to thereby adjust the spacing between the head carried by the camming shaft and the concave carried by the frame. A bearing arrangement for the rotating sleeve and the lower shaft portion is also disclosed, which in one embodiment of the invention includes a pair of self-aligning spherical roller bearings. A first of the spherical roller bearings is arranged between the rotating sleeve and the frame adjacent the upper end of the sleeve, and a second of the spherical roller bearings is arranged below the sleeve and between the shaft and the frame, and provides for the sleeve to maintain contact with the shaft along the entire axial length of the sleeve.

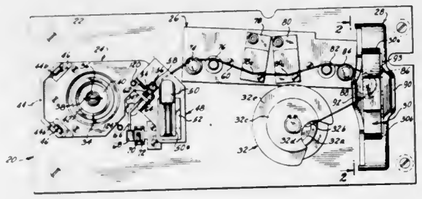
3,788,570
SPINNING REEL FOR FISHING
Tatsuya Yamazaki, Fuchu, and Yasomatsu Morishita, Kure, both of Japan, assignors to Ryobi Ltd., Fuchushi, Hiroshimaken, Japan
Filed Aug. 4, 1971, Ser. No. 168,864
Claims priority, application Japan, Dec. 12, 1970, 45-124086; Mar. 4, 1971, 46-13928; Apr. 28, 1971, 46-33804
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.21 R **3 Claims**

A fishing spinning reel having a unitary rotor, gear pipe, and pinion engaging a unitary crown gear and axis pipe which has a polygonal bore, at a point skew to the radius of the crown gear. The rotor is retained in the main body by a stopper plate which is inserted in a radial slot on the gear pipe through a slit



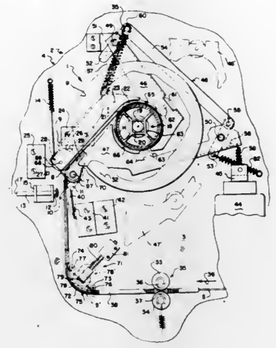
in the main body. The bail roller assembly has its roller separated from its axis by an oil-absorbent synthetic resin which is uneffected by water.

3,788,571
TAPE CARTRIDGE LOADING AND POSITIONING SYSTEM
Leslie P. Finster, Ilion; Richard J. Petkovsek, Middleville; Trevor D. Reader, New Hartford; Warren A. Reynolds, Ilion, and William A. Sours, Sauquoit, all of N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.
Filed Jan. 8, 1971, Ser. No. 104,933
Int. Cl. G11b *15/66, 23/10*
U.S. Cl. 242—195 **23 Claims**



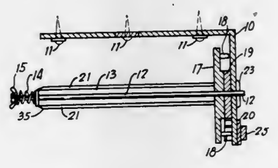
A tape deck utilizing a loader for properly positioning a tape cartridge is disclosed. The cartridge includes an internal supply reel which is adapted to rotate freely within the cartridge housing when the cartridge is mounted, by means of the loader, onto the supply drive spindle. A spring in the supply drive spindle forces the supply reel to assume the free rotation orientation during the mounting step. The loader, which is hinged to the tape deck, receives the cartridge therein when the loader is in its elevated "loading" position. The loader is then lowered down to the tape deck; the position of the cartridge within the loader is such that lowering the loader causes an eyelet attached to the recording tape in the supply reel of the cartridge to be affixed to a clasp attached to the permanent leader element coupled to the tape deck take-up reel. The loader is initially locked in place by the closing of a locking lever, which also serves to unblock the tape travel path by withdrawing a lug adjacent to the leader clasp. When tape advance commences, the movement of the leader clasp activates an auxiliary lock which, independently of the locking lever, prevents the loader from being prematurely elevated while any tape is still out of the cartridge. A plurality of electromechanical sensors on the tape deck is responsive to the loading and locking steps to initiate specific electronic actions relating to the tape drive and the data control functions performed by the system electronics.

3,788,572
STRIP TAKE-UP THREADING DEVICE
Richard J. Wroblewski, Fairport, N.Y., assignor to Eastmak Kodak Company, Rochester, N.Y.
Filed May 3, 1971, Ser. No. 139,531
Int. Cl. B65h *75/28, 25/04*
U.S. Cl. 242—210 **3 Claims**



A take-up device, adapted to receive a reel on a rotatable support member of such device and to wind strip material onto a reel so received, is provided with a plurality of guide members which are movable to respective threading positions surrounding a received reel for snubbing a leading portion of strip material onto the received reel. One of the guide members is movable to several sensing positions (1) for detecting the presence at the support member of a reel without strip material wound thereon, (2) for detecting the absence of a reel at the support member and (3) for detecting the presence at the support member of a reel with a predetermined length of strip material wound thereon. A control is operatively associated with the sensing guide member and a strip feeding mechanism for preventing strip threading either in the absence of a reel at the support member or should a reel with a predetermined length of strip material wound thereon be received on the support member. Upon snubbing of a leading portion of a strip material onto a received reel, a succeeding portion of such material is tensioned and a strip tension sensor of the take-up device actuates retraction of the guide members other than the sensing guide member from the outermost convolution of strip material wound on the received hub.

3,788,573
ROLL PAPER DISPENSER
John Ira Thomson, and Ralph T. Hensley, both of Lansing, Ill., assignors to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Feb. 7, 1972, Ser. No. 224,081
Int. Cl. B65h *49/00;* **D01h** *7/16*
U.S. Cl. 242—55.2 **3 Claims**



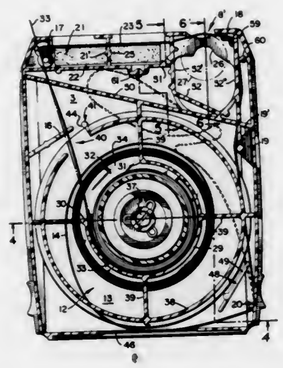
A roll paper dispenser for paper towels and toilet paper in which the roll is directly inserted or removed from an open

end of the rotatable spindle, being retained on the spindle by ribs which are slightly oversize the internal diameter of the paper roll. Provisions are made for regulating the frictional torque of the spindle by means of an adjustable compression spring. Provision is also made for permitting the spindle to rotate freely or to be completely restrained from further rotation, by means of a sliding lever which either clears, or interferes with projecting pins on a disc fastened to the end of the spindle.

3,788,574
ENDLESS TAPE CARTRIDGE

Alfred W. Wakeman, Durham, and Robert L. Manierre, Stamford, both of Conn., assignors to Audio Devices, Inc., Glenbrook, Conn.

Filed Nov. 25, 1966, Ser. No. 596,940
Int. Cl. B65h *17/48*
U.S. Cl. 242—55.19 A **28 Claims**



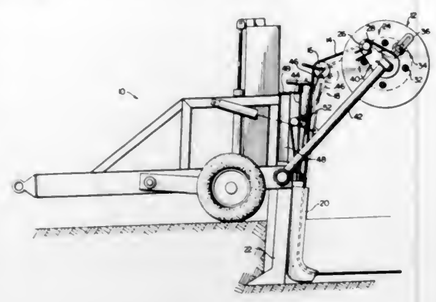
A tape cartridge for containing an endless coil of tape, the cartridge having a rotatable tape reel upon which the tape is wound, and openings in the cartridge along one wall thereof exposed to the tape feeding and tape recording and reproducing mechanism of a recording playback instrument with which the cartridge is to be used, the tape being wound on the reel for feeding in an open loop from the innermost convolution of the coil, past the openings in the cartridge and back to the outermost convolution of the coil.

3,788,575
AUTOMATIC AND SEMI-AUTOMATIC REEL TENDERS

Clifford T. Boettcher, 3 Fawn Dr., Asheville, N.C., and David O. Creasman, deceased, Pisgah Hwy., Rt. 1, late of Candler, N.C. (by Frances S. Creasman, administratrix)

Continuation-in-part of Ser. No. 100,059. This application Apr. 14, 1972, Ser. No. 244,065
Int. Cl. B65h *75/40, 59/00, 59/38*
U.S. Cl. 242—86.5 R **22 Claims**

An automatic reel tender especially adapted for use in underground cable laying operations employs a positive cable reel drive whose operation is modulated as a function of varying cable tension to match mean cable pay-out with advancement of the cable laying equipment. A hydraulic motor is in positive driving engagement with the cable supply reel and modulation of the same may be effected either by varying motor speed as a substantially instantaneous function of cable



tension or by intermittant driving of the same. In either event, a unit-handled mechanical tensiometer is relied upon to sense cable tension.

3,788,576
MAGNETIC TAPE CARTRIDGE AND STORAGE APPARATUS

Walter Siegbert Buslik, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,716
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—199 **10 Claims**

A tape cartridge is formed with a normally closed split housing that encloses a partially open inner shroud within which a tape reel is mounted. When the cartridge is moved forward to a drive capstan at a read/write station, the force of a tensioned closing element is overcome to open the housing. At such time, a spring-loaded element is released to urge the shroud forward, so that the tape reel is brought into contact with the capstan. The housing has external locking parts that afford coupling a plurality of cartridges, and thus allow serial movement of the locked cartridges past the read/write station.

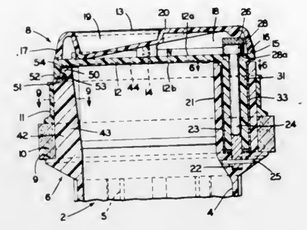
3,788,577
PNEUMATIC TUBE CARRIER END CLOSURE CONSTRUCTION

Charles B. Barnett, Akron, and Larry A. Morrison, North Canton, both of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed Dec. 16, 1971, Ser. No. 208,756
Int. Cl. B65g *51/06*
U.S. Cl. 243—35 **7 Claims**

A closure construction for an open end of a generally tubular material-conveying carrier for a pneumatic tube system, especially adapted for banking service transactions. The end closure, preferably is formed of lightweight molded plastic components, and is pivotally mounted for smooth and ready

lateral movement across an open end of the carrier body between fully closed and fully open positions. The end closure side wall is tapered enabling the carrier to move through pneumatic tube bends having reduced radii. An inturned flange is formed on the end closure and engages an outturned flange on

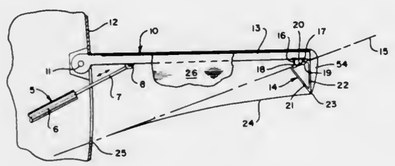


the carrier body when in closed position preventing axial movement of the end closure away from the carrier body. A spring-biased toggle-connected mechanism is contained in a cavity formed within the end closure to urge and hold the closure in either fully closed or fully open position.

3,788,578
SEMI-RIGID AIRFOIL FOR AIRBORNE VEHICLES

Thomas E. Sweeney, 95 Hartley Ave., Princeton, N.J.; Philip M. Condit, 7529 S.E. 40th St., Mercer Island, Wash.; Robert A. Ormiston, 1033 Crestview Dr., Mountain View, Calif., and Walter Barry Nixon, 30 Merritt Dr., Trenton, N.J.

Division of Ser. No. 144,861, May 19, 1971, Pat. No. 3,742,318. This application Nov. 21, 1972, Ser. No. 308,314
Int. Cl. B64c *5/12, 9/34*
U.S. Cl. 244—3.28 **7 Claims**



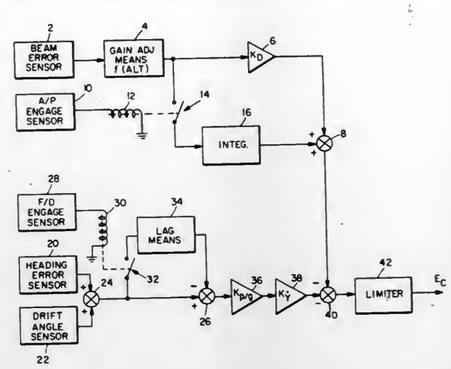
The present invention relates to a semi-rigid airfoil for use with airborne vehicles and capable of being folded and/or warped. The airfoil includes a rigid spar defining a leading edge and a cable defining the trailing edge with the root end thereof secured to the fuselage of the vehicle and the other end to a tip truss structure, with a flexible material forming top and bottom airfoil surfaces. Means are also provided for twisting portions of the airfoil about an axis extending through the root end, and means for pivoting the spar to fold against the fuselage.

3,788,579
AIRCRAFT CONTROL SYSTEM USING INERTIALLY SENSED DATA

John T. Sliney, Hackensack, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 10, 1972, Ser. No. 233,522
Int. Cl. B64c *13/20*
U.S. Cl. 244—77 A **5 Claims**

A system using signals available from an on-board inertial platform for controlling an aircraft through an autopilot or flight director during localizer beam capture, tracking and runway alignment modes of flight. Localizer damping is pro-

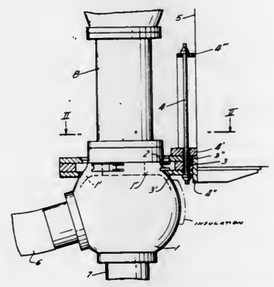


vided as a function of inertial drift angle, i. e., the angle between the heading and instantaneous ground track of the craft.

3,788,580
APPARATUS FOR MOUNTING MOVABLE DEVICES

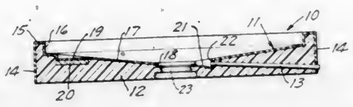
Wolfgang Schneider, Hessheim; Egbert Diethelm Piekarek, and Stefan Thommes, both of Frankenthal, all of Germany, assignors to Klein, Schanzlin & Becker Aktiengesellschaft, Frankenthal/Pfalz, Germany

Filed Dec. 1, 1971, Ser. No. 203,682
Claims priority, application Germany, Dec. 4, 1970, 2059639
Int. Cl. F16l *3/16, 27/10, 43/00*
U.S. Cl. 248—14 **21 Claims**



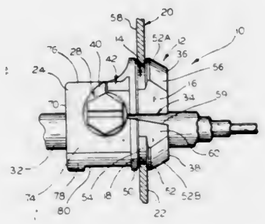
A substantially spherical external reactor pump has an external portion extending therefrom. Three projections, relatively short in relation to the diameter of said pump, are disposed about the external portion substantially equidistant from one another. An annular stress-transmitting member consists of three concentric annular rings which are positioned adjacent to one another and together from an annular groove arranged to mate with the projections for engagement therewith. Each of the rings is independently movable, the two exterior rings being movable in vertical directions, while the center ring is movable in radial directions. The movement of the respective rings is limited by a series of brackets which are mounted on corresponding foundations, these being positioned behind corresponding projections. The temperature variations of the brackets are minimized to effect minimum displacement of the external reactor pump, and therefore the auxiliary equipment and conduits leading thereto. In the event of a rupture in one of the conduits, the resulting forces are transmitted by way of the rings to the brackets and to the foundation.

3,788,581
MACHINE SUPPORT BASE
James L. Rutzick, 1540 Goodrick Ave., St. Paul, Minn.
Filed July 5, 1972, Ser. No. 269,111
Int. Cl. F16m *13/00*
U.S. Cl. 248—22 **5 Claims**



A base for supporting and stabilizing washing machines in domestic or commercial laundries includes a drain system for controlling spills and is vibration-dampening.

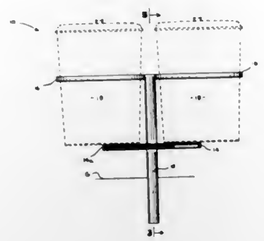
3,788,582
CONNECTOR FOR NON-METALLIC SHEATHED CABLE
Wesley W. Swanquist, South Bend, Ind., assignor to All-Steel Inc.
Filed Mar. 22, 1973, Ser. No. 343,905
Int. Cl. F16l *5/00*
U.S. Cl. 248—56 **8 Claims**



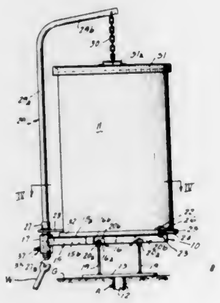
A connector for connecting non-metallic sheathed cable to electrical boxes in which the connector is an all plastic, screwless device, in the form of a tubular plastic body having a cross bore in the end of same that is to protrude from the box in which is journaled a rotary cam member that is shaped to permit ready application of the cable to the connector body in one position of the cam member relative to the body, and to indent the cable into an opposing recess formed in the connector body, in the inverted position of the rotary cam member, with the body being bisected extending from the other or mounting end of the same up to the cross bore for contraction purposes to permit application of the body mounted end into the box knock-out opening, and with the action of the cam member in indenting the cable being effective to expand the body mounting end to anchor same to the box.

3,788,583
GARBAGE CAN RACK
Jerry A. Byrd, 14850 W. Dixie Hwy., North Miami, Fla.
Filed Aug. 24, 1972, Ser. No. 283,428
Int. Cl. A47g *29/00*
U.S. Cl. 248—146 **1 Claim**

In abstract, a preferred embodiment of the present invention relates to a rack for supporting one or more garbage cans above the ground. In particular, the rack of the present disclosure comprises a generally elongated tubular member adapted to be inserted within the ground and provided with generally transversely extending upper and lower support means for supporting and maintaining a garbage can on each side thereof. Also, the present disclosure provides a cooperable fluid pressure system for readily inserting the garbage can rack into the ground without the use of tools or digging implements.



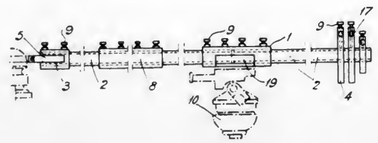
3,788,584
CONTAINER ANCHOR RACK
Robert F. Deike, 420 E. Fox Farm, Cheyenne, Wyo.
Filed Aug. 9, 1971, Ser. No. 169,919
Int. Cl. B65f *1/02*
U.S. Cl. 248—154 **10 Claims**



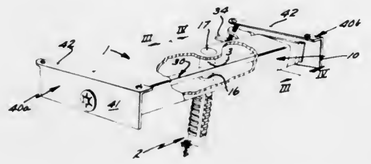
An inexpensive stand or rack supporting a barrel, drum, garbage can, or the like receptacle in spaced relation above the ground and having upstanding abutments and a rotatably mounted cam locking the receptacle to the rack. The abutments and cam are vertically adjustable on the rack to overlie beads or rims of different heights on the bottom periphery of the receptacles. The abutments are also adjustable toward and away from the cam to accommodate receptacles of different sizes. The rack is preferably an angle iron A-frame with the cam rotatably mounted at the apex thereof, the abutments mounted at the divergent ends of the legs and mounting bolts or anchor legs depending from cross struts.

3,788,585
STABILISER APPARATUS FOR MULTI-DIRECTIONAL MOVEMENT OF A CAMERA
Alain Olivier Felix Masseron, 7 rue de l'Abbe Carton, Paris, France
Filed Feb. 7, 1972, Ser. No. 224,097
Int. Cl. F16m *11/20*
U.S. Cl. 248—178 **23 Claims**

Stabiliser apparatus for multi-directional movement of a camera which apparatus includes an arm adapted to be fitted to a swivel support, the said arm having a swivel head with a fixing device for a camera and having means for balancing with respect to the swivel support the weight of the said arm and its load when present.



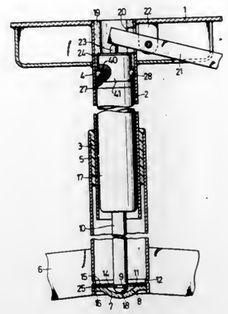
3,788,586
TORSION ROD CHAIR IRON
Donald E. McNally, Grand Rapids, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed Dec. 12, 1969, Ser. No. 884,413
Int. Cl. A47c *3/023*
U.S. Cl. 248—373 **7 Claims**



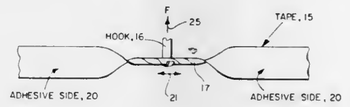
A torsion bar chair iron in which a tubular housing member of rectangular cross section is secured to the spindle of a chair base. The spindle passes laterally through the tubular housing and is secured at the top and bottom thereof. A torsion bar passes longitudinally through the housing member, passing adjacent the spindle. It is fixed in one end of the housing but is rotatable in the other end thereof. At the rotatable end, outside of the housing, a lever is fixedly secured to the torsion bar. Chair support members are rotatably secured to the ends of the torsion bar and a chair is secured to the chair support members.

3,788,587
RESILIENT COLUMN
Hansjorg Stemmler, Koblenz, Germany, assignor to Stabilus Industrie-und Handelsgesellschaft mbH, Koblenz-Neuendorf, Germany
Filed Dec. 5, 1972, Ser. No. 312,313
Claims priority, application Germany, Dec. 23, 1971, G 78 48 492.9
Int. Cl. A47c *3/22*
U.S. Cl. 248—400 **16 Claims**

The single column supporting the seat of a stool or chair consists of two telescoping tubes and a pneumatic spring in the communicating bores of the tubes, the cylinder of the spring being secured to the tube attached to the seat and the piston rod being secured to the tube attached to the base of the chair by a spring washer. A circumferential groove near the free end of the piston rod is engaged by tongs extending into the central opening of the spring washer so that the piston rod may be pulled loose of the base and the associated tube by manual tension. The cylinder may be attached to the seat by a variety of fasteners which either respond to axial tension in the manner of the afore-described spring washer or may be removed manually without the use of tools.



3,788,588
WALL HANGER
Robert K. Tendler, 2913 N. St. N.W., Washington, D.C.
Filed Mar. 16, 1972, Ser. No. 235,174
Int. Cl. A47f *7/14*
U.S. Cl. 248—467 **12 Claims**

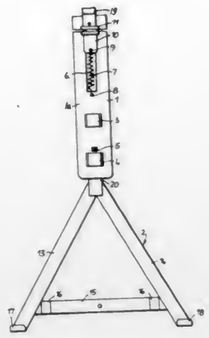


There is disclosed the use of a continuous strip of adhesive tape twisted on itself at a central region thereof as a hanger for supporting pictures, flat surface mounting structures and the like in conjunction with a picture hook, a protrusion from a wall or the like. The central portion is elongated to facilitate adjustment of the picture on the wall. This system has more mechanical stability than pure double-back adhesive hangers and does not have the disadvantage of adhesive strips with holes in them which preclude balancing the picture.

3,788,589
ADJUSTABLE PICTURE FRAME HOLDER
Herbert Schulze, Bosperde, Germany, assignor to Firma R. Schulze & Co. KG, Bosperde, Germany
Filed Feb. 4, 1972, Ser. No. 223,567
Claims priority, application Germany, Feb. 18, 1971, P 21 08 303.4
Int. Cl. A47f *7/14*
U.S. Cl. 248—488 **7 Claims**

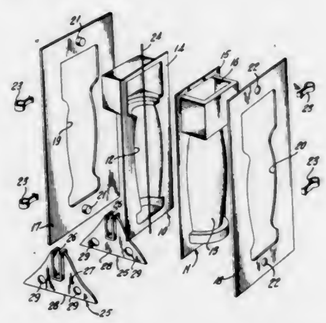
An adjustable holder for supporting the spaced parallel side surfaces of an object, such as a picture frame, includes a supporting part adjustably interconnected to a clamping part by an extension member which is rigidly secured to the supporting part. Supporting part has an A-shape formed by a pair of diverging legs connected adjacent their free ends by a cross member. Hooks on the free ends of the legs provide the holding action for one side of the object. The clamping part includes a metal plate containing a guide way, in which the extension member is secured by a snap spring, and a clamp held on the metal plate by another guide way and a spring member.

The clamp has a hook for securing the other parallel side of the ojbect. At the end of the metal plate spaced from the supporting part a suspension member is formed which also pro-



vides a cover for one end of the extension member. The extension member contains spaced openings in which the snap spring engages for selectively adjusting the holder.

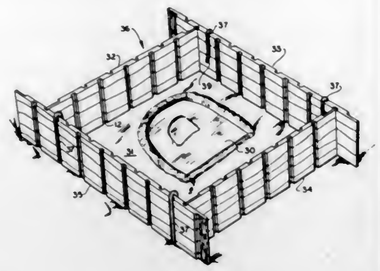
3,788,590
MOLDING APPARATUS
Arthur Hasselbach, Cranbury, N.J., assignor to Beta Crafts, Incorporated, Hightstown, N.J.
Filed Feb. 22, 1972, Ser. No. 227,792
Int. Cl. B22d *19/04*
U.S. Cl. 249—95 **7 Claims**



A mold for wax, soap, plaster, and the like which includes a two part mold with each part having a peripheral flange, a pair of plates each having an opening conforming to the configuration of a mold part and means for aligning the plates in overlying relationship with the flanges of the mold parts disposed therebetween. Clips engage the plates to hold them together and means are provided to hold the mold parts and plates in an upright position.

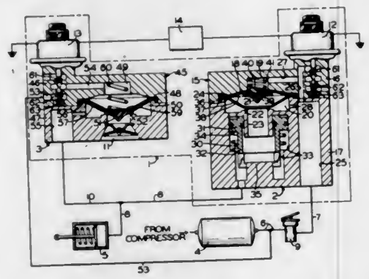
3,788,591
CASTING MOLD APPARATUS
Hilbert Arps, 1306 Piedmont Ave., Atlanta, Ga.
Filed Jan. 20, 1972, Ser. No. 219,271
Int. Cl. B29c *1/00*
U.S. Cl. 249—187 **4 Claims**

Apparatus from which the sides of a confined area mold can be assembled to contain a liquid or semiliquid substance for casting purposes or for other applications. One or more strips of material having a predetermined characteristic, such as the grain structure of wood, are provided with a number of spaced grooves transversely aligned relative to the characteristic of the structure on both sides thereof, and at staggered intervals. The strips are readily manually breakable along any of the grooves to provide a tongue end which is insertable within



another of the grooves on a separate strip. A number of strip segments can thus be joined together in tongue-and-groove fashion to enclose an area containing a feature such as a footprint, of which a casting impression is desired to be made, thereby to provide a portable substantially leakproof casting mold which can be readily assembled from material which is compact and easily transportable.

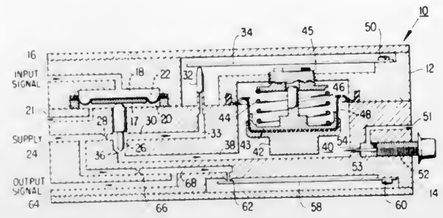
3,788,592
WHEEL SLIP CONTROL APPARATUS HAVING QUICK CLOSING VALVES
Alfred Klatt, Wettbergen; Fritz Isernhagen, Letter; Lutz Weise, Misburg, and Erich Reinecke, Beinhorn, all of Germany, assignors to Westinghouse Bremsen-und Apparatebau GmbH, Hannover, Germany
Filed Oct. 24, 1972, Ser. No. 300,284
Int. Cl. F16k *31/145*
U.S. Cl. 251—25 **9 Claims**



The invention concerns a quick closing valve, in particular a disc valve for antiskid devices on street vehicles with a closing member controlling a flow of pressure medium from a chamber of higher pressure to a chamber of lower pressure.

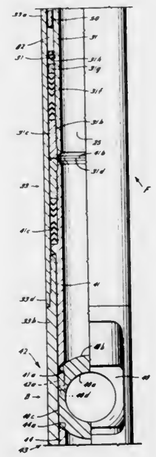
3,788,593
FLUIDIC TIMER
Kenneth W. Cohen, Chesterland, Ohio, assignor to Bailey Meter Company, Wickliffe, Ohio
Filed Feb. 2, 1972, Ser. No. 223,798
Int. Cl. F16k *31/145*
U.S. Cl. 251—28 **4 Claims**

Back pressure from a vane and nozzle assembly continuously supplies a timing chamber with a pressure which is substantially independent of the supply pressure variations at the vane and nozzle assembly input maintaining a predetermined chamber volume and pressure thereby. When an input signal is provided to an input chamber, a valve blocks the vane and nozzle back pressure from the timing chamber and the predetermined volume of the timing chamber is vented, with



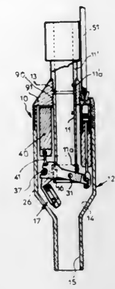
the volume decreasing in response to timing chamber pressure drop, until an output signal from the fluidic timer is triggered. When the input signal is removed from the input chamber, vane and nozzle back pressure is restored to the timing chamber and it is reset to the predetermined volume and pressure level.

3,788,594
HI-LO VALVE
James D. Mott, Houston, Tex., assignor to Hydril Company
Filed Jan. 3, 1972, Ser. No. 214,679
Int. Cl. F16k *31/63*
U.S. Cl. 251—58 **22 Claims**



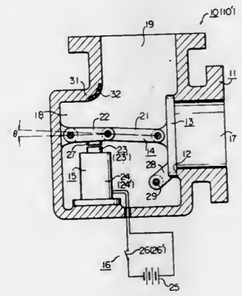
A subsurface safety valve well tool securable in a well conduit for controlling flow of fluid through the bore of the conduit. An increase or decrease in the well pressure from the normal flowing pressure of the well operates a rotatable ball valve to block flow of fluid through the conduit. Increasing and then decreasing the pressure in the bore above the ball valve rotates the valve to enable flow of fluid through the conduit.

3,788,595
SAFETY FLAP-VALVE
Jean Colonna, Joinville-Le-Pont, France, assignor to Gaz De France, Paris, France
Filed Sept. 15, 1972, Ser. No. 289,546
Claims priority, application France, Sept. 21, 1971, 7133970
Int. Cl. F16k *31/163*
U.S. Cl. 251—58 **10 Claims**



A straightway safety flap-valve to be mounted on a tube conveying a pressure fluid and comprising: a collar secured to one open end of said tube and provided with a valve seat; a clack pivoted to said collar about a first axis extending outside of the surface of said tube and rotatable through 90° for engagement with and disengagement from said seat; a yoke pivoted to said collar about a second axis parallel to the first one and intersecting the surface of said tube; a third axis passing through the free ends of said yoke in parallel relation to the two first axes and also extending through said clack adjacent to its first pivot axis; control means for rocking the yoke about said second axis and acting on the closed end of said yoke; and a vertically slidable counterweight surrounding at least partially said tube end and supported through links pivoted to said counterweight and to the free ends of said yoke adjacent to said third axis.

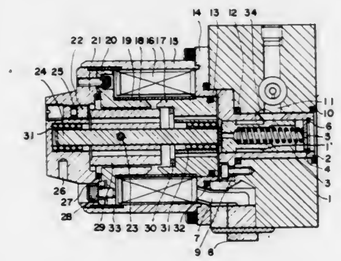
3,788,596
VALVE FOR ABRUPTLY RELIEVING FLUID UNDER PRESSURE
Riichi Maeda, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Apr. 26, 1971, Ser. No. 137,357
Claims priority, application Japan, Apr. 30, 1970, 45-41413
Int. Cl. F16k *35/16*
U.S. Cl. 251—69 **10 Claims**



A valve operable to abruptly allow a fluid under pressure to flow for example to inflate safety means in an automobile

comprises a housing having a valve seat, a movable valve member seatable on the valve seat and a linkage mechanism controlling movement of the valve member. The linkage mechanism comprises first and second links constituting a toggle. The first link is pivotally connected at one end to the valve member and at the opposite end to one end of the second link the opposite end of which is pivotally connected to the housing. When the valve member is seated to close the valve the axes of the first and second links make a minor angle with one another so as to resolve the force applied to the valve member by the pressure fluid into a major component force approximately in line with the links to hold the valve member seated and a minor component force approximately normal to the axes of the first and second links and acting in a direction to unseat the valve member. In order to open the valve the linkage is movable to a second position in which the axes of the first and second links make a major angle with one another. Electromagnetic means is provided for holding the linkage in the first mentioned position against the minor component force to maintain the valve closed and for releasing the linkage to allow it to be moved to the second mentioned position by the minor component force and thereby open the valve. An extension on the valve member is pivotally connected to a portion of the housing to provide for pivotal movement of the valve member between open and closed position.

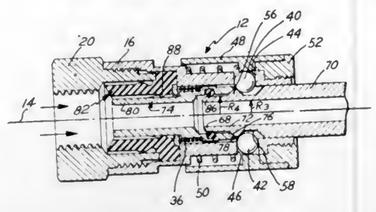
3,788,597
ELECTROMAGNETIC FLOW CONTROLLING VALVE
Hisakazu Ichioka, Yokohama, Japan, assignor to Yukon Kogyo Company Ltd., Kanagawa-ken, Japan
Filed May 31, 1972, Ser. No. 258,296
Int. Cl. F16k *31/06*
U.S. Cl. 251—129 **7 Claims**



An electromagnetic flow controlling valve wherein a spring actuated by the magnetic pull force excited by a DC solenoid can provide a variable opening between a fixed sleeve and a movable spool, so as to control the quantity of flow according to the variable size of the opening.

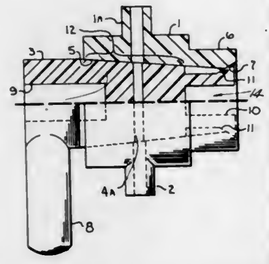
3,788,598
HOSE COUPLER
Dale F. German, Bryan, and Allen L. Clark, Pioneer, both of Ohio, assignors to The Aro Corporation, Bryan, Ohio
Continuation-in-part of Ser. No. 26,957. This application Dec. 27, 1971, Ser. No. 212,055
Int. Cl. F16l *37/28*
U.S. Cl. 251—149.6 **12 Claims**

An improved coupler which includes a coupler body and a connection nipple. Upon insertion of the nipple into the coupler body, an elastically deformable valve member is opened by the action of the connection nipple to permit passage of



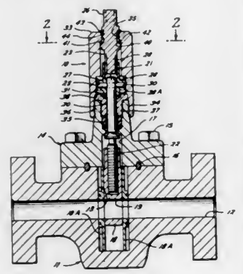
fluid through the coupler. Locking elements prevent disengagement of the connection nipple from the body.

3,788,599
PLUG VALVE
Harold S. Cloyd, Erie, Pa., assignor to Nosco Plastics, Incorporated, Erie, Pa.
Filed June 28, 1972, Ser. No. 267,089
Int. Cl. F16k *5/02*
U.S. Cl. 251—181 **4 Claims**



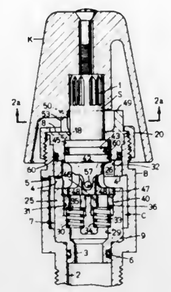
A plastic plug valve for use in equipment for administering intravenous solutions and the like in which the plug is cammed into sealing engagement with the bore in the body by spring fingers preferably integral with the plug. The valve is intended to be used once and thrown away because the cost of washing and sterilization is greater than the cost of the valve.

3,788,600
GATE VALVE
Herbert Allen, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed Aug. 24, 1972, Ser. No. 283,571
Int. Cl. F16k *41/02, 17/40*
U.S. Cl. 251—214 **16 Claims**



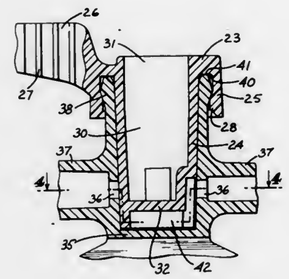
There is disclosed a gate valve having a non-rising stem which is adapted to form a metal-to-metal seal with the valve bonnet to contain pressure therein upon destruction of the primary, rubber-like stem seal.

3,788,601
NON-RISE VALVE FOR FAUCETS OR THE LIKE
William C. Schmitt, Brown Deer, Wis., assignor to Milwaukee Faucets, Inc., Milwaukee, Wis.
Filed June 21, 1972, Ser. No. 264,779
Int. Cl. F16k *11/06*
U.S. Cl. 251—304 **4 Claims**



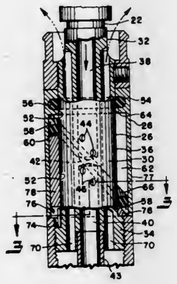
A valve for a water faucet or the like of the type which when actuated does not have a part that rises, and which valve includes a rotary sealing plate against which spring loaded seals cooperate to seal the valve when the plate is turned to the "off" position. The valve includes a cartridge which has a stem formed as one piece along with the rotary valve and which cartridge also has a two piece sleeve in which the stem rotates. The assembled sleeve is formed of an upper sleeve and a lower sleeve which are held in assembled relationship by means of a recess and projection connection, thereby the upper sleeve can be easily moved axially from the lower sleeve when the valve is to be disassembled. The valve stem can be snapped into assembled relationship with the lower sleeve to facilitate assembly of the cartridge. Stop means are provided between the upper sleeve and the handle knob to limit rotation of the knob and its associated valve stem.

3,788,602
STOPCOCK
John Kitzie, Clifton, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed July 19, 1972, Ser. No. 273,333
Int. Cl. F16k *5/04*
U.S. Cl. 251—312 **8 Claims**



A stopcock including a hollow body member open at the top and having at least two lateral ports therein open to the exterior of the body. A key member including a sealing portion extends into the interior of the body through the open top thereof and is in sealing engagement with the interior walls of the body. A gripping portion is on the key and extends from the body. The key is rotatably positioned in the body so as to be shiftable to open and close the ports of the stopcock and regulate flow therethrough. Interengaging locking means are on the key and on the body to retain the sealing portion of the key in rotatable position within the body while permitting the gripping portion to be gripped and rotated to open and close the ports as desired.

3,788,603
ROTARY FLOW CONTROL VALVE FOR AIR OPERATED TOOLS AND THE LIKE
Philip A. Snider, Hicksville, Ohio, assignor to Dotco, Inc., Hicksville, Ohio
Filed Apr. 16, 1971, Ser. No. 134,766
Int. Cl. F16k *3/26*
U.S. Cl. 251—345 **5 Claims**



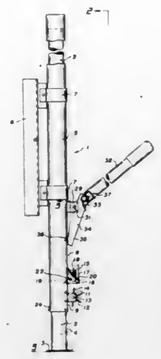
A small air driven tool and an air valve particularly suitable therefor. The valve has a valve body which is cylindrical. Two aligned inlet passages extend axially from opposite ends of the body but stop short of each other. Spaced apart openings communicate the passages with the outside diameter of the valve body. A valve sleeve is rotatable around the valve body and has sealing means on the inside thereof to seal the openings from each other, or alternatively to expose the openings to each other. A characteristic of the valve is that it is compact having a large flow capacity with relation to its size.

Preferably, the valve is provided with an exhaust passage extending longitudinally through the valve body offset from the inlet passages.

3,788,604
MECHANICAL JACK
Clyde Fraser Cameron, Victoria, British Columbia, Canada, assignor to Victoria Industries Ltd., Victoria, British Columbia, Canada
Filed May 25, 1972, Ser. No. 256,982
Int. Cl. B66f *1/04*
U.S. Cl. 254—108 **7 Claims**

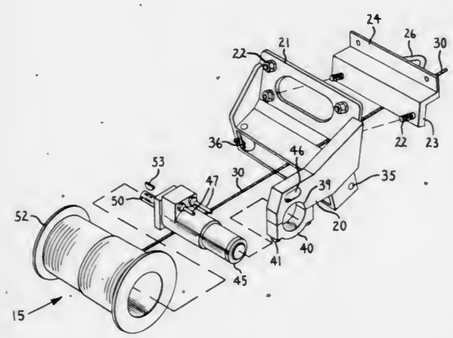
A camper jack of the kind in which two tubes are provided, the first tube being telescopically movable within the second and having a plurality of regularly spaced axially aligned apertures. A toothed wheel is journalled on the second tube and engages in the apertures in the first tube through a suitable

aperture provided in the wall of the second tube so as to prevent relative rotation of the two tubes. Also mounted on



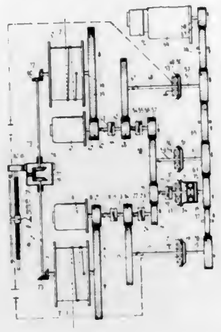
the second tube are a latch and means for pivotally mounting a jacking lever carrying a pawl for engagement with the axially aligned apertures to cause extension of the jack.

3,788,605
HYDRAULIC AUTO WINCH
George Verne Johnson, 5510 S. W. Buddington, Portland, Oreg.
Continuation of Ser. No. 52,173, July 6, 1970, abandoned. This application Feb. 16, 1972, Ser. No. 226,736
Int. Cl. B66d *3/18*
U.S. Cl. 254—150 FH **1 Claim**



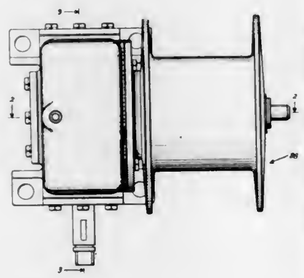
The winch drum is mounted on the shaft of a hydraulic motor which is contained within the drum. One end of the motor protrudes from an end of the drum and is supported in cantilever fashion by a bracket which may be mounted on an automobile in a variety of different positions as, for example, on a bumper. This mounting arrangement leaves one end of the drum unobstructed to loop on a few turns of cable for alternative capstan type operation. The motor may be operated by fluid pressure from the power steering pump of an automobile or from a hydraulic pressure system on a boat.

3,788,606
WINCH MECHANISM FOR LOWERING A LIFEBOAT, LAUNCH OR THE LIKE, SUSPENDED FROM TWO FALLS, INTO THE WATER AND HOISTING IT OUT OF THE WATER
Helmut Adolf Solter, Hamburg, Germany, assignor to Schat Davits Limited, London, England
Filed May 9, 1972, Ser. No. 251,713
Int. Cl. B66d *1/26*
U.S. Cl. 254—185 **6 Claims**



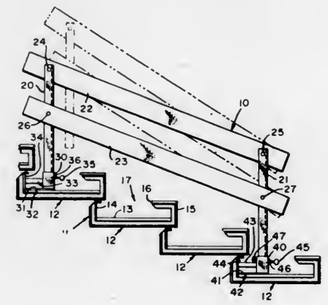
A winch mechanism for raising and lowering a lifeboat includes a main drive motor having multiple power paths to a pair of drums. Selectively operable clutches are used to complete the power paths when desired. A low speed power path and a high speed power path are included and the lower speed power path includes an overrunning clutch allowing the high speed power path to predominate if the clutches of both of these power paths simultaneously are operated. Two additional power paths are included, each associated with a respective drum to drive it at a higher speed than is effected either by the low or the high speed power path. Associated with each of these additional power paths is an overrunning clutch which allow the additional power paths to overrun the main drive. An auxiliary motor is associated with each drum for taking up slack in the cables reeled on the drums and an overrunning clutch associated with each such auxiliary motor allows the requisite auxiliary drive overrun. Additionally, a compensating control is used to maintain the boat level.

3,788,607
WINCH MECHANISM
James W. Crooks, Milwaukee, Wis., assignor to R. L. Smith Gear Company, Milwaukee, Wis.
Filed Jan. 7, 1972, Ser. No. 216,146
Int. Cl. B66d *1/28*
U.S. Cl. 254—186 R **3 Claims**



This invention relates to a winch mechanism comprising a closed gear housing which contains a worm and wheel assembly having an output shaft journaled in spaced bearings supported in the housing. One portion of the housing is formed as an elongated hollow support having a distal end in which one of the bearings is mounted. The shaft projects beyond the distal end. A cylindrical pulley of cup-shaped configuration is secured to the distal end of the shaft in such manner as to encircle the elongated portion of the housing, the bearing in the distal end of the housing being situated substantially midway between the ends of the pulley. Radial loads on the pulley are, therefore, substantially radially imposed on the bearing such that little or no bending movement is applied to the shaft.

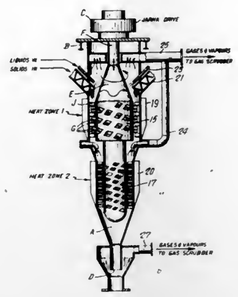
3,788,608
MODULAR FOLDING RAIL
David W. Raymond; Robert E. Lewis, both of Champaign, and Robert E. Quigley, Mahomet, all of Ill., assignors to American Seating Company, Grand Rapids, Mich.
Filed Mar. 6, 1973, Ser. No. 338,504
Int. Cl. E04h *17/22*
U.S. Cl. 256—59 **5 Claims**



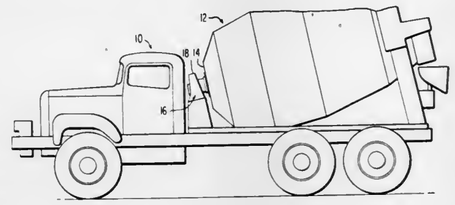
A hand rail is provided for a telescoping seating or bleacher structure. The hand rail includes first and second upright posts which are mounted respectively to an upper and a lower seating tier when the seating structure is in use. Upper and lower guard rails are pivotally mounted to each post. When it is desired to retract the seating structure, the guard rail is folded and transversely pivoted about one of its mounts for storage in the tread cavity of a telescoping row section.

3,788,609
MIXING APPARATUS AND METHOD
Stefan Leslaw Toczyski, 8336 Place Chanceaux, Ville D'Anjou, Quebec, Canada
Filed June 27, 1972, Ser. No. 266,639
Claims priority, application Great Britain, July 1, 1971, 30,918/71
Int. Cl. B01f *7/16*
U.S. Cl. 259—5 **8 Claims**

A mixing apparatus comprising a stator housing having a cylindrical inner wall defining a mixing chamber having an inlet and an outlet leading thereto. A rotor is supported for rotatable and reciprocal motion within the mixing chamber and defines a cylindrical rotor wall spaced from the stator inner wall. Drive means and coupling means are provided for transmitting rotatable and axial reciprocating motion to the rotor. The stator inner wall is provided with rows of spaced apart projections thereon protruding into the mixing chamber. The rotor is also provided with rows of spaced apart rotor blades which are arranged in a predetermined manner to pass between the stator projections on the inner wall of the stator. The coupling means is arranged to provide a cycloidal motion to the rotor whereby each rotor blade will pass between adjacent stator projections and wipe against them on the upward motion and pass between rows of projections on the downward motion.



3,788,610
LUBRICANT SYSTEM FOR DRIVE AND SUPPORT OF CONCRETE MIXER DRUM
William H. Buelow, Brookfield; William J. Mohrbacker, Milwaukee, and George Mihulowicz, Greendale, all of Wis., assignors to Rexnord Inc., Milwaukee, Wis.
Filed June 27, 1972, Ser. No. 266,775
Int. Cl. B28c *5/18*
U.S. Cl. 259—177 **7 Claims**

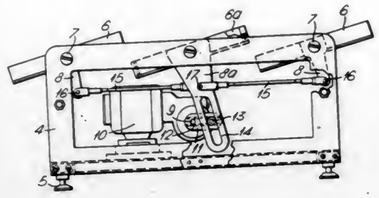


A lubricant system for the front end drive and support of a truck mounted concrete mixer includes a lubricant chamber enclosing the drive connection between the drive shaft and drum with a seal for escape of excess lubricant positioned between the drum head and a spherical surface on a stationary gear housing. Grease connections with lubricant passages leading from the gear housing to a rear shaft support bearing and from the drum head to a spherical drum support bearing provide lubricant for these bearings which then passes to the lubricant chamber. A drum retaining arrangement on the rear end of the support shaft is lubricated from a spherical support bearing and a lubricant return passage connects to the lubricant chamber.

3,788,611
SWINGING APPARATUS FOR SUPPORTING CONTAINERS FOR SEAWEED CULTURES OR THE LIKE
Aldo Barbini, Naples, Italy, assignor to Consiglio Nazionale Delle Ricerche, Rome, Italy
Filed Sept. 22, 1971, Ser. No. 182,750
Int. Cl. B01f *11/00*
U.S. Cl. 259—54 **3 Claims**

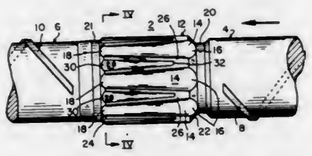
An apparatus for holding containers of seaweed cultures or the like and for inducing within the cultures a rotational move-

ment has a frame with several tables for supporting the containers. The tables are mounted on horizontal shafts, and a set



of connecting rods and arms cause all of the tables to oscillate in unison with the same amplitude as one of the arms which is driven by a driving shaft.

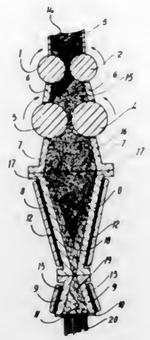
3,788,612
MIXING ELEMENT FOR EXTRUDER SCREW
Robert F. Dray, New Castle, Pa., assignor to Feed Screws, Inc., New Castle, Pa.
Filed Sept. 15, 1972, Ser. No. 289,486
Int. Cl. B01f *7/08*
U.S. Cl. 259—182 **11 Claims**



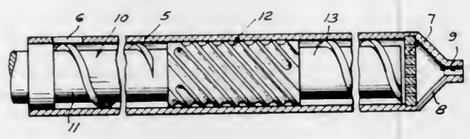
In an extruder screw, a mixing element disposed between two sections of the screw. The mixing element includes a plurality of spaced apart flutes extending either longitudinally or helically of the mixing element. The flutes have a constant radius and constantly vary in depth along their length. Between each flute is a land which comprises the outer surface of the mixing element.

3,788,613
APPARATUS FOR THE EXTRUSION OF SYNTHETIC THERMOPLASTIC MATERIALS
Alfonso Torrecillas Romero, Badalona, Spain, assignor to Profiltex S. A., Badalona, Province of Barcelona, Spain
Filed Mar. 30, 1972, Ser. No. 239,658
Claims priority, application Spain, Apr. 3, 1971, 389897
Int. Cl. B29b *1/08*
U.S. Cl. 259—185 **5 Claims**

An extrusion apparatus for plastics material having wall means defining a chamber which diverges from the inlet to the outlet thereof. Two pairs of counter-rotating rollers are associated with the chamber and divide same into first and second series-connected accumulation chambers. The outlet of the accumulation chamber is in continuous and open communication with the inlet of a fusion chamber which converges from the inlet to the outlet thereof. An extrusion headstock is connected to the outlet of the fusion chamber and includes divergent walls which extend from the end of the fusion chamber to an extrusion gauge having plural orifices therein.



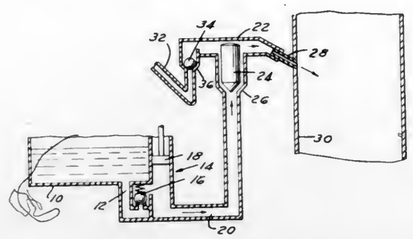
3,788,614
MIXING SECTION FOR EXTRUDER FEED SCREW
Robert B. Gregory, Flemington, N.J., assignor to GK Systems, Inc., Flemington, N.J.
Filed Dec. 6, 1972, Ser. No. 312,773
Int. Cl. B01f *7/02*
U.S. Cl. 259—191 **9 Claims**



This invention is directed to an extruder feed screw having an intermediate cylindrical mixing section provided on its outer surface with a plurality of concave channels of uniform depth and disposed as a plurality of interlocked helices of the same hand. In each adjacent pair of channels, the input end of one is open and its discharge end is closed, while in the other channel its imput end is closed and its discharge end is open. By this construction, dispersive and distributive mixing of the throughput are achieved more rapidly and production rates are markedly increased without degradation of the product.

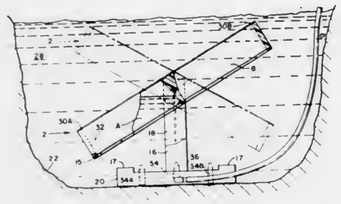
3,788,615
ACCELERATOR PUMP SYSTEM
Gerlad B. Bishop, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 2, 1972, Ser. No. 231,298
Int. Cl. F02m *7/08*
U.S. Cl. 261—34 A **3 Claims**

A fuel valve that is urged toward its seat by gravity is located in the discharge passage of a carburetor accelerator pump and separates the discharge passage from an outlet passage communicating directly with the carburetor induction passage. An air vent is provided for the outlet passage and a check valve located in the air vent also is urged toward its seat by gravity. During accelerator pump operation, the air vent check valve remains on its seat and fuel flows into the carburetor induction passage. If a low pressure develops in the outlet passage, the pressure differential lifts the air vent check valve from its seat



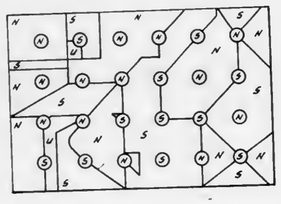
before the fuel valve is lifted from its seat and thereby prevents spurious fuel flow through the accelerator pump system.

3,788,616
AGITATING AND AERATING APPARATUS
Roy L. Clough, Jr., Bristol, N.H., assignor to Xodar Corporation, Warwick, R.I.
Filed Apr. 21, 1972, Ser. No. 246,385
Int. Cl. B01f *3/04*
U.S. Cl. 261—64 R **20 Claims**



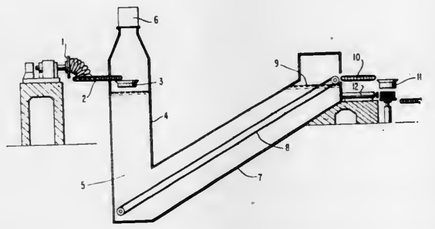
The invention is a system for simultaneously aerating and agitating a body of liquid. The system comprises a body that is pivotally mounted in the liquid with its pivot point located intermediate its ends, and means for feeding air to the lower side of the body. The body is adapted to trap alternately at each end sufficient air to cause that end to rise in the liquid, and means are provided for releasing the air trapped at each end of the body when that end has risen a predetermined amount, with the result that the body oscillates on its pivot axis in see-saw fashion.

3,788,617
CODED MAGNETIC CARD AND SYSTEM FOR ENCODING AND SENSING THE SAME
Walter W. Barney, 4837 Woodley Ave., Encino, Calif.
Continuation-in-part of Ser. No. 56,326, July 20, 1970, which is a continuation-in-part of Ser. No. 745,876, July 18, 1968, abandoned. This application June 12, 1972, Ser. No. 261,886
Int. Cl. G06k *19/06*; **G11c** *11/02*; **G01d** *15/12*
U.S. Cl. 235—61.12 M **2 Claims**



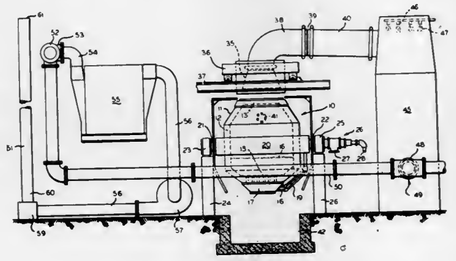
A card is provided which includes a homogeneous sheet of magnetic material. The material and thickness of the magnetic sheet are such that portions may be permanently magnetized in a direction transverse to the plane of the sheet and with a polarity which cannot be disturbed except by directing magnetic flux in the opposite direction through the sheet. A plurality of such portions are permanently magnetized to provide a card with a plurality of magnetic poles at one face of one polarity or the other and distributed to code the card. In addition, a further irregular or random magnetizing pattern is imparted to the sheet, whereby the card magnetization is effectively scrambled to render the code undecipherable and unintelligible.

3,788,618
METHOD AND APPARATUS FOR COOLING WIRE ROD
Emile Oscar Julien Van Den Bulcke, Quaide Rome, 22, Liege, Belgium
Filed July 6, 1971, Ser. No. 159,685
Claims priority, application Belgium, July 3, 1970, 42887
Int. Cl. C21d *11/62*
U.S. Cl. 266—3 R **6 Claims**



Wire rod of indeterminate length emerging from a hot mill at elevated temperature is bent into spiral loops and fed downwardly through an aqueous cooling bath of upright cylindrical form. At the lower end of the bath, conveyor means laterally remove and elevate the wire rod from the bath.

3,788,619
STEEL CONVERTER VESSEL POLLUTION CONTROL METHOD AND APPARATUS
Alexander T. Dortenzo, Pittsburgh, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.
Filed Feb. 23, 1972, Ser. No. 228,528
Int. Cl. C21c *5/48*
U.S. Cl. 266—13 **2 Claims**

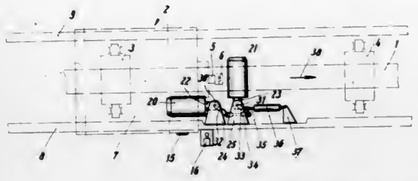


The hot evolved gases from a bottom blown steel converter vessel are delivered to a spray chamber near the vessel in which the gases are cooled by sufficient amount to make them acceptable to a remotely situated electrostatic precipitator in which finely divided solids are removed from the gases. The clean gas is withdrawn from the precipitator with a suction fan and delivered to a stack which discharges the gases to the atmosphere.

3,788,620
DEVICE FOR SUPPORTING A HORIZONTALLY POSITIONED STRAND IN A CONTINUOUS CASTING PLANT

Horst K. Lotz, Wallau, Germany, assignor to Ge Ga Gesellschaft fur Gasetechnik Lotz KG, Wallau, Germany

Filed Apr. 7, 1972, Ser. No. 241,923
Claims priority, application Germany, Apr. 7, 1971, P 21 16 911.9
Int. Cl. B23k *7/02*
U.S. Cl. 266—23 R **9 Claims**

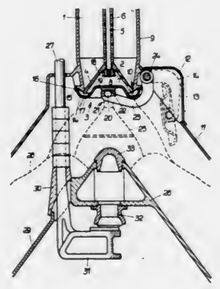


In a device for supporting a horizontally positioned strand in a continuous casting plant as it is flame-cut, a pair of supporting rolls is located in the region through which the strand passes as it is severed by a flame cutter. Each of the rolls can be pivoted between a support position disposed below the strand and another position spaced laterally from the strand. The rolls are interconnected so that their axles are disposed at right angles to one another. Due to their interconnection, as one roll is moved into the support position the other roll is moved out of the support position into another position. The supports for each roll can be located on the same side or on opposite sides of the strand.

3,788,621
CHARGING HEAD FOR A METALLURGICAL FURNACE

Pieter Nieboer, Kapellen, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany

Continuation of Ser. No. 32,921, April 29, 1970, abandoned. This application July 10, 1972, Ser. No. 270,482
Int. Cl. C21b *7/18*
U.S. Cl. 266—27 **7 Claims**

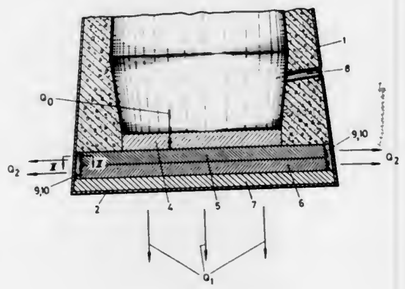


A charging head for a metallurgical furnace includes a hopper which is connected into a furnace head and terminates in an interior annular sealing seat which is closed by a small bell which is carried on a pull rod which extends through the hopper. A throat cover for the furnace particularly for shaft furnaces which are operable at high pressures, such as a pressure blast furnace; and with a hopper which is closeable from the atmosphere after it is charged with material intermittently; includes a sealing valve which is pivotable from an open position at which it lies in a bulging portion of the furnace head into a closed position in which the valve extends around the lower portion of the small bell and seals the lower end of the hopper. The valve includes an annular sealing lip which engages into a seat defined on the exterior of the hopper around the exterior of the bell and engages with the seat at a location above the sealing seat defined at the interior of the hopper and which is engaged by the small bell. The small bell dams the material at the outlet of the hopper and a lower larger bell provides a distribution for the material and is located within the furnace below the small bell. The valve provides a hermetic seal around the exterior of the small bell and separates the storage bunker from the furnace zone when it is closed.

3,788,622
FURNACE

Jacobus van Laar, Santpoort, and Jacob Felthuis, Oudorp, both of Netherlands, assignors to Hoogovens Ijmuiden B.V., Ijmuiden, Netherlands

Filed Nov. 30, 1972, Ser. No. 310,719
Claims priority, application Germany, Dec. 1, 1971, P 21 59 667.8
Int. Cl. F27b *1/24*
U.S. Cl. 266—32 **8 Claims**



A furnace provided with a wall and a refractory inner masonry structure, between which there is a space, there being compressible elements from a material of high heat conductivity arranged in contact with the walls of said space, for improving heat discharge from the interior of the furnace. The said space may be filled with a ramming mix or tamping mixture. The elements are preferably copper pipes. For many furnaces and applications said space will be annular around the furnace and the elements are provided at regular intervals and compressible in a radial direction with respect to the furnace.

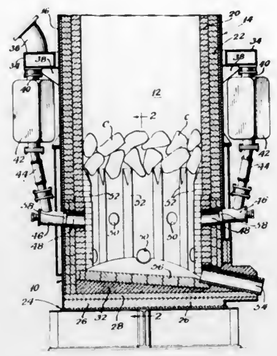
3,788,623
VERTICAL MELTING FURNACE

Ralph A. Vogel, Box 283 R.R. 5, Three Rivers, Mich.

Filed Oct. 18, 1971, Ser. No. 190,061
Int. Cl. F27b *1/14*
U.S. Cl. 266—33 R **9 Claims**

A vertical furnace for melting metal pieces, such as pieces of copper cathode. The furnace has a wall of refractory brick material which encloses an upright melting chamber having a plurality of burner openings through the inner surface of the wall, heat being injected through the openings to melt the metal pieces. An outlet drains the molten metal from the bottom of the chamber. A plurality of upright brick sections are constructed unitary with the wall and project inwardly from the wall. The upright sections are located on opposite sides of each burner opening so as to maintain the metal pieces in spaced relationship from the burner openings and thereby prevent blockage thereof. The bottom of the furnace has a

reverse arch shape and is also formed of refractory brick material. The reverse arch shape assists in maintaining the brick pieces, forming the bottom, in the desired set condition. Channels are provided in the wall and communicate between

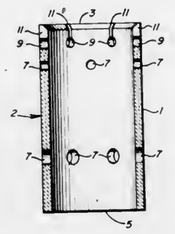


the burner openings and the burners, which are spaced outwardly of the burner openings at a slight angle so that any molten metal entering the channel will drain therefrom simply by action of gravity.

3,788,624
IMMERSION BELL

Timothy W. Miller, Coopersburg, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed June 21, 1972, Ser. No. 265,026
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 T **13 Claims**



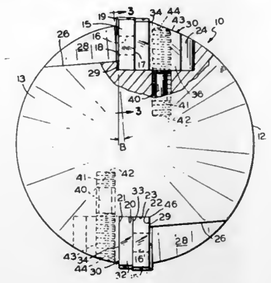
An apparatus for introducing reagents beneath the surface of molten metal comprising a tubular member which is detachably fastened to a closure member. Expansion spaces are provided between the sidewalls of the tubular member and the closure member minimizing thermal stress in the sidewalls.

3,788,625
ROTARY CUTTER

Harold W. Lindsay, 2480 N.W. Vaughn, Portland, Oreg.

Filed Apr. 3, 1972, Ser. No. 240,697
Int. Cl. B26d *1/26*
U.S. Cl. 29—105 A **2 Claims**

A rotary cutter for pin type carbide inserts includes peripheral, radially extending recesses in which the inserts are received. A shim is positioned in each recess adjacent the back face of the insert, the insert being retained on an integral pin on the front face of the shim and by a lip formed by a chip clearance cutout at the front of the recess. A keying lug on the back face of the shim is received in a keyway in the recess and includes a screw threadedly receivable in the cutter body, the

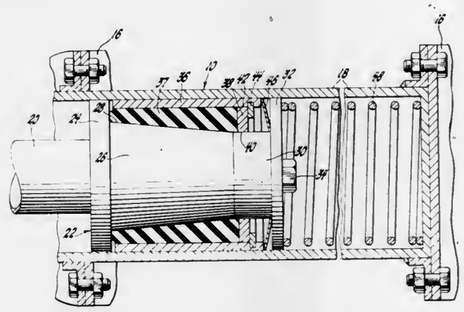


screw serving to clamp the shim and the insert in the recess with the cutting face of the insert engaged by the lip.

3,788,626
DAMPENED SHOCK ABSORBING BUMPER

Manfred A. Isaacson, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 26, 1972, Ser. No. 318,367
Int. Cl. F16f *7/08*
U.S. Cl. 267—9 C **2 Claims**



An impact energy absorbing device includes a cylinder having a cylindrical friction shoe slidable therein. A ram is slidably guided in the cylinder and has a ramped cylindrical surface spaced radially from the friction shoe. An annular member of substantially incompressible elastomeric material fills the radial space between the ram and the friction shoe and is axially confined between the ram and friction shoe. A Belleville spring carried by the ram exerts an axially compressing preload force on the annular member whereby the ramped cylindrical surface of the ram radially cams the annular member against the friction shoe to preload the friction shoe against the tubular member so that upon telescoping movement of the ram into the tubular member upon impact, the friction shoe is self-energized against the tubular member.

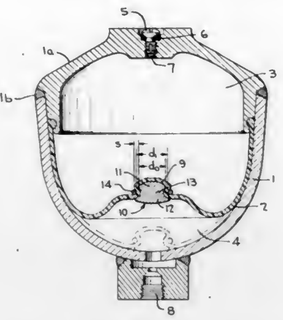
3,788,627
HYDRAULIC RESERVOIR

Walter Wieland, am Roten, Kreuz, Germany, assignor to Langen & Company, Dusseldorf, Germany

Filed Aug. 1, 1972, Ser. No. 277,128
Int. Cl. F16f *3/07*
U.S. Cl. 267—64 R **13 Claims**

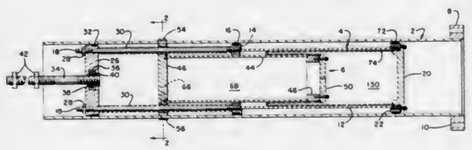
A hydraulic reservoir finding particular application as a pressure reservoir for hydro-pneumatic resilient suspensions

for vehicles in which the interior of a casing constituting the reservoir is divided by a movable deflectable separating wall or partition into a gas chamber and a liquid chamber, the casing being provided with a gas connection communicating with the gas chamber and a liquid connection communicating with



the liquid chamber for supplying and removing gas and liquid into or from the respective chambers and the separating wall or partition being provided with a cover member removably connected thereto which serves to prevent the wall or partition sliding or moving into the liquid connection when the liquid chamber is empty.

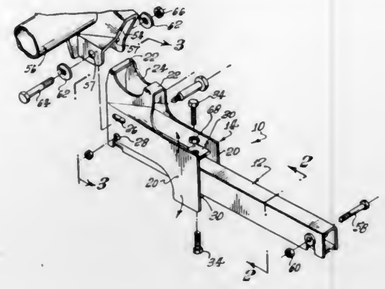
3,788,628
PNEUMATIC ISOLATOR
Kenneth J. Hotz, Jr., Chatsworth; Edward Steiner, Sun Valley, and Gary L. Fox, Los Angeles, all of Calif., assignors to Barry Wright Corporation, Watertown, Mass.
Filed Nov. 10, 1972, Ser. No. 305,373
Int. Cl. B60g *11/26*
U.S. Cl. 267—65 R **15 Claims**



A pneumatic spring device of the type embodying a rolling sleeve seal comprising improved means for clamping and hermetically sealing the ends of the seal to two members that are capable of displacement relative to one another. Each clamping means comprises a pair of cooperating sealing members that engage opposite sides of an end of the seal and have unique rib-groove configurations that produce a strong gripping action without damaging the seal or so distorting it as to increase its likelihood of failure under continuous and changing loads.

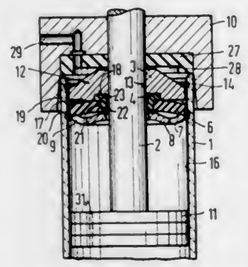
3,788,629
VEHICLE TRACTION BAR
Robert E. Johnson, Los Angeles, Calif., assignor to Whittaker Corporation, Los Angeles, Calif.
Filed Aug. 21, 1972, Ser. No. 282,438
Int. Cl. B60g *25/60*
U.S. Cl. 267—66 **13 Claims**

A traction bar for use in stiffening the rear suspension systems of vehicles which utilize coil springs as part of their suspension system with a pair of traction bars being used in place of the lower control arms. Each traction bar comprises a rigid, elongated control arm and a frame member, with the control arm pivotally connected at its normally rearward end to the frame member. The latter is fixedly connected to a vehicle's rear axle housing while the control arm extends forwardly of the frame for pivotal connection at its forward end



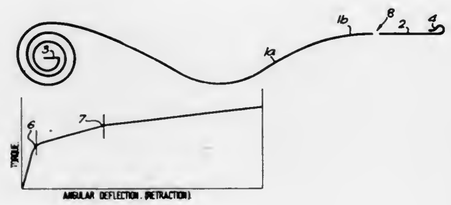
to a forward, lower control arm bracket. The frame is provided with vertically oriented adjusting bolts for engagement with the control arm intermediate the ends of the latter. For vehicle race use, the adjusting bolts are locked against the control arm to prevent it from moving vertically relative to the frame and, for vehicle street use, the adjusting belts are backed off from contact with the control arm to permit vertical movement of the latter with respect to the frame.

3,788,630
PNEUMATIC SUSPENSION UNIT
Manfred Koller, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany
Filed Apr. 12, 1971, Ser. No. 133,200
Claims priority, application Germany, Apr. 29, 1970, P 20 20 964.7
Int. Cl. F16f *9/36*
U.S. Cl. 267—65 R **9 Claims**



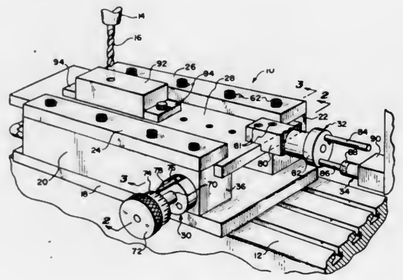
In a pneumatic suspension unit of the piston-and-cylinder type, the piston rod is guided into and out of the cylinder cavity by an annular guide member arranged in one axial end portion of the cavity. The outer circumference of the guide member defines a gap with the inner cylinder wall. A resilient sealing element having two radially extending faces is held in axial engagement of one face thereof with a corresponding face of the guide member by an annular backing member which engages the other face of the sealing element. Radially and axially open recesses in the backing member permit resilient deformation of the sealing element out of the normal relaxed position in which the sealing element engages the piston rod with its inner circumference and the inner cylinder wall with its entire outer circumference. Fluid forced into the gap between the guide member and the cylinder wall under sufficient pressure deflects portions of the sealing element into the recesses of the backing member so that fluid may enter the cylinder cavity.

3,788,631
SPIRAL SPRINGS AND METHODS OF MAKING THEM
Douglas Eric William Aldous, London, England, assignor to Tensator Limited, London, England
Filed June 16, 1972, Ser. No. 263,451
Claims priority, application Great Britain, Aug. 25, 1971, 39977/71
Int. Cl. F16f *1/10*
U.S. Cl. 267—156 **9 Claims**



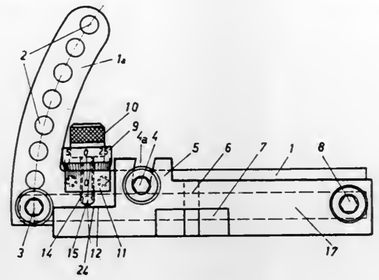
A method of making a spiral spring from a strip of spring material comprises the steps of forming an end portion of the strip of spring material so that the end portion is set to form a spiral coil and the remainder of the strip is substantially straight or is set to coil spirally around the said coiled end portion with a radius of curvature substantially greater than that of the coiled end portion, and then backwinding at least the said coiled end portion.

3,788,632
WORK-POSITIONING TABLE
George N. Lukas, 5009 N. Sheridan Rd., Chicago, Ill.
Filed Sept. 1, 1971, Ser. No. 177,054
Int. Cl. B23q *3/02*; **B25b** *1/18*
U.S. Cl. 269—20 **15 Claims**



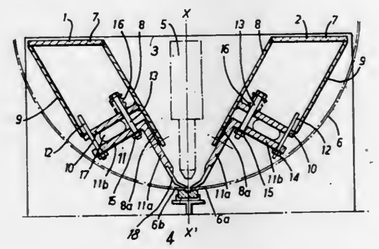
A work-positioning table for positioning a work piece relative to a tool to perform an operation on a selected portion of the work piece. The table includes a base. A work carrier is movably mounted on the base. A holder is mounted on the base and is engageable with the work carrier. A fluid-operated cylinder having a ram connected thereto is engageable with the work carrier to force the work carrier into frictional holding engagement with the holder for holding the work carrier in any selected position.

3,788,633
ADJUSTABLE ANGLE PLATE ARRANGEMENT
Antonio Cho, 8048 Feldblumenstr. 127, Zurich, Switzerland
Filed Aug. 25, 1969, Ser. No. 852,532
Claims priority, application Switzerland, Aug. 30, 1968, 13116/68
Int. Cl. B23q *3/04*
U.S. Cl. 269—60 **10 Claims**



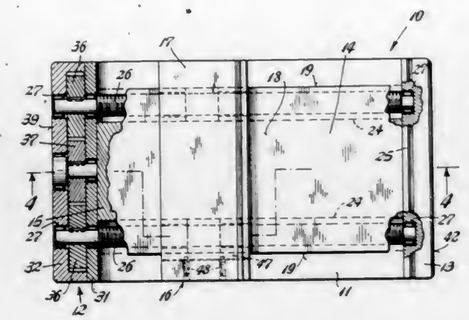
A work supporting plate for a machine tool is pivotally mounted between two normally fixed base arms and two swinging arms, the plate and arms being connected by a common pivot. A segment on each swinging arm has a row of uniformly spaced bores in an arc about the pivot axis for coarse adjustment of the angular plate portion in integral multiples of 1°, and a threaded abutment on each swinging arm permits the swinging arms with the plate to be finely adjusted relative to the base arms.

3,788,634
SHEET POSITIONING APPARATUS
Edmond Chauvet, Parthenay, and Andre Prevote, Malvaut Par Cherveux, both of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France
Filed Sept. 22, 1972, Ser. No. 291,374
Claims priority, application France, Sept. 24, 1971, 71.34506
Int. Cl. B25b *1/00*; **B23c** *19/00*
U.S. Cl. 269—154 **6 Claims**



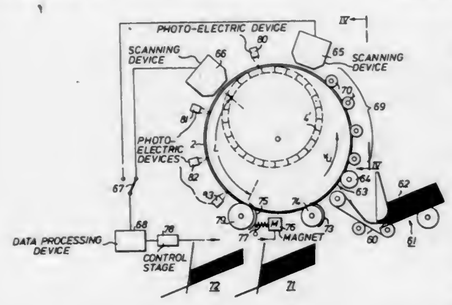
This invention relates to apparatus for positioning sheet material which is to be welded together edge to edge and of the type in which these edges are held in the welding position by means of movable jaws arranged longitudinally and being brought by drive means into a clamping position with respect to said edges against a fixed longitudinal girder. The invention provides that the movable jaws are arranged of either side and above the fixed girder forming a lower support and these jaws are also firmly fixed to jaw carriers mounted with transverse guides on one or the other of two upper longitudinal support girders. These guides converge substantially towards the line of weld and drive means are arranged between each jaw carrier and the associated upper support girder.

3,788,635
MACHINE TOOL VISE
Leonard Nelson, Trumbull, Conn., assignor to Custom Tool & Machine Co. Inc., Bridgeport, Conn.
Filed Apr. 12, 1972, Ser. No. 243,306
Int. Cl. B25b 1/10
U.S. Cl. 269—244 1 Claim



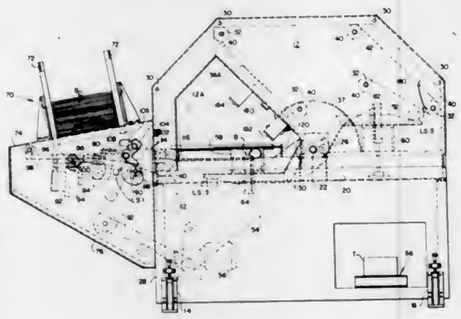
A machine tool vise having a base with five squared sides including a planar bottom adapted to be releasably mounted on a worktable of a machine tool and the like and having the same overall length regardless of the extent to which the fixed and movable jaws are separated, the movable jaw being slidably mounted on a wide rail secured to end blocks in which a plurality of laterally spaced feed screws are mounted for rotation in thrust-absorbing means, the feed screws being located beneath said wide rail, each feed screw having a gear fixed thereto and a driving gear located between and meshing with said gears to cause the screws to rotate in unison, said driving gear having a socket to removably receive a wrench or the like for rotating said gears and said feed screws to cause the latter to open or close the jaws, the wide rail being located in a horizontal plane above that of the feed screw and serves as a horizontal support for a workpiece placed between the fixed and movable jaws.

3,788,636
ROTATING SUCTION DRUM FOR DATA CARRIERS
Karl Rehm, and Hermann Schwarz, both of Constance, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed May 23, 1972, Ser. No. 256,150
Claims priority, application Germany, May 29, 1971, P 21 26 833.7; May 29, 1971, HGM 71 20 974.0
Int. Cl. B65h 5/12
U.S. Cl. 271—4 11 Claims



A rotating suction drum passes sheet-type data carriers past at least one scanning device. The drum has an open frontal side and a zone with a plurality of channels leading to individual suction openings on the drum. A suction generator has a fan and is so disposed with respect to the drum that the entry opening for the fan passes through the open frontal side. The ratio between the sum of the areas of minimum cross section of the channels and the total area of the zone of the drum covered by the suction openings is more than 0.25.

3,788,637
BLANK INSERT MECHANISM FOR TRAY FORMING APPARATUS
Horst G. Lattke, Middletown, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Division of Ser. No. 55,643, July 17, 1970, Pat. No. 3,683,755. This application May 15, 1972, Ser. No. 253,448
Int. Cl. B65h 9/14
U.S. Cl. 271—13 1 Claim

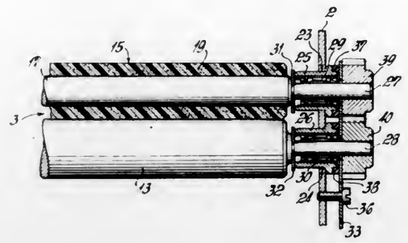


Precut and prescored tray blanks are stacked in a magazine, and pivoted vacuum cup means is adapted to withdraw the lowermost blank from the stack by moving the blank downwardly to a delivery position. Control means is provided for operation of the vacuum cup to move it from and to its pick-up position in engagement with the lowermost blank in the stack, the vacuum cup being vented to atmosphere when it reaches the delivery position. A continuously driven roller is adapted to receive the leading edge of the blank in this delivery position and a back-up roller swings on the axis of the driven roller so as to pinch the blank therebetween and to feed it downstream against a stop. Side guides loosely receive the edges of the blank as it moves against the stop, and inturned end portions of these side guides actually deform the side edges of the blank to hold it into position against the stop where it is engaged by mechanism associated with the tray forming apparatus.

3,788,638
ROLLER ARRANGEMENT, IN PARTICULAR FOR PAPER FOLDING, CREASING AND LIKE MACHINES
Werner Lehmann, Gutach, Germany, assignor to Firma Mathias Bauerle GmbH, Georgen, Switzerland
Filed Dec. 29, 1971, Ser. No. 213,649
Claims priority, application Germany, Jan. 29, 1971, 2104166
Int. Cl. B65g 47/00
U.S. Cl. 271—51 2 Claims

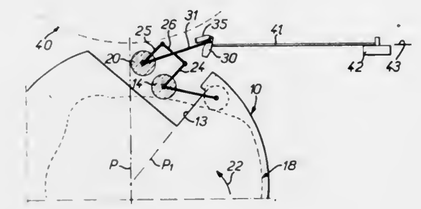
The present invention concerns a roller arrangement, in particular for use in connection with paper treating machines and more specifically with paper folding, creasing and like machines, in which one or several pairs of rollers are employed and operated for conveying and/or folding a pile of sheets of paper or other cellulosic materials having different thicknesses with respect to each other and arranged parallel in axial direction to each other. Such sheets of material are

operatively connected and subjected to common drive means, each pair of feed and sheet conveyor rollers including at least one hard surfaced or steel roller and a further roller for



cooperation with the latter carrying a shell or jacket of friction material surrounding its core and presenting a rubbing or friction surface.

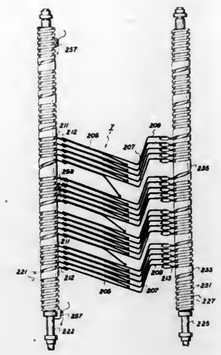
3,788,639
SHEET FEEDING CYLINDER
Michel Bru, Chatenay-Malabry, France, assignor to Ets J. J. Curnaud & Forges de Basse-Indre, Boulogne, France
Filed Mar. 20, 1972, Ser. No. 236,275
Claims priority, application France, Mar. 29, 1971, 7110876
Int. Cl. B65h 5/12
U.S. Cl. 271—53 10 Claims



A cylinder for feeding sheets of tinplate to a machine for treating at least one of the faces of the sheets by printing, varnishing or coating. A longitudinal cavity extends into the cylinder from the periphery parallel to the axis thereof. A shaft is located in the cavity and mounted for rocking movement about its axis by control means located beyond one end of the cylinder. A stop and a gripper operable by the rocking of the shaft and arranged to cooperate with the leading edge of a sheet for feeding it. The stop and the gripper are secured to an auxiliary shaft parallel to the first shaft and mounted for rocking movement in said cavity in which it is wholly contained, the two shafts being connected to each other for rocking movement by a transmission linkage comprising a first lever secured to the first shaft and a second lever shorter than the first secured to the auxiliary shaft and a connecting rod pivotally connected to the levers.

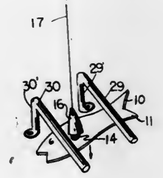
3,788,640
MOVING BIN SORTING APPARATUS
Denis J. Stemmle, Williamson, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 29, 1972, Ser. No. 319,957
Int. Cl. B65h 31/24
U.S. Cl. 271—64 6 Claims

This invention relates to a sorting apparatus for receiving sheets from a copying machine. A plurality of tray members receive the sheets as the tray members move past a sheet discharge zone. The drive rotates cam members to move the tray members vertically as sheets are moved along the sheet path towards the tray members. The cam members are formed



with variable pitch camming surfaces such that the tray members are in close proximity to each other except when positioned adjacent to the sheet discharge zone, whereupon the camming surfaces affect a spreading movement of the trays upon passing the sheet discharge zone.

3,788,641
MANIPULATION GAME
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.
Filed Jan. 26, 1973, Ser. No. 326,679
Int. Cl. A63f 9/00
U.S. Cl. 273—1 M 5 Claims

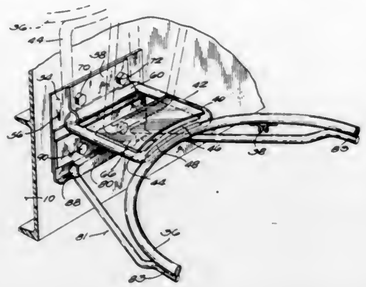


A game is provided which requires the skill of the player to manipulate a first member such as a simulated hook or grapple into engagement with a second member such as a fish whereby the two are retained together by releasable fastener and to thereafter manipulate the second member by the skill of manipulation of the first member upwardly through adjacent narrow, elongated formations such as spaced parallel bars which, if the second member is not properly aligned with said formations, said formations may cause the two members to become separated and the second member to drop away from the first member. Attraction and retention of the second member to the first member is effected by magnetic means, releasable hooking material or adhesive means.

3,788,642
BASKETBALL BACKBOARD AND GOAL STRUCTURE
Earl L. Matras; Frank D. Matras, and Donald J. Herad, all of Milwaukee, Wis., assignors to Frabill Manufacturing Co., Milwaukee, Wis.
Filed May 18, 1972, Ser. No. 254,364
Int. Cl. A63b 63/04
U.S. Cl. 273—1.5 R 7 Claims

A pre-mounted fold-up basketball backboard and goal structure includes a molded fiber glass backboard with a net-

work of reinforcing ribs on the rear surface of the backboard to strengthen the backboard and eliminate dead spots. The goal structure includes a hoop or rim with a support frame fixedly connected to the hoop and hinged to a base plate assembly which is secured to the backboard. The hinged connection of the hoop with the base plate assembly enables the hoop to be folded parallel to the backboard for shipment of the assembled hoop and backboard in a thin container. When erected for use, reinforcing rods extending from the hoop are secured to the base plate assembly by a clamping plate.

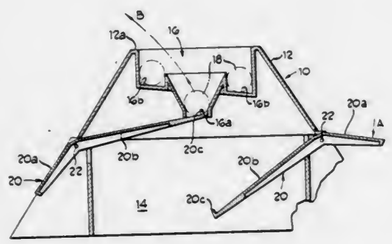


3,788,643

MISSILE ACTUATED TARGET LEVER

Howard J. Morrison, Highland Park, and Donald Frederick Nix, Des Plaines, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Dec. 8, 1971, Ser. No. 205,837
Int. Cl. A63b *7/00*
U.S. Cl. 273—102.1 G **20 Claims**



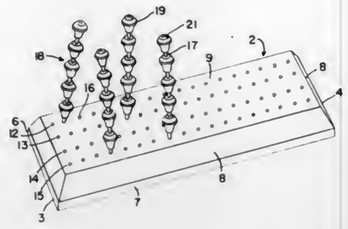
A target type game apparatus which includes a generally hollow frame member which has a generally centrally disposed open-top receptacle for receiving a plurality of balls, or the like. The receptacle has a central launching position defined by a hole in the bottom wall of the receptacle. The hole opens to the interior of the frame member and has a smaller diameter than the diameter of any one of the balls so that a ball may seat in the hole in a launching position. A ramp-like chute feeds the balls one-at-a-time to the hole in launching position. A plurality of lever members are pivoted intermediate their ends to the sides of the frame member about the central receptacle. One end of each lever member is exposed exteriorly of the frame member and defines a target area for striking by an object, e.g., throwing a bean bag at the target area. The opposite end of each lever member is disposed within the hollow frame member and defines a trigger adapted to strike the underside of a ball positioned in the launching hole and propel the ball from the receptacle generally in the direction which the respective target area faces, in response to the target area being struck by an object.

3,788,644

MATHEMATICAL BOARD GAME APPARATUS

Brent R. Evans, 1660 Calado Ct., Campbell, Calif.

Filed Nov. 10, 1971, Ser. No. 197,216
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 AD **8 Claims**



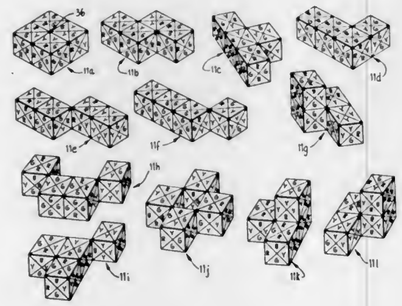
Apparatus for playing a mathematical game including an elongated block having at least four rows of 18 apertures each adapted to receive the stem of a mover, of which there are 20, and a plurality of dice adapted to be manipulated by each player in turn to determine the number of apertures encompassed within each move. Each mover is provided with a bore correlated in depth and diameter to the shank of another mover so that when the shank of a mover extends fully thereinto the mover lies somewhat tilted within the supporting bore. The game is designed to provide an adequate experiential base (involving choices, physical actions, and consequences) to promote, over a period of time, success in developing mathematical abilities.

3,788,645

MATHEMATICAL CUBE PUZZLE

Scott N. Nelson, 4259 Emory Way, Livermore, Calif.

Filed June 1, 1972, Ser. No. 258,872
Int. Cl. A63f *9/08*
U.S. Cl. 273—156 **5 Claims**



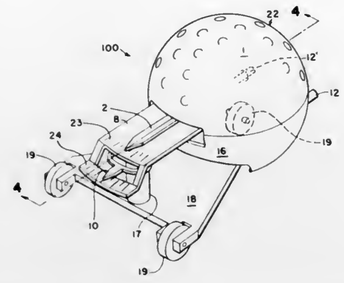
A puzzle made up of four separate cubes which are arrangeable into a plurality of differing solutions is described. Each edge of each cube has one of a set of three colors associated therewith, and the resulting arrangement or combination of colors around the edges on each cube face is different from that on every other cube face, and the colors of all common edges of adjacent faces on each individual cube match one another. The object of the puzzle is to arrange the various cubes relative to one another so that the colors associated with all exposed adjacent playing edges of different cubes match one another, e.g., are the same. Various solutions of differing degrees of difficulty are described satisfying this criteria.

3,788,646

PUTTING STROKE ANALYSER

Robert E. Rawson, 9521 Harriet Ln., Anahein, Calif.

Filed July 21, 1972, Ser. No. 251,514
Int. Cl. A63b *69/36*
U.S. Cl. 273—183 C **13 Claims**



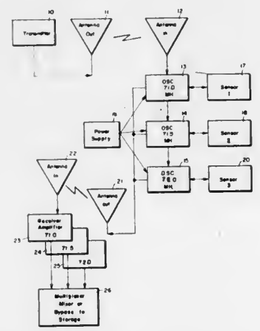
An analytical putting improvement instrument of the struck or missile type having graphical outputs showing direction and degree of putter-face misalignment when a putter is addressed to the instrument prior to and after stroking, and showing direction and degree of putting-stroke misalignment when a putter strokes the instrument; flexible connection of sensing elements and wheeled carriage provisions prevent impact damage to the mechanism; putting stroke and putter face misalignment register until reset.

3,788,647

SWING MEASUREMENT SYSTEM

James W. Evans, Jacksonville, Fla., assignor to Athletic Swing Measurement, Inc., Clearwater, Fla.

Filed Dec. 6, 1971, Ser. No. 205,067
Int. Cl. A63b *69/36*; **G01s** *9/56*; **H01q** *1/00*
U.S. Cl. 273—186 A **9 Claims**



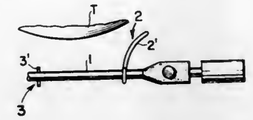
A swing measurement system for measuring characteristics of the swing of an athlete's arm, bat, club or for orthopedic and medical measurements of the movement of an individual's limbs. A transmitter is utilized for transmitting predetermined frequency to a passive repeater circuit where the received frequency is modulated with signals generated by sensors such as an accelerometer or strain gauge and the modulated frequency retransmitted by the passive repeater to a receiver where it can be displayed for comparison and analysis.

3,788,648

LOCKING DEVICE FOR TONE ARMS

Kiyoshi Kawai, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Dec. 16, 1971, Ser. No. 208,864
Claims priority, application Japan, Dec. 17, 1970, 45/126317
Int. Cl. G11b *3/10*
U.S. Cl. 274—23 B **2 Claims**



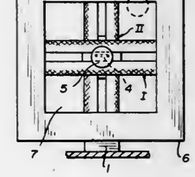
A locking device for a tone arm comprising a tone arm lifter and a tone arm rest. The arm lifter is arranged so that the outer end portion of the lift plate is formed with a curved hook-like portion, the outer end of which is bent inwardly. The seating plate of the arm rest is provided with a rising curved portion, at least in its inner side part. The hook-like portion of the arm lifter and the rising portion of the arm rest form an aperture having a restricted opening between the outer end of the hook-like portion and the top of the rising portion, wherein the tone arm is captively located and clamped when the arm is out-of-use.

3,788,649

ONE-POINT-BALANCE ADJUSTING DEVICE

Takeshi Hirano, Iwaki, Japan, assignor to Alps Motorola Inc., Tokyo, Japan

Filed Aug. 9, 1972, Ser. No. 278,962
Int. Cl. G11b
U.S. Cl. 274—1 R **4 Claims**



A balance adjusting device for a four-channel stereo system comprises a pair of linear potentiometers mounted one above the other at right angles to one another. The lower potentiometer has its control shaft connected to the bottom of the upper potentiometer which is movable relative to the lower potentiometer. The physical location of the knob on the control shaft of the upper potentiometer is used as an indication of the balance of the sound field of the system.

3,788,650

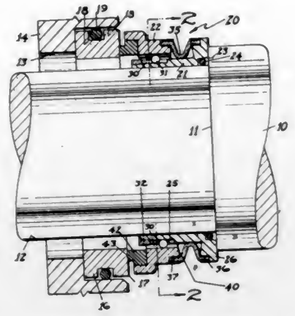
ROTARY SEAL

Bruce S. Place, Warwick, R.I., assignor to Magnetic Seal Corp., West Barrington, R.I.

Filed Oct. 4, 1971, Ser. No. 185,935
Int. Cl. F16j *9/00*
U.S. Cl. 277—38 **2 Claims**

A rotary seal is provided which will operate to maintain a seal between relative rotating parts when there is substantial

axial movement between the parts by providing a pair of annular members telescopically disposed which will telescope on

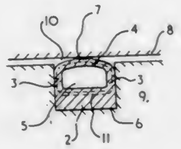


axial relative movement of the parts. Flexible sealing is provided between the two telescoping parts to maintain a fluid tight arrangement.

3,788,651
INFLATABLE SEALS

William David Brown, Ashfordby, and Richard Noel Thomson, Markfield, both of England, assignors to Dunlop Limited, London, England

Filed Dec. 20, 1972, Ser. No. 317,081
Claims priority, application Great Britain, Dec. 23, 1971, 59897/71
Int. Cl. F16j *15/46*
U.S. Cl. 277—34 **8 Claims**



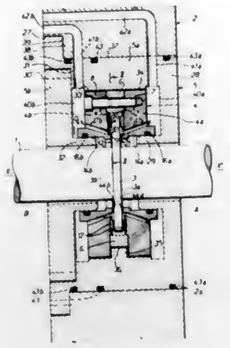
An inflatable seal comprising a flexible wall portion and an inflatable chamber defined at least in part by the flexible wall portion, the flexible wall portion being formed from a synthetic rubber reinforced by one or more layers of fabric reinforcement formed from an aromatic polyamide, an aromatic polyimide, or an aromatic polyamide-imide. The seals made according to the present invention are particularly suited for application in which they are exposed to extreme conditions, for example steam at high pressure. Such applications includes autoclaves, and sterilising units, of which the following is a Specification.

3,788,652
SEALING DEVICES FOR ROTATING SHAFTS

Alfred Georges Jean Hirtz, Boulogne-Sur-Seine, and Christian Andre Lucien Mech, L'Isle-Adam, both of France, assignors to Societe Rateau, Paris, France

Filed Nov. 22, 1971, Ser. No. 200,983
Claims priority, application France, June 3, 1971, 7120105
Int. Cl. F16j *15/16*
U.S. Cl. 277—71 **11 Claims**

A device for sealing an opening in a wall for the passage of a rotating shaft, comprising means for interposing a barrier of pressurized liquid between the two spaces separated by the wall. These means include an annular block sealingly mounted in the opening, astride a flange fast with the shaft, and provided, opposite each side of said flange, with a series of

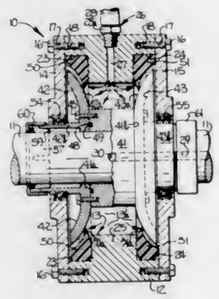


hydrodynamic lift generating shoes, and a frontal surface which determines a barrier-liquid leakage limiting clearance, whereby the shoes automatically balance the clearances on either side of the flange.

3,788,653
ROTARY FLUID SEAL

James W. Sigmon, Charlotte, N.C., assignor to Sigmon Corporation, Charlotte, N.C.

Filed Sept. 18, 1972, Ser. No. 289,798
Int. Cl. F16j *15/38, 15/40*
U.S. Cl. 277—70 **11 Claims**



A rotary fluid seal comprising a housing having a fluid pressure chamber therein, with a shaft mounted for rotation in the housing and having a longitudinal passageway therein for communicating with the fluid pressure chamber within the housing. The housing is provided with port means extending therethrough communicating with the fluid pressure chamber for introducing a fluid therein. Sealing means are positioned within the housing and cooperate with the fluid pressure chamber therein for controlling the flow of fluid from within the fluid pressure chamber into the longitudinal passageway of the shaft without escapement from around the shaft. The sealing means comprises a rotatable member of rigid construction, concentrically carried by, and rotatable with the shaft and having an axial face serving to define a wall portion of the fluid pressure chamber, and a seal member carried by the housing and having a flexible annular lip portion sealingly engaging the axial face of the rotatable member concentrically therewith, and also serving to define a wall portion of the fluid pressure chamber.

3,788,654
MULTIPLE HARDNESS O-RINGS

Donald J. Mandley, Washington, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 30, 1971, Ser. No. 185,287
Int. Cl. F16j *9/00*
U.S. Cl. 277—229 **2 Claims**

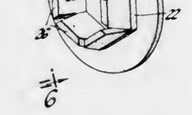


A multiple hardness O-ring wherein a molded ring of nitrile rubber including partially unactivated materials has a hardened skin formed by surface curing the unactivated materials in a solution of the curing agent for nitrile rubber thereby providing secondary curing period which increases the exterior hardness and improves the compression set characteristics of the O-ring.

3,788,655
GROMMET SEALING ARRANGEMENT

John G. Hathaway, St. Clair Shores, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 10, 1972, Ser. No. 270,455
Int. Cl. F16l *5/02*; **H01b** *17/30*; **B23p** *11/02*
U.S. Cl. 277—212 F **3 Claims**

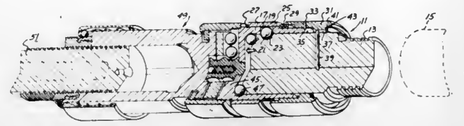


An arrangement for sealing an apertured panel through which a member is inserted utilizes a grommet of a generally flexible material. An annular edge of the panel defines the aperture and the member has an annular outer surface received in spaced relationship to the annular edge of the panel after it is inserted through the circular aperture. The grommet is inserted within the aperture prior to the member and includes a head flange portion integral with sealing and guide portions. The head flange portion has a generally annular configuration with a surface engaging one side of the panel adjacent the annular edge of the circular aperture. The sealing portion is received within the aperture and has a cross section with a thin-walled equilateral polygonal configuration. The totals of the lengths of the inner and outer sides of the sealing portion are respectively substantially equal to the circumferences of the annular outer surface of the member and the annular edge of the panel. Consequently, the junctures of the sides of the sealing portion grip the annular edge of the panel to initially position the grommet, and the sealing portion deforms during insertion of the member to assume an annular configuration sealing against both the member and the panel. The guide portions of the grommet normally extend from the respective sides of the sealing portion with a generally frustoconical configuration pointed away from the head flange portion so as to guide the grommet during insertion within the circular aperture of the panel. The guide portions expand to a split annular configuration during the insertion of the member.

3,788,656
RADIO ACTIVE TOOL HOLDER

Theodore M. Smith, Detroit, Mich., assignor to Lucille G. Smith and Theodore M. Smith, Trustees of the Theodore M. Smith Trust, Detroit, Mich.

Filed Feb. 14, 1972, Ser. No. 225,769
Int. Cl. B23b *31/04*
U.S. Cl. 279—1 A **6 Claims**

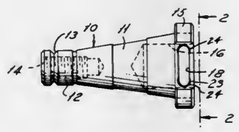


In a radio active tool holder which includes a power rotated and longitudinally fed shank normally projected into a cylindrical body adapted to mount a tool holder and wherein a series of radial slots are provided in said shank adapted to receive drive balls carried by said body and wherein the radio active ring is mounted upon said body and normally exposed with respect to a longitudinally movable shield on said body and wherein a series of pin and guide slot means are provided between the shield and shank permitting the shield to rotate with the shank and move longitudinally thereof and wherein a pin and slot connection between the shield and body includes angular slot in the body whereby relative rotation of the shank with respect to the body effects longitudinal movement of said shield so as to protectively enclose the radio active ring.

3,788,657
TOOL HOLDER FOR USE WITH AUTOMATIC TOOL CHANGING APPARATUS

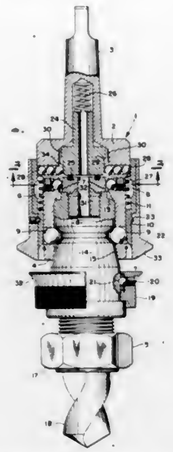
Robert S. Sutton, Franklin, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich.

Filed Aug. 30, 1972, Ser. No. 284,812
Int. Cl. B23b *31/36*
U.S. Cl. 279—1 TS **7 Claims**



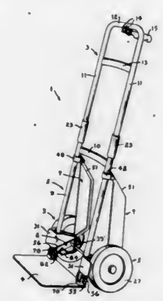
A tool holder for use with a machine tool having a rotatable spindle and an automatic tool changing apparatus for positioning the tool holder in alignment with the spindle and for engagement therewith for performing a work operation on a workpiece by a tool carried in the tool holder. The tool holder includes a holder body having a shank adapted to be received in the drive spindle of a machine tool, and a radially outward extended peripheral flange. The flange is provided with a pair of elongated, radially inward extended pockets which are identically shaped and disposed on opposite sides of the flange. The elongated pockets are adapted to operatively receive complementary shaped fingers of the tool gripping mechanism of an automatic tool changer apparatus. A pair of inserts having selectively spaced apart bores are adapted to be mounted in the elongated pockets to permit locating and securing the tool holder in a predetermined orientation in the tool gripping mechanism of the automatic tool changing apparatus.

3,788,658
INSTANT CHANGE TOOL HOLDER
Milton L. Benjamin; David D. Walker, and Wilbur N. Miles, all of Chagrin Falls, Ohio, assignors to Erickson Tool Company, Solon, Ohio
Filed Aug. 14, 1972, Ser. No. 280,650
Int. Cl. B23b 31/06
U.S. Cl. 279—75 7 Claims



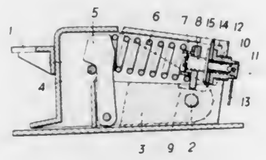
A tool holder characterized in that the drive housing socket and the tool adaptor shank driven thereby have a quick release connection with each other, and have sleeves rotatable thereon to facilitate the connection and disconnection of the adaptor and housing without stopping rotation of the machine tool spindle in which the drive housing is adapted to be mounted. The housing sleeve is axially movable on the housing between locking and unlocking positions and the housing has a latch mechanism which holds the housing sleeve in unlocking position, the latch mechanism being operative during axial insertion of the adaptor shank into the housing socket to initiate rotation of the shank for facilitating the making of an axially interfitted driving connection between the housing and shank and to automatically release the housing sleeve for movement to adaptor locking position.

3,788,659
HAND TRUCK
Benigene Allen, 3291 Oakwood St., Portage, Ind.
Filed June 5, 1972, Ser. No. 259,585
Int. Cl. B62b 5/02
U.S. Cl. 280—5.24 12 Claims



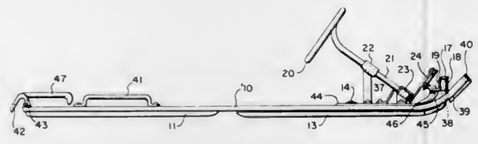
The structure is directed to a manually operable truck comprising a pair of wheel units, a lower forwardly extending load-bearing platform, an upright load-bearing framework provided with a handle whereby to facilitate manipulation of the truck; and the invention primarily involves providing means whereby the aforesaid components may be adjusted for operational use or to a folded or collapsed condition for storage or shipment.

3,788,660
SPRING LOCK
Thomas Gordon Smolka, Wien-Mauer, and Franz Hrachowitz, Wien, both of Austria, assignors to Gertsch AG, Zug, Switzerland
Filed May 19, 1972, Ser. No. 255,195
Claims priority, application Austria, June 1, 1971, 4691
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 9 Claims



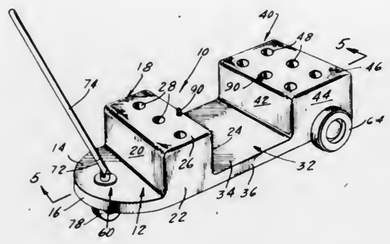
Adjustment mechanism for a safety ski binding. Adjusting means are provided for adjusting the tension of the control spring in a safety ski binding, said adjustment means having both a coarse adjustment and a fine adjustment. The fine adjustment is accessible to the user from the outside of the binding housing but the coarse adjustment is accessible only to a person possessing suitable tools and from within such housing. The spring seat is threaded onto a screw which is coaxially received into a further screw which latter is threaded into the housing. The latter screw provides the fine adjustment and the first-mentioned screw provides the coarse adjustment.

3,788,661
STEERABLE TOBOGGAN
Cletus V. Hird, 595 North Chestnut St., Platteville, Wis.
Filed June 5, 1972, Ser. No. 259,810
Int. Cl. B62b 13/08
U.S. Cl. 280—22 4 Claims



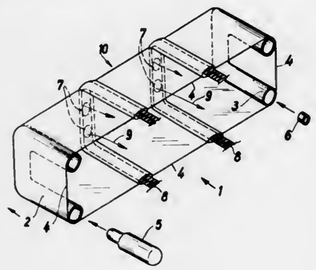
This improved toboggan has a pair of fixed parallel rear runners and aligned therewith another pair of pivoted front runners, which are pivoted ahead of the mid-point so as to automatically return to straight ahead position after a turn, the steerable front runners having a spacer bar pivotally connected at opposite ends to their up-turned front ends and reciprocable in either of three ways: (1) by link connection with a crank on the forward end of a rotatable steering rod that is turnable with a steering wheel operated by the driver; (2) by oscillation of a foot operable steering bar having a pin and slot sliding pivotal connection with the spacer bar, or (3) by ropes attached to the opposite ends of the spacer bar. The runners project downwardly to a small extent from the flat bottom of the toboggan-like body and the steering means of all three kinds is easily operable by the driver seated on the bottom in the same way as riding the ordinary toboggan, the object being to maintain a low center of gravity and thus make for safety of operation even when negotiating fairly steep side hills.

3,788,662
UTILITY CART
Richard A. Rasmussen, Long Beach, and Mariano Jimenez, Jr., Huntington Park, both of Calif., assignors to James M. Rasmussen, Inglewood, Calif.; part interest
Filed Mar. 17, 1972, Ser. No. 235,479
Int. Cl. B62b 3/00
U.S. Cl. 280—47.11 2 Claims



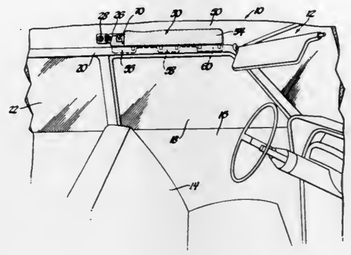
There is disclosed a utility cart having a uni-construction comprising a shell-like body with a leading low-bed portion followed by first and second integrally formed, box-shaped carriage housings, the housings being separated by an intermediate bed portion which is integrally attached to the opposing lower sides of each housing. The top walls of each housing are provided with a plurality of vertical receptacles for receiving various tools or articles which are adapted to be removably interconnected to a handle, the handle being removably secured to a steering means movably supported in the leading low-bed portion. A pair of wheels are operably supported in the rear area of the body whereby, together with the steering means, the cart can be transported.

3,788,663
INFLATABLE AIR BAG FOR MOTOR VEHICLES FOR ATTENUATING THE IMPACT EFFECT OF THE PASSENGER IN CASE OF ACCIDENT
Per Olof Weman, Stockholm, Sweden, assignor to Klippan GmbH, Hamburg, Germany
Filed June 11, 1971, Ser. No. 152,129
Claims priority, application Germany, June 20, 1970, P 20 30 518.4
Int. Cl. B60r 21/10
U.S. Cl. 280—150 AB 1 Claim



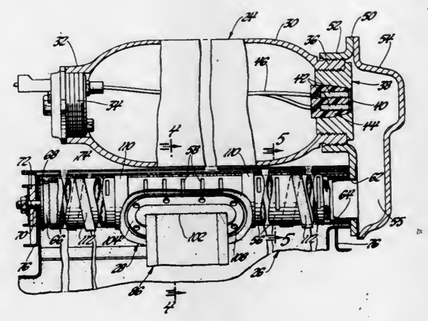
Inflatable air bag having one or several air intake openings for drawing air from the passenger compartment into the air bag, and closure means for automatically sealing the air intake openings after inflation of the air bag. The closure means may consist of bands, tubes, flaps and the like.

3,788,664
SHOULDER BELT STORAGE RETAINER
Thomas J. Gray, Warren; James H. DeClaire, Mt. Clemens, and Herbert D. Tucker, Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed June 5, 1972, Ser. No. 259,959
Int. Cl. B60r 21/10
U.S. Cl. 280—150 SB 6 Claims



A shoulder belt storage retainer includes an elongated resilient member having a base portion attached to a vehicle body roof structure. The elongated resilient member defines in cooperation with the body roof trim a shoulder belt storage pocket. In one form, the base portion of the elongated resilient member has integral downward extending portions in which tabs are provided. The tabs are engaged by the conventional door opening garnish molding to attach the elongated resilient member to the roof structure. In another form, the base portion is screw attached to the roof structure. A keyhole-shaped slot in the rearward end of the elongated resilient member receives the headed stud of the shoulder belt latch member to store the latch member in the storage retainer.

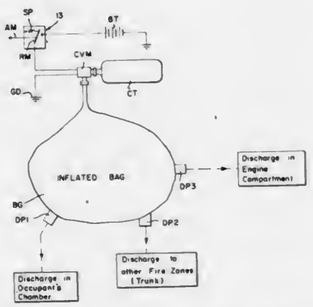
3,788,665
OCCUPANT RESTRAINT SYSTEM
James L. Noll, Livonia, and John F. Zens, Algonac, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed May 12, 1971, Ser. No. 142,533
Int. Cl. B60r 21/08
U.S. Cl. 280—150 AB 6 Claims



An occupant restraint system includes a cylindrical diffuser which is communicated with a source of pressure fluid. The diffuser includes first and second rows of axially spaced partial circumferentially extending slots, the rows being spaced circumferentially of each other. A torso cushion surrounds the

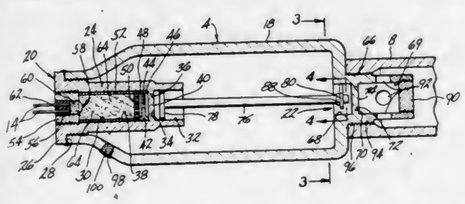
diffuser and is inflated from the first row. A knee cushion fits within the torso cushion and includes a slit in the wall thereof. Annular brackets on the inside and outside of the wall enclose a planar portion of the wall including a slit and are bolted to each other through the cushion. Encircling portions of the outside bracket receive the diffuser to locate the enclosed portion of the cushion wall tangent to the outer surface of the diffuser with the slit extending transversely of the second row of slots. A flexible sleeve is secured to the cushion wall and extends inwardly of the cushion from the slit. The sleeve provides a one-way valve permitting inflation of the cushion from the slit and preventing reverse flow of pressure fluid from the cushion.

3,788,666
PROTECTION SYSTEM
Jack M. Kramer, Los Angeles, and Abdul N. Sitabkhan, El Monte, both of Calif., assignors to HTL Industries, Inc., Monrovia, Calif.
Filed July 27, 1971, Ser. No. 166,528
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **21 Claims**



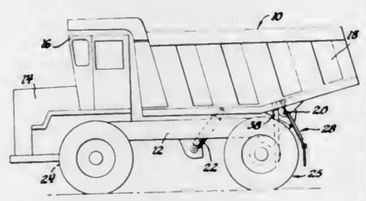
Covers an arrangement for protecting people and property carried by a vehicle, such as an automobile or aircraft. The arrangement may include an impact switch, a control valve mechanism, a tank filled with fluid, one component of which may be a fire extinguishing agent, and an inflatable bag, the arrangement being so organized that, upon impact with another vehicle or a stationary body, the switch will complete a circuit to operate the control valve mechanism to release the fluid contents of the tank into the bag and thereby inflate it to enable it to act as a cushion. Then the bag may be deflated and the fluid released to protect the vehicle and its people and property against fire.

3,788,667
VEHICLE SAFETY DEVICE
Rayburn D. Vancil, Carterville, Ill., assignor to Olin Corporation, New Haven, Conn.
Filed Dec. 6, 1971, Ser. No. 205,024
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **10 Claims**



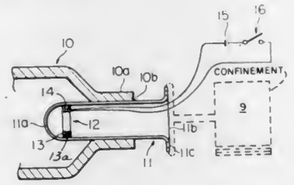
An apparatus for use in a vehicle safety system utilizing inflatable confinement means, a stored fluid under pressure, and a propellant charge for the generation of a hot gas. The apparatus includes a elongated reservoir for storing fluid under pressure and is provided with first and second end portions spaced apart in the direction of the axis of elongation. A fluid outlet is provided in the first end portion and has means closing it against fluid flow. A propellant charge storage chamber is provided at the second end portion and has means sealing it from the interior of the reservoir. A rod member extends from a point adjacent the fluid outlet to a point adjacent the means sealing the propellant chamber. The rod member has means for guiding and supporting it at a point adjacent each end. Upon burning of the propellant charge, the means sealing the propellant chamber is opened and the rod member serves to unseal the fluid outlet.

3,788,668
MUDFLAP AND ROCK EJECTOR COMBINATION FOR A REAR DUMP VEHICLE
Julius M. Perger, Cleveland, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 30, 1972, Ser. No. 302,237
Int. Cl. B62d *25/16*
U.S. Cl. 280—154.5 R **5 Claims**



A mudflap is attached by a pivotal connection to the underside of a dump body at a point located vertically above the rear dual tires of a rear dump vehicle and a rock ejector carried by the vehicle maintains the mudflap spaced from the tires when the dump body is in the lowered-carry-position and the raised-dump-position.

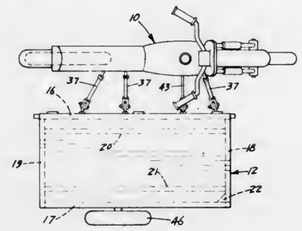
3,788,669
SAFETY DEVICE FOR MOTOR VEHICLE
Keizauburo Usui, Yokosuka, and Michio Yamaguchi, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed July 27, 1971, Ser. No. 166,411
Claims priority, application Japan, Sept. 8, 1970, 45-78727; Sept. 8, 1970, 45-89333
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **7 Claims**



A safety device for a motor vehicle adapted to protect a vehicle occupant from injury in the event of a collision of the motor vehicle, comprising pressurized gas supply unit including a pressurized gas generating means and a sealing means in closing engagement with a discharge outlet portion of the pressurized gas generating means. The sealing means includes a unitary casing having a closed end portion and an open end

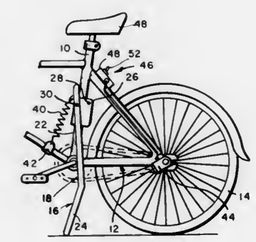
portion and detonating means mounted at the closed end portion of the casing for rupturing, when activated, the casing thereby to provide communication between the outlet portion and the inflatable confinement whereby the pressurized gas is admitted to the inflatable confinement to actuate the same to its protective position.

3,788,670
CAMPING UNIT
Raymond N. Petersen, c/o Petersen Welding & Construction Co., 346 North 6th Street, Forest City, Iowa
Filed Nov. 12, 1971, Ser. No. 198,137
Int. Cl. B62k *27/00*
U.S. Cl. 280—203 **15 Claims**



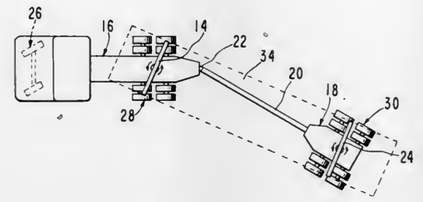
A camper unit attachable to the side of a motorcycle. The unit includes a camping portion mounted on a frame portion attachable to the side of a motorcycle. The floor of the camping portion is comprised of a plurality of panels hingedly connected which fold together to form a box-like structure for transport to and from a camping location. The hinges connecting the panels are mounted in grooves provided in the ends of the respective connected panels for strength and obscurity. A tent provides the shelter for the camping portion. Jointed tent poles serve also as support members for the floor. Removable legs are provided for further floor support. A portion of the floor is supported by the wheel attached to the frame. Hitch means connecting the camper unit to the motorcycle is adjustable whereby the camper unit may be attached to a wide variety of motorcycles of different manufacture and model. The camper unit is adaptable to be trailed behind a snowmobile or a small automobile.

3,788,671
KICK STAND
Alexander D. MacAlpine, 50 North Main Street, Natick, Mass.
Filed Mar. 20, 1972, Ser. No. 236,421
Int. Cl. B62h *1/02, 5/00*
U.S. Cl. 280—303 **7 Claims**



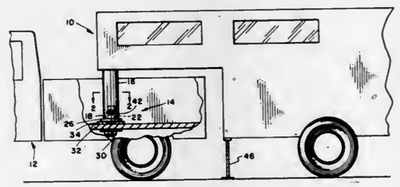
A kick stand provided with a split clamping sleeve by means of which it may be attached to the frame of a bicycle astride the rear wheel fork for pivotal movement from a position in engagement with the ground to support the bicycle in an upright position to a rearwardly disposed position for storage when the bicycle is being ridden and a spring for moving the kick stand to its stored position into engagement with spring clips adapted to hold the kick stand in said stored position.

3,788,672
ROLLER BEARING FOR LOGGING TRUCK AND TRAILER
Jack L. Tharp, P.O. Box 867, Willits, Calif.
Filed May 26, 1972, Ser. No. 257,118
Int. Cl. B62d *53/08*
U.S. Cl. 280—404 **9 Claims**



An improved roller bearing for the pivotal, log-supporting bunks of a logging truck-trailer combination. Each bunk has four such bearings, two near each end and on opposite sides of the bunk. The bearings are engageable with the flat, upper surface of the support structure below the bunk to allow the bunk to pivot easily relative to the support structure. Each roller has its longitudinal axis aligned with the pivotal axis of the bunk.

3,788,673
TRAILER HITCH
Lyle R. Gloege, 843 Greenway Ct., Derby, Kans.
Filed July 11, 1972, Ser. No. 270,843
Int. Cl. B62d *53/00*
U.S. Cl. 280—423 R **7 Claims**

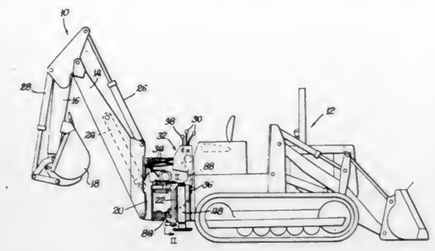


A gooseneck trailer hitch including a vertically positioned tubular member attached to the trailer with a bearing edge at its open end for receipt of a cone-shaped hitch member rotatably mounted on a truck bed having a load bearing flange around the bottom thereof for supporting the bearing edge of the tubular member and a loosely fitting locking pin passing through both the tubular member and cone-shaped hitch member allowing a certain degree of tilt between the tubular member and hitch member.

3,788,674
CLAMPING MECHANISM FOR SIDE SHIFTABLE BACKHOE
Robert Casey, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Aug. 17, 1972, Ser. No. 281,516
Int. Cl. B60d *7/00*
U.S. Cl. 280—456 **20 Claims**

There is disclosed a backhoe having a base frame that is mounted to be stationary with respect to a vehicle. A shiftable

frame is slidably mounted on the base frame and supports a digging arm and bucket at an infinite number of positions transverse to the axis of the vehicle. A hydraulically actuated



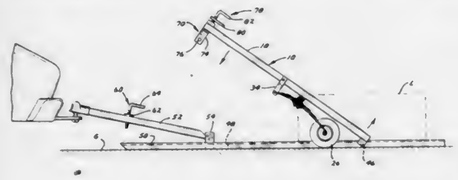
clamp is operative to clamp the shiftable frame at selected positions on the stationary frame. The clamp is constructed and arranged to utilize the weight of the shiftable carriage to aid in clamping action and to thereby reduce clamping effort.

3,788,675

GROUND LEVEL LOADING TRAILER

Roger R. D. Wilander, 926 North Central Avenue, Duluth, Minn.

Filed May 1, 1972, Ser. No. 249,613
Int. Cl. B60p *1/00*
U.S. Cl. 280—43.11 **6 Claims**



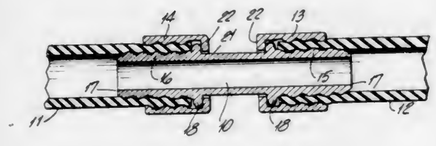
A ground level loading trailer having a load support in the form of a platform adapted to lie flat on the ground for loading together with a U-shaped lifting device straddling the platform and pivoted on supporting wheels and also pivoted to the load support, said lifting device when the load support is in loading position extending angularly upwardly therefrom and when brought down into juxtaposition with the load support, raising the load support into elevated position.

3,788,676

FLEXIBLE HOSE CONNECTOR

Robert A. Lossie, 2445 N. Dunlap Street, St. Paul, Minn.

Filed Jan. 31, 1972, Ser. No. 221,968
Int. Cl. F16l *33/22*
U.S. Cl. 285—247 **1 Claim**



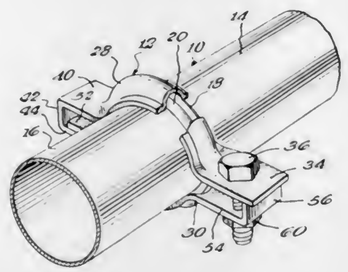
A coupler unit for connecting two flexible hoses in a water-tight joint. The unit consists of a short length of tubing with a special male thread on each end, together with two loose captive female threaded members. The hose to be coupled is forced over a male threaded end of the tubing, and the female threaded member is rotated over the outer periphery of the hose, forcing the coupled hose into a threaded engagement with both the connector, and the female threaded member.

3,788,677

EMISSION-FREE EXHAUST PIPE JOINT AND CLAMP THEREFOR

Bertil Stade, 480 Knollwood Drive, Wood Dale, Ill., and Edward Hoglund, 1020 Lois Avenue, Park Ridge, Ill.

Continuation-in-part of Ser. No. 142,977, May 13, 1971, abandoned. This application Mar. 20, 1972, Ser. No. 236,364
Int. Cl. F16l *17/00*
U.S. Cl. 285—367 **11 Claims**



The joint of the invention comprises exhaust pipes formed with beaded ends providing abutting flange-like surfaces that are axially forced together by a clamp applying wedging forces on the external beads. Modified forms of the joint have pilot extensions on one pipe of the joined pair, the bead on this one pipe in each case being spaced from the free end of the pipe. The pilot extension is telescoped within the other pipe bringing the beads together side by side and the clamp is engaged over both beads. In some joints, such as those formed in pipes made of a tough metal, a gasket may be inserted between the beaded ends.

The clamp for the joints is one which has a concave groove engaging over the pair of beads to apply the axial force by the wedging action produced when the clamp is constricted. The preferred clamp is made in two halves which have a hinged connection of great simplicity comprising merely a rectangular bight formed on one end of one half and a tongue formed on one end of the second half. The tongue lies in the bight and cannot move laterally because of the self-centering action produced when the clamp is engaged on the beads. The other end of each half comprises a tongue with perforations aligned to receive a bolt and nut to enable the halves to be clamped together, pivoting with respect to one another on the hinged connection.

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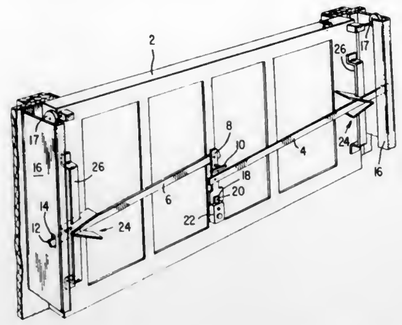
ADJUSTABLE GARAGE DOOR LOCK

Harold Switzgable, 125 Stokes Street, Box 622, Freehold, N.J.

Filed Sept. 25, 1972, Ser. No. 291,656
Int. Cl. E05c *5/00*
U.S. Cl. 292—7 **2 Claims**

A guide for the locking bar of an over-head garage door, or the like, is adjustably mounted on the door to permit the end

of the bar adjacent the edge of the door to be moved into a position wherein it will register with an opening in a stationary



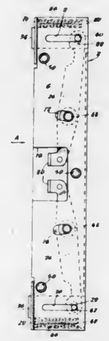
member adjacent the door in various positions of the door with respect to the stationary member.

3,788,679

DOOR FASTENING UNITS

John Anthony Banham, 233/235 Kensington High Street, London, W8 England

Filed Aug. 2, 1971, Ser. No. 168,000
Int. Cl. E05b *9/00*; **E05c** *1/06, 9/10*
U.S. Cl. 292—40 **12 Claims**



A door fastening device supplements the function of a door lock and has bolt members that are slid to operative positions by the shooting of the lock bolt. Actuating means of the device are adjustable after the device has been mounted in place to ensure that the lock bolt will operate the bolt members fully. The attachment means of the device are hidden by a separate cover after adjustement of the actuating means and the cover carries a separate striker plate which allows the lock bolt to hold the door closed without undue play but which is displaceable when force is exerted on the door to allow the lock bolt and the bolt members jointly to resist forcible opening of the door.

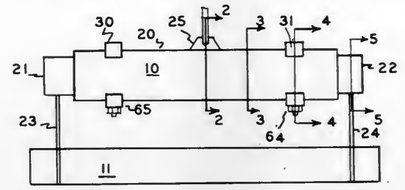
3,788,680

ORDNANCE HANDLING DEVICE

Malcolm B. Brown, Oreland, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 21, 1972, Ser. No. 265,084
Int. Cl. B66c *1/12*
U.S. Cl. 294—81 R **7 Claims**

The invention disclosed herein relates to a lifting member and more specifically to an extendable type horizontal lifting bar adapted for adjustment by a pair of slidable telescoping members and a unique clamping device for rigidly affixing



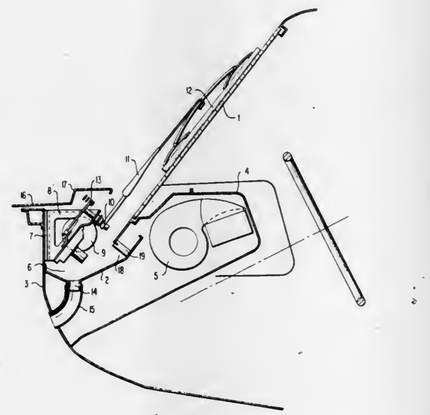
them in individual positions for adjustment to maintain a load to be lifted in a horizontal position at all times.

3,788,681

ARRANGEMENT OF THE DRIVE AND SUPPORT OF WINDSHIELD WIPERS

Bela Barenyi, Maichingen, and Gerhard Busch, Gechingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Mar. 24, 1972, Ser. No. 237,842
Claims priority, application Germany, Mar. 25, 1971, 2114424
Int. Cl. B60s *1/04*
U.S. Cl. 296—28 R **22 Claims**



An arrangement of the drive and bearing supports of windshield wipers for vehicles, especially for passenger motor vehicles, which are accommodated in front of the windshield pane; a sheet metal member adjoins the windshield which is connected with a front wall separating the engine space from the passenger space, whereby the drive and the bearing supports of the windshield wipers are mounted at the front wall.

3,788,682

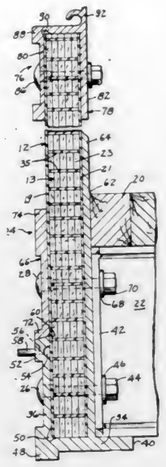
TRAILER CONSTRUCTION

Donald J. Ehrlich, Monon, Ind., assignor to Monon Trailer Inc., Monon, Ind.

Continuation-in-part of Ser. No. 74,713, Sept. 13, 1970, Pat. No. 3,692,349. This application Apr. 1, 1971, Ser. No. 130,188. The portion of the term of this patent subsequent to Sept. 19, 1989, has been disclaimed.
Int. Cl. B62d *27/00, 25/02*
U.S. Cl. 296—28 M **5 Claims**

A vehicle body panel comprises a plywood core having glass fiber reinforced plastic coatings on opposite sides thereof. The

core has holes therein so that during curing and heating of the resin, air bubbles at the interfaces of the coatings and the core will be forced into the holes. In addition, the plastic will be extruded into the holes to form a mechanical connection



between the coatings. The panel is secured to a vehicle by an elongated channel rail that is joined to floor beams of the truck through connector bolts that are below the vehicle body's floor so as not to interfere with cargo placed therein.

3,788,683

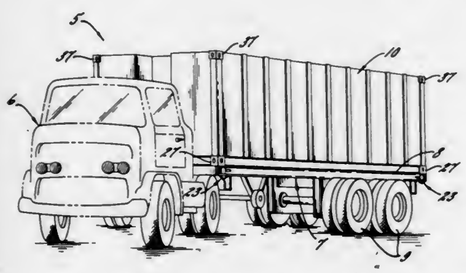
TRANSPORT VEHICLE WITH PORTABLE CARGO CONTAINER

James A. Rumell, 1955 Vermont, Blue Island, Ill.

Continuation-in-part of Ser. No. 27,361, April 10, 1970, abandoned. This application July 10, 1972, Ser. No. 269,978

Int. Cl. B60s *9/14*; **B62d** *27/06*

U.S. Cl. 296—35 A **8 Claims**



A transport vehicle having a wheeled bed and a removable and reusable freight hauling and storing container which is releasably mounted on the bed to form the transport body of the vehicle. The container includes a rectangular base and frame with upstanding side and end walls defining a freight receiving area. Retractable and extensible dolly wheels are located near the corners of the base at one end thereof and near the center of the base at the other end; and a self-contained hydraulic system retracts or extends the wheels to convert the container from an immobile frame-based storing container to a mobile wheeled hauling container. The wheels are all within the rectangular frame so that the resulting container may be maneuvered about a loading area, or onto or off a ship or dock, without requiring high-capacity cranes or other special container-handling facilities.

3,788,684

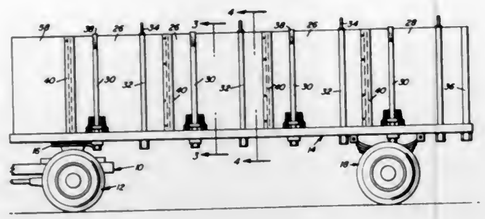
REMOVABLE GRAIN BODY SIDES FOR FLAT LOAD BED

Davis O. Johnson, and Terry Lee, P.O. Box 235, both of Hayti, S. Dak.

Filed Mar. 30, 1972, Ser. No. 239,448

Int. Cl. B62d *27/06*

U.S. Cl. 296—36 **10 Claims**



A side wall assembly for a flat load bed of the type including longitudinally spaced upwardly opening opposite side mounting pockets. The assembly consists of upstanding stakes downwardly seatable in the pockets and provided with laterally projecting downwardly opening upper end hook portions, spring-type readily releasable anchors for securing the stakes in the pockets and body side panels removably positionable against the inner sides of the stakes and over whose upper marginal edge portions the stake hook portions are engaged.

3,788,685

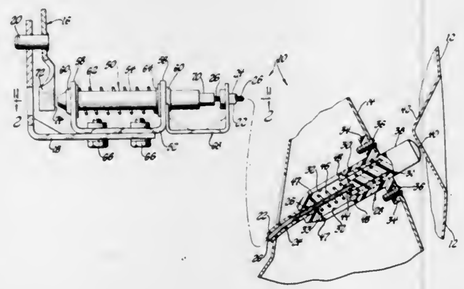
BOWDEN CABLE LATCH RELEASE MECHANISM

Ludwig Leichtl, Emmaus, Pa., assignor to McCord Corporation, Detroit, Mich.

Filed Apr. 17, 1972, Ser. No. 244,817

Int. Cl. B60n *1/00*

U.S. Cl. 296—65 A **6 Claims**



This invention provides a seat back release mechanism for tiltable automobile seats actuated by an automobile door which includes a flexible motion transmitting remote control cable for transmitting compressive and tensile forces in a curved path; a reciprocating piston member connected to one end of the remote control cable, mounted in a housing, and adapted to transmit a compressive force in response to the closure of the automobile door, and a latch mechanism connected to the other end of the remote control cable for engaging and latching the seat back whereby the seat back is held substantially upright and is restricted from forward tilting movement when the automobile door is closed.

3,788,686

CAR BODY FOR MOTOR VEHICLES

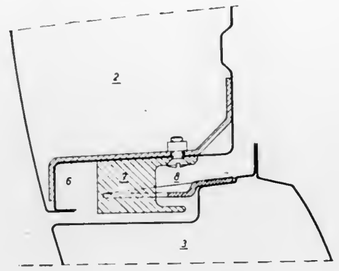
Egbert Rossie, Ingolstadt, and Bernd Barke, Ettling, both of Germany, assignors to Audi NSU Auto Union A.g., Ingolstadt, Germany

Filed June 23, 1971, Ser. No. 155,960

Claims priority, application Germany, July 7, 1970, P 20 33 531.3

Int. Cl. B60j *5/04*

U.S. Cl. 296—146 **3 Claims**



A motor vehicle is provided with a device protecting it from accidents affecting the sides of the car body. The device includes a hook fixed to each door of the car and having a recess directed toward the interior of the car.

3,788,687

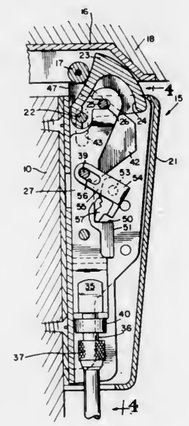
SAFETY EXIT LATCH BOLT RETAINER

George Z. Zawadzki, Indianapolis, Ind., assignor to Van Duprin, Inc., Indianapolis, Ind.

Filed May 4, 1972, Ser. No. 250,236

Int. Cl. E05c *15/02*

U.S. Cl. 292—92 **5 Claims**



A safety exit latch bolt retainer comprising a housing, a fallaway latch bolt pivoted in the housing for movement between a retracted position and a projected position wherein it is located for cooperation with a strike member, a retractor guided for reciprocation in the housing, operatively connected to shift the latch bolt between its projected and retracted positions and adapted for connection to a panic bar or the like, a slide guided in the housing for reciprocation alongside the retractor between a retracted position and a projected position for cooperation with such a strike and resiliently biased toward such projection position, and a detent lever pivoted within the housing, having one arm operatively connected to move with the retractor and having another arm positioned to cooperate with the slide to hold the slide against movement toward projected position when the bolt is in projected position and to hold the retractor against bolt-projecting movement when the slide is in projected position, the slide having a camming surface cooperative with such a strike, as a closure on which the housing is mounted moves toward closed position, to shift the slide from projected position to retracted position, to trip the detent lever to release the retractor for movement to shift the bolt to projected position.

3,788,688

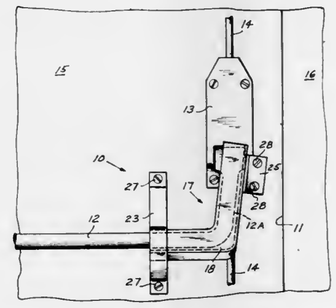
CRASH BAR BRACKET ASSEMBLY

William T. Chandler, 9134 Palm, Bellflower, Calif.

Filed Jan. 5, 1973, Ser. No. 321,338

Int. Cl. E05c *15/02*

U.S. Cl. 292—92 **2 Claims**



A unit attached at the operating end of a crash bar inhibits illegal entry by use of wire hooks or the like.

3,788,689

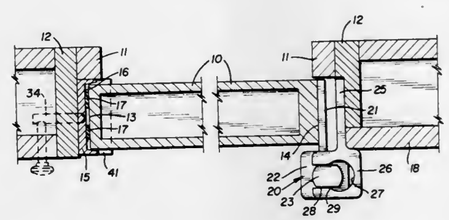
DOOR LOCKING MEANS

Richard L. Lloyd, 2740 Iliff, Boulder, Colo.

Filed Oct. 24, 1972, Ser. No. 299,676

Int. Cl. E05c *3/04*

U.S. Cl. 292—304 **11 Claims**



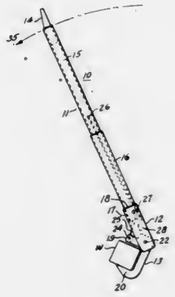
Door locking means comprising a door for closing an opening surrounded by a frame that has a channel extending from top to bottom of one side, the door being hingedly connected to the side of the frame opposite said channel side, and being non-pivotally movable relatively to the frame in the direction of the door width to move the door into and out of the frame channel. Each of the hinges comprises a pin and a journal in which the pin has pivotal movement when the door has been withdrawn from the channel and in which the pin also is laterally movable to permit non-pivotal movement of the door into and out of the frame channel. Lockable means which may be a cam plate bears on the door edge opposite the frame

channel to move the door into the channel. The cam may be provided with a key-operated lock cooperating with means on the frame for retaining the door in the channel and preventing movement of the door from either side. The doors embodying the invention may be house, cabinet or other type doors.

ERRATUM

For Class 294—81 see:
Patent No. 3,788,680

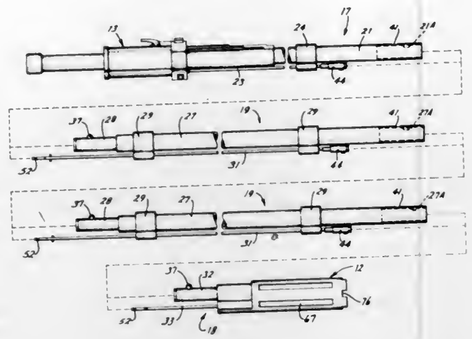
3,788,690
BILLET TURNING WRENCH
Nicholas Gelles, Conemaugh; Paul J. Shiley, Johnstown, both of Pa., and Michael D. Casella, Cleveland, Ohio, assignors to Bethlehem Steel Corporation and Rose Iron Works, Inc., both of Bethlehem, Pa.
Filed Nov. 29, 1971, Ser. No. 204,779
Int. Cl. B65g *7/08*
U.S. Cl. 294—17 **6 Claims**



Apparatus for rotating billets, blooms and the like to present successive faces for inspection and/or treatment comprises an elongated handle having a load engaging jaw pivotally connected at one end thereof with means to permit limited rotation of said jaw and return of said jaw to a retracted position.

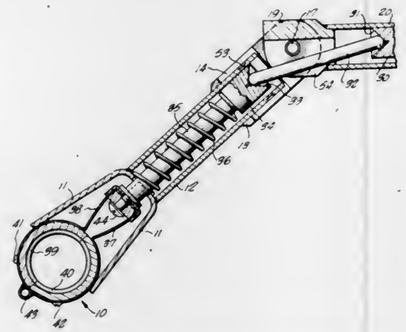
3,788,691
SHOTGUN STICK
Earl Wayne McMullin, Rutland Township, Barry County, Mich., assignor to Hastings Fiber Glass Products, Inc., Hastings, Mich.
Filed Apr. 17, 1972, Ser. No. 244,428
Int. Cl. A47f *13/06*
U.S. Cl. 294—19 R **16 Claims**

A shotgun stick for applying and removing devices, such as clamps, to and from electrical lines or conductors. The stick includes an elongated support rod having an insulated head at one end and a movable actuating handle at the other end. An operating rod extends from the handle and is slidably received within the insulated head. The operating rod is connected to a clamping mechanism which is slidably disposed within the head whereby actuation of the handle causes linear movement of the operating rod for causing a corresponding movement and actuation of the clamping mechanism. The support rod and the operating rod are both of sectional construction and include a plurality of intermediate sections which can be individually inserted into or taken out of the stick for permitting



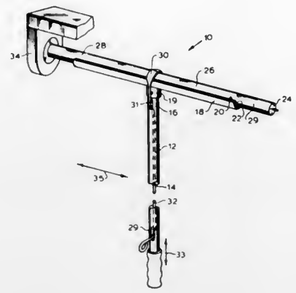
selective adjustment in the overall stick length. Locking devices are provided for releasably locking together the sectional parts of the support rod and the operating rod.

3,788,692
UNIVERSALLY JOINTED CHILLING TOOL
Christopher L. Fischer, Sunnyvale, Calif., assignor to Raychem Corporation, Menlo Park, Calif.
Filed Aug. 23, 1971, Ser. No. 173,975
Int. Cl. A47f *13/06*
U.S. Cl. 294—19 R **9 Claims**



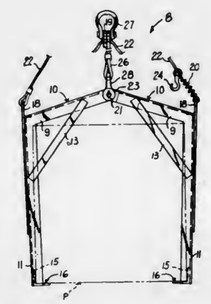
A hand tool having a plurality of part-holding jaws which are operated from a remote handle through a shaft having a universal joint therein. The tool is capable of being used to hold a part in its jaws while that part is immersed in a very low temperature fluid such as liquid nitrogen. After the part has been thus chilled, the tool is capable of physically holding the chilled part while the part is moved to a different environment while maintaining the part in a chilled condition. The universal joint permits free rotational movement of the jaws with respect to the handle and also permits angular movement in the shaft of the tool. Tightening means are provided which permit holding the angular and rotational position of the jaws in a fixed position with respect to the handle.

3,788,693
FLUORESCENT BULB HANDLING APPARATUS
Bob H. Farrington, 5604 Astoria Pl., Orlando, Fla.
Filed July 24, 1972, Ser. No. 274,219
Int. Cl. H01k *3/32*
U.S. Cl. 294—20 **4 Claims**



A fluorescent bulb changer comprises an elongated handle with a trough on one end. A resilient hook which is controlled from the other end of the handle, engages the bulb and holds it firmly in the trough.

3,788,694
ARTICLE HANDLING SYSTEM
Glen Henry Hall, Box 284, Fort Ashby, W. Va.
Filed July 19, 1971, Ser. No. 165,859
Int. Cl. B66c *1/32*
U.S. Cl. 294—67 BC **2 Claims**

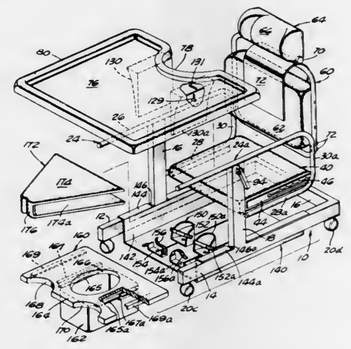


In an article handling system having article handling means for carrying a stack of articles comprising a pair of lift arms, a rigid pivot rod pivotally joining said lift arms together, a lift cable and an opening cable operatively arranged such that: the lift arms are arranged to swing inwardly toward each other to engage and carry the stack of articles upon application of an external lifting force to the lift cable, and the opening cable is constructed to have a lifting force applied thereto to swing the lift arms apart so that they clear the stack of articles, improvement in the article handling means comprising each lift arm pivotally connected to the pivot rod at opposite ends thereof, the lift cable joined to the pivot rod at opposite ends thereof, the opening cable joined to the lift arms and disposed at a substantially right angle in respect to the lift cable, one end of the opening cable relatively permanently connected to one lift arm and the other end thereof manually connectable or disconnectable in respect to the other lift arm, two shackles mutually interlocked and arranged so that one has the external lifting force applied thereto and lifts the other, the lift cable extending through one of the shackles, the opening cable extending through the other of the shackles, whereby when the opening cable is disconnected the lift cable is made taut to lift the article handling means to carry the stack of articles, and whereby when the opening cable is connected it is made taut to lift the empty article handling means to swing and spread the lift arms apart.

ERRATA

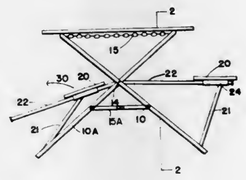
For Classes 296—28, 296—35, 296—36, 296—65 and 296—146 see:
Patents Nos. 3,788,681 and 3,788,686

3,788,695
SITTING/STANDING TABLE/WALKER COMBINATION
Nazih M. N. Salem, 963 N. Larrabee St., Apt. 8, Los Angeles, Calif.
Filed July 12, 1971, Ser. No. 161,444
Int. Cl. A47d *13/04*
U.S. Cl. 297—6 **4 Claims**



The invention is a therapeutic device or appliance for treating people, particularly children, afflicted with diseases such as cerebral palsy, muscular distrophy, and similar incapacitating diseases. It is a sitting/standing table adapted as a walker. The seat is adjustable for standing. Vertical adjustments are provided for table and seat. Adjustable supports are provided for the patient's thighs. Attachments are provided, including commode, abduction seat, and footrest platform.

3,788,696
FOLDABLE TABLE AND BENCH ASSEMBLY
Jacob L. Loewen, General Delivery, Altona, Manitoba, Canada
Filed July 20, 1972, Ser. No. 273,389
Int. Cl. A47b *39/00*
U.S. Cl. 297—159 **8 Claims**



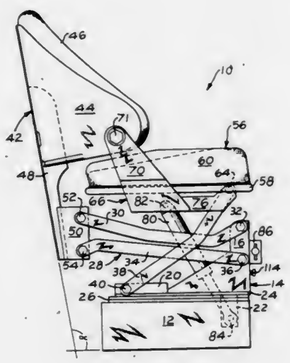
A pair of leg frames are pivoted between the ends to present an "X" formation when open and support a table top. A bench

is erected upon each side of the table and includes horizontal tension arms, substantially vertical compression legs and a bench seat. As the horizontal arms are moved from the folded position to the horizontal position, the vertical legs are unfolded and support the bench surface which moves to the horizontal position. The benches are first folded down and then the cross frames are folded together with the table top lying substantially vertically against the folded structure, when the assembly is in the folded or stored position.

3,788,697
VEHICLE SEAT

James C. Barton, Peoria; Jon C. Christensen, Washington; James P. Mueller, East Peoria, and Larry W. Sprinkle, Decatur, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 6, 1972, Ser. No. 241,640
Int. Cl. A47c *3/00, 3/22*
U.S. Cl. 297—307 **7 Claims**



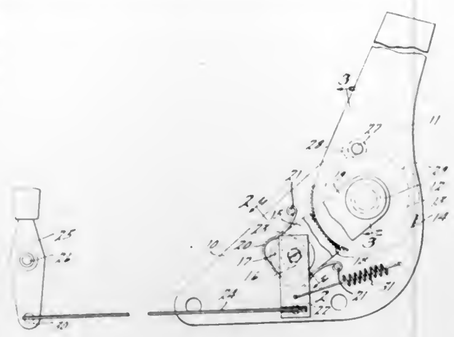
An improved vehicle seat wherein a bottom cushion assembly is pivotally attached to a back and resiliently mounted upon a base by an oscillation damping member to control oscillation of said vehicle seat with respect to the base. The back is pivotally joined to the base by substantially parallel links which maintain the back at a constant angle of inclination with respect to the base independent of elevational displacement. A swing link, pivotally connecting the bottom cushion assembly to the base permits the bottom cushion assembly to pivot about an imaginary point forward of the seat at a height approximating the knee joint of an operator to minimize movement of the operator's feet relative to the vehicle. A hydraulic circuit associated with a hydropneumatic suspension for such a seat includes dual damping capabilities for accommodating both normal and high impact loads on the seat.

3,788,698
SEAT RECLINE MECHANISM

Norman W. Perkins, Benfleet, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed May 8, 1972, Ser. No. 251,310
Claims priority, application Great Britain, Nov. 26, 1971, 54,934/71
Int. Cl. B60m *1/02;* **E05d** *11/10*
U.S. Cl. 297—373 **5 Claims**

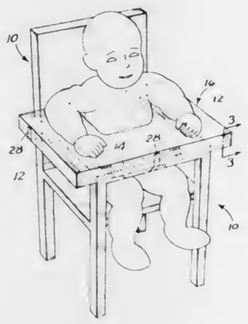
A seat recline mechanism in which a fixed toothed sector connected to a seat back is engaged by a movable toothed locking member mounted on a mounting plate connected to a seat cushion. The teeth of the locking member are of substantially the same pitch as those of the fixed tooth sector and are positioned on an arc having a center of curvature outside the pivotal axes of the sector and the locking member.



3,788,699
SUPPORT CUSHION FOR CHILDREN'S AND INVALID'S SEATS

Fowler K. Starr, 800 S. Third, Kelso, Wash.

Filed Oct. 26, 1972, Ser. No. 301,092
Int. Cl. A47d *1/00*
U.S. Cl. 297—390 **5 Claims**



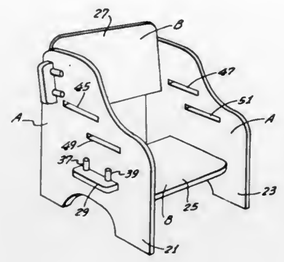
A support cushion for use in seats such as childrens' high chairs and invalids' wheelchairs having an arm on each side and a cross member across the outer ends of the arms comprises a piece of resiliently compressible material dimensioned to overlie the arms and cross member. The piece has a recess dimensioned to receive the body of the seat occupant. A flange of resiliently compressible material extends downwardly along the lower margin of the recess. In use, the flange compresses into the space between the seat occupant's body and the seat components, bolstering the occupant in an upright position.

3,788,700
MULTIFUNCTIONAL PEGGED FURNITURE

Richard M. Wartes, 14400 Addison St., Sherman Oaks, Calif.

Filed Aug. 29, 1972, Ser. No. 284,678
Int. Cl. A47c *27/08, 4/02*
U.S. Cl. 297—442 **17 Claims**

Pegged furniture is made out of flat frame members having slotted holes and flat bridging members having reduced ends to fit through the holes. The frame members may have extra slots so that you can make functionally different kinds of furniture. Special tapered pegs, which are made of slotted dowel stock having a tapered flat on one side, are pegged through angled holes in the bridging members to removably hold the furniture together to perform the desired function. Some particular items of furniture include (1) an alternate chair and step stool; (2) another step stool which doubles as a hamper; (3) a two-level table; (4) a chair and table; (5) a bench and chest; (6) a cradle which can also be converted into three other uses including benches and a table, a rocking bench, and a toy box.



3,788,701
CHAIR CONSTRUCTION

Raymond A. Massaccesi, Lombard, Ill., assignor to All-Steel Inc., Aurora, Ill.

Filed May 26, 1972, Ser. No. 257,249
Int. Cl. A47c *7/02, 1/12*
U.S. Cl. 297—455 **7 Claims**

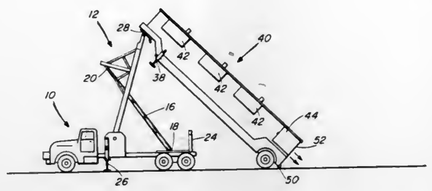


A chair construction comprising a frame in the form of a pair of L-shaped rigid frame members, defining the frame back and seat reinforcing portions secured together in side by side spaced apart relation by a pair of cross members applied between the frame member seat portions, contoured seat and back upholstery plates each having a separate cushion pad applied thereto, with the plates being made fast to the frame and between said frame members to form a seat subassembly, and with the plates having their side edges aligned about the rim of the subassembly, and a one piece shell of concavo-convex, L-shaped configuration having a continuous rim thereabout substantially complementing that of the subassembly, with the subassembly received in the shell and the shell secured to the subassembly at an indentation formed in the underseat portion of the shell, and about the rims of the shell and subassembly. A molding about the rim of the shell masks the fastening elements about the shell rim and forms a bumper for the chair, and a conventional chair base is affixed to the frame at the shell indentation.

3,788,702
BULK MATERIAL HANDLING SYSTEM

Carl L. Toboll, 8003 Haas Ln., Rosedale, Md.

Filed Feb. 9, 1972, Ser. No. 224,874
Int. Cl. B60p *1/18, 1/28*
U.S. Cl. 298—22 AE **5 Claims**

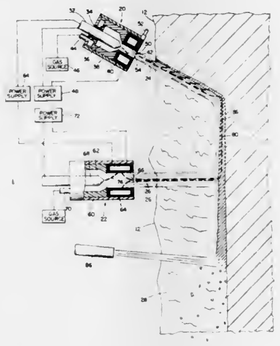


An improved system for the handling of bulk materials such as trash refuse, is provided. This system consists of two units, one of which is a large drop frame trailer, enclosed on all of its four sides, with door openings on the sides, the rear end and the top completely open, for loading. A door opening is also provided at the rear end for unloading. The other unit is a modified tractor on which is mounted a hydraulic operated hoist. It has a fifth wheel coupling arrangement and a capability of lifting the trailer up end to a required height of 30 feet for unloading of the trash refuse.

3,788,703
METHOD OF ROCK CUTTING EMPLOYING PLASMA STREAM

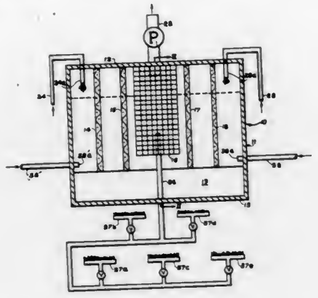
Merle L. Thorpe, Hopkington, N.H., assignor to Humphreys Corporation, Bow, N.H.

Filed Apr. 14, 1972, Ser. No. 243,961
Int. Cl. E21c *37/18*
U.S. Cl. 299—14 **22 Claims**



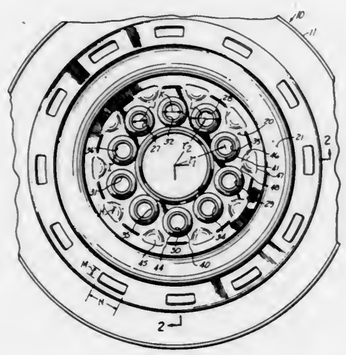
A method especially useful for cutting and breaking hard rock such as granite from the face of a tunnel is disclosed. A pattern of slots are cut into the rock face by directing a high velocity plasma jet on the rock face to melt a portion of the rock face and produce a molten film and applying electrical power to the plasma-jet and a cooperating electrode to flow electric current through the molten film to further heat the molten film and melt additional rock to form a slot. After the pattern of slots are formed, spaced plasma streams are introduced into the slots and electrical power of a frequency effective to produce dielectric heating in the rock is applied through the plasma streams to produce a heated region within the rock mass which thermally stresses and severs that rock mass portion into fragments.

3,788,704
WATER SYSTEM IN MULTIPLE GROOVING OF PAVEMENT
Donald C. Staab, Warrington, Pa., assignor to Cardinal Industries Incorporated, Conshohocken, Pa.
Continuation-in-part of Ser. No. 212,253, Dec. 27, 1971, and a continuation-in-part of Ser. No. 212,475, Dec. 27, 1971. This application Sept. 15, 1972, Ser. No. 289,686
Int. Cl. E01c *23/09*
U.S. Cl. 299—18 **10 Claims**



Water used for cooling and lubricating cutting heads in multiple grooving of pavement is picked up in the form of a slurry containing dislodged particles of pavement material and cutter material and is recovered relatively free of such particulate material for reuse. The system provides first and second separation regions in which the slurry is concentrated progressively and maintains circulation between the first separation region and the slurrying region and between the respective separation regions.

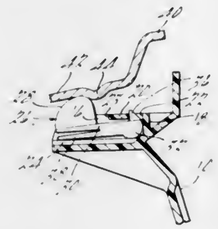
3,788,705
VEHICLE WHEEL AND SPIDER THEREFOR
James L. Brainard, 6237 Kauffman Ave., Temple City, Calif., and Robert J. Palm, 18297, Midbury Brea, Calif.
Filed Mar. 15, 1972, Ser. No. 234,868
Int. Cl. B60b *1/10*
U.S. Cl. 301—9 DN **10 Claims**



A vehicle wheel adapted to mount to a plurality of stud patterns which comprises a peripheral tire-receiving rim with a circularly sectioned inner aperture having an inner peripheral wall to which a spider is joined. The spider has a central axis in common with the rim, an outer peripheral flange joined to the inner wall of the rim and an inner peripheral flange which bounds a central aperture. An annular attachment section lies adjacent to the inner peripheral flange, and a dished annular interconnecting section joins the attachment section to the outer peripheral flange. Two sets of stud-receiving holes are formed in said attachment section, the radial spacing from the central axis of one set being different from that of the other set, the said spacings of all holes of the same set being equal. The number of holes in each set is either four or five, and the numbers of holes in both sets for any given wheel are equal. The members of the sets are alternately formed in the attachment section, and all of the holes are uniformly angularly spaced apart. A truncation surrounds each of the holes and rises above the surface of the attachment section. A stress collector is angularly disposed between each adjacent pair of holes, and each stress collector comprises a raised portion of both the attachment section and of the interconnecting section. Each stress collector is raised above its surrounding area to form a generally triangular rise on one side of the spider which tapers toward a region between adjacent truncations.

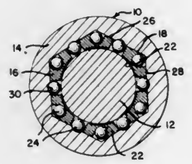
3,788,706
Patent Not Issued For This Number

3,788,707
WHEEL TRIM RETENTION
James Connell, 5017 Dianna Dr., Bloomfield Hills, Mich.
Filed Oct. 2, 1972, Ser. No. 294,375
Int. Cl. B60b *7/06*
U.S. Cl. 301—37 P **12 Claims**



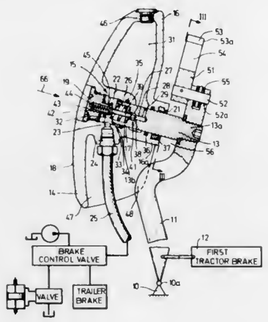
A plurality of axial recesses are provided on and around an axial flange of a wheel trim. A retention clip for retaining the wheel trim on a vehicle wheel is disposed in each recess.

3,788,708
BALL BEARING ASSEMBLY
Albert R. McCloskey, Fairfield, Conn., assignor to Heim Universal Corporation, Fairfield, Conn.
Filed July 14, 1972, Ser. No. 271,776
Int. Cl. F16c *29/06*
U.S. Cl. 308—6 C **5 Claims**



An anti-friction ball bearing assembly adapted for mounting on a shaft comprising an outer sleeve and an inner sleeve concentrically fitting within the outer sleeve, the inner sleeve having a number of tracks defining paths for the circulation of balls between the sleeves and the shaft during movement between the shaft and the bearing assembly, the outer surface of the inner sleeve being polyhedronal in shape, the inner surface of the outer sleeve being substantially polyhedronal in shape and generally conforming to the shape of the outer surface of the inner sleeve, the inner surface of the outer sleeve having a number of axially extending arcuately shaped bearing raceways whose radii generally correspond to the radii of the balls, the balls being in full race curvature contact with the raceways while the balls are in their active load carrying positions between the shaft and the outer sleeve.

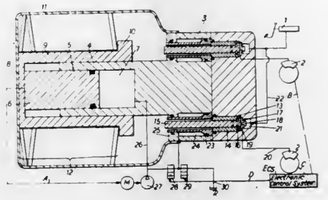
3,788,709
HYDRAULIC BRAKE CONTROL APPARATUS FOR A TRAILER HAULED BY A MOTOR CAR
Guenther Schwerin, Moglingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Sept. 21, 1972, Ser. No. 290,885
Claims priority, application Germany, Sept. 22, 1971, 2147178
Int. Cl. B60f *13/14*
U.S. Cl. 303—7 **13 Claims**



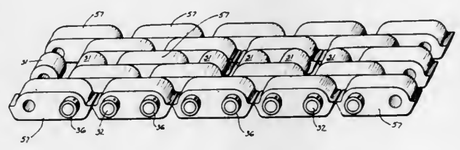
The hydraulic brake of a trailer is connected by a pressure conduit with a pressure chamber formed between a brake pedal and a brake lever of a driver-operated brake on a motor car or tractor hauling the trailer. Upon depression of the brake pedal, not only the brake of the tractor is actuated, but also the hydraulic brake on the trailer, since fluid is pressed out of the pressure chamber through the pressure conduit into the hydraulic actuator of the trailer brake.

3,788,710
ANTISKID CONTROL SYSTEM
Hubertus Von Grunberg, Niederhochstadt; Werner Fink, and Dieter Kircher, both of Frankfurt, all of Germany, assignors to ITT Industries, Inc., New York, N.Y.
Filed Aug. 21, 1972, Ser. No. 282,532
Claims priority, application Germany, Aug. 25, 1971, 2142552
Int. Cl. B60t *8/04*
U.S. Cl. 303—21 F **43 Claims**

There is disclosed herein a plurality of hydraulically controlled separating valves, one for each vehicle wheel, of an antiskid control system. Each of the separating valves separates its associated wheel brake cylinder from the master cylinder when an electronic control system responsive to wheel speed sensors produces a first control value indicative of wheel skid and reconnects its associated wheel brake cylinder with the master cylinder when a further control value indicative of a given wheel reacceleration is produced by the electronic control system. A volume expansion arrangement is also provided for each of the separating valves to enable reacceleration of the wheels. All of the plurality of separating valves and volume expansion arrangements are arranged compactly in one single housing and the separating valves are maintained open by a primary control force, such as accumulator or pump pressure, the primary control force being controlled by the control valves to provide antiskid control. Should the primary control force be lost a single auxiliary force contained in the housing will operate on all the volume expansion arrangements and/or separating valves to maintain the separating valves in their open position so that the brake system is operative even though the antiskid control system is rendered inoperative. A mechanical and a hydraulic auxiliary force arrangement is disclosed.

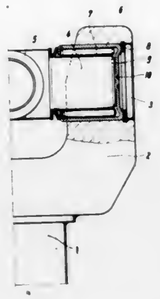


3,788,711
CHAIN FOR MINING MACHINE AND THE LIKE
Claude B. Krekeler, Cincinnati, Ohio, assignor to The Cincinnati Mine Machinery Co., Cincinnati, Ohio
Division of Ser. No. 85,601, Oct. 30, 1970, Pat. No. 3,679,265. This application Apr. 19, 1972, Ser. No. 245,444
Int. Cl. B62d *55/20*
U.S. Cl. 305—58 **1 Claim**



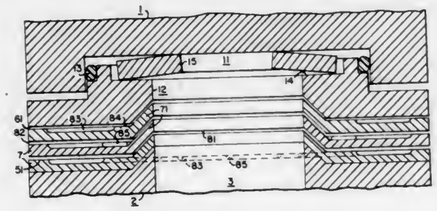
An endless chain for a mining machine or the like which can be made up to any desired length and width. In one embodiment, the chain can be made to carry cutting tools in any suitable pattern or arrangement and will comprise a plurality of standard link elements and a plurality of standard chain block elements. In another embodiment, the chain can serve as an endless tread for a self-propelled mining machine, in which instance it may be comprised of a plurality of identical, standardized link elements or it may be comprised of a plurality of standard link elements and a plurality of one or more types of modified link elements. In both embodiments, the link elements, or the link and chain block elements, will be joined together by connecting pins of appropriate lengths.

3,788,712
BEARING BUSHING FOR UNIVERSAL JOINTS
Hans-Joachim Kohler, and Guido Rieder, both of Herzogenaurach, Germany, assignors to Industriewerk Schaffler, Herzogenaurach, Germany
Filed Apr. 24, 1972, Ser. No. 247,020
Claims priority, application Germany, May 7, 1971, P 21 22 575.2
Int. Cl. F16c *21/00, 33/34*
U.S. Cl. 308—35 **4 Claims**



A bearing bushing for accommodating spider trunnions in bores in the shaft forks of a universal joint wherein the bushing has on one side a closed end for abutment of the end of the spider trunnion.

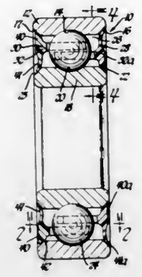
3,788,713
HYDROSTATIC THRUST BEARING
Charles E. Kraus, Austin, Tex., assignor to Excelermatic, Inc., Rochester, N.Y.
Filed May 23, 1972, Ser. No. 256,143
Int. Cl. F16c *1/24*
U.S. Cl. 308—160 **18 Claims**



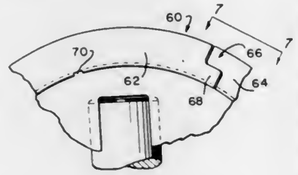
A hydrostatic thrust bearing for supporting a load member on a support member is disclosed wherein pressurized fluid is admitted into a cavity formed between opposed surfaces of the load and support members. Lands integral with the load and support members form an annular leakage path through which the pressurized fluid is permitted to escape from the cavity, at least one annular disc being disposed between the lands thereby dividing the leakage path into at least two parallel passages.

3,788,714
BALL BEARING WITH A UNITARY SEPARATOR-SEAL
Peter A. Degioia, Sandusky, and Charles B. Sutton, Port Clinton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed June 15, 1972, Ser. No. 263,109
Int. Cl. F16c *33/78, 33/46*
U.S. Cl. 308—187.2 **2 Claims**

A ball bearing is completely sealed by a pair of independent unitary separator-seals. Each of the separator-seals closes one side of the annular space between the bearing races and includes a tubular separator with ball pockets which snap receive the bearing balls. Each separator-seal has a rigid sealing lip which centers its respective separator-seal from one bearing race and a second thin and relatively flexible sealing lip wipingly engaging the opposite bearing race to seal one side of the bearing.

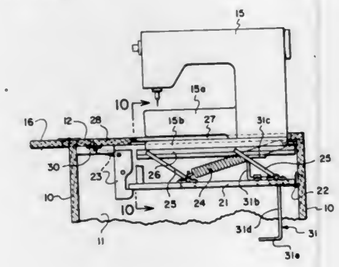


3,788,715
BEARING ADAPTER
Richard L. Alling, Torrington, Conn., assignor to The Torrington Company, Torrington, Conn.
Filed Dec. 29, 1972, Ser. No. 319,517
Int. Cl. F16c *33/46*
U.S. Cl. 308—217 **7 Claims**



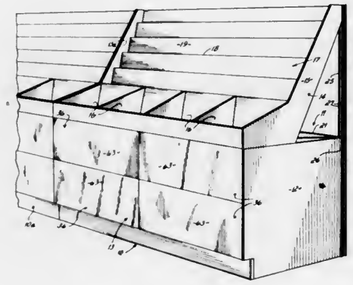
An adapter is disclosed for changing the effective inside diameter or effective outside diameter of a bearing cage.

3,788,716
WORK CABINET FOR SEWING MACHINE
Stanley D. Roberts, and Kent S. Roberts, both of American Fork, Utah, assignors to Roberts Mfg., Inc., American Fork, Utah
Filed Aug. 7, 1972, Ser. No. 278,222
Int. Cl. A47f *5/08*
U.S. Cl. 312—29 **10 Claims**



A work cabinet, for mounting a sewing machine in different work positions and for housing the machine when not being worked, provides a drop shelf interiorly of the cabinet below the top working surface thereof for lowering the machine into the interior of the cabinet. The drop shelf carries a mount for the machine, by means of linkage which permits raising and lowering of the machine to different work positions. Pivotally fulcrumed on the drop shelf is a lever having a work arm and a power-input arm, the former underlying the machine mount so as to raise and lower the sewing machine when power, usually manual, is applied to the latter. The cabinet is well adapted to open-arm types of sewing machines, and is provided with a removable insert for its apertured top wall as an extender for the limited work surface of such top wall in the work positions of the machine. The insert fits around the machine and closes the aperture provided in the top wall of the cabinet for enabling the machine to be lowered by means of the drop shelf.

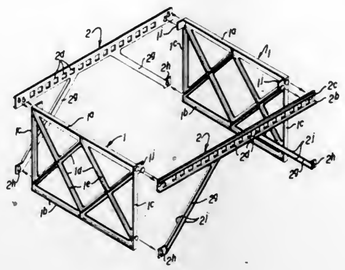
3,788,717
DISPLAY FIXTURE
Max E. Hosmer, Charlevoix, Mich., assignor to Freedman Artcraft Engineering Corp., Charlevoix, Mich.
Filed July 21, 1972, Ser. No. 273,716
Int. Cl. A47f *3/00*
U.S. Cl. 312—122 **18 Claims**



A display fixture is disclosed which has a rectangular metal front frame, a pair of side walls, a brace interconnecting the side walls at the rear, and a series of drawers fitted into the front frame. The drawers are supported solely from roller brackets attached to the front frame in such a manner that the drawers are cantilevered from the brackets in both the open and closed position of the drawers. The drawers each comprise a rectangular frame of extruded elements into which are fitted bottom, side, front and rear wall boards.

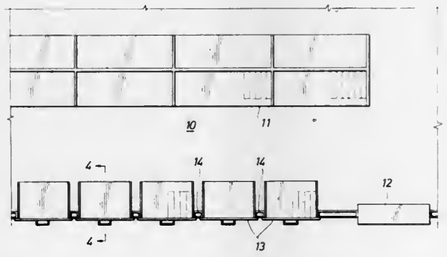
3,788,718
FRAME FOR HANGING FOLDERS IN FILE CABINETS
James M. Bjorn, 69 18th Ave, South, Lake Worth, Fla., and C. Walter Johnson, 7930 W. Lake Dr., West Palm Beach, Fla.
Filed May 19, 1972, Ser. No. 255,174
Int. Cl. A47b *63/00*
U.S. Cl. 312—184 **3 Claims**

The frame for hanging folders in filing cabinet drawers includes a pair of spaced plastic end panels adapted to be positioned within the front and rear of the drawer. A pair of plastic side rails having a series of spaced holes therein for receiving the rods of hanging folders extend between the upper portions of the end panels at opposite sides thereof, the side rails having downwardly and outwardly diverging intergral struts terminating opposite the lower side portions of the end panels.



And quick detachable means are provided for removably connecting the overlapping ends of said side rails and struts to the end panels respectively.

3,788,719
TAPE STAGING BINS FOR DATA CENTER
D. E. Whited, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed July 18, 1972, Ser. No. 272,834
Int. Cl. A47b *53/00*
U.S. Cl. 312—198 **10 Claims**

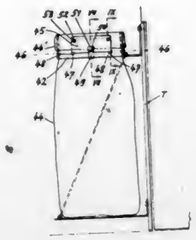


A plurality of staging bins particularly adapted for use with magnetic computer tapes and disks wherein the tapes and disks are normally stored in a library and dispensed in response to a request. The staging bins comprise a plurality of bins pivoted at their lower edge for tape and pivoted on their side edge for disk and open on the side facing the library whereby an operator may open the bin and obtain tapes and disks placed in the bin by the librarian. The bins also include means for locking the bins when the library is unattended.

3,788,720
GARBAGE BIN
Walter Schneider, Unterrenggstrasse, Langnau, Zurich, Switzerland
Filed Jan. 10, 1972, Ser. No. 216,575
Claims priority, application Switzerland, Mar. 12, 1971, 3680/71; May 27, 1971, 7759/71; June 7, 1971, 8264/71; Sept. 7, 1971, 13135/71
Int. Cl. B65d *91/00*; **B65b** *67/04*
U.S. Cl. 312—211 **3 Claims**

A refuse container which comprises a vertical support to which is affixed an upstanding generally rectangular frame into which the neck of a flexible refuse sack can be inserted and over the rim of which the edge of the sack is folded. At least at two opposite ends of the frame, there are provided a

pair of securing flaps pivotal toward and away from the upper portion of the frame and held in contact with the turned-over



portion of the sack by leaf springs which engage in openings of the flaps to retain them in outwardly deflected position for insertion and removal of the sack.

3,788,721

ELECTRICALLY CONDUCTIVE COMPONENTS

Arthur Samuel Vause, London, England, assignor to Thorn Electrical Industries, Limited, London, England

Filed July 26, 1971, Ser. No. 165,516

Claims priority, application Great Britain, Dec. 15, 1970, 59,567/70

Int. Cl. H01j *9/02*

U.S. Cl. 316—17 **7 Claims**



Metal elements, usually of refractory metal, for electrical devices such as filaments for incandescent lamps, discharge lamp cathodes, grids or heaters for thermionic valves and radiation elements for electric heaters are made by forming an etch resist pattern on a metal web, etching the web, removing the resist and bending the etched product into compact form. The element produced has a substantially rectangular section which provides a high surface area to cross-sectional area ratio, leading to high thermal and light emission efficiency.

3,788,722

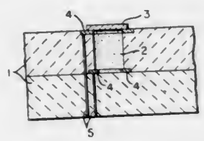
PROCESS FOR PRODUCING A GASEOUS BREAKDOWN DISPLAY DEVICE

Alvin A. Milgram, Wilmington, Del., assignor to Panel Technology Inc., Wilmington, Del.

Continuation of Ser. No. 83,387, Oct. 23, 1970, abandoned, which is a continuation-in-part of Ser. No. 819,555, April 29, 1969, abandoned. This application Apr. 18, 1973, Ser. No. 352,471

Int. Cl. H01j *9/18*

U.S. Cl. 316—19 **7 Claims**



A method for making a gaseous breakdown display device having a gas contained within a sealed volume between a transparent face and a dielectric body, said process comprising co-firing precious metal excitation electrodes and a dielectric body having a cavity, thereafter enclosing the gas in said cavity with a transparent face. The gaseous breakdown is contained by the device structure. The gaseous ions and intense heat generated by the discharge do not harm the components of the device made according to this invention because the device components are capable of operating at high temperatures in oxidizing atmospheres and are good conductors of heat. Consequently, the device can operate at high power density, which provides a high light output.

3,788,723

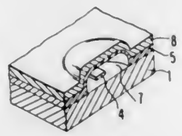
METHOD OF PREPARING CAVITY ENVELOPES BY MEANS OF THIN-FILM PROCEDURES

William I. Lehrer, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.

Division of Ser. No. 723,706, April 24, 1968, abandoned. This application Apr. 24, 1972, Ser. No. 70,102

Int. Cl. H01j *9/38*

U.S. Cl. 316—20 **8 Claims**



A cavity envelope is formed by producing a selected shaped volume of diffusant on a substrate, coating the substrate and the diffusant with a porous dielectric, leaching the diffusant from the cavity formed by the substrate and the porous dielectric, creating a vacuum in, or alternatively, placing a gas in the cavity, and then coating the dielectric to eliminate its porosity.

3,788,724

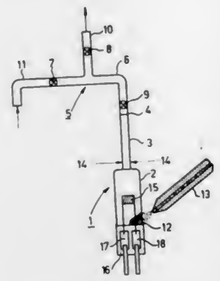
METHOD OF MANUFACTURING GAS-FILLED LAMPS

Ferdinand Jose Maria Schenkels, Emmasingel, Eindhoven, Netherlands, and Ghislain Felix Alfons Arthur Verboven, Zonneweeldelaan 29, Belgium

Filed Dec. 7, 1971, Ser. No. 205,535

Int. Cl. H01j *9/38*

U.S. Cl. 316—20 **2 Claims**



Lamps are provided with a filler gas by condensing the filler gas in the envelope and by subsequently sealing the envelope. Condensation of the filler gas is effected by spraying the envelope locally with a liquified gas so that the envelope is cooled to below the condensation temperature of the filler gas.

3,788,725

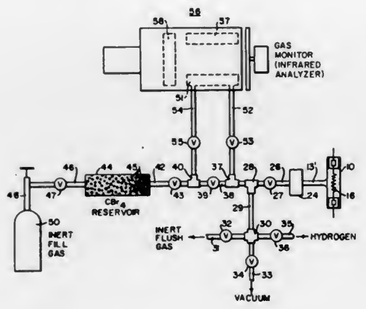
METHOD OF DOSING AN INCANDESCENT LAMP WITH A CONTROLLED AMOUNT OF HALOGEN-CONTAINING MATERIAL

Lymperios N. Yannopoulos, and Alfred R. Pebler, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 158,435, June 30, 1971, Pat. No. 3,707,643. This application June 14, 1972, Ser. No. 262,872

Int. Cl. H01j *9/38*

U.S. Cl. 316—20 **5 Claims**



A halogen-containing material such as carbon tetrabromide is vaporized and admixed with an inert fill gas, the lamp is evacuated, and the admixed fill gas and vaporized material are introduced into the lamp. The amount of vaporized halogen-containing material in the mixture is monitored by infrared measuring techniques so that a known and carefully controlled quantity of such material is sealed within the finished lamp.

3,788,726

PRODUCING IMAGES OF PARTS OF AN OBJECT WHICH LIE AT DIFFERENT DEPTHS BY MEANS OF HOLOGRAPHIC TOMOGRAPHY

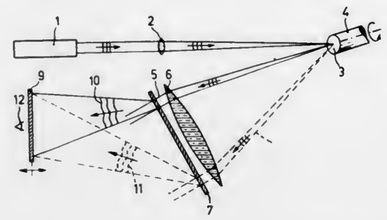
Gunther Groh, Hamburg, and Ulf Tiemens, Oldenburg, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 27, 1971, Ser. No. 192,823

Claims priority, application Germany, Oct. 30, 1970, 2053391

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **11 Claims**



A method of, and an apparatus for, producing images of details of an object which lie at different depths by means of holographic tomography is described. The component holograms which correspond to the images of the object from different perspectives are so illuminated in time sequence that the reconstructed images are incoherently superposed on one another.

3,788,727

OPTICAL SYSTEM OF A BINOCULAR MICROSCOPE

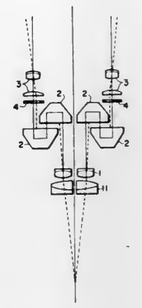
Kuniomi Abe, Nishinomiya, Japan, assignor to Konan Camera Laboratory Company Limited, Kobe, Japan

Filed Nov. 29, 1971, Ser. No. 202,748

Claims priority, application Japan, Nov. 28, 1970, 45/118282

Int. Cl. G02b *21/20*

U.S. Cl. 350—36 **3 Claims**



The optical system includes two microscopes arranged at an angle to each other so that their optical axes intersect at an object to be observed, with each microscope including a respective main objective at its light entry end and a respective eyepiece at its light exit end. The two eyepieces are parallel to each other in a common plane so that their optical axes extend parallel to each other, and each of two eccentric objectives is positioned in front of a respective main objective and the two eccentric objectives are arranged in parallel in the same plane. The eccentric objectives redirect the diverging ray bundles, arriving thereat from the object to be observed, to extend parallel to each other through the eyepieces. Respective diaphragming rings are arranged centrally in the field of vision of each eyepiece, and each ring has a circular aperture therein eccentric to the field of vision of the associated eyepiece. The two apertures have the same eccentricity, and the two rings are relatively adjustable so that the images in both eyes coincide with each other without any conscious effort.

3,788,728

INCREASE IN THE TRANSMITTING INFORMATION CAPABILITIES OF WAVE IMAGE-FORMING SYSTEMS

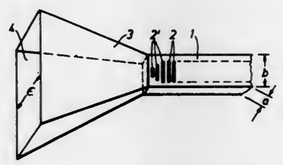
Heinrich Nassenstein, Leverkusen-Steinbuchel, and Hans-Georg Fitzky, Odenthal Hahnenberg, both of Germany, assignors to Bayer Akitengesellschaft, Leverkusen, Germany

Filed Oct. 13, 1971, Ser. No. 188,788

Claims priority, application Germany, Oct. 22, 1970, 2051851

Int. Cl. G02b *5/14*

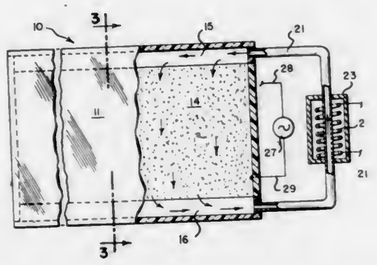
U.S. Cl. 350—96 WG **4 Claims**



A process of improving the information transmitting properties when mapping images by means of waves comprising

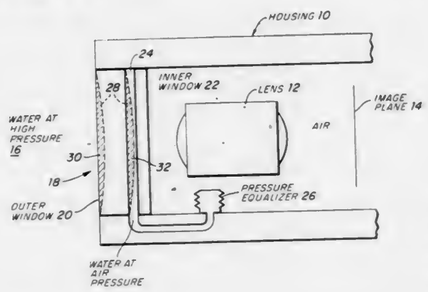
the step of illuminating an object having a high spacial frequency spectrum k_n with sub-waves having a wave number k_s which has the same order of size as k_n, forming homogeneous waves of wave number $k_b = k_n - k_s$ by the diffraction of the sub-waves on the object. The sub-waves are produced by illuminating the entry of a periodically loaded wave guide with homogeneous waves, the vacuum wave length of which is large in comparison with the period of the wave guide load, so that the phase velocity of the homogeneous waves is retarded. The object is placed adjacent the periodic load.

3,788,729
THERMAL CONVECTION FLOW LIGHT VALVE
Francis C. Lowell, Roslyn; Matthew Forline, Ozone Park; Paul Rosenberg, Larchmont, and Robert L. Saxe, New York, all of N.Y., assignors to Research Frontiers, Inc., Plainview, N.Y.
Continuation of Ser. No. 129,873, March 31, 1971, abandoned. This application Apr. 28, 1972, Ser. No. 248,479
Int. Cl. G02f *1/36*
U.S. Cl. 350—160 R **24 Claims**



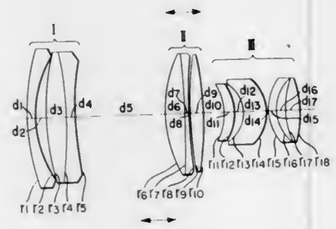
A light valve includes a cell containing a fluid capable of being acted upon by an electric or magnetic field, or both, to change the transmission of light through the fluid, and means for applying such a field thereto. Specifically described is a fluid suspension of minute particles acted upon by an electric field. An external or internal conduit connects opposite edge portions of the cell and heat is applied to the fluid in the cell or conduit to produce a thermal convection flow of the fluid through the cell and conduit.

3,788,730
MULTIELEMENT WINDOW
Allen H. Greenleaf, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Mar. 29, 1972, Ser. No. 239,087
Int. Cl. G02b *3/12*
U.S. Cl. 350—179 **9 Claims**



A window for separating a protected environment wherein a lens system is located from a high pressure environment, such as deep sea water, without allowing the high pressure differential across the window to change the optical power of the window and defocus the lens system. The window is constructed in a laminar fashion with a thick outer window, a thin inner window and a compensating section located between said inner and outer window sections. The compensationg section is filled with a fluid having the same index of refraction as the fluid of the high pressure environment, and is exposed to the pressure of the protected environment. This arrangement results in the entire pressure differential between the outer environment and the protected environment being placed across the thick outer window section. The fluid in the compensating section accommodates any deformation of the outer window section caused by the high pressure differential. No pressure is exerted across the inner window section which defines the water-air interface between the outer and inner environments. It is this water-air interface which affects the optical power of the window, and accordingly the optical power of the window does not change.

3,788,731
TWO POINT FOCUS VARIABLE MAGNIFICATION LENS SYSTEM
Muneharu Sugiura, and Ryusho Hirose, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed July 14, 1972, Ser. No. 272,071
Claims priority, application Japan, July 19, 1971, 46/53100
Int. Cl. G02b *15/14*
U.S. Cl. 350—184 **8 Claims**



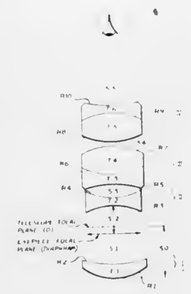
A two point focus variable magnification lens system which can be focussed at two points, the minimum and maximum focal lengths with different magnifications by the movement of the only second lens groups, and which when focussed at the minimum focal length of the maximum focal length can be made to focus for an object at either of special two distances without performing the focussing operation as far as the following conditions are satisfied,

$$-\frac{1}{s_2}+\frac{1}{x+y}=\frac{1}{f_1}$$

$$|f_1|=\frac{\left(\xi_o+f_2\frac{1+K}{K}-l_n\right)s_1}{s_1+f_2\frac{1+K}{K}+\xi_o-l_n}$$

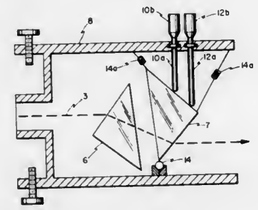
wherein f_1 is the focal length of the first lens group, f_2 is the focal length of the second lens group, s_1 is the distance of a special farther side of objects from the front end of the lens system in the case of the minimum focal length, s_2 is the distance of a special nearer side of objects from the front end of the lens system, ξ_o is the displacement length of the second lens group, $K = 1/\sqrt{z}$ (z: the variation ratio of magnification), l_n is the interval between the principal points of the first and second lens groups in the case of the maximum focal length, x is the distance from the front principal point of the first lens group to the point of image formed of an object at a special farther side by the first lens group in the case of the minimum focal length, and y is $f_2(1-K)^2/k$.

3,788,732
FOUR COMPONENT MICROSCOPE EYEPIECE
Arthur H. Shoemaker, Aurora, N.Y., assignor to American Optical Corporation, Southbridge, Mass.
Filed Sept. 11, 1972, Ser. No. 288,208
Int. Cl. G02b *25/00*
U.S. Cl. 350—220 **3 Claims**



This invention relates to a microscope eyepiece having a magnification of substantially 6.3X, an apparent field of view of substantially 38.6°, and a maximum exit pupil diameter of substantially 2.56 millimeters.

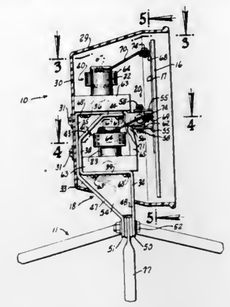
3,788,733
LASER DIRECT FIRE SIMULATOR EMPLOYING REFRACTIVE MEDIA
Denis R. Breglia, Altamonte Springs; Windell N. Mohon, Winter Park, and Joseph F. Mulson, Maitland, all of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 17, 1972, Ser. No. 307,668
Int. Cl. G02b *7/18*
U.S. Cl. 350—287 **3 Claims**



Optical beam refracting means adapted to fit within a gun barrel are designed to cooperate with a laser beam generator positioned in the same gun barrel. Micrometer adjusting means are provided whereby optical elements can be adjusted to deflect the laser beam as desired.

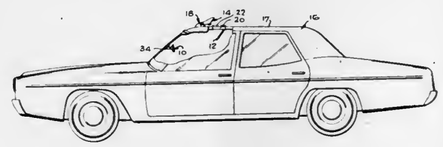
3,788,734
FENDER MOUNTED REAR VIEW MIRROR
Paul E. McDuffee, Sr., 306 23rd Ave. West, Bradenton, Fla.
Filed Sept. 8, 1972, Ser. No. 287,252
Int. Cl. G02b *5/08*
U.S. Cl. 350—289 **20 Claims**

A fender mounted rear view mirror for an automotive vehicle, which is tiltingly adjusted about either of two coordinate axes in consequence of selective energization of two electric motors controlled by switches located in the driver's compartment of the vehicle. Each of the motors is drivingly connected through reduction gearing with a rotary actuating member;



and rotary motion of each actuating member is translated into tilting adjustment of the mirror about one of said axes through a pitman having one end eccentrically connected with the actuating member and its other end connected to the back of the mirror.

3,788,735
REAR-VIEW MIRROR SYSTEM
David S. Rowley, 2350 Berkeley St., Salt Lake City, Utah
Filed May 22, 1972, Ser. No. 255,699
Int. Cl. G02b *5/08*
U.S. Cl. 350—302 **26 Claims**

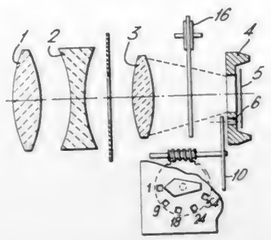


Rear-view mirror system for use in a vehicle, e.g. an automobile, comprising in combination with a conventional adjustable plane rear-view mirror, an additional pair of mirrors, one of such additional mirrors being a plane mirror which faces forward, and the second additional mirror being a spherical segment facing the rear, and mounted on the roof of the automobile, a glass window being mounted in an opening in the roof of the automobile, whereby the driver may tilt his conventional rear-view mirror upward to thus view the exterior spherical mirror by reflection from the first planar additional mirror, so as to provide a wide angle view to the rear of the vehicle without having to move the eye to any greater extent than when employing a conventional rear-view mirror.

3,788,736
PROCEDURE AND DEVICE FOR SYNCHRONISING CINEMATOGRAPHIC CAMERAS WITH A PROJECTOR
Serge Oulevay, Yverdon, and Jean Thevenaz, Grandson, both of Switzerland, assignors to Bolex International SA, Saint-Croix, Switzerland
Filed Sept. 15, 1972, Ser. No. 289,626
Claims priority, application Austria, Sept. 16, 1971, 8071/71
Int. Cl. G03b *21/48*
U.S. Cl. 352—180 **6 Claims**

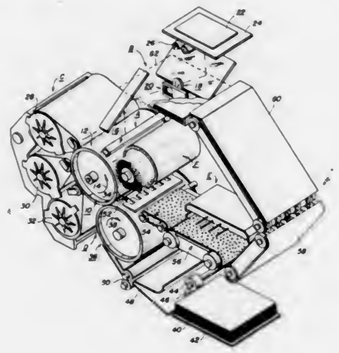
A method and apparatus for synchronising the speed of filming of a cine-camera with the rate of a projector in which a

marking is made on each frame of a movie film during shooting, this marking having characteristics corresponding with a



certain image frequency in shooting, which markings can be read at the time of projection in order to control or provide control for the speed of projection.

3,788,737
LUMINESCENT COVER
Wayne L. Kidd, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Oct. 13, 1972, Ser. No. 298,720
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 R **6 Claims**

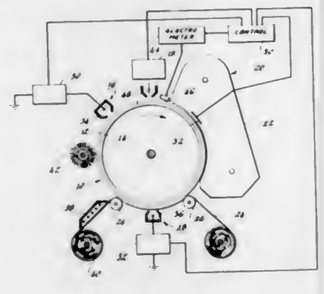


An electrophotographic printing machine in which a platen cover is arranged to illuminate a transparent platen with an original document mounted thereon. The light rays illuminating the marginal portions of the platen extending beyond the original document are transmitted therethrough discharging the photoconductor in those regions. This prevents the development of unwanted border regions on the copy paper.

3,788,738
METHOD FOR RECORDING A VISIBLE IMAGE ON A SUBSTRATE BY USING AN ELECTROCONDUCTIVE TONER
Satoshi Takeuchi, Iruma District, Saitama Prefecture, and Hachiro Saito, Narashino, Chiba Prefecture, both of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan
Filed July 25, 1969, Ser. No. 845,040
Claims priority, application Japan, Aug. 15, 1968, 43-58340; Aug. 15, 1968, 43-58341
Int. Cl. G03g *13/14*
U.S. Cl. 355—17 **4 Claims**

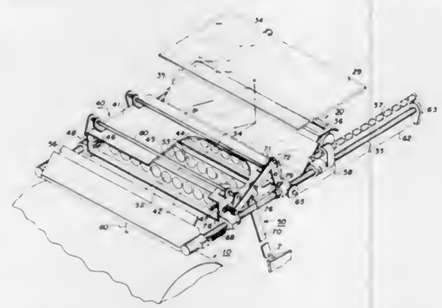
This invention relates to a method for recording a visible image by forming an electrostatic charge image or an electric field image on a photoconductive insulating layer or a dielectric layer which is disposed on a substrate or a dielectric sheet or film and connecting said electrostatic charge image or said electric field image to said visible image by contacting said electrostatic charge image or said electric field image with an electroconductive toner sprinkled on said photoconductive insulating layer or said dielectric layer or said dielectric sheet or film, thereby to form said visible image, and fixing said visible image on said photographic insulating layer or said dielectric layer or said dielectric sheet or film under heating or in the presence of a solvent vapor.

3,788,739
IMAGE COMPENSATION METHOD AND APPARATUS FOR ELECTROPHOTOGRAPHIC DEVICES
Samuel D. Coriale, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed June 21, 1972, Ser. No. 265,101
Int. Cl. G03g *13/00*
U.S. Cl. 355—17 **7 Claims**



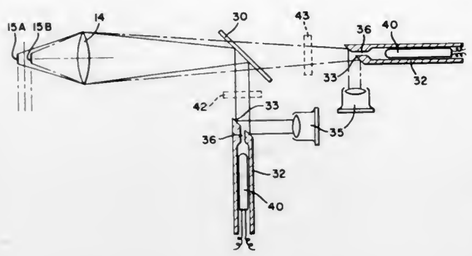
A compensation method and apparatus wherein an electrometer probe is positioned in proximity to an exposed area of a charged photoreceptor surface. The probe is positioned only in that position of the area which is always light struck. Measurement of the surface potential and comparison of the surface potential to a fixed reference provides a control signal which can be employed to compensate charge, exposure, transfer and development.

3,788,740
IMAGING SYSTEM
David K. Shogren, Ontario, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 8, 1972, Ser. No. 313,213
Int. Cl. G03b *27/50*
U.S. Cl. 355—51 **11 Claims**



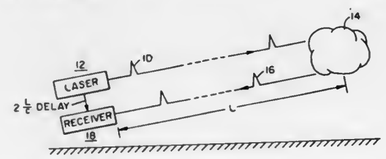
A lens strip optical system for use in a copying machine wherein the original to be copied is supported in a flat stationary condition and a flowing light image of the original is recorded upon a moving photosensitive member.

3,788,741
DISTANCE INDICATING OPTICAL PROBE
Lester W. Buechler, Dayton, Ohio, assignor to Systems Research Laboratories, Inc., Dayton, Ohio
Filed July 26, 1972, Ser. No. 275,432
Int. Cl. G01c *3/08*
U.S. Cl. 356—4 **20 Claims**



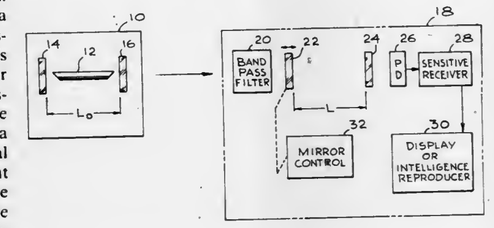
An optical probe for monitoring the distance to an object includes at least a pair of fiber optic bundles, each bundle having the image of its end surface focused at a plane preferably located on either side of the normal position of an object. Each fiber object bundle includes one or more fibers used as a receiver and one or more additional fibers used as light transmitters. When the image of the end of the fiber optic bundle is in focus on the object, the light observed by the receiving fiber is at a minimum. As the focus is changed, light from the transmitting fibers will increasingly cover the area observed by the receiving fibers, the intensity of the received light being a function of the out-of-focus distance. By using a pair of optical fiber bundles, the surface of which are focused at different planes, an unambiguous output may be obtained which can be converted directly into a distance measurement from the probe to an object under observation. Reflectivity of the surface of the object may be compensated for by comparing the light received by the receiving optical fibers. In one alternative embodiment, an image is formed by a single transmitter-receiver combination and the focal distance is modified by means of a high index of refraction material which is periodically interposed in the light path. In other embodiments, a beam splitter is used with two transmitter-receiver combinations and the light sources are separated by a means such as, by alternately switching the lights and detectors on and off, by light filters, or by use of polarized light.

3,788,742
GAS MONITORING SYSTEM
Max Garbuny, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 24, 1971, Ser. No. 156,331
Int. Cl. G01n *21/00*
U.S. Cl. 356—5 **10 Claims**



A monochromatic laser beam tuned to a wavelength which coincides with one of the natural absorption lines of the gas molecular species to be detected is directed towards the gas medium being monitored. A remotely located receiver positioned in proximity to or near the laser system, views the radiated region of the monitored gas in two spectral regions; one in the absorption band and the other on either side of the absorption band. The receiver develops signals from the backscattered irradiation in the time and frequency domain to determine the presence and measure the density, depth and range of the molecular species being detected in the illuminated cross section of the monitored gas. A second method employed by this invention utilizes the polarization characteristics of the backscattered radiation, incurred from processes such as resonant imprisonment in the monitored gas, to determine the presence of the molecular species being detected.

3,788,743
LASER RECEIVER SYSTEM
Nicholas George, Pasadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.
Filed Mar. 2, 1972, Ser. No. 231,186
Int. Cl. G01p *3/36*
U.S. Cl. 356—28 **7 Claims**

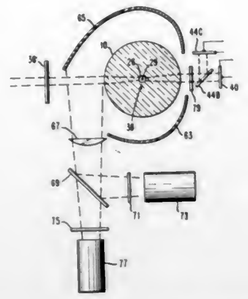


A multi-tone gas laser emits light to a receiver. The receiver may be on the same vehicle as the light emitting laser, receiving light reflected from a moving vehicle, or the receiver and laser light transmitter may be moving relative to one another. Thus, the light which is received is modulated as a result of the relative vehicle motion. The receiver comprises a coarse 1 to 100 A. interference filter followed by a Fabry-Perot cavity and photo detector. The length of the Fabry-Perot cavity is chosen roughly equal to the cavity length of the transmitter laser, but with provision for fine fractional wave length control of its length. This length is adjusted until the output derived from a photodetector is peaked. A read-out of the vernier length at that time gives a measurement of the velocity. If the transmitter and receiver are relatively non-accelerating and the light transmitted is modulated then the receiver can intelligently demodulate the received signals.

3,788,744
METHOD AND APPARATUS FOR PHOTOANALYSIS
Mitchell Friedman, Yorktown Heights; Louis A. Kamentsky, Briarcliff Manor, and Isaac Klinger, Yorktown Heights, all of N.Y., assignors to Bio/Physics Systems, Inc., Katonah, N.Y.
Division of Ser. No. 2,750, Jan. 14, 1970, Pat. No. 3,687,553.
This application Dec. 6, 1971, Ser. No. 205,434
Int. Cl. G01n *33/16, 21/00*
U.S. Cl. 356—39 **13 Claims**

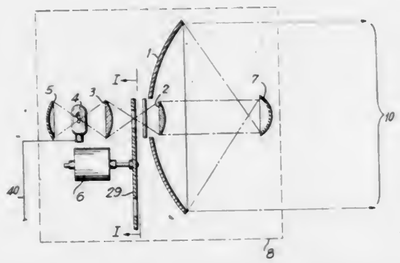
A narrow beam of monochromatic light is directed through an optical chamber to intersect a thin stream of small particles to be optically analyzed, causing the particles to emit

fluorescent radiation in the presence of a significant particle characteristic to be detected. A spectral filtering element is



positioned to intercept the fluorescent particle radiation and to pass only a selected wave length to a photoresponsive pick-up element for detection thereby.

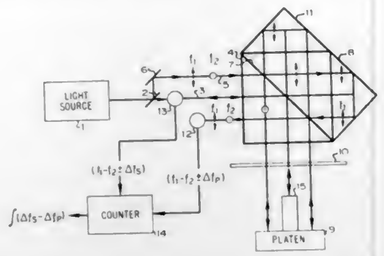
3,788,745
METHOD FOR MEASURING RANGE OF VISION
Franz Menke, Neckargemund, Germany, assignor to Eltro GmbH & Company, Heidelberg, Germany
Division of Ser. No. 115,432, Feb. 16, 1971, Pat. No. 3,653,768. This application Dec. 21, 1971, Ser. No. 210,585
Int. Cl. G01n *21/26*
U.S. Cl. 356—104 **6 Claims**



A method and apparatus is disclosed which is usable in measuring the range of vision and comprises emitting a light beam from a transmitter for reception by a distant photoelectric receiver and indication on an indicator. A diaphragm serves to alternately feed to the receiver the direct light beam from the transmitter, and the combination of the direct light beam and a dispersed beam and the intensities of the signals are compared and indicated by the indicator.

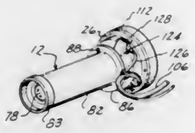
3,788,746
OPTICAL DILATOMETER
Richard R. Baldwin, Saratoga, and Bruce J. Ruff, Sunnyvale, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 2, 1972, Ser. No. 294,114
Int. Cl. G01b *9/02*
U.S. Cl. 356—106 **3 Claims**

A dilatometer for measuring the linear coefficient of expansion of a specimen block wrung on a platen. The measurement is made by electronically comparing a set of fringes that are responsive to motion of the sample to a set of fringes that are responsive to motion of the platen. Each set of fringes is generated by interference between a reference light beam and a light beam which has twice traversed the distance to the surface whose motion is being monitored, the two traversals being along separate but parallel paths. Each of the two sets of



fringes is generated at the surface of the main beam splitter by recombining beams which have been reflected from cube-corners so that there is no requirement for a separate, precisely aligned, output beam splitter.

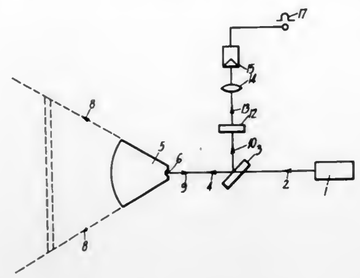
3,788,747
HEADLAMP AIMING DEVICE HAVING A PROTECTIVE HOUSING
Selim R. Rahme, St. Clair Shores, Mich., assignor to A-OK Machine and Tool Company, Fraser, Mich.
Filed May 30, 1972, Ser. No. 257,687
Int. Cl. G01b *11/26*
U.S. Cl. 356—121 **9 Claims**



A headlamp aiming device for properly aiming the headlamps of a vehicle. The device has a base member with a projection tube extending from one side thereof and concentrically arranged within a protective housing which, in turn, is connected to the base member by a plurality of circumferentially spaced shock absorbing spring assembly. A vacuum suction cup is carried on the opposite face of the base member. The base member carries an adapter ring which has means cooperating with the vehicle headlamp to permit a predetermined alignment between the headlamp and the device when the same is releasably attached to the headlamp by the action of the vacuum suction cup. A beam of light projected through the projection tube of the device strikes a target and when the beam of light has been adjusted to center on the target by the adjustment of the mounting screws on the headlamp bezel, the vehicle headlamp is properly aimed.

3,788,748
INDICATING THE PASSING OF A PROJECTILE THROUGH AN AREA IN SPACE
Lindsay Charles Knight; Colin Maxwell Finch, both of Albury, N. S. W.; Noel Harry Fred Walden, Southport, and George Racz, Albury, N. S. W., all of Australia, assignors to Australasian Training Aids Proprietor Limited, Albury, New South Wales, Australia
Filed Jan. 20, 1972, Ser. No. 219,366
Claims priority, application Australia, Jan. 21, 1971, 3775
Int. Cl. G01b *11/26*
U.S. Cl. 356—141 **29 Claims**

A method of and apparatus for indicating the passing of a projectile through an area in space comprising inciding the whole of said area with a projectile light beam and detecting a reflection of said beam off a projectile passing through said



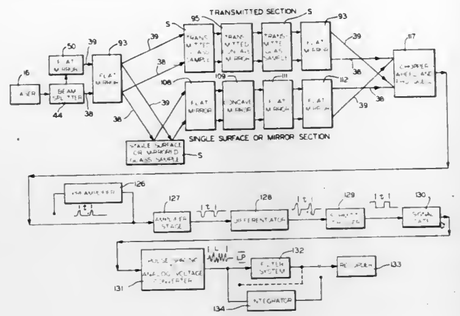
area resulting from incidence of said beam thereon thereby determining that said projectile passed through said area.

3,788,749
IMAGE QUALITY RATING SYSTEM
Nicholas George, 4097 Robin Hill Rd., Pasadena, Calif.
Filed Mar. 13, 1972, Ser. No. 234,191
Int. Cl. G01n *21/16*; **G06k** *9/08*
U.S. Cl. 356—239 **8 Claims**

The sharpness of definition of an image on film may be automatically determined by comparing an original image on film with a perturbation of the same image formed from the original image. Such perturbation is achieved by using a hologram deblurring filter upon which the original image is projected. A photodetector is used to measure the power spectral density first of the original image, then of the deblurred image. As one criterion of the evaluation, the readings from the photodetector are compared and if the original image has a lower amount of high frequency content that the deblurred image then the original image is not a sharp image. If the original image has a substantially larger amount of high frequency content that the deblurred image then the original image is a sharp image.

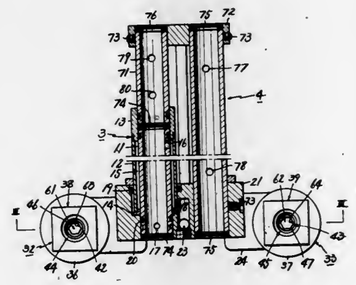
3,788,750
INSPECTING GLASS
Robert E. Maltby, Jr., Perrysburg; Walter D. McComb, Oregon, and Richard D. Schave, Perrysburg, all of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio
Filed Dec. 6, 1972, Ser. No. 312,785
Int. Cl. G01n *21/32*
U.S. Cl. 356—239 **27 Claims**

Inspection of flat glass or other transparent or reflecting material for vision distortion or optical quality by observing the lens power and width of positive and negative lenses on the surface or surfaces of the material. Two accurately spaced beams of light are directed toward the glass or other material being inspected, and the beams are then directed from the material to a chopper device. A photocell in the chopper device produces an electrical signal of two pulses separated in time by an amount proportional to the spacing between the beams as they arrive at the chopper. The spacing of the beams at the chopper changes in proportion to the reciprocal of the focal length of the lenses on the surface or surfaces of the sample, with a positive or convex lens causing the beams to converge and a negative or concave lens causing them to diverge



upon leaving the sample. This causes a corresponding change in the time separation of the pulses from the photocell. The pulses are suitably electronically processed and the resulting signal is graphically recorded on a strip chart as an indication of position and focal length of lenses on the surface or surfaces of the material. Changes in the index of refraction within transparent material may also be detected.

3,788,751
GAS ANALYZER
Toshio Shimazaki; Fumio Tanei, and Yoshio Yanagida, all of Kyoto, Japan, assignors to Horiba Ltd., Kyoto-Fu, Japan
Filed Aug. 31, 1971, Ser. No. 176,660
Int. Cl. G01n *1/10*
U.S. Cl. 356—246 **5 Claims**

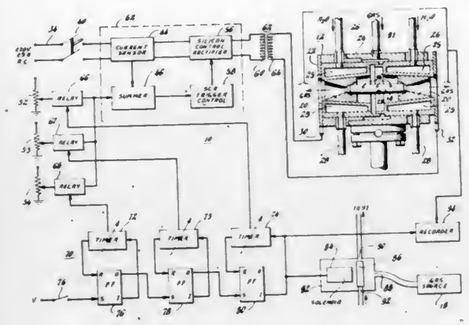


A gas analyzer comprising a sample cell adapted to receive a gas to be analyzed and a reference cell for receiving a gas to be compared, both of which are disposed between a source of light and a detector, and clamping members for clamping together a protective casing and a common cell base for support of said sample and reference cells. Other advantages and details of the arrangement will be made clear.

3,788,752
GAS FLOW CONTROLLER FOR A HEATED SAMPLE CELL

Sabina Slavin, Ridgefield, and Herbert L. Kahn, Westport, both of Conn., assignors to The-Perkin-Elmer Corporation, Norwalk, Conn.

Filed Mar. 3, 1972, Ser. No. 231,578
Int. Cl. G01j 3/02
U.S. Cl. 356—36 7 Claims



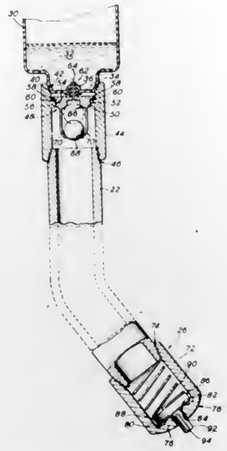
A gas flow controller controls the flow of inert purging gas to a heated graphite tube sample cell. The graphite tube is electrically heated to atomize the sample so that an atomic absorption spectrophotometric measurement can be made of the sample. The purge gas is applied to the sample cell to keep oxygen out of the graphite tube to prevent burning of the tube during the heating cycle. The gas flow controller includes a valve that exhibits first and second operating positions for providing respectively a first flowpath to couple the purging gas to the sample cell, and a second flowpath to divert the gas away from the sample cell. A programmer is included in the controller to program the heating of the sample cell to a first level to dry the sample in the sample cell during a drying portion of the heating cycle. The sample cell is heated to a second level to char the sample and then to a third higher level to atomize the sample during an atomizing portion of the heating cycle. The programmer is coupled to activate the valve to switch the valve from operating in its first position during the drying and charring portions of the heating cycle to operate in its second position at the beginning of the atomizing portion of the cycle. Thus the purge gas is diverted away from the sample cell during the atomizing portion of the heating cycle so that the atomized sample is not rapidly swept out of the sample cell. Consequently more sensitive atomic absorption measurements may be made.

3,788,753
ELONGATED LIQUID MARKER

Stanly J. Stewart, 230 W. Monroe St., Carlinville, Ill.

Filed Mar. 19, 1973, Ser. No. 342,472
Int. Cl. B43k 5/16, 1/06
U.S. Cl. 401—134 6 Claims

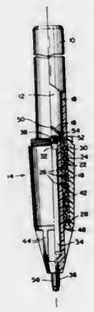
An elongated liquid marker comprising a bent tube body having opposed handle and marking end portions. The handle end portion has a liquid-tight threaded connection with a disposable liquid ink or dye cartridge container providing an enlarged, bulb-like axial extension which can easily be grasped and held by the user. An important feature in a marker of this kind is a gravity type check valve in the handle end portion which prevents loss of marking liquid from the tube when the handle end portion is lowered, yet enables unimpeded flow from the cartridge through an inlet port into the tube when the handle end portion is elevated. The marking end portion has a transverse end wall with a rounded, external marking surface and an internal annular seat around a central outlet port which extends through the end wall. A normally closed control valve disc is pressed against the seat by an internal spring. An actuator rod extends from the valve disc through the outlet port and projects beyond the marking surface for engagement with an object to be marked. When pressed against such an object, the actuator rod is displaced inward and moves the control valve disc away from its seat thereby enabling marking liquid to flow through the outlet port onto the object. Embodiments using both pressurized and non-pressurized containers for the hand grip are disclosed.



3,788,754
INK CARTRIDGE FOR TUBULAR WRITING PEN

Stefan Glasa, 43 Goethestr., Wedel/Holstein, Germany

Filed Apr. 5, 1973, Ser. No. 348,345
Claims priority, application Germany, Apr. 7, 1972, 2216706
Int. Cl. B43k 1/06
U.S. Cl. 401—135 13 Claims

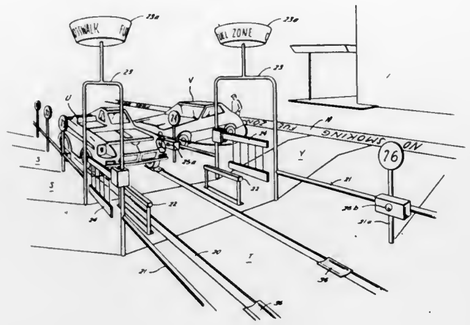


The invention relates to an ink cartridge adapted to be connected to the tip of a tubular point pen, the ink reservoir of which is provided, at the end facing the tip of the tubular point pen, with a transverse wall which is adapted to be broken open on connection to the tip of the pen, and beyond which the outer wall enclosing the ink reservoir projects forward to form a connection region.

3,788,755
SAFETY ZONE FUEL SYSTEM FOR MOBILE DIRECT SERVICE UNITS

Delles T. Davis, Abilene, Tex., assignor to Development Research Ltd., Houston, Tex.

Filed Oct. 21, 1971, Ser. No. 191,223
Int. Cl. E01c 1/00
U.S. Cl. 404—1 8 Claims

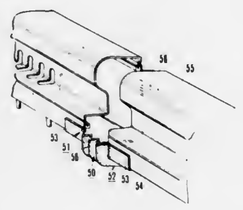


A safety zone fuel system for servicing motor vehicles with a mobile direct service unit from a barrier protected service area within the boundary marked safety zone. In one embodiment a fueling lane service area enables the mobile direct service unit to move along the fueling lane for servicing a plurality of vehicles parked adjacent the fueling lane while automatically movable barrier sections allow pedestrain traffic to cross the fueling lane.

3,788,756
CURB AND DRAIN UNIT

Sinzo Ito, 359 Kayigaya-cho, Totsuka-ku, Yokohama-city, Japan

Filed Oct. 5, 1971, Ser. No. 186,706
Claims priority, application Japan, Jan. 31, 1971, 46/3872
Int. Cl. E01c 11/22
U.S. Cl. 404—4 4 Claims

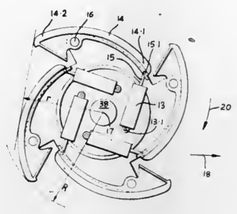


A curb and drain unit for roads which being installed on the both sides and/or the central reserve of highways or any other roads to prevent the automobile from running off the road and to drain water and slops from the road, and consisting of an upper curb portion to receive the tire of an automobile and a lower hollow portion for the drainage. Said curb portion of the unit is, in practice, provided by forming an inclined front face or a projected face on the upper half of said unit, and said drain is provided on the lower half of said unit to form a passage for drainage.

3,788,757
IMPACT ROLLER APPARATUS

Aubrey Ralph Berrange, Brooklyn, Pretoria, South Africa, assignor to South African Inventions Development Corporation, Pretoria, South Africa

Filed Jan. 27, 1971, Ser. No. 110,147
Claims priority, application South Africa, Feb. 5, 1970, 70813
Int. Cl. E01c 19/26
U.S. Cl. 404—124 5 Claims

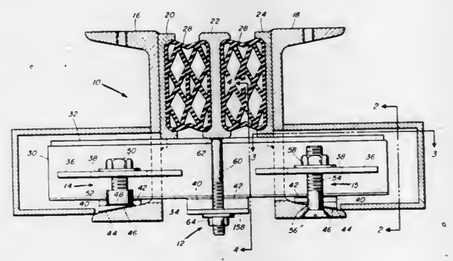


The invention provides an impact roller in which its cross-sectional profile is deformable to permit variation of the lift of the centre of gravity of the roller. Thereby the impact delivered by the roller to underlying soils and gravels may be varied.

3,788,758
HOLD-DOWN ASSEMBLY FOR MODULAR EXPANSION JOINTS

Carl W. Scheffel, Ellicott City, Md., assignor to Fox Industries, Inc., Baltimore, Md.

Filed Apr. 7, 1972, Ser. No. 241,990
Int. Cl. E01c 11/10
U.S. Cl. 404—56 8 Claims



A new and improved hold-down assembly is provided for attachment to modular expansion joints. These expansion joints are used to connect sections of bridge roadways.

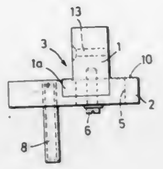
The hold-down assemblies secure the joint in such a manner as to allow for movement due to expansion, contraction, and rotation and additionally eliminate the noise produced by the joint which is generated by the traffic flow.

The hold-down assembly consists of a thin strip of stainless steel which is bonded to the underside of a supporting bar for the joint. The supporting bar makes contact with a plurality of fabric reinforced elastomeric pads topped wtih thin sheets of teflon. The hold-down assemblies are attached to the joints members by means of welded flanges and appropriate hardware.

3,788,759
BORING DEVICE TO FASTEN HINGE FRAMES OR THE LIKE

Hellmuth Grunert, Hoffnungsthal Bezirk, Cologne, Germany, assignor to Prameta Prazisionsmetall - und Kunststoffer-zeugnisse G. Baumann & Co., Cologne, Germany

Filed May 12, 1972, Ser. No. 252,689
Claims priority, application Germany, May 18, 1971, 7119368
Int. Cl. B23b 47/28
U.S. Cl. 408—115 5 Claims

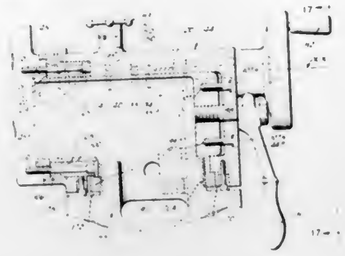


A boring device for locating and drilling hinge mounting holes in frame and door members includes a base member with a stop shoulder for positioning the device with respect to the edge of the frame member. A slide member positionally adjustable within a channel in the base member is secured to the base member. The slide member includes at least one bore jig for properly aligning a bit during drilling of one or more mounting holes. Transverse interfitting grooves between the mating surfaces of the base and slide members in conjunction with a screw and slot arrangement in the slide member provide a rigid yet adjustable mounting arrangement between the two elements. Graduated indicia on the base member and a positioning index on the slide member permit the two members to be adjusted with respect to each other for accurate positioning of the bore jig and repositioning of the members.

3,788,761
MACHINE TOOL WITH ANGULARLY ADJUSTABLE TOOL HEAD

Bob J. Langenbach, Athens, Ohio, assignor to Abex Corporation, New York, N.Y.

Division of Ser. No. 752,200, Aug. 13, 1968, Pat. No. 3,584,524. This application July 14, 1970, Ser. No. 62,735
Int. Cl. B23b 39/12, 39/14
U.S. Cl. 408—236 2 Claims

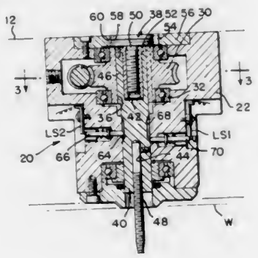


An automatic drilling machine is afforded in which the drill is automatically retracted when excessive resistance is encountered, and upon retraction may be automatically cleaned, lubricated and cooled. At no time is more than one-half the length of the drill unsupported.

3,788,760
TAPPING HEAD FOR PUNCH PRESS

Dennis Daniels, Bellevue, Wash., assignor to U.S. Amada, Ltd., Seattle, Wash.

Filed Sept. 13, 1971, Ser. No. 179,952
Int. Cl. B23b 47/04, 47/18
U.S. Cl. 408—130 14 Claims

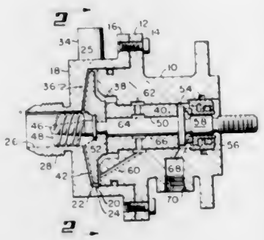


A unitized tapping head is incorporated into the turret of a multiple-tool punch press. The tapping head includes a unique replaceable cartridge which houses a tap and a feed lead screw. A self-contained drive unit rotates the cartridge to advance the tap at the same lead as the threads on the feed lead screw. The cartridge is held only by a simple spring clip and thus is easily replaced with the same or a different combination tap and corresponding feed lead screw.

3,788,762
SELF-LUBRICATED PUMP WITH MEANS FOR LUBRICANT PURIFICATION

Stephen E. Partos, Mamaroneck, N.Y., assignor to Avco Corporation, Stratford, Conn.

Filed Feb. 22, 1972, Ser. No. 228,162
Int. Cl. F04d 17/06, 29/08
U.S. Cl. 415—74 3 Claims



In a centrifugal-type pump, the fluid being pressurized is extracted for use in lubricating a sleeve bearing that journals the pump rotor. The fluid is extracted through a passage exposed to the static pressure of the fluid in the pump so that contaminants are eliminated from the fluid used for lubrication.

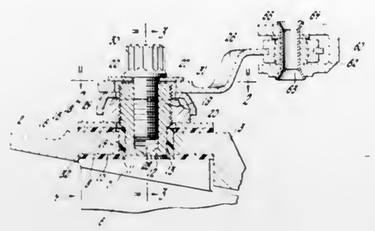
3,788,763
VARIABLE VANES

Lawrence H. Nickles, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 1, 1972, Ser. No. 302,746
Int. Cl. F04d 29/52, 27/00
U.S. Cl. 415—147 4 Claims

An annular cascade of variable setting vanes in a compressor includes an annular row of vanes extending inward from the case and mounted on shafts extending through the case,

each vane having a disk engaging the case through a bushing. Additional bushings are provided between the shaft and the case and on the exterior of the case. A washer bearing against the exterior bushing is held by a nut threaded onto the shaft and the nut is retained against rotation by a locking cup washer interlocked rotatively with the shaft. The washer and a vane actuating arm also interlocked rotatively with the shaft

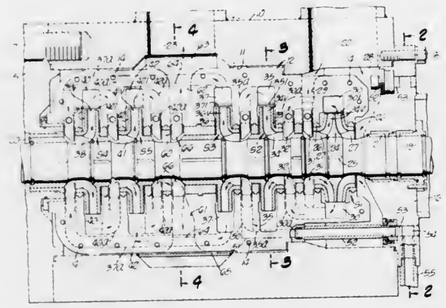


are retained by a cap screw threaded into the outer end of the shaft. The interior of the case preferably has a circumferential recess to receive the interior bushings of all the vanes and the interior bushing for each vane is preferably of generally rectangular outline and of varying thickness to accord with the varying spacing between the disk and the cylindrical or conical interior surface of the recess.

3,788,764
MULTI-STAGE CENTRIFUGAL PUMP WITH MEANS FOR PULSE CANCELLATION

Scott James Shuey, Fullerton; Wallace Leland Smith, Santa Ana, and Harold G. Wilk, Los Angeles, all of Calif., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Nov. 6, 1972, Ser. No. 303,891
Int. Cl. F01d 1/02
U.S. Cl. 415—198 11 Claims

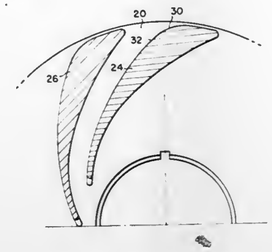


A multi-stage, double volute, centrifugal pump has an intermediate discharge and a final discharge constructed so that the pulses in the fluid at the discharge stages created by the impeller vanes passing the lips of the volute are eliminated within the pump assembly by the use of an impeller having an odd number of vanes and the volute lips are located 180° apart, and separate flow paths of equal length lead from each lip to a zone of confluence. The point of convergence for the intermediate discharge is in the pump case, the point of convergence for the final discharge is also in the pump case.

3,788,765
LOW SPECIFIC SPEED COMPRESSOR

Vasil Rusak, Somerset, N.J., assignor to De Laval Turbine Inc., Trenton, N.J.

Filed Nov. 18, 1971, Ser. No. 200,095
Int. Cl. F04d 7/00, 17/00
U.S. Cl. 415—213 2 Claims

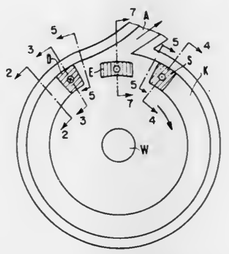


Wedge-type vanes, or vanes with increasing thickness from inlet to exit facilitate the layout of aerodynamically favorable flow channels in application to small diameter low specific speed compressor wheels. The channels may have various cross sections including rectangular, square, oval or circular. The channels may be backwardly bent, straight, or s-shaped in form. Streamlining the pressure side of the vanes at the exit helps to reduce exit wake losses. A local restriction may be provided in the channel axial width at the exit to correct for the area increase created by the streamlining at the exit. An extension at the trailing side of the exit to follow the shape of the streamlined pressure side of the following vane may be provided for better control of the channel exit area and better direction of the flow.

3,788,766
RING CANAL BLOWER

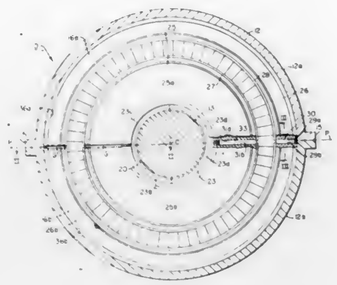
Heinrich Engels, Nurnberg-Eibach, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany

Filed June 12, 1972, Ser. No. 261,613
Claims priority, application Germany, June 26, 1971, 2131952
Int. Cl. F04d 17/00, 17/10
U.S. Cl. 415—53 T 5 Claims



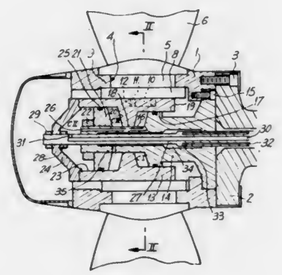
The ring canal blower has a housing with a lateral canal in front of one or both front sides of a rotor for compressing gases as well as intake and pressure connection stubs which are connected directly to each other via the canal or canals. In order to prevent a heat build-up, the housing has an outlet for hot gas located between the intake and pressure connection stubs as viewed in the direction of rotation of the rotor as well as an inlet for cool gas. The inlet for the cool gas communicates with the hot gas outlet via the rotor compartments that pass by. The outlet and inlet serve to draw off the hot gas disposed within the rotor blade compartments while replenishing these compartments with cool gas.

3,788,767
TWO-PIECE BLADED DIAPHRAGM FOR AN AXIAL FLOW MACHINE
Julian F. Bednarczyk, San Jose, and James M. Gate, Saratoga, both of Calif., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 1, 1971, Ser. No. 203,817
Int. Cl. F01d 9/00
U.S. Cl. 415—217 9 Claims



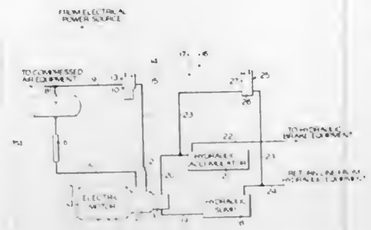
A disc shaped bladed diaphragm structure for an axial flow turbine or compressor divided into two semicircular halves with radial grooves of mating cylindrical cross-sectional shape and having one or more cylindrical keying members disposed therein to provide a fluid seal thereacross; and a method of making a diaphragm with the seal structure described above.

3,788,768
FACILITY FOR CONTROLLING THE ORIENTATION OF VARIABLE-PITCH SCREW BLADES
Joseph Prampart, Nantes, France, assignor to Societe Financiere Et Industrielle Des Ateliers Et Chantiers De Bretagne and Prairie au Duc, Nantes Laire Atlantique, France
Filed Mar. 24, 1972, Ser. No. 237,640
Claims priority, application France, Sept. 17, 1971, 7133561
Int. Cl. B63h 1/06
U.S. Cl. 416—157 4 Claims



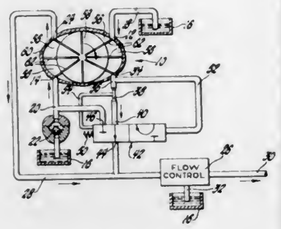
A device for orienting the blades of a variable pitch screw comprises a double acting actuator which produces a greater force in one sense than the other.

3,788,769
COMBINED AIR AND HYDRAULIC FLUID SUPPLY APPARATUS AND CONTROL THEREFOR
William H. Glass, and Robert J. Bridigum, both of Pittsburgh, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed June 23, 1972, Ser. No. 265,618
Int. Cl. F04b 49/00
U.S. Cl. 417—26 1 Claim



Combined compressed air and hydraulic fluid supply apparatus including an air compressor and a hydraulic pump driven by common driving means, such as an electric motor. A single electrical circuit for the motor is opened or closed by a pair of switch devices interposed therein in parallel relation, said switch devices being operable to open or close the motor circuit in accordance with the demand of compressed air and/or hydraulic fluid, respectively.

3,788,770
FLUID PUMP WITH FLOW CONTROL MEANS
David E. Johnson, and Frederick Rehfeld, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed June 15, 1972, Ser. No. 263,167
Int. Cl. F04b 23/04; F04c 23/00
U.S. Cl. 417—62 4 Claims

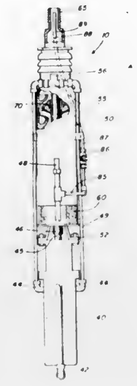


A fluid pump including a plurality of expansible chambers and a bypass flow control valve for directing fluid flow from the outlet of selected chambers to the inlet of the other chambers when the output flow of all the pump chambers is above a predetermined value.

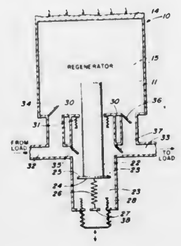
3,788,771
SUBMERSIBLE PUMP
Herbert J. Akins, Sr., 322 E. Boundary St., Ely, Minn.
Filed July 7, 1972, Ser. No. 269,836
Int. Cl. F04b 23/04
U.S. Cl. 417—88 4 Claims

This invention relates to a submersible pump which combines a pneumatic motor with an elongated cylindrical pump body having a vane type structure therein driven by the motor.

The outlet of the pump receives a portion of the supply air bled off at the intake side of the motor and directed to the outlet of the pump to provide a jet action increasing pumping efficiency. The exhaust air from the motor is also directed to the outlet side of the pump to further assist the pump by providing an air pressure source to the water column moved by the pump.

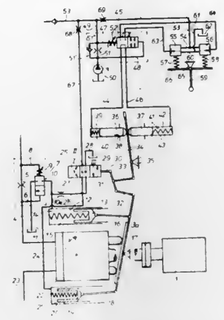


3,788,772
ENERGY CONVERTER TO POWER CIRCULATORY SUPPORT SYSTEMS
Jack E. Noble, Benton City, and Richard P. Johnston, Kennewick, both of Wash., assignors to The United States of America as represented by the Secretary, Department of Health, Education and Welfare, Washington, D.C.
Filed Mar. 4, 1971, Ser. No. 121,069
Int. Cl. F04b 19/24
U.S. Cl. 417—207 9 Claims



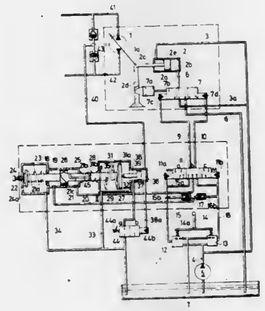
An energy converter of the Stirling cycle engine type to function as a power source for an artificial heart. The engine is designed to produce 1 to 10W to a blood pump operating at 60 to 150 pulses per minute. The simplified Stirling type engine includes a moving regenerator which is operated by pneumatic power produced within the engine itself made possible by the drive chamber, drive piston, and novel arrangement of springs and valves which maintain the engine chamber at a constant volume during compression and decompression, thereby, increasing engine output.

3,788,773
HYDRAULIC CONTROL AND REGULATING APPARATUS FOR AN ADJUSTABLE PUMP
Hans-Jurgen Van der Kolk, Sersheim, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 18, 1972, Ser. No. 281,727
Claims priority, application Germany, Aug. 20, 1971, 2141724
Int. Cl. F04b 49/00
U.S. Cl. 417—213 11 Claims



A hydraulic control and regulating apparatus for an adjustable pump driven by a prime mover, preferably a combustion motor, in which an auxiliary pump delivers fluid through a throttle producing at a predetermined speed of the auxiliary pump corresponding to the speed of the motor, a pressure differential operating a control valve to supply to, and discharge from, hydraulic setting motors which operate a manual lever controlling the position of the volume regulator of the adjustable pump. The flow of fluid to the hydraulic setting motor is controlled by a manually operated lever shifting two reversing valves for connecting the speed control valve with the delivery conduit of the auxiliary pump and with an open low pressure space.

3,788,774
POWER OUTPUT REGULATED PUMP ARRANGEMENT
Helmuth Roesslein, Lohr/Main, Germany, assignor to G. L. Rexroth GmbH, Lohr/Main, Germany
Filed Jan. 10, 1973, Ser. No. 322,516
Claims priority, application Germany, Jan. 11, 1972, 2201046
Int. Cl. F04b 49/00
U.S. Cl. 417—218 12 Claims



An adjustable main pump whose output volume is controlled by a servomotor operated by an auxilliary pump con-

trolled by control valves, is provided with pressure regulating cylinder and piston means receiving fluid from the auxilliary pump and supplying fluid to the servomotor through the control valves. A pressure responsive piston is controlled by high pressure fluid from the outlet of the adjustable main pump, and acts on the regulating piston, forming a variable throttle therewith for controlling the flow from the regulating cylinder to a low pressure discharge conduit, or to the servomotor, depending on the pressure exerted by the pressure responsive piston on the regulating piston, so that the product of pump pressure and pumped volume, representing the power output of the main pump, remains constant during regulating movement of the pressure responsive piston.

3,788,775

REGULATING APPARATUS FOR A HYDROSTATIC PUMP

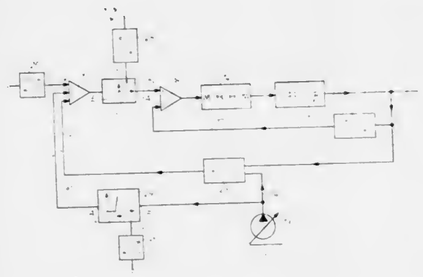
Volkmar Leutner, Hemmingen, and Roman Romes, Friolzheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 7, 1972, Ser. No. 232,477

Claims priority, application Germany, Mar. 10, 1971, 2111359

Int. Cl. F04b *1/26*

U.S. Cl. 417—222 **9 Claims**



A regulating apparatus for a pump having adjusting means whose actual position, represented by a differential pressure control signal, is compared with a desired position in a first differential amplifier whose output signal controls a servo valve and a force amplifier to move the adjusting means to the desired position. The control signal representing the desired position is obtained from a second amplifier which compares a signal representing a desired power output with a signal representing the actual power output, obtained from a power output measuring device multiplying a differential pressure signal representing the actual pump pressure with a signal representing the actual displacement volume derived by measuring means from the actual position of the adjusting means of the pump.

3,788,776

COMPRESSOR UNLOADING CONTROL

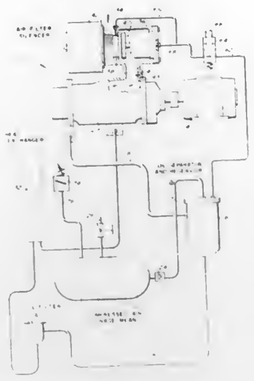
Roger L. Post, and Michael G. Herschler, both of Quincy, Ill., assignors to Gardner-Denver Company, Quincy, Ill.

Filed Aug. 10, 1972, Ser. No. 279,408

Int. Cl. F04b *49/02*

U.S. Cl. 417—295 **7 Claims**

An unloading control arrangement for a liquid injected air compressor of the type which includes a pneumatically operated inlet throttling valve, a liquid separator-reservoir tank, and compressed air storage means. A pressure responsive switch connected to the compressed air storage means is operative, at a predetermined pressure condition, to actuate a single power operated valve which vents the separator-reservoir tank and causes the inlet throttling valve to reduce inlet air flow to the compressor. A vent line connected to the power operated valve includes a flow restrictor of suitable size to provide for a low residual pressure in the reservoir tank to insure adequate liquid circulation during compressor unloaded operation.



3,788,777

MINIATURE ELECTRIC FAN

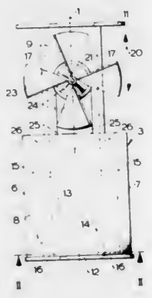
Roland Fichter, Villingen, Schwarzwald, Germany, assignor to Firma Fichter KG, Villingen/Schw., Germany

Filed June 29, 1972, Ser. No. 267,511

Claims priority, application Germany, Feb. 2, 1972, 2204807

Int. Cl. F04b *35/00*

U.S. Cl. 417—411 **10 Claims**



A battery-operated miniature motor is mounted on a holder forming part of a pocket size housing, the holder being extendable from the housing, and a fan is secured to the rotor shaft of the motor. Batteries in the housing are electrically connected to the motor upon extension of the holder from the housing. In one embodiment of the invention, the holder comprises a slide forming the narrow wall of a trapezoid cross-section housing, this wall being movable relative to the other walls and carrying one of the end walls of the housing. In another embodiment of the invention, the holder is again the narrower base wall of a trapezoid cross-section housing, and the housing is divided into two sections with the two sections being hinged to the side edges of the holder so that they may be swung back to expose the motor and the fan. In a further embodiment, the housing includes a cup-shaped base and a similar shaped cover hinged thereto, and the holder is a partition hinged to the base and swingable up into a position engaging the free edge of the cover when the latter is open.

3,788,778

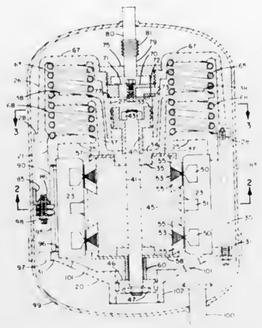
ELECTRODYNAMIC LINEAR MOTOR OPERATED GAS COMPRESSOR

Kenneth H. Miller, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed June 30, 1972, Ser. No. 267,745

Int. Cl. F04b *17/04*

U.S. Cl. 417—417 **2 Claims**



The resilient armature centering mechanism surrounds the compressor cylinder rather than being positioned in axial series with the armature and cylinder structure. This arrangement results in a particularly compact structure for use as a hermetic refrigerator compressor.

3,788,779

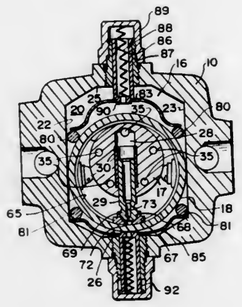
RADIAL PISTON PUMP

Floyd E. Carlson, 4504 Lanewood Cir., Rockford, Ill.

Filed May 27, 1971, Ser. No. 147,443

Int. Cl. F04b *29/00*

U.S. Cl. 417—462 **15 Claims**



A radial piston pump or motor including an elongated rotary cylinder block having axially and angularly spaced fluid cylinders extending through the axis of rotation, with axial porting provided to opposite ends of the cylinder block for flow to and from the cylinders through stationary valve plates communicating with a common inlet manifold and a common outlet manifold. The cylinders have reciprocable pistons with universal bearing slippers engaging separate cam tracks in a surrounding cam ring. Each cam track has as a spherical cam surface with a center on the center line of the cam ring and offset from the axis of the associated piston, and the bearing slipper has a mating surface. Displacement is variable by application of fluid under pressure to opposite sides of the ring.

3,788,780

INTAKE-VALVE-FREE COMPRESSOR

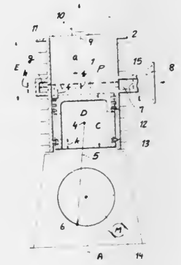
Wlodzimierz Chomczyk, and Wlodzimierz Chilimoniuk, both of Bialystok, Poland, assignors to Wyzsza Szkola Inzynierska, Bialystok, Poland

Continuation-in-part of Ser. No. 877,963, Nov. 19, 1969. This application July 7, 1972, Ser. No. 269,776

Claims priority, application Poland, Nov. 22, 1968, 130193

Int. Cl. F04b *7/04*

U.S. Cl. 417—493 **1 Claim**



A compressor cylinder is provided, along its outer periphery, with an annular supply channel for a working fluid, this channel communicating with the interior of the cylinder via a multiplicity of triangular ports lying in the path of reciprocation of the piston. The cylinder head carries an outlet with a check valve which closes during the suction stroke so that a partial vacuum is created inside the cylinder until the piston clears the ports to aspirate the fluid; upon the subsequent return stroke, the fluid is discharged through the outlet past the check valve.

3,788,781

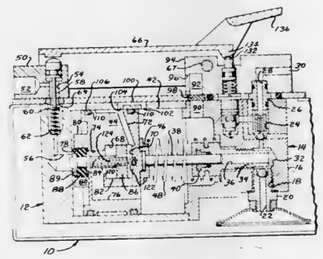
HYDRAULIC SYSTEM

Samuel B. McClocklin, Owatonna, Minn., assignor to Owatonna Tool Company, Owatonna, Minn.

Filed Mar. 17, 1972, Ser. No. 235,573

Int. Cl. F04b *17/00, 35/00*

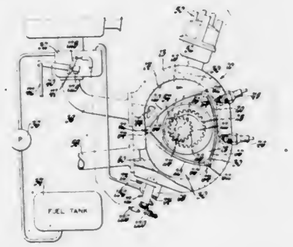
U.S. Cl. 417—401 **3 Claims**



A manually operable high pressure release valve in a high fluid pressure system such as an air operated hydraulic pump.

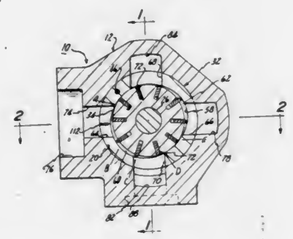
The release valve includes a manually operable pilot poppet valve disposed within a larger, manually operable poppet valve, the two poppet valves having a single manual actuator. Release of high pressure is allowed with a minimum of manual effort by first bleeding off a portion of the fluid under high pressure through opening of the pilot poppet valve until the pressure is reduced to a level whereat the larger poppet valve will easily open.

3,788,782
ROTARY ENGINE OIL METERING PUMP
Robert E. Morgan, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 29, 1972, Ser. No. 310,234
Int. Cl. F01c 21/04; F04c 15/00, 29/02
U.S. Cl. 418—84 3 Claims



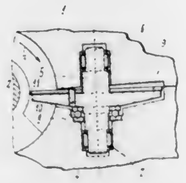
A rotary engine is provided with an oil metering pump having a valve-impeller member that is rotatably mounted in the pump's body and is driven by the engine. An oil supply port in the pump's body is connected to an oil delivery port also in the pump's body via a chamber and then a variable area metering port in the valve-impeller member as this member turns. The area of the metering port is varied by controlling the axial location of the valve-impeller member according to engine throttle opening whereby the pump meters oil to the oil outlet port at a rate which increases with increasing throttle opening and also the centrifugal force of the oil at the metering port and thus with increasing engine speed.

3,788,783
FLUID PUMPS AND MOTORS
Oscar E. Rosaen, 51 Roslyn Rd., Grosse Pointe, Mich.
Filed Jan. 6, 1972, Ser. No. 215,761
Int. Cl. F01c 19/00
U.S. Cl. 418—108 13 Claims



A fluid pump or motor of the rotary sliding vane type comprising a housing having a bore within which is disposed a unitary peripheral cam ring sandwiched between a pair of cheek plates. A sliding vane type rotor is rotatably mounted within the cam ring on a shaft extending axially through the housing bore, the cam ring being shaped to form a pair of diametrically opposed working zones between the cam ring internal surface and the periphery of the rotor. The ends of the working zones are respectively connected to fluid inlet and outlet ports through bores radially extending through the cam ring. The cam ring is axially split preferably at the location of a radially extending bore communicating low pressure fluid to the working zones such that high pressure fluid therein will radially expand the cam ring into a sealing engagement with the housing bore to prevent fluid leakage around the periphery of the cam ring. A method of manufacturing the split cam ring is also disclosed.

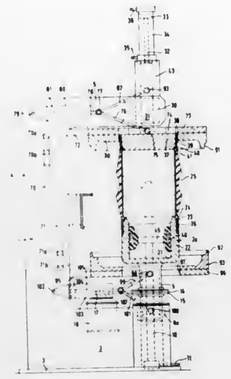
3,788,784
GLOBOID WORM FLUID-FLOW MACHINES
Bernard Zimmern, 27, Rue Delabardere, Neuilly-sur-Seine, France
Filed July 3, 1972, Ser. No. 268,890
Claims priority, application France, July 30, 1971, 71.27968
Int. Cl. F01c 5/02; F16h 1/16
U.S. Cl. 418—153 7 Claims



The invention relates to machines such as compressors or pumps of the kind including an hourglass worm meshing with a toothed pinion. It is known to make the pinion of metal coated with a resilient material such as plastic rigidity fixed to the surface of the metallic pinion. According to the invention the metal pinion is covered with a plastic lining having teeth which engage the threads of the worm and prevent the metal teeth of the pinion from engaging those threads. The plastic lining is permitted a slight shifting about its average position respectively to the metal pinion.

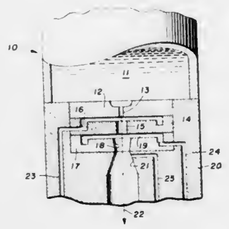
3,788,785
METHOD AND APPARATUS FOR PREHEATING AN UNCURED RUBBER TIRE
Joseph Gerard Alphons Smeets, Maastricht, Netherlands, assignor to International B.F. Goodrich Europe B.V., The Hague, Netherlands
Filed July 5, 1972, Ser. No. 269,149
Claims priority, application Germany, July 10, 1971, 2134525
Int. Cl. B29h 5/02
U.S. Cl. 425—32 10 Claims

An apparatus for preheating an uncured elastomer-containing pneumatic tire before vulcanization. The preheating means comprises a chamber supported for movement to and from an uncured tire mounted and shaped in a vulcanizing press so that preheating can occur after tire-shaping and before vulcanization. Preferably, the chamber is divided by partition means to provide different zones of preheating for different portions of a tire with an ultra-high frequency energy emitter means in each zone. The apparatus comprises a vulcanizing press with separable tire molding portions, means to support an uncured tire in a hollow, generally cylindrical configuration between the molding portions and shape the tire to



a generally toroidal configuration while the molding portions remain spaced from the tire, the preheating means being movable to and from enclosing relationship with a least a portion of the toroidally shaped tire, and the molding means being movable into engagement with the preheated tire.

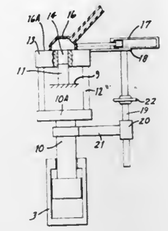
3,788,786
ORIFICE ASSEMBLY FOR EXTRUDING LOW-VISCOSITY MELTS
Emerick J. Dobo, Cary, N.C., assignor to Monsanto Company, St. Louis, Mo.
Filed Aug. 30, 1972, Ser. No. 284,790
Int. Cl. B22d 11/00; B29f 3/00
U.S. Cl. 425—72 3 Claims



An improved orifice assembly is provided for extruding filaments from low-viscosity or essentially inviscid melts.

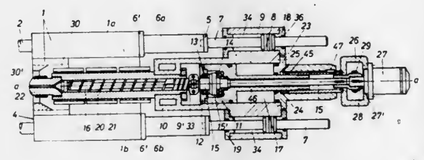
An orifice system typified by an extrusion orifice containing plate and a gas plate containing an orifice for effecting filament attenuation is improved by introducing a third orifice containing plate. The third orifice containing plate functions to reduce or eliminate disturbances from developing in the molten jet stream. The third orifice is characterized by having walls which converge towards the orifice exit.

3,788,787
HYDRAULIC METAL POWDER PRESS
Hermann Silbereisen; Felix Winterberg, both of Lochnerallee, and Severin Ginzel, Muchen-Moosach, all of Germany
Continuation-in-part of Ser. No. 856,434, Sept. 9, 1969, abandoned. This application Nov. 26, 1971, Ser. No. 202,117
Claims priority, application Germany, Sept. 9, 1968, 6751221
Int. Cl. B22f 3/00
U.S. Cl. 425—78 14 Claims



A metal powder press having frame means, lower ram means supported on the frame means for vertical movement. A hollow tool matrix is mounted on the lower ram means and movable vertically therewith. Lower press means is receivable in the lower end of the hollow tool matrix. Upper press means are receivable in the upper end of the hollow tool matrix. Metal powder storage means are provided to supply powder to a filling shoe for selectively filling the hollow tool matrix with metal powder.

3,788,788
INJECTION MOLDING MACHINE
Karl Hehl, Sielung 183 D-7291, Lossburgh Wurttenberg, Germany
Filed Mar. 1, 1972, Ser. No. 230,738
Claims priority, application Germany, Mar. 2, 1971, 2109765
Int. Cl. B29f 1/02
U.S. Cl. 425—192 12 Claims



An injection molding machine in which an injection unit is releasably connected to a mold clamping unit for injection transversely of the mold parting line, the injection unit having a plurality of supporting struts centered and releasably fastened to an equal plurality of auxiliary cylinders of the mold clamping unit.

3,788,789

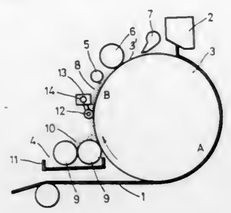
APPARATUS FOR PRODUCING UNDRAWN POLYAMIDE FILMS HAVING UNIFORM PHYSICAL CHARACTERISTICS

Wakuo Matsumura, Osaka, Japan, assignor to Unitika Kabushiki Kaisha, Hyogo-ken, Japan

Continuation-in-part of Ser. No. 809,255, March 21, 1969, abandoned. This application Oct. 6, 1971, Ser. No. 187,058

Int. Cl. B29d 7/00

U.S. Cl. 425—230 11 Claims



An improved process for producing undrawn polyamide films having uniform physical characteristics by preventing the formation of deposits of impurities on a formation surface. The molten film is extruded on a rotating roller surface where it is cooled and solidified and drawn off after the surface has traveled a distance substantially less than a whole revolution. There is then positioned a first liquid-removal means, polishing means, washing means, second liquid-removal means and drying means in that order in the direction of rotation of the roller when the surface is not in contact with the film. The polishing means may travel both horizontally across the entire width of the roller surface and vertically along a short portion of the roller surface in reciprocal motion to assist in removing the impurity deposits. The polishing means may be either a roller or shaped to conform to the roller surface and may also contain a suitable abrasive. In addition, the washing liquid may act as a polishing medium and may consist either of water or of an alcohol having one to 10 carbon atoms, or a mixture of both. The step of polishing the roller surface and in the presence of a suitable polishing medium allows significantly increase efficiency.

3,788,790

MACHINE FOR CASTING UNDER PRESSURE

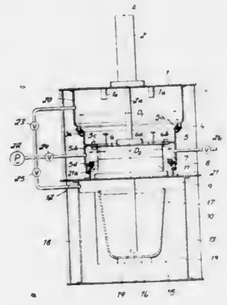
Anguel Tonchev Balevsky; Ivan Dimov Nikolov; Dragan Iliev Nenov, and Emil Nikolov Momchilov, all of Sofia, Bulgaria, assignors to Niitm Pri Ban, Sofia, Bulgaria

Filed Feb. 22, 1972, Ser. No. 227,882

Claims priority, application Bulgaria, Feb. 20, 1971, 16865

Int. Cl. B22d 27/14

U.S. Cl. 425—242 3 Claims



An apparatus for casting under pressure wherein the mold parts are connected to relatively telescoping chamber walls, at least one of which can be actuated by a fluid-responsive device, e.g. a hydraulic cylinder, to ensure tight closure of the mold.

3,788,791

CLOSURE NOZZLE WITH A MOVABLE COVER FOR AN INJECTION MOLDING MACHINE

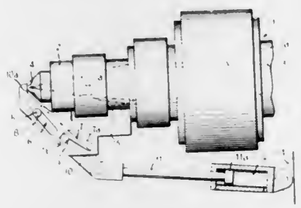
Paul Munz, Netstal, Switzerland, assignor to Maschinenfabrik & Giessrei Netstal A.G., Netstal, Switzerland

Filed Aug. 24, 1971, Ser. No. 174,337

Claims priority, application Switzerland, Aug. 27, 1970, 12872/70

Int. Cl. B29f 1/02

U.S. Cl. 425—245 7 Claims



An injection molding machine includes a closure nozzle having a discharge orifice through which the material which is plasticized is directed. The orifice is closed by a cover member formed at the end of a lever which is pivotal on a slide secured to one side of the injection molding machine housing. The lever has two pivot pins one of which is confined within a slot extending obliquely in respect to the axis of the injection molding machine die orifice and the other of which is confined in an angled slot having one leg portion running in generally the same direction as the first slot and another leg portion running normal thereto. The lever is connected to means for shifting the lever, for example a fluid pressure-operated piston which is articulated to one end of the lever. The pins on the lever which are confined in the respective slots cause the lever to move from the fully opened position first in a direction at an angle to the axis of the orifice and thereafter when the closure seal portion of the lever is located beyond the end of the orifice in a direction causing it to pivot above the pivot pin nearest the orifice to shift the closure portion to a position overlying and sealing the orifice.

3,788,792

APPARATUS FOR FABRICATING SYNTHETIC RESIN ARTICLES BY DOUBLE ROTATION OF A MOLD

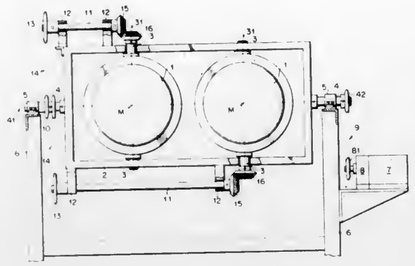
Tadao Suzuki, Toyohashi, Japan, assignor to Denki Kaguku Kogyo Kabushiki, Kaisha, Tokyo, Japan

Filed Mar. 30, 1972, Ser. No. 239,651

Int. Cl. B29c 5/04

U.S. Cl. 425—429 6 Claims

An apparatus for fabricating synthetic resin articles by double rotation of molds wherein a plurality of molds are rotatably supported on a frame by rotation shafts for effecting their rotation and the frame is rotatably mounted on a support truck by revolution shafts for effecting the revolution of the frame and consequently the molds. The frame is fitted with drive shafts and there are provided rotation force transmitting devices between the revolution shafts and drive shafts as well as between said drive shafts and rotation shafts. The axial lines of said rotation and revolution shafts perpendicularly intersect each other substantially at the gravitational center of the articles being fabricated in the molds, and double-chain drive means is provided to impart rotation to the revolution shafts and consequently to the rotation shafts via the rotation force transmitting devices, the drive means being disposed at a position external of the truck and outside of the mold heating and cooling sections of the apparatus.



3,788,793

APPARATUS FOR MANUFACTURING CONCRETE PIPES, PARTICULARLY SHAFT RINGS

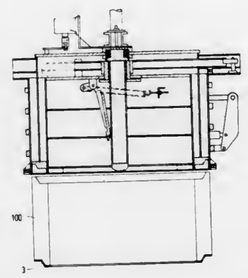
Rudolf Pappers, Geretsried; Georg Hohberg, Wolfratshausen, and Kurt John, Geretsried, all of Germany, assignors to Knauer GmbH & Co. KG Maschinenfabrik, Geretsried-Gartenberg, Germany

Filed Aug. 11, 1971, Ser. No. 170,743

Claims priority, application Germany, Aug. 24, 1970, 2041947

Int. Cl. B28b 21/12

U.S. Cl. 425—432 10 Claims



The method and apparatus for manufacturing concrete pipes, especially for lining shaft rings employs a form mantle and a form core with an annular space therebetween, a plunger, coupling means for temporarily connecting form mantle and core, and independent lifting means for the plunger and for the form mantle, the form mantle and core being coupled together and seated at a forming station, are then uncoupled prior to pouring concrete, then the concrete is poured and compacted and the mantle and core are coupled together again and are withdrawn from the formed work piece.

3,788,794

CLAMPING UNIT WITH A TURNING PLATE FOR AN INJECTION MOLDING MACHINE

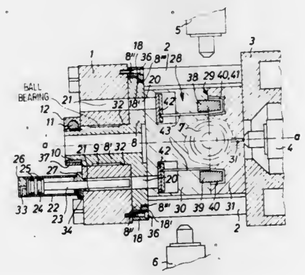
Karl Hehl, Siedlung 183, Lossburg/Wurtt, Germany

Filed Apr. 7, 1971, Ser. No. 132,071

Claims priority, application Germany, Apr. 24, 1970, 2019874

Int. Cl. B29f 1/12

U.S. Cl. 425—450 11 Claims



A clamping unit of an injection molding machine for producing multicolored cast pieces has a pair of mold halves, one of which defines at least two separate mold hollows for the cast piece, and complementary hollows or cores defined in the other mold half for forming at least two cavities in the mold. One of the cavities is configured to the shape of one colored component to the article.* The clamping unit has stationary and movable mold clamping plates. A turning plate is rotatably connected to one of the clamping plates for rotatably mounting one of the mold halves to the respective clamping plates. A fluid piston and cylinder arrangement is used to rotate the rotatably mounted mold half 180° between injections. The ejector is eccentrically mounted with respect to the injection axis and may be mounted in different locations on the clamping plate.

*The other has the configuration of the whole two colored cast piece.

3,788,795

PRESSURE OPERATED MODULATING METER FOR REGULATING A FLUE DAMPER

Edward J. Zeitlin, 115 Fifth Ave., Purdys, N.Y.

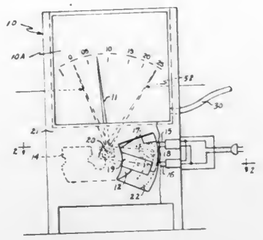
Continuation-in-part of Ser. No. 70,531, Sept. 8, 1970,. This application June 5, 1972, Ser. No. 259,569

Int. Cl. F23d 5/12

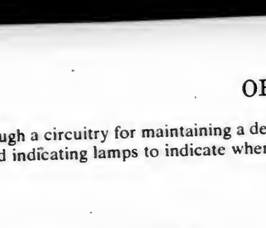
U.S. Cl. 431—13 6 Claims

A flue draft pressure operated monitoring meter for an electro-optical switching circuit primarily for intermittent regulatory interruption of a current in a circuit to control the direction of rotation of a chimney damper motor to be monitored with a pivotally mounted pointer gauge to intercept the light beam between either of two lamps and photo cell combinations that are connected to said chimney damper reversi-

ble motor through a circuitry for maintaining a desired operation setting and indicating lamps to indicate when there is no draft in said chimney, when there is too much draft in said chimney and when the chimney damper remains open.



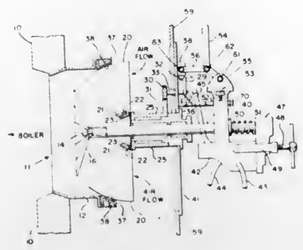
3,788,796
FUEL BURNER
Brett C. Krippene, Barberton; Morris W. Peterson, Medina, and David M. Marshall, Akron, all of Ohio, assignors to The Bolcock & Wilcox Company, New York, N.Y.
Filed May 9, 1973, Ser. No. 358,779
Int. Cl. F23c 7/00
U.S. Cl. 431—2 12 Claims



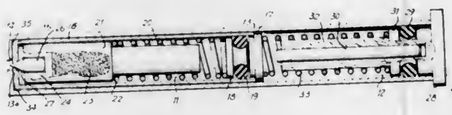
An improved pulverized fuel burning method and apparatus having means for enhancing the fuel-air mixture passing therethrough and including three separately controlled passageways delivering the air necessary for combustion of the fuel.

3,788,797
FUEL OIL BURNER LEAD CONTROL MECHANISM
Robert W. Mayfield, 530 Longbotham Dr., Aston, Pa., and Lawrence T. Mayfield, 218 Sherbrook Blvd., Upper Darby, Pa.
Filed Nov. 29, 1972, Ser. No. 310,296
Int. Cl. F23c 5/06
U.S. Cl. 431—186 8 Claims

Positioning apparatus comprising a bell crank lever for providing a mechanical advantage to move an igniter tip on an oil burner inwardly and outwardly with respect to the location of a boiler. Slotted positioning and supporting guide rods having a wing-nut locking mechanism for locking the igniter tip in place when positioned. Support brackets connect the crank lever to an oil feed system that is rigidly connected to the guide rods and igniter tip for simultaneous movement of the brackets, lever feed system and igniter tip, with the guide rods indicating the position of the igniter tip.



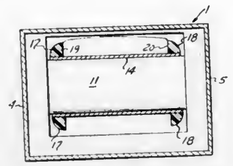
3,788,798
CHEMICAL IGNITION SYSTEM FOR A CIGARETTE LIGHTER USING AN IGNITION AID
Isidor S. Hirschhorn, Orange, and Stanley Tannenbaum, Morristown, both of N.J., assignors to Ronson Corporation, Woodridge, N.J.
Filed Apr. 27, 1972, Ser. No. 248,264
Int. Cl. F23q 2/16
U.S. Cl. 431—267 15 Claims



An ignition system for igniting a gas to produce a flame is shown. It includes a cartridge of aluminum borohydride and a cartridge containing an ignition aid, either methanol or acetaldehyde. These reactants are released in minute quantities into the ignition zone of a lighter and thereby ignite a gaseous fuel such as butane. A coaxially oriented, inertial ignition system and a dual stream system are described in detail.

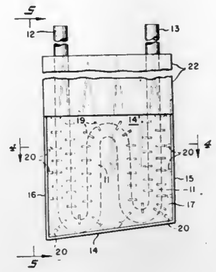
3,788,799
BAKERY OVEN
George A. Levi, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich.
Filed Jan. 21, 1971, Ser. No. 108,444
Int. Cl. A21c 1/44; A21b 3/00
U.S. Cl. 432—143 1 Claim

Baking of farinaceous products such as bread and cake by means of an endless band conveyor, at least one run of which passes through an oven, the conveyor band having secured thereto spaced apart, parallel, upstanding rails which, together with the conveyor band, form at least one dough-receiving trough extending longitudinally of the conveyor. The rails are formed of a resilient material capable of being stretched and also withstanding the oven heat without loss of resiliency.



3,788,800
RABBLE FOR ROTARY HEARTH FURNACE
Horace Middleton, and Frank Tominc, both of Rock Springs, Wyo., assignors to Salem Corporation, Pittsburgh, Pa.
Filed Nov. 29, 1972, Ser. No. 310,466
Int. Cl. F27d 9/00
U.S. Cl. 432—235 20 Claims

A fluid cooled rabble construction comprising a plurality of conduits extending along the surface of the rabble. The conduits provide a passageway which is in the nature of a circuitous path and a suitable coolant is circulated therethrough to effect a cooling of the rabble. The rabble may comprise a box-like element formed of steel or the like to which the conduits are secured or the rabble may comprise a structure composed entirely of a suitable refractory or a combination of a refractory and a steel face and edges.



3,788,801

PROCESS FOR THE PREPARATION OF FAST DYEINGS AND PRINTS ON FIBROUS MATERIAL CONTAINING HYDROXYL GROUPS OR NITROGEN

Ernst Hille, Ruppertshain, Taunus, Ernst Hoyer and Fritz Meininger, Frankfurt am Main, and Johannes Rottmann, Niedernhausen, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 1, 1972, Ser. No. 285,670

Claims priority, application Germany, Sept. 1, 1971, P 21 43 750.3

Int. Cl. D06p *1/38*

U.S. Cl. 8—1 P 9 Claims

A process for the preparation of fast dyeings and prints on fibrous materials containing hydroxy groups or nitrogen, which process comprises applying water-soluble organic dyestuffs which contain at least a group of the formula

$$—SO_2—CH_2—CH_2—O—CO—NH—X$$

in the molecule in which group X is a hydrogen atom or an $—SO_3H—$ group on the said fibrous materials and fixing them at normal or at elevated temperature or under the action of heat yielding very valuable, intense dyeings and prints which are very stable when being subjected to treatments of washing and to the action of light. They have also a remarkable fastness to water, seawater, rubbing, ironing, acids, alkalis and solvents. When being finished afterwards with synthetic resins in an acid medium, dyeings and prints of the invention show advantageous properties.

3,788,802

PAPER DYED WITH WATER SOLUBLE BENZOTHIAZOLYLPHENYLAZOBARBITURIC ACID DYESTUFFS

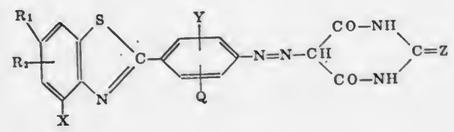
Alvin Carl Litke, West Seneca, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Sept. 23, 1970, Ser. No. 74,848, now Patent No. 3,726,851. Divided and this application Feb. 15, 1973, Ser. No. 332,952

Int. Cl. D21h *1/46*

U.S. Cl. 8—7 9 Claims

Monoazo dyestuffs of the formula



wherein R_1, X and Y are hydrogen, lower alkoxy or lower alkyl; R_2 and Q are H or SO_3H with at least one being SO_3H; and Q is oxygen, sulfur, imino, or lower alkyl imino. These dyestuffs color paper and paper pulp in attractive greenish yellow shades but have little affinity for cotton, said paper dyeings being alkali- and acid-fast and discharged on contact with conventional bleaching agents.

3,788,803

METHOD OF CONCURRENTLY DYEING AND IMPARTING DURABLE BIOACTIVE PROPERTIES TO SYNTHETIC TEXTILES

Stewart E. Klein, Harrison, N.Y., and D. Donald Gagliardi, deceased, late of East Greenwich, R.I., by Frances Dodge Gagliardi, executrix, East Greenwich, R.I., assignors to Sanitized Incorporated, New York, N.Y.

No Drawing. Filed Nov. 2, 1971, Ser. No. 195,035

Int. Cl. D06p *5/18*

U.S. Cl. 8—17 7 Claims

Durable bioactive properties are obtained on synthetic textile fibers and fabrics by applying an aqueous solution or dispersion of a composition containing a dye, a bioactive material and a carrier to the textile by an exhaustion technique.

3,788,804

PROCESS FOR DYEING DURABLE PRESS CELLULOSIC FABRICS WITH BASIC DYES

Robert J. Harper, Jr., and Gloria A. Gautreaux, Metairie, and Joseph S. Bruno, Chalmette, La., and Matthew J. Donoghue, Knoxville, Tenn., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 28, 1972, Ser. No. 238,947

Int. Cl. D06p *5/00*

U.S. Cl. 8—18 9 Claims

Durable-press cellulosic fabrics have been prepared in a process which simultaneously renders them responsive to basic dyes. In a two-phase process the cellulosic component is crosslinked using a crosslinking agent and an alpha-hydroxy carboxylic acid in the first phase (the carboxylic acids serving the dual purpose of catalyst and reactive additive), thus producing a crosslinked cellulosic fabric with pendant carboxylic groups. In the second phase, a basic dye is selectively absorbed by the chemically modified cellulosic textile, due to the presence of the carboxylic groups.

3,788,805

PRODUCING MULTICOLOR DYED ACRYLIC TEXTILE CONTAINING WOOL WITH ACID, DIRECT AND CATIONIC DYES

Tomoji Ookubo, Kiyoshi Hashimoto, and Masaru Okada, Okayama, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

No Drawing. Filed Apr. 23, 1971, Ser. No. 137,005

Claims priority, application Japan, Apr. 27, 1970, 45/36,080

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 A 8 Claims

Process for obtaining multicolored textile products by blending a basic group-containing acrylic fiber and wool, dyeing the product with a direct dye at a pH of 5–9 to dye the acrylic fiber component, treating the entire dyed product with an anionic aromatic polycondensate containing dissociable groups, such as a naphthalenesulfonic acid-formaldehyde condensate, and then dyeing the product in a second bath with an acid dye at a pH of 2–5 to dye the wool component.

3,788,806

MIXTURES OF 1 - AMINOANTHRAQUINONE-3,4-(N)-BENZACRIDONE DYESTUFFS AND PROCESS FOR DYEING POLYESTER FIBERS THEREWITH

Christian Heid and Ernst Heinrich, Frankfurt am Main-Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main-Fechenheim, Germany

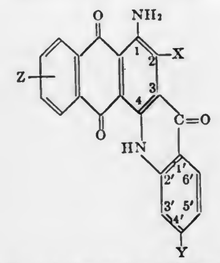
No Drawing. Continuation-in-part of abandoned application Ser. No. 234,989, Mar. 15, 1972. This application May 4, 1973, Ser. No. 357,220

Claims priority, application Germany, Apr. 1, 1971, P 21 15 917.1

Int. Cl. D06p *3/52*; C09b *5/36*

U.S. Cl. 8—25 6 Claims

Composition containing at least two dyestuffs of the formula



wherein X and Z are hydrogen or halogen and Y is hydrogen, halogen or trifluoromethyl, each dyestuff of said composition being present in an amount of at least 5% by weight, based on the weight of the total dyestuffs present.

3,788,807

DYEING POLYAMIDE BONDED FLEECE BY DWELLING WITH METHOD COMPLEX AZO DYESTUFFS

Hans Beiertz, Kelsterbach, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 27, 1971, Ser. No. 166,643

Claims priority, application Germany, July 29, 1970, P 20 37 554.6

Int. Cl. D06p *1/10*

U.S. Cl. 8—26 1 Claim

Process for the dyeing of textile fabrics of polyamide fibers by padding the said fibrous material with certain anionic dyestuffs, preferably selected 1:2-metal-complex dyestuffs, subsequently winding up the padded material on a batch and then allowing it to dwell for fixing the dyestuffs.

3,788,808

DYESTUFF COMPOSITIONS CONTAINING SULFOMETHYLATED PHENOLIC-FORMALDEHYDE RESIN DISPERSANTS STABILIZED WITH UREA OR AMMONIA

Sten I. Falkehag, Mount Pleasant, and Carl W. Bailey III, Charleston, S.C., assignors to Westvaco Corporation, New York, N.Y.

No Drawing. Filed Mar. 21, 1972, Ser. No. 236,786

Int. Cl. D06p *1/22*, *1/78*

U.S. Cl. 8—34 2 Claims

Dyestuff compositions for use in dying synthetic and natural fibers, comprising an admixture of a dye cake, e.g., disperse dyes or vat dyes, and up to 75% by weight of the total mixture of a dispersant of a modified phenolic-formaldehyde type resin. The dispersants of this invention are phenolic-formaldehyde resins that are sulfomethylated and contain from 1–13 moles of sulfomethylation per 1000 grams of the starting resin. The dispersants may also be cross-linked to tailor their molecular weight and then stabilized with urea or ammonia. These dye dispersants are light in color, excellent dispersants, produce heat stable dye dispersions, lessen or eliminate fiber staining, diazo dye reduction and foaming problems associated with disperse dyes. These dispersants may also be used in combination with other dye dispersants, such as, sulfonated lignins or sulfonated napthalene products, to optimize the advantageous properties of each dispersant.

3,788,809

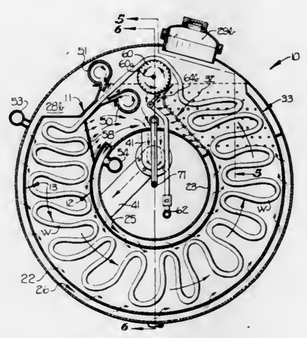
METHOD FOR LIQUID TREATMENT OF TEXTILE MATERIAL WEBS

William T. Carpenter, Stanley, N.C., assignor to Synalloy Corporation, Spartanburg, S.C.

Original application Apr. 27, 1971, Ser. No. 137,760, now Patent No. 3,685,325, dated Aug. 22, 1972. Divided and this application July 26, 1972, Ser. No. 275,337

Int. Cl. B05c *3/134*

U.S. Cl. 8—152 9 Claims



Textile material webs are subjected to liquid treatment while in open width form by an apparatus and method in which a length of textile web to be treated is arranged in an open width loop and is moved within a generally annular chamber by direction of portions of a circulating liquid flow through a throat zone for entraining the textile web. Treatment liquid is impinged against both surfaces of the textile web by direction of portions of the circulating liquid flow through spaced arcuate inner and outer walls which define a treatment zone adjacent to and of a greater cross-sectional area than the throat zone. Agitated contact of treatment liquid with the textile web material occurs throughout both the throat and treatment zones and thorough treatment of the textile web is thereby facilitated. Further, distribution of the portions of the circulating liquid flow assures uniformity of conditions throughout the throat and treatment zones.

3,788,810

PROCESS FOR THE DYEING OF SYNTHETIC FIBRE MATERIALS WITH QUINOPHTHALONE DYESTUFFS FROM ORGANIC SOLVENTS

Dietmar Kalz, Cologne, Gerhard Wolfrum, Opladen, and Rütger Neeff, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

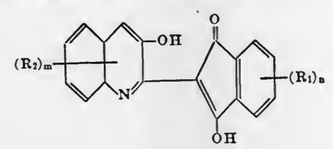
No Drawing. Filed July 16, 1971, Ser. No. 163,414

Claims priority, application Germany, July 18, 1970, P 20 35 728.2

Int. Cl. D06p *3/26*, *3/42*, *3/48*, *3/54*, *3/72*

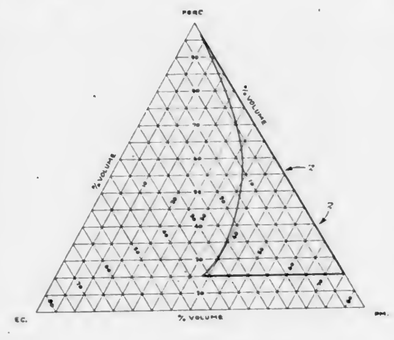
U.S. Cl. 8—162 R 8 Claims

Exhaust process for the dyeing of synthetic fibre materials from organic water-immiscible solvents wherein are used as dyestuffs quinophthalone dyestuffs of the formula



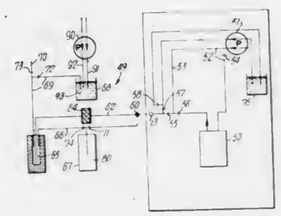
in which R_1 denotes a halogen atom, an alkyl, alkoxy, nitro, amino, acylamino, alkylamino, carboxylic acid ester or aryl radical and R_2 denotes a halogen atom, an alkyl, alkoxy, nitro or acylamino group, or in which two adjacent substituents R_2 stand for the residual members of a fused aromatic ring; and n and m represent integers from 0 to 4.

3,788,811
SOLVENT COMPOSITIONS FOR SOLVENT DYEING AND DYESTUFF SOLUTIONS PREPARED THEREFROM
Frederic Leroy Sievenpiper, Alden, and Elmore Bement, Buffalo, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
Filed May 18, 1971, Ser. No. 144,603
Int. Cl. D06p *1/68*
U.S. Cl. 8—175 **36 Claims**



Certain mixtures of halogenated hydrocarbons, polar liquids which are swelling agents for a textile fiber and which are substantially insoluble in the halogenated hydrocarbons, and organic liquids which are soluble in both the halogenated hydrocarbons and the polar solvent, form clear, stable, homogeneous compositions which are useful as solvents for diverse types of dyestuffs. Solutions of dyestuffs in these solvent compositions may be used to produce excellent dyeings on man-made and natural fibers.

3,788,812
AUTOMATIC SATURATION ANALYSIS
John Dupré, 92 Stafford, Baie d'Urfe, Quebec, Canada
Filed Aug. 30, 1971, Ser. No. 176,211
Int. Cl. G21h *5/02;* **G01n** *33/16*
U.S. Cl. 23—230 B **15 Claims**



An apparatus and a process for automatic saturation analysis of a solution comprising predetermined volumes of reagents and sample specimen. The apparatus comprises a first automatic transfer means for delivering a predetermined volume of reagents and a sample specimen into a reaction container for incubation where the tracer reagent equilibrates with a binding agent in solution distributing between bound and free moieties. A second automatic tranfer means delivers a predetermined volume of absorbent particles suspended in a buffer solution to the reaction container to absorb the free moiety of the tracer. A third automatic transfer means is provided having a filter associated therewith for separating the absorbent particles from the solution in the reaction container and for delivering the filtrate to a counting chamber for a quantitative measure of the radioactivity of the filtrate solution. Means are further provided for washing the first and third automatic transfer means to prevent contamination of successive solutions to be analyzed.

3,788,813
GAS CONDITIONING AND ANALYZING SYSTEM
Francis R. Busch, Morgan Hill, Calif., assignor to General Electric Company
Filed Sept. 7, 1971, Ser. No. 178,113
Int. Cl. G01n *31/12;* **G21c** *17/00*
U.S. Cl. 23—232 E **27 Claims**

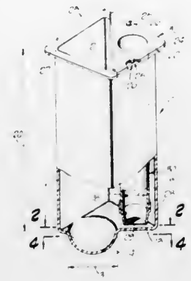


A gas conditioning and analyzing system for conditioning and analyzing a sample of gas of any given temperature, pressure and moisture content. The system draws off a sample of gas from a source in a conduit leading to a detection chamber having conditioning means and a sensing means which is connected to a gas analyzer. A gas and liquid outlet from the detection chamber has means for separating the gas from the liquid with the gas being passed in a flame isolation line and introduced into a flame checking chamber under liquid after which the gas is passed out of the system. The system is able to analyze potentially explosive mixtures of gases in a safe manner. The analysis is continuous and rapid.

3,788,814
HIGHLY ENRICHED MULTIPLY-LABELED STABLE ISOTOPIC COMPOUNDS AS ATMOSPHERIC TRACERS
Maxwell Goldblatt and Berthus B. McInteer, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Feb. 1, 1972, Ser. No. 222,703
Int. Cl. G01n *33/00;* **G21h** *5/02*
U.S. Cl. 23—232 R **4 Claims**

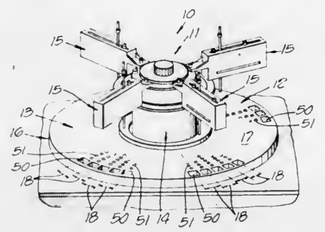
Compounds multiply-labeled with stable isotopes and highly enriched in these isotopes are readily capable of detection in tracer experiments involving high dilutions. Thus, for example. $^{13}C^{18}O_2$ provides a useful tracer for following atmospheric pollution produced as a result of fossil fuel burning.

3,788,815
CHEMICAL SAMPLE REACTOR MODULE
Donald G. Rohrbaugh, Santa Ana, Calif., assignor to Beckman Instruments, Inc.
Filed Mar. 2, 1972, Ser. No. 231,348
Int. Cl. G01n *1/10, 1/14*
U.S. Cl. 23—253 R **10 Claims**



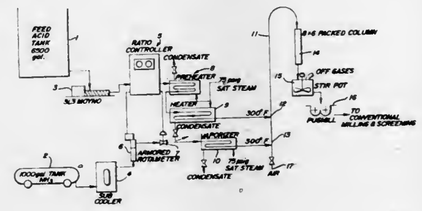
An elongated sample solution cup has a cross section adapted to inducing turbulence in a solvent stirred in the cup, and has an offset recessed bottom cavity providing a localized dissolver volume for solid samples introduced into the cup. A removable filter tube provides a filtered sample solution for further wet analysis. The reactor module comprising the solution cup and the removable filter tube is made of a thin wall thermoplastic material, suitable for using one or more times.

3,788,816
CHEMICAL ANALYSIS ROTARY MODULE
Donald G. Rohrbaugh, Santa Ana, and William R. Pearson, Placentia, Calif., assignors to Beckman Instruments, Inc.
Filed Mar. 2, 1972, Ser. No. 231,353
Int. Cl. G01n *1/10, 1/18*
U.S. Cl. 23—253 R **15 Claims**



A chemical sample reactor module, containing a solution of a chemical sample prepared for analysis, is cooperatively paired with a chemical analysis tube module in precise radial alignment in a rotary index table. Multiple paired modules are radially coaligned in the table during the consecutive analysis of a series of chemical samples. Plural sample probes, having individually adjusted vertical and horizontal displacement traverses, are each individually positioned as required on a reciprocating, vertically displaceable central pedestal, providing repetitive programmed transfer and addition of metered reagent volumes to aliquot solution samples. The rotary index table sequentially provides a precise timed period for each aliquot sample solution to uniformly react with precise reagent volumes in a chemical analysis procedure. Utilizing an automated sample probe, a final aliquot analysis procedure sample is measured for a component concentration in a cooperative analytical instrument.

3,788,817
MAKING AMMONIUM POLYPHOSPHATE IN A PACKED COLUMN
John L. Kolbe, Clarksville, and Casimer C. Legal, Jr., Elkridge, Md., assignors to W. R. Grace & Co., New York, N.Y.
Original application Jan. 26, 1970, Ser. No. 5,571, now Patent No. 3,650,727. Divided and this application June 1, 1971, Ser. No. 148,943
Int. Cl. C05b *1/06*
U.S. Cl. 23—259.2 **4 Claims**



Hydrolysis of ammonium polyphosphate can be significantly delayed and reduced when the hot freshly made ammonium polyphosphate reaction mixture, still under pressure, is passed through a column containing an inert packing e.g. tabular alumina, silicon carbide, or porcelain.

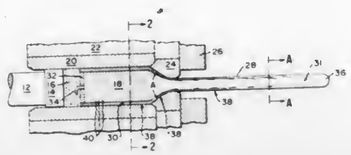
3,788,818
METHOD FOR GROWING CRYSTALS USING A SEMIPERMEABLE MEMBRANE
Abdul Hamid Madjid and Allen R. Vaala, State College, Walter F. Anderson, Jr., University Park, and Joseph Pedulla, Jr., State College, Pa., assignors to Research Corporation, New York, N.Y.
No Drawing. Filed Apr. 22, 1971, Ser. No. 136,569
Int. Cl. B01j *17/04*
U.S. Cl. 23—300 **6 Claims**

A process for growing crystals wherein a first solvent is loaded with a crystallizable solute or crystal precursor and separated from a second solvent in which the crystals are less soluble, by a diffusion boundary, such that crystals are grown from nucleation sites at the diffusion boundary as the second solvent diffuses into the first solvent. This process is highly suitable for growing a wide variety of crystals, including many which have been heretofore difficultly obtainable by other crystallization methods.

3,788,819
METHOD OF CRYSTALLIZING USING MAGNETIC MATERIALS
Earl Clarence Oden, P.O. Drawer "CN," State College, Miss. 39762
No Drawing. Filed June 21, 1971, Ser. No. 155,316
Int. Cl. B01d *9/04*
U.S. Cl. 23—300 **8 Claims**

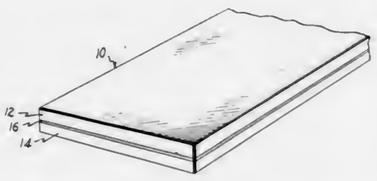
The invention relates to a method of separating at least one component from a solution mixture of chemical compounds having a narrow range of boiling points. The separation comprises cooling the mixture to about the saturation point and adding thereto a magnetic material which has been cooled to below the super saturation temperature of the solution. Crystals of the component formed on the magnetic material are separated from the solution by magnetic separation means.

3,788,820
FILLED EXTRUSION BILLETS AND METHODS OF FABRICATING
James G. Hunt, Framingham, Mass., assignor to Polymet Corporation, Cincinnati, Ohio
Filed Jan. 2, 1970, Ser. No. 231
Int. Cl. B32b *15/00*
U.S. Cl. 29—187 36 Claims



A billet comprising preforms surrounded by filler material. The billet is fabricated with a laminated filler structure, each lamina having perforations to receive the preforms and being divided into segments by thin parting regions. The preforms are end loaded into the laminated structure.

3,788,821
COMPOSITE THERMOSTAT MATERIAL
Jacob L. Ornstein, Norton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 21, 1970, Ser. No. 100,159
Int. Cl. B23p *3/00*
U.S. Cl. 29—195.5 1 Claim



A relatively low cost multilayer composite thermostat material is disclosed having predetermined characteristics of electrical resistivity and flexivity, and including first and second layers of preselected metallic alloys having relatively high and relatively lower coefficients of thermal expansion respectively, and an intermediate layer of a substantially nickel-free metallic alloy having a preselected thickness relative to the total thickness of the composite material such that the composite material has a resistivity of between approximately 625 to 725 ohms per circular mil foot and a flexivity of between approximately 200×10^{-7} to 220×10^{-7} inch per inch per degree Fahrenheit. In the disclosed composite, the first preselected metallic alloy comprises a material comprising by weight approximately 71% to 76% manganese, 9% to 19% copper, and 9% to 17% nickel, while the second preselected metallic alloy comprises a metallic alloy such as the material commonly referred to as Invar, which comprises by weight approximately 35½% to 36½% nickel and the balance iron. The first and second layers are metallurgically bonded to respective opposite surfaces of the intermediate layer of the preselected ferrous alloy to define a composite thermostat material having comparable characteristics to presently available thermostat material, only available at substantially higher costs.

3,788,822
NON-MAGNETIC COMPOSITE HAVING A CONSTANT MODULUS OF ELASTICITY
Hiroshi Hashimoto, Chiba, and Toshio Matsumura, Asaka, Japan, assignors to Kabushiki Kaisha Hattori Tokeiten, Tokyo, Japan
Filed Mar. 17, 1971, Ser. No. 125,231
Claims priority, application Japan, Mar. 18, 1970, 45/22,253
Int. Cl. B32b *15/00*
U.S. Cl. 29—196.1 3 Claims



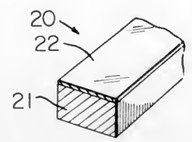
A non-magnetic material composite having a thermally constant modulus of elasticity in or after subjection to a magnetic field comprising at least two base alloy layers having frequency temperature characteristics opposite to each other and selected from base alloys containing as principal constituents iron and manganese, or further containing one or more other elements such as nickel, cobalt and chromium. The base alloy layers are superposed and joined together so that the opposite characteristics are cancelled by each other. Non-magnetic material composites having a low temperature coefficient of natural frequency over a wide temperature range and excellent mechanical properties are thereby produced.

3,788,823
BRAZED FOAMED METAL
Ronald L. Wells, Laramie, Wyo., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Apr. 21, 1971, Ser. No. 136,235
Int. Cl. B32b *15/00*
U.S. Cl. 29—197 1 Claim

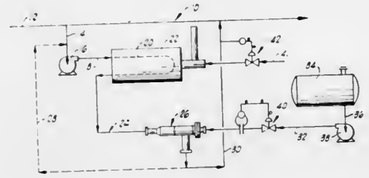
Composite articles are prepared utilizing brazing to apply a metal body to a foamed metal substrate. Preferably, the substrate is a foamed aluminum, and the applied metal body is an aluminum sheet. Brazing substances which are liquid below the melting point of the sheet are employed. The brazing substance is applied in a manner to wet the treated surface. One way wetting can be accomplished is by rubbing the surface while it has been treated with molten brazing substance.

3,788,824
ALUMINOUS METAL BRAZING MATERIALS
Ogle R. Singleton, Jr., and Bennie Ray Ward, Jr., Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
Continuation-in-part of abandoned application Ser. No. 18,255, Mar. 10, 1970. This application Oct. 5, 1971, Ser. No. 186,632
Int. Cl. B32b *15/00*
U.S. Cl. 29—197.5 14 Claims

An improved aluminum alloy, referred to as a core material, is provided which is particularly adapted for use in manufacturing articles by vacuum brazing techniques because such core material has optimum resistance to sag at brazing temperatures and because it has a solidus of about 1160° F. to 1180° F., is heat treatable to a minimum yield strength of 12,000 p.s.i., and is corrosion resistant. A heat treatable cladding alloy is also provided for use as a brazing component either alone or with such core material and other suitable core materials. The preferred cladding alloy has a liquidus of about 1065–1085° F., has a narrow melting range of about 20° to about 40° F., is corrosion resistant, and provides joints of optimum strength and quality.



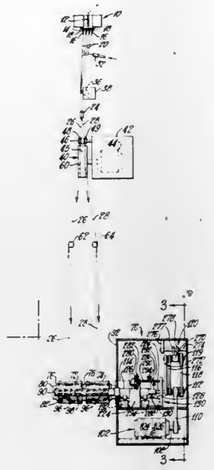
3,788,825
METHOD OF VAPORIZING AND COMBINING A LIQUEFIED CRYOGENIC FLUID STREAM WITH A GAS STREAM
Edwin M. Arenson, Oklahoma City, Okla., assignor to Black, Sivalls & Bryson, Inc., Kansas City, Mo.
Continuation-in-part of application Ser. No. 6,889, Jan. 29, 1970. This application Oct. 6, 1970, Ser. No. 78,504
The portion of the term of the patent subsequent to Nov. 13, 1990, has been disclaimed
Int. Cl. F17d *1/04*
U.S. Cl. 48—190 6 Claims



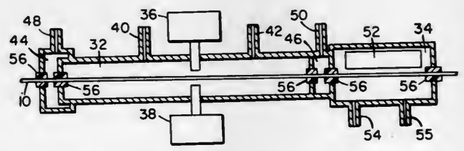
The present invention relates to an improved method of vaporizing and combining a stream of liquefied cryogenic fluid, such as liquefied natural gas, with a gas stream, such as natural gas. The gas stream is divided into first and second portions, and the pressure of the first portion is elevated an amount sufficient to cause it to pass through a heating circuit and recombine with the second portion of the gas stream. The first portion of the gas stream is heated within the heating circuit, and the stream of liquefied cryogenic fluid to be vaporized and combined with the gas stream is injected directly into the heated first portion within the heating circuit so that the liquefied cryogenic fluid is vaporized and mixed with the first portion of the gas stream. The resulting mixture of vaporized cryogenic fluid and the first portion of the gas stream is then combined with the second portion of the gas stream.

3,788,826
APPARATUS FOR WINDING TEXTILE MATERIAL
Jerome P. Klink, Granville, and Phra D. Lyle and Terry L. Griffith, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation
Filed Dec. 8, 1971, Ser. No. 206,007
Int. Cl. B65h *54/02*; C03b *37/02*
U.S. Cl. 65—11 W 12 Claims

Apparatus for packaging linear material including a driven rotatable collector upon which linear material is wound as a package, means for reducing the angular speed of the collector to keep a substantially constant collection speed, a movable traverse for distributing the linear material on the package, means for sensing the angular speed of the collector as an indication of package size and means responsive to the sensed speed for moving the traverse to keep the traverse in predetermined spaced relation to the package during collection.

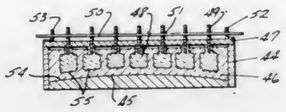


3,788,827
IONIC TREATMENT FOR GLASS OPTICAL WAVEGUIDE FIBERS
Robert D. De Luca, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Jan. 4, 1972, Ser. No. 215,319
Int. Cl. C03c *15/00*; C03b
U.S. Cl. 65—30 12 Claims



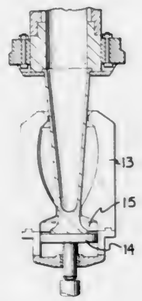
A method for removing contaminants from the surface of a glass optical waveguide fiber and thereafter treating the fiber while preventing the surface from being recontaminated. Contaminants are removed from the surface by such methods as bombardment thereof by dense, focused high energy ion beams or passing the fiber surface through corona or radio frequency induced plasmas. The cleaned fiber may be immediately heat treated to improve the light transmission properties thereof, or it may be coated to prevent recontamination of the surface prior to heat treatment to which the coated fiber may thereafter be subjected.

3,788,828
MOLDING OF LIGHTWEIGHT GLASS ARTICLES AND APPARATUS THEREFOR
Lewis M. Austin, Robert R. Denman, Thomas P. O'Donnell, and Frank Veres, Toledo, Ohio, assignors to Owens-Illinois, Inc.
Application July 1, 1965, Ser. No. 468,691, now Patent No. 3,484,328, which is a continuation-in-part of abandoned application Ser. No. 437,431, Mar. 5, 1965. Divided and this application Aug. 5, 1969, Ser. No. 862,122
Int. Cl. C03b *29/00, 9/14*
U.S. Cl. 65—33 **11 Claims**



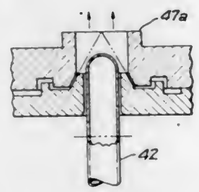
Method of making a one-piece, lightweight article, illustratively a telescope mirror blank, by maintaining a molten vitreous mass within a zone, maintaining at least one shaped module having a support member affixed thereto within the zone wherein the module and at least a portion of the support member are completely immersed in the molten zone. The modules are made of a heat resistant material capable of retaining its shape during immersion in the molten glass. After the viscosity of the vitreous mass is increased to the point where the mass is self-supporting, the glass mass containing at least one module may be removed from the zone. Subsequently, the modules can be removed by chipping out with a suitable tool, for example, and the support member can be removed from the article. The resulting article has formed therein at least one cavity which is disposed between its upper and lower surfaces and also has at least one opening within one of its surfaces communicating with the cavity in its interior. The cross-sectional area of the opening is smaller than that of the cavity. Subsequently, if desired, the glass can be thermally in situ crystallized to produce a low expansion glass ceramic material.

3,788,829
METHOD FOR MAKING GLASSWARE
Robert J. Miner and Harry W. Meek, Toledo, Ohio, assignors to Owens-Illinois, Inc.
Continuation of appplication Ser. No. 137,081, Apr. 23, 1971, which is a continuation of application Ser. No. 778,645, Nov. 25, 1968, both now abandoned. This application Nov. 20, 1972, Ser. No. 307,810
Int. Cl. C03b *9/00*
U.S. Cl. 65—79 **8 Claims**



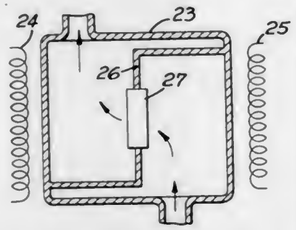
A method and apparatus for making glassware wherein a charge of glass is delivered to a parison mold, pressed in the parison mold, transferred to a blow mold, and a body portion is blown in the blow mold while a heavier base portion is pressed in the blow mold. In this process, an elongated charge is transferred to the blow mold after which the heavy end of the charge sags downwardly through the restricted portion of the mold but does not appreciably accumulate on the bottom plate before blowing.

3,788,830
BULB MAKING METHOD
Bernard Shaw, Mayfield Heights, Ohio, assignor to General Electric Company
Filed Nov. 9, 1971, Ser. No. 196,927
Int. Cl. C03b *23/04, 29/00*
U.S. Cl. 65—110 **2 Claims**



An apparatus and method for forming bulbs from heated glass tubing in which the tubing is placed inside a forming head cavity where a molten end wall of the tubing is shaped to bulb form through the action of a vacuum created by the effect of gas flow over the end wall.

3,788,831
IMAGE INTENSIFIER AND METHOD OF MAKING AN ELECTRON MULTIPLIER THEREFOR
Richard Kaspar Orthuber, Sepulveda, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Original application Apr. 8, 1969, Ser. No. 815,519. Divided and this application Feb. 22, 1971, Ser. No. 117,697
Int. Cl. B01j *17/00;* **C03b** *21/00*
U.S. Cl. 65—111 **5 Claims**



The invention includes a channel-type electron multiplier incorporating a glass plate having holes therethrough. The plate is treated so that the holes will support secondary emission. When primary electrons from a photocathode enter the holes, an increased current density is produced at the output of the holes. When the output is directed onto a phosphor screen, an intensified image of the scene being viewed is produced. Night scenes may thus be brightened for use in military reconnaissance or the like. However, channel-type electron multipliers have what is known as a saturation level of operation beyond which an increase in input current produces little or no increase in output current. The device of the present invention alleviates this problem by increasing electrical resistance near the output. This construction makes it possible to produce a special electric field distribution in the holes. This field distribution then causes the gain of the multiplier to saturate at substantially higher input current levels. In addition, a multiplier of this type will exhibit a nonlinear input versus output relationship such that, if incorporated in an image tube (direct view or TV pickup), it imparts to this tube highly desirable contrast enhancing characteristics.

The invention also includes a method of making the special type of electron multiplier having the hole surface resistivity variation.

3,788,832
PROCESS FOR PRE-TREATING AND MELTING GLASSMAKING MATERIALS
John D. Nesbitt and Mark E. Fejer, Chicago, Ill., assignors to Institute of Gas Technology, Chicago, Ill.
Filed Aug. 25, 1972, Ser. No. 283,926
Int. Cl. C03b *5/16*
U.S. Cl. 65—134 **14 Claims**

An improved process for pre-treating and melting glassmaking materials wherein, in a preferred embodiment, the glass batch is compacted or agglomerated into distinct units, preheated and then conveyed into a glass furnace or melter. The glass batch preferably is compacted into briquets using an improved process, and the glass batch is preheated with the combustion gases from the glass furnace in a fashion such that particulate matter, particularly sodium sulfate, is removed from the combustion gases. Melting preferably is accomplished using a submerged combustion process.

3,788,833
PRODUCTION OF PALLADIUM-SILVER ALLOY POWDER
Oliver A. Short, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application Mar. 29, 1971, Ser. No. 129,175, now abandoned. Divided and this application Feb. 18, 1972, Ser. No. 227,685
Int. Cl. B22f *9/00;* **C22b** *5/00*
U.S. Cl. 75—.5 A **2 Claims**

There is provided a method for producing solid solution palladium-silver alloys in finely-divided form by reducing particles of palladium silver carbonate in suspension in an aqueous medium.

3,788,834
METHOD OF BENEFICIATING ORES
Clarence L. Hildreth, Brookhaven, Miss., assignor to Ethyl Corporation, Richmond, Va.
No Drawing. Continuation-in-part of abandoned application Ser. No. 41,588, May 28, 1970. This application Feb. 26, 1973, Ser. No. 335,701
Int. Cl. C22b *1/08*
U.S. Cl. 75—1 **4 Claims**

A method of beneficiating or upgrading alumina-silica or aluminum-silicate ores, especially natural clays containing substantial amounts of minerals such as kyanite, diaspore and the like and also containing contaminating amounts of iron and titanium, wherein the ore is heated to a relatively high temperature and treated with hexachlorobutadiene, hexachlorobenzene or mixtures largely comprising these compounds.

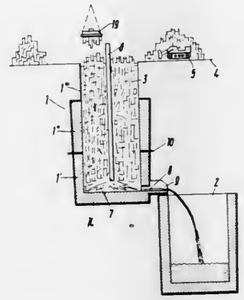
3,788,835
IRON ORE REDUCTION PROCESS (NU-9)
William E. Lewis and John D. Paynter, Baton Rouge, La., assignors to Esso Research and Engineering Company
No Drawing. Filed Dec. 30, 1970, Ser. No. 102,937
Int. Cl. C21b *1/02*
U.S. Cl. 75—26 **10 Claims**

A staged fluidized iron ore reduction process is provided in which carbon is deposited on the iron ore in the reduction zone where the major portion of the metallization is effected with the gaseous reductant. After further gaseous reduction to a highly metallized material the reduced ore is held under conditions sufficient to allow the deposited carbon to interact with residual oxides thereby further increasing the metallization of the iron ore.

3,788,836
METHOD OF MAKING LOW NITROGEN ALLOYS
Francis L. Muscatell, Loudonville, N.Y., and Sundaresan Ramachandran, Natrona Heights, and Orville W. Reen, Lower Burrell, Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 720,481, Apr. 11, 1968. This application Mar. 26, 1971, Ser. No. 128,531
Int. Cl. C21c *7/10*
U.S. Cl. 75—49 **10 Claims**

An improvement in the manufacture of steel of low nitrogen content, which comprises the steps of: compacting steel having an average thickness of less than 0.25 inch into a porous mass; heating the porous mass at a temperature between about 2000° F. and the melting point of the steel, in a vacuum at a pressure below one mm. Hg, for a period of time sufficient to remove at least 70% of the nitrogen therefrom; melting the porous mass in a furnace having a controlled atmosphere; and casting the melt.

3,788,837
METHOD FOR MELTING PARTICULATE METAL
Gunter Geck and Hans Jurgen Langhammer, Hagen, Germany, assignors to Klockner-Werke AG, Duisburg, Germany
Continuation-in-part of abandoned application Ser. No. 862,762, Oct. 1, 1969. This application Mar. 22, 1972, Ser. No. 237,158
Int. Cl. C21c *7/04*
U.S. Cl. 75—55 **6 Claims**



A charge of scrap iron is melted in an upright elongated, in part refractory lined melting chamber by a disc-shaped flame acting on the lower end of the charge whereby the melted metal flows onto the bottom wall of the chamber and becomes interposed between the bottom wall and the flame so that the bottom wall is protected by the interposed metal from the flame. The flame is produced from a mixture of fuel and oxygen blown into the melting chamber through a lance. The melted scrap iron is discharged into a container containing an amount of liquid pig iron and the percentage of oxygen in the fuel-oxygen mixture is adjusted in such a manner that the melted metal discharged from the melting chamber contains a percentage of FeO which will produce in the container together with added lime a reactive slag so that refining of the metal bath in the container into steel will take place without blowing oxygen directly into the metal bath in the container.

3,788,838
METHOD OF REMOVING VAPORIZED LEAD FROM GASES AFTER CONTACT WITH LIQUID LEAD
Werner Wenzel and Leon-Michel Chaussy, Aachen, Germany, assignors to Rheinische Braunkohlenwerke AG, Cologne, and Werner Wenzel, Aachen, Germany
No Drawing. Filed June 10, 1970, Ser. No. 45,206
Claims priority, application Germany, June 20, 1969, P 19 31 481.9
Int. Cl. C22b *13/00*
U.S. Cl. 75—77 **10 Claims**

In order to remove vaporized lead from a gas following its contact with liquid lead, said gas, prior to subsequent use, is contacted with a liquid metal or alloy which precipitates said vaporized lead.

3,788,839
METHOD FOR INCORPORATING METALS INTO MOLTEN METAL BATHS
John Porter Faunce, Columbia, Md., assignor to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Continuation-in-part of application Ser. No. 203,026, Nov. 29, 1971. This application Feb. 28, 1972, Ser. No. 230,073
Int. Cl. C22b *9/08*; C22c *21/00*
U.S. Cl. 75—93 R **6 Claims**

Finely divided metals and alloys containing a specified quantity of minus 80 mesh particles are added to molten metal baths such as baths of aluminum and aluminum alloys. The finely divided metals and alloys are provided by crushing and screening the metals and enclosing the resultant product by any conveniently handled container such as a closed bag. This technique is useful for adding finely divided metals and alloys to molten metal baths by providing rapid metal solubility, high metal recovery, low cost and elimination of the need for special equipment and complicated process operations.

3,788,840
FLUX POWDER FOR USE DURING CONTINUOUS CASTING OF STEEL AND METHOD OF PRODUCING SAME
Peter J. Koenig, Zumikon, and Friedrich Hofmanner, Regensdorf, Switzerland, assignors to Concast AG, Zurich, and Holderbank Financiere Glarus AG, Glarus, Switzerland
No Drawing. Filed Nov. 6, 1972, Ser. No. 304,117
Claims priority, application Switzerland, Nov. 12, 1971, 16,474/71
Int. Cl. C22b *9/10*
U.S. Cl. 75—94 **9 Claims**

A flux powder and method of producing same for use during continuous casting of steel, containing portland cement, a fluxing agent, and a carbon carrier, wherein the carbon carrier possess a grain size less than 1μ, the aluminum oxide content of the powder is in the range of 2–12% by weight, and the lime-silica ratio is adjusted to be in the range of 0.7–1.0 through the addition of quartz powder.

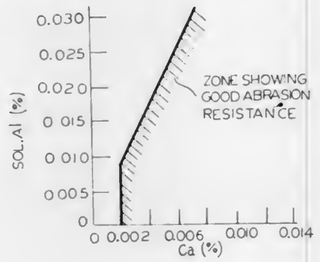
3,788,841
RECOVERY OF METAL VALUES FROM MANGANESE NODULES
Jagdish C. Agarwal, Concord, and Thomas C. Wilder, Cambridge, Mass., assignors to Kennecott Copper Corporation, New York, N.Y.
Filed Sept. 28, 1971, Ser. No. 184,397
Int. Cl. C22b *1/08, 3/00*
U.S. Cl. 75—103 **15 Claims**

This invention concerns a method for recovery of copper, nickel, cobalt and molybdenum from deep sea manganese nodules in which the nodules are ground, balled, roasted and leached.

3,788,842
PROCESS FOR RECOVERING MERCURY
Gerhard Nolte and Hans Rabowsky, Hurth-Knapsack, Johannes Krause, Hurth-Hermulheim, and Hans-Dieter Narres, Cologne-Bickendorf, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany
No Drawing. Filed Jan. 21, 1972, Ser. No. 219,842
Claims priority, application Germany, Jan. 22, 1971, P 21 02 900.5
Int. Cl. C22b *3/00*
U.S. Cl. 75—109 **12 Claims**

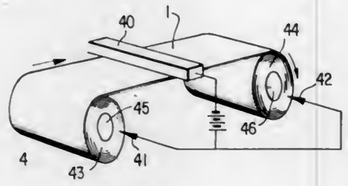
Mercury is recovered in metallic form from an aqueous solution, particularly from a salt brine, having mercury compounds therein. To this end, the solution or brine is treated with an iron-containing alloy, the potential of which, determined in the solution or brine, is by at least 100 millivolts more positive than that of iron.

3,788,843
STEEL HAVING IMPROVED FREE-CUTTING PROPERTIES
Tohru Mimino, Tokyo, Shuuroku Nara and Yoshio Miyashita, Kawasaki, and Katsuhiko Nishikawa, Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed June 30, 1971, Ser. No. 158,217
Claims priority, application Japan, June 30, 1970, 45/56,494
Int. Cl. C22c *37/10, 39/02*
U.S. Cl. 75—124 **4 Claims**



A machine structure steel having superior free-cutting properties, yield strength and tensile strength and comprising the addition of 0.002% to 0.02% Ca, 0.005% to 0.04% Sol. Al. and 0.005% to 0.1% Nb and/or V, to known composition contained in ordinary steel.

3,788,844
CHARGING METHOD FOR ELECTROPHOTOGRAPHY
Masamichi Sato and Isozi Takahashi, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Oct. 5, 1971, Ser. No. 186,668
Int. Cl. G03g *13/02, 13/22*
U.S. Cl. 96—1 C **15 Claims**



An electrophotographic method for charging the surface of an elongated electrophotographic member wound upon at one roll, the member including a photoconductive insulating layer disposed on an ungrounded conductive substrate interposed between the photoconductive insulating layer and an electrically insulating substrate by simultaneously respectively applying high charging voltages of opposite polarities to a main corona discharge electrode disposed adjacent to the upper surface of the elongated member and a sub-discharge corona discharge electrode disposed adjacent the side of the roll.

3,788,845
PROCESS FOR FORMING DYE IMAGES
Sadao Osawa, Yasuo Tamai, and Masaaki Takimoto, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed May 25, 1972, Ser. No. 256,862
Claims priority, application Japan, May 25, 1971, 46/35,814
Int. Cl. G03g *13/22*
U.S. Cl. 96—1 R **24 Claims**

A process for forming dye images comprising forming electrostatic latent images on a sheet comprising an electrophotographic sensitive layer composed of a finely-divided zinc oxide photoconductive powder and an insulating resin on a water-resistant support and converting said latent images into gelatin images by developing with an electrophotographic developer containing a finely-divided gelatin powder, fixing said gelatin images and hardening said gelatin images on said sheet, removing said photoconductive zinc oxide in said electrophotographic sensitive layer on said sheet and washing said electrophotographic sensitive layer on said sheet with water, soaking said sheet in an organic solvent which does not dissolve said water-resistant support and said insulating resin, placing said sheet wetted by said solvent so as to closely contact the support side with a metal plate maintained at a temperature ranging from a maximum of 60° C. above to a minimum of 20° C. below the boiling point of said solvent, whereby said organic solvent is evaporated, contacting said gelatin images on said sheet with an aqueous dye solution whereby the dye is absorbed into the gelatin images, removing excess dye solution from said gelatin images on said sheet by washing said sheet with an acid aqueous solution, and contacting said gelatin images with a dye receptive layer, whereby said dye is transferred from said gelatin images to said dye receptive layer, is disclosed.

3,788,846
METHOD FOR PRINTING NEGATIVE TOLERANCE MATRIX SCREEN STRUCTURE FOR A CATHODE-RAY TUBE
Editb Ellen Mayaud and Samuel Pearlman, Lancaster, Pa., assignors to RCA Corporation
Filed June 28, 1971, Ser. No. 157,502
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.1 **7 Claims**

A light-absorbing matrix is produced by under-exposing a film of light-sensitive material by projecting light through an apertured mask of the tube incident on the film from a small-area light source, developing the under-exposed film, using the developed film to produce a light-absorbing matrix, and then filling the holes in the matrix with phosphor material.

3,788,847
METHODS OF MANUFACTURE OF COLOR PICTURE TUBES
Richard Hugh Godfrey, Lancaster, Pa., assignor to RCA Corporation
Filed Jan. 14, 1972, Ser. No. 217,785
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.1 **9 Claims**

Two or more selected portions or zones of each color pattern of the mosaic screen of a shadow mask color picture tube are substantially separately printed in separate photographic exposures using different optical systems in the lighthouse, to provide different corrections for misregister in different zones. The different exposures involve first order color center printing in one zone and second order color center printing in another zone, with different light refracting correction elements in the two exposures, each element being designed to correct for misregister in the respective zone.

3,788,848
METHODS OF MANUFACTURE OF COLOR PICTURE TUBES
Albert Maxwell Morrell, Lancaster, Pa., assignor to RCA Corporation
Filed Jan. 14, 1972, Ser. No. 217,884
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.1 **11 Claims**

Two or more selected portions or zones of each color pattern of the mosaic screen of a shadow mask color picture tube are substantially separately printed in separate photographic exposures using different locations for the light source in the lighthouse, to provide different corrections for misregister in different zones. The different locations may involve different lateral spacing of light source from the central axis of the electron gun structure, or different distance between the light source and the mask, or both.

3,788,849
NEGATIVE-WORKING PHOTOGRAPHIC PROCESS UTILIZING HEAT BLEACHABLE THIN LAYER OF A DYE
Seiichi Taguchi and Eiichi Mizuki, Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,577
Claims priority, application Japan, Nov. 26, 1970, 45/104,264
Int. Cl. G03c *1/12, 5/24*
U.S. Cl. 96—48 HD **12 Claims**

A process for forming an image comprising selectively exposing a portion of a light-sensitive material, which light-sensitive material comprises a support having thereon a thin layer of a dye which has an adsorption in the visible light region and which becomes stable to heat when it is exposed to light having a wavelength in the absorption region of the dye as compared to the unexposed state of the dye, to light of a wavelength in the absorption region of the dye and, simultaneously or immediately after exposure, heating the light-sensitive material to fade the dye at the unexposed areas.

3,788,850
SURFACE-ACTIVE COMPOUNDS FOR USE AS COATING AIDS FOR FILM-FORMING COATING COMPOSITIONS
Arthur Henri De Cat, Mortsel, Francis Jeanne Sels, Kontich, and Robert Joseph Pollet and Jozef Frans Willems, Wilrijk, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium
No Drawing. Filed June 4, 1971, Ser. No. 150,196
Claims priority, application Great Britain, June 4, 1970, 27,049/70
Int. Cl. G03c *1/02, 1/38*
U.S. Cl. 96—67 **14 Claims**

Coating compositions including a hydrophilic colloid and at least one compound of the formula:

$$R—(CH_2)_n—(OCH_2CH_2)_mOSO_3M$$

wherein:

m stands for 0 in which case *n* is 1 or *m* stands for 1 to 30 in which case *n* is 0 or 1,
M stands for hydrogen, an alkali metal atom, ammonium or organic ammonium, and
R stands for a branched-chain aliphatic group of 8 to 20 carbon atoms, which has at least 2 points of branching

are described. The coating compositions are particularly useful in the formation of photographic silver halide materials and the layers coated therefrom do not exhibit hydrophobic areas leading to repellency spots or comets.

3,788,851

SURFACE-ACTIVE COMPOUNDS USED AS COATING AIDS IN FILM-FORMING COMPOSITIONS

Jozef Frans Willems, Wilrijk, Francis Jeanne Sels, Kontich, Robert Joseph Pollet, Vremde, and Arthur Henri De Cat, Mortsel, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed June 4, 1971, Ser. No. 150,199
Claims priority, application Great Britain, June 4, 1970, 27,081/70
Int. Cl. G03c *1/02, 1/38*
U.S. Cl. 96—67 **10 Claims**

Coating compositions including a hydrophilic colloid and at least one compound of the formula:

$$R(—OCH_2CH_2)_m—X—A—SO_3M$$

wherein:

M stands for hydrogen, an alkali metal atom, ammonium or organic ammonium,
X stands for oxygen or sulphur,
A stands for alkylene comprising at least 3 C-atoms or for aralkylene,
R stands for a branched-chain aliphatic group of 10 to 20 carbon atoms, and
m stands for 0 to 30,

are described. The coating compositions are particularly useful in the formation of photographic silver halide materials and the layers coated therefrom do not exhibit hydrophobic areas leading to repellency spots or comets.

3,788,852

SURFACE-ACTIVE COMPOUNDS USED AS COATING AIDS FOR FILM-FORMING COATING COMPOSITIONS

Francis Jeanne Sels, Kontich, and Robert Joseph Pollet, Vremde, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed June 4, 1971, Ser. No. 150,200
Claims priority, application Great Britain, June 4, 1970, 27,050/70
Int. Cl. G03c *1/02, 1/38*
U.S. Cl. 96—67 **7 Claims**

Coating compositions including a hydrophilic colloid and at least one compound of the formula:

$$R—(OCH_2CH_2)_mOCO—A—SO_3M$$

wherein:

M stands for hydrogen, an alkali metal atom, ammonium or organic ammonium,
A stands for aralkylene or arylene.
m stands for 0 to 30, and
R stands for a branched-chain aliphatic group of 10 to 20 carbon atoms,

are described. The coating compositions are particularly useful in the formation of photographic silver halide materials and the layers coated therefrom do not exhibit hydrophobic areas leading to repellency spots or comets.

3,788,853

PHOTOGRAPHIC ELEMENTS COMPRISING COMPLEXES OF TITANIUM DIOXIDE AND AN ORGANIC LIGAND

Paul B. Gilman, Jr., and John A. Haefner, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 711,869, Mar. 11, 1968. This appplication Apr. 19, 1971, Ser. No. 135,394
Int. Cl. G03c *1/76*
U.S. Cl. 96—69 **10 Claims**

Photographic elements incorporating a light-sensitive colored complex of titanium dioxide and an unsaturated organic ligand compound containing at least one polydentate chelating group, such as 8-hydroxy quinoline compounds, aromatic vicinal polyol compounds and the like unsaturated organic compounds having at least two closely positioned electron-donating atoms, can exhibit a sensitivity to visible light radiation which is of an efficiency equipment to the ultraviolet light sensitivity of unsensitized titanium dioxide. Aromatic vicinal polyols are preferred. Such sensitization occurs both with binderless, vacuum-deposited titanium dioxide and with particulate titanium dioxide which is dispersed in a binder material.

3,788,854

PHOTOGRAPHIC ELEMENT CONTAINING AN OIL-SOLUBLE VINYLENE BRIGHTENING AGENT

Robert J. Tuite, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 847,404, Aug. 4, 1969. This application Jan. 31, 1972, Ser. No. 222,304
Int. Cl. G03c *1/92*
U.S. Cl. 96—82 **15 Claims**

Hydrophilic colloids having intimately dispersed therein an essentially hydrophobic solid solution of an oil-soluble vinylene brightening agent in an essentially hydrophobic organic solvent that is rigid (an organic glass) at room temperature, i.e., has a glass transition temperature (Tg) that is above about 25° C. are advantageously used in photographic elements and in image-receiving elements for image diffusion transfer because the light-stability of the stilbene brightening agents in these dispersions is increased substantially over the light-stability of the same brightening agents in dispersions outside the immediate invention.

3,788,855

NOVEL POLYMERS AND PHOTOGRAPHIC ELEMENTS CONTAINING SAME

Hyman L. Cohen, James R. King, Jr., and Louis M. Minsk, all % Eastman Kodak Company, Rochester, N.Y. 14650

No Drawing. Application Dec. 21, 1970, Ser. No. 100,491, which is a continuation-in-part of abandoned application Ser. No. 709,812, Mar. 1, 1968. Divided and this application Nov. 9, 1971, Ser. No. 197,157
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **16 Claims**

Polymers comprising quaternary nitrogen atoms and at least two aromatic nuclei in the polymer cation for each quaternary nitrogen atom are described. In one embodiment at least ⅓ of the units of said polymer comprise quaternary nitrogen atoms. In another embodiment polymers comprising at least two aromatic nuclei in the polymer cation, such as aryl groups, for each quaternary nitrogen atom can be used in photographic elements to provide excellent mordants for dyes.

3,788,856

PLURAL COATED SHEET MATERIAL CONTAINING PHOTOSENSITIVE SEMICONDUCTIVE PARTICLES

August Jean Van Paesschen, Antwerp, Lucien Janbaptist Van Gossum, Kontich, and Jan Josef Preim, Mortsel, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Original application Sept. 27, 1968, Ser. No. 763,382, now Patent No. 3,649,336. Divided and this appplication July 23, 1971, Ser. No. 165,312
Claims priority, application Great Britain, Aug. 12, 1968, 44,114/68
Int. Cl. G03c *1/80*
U.S. Cl. 96—87 R **10 Claims**

Improved adherence is obtained for sheet material having a hydrophobic film support or base, such as a hydrophobic cellulose ester or poly ester, by the combination of a vinyl polymer subbing layer arranged directly on the hydrophobic support, the subbing layer being formed of a copolymer containing at least 45% by weight of vinylidene chloride and/or vinyl chloride monomer along with a minor amount of a hydrophilic vinyl monomer with the balance being constituted by any other vinyl monomer, and superimposed upon the vinyl subbing layer a layer containing a mixture of gelatin with a copolymer of butadiene and a vinyl monomer containing 30–70% by weight of butadiene, the ratio of the gelatin to the butadiene copolymer being in the range of 1:3 to 2:1 by weight. An additional layer can be applied over the gelatin/copolymer layer and constituted by such ingredients as are desirable for the particular utility of the resultant sheet material, such as electrophotographic layers containing finely divided photoconductive material such as zinc oxide or some other photosensitive semi-conductive material, mat layers containing pigment, diffusion transfer layers containing development nuclei and so on. Alternatively, the ingredients appropriate to some particular ultimate utility can be incorporated into the gelatin/butadiene copolymer layer directly.

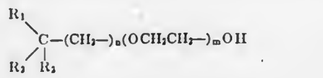
3,788,857

METHOD OF INCORPORATING PHOTOGRAPHIC ADJUVANTS INTO HYDROPHILIC COLLOIDS

Raphael Karel Van Poucke, Berchem, and Robert Joseph Pollet, Vremde, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed June 4, 1971, Ser. No. 150,214
Claims priority, application Great Britain, Aug. 13, 1970, 39,116/70
Int. Cl. G03c *1/40*
U.S. Cl. 96—100 **16 Claims**

A photographic chemical adjuvant is incorporated into a hydrophilic colloid composition by dispersing a solution of the chemical adjuvant in the hydrophilic colloid composition in the presence of a high-boiling substantially water-insoluble aliphatic alcohol or ethoxylated derivative thereof which corresponds to the formula:



wherein

n is 0 or 1 and *m* is 0 to 30,
R_3 is hydrogen or when *n* is 1 may be alkyl, and
each of R_1 and R_2 stands for a straight-chain or branched-chain alkyl group or together represent the atoms necessary to complete an aliphatic ring structure, R_1 and R_2 together comprising at least 5 carbon atoms.

The colloid composition can be a light-sensitive silver halide emulsion or a non-light sensitive water-permeable colloid composition. The high boiling alcohols or ethoxylated derivatives thereof have the particular advantage of reducing the viscosity of the colloid compositions and maintaining the viscosity at a stable level.

3,788,858

PHOTOPOLYMERIZATION SYSTEMS WITH TETRAZOLIUM SALT

John D. Margerum, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of abandoned application Ser. No. 227,955, Feb. 22, 1972. This application Oct. 2, 1972, Ser. No. 294,037
Int. Cl. G03c *1/70*
U.S. Cl. 96—115 P **7 Claims**

Photopolymerizable systems which combine an aromatic-substituted tetrazolium salt with a compound that is photopolymerizable by ultraviolet light are effective for initiating and effecting imaging recordings and for lithographic purposes.

3,788,859

FINE GRAIN SILVER HALIDE PHOTOGRAPHIC EMULSION CONTAINING HEMICYANINE SENSITIZING DYE

Yoshiyuki Nakazawa, Yoshuharu Nakamura, Tohru Sueyoshi, and Akira Sato, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Oct. 7, 1971, Ser. No. 187,494
Claims priority, application Japan, Oct. 7, 1970, 45/88,133
Int. Cl. G03c *1/10, 1/22*
U.S. Cl. 96—139 **8 Claims**

A hemicyanine dye is used to spectrally sensitize silver halide photographic emulsions to produce emulsions having high photosensitivity in the region of wavelengths of absorption intrinsic to silver halide and in the region of wavelengths of the dye.

3,788,860

PROCESS FOR PRODUCING COFFEE EXTRACT

James Patrick Mahlmann, Wayne, N.J., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed June 23, 1972, Ser. No. 265,891
Int. Cl. A23f *1/08*
U.S. Cl. 426—433 **3 Claims**

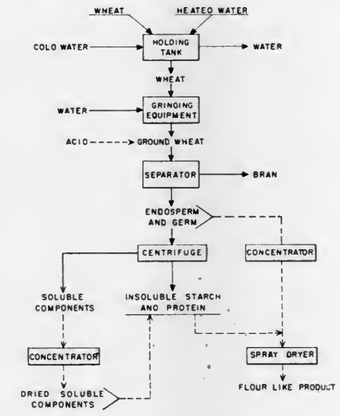
A novel process for producing coffee extract by contacting progressively fresher roasted and ground coffee with an aqueous extraction liquid in the extraction columns of a percolator set is disclosed comprising contacting roasted whole coffee beans with the aqueous extraction liquid in the fresh stage of the percolator set from which coffee extract is drawn off, drawing off a quantity of coffee extract from the fresh stage thus completing a cycle, and then grinding the whole coffee beans at a point prior to contacting them with aqueous extraction liquid in the autoclave section of the percolator set.

3,788,861

HYDROMILLING OF WHEAT

Jack R. Durst, Osseo, and William C. Winters, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed June 18, 1971, Ser. No. 154,538
Int. Cl. A23l *1/10*
U.S. Cl. 426—385 **21 Claims**



A process for hydromilling wheat is provided by grinding the wheat kernels or berries in an aqueous medium containing 3.5 to about 15 parts by weight water per part by weight wheat at a temperature not exceeding 104° F. to reduce all of the components, except the wheat bran, to a particle size of less than 200 microns; separating the bran from the aqueous hydromilled wheat product containing the endosperm and germ components; and remov-

ing a portion of the water from the hydromilled wheat product. Throughout this process, substantially all of the starch granules are maintained in the intact, ungelatinized form and substantially all of the protein is maintained in an undenatured form, thereby providing a hydromilled wheat product having excellent doughing and baking properties.

3,788,862

PARTIALLY SIMULATED TOMATO PRODUCT

Maurice W. Hoover and Rhea M. Hoover, both of 920 Merwin Road, Raleigh, N.C. 27606

No Drawing. Continuation of application Ser. No. 750,468, Aug. 6, 1968. This application Nov. 3, 1971, Ser. No. 195,380

Int. Cl. A23l *1/00, 1/40*

U.S. Cl. 426—177 **11 Claims**

A partially simulated tomato product comprising tomato solids, an admixture of starch, de-oiled soy meal and animal protein, sweetening agents, and edible organic acid crystals.

3,788,863

AQUEOUS INK FOR DEVELOPMENT OF CONCEALED IMAGES

Raymond I. Scheuer, 807 Pear Ave., Sunnyvale, Calif. 94087

Original application Sept. 3, 1968, Ser. No. 757,067. Divided and this application May 26, 1971, Ser. No. 147,028

Int. Cl. C09d *11/00, 11/14*

U.S. Cl. 106—21 **2 Claims**



A system for the preparing of copy containing concealed images and a marking material for the development of same in which the components comprise a receiving material in the form of starch or polyvinyl alcohol, an iodide which is oxidizable to iodine, and an oxidizing agent for oxidizing the iodide in which the oxidizing agent is contained in the imaging material to produce the concealed image, the iodine is contained in the marking material for the development of the image and the starch of polyvinyl alcohol are contained in the copy sheet, the printing material or the marking material whereby, when the marking material is applied to the concealed image, the oxidizing agent oxidizes the iodide to release iodine for producing an intense color with the starch or polyvinyl alcohol and in which the printing process is adapted to conventional printing systems.

3,788,864

REFRACTORY SAND MOLDS AND CORES

Paul F. Stephens, Allentown, Pa., assignor to Bethlehem Steel Corporation

No Drawing. Continuation of application Ser. No. 130,447, Apr. 1, 1971, which is a continuation-in-part of application Ser. No. 35,945, May 8, 1970, which in turn is a continuation-in-part of application Ser. No. 799,551, Feb. 13, 1969, all now abandoned. This application Aug. 9, 1972, Ser. No. 275,651

Int. Cl. B28b *7/28*

U.S. Cl. 106—38.3 **2 Claims**

A refractory mold and/or core suitable for casting molten ferrous metal and molten non-ferrous metal of the high lead and/or high tin copper alloys characterized by having a permeability of not more than 10 when tested by standard AFS permeability test comprising chromite sand, chromite flour and clay binder.

3,788,865

CRYSTALLIZED GLASS CERAMICS AND PROCESS FOR FORMING SAME

Clarence L. Babcock, 1718 Potomac, Toledo, Ohio 43607; Robert A. Busdiecker, 414 W. 1st St., Woodville, Ohio 43469; and Erwin C. Hagedorn, 513 Ansonia, Oregon, Ohio 43616

Continuation of application Ser. No. 464,147, June 15, 1965, which is a continuation-in-part of application Ser. No. 386,693, July 31, 1964, both now abandoned. This application Sept. 8, 1970, Ser. No. 70,500

Int. Cl. C03c *3/04, 3/20, 3/22*

U.S. Cl. 106—39.7 **27 Claims**

Colored and/or transparent, low-expansion, crystallized glass-ceramics formed by thermal in situ crystallization from a differently colored crystallizable base glass and having lithium-containing crystals as the predominant crystalline species. The products have coefficients of thermal expansion of less than about 12×10^{-7} per ° C. over the range of 0 to 300° C. Telescope mirror blanks can be made from the transparent, low-expansion, crystallized glass ceramics.

3,788,866

METHOD OF PRODUCING REFRACTORY MATERIAL

Hakon Flood, Trondheim, and Arne Seltveit, Moholtan, Norway, assignors to Elkem A/S, Oslo, Norway

No Drawing. Continuation-in-part of abandoned application Ser. No. 246,466, Apr. 21, 1972. This application Oct. 2, 1972, Ser. No. 294,275

Claims priority, application Norway, Apr. 26, 1971, 1,540/71

Int. Cl. C04b *35/14*

U.S. Cl. 106—69 **9 Claims**

A method of producing silica refractory materials is disclosed. Finely divided silica is admixed with water and then lime is added to the mixture. Thereafter a proper ammonium compound is added to precipitate calcium as a compound insoluble in water after which the product is baked preferably first at a low temperature for a relatively long period of time and then at a high temperature for a shorter period of time.

3,788,867

$BaTiO_3$-MgO-Nb_2O_5 DIELECTRIC CERAMIC COMPOSITIONS AND METHOD

Truman C. Rutt, Niagara Falls, N.Y., assignor to N. L. Industries, Inc., New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,457

Int. Cl. C04b *33/26, 35/46*

U.S. Cl. 106—73.31 **8 Claims**

Bismuth-free, dielectric ceramic compositions consisting essentially of from approximately 97 mol percent to approximately 82 mol percent $BaTiO_3$, the balance being MgO and Nb_2O_5 in a mol ratio of from about 1:1 to 1:2, may be fired at temperatures in the range from about 1300° C. to 1400° C. to produce useful dielectric ceramic bodies including monolithic capacitors. The resultant bodies have relatively low temperature coefficients, low dissipation factors, and vary in relative permittivity from about 300 to about 2000. The permittivity may be controlled by adjusting the mol percentage of MgO and Nb_2O_5 in the composition.

3,788,868

METHOD FOR MAINTAINING FLUIDITY OF CEMENT COMPOSITIONS

Toshiyuki Kitsuda, Yokohama, Choji Yamakawa, Wakayama, and Kenichi Hattori, Tokyo, Japan, assignors to Kao Soap Co., Ltd. and Japanese National Railways, Tokyo, Japan

Filed Dec. 19, 1972, Ser. No. 316,493

Claims priority, application Japan, Dec. 25, 1971, 46/1,134

Int. Cl. C04b *7/02*

U.S. Cl. 106—90 **7 Claims**

The fluidity of cement compositions can be maintained by adding to the cement composition a non-retarding, non-air-entraining cement dispersing agent selected from the group consisting of (a) water-soluble salts of condensates having molecular weights of not less than 1500, and obtained by condensing with formaldehyde sulfonated products of monocyclic or fused polycyclic aromatic benzenoid hydrocarbon compounds and (b) water-soluble salts of sulfonated products of fused polycyclic aromatic benzenoid hydrocarbon compounds having at least 3 benzene rings, the dispersing agent being added at at least two chronologically spaced intervals or continuously so that the fluidity of the cement composition can be maintained over an extended period of time.

3,788,869

CONCRETE COMPOSITIONS OR MIXES AND ADDITIVE THEREFOR

Jack B. Batdorf and Steven M. Weiss, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 112,029, Feb. 2, 1971. This application Jan. 11, 1972, Ser. No. 317,551

Int. Cl. C04b *7/02*

U.S. Cl. 106—93 **4 Claims**

Disclosed are hydroxyethyl cellulose (HEC) as additive for concrete compositions or mixes, substantially dry concrete compositions comprising conventional ingredients plus HEC, and concrete compositions comprising conventional ingredients (including water) plus HEC. The HEC renders the concrete compositions (when water is added thereto) readily pumpable and gives percent total air values within American Concrete Institute specifications.

3,788,870

XYLOLITH BUILDING BOARDS AND SHEETS

Joachim Zur Verth and Franz Prymelski, Hamburg, Germany, assignors to Joachim Zur Verth, Hamburg, Germany

No Drawing. Filed July 14, 1971, Ser. No. 165,811

Claims priority, application Germany, July 16, 1970, P 20 35 265.2

Int. Cl. C04b *3/00*

U.S. Cl. 106—108 **4 Claims**

Self-supporting, non-combustible xylolith building boards and sheets characterized by their excellent screw retaining capacity and size and shape retention and having a ratio of MgO:$MgCl_2$ of 2:4 composed of a mixture of natural and synthetic magnesite, finely divided wood filler materials and a magnesium chloride solution of 10 to 15° Bé. having a density at the highest of 0.75 g./cm.^{3} and a weight ratio of MgO:wood shavings and chips of 1:1 to 1:1.15 which has been hardened at a temperature between 30 and 65° C. without pressing.

3,788,871

PEARLESCENT PIGMENT

Norbert V. Mullio, Brooklyn, N.Y., assignor to Whittaker Corporation

No Drawing. Filed Mar. 22, 1971, Ser. No. 127,016

Int. Cl. C09c *1/00*

U.S. Cl. 106—291 **14 Claims**

Mica platelets are coated with bismuth oxychloride crystals to provide pearlescent pigments which are especially useful in cosmetic applications. The pigments are produced by impregnating mica platelets with hydrochloric acid, followed by hydrolysis of bismuth trichloride in the presence of the platelets. The hydrolysis reaction is effected while the impregnated platelets are suspended in an aqueous crystallization medium, and hydrolysis results in the formation of bismuth oxychloride crystals which deposit on the surface of the mica. In preferred embodiments of the process, bismuth trichloride is contained in the hydrochloric acid with which the mica is impregnated. In comparison to conventional bismuth oxychloride pigments which contain no mica, these new products are superior in many respects, and equivalent pearlescence and opacity can be provided by a substantially lesser amount of bismuth oxychloride.

3,788,872

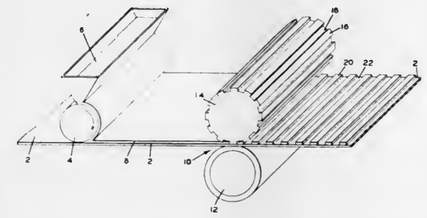
METHOD OF EMBOSSING

Daniel M. Sigman, Jr., Strasburg, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Nov. 8, 1971, Ser. No. 196,394

Int. Cl. B44c *1/02*

U.S. Cl. 117—10 **9 Claims**



A layer of liquid material is placed on a backing sheet. The backing sheet and liquid layer pass through an embossing structure which fuses or gels the liquid layer to place it in a solid or semi-solid state. The raised areas of the embossing roll press down against the liquid layer and engage the backing sheet to form areas where the liquid has been completely squeezed out from between the backing sheet and the raised area of the embossing roll.

3,788,873

FIXING METHOD UTILIZING INTERMEDIATE HEAT TRANSFER

Robert H. Detig, Old Tappan, N.J., assignor to Xerox Corporation, Rochester, N.Y.

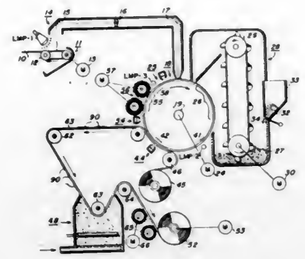
Original application Oct. 30, 1969, Ser. No. 872,558, now Patent No. 3,623,710. Divided and this application Mar. 2, 1971, Ser. No. 120,143

Int. Cl. G03g *13/20, 15/70*

U.S. Cl. 117—21 **1 Claim**

A method for affixing electroscopic toner images onto a support by utilizing an intermediary as a heat transfer medium. A quantity of particulate material is heated to a temperature sufficient to produce at least a partial melting of the particular toner material to be fused and the toner

material on the support is then contacted with the heated particulate material to induce a transfer of the thermal



energy in the particulate material to the toner material on the support.

3,788,874

LOW POROSITY COATING AND METHOD FOR PRODUCING SAME

William B. Crandall, Wheaton, Ill., and Charles M. Lee, Jr., Luthersburg, Pa., assignors to Sybron Corporation, Rochester, N.Y.

Filed Nov. 29, 1971, Ser. No. 202,840
Int. Cl. B44c *1/06*
U.S. Cl. 117—23 **9 Claims**

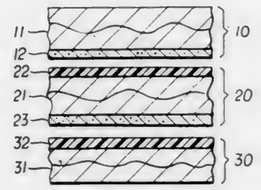
A low porosity glass coat is applied to an article by maintaining the article at a temperature at least as high as the fusion point of the glass while depositing particles of the glass upon the article at a rate no greater than the rate at which the particles fuse to the article.

3,788,875

TRANSFER COPY PROCESS AND MATERIAL

Walter Schutzner, Vienna, Austria, assignor to W. Koreska, Vienna, Austria

Continuation-in-part of application Ser. No. 768,346, Oct. 17, 1968, now Patent No. 3,640,750. This application July 16, 1971, Ser. No. 163,482
The portion of the term of the patent subsequent to Feb. 8, 1989, has been disclaimed
Int. Cl. B41m *5/22*
U.S. Cl. 117—36.2 **3 Claims**



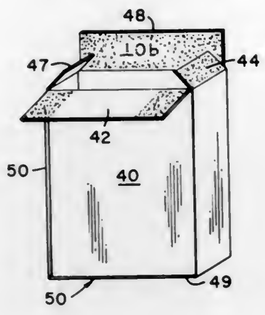
An upper sheet and a lower sheet, adapted to be superimposed to form an interface between the sheets, are coated on said interface with respective ingredients for a heat-induced, color-producing chemical reaction. The transfer layer has a synthetic-resin body while the receptor layer has a wax base with a softening point below the activation temperature of the reaction.

3,788,876

CARTON BLANKS PRINTED WITH A HEAT SEALABLE COMPOSITION AND METHOD THEREOF

David R. Baker and Robert I. Yin, Concord, Calif., assignors to Fibreboard Corporation, San Francisco, Calif.

Filed July 16, 1971, Ser. No. 163,335
Int. Cl. A61j *15/06*; B44d *1/02*
U.S. Cl. 117—38 **9 Claims**



By employing a mixture of powdered polyethylene and an ethylene based ionic polymer in an aqueous emulsion a composition can be formed which can be printed directly on paperboard webs in the locations of the tab and flap areas of a carton blank are subsequently cut therefrom whereby a carton blank is formed which is compatible with high speed barriermatic hot air sealing machines commonly used for fabricating and sealing polyethylene coated carton blanks,

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3,788,877

METHOD FOR PRODUCING ADHERENT, DUCTILE ZINC COATING ON FERROUS SUBSTRATES BY VACUUM DEPOSITION

Lawrence E. Helwig, Hampton Township, Allegheny County, and Michael V. Murray, Monroeville, Pa., assignors to United States Steel Corporation

No Drawing. Filed July 20, 1972, Ser. No. 273,573
Int. Cl. C23c *13/02*
U.S. Cl. 117—62 **5 Claims**

A Zn coating of up to seven mils thickness is deposited on a conventionally cleaned, ferrous substrate by condensation of Zn vapors in vacuo. To make the coating adherent, it is passed out of the vacuum chamber and rapidly heated to a temperature of 750° F.–1000° F. and then immediately quenched. The elapsed time from beginning of heating to the conclusion of the quenching must be no greater than about 25 seconds.

3,788,878

IMPREGNATING NONWOVENS WITH AN ALKYL ACRYLATE POLYMER-CARBOXYLIC POLYMER LATEX

George L. Wheelock, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 725,152, Apr. 29, 1968. This application July 14, 1972, Ser. No. 272,094
Int. Cl. B44d *1/48*
U.S. Cl. 117—62.2 **12 Claims**

A process for obtaining nonwoven materials having improved physical properties, especially internal bond strength or delamination resistance and wet tensile strength, is provided. The nonwoven fabrics and papers are impregnated with an alkyl acrylate polymer latex containing carboxyl functionality and exposed to ammonia or amine vapors prior to the drying and curing operations to obtain the improved properties. Papers treated in this manner have shown up to a two-fold increase in internal bond strength.

3,788,879

ROAD MARKING

Simon S. Waysman, Ganei Yehuda, Israel, assignor to Koor Chemicals Ltd., Beer-Sheva, Israel

Filed July 19, 1971, Ser. No. 163,986
Claims priority, application Israel, Aug. 6, 1970, 35,067
Int. Cl. C09j *7/04*
U.S. Cl. 117—68.5 **2 Claims**



A marker sheet for making road surface markings consists of a mat of mineral fibers such as glass fibers, slag wool or asbestos, impregnated on its upper side with a pigmental thermoplastic resin and on its underside with an adhesive bituminous cement capable of sticking to the road surface, and the edges of the mat are left free of the impregnating compositions at least at two opposite sides. These free edges form tongues which are glued to the road surface when the sheets are laid thereon, and into which the adhesive bituminous cement overflows under pressure. The adhesive cement may be divided into a central zone and marginal ("sealing") zones.

3,788,880

METHOD OF INHIBITING CORROSION OF METAL SURFACES

Ewald Mensenkamp, Rheinhausen, and Phil Heinrich Cordes, Wolfenbutel, Germany, assignors to Stahlwerke Peine-Salzgitter AG, Gerhardstrasse, Germany

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,520
Claims priority, application Germany, Jan. 26, 1971, P 21 03 342.1
Int. Cl. B44d *1/14*
U.S. Cl. 117—70 S **10 Claims**

A metal surface, e.g. of brass, is coated with a precipitate of a corrosion-retarding inorganic salt (e.g. a calcite) from water (preferably ordinary utility water containing the salt and under the electrochemical effect of local polarity differences along the metal body), whereupon the corrosion-inhibiting layer is used to bond, by ion-exchange interaction, an ion-exchange substance to the surface. Together, the corrosion-inhibiting and ion-exchange substances (a zeolite, natural or synthetic) form a three-dimensional stable coating which is adherent and prevents localized corrosion.

3,788,881

INK RECEIVING MATTE SHEET MATERIALS OVERCOATED WITH ALKYLATED VINYL-PYRROLIDONE POLYMERS

Jacques C. T. Tellier, Conklin, N.Y., assignor to GAF Corporation, New York, N.Y.

No Drawing. Filed Nov. 3, 1971, Ser. No. 195,469
Int. Cl. B32b *27/36*
U.S. Cl. 117—73 **11 Claims**

Ink-receiving matte sheet materials, comprising a polyester base support precoated with a cellulosic film-forming polymer and thereafter overcoated with a composition comprising an alkylated vinylpyrrolidone polymer.

3,788,882

SYNTHETIC COMPOSITE AND PROCESS FOR PREPARING

Thomas M. Noone, Oak Park, Ill., assignor to The Richardson Company, Melrose Park, Ill.

No Drawing. Original application Feb. 18, 1970, Ser. No. 12,467, now Patent No. 3,674,547, dated July 4, 1972. Divided and this application June 23, 1972, Ser. No. 266,969
Int. Cl. B32b *27/40*
U.S. Cl. 117—76 T **10 Claims**

Breathable synthetic composites for articles of clothing including shoe uppers are provided by laminates composed of open-cell synthetic foams, a polyurethane film and a plasticizer which renders the synthetic composite resistant to liquid water transfer while allowing water-vapor transfer through the composite. A particularly useful composite comprises a polyvinyl chloride, open-cell foam and a thermoplastic polyurethane film containing a plasticizer such as tri-butoxyethyl phosphate to improve moisture-vapor transmission properties of the composite while maintaining a sufficient barrier to liquid water.

3,788,883

RAILROAD BALLAST CONSTRUCTION AND COMPOSITIONS OF MATTER FOR RAILROAD BALLAST CONSTRUCTION

Fritz S. Rostler, Alameda County, Richard M. White, Contra Costa County, and Jack W. Newton, Alameda County, Calif., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of abandoned application Ser. No. 773,186, Nov. 4, 1968. This application Dec. 23, 1971, Ser. No. 211,705
Int. Cl. B44d *1/02*
U.S. Cl. 117—100 R **22 Claims**

This invention relates to bonding of rock aggregates by means of an elastomer bonding agent and relates particularly to railroad bed construction in which the ballast is bonded by means of an elastomer bond between the individual rock particles of the aggregate, and to methods of construction, and to compositions of matter useful for producing said elastomeric bond.

3,788,884

TEXTILE MATERIAL COATED WITH A WATERPROOFING AGENT

André Bernard, Pierre Gagne, and Georges Gras, Villeurbanne, and Jean Neel, Lyon, France, assignors to Societe Civile dite Soltex, Paris, France

No Drawing. Original application Dec. 16, 1969, Ser. No. 885,620. Divided and this application Feb. 16, 1971, Ser. No. 115,805
Claims priority, application France, Dec. 19, 1968, 50,775; Nov. 6, 1969, 6938618
Int. Cl. B44d *1/02*
U.S. Cl. 117—121 **2 Claims**

Compounds of the formula

B—CO—NH—R—NH—CO—A

[where R is tolylene or hexamethylere; A and B are NHR_1, NHR_2, $N(R_1)_2$, $N(R_2)_2$, OR_1, OR_2. R_1 or R_2; and R_1 and R_2 are aliphatic hydrocarbon radicals of 12–22 carbon atoms] are crosslinked on textile fabrics with isocyanates to provide effective and long lasting waterproofing of the fabric.

3,788,885
FIBROUS MATERIALS

James Derek Birchall and John Edward Cassidy, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 42,499, June 1, 1970, and a continuation of application Ser. No. 274,964, July 25, 1972. This application Nov. 29, 1971, Ser. No. 203,084
Claims priority, application Great Britain, Dec. 11, 1970, 59,040/70
Int. Cl. B32b *17/00, 19/00;* C07f *5/06*
U.S. Cl. 117—126 AF 20 Claims

Inorganic fibrous materials are bound together in felted form by treatment with a solution of either

(i) a complex phosphate of aluminum containing at least one chemically-bound molecule of a hydroxy compound, ROH, wherein R is an organic group or hydrogen and an anionic group of a strong inorganic acid, other than an oxyphosphorus acid, or of a carboxylic acid, or

(ii) an aluminum phosphate in which the ratio of the number of gram atoms of aluminum to the number of gram atoms of phosphorus is at least 1:1,

and then heating an entangled mass of the fibres so as to deposit aluminum phosphate from the solution.

3,788,886
METHOD FOR PRODUCING AN OPAQUE COATING

Ehrlich M. Eiland, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

No Drawing. Continuation of abandoned application Ser. No. 781,977, Dec. 6, 1968. This application Aug. 10, 1971, Ser. No. 170,647
Int. Cl. B32b *15/08;* B44d *5/06*
U.S. Cl. 117—132 BF 4 Claims

A process for producing an opaque coating on a substrate comprising applying to said substrate a composition comprising mineral spirits or Stoddard solvent, cellulose acetate butyrate or cellulose acetate propionate having an hydroxyl content of about 4.5%, a urea-formaldehyde or melamine polymer, a cross-linking catalyst, a plasticizer, and a lacquer solvent and curing said composition on said substrate by heating.

3,788,887
FIBER FLEECES AND SYNTHETIC LEATHERS

Harro Traubel, Leverkusen, Karl-Arnold Weber, Cologne, and Otto Koch and Klaus Konig, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 9, 1971, Ser. No. 161,351
Claims priority, application Germany, July 11, 1970, P 20 34 537.3
Int. Cl. C09d *5/00*
U.S. Cl. 117—135.5 8 Claims

Bonded fiber fleeces are provided and a method for their production which comprises preparing a reactive polyaddition reaction mixture from an organic polyisocyanate, and an organic compound containing at least two hydroxyl or amino hydrogen atoms capable of reacting with NCO groups as starting components in an inert liquid organic solvent for the starting components which boils at a temperature of below about 250° C. but which is a non-solvent for the polyaddition product, which solvent has no significant swelling effect on a homogeneous, non-porous film of the polyaddition product and is present in a quantity which does not exceed that which the polyaddition product is capable of enclosing as an internal phase, applying the reactive mixture to an unbonded fleece in a quantity sufficient to yield from 10 to 500% by weight based on the weight of the fleece of the polyaddition product and terminating the polyaddition reaction at a temperature of from about 20° to about 200° C. while evaporating the solvent.

3,788,888
FIBER-LUBRICANT COMPOSITION

Hideo Kawanaka, Kenichi Katabe, and Seizi Kameda, Wakayama, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

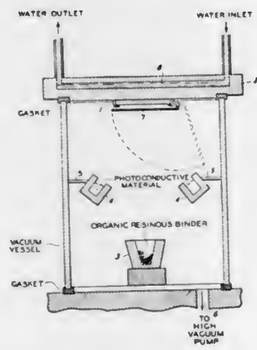
No Drawing. Filed Apr. 16, 1971, Ser. No. 134,858
Claims priority, application Japan, Apr. 24, 1970, 45/35,215
Int. Cl. C08j *1/44*
U.S. Cl. 117—139.5 A 2 Claims

A fiber-lubricant composition containing a copolymer of a sulfonated product of naphthalene or a naphthalene derivative with an aldehyde, or a maleic anhydride polymer or copolymer, which composition can be advantageously used as the spin finish for staple in high speed spinning of synthetic fibers.

3,788,889
METHOD OF PREPARING BINDER LAYERS

John Charles Schottmiller, Penfield, N.Y., and Charles Wood, Sycamore, Ill., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of abandoned application Ser. No. 631,089, Apr. 14, 1967. This application Dec. 9, 1970, Ser. No. 96,398
Int. Cl. G03g *5/08*
U.S. Cl. 117—201 12 Claims



This invention relates to a process for producing a photosensitive member comprising co-evaporating a photoconductive material and an organic resinous binder and depositing upon a conductive backing member a thin layer of photoconductive material dispersed throughout the organic resinous binder material.

3,788,890
METHOD OF PREPARING DISLOCATION-FREE CRYSTALS

Siegfried R. Mader, Stuttgart, Germany, and John W. Matthews, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 3, 1972, Ser. No. 231,695
Int. Cl. B44c *1/18;* C23c *11/00*
U.S. Cl. 117—201 11 Claims



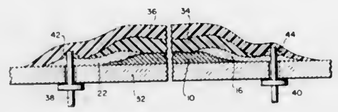
Disclosed is a method for growing crystals upon non-identical substrate or seed crystals in which the grown crystals have a high degree of crystal perfection. More particularly, the invention includes a method of selecting

suitable seed or substrate crystals which permit the growth of dislocation-free crystals, a method of selecting the optimum plane on which to grow the crystal as well as approximating a large number of suitable planes, and then growing the crystal to a minimum thickness at which all dislocations are removed from the growing crystal. This invention is particularly applicable to the growth of dislocation-free thin film crystals since the minimum thickness can be readily calculated and is often quite small.

3,788,891
THICK FILM PRECISION RESISTOR FOR USE IN AN ELECTRICAL CIRCUIT AND METHOD OF MAKING SAME

Sergei Scheballn, Ambler, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 2, 1971, Ser. No. 120,199
Int. Cl. H01c *7/00*
U.S. Cl. 117—212 12 Claims

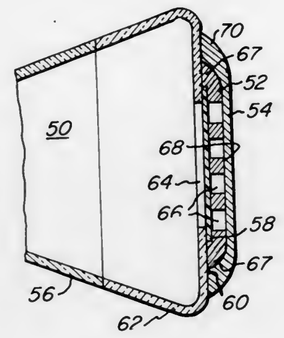


A thick film resistor is formed by #1 firing selected mixtures of positive and negative thick film resistor ink materials on a non-electrically conductive substrate at a selected high temperature and #2 subsequently jointly firing the resistor and conductor ink material associated with this resistor, at a temperature that is lower than the first mentioned temperature and which is at a level that will not allow any detrimental diffusion, to occur between the conductor and the resistor materials. This unique process of firing achieves for the first time a successful method of firing a resistor and conductor jointly without allowing any adverse change to occur in the value of the temperature coefficient of resistivity and the resistivity value of the resistor.

3,788,892
METHOD OF PRODUCING A WINDOW DEVICE

John A. van Raalte, Princeton, and Victor Christiano, Trenton, N.J., assignors to RCA Corporation

Filed May 1, 1970, Ser. No. 33,699
Int. Cl. B29c *13/00, 17/08;* H01j *33/04*
U.S. Cl. 117—212 3 Claims



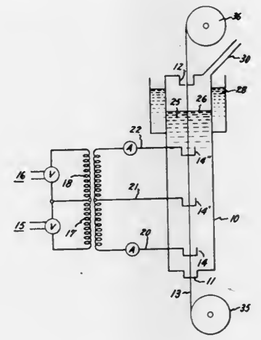
A method of producing a window device that includes an envelope portion having a wall that includes an opening by: closing the opening with rigid temporary film; then producing a layer of solid window material over the temporary film, by parts of the layer extending beyond the temporary film and bonded to the surrounding envelope portion; and then removing the temporary film.

The window device can also include a rigid foraminous reinforcing member.

3,788,893
COATED FILAMENTS

Charles R. Morelock, Ballston Spa, N.Y., assignor to General Electric Company

Application Jan. 13, 1971, Ser. No. 106,261, now Patent No. 3,738,314, which is a division of application Ser. No. 714,853, Mar. 21, 1968, now Patent No. 3,565,683. Divided and this application Feb. 9, 1972, Ser. No. 224,705
Int. Cl. C23c *11/02*
U.S. Cl. 117—216 1 Claim

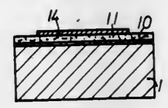


A tungsten carbide coating is deposited upon the electrically heated surface of a pyrolytic carbon coated fused silica or quartz fiber as it is passed through a liquid thermally decomposable tungsten compound such as tungsten hexachloride dissolved in a non-polar organic solvent such as benzene.

3,788,894
METHOD OF MANUFACTURING AN MNOS STORAGE ELEMENT

Werner Scherber, Nordheim, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Dec. 23, 1971, Ser. No. 211,612
Claims priority, application Germany, Dec. 24, 1970, P 20 63 726.7
Int. Cl. C23c *11/14;* H01g *7/00*
U.S. Cl. 117—217 5 Claims



A method of manufacturing an MNOS storage element including forming an oxide layer by glow discharge treatment of the semiconductor body in oxygen, forming a

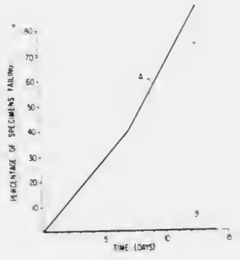
nitride layer on the oxide layer by glow discharge treatment from the gases SiH_4 and N_2 and forming a metal layer on the nitride layer as a gate electrode.

3,788,895

METHOD FOR PRODUCING A STABLE SURFACE PROTECTION FOR SEMICONDUCTOR COMPONENTS

Rigobert Schimmer and Jurgen Messerschmidt, Belecke, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Apr. 21, 1971, Ser. No. 136,223
Claims priority, application Germany, Apr. 21, 1970, P 20 19 099.2
Int. Cl. H01l *3/00*
U.S. Cl. 117—218 **22 Claims**



A polymer coating disposed on a semiconductor body and connected to the semiconductor body by a coupling compound having functional groups reacting with the semiconductor body and the polymer coating. Exemplary functional groups which react with the semiconductor body are, e.g., methoxy, ethoxy and acetoxy groups; these are regarded as anorganic-functional groups. Exemplary functional groups which react with the polymer coating are, e.g. vinyl, amino, alkylamino, arylamino, epoxy and mercapto groups; these are regarded as organo-functional groups.

3,788,896

METHOD FOR PRODUCING BUBBLE DOMAINS IN MAGNETIC FILM-SUBSTRATE STRUCTURES

Jack E. Mee, Anaheim, and Paul J. Besser, Mission Viejo, Calif., assignors to North American Rockwell Corporation, El Segundo, Calif.

Filed Dec. 28, 1970, Ser. No. 101,787
Int. Cl. H01f *10/06*
U.S. Cl. 117—235 **5 Claims**



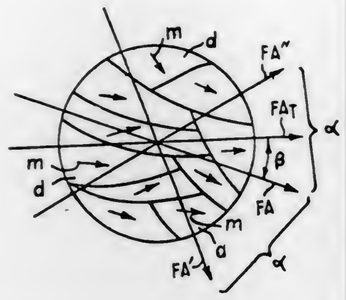
A method for producing a bubble domain in a magnetic single crystal garnet film-substrate structure is disclosed. The method involves the epitaxial deposition of an iron garnet film of the proper orientation and having a negative magnetostriction constant on a garnet substrate in which the room temperature lattice constant of the film is larger than the room temperature lattice constant of the substrate by an amount greater than about 0.035 angstrom.

3,788,897

PROCESS FOR TREATING SUBSTRATES IN ORDER TO REDUCE THE MAGNETIC ANGULAR DISPERSION OF THIN FERROMAGNETIC FILMS DEPOSITED ON SUCH SUBSTRATES

Rene Fernand Victor Girard and Marie-Claire Gidon, Grenoble, France, assignors to Societe Industrielle Bull-General Electric (Societe Anonyme), Paris, France

Filed June 9, 1970, Ser. No. 44,707
Claims priority, application France, June 11, 1969, 6919286
Int. Cl. H01f *10/00*
U.S. Cl. 117—236 **4 Claims**



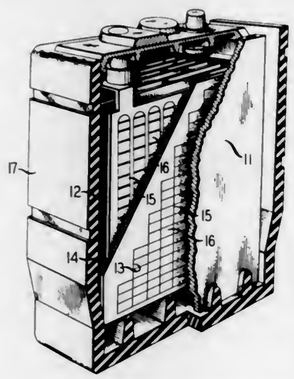
A process for treating the substrate of a thin magnetic film to obtain a surface state which reduces the magnetic angular dispersion of the film, wherein, prior to being coated with the magnetic film, the substrate is immersed in an aqueous solution of palladium chloride and dissolved hydrogen chloride gas.

3,788,898

FABRICATION OF NEGATIVE ELECTRODES IN LEAD-ACID BATTERIES

Charles Frederick Yarnell, Somerville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of application Ser. No. 96,520, Dec. 9, 1970, which is a continuation-in-part of application Ser. No. 34,705, May 5, 1970, both now abandoned. This application June 7, 1972, Ser. No. 260,505
Int. Cl. H01m *39/00*
U.S. Cl. 136—27 **6 Claims**



A method is described for producing the negative (Pb) electrode of a lead-acid battery. These negative electrodes are prepared by electrolytic reduction of tetrabasic lead

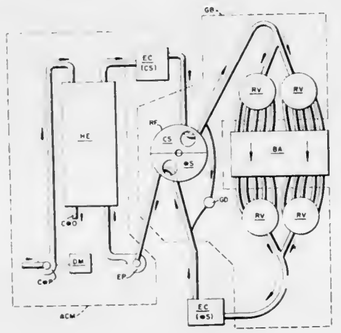
sulfate ($4PbO \cdot PbSO_4$) to which a small amount of expander has been added. There are several advantages to using tetrabasic lead sulfate as the paste material for negative electrodes. For example, it can be synthesized in large batch quantities outside the battery grid where reaction conditions can be precisely controlled. It can be characterized and specified as a unique chemical compound. It can be stored for long periods without deterioration. Acid need not be added in making the paste material from the tetrabasic lead sulfate. The pasted negative plates are cured by simple air drying with little control of temperature or humidity to produce plates without cracks.

3,788,899

ELECTROCHEMICAL POWER GENERATION APPARATUS AND METHODS

Solomon Zaromb, 376 Monroe St., Passaic, N.J. 07055

Continuation-in-part of application Ser. No. 633,348, Apr. 12, 1967, now Patent No. 3,554,810, and a continuation-in-part of abandoned application Ser. No. 5,340, Mar. 16, 1970. This application Dec. 24, 1970, Ser. No. 101,284
The portion of the term of the patent subsequent to Jan. 12, 1988, has been disclaimed
Int. Cl. H01m *27/12, 29/04*
U.S. Cl. 136—86 A **18 Claims**



A power source comprises an electrochemical battery cell including an anode and an oxygen or hydrogen peroxide depolarized cathode, a liquid electrolyte solution, electrolyte circulation means, an electrolyte container, and means to produce changes in the volumes of electrolyte in said container and in said battery cell and thereby control the current density at the surfaces of said anode and cathode. The anode may be of a consumable metal type, especially of aluminum. The volume changes may be effected by expanding or collapsing a reversibly expansible pocket in said electrolyte container. When several battery cells are connected in series, electrical current leakage paths through the electrolyte circulation means are blocked by a system of valves which sequentially and intermittently connect one of said cells at a time to said circulation means. Heat exchange apparatus may be included comprising a vacuum distillation means whereby impure water is converted into distilled water, preferably by utilizing the heat generated in said power source.

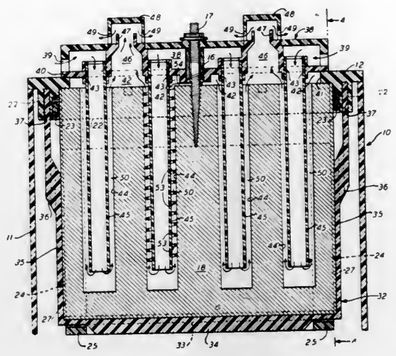
3,788,900

AIR-DEPOLARIZED PRIMARY BATTERY

Jacob E. Schmidt, Little Falls, N.J., assignor to McGraw-Edison Company, Elgin, Ill.

Filed July 17, 1972, Ser. No. 272,299
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 A **4 Claims**

An air-depolarized battery of the zinc-anode, carbon-cathode and alkaline electrolyte type has a series of cavities leading from the top face of the carbon cathode to nearly the bottom thereof and a chimney system which produces a rapid transfer of oxygen from the outside atmosphere to the gas-electrolyte interface of the cathode resulting in a marked increase in current capacity of the



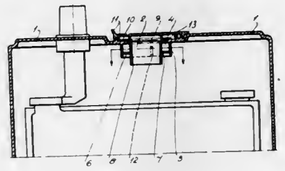
battery. As a further feature, which may be employed independently or in combination with the chimney system above mentioned, wire coils are inserted in the cavities to obtain a low resistance connection of the cathode terminal to the lower active portions of the cathode whereby a still greater efficiency and current capacity is achieved.

3,788,901

STORAGE BATTERIES

Rolf Filip Gunnar Thornblad, Hultsfred, Sweden, assignor to Globelite Batteries Canada Limited, Scarborough, Ontario, Canada

Filed Feb. 22, 1972, Ser. No. 228,256
Int. Cl. H01m *1/02*
U.S. Cl. 136—170 **5 Claims**



In storage batteries of the lead-acid type which are especially used for vehicles such as automobiles and motor boats, a dual vent for each cell is provided so that gases may escape from the cells without carrying electrolyte along with them. The dual vent has two valves arranged to return electrolyte to the cell from which it has splashed, and they are situated so that gas escapes from the higher vent and relieves gas pressure from the lower vent to permit flow of electrolyte back to the cell.

3,788,902

PROCESS FOR IMPROVING THE ELONGATION OF GRAIN REFINED COPPER BASE ALLOYS

Eugene Shapiro, Hamden, Jacob Crane, Woodbridge, and George H. Eichelman, Jr., Cheshire, Conn., assignors to Olin Corporation, New Haven, Conn.

No Drawing. Filed Nov. 24, 1972, Ser. No. 309,345
Int. Cl. C22f *1/08*
U.S. Cl. 148—11.5 R **15 Claims**

A process for improving the elongation of copper base alloys by controlled grain coarsening. Copper base alloys

containing from about 2 to about 9.5% aluminum, less than 1% zinc, and a grain refining element such as iron, chromium, zirconium, or cobalt are subjected to a final cold reduction of from about 8% to about 22% and a final anneal of from about 550 to about 715° C. Alternatively, the alloy can be subjected to a sequence of decreasing reductions interspersed with high temperature anneals, followed by the above final reduction and anneal.

3,788,903
METHOD OF PROCESSING STEEL MATERIAL HAVING HIGH AUSTENITIC GRAIN-COARSENING TEMPERATURE

Akira Suzuki, Kobe, and Shushi Kinoshita and Takeshi Ueda, Akashi, Japan, assignors to Kobe Steel, Ltd., Kobe-shi, Japan

Filed Apr. 15, 1971, Ser. No. 134,332
Claims priority, application Japan, Apr. 15, 1970, 45/32,078
Int. Cl. C21d 7/02
U.S. Cl. 148—12.1 **7 Claims**



A method of processing steel material having a high austenitic grain-coarsening temperature and an abnormal grain growth curve of cold worked austenitic grain, which comprises heating said steel material at a temperature of from the ferrite recrystallization temperature to the A_3 transformation point for more than five minutes to cause recrystallization. This technique prevents the formation of mixed grains upon austenitizing and thereby preserves the mechanical properties of the steel material.

3,788,904
METHOD OF PRODUCING AN INTEGRATED SOLID STATE CIRCUIT

Tegze Haraszti, Heilbronn, and Rainer Grosholz, Heilbronn-Bockington, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

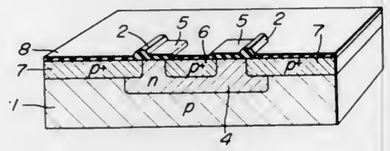
Filed Feb. 18, 1971, Ser. No. 116,494
Claims priority, application Germany, Feb. 19, 1970, P 20 07 627.1
Int. Cl. H01l 7/44
U.S. Cl. 148—186 **7 Claims**

A method of producing an integrated solid state circuit containing a MOS field effect transistor and a diode including introducing into a semiconductor body of a first type of conductivity, a diode region of a second type of conductivity, introducing source and drain regions of the second type of conductivity into the semiconductor body with at least one of the source or drain regions projecting into the diode region and finally completing the diode.

3,788,905
SEMICONDUCTOR DEVICE AND METHOD OF PRODUCING THE SAME

Masayuki Yamamoto, Kodaira, Kazuo Kobayashi, Tokyo, and Youitu Ohashi, Kodaira, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Original application Oct. 20, 1967, Ser. No. 676,832. Divided and this application Nov. 28, 1969, Ser. No. 879,951
Claims priority, application Japan, Oct. 21, 1966, 41/68,886
Int. Cl. H01l 7/44
U.S. Cl. 148—187 **3 Claims**



A junction-type field effect transistor having a source region, a drain region and a carrier path region of n-type formed by diffusing an impurity from one principal surface of a p-type silicon substrate, a p-type gate region diffused between the source region and the drain region so as to define the carrier path region, and a high-doped p^+-type layer formed in the p-type silicon substrate surface directly beneath the silicon oxide film in order to eliminate the undesirable influence exerted by an inverted layer induced in the substrate surface by the oxide film. The high-doped p^+-type layer is continuous with the p-type gate region and is formed simultaneously with the gate region by a single diffusion treatment.

3,788,906
SOLID PROPELLANT COMPOSITIONS CONTAINING LITHIUM PASSIVATED BY A COATING OF POLYETHYLENE

Herbert H. Schroeder, Edina, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Dec. 28, 1961, Ser. No. 164,214
Int. Cl. C06d 5/06
U.S. Cl. 149—6 **11 Claims**

1. A solid unitary composite propellant grain comprising, in admixture:
(1) passivated lithium metal which increases in weight no more than 10 percent from the dry state over 12 hours in contact with an environment of 50 percent relative humidity and 25° C., said passivation being accomplished by a coating on lithium which is chemically inert toward and insoluble in the constituents of the grain,
(2) a low-volatility fluorine oxidizing agent
(a) containing more than about 50 percent by weight of fluorine which is bonded to carbon and nitrogen atoms and
(b) having a heat of reaction with lithium of not less than about 100 kilocalories per gram equivalent of the fluorine therein, and

(3) a solid polymeric binder
(a) which has a molecular weight of not less than about 10,000
(b) which contains no active hydrogen and
(c) in which at least about 50 percent of the atoms in the backbone are carbon atoms,
the overall weight ratio of lithium to fluorine in the propellant grain being not less than about 7:19.

3,788,907
TRACER INCENDIARY MATERIALS INCLUDING LIQUID ALKYLALUMINUM AND COMPATIBLE INORGANIC OXIDIZER

U. Albert Lehikoinen, Detroit, Mich., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Filed Sept. 7, 1972, Ser. No. 287,068
Int. Cl. C06d 1/10
U.S. Cl. 149—22 **19 Claims**

An alkylaluminum-based material suitable for tracer applications having a lower alkylaluminum compound such as triethylaluminum or mixtures thereof, an inorganic oxidizer, and optionally a finely divided metal or metal hydride.

3,788,908
TRACER INCENDIARY COMPOSITION OF ALKYLALUMINUM, INORGANIC OXIDIZER, AND ZIRCONIUM

U. Albert Lehikoinen, Detroit, Mich., and Gerald Franklin, Philadelphia, Pa., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Filed Sept. 7, 1972, Ser. No. 287,067
Int. Cl. C06b 11/00
U.S. Cl. 149—42 **8 Claims**

An alkylaluminum-based material suitable for tracer applications having a lower alkylaluminum compound such as triethylaluminum or mixtures thereof, an inorganic oxidizer, and optionally a finely divided metal or metal hydride.

3,788,909
AQUEOUS BLASTING COMPOSITIONS CONTAINING AN IMMISCIBLE LIQUID HYDROCARBON FUEL AND METHOD OF MAKING SAME

Lex Lynn Udy, Salt Lake City, and Harvey Allred Jessop and Daniel Aaron Wasson, Murray, Utah, assignors to Ireco Chemicals, Salt Lake City, Utah

No Drawing. Filed Nov. 24, 1972, Ser. No. 309,178
Int. Cl. C06b 1/04
U.S. Cl. 149—60 **19 Claims**

Aqueous blasting agents containing an immiscible liquid hydrocarbon fuel are formulated by prethickening the liquid phase of the composition by the addition of a thickening agent, preferably a biopolymer gum, thereafter adding the liquid fuel and subsequently mixing the combination so as to form a stable, fine dispersion of immiscible liquid hydrocarbon fuel droplets throughout the liquid phase.

3,788,910
EXTRACTION AND PURIFICATION OF MALTOTRIOSE AND MALTOTETROSE

Graham G. Stewart and Allan E. Earl, London, Ontario, Canada, assignors to Labatt Breweries of Canada Limited, London, Ontario, Canada

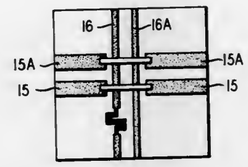
No Drawing. Filed Jan. 17, 1972, Ser. No. 218,478
Int. Cl. C12b 1/00
U.S. Cl. 195—11 **6 Claims**

Maltotriose and maltotetrose are extracted from a fermentable source material, conveniently a brewer's wort, and purified in a commercially advantageous manner by fermenting the material with *Saccharomyces uvarum* to remove lower molecular weight sugars, separating the yeast from the remaining liquid and subjecting the liquid containing maltotriose and maltotetrose to gel filtration chromatography and collecting samples containing maltotriose and/or maltotetrose. The collected fractions containing the desired maltotriose and/or maltotetrose can be subjected to further purification by means of charcoal column chromatography.

3,788,911
MANUFACTURE AND TESTING OF THIN FILM CIRCUITRY

Burton Abram Unger, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation-in-part of application Ser. No. 99,998, Dec. 21, 1970, now Patent No. 3,740,819. This application Dec. 3, 1971, Ser. No. 204,646
Int. Cl. H01l 7/00
U.S. Cl. 156—3 **3 Claims**

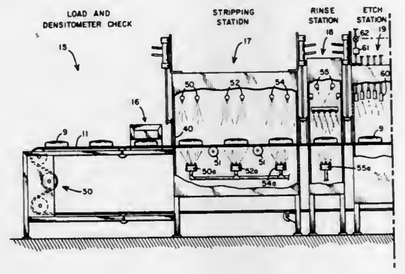


The procedure of testing the crossover points for short circuits, in thin film circuitry containing large numbers of air isolated crossovers, is simplified by providing temporary thin film interconnections to combine discrete conductive paths into a smaller number of paths none of which contains a crossover bridge and a crossunder conductor from the same crossover point, so that many crossovers can be tested simultaneously. The interconnection may be accomplished by providing that portions of a titanium layer, used as a means for bonding the circuitry to the substrate, are also established at the areas required for the interconnection. The temporary interconnection is removed, as by etching, after the testing is performed.

3,788,912
SYSTEM SUITABLE FOR CONTROLLING ETCHING WITHOUT THE AID OF AN ETCHANT RESISTANT

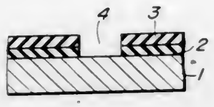
John J. Frantzen, North St. Paul, and Charles M. Lund, Stillwater, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.

Original application July 14, 1969, Ser. No. 841,317. Divided and this application Nov. 10, 1971, Ser. No. 197,536
Int. Cl. C23f 1/02
U.S. Cl. 156—6 **10 Claims**



An etching system having sets of prearranged nozzles for dispensing etchant onto preformed masks in a predetermined pattern to allow an operator to controllably enlarge the apertures in a preformed mask without the aid of an etchant resist.

3,788,913
SILICON NITRIDE ON SILICON OXIDE COATINGS FOR SEMICONDUCTOR DEVICES
Minoru Ono, Kodaira, and Toshimitu Momoi, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Original application Jan. 31, 1968, Ser. No. 701,988, now abandoned. Divided and this application Aug. 20, 1970, Ser. No. 65,383
Claims priority, application Japan, Feb. 3, 1967, 42/6,608, 42/6,609
Int. Cl. H01l *7/50*
U.S. Cl. 156—11 **5 Claims**



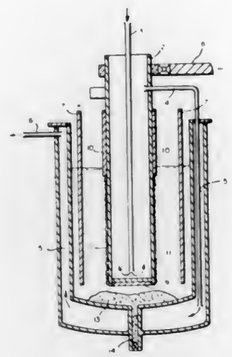
A method of manufacturing a semiconductor device wherein a silicon nitride film covers the exposed surfaces of an oxide film and the exposed major surface of a semiconductor body, and wherein holes are formed by chemical etching only in the portion of said silicon nitride film directly contacting said major surface, thereby obtaining precise etching of the insulating covering.

3,788,914
CHEMICAL MILLING OF TITANIUM, REFRACTORY METALS AND THEIR ALLOYS
John Gumbelevicius, St. Louis County, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.
No Drawing. Continuation-in-part of abandoned application Ser. No. 661,753, Aug. 3, 1967. This application Nov. 18, 1971, Ser. No. 200,143
Int. Cl. C23f *1/00*
U.S. Cl. 156—18 **10 Claims**

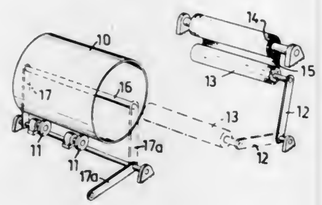
A process of chemically milling titanium, refractory metals, and their alloys, resulting in decreased absorption of hydrogen, thus allowing chemical milling of beta titanium and alpha beta titanium, which normally cannot be chemically milled in conventional chemical milling solutions because of hydrogen embrittlement. Another advantage of this process is a better chemically milled surface finish and more rapid and uniform metal removal rates than obtainable in conventional refractory metal chemical milling solutions. The process also is suitable for alpha titanium alloys. The chemical milling solution itself consists of a mixture of nitric acid, hydrofluoric acid or fluoride salts, and derivatives of carbonic acid such as carbamide, in concentrations of at least 10 grams per liter of final solution.

3,788,915
REGENERATION OF SPENT ETCHANT
Michael Gulla, Newton, Mass., assignor to Shipley Company, Inc., Newton, Mass.
Filed Feb. 9, 1972, Ser. No. 224,894
Int. Cl. C22d *1/00*
U.S. Cl. 156—19 **21 Claims**

This invention relates to a process for extracting dissolved metal as metal from a used etchant solution containing ferric ions as an oxidant while simultaneously regenerating the etchant for further use. The process comprising electrowinning a portion of the metal from solution under conditions effective for electrowinning, but not etching. These conditions include a substantial freedom from oxygen in the vicinity of the cathode, substantial freedom from solution agitation during the winning operation and preferably, for good cathode efficiency, relatively low solution temperature at the interface of the solution and the cathode, typically below 120° F. The process is economical because the ferric ion reduced to ferrous ion during the etching operation is oxidized back to the ferric form at the anode during the electrowinning process. Thus, the etchant is regenerated and suitable for re-use. Moreover, only a portion of the dissolved metal is removed from solution, the remainder being left in solution. The process is an important contribution to pollution abatement efforts as it eliminates the need for dumping spent etchant and dissolved metal wastes resulting from an etching operation.

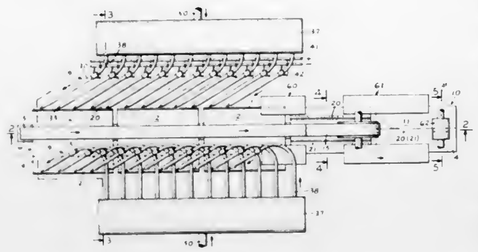


3,788,916
METHOD AND APPARATUS FOR MANUFACTURING REINFORCED PLASTIC CYLINDERS
Gustaf Shiro Gadelius, Lidingo, Sweden, assignor to Gadelius Inter S.A., Geneva, Switzerland
Original application Mar. 2, 1970, Ser. No. 15,783, now abandoned. Divided and this application Jan. 3, 1972, Ser. No. 215,224
Claims priority, application Sweden, Mar. 3, 1969, 2,887/69; Mar. 17, 1969, 3,642/69; Nov. 14, 1969, 15,665/69
Int. Cl. B32b *31/20;* **B29d** *23/00*
U.S. Cl. 156—74 **2 Claims**



A method of manufacturing glass-fibre reinforced plastic cylinders comprising the steps of applying a liquid plastic composition to the inside of a rotary moulding cylinder to disperse the plastic evenly over the interior surface of the cylinder by the action of centrifugal force, and introducing reinforcing material into the cylinder to form a uniform layer on the plastic layer, the reinforcing material being pressed into the plastic layer by centrifugal force and by means of a roller.

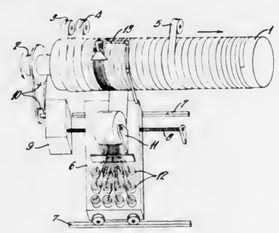
3,788,917
METHOD FOR HOT GAS ACTIVATION OF THERMOPLASTIC SEALING SURFACES
Frank Raymond Linda, Bridgeport, Conn., assignor to International Paper Company, New York, N.Y.
Filed July 17, 1970, Ser. No. 55,746
Int. Cl. B29c *25/00*
U.S. Cl. 156—82 **31 Claims**



Continuously advancing thermoplastic surfaces which are to be sealed together are contacted with a stream of a hot inert gas which impinges upon the surfaces in a direction opposed to that in which the surfaces are advancing and at an angle of from about 10 to 40° measured from the plane of the advancing surfaces. The gas treated surfaces are then brought into contact under pressure to effectuate a seal between the surfaces. The stream of hot gas preferably has the configuration of a thin flat ribbon with the long dimension of the cross section of the ribbon being substantially parallel to the plane of the thermoplastic surface so as to create an "air knife" which effectively removes the boundary layer from the thermoplastic surface.

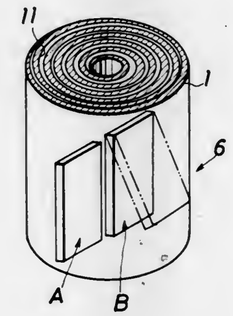
An apparatus is provided for carrying out the above described process which comprises means for advancing the surfaces continuously, nozzle means disposed to impinge against the advancing surfaces a stream of hot gas in the manner called for above, means for supplying gas to the nozzle, means for heating the gas supplied to the nozzle, and means for bringing the gas treated surfaces into contact under pressure to effectuate sealing of the surfaces.

3,788,918
METHOD FOR THE CONTINUOUS PRODUCTION OF FIBER REINFORCED PLASTIC PIPES OF VARIABLE WALL THICKNESS
Peder Ulrik Poulsen, Esbonderup 3240, Esrum, Denmark
Filed Jan. 12, 1972, Ser. No. 217,115
Claims priority, application Denmark, Dec. 15, 1970, 6,356/70
Int. Cl. B31c *3/00*
U.S. Cl. 156—171 **15 Claims**



Method for producing a shell of nonuniform thickness wherein hardenable shell forming materials are fed onto an envelope which is both rotated about a longitudinal axis and simultaneously advanced along the axis at a generally constant rate. The materials are fed onto the envelope from applicator means at a generally uniform and preferably uninterrupted rate. Nonuniform shell thickness is obtained, however, by moving the applicator means in one of the directions of envelope movement for a portion of a programmed cycle to give a thick shell section and returning the applicator means in the opposite direction of envelope movement to the starting point of the applicator means during another portion of the cycle to give a thinner shell section. The movement of the applicator means may be longitudinally of the envelope, or may be circumferentially of the envelope.

3,788,919
METHOD OF MANUFACTURING ARTIFICIAL LOGS
Rinnosuke Susuki, Tokyo, Hiroshi Hoshi, Narashino, and Kaoru Umeya, Sendai, Japan, assignors to Lion Fat and Oil Co., Ltd., Tokyo, Japan
Filed Aug. 13, 1971, Ser. No. 171,593
Claims priority, application Japan, Aug. 17, 1970, 45/71,937, 45/71,938; Oct. 1, 1970, 45/86,471; Oct. 6, 1970, 45/87,774, 45/87,775; Oct. 1, 1970 (utility model), 45/97,981
Int. Cl. B31c *13/00*
U.S. Cl. 156—184 **16 Claims**

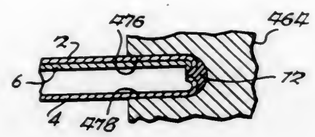


A synthetic resin sheet, either foamed or non-foamed, of a synthetic resin material containing a filler is laminated by winding it into the form of a roll to thereby form an artificial log. The artificial log thus produced has a grain structure closely simulating that of natural lumber.

3,788,920
METHOD OF MAKING ROLLED EDGE SEALED CORRUGATED PAPERBOARD
Robert H. Frappier, Agawam, Mass., Hal W. Tanner, Jr., Georgetown, S.C., and William O. Wagers, Massillon, Ohio, assignors to International Paper Company, New York, N.Y.
Original application Aug. 21, 1969, Ser. No. 852,038, now Patent No. 3,624,236. Divided and this application July 15, 1971, Ser. No. 162,865
Int. Cl. B31f *1/00;* **B32b** *3/04, 31/18*
U.S. Cl. 156—202 **2 Claims**

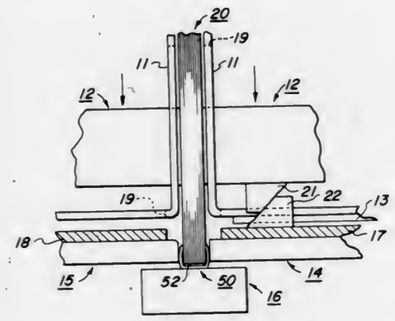
A method for making corrugated core paperboard in which the edges of the facing sheets are rolled inwardly toward each other and tucked into the end of the corrugated core convolutions to form an enclosure therefor; including feeding of the board along a path, slitting the end of the core by cutting or crushing the core along a line intermediate the facing sheets and rolling and tucking the end edges of the facing sheets into the slit,

the apparatus including driven belts between which the board is fed along a path, a knife support along the edge of the path through which the edge of the board



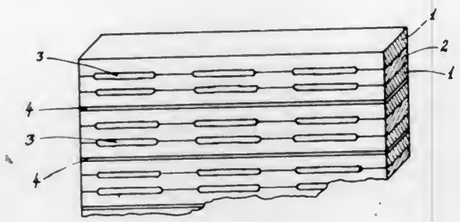
is fed and dies having edge engaging surfaces for rolling and tucking the ends of the facing sheets into the core.

3,788,921
APPARATUS AND METHOD FOR BINDING A STACK OF SHEETS
Neil A. Polit, Cary, Donald R. Snowden, Chicago, and Donald W. Watson, Arlington Heights, Ill., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 6, 1971, Ser. No. 204,986
Int. Cl. B32b *3/04*
U.S. Cl. 156—216 **21 Claims**



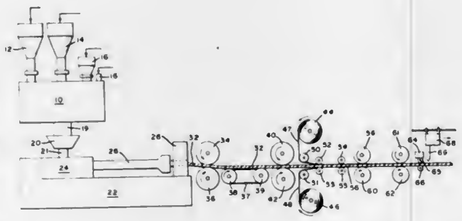
Method and apparatus for binding a stack of sheets whereby a binding member including a substrate material having at least one strip of heat activated adhesive is employed to form the desired book-like assembly. The binding member includes a low tack adhesive material extending longitudinally along the central portion of the substrate materal and a high tack material extending longitudinally adjacent the low tack material and on either side thereof on the substrate material. The stack of sheets is transported into engagement with the binding member, the member being thus deformed so the low tack adhesive material is in contact with one edge of the sheets of the stack and the high tack adhesive material is in contact with the other sheets of the stack. Heat is applied to the adhesive to cause the high tack material and low tack material to adhere to the portions of the stack in contact therewith. Pressure is applied to the side portions of the deformed substrate material so the high tack material is firmly pressed into contact with the outer sheets of the stack. Pressure is also applied to the portion of the substrate material in contact with the one edge of the sheets. A bond is thus formed between the substrate material and the stack of sheets to provide a book-like assembly.

3,788,922
METHOD OF MANUFACTURING A LAMINATED FIBRO-FILAMENTARY OR FILM STRUCTURE WHICH IS PARTLY DELAMINATED
Ole-Bendt Rasmussen, 7 Topstykket, DK-3460 Birkerod, Denmark
Filed July 21, 1971, Ser. No. 164,745
Claims priority, application Great Britain, July 21, 1970, 35,333/70
Int. Cl. B32b *7/04, 31/00*
U.S. Cl. 156—244 **9 Claims**



Method of producing fibrous or sheet structure comprising melt coextruding a laminated structure comprising an assembly of two or more layers from polymeric material laminated together in intimate adherence with one another and simultaneously or subsequently so treating the assembly as to produce a regular pattern of areas of strong bonding separated by areas of weak or no bonding between the layers of the assembly.

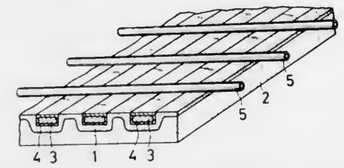
3,788,923
SILICA-FILLED, HIGH MOLECULAR WEIGHT POLYOLEFIN
Frank Yassin Soliman, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Aug. 24, 1971, Ser. No. 174,446
Int. Cl. B29c *19/00;* **B32b** *31/00*
U.S. Cl. 156—244 **17 Claims**



This invention relates to the production of low cost, reinforced thermoplastic sheets that are characterized by rigidity and strength. The sheets may be formed into various structural shapes using conventional metal-forming techniques. The sheet product, which comprises as the major constituent a silica-filled, medium or high density polyolefin with high or extra-high molecular weight, e.g., polyethylene, with silica as a filler may be used without any additional reinforcement. However, the sheet can also be laminated with steel cloth, sheet steel or steel foil, fiber glass mat, fiber glass cloth, etc., for additional strength and stiffness. The reinforcing sheets are assembled with the filled thermoplastic sheet at a temperature above the softening point of the thermoplastic such that the assembly remains intact after the processing pressure is eliminated. The thermoplastic sheet product exhibits

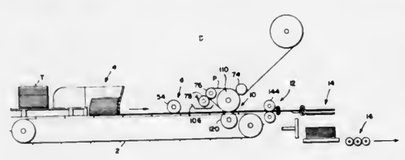
improved load bearing characteristic with lower elongation in comparison to the unfilled polymeric material alone. The impact characteristics of the filled system is higher than other filled plastic sheets. The corrosion resistance, ease of cleanability, the negligible amount of water absorption, and the high mechanical properties of the plastic sheets, especially at sub-zero temperature environment, promote their use in several structural applications; for example, in forming structural shapes such as for the transportation of goods, e.g., pallets, for shipping containers, truck-trailer flooring, and the like.

3,788,924
METHOD FOR PRODUCING MAGNETIC KEEPERS
Seihin Kobayashi, Michihiro Torii, and Masanao Okuda, Shizuoka-ken, Japan, assignors to Fuji Electrochemical Co., Ltd., Tokyo, Japan
Filed Dec. 21, 1971, Ser. No. 210,379
Claims priority, application Japan, Dec. 23, 1970, 45/118,000
Int. Cl. B32b *5/12, 31/20*
U.S. Cl. 156—249 **4 Claims**



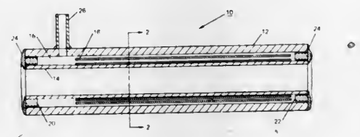
A flexible ferrite sheet containing fine ferromagnetic ferrite powders cohesively bonded together by a plastic binder and a flexible sheet containing fine powders of non-magnetic substance cohesively bonded together by a plastic binder are laminated and subjected to pressure to form a monolithic composite sheet. A plurality of parallel driving wires are embedded into the ferromagnetic ferrite sheet side of the monolithic composite sheet to effect plastic deformation of the non-magnetic sheet portion along with deformation of the ferrite sheet portion.

3,788,925
METHOD FOR MAKING TILE PRODUCTS
Frank L. Califano, Hackensack, N.J., and Joseph Laszlo, New York, N.Y., assignors to The Flintkote Company, New York, N.Y.
Application June 16, 1969, Ser. No. 840,587, now Patent No. 3,607,590, dated Sept. 21, 1971, which is a division of application Ser. No. 528,569, Feb. 8, 1966, now Patent No. 3,583,889. Divided and this application July 16, 1970, Ser. No. 62,764
Int. Cl. B32b *31/00*
U.S. Cl. 156—269 **4 Claims**



A method for preparing an adhesive coated tile product with a protective sheet thereon which sheet is removed when the tile products are installed. The uncoated tile products are moved from a stack in succession by a conveyor at a constant speed and in uniformly spaced relationship and an adhesive coated web having an adhesive patch with an area less than the area of the tile product is applied over the moving tile products and bonded thereto. This web is then severed between each adjacent tile product by a cutting knife in such a manner as to provide an overlap of the web and the resultant adhesive bonded to the tile is set back from the tile edges.

3,788,926
METHOD OF MANUFACTURING BORON-ALUMINUM COMPOSITE TUBES
Martin Donald Weisinger, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.
Filed Apr. 3, 1972, Ser. No. 240,711
Int. Cl. B29c *17/07*
U.S. Cl. 156—286 **11 Claims**



A method of forming high strength tubes from composites comprising boron fibers in an aluminum matrix is disclosed. A first metal tube having an internal diameter substantially equal to the desired composite tube external diameter is provided with an evacuation fitting. Sheets in which boron fibers are unidirectionally bonded to aluminum are wrapped around a second, narrower, metal tube with the fibers parallel to the tube axis. The wrapped second tube is inserted into the first tube and the inter-tube space is sealed at each end, as by welding. The inter-tube space is evacuated and the fitting sealed. The second tube is selected to have substantially less wall strength than the first tube. Preferably, this is accomplished by using tubes formed from the same material, but with the first tube having a wall thickness at least twice that of the second tube. The assembly is then placed in an autoclave and heated to a temperature of from about 800 to 1000° F. under a pressure of from about 3000 to 10,000 p.s.i. This causes the second (inner) tube to expand, pressing the composite layer against the inner wall of the outer tube, while diffusion bonding the wrapped composite into a single unitary tube. The assembly is cooled and the first and second tubes are removed, such as by chemical etching. A highly uniform high strength seamless composite tube results.

3,788,927
METHOD OF MAKING A REINFORCED LAMINATE IN COMBINATION WITH A CORE MATERIAL
Peter L. Jurisich, 4731 Royce Road, Irvine, Calif. 92804
No Drawing. Application Dec. 1, 1969, Ser. No. 881,318, which is a division of application Ser. No. 745,381, July 17, 1968, both now abandoned. Divided and this application Aug. 17, 1971, Ser. No. 172,547
Int. Cl. B32b *31/00, 3/12, 17/04*
U.S. Cl. 156—290 **5 Claims**

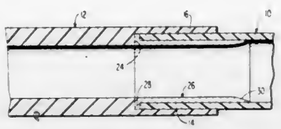
A reinforced structure and method in which a body consisting of fibers which are woven or unwoven, which fibers have spaces between them, has a cured resin coating the fibers but not filling the spaces between them, and in which an uncured resin is applied to the body. This uncured resin may be impregnated into the body to fill the spaces between the fibers or the uncured resin may be applied to a surface of the body, the resin being of such a character that upon heating it will flow into and fill the spaces.

3,788,928

METHOD OF FORMING A LAP JOINT BETWEEN TUBULAR ARTICLES OF THERMOPLASTIC MATERIAL

Eugene H. Wise, Newhall, Calif., assignor to R & G Sloane Manufacturing Company, Inc., Los Angeles, Calif.

Filed Mar. 26, 1971, Ser. No. 128,394
Int. Cl. B29c *19/00;* **C09j** *5/00*
U.S. Cl. 156—294 **4 Claims**



A method of forming a lap joint between tubular articles of thermoplastic material, wherein a reinforcing sleeve is positioned within the end portion of one of the articles that is to be disposed within a complementary end portion of the other of the articles, the reinforcing sleeve being formed of a material that has a melting point that is higher than that of the thermoplastic material of each of the articles. Thereafter, the end portions of the articles are heated, either before or after they are overlapped to form the lap joint, to melt the outer surface of the end portion of the one article and the inner surface of the end portion of the other article, thereby effecting the fusion welding of the end portions of the articles. The reinforcing sleeve serves to prevent the end portion of the one article from deforming when it is heated and inserted into the other article, or when it is heated while disposed within the end portion of the other article.

3,788,929

METHOD FOR PLASTICIZING WOOD

Jouko Huttunen, Porvoo, Finland, assignor to Neste Oy, Helsinki, Finland

No Drawing. Filed June 8, 1970, Ser. No. 44,636
Claims priority, application Finland, June 10, 1969, 1,713/69
Int. Cl. B27h *1/00;* **C09j** *5/02*
U.S. Cl. 156—307 **2 Claims**

Wood is treated by being initially impregnated with hydrazine. Thereupon wood is shaped in the usual manner and then excess hydrazine is removed. Hydrazine is preferably used in an aqueous solution. Wood may be heated after the impregnation. The process is suitable for treating wood veneers and various wood boards.

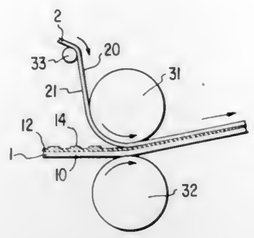
3,788,930

METHOD OF FIXING IMAGES OBTAINED BY LIQUID DEVELOPMENT IN ELECTROPHOTOGRAPHY

Satoru Honjo and Osamu Fukushima, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 29, 1971, Ser. No. 193,957
Claims priority, application Japan, Oct. 30, 1970, 45/96,147
Int. Cl. C09j *5/00*
U.S. Cl. 156—307 **4 Claims**

A method of permanently fixing a toner image on an electrophotographic sensitive material, said toner image being formed by developing an electrostatic latent image provided on the photoconductive coating of said material with a liquid developer comprising a charged toner dispersed in a volatile insulating carrier liquid, comprising laminating a transparent plastic film by means of an adhesive layer provided on said film on said toner-image bearing surface by heat and/or pressure while said material is wet with the volatile liquid used in the treatment



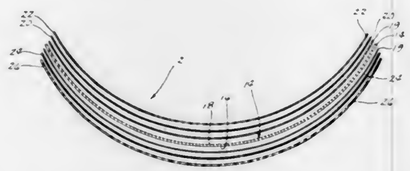
of said material to assist the lamination of said film onto said toner-image bearing surface.

3,788,931

LAMINATED PRINTING PLATE BASE

James A. Hynes, Winnetka, Ill., assignor to Printing Plate Supply Company, Chicago, Ill.

Filed May 30, 1972, Ser. No. 257,916
Int. Cl. C09j *5/00, 7/00*
U.S. Cl. 156—309 **12 Claims**



The method of making a laminated printing plate base is disclosed and generally comprises the steps of taking a metal layer and coating the opposite surfaces thereof with a thermo-adhesive; heating the metal layer and adhesive to a predetermined temperature; taking a first layer of thermoplastic material and placing a layer of scrim cloth adjacent one of the surfaces thereof; taking a second layer of thermo-plastic material and placing a second layer of scrim cloth adjacent one of the surfaces thereof; heating the first and second layers of thermo-plastic material to a predetermined temperature; placing the heated layers of thermo-plastic material on opposite sides of the heated metal layer; and subjecting the components to a predetermined temperature and pressure to activate the thermo-adhesive and to laminate the components into a single unitary structure.

3,788,932

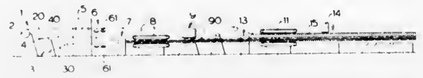
APPARATUS FOR MAKING STRUCTURAL UNITS

Reinhard Klinkosch, Dortmund, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany

Original application July 9, 1969, Ser. No. 840,397, now Patent No. 3,650,863. Divided and this application Sept. 8, 1971, Ser. No. 178,657
Claims priority, application Germany, July 17, 1968, P 17 79 192.3
Int. Cl. B32b *31/08*
U.S. Cl. 156—499 **5 Claims**

An apparatus for making structural units. This apparatus includes web supply means for supplying three discrete elongated strip-shaped webs, first advancing means for advancing the webs in a predetermined path

and first means for applying to one of the webs a first foamable synthetic plastic material and foaming the same to form a first layer. Furthermore, the apparatus includes first guide means for guiding another strip-shaped web onto said first layer and second advancing means for advancing the webs and the layer and also second means for



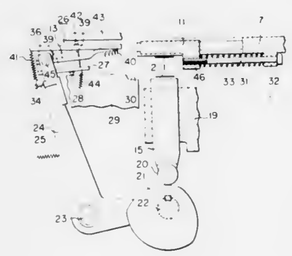
applying an intermediate layer onto a web. Finally, the apparatus also includes second guide means for guiding the final web along the aforesaid path and third means for introducing the second foamable synthetic plastic material and foaming the same so as to produce an elongated laminar strip unit.

3,788,933

APPPARATUS FOR HEAT SEALING THE OVERLAPPING END PORTIONS OF AN ELONGATED THERMOPLASTIC STRAPPING BAND

Seinosuke Nakazawa, Kenagawa, Japan, assignor to Ikegai Tekko Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 23, 1971, Ser. No. 183,022
Claims priority, application Japan, Sept. 28, 1970, 45/84,881
Int. Cl. B32b *31/18, 31/20;* **B29c** *27/00*
U.S. Cl. 156—513 **4 Claims**



A welding apparatus applicable to a packing machine for use in strapping packages with a thermoplastic band, which comprises a movable heat plate provided with plural blades disposed parallel to the direction of strain of the band, which plate is moved against the overlapped portion of the plastic bands to be welded, thereby melting said plastic bands by the portion surrounding said blades as they penetrate one of the overlapping bands and eat into the other one, and means for pressing the overlapped portions thus partially melted together to thereby join said bands.

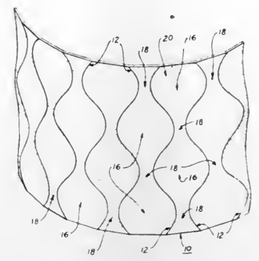
3,788,934

THREE-DIMENSIONAL FOLDED STRUCTURE WITH CURVED SURFACES

Anthony P. Coppa, 748 S. Highland Ave., Merion, Pa. 19066

Filed Oct. 1, 1971, Ser. No. 185,640
Int. Cl. A63g *31/00;* **A63h** *33/16;* **B32b** *3/30*
U.S. Cl. 161—17 **11 Claims**

A three-dimensional fold structure is formable in a polygonal cross-section from a sheet having a plurality of curved hinge lines which are undulating and non-crossing. The axes of the undulating hinge lines have a substantial component along the axis of the structure, and adjacent hinge lines undulate in opposite directions.

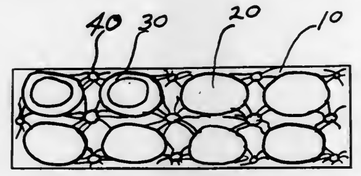


3,788,935

HIGH SHEAR-STRENGTH FIBER-REINFORCED COMPOSITE BODY

James J. Shyne, Caldwell, and John V. Milewski, Saddle Brook, N.J., assignors to General Technologies Corporation, Reston, Va.

Continuation of application Ser. No. 597,686, Nov. 29, 1966. This application May 27, 1970, Ser. No. 41,710
Int. Cl. B32b *15/00*
U.S. Cl. 161—141 **10 Claims**



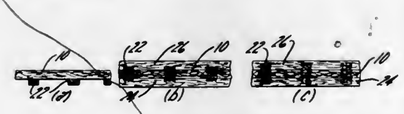
A high shear-strength composite is formed in a matrix material by aligning boron filaments of larger diameter, for example ten to one hundred microns, and supporting them with smaller intersititally disposed whiskers of alpha-alumina randomly distributed in the body of a diameter, for example of one to three microns, which fibers may be discontinuous.

3,788,936

NONWOVEN LAMINATE CONTAINING BONDED CONTINUOUS FILAMENT WEB

Robert James Brock, Appleton, and Paul Bernard Hansen and John C. Wilson, Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

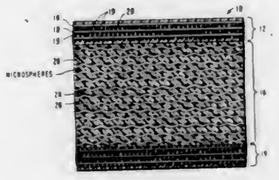
Continuation-in-part of abandoned application Ser. No. 14,943, Feb. 27, 1970. This application Sept. 1, 1971, Ser. No. 177,078
Int. Cl. B32b *7/14*
U.S. Cl. 161—148 **17 Claims**



Laminates comprising a cellulosic web and a web of continuous thermoplastic filaments are disclosed. The continuous filament web is bonded by means of an intermittent pattern of spot bonds which are characterized by their

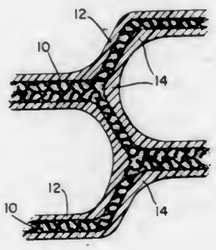
ability to release bonded filaments at levels of strain approaching but less than the breaking strength of the filaments. The disclosed laminates are strong, attractive in appearance, can absorb and retain fluid, and possess desirable energy absorption characteristics, especially over small laminate elongations.

3,788,937
STRUCTURAL ACOUSTIC TRANSMISSION MATERIAL
George Dick Lee, Monterey Park, Calif., assignor to Hitco
Filed July 19, 1971, Ser. No. 163,788
Int. Cl. B32b *5/22, 19/02*
U.S. Cl. 161—158 **10 Claims**



A structural material having excellent acoustic transmission properties comprises a partially elastomeric, low density panel of composite construction. In one example a number of layers of a lightweight synthetic fabric define a transmission panel of appreciable thickness and include approximately 50% by weight of a resin matrix mixture which is of approximately 50% elastomeric material. Preferably also, the matrix material incorporates approximately 10% by weight of thin wall glass microspheres. Further increases in structural properties may be obtained, without undue sacrifice of transmission properties, by incorporating thin inner and outer shells joined to the multi-layer composite core.

3,788,938
PYROLYZED STRUCTURES
Whitney R. Adams, Wilmington, Del., assignor to Scott Paper Company, Philadelphia, Pa.
Application Apr. 10, 1969, Ser. No. 858,210, now Patent No. 3,676,173, which is a continuation of abandoned application Ser. No. 485,893, Sept. 8, 1965. Divided and this application Sept. 28, 1971, Ser. No. 98,491
Int. Cl. C23c *9/06;* **D44d** *1/094*
U.S. Cl. 161—159 **6 Claims**



Porous, cellular structures which have been at least partially carbonized, which have greater strength at high temperatures, and which are capable of withstanding higher temperatures than could the structures prior to pyrolysis. A method for forming the above structures in which a first basic structure having a desired configuration and comprised of material having a low fusion or deterioration temperature is coated at even lower temperatures with an infusible resin which is capable of being cured to an infusible state at a temperature lower than the fusion or deterioration temperature of the material compirsing the first basic structure, and the resulting coated structure is then subjected to elevated temperatures so that the basic structure is pyrolyzed and carbonized leaving a stronger, high-temperature-resistant structure substantially in the image of the first basic structure.

3,788,939
HIGH DIELECTRIC ELECTRONIC PACKAGING MATERIAL
Harold Daniel Dove, 11812 Daniel Ave., Garden Grove, Calif. 92640
No Drawing. Filed July 17, 1972, Ser. No. 272,695
Int. Cl. B32b *5/16*
U.S. Cl. 161—93 **6 Claims**

Electronic interconnection and packaging materials must have electrical characteristics which match the electrical requirement of the total system if maximum performance is to be expected. Among the characteristics of the interconnection material is the dielectric constant of the insulating material. High dielectric constant insulating materials are desirable to provide a filtering function which is integral with the interconnection system. The present invention provides a new insulating material with a high dielectric constant for improved filter characteristics.

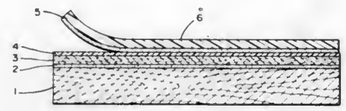
3,788,940
POLYOLEFIN-POLYAMIDE COMPOSITE FILAMENTS HAVING AN IMPROVED ADHERING PROPERTY AND A METHOD THEREOF
Fumimaro Ogata, Osaka, and Katsuhiko Nagamine, Settsu, Osaka-fu, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan, and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy
No Drawing. Continuation-in-part of abandoned application Ser. No. 605,170, Dec. 28, 1966. This application July 11, 1969, Ser. No. 841,146
Int. Cl. D02g *3/00*
U.S. Cl. 161—173 **6 Claims**

Composite filaments of a polyolefin and a polyamide which are highly crimpable without separation or cleavage are produced by the conjugate spinning of (1) a molten fiber-forming polyamide selected from the group consisting of nylon-11 nylon-12, nylon-11.10, nylon-11.11 and nylon-11.12 and (2) a molten fiber-forming polyolefin selected from the group consisting of polyethylene and polypropylene. The conjugate spinning ratio of the two polymeric materials which are employed to form the composite filaments is maintained between 8:2 and 2:8, ratios outside such range involving difficulties. Additionally, in using heat to effect the crimping, the temperature is maintained between about 70° and about 150° C.

3,788,941
REMOVABLE FLOOR AND WALL SURFACE COVERINGS
John J. Kupits, Newtown, Pa., assignor to W. R. Grace & Co., Cambridge, Mass.
Continuation of abandoned application Ser. No. 872,997, Oct. 31, 1969. This application Aug. 2, 1971, Ser. No. 168,414
Int. Cl. B32b *9/04*
U.S. Cl. 161—182 **7 Claims**

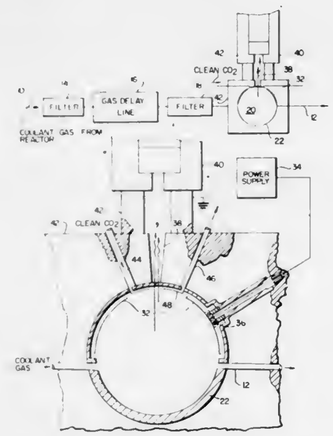
Subfloors and walls, for example, can be covered with a surface covering which is easily removable at a later time by adhering a release composition-coated flexible

sheet material, for example, an elastomer-impregnated paper sheet, release-coated side up, to the sub-floor or wall



and then adhesively securing the surface covering to the release coated sheet.

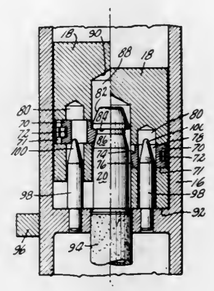
3,788,942
BURST CARTRIDGE DETECTION SYSTEM FOR USE WITH GAS-COOLED REACTORS
Kyung Ho Hyun, Seoul, Korea, assignor to Korea Institute of Science & Technology, Seoul, Korea
Filed Sept. 29, 1970, Ser. No. 76,497
Claims priority, application Korea, Oct. 14, 1969, 1,341
Int. Cl. G21c *17/04*
U.S. Cl. 176—19 LD **9 Claims**



A burst cartridge detection system for use with gas-cooled power reactors includes a pressure vessel having a sampling chamber with an electrode positioned within the chamber for preventing the build-up of daughter products within the chamber. Two filters and a delay line are in fluid communication with the chamber, and a collimator connects a scintillation detector with the chamber whereby predetermined types of radiation within the coolant gas, such as gammas from fission products within the reactor, are detected.

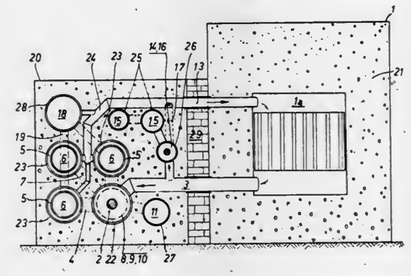
3,788,943
AUTOMATIC CONTROL ROD LATCHING DEVICE
Angelo J. Misenti and Gennaro V. Notari, Simsbury, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 19, 1969, Ser. No. 886,574
Int. Cl. G21c *7/00*
U.S. Cl. 176—35 **12 Claims**

An automatic release for nuclear reactor control rod actuating mechanism carried by a removable, nuclear vessel head. A reciprocable actuator telescope with a control rod extension and is releasably connected thereto by spring pressed transversely sliding latches in the actuator. Near the bottom of the actuator stroke stationary taper pins enter axially extending holes in the actuator and start to enter misaligned holes in the latches. At the bottom of the actuator stroke the taper pins having passed through the misaligned holes in the latches have automatically withdrawn the latches and disconnected the rod extension so that the head and actuator may be removed as a unit



leaving the control rod in the reactor. Upward movement of the actuator from the bottom of its stroke with the head in place will move this actuator away from the taper pins and automatically release the latches and latch the actuator to the control rod.

3,788,944
NUCLEAR POWER PLANT HAVING A CLOSED GAS COOLING CIRCUIT
Wilfried Stracke, Oberehrendingen, and Max Zimmermann, Untersiggenthal, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland
Filed Mar. 8, 1971, Ser. No. 122,019
Claims priority, application Switzerland, Mar. 9, 1970, 3,395/70
Int. Cl. G21c *13/00*
U.S. Cl. 176—60 **4 Claims**



In a nuclear power plant of the type having a closed gas coupling circuit, a high temperature reactor is enclosed by one concrete pressure structure; enclosed by

another concrete structure separate from and adjacent to the reactor are the related operating components of the power plant such as turbine and compressor units, coolers, heat exchangers, etc., and the housing structures of these individual operating components, such as those which enclose and support the guide blading of the turbo-machines (turbines and compressors), as well as all interconnecting pipe lines and the pipe lines to and from the reactor serve as lost i.e. cast in forms around which concrete is poured on the construction site thereby to form a machine block. The drive shaft from the turbine projects outwardly from the machine block for connection to the electric generator.

ERRATUM

For Class 195—11 see:
Patent No. 3,788,910

3,788,945
PROCESS FOR ISOMERIZING GLUCOSE TO FRUCTOSE
Kenneth N. Thompson, Richard A. Johnson, and Norman E. Lloyd, Clinton, Iowa, assignors to Standard Brands Incorporated, New York, N.Y.
No Drawing. Filed Nov. 9, 1970, Ser. No. 88,190
Int. Cl. C07g *7/02;* **C13k** *9/00*
U.S. Cl. 195—31 F **19 Claims**

The disclosure is directed to a process of enzymatically converting glucose to fructose. A glucose-containing solution is passed, under specific conditions, through a bed of glucose isomerase bound to an inert carrier.

3,788,946
PROCESS FOR THE PREPARATION OF AMYLOSE AS THE SUBSTRATE FOR THE QUANTITATIVE ANALYSIS OF AMYLASE
Masahi Kurimoto and Mikihiko Yoshida, Okayama, Japan, assignors to Hayashibara Company, Okayama, Japan
Filed July 28, 1971, Ser. No. 166,750
Claims priority, application Japan, July 28, 1970, 45/66,003
Int. Cl. C12b *1/00*
U.S. Cl. 195—31 R **3 Claims**

The invention deals with a method of preparation of amylose which gives an excellent substrate for the quantitative analysis of amylase, especially for that in blood serum. The outline of the preparation process is that the gelatinized starch or waxy-starch is converted into linear chain amyloses by the aid of alpha-1,6-glucosidase, and through precipitation and fractionation the linear chain amylose, which is water-soluble and very sensitive to amylase, is separated from the only slightly soluble macromolecules and oligosaccharides.

3,788,947
MICROBIOLOGICAL REDUCTION OF 10(11) UNSATURATED PROSTAGLANDINS
Charles F. Hsu, Skokie, and James Jiu and Seth Setsuo Mizuba, Morton Grove, Ill., assignors to G. D. Searle & Co., Chicago, Ill.
No Drawing. Filed Oct. 5, 1972, Ser. No. 295,209
Int. Cl. C12d *1/02*
U.S. Cl. 195—51 R **28 Claims**

The present invention relates to fermentative reduction of the 10(11) double bond of PGA-type prostaglandins. More particularly, the invention provides a process for selective 10(11) double bond reduction of PGA_2 by fungi of genera Cunninghamella, Mucor, Polyporus, Sphaeropsis, Stemphylium, Cladosporium, Hormodendrum, Epicoccum, Fusarium, Gliocladium, Dactylium, Cephalosporium, Aspergillus, and Penicillium. The same transformation is accomplished by bacteria of genera Bacillus, Enterobacter, Escherichia, and Proteus.

3,788,948
METHOD OF BINDING, BY COVALENT BONDS, PROTEINS AND POLYPEPTIDES TO POLYMERS USING CYANATES
Sven Lennart Kagedal and Stig Hjalmar Johannes Akerstrom, Uppsala, Sweden, assignors to Pharmacia AB, Uppsala, Sweden
No Drawing. Continuation-in-part of abandoned application Ser. No. 783,761, Dec. 13, 1968. This application Oct. 12, 1971, Ser. No. 188,575
Claims priority, application Sweden, Dec. 20, 1967, 17,469/67
Int. Cl. C07g *7/00, 7/02*
U.S. Cl. 195—68 **12 Claims**

Organic cyanate compounds are employed for binding organic compounds containing a primary or secondary amino group to polymers containing one or more hydroxyl and/or primary and/or secondary amino groups. The invention is useful, among other things, for binding water soluble enzymes to water insoluble polymers while preserving the activity of the enzyme.

3,788,949
STERILITY TESTING ANTIGEN PRODUCTS
Katsuto Kojiro and Robert A. Elliott, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Filed Aug. 22, 1972, Ser. No. 282,791
Int. Cl. C12k *1/10*
U.S. Cl. 195—100 **6 Claims**

We have discovered an improved method of sterility testing antigen products containing thimerosal which comprises the addition of a thimerosal-inhibiting concentration of penicillamine or the acid addition salts thereof to the growth medium in which the antigen product is cultured for sterility testing.

3,788,950
ENZYME GEL AND USE THEREFOR
George P. Hicks and Stuart J. Updike, Madison, Wis., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 631,716, Apr. 18, 1967. This application Aug. 5, 1970, Ser. No. 61,333
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **17 Claims**

A substantially rigid enzyme gel, useful in processes incorporating enzyme catalysts, such as, substrate analysis, comprising a polymer matrix having water colloidally dispersed therein and active enzyme molecules distributed homogeneously throughout and substantially unreacted with the polymer matrix, the polymer matrix having a sufficiently small pore size to retain individual enzyme molecules, i.e. the enzyme in aqueous solution. The gel is formed by polymerizing an aqueous solution of a monomer, for example an acrylamide, containing an enzyme under conditions not detrimental to the activity of the enzyme.

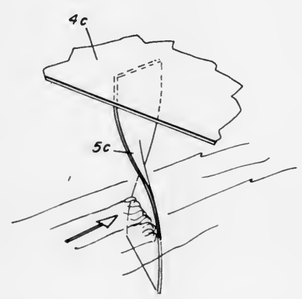
3,788,951
METHOD FOR GROWING MONOCULTURES
Hans J. von der Pfordten, 3463 Ashton Court, Palo Alto, Calif. 94306
Filed Dec. 7, 1971, Ser. No. 205,608
Int. Cl. C12b *1/02*
U.S. Cl. 195—120 **11 Claims**

A method for growing monocultures wherein a strip of a nutrient material covered by a protective film is inoculated with micro-organisms by removing a portion of the film from the strip, inoculating the film with the micro-organisms, spreading the micro-organisms to separate them from each other, and moving the inoculated film back into contact with the strip to cause the separated micro-organisms to be transferred onto the same. The spreading of the micro-organisms on the film is accomplished by moving a spreading member along the spiral path which intersects an arcuate swath containing a mass of such micro-organisms. A technique for casting the strip with and without an associated antibiotic layer is also disclosed.

3,788,952
APPARATUS FOR CONTROLLING THE FERMENTATION OF VOLATILE ORGANIC COMPOUNDS
Yutaka Iida, Tokyo, and Kazuo Hishinuma, Motohiko Hikuma, Tadashi Shirakawa, and Susumu Sakai, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
Continuation-in-part of abandoned application Ser. No. 82,473, Oct. 20, 1970. This application Jan. 13, 1971, Ser. No. 106,060
Claims priority, application Japan, Oct. 27, 1969, 44/85,841
Int. Cl. C12k *1/00*
U.S. Cl. 195—127 **3 Claims**

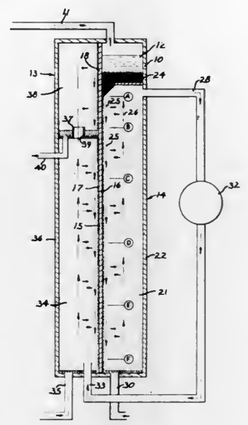
A fermentation process in which an organic compound volatile with water vapor is consumed by a microorganism or an enzyme in an aqueous medium is controlled by continuously sampling the medium, vaporizing the sample stream, and feeding the vaporized material to a flame ionization detector. The conductivity of the flame indicates the concentration of the organic compound in the medium and provides a signal for controlling replenishment of the medium with the organic compound.

3,788,953
TURBULENCE PROMOTOR SYSTEM
Arthur L. Kohl, Woodland Hills, Calif., assignor to the United States of America as represented by the Secretary of the Interior
Filed Apr. 5, 1971, Ser. No. 131,232
Int. Cl. B01d *3/00, 3/02, 3/14*
U.S. Cl. 202—173 **6 Claims**



In a direct contact condensation system wherein vapor condenses upon a flowing shallow stream of cooler liquid, the flow of the uppermost layer of the liquid stream is disrupted without disrupting the flow of the main body of the stream so as to agitate and turn over the uppermost layer, and move the uppermost layer downward to a region where the natural turbulence of the flowing stream will further agitate and break up said layer.

3,788,954
INTERPHASE MASS TRANSFER PROCESS FROM LAMINA FLOWING FILMS .005 IN. THICK
C. M. Cantrell, Richland, Wash., assignor of a fractional part interest to John P. Petrek, Kennewick, Wash.
Filed June 24, 1970, Ser. No. 49,419
Int. Cl. B01d *1/22, 3/00, 3/02, 3/08, 3/10, 3/28*
U.S. Cl. 203—89 **17 Claims**



An interphase mass transfer process and apparatus is described for separating components in a binary or multicomponent fluid in which the components have different vapor pressures and are transferred between their liquid and vapor phases. The liquid phase is spread into a film on a heat transfer surface and is directed over the surface in one direction. The vapor phase is directed over the film countercurrent to the flow and in intimate contact with the film with the liquid and vapor phases being in thermodynamic equilibrium. Simultaneously, heat is transferred between the surface and the film to transfer additional mass between the phases as the phases are flowing in thermodynamic equilibrium countercurrent to each other.

3,788,955
ENCAPSULATION
Nelson A. Crites and Glenn R. Schaer, Columbus, Ohio, assignors to Battelle Development Corporation, Columbus, Ohio
No Drawing. Continuation-in-part of abandoned application Ser. No. 117,059, Feb. 19, 1971. This application Oct. 7, 1971, Ser. No. 187,560
Int. Cl. B01i *13/02;* **C23b** *5/56, 17/00*
U.S. Cl. 204—25 **26 Claims**

Encapsulation of liquids with metal. A core liquid is dispersed in a carrier liquid in which it is essentially insoluble (one of the liquids being aqueous), in a container whose surface is phobic to the core liquid. Metallizing and reducing compounds are added. Nucleating metal is deposited at the interface between the liquids by introducing a surfactant-type metal-organic compound of the hydrophobic-hydrophilic type having a more readily oxidizable metal ion than the metal of the metallizing agent, so that molecules of the surfactant align themselves at the interface and present their metal ions to the aqueous liquid to nucleate deposition of metallizing ions. In one embodiment, the metallizing materials are disposed to deposit a noble metal at the interface, and the resulting noble-metal-coated capsules are subsequently over-coated with one or more layers of a non-noble metal by electrodeposition.

3,788,956
ELECTROLYTIC COLORING OF ANODIZED ALUMINUM

Jos Patrie, Grenoble, Jacques Lefebvre, Voiron, Roger Segond, Saint-Cloud, and Michel Badia, Echirolles, France, assignors to Cegedur Societe de Transformation de l'Aluminum Pechiney, Paris, France

No Drawing. Filed June 23, 1972, Ser. No. 265,653
Claims priority, application France, June 25, 1971, 7123388; Sept. 10, 1971, 7132743
Int. Cl. C23b *9/02*
U.S. Cl. 204—35 N **9 Claims**

This invention is addressed to a process for electrochemically coloring anodized articles of aluminum or alloys of aluminum by electrolytic deposition of heavy metals or heavy metal compounds, comprising mounting the article in a bath of an aqueous solution of a given metal sulfamate and passing a direct current through the bath.

3,788,957
ELECTRODEPOSITION OF CHROMIUM

Ian Robert Arthur Christie, Twickenham, and John Joseph Bernard Ward, Welling, England, assignors to International Lead Zinc Research Organization, Inc., New York, N.Y.

No Drawing. Filed Oct. 2, 1972, Ser. No. 293,860
Claims priority, application Great Britain, Sept. 30, 1971, 45,669/71
Int. Cl. C23b *5/06, 5/46*
U.S. Cl. 204—51 **13 Claims**

An improved method and an improved electrolyte solution for providing a chromium coating on a metal substrate. The metal coatings are provided by electrodepositions from solutions comprising water, dimethylformamide, trivalent chromium ions, halide ions, ammonium ions, and a cationic surfactant selected from the group consisting of tetraalkylammonium salts and substituted imidazoline.

3,788,958
AQUEOUS ELECTROLYTIC STRIPPING BATH

Horst Dillenberg, 26 Kaiser-Wilhelm-Allee, 56 Wuppertal-Elberfeld, Germany

No Drawing. Filed June 1, 1972, Ser. No. 258,675
Claims priority, application Germany, June 23, 1971, P 21 31 078.1
Int. Cl. B01k *1/00;* **C22b** *1/20*
U.S. Cl. 204—146 **4 Claims**

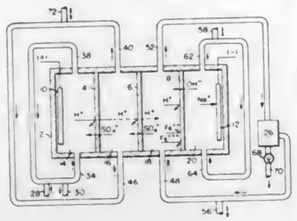
An aqueous bath for the electrolytic stripping of coatings of silver, gold, chromium or nickel oxide from support bodies made of copper, copper alloy, tin alloy, stainless steel or high temperature alloys, the bath comprising as a main component over 80% sulfuric and/or sulfonic acid and as an additional component, an alcohol such as methanol or ethanol which does not enter into an olefin binding with sulfuric or sulfonic acid. Preferably the bath contains from about 800 up to about 940 cc. sulfuric and/or sulfonic acid and about 200 down to about 60 cc. alcohol per liter of bath and may contain as a further additional component, an aromatic hydrocarbon compound with at least one nitro group (—NO_2) bound directly to the benzene nucleus such as mononitrobenzene, trinitrobenzene, mononitrotoluene and/or nitrobenzoic acid.

3,788,959
ELECTRODIALYTIC RECOVERY OF ACID AND INSOLUBLE PRODUCTS FROM SPENT LIQUORS

Richard N. Smith, East Norwalk, Conn., assignor to Sybron Corporation, Rochester, N.Y.

Filed May 5, 1972, Ser. No. 250,625
Int. Cl. B01d *13/02;* **C02c** *5/12*
U.S. Cl. 204—180 P **40 Claims**

A multi-chambered electrodialytic apparatus and process are used to recover excess free acid and to regenerate and concentrate acid from spent liquors, e.g., spent pickle liquors. Sulfuric acid and hydrochloric acid are recovered and regenerated from their respective iron and steel pickle liquors along with oxides and hydroxides of iron. Efficiency for the recovery of the sulfuric or hydrochloric acids from the spent pickle liquor is greatly improved by using an electrodialytic apparatus having in sequence

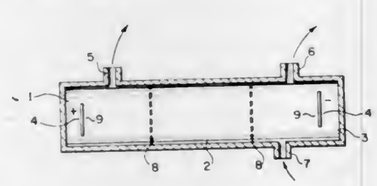


an anode chamber, at least one concentrating chamber, a spent liquor chamber and a cathode chamber. A sequestrant is used in the catholyte to prevent membrane fouling. Other values are recovered depending upon the makeup of the spent liquors.

3,788,960
RECYCLING OF ION EXCHANGE REGENERANT CHEMICALS

Arvind S. Patil, Columbia, Md., and John Jacob Singer, Jr., Hollis, N.H., assignors to W. R. Grace & Co., New York, N.Y.

Filed Feb. 16, 1973, Ser. No. 333,417
Int. Cl. B01d *13/02;* **C01f** *11/14*
U.S. Cl. 204—180 P **6 Claims**



A method of recycling ion exchange regenerant chemicals which comprises electrolyzing the regenerant chemicals in a three-compartment cell in a manner such that the calcium, magnesium, and other impurity metal ions are precipitated and can be removed. The resulting sodium chloride solution is then recycled into the system.

3,788,961
PLASTIC COATINGS FOR ARTICLES AND A METHOD OF PRODUCING SAME

Alan Buxton, Leamington Spa, England, assignor to Associated Engineering Limited, Leamington Spa, England

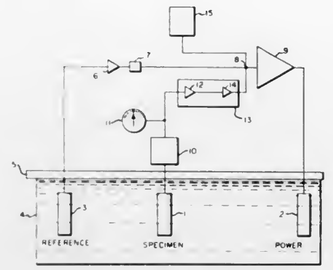
No Drawing. Filed Apr. 30, 1971, Ser. No. 139,177
Claims priority, application Great Britain, May 11, 1970, 22,741/70
Int. Cl. B01k *5/02;* **C23b** *13/00*
U.S. Cl. 204—181 **4 Claims**

A method of producing a plastic coating on an article is disclosed which consists in arranging the article as the anode immersed in an electrolyte in an electrophoretic cell, the electrolyte including a codispersion of the plastic and a finely divided solid, passing an electric current through the cell until an adequately thick layer of the intermixed plastic and solid has been deposited on the article, drying the article and the deposited layer and heating the layer until it fuses or coalesces.

3,788,962
APPARATUS FOR MONITORING THE CORROSION RATE OF METAL BY THE POLARIZATION RESISTANCE METHOD

John Parsons Frenck, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 11, 1971, Ser. No. 197,876
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 C **1 Claim**

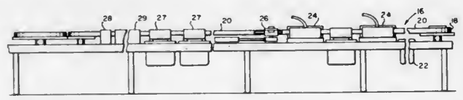


An apparatus for monitoring the corrosion rate of metal in a plant stream by its polarization resistance featuring automatic means to reduce current flow through a metal specimen electrode before subjecting it to programmed polarization potentials. Spurious signals due to circuit oscillation are limited by using a current-to-voltage transducer that introduces essentially zero impedance in the current circuit to produce a functional voltage proportional to specimen electrode current. The functional voltage indicates corrosion rate by meter and alarm, and is inverted and amplified at moderate gain to provide an automatic current reduction signal through an isolating sample-and-hold circuit. By a timing sequence the summing point of an operational amplifier receives both an input proportional to the inverted and amplified functional voltage and a continuously transmitted reference voltage from a freely corroding reference electrode during a first time period. Additional programmed polarization voltages are introduced for summing during a second time period to establish polarization resistance. Circuit stability resulting from the use of low impedance components and restricted transmission of oscillations between circuit loops permits reliable monitoring of the corrosion of a wide variety of troublesome passive metals that form thin oxide films of high electrical capacity.

3,788,963
APPARATUS FOR INTERMITTENT ELECTROPLATING STRIPS

Leo N. Kosowsky, Sharon, and Curtis N. Lovejoy, Walpole, Mass., and John G. Cunniff, Foster, R.I., assignors to Auric Corporation, Newark, N.J.

Filed Jan. 13, 1972, Ser. No. 217,508
Int. Cl. C23b *5/68*
U.S. Cl. 204—206 **19 Claims**

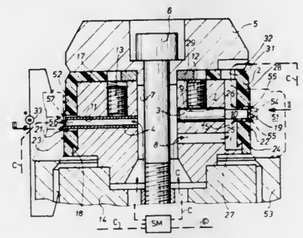


Apparatus for electroplating selected areas on consecutive segments of metal strip, the apparatus comprising means to advance the strip, means for isolating inertial movement of the strip to hold the strip in a fixed position at all times advancement is not required, and an electroplating cell formed of two parts adapted to clamp together hydraulically isolating all but the aforesaid selected areas from contact with the electroplating fluid. In one embodiment of the invention there is an electronic means to sense whether the proper advancement of the strip has been achieved.

3,788,964
ARRANGEMENT FOR ELECTRO-CHEMICAL TREATMENT OF AN ELECTRICALLY CONDUCTIVE WORKPIECE

Hanns Kurz, Stuttgart, and Siegfried Linder, Ditzingen, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Apr. 26, 1972, Ser. No. 247,620
Claims priority, application Germany, Apr. 29, 1971, P 21 21 110.9
Int. Cl. B01k *3/04;* **B23p** *1/02, 1/12*
U.S. Cl. 204—224 M **8 Claims**



An electrically insulating sleeve is dimensioned so that it can be accommodated in a bore of an electrically conductive workpiece with the latter having one or more recesses extending from the surface bounding the bore. The sleeve engages the bore surface tightly in the region of the open end of the bore and also about the recess or recesses. The sleeve has an aperture associated and adapted to be placed in registry with each recess, and an electrically conductive working electrode is to be at least in part accommodated in this sleeve. The electrode has a passage for each of the apertures, being longitudinally aligned with the same and accommodating an electrically conductive insert slidable between a retracted position and a plurality of advanced positions in each of which the insert extends to different depths into the aperture. A source of DC current is connected with its negative pole with the working electrode and with its positive pole with the workpiece and a supply arrangement circulates a flow of liquid electrolyte in a path which includes the passage or passages and insert.

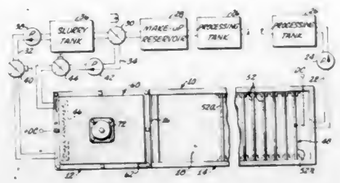
3,788,965
HYDROMETALLURGICAL SOLUBILIZER WITH SELECTIVE ELECTROPLATING MECHANISM

Wilmar G. Holsinger, Phoenix, Ariz., assignor to 2C-2B Corporation, Phoenix, Ariz.

Filed Apr. 7, 1972, Ser. No. 242,086
Int. Cl. B01k *3/00, 3/10*
U.S. Cl. 204—234 **12 Claims**

A container of conductive solution is divided into a first compartment and a second compartment by an inert permeable barrier. The solution is electrochemically activated to produce and control the pH of an acidic solution within the first compartment and a basic solution within the second compartment. Pulverized ore is deposited within the acidic compartment and reacts therein with the acid to solubilize the metals and most metal compounds contained within the ore. The solubilized metal

compounds are carried through the barrier into the basic compartment by ionic flow and fluid flow. A plurality of metal plates are located within the basic chamber for



plating out a selected one of the metals as determined by the chemical composition of the solution and the voltage drop across each of the plates.

3,788,966

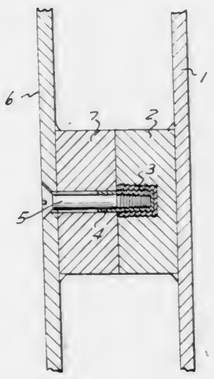
ELECTRICAL CONNECTIONS FOR METAL ELECTRODES

Orlando W. Stephenson III, Ann Arbor, and John E. Schmidt, Southgate, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed June 7, 1972, Ser. No. 260,394

Int. Cl. B01k *3/10*

U.S. Cl. 204—256 **6 Claims**



The joining in electrical connection under corrosive conditions of a part made of titanium and a part made of steel by the use of engaging threads or lugs is difficult. However if each part is first coated with a layer of softer but compatible non-oxidizing metal, then the two parts can be joined together in a tight electrical/mechanical joint. A typical system is a platinum coating for titanium and either silver or nickel under copper for steel.

3,788,967

WASTEWATER TREATMENT USING ELECTROLYSIS WITH ACTIVATED CARBON CATHODE

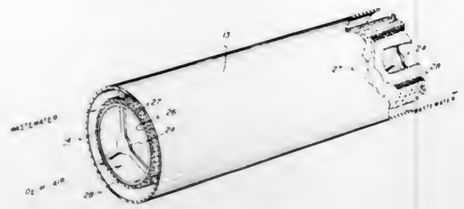
Masayuki Kawahata, Scotia, and Kenneth R. Price, Schenectady, N.Y., assignors to General Electric Company

Original application Feb. 3, 1969, Ser. No. 795,917. Divided and this application Oct. 20, 1971, Ser. No. 191,103

Int. Cl. B01k *3/08*

U.S. Cl. 204—277 **3 Claims**

An improvement in the electrolytic treatment of wastewater is described in which the reduction of oxygen on an activated carbon cathode is employed to form hydrogen peroxide, which in turn serves to oxidize organic carbon pollutants in the wastewater. The oxygen is fed to the activated carbon cathode from outside the electrolytic



cell, with the cathode member defining at least part of the enclosure for feeding the gas to the activated carbon cathode surface, and with the cathode surface forming part of the boundary of the cell compartment.

3,788,968

LAYERED ELECTRODE

Jürgen Müller, Frankfurt am Main, and Karl Lohrberg, Heusenstamm, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,847

Claims priority, application Germany, Jan. 8, 1971, P 21 00 652.0

Int. Cl. B01k *3/06;* **C01b** *11/26*

U.S. Cl. 204—290 R **4 Claims**

An electrode, especially useful as an anode in the electrolysis of alkali metal chlorides, includes a graphite body, a first surface covering of a hard ceramic such as titanium carbide or titanium nitride and at least one metal and/or metal oxide of the platinum group and a second oxide coating which is electrically porous and resistant to the electrolysis conditions.

3,788,969

Vittorio Di Stefano and Paolo Marini, Rome, Italy, assignors to Centro Sperimentale Metallurgico S.p.A., Rome, Italy

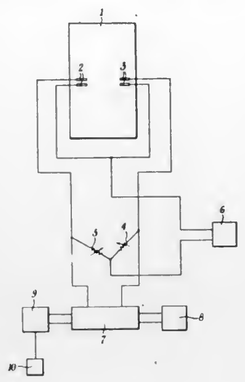
Filed July 26, 1971, Ser. No. 166,114

Claims priority, application Italy, Sept. 4, 1970, 53,219/70

Int. Cl. B01k *5/00*

U.S. Cl. 204—299 **11 Claims**

A quantitative analyzing device for liquid-solid chromatography or electrophoresis, comprising a sensitive element detecting variations of a characteristic value of the chromatographic layer-eluent-eluate system, which value is a function of the concentration of the eluate in the eluent, a rigid protecting support, where said sensitive element is inserted, and wherein the contact between said sensitive element and the chromatographic layer is effected by means of said support. Method for the quantitative determination of chemical species separated by liquid-solid chromatography or electrophoresis, wherein a flow of a liquid eluent medium, or, respectively, a potential difference, is set on a solid chromatographic layer, the flow quantity and the distribution of said eluent on said layer is stabilized, the mixture to be analyzed is introduced and the chromatographic or electrophoretic separation of the components of said mixture is allowed to occur, the quantitative determination of one of them being performed, while the elution process is in progress, by means of the measurement of the variations of a value which is a function of the chemical species concentration in the eluent, said measurement being performed in a limited zone of the chromatographic layer and said concentration variations of the chemical species



under examination occurring because of the passage of said species in said zone of the chromatographic layer.

3,788,970

COKE SUPPRESSING ADDITIVE

Reese A. Peck and Raymond F. Wilson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 787,566, Dec. 27, 1968, now Patent No. 3,591,484. This application June 24, 1970, Ser. No. 49,513

Int. Cl. C10c *3/04*

U.S. Cl. 208—22 **5 Claims**

A coke suppressing additive is prepared by contacting an oxidized heavy hydrocarbon fraction with an aromatic polycarboxylic acid and/or anhydride producing compound in the presence of an oxidant followed by treatment with hydrogen. The additive is particularly useful for suppressing coke formation in a hydrocracking process.

3,788,971

PRODUCTION OF HIGH QUALITY BLENDED JET FUELS

Merritt C. Kirk, Jr., Thornton, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 799,499, Feb. 14, 1969, now Patent No. 3,594,307. This application Feb. 3, 1971, Ser. No. 112,465

Int. Cl. C10l *1/04*

U.S. Cl. 208—57 **8 Claims**

A low smoke point (e.g., 29) jet fuel can be used to produce a higher smoke point fuel (e.g. 40+) by blending with an additional more highly paraffinic fuel (e.g. high in C_{10}–C_{12} normal paraffins) boiling mainly within the fuel oil boiling range (e.g. 10% point of at least 270° F. and 90% point less than 540° F.). A preferred group of paraffinic fuels comprises n-decane, n-dodecane, hydrogenated butylene and/or propylene polymers (e.g. trimer, tetramer) preferably hydrogenated propylene "tetramer" boiling mainly above 350° F. (e.g. 10% point of 360° F.). The preferred 29+ smoke point fuel for blending with n-dodecane or hydrogenated propylene tetramer is obtained by a two stage hydrogenation of a paraffinic straight run kerosene having an API gravity of at least 42, and containing 12–16 weight percent aromatics and at least 45 weight percent paraffins. The blended fuel also can have a desirably low freeze point. The n-paraffins can also be obtained by molecular sieve separation from a kerosene fraction.

3,788,972

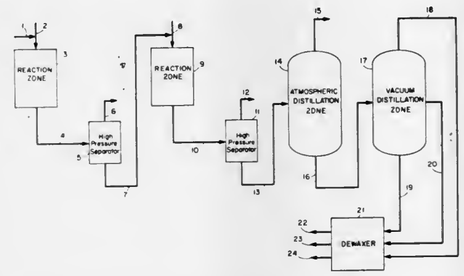
PROCESS FOR THE MANUFACTURE OF LUBRICATING OILS BY HYDROCRACKING

H. Clarke Henry and John B. Gilbert, Sarnia, Ontario, Canada, and John Sosnowski, Westfield, N.J., assignors to Esso Research and Engineering Company

Filed Nov. 22, 1971, Ser. No. 200,854

Int. Cl. C01b *33/28;* **C10g** *37/02*

U.S. Cl. 208—59 **18 Claims**



Lubricating oils having UV stability, low color intensity and uniform viscosity index (VI_E) distribution are prepared from hydrocarbon feedstocks in a two-stage process in which the feedstock is first hydrogenated and mildly hydrocracked over a first hydrocracking catalyst, and then further hydrogenated and hydrocracked over a second hydrocracking catalyst mixture comprising (1) an amorphous base component, (2) a crystalline aluminosilicate component preferably comprising 10–30 wt. percent of the total catalyst and having a SiO_2:Al_2O_3 mole ratio of at least 2.5 and an alkali metal content of less than about 2.0 wt. percent (as alkali oxide) and (3) a transition metal hydrogenation component.

3,788,973

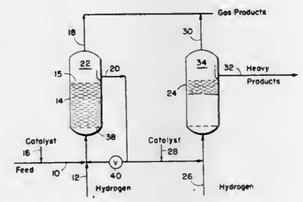
HIGH CONVERSION HYDROGENATION

Ronald H. Wolk, Lawrence Township, Mercer County, and Michael C. Chervenak, Pennington, N.J., and Seymour B. Alpert, Los Altos, Calif., assignors to Hydrocarbon Research, Inc., New York, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,615

Int. Cl. C10g *9/16, 31/14, 37/02*

U.S. Cl. 208—59 **4 Claims**



A high conversion hydrogenation process for converting a petroleum residuum having at least 25 percent by vol-

ume boiling above 975° F. to material boiling below 975° F. takes place in a series of ebullated bed reactors. At least 65 percent of the metals in the residuum fed to the first reactor is deposited on the catalyst in the first reactor. The reactors are operated within 25° F. of one another to accomplish this. The ratio of the products boiling in the 392° to 750° F. range is maintained at less than twice that of the products boiling in the C_4 to 392° F. range.

3,788,974

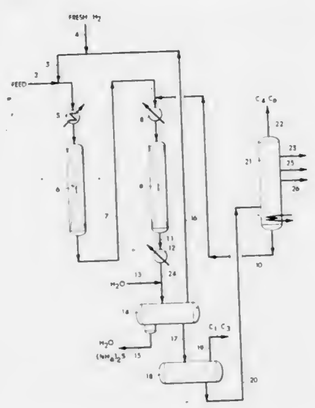
HYDROCRACKING PROCESS UTILIZING MIXED NONNOBLE METAL CATALYST

Fred J. Buchmann and Clarence M. Eidt, Jr., Baton Rouge, Ralph B. Mason, Denham Springs, and Glen P. Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company

Continuation of application Ser. No. 850,680, Aug. 15, 1969, which is a continuation-in-part of application Ser. No. 640,859, May 24, 1967. This application June 13, 1972, Ser. No. 262,223

Int. Cl. C01b *33/28;* **C10g** *37/02, 13/06*

U.S. Cl. 208—59 **15 Claims**



A hydrocracking process which uses a mixed nonnoble metal catalyst composite on a crystalline aluminosilicate zeolite cracking bar. The singular catalyst employed in the process comprises nickel-tungsten on the hydrogen form of a crystalline aluminosilicate zeolite having a uniform pore diameter, a crystal structure that of faujasite and a silica to alumina mole ratio greater than about 3.

3,788,975

SIMULTANEOUS PRODUCTION OF AROMATIC HYDROCARBONS AND ISOBUTANE

George R. Donaldson, Tower Lakes, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Sept. 30, 1971, Ser. No. 185,025

Int. Cl. C10g *37/10*

U.S. Cl. 208—60 **4 Claims**

A naphtha boiling range charge stock is converted into aromatic hydrocarbons and isobutane via a combination process involving hydrocracking, separation and catalytic reforming. The charge stock is initially subjected to a novel form of hydrocracking to produce a product predominantly comprising naphthenic hydrocarbons and highly branched paraffins, the majority of the latter being isobutane. Following separation to recover the isobutane and to provide a heptane-plus normally liquid stream, catalytic reforming is utilized to dehydrogenate the naphthenic compounds in the latter to produce an aromatic concentrate.

3,788,976

MULTI-STAGE PROCESS FOR PRODUCING HIGH UR OIL BY HYDROGENATION

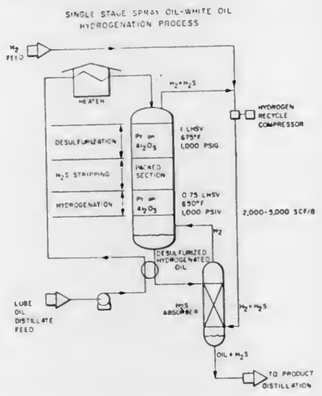
Merritt C. Kirk, Jr., Thornton, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 16,495, Mar. 4, 1970, now Patent No. 3,673,078, dated June 27, 1972. This application May 18, 1972, Ser. No. 255,874

The portion of the term of the patent subsequent to June 27, 1989, has been disclaimed

Int. Cl. C10g *23/04*

U.S. Cl. 208—89 **9 Claims**



Refined mineral oils (useful as textile oils, white oils and agricultural spray oils) which have a viscosity in the lubricating oil range and a volume percent unsulfonated residue (UR) of at least 94.5 (typically at least 96) are produced from a dewaxed raffinate of a distillate oil, preferably a substantially wax-free distillate, obtained from a crude oil classified as paraffinic or mixed-base by ASTM viscosity-gravity constant (VGC). One preferred distillate is a de-waxed raffinate having a UR less than 93. A preferred process for producing such a refined mineral oil (with a UR of at least 96) comprises (a) introducing a mineral oil distillate of lubricating viscosity into a reaction vessel containing a first reaction zone, a second reaction zone and an intermediate zone between said first and said second reaction zones; (b) contacting said distillate in said first zone with a hydrogen-rich gas and a catalytic amount of a sulfur-resistant hydrogenation catalyst to desulfurize said distillate; (c) passing the distillate from said first zone to said intermediate zone containing therein a packing material which is substantially inert to hydrogenation and wherein the flow of hydrogen is countercurrent to the flow of distillate whereby hydrogen sulfide which was formed in said first zone is stripped from said distillate; (d) contacting the desulfurized distillate in said second zone with hydrogen and a hydrogenation catalyst; (e) said contacting steps in said first and said second zones being conducted at a temperature of about 550 to 750° F. and a pressure in the range of 500–6000 p.s.i.g.; and (f) withdrawing mineral oil product from said second zone having an unsulfonatable residue of at least 96.

3,788,977

HYDROCARBON CRACKING WITH BOTH AZEOLITE AND Pt-U-ALUMINA IN THE MATRIX

Geoffrey E. Dolbear, Columbia, and John S. Magee, Jr., Cooksville, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 78,156, Oct. 5, 1970, and Ser. No. 92,917, Nov. 25, 1970, both now abandoned. This application June 1, 1972, Ser. No. 258,646

Int. Cl. B01j *9/20;* **C01b** *33/28;* **C10g** *11/00*

U.S. Cl. 208—120 **3 Claims**

Uranium oxide and platinum metal impregnated upon an inorganic oxide support is added to conventional zeolite promoted cracking catalyst to increase the formation of aromatics in conventional hydrocarbon cracking reactions.

3,788,978

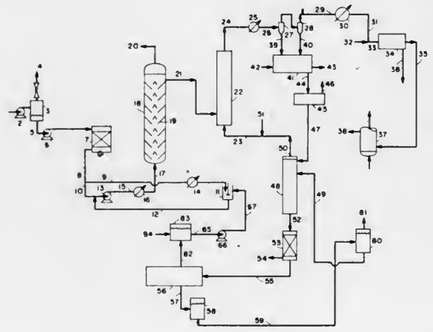
PROCESS FOR THE DESULFURIZATION OF PETROLEUM OIL STOCKS

Roby Bearden, Jr., Baton Rouge, La., Robert B. MacMullin, Lewiston, N.Y., William E. Lewis, Baton Rouge, La., and Albert B. Welty, Jr., Westfield, N.J., assignors to Esso Research and Engineering Company

Filed May 24, 1972, Ser. No. 256,547

Int. Cl. C10g *17/00, 19/00*

U.S. Cl. 208—208 M **23 Claims**



Low sulfur-content petroleum oil stocks are prepared by contacting a sulfur-containing oil stock with an alkali metal, preferably sodium, or an alkali metal alloy, preferably sodium/lead, to produce a mixture comprising a low sulfur oil and a mixture of alkali metal salts dispersed therein. The mixture of salts in oil is resolved by contacting the same with, preferably, 30–160 mole percent hydrogen sulfide based on total moles of salt in the oil, at a temperature of about 670° F. or above whereupon a salt phase separates from the oil. Thus separated the salt is blended with a molten sulfur-rich alkali metal polysulfide thereby forming a sulfur-depleted alkali metal polysulfide and liberating hydrogen sulfide. In another embodiment of the invention, molten sulfur may be used in place of the polysulfide. The sulfur-depleted polysulfide is then decomposed electrolytically to reform alkali metal and a sulfur-rich polysulfide, from which elemental sulfur is recovered.

3,788,979

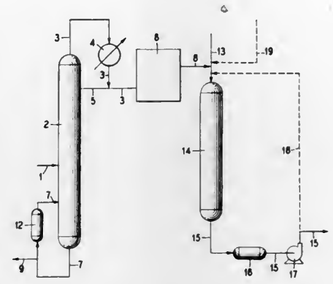
PROCESS FOR UPGRADING DRIPOLENE

Edward G. Caflisch, South Charleston, Denvil E. Reed, Jr., Charleston, and Kenneth D. Williamson, St. Albans, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 8, 1971, Ser. No. 187,690

Int. Cl. C07c *11/00*

U.S. Cl. 208—255 **10 Claims**



A process for providing a high octane blending component for gasoline from dripolene feedstocks containing dimers and codimers of cyclopentadiene and various methyl derivatives thereof by distilling, cracking, and hydrogenating under defined conditions including the use of an oxygen-free atmosphere and limited residence times in the distilling and cracking steps whereby hydrogenated monomers of the dimers and codimers are obtained in the dripolene thus upgrading it.

3,788,980

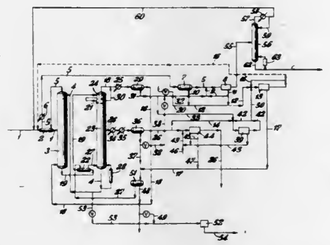
PROCESS FOR THE SEPARATION OF AROMATIC HYDROCARBONS FROM A MIXED HYDROCARBON FEEDSTOCK

Daniel John Kubek, North Tarrytown, Alexander Jean-Marie Kosseim, Yorktown Heights, and George Solomon Somekh, New Rochelle, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 21, 1971, Ser. No. 210,514

Int. Cl. C10g *21/16*

U.S. Cl. 208—333 **16 Claims**



The process involves a combination of solvent extraction-steam distillation for the recovery of aromatic hydrocarbons from a mixed feedstock. The feedstock is contacted with a solvent-water mixture at temperatures in the range of about 75° C. to 200° C. and the extract and

raffinate streams are separated into their components. The purity of the aromatics recovered from the extract is improved by introducing light aliphatic hydrocarbons consisting essentially of aliphatic and cycloaliphatic hydrocarbons having 6 carbon atoms with the feedstock at the middle theoretical stage of the extraction column. The light aliphatics are introduced in amounts in the range of 5 to 12 percent, based on the weight of the feedstock.

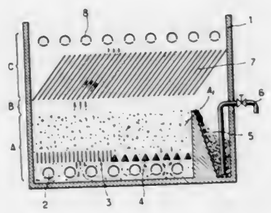
ERRATA

For Classes 210—59 and 210—23 see:
Patents Nos. 3,788,468 and 3,788,469

3,788,981
METHOD AND APPARATUS FOR TREATING LIQUIDS

Yves Robert Richard, Marly le Roi, and Jean Marcel Mignot, Meudon, France, assignors to Degremont Societe Generale d'Epuration et d'Assainissement, Rueil Malmaison, France

Filed Mar. 30, 1972, Ser. No. 239,470
Claims priority, application France, Apr. 2, 1971, 7111693
Int. Cl. B01d *37/04*
U.S. Cl. 210—20 **7 Claims**

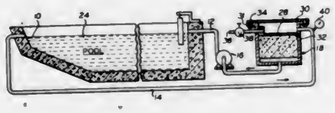


The method and apparatus of this invention make it possible to increase to 6 to 10 m./h. the upward flow rate of liquid to be treated in a single vessel according to the sludge-bed decantation process. The liquid is introduced homogeneously at the bottom of the vessel, so that it rises in lamellar fashion through the sludge and then through a separating section followed by an overlying finishing area comprising clusters of tubes, grids, grates, plates, for separating the entrained particles from the treated liquid.

3,788,982
COLOR CONTROL OF WATER THAT IS RECIRCULATED

Frank J. Zsoldos, Jr., 73 Florence Ave., Denville, N.J. 07834, and Anna Kowalski, 49 Meadowview Ave., Rockaway, N.J. 07866

Continuation-in-part of abandoned application Ser. No. 17,705, Mar. 9, 1970. This application Jan. 18, 1972, Ser. No. 218,712
Int. Cl. B01d *37/02*
U.S. Cl. 210—24 **7 Claims**



When water is confined in a large open tank and constantly recirculated through conventional filters as for example in swimming pools and aquariums, problems often arise due to the inadequacy of conventional filters that permit the slow accumulation therein at fractional parts per million levels, of the common heavy metal salts such as those of iron, copper and manganese and also the accumulation of microscopic planktonic algae which proceed to compromise the color and clarity of the water and additionally resulting in the staining of the main tank itself.

This invention adsorbs soluble ferrous, manganous, and cupric salts and planktonic algae from the water by augmenting conventional sand, carbon or diatomaceous earth filters with a special layer of adsorbent material consisting of a mixture of activated alumina and zinc dust. This adsorption is accomplished even in hard water without the concomitant removal of such hardness and thereby refraining from increasing the aggressiveness and corrosiveness of such water as regards the marbelized interiors of swimming pools or the metal plumbing of same.

3,788,983
SELECTIVE SEPARATION OF CYANIDE FROM WASTE STREAMS BY ADSORPTION PROCESS

William Fries, Southampton, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Jan. 26, 1972, Ser. No. 221,040
Int. Cl. C02b *1/62;* **C02c** *5/02*
U.S. Cl. 210—28 **9 Claims**

This invention relates to the purification of industrial effluents and waste effluents in general, which contain cyanides. More particularly, the invention relates to the detoxification of such effluents by a treatment with a metallic ion which forms stable anionic complexes of cyanide, and the complete and selective removal of said complexes by an anion exchange resin.

3,788,984
METHOD OF REMOVING OIL SPILLS

James Teng, St. Louis, James M. Lucas, Crestwood, and Richard E. Pyler, Shrewsbury, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

No Drawing. Filed Jan. 24, 1972, Ser. No. 220,385
Int. Cl. C02b *9/02*
U.S. Cl. 210—30 **9 Claims**

This disclosure covers a method of removing spilled oil from water surfaces without further injuring the environment, by applying a carbohydrate fatty acid ester in powder, fibrous, or granule form to the oil covered surface. The preferred ingredient is cellulose acetate. The additive is non-toxic, bio-degradable, water insoluble, and is not degraded by the acids in petroleum fuels. The additive is sprinkled on the surface of the oil coated water and after absorbing many times its weight in oil is easily removed. The picked up oil is easily removed from the cellulose acetate and up to 95% recovery of spilled oil is possible. The cellulose acetate also can be reused.

Cottonseed hulls and sawdust as the starting cellulose material are desirable because of low cost and the enhanced oil absorbing character of the resulting acetate.

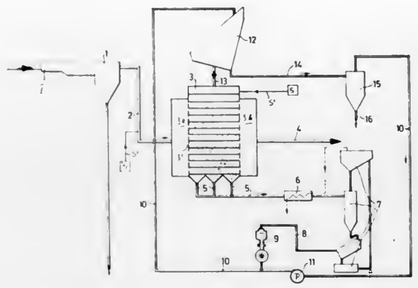
3,788,985
METHOD OF CLEANING SOLIDS-CONTAINING SEWAGE

Harald Jüntgen, Karl Knoblauch, and Dieter Zündorf, Essen, and Günther Gappa, Gelsenkirchen, Germany, assignors to Bergwerksverband GmbH, Essen, Germany

Filed Dec. 2, 1971, Ser. No. 204,043
Claims priority, application Germany, Dec. 16, 1970, P 20 61 877.3
Int. Cl. B01d *15/02*
U.S. Cl. 210—33 **12 Claims**

A mass of particulate adsorbent matter, such as activated carbon, is advanced at two speeds in a reactor from

the inlet to the outlet thereof, being continuously recirculated to the inlet. Into this moving column of adsorbent matter is admitted, transversely to the direction of movement of the column, a stream of sewage distributed



over at least substantially the length of the column. Solids are retained in a portion of the moving column advancing at a first speed and at the side opposite the entry side clarified liquid issues from the column.

3,788,986
PRODUCTION OF NITROGEN- AND PHOSPHORUS-CONTAINING COMPOUNDS

Brian Garner Bennett, Liverpool, and William Samuel Holmes, Wolverhampton, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England

No Drawing. Filed Sept. 13, 1972, Ser. No. 288,869
Int. Cl. C05b *7/00*
U.S. Cl. 252—1 **10 Claims**

Nitrogen- and phosphorus-containing compounds, containing in particular amido phosphates, can be prepared by a two stage process from liquid ammonia and solid phosphorus pentoxide. First a dispersion of solid phosphorus pentoxide in liquid ammonia is formed by adding the phosphorus pentoxide to liquid ammonia with agitation so as to keep local temperatures below 100° C. Secondly the reaction is, after completion of the addition of phosphorus pentoxide is complete, allowed to proceed at a temperature in the range 30–100° C. Typically the products have an N:P ratio in the range 2.4 to 2.6:1. They may be employed as animal feed supplements or plant growth regulants or as intermediates in the production of flame retardant chemicals.

3,788,987
SOLID LUBRICANT ADDITIVES DISPERSED IN PERFLUOROALKYL ETHERS WITH PERFLUOROALKYL ETHER ACID DISPERSANTS

Philip Lee Bartlett, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 30, 1970, Ser. No. 76,979
Int. Cl. C10m *3/02, 3/24*
U.S. Cl. 252—25 **10 Claims**

Stable dispersions consisting essentially of from about 0.05 to about 10% by weight of a solid additive, from about 70 to 99.9% by weight of a polymeric hexafluoropropylene oxide fluid and from about 0.005 to about 20% by weight of a dispersing agent having the formula

$$R'_fO[CF(CF_3)CF_2O]_yCF(CF_3)COOH$$

wherein R'_f is a perfluoroalkyl radical having from 1 to 6 carbon atoms and y is from about 3 to about 40 and the process of preparing these dispersions by dispersing the solid additive in the hexafluoropropylene oxide fluid in the presence of the dispersing agent.

3,788,988
LUBRICANT COMPOSITIONS FOR THE COLD SHAPING OF METALS

Jean Dubourg, Sotteville-les-Rouen, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 28, 1972, Ser. No. 238,953
Claims priority, application France, Mar. 29, 1971, 7110932
Int. Cl. C10m *1/36, 1/46*
U.S. Cl. 252—32.5 **11 Claims**

A lubricating composition, suitable for cold working metals, comprise (i) an amide phosphate which is a reaction product of ortho-phosphoric acid or mono or diester thereof and an amide derived from an aliphatic carboxylic acid having at least 12 carbon atoms or a resin acid and a primary or secondary aliphatic amine and (ii) a surface active agent. The composition may be prepared in anhydrous form and emulsified in water prior to use or may be prepared as an aqueous emulsion.

3,788,989
MICROBIOCIDAL NAPHTHENYL IMIDAZOLINES

Phillip Adams, Murray Hill, and Alfonso N. Petrocci, Glen Rock, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 883,641, Dec. 9, 1969, now Patent No. 3,705,027. This application June 16, 1972, Ser. No. 263,682
The portion of the term of the patent subsequent to Dec. 5, 1989, has been disclaimed
Int. Cl. C10m *1/40*
U.S. Cl. 252—33 **1 Claim**

A method of preserving metal-working fluids against microorganisms by adding the compound 1-aminoethyl-2-naphthenyl imidazoline, having the structure:



wherein R is the residue of naphthene-carboxylic acid as a microbiocidal preservative agent.

3,788,990
LUBRICATING COMPOSITIONS

John Scotchford Elliott, Ian Robert Henry Crail, and Herbert Frank Askew, all of Burmah House, 57 Chiswell St., E.C. 1, London, England

No Drawing. Filed Dec. 28, 1971, Ser. No. 213,165
Claims priority, application Great Britain, Dec. 28, 1970, 61,619/70
Int. Cl. C10m *1/28, 1/40*
U.S. Cl. 252—33.4 **8 Claims**

The compositions of the invention are lubricating oils comprising a major proportion of a mineral oil of lubricating viscosity and a minor proportion of a combination of additives (a) and (b), additive (a) being a nitrogen-free random copolymer of one or more alkyl meth-

acrylates and one or more alkyl acrylates, the copolymer being composed of up to 65% alkyl acrylate units based on the total number of alkyl methacrylate and alkyl acrylate units present in the copolymer and additive (b) being an alkaline earth metal containing detergent having a total base number greater than 40.

3,788,991
METAL WORKING AGENTS
Helmut Diery, Kelkheim, Taunus, Siegbert Rittner, Frankfurt am Main, and Horst Lorke, Oberliederbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Jan. 24, 1972, Ser. No. 220,489
Claims priority, application Germany, Jan. 26, 1971, P 21 03 419.5
Int. Cl. C10m *1/34*
U.S. Cl. 252—33.6 **6 Claims**

The use of oil-free aqueous metal working agents, essentially consisting of water and

(A) 0.1 to 5.0% by weight of a water-soluble amine salt of an aryl-sulfonamido-alkylene-carboxylic acid, and
(B) 0.5 to 12.0% by weight of a water-soluble polyaddition product of ethylene oxide and propylene oxide and/or butylene oxide with a compound having 1 to 8 active hydrogen atoms

for cold rolling of iron sheet metal.

3,788,992
FUNCTIONAL FLUID COMPOSITIONS
James D. Sullivan, Chesterfield, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 796,885, Feb. 5, 1969, which is a continuation-in-part of application Ser. No. 540,488, Apr. 6, 1966, now abandoned. This application June 23, 1971, Ser. No. 156,135
Int. Cl. C10m *1/38, 1/32*
U.S. Cl. 252—47.5 **4 Claims**

Functional fluid compositions which may be polyphenyl thioethers, mixed polyphenyl oxy-thioethers and mixtures thereof containing certain pyridine compounds which compositions have improved metal compatibility and are particularly useful as aircraft engine lubricants and hydraulic fluids.

3,788,993
LUBRICATING COMPOSITIONS
Harry J. Andress, Jr., Pitman, N.J., assignor to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 222,642, Feb. 1, 1972. This application Apr. 24, 1972, Ser. No. 247,067
Int. Cl. C10m *1/32*
U.S. Cl. 252—51.5 A **10 Claims**

Hydrocarbon lubricant compositions are provided containing a minor proportion of the reaction product of at least one member of the group consisting of alkyl and alkenylsuccinic anhydrides and at least one member of the group consisting of benzotriazole and substituted benzotriazoles in a mole ratio of 1:1 to 1:2.

3,788,994
PRESSURE FIXABLE ELECTROSTATAGRAPHIC TONER
Russel E. Wellman, Pittsford, and Richard G. Crystal, Penfield, N.Y., assignors to Xerox Corporation, Stamford, Conn.
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,374
Int. Cl. G03g *9/00*
U.S. Cl. 252—62.1 **9 Claims**

Pressure and heat/pressure fixable encapsulated electrostatographic toners comprising adhesive, soft-solid core materials encapsulated in a polymeric shell material. Developer compositions employing the encapsulated toners and methods of forming visible electrostatographic toner images are also disclosed.

3,788,995
LIQUID ELECTROGRAPHIC DEVELOPERS
Frederick August Stahly and Stewart Henry Merrill, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 3, 1971, Ser. No. 149,851
Int. Cl. G03g *9/04*
U.S. Cl. 252—62.1 **19 Claims**

Liquid developers for electrography are made using addition polymers containing a polar moiety and at least one additional moiety having predetermined solubility characteristics with respect to the carrier liquid. Mixtures of these polymers may also be used.

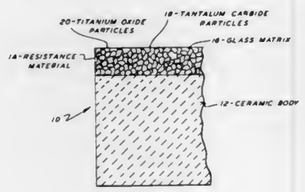
3,788,996
COATING COMPOSITIONS CONTAINING POLYMERIC DISPERSING AIDS
Darrell R. Thompson, Somerville, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 39,535, May 21, 1970, which is a continuation-in-part of application Ser. No. 776,774, Nov. 18, 1968, both now abandoned. This application Apr. 12, 1971, Ser. No. 133,420
Int. Cl. H01f *1/28;* **C09d** *3/48*
U.S. Cl. 252—62.54 **7 Claims**

A coating composition which comprises
(a) an organic liquid,
(b) a film forming polymer,
(c) particles dispersed in the liquid, and
(d) molecules of a linear polymeric material represented by the structure

$$\left[A\right]_m - Z - \left[B\right]_n$$

where
A is an organic moiety bearing a multiplicity of the same or different functional groups adsorbed on the pigment particles;
m and *n* are 1, 2 or 3 (the total not exceeding 4);
Z is an organic linking radical; and
B is a polymeric segment of ethylenically unsaturated monomers, being extended into the organic liquid.

3,788,997
RESISTANCE MATERIAL AND ELECTRICAL RESISTOR MADE THEREFROM
George D. MacKenzie, Maple Glen, Pa., assignor to TRW, Inc., Cleveland, Ohio
Filed Dec. 17, 1971, Ser. No. 209,139
Int. Cl. B44d *1/02;* **H01b** *5/04*
U.S. Cl. 252—63.5 **8 Claims**



A resistance material including a mixture of a glass frit and finely divided particles of tantalum carbide and titanium. The resistance material is adapted to be applied to and fired on a substrate to form an electrical resistor which will readily fuse or open when subjected to an overload to prevent excessive overheating of the resistor.

3,788,998
CHLORINATED DIELECTRIC LIQUIDS
Jean Coquillion, deceased, by Marie-Josephe Coquillion, St. Didier au Mont d'Or, executrix, and Pierre Jay, Decines, France, assignors to Progil, Paris, France
No Drawing. Continuation of abandoned application Ser. No. 855,388, Sept. 4, 1969. This application Dec. 13, 1971, Ser. No. 207,563
Claims priority, application France, Sept. 11, 1968, 50,376
Int. Cl. H01b *3/18, 3/24*
U.S. Cl. 252—65 **12 Claims**

Dielectric liquids for use in impregnating capacitors are described which comprise a mixture of isopropylchlorodiphenyls and optionnally chlorodiphenyls containing at least 50% by weight of 2,4'-dichlorodiphenyl substituted at least in part with an isopropyl radical and wherein the number of isopropyl radicals is between 0.3 and 1.5 and the number of chlorine atoms is 2, both calculated on each mole of chlorodiphenyl compounds in the mixture. A scavenger such as an opoxide, or a low quantity of silicone oil or a nonpolar diluent may be added.

3,788,999
LONG-LIFE SUDSING BLEND AND PAD INCORPORATING SAME
Roger L. Abler, 3M Center, White Bear Lake, Minn. 55118
No Drawing. Continuation-in-part of abandoned application Ser. No. 18,712, Mar. 11, 1970. This application Dec. 14, 1972, Ser. No. 315,118
Int. Cl. C11d *17/04*
U.S. Cl. 252—91 **6 Claims**

The useful life of a sudsing-type solid cleaning composition is increased by intimately blending it with certain proteinaceous hydrophilic colloidal agglutinants, especially gelatin or casein. The composition is advantageously incorporated in scouring pads of various types.

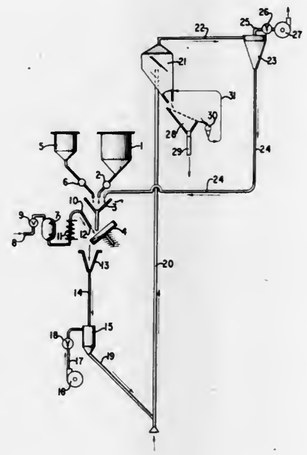
3,789,000
FORMULATING WITH A NON-BURNING CHLORINATED DRY BLEACH
Sidney Berkowitz, Highland Park, N.J., assignor to FMC Corporation, New York, N.Y.
No Drawing. Filed Aug. 4, 1972, Ser. No. 277,888
Int. Cl. C11d *7/54*
U.S. Cl. 252—95 **9 Claims**

This invention provides a process that substantially reduces the precautions required when formulating dry bleaching, sterilizing, disinfecting and detergent compositions prepared by admixing a dry bleaching compound that yields active chlorine in water with an adjuvant for such compositions. This invention is based upon the surprising discovery that an organic dry bleaching compound, sodium dichloroisocyanurate dihydrate is non-burning.

3,789,001
DETERGENT CONTAINING ENZYME AND COARSE PERBORATE PARTICLES
Daniele Painelli, Rome, Italy, assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed Mar. 9, 1972, Ser. No. 233,311
Int. Cl. C11d *7/56*
U.S. Cl. 252—99 **7 Claims**

Biological detergent composition containing a stable enzyme and a percompound, such as sodium perborate, the particles of which have a size such that at least about 50% of the particles are retained on a screen having sieve openings of 0.42 mm. and less than 5% of the particles pass through a screen having sieve openings of 0.177 mm.

3,789,002
SOLID, PULVERULENT TO GRANULAR COMPOSITIONS CONTAINING BLEACHING ACTIVATORS
Rudolf Weber, Dusseldorf-Holthausen, and Angelika Opgenoorth, Dusseldorf, Germany, assignors to Henkel & Cie GmbH, Dusseldorf, Germany
Filed Sept. 22, 1971, Ser. No. 182,748
Claims priority, application Germany, Oct. 1, 1970, P 20 48 331.2
Int. Cl. C11d *7/56*
U.S. Cl. 252—99 **12 Claims**



Solid, pulverulent to granular compositions useful for the preparation of aqueous cold-bleaching baths, especially cold-bleaching washing liquors for textiles comprising (A) from 5% to 100% by weight of an activator component consisting of an activator for per-compounds in the form of particles surrounded with a coating substance inert to the activator, selected from the group consisting of water-soluble compounds and water-insoluble compounds, said activator constituting from 5% to 50%, preferably 15% to 40% by weight, and said coating substance constituting from 50% to 95%, preferably 60% to 85% by weight, of the activator component, and (B) from 0 to 95% by weight of other customary constituents of bleaching agents or washing compositions with bleaching action; as well as the method of producing the coated activator component.

3,789,003
SOLUBILIZING PROCESS
Frederic C. McCoy, Beacon, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 787,567, Dec. 27, 1968. This application Aug. 25, 1971, Ser. No. 174,943
Int. Cl. C10m *1/28*
U.S. Cl. 252—42.7 **8 Claims**

This invention concerns a process for converting normally oil-insoluble, high molecular weight poly (alkylene) oxides to oil-solubilized complexes by treatment with alkylated phenol-type compounds.

3,789,004
SOLVENT COMPOSITIONS
Ian McMillan and Jeffrey Prest, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed June 28, 1971, Ser. No. 157,735
Int. Cl. C11d *7/50*
U.S. Cl. 252—171 **2 Claims**

A solvent composition which comprises a mixture of trichlorotrifluoroethane, ethanol and acetonitrile, which mixture forms an azeotrope.

3,789,005
SOLVENT COMPOSITIONS
Ian McMillan and Jeffrey Prest, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed June 28, 1971, Ser. No. 157,738
Claims priority, application Great Britain, July 7, 1970, 32,950/70
Int. Cl. C11d *7/50*
U.S. Cl. 252—171 **2 Claims**

A solvent composition which comprises a mixture of trichlorotrifluoroethane, methylene chloride and ethanol, which mixture forms an azeotrope.

3,789,006
SOLVENT COMPOSITIONS
Ian McMillan and Jeffrey Prest, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed June 28, 1971, Ser. No. 157,737
Claims priority, application Great Britain, July 7, 1970, 32,949/70
Int. Cl. C11d *7/50*
U.S. Cl. 252—171 **3 Claims**

A solvent composition which comprises a mixture of trichlorotrifluoroethane, isopropanol and nitromethane, which mixture forms an azeotrope.

3,789,007
METHOD OF CLEANING
Peter Robinson, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Aug. 3, 1971, Ser. No. 168,775
Claims priority, application Great Britain, Aug. 12, 1970, 38,870/70
Int. Cl. C11d *3/44*
U.S. Cl. 252—171 **5 Claims**

A method for the removal of resists from printed circuit boards which comprises treating the board with a mixture comprising 85% to 97% by weight of methylene chloride and 15% to 3% by weight of methanol.

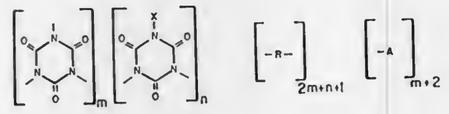
3,789,008
COMPOSITION FOR MAINTAINING THE INTEGRITY OF AQUEOUS MEDIA
David W. Young, Homewood, Ill., assignor to Elco Chemicals Inc., Peotone, Ill.
No Drawing. Filed Aug. 27, 1971, Ser. No. 175,698
Int. Cl. C02b *5/06, 3/06*
U.S. Cl. 252—180 **5 Claims**

There are disclosed compositions for maintaining the integrity of more or less stagnant water which compositions contain an aliphatic or cycloaliphatic dicarboxylic acid, a benzoic acid, a nitroalkanol, an alkyl dimethyl 1-naphthylmethyl ammonium chloride, and an N-acyl para-aminophenol. Preferred ingredients are adipic acid, benzoic acid, tris(hydroxymethyl)nitromethane, lauryldimethyl 1-naphthylmethyl ammonium chloride, and N-acetyl para-aminophenol. The compositions can be made in tablet form.

3,789,009
PROCESS FOR THE PREPARATION OF LARGE PARTICLE SILICA SOLS
Farhad A. Irani, Part Forest, Ill., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 15, 1971, Ser. No. 165,786
Int. Cl. B01j *13/00;* **C01b** *33/14*
U.S. Cl. 252—313 S **8 Claims**

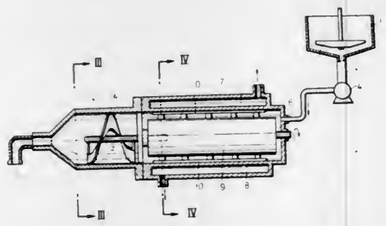
Large particle size aqueous silica sols having a substantially unimodal particle size distribution are prepared by adding simultaneously an alkali metal silicate and a cation exchange resin to a heel of water containing preformed colloidal silica particles at a pH within the range of 8–11, at a temperature of 60–150° C., and at a rate below that at which nucleation occurs. This process results in products having a concentration of 10–16% SiO_2, which can be further concentrated by evaporation to minimum turbidity sols containing 40% or more SiO_2.

3,789,010
GEL COMPOSITION
C. Travis Presley, Littleton, Perry Argabright, Larkspur, and Ronald E. Smith, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio
Filed Aug. 23, 1971, Ser. No. 173,759
Int. Cl. B01j *13/00*
U.S. Cl. 252—316 **6 Claims**



A gel composition sufficiently stable to support its own weight having elasticity and cohesive character produced by reacting at a pH above 7, an alkali metal hydroxide or alkaline earth metal hydroxide with a compound which contains polyisocyanurate salt groups, trisubstituted isocyanurate rings and end groups selected from: isocyanate, urethane, urea and amino groups, in the presence of hydroxyethyl cellulose.

3,789,011
CONTINUOUS PROCESS FOR PRODUCING TRANSPARENT SOAP HAVING PEARLESCENT QUALITIES
Yoshio Tanaka, Tokyo, Japan, assignor to Ideal Soap Company, Tokyo, Japan
Filed July 1, 1971, Ser. No. 158,807
Claims priority, application Japan, Sept. 5, 1970, 45/77,598
Int. Cl. C11d *13/08, 13/16, 9/20*
U.S. Cl. 252—367 **1 Claim**



A soap having pearl gloss is produced by cooling warm-fused transparent soap material containing pearl gloss developing material to a temperature range higher by at most 1.5° C. than a liquid-solid transition temperature region and pouring the cooled soap material into solidifying container while giving directional qualities to the pearl gloss material therein, and the apparatus for producing the soap is disclosed.

3,789,012
BRIGHTENING COMPOSITION CONTAINING A HYDROPHILIC COLLOID AND AN OIL-SOLUBLE VINYLENE BRIGHTENING AGENT
Robert J. Tuite, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Original application Aug. 4, 1969, Ser. No. 847,404, now abandoned. Divided and this application Jan. 31, 1972, Ser. No. 222,305
Int. Cl. G03c *1/92*
U.S. Cl. 252—301.2 W **16 Claims**

Hydrophilic colloids having intimately dispersed therein an essentially hydrophobic solid solution of an oil-soluble vinylene brightening agent in an essentially hydrophobic organic solvent that is rigid (an organic glass) at room temperature, i.e., has a glass transition temperature (Tg.) that is above about 25° C. are advantageously used in photographic elements and in image-receiving elements for image diffusion transfer because the light-stability of the stilbene brightening agents in these dispersions is increased substantially over the light-stability of the same brightening agents in dispersions outside the immediate invention.

3,789,013
PROCESS FOR PREPARING MULTI-COMPONENT NUCLEAR FUELS
Leonard V. Triggiani, Rockville, and Moises G. Sanchez, Severna Park, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 860,814, Sept. 24, 1969, which is a continuation-in-part of application Ser. No. 670,294, Sept. 25, 1967, now Patent No. 3,514,412. This application July 26, 1971, Ser. No. 166,301
The portion of the term of the patent subsequent to May 26, 1987, has been disclaimed
Int. Cl. C09r *3/00*
U.S. Cl. 252—301.1 S **15 Claims**

A process for preparing urania-plutonia microspheres by impregnating a matrix of urania with a plutonium salt solution. The absorbed plutonium is precipitated in the pores of the urania microspheres with a suitable precipitant. The impregnated microspheres are then washed, dried and sintered to recover the mixed oxide microspheres.

3,789,014
YTTRIUM PHOSPHATE VANADATE PHOSPHOR
Eugene A. Graff, Cedar Grove, and Herman R. Heytmeijer, Whippany, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 14, 1972, Ser. No. 262,870
Int. Cl. C09k *1/36, 1/44*
U.S. Cl. 252—301.4 P **7 Claims**

A method for improving the red luminescence and total luminescence of rare-earth metal activated yttrium phosphate vanadate phosphor using acid milling. The fired phosphor is milled in an acid solution. The use of acid during the milling provides an improved phosphor as compared to a water milling followed by the normal water or basic rinse, and even provides an improvement over water milling followed by an acid rinse. Preferably the acid used is either citric or hydrochloric. There is also provided the phosphor with the improved surface characteristics which is the product of this process.

3,789,015
PROCESS FOR PRODUCING MICROCAPSULES CONTAINING OILY HYDROPHOBIC LIQUID
Hiroharu Matsukawa, Keiso Saeki, and Shizuo Katayama, Fujinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan
No Drawing. Filed July 2, 1971, Ser. No. 159,518
Claims priority, application Japan, July 2, 1970, 45/57,909
Int. Cl. B01j *13/02;* **B44d** *1/02, 1/44*
U.S. Cl. 252—316 **9 Claims**

The present invention relates to a process for producing microcapsules containing oily hydrophobic liquid. The process is characterized by adding a shock-preventing agent and a compound having at least one —COOX group at the repeating unit thereof, wherein X is hydrogen, alkali metal or ammonium, to the system at a temperature lower than the gelling point of gelatin in the hardening pretreatment of the complex coacervation utilizing gelatin as at least one of the hydrophilic colloids, whereby the elevation of viscosity due to the reaction of gelatin and an aldehyde hardening agent is prevented and the hardening pretreatment can be rapidly carried out.

3,789,016
HYDRODEHALOGENATION CATALYST
Lloyd E. Gardner, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Application July 28, 1969, Ser. No. 845,545, now Patent No. 3,636,173, which is a continuation-in-part of application Ser. No. 584,334, Oct. 5, 1966, now Patent No. 3,505,417. Divided and this application Aug. 6, 1971, Ser. No. 169,802
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 **5 Claims**

Fluorohalocarbons are dehalogenated by contact in the presence of hydrogen with a catalytic composition containing aluminum fluoride and at least one metal phosphate.

3,789,017
OXIDATIVE DEHYDROGENATION CATALYSTS
Darrell W. Walker, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed May 6, 1971, Ser. No. 140,970
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 **7 Claims**

Oxidative dehydrogenation catalyst comprising at least one metal selected from the group consisting of nickel, cobalt or iron in combination with tin, phosphorus, combined oxygen and, optionally, an alkali metal material, is substantially improved by impregnating such catalysts with additional tin.

ERRATUM

For Class 252—439 see:
Patent No. 3,789,063

3,789,018
SURFACTANT IN PREPARING SOLID CATALYSIS
Leon B. Levy and George Cyrus Allen, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.
No Drawing. Filed Aug. 30, 1971, Ser. No. 176,336
Int. Cl. B01j *11/32*
U.S. Cl. 252—439 **4 Claims**

The preparation of solid catalysts containing such additives as metal tellurides, useful in oxidation processes for olefin conversions, wherein said catalysts are prepared by methods which include dispersing solid catalyst components in a dispersing medium and removal of the

medium from the solids while they are being mixed or after mixing, is improved by the addition of a surface active agent in the mixture to promote blending and improve the resulting catalyst.

3,789,019

PREPARATION OF CATALYSTS USEFUL IN OXIDATION OF SO_2 GASES

Alvin B. Stiles, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,761

Int. Cl. B01j *11/06, 11/22*

U.S. Cl. 252—440 **35 Claims**

This invention relates to a process for preparing a catalytic material having high efficiency in the oxidation of SO_2 to SO_3 which entails preparing a homogeneous mixture comprising a catalytically effective amount of a primary catalytic material selected from the group of $CsVO_3$ or $RbVO_3$, a promoter, and a carrier material comprising diatomaceous earth; and then drying the mixture to provide the catalyst.

3,789,020

METHOD FOR PREPARATION OF CATALYSTS

James L. Carter, Chatham, and John H. Sinfelt, Berkeley Heights, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed Feb. 1, 1971, Ser. No. 111,695

Int. Cl. B01j *11/08, 11/22*

U.S. Cl. 252—442 **20 Claims**

A method for the preparation of a catalyst comprising two or more metals in low concentration and one or more nonmetallic refractory materials in high concentration, which comprises supporting the metals on a fraction of the nonmetallic refractory material, and mixing said fraction with the remaining nonmetallic refractory material, whereby the overall catalyst at reaction conditions consists of a physical mixture of the supported metallic component and the remaining nonmetallic refractory material. More particularly, the supported metallic component is treated under reducing conditions to form an alloy of the metals on said fraction of the nonmetallic refractory material. In preferred embodiments the supported metallic component of the catalyst comprises two metals, one from Group VIII and one from Group I–B. or both from Group VIII.

3,789,021

CATALYST FOR THE PRODUCTION OF CYANURIC CHLORIDE

Yelagondahally S. Suryanarayana and Luther J. Reid, Jr., Mobile, Ala., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application May 11, 1971, Ser. No. 142,358, now Patent No. 3,707,544. Divided and this application Oct. 16, 1972, Ser. No. 298,175

Int. Cl. B01j *11/06*

U.S. Cl. 252—446 **3 Claims**

An improvement is provided in a catalytic method for the production of cyanuric chloride from cyanogen chloride wherein the durability or life of the carbon catalyst is increased by mixing the active carbon catalyst with an intimate mixture of solid diluent, that is, an inert material or a catalyst with significantly less activity than the active carbon catalyst. Such a mixture when used in the vapor phase conversion of cyanogen chloride to cyanuric chloride has a much lower operating temperature with the result that the life of the active carbon catalyst is considerably increased.

3,789,022

CATALYST FOR OXIDATION OF HYDROCARBONS AND CARBON MONOXIDE

Barry A. Schenker, Warrensville Heights, Irving Malkin, University Heights, and Kirman Taylor, Painesville, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Filed Aug. 19, 1971, Ser. No. 173,245

Int. Cl. B01j *11/06*

U.S. Cl. 252—462 **3 Claims**

An improved catalyst for oxidation of hydrocarbons and carbon monoxide is prepared by depositing on an alumina support layers of oxides of copper, cerium and chromium. Enhanced catalyst activity is obtained when cerium oxide is applied as the middle layer. Catalytic activity is further enhanced by applying the copper oxide layer first and maintaining the molar ratio of copper to chromium greater than one.

3,789,023

LIQUID DIFFUSION DOPANT SOURCE FOR SEMICONDUCTORS

Kim Ritchie, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

No Drawing. Continuation-in-part of application Ser. No. 130,772, Apr. 2, 1971. This application Aug. 9, 1972, Ser. No. 278,896

Int. Cl. C09k *3/00;* **H05b** *33/00;* **H01b** *1/06*

U.S. Cl. 252—518 **8 Claims**

There is disclosed a liquid diffusion dopant source for semiconductor diffusions which comprises in combination 54–64% ethyl alcohol, 15–25% ethyl acetate, 7–17% tetraethylsilicate, 3–10% water and 0.1–10% of a doping atom source selected from the group consisting of the compounds of arsenic, phosphorus, boron, antimony, zinc, aluminum, platinum, gold and gallium. The liquid dopant source may be readily coated onto the semiconductor wafer either by painting, spraying or preferably spinning. After drying of the coating, diffusion of the dopant atoms into the wafer is readily conducted in a standard diffusion furnace.

3,789,024

REFORMING CATALYST

John W. Myers, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Oct. 18, 1971, Ser. No. 190,288

Int. Cl. B01j *11/08*

U.S. Cl. 252—466 PT **3 Claims**

An improved catalyst comprising a refractory support and platinum promoted with both iridium and gallium, exhibiting increased activity and selectivity characteristics for the dehydrocyclization and reforming of hydrocarbons is provided. In one embodiment, alumina promoted with platinum, iridium, and gallium, converted n-heptane to benzene and toluene with substantial conversion at high selectivity.

3,789,025

CATALYST IMPREGNATION TECHNIQUE

Samuel J. Tauster, Englishtown, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Nov. 28, 1969, Ser. No. 880,951

Int. Cl. B01j *11/06*

U.S. Cl. 252—465 **8 Claims**

In a method of preparing a supported catalyst by contacting a hydrophilic porous solid catalyst support, such as alumina, with an aqueous solution of a soluble form of a metal catalyst compound to impregnate said support

therewith and thereafter calcining the impregnated catalyst support to produce a solid supported catalyst, the improvement comprising forming a slurry of the catalyst support material and an essentially water-immiscible liquid prior to contact with the aqueous solution and thereafter intimately mixing the slurry with the aqueous solution to form a liquid dispersion of the aqueous solution and water-immiscible liquid in contact with the solid catalyst support.

3,789,026

PROCESS FOR THE PRODUCTION OF REGENERATE

Reinhold Baumann, Hausen, Ernst-Gunter Kunze and Robert Lauerbach-Lehmeier, Frankfurt am Main, Alfred Striebich, Bad Vilbel, and Hans-Joachim Rothe, Offenbach am Main, Germany, assignors to Zimmer Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Mar. 22, 1972, Ser. No. 237,174

Claims priority, application Germany, Mar. 24, 1971, P 21 14 304.4

Int. Cl. C08g *53/22, 41/02, 39/00*

U.S. Cl. 260—2.3 **12 Claims**

Regenerate produced from "wool," fiber, band and foil waste products from high polymer processes are processed to produce a material suitable for reintroduction into the high polymer process. The regenerate is produced by comminuting the waste and forming a fleece. The fleece is washed and dried and then condensed, preferably with a lubricant. The condensed product, after granulation, may be passed back to the high polymer process.

3,789,027

MICROPOROUS SHEET STRUCTURE

Harro Träubel and Wolfgang Klebert, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of application Ser. No. 86,591, Nov. 3, 1970. This application July 25, 1972, Ser. No. 274,952

Int. Cl. C08g *22/44, 53/14*

U.S. Cl. 260—2.5 AY **2 Claims**

Permeable microporous sheet structure prepared by the reaction of monomeric isocyanates or isocyanate terminated prepolymers with polyamines in polyisocyanate nonsolvents and with subsequent removal of solvents and nonsolvents.

3,789,028

COATED FOAMABLE STYRENE POLYMER PARTICLES

Elmar Heiskel, Langen, and Hartmut Last, Fischbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

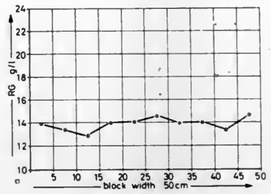
Filed July 3, 1972, Ser. No. 268,831

Claims priority, application Germany, July 5, 1971, P 21 33 253.6

Int. Cl. C08j *1/26*

U.S. Cl. 260—2.5 B **3 Claims**

Foamable particles of the styrene polymers and a volatile blowing agent and a lipophilic surface-active coating agent, wherein these particles contain, as a coating agent, from 0.05 to 0.5% by weight, calculated on the blowing agent containing styrene polymer, of mixtures of mono-, di- and tri-esters of glycerol with saturated fatty acids having from 12 to 22 carbon atoms, or mixtures thereof. These foamable particles offer an essential



shortening of the cooling time during foaming, a better bond of the foamed particles and a substantially uniform distribution of the gross unit weight in the finished foam block.

3,789,029

PLASTIC BONE COMPOSITION AND METHOD OF MAKING SAME

Milton Hodosh, Providence, R.I., assignor to Research Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 60,983, July 6, 1970, which is a division of application Ser. No. 805,400, Mar. 10, 1969, now Patent No. 3,609,867. This application Oct. 4, 1971, Ser. No. 186,442

Int. Cl. C08f *47/10, 45/04*

U.S. Cl. 260—2.5 R **6 Claims**

A plastic bone composition and method of making same, said composition comprising as its basic ingredients a mixture of an acrylic polymer, a foaming agent, N-tributyl phosphate, and grated anorganic bone. The mixture is usable for dental implants, as well as for implants in other parts of the body, and as a coating for metals which may be implanted in the human body for dental purposes, orthopedic prostheses, neurosurgery, etc.

3,789,030

REGULATION OF THE VISCOSITY INCREASE IN CHEMICALLY THICKENED UNSATURATED POLYESTER FORMULATIONS

Frank P. Volgstadt, Painesville, and John R. Semancik, Mentor, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

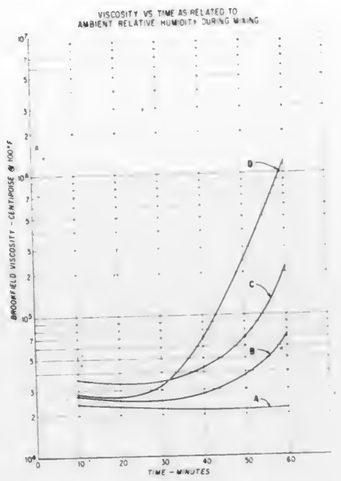
Filed Apr. 5, 1972, Ser. No. 241,278

Int. Cl. C08f *43/02*

U.S. Cl. 260—29.6 NR **13 Claims**

Unsaturated polyester compositions particularly for use in the preparation of bulk molding compound and sheet molding compound stocks which are chemically thickened prior to curing, by incorporation therein of from 0.5 part to 10 parts, per 100 parts of the resin system, of an oxide or hydroxide of a Group II–A metal, e.g., $Ca(OH)_2$ and MgO, additionally contain a minor quantity of a water-absorptive, but essentially water-insoluble compound which is, e.g., a synthetic zeolite, silica gel or calcium sulfate. Any of these materials serve to scavenge sufficient water in the formulation to keep its initial viscosity increase to a minimum and provide an extended work-life thereto. The aging viscosity build-up in the formulation surprisingly then

proceeds at a significantly accelerated rate so that thickening of the polyester to a desired high level can



be attained typically within 24 hours after its preparation.

3,789,031

COPOLYESTER FIBERS AND FILAMENTS HAVING DEFINED SHRINKING PROPERTIES

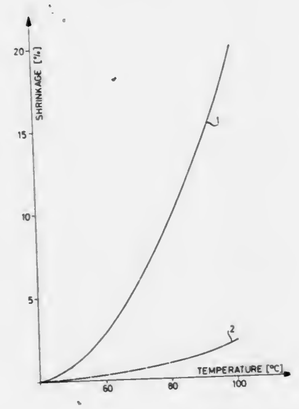
Gert Buttner, Bobingen, Adolf Hartmann, Gessertshausen, and Peter Braun, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Oct. 30, 1970, Ser. No. 85,646

Claims priority, application Germany, May 14, 1970, P 20 23 527.2

Int. Cl. C08g *17/100*

U.S. Cl. 260—75 T **5 Claims**



Fibers and filaments having definite degrees of shrinkage in hot or boiling water and in the atmosphere of a hot gas are provided. The fibers and filaments consist of polyethylene terephthalate modified with 2,2-dimethyl-propanediol-1,3.

3,789,032

POLYURETHANE-POLYUREA ELASTOMERS BASED ON HIGH TRANS-TRANS, 4,4'-METHYLENEBIS-(CYCLOHEXYL ISOCYANATE)

Guenther Kurt Hoeschele, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 22, 1971, Ser. No. 155,630

Int. Cl. C08g *22/24*

U.S. Cl. 260—75 NT **13 Claims**

Polyurethane/polyureas prepared by the process of reacting 4,4'-methylenebis(cyclohexyl isocyanate) containing at least 60% of the trans-trans isomer with a polyol and a polyamine in proportions such that there is an excess of isocyanato groups over hydroxy and amino groups and sufficient water is provided to react with the excess isocyanato groups. The polyurethane/polyureas, which have outstanding abrasion resistance, creep resistance, and compression set, are particularly useful in making cast elastomeric articles.

3,789,033

POLYURETHANES BASED ON ARYLOXY-CARBONYL ISOCYANATES

Hermann Hagemann and Josef Pedain, both % Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, and Erich Zankl, deceased, late of Cologne, Germany, by Helga Zankl and Walter Zankl, both of Amsterdamer Strasse 76, Cologne, Germany, and Angelika Zankl de Ramis, c/de las Parelladas, Palma de Mallorca, Spain, heirs

No Drawing. Filed Sept. 22, 1971, Ser. No. 182,902

Claims priority, application Germany, Oct. 3, 1970, P 20 48 658.2

Int. Cl. C08g *22/32, 51/26*

U.S. Cl. 260—77.5 TB **10 Claims**

Masked oxycarbonylisocyanates are prepared by reacting aryl oxycarbonylisocyanates with a compound containing at least two hydroxyl groups. When NCO and OH are present in equivalent amounts, the compounds are suitable as reactants with polymers containing hydroxyl groups for the production of, for example, lacquers. When the reaction is carried out such that OH groups are present in excess of that required to react with the available —NCO, the compounds, which are self cross-linking, are suitable for the production of, for example, cross-linked synthetic resins.

3,789,034

AZIRIDINE-DIISOCYANATE ADDUCT MODIFIED COMPOSITIONS

Marco Wismer, Gibsonia, and Paul J. Prucnal, Monroeville, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,301

Int. Cl. C08g *22/00*

U.S. Cl. 260—77.5 AM **39 Claims**

Reaction products of hydroxy acrylate or methacrylate monomers or hydroxyl bearing polymers and an aziridine-diisocyanate adduct. Coating compositions can readily be provided from such reaction products which are self-curing and which can also be cured by employing a catalyst or with an active hydrogen containing crosslinking agent.

3,789,035

PROCESS FOR PRODUCING METAL-CONTAINING ETHYLENIC COPOLYMER

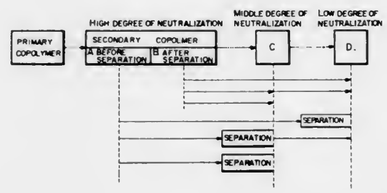
Isamu Iwami, Tokyo, Hironobu Kawasaki, Yokohama, and Hideo Kinoshita, Kawasaki, Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed Oct. 10, 1972, Ser. No. 295,875

Claims priority, application Japan, Oct. 11, 1971, 46/79,503; Dec. 21, 1971, 46/103,217

Int. Cl. C08f *27/04*

U.S. Cl. 260—78.5 T **23 Claims**



A process for producing a metal-containing ethylenic copolymer having a degree of saponification of 30 to 100 mole percent and a degree of neutralization of 60 to 100 mole percent which comprises saponifying a primary copolymer of ethylene and at least one ester of α,β-ethylenically unsaturated carboxylic acid having 4 to 10 carbon atoms, the unsaturated carboxylic ester content of said primary copolymer being 1 to 20 mole percent, with a basic metal compound in a solvent. A metal-containing copolymer having any desired degree of neutralization can be obtained from the aforesaid metal-containing ethylenic copolymer by contacting with an inorganic and/or organic acid to convert a part of the metal carboxylate groups in the copolymer into carboxyl groups. Alternatively, such a metal-containing ethylenic copolymer having any desired degree of neutralization can also be produced by melt-mixing those copolymers which have different degrees of neutralization. Further, any desired metal can be introduced into the alkali metal-containing copolymer by dispersing the copolymer in water and/or alcohol and adding thereto a compound having the desired non-alkali metal to effect ion-exchange.

3,789,036

PROCESS FOR PREPARING SATURATED AND UNSATURATED ELASTOMERIC COPOLYMERS OF ETHYLENE AND/OR HIGHER ALPHA-OLEFINS

Paolo Longi, Nazzareno Cameli, Alberto Valvassori, Sandro Parodi, and Remo Cervi, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Oct. 12, 1971, Ser. No. 188,493

Claims priority, application Italy, Oct. 13, 1970, 30,912/70

Int. Cl. C08f *15/04, 15/40*

U.S. Cl. 260—80.7 **8 Claims**

There is disclosed a process for copolymerizing ethylene and/or higher alpha-olefins to elastomeric saturated copolymers, or for copolymerizing at least one of ethylene and higher alpha-olefins with hydrocarbons containing more than one double bond to elastomeric unsaturated, sulfur-vulcanizable copolymers in very high yields. The catalyst used is obtained by mixing (a) a hydride or organometallic compound of a metal belonging to Groups I to III of the Mendelyeev Periodic Table with (b) the product obtained by contacting a titanium compound with a support consisting of an anhydrous halide of magnesium, manganese or calcium in an active condition.

3,789,037

THERMOSETTING COATING COMPOSITION OF AN ALKYD RESIN MIXTURE AND ALIPHATIC POLYISOCYANATE CROSS-LINKING AGENT

Lester I. Miller, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 157,665, June 28, 1971. This application Dec. 10, 1971, Ser. No. 206,939

Int. Cl. C08g *39/10*

U.S. Cl. 260—16 **4 Claims**

The coating composition of this invention contains as the film-forming binder an alkyd resin or a blend of alkyd resins and a polyisocyanate; this composition cures rapidly at ambient temperatures to a tough, durable, scratch resistant finish and is useful as an automotive and an appliance finish and as an automotive and truck repair finish.

3,789,038

PRODUCTION OF LOW MOLECULAR WEIGHT POLYANHYDRIDES AND EPOXY COMPOSITIONS DERIVED THEREFROM

Omer E. Curtis, Jr., Morristown, Harold W. Tuller, Long Valley, and Ralph W. Nussbaum, Dover, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Oct. 16, 1970, Ser. No. 81,616, now Patent No. 3,732,332. Divided and this application Mar. 26, 1973, Ser. No. 345,171

Int. Cl. C08g *51/18*

U.S. Cl. 260—17.2 **7 Claims**

Polyanhydrides are produced by a novel bulk polymerization procedure from maleic monomers and alkyl styrenes. The polyanhydrides, of low molecular weight and containing maleic monomer to alkyl styrene in a ratio greater than 1 to 1, are particularly useful as hardeners for epoxy resin-containing compositions and give rise to epoxy compositions which result in cured products exhibiting high heat distortion temperatures and excellent electrical and shelf life properties.

3,789,039

CELLULOSE ACETATE BUTYRATE FILM-FORMING COMPOSITION CONTAINING TITANIUM DIOXIDE MICROVOIDS

Dominic Simone, Lincroft, and Daniel F. Herman, Princeton, N.J., assignors to N L Industries, Inc., New York, N.Y.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,657

Int. Cl. C08b *21/06*

U.S. Cl. 260—17 R **2 Claims**

A new film forming and drying composition of matter has been prepared comprising an emulsion containing

thermoplastic polymeric resin, a solvent for said resin, an emulsifying agent and microdroplets of water containing TiO_2 pigment particles, said composition capable of forming microvoids of air upon drying. In the dried film the TiO_2 pigment particles are present in the microvoids in an amount of from 0.4% to 15% by volume of the total volume of the microvoids. The microvoids have a diameter of from 0.1μ to 1.0μ and a total microvoid volume of from 55% to 75% of the total volume of the dried film.

3,789,040

PRODUCT FOR THE TREATMENT OF CELLULOSIC FABRICS TO IMPROVE CREASE RESISTANCE

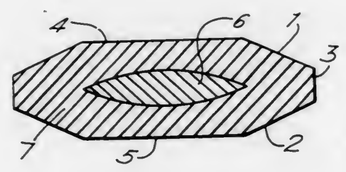
Eamon McKeown, Bromborough, John Leonard Metcalfe, West Kirby, and Arthur James Pratt, Bebington, England, assignors to Lever Brothers Company, New York, N.Y.

Continuation of abandoned application Ser. No. 818,318, Apr. 22, 1969. This application July 12, 1971, Ser. No. 162,005

Claims priority, application Great Britain, Apr. 26, 1968, 20,040/68

Int. Cl. C08b *25/02*

U.S. Cl. 260—17.3 **15 Claims**



A substantially anhydrous composition for treating cellulosic fabric to improve its crease-resistance comprises a water-soluble resin precondensate, a latent-acid catalyst and a basic or amphoteric metal compound. The composition preferably takes tablet form and has a core comprising the latent-acid catalyst and a sheath comprising the resin precondensate.

3,789,041

MELAMINE-FORMALDEHYDE RESINS CONTAINING CALCIUM CARBONATE

Herbert Talsma, East Cleveland, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 203,031, Nov. 29, 1971. This application Dec. 8, 1972, Ser. No. 313,545

Int. Cl. C08g *51/18*

U.S. Cl. 260—17.3 **5 Claims**

Melamine-formaldehyde resins containing 10 to 900 parts by weight of calcium carbonate per hundred parts of resin are excellent for use in preparing molded resin articles because of the lower post-mold shrinkage, the improved impact strength and the better heat stability than the resin without calcium carbonate.

3,789,042

RADIATION CURABLE DINORBORNENE COMPOSITIONS

Henry Octave Colomb, Jr., and David John Trecker, South Charleston, and Thomas Kemper Brotherton, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Original application Sept. 13, 1968, Ser. No. 759,759. Divided and this application May 26, 1971, Ser. No. 147,225

Int. Cl. B01j *1/10, 1/12;* **C08d** *1/100*

U.S. Cl. 260—17.4 CL **19 Claims**

Dinorbornene compounds, many of them novel, have been found to form polymers having a ladder structure. The dinorbornene compounds and dinorbornene polymers with other polymers such as the polyolefins, vinyl polymers, acrylic polymers, polyesters, polyamides, polyethers, polyureas, polyurethanes, natural polymers, etc., are readily cross-linked by irradiation.

3,789,043

ELASTOMER STABILIZATION WITH LIGNIN-BASED MATERIALS

Sten I. Falkehag, Mount Pleasant, and David V. Braddon, Charleston Heights, S.C., assignors to Westvaco Corporation, New York, N.Y.

No Drawing. Filed July 3, 1972, Ser. No. 268,593

Int. Cl. C08d *9/02, 9/12*

U.S. Cl. 260—17.5 **7 Claims**

Elastomers may be protected against atmospheric degradation by the addition thereto of 0.01 to 5.0 parts by weight, preferably 0.25 to 2.0 parts, per 100 parts of elastomer of a modified lignin stabilizer. The modified lignin stabilizers are produced by heat treating technical lignins in the presence of a nucleophile, such that a portion of the original guaicyl structures are converted to catechols via a demethylation reaction.

3,789,044

NOVEL CURED COMPOSITIONS PREPARED FROM THE REACTION OF A POLYISOCYANATE AND A HYDROXYBENZOIC ACID CAPPED EPOXIDE-CONTAINING MATERIAL

David D. Taft, Minneapolis, and Roger A. Schmidt, Burnsville, Minn., assignors to Ashland Oil, Inc., Houston, Tex.

No Drawing. Filed Jan. 26, 1971, Ser. No. 109,986

Int. Cl. C08g *5/00*

U.S. Cl. 260—18 TN **16 Claims**

A novel composition is prepared by combining a polyisocyanate and a hydroxybenzoic acid capped epoxide-containing material. This combination of ingredients can be rapidly cured at room temperature to essentially its ultimate state of use by contacting the combination with a tertiary amine to yield a durable, flexible, and caustic resistant material.

3,789,045

REACTION OF POLYISOCYANATES WITH COMPOUNDS CONTAINING BLOCKED AMINE GROUPS IN THE PRESENCE OF ACIDS OR METAL SALTS OF ACIDS

Arthur J. Coury, St. Paul, Edgar R. Rogier, Minnetonka, and Gerald L. Schwebke and Douglas D. Cozad, Minneapolis, Minn., assignors to General Mills Chemicals, Inc.

No Drawing. Filed Nov. 13, 1972, Ser. No. 306,071

Int. Cl. C08g *22/02*

U.S. Cl. 260—18 TN **15 Claims**

Polymers are prepared by the reaction of polyisocyanates and certain polyamine derivatives in the presence of an organic acid, a salt of an organic acid or a mineral acid. The latter compounds accelerate the reaction even in the absence of moisture normally used to unblock the ketimine or aldimine groups of the polyamine derivative.

3,789,046

AQUEOUS AIR- AND OVEN-DRYING COATING COMPOSITIONS

Klaus Heldel, Marl, Germany, assignor to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Continuation of application Ser. No. 884,374, Dec. 11, 1969. This application May 12, 1972, Ser. No. 252,939

Claims priority, application Germany, Dec. 17, 1968, P 18 15 014.6

Int. Cl. C08c *11/72;* **C08d** *9/17*

U.S. Cl. 260—23.7 A **14 Claims**

Aqueous based coating compositions having good water resistance are produced from ammonia- or amine-neutralized adducts of maleic anhydride and like dicarboxylic acids and anhydrides and butadiene homopolymers having at least 50% cis 1,4-structure and a viscosity of 30–30,000 cps. at 50° C., preferably combined with a maleic anhydride or like adduct of a natural drying or semidrying oil.

3,789,047

ETHYLENE COPOLYMER DISPERSIONS FOR FLAME RETARDATION AND FIBROUS ARTICLES COATED THEREWITH

Gerfried Pruckmayr, Media, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 176,303, Aug. 30, 1971, which is a continuation of application Ser. No. 827,175, May 23, 1969, now abandoned. This application Oct. 25, 1972, Ser. No. 300,812

Claims priority, application Canada, May 21, 1970, 83,383

Int. Cl. C08f *45/30*

U.S. Cl. 260—28.5 R **2 Claims**

An aqueous dispersion of an ethylene copolymer, a chlorinated paraffin wax and antimony trioxide is provided. The dispersion contains (1) about 70 to 15 percent by weight of an ethylene/vinyl acetate copolymer or an ethylene/methacrylic acid ionomer copolymer, (2) about 30 to 85 percent by weight of a chlorinated paraffin wax having greater than 50 percent by weight chlorine, the total chlorine content of (1) and (2) being 20 to 60 percent by weight, and (3) antimony trioxide in a ratio of antimony trioxide to chlorinated paraffin wax of 0.25:1 to 3:1. Fibrous materials such as fiberfills or textile fabrics are rendered flame retardant when coated with the dispersions.

3,789,048

OLIGOMER POLYIMIDE PRECURSORS

Joseph H. Incremona, Bethel Park, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 92,540, Nov. 24, 1970. This application Nov. 2, 1971, Ser. No. 195,022

Int. Cl. C08g *20/32*

U.S. Cl. 260—30.2 **9 Claims**

Polyimides highly soluble in N-methyl pyrrolidone are provided. These are preferably derived from polyimide precursor systems consisting essentially of the nonfilm-forming reaction product of (a) the incomplete reaction product of bis-(3,4-dicarboxyphenyl) sulfone dianhydride and a capping agent, and (b) diamine including metaphenylene diamine.

3,789,049

GLASS FIBER-REINFORCED EPOXY RESIN OR POLYESTER RESIN COMPOSITION AND METHOD FOR MANUFACTURING SAME

Takeshi Nagasawa, Katsumasa Kuroiwa, and Kouichi Narita, Koriyama, Japan, assignors to Nitto Boseki Co., Ltd., Gonome, Fukushima-shi, Japan

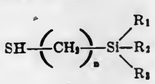
Filed Dec. 20, 1971, Ser. No. 209,571

Claims priority, application Japan, Dec. 23, 1970, 45/129,041

Int. Cl. C08g *51/10*

U.S. Cl. 260—40 R **8 Claims**

A glass fiber-reinforced, epoxy resin or unsaturated polyester resin composition comprising glass fiber, an epoxy resin or an unsaturated polyester resin, and, at the interface of said glass fiber and resin, a reaction product of a partially epoxidized polybutadiene having at least about 50 mole percent of 1,2-structure with a mercaptoorganosilane of the formula,



wherein R_1, R_2 and R_3, which may be the same or different, represent hydrolyzable radicals capable of reacting with glass fiber, for example, alkoxy groups having 1 to 3 carbon atoms, acetoxy groups or halogen atoms, and n is an integer of from 1 to 4. By the presence of said reaction product at the interface, the adhesion between the glass fiber and the resin is improved and there is obtained a reinforced plastic having a high strength and excellent transparency.

3,789,050

PROCESS AND COMPOSITIONS OF RUBBER VULCANIZATES WITH SILICONE POLYMERIZATES

Domingos Loricchio, Sao Paulo, Brazil, assignor to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Filed Apr. 20, 1971, Ser. No. 135,764

Int. Cl. C08c *11/08*

U.S. Cl. 260—41.5 R **13 Claims**

A process for making improved compositions of rubber vulcanizates, simultaneously polymerized with silicones to give improved abrasion resistant bodies containing powders or granules of abrasive inorganic materials. The bodies are formed under pressure of about 2 kg./cm.^{2} and temperatures of 100–180° C.

3,789,051

REINFORCED RESIN COMPOSITIONS

Richard Watkin Rees, Wilmington, and Hans-Georg Reinhardt, Claymont, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 23, 1971, Ser. No. 183,281
Int. Cl. C08f *45/04, 45/10*
U.S. Cl. 260—41 A 16 Claims

A reinforced resin composition comprising A) 20 to 60 percent by weight syrup comprising (1) 40 to 70 percent by weight vinyl substituted aromatic compound containing six aromatic carbon atoms and/or monofunctional ethylenically unsaturated carboxylic acid ester; (2) 10 to 40 percent by weight of an acid monomer system comprising ethylenically unsaturated carboxylic acid; (3) 15 to 35 percent by weight of polymer of vinyl or vinylidene substituted aromatic compound containing six aromatic carbon atoms and/or acrylic polymers; (4) 0.2 to 2.5 percent by weight polymerization catalyst; B) 20 to 60 percent by weight particulate filler; C) 5 to 60 percent by weight fibrous material and D) 1 to 6 equivalents of hydroxides and/or oxides of the Group IIA and IIB metals per equivalent of the ethylenically unsaturated carboxylic acid in the acid monomer system.

3,789,052

IMIDO-ALKYLENE SUBSTITUTED AROMATIC CARBOCYCLIC POLYMERS

Johann F. Klebe, and Thomas J. Windish, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 846,623, July 1, 1969, abandoned. This application Apr. 30, 1971, Ser. No. 139,208
Int. Cl. C08g *20/00*
U.S. Cl. 260—47 CZ 8 Claims

A variety of imido-alkylene substituted aromatic carbocyclic organic polymers are provided, such as polymers having chemically combined aromatic carbocylic radicals in the polymer backbone, for example, polyarylene oxides, and polymers having pendant aromatic carbocyclic radicals, such as polystyrenes. Blends of such polymers with various aliphatically unsaturated organic monomers and a variety of organic polymers also are included. The imido-substituted aromatic carbocyclic polymers of the present invention can be employed as molding compounds, photoresists, laminates, varnishes, adhesives, decorative coatings, etc.

3,789,053

OXAZOLIDINONE MODIFIED TRIGLYCIDYL ETHER OF TRIHYDROXY TRIPHENYL METHANE AND DERIVATIVES THEREOF

James A. Clarke, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Aug. 19, 1971, Ser. No. 173,258
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 EN 3 Claims

Novel oxazolidinone modified triglycidyl ethers of trihydroxy triphenyl methane and derivatives thereof are prepared which are useful in molding and adhesive compositions.

3,789,054

PROCESS FOR PRODUCING POLYPHENYLENE ETHERS

Shinichi Izawa, Tokyo; Kunio Toyama, Kanagawa; Yoshiaki Sugawara, Kanagawa; Tsutomu Tanaka, Kanagawa, and Hidehiro Okamoto, Kanagawa, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed Dec. 6, 1971, Ser. No. 205,375
Claims priority, application Japan, Dec. 8, 1970, 45-108107
Int. Cl. C08g *23/18*
U.S. Cl. 260—47 ET 10 Claims

Polyphenylene ethers of 5 microns or more in particle size which are useful for preparation of parts of electric devices are continuously produced according to oxidative polymerization of 2,6-disubstituted phenols by preparing a 15 to 35 % (by weight) solution of 2,6-disubstituted phenol in dimethylformamide or in a mixed solvent composed of toluene and methanol, subjecting the solution to polymerization in one zone while maintaining the reaction system in the state of a homogeneous solution, and transferring the polymerization liquid to another zone to complete the polymerization while allowing the resulting polymer to precipitate.

3,789,055

ALIPHATICALLY UNSATURATED IMIDES AND METHOD FOR MAKING SAME

Johann F. Klebe; Henry A. Wroblewski, and Alfred R. Gilbert, all of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 31, 1970, Ser. No. 103,303
Int. Cl. C08g *5/18, 20/28*
U.S. Cl. 260—51 R 23 Claims

A method is provided for introducing aliphatically unsaturated imidomethyl radicals into a variety of aromatic organic compounds and aromatic organic materials derived therefrom. Imidomethylation is achieved with a mixture of formaldehyde, and an aliphatically unsaturated imide such as maleimide. The resulting imidomethyl substituted aromatic organic materials can be used as molding and laminating compounds.

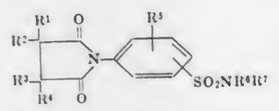
3,789,056

A-PHENYLSUCCINIMIDO-HALO-SULPHONAMIDO-BENZENES

Rolf Wilhelm Pfirrmann, Lucerne, Switzerland, assignor to Ed Geistlich Sohne A.G. fur Chemische Industrie, Wolhusen, Lucerne, Switzerland

Filed June 17, 1970, Ser. No. 47,161
Claims priority, application Great Britain, June 18, 1969, 30915/69
Int. Cl. C07d *27/10*; A61k *27/00*
U.S. Cl. 260—239.6 4 Claims

This invention relates to novel compounds of the formula



where R^1 through R^7 are as hereinafter defined, of use in the treatment of Petit Mal and Grand Mal forms of epilepsy.

3,789,057

A PROCESS FOR PREPARING SYMETRICAL TRIORGANOTIN HALIDES

Gerald H. Reifenberg, Hightstown, and Melvin H. Gitlitz, Edison, both of N.J., assignors to M & T Chemicals Inc., Greenwich, Conn.

Continuation-in-part of Ser. No. 816,783, April 19, 1969, Pat. No. 3,607,891, which is a continuation-in-part of Ser. No. 773,331, Nov. 4, 1968, Pat. No. 3,564,033. This application Apr. 14, 1971, Ser. No. 134,045
Int. Cl. C07f *7/22*
U.S. Cl. 260—429.7 7 Claims

Novel organotin compounds of the formula $R_nR'_{(3-n)}SnX$ are prepared by reacting equimolar amounts of $R_{(n+1)}R'_{3-n}Sn$ and a stannic halide in an inert hydrocarbon solvent at temperatures between about -25° and 80° C. R represents a monovalent linear aliphatic hydrocarbon radical containing up to six carbon atoms, R′ represents a monovalent aliphatic or cycloaliphatic hydrocarbon radical containing up to eight carbon atoms, with the proviso that the molecular weight of R′ exceeds that of R by at least 42 except when R′ is a cycloaliphatic hydrocarbon radical. X represents a chlorine or bromine atom and *n* represents an integer selected from the group consisting of 1 and 2.

3,789,058

METHOD OF EXTRACTING WAX FROM BARK

Frank S. Trocino, 5070 Donald, Eugene, Oreg.

Filed Mar. 8, 1972, Ser. No. 232,944
Int. Cl. C11b *1/12*
U.S. Cl. 260—412.8 5 Claims

Douglas fir bark is extracted with a hot neutral organic solvent comprising a mixture of an aliphatic and an aromatic hydrocarbon to separate the wax from the bark. The solvent is thereafter removed from the wax to yield a light to dark green wax having a melting point of 60° C., a saponification number of 180–200, an acid number of 50–75 and a hardness of 3–4.

3,789,059

METHOD OF PRODUCING HIGH PURITY LITHIUM CHLORIDE

Ephraim A. Cuevas, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 54,408, July 13, 1970, abandoned. This application Mar. 31, 1972, Ser. No. 240,087
Int. Cl. C07f *7/24*
U.S. Cl. 260—437 R 16 Claims

A method of producing high purity lithium chloride suitable for use in the manufacture of high purity lithium metal is described. Lithium chloride produced in accordance with the described method is recovered from aqueous solutions of lithium chloride produced in the manufacture of tetraalkylleed from metallic lithium, metallic lead and alkyl halides. The specification describes a lithium chloride evaporation system in which the lead concentration of the evaporator is maintained at a level of 0.3 percent by weight lead or less to produce high purity lithium chloride crystals. Maintenance of the lead concentration during the evaporation of the lithium-chloride solution at this level produces a lithium chloride crystal containing 99 percent by weight lithium chloride or more. These crystals are found to contain less than 100 parts per million lead. Two specific methods for controlling the concentration of the lead in the evaporator are shown; one involving the precipitation of lead hydroxy chloride [Pb(OH)Cl] from the circulating solutions and the other providing for a hydrogen sulfide treatment of evaporator bleed streams to maintain the lead level constantly below the 0.3 percent weight level.

3,789,060

FLUORINATED CAMPHOR DERIVATIVES AND EUROPIUM AND PRASEODYMIUM CHELATES THEREOF

Harlan L. Goering; John N. Eikenberry, and Gerald S. Koermer, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Nov. 3, 1971, Ser. No. 195,429
Int. Cl. C01f *17/00*
U.S. Cl. 260—429.2 6 Claims

Optically active fluorinated compounds derived from d- or l-camphor and their corresponding europium and praseodymium chelates and their use as chiral NMR shift reagents.

3,789,061

FUNGICIDAL AND FUNGISTATIC THIOCARBONATES

Georg-Alexander Hoyer, and Ernst Albrecht Pieroh, both of Berlin, Germany, assignors to Schering AG., Berlin and Bergkamen, Germany

Filed Mar. 31, 1970, Ser. No. 24,375
Claims priority, application Germany, Apr. 24, 1969, 1921988
Int. Cl. C07c *154/00*
U.S. Cl. 260—455 B 1 Claim

Novel thiocarbonates of the formula

$$(CH_3)_2N—(CH_2)_3—O—CO—S—R$$

wherein R is the radical of an aliphatic hydrocarbon, and their salts with inorganic or organic acids are provided having fungicidal and fungistatic effects and the method of making the same.

3,789,062

LIGANDS WHICH ARE ALSO SILVER HALIDE DEVELOPING AGENTS

Elbert M. Idelson, Newton Falls, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 881,323, Dec. 1, 1969, Pat. No. 3,629,336, Continuation-in-part of Ser. No. 487,054, Sept. 13, 1965, abandoned. This application Dec. 29, 1970, Ser. No. 102,563. The portion of the term of this patent subsequent to Dec. 21, 1988, has been disclaimed.
Int. Cl. C07c *49/82*; G03c *1/02*
U.S. Cl. 260—463 10 Claims

Novel compounds or coordinating agents which can form a coordination complex with a metal and which include an ortho or para disubstituted phenyl radical. The compounds are useful as intermediates for providing colored dyes.

3,789,063

OLEFIN OXIDATION CATALYST

Robert E. Lane, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 8, 1972, Ser. No. 251,189
Int. Cl. B01j *11/74*
U.S. Cl. 252—439 8 Claims

The vapor phase oxidation of isobutene to methacrolein or methacrylonitrile (when NH_3 is used as a reactant) is improved when an oxide of Na, K, Rb, Cs or Ca is added as a promoter to a catalyst containing the oxides of iron, molybdenum, tellurium and at least one of the oxides of rhenium, manganese and vanadium.

3,789,064

SULFUR-CONTAINING ESTERS OF SUBSTITUTED HYDROXYPHENYL ALKANOIC ACIDS

Ingenuin A. Hechenbleikner, Kenwood; John F. Hussar, Loveland; Arthur F. Koeniger, Cincinnati, and Robert E. Bresser, Sharonville, all of Ohio, assignors to Cincinnati Milacron Chemicals Inc., Reading, Ohio

Division of Ser. No. 884,016, Dec. 10, 1969, Pat. No. 3,699,152. This application Mar. 14, 1972, Ser. No. 234,649. The portion of the term of this patent subsequent to Oct. 2, 1990, has been disclaimed.
Int. Cl. C07c *65/04*
U.S. Cl. 260—473 S 2 Claims

Compounds are prepared having one of the following formulae:

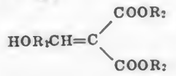
a. $HOR_1CH_2S(CH_2)_nCOOR_4$

(b)

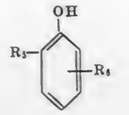


c. $HOR_1C_mH_{2m-1}(S(CH_2)_nCOOR_3)_2$
d. $(HOR_1CH_2)_2C(COOR_2)_2$
e. $HOR_1CH_2O(CH_2)_nCOOR_2$
f. $HOR_1CH_2OCH_2CH_2OOCCH_2CH_2S(CH_2)_nCOOR_3$
g. $HOR_1CH_2CH(COOR_2)_2$

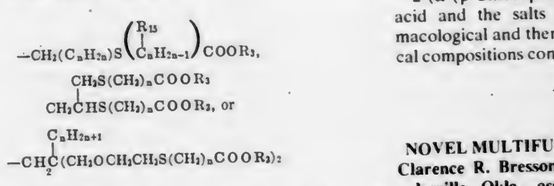
(h)



where HOR_1 is



where R_5 and R_6 are hydrogen, alkyl, cycloaklyl, aryl or aralkyl, the total carbon atoms in R_5 and R_6 is between four and 36 carbon atoms, is preferably not over 12 carbon atoms and R_6 is preferably in the ortho position, R_2 is



R_3 is hydrocarbyl, preferably alkyl or alkenyl, e.g., of one to 18 carbon atoms, n is 1 or 2, R_{14} is H or $COOR_2$, m is 1, 2, 3 or 4, y is 0 or 1, and R_4 is either R_2 or R_3 and R_{13} is hydrogen or lower alkyl. The above compounds are useful as antioxidants.

3,789,065
PROCESS FOR PREPARING VICINAL GLYCOL ESTERS FROM OLEFINS

John Kollar, Wyckoff, N.J., assignor to Halcon International, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 16,258, March 3, 1970, abandoned. This application Oct. 7, 1971, Ser. No. 187,552
Int. Cl. C07c *67/04, 69/16, 69/28*
U.S. Cl. 210—497 R **13 Claims**

In the process for preparation of vicinal glycol esters from an olefin by reacting the olefin in the liquid phase with molecular oxygen and a carboxylic acid in the presence of a catalyst within an oxidation zone, selectivities to the desired glycol esters are improved by treating the high-boiling residue and the precursor light components separated from the oxidation effluent by contacting them with a carboxylic acid. In a preferred embodiment both residue and precursor light components are recycled to the oxidation zone where they are converted to additional glycol ester product.

3,789,066
PROCESS FOR PRODUCING ACYLOXYDODECATRIENES

Saburo Hattori, Tokyo, and Naoshi Imaki, Kawasaki, both of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Marunouchi, Cheyoda-ku, Tokyo, Japan

Filed Dec. 27, 1971, Ser. No. 212,748
Claims priority, application Japan, Dec. 30, 1970, 45-125874; Mar. 29, 1971, 46-18561
Int. Cl. C07c *67/04*
U.S. Cl. 260—497 A **10 Claims**

Acyloxydodecatriene is produced by reacting an octatriene, a butadiene and a carboxylic acid in the presence of a catalytic amount of a divalent palladium compound selected from the group consisting of organic acid salts of palladium (II), chelate complexes of palladium (II) and palladium nitrate.

3,789,067
METHOD OF INHIBITING SULFONE FORMATION IN SULFONATIONS

Michael Robin, Colonia, and Sheldon R. Schulte, Highland Park, both of N.J., assignors to Ashland Oil Inc., Houston, Tex.

Filed Feb. 13, 1970, Ser. No. 11,296
Int. Cl. C07c *143/24*
U.S. Cl. 260—505 E **14 Claims**

Process for sulfonating a sulfonatable material with sulfur trioxide using an inorganic sulfite to inhibit sulfone formation.

3,789,068
AMINOETHANESULFONIC ACID DERIVATIVE

Shoichi Ito, Tokyo; Mikio Ninomiya, Kanagawa, and Hidekuni Uchida, Saitama, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Dec. 7, 1970, Ser. No. 95,932
Claims priority, application Japan, Dec. 6, 1969, 44-98059
Int. Cl. C07c *143/54*
U.S. Cl. 260—507 R **2 Claims**

2-(α-(p-Chlorophenoxy)-isobutyryl)-aminoethanesulfonic acid and the salts thereof, which possess valuable pharmacological and therapeutic properties, and the pharmaceutical compositions containing the same.

3,789,069
NOVEL MULTIFUNCTIONAL HYDROXY COMPOUNDS

Clarence R. Bresson, and Raymond L. Cobb, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 749,990, Aug. 5, 1968, Pat. No. 3,609,189, which is a division of Ser. No. 492,892, Oct. 4, 1965, Pat. No. 3,414,617. This application Apr. 22, 1971, Ser. No. 136,603
Int. Cl. C07c *149/24, 149/26, 149/42*
U.S. Cl. 260—514 J **13 Claims**

N-alkylated derivatives of 2-amino-2-hydrocarbylthiomethyl-1,3-propanediols useful as flotation agents, rubber modifiers, and chelating agents in the separation of metals are produced by reacting 2-amino-2-hydrocarbylthiomethyl-1,3-propanediols with organic halides. Thiols can be produced by reacting arylmethylated or alkarylmethylated derivatives of the above compounds with an alkali metal in the presence of ammonia.

3,789,070
PROPHYLAXIS AND TREATMENT OF CARDIAC 3,4,5-TRIALKOXYPHENYLALKANOIC ACIDS AND SALTS THEREOF

Garzia Aldo, Lodi, Italy, assignor to Istituto Chemioterapico Italiano S.p.A., Milan, Italy

Filed June 26, 1970, Ser. No. 50,327
Int. Cl. C07c *65/02*
U.S. Cl. 260—521 R **6 Claims**

(3,4,5-trialkoxy phenyl) alkanoic acids and their pharmaceutically-acceptable salts for prophylaxis and treatment of cardiac disorders.

3,789,071
EPOXY CURING AGENT

Eduard P. Babayan, Inglewood, Calif., assignor to Hitco, Irvine, Calif.

Division of Ser. No. 48,538, June 22, 1970,. This application Oct. 7, 1971, Ser. No. 187,529
Int. Cl. C07c *127/12*
U.S. Cl. 260—553 R **2 Claims**

An improved curing agent for epoxy resin compositions containing a polyepoxide comprising a substituted diurea formed by the reaction of two mols of a secondary amine,

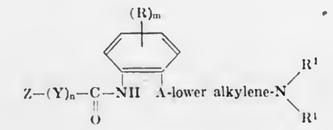
preferably an aliphatic amine, such as dimethylamine with one mol of a diisocyanate containing one cycloaliphatic isocyanate group and one aliphatic isocyanate group such as isophorone diisocyanate. The curing temperature of the composition can be substantially increased to provide products having improved properties without the danger of undercuring or substantial shortening of the gel time.

3,789,072
CARBOXAMIDES

Jack Bernstein, New Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 670,795, Sept. 26, 1967, abandoned, which is a continuation-in-part of Ser. No. 464,226, June 15, 1965, abandoned. This application Apr. 22, 1970, Ser. No. 30,989
Int. Cl. C07c *103/30*
U.S. Cl. 260—557 B **11 Claims**

This invention relates to new compounds of the formula



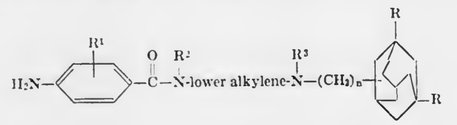
and acid addition and quaternary ammonium salts thereof, substances which have serotonin inhibitory, hypotensive and analgesic activities.

3,789,073
ADAMANTYLALKYLAMINOALKYL BENZAMIDES

Venkatachala L. Narayanan, North Brunswick, and Jack Bernstein, New Brunswick, both of N.J., assignors to G. R. Squibb & Sons, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 670,765, Sept. 26, 1967, abandoned, which is a continuation-in-part of Ser. No. 571,399, Aug. 10, 1966, abandoned. This application Apr. 22, 1970, Ser. No. 30,976
Int. Cl. C07c *103/20*
U.S. Cl. 260—558 A **13 Claims**

This invention relates to new adamantylalkyl-aminoalkyl benzamides of the general formula



and to acid addition salts and quaternary ammonium salts of such benzamides, substances which are water softeners, inhibit corrosion, arrest cardiac arrhythmia and combat viral infection.

3,789,074
PARTICLE SIZE-PH EFFECTS ON REDUCED COPPER OXIDE IN PREPARATION OF ACRYLAMIDE

Virgil L. Seale, Brookhaven, Miss.; Jerry J. Svarz, LaGrange, Ill.; Louis A. Goretta, Naperville, Ill.; John D. Newkirk, Downers Grove, Ill.; Wood E. Hunter, Lombard, Ill., and Frederick J. Sibert, Chicago, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed June 23, 1972, Ser. No. 265,902
Int. Cl. C07c *103/08*
U.S. Cl. 260—561 N **2 Claims**

A process for catalytically hydrolyzing a nitrile to the corresponding amide by contacting a nitrile with an improved reduced copper oxide catalyst.

3,789,075
PREPARATION OF HYDROCARBYLAMINE SALT OF THIOCYANIC

Morris Dundy, Beacon, N.Y., assignor to Texaco Inc., New York, N.Y.

Filed Sept. 17, 1971, Ser. No. 181,608
Int. Cl. C07c *87/04*
U.S. Cl. 260—583 R **7 Claims**

Method for preparing a hydrocarbylamine salt of thiocyanic acid by reacting equimolar amounts of ammonium thiocyanate and a hydrocarbylamine in the presence of a low molecular weight aliphatic alcohol.

3,789,076
METHOD FOR TREATING NITROGEN-CONTAINING POLYMERIC DISPERSANTS

Harry Chafetz, Poughkeepsie; William P. Cullen, Fishkill, and Edward F. Miller, Beacon, all of N.Y., assignors to Texaco Inc., New York, N.Y.

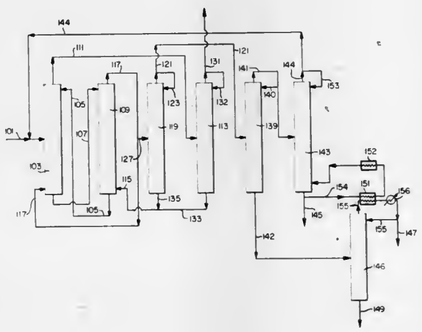
Filed Nov. 12, 1971, Ser. No. 198,468
Int. Cl. C07g *17/00*
U.S. Cl. 260—583 N **11 Claims**

Method for treating nitrogen-containing polymeric dispersants for mineral lubricating oil compositions comprising heating the dispersant at a temperature in the range from about 200° to 400°C to effect a decomposition of the unstable components present in the dispersant, extracting said reacted or decomposed unstable components with a lower aliphatic alcohol and recovering a dispersant of improved thermal stability.

3,789,077
PROCESS FOR THE SEPARATION OF AROMATIC HYDROCARBONS FROM A MIXED HYDROCARBON FEEDSTOCK

Alexander J. Kosseim, Yorktown Hgts., and George S. Somekh, New Rochelle, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 6, 1972, Ser. No. 295,521
Int. Cl. C07c *7/10*
U.S. Cl. 260—674 SE **8 Claims**



A continuous process for separating aromatic hydrocarbons including benzene and toluene from a mixed hydrocarbon feedstock containing same utilizing two extraction zones and a distillation train wherein light aliphatic impurities are removed from the benzene in an azeotropic distillation zone under specified conditions.

3,789,078
DEHYDROGENATION

George J. Nolan, Tahlequah, and Robert J. Hogan, Bartlesville, both of Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 810,831, March 26, 1969, abandoned, which is a continuation-in-part of Ser. No. 654,341, July 19, 1967, abandoned. This application Aug. 26, 1971, Ser. No. 175,398
Int. Cl. C07c 5/18
U.S. Cl. 260—680 E 23 Claims

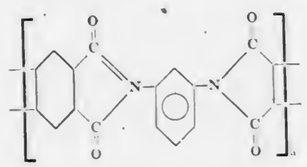
Dehydrogenation process using an improved catalyst formed from a phosphorus-containing material such as phosphoric acid, a tin material such as tin chloride, and one of a Group Ia or IIa metal or metal-containing material.

3,789,079
PROCESS FOR THE SEPARATION OF DIENE FROM ORGANIC MIXTURES

Eli Perry, St. Louis, and William F. Strazik, St. Ann, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Sept. 22, 1972, Ser. No. 291,452
Int. Cl. G07c 7/00
U.S. Cl. 260—681.5 R 4 Claims

Dienes are separated from organic mixtures comprising diene and alkene having one double bond by contacting the mixture against one side of a polymeric permeation membrane which is an aromatic imide polymer of the formula



and withdrawing at the other side a vaporous mixture having increased diene concentration. Exemplary of the organic mixtures is a mixture of butadiene and butene.

3,789,080
PROCESS FOR THE SEPARATION OF DIENE FROM ORGANIC MIXTURES

Eli Perry, St. Louis, and William F. Strazik, St. Ann, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Sept. 22, 1972, Ser. No. 291,460
Int. Cl. C07c 7/00
U.S. Cl. 260—681.5 R 4 Claims

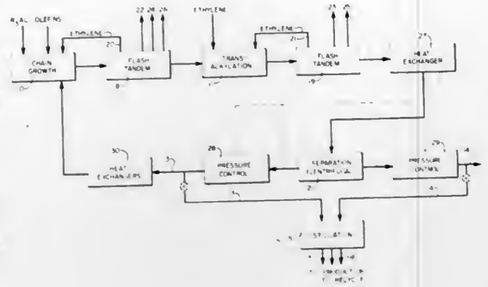
Dienes are separated from organic mixtures comprising diene and alkene having one double bond by contacting the mixture against one side of a glycidyl methacrylate polymer membrane and withdrawing at the other side a vaporous mixture having increased diene concentration. Exemplary of the organic mixtures is a mixture of butadiene and butene.

3,789,081
PROCESS FOR THE PRODUCTION OF OLEFINS

Carroll W. Lanier, Zachary, La., assignor to Ethyl Corporation, New York, N.Y.

Division of Ser. No. 853,306, Aug. 27, 1969, Pat. No. 3,663,647. This application Aug. 10, 1971, Ser. No. 170,580. The portion of the term of this patent subsequent to May 16, 1989, has been disclaimed.
Int. Cl. C07c 3/10
U.S. Cl. 260—683.15 D 10 Claims

Olefins in the range of six to 20 carbon atoms are prepared by feeding lower olefin (e.g., ethylene), lower alkyl organometallic (e.g., triethyl aluminum) and product olefin into a reaction system in which chain buildup occurs (e.g., chain growth or catalytic polymerization). The reaction effluent is flashed to remove product olefin and lower boiling olefin. The remainder of the effluent contains higher alkyl organometallic and is subjected to an alkyl displacement reaction using lower olefin (e.g., ethylene) to give a mixture of olefins (both in and



outside of product range) along with lower alkyl organometallic. Olefins having more than about 16 carbon atoms per molecular are separated and a stream containing lower alkyl organometallic adjuvant and product olefin is recovered for delivery to the first-named reaction system.

3,789,082
ISOMERISATION OF PARAFFIN HYDROCARBONS

Terence John Cook, Twickenham, and Martin Frederick Olive, Lightwater, both of England, assignors to The British Petroleum Company Limited, London, England

Filed Jan. 5, 1972, Ser. No. 215,650
Claims priority, application Great Britain, Jan. 26, 1971, 03161/71
Int. Cl. C07c 5/24, 5/28
U.S. Cl. 260—683.68 11 Claims

In the start up of a paraffin isomerisation process operating at 100°-204°C in the presence of HCL or a compound decomposable to it as activating agent, the catalyst bed is brought to at least 100°C, preferably, at least 130°C before the feedstock and activating agent contact the bed. Starting up the process in conventional manner at low temperature and gradually bringing the temperature up in the presence of feedstock and activating agent partially deactivates the catalyst.

The preferred catalyst is one obtained by chlorinating platinum-alumina with CCl_4 or an analogous derivative of methane and the preferred activating agent is CCl_4. Preferred feedstocks are C_4–C_8 paraffins, possibly containing 0.1–5% wt.

3,789,083
PROCESS FOR THE PREPARATION OF VINYL CHLORIDE POLYMERS GRAFTED ON POLYMERS OF ETHYLENE

Joseph Dumoulin, Wezembeek-Oppem, and Marc Obsomer, Brussels, both of Belgium, assignors to Solvay & Cie, Brussels, Belgium

Filed July 6, 1971, Ser. No. 160,100
Claims priority, application France, July 6, 1970, 70.25058; May 11, 1971, 71.17076; May 11, 1971, 71.17077; May 25, 1971, 71.18971
Int. Cl. C08f 3/04, 3/20
U.S. Cl. 260—878 11 Claims

Grafted polymers of vinyl chloride are prepared by polymerizing or copolymerizing vinyl chloride in the presence of an ethylene backbone polymer composed of polyethylene

an ethylene copolymer or mixture thereof which has a fusion index ≦ 250, from 0.2 to 4 double bonds per 1000 carbon atoms and/or from 5 to 30 methyl groups per 1,000 carbon atoms, under a partial pressure of vinyl chloride which is lower at all times during the polymerization than the saturated vapor pressure of vinyl chloride at the temperature of polymerization. Homogeneous products having a high degree of grafting and excellent thermal resistance and which provide in combination with polymers of vinyl chloride, compositions having improved resistance to shock, excellent transparency and processibility, are obtained by this process.

3,789,084
BLENDS OF STYRENE/ACRYLONITRILE COPOLYMERS WITH BLOCK COPOLYMERS CONTAINING LACTONES AND A RESINOUS OR RUBBERY POLYMER

Clifford W. Childers, and Earl Clark, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 29,687, April 17, 1970, Pat. No. 3,649,716. This application Oct. 4, 1971, Ser. No. 186,433
Int. Cl. C08q 39/10
U.S. Cl. 260—873 9 Claims

The impact strength of styrene/acrylonitrile copolymers is greatly improved by blending therewith a conjugated diene block copolymer containing a lactone and a resinous or rubbery polymer.

3,789,085
POLYETHYLENE BLOCK-GRAFT COPOLYMERS AND METHOD FOR PREPARING THE SAME

Akira Kishimoto, Ota; Sadao Hirata, and Hiroshi Ueno, both of Kanagawa, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 862,392, Sept. 30, 1969, abandoned. This application Nov. 30, 1971, Ser. No. 203,252
Claims priority, application Japan, Oct. 9, 1968, 43-73179
Int. Cl. C08f 29/12
U.S. Cl. 260—897 B 3 Claims

The present invention provides a block-graft copolymer of polyethylene and saponified ethylene vinyl acetate with improved moisture permeability by heating a mixture of polyethylene and a saponified ethylene-vinyl acetate copolymer to an elevated temperature and kneading the mixture under pressure. The saponified ethylene-vinyl acetate copolymer has a degree of saponification of 99% or more and consists of from 30 to 50 mol percent of ethylene, the remainder being vinyl acetate, the polyethylene being a powdery high density polyethylene which has not been subjected to heating and kneading after polymerization, the mixture containing the high density polyethylene and the saponified ethylene-vinyl acetate copolymer at a weight ratio of 98:2 to 80:20 and from 0.2 to 0.6 percent by weight based on the weight of the mixture, of a radical forming catalyst, and the mixture being heated to a temperature of from 200° to 205°C and kneaded under a pressure of 330 to 470 kg/cm².

3,789,086
METHOD FOR PRODUCING CHROMANOLS

Heinrich Frick, Riehen; Niklaus Halder, and Willy Vogler, both of Oberwil, all of Switzerland, assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Dec. 29, 1971, Ser. No. 213,831
Claims priority, application Switzerland, Jan. 11, 1971, 328/71
Int. Cl. C07d 7/26
U.S. Cl. 260—345.5 7 Claims

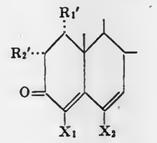
A process for producing chromanols such as Vitamin E by condensing an isoprenol or isoprenol derivatives with a hydroquinone in the presence of hydrogen chloride and an iron component which can be iron, ferrous chloride or mixtures thereof.

3,789,087
4,6-DICHLOR-$\Delta^{4,6}$-STEROIDS AND METHOD OF MAKING AND USING THE SAME

Rudolf Wiechert, and Friedmund Neumann, both of Berlin, Germany, assignors to Schering AG, Berlin, Germany

Filed June 5, 1968, Ser. No. 734,513
Claims priority, application Germany, June 9, 1967, Sch 40852
Int. Cl. C07c 169/34
U.S. Cl. 260—397.3 1 Claim

4,6-dichlor-$\Delta^{4,6}$-steroids of the pregnane and androstane series are produced by reacting a 4-chlor- or a 6-chlor-$\Delta^{4,6}$-steroid which includes a group of the formula:



wherein X_1 and X_2 are different and respectively denote hydrogen or chlorine, and wherein each of R_1' and R_2', respectively, is hydrogen, or R_1' and R_2' jointly denote a methylene group, with compounds capable of forming, respectively, positive and negative chlorine ions; and treating the thus-obtained reaction product with a base.

The thus-obtained novel compounds, in the form of pharmaceutical compositions for oral or intramuscular administration are useful in the treatment of gynecological disorders and as contraceptive.

3,789,088
DIMERS OF HEXAFLUOROPROPENE AND PROPYLENE

William Alfred LaLande, Jr., Philadelphia; Murray Hauptschein, Glenside, and Robert Bonner Hager, Collegeville, all of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed May 24, 1971, Ser. No. 146,503
Int. Cl. C07c 23/06
U.S. Cl. 260—648 F 2 Claims

Cis and trans-1-trifluoromethyl-1,2,2-trifluoro-4-methylcyclobutane and mixtures thereof are provided. These compositions are liquids having high dielectric constant and low freezing points, useful as working fluids for hydraulic systems and as inert solvents. Also provided are linear dimers, 4,4,5,6,6,6-hexafluorohexene-1 and 4,4,5,6,6,6-hexafluorohexene-2, useful as co-monomers in ethylene and propylene polymerization.

3,789,089
HALOADAMANTANES

Robert E. Moore, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

Division of Ser. No. 784,486, Dec. 17, 1968, Pat. No. 3,666,806. This application Sept. 20, 1971, Ser. No. 182,217
Int. Cl. G07c 17/00
U.S. Cl. 260—648 R 9 Claims

Halogenated derivatives containing the adamantane nucleus are produced by admixing, in the presence of strong sulfuric acid, adamantane or alkyl-substituted adamantane with a selected halo-yielding salt of an alkali or alkaline earth metal, or a corresponding hydrogen halide.

3,789,090

PROCESS FOR THE PRODUCTION OF CONJUGATED DIENE LIQUID POLYMERS

Yutaka Otsuki, Kawasaki; Hajime Hara, Fujisawa, and Nobuo Imai, Kawasaki, all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Filed June 4, 1970, Ser. No. 43,588
Claims priority, application Japan, June 14, 1969, 44-46731
Int. Cl. C07c *15/10*; C08d *3/04*; C08f *3/16*
U.S. Cl. 260—669 P 6 Claims

A process is disclosed for the production of liquid polymers by polymerizing conjugated diolefins or copolymerizing these diolefins with vinyl compounds in the presence of particularly organosodium catalysts, where the resulting polymers are controlled in the desired average molecular weight and have very low color.

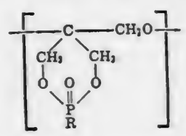
3,789,091

CYCLIC PHOSPHONATE ESTERS AND THEIR PREPARATION

James J. Anderson, Metuchen; Vasco G. Camacho, Iselin, and Robert E. Kinney, Lawrenceville, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 15, 1971, Ser. No. 199,022
Int. Cl. C07d *105/04*; C08f *45/58*
U.S. Cl. 260—927 R 14 Claims

Polymers containing flame retardant amounts of addition products of alkylhalogen-free esters of (1*a*) phosphorus acids, (1*b*) carboxylic acids, or (1c) sulfonic acids and (2) a bicyclic phosphite (1-alkyl-4-phospha-3,5,8-trioxabicyclo-[2,2,2]-octane), said addition products having the following group:



where R is lower alkyl C_1–C_4), preferably C_1–C_2, an hydroxyalkyl (C_1–C_4), preferably C_2–C_3;
the addition products of (1*a*) or (1*b*) and (2); and preparation of the addition products by heating a mixture of (1*a*) or (1*b*) and (2) to an elevated temperature (e.g., 175°–300°C.).

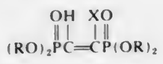
3,789,092

HALOVINYLENE-1,2-BIS(PHOSPHONIC ESTERS)

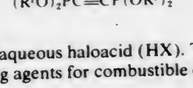
Ludwig Maier, Kilchberg, Switzerland, assignor to Monsanto Company, St. Louis, Mo.

Filed June 9, 1972, Ser. No. 261,171
Int. Cl. G07f *9/40*
U.S. Cl. 260—932 4 Claims

Halovinylene-1,2-bis(phosphonic acids) and their corresponding esters of the formula



wherein R is hydrogen or a hydrocarbon radical having for example from 1–24 carbon atoms and X is a halogen atom e.g. chlorine or bromine. The halovinylene acids are obtained by hydrolysis or an ethynylene-1,2,-bis(phosphonic acid diester) of the formula



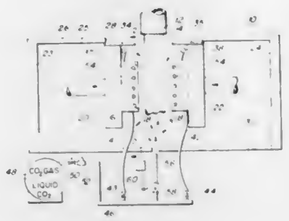
with concentrated aqueous haloacid (HX). The acids are useful as flameproofing agents for combustible organic materials, as inhibitors for metal corrosion, as inhibitors for scale formation and as intermediates in the formation of the corresponding monoesters and diesters. The esters are useful as plasticizers, lubricants, lubricant additives and functional fluids.

3,789,093

METHOD FOR ACCELERATING THE MOLDING CYCLE BY BLANKETING WITH DRY CARBON DIOXIDE GAS

Robert N. Bose, 3117 Roberts St., New Orleans, La.

Continuation-in-part of Ser. No. 8,350, Feb. 3, 1970, abandoned. This application Dec. 8, 1971, Ser. No. 205,823
Int. Cl. B29c *17/07*
U.S. Cl. 264—37 4 Claims



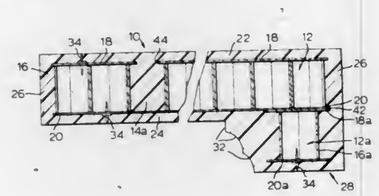
Process of accelerating the molding cycle when using blow molding or injection molding machines including providing an enclosure around the molding area and supplying to said enclosure an atmosphere for blanketing the mold area with carbon dioxide gas to reduce the dew point in the mold cavities whereby the molds may be operated at a lower temperature without causing surface imperfections on the molded part. In other embodiments multi-station blow molding and injection molding machines include an enclosed mold area into which exhaust carbon dioxide from the molded articles is vented to maintain the dew point at a value below that of the ambient.

3,789,094

METHOD OF PRODUCING A MOLDED FOAMED STRUCTURAL MEMBER HAVING A HONEYCOMB CORE ADAPTED FOR VENTING

David John Hutchison, Toronto, Ontario, Canada, assignor to Monostruct Corporation, Limited, Toronto, Ontario, Canada

Filed May 6, 1971, Ser. No. 140,748
Int. Cl. B29d *27/04*
U.S. Cl. 264—45 7 Claims



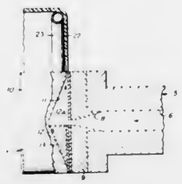
A cored, molded structural member comprises a core having a plurality of cells between major faces - a honeycomb core - and having a substantially seamless covering of moldable plastic material which expands while it sets and which, when set, is substantially rigid. Foamable polyurethane is particularly contemplated. At least some of the cells of the core are adapted to have gas communication with other, adjacent cells when the pressure of the gas and/or air within the cell rises. The molded structural member is formed in a mold which is entirely closed and gas tight so as to preclude flow of gas or air outwardly from the mold cavity during the molding operation. Spacers may be used to space the core away from the faces of the mold cavity, and to keep the core from shifting within the mold cavity as the plastic material expands and sets. Pressure relief of the pressurized mold is usually provided before the mold is opened, by making one or more channels through the plastic covering in the core.

3,789,095

CONTINUOUS METHOD OF MANUFACTURING ARTICLES FROM FOAMED THERMOPLASTIC MATERIAL

Thomas W. Winstead, 2 Overlook Ln., Baltimore, Md.

Continuation-in-part of Ser. No. 798,821, Oct. 10, 1968, abandoned, which is a division of Ser. No. 480,917, Aug. 19, 1965, Pat. No. 3,479,694. This application Jan. 15, 1971, Ser. No. 106,861. The portion of the term of this patent subsequent to June 13, 1989, has been disclaimed.
Int. Cl. B29d *7/04*, *7/24*, *27/00*
U.S. Cl. 264—51 12 Claims



An integrated method of continuously extruding low-density foamed thermoplastic material and manufacturing three-dimensionally formed articles therefrom. The method includes the steps of extruding and spreading a narrow strip of thermoplastic material at a high linear rate, vacuum forming articles therefrom on the periphery of a forming wheel (utilizing the heat of extrusion), severing the formed articles from the strip, packaging the articles, and returning the selvage for re-use.

3,789,096

METHOD OF IMPREGNATING POROUS REFRACTORY BODIES WITH INORGANIC CHROMIUM COMPOUND

Peter K. Church, Cascade, and Oliver J. Knutson, Colorado Springs, both of Colo., assignors to Kaman Sciences Corporation, Colorado Springs, Colo.

Continuation-in-part of Ser. No. 642,704, June 1, 1967, abandoned. This application Dec. 28, 1967, Ser. No. 694,303
Int. Cl. C04b *41/24*, *41/06*
U.S. Cl. 264—60 26 Claims



A new ceramic treatment process and product and, more particularly, a process for forming and treating and shaping and treating of porous skeletal bodies to produce hardened dimensionally stable end products at relatively low temperature and the resulting materials produced thereby which comprises the steps of treating a porous skeletal body by impregnating the interstices of the porous body with a comound of a metal capable of being converted to an oxide in situ at relatively low temperatures, heating the body so impregnated at temperature well below normal vitrification to a temperature of at least 600°F. and for a period of time sufficient to convert the compound impregnated therein to an oxide and repeating the impregnation and heating steps until the desired degree of hardness is obtained.

3,789,097

PROCESS FOR PRODUCING PELLETIZED METAL SULFIDE MATERIALS

Russell R. Beck; David B. George, and Charles W. Anderson, all of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Aug. 2, 1971, Ser. No. 168,003
Int. Cl. B01j *2/04*
U.S. Cl. 264—82 8 Claims



A process of producing pelletized metal sulfide material bonded by reaction products of lime contacted by sulfur dioxide, so that the resulting pellets will have cohesive strength capable of withstanding the rough handling normally received in industrial smelting operations, comprises the steps of forming green pellets from a metal sulfide agglomerate prepared by mixing particulate metal sulfide material with lime in the presence of sufficient water to form a cohesive mixture, and of exposing the pellets to an effective amount of sulfur dioxide gas (which in the presence of moisture is converted to sulfurous acid) to react with the lime at temperatures ranging from room temperature to 100°C. to form calcium sulfite and calcium sulfate bonding agents. The hardness of the resulting pellets is increased many times over that achieved by the usual procedure of simple drying of metal sulfide material to form pellets which disintegrate prematurely when employed in commercial smelting operations. If a greater degree of hardness is necessary for some applications, the bonded pellets of the invention can be subjected to higher temperatures, imparting a degree of hardness to the pellets related to the temperature to which the pellets are exposed and the length of time of exposure.

ERRATUM

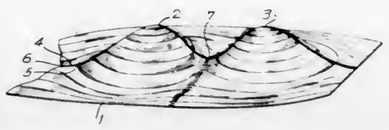
For Class 264—95 see:
Patent No. 3,788,503

3,789,098

METHODS AND APPARATUS FOR CONSTRUCTING KNITTED BRASSIERE BLANKS AND BRASSIERES

Raymond C. Cole, Hillsdale, N.J.; William C. Hittel, New Hyde Park, N.Y., and James G. Donaghy, Flanders, N.J., assignors to International Playtex Corporation, New York, N.Y.

Filed June 11, 1971, Ser. No. 152,245
Int. Cl. D04b 11/36
U.S. Cl. 264—103 16 Claims



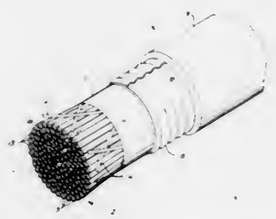
There is disclosed as an article of manufacture an integrally knit blank shaped to allow for the reorientation of the wales along the apex of the cup and to allow for the reorientation of the wales along the body of the breast receiving elements at least along the area which will comprise the lower cup portion, to an orientation other than originally knitted. There is also disclosed a flat boarding arrangement as the shaping apparatus as well as the stabilizing form. The method of knitting and shaping generally includes the steps of integrally knitting, with at least some heat setting yarns a blank having relatively concial breast pockets and a relative flat apex area; reorienting a portion of the yarns in the apex area to provide a relatively rounded apex configuration; and heat setting the blank to retain the apex area in such relatively rounded configuration.

3,789,099

METHODS OF MANUFACTURING WATERPROOF CABLE

Carl Eugene Garrett, Stone Mountain, Ga.; William Henry Kinsley, Jr., Omaha, and Larry Dean Moody, Ralston, both of Nebr., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 9, 1971, Ser. No. 196,949
Int. Cl. B32b 31/06
U.S. Cl. 264—174 10 Claims



Successive sections of a cable core having twisted pairs of insulated conductors stranded together are moved axially longitudinally through a series of in-line chambers having interconnecting dies of an apparatus with facilities for the pressure application of a heated waterproofing compound having a jelly-like consistency into the interstices between the stranded pairs of conductors. The apparatus is designed to direct the compound inwardly radially of the core after which a flow path of the compound is established into an upstream direction relatively longitudinally of the advancing cable core to more completely fill the interstices of the completed core. Provisions are made for cooling the cable core both prior to the filling thereof to limit the movement upstream of the compound and subsequent to the filling of the core to solidify and render self-sealing the compound.

Subsequently, the successive sections of the compound filled core are advanced through various stations whereat a core wrap and sheath are applied thereto together with additional applications of the waterproofing compound. A plastic jacket is extruded about the sheath and cooled prior to taking up of the successive sections of the jacketed cable onto a take-up reel.

3,789,100

PROCESS FOR MOLDING OBJECTS FROM RAPID-SETTING POLYURETHANE COMPOSITIONS

Earle L. Kropscott, and Gerald R. Wittenbach, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed June 19, 1972, Ser. No. 264,058
Int. Cl. B29c 1/02, 1/08
U.S. Cl. 264—219 8 Claims

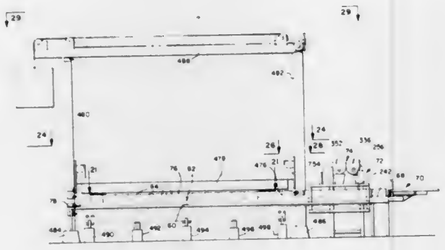
Molded polyurethane objects are prepared from rapid-setting polyurethane compositions employing molds prepared from foamed polymers of vinyl aromatic compounds. The molds retain their shape and dimensions sufficiently for the polyurethane composition to solidify and then the mold distorts and shrinks away from the molded object.

3,789,101

PANEL MANUFACTURING MACHINE AND METHOD

Lawrence W. Wright, Scottsdale; Leon H. Tolleson; Daniel P. Abrahamson, both of Phoenix; Paul M. Thomas, Paradise Valley, and Eugene E. Crile, Phoenix, all of Ariz., assignors to The Thomas 1970 Trust, Phoenix, Ariz.

Continuation-in-part of Ser. No. 132,788, April 9, 1971, abandoned. This application Apr. 30, 1971, Ser. No. 138,949
Int. Cl. E04d 2/02
U.S. Cl. 264—261 8 Claims



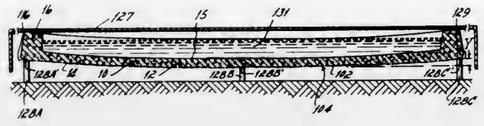
A panel manufacturing machine and method adapted to produce panels of building blocks; the machine and method involving the formation of a horizontal course of blocks in end-to-end relation to each other with mortared head joints between ends of the blocks and with bed mortar on top of the blocks, which course is transferred as a unit to be assembled with other courses of blocks to produce a panel. Further, the machine and method can progressively sense a modular measurement longitudinally of said course to control the overall length of each course when assembled and mortared together.

3,789,102

METHOD FOR FORMING A FLANGED CONCRETE PANEL HAVING A PLANAR CENTRAL SECTION

Earl T. Hazelett, Jr., Phoenix, Ariz., assignor to Continental Homes, Inc., Pheonix, Ariz.

Continuation-in-part of Ser. No. 2,263, Jan. 12, 1970, abandoned. This application Feb. 26, 1971, Ser. No. 119,159
Int. Cl. B28b 21/92
U.S. Cl. 264—295 9 Claims



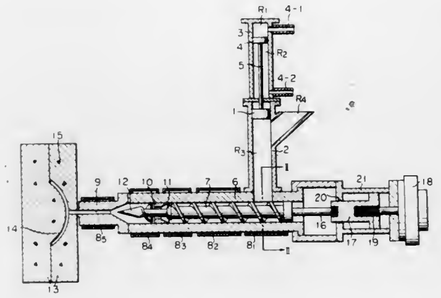
Fabrication of a flanged concrete panel includes pouring concrete into a suitably configured mold of elastically deformable material in which reinforcing frame and mesh is appropriately located; partially curing the panel while supporting the mold such that under the weight of the concrete contained therein it deflects in a direction countervailing the normal shrinkage deformation direction. The partially cured panel is removed from the mold and allowed to undergo its normal curing shrinkage deformation to yield a panel having a planar face.

3,789,103

PROCESS FOR INJECTION MOLDING POLYESTER PREMIXES

Toshihiko Sueyoshi, and Mitsuo Kozawa, both of Aki District, Japan, assignors to Japan Steel Works Ltd., Tokyo, Japan

Filed Aug. 12, 1971, Ser. No. 171,240
Claims priority, application Japan, Sept. 4, 1970, 45-77028
Int. Cl. B29f 1/08
U.S. Cl. 264—329 1 Claim



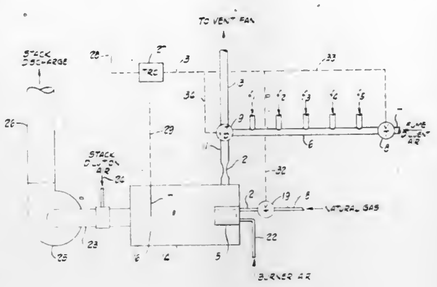
Putty-like raw material composed of fluid polyester with added fillers, pigments, reinforcements, etc. is forced into a screw containing heating cylinder through a push chamber which communicates with said heating cylinder by a converging flow passage so that the temperature of said material is raised by the shearing action and the external heating to which it is subject during its passing through said passage, the raw material thus supplied into said heating cylinder is advanced forwardly by the rotating screw so that its temperature is regulated from externally of said heating cylinder, and, after it is heated again at the front end portion of the heating cylinder, it is injected into dies and reflux thereof is prevented.

3,789,104

CONTROL METHOD FOR FUME INCINERATORS

Albert P. McCauley, Chagrin Falls, Ohio, assignor to SCM Corporation, Cleveland, Ohio

Filed Feb. 25, 1971, Ser. No. 118,854
Int. Cl. B01d 53/34
U.S. Cl. 423—210 12 Claims



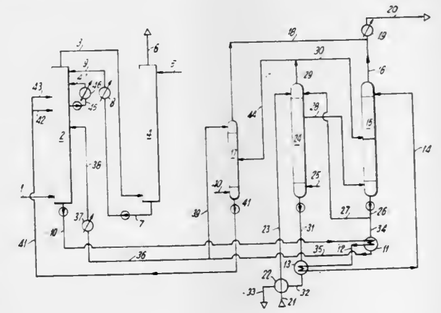
Improved process and apparatus are shown for incineration of combustible fumes to suppress deleterious, uncontrolled combustion of said fumes from the occurrence of an adventitious, transient fume overload. In response to upward deviation from a preselected incineration temperature, the fume feed flow is automatically throttled to bypass the incineration zone while the flow of primary incineration fuel has been automatically diminished, but at most only to a point short of the extinction of its combustion, thereby relieving the overload condition without disruptive operational discontinuity. An automatic temperature controller provides the particular sequential throttling control impulse to automatic throttling valves on primary fuel and bypass for this purpose, and also to an automatic throttling valve on flow of fume diluent vapors, if desired.

3,789,105

AMMONIA-HYDROGEN SULFIDE-CYCLE SCRUBBING METHOD FOR CRUDE COKE OVEN GASES

Kurt Tippmer, and Dieter Laufhutte, both of Recklinghausen, Germany, assignors to Firma Carl Still, Recklinghausen, Germany

Filed Nov. 10, 1971, Ser. No. 197,372
Claims priority, application Germany, Nov. 28, 1970, 2058709
Int. Cl. C01b 31/20
U.S. Cl. 423—234 6 Claims



Continuous treating process for scrubbing ammonia rich coke oven gases containing H_2S involves regenerating am-

monia rich H_2S wash liquor in a deacidifier and distilling the ammonia from the NH_3 scrubber in a still. The cyclic process is carried out in two cycles: a first cycle in which regenerated, cooled, aqueous ammoniacal solution is circulated from the sump of the deacidifier to about the center or the upper parts of the H_2S-scrubber, and from the sump of the H_2S-scrubber back to the upper part of the deacidifier; and a second, hot cycle in which the regenerated aqueous ammoniacal solution issuing from the sump of the deacidifier is circulated to the upper part of the H_2S-scrubber.

3,789,106

PROCESS FOR PURIFYING GAS MIXTURES CONTAINING PARTICULARLY CO AS IMPURITY

Leon Hay, Paris, France, assignor to L'Air Liquide, Societe Anonyme pour l'Getude et l'Exploitation des Procedes, Georges Claude, Paris, France

Filed June 16, 1971, Ser. No. 153,798

Claims priority, application France, June 23, 1970, 70.23107

Int. Cl. B01d *53/34*

U.S. Cl. 423—247 **2 Claims**

The present invention has for its object a process by which traces of carbon oxide contained in a gas mixture of which the CO partial pressure is low are eliminated by adsorption, by the said mixture being brought into contact with a purifying mass formed of mordenite charged with copper.

The present invention has for its object an improved process for purifying gas mixtures which contain particularly the carbon oxide CO as impurity.

3,789,107

PROCESS FOR PRODUCING A CRYSTALLINE ZEOLITE

Curtis H. Elliott, Jr., Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed May 4, 1971, Ser. No. 140,249

Int. Cl. C01b *33/28*

U.S. Cl. 423—329 **5 Claims**

Faujasitic-type crystalline zeolites X and Y are produced. In one embodiment, sodium sulfide is added to the reaction mixture as a source of sodium and as a buffer. The buffering action of the sodium sulfide provides the basicity required to maintain the alumina hydrate component of the reaction mixture in solution but not a basicity whereby zeolite crystallization is retarded. In another embodiment, a nucleating mixture having the formula 3-10Na_2S: 5–15 Na_2O: 5–50 SiO_2: 0.4–4.0 Al_2O_3: 50–500H_2O is added to the reaction mixture to promote crystalline zeolite formation.

3,789,108

PRODUCTION OF CHLORINE DIOXIDE

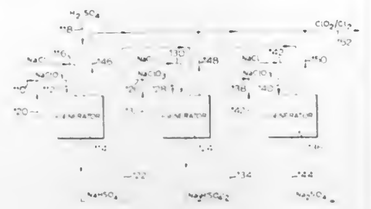
William Howard Rapson, Scarborough, Ontario, Canada, assignor to ERCO Industries Limited, Islington, Ontario, Canada

Division of Ser. No. 147,821, May 28, 1971. This application Feb. 8, 1973, Ser. No. 330,602

Int. Cl. C01b *11/02*; **C01d** *5/02*; **C01h** *7/02*

U.S. Cl. 423—478 **4 Claims**

Chlorine dioxide is produced from three reactors, the first reacting sodium chlorate, sodium chloride and/or hydrogen chloride, and sulphuric acid at an acidity in excess of 4.8N to deposit sodium acid sulphate, the second reacting sodium chlorate, sodium chloride and/or hydrogen chloride, and a sulphate-ion material which is constituted at least in part by the sodium acid sulphate deposited in the first reaction, at an acidity greater than 4.8N to deposit sodium sesquisulphate. In the third vessel sodium chlorate, sodium chloride and/or hydrogen chloride and a sulphate-ion material which is con-



stituted at least in part by the sodium sesquisulphate at an acidity less than 4.8N to deposit sodium sulphate.

3,789,109

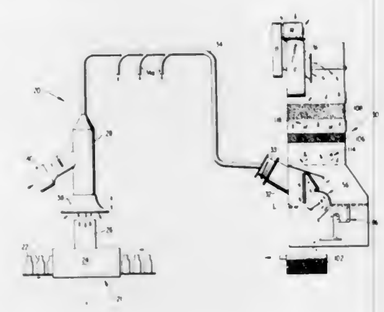
METHOD FOR CLEANING A GAS

Richard S. Lyon, Carroll, Ohio, and Ralph L. Lyon, Wheaton, Ill., assignors to United McGill Corporation, Columbus, Ohio

Filed Aug. 13, 1971, Ser. No. 171,686

Int. Cl. B01d *53/34*; **C01b** *7/08*; **C01w** *19/02*

U.S. Cl. 423—481 **23 Claims**



A system for cleaning air polluted, for example, with metallic chlorides and hydrogen chloride gas. The air is heated to convert the metallic chlorides to metallic oxides and hydrogen chloride gas and then conveyed to a gas scrubber. Before entering the scrubber, fresh water is sprayed into the air to rapidly cool the air and the water reacts with the hydrogen chloride gas to form hydrochloric acid. The scrubber employs water to wash and scrub the air and remove the pollutants from the air.

3,789,110

METHOD FOR REMOVING SULFUR DIOXIDE FROM WASTE GASES AND RECOVERING A CONCENTRATED STREAM OF SULFURDIOXIDE

Frank J. Ball, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

Filed July 23, 1971, Ser. No. 165,051

Int. Cl. C01b *17/60*

U.S. Cl. 423—539 **10 Claims**

A method of removing sulfur dioxide from waste gas mixtures comprising adsorbing sulfur dioxide onto activated carbon as sulfuric acid at a temperature between ambient temperature and 350° F., subsequently reacting the sulfuric acid laden activated carbon with the correct proportion of hydrogen sulfide at a temperature below 350° F., preferably

200°–350°F., to homogeneously reduce all the hydrogen sulfide and a portion of the adsorbed sulfuric acid to elemental sulfur, then raising the temperature to between 350° to 1000° F. to react the elemental sulfur and remaining sulfuric acid to form concentrated sulfur dioxide without reaction with the activated carbon, recovering said sulfur dioxide from the activated carbon, and recycling the completely regenerated activated carbon. The recovered sulfur dioxide may be used in a variety of ways, for instance, it may be reacted with methane to produce hydrogen sulfide, it may be reacted with hydrogen sulfide as in a Claus unit to produce elemental sulfur, or it may be converted to sulfuric acid.

3,789,111

PROCESS OF MANUFACTURING ANHYDROUS CALCIUM SULFATE FORM II AND PRODUCTS OBTAINED BY THIS PROCESS

Patrice Chaurand, Ancone; Regis Magnan, Montelimar, and Jean-Paul Coquery, Lyon, all of France, assignors to Progil and Ciments Lafarge, Paris, France

Filed Dec. 14, 1970, Ser. No. 97,947

Claims priority, application France, Jan. 6, 1970, 70.00480

Int. Cl. C01f *11/46*

U.S. Cl. 423—555 **8 Claims**

A process of making anhydrous calcium sulfate form II from synthetic gypsum by heating to a temperature of 325°–450°C. in the presence of steam as catalyst for a period of time necessary to convert the gypsum into the anhydrous calcium sulfate II; the product may be ground and K_2SO_4 and/or sodium fluosilicate added.

3,789,112

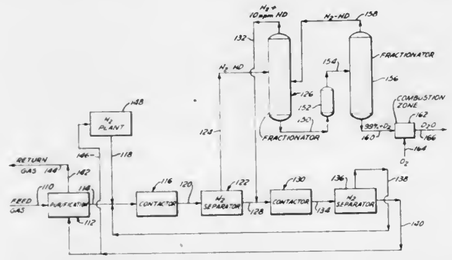
PROCESS FOR OBTAINING DEUTERIUM FROM HYDROGEN-CONTAINING COMPONENTS AND THE PRODUCTION OF HEAVY WATER THEREFROM

Robert W. Pachaly, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Oct. 28, 1970, Ser. No. 84,578

Int. Cl. C01b *5/02*, *4/00*

U.S. Cl. 423—580 **14 Claims**



The deuterium naturally present in the chemical compounds is transferred to hydrogen having less than normal deuterium content after which the deuterium is recovered from the hydrogen and the recovered deuterium can be oxidized to form deuterium oxide or heavy water.

3,789,113

MODIFIED SYSTEM FOR HEAVY WATER PRODUCTION

Victor R. Thayer, Newark, Del., assignor to Canadian General Electric Company Limited, Toronto, Ontario, Canada

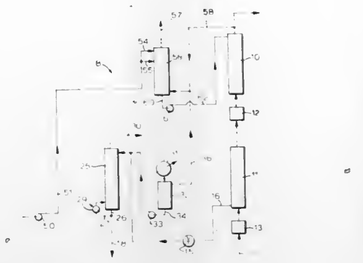
Filed Jan. 29, 1971, Ser. No. 110,993

Claims priority, application Canada, Feb. 4, 1970, 73903

Int. Cl. C01b *5/02*, *17/16*

U.S. Cl. 423—580 **7 Claims**

In a heavy water isotopic separation process wherein hydrogen sulphide is separated from waste water and recirculated back to the process by absorption into incoming feed water, the pressures of feed water and the pressure of gas extracted from the waste water are controlled to permit reabsorption of the gas without intermediate recompression.



3,789,114

PROCESS FOR THE PRODUCTION OF HYDROGEN PEROXIDE BY THE ANTHRAQUINONE PROCESS

Gunter Giesselmann, Heusenstamm; Gerd Schreyer, Grossauheim, and Wolfgang Weigert, Offenbach, all of Germany, assignors to Deutsche Gold- und Silber-Scheidean-Stalt vormals Roessler, Frankfurt (Main), Germany

Filed Jan. 27, 1972, Ser. No. 221,444

Claims priority, application Germany, Jan. 30, 1971, 2104432

Int. Cl. C01b *15/02*; **B01j** *1/16*

U.S. Cl. 423—588 **22 Claims**

Hydrogen peroxide is produced by the anthraquinone process employing a stabile 1, 3, 5-triazine as the solvent for the reaction carrier.

3,789,115

PROCESS FOR PREPARING A HIGHLY SELECTIVE CATALYST USED IN THE PRODUCTION OF HYDROGEN PEROXIDE

Shiro Matsumura; Hiroshi Shin; Junichiro Sugano; Tadashi Yoshii; Yasuhisa Kuriyama, and Takeshi Komaki, all of Yokkaichi, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation of Ser. No. 864,524, Oct. 7, 1969, abandoned. This application July 14, 1971, Ser. No. 162,616

Claims priority, application Japan, Oct. 14, 1968, 43-74206

Int. Cl. C01b *15/02*; **B01j** *11/08*

U.S. Cl. 423—588 **8 Claims**

In a process for the hydrogenation of an anthraquinone to the corresponding anthrahydroquinone in the production of hydrogen perioxide comprising hydrogenating said anthraquinone, oxidizing the resulting anthrahydroquinone and extracting hydrogen peroxide, the step comprising conducting said hydrogenation in the presence of a selective hydrogenation catalyst consisting essentially of a member selected from the group consisting of palladium black, palladium supported on a carrier, nickel, a palladium compound and a palladium compound supported on a carrier, wherein said catalyst has been treated with hydrogen or a molecular hydrogen containing gas at a temperature of from 150° to 650°C and for a period of time of from 10 to 240 minutes.

3,789,116
FLUORESCENT LABELED ANTIBODY REAGENT

John William Dixon Kay, Zion, Ill., assignor to Abbott Laboratories, Chicago, Ill.

Filed Dec. 9, 1970, Ser. No. 96,636
Int. Cl. C12k *1/00*, *1/04*; G01n *33/16*
U.S. Cl. 424—8 7 Claims

A lyophilized stable labeled antibody reagent that comprises a non-reducing polysaccharide, a normal serum and a labeled antibody, particularly an antibody labeled with a fluorescent chemical is provided that is exceptionally specific to a given antigen. Specificity is such that Group A, β-hemolytic Streptococci, can readily be identified in the presence of Group C or Group G Streptococci or *Staphlococcus aureus*. The reagent is stable in the lyophilized state at temperatures of up to 37°C. for a period of months and in the reconstituted state at 2° to 8° C. for a period of weeks.

3,789,117
PROCESS FOR THE PREPARATION OF ENTERIC MEDICAMENTS

Takuichi Tsujino, Tokyo, Japan, assignor to Freund Ind. Co., Ltd., Tokyo, Japan

Filed July 19, 1971, Ser. No. 164,115
Int. Cl. A01n *17/00*; B44d *1/30*; C08b *13/00*
U.S. Cl. 424—35 7 Claims

An improved enteric coating for medicament less soluble in gastric juice or water is obtained by coating a medicament with an organic solvent-soluble cellulose derivative in which the hydrogen atom of one hydroxyl group has been substituted by a carboxymethyl group and at least one of other hydroxyl groups have been esterified or etherified.

3,789,118
MEDICAL ADHESIVE SOLVENT COMPOSITION

Arthur B. Broerman, 5901 Baylor, Bartlesville, Okla.

Filed July 16, 1971, Ser. No. 163,498
Int. Cl. B01f *1/00*; C23g *5/00*; A61k *9/00*
U.S. Cl. 424—45 4 Claims

A solvent composition is provided which will efficiently remove medical adhesives, particularly adhesives containing silicone resins, from skin and simultaneously replace body oils, and prepare the skin to receive subsequent applications of the adhesive. The solvent composition comprises a major effective amount of a liquid aliphatic hydrocarbon solvent fraction, preferably a C_8 to C_{11} aliphatic hydrocarbon fraction, a minor effective skin conditioning amount (generally comprising at least about 2 weight percent) of silicone fluid, and preferably, a minor effective amount of a flash point suppressant for the liquid aliphatic hydrocarbon fraction.

3,789,119
STABILIZED MOLDED SUBLINGUAL NITROGLYCERIN TABLETS

Salvatore A. Fusari, St. Clair Shores, and Leslie M. Lueck, Oxford, both of Mich., assignors to Parke, Davis & Company, Detroit, Mich.

Filed June 1, 1971, Ser. No. 149,072
Int. Cl. A61k *27/12*
U.S. Cl. 424—78 4 Claims

Pharmaceutical compositions containing minor proportions of nitroglycerin and a non-volatile, water-soluble solvent in combination with a major proportion of a solid, water-soluble pharmaceutical carrier. Those compositions, in the form of tablets suitable for sublingual administration, can be produced by wetting a substantially dry mixture of the nitroglycerin and the solid, water-soluble pharmaceutical carrier with a solvent mixture containing a non-volatile, water-soluble solvent and a volatile solvent, forming the wetted mixture into tablets, and removing the volatile solvent.

3,789,120
SULFAMOYL AZIDE PROCESS AND COMPOSITION FOR LOWERING BLOOD PRESSURE

William L. Matier, and William T. Comer, both of Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

Division of Ser. No. 16,933, March 5, 1970, Pat. No. 3,723,627. This application Jan. 8, 1973, Ser. No. 321,872
Int. Cl. A61k *27/00*
U.S. Cl. 424—226 4 Claims

This invention is concerned with a pharmaceutical process and pharmaceutical compositions for lowering blood pressure in mammals by the administration thereto sulfamoyl azides of the Formula $R^1R^2NSO_2N_3$ and pharmaceutical compositions thereof. R^1 is alkyl, cycloalkyl, aryl, aralkyl and so on; R^2 is hydrogen, alkyl, cycloalkyl, phenyl, phenylalkyl, and so on; R^1 and R^2 can be taken together with nitrogen to form a heterocyclic radical.

3,789,121
17α,21-ORTHOBUTYRATES OF 6α, 9α-DIFLUOROHYDROCORTISONE AND 6α, 9α-DIFLUOROPREDNISOLONE, COMPOSITIONS CONTAINING SAME AND THE USE THEREOF AS ANTI-INFLAMMATORY AGENTS

Alberto Ercoli, Milan, and Rinaldo Gardi, Carate Brianza, both of Italy, assignors to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 55,260, July 15, 1970, which was a continuation-in-part of Ser. No. 716,287, Mar. 27, 1968, both abandoned.
Filed Nov. 26, 1971, Ser. No. 202,686
Int. Cl. A61k *17/00*
U.S. Cl. 424—241 15 Claims

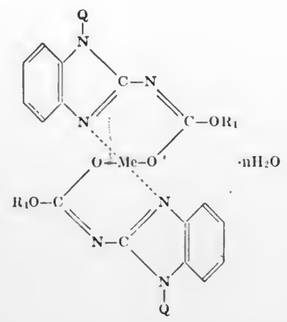
There have been prepared the new 17α, 21-orthobutyrates of 6α, 9α-difluorohydrocortisone and 6α, 9α-difluoroprednisolone -difluoroprednisolone useful as anti-inflammatory agents. The compounds may be used in the form of pharmaceutical formulations in corticoid anti-inflammatory therapy.

3,789,122
FUNGICIDAL COMPOSITIONS OF TRANSITION METAL COMPLEXES OF SUBSTITUTED 2-BENZIMIDAZOLECARBAMIC ACID, ALKYL ESTERS

Hein L. Klopping, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 804,710, Mar. 5, 1969, Pat. No. 3,562,282, which is a continuation-in-part of Ser. No. 721,061, Apr. 12, 1968, abandoned, which is a continuation-in-part of Ser. No. 629,900, Apr. 11, 1967, abandoned, which is a continuation-in-part of Ser. No. 548,034, May 6, 1966, abandoned. This application Oct. 19, 1970, Ser. No. 82,120
Int. Cl. A01n *9/22*
U.S. Cl. 424—245 15 Claims

Transition metal complexes of substituted 2-benzimidazolecarbamic acid, alkyl esters of the following formula are useful as mite ovicides and fungicides:



where Q is $-\overset{O}{\overset{\|}{C}}-NHR_2$, $-\overset{O}{\overset{\|}{C}}-R_3$,

or $-SCCl_3$ and

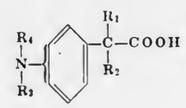
R_1, R_2, R_r, n and Me are as defined hereinafter. An exemplary species of the general class is the complex: 1-(butylcarbamoyl)-2-benzimidazolecarbamic acid, methyl ester 2:1 manganese complex.

3,789,123
TERTIARY AMINOACIDS AS ANTI-INFLAMMATORY AGENTS

Richard William James Carney, New Providence, and George De Stevens, Summit, both of N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 757,136, Sept. 3, 1968, Pat. No. 3,657,230, which is a continuation-in-part of Ser. No. 716,347, March 27, 1968, abandoned. This application Jan. 21, 1969, Ser. No. 792,755
Int. Cl. H61k *27/00*
U.S. Cl. 424—310 2 Claims

New α-(tert. arylaminophenyl)-aliphatic acids, e.g. those of the formula



R_1 = H or alkyl
R_2 = H, alk(en)yl, cycloalk(en)yl or cycloalk(en)yl-alkyl
R_3 = alk(en)yl, hydroxyalkyl, alkoxyalkyl, aminoalkyl, cycloalk(en)yl or cycloalk(en)yl-alkyl
R_4 = aryl

and functional derivatives thereof, are anti-inflammatory agents.

3,789,124
TREATMENT OF COLITIS ULCEROSA

Martin Kludas, Berlin, Germany, assignor to Heyl & Co., Chem.-Pharm. Fabrik, Berlin, Germany

Division of Ser. No. 81,626, Oct. 16, 1970. This application July 3, 1972, Ser. No. 268,675
Int. Cl. A61k *27/00*
U.S. Cl. 424—319 5 Claims

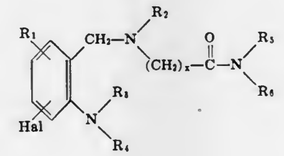
Colitis ulcerosa is treated according to the invention by administering to the patient suffering from such condition an effective dose of penicillamine. The preferred penicillamine because of its low toxicity is D-penicillamine. All types of administration are suitable, including oral administration and administration by injection. The actual dosage depends upon the extent of the condition. Orally the dose may be as little as 0.6 g per day and as high as 2.4 g per day, and even higher for short periods. By injection the dose may be as little as 0.5 g and as high as 1.5 g per day.

3,789,125
PHARMACEUTICAL COMPOSITIONS CONTAINING HALO-SUBSTITUTED 2-AMINO-BENZYLAMINE-AMIDES

Gerd Kuger, Biberach/Riss; Otmar Zipp, Osnabruck; Johannes Keck, Biberach/Riss; Josef Nickl, Biberach/Riss; Hans Machleidt, Biberach/Riss; Gerhard Ohnacker, Biberach/Riss; Robert Engelhorn, Biberach/Riss, and Sigfrid Puschmann, Biberach/Riss, all of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

Division of Ser. No. 89,058, Nov. 12, 1970, Pat. No. 3,712,924, which is a continuation-in-part of Ser. No. 872,778, Oct. 30, 1969, abandoned, which is a continuation-in-part of Ser. No. 555,696, June 7, 1966, abandoned. This application Oct. 24, 1972, Ser. No. 299,810
Int. Cl. A61k *27/00*
U.S. Cl. 424—324 2 Claims

Antitussive and respiration-stimulating pharmaceutical compositions containing as an active ingredient a compound of the formula

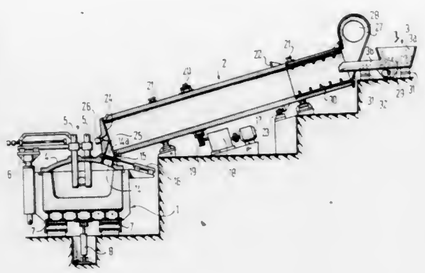


wherein
Hal is chlorine or bromine,
R_1 is hydrogen, chlorine or bromine,
R_2 is alkyl of one to four carbon atoms, allyl, phenyl, chlorophenyl, methoxyphenyl, carboxyphenyl, carbomethoxy-phenyl, tolyl, benzyl, methoxypropyl, cyclohexyl, phenethyl or dimethylaminopropyl,
R_3 and R_4 are each hydrogen, acetyl or benzoyl,
R_5 is hydrogen, alkyl of one to three carbon atoms or cyclohexyl,
R_6 is hydrogen, alkyl of one to three carbon atoms, hydroxyethyl, methoxypropyl, allyl, diethylaminoethyl, diethylamino-propyl, phenyl, fluorophenyl, benzyl or cyclohexyl, and
n is 1, 2 or 3,
or a non-toxic, pharmacologically acceptable acid addition salt thereof; and a method of suppressing the cough reflex and stimulating the respiration in a warm-blooded animal therewith.

3,789,126
ELECTRIC FURNACE FOR HEATING AND MELTING SCRAP IRON AND STEEL

Ugo Brusa, Via Borgnis, Domodossola, Italy

Filed Dec. 20, 1972, Ser. No. 317,094
Claims priority, application Italy, Feb. 18, 1972, 67521/72
Int. Cl. F27d 3/12, 13/00
U.S. Cl. 13—10 5 Claims

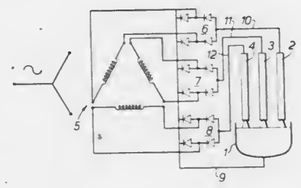


An electric furnace for heating and melting iron and steel scrap is provided having an inclined, rotatable cylinder into which batched quantities of scrap are fed, at the upper end thereof, from a hopper that is vibrated. Teeth in the cylinder control the flow of the scrap therethrough. Scrap is delivered from the lower end of the cylinder into a basin in which electrode means are positioned. The slag and melted metal are removed by tilting the basin. Slidable locks control the flow of flue gases and means for cooling the cylinder are also provided.

3,789,127
ARC FURNACES

Brian Bowman, Geneva, Switzerland, assignor to British Steel Corporation, London, England

Filed Jan. 5, 1973, Ser. No. 321,273
Claims priority, application Great Britain, Jan. 18, 1972, 2421/72
Int. Cl. F27d 11/10
U.S. Cl. 13—12 7 Claims

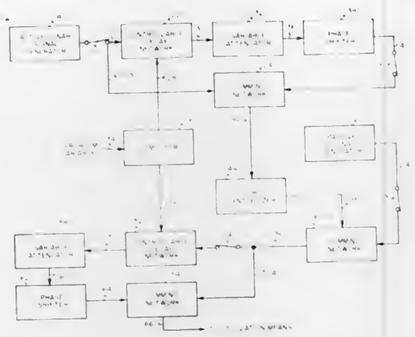


An electric arc furnace adapted to be powered by direct current includes a bottom electrode of one polarity (positive) mounted in the vessel for contact with the charge and three electrodes of negative polarity depending into the vessel from above. The arcs from the electrodes migrate inwardly which is the opposite of the case with a.c. thus reducing erosion of the furnace walls by concentrating the heat source in the centre. The bottom electrode design is such as to enable the furnace to be tapped whilst maintaining a reservoir of metal for the succeeding charge.

3,789,128
MULTIPATH SONAR SIMULATOR

Francis J. Murphree, Winter Park, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 22, 1971, Ser. No. 117,585
Int. Cl. G09b 9/00
U.S. Cl. 35—10.4 7 Claims

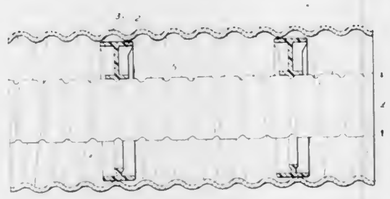


Part of the output of an active signal generator is delayed, phase shifted and recombined with the remainder of the output to form an input to an echo generator. Part of the output of a passive signal generator is likewise delayed, phase shifted and recombined with the passive signal generator output prior to being combined with the output of the echo synthesizer to provide signals simulative of multipath sonar characteristics. A controllable delay network utilizing shift register means is disclosed.

3,789,129
AIR-INSULATED COAXIAL HIGH-FREQUENCY CABLE

Hans Leo Ditscheid, Refrath, Germany, assignor to Felten & Guilleaume Aktiengesellschaft, Cologne-Mulheim, Germany

Filed June 4, 1973, Ser. No. 367,014
Claims priority, application Germany, June 6, 1972, 7221114
Int. Cl. H01b 11/18
U.S. Cl. 174—28 5 Claims



A tubular inner conductor has a first diameter and is provided with annular corrugations adjacent ones of which are spaced from each other by a distance smaller than 0.3 times the first diameter. A coaxial tubular outer conductor surrounds the inner conductor and defines therewith a clearance. The outer conductor is provided with helical corrugations and has a larger second diameter. Spacers are located in the clearance and engage the corrugations of the inner and outer conductors. Adjacent ones of these spacers are spaced axially of the conductors by a distance which is equal to between 0.6 and 0.75 times the sum of the first and second diameters.

3,789,130
TAMPER PROOF ELECTRICAL CABLES

Herbert William Mansfield Parker, Zebbug; Malta, Great Britain, assignor to Pyrotenax Limited Hebburn-on-Tyne, Co., Durham, England

Continuation of Ser. No. 866,817, Oct. 16, 1969, abandoned. This application July 15, 1971, Ser. No. 163,060. The portion of the term of this patent subsequent to Oct. 10, 1989, has been disclaimed.
Claims priority, application Great Britain, Oct. 18, 1968, 49575/68
Int. Cl. H01b 7/32
U.S. Cl. 174—113 12 Claims

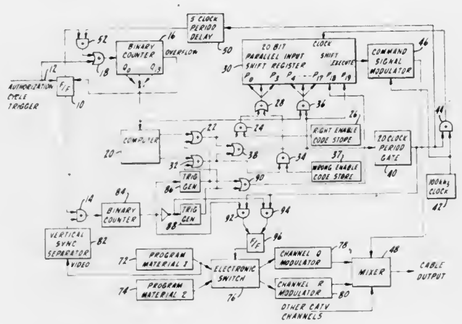


An electric power or communication cable incorporates a mineral insulated cable of a cross-section that is small in comparison with the overall cross-section of the cable, a conductor or conductors of the mineral insulated cable being adapted to carry a signal other than the normal power or signalling load of the power or communication cable. Preferably the or each mineral insulated cable is so located in the cable that it is not easily recognised as an alarm circuit by a thief. In an electric power cable having armouring or a concentric screen or neutral conductor comprising wires applied as a continuous helical lapping or with periodically reversing lay one or more of the wires may be replaced by a mineral insulated cable.

3,789,131
SELECTIVE CODING SYSTEM FOR SUBSCRIPTION TELEVISION

Ralph P. Harney, Wonder Lake, Ill., assignor to Oak Industries Inc., Crystal Lake, Ill.

Filed Aug. 3, 1972, Ser. No. 277,790
Int. Cl. H04n 1/44
U.S. Cl. 178—5.1 12 Claims

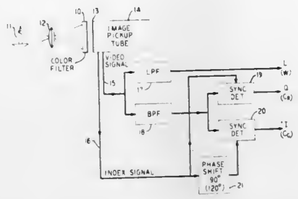


A system for coding and decoding television signals in a subscription television system provides means for alternately switching a television signal between channels at a transmitting center and for providing channel switching signals simultaneously therewith to each subscriber location to coordinate channel switching at the subscriber locations. Prior to channel switching, those subscribers to receive the subscription program receive an enabling signal so that the chennel switching signals will only be effective to control channel switching at the selected subscriber locations.

3,789,132
COLOR CAMERA SYSTEM HAVING COMPLETE SPECTRAL CHARACTERISTICS

Arthur Bertel Larsen, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 19, 1972, Ser. No. 255,165
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 ST 7 Claims

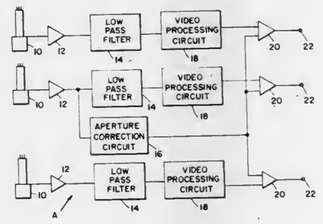


Improved color reproduction is made possible by a television camera exhibiting a complete predetermined camera spectral sensitivity characteristic having both the positive and negative lobes. Materials having transmission characteristics which are responsive to both the positive and inverted negative lobes of the predetermined characteristics are combined to form a single striped optical spatial filter at the camera, and the resultant composite video signal is demodulated to yield a chrominance output signal proportional to the difference between the light transmission provided by the filter stripes so that the prescribed spectral sensitivity characteristic is produced for each output channel. The technique permits a camera to exhibit complete spectral characteristics and to generate by direct optical means any color signal, including I or Q, and it is applicable to single or multiple tube cameras using spatial modulation techniques for color discrimination.

3,789,133
TELEVISION CAMERA APERTURE CORRECTION SYSTEM

Donald D. Kline, Palo Alto, Calif., assignor to Commercial Electronics, Inc., Mountain View, Calif.

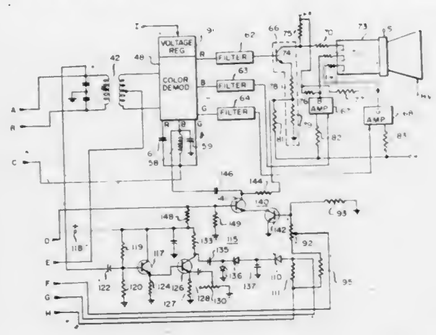
Filed Oct. 26, 1971, Ser. No. 192,259
Int. Cl. H04n 9/02
U.S. Cl. 178—5.4 R 24 Claims



A television camera aperture correction system wherein the video signal is applied to a low pass filter. The filtered video signal is substracted from the original video signal, which has been suitably delayed by a delay line to produce a contour signal containing primarily high frequency video signal components. The contour signal is amplified and the low level portion of the contour signal, which is primarily high frequency

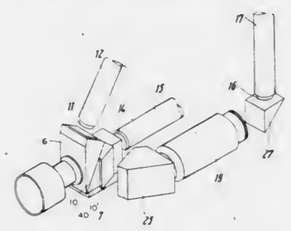
noise, is removed by a coring circuit. Thereafter the cored contour signal is combined with the filtered video signal to produce a resultant video signal having enhanced high frequency components, but without the attendant high frequency noise increase conventionally associated therewith.

3,789,134
PRESET CONTROL SYSTEM FOR A COLOR TELEVISION RECEIVER
Thomas W. Ivas, Evergreen Park, and William H. Slavik, Palos Hills, both of Ill., assignors to Motorola Inc., Franklin Park, Ill.
Division of Ser. No. 140,489, May 5, 1971, abandoned. This application Oct. 19, 1972, Ser. No. 299,069
Int. Cl. H04r *9/48*
U.S. Cl. 178—5.4 AC **4 Claims**



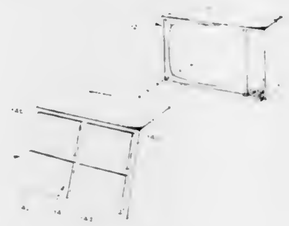
A color television receiver is provided with the customary manual controls for permitting a viewer to adjust brightness, contrast, saturation and hue of the image reproduced by the receiver. In addition, preset controls for brightness, contrast, hue and saturation are provided, and a push-button switch is used to select either the manual or preset controls to establish the characteristics of the reproduced image. With the push-button switch set to select the automatic or preset controls, an AND gate is enabled to cause a shift in the color demodulator angles and further to cause the relative gains of the final output amplifiers to be changed to enhance colors in the range of skin tones reproduced by the receiver.

3,789,135
OPTICAL SYSTEM FOR COLOR TELEVISION CAMERAS
Horst Bachmann, Darmstadt, Germany, assignor to Fernseh GmbH Darmstadt, Darmstadt, Germany
Continuation-in-part of Ser. No. 85,923, Nov. 2, 1970, abandoned. This application May 16, 1972, Ser. No. 253,814
Claims priority, application Germany, May 19, 1971, P 21 24 964.9
Int. Cl. H04n *9/08*
U.S. Cl. 178—5.4 E **3 Claims**



An optical system for a color television camera comprises a beam-splitting arrangement for separating an incident light beam from a main objective lens into three partial beams corresponding respectively to three different parts of the visible spectrum, the three partial beams being supplied to the photoelectric cathodes of respective camera tubes. One of the partial beams is supplied to the respective photoelectric cathode by way of an intermediate lens, so that the size of the image on the photoelectric cathode is different from the size of the images on the other two photoelectric cathodes. A deflector is added to allow placement of the reduced image size camera tube perpendicular to the main objective lens.

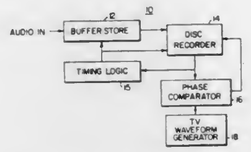
3,789,136
ELECTRONIC SYSTEM FOR VIEWER RESPONSE TO TELEVISION PROGRAM STIMULI
Marshall M. Haith, 2703 S. Macon, Aurora, Colo., and Robert A. Lentz, 138 Huron Ave., Cambridge, Mass.
Filed June 28, 1972, Ser. No. 267,083
Int. Cl. H04r *7/00*
U.S. Cl. 178—5.8 R **9 Claims**



An electronic system for use with received educational television program material and operative to indicate the correct or incorrect nature of a viewer's response to presented visual stimuli, thereby creating a reinforcing and bilateral aspect to an educational television experience.

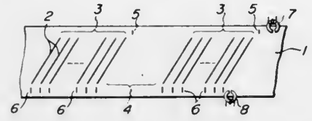
In a typical embodiment of the system, a console is provided having a display panel divided into segments which are spatially arranged to correspond to similarly arranged segments of an associated television screen on which stimuli are displayed. Each segment of the display panel is manually actuable, and actuation of a segment representing a correct response to presented stimuli causes a suitable output indication of such correct response.

3,789,137
TIME COMPRESSION OF AUDIO SIGNALS
George F. Newell, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 7, 1972, Ser. No. 241,944
Int. Cl. H04n *5/76*
U.S. Cl. 178—6.6 **14 Claims**



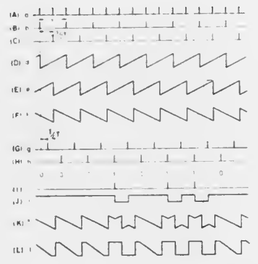
The invention pertains to a technique for time-compressing audio signals without disturbing the relative position of the audio samples through the use of a time buffer store and a subsequent FM recording of the time-compressed audio signal in a format similar to video signals and the subsequent demodulation of the FM signals and time expansion of the signals to produce the original audio signals. The use of FM modulation and demodulation of a type similar to that used with video information for recording and transmitting time-compressed audio information permits common processing of audio and video information and the utilization of standard video transmission and video tape and video disc recorders to accommodate audio as well as video information.

3,789,138
DEVICE FOR GAINING RANDOM ACCESS TO VIDEO SIGNAL INFORMATION FOR USE IN VIDEO TAPE RECORDERS
Toshimichi Terada, Hachioji-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed June 18, 1971, Ser. No. 154,562
Claims priority, application Japan, June 23, 1970, 45-54626
Int. Cl. H04n *5/78*
U.S. Cl. 178—6.6 A **5 Claims**



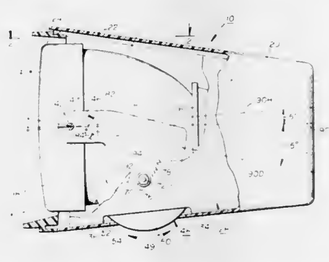
In a video tape recorder for recording video signal information of television scenes, pictures and various documents frame by frame on one or more tracks on a magnetic tape and selectively reproducing a desired video signal, a means for gaining random access to the desired video signal. The video signal information is recorded in blocks each consisting of many tracks noted above and each being spaced from another to define a blank portion without any information recorded between adjacent blocks. In addition to the video signal information, block identifying signals are recorded on the magnetic tape. For the reproduction of a desired static picture, random access to the desired frame is made by first running the magnetic tape by a fast feed or fast rewind drive until a block including the desired track or tracks is detected from the block identifying signals and then by feeding the tape either intermittently or continuously at a low speed until the position of the track of the desired frame is reached.

3,789,139
SYSTEM FOR RECORDING AND REPRODUCING DIGITAL SIGNALS
Kazuo Negishi, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama-City, Kanagawa-ken, Japan
Filed Oct. 3, 1972, Ser. No. 294,539
Claims priority, application Japan, Oct. 4, 1971, 46/77704; Oct. 4, 1971, 46/77705
Int. Cl. G11b *5/06, 27/30*; **H04n** *5/78*
U.S. Cl. 178—6.6 A **8 Claims**



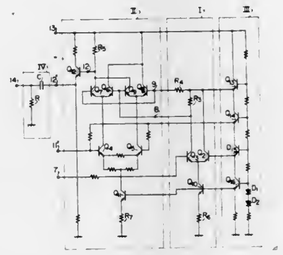
A digital signal recording system carries out the operational steps of gating respectively sawtooth waves in response to two digital signals of a pulse train of constant period and data pulses constituted by the presence or absence of pulses in accordance with data, mixing the sawtooth waves thus gated, and recording the waves thus mixed as a composite sawtooth wave on a recording medium. The positions of rise and fall of the composite sawtooth wave respectively correspond to the above mentioned two digital signals. A digital signal reproducing system carries out the steps of reproducing signals recorded by the above described recording system, separating the pulses of constant perios and the data pulses through the utilization of the characteristics of the signal pulses thus reproduced, and deriving two digital signals.

3,789,140
TILTABLE DISPLAY SCREEN ASSEMBLY
Edwin D. McQueen, Barrington, and Thomas L. Spicer, Chicago, both of Ill., assignors to Teletype Corporation, Skokie, Ill.
Filed July 3, 1972, Ser. No. 268,235
Int. Cl. H04n *5/655*
U.S. Cl. 178—7.81 **8 Claims**



A chassis is secured to the cabinet of television apparatus for manually tilting the primary image screen of the tube about a horizontal first axis disposed slightly behind the screen. Manual torque is applied by a hand wheel exposed through the cabinet and chassis and rockable about a second axis parallel to and behind the first axis. For torque transfer, a pinion rockable about the second axis with said hand wheel is enmeshed with a concave gear rack which is concentric with said first axis and has a radius of curvature larger than said pinion.

3,789,141
BURST AMPLIFIERS FOR COLOR TELEVISION RECEIVERS
Susumu Ayaki, and Masaru Shimano, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 25, 1972, Ser. No. 247,338
Claims priority, application Japan, Apr. 30, 1971, 46/27965
Int. Cl. H04n *9/44*
U.S. Cl. 178—69.5 CB **2 Claims**



An amplifier used for extracting a color burst signal from the chrominance signal in color television receivers, which in-

cludes no resonant-circuit but comprises three pairs of transistors and which is especially suitable for fabrication in the form of an integrated circuit.

3,789,142

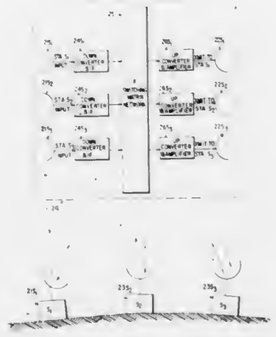
FRAME SYNCHRONIZATION TECHNIQUE FOR SATELLITE ON-BOARD SWITCHING SYSTEMS

Nobuhiko Shimasaki, Rockville, and Robert Rapuano, Gaithersburg, both of Md., assignors to Communications Satellite Corporation, Washington, D.C.

Continuation-in-part of Ser. No. 74,654, Sept. 23, 1970, abandoned. This application Mar. 26, 1971, Ser. No. 128,396

Int. Cl. H04j *3/06*

U.S. Cl. 179—15 BS **8 Claims**



Frame synchronization techniques for communications satellite systems employing spot-beam antennas and satellite on-board switching. An on-board switching matrix provides, as part of its switching processes, a common loop-closure time slot. In one technique, during the common loop-closure time slot, the on-board switching matrix connects on-board receive spot-beam antennas with each respective earth station in the system to the corresponding on-board transmit spot-beam antennas associated with each respective earth station. Each earth station transmits a synchronization unique word followed by information bursts. If each earth station receives a predetermined portion of its sync unique word via the loop circuit mode during the loop-closure time slot then the subsequent frame of bursts of information transmitted by each earth station is in proper frame synchronization for distribution of the information by the switching matrix. In a second technique wherein each on-board spot-beam illuminates a respective zone comprising several earth stations frame synchronization is provided amongst the several zones.

3,789,143

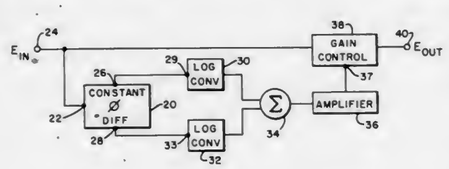
COMPANDER WITH CONTROL SIGNAL LOGARITHMICALLY RELATED TO THE INSTANTANEOUS RMS VALUE OF THE INPUT SIGNAL

David E. Blackmer, Bolton Rd., Harvard, Mass.

Filed Mar. 29, 1971, Ser. No. 128,892

Int. Cl. H04b *3/04*

U.S. Cl. 179—15.55 R **12 Claims**



A compander system for audio signal processing, in which two 90° phase separated signals are generated from an input audio signal. Each phase separated signal is processed through a converter which provides an output signal logarithmically related to the instantaneous rms value of the corresponding phase separated signal. The output currents from both converters are proportional to the square of the input currents, hence are summed to yield a virtually ripple free output. This summed output is then scaled and applied to control the gain of a variable gain amplifier which either compresses or expands the original input audio signal according to the gain of the latter amplifier. Thus, the expansion or compression is a continuous linear process proportioned to the rms value of the input audio signal.

3,789,144

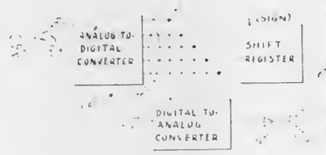
METHOD FOR COMPRESSING AND SYNTHESIZING A CYCLIC ANALOG SIGNAL BASED UPON HALF CYCLES

James H. Doyle, Orange, Calif., assignor to Master Specialties Company, Costa Mesa, Calif.

Filed July 21, 1971, Ser. No. 164,683

Int. Cl. H04b *1/66*

U.S. Cl. 179—15.55 T **12 Claims**



An improved method for compressing a cyclic analog signal in which adjacent positive and negative half cycles are similar, such as an audio signal, and for reconstructing or synthesizing a new analog signal from the compressed signal. The original signal is compressed by removing one of the positive or the negative half cycles and, in a preferred embodiment, digitizing the remaining half cycles. The new analog signal is generated by sequentially applying each half cycle to an output and simultaneously storing such applied half cycle in a memory. After a half cycle is applied to the output and prior to applying the next half cycle in the sequence, the stored half cycle is applied to the output at a reversed polarity to simulate the portion which was originally removed.

3,789,145

METHOD, AND APPLICATION THEREOF, FOR TRANSMITTING INFORMATION OVER A COMMON SIGNAL PATH

Arvind Shah, Zurich, and Frank Furrer, Effretikon, both of Switzerland, assignors to Gesellschaft zur Froderung der Forschung an der Eidg. Techn. Hochschule, Zurich, Switzerland

Filed July 13, 1972, Ser. No. 271,623

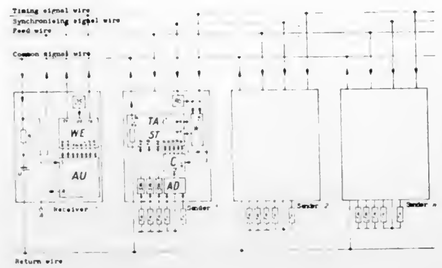
Claims priority, application Switzerland, Oct. 5, 1971, 14490/71

Int. Cl. H04j *3/00*

U.S. Cl. 179—15 BC **30 Claims**

A method whereby units of information supplied simultaneously over n separate signal channels can be transmitted simultaneously over a common signal path with the aid of n carrier signals, each associated with one of the signal channels, the units of information being impressed on such carriers. The carrier signals consist of n different functions $F_1(t)$ to $F_n(t)$ which are orthonormal to each other. Each function is

repeated at the expiration of a cycle beginning at the same instant t_o+kT for all said functions and having the same duration



T and which, for any index values μ and ν lying between l and n for any positive integer values k, fulfill the condition

$$\frac{1}{T}\int_{t_o+kT}^{t_o+(k+1)T} F_\mu(t)\cdot F_\nu(t)\,dt = \begin{cases} 0 & \text{for } \mu \neq \nu \\ \text{const. for } \mu=\nu. \end{cases}$$

The carrier signals are superposed on a common signal path so that a summation signal $S(t)$ is formed and transmitted over the common signal path. The units of information on any m^{th} signal channel and incorporated in the summation signal are filtered out again, after a transmission of duration Δt_m, with the assistance of the integration

$$\frac{1}{T}\int_{t_o+kT+\Delta t_m}^{t_o+(k+1)T+\Delta t_m} S(t-\Delta t_m)\cdot F_m(t-\Delta t_m)\,dt$$

by synchronous correlation between a time shifted summation signal and a time function in period synchrony with such summation signal and corresponding to the carrier signal with the mth signal channel.

3,789,146

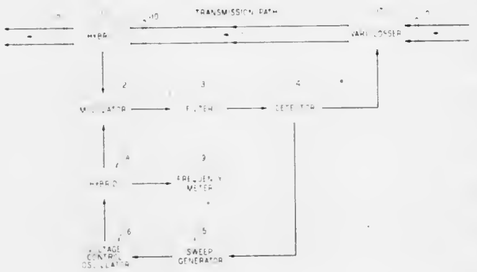
OVERLOAD MONITOR FOR TRANSMISSION SYSTEMS

Norman Lionel Major, Plaistow, N.H., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 20, 1972, Ser. No. 308,150

Int. Cl. H04j *1/16*

U.S. Cl. 179—15 BF **8 Claims**



A group of frequency division multiplexed signal channels is modulated by a swept frequency signal and the resultant modulated wave is delivered to a band-pass filter which serves to pass a narrow band of frequencies. In this manner the narrow band of the filter is effectively swept over the group of frequency multiplexed channels. A power detector monitors the filter output and if the same exceeds a given threshold level the sweep is interrupted and the narrow "slot" of the filter is caused to oscillate about the frequency of the detected power overload. After a short delay, loss is increasingly inserted into the transmission path until the overload is reduced to an acceptable level. The oscillation of the filter slot about the overload continues throughout this period of loss insertion, but in ever decreasing cycles (i.e., a homing operation is effected). When the overload is reduced to an acceptable level the homing operation is terminated and the sweep over said group of multiplexed channels thence proceeds.

3,789,147

TELEPHONE EXCHANGE EQUIPMENT CONDITION CHANGE DETECTING APPARATUS

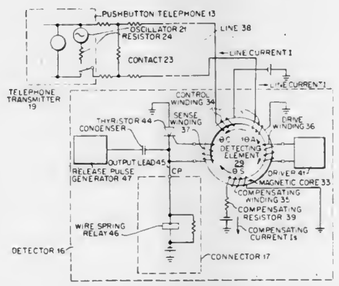
Yoshihiro Saito, Yokohama; Tomoo Okada, Kawasaki; Eiichi Odera, Kunitachi, and Teruyuki Matsuzawa, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation-in-part of Ser. No. 888,277, Dec. 29, 1969, abandoned. This application Mar. 8, 1972, Ser. No. 232,924

Claims priority, application Japan, Dec. 28, 1968, 43-187

Int. Cl. H04q *3/24*

U.S. Cl. 179—18 FA **11 Claims**



Condition change detecting apparatus detects the change of condition of an operation peripheral device by a variation in direct current flowing through a line. The change detecting apparatus has a condition detecting element and an impedance element equivalent to the value of impedance difference caused by the operation of the peripheral device. The condition detecting element comprises a magnetic core, a control winding on the core for detecting the line current, a compensating winding on the core for producing a magnetic field in a direction which negates the magnetic field produced by the control winding, a drive winding on the core and a sense winding on the core. The impedance element is connected in the line and the magnitude of current supplied to the compensating winding is determined by scanning means. The impedance element is then disconnected from the line.

3,789,148

MULTIPLEX TRANSMISSION METHOD

Yasushi Ishii, Tokyo, Japan, assignor to Nissan Motor Company, Yokohama City, Japan; a part interest

Filed Feb. 3, 1971, Ser. No. 112,159

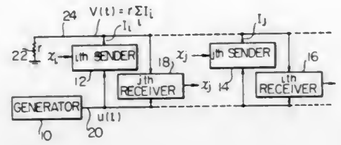
Claims priority, application Japan, Feb. 18, 1970, 45-13431; June 10, 1970, 45-49484

Int. Cl. H04j *3/08*

U.S. Cl. 179—15 AL **14 Claims**

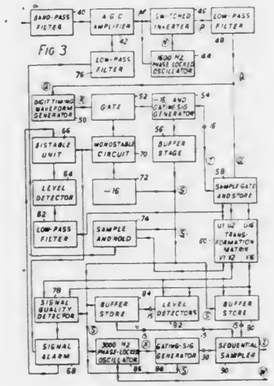
A multiplex transmission method using a plurality of carrier signals each of which is not correlated with one another. The carrier signals are derived from e.g., an irregular signal. Each of the carrier signals is modulated with an information signal

by multiplying the former with the latter. Thereafter, the thus modulated carrier signals are demodulated by cross-correlating the sum of the modulated carrier signals and each of the



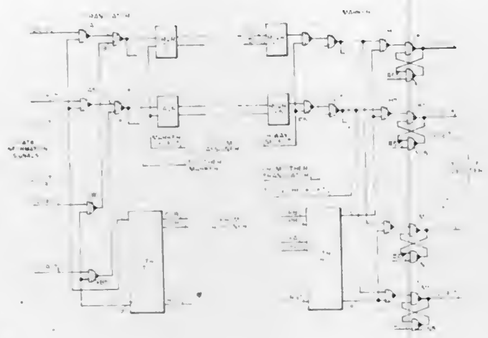
original carrier signals, which is equal to the average energy of the product over one period, thereby to reproduce the information signal.

3,789,149
CODE DIVISION MULTIPLEX SYSTEM
Adrian Percy Clark, Taplow, England, assignor to Plessey Telecommunications Research Company, Taplow, England
Division of Ser. No. 58,620, July 27, 1970, Pat. No. 3,688,048.
This application June 9, 1972, Ser. No. 261,454
Claims priority, application Great Britain, July 30, 1969, 38273/69
Int. Cl. H04j *3/00*
U.S. Cl. 179—15 BC **4 Claims**



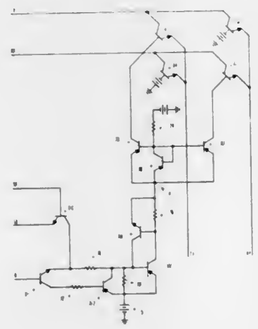
In digital transmission systems for use over H.F. radio links, the effects of multi-path propagation can be reduced by limiting the minimum duration of a signal element. The invention is concerned with a system for use when a transmission rate much greater than that which can be accommodated on a single channel if this minimum element duration is maintained. A code-division multiplex system is used. A first plurality of multi-level signals each represents a plurality of elements of the incoming signal. An orthogonal transformation matrix produces a second plurality of multi-level signals, the level of each of which is dependent on all said first plurality of multi-level signals. A time-division-multiplex signal is then produced from said second plurality of multi-level signals and used to modulate a carrier signal.

3,789,150
SUBSYSTEM DATA TRANSFER IN A TELEPHONE SYSTEM
Melvin A. Jacobs, Hinsdale, and John W. Woodward, Schaumburg, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed June 8, 1972, Ser. No. 260,952
Int. Cl. H04q *3/47*
U.S. Cl. 179—18 ET **6 Claims**



An arrangement for transferring data between a translator and marker in a crosspoint switching system, where both translator and marker each contain internal clocks and operate asynchronously to each other. Data transfer is accomplished under control of clock pulses from a source external to both marker and translator.

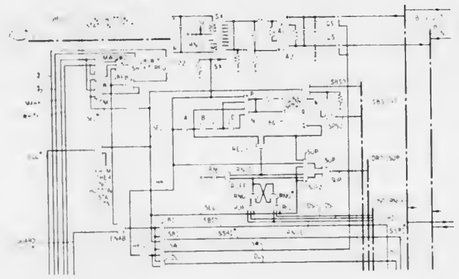
3,789,151
SOLID STATE CROSSPOINT SWITCH
Glenn L. Richards, Caledonia, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,031
Int. Cl. H04q *3/50*
U.S. Cl. 179—18 GF **10 Claims**



A solid state crosspoint switch particularly suited for use in a telephone switching matrix utilizes two switching transistors and two compensating transistors in a balanced bridge con-

figuration to substantially eliminate crosstalk while the switch is effectively open (all four transistors cut off to provide a high impedance for blocking the passage of audio signals therethrough). Audio signals are enabled to pass through the crosspoint switch via a low impedance path by driving the two switching transistors into saturation from a gated control circuit responsive to appropriate control signals.

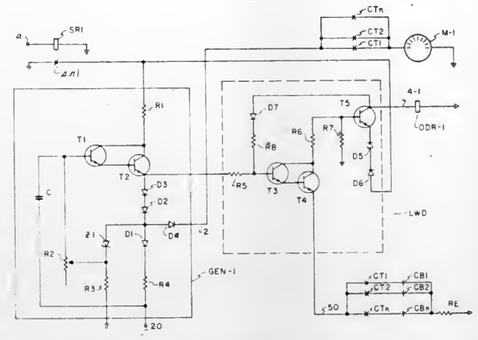
3,789,152
DATA FORMAT CONVERTER
David Gordon Medill, Denver, and John Francis O'Neill, Boulder, both of Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 11, 1972, Ser. No. 313,952
Int. Cl. H04m *1/00*
U.S. Cl. 179—99 **9 Claims**



An electronic key telephone system is disclosed in which both conventional telephone sets as well as electronic key telephone sets are served. The electronic telephone sets transmit switchhook status and receive ringing control information over a data link to a main controller but the conventional telephone sets must receive ringing signals over the talking path. While it is expected that most sets will be of the electronic type, a few conventional sets will likely have to be served in many practical installations. In order that the main controller be able to process network connections for both types of telephone sets without having to be reprogrammed when the distribution of telephone set types is changed, an interface circuit is provided for use with the conventional, no-button sets. This interface circuit receives supervision information from the port circuit serving the no-button station set and transmits it as a compelled response pulse during an appropriate one of the multibit pulse sequences by means of which the main controller communicates with the port circuit serving the electronic key telephone sets.

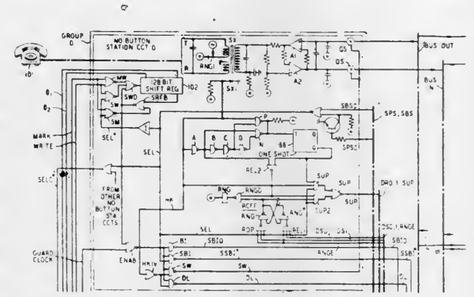
3,789,153
CALL PARK CIRCUIT FOR AN AUTOMATIC TELEPHONE SWITCHING SYSTEM
Marvin Forest Malm, Milan, Tenn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed June 8, 1972, Ser. No. 260,846
Int. Cl. H04q *3/64*
U.S. Cl. 179—27 D **10 Claims**

In a telephone switching system in which automatic operator access is provided, a further system is provided to assure that incoming calls to an operator are treated on a first-come first-serve basis during periods of heavy traffic in which the operators are busy. This further system is minimized in size, in



cost and in complexity according to the present invention through use of circuits which complete a single call when an operator becomes available.

3,789,154
SWITCHHOOK STATUS SIGNALING ARRANGEMENT
David Gordon Medill, Denver, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 11, 1972, Ser. No. 313,955
Int. Cl. H04m *1/00*
U.S. Cl. 179—99 **7 Claims**

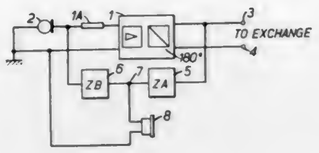


An electronic key telephone system is disclosed in which both conventional telephone sets as well as electronic key telephone sets are served. The electronic telephone sets transmit call signaling to and receive ringing control information from a main controller over a data link independent of the speech path but the conventional telephone sets must both transmit dial pulses and receive ringing signals over the talking path. A line transformer relay is used with both sets to repeat supervision. The conventional ringing signal, however, causes the line transformer relay to generate an erroneous switchhook state signal. In order to compensate for this erroneous response without requiring the reprogramming of the main controller each time the number of conventional and electronic key telephone sets served by the system is changed, a logic circuit inhibits the return of the station's switchhook state ascertained by the line transformer relay for a predetermined interval after each cycle of ringing and causes an on-hook signal to be returned. When ringing is tripped, the same supervision logic in the interface circuit inhibits the return of switchhook state information ascertained by the line transformer relay for an interval longer than the maximum loop-open interval that can occur during normal dialing and instead causes an off-hook signal to be returned.

3,789,155
SIDE-TONE REDUCING CIRCUIT FOR A TELEPHONE SUBSCRIBERS INSTRUMENT

Harry William Fensom, Stanmore, England, assignor to The Post Office, London, England

Filed July 16, 1971, Ser. No. 163,251
Claims priority, application Great Britain, July 24, 1970, 36020/70
Int. Cl. H04m 1/58
U.S. Cl. 179—81 A 6 Claims

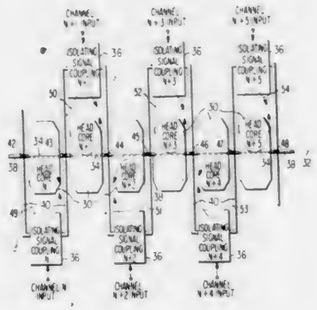


A circuit for a telephone subscriber's instrument is described including a transistor amplifier in grounded emitter connection for amplifying signals from the transmitter and applying them to the exchange line. A tapped negative feedback path over the amplifier is provided and a receiver is connected to the tapping so that little sidetone from the transmitter is heard, but signals from the exchange line are not greatly attenuated. A zener diode in the emitter circuit of the transistor can be used to produce supply voltage for transmitter and receiver amplifiers. The transmitter amplifier may be provided with a positive feedback path which is effective when the handset is replaced on the cradle so that the transmitter generates an audible signal in response to a calling tone from the exchange.

3,789,156
HIGH DENSITY ISOLATED MULTI-CHANNEL MAGNETIC CIRCUIT TRANSDUCER

Oliver Edward Bessette, Stratford, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 27, 1972, Ser. No. 238,485
Int. Cl. G11b 5/20, 5/28
U.S. Cl. 179—100.2 C 5 Claims

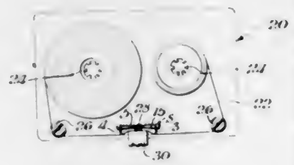


An arrangement is disclosed for minimizing cross talk between adjacent transducer elements in a compact multi-element transducer assembly. This is accomplished by provision of a multi-element transducer assembly structure wherein common impedance connections for energizing adjacent transducer elements are avoided.

3,789,157
SHIELDING DEVICE FOR OVERLAPPING THE FRONT FACE OF A MAGNETIC HEAD IN MAGNETIC TAPE CARTRIDGES OF THE COMPACT CASSETTE TYPE

Joachim Greiner, Perutz Photowerke ZN der Agfa-Gevaert AG. Kistlerhofstr. 75; Dieter Engelsmann, Agfa-Gevaert AG Camera - Werk, Postfach D-8000; Josef Gersch, Agfa-Gevaert AG Camera-Werk, Postfach D-8000; Franz Landbrecht, Agfa-Gevaert AG Camera-Werk, Postfach D-8000; Rudolf Muller, Agfa-Gevaert AG Camera-Werk, Postfach D-8000; Wolfgang Wenger, Agfa-Gevaert AG Camera-Werk, Postfach D-8000, and Otto Wiedemann, Agfa-Gevaert AG Camera-Werk, Postfach D-8000, all of Munich, Germany

Filed July 19, 1971, Ser. No. 163,605
Claims priority, application Germany, July 24, 1970, 2036754
Int. Cl. G11b 23/08
U.S. Cl. 179—100.2 Z 11 Claims

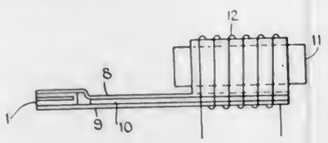


A device for shielding magnetic tape cassettes includes a hollow sheet metal parallelepiped with side recesses and with the shielding walls of the parallelepiped arranged to overlap the front face of a head and also the sound head shielding.

3,789,158
DEPOSITED STRIP HEADS

Peter Albert Walker, Stevenage, and Justus Ernest Humpoletz, Letchworth, both of England, assignors to International Computers Limited, London, England

Filed Nov. 1, 1971, Ser. No. 194,181
Claims priority, application Great Britain, Nov. 7, 1970, 53059/70
Int. Cl. G11b 5/12
U.S. Cl. 179—100.2 C 3 Claims



A magnetic recording head including a composite element formed by a inner layer of conductive material sandwiched between two layers of readily magnetisable material. A conductive outer layer is disposed over at least a portion of each magnetisable layer, these outer layers being electrically interconnected solely by the inner conductive layer.

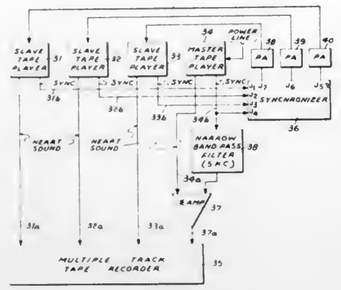
3,789,159
ARRANGEMENT FOR SYNCHRONIZING THE RECORDING OF A PLURALITY OF SIGNALS ON A RECORDING MEDIUM

Louis Feit, Fair Lawn, and Irving A. Krause, Nutley, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 23, 1972, Ser. No. 256,033
Int. Cl. G11b 5/86, 15/18
U.S. Cl. 179—100.2 S 12 Claims

An arrangement for synchronized recording is described for recording of a plurality of aural sounds in a predetermined

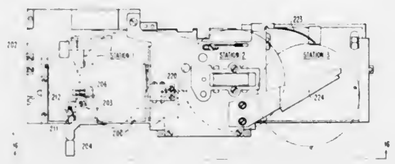
time relationship. The arrangement includes a master tape player and a plurality of slave tape players which are controlled by a synchronizer so that they are individually advanced or retarded in accordance with a synchronizing signal from the master player. This enables the production of a single tape with each desired aural sounds on one of the multiple tracks of the tape in proper synchronized relationship.



3,789,160
DICTATION APPARATUS WITH DISC LOADING, FEEDING, AND EJECTING FEATURE

James D. Bruer, Leander, Tex.; Donald L. Buddington, Versailles, Ky., and Walter F. Klein, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,800
Int. Cl. G11b 23/04, 25/04
U.S. Cl. 179—100.2 Z 23 Claims



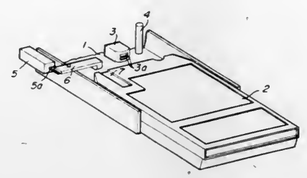
The present invention concerns dictation and transcription apparatus having convenient and efficient structures for loading, feeding, and ejecting disc record members. In exemplary embodiments, the disc record members are stored in a disc cartridge enabling convenient transportation and storage when not in use. Both dictation and transcription apparatus are provided with a load station, a record/playback station, and an eject (unload) station. Provision is made in the apparatus for accommodating any of a plurality of standard disc cartridges at the load station enabling convenient manual loading by an operator of the apparatus. Following the loading of discs into the apparatus, the cartridge is thereupon moved to the eject (unload) station and serves to receive the discs, one by one, as they are processed in the apparatus.

3,789,161
AMPLIFIER CIRCUITRY FOR TWO-FOUR CHANNEL CARTRIDGE TYPE TAPE PLAYER

Yoshiro Mizumoto, Iwaki, Japan, assignor to Alps Motorola, Inc., Tokyo, Japan

Filed May 16, 1972, Ser. No. 253,780
Claims priority, application Japan, June 25, 1971, 46-55027
Int. Cl. G11b 21/08, 23/04; H04h 5/00
U.S. Cl. 179—100.2 Z 6 Claims

A two-four channel tape player including circuitry for switching the mode of operation thereof in accordance with a cartridge received in the player includes four amplifier circuits, each coupled to a magnetic pick-up of a four channel magnetic tape head and to a corresponding speaker. Each amplifier circuit is coupled to a rotary switch through a two-four channel mode selecting switch. The rotary switch is rotatable and operable to two conditions in response to the rotation of a tape head indexing cam of the player. First diodes coupled to the amplifier circuits are forward biased to couple the last-mentioned amplifier circuits to respective speakers upon insertion of a four channel cartridge into the player. For a two

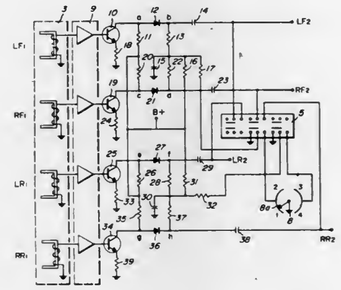


channel cartridge, only two of the four pick-ups of the tape head and corresponding amplifier circuits are employed. The amplifier output of a first one of the operational channels is reproduced at a first pair of speakers and the amplified output of the second operational channel is reproduced at the other pair of speakers. Second diodes coupled between the rotary switch wiper and the inputs to the first diodes are provided. Pairs of the second diodes selected in accordance with the position of the rotary switch wiper, are reverse biased to block signals from respective amplifier circuits.

3,789,162
TWO-FOUR CHANNEL CHANGEOVER CIRCUIT FOR A CARTRIDGE-TYPE TAPE PLAYER

Toru Miyazaki, 15-3 Aza Sakumae, Okaona, Onahama, Iwaki, Japan

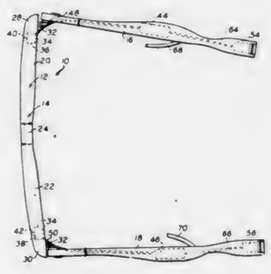
Filed June 29, 1972, Ser. No. 267,563
Claims priority, application Japan, Aug. 13, 1971, 46-72482
Int. Cl. G11b 5/54
U.S. Cl. 179—100.2 CA 6 Claims



A two-four channel tape player including circuitry for switching the mode of operation thereof in accordance with a cartridge received in the player includes four amplifier circuits, each coupled to a magnetic pick-up of a four-channel magnetic tape head and to a corresponding speaker. Each amplifier circuit is coupled to a rotary switch through a two-four channel mode selecting switch. The rotary switch is rotatable and operable to two conditions in response to the rotation of a tape head indexing cam of the player. Diodes coupled to the amplifier circuits are forward biased to couple the last-mentioned amplifier circuits to respective speakers upon insertion of a four-channel cartridge into the player. For a two-channel cartridge, only two of the four pick-ups of the tape head and

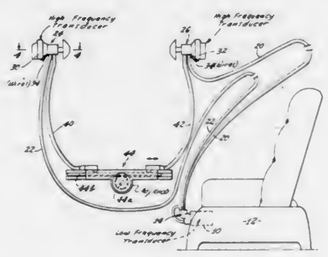
corresponding amplifier circuits are employed. The amplified output of a first one of the operational channels is reproduced at a first pair of speakers and the amplified output of the second operational channel is reproduced at the other pair of speakers. Resistive networks coupled between a potential source and the output of the diodes are provided. The resistive networks provide the biasing potential required at the cathodes of the diodes for forward and/or reverse biasing thereof in accordance with the type of cartridge inserted into the player for passing and/or blocking signals from respective amplifier circuits.

3,789,163
HEARING AID CONSTRUCTION
Alfred R. Dunlavy, 77 Seventh Ave., New York, N.Y.
Filed July 31, 1972, Ser. No. 276,828
Int. Cl. G02c *11/06*
U.S. Cl. 179—107 S **9 Claims**



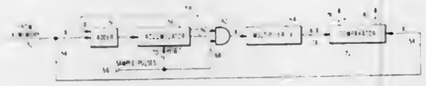
A spectacle hearing aid construction comprising of a frame including a pair of eyeglass supports connected by a bridge and a pair of temple members hingedly connected thereto. A respective microphone is received in each support and converts sound vibrations into corresponding electric signals. A respective amplifying device in the frame is connected to each microphone for amplifying the electric signals and converting the signals to amplified sound vibrations. A respective sound applicator is connected to each amplifying device for applying the sound vibrations from the associated amplifying device to each ear of the user. The pair of microphones permits realization of the spacial resolution of the sound.

3,789,164
EARPHONE ASSEMBLY
Robert Ryder, P.O. Box 90331, Los Angeles, Calif.
Continuation-in-part of Ser. No. 64,484, Aug. 17, 1970, abandoned. This application Mar. 3, 1972, Ser. No. 231,560
Int. Cl. H04m *1/05*; **H04r** *5/00*
U.S. Cl. 179—156 R **6 Claims**



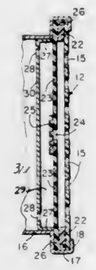
An earphone assembly is provided of the pneumatic type such as are presently used on aircraft, and which is constructed to improve the reproduction quality of the instrument by providing high frequency transducers directly at the ear pieces for producing high frequency sound signals which would otherwise be attenuated in the flexible plastic tubes coupling the ear pieces to the main electrical/acoustical transducer.

3,789,165
ECHO CANCELLER WITH VARIABLE THRESHOLD
Samuel Joseph Campanella, Gaithersburg; Henri George Suyderhoud, Potomac, and Michael Onufry, Jr., Gaithersburg, all of Md., assignors to Communications Satellite Corporation (Comsat), Washington, D.C.
Filed Apr. 24, 1972, Ser. No. 246,785
Int. Cl. H04b *3/22*
U.S. Cl. 179—170.2 **4 Claims**



An echo canceller having a digital transversal filter with adjustable gain coefficients and an adaptive control loop for achieving minimum echo and similar speed of convergence for loud and soft talkers. Minimum echo is attained by subtracting a synthesized echo from the real echo, the synthesized echo being formed in a digital transversal filter by multiplying a stored replica of the impulse response times the incoming signal. The stored replica is updated using the steepest descent technique by adjusting each of the stages of the replica memory a given amount. Adjustment is made when the echo error and the sampled incoming signal are above respective threshold levels. The threshold level for the sampled signal is made dependent upon the average of the samples over a period of time to provide substantially the same speed of convergence for loud and soft talkers.

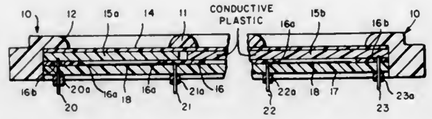
3,789,166
SUBMERSION-SAFE MICROPHONE
George J. Sebesta, Huntington Bay, N.Y., assignor to Dyna Magnetic Devices, Inc., Hicksville, N.Y.
Filed Dec. 16, 1971, Ser. No. 208,630
Int. Cl. H04r *1/02*
U.S. Cl. 179—184 **6 Claims**



Air-conduction transducers such as microphones, earphones and loudspeakers for high humidity or high altitude environments. Further, the invention transducers are operable in up to a few feet of water. Also, when immersed to greater depths, as down to 100 feet at sea, means are incorporated therein to keep such transducers bone dry. A contained flexible barrier-diaphragm with a semi-pervious vent serves as

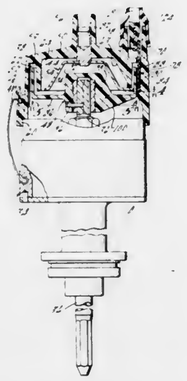
pressure flap valve below two or three feet. The invention arrangement permits operation of the transducer up to 10,000 feet in altitude, and keeps it safe up to 50,000 feet.

3,789,167
MULTI-OUTPUT LEVEL KEYBOARD SWITCH ASSEMBLY WITH IMPROVED OPERATOR AND CONTACT STRUCTURE
Richard E. Seeger, Jr., Topsfield, and John G. Coulter, Reading, both of Mass., assignors to Chomerics, Inc., Woburn, Mass.
Filed Dec. 20, 1972, Ser. No. 316,656
Int. Cl. H01h *13/52*
U.S. Cl. 200—5 A **6 Claims**



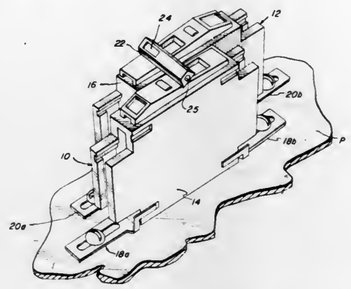
A structure which includes a circuit board having a conductive pattern thereon and supporting a resilient conductive layer by way of an insulator layer having a plurality of windows therethrough in alignment with portions of the conductive pattern, the resilient layer divided into at least two sections held electrically apart by pins coupled to a frame member in which the board and layers are packaged.

3,789,168
IGNITION DISTRIBUTOR DEVICE WITH INSULATIVE SHUTTER TYPE ROTOR
Earl W. Meyer, Jr., Birmingham; Ivor W. Carter, Detroit, and Ian J. C. Scott, Madison Heights, all of Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed Jan. 10, 1973, Ser. No. 322,342
Int. Cl. H01h *19/60*
U.S. Cl. 200—19 R **15 Claims**



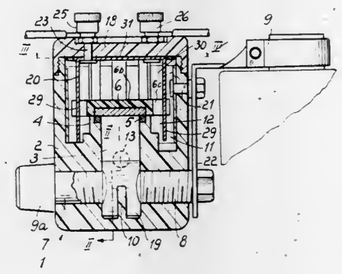
An ignition distributor device for use with vehicle engine ignition systems equipped with electronically advanced spark timing angle controllers has a stationary high tension distribution electrode, a plurality of stationary output electrodes spaced from the distribution electrode, and a rotary dielectric shutter element disposed between the distribution electrode and the output electrodes. The shutter has a window therein dimensioned to permit conductive association of the distribution electrode with only one of the output electrodes at a time. The output electrodes are readily removable from and insertable in the distributor cap and also provide a cable termination for the ignition spark plug cables received in the cap.

3,789,169
HANDLE INTERLOCK ARRANGEMENT FOR A PAIR OF ELECTRIC CIRCUIT BREAKERS
Thomas A. Yazvac, Cedar Rapids, Iowa, assignor to Square D. Company, Park Ridge, Ill.
Filed Oct. 12, 1972, Ser. No. 297,110
Int. Cl. H01h *33/46*
U.S. Cl. 200—50 C **2 Claims**



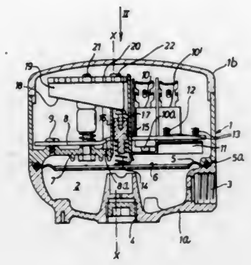
Two manually-operable circuit breakers are mounted side by side in reversely positioned relationship and are staggered lengthwise to align the handles. The aligned handles are connected by a handle tie member to prevent both handles from being in the ON position simultaneously.

3,789,170
CONDUCTING FLUID TYPE INERTIA RESPONSIVE SWITCH FOR MOTOR VEHICLES
Franco Ferrario, Via Lombardia 1, Trezzo Sull Adda, Italy
Filed June 12, 1972, Ser. No. 263,716
Claims priority, application Italy, June 19, 1971, 26084/71; Sept. 7, 1971, 28341/71
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.47 **3 Claims**



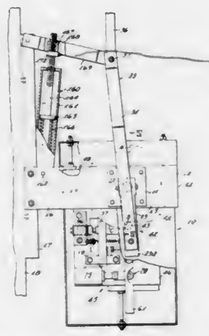
An antomatic cutout switch for motor vehicles, comprising a container of insulating material having a first compartment of vertical axis. A second compartment surrounding the first one is in communication with the first compartment. The first compartment has a pair of conductors at a certain distance apart from one another and being provided with terminals one of which is connected to a pole of an electric current source for the motor vehicle. The first compartment contains mercury normally in contact with the ends of said conductors which appear there so as to form the electrical contact between them.

3,789,171
PRESSURE SWITCH WITH OPERATING LEVER HAVING MANUALLY ADJUSTABLE PRE-LOADING MEANS THEREFORE
Graham B. Kent, Bristol, England, assignor to Actuated Controls Limited, Bristol, England
Filed Aug. 22, 1972, Ser. No. 282,781
Claims priority, application Great Britain, Aug. 24, 1971, 39534/71
Int. Cl. H01h *35/34*
U.S. Cl. 200—83 S **15 Claims**



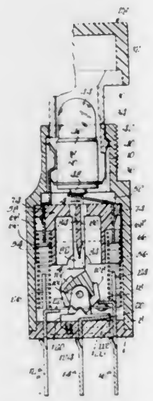
An improved pressure switch unit according to this invention has a movable diaphragm which is connected to a switch within a casing by a lever which has a resilient connection to a mounting element for the switch, so that pressure overloading of the diaphragm is accommodated by the resilient connection, avoiding undue stress on the switch itself or its operating lever. The switch unit is readily adaptable for use in low and high pressure ranges by using the switch mounting element either as a fixed mounting, with adjustment means acting directly on the diaphragm, or as a floating mounting which is positionally adjustable to adjust the sensitive pressure range of the unit.

3,789,172
SWITCH OPERATING DEVICE WITH SPIRAL SPRING CHARGING MEANS AND CAM RELEASE MEANS
David R. Cole, Tigard, and Matthew L. Worrix, Sheridan, both of Oreg., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Sept. 15, 1972, Ser. No. 289,745
Int. Cl. H01h *3/30*
U.S. Cl. 200—153 SC **6 Claims**



An operating device is provided for actuating an electrical switch between an opened and closed condition. The operating device includes a stored energy means such as the spring which is releasable to rotate a shaft that is mechanically connected to open or close the switch. Recharging of the spring is effected by means of a gear motor which is also operable to hold the spring from reverse operation. Automatic means are provided for effecting the operation of the stored energy means.

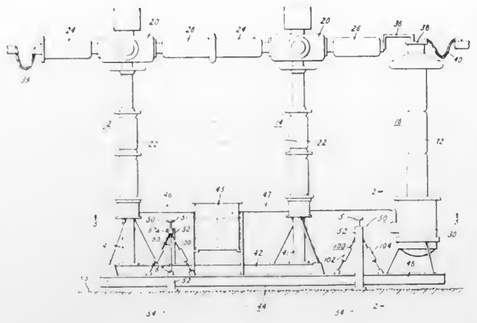
3,789,173
ALTERNATE ACTION SWITCH CONVERTIBLE TO MOMENTARY BY PUTTING LATCH ON DIFFERENT PIVOT
George John Bury, Lake Villa, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Dec. 7, 1972, Ser. No. 312,901
Int. Cl. H01h *13/60*
U.S. Cl. 200—153 J **9 Claims**



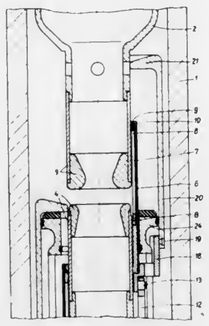
A switch has movable contacts that are actuated by a rotatable ratchet that is operated by push button-driven pawl. The ratchet cooperates with a spring-biased, pivoted lever for providing alternate switch operation in which the ratchet is moved with a toggle action to either of two positions and latched thereat. The pivot axis of the lever may be optionally shifted so that the lever will apply force against the ratchet in a manner to bias it to only one position to provide a momentary switch operation. The pawl is integral with a carrier and is joined there to by torsion spring connections at which the pawl rotates upon its actuation of the ratchet.

3,789,174
EARTHQUAKE-PROTECTIVE SUPPORT SYSTEM FOR ELECTRICAL APPARATUS
Philip Barkan, Media; Robert S. Barton, Bryn Mawr; Klaus M. Skreiner, Media, and Ugo R. Tognella, Philadelphia, all of Pa., assignors to General Electric Company, New York, N.Y.
Filed Mar. 7, 1973, Ser. No. 339,025
Int. Cl. F16f *15/00*
U.S. Cl. 200—168 R **13 Claims**

A support system for slender-profile electrical apparatus acts to protect the apparatus against severe earthquakes. The support system comprises: (a) a rigid, horizontally-extending platform on which the apparatus is mounted, (b) a rigid framework anchored in the ground, and (c) four rigid pendulum links with universal joints at opposite ends of each link suspending the platform from the framework. Releasable restraining means normally maintains the platform fixed relative to the framework but is released in response to horizontally-directed acceleration of the ground exceeding a predetermined minimum value. Damping means dissipates the kinetic energy of the suspended mass when it moves relative to the framework.

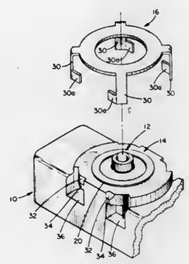


3,789,175
ELECTRIC COMPRESSED-GAS CIRCUIT BREAKER
Helmut Beier; Siegfried Handke, and Wolfgang Konczal, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Feb. 22, 1973, Ser. No. 334,934
Claims priority, application Germany, Feb. 22, 1972, 2209287
Int. Cl. H01h *33/82*
U.S. Cl. 200—148 R **7 Claims**



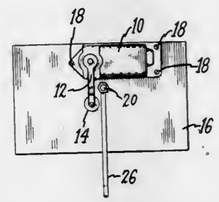
An electric compressed-gas circuit breaker is disclosed and has two stationary contact pieces. A switching unit is movable between closed and open positions for electrically bridging the contact pieces in the closed position and for electrically disconnecting the contact pieces in the open position whereby an arc develops when the switching unit is moved to the open position. A gas-blast arrangement blasts a stream of gas through the arc when the switching unit is moved to the open position. The switching unit includes a supporting body and a slide-contact ring made of arc-resistant material slideably contacting one of the contact pieces in the closed position. The ring is mounted on the supporting body so as to be electrically insulated therefrom. A plurality of elongated contact elements are disposed in the supporting body for electrically connecting the contact pieces when the switching unit is in the closed position. The contact elements are spring loaded to displace the same into electrically conductive contact with the slide-contact ring as the ring and the contact elements separate from the one contact piece when the switching unit moves into the open position.

3,789,176
DIAPHRAGM SEAL ARRANGEMENT
William Albert Pick, Cedarville, Ill., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Dec. 27, 1971, Ser. No. 212,027
Int. Cl. H10h *9/04*
U.S. Cl. 200—168 G **4 Claims**



A diaphragm seal arrangement where a diaphragm seal is secured in place by a retainer that is snap fastened to a portion of the device with which the diaphragm seal is associated.

3,789,177
ACTUATING MECHANISM FOR A LIMIT SWITCH HAVING ELONGATED PIVOTALLY MOUNTED ACTUATING MEMBER
Loyde M. Carpenter, Hickory; James W. Kiser, Iron Station, and Lee V. Leonard, Hickory, all of N.C., assignors to General Electric Company, Pittsfield, Mass.
Filed May 26, 1972, Ser. No. 257,291
Int. Cl. H01h *3/16*
U.S. Cl. 200—172 A **3 Claims**

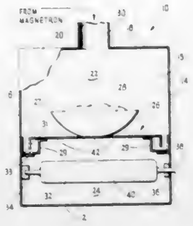


A switch actuating mechanism for an electrical limit switch. The actuating mechanism includes an actuating arm pivotally mounted at its upper end on the limit switch in interferring relation to the switch mechanism of the limit switch. When the actuating arm is contacted by a moving object, such as the carriage of a machine or the like, the actuating arm is pivoted into the switch mechanism operating the limit switch. As the object moves away from the actuating arm, the arm pivots downwardly, by the force of gravity, back to a neutral or centered position.

3,789,178
MICROWAVE HEATING APPARATUS

Paul F. Harhen, Westford, Mass., assignor to Sage Laboratories, Inc., Natick, Mass.

Filed Oct. 18, 1972, Ser. No. 298,535
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **20 Claims**

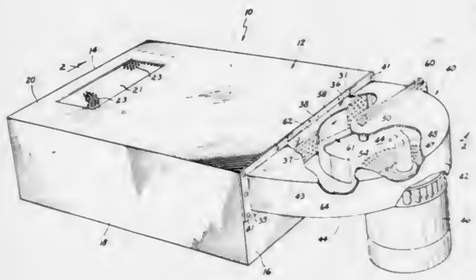


A combination microwave and gas oven having a divider shelf preferably horizontally disposed thereby dividing the oven cavity into a cooking section and a section containing the gas heating apparatus. The outer boundary of the shelf forms a low impedance choke with a perimetrical shelf holder thereby terminating microwave energy fed to the cooking section and preventing degradation of the gas heating apparatus disposed therebelow.

3,789,179
MICROWAVE OVEN WITH PREMIXING OF WAVE ENERGY BEFORE DELIVERY TO ITS HEATING CAVITY

Duane B. Haagensen, Edina, Minn., assignor to Matsuhita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 3, 1972, Ser. No. 305,956
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **37 Claims**

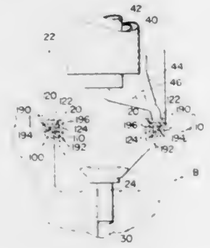


An antenna protrudes into the interior of a semicyclindrical coupling and distribution structure extending from the rear of the heating cavity. Contained in the structure is a rotatable reflector unit composed of a horizontal flat arm and a curved vane depending downwardly therefrom. The end of the arm remote from the vane is mounted for rotation about a vertical axis at a location between the antenna and the heating cavity, the arm having a length such that the vane passes between the antenna and the semicircular rear wall of the structure during each revolution. The vane's radius of curvature is less than the radius of curvature of the wall so that the distance or spacing of the vane is continually varying with respect to the wall as well as continually varying with respect to the antenna, thereby causing considerable mode alterations or premixing of the microwave energy prior to its delivery into the heating cavity. Additional dispersion of the energy is effected as it enters the cavity by means of an inclined dispersive plate extending into the cavity from the opening or window through which the energy is introduced. In this way, the vertical dimension of the cavity is substantially reduced and at the same time the usable space therein is maximized by reason of the externally located coupling structure, which modulates the wave pattern of the energy entering the cavity.

3,789,180
MODIFIED INDUCTOR FOR INDUCTIVELY HEATING VALVE SEATS

John F. Cachat, Cleveland, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Dec. 26, 1972, Ser. No. 318,260
Int. Cl. H05b *5/00*
U.S. Cl. 219—10.57 **3 Claims**

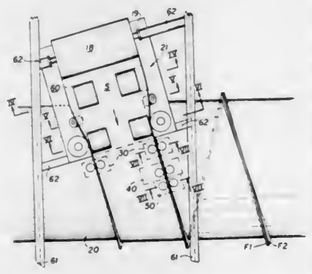


An induction heating device of the type used for inductively heating a valve seat of an internal combustion engine and including a generally circular inductor, means for moving the inductor into coupling relationship with the valve seat and means for energizing the inductor with a high frequency alternating current. There is provided an improvement in this device including a positioning of a mechanically permeable element generally coextensive with the inductor and on the side of the inductor opposite to the valve seat. This improvement is beneficial when the valve seat is formed by a ferrous insert within a non-ferrous engine component.

3,789,181
METHOD OF SPIRALLY WINDING STRIP METAL ABOUT A PIPE, AND SECURING ADJACENT STRIPS BY WELDING

Sture Netterstedt, and Bengt Lindstrand, both of Fagersta, Sweden, assignors to Rostfria Tak AB, Fagersta, Sweden

Division of Ser. No. 142,327, May 11, 1971, Pat. No. 3,715,557. This application Aug. 10, 1972, Ser. No. 279,315
Int. Cl. B23k *1/18*
U.S. Cl. 219—62 **5 Claims**



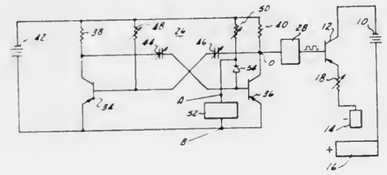
An annular carrier cage is placed around the pipe, which may be insulated. The carrier cage supports a holder for stain-

less steel strip, a flange forming apparatus, a flange extension apparatus, seam welding apparatus and a post-welding, flange stress relieving apparatus. To permit curling of the flanged strip about the circumference of the pipe, the flange extension apparatus reduces the diameter of the formed flange adjacent the edge thereof, for example by exerting pressure against the flange strip by a pair of conical rollers having their greater diameter adjacent the free edge of the flange. Adjacent flanges are welded together by roller electrodes, and a pair of conical rollers similar to the flange extension apparatus then bear against the welded joints to relieve stresses due to welding and provide for a tight wrap of the spiral, welded strip about the pipe.

3,789,182
APPARATUS FOR ELECTRICAL DISCHARGE MACHINING EMPLOYING PERIODIC EXTENDED PULSE OFF TIME

Dalton R. Verner, Orchard Lake, Mich., assignor to Colt Industries Operating Corp., Dividson, Mich.

Filed Feb. 23, 1972, Ser. No. 228,661
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 C **8 Claims**

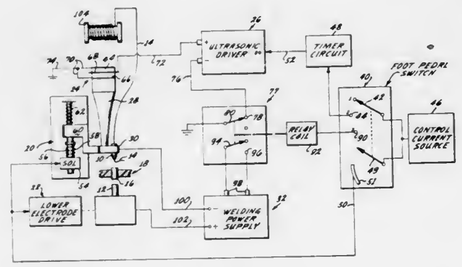


Electrical discharge machining is provided by generating a series of rectangular machining power pulses at a controllable on-off time duration. Provision is made for introducing extended off time duration between groups of pulses to contribute to the improvement of cutting stability. In one alternate embodiment of the invention, a single on time pulse is provided intermediate a pair of spaced pulse groups.

3,789,183
THROUGH-INSULATION WELDING METHOD AND APPARATUS

Larry R. Conley, Fountain Valley, Calif., assignor to Accra-Point Arrays Corporation, Santa Ana, Calif.

Filed Feb. 28, 1973, Ser. No. 336,811
Int. Cl. B23k *11/14*
U.S. Cl. 219—92 **14 Claims**

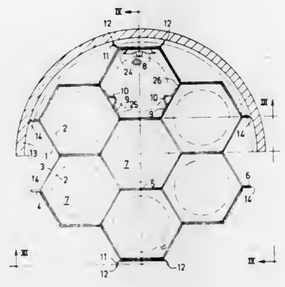


A weld is made between an insulated wire and a terminal by pressing the wire against the terminal with an electrode, applying ultrasonic vibrations to the electrode to scrub away insulation so that electrical contact is made between the central conductor of the wire and both the terminal and electrode, and then applying a welding current through the electrode to flow through the wire and terminal to weld them together.

3,789,184
AIR-EXCLUDING SPOT-WELDING METHOD FOR MAKING HEAT-EXCHANGE GRID

Gijsbrecht Gerhardus Piepers, Heiloo; Leonard Hendrik Vons; Aart van der Linde, both of Alkmaar, and Edward Ljbrink, Bergen, all of Netherlands, assignors to Reactor Centrum Nederland, The Hague, Netherlands

Division of Ser. No. 887,801, Dec. 23, 1969, Pat. No. 3,646,994. This application Apr. 16, 1971, Ser. No. 134,684
Int. Cl. B23k *11/10, 11/16;* **F28f** *9/00*
U.S. Cl. 219—117 R **1 Claim**

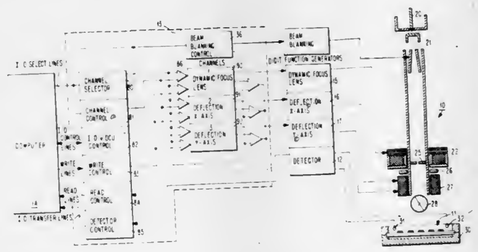


A method for spot welding Zircalloy straps in open air to form a heat-exchange grid for holding a plurality of rod-like elements against lateral displacement. Contiguous areas of the straps are clamped between spot-welding electrodes and immediately thereafter the clamped areas are sprayed with a non-viscous volatile liquid, preferably a pure organic compound free of sulfur, fluorine, chlorine and iodine, such as acetone or ethanol. Heated by the welding current, the liquid volatilizes to expell air, thus preventing weakening of the weld by absorbed nitrogen or oxygen.

3,789,185
ELECTRON BEAM DEFLECTION CONTROL APPARATUS

Edwin C. Baldwin, and Warren R. Wrenner, both of Endicott, N.Y., assignors to International Business Macnines Corporation, Armonk, N.Y.

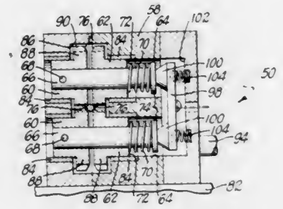
Division of Ser. No. 884,889, Dec. 15, 1969, Pat. No. 3,699,304. This application June 1, 1971, Ser. No. 148,918
Int. Cl. B23k *15/00*
U.S. Cl. 219—121 EB **6 Claims**



Apparatus for controlling the deflection of an energy beam to impinge a workpiece with improved accuracy. A computer

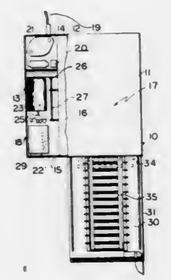
and interface unit direct the movement of the beam over a master target to learn and record addresses of impingement areas corresponding to those on a workpiece. Differential current flow in two conductive elements is used to determine accurate location of the address. Upon the substitution of a workpiece for the master target, impingement addresses can be selected without additional corrective deflection circuits.

3,789,186
CURRENT TRANSFER IN CONNECTION WITH ELECTRIC WELDING
Henry V. Rygiol, 16437 E. Janine, Whittier, Calif.
Filed Mar. 13, 1972, Ser. No. 233,961
Int. Cl. B23k *9/00*
U.S. Cl. 219—130 **5 Claims**



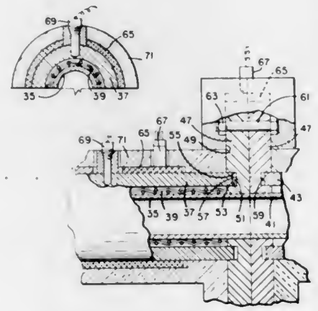
In electric welding utilizing a wire to supply metal to a weld area a current is supplied to the wire as the wire is continuously advanced to the weld area. In accordance with the invention the current can be effectively supplied to the wire utilizing a plurality of electrically conductive rollers having surfaces which engage the wire. These rollers roll in synchronism with the wire and transfer current supplied to them to the wire.

3,789,187
AUTOMATIC CIGARETTE LIGHTER
Jan Brezina, Ste. 401, 2221-14th St., S.W., Calgary, Alberta, Canada
Filed June 19, 1973, Ser. No. 371,375
Int. Cl. F23q *7/00*
U.S. Cl. 219—261 **4 Claims**



A tray holding cigarettes on a conveyor is contained within a casing and a lever is movable across the front of the casing. The first cigarette is moved sideways so that the top is adjacent an electric heating element. At the same time the elevator moves the cigarettes in the tray forwardly by one increment so that the next cigarette is in position. As the lever is moved, the element is connected to a source of electrical energy and a small fan blows air passed the tip so that the cigarette lights. The cigarette is being grasped frictionally spaced from the end for pivotal movement and the motor driving the fan also rotates a worm which causes a small jaw or prong to engage the cigarette spaced from the tip and beyond the point of pivotal attachment so that the cigarette is gradually moved through approximately 90° while at the same time the tip remains adjacent the heating element. The speed of the worm is such that the cigarette is fully lighted as the pivotal action of the cigarette is completed so that the user can then grasp the cigarette and pull it from between the jaws at which time the cigarette, of course, is ready for use.

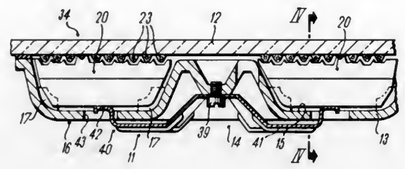
3,789,188
INSULATED PIPE LINE FOR HEATED MATERIALS
Frank Rudbarg, Bala-Cynwyd, Pa., assignor to FMC Corporation, Philadelphia, Pa.
Filed Feb. 14, 1972, Ser. No. 226,119
Int. Cl. H05b *3/00*; **F16l** *53/00*
U.S. Cl. 219—301 **7 Claims**



Apparatus for transporting a heated flowable material which includes at least one pair of telescoped conduits which are spaced from each other throughout the lengths thereof and which are formed of heat conductive material. The outermost of such telescoped conduits is electrically heated and is slidably supported within grooves formed in opposing surfaces of flanges fixed to the ends of the innermost of such telescoped conduits so that such outermost conduit may move freely in a longitudinal direction under varying thermal conditions. A spacer is disposed between the telescoped conduits only at spaced intervals thereof and and engages with the outermost of such conduits only when at least one of such telescoped conduits is subjected to deflections which would otherwise urge such telescoped conduits into direct contact with each other.

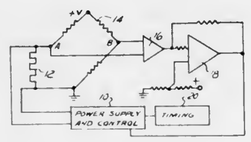
3,789,189
ELECTRICAL COOKING APPLIANCE
Karl Fischer; Gerhard Gossler, both of Oberderdingen, and Robert Kicherer, Knittlingen, all of Germany, assignors to E.G.D. Elektro-Gerate Blanc und Fischer, Oberderdingen, Germany
Filed Aug. 22, 1972, Ser. No. 282,701
Claims priority, application Germany, Feb. 3, 1972, 2205132
Int. Cl. H05b *3/68*
U.S. Cl. 219—464 **25 Claims**

An electrical cooking appliance has an upper glass-ceramic plate for supporting the cooking vessels to be heated. A heating unit is disposed below the or each heating zone of the plate and comprises a spiral heating element disposed in a supporting bowl. Leak springs outside the bowl act on the heating element by way of cross pieces inside the bowl and press the heating element by a flat surface thereof into good heat-conductive relationship with the underside of the glass-ceramic plate.



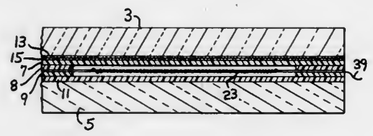
The heating element is in two parts with a temperature sensing element disposed therebetween, the latter also being pressed against the underside of the plate.

3,789,190
TEMPERATURE REGULATION FOR ELECTRICAL HEATER
David J. Orosy, and Abraham J. Matlen, both of Detroit, Mich., assignors to Abraham J. Matlen, Detroit, Mich.
Filed Oct. 17, 1972, Ser. No. 298,294
Int. Cl. H05b *1/02*
U.S. Cl. 219—497 **5 Claims**



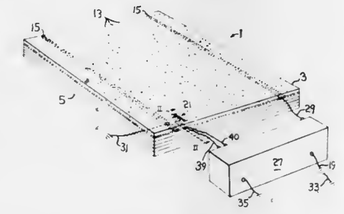
A temperature control system for use in an electrical heating device wherein the heating element also functions as the temperature sensing element. The resistance of the heating element varies linearly with temperature and the changes in resistance, detected as voltage variations across a wheatstone bridge, regulate the heating. The system is operable in either the A.C. or D.C. mode and includes a temperature measuring circuit, a timing circuit and a control circuit.

3,789,191
TEMPERATURE SENSOR
Robert G. Spindler, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 199,221, Nov. 16, 1971, abandoned. This application Sept. 1, 1972, Ser. No. 285,779
Int. Cl. H01c *7/10*
U.S. Cl. 338—24 **12 Claims**



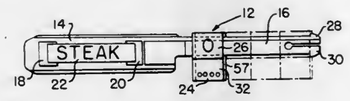
A temperature sensor suitable for use in an electrically heated, laminated window is disclosed. The laminated window includes a plastic interlayer material sandwiched between two rigid, transparent sheets, one of which sheets has an electrically conductive coating in contact with the interlayer. Embedded within the plastic interlayer is the temperature sensor which is comprised of a resistance filament encapsulated within a substantially material which has a heat deflection temperature greater than the plastic interlayer. Because the temperature sensor has a casing with a higher heat deflection temperature than the plastic interlayer into which it is embedded, fracture and shorting of the resistance filament against the electrically conductive coating, during the high temperature and high pressure conditions of laminating, are avoided. In a particular embodiment of the invention where the interlayer material is plasticized, a protective layer disposed between the interlayer and casing material to prevent hazing is disclosed.

3,789,192
ELECTRICALLY HEATED WINDOW WITH A TEMPERATURE SENSOR
Robert G. Spindler, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of Ser. No. 199,221, Nov. 16, 1971, abandoned. This application Sept. 1, 1972, Ser. No. 285,780
Int. Cl. H05b *3/06*
U.S. Cl. 219—522 **27 Claims**



An electrically heated transparent window and a constant temperature control system for such transparency is disclosed. In the preferred embodiment the transparency includes a plastic interlayer material sandwiched between two rigid, transparent sheets, one of which sheets has an electrical heating means adjacent to it and in contact with the interlayer. Embedded within the plastic interlayer is a temperature sensor which is comprised of a resistance filament encapsulated within a casing material which has a heat deflection temperature greater than the plastic interlayer. Because the temperature sensor has a casing with a higher heat deflection temperature than the plastic interlayer into which it is embedded, fracture and shorting of the resistance filament against the electrical heating means, during the high temperature and high pressure conditions of laminating, are avoided. In a particular embodiment of the invention where the interlayer material is plasticized, a protective layer disposed between the interlayer and casing material to prevent hazing is disclosed.

3,789,193
PRICE SETTING KEYS AND METHOD OF TRANSFERRING PRICE TO PRINTER
David F. Bremner, Bellbrook, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed Jan. 7, 1972, Ser. No. 216,108
Int. Cl. G06k *7/00, 19/00*
U.S. Cl. 235—61.11 R **24 Claims**



A programmable automatic price setting key for use with a reader to transfer the price to a computer controlled printer

for printing the proper base multiple of a commodity. A plurality of price setting tabs have slots therein for insertion on the key, the tabs including two rows of holes, one for clock-pulse generation and the other for supplying coded data. The reader unit incorporates a slot for the key and includes a light source and diffusing lens system along with a slide head with photodiodes positioned to pass over the rows of holes and thereby generate a series of pulses in binary code, corresponding to human readable characters on the key tabs, for transfer of the code to the computer.

3,789,194

RELATING TO COUNTING MACHINES

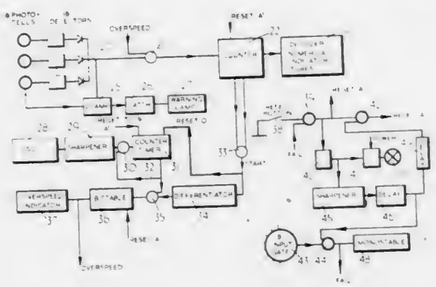
John Kirby, Manchester, England, assignor to Kirby Lester Electronics Limited, Oldham, Lancashire, England

Filed Sept. 8, 1971, Ser. No. 178,571

Claims priority, application Great Britain, Sept. 8, 1970, 42867/70

Int. Cl. G06m *1/272*

U.S. Cl. 235—92 PK **9 Claims**



A machine for counting articles, comprising means for dispersing a flow of articles to be counted into separate streams, means for providing a substantially even flow of articles to the dispersing means, a detector associated with each stream for detecting each article in that stream and counting means fed by the outputs from all detectors for counting the total number of articles in all the stream.

3,789,195

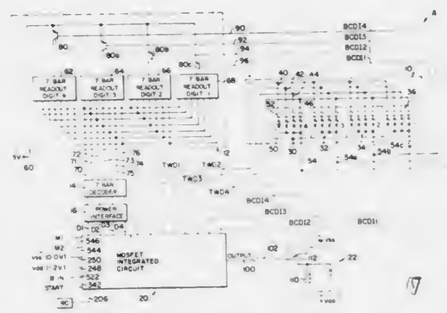
DIGITAL COUNTER AND TIMER WITH MULTIPLEX SETTING AND READOUT

Carl H. Meier, and Robert R. White, both of Scott, Iowa, assignors to Gulf Western Industries, Inc., New York, N.Y.

Filed May 9, 1972, Ser. No. 251,774

Int. Cl. H03k *21/18*

U.S. Cl. 235—92 T **34 Claims**



A digital counter used as a counter or timer and including at least first and second down counters and a network for loading a selected digit into each of the counters. A readout device is provided for each of the counters. A first signal connects the first down counters onto both of the readout devices and also energizes the readout device corresponding to the first counter. In a like manner, a second signal connects the second down counter to both of the readout devices and energizes the readout device corresponding to the second counter. There is also provided a signal for blocking the loading feature of the counters and enabling the counting function after a digit has been loaded into each of the down counters. The first and second signals also control the operation of the loading feature when there is no blocking signal so that the first down counter is loaded when the first signal is created, and the second down counter is loaded when the second signal is created.

3,789,196

NUMBER OF DAYS INTEGRATING TYPE TIME SWITCH

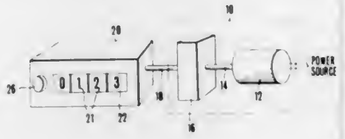
Masao Kinemura, Matsue, and Koshei Arita, Tokyo, both of Japan, assignors to Koshei Arita, Tokyo, Japan

Filed June 20, 1972, Ser. No. 264,490

Claims priority, application Japan, July 3, 1971, 46/49123

Int. Cl. G06m *3/02*

U.S. Cl. 235—132 A **3 Claims**



The time switch comprises a clock mechanism operating at a constant speed and a mechanical counter driven by the clock mechanism. The counter comprises a plurality of digit wheels for counting the number of days and a signal generator which is operated by the counter when it has counted a predetermined number of days.

3,789,197

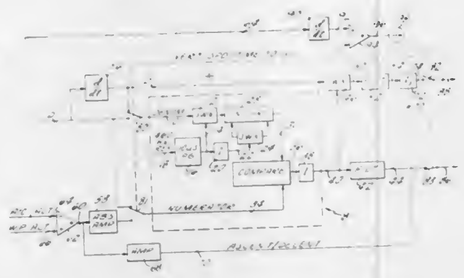
ANALOG DIVIDER AND NAVIGATION COMPUTER

John E. Games, Granby, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 3, 1972, Ser. No. 268,256

Int. Cl. G06g *7/78, 7/16, 7/18*

U.S. Cl. 235—150.27 **4 Claims**



A voltage analog of a denominator is integrated for a period of time, and then the integrator is reset to zero, cyclically; the output of the integrator is compared with a voltage analog of a numerator, the output of the comparison comprising a pulsewidth modulated analog of the quotient; a DC analog of the quotient may be provided by filtering. In one specific embodiment, the numerator analog is proportional to the distance of an aircraft to a way point and the denominator analog is proportional to the ground speed of the aircraft toward the way point, the quotient being proportional to time-to-go to the way point. In another embodiment, the pulsewidth modulated quotient is used as a multiplier, to switch, and thereby provide pulsewidth modulation to, a DC voltage analog of a multiplicand. In another specific embodiment of a navigation computer, a command vertical speed signal is derived as the product of ground speed toward the way point and a quotient, the quotient being the difference between aircraft altitude and desired altitude at the selected way point divided by the horizontal distance to the way point. In a further specific embodiment, the difference between the rate of change of altitude and the command vertical speed is used as a vertical navigation indication.

3,789,198

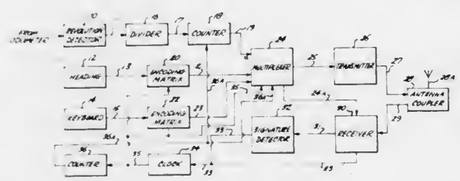
VEHICLE LOCATION MONITORING SYSTEM

Alfred J. Henson, and Richard W. Lewis, both of Derby, Kans., assignors to The Boeing Company, Seattle, Wash.

Filed Apr. 10, 1972, Ser. No. 242,349

Int. Cl. G06f *15/48;* **G01c** *7/04, 21/10*

U.S. Cl. 235—150.27 **18 Claims**



After a discussion of prior systems for indicating at a central location the instantaneous location of one or more vehicles, such as police cars or taxi cabs, an improved system of this type is described which uses the principles of dead reckoning. The improved system includes a distance sensor, such as a counter storing revolutions of the vehicle's odometer, and a heading sensor, such as a magnetic compass, which are located in a vehicle. A time-multiplex communications system provides for transmission of changes in distance and heading to a central location at periodic intervals. The location of each vehicle is stored in a computer, starting with an initial known position, and periodically updated thereby using the transmitted distance change and heading change information. If desired, the stored vehicle locations may be transmitted to a display unit. To compensate for accumulated errors customary in dead reckoning systems, the computer also periodically compares the stored location of each vehicle against an internally stored matrix corresponding to the known streets, roadways and alleyway of the area. If the vehicle location and road location do not match, the vehicle location is updated to correspond to the nearest street.

3,789,199

SIGNAL MODE CONVERTER AND PROCESSOR

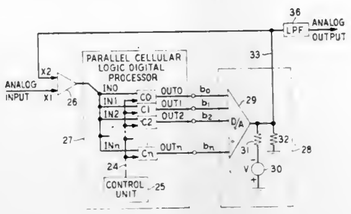
Allan Joseph Kotwicki, Detroit, Mich., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 1, 1972, Ser. No. 249,383

Int. Cl. G06j *1/00*

U.S. Cl. 235—150.5 **8 Claims**

An analog signal comparator is coupled to provide its output to a data processor which has digital outputs coupled through a digital-to-analog converter to an input of the comparator, for periodically producing in the processor digital representations of samples of another analog signal that is also applied to the comparator. In each sampling period, additional data processing is carried out with respect to the digital representations; and an output circuit coupled to the converter output employs a filter circuit to select only the results of the last-mentioned processing. The additional processing is shown for digital filters featuring single and tandem sections.



3,789,200

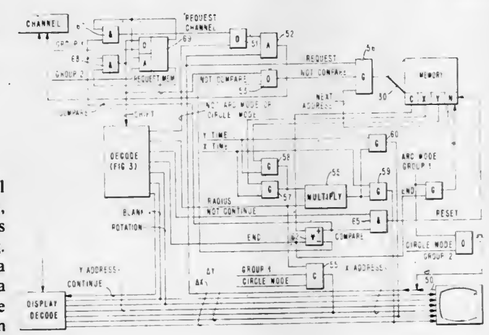
CIRCLE OR ARC GENERATOR FOR GRAPHIC DISPLAY

Lorenza S. Childress, Salisbury Mills, and Ralph J. Gundrum, Rhineback, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,800

Int. Cl. G06f *3/14*

U.S. Cl. 235—151 **8 Claims**



The operations in a data processing system for drawing circles or other geometric figures on a display which are conventionally defined by a series of instructions prepared by a problem programmer are included in a standardized form in a small memory that is made part of the display unit. The problem programmer has only to specify either the starting point of an arc of the center point of a circle, the radius of the arc or circle, and other optional characteristics such as whether the circle or arc is to be drawn clockwise or counter clockwise, whether the beam of the display is blanked or unblanked, and whether additional instructions for drawing additional arc segments are to be expected or requested by the display. Logic and timing means are provided for accessing the memory in response to these values specified by the problem programmer and for generating a desired sequence of X and Y incremental signals for operating the display.

3,789,201

SIMULATED LOAD FORECAST AND CONTROL APPARATUS

Edward J. Carpenter, Lynnwood, and Warren L. Leyde, Seattle, both of Wash., assignors to Pacific Technology, Inc., Renton, Wash.

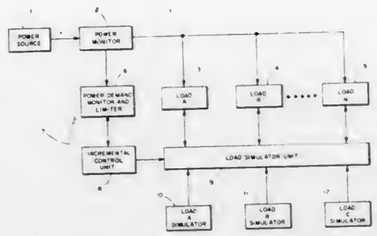
Filed May 18, 1972, Ser. No. 254,388

Int. Cl. G06f *15/56;* **G05b** *15/02*

U.S. Cl. 235—151.21 **11 Claims**

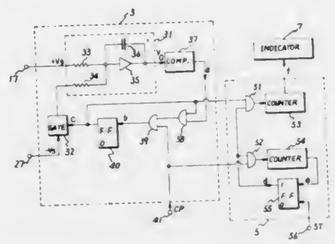
In order to observe the effect of adding or shedding a load upon the total energy consumed during a billing period and, if

desired, to effect such an add or shed operation, simulation and control apparatus is provided for use in conjunction with a power demand monitor and limiter. The power demand monitor and limiter, which is prior art apparatus, contains at all times an account of the time consumed during a billing period, the energy consumed to that time, and the current rate of energy consumption. This information is utilized by an incremental control unit which also accepts information representing the size of each individual load in a system, which information is utilized to affect the rate of oscillation of a simulated load oscillator. When a forecast is to be made of the effect of



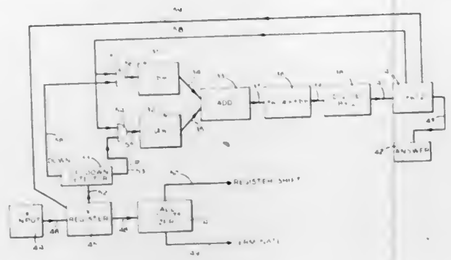
adding or shedding a load, the information from the power demand monitor and limiter is utilized to simulate the remaining time in the period at a very fast rate while simultaneously simulating the effect of adding or shedding the load contemplated in exactly the same accelerated rate. The forecast results are contained in an accumulator which may drive a display unit for the benefit of an operator observing the simulation. Additionally, set point switches and count comparison logic provides the optional ability to actually add or shed the load at an optimum point in time during the billing period to avoid exceeding the consumption limit while approaching such limit as closely as possible.

3,789,202
COUNTING BALANCE
Masami Yamanaka, Miki, Japan, assignor to Yamatos Scale Company, Limited, Hyogo-ken, Japan
Filed Aug. 23, 1972, Ser. No. 283,096
Claims priority, application Japan, Dec. 28, 1971, 47/3275
Int. Cl. G01g *19/413*
U.S. Cl. 235—151.33 **1 Claim**



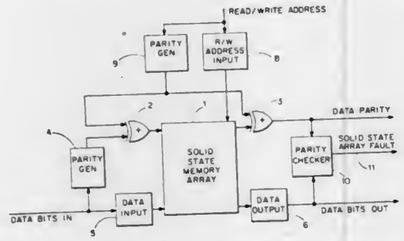
A counting balance having means for producing a first voltage proportional to the weight of an unknown number of articles, means for producing a voltage proportional to the weight of a known number of articles, comparing said voltages and producing a train of pulses having a frequency proportional to the ratio of said voltages and then counting the number of pulses during a predetermined interval to determine the number of said unknown articles.

3,789,203
FUNCTION GENERATION BY APPROXIMATION EMPLOYING INTERATIVE INTERPOLATION
Reginald Catherall, Woking, and Susan Knowles, Reading, both of England, assignors to The Solartron Electronic Group Ltd., Farnborough, Hampshire, England
Filed July 16, 1971, Ser. No. 163,360
Claims priority, application Great Britain, July 17, 1970, 34,900/70
Int. Cl. G06f *7/38*
U.S. Cl. 235—152 **22 Claims**



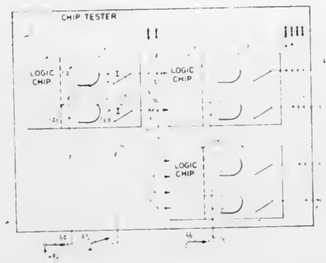
A method of solving a function for values of a variable when values of an independent variable are given, the method being especially valuable for use in or with a computer, an advantage being minimization of storage requirements. The method is an extension of the branch of mathematics known as numerical analysis, and specifically of the division of that branch known as approximation. An expression is developed for a locus of points which approach points on the given function, i.e., a polynomial expression having a high degree of convergence. The method includes finding solutions to the terms of the polynomial expression by reiterated interpolation. Only a relatively small number of factors need be stored. The method can be employed to calculate values to predetermined accuracy, and is suitable for many functions although it is especially well suited for many transcendental functions. Embodiments of apparatus suitable for performing the method are also disclosed. The apparatus includes elements of electronic data processing such as shift registers, adders, and the like to perform the interpolation involving addition, subtraction and division by 2. The algorithm developed as a manifestation of this method is describable as an add-shift algorithm.

3,789,204
SELF-CHECKING DIGITAL STORAGE SYSTEM
George Joseph Barlow, Tewksbury, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed June 6, 1972, Ser. No. 260,154
Int. Cl. G06f *11/10*; **G11c** *29/00*
U.S. Cl. 235—153 AM **16 Claims**



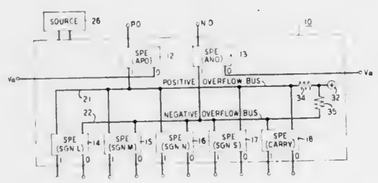
A self-checking digital storage system and method for detecting faults within the storage system. An address word for a memory location into which information is to be written is combined with a data word that is contained in that address location and one combined parity bit is generated for the combined words and placed into memory. When the information is accessed, the address information is subtracted from the data information to indicate correct data information if the data parity corresponds to the original data parity.

3,789,205
METHOD OF TESTING MOSFET PLANAR BOARDS
Randell Leland James, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 28, 1972, Ser. No. 293,270
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AC **11 Claims**



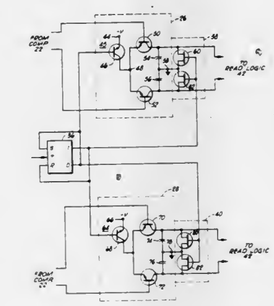
A technique of testing a MOSFET planar board in which each of the chips on the planar board can be electronically isolated for individual testing. In MOSFET technology there are two off chip inverters between the output logic blocks and the pins. These are the preoff chip inverter and the off chip inverter. A NOR gate is formed by adding an additional input line to each of the preoff chip inverters of each of the chips on the board, and the output of each of the chips which are not to be tested are driven to logical ones by application of a positive logical level to this input line while no input is applied to the NOR gates on the outputs of the chip which is to be tested. In this manner, all inputs to the chip to be tested are at a one or high logical level, and for test purposes each input to the chip can be brought to a low logical level or left at a high logical level in accordance with the test pattern to be applied. Its output or reaction to the input test patterns is monitored in the normal manner by the chip tester. Through utilization of this technique, the same test patterns which might number three thousand can be applied to the chip such that even though it remains on the planar board it can be tested equivalent to new. In this manner, each chip can be tested and a defective chip on a planar board isolated without mechanically isolating the chips by breaking chip interconnections.

3,789,206
THRESHOLD LOGIC OVERFLOW DETECTOR FOR A THREE-INPUT ADDER
John Donnell Heightley, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 4, 1972, Ser. No. 240,955
Int. Cl. G06f *7/50*
U.S. Cl. 235—172 **17 Claims**



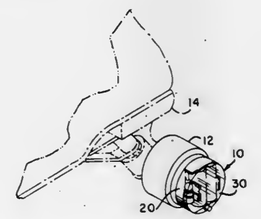
A threshold logic overflow detector for a three-input adder is a combination of storage-processor elements and a pair of busses arranged so that three input-word sign-bits, a sum-word sign-bit, and at least one carry-bit from the adder are stored in separate storage-processor elements for controlling units of current conducted through the busses. Predetermined potentials are established on the busses in response to the units of current conducted therethrough. Two additional storage-processor elements respectively compare the potentials on the busses with a predetermined reference potential and thereby determine the occurrence and polarity of any net overflows that occur in the three-input adder.

3,789,207
INTEGRATING CIRCUIT FOR DATA RECOVERY SYSTEM
William H. Jones, Oklahoma City, Okla., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed Sept. 22, 1972, Ser. No. 291,444
Int. Cl. G06g *7/18*; **G11b** *5/02*
U.S. Cl. 235—183 **8 Claims**



For use in a system which recovers data stored in a disk memory unit by (1) integrating signals over successive halves of data cells and (2) comparing the results of the integrations, an improved integrating circuit having a differential transistor amplifier driven by a single current source. Where NPN transistors are used, the collector terminals of the transistors are connected to charging capacitors and field effect transistors in parallel between the transistors and ground. To start integration, the current source is biased on and the field effect transistors are biased off. To stop integration, the current source is biased off and the field effect transistors are triggered into conduction.

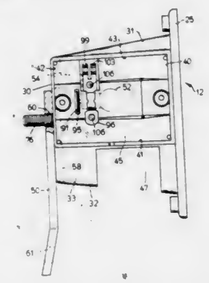
3,789,208
SKATE WHEEL ATTACHMENT
Elwood C. Lewis, Valley View Apartments, Allentown, Pa.
Filed Sept. 18, 1972, Ser. No. 290,062
Int. Cl. F21v *33/00*
U.S. Cl. 240—6.4 R **7 Claims**



A roller skate wheel attachment which is removably attachable to a wheel at the axle thereof. The device includes a

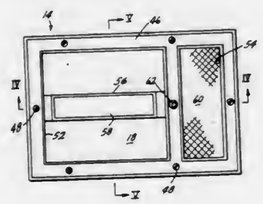
connector which removably affixes to the wheel axle and a rotary member which is rotable about the connector and which rotates when the wheel rotates. In one embodiment of the invention, the rotary member incorporates a switch which serves to alternately energize and de-energize lamps as the wheel rotates. In a second embodiment, the rotary member includes a reflecting surface to rotatively reflect light from exterior lighting sources when the skate wheel rotates.

3,789,209
VEHICLE LAMP
Bernard R. Weber, and David W. Wendt, both of Janesville, Wis., assignors to Wesbar Corporation, West Bend, Wis.
Filed Oct. 25, 1972, Ser. No. 300,502
Int. Cl. B60q *1/00, 3/00*
U.S. Cl. 240—7.1 R **17 Claims**



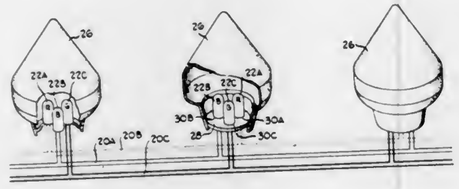
Two embodiments of vehicle lamps for mounting near the rear corners of vehicles such as trailers are disclosed. Both embodiments comprise a housing having an end wall and a side wall, a double filament bulb mounted inside the housing serving as tail light, stop light and turn signal, a single filament bulb mounted outside the side wall of the housing serving as a side marker light, suitable lenses for each bulb, mounting bolts projecting from the end wall, external connecting means enabling external electrical connections to the unit, an internal connecting means between the two bulbs. The internal connecting means comprise a flexible jumper wire and improved means for securing each end thereof. The external electrical connecting means comprise releasable push-in terminals. Wire harness grooves are provided on the exterior of the end wall. The embodiment for use on the left rear corner of the vehicle includes a license plate bracket and a lens in a hole in the side wall for license plate illumination.

3,789,210
RECESSED LIGHTED ASSIST BAR
Carl Weber, Battle Creek; Larry L. Shroyer, Union City, and James T. Baker, Marshall, all of Mich., assignors to Progressive Dynamics, Inc., Marshall, Mich.
Filed Mar. 16, 1973, Ser. No. 342,268
Int. Cl. B60g *1/24*
U.S. Cl. 240—7.3 **7 Claims**



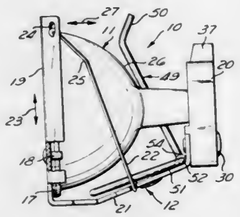
A hand hold assist bar unit for mounting in vertical panels, particularly suitable for mounting in the exterior wall or panel of recreational vehicles adjacent an access door, the unit being of a recessed configuration having peripherally disposed mounting flanges. An electric lamp within the recess illuminates the same, and a hand hold bar extending across the recess may be readily grasped. A lens mounted on the unit body diffuses the light, and the unit also functions as a porch light.

3,789,211
DECORATIVE LIGHTING SYSTEM
Norman Kramer, Skokie, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed July 14, 1972, Ser. No. 271,808
Int. Cl. H05b *37/02*
U.S. Cl. 240—10 R **13 Claims**



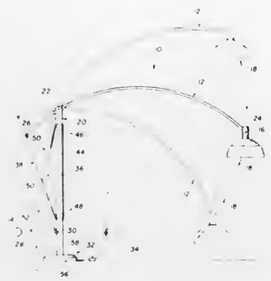
A multi-channel lighting system which includes a lamp load for each channel. Each channel is a nominally identical self-modulating half-wave phase control circuit employing DC feedback to modify both reference and pedestal levels in a dual frequency oscillator. The result is a random off and on pattern for each channel. Each lamp load is a different color which produces a random and dynamic color light display in response to each channel for decorating Christmas trees or the like.

3,789,212
PHOTOGRAPHIC LIGHTING UNIT
Donald M. Wagner, Pepper Pike, Ohio, assignor to General Electric Company, Schenectady, N.Y.
Filed Jan. 26, 1973, Ser. No. 326,585
Int. Cl. F21v *21/00*
U.S. Cl. 240—52 R **10 Claims**



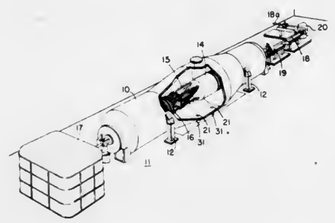
A lighting unit comprising a reflector lamp, a holder having a socket and faceplate connected by a base member and having a means for accurately aligning and firmly holding the reflector lamp. The means for aligning and holding is a set of aligning stops at the bottom inner side of the faceplate and a spring wire positioned so that the wire exerts a downward and forward force on the reflector to hold it in place against the faceplate and alignment stops. In one variation of the lighting assembly, a lever-type ejector is attached to the holder for easy removal of the reflector lamp.

3,789,213
COUNTERBALANCED LAMP
Robert Sonneman, New Rochelle, N.Y., assignor to Robert Sonneman Associates, Inc., Woodside, N.Y.
Filed Apr. 24, 1973, Ser. No. 354,105
Int. Cl. F21v *21/20*
U.S. Cl. 240—69 **4 Claims**



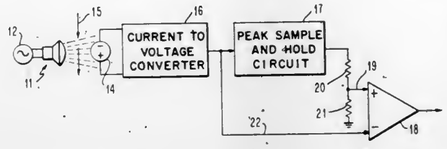
A lamp having an elevated, freely movable light boom counterbalanced, by a weight located adjacent the lamp base. The weight is attached to a lever pivotally mounted on the lamp base. The lever is connected to an end of the light boom by means of a cable and pulley arrangement. Thus, inadvertent disengagement of the weight or its movement presents an optimum, minimum safety hazard.

3,789,214
IRRADIATION APPARATUS
Charles H. Goldie, Bedford, and Robert A. Fernald, Carlisle, both of Mass., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed July 21, 1967, Ser. No. 655,231
Int. Cl. H01j *37/00*
U.S. Cl. 250—354 **11 Claims**



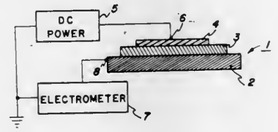
An apparatus for introducing ionizing radiation into compressed gas insulation systems, such as high voltage generators or transmission lines to smooth out electrical discontinuities, particularly those caused by foreign particulates, that produce high gradients and to increase the voltage holding capability of the system. The apparatus of the invention may also be used to regulate and stabilize the voltage of the system by varying the amount of applied load. A corona discharge device may also be used in conjunction with the invention.

3,789,215
PHOTOSENSITIVE DOCUMENT DETECTOR WITH AUTOMATIC COMPENSATION
Robert Elton Penny, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 8, 1972, Ser. No. 287,301
Int. Cl. G01n *21/30*
U.S. Cl. 250—206 **2 Claims**



A photosensitive circuit for use in document handling equipment which detects the passage of single and multiple documents past a counting station or the like and in which component aging or other variation is automatically compensated.

3,789,216
PHOTODETECTION DEVICE AND METHOD COMPRISING PHTHALOCYANINE
Richard J. Komp, Bowling Green, Ky., assignor to Xerox Corporation, Stamford, Conn.
Filed Jan. 2, 1973, Ser. No. 320,421
Int. Cl. G01j *1/42*
U.S. Cl. 250—211 R **13 Claims**

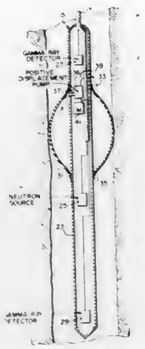


Photoelectric device comprising a pair of electrodes, at least one of which is transparent, and sandwiched therebetween an interlayer containing a phthalocyanine pigment dispersed in an organic film forming polymeric binder. During operation of this device a biasing potential is applied across these electrodes and the interlayer irradiated through the transparent electrode which serves as a window for this photoelectric device. Because of the very high photosensitivity and rapid response times of this inter-layer, this device is suitable for use in detection of relatively low intensity incident or reflected light of short impulse duration. This sensitivity and spectral response to light in the red band of the visible spectrum makes such a device ideally suited for use in conjunction with red laser scanners.

3,789,217
WATER PRODUCTION SYSTEM HAVING MEANS TO SELECTIVELY PROFILE VARY BOREHOLE FLUID FLOW
Arthur H. Youmans, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Continuation of Ser. No. 715,338, March 22, 1968, abandoned. This application Feb. 10, 1970, Ser. No. 9,116
Int. Cl. G01t *1/16*
U.S. Cl. 250—265 **10 Claims**

This specification discloses a system for obtaining a water production profile of a producing oil well. A logging instrument is used having a deuterium tritium neutron source. A de-

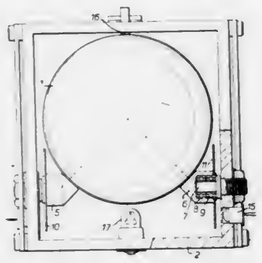
tector is mounted in the tool above the neutron source and an inflatable bag is positioned between the source and this detector. A positive displacement pump, servo-controlled from the surface, is provided to permit precisely determined amounts of liquid to be pumped into the bag from the borehole to thus vary the transit time of the borehole fluid from the source to



the detector by a known amount. A second detector is positioned below the neutron source to detect whether any downward circulation in the borehole takes place.

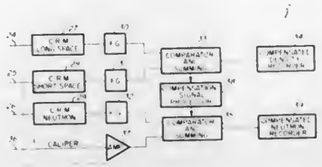
In an alternative embodiment, a pair of detectors are positioned on the same side of the source within the borehole instrument.

3,789,218
TRACKER BALL ARRANGEMENTS
Eric Albert Blount, Chelmsford, England, assignor to The Marconi Company Limited, Essex, England
Filed Apr. 3, 1972, Ser. No. 240,615
Claims priority, application Great Britain, June 12, 1971, 27,651/71
Int. Cl. G01d *5/34*
U.S. Cl. 250—231 SE **5 Claims**



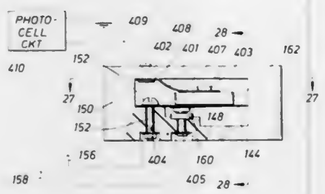
A tracker ball, supported by a caster, drives two mutually perpendicular conical members, each mounted on a stub axle carrying an apertured disc. Light shone through each disc is detected by two photodetectors, the frequency and order of the detected light representing the ball movement. The conical members may be formed on the axles themselves, which may be mounted in opposite walls or both in the same wall of the ball housing.

3,789,219
MUD CAKE COMPENSATED NEUTRON LOGGING SYSTEM
Billy Fred Wilson, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Apr. 24, 1972, Ser. No. 247,128
Int. Cl. G01v *5/00*
U.S. Cl. 250—264 **9 Claims**



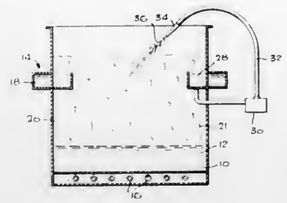
A neutron source and a gamma ray source are positioned in the instrument housing of a well logging instrument to irradiate the formations surrounding a well bore. A short-spaced gamma ray detector and a long-spaced gamma ray detector positioned in the instrument housing detect radiation from the formations and transmit electrical signals representing the radiation to the surface. The electrical signals are compared to provide a signal representing mud cake in the well bore. A third detector positioned in the instrument housing detects radiation from the formations surrounding the well bore and transmits a neutron logging signal to the surface. The signal representing mud cake in the well bore is applied to the neutron logging signal to provide a mud cake compensated neutron log.

3,789,220
LIGHT SENSITIVE ELECTRICAL TIMING CIRCUIT
Ezra L. Schacht, 1620 W. Main St., Houston, Tex.
Continuation-in-part of Ser. No. 238,088, March 27, 1972. This application Sept. 8, 1972, Ser. No. 287,369
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **3 Claims**



Method and apparatus for controlling energization and deenergization of an electrical load circuit such as a flood-lighting circuit utilizing a control system that is responsive to predetermined conditions of atmospheric light. A timing sequence may be initiated upon the occurrence of a predetermined degree of morning atmospheric light which timing sequence functions to deenergize the load circuit at the end of a predetermined period of time measured from dawn, the load circuit being previously energized responsive to predetermined decrease in the amount of evening atmospheric light. The timing sequence may be variable, responsive to variations in the length of daylight hours, and may function to achieve deenergization of the load circuit at approximately the same time each night, thereby precluding unnecessary operation of the load circuit during certain periods during the year.

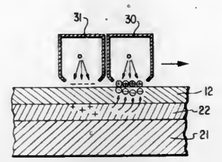
3,789,221
DYE PENETRANT COMPOSITION AND METHOD UTILIZING SAME
Orlando G. Molina, Westminster, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.
Filed Feb. 5, 1973, Ser. No. 329,775
Int. Cl. G01n *21/16*
U.S. Cl. 250—302 **19 Claims**



Method for detecting cracks and flaws in the surfact of an object or part, employing a dye penetrant composition which, following application of the dye penetrant composition to the part surface, includes means for facilitating removal of excess dye penetrant from such surface, in the form of a volatile degreaser-type solvent such as 1,1,1-trichloroethane. According to one embodiment an object to be inspected is immersed in a dye penetrant which will withstand high temperatures, particularly a dye penetrant containing an N-alkyl-2-pyrrolidone, for example N-methyl-2-pyrrolidone, and a dye which is soluble in said pyrrolidone, preferably a fluorescent dye, and including a volatile solvent, preferably 1,1,1-trichloroethane, the dye penetrant composition being maintained at the boiling temperature of the volatile solvent, causing vaporizing of such solvent into a zone above the heated liquid dye penetrant composition, removing the object from the heated liquid dye penetrant composition, passing the object into the zone containing vapors of the volatile solvent and maintaining the object in the vapor zone for a period sufficient to cause vapors of the volatile solvent contacting and condensing on the surface of the object, to wash excess liquid dye penetrant from the surface of the object back into the liquid dye penetrant composition, together with condensed vapors of volatile solvent, removing and drying the object. The process is conveniently carried out in a degreaser-type apparatus, in which the object is initially passed through the vapors of volatile solvent above the bubbling liquid dye penetrant composition in the bottom of the degreaser, permitting facile removal of any oil of or grease from the surface of the object, after which the object is then lowered into the liquid dye penetrant composition, then again passed upwardly through the vapors of volatile degreaser solvent to remove excess liquid dye penetrant and dried, as previously noted, following which the dried surface of the object containing dye penetrant in the cracks and defects thereof, with or without application of a developer, can be inspected under appropriate lighting conditions for detection of cracks and flaws.

3,789,222
CORONA CHARGE METHOD
Masamichi Sato, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Aug. 13, 1971, Ser. No. 171,690
Int. Cl. G03g *13/02*
U.S. Cl. 250—325 **7 Claims**

A method for charging an electrophotographic member comprising a photoconductive insulating layer, an insulating substrate, and a conductive layer interposed between the photoconductive insulating layer and the insulating substrate, the conductive layer being unconnected to any source of reference electric potential, the method comprising the steps of relatively moving the electrophotographic member and two corona discharge electrodes, the first of which precedes the second, exposing the photoconductive insulating layer of the electrophotographic member to the first corona discharge electrode, the polarity of which is opposite to that of the majority carriers of the photoconductive insulating layer and



subsequently exposing the photoconductive insulating layer of the electrophotographic member to the second corona discharge, the polarity of which is the same as that of the majority carriers whereby the electrophotographic member is readily charged even though the conductive layer is unconnected to a source of reference electric potential.

3,789,223
CHARGING METHOD FOR RELATIVELY MOVABLE ELECTROPHOTOGRAPHIC MEANS AND CORONA MEANS
Masamichi Sato, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Aug. 11, 1971, Ser. No. 170,921
Claims priority, application Japan, Aug. 11, 1970, 45-70205
Int. Cl. G03g *13/02*
U.S. Cl. 250—325 **1 Claim**

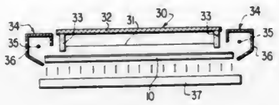


An electrophotographic coating provided on a highly insulating backing having a conductive interlayer can be uniformly charged in one polarity by forming a conductive path in a certain region of said coating by means of light exposure and on said conductive path applying a corona discharge of the opposite polarity whereby another corona electrode imparts corona ions of the first polarity, in which the coating is to be charged, on an area of the coating which is sufficiently close to the exposed area.

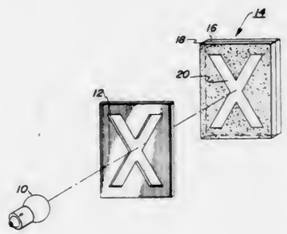
3,789,224
PROCESS FOR CHARGING ELECTROPHOTOGRAPHIC MATERIALS
Masamichi Sato; Satoru Honjo, and Takao Komaki, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Sept. 17, 1971, Ser. No. 181,521
Claims priority, application Japan, Sept. 18, 1970, 45/81731
Int. Cl. G03g *13/02*
U.S. Cl. 250—325 **7 Claims**

A process for charging electrophotographic material having a photoconductive insulating layer on a high insulating support which is characterized by simultaneously applying high voltages of opposite polarities respectively to a first corona discharge electrode facing the surface to be charged of the photoconductive insulating layer and second corona discharge electrode or electrodes facing a surface of the photoconductive insulating layer to cause corona discharges of the opposite

polarities to be applied to the photoconductive insulating layer and, no later than the corona discharge, uniformly irradiating the electrophotographic material through the support by a light which is absorbed by the photoconductive insulating layer and does not reach the surface of the photoconductive insulating layer.



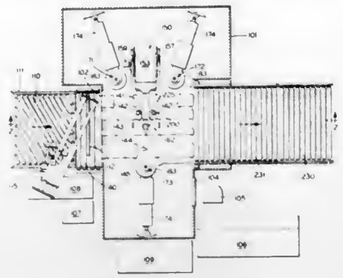
3,789,225
PROCESS FOR PREPARING GLASSY LIQUID CRYSTALS AND METHOD FOR FORMING IMAGES ON SAME
Lewis B. Leder, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Aug. 24, 1971, Ser. No. 174,348
Int. Cl. G01t *1/16*
U.S. Cl. 250—331 **22 Claims**



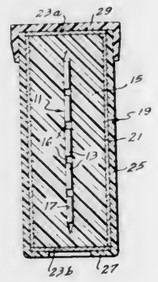
A process for preparing various glassy optically negative liquid crystalline materials and a method for forming images on these materials are described. The glassy liquid crystals are relatively hard films which retain the optical properties of the normally softer liquid crystalline compositions. These liquid crystalline materials are imaged by flash exposure to a burst of imagewise activating radiation followed by relatively rapid cooling. The heat from the energy of the activating radiation typically causes a change in the pitch of the liquid crystal in the exposed areas of the film and the new pitch is retained by the rapid cooling.

3,789,226
X-RAY TIRE INSPECTION MACHINE
Donald T. Green, Mentor, and James L. Snarr, Eastlake, both of Ohio, assignors to Imagex, Inc., Mentor, Ohio
Filed Sept. 1, 1972, Ser. No. 285,743
Int. Cl. G01j *39/18*
U.S. Cl. 250—360 **15 Claims**

An X-Ray tire inspection machine for automatic handling of tires and display of X-Ray shadow pictures of every part of the circumference of the tires includes devices for measuring each of a random succession of tires of differing sizes, positioning each tire in turn with the axis of an X-Ray imaging system in the mid-plane of the tire, spreading the beads of the tire sufficiently to avoid presence of more than one part of the tire in any ray of the X-Ray beam, stepwise rotation of the tire and successive display of X-Ray shadow pictures of each portion of the circumference of the tire while in a stationary position, marking the approximate location of each defect or other noteworthy observed feature and diversion of the marked tire, and dispatching toward their destinations the tires not marked for diversion. The machine may scan a single zone of the tire such as the tread, or may scan tread and sidewalls successively with a single imaging system or simultaneously with a group of imaging systems.



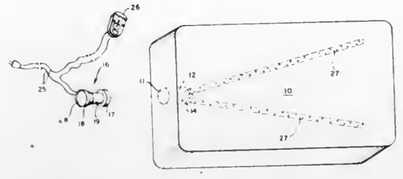
3,789,227
ENVIRONMENTAL DOSIMETER OF THE THERMOLUMINESCENT TYPE
Fred N. Eichner, Kennewick, and Leo F. Kocher, Richland, both of Wash., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed May 18, 1973, Ser. No. 361,757
Int. Cl. G01t *1/11*
U.S. Cl. 250—484 **9 Claims**



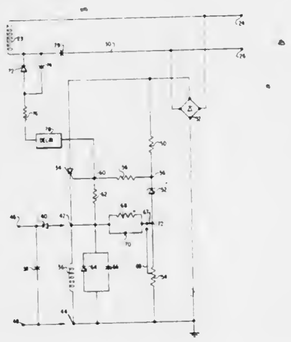
A dosimeter for accurately monitoring normally low-energy radiation includes thermoluminescent CaF phosphors enclosed within a tantalum capsule. The tantalum acts as a filter to weaken the measured dose due to photons having energies below about 0.2 MeV. Tantalum end caps are maintained on the capsule body by a polyolefin sheath formed from heat-contractable tubing. After exposing the dosimeter to environmental radiation, it is placed in a shielded chamber for about 24 hours and subsequently annealed at about 80°C. to release radiation energy accumulated in low-temperature traps. The dosimeter is then disassembled and the phosphors photometrically read at temperatures about 80°C. to determine the absorbed radiation dose.

3,789,228
STERILIZING APPARATUS
Joseph Bouchard, 341 Oklahoma St., Hollywood Beach, Fla.
Filed Oct. 12, 1972, Ser. No. 296,895
Int. Cl. H01j *37/00*
U.S. Cl. 250—492 **4 Claims**

An air purifying and sterilizing means comprising an ultraviolet source coupled with a forced circulation means such as a fan. The ultra-violet source and fan are adapted to be placed into a portion of a mattress or the like to thereby force feed thereinto a supply of air which has been subjected to the effects of the ultra-violet ray tube to thus sterilize the air and resultant sterilization of the mattress or the like in which the ray tube and fan assembly have been placed.



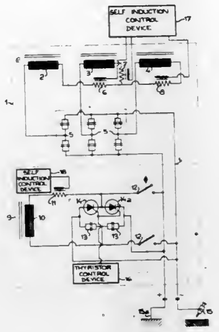
3,789,229
WELDING CONTROL CIRCUIT AND METHOD
Robert V. Jackson, Los Angeles, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.
Division of Ser. No. 177,613, Sept. 3, 1971, abandoned. This application June 5, 1972, Ser. No. 259,930
Int. Cl. H02p *9/04*
U.S. Cl. 290—40 **9 Claims**



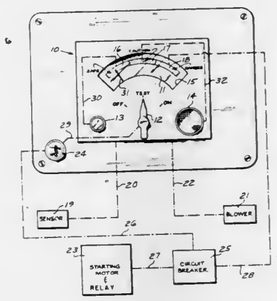
A voltage regulator and method are utilized in an automatic throttle control for an internal combustion engine driven inductor alternator. An SCR in series with the load is biased to conduct on successive positive half-cycles of a rectified a.c. input voltage. The SCR conductive bias is opposed responsively to the load voltage so that the average load voltage is a function of the number of complete pulses of the source in which the SCR conducts during a given time period. A hold-off circuit is provided to prevent SCR conduction during welding.

3,789,230
WELDING CURRENT GENERATOR HAVING TWO INTERCONNECTED SOURCES
Serge Paulange, 12 Route de Vertori, Nantes, France
Filed Sept. 29, 1972, Ser. No. 293,393
Claims priority, application France, Oct. 1, 1971, 71.36389
Int. Cl. H02j *3/00*
U.S. Cl. 307—1 **7 Claims**

Device adapted to provide welding current to automatic arc welding apparatus having a non-fusible electrode. The device comprises a first single-phase current source and a second three-phase current source having means associated with each source for controlling the strength of the current fed by the source. A first rectifier arrangement is connected to the three-phase source for rectifying the current fed by such source and a second rectifying arrangement including a periodic interrupter is connected to the output of the single-phase source for providing a pulsed current. The output of the first and second rectifier arrangements are connected in parallel to the welding electrodes so as to permit superposition of the current fed by the first and second sources, and a switch is provided for short-circuiting the second rectifier arrangement for providing, when the switch is open, a pulsed current superposed on a direct current and, when the switch is closed, an alternating current superposed on the direct current.



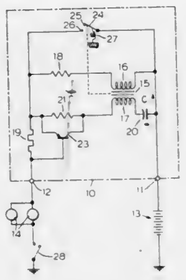
3,789,231
VAPOR DETECTOR SAFETY SYSTEM
Arthur G. Hayden, 1231 Sunset Loop, Walnut Creek, Calif.
Continuation-in-part of Ser. No. 198,555, Nov. 15, 1971, abandoned. This application Feb. 20, 1973, Ser. No. 333,517
Int. Cl. B63j *2/06*
U.S. Cl. 307—9 **5 Claims**



A combustible vapor detector system providing both a proportional visual reading and a simultaneous switching function in a common instrument includes a meter relay and a vapor sensor remotely located in a compartment likely to have an accumulation of combustible vapors which operably coupled to the meter relay to control its reading at an operator's console and a plurality of switching sectors associated with the meter relay arranged to sequentially operate several independent circuits within selected meter ranges so a "safe" or "caution" condition will be indicated with auxilliary elements, such as lights or audible elements, apart from the meter readings, and a "danger" condition will trigger a disabling circuit to stop or prevent the start-up of any machinery located in the com-

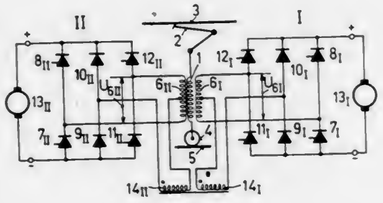
partment containing the sensor. The switching sectors may also be employed to operate a blower to purger the compartment of any accumulation of combustible vapors and the "danger" condition can also be employed to shut off all electrically controlled machinery located in the compartment having the vapor sensor or elsewhere.

3,789,232
FLASHER SWITCH WITH OUTAGE INDICATION
Kenneth Wareing, 370 Consession St., Hamilton, Ontario, Canada
Continuation-in-part of Ser. No. 179,300, Sept. 10, 1971, abandoned. This application Nov. 21, 1972, Ser. No. 308,626
Int. Cl. H02g *3/00*
U.S. Cl. 307—10 L S **6 Claims**



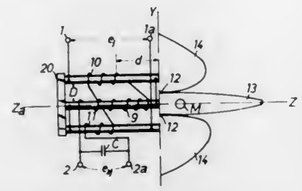
A flasher switch of the type for flashing automobile lamps is provided with outage indication. In a particular embodiment employing two coils producing opposed magnetic forces in a core the change in rate is obtained by inserting or removing an impedance to produce an appreciable discrete change of flux in the core. Preferably the change of flux is such that the flashing rate is increased above the usual rate.

3,789,233
STATIC CONVERTER ARRANGEMENT
Peter Winter, Baden, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland
Filed Sept. 19, 1972, Ser. No. 290,410
Claims priority, application Switzerland, Oct. 11, 1971, 14712/71
Int. Cl. H02p *7/68, 13/24*
U.S. Cl. 307—17 **3 Claims**



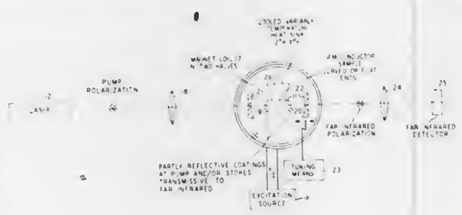
A static converter arrangement comprises at least two converter units having substantially the same configuration and each of which includes at least two series-connected semi-controlled converter bridge circuits. At least two of such bridge circuits of one converter unit have an uncontrolled bridge portion in common and are connected to a tapped secondary winding of a transformer such that one top is connected to a circuit point between anode and cathode of the semi-conducter valves of the uncontrolled bridge portion via a choke. Thus the converter arrangement comprises at least two chokes, one for each connector unit, and these chokes are magnetically in reverse-series connection.

3,789,234
MAGNETIC SENSOR USING A PARAMETRICALLY EXCITED SECOND HARMONIC OSCILLATOR
Teruji Watanabe, Niza; Takasuke Fukui, Tokyo, and Shizuo Suzuki, Kawasaki, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 16, 1972, Ser. No. 298,008
Claims priority, application Japan, Oct. 18, 1971, 46/82288
Int. Cl. G11c *11/20*
U.S. Cl. 307—88 P **5 Claims**



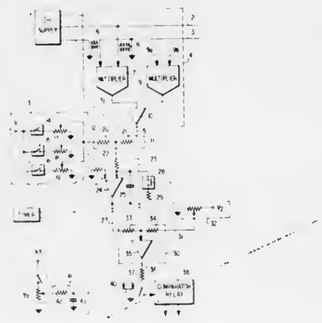
A magnetic sensor using a parametrically excited second harmonic oscillator for detecting a minute magnetic field by utilizing a change in the phase of the second harmonic of the oscillator in accordance with the direction of an external magnetic field. At least three inductance elements each formed with a magnetic wire member and its winding are employed for forming the parametrically excited second harmonic oscillator, one of the three inductance elements being a main element and the others auxiliary elements, the auxiliary elements being disposed about the main element. The windings of the elements being interconnected in series in such a manner that when the same exciting voltage is applied to the magnetic members a magnetic field established by a second harmonic current flowing in the winding of the main element and a magnetic field by the second harmonic current flowing in the winding of each auxiliary element may be opposite in direction to each other, so that a sensitivity characteristic against an external magnetic field is made extremely sharp with respect to a head portion of one end of the main element.

3,789,235
FAR INFRARED COHERENT RADIATION SOURCE EMPLOYING CHARGE CARRIER SPIN NONLINEARITY IN A MAGNETIC FIELD
Thomas James Bridges, Holmdel, and Van-Tran Nguyen, Matawan Twp., Monmouth County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Sept. 28, 1972, Ser. No. 292,875
Int. Cl. H02m *5/06*
U.S. Cl. 307—88.3 **16 Claims**



There are disclosed far infrared coherent radiation sources in which a sample of material capable of spin-flip transitions is subjected to an adjustable magnetic field and pumped by at least one coherent light beam. Some of the sources generate both tunable spin-flip laser radiation and far infrared radiation at the tunable spin-flip (or spin resonance) frequency. Others of the sources provide mixing of two input coherent radiations of adjustable frequency to produce phase-matched far infrared coherent radiation at the difference frequency which substantially coincides with the spin-flip frequency. In all of these sources only one crystal of the material is typically subjected to the magnetic field. A particular advantage of these sources is the possibility of tuning the far infrared output over a wide frequency range. An important aspect of the invention is that phase-matching greatly enhances the far infrared output.

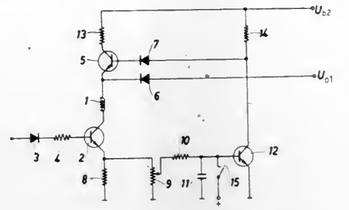
3,789,236
DEVICE FOR MONITORING THE ELECTRICAL ENERGY DELIVERED BY AN ENERGY SOURCE
Pierre Lacroix, Mazeres-sur-Salat, France, assignor to Societe de Travaux d'Electricite et d'Electronique du Languedoc
Filed Aug. 9, 1972, Ser. No. 279,235
Claims priority, application France, Aug. 9, 1971, 71.29300
Int. Cl. H02j *7/22*
U.S. Cl. 307—96 **6 Claims**



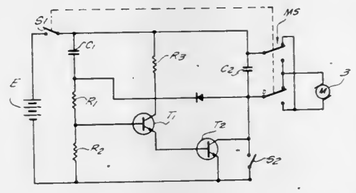
An apparatus for monitoring the energy supplied by a source to a load system including sensors which provide signals proportional to current and voltage to a multiplier which produces a signal proportional to instantaneous power. The power signal is compared with a reference and the difference is integrated over a preselected interval of time at the end of which the integrator is reset. The integrated signal is compared with a second reference and the difference is applied to a comparator. If the resulting signal exceeds a set limit an alarm is actuated or selected portions of the load are disconnected from the source. A delay circuit prevents actuation at the beginning of the integration.

3,789,237
DEVICE FOR RAPID SWITCHING OF INDUCTORS
Gerhard Doring, Jena, Germany, assignor to Jenoptik Jena G.m.b.H., Jena, Gera, Germany
Filed Dec. 26, 1972, Ser. No. 318,066
Int. Cl. H01f *27/42*
U.S. Cl. 307—104 **5 Claims**

In a device for rapid switching of inductors, particularly for use in electric stepping relay drive mechanisms, the upper limiting frequency is increased by a shortening of the starting time. Two voltage sources of different voltages are applied for feeding a short timed high voltage into the inductor via a switching means for the current to rise steeply. When the current has reached its rated value, a considerably lower voltage is fed into the inductor via said switching means.



3,789,238
OPEN SWITCH BYPASS CIRCUIT
Shelley M. Presentey, 1268 Henry Farm Dr., Ottawa, Canada
Filed Apr. 11, 1973, Ser. No. 350,177
Int. Cl. H01h *35/00*
U.S. Cl. 307—119 **12 Claims**

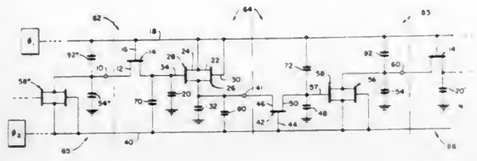


A web transport arrangement, particularly a magnetic tape transport arrangement, includes a supply reel, an elongated web or magnetic tape wound on the supply reel and having one end secured to the supply reel. A reversible advancing unit includes an electric motor and is operative for advancing the web of magnetic tape in a first direction to unwind the web from the supply reel and is alternatively operative to advance the web in opposite second direction to rewind the web or tape onto the supply reel. The motor has a first motor current path and also has an auxiliary motor current path. The first motor current path includes a first switch and the auxiliary motor current path includes an axuiliary switch. A mode selector has at least first and second settings for respectively causing the advancing unit to advance the web in said first and second directions. A web-end-sensing unit is operative for opening the first switch to stop said advancing unit in response to an increase in web tension resulting upon substantially complete unwinding of the web from the supply reel. An overriding arrangement is operative, when said selector is in a setting other than said first setting, for closing the auxiliary switch, to permit the flow of motor current through the auxiliary motor current path.

3,789,239
SIGNAL BOOST FOR SHIFT REGISTER
Richard H. Heeren, Palatine, Ill., assignor to Teletype Corporation, Skokie, Ill.
Filed July 12, 1971, Ser. No. 161,806
Int. Cl. G11c *11/40*
U.S. Cl. 307—221 C **19 Claims**

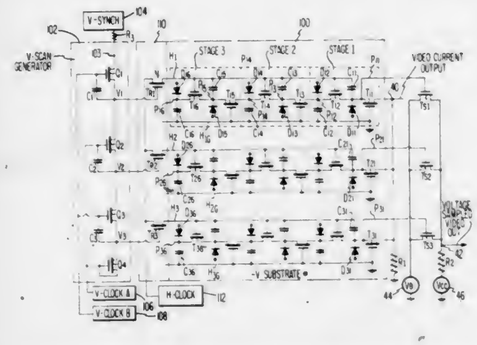
A MOSFET shift register wherein capacitor nodes in each

cell of the register are charged and selectively discharged and having booster capacitor nodes and clock nodes to increase



slightly the voltages at the capacitor nodes in order to enhance the operation of the shift register.

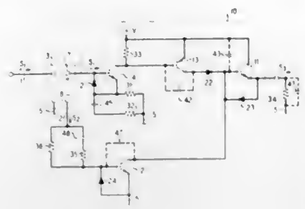
3,789,240
BUCKET BRIGADE SCANNING OF SENSOR ARRAY
Paul Kessler Weimer, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.
Division of Ser. No. 83,923, Oct. 26, 1970, Pat. No. 3,683,193.
This application May 26, 1972, Ser. No. 257,095
Int. Cl. H03k *23/22*
U.S. Cl. 307—223 C **5 Claims**



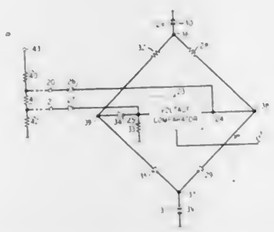
A sensor array having photosensitive elements formed as an integral part of each stage of a shift register chain. Each stage has charge storage means. The photosensitive elements are coupled to the charge storage means for discharging them as a function of externally applied photo signals and, consequently, developing charge deficits in said charge storage means. The shift register, in response to a clocking signal, transfers the charge deficits from one stage to the next along the chain producing a serial output signal at an output terminal.

3,789,241
ELECTRONIC PULSE AMPLIFIER CIRCUITS
William Emil Hess, Jr., Piscataway, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Apr. 2, 1973, Ser. No. 347,067
Int. Cl. H03k *17/04*
U.S. Cl. 307—255 **11 Claims**

An improved electronic pulse amplifier circuit, which features three transistors of different conductivity types configured in cascade to provide high-speed, high-power operation, is disclosed. Rapid removal of excess stored minority carriers from the base region of a saturated middle transistor, and rapid charging of the natural interelectrode capacitances of the middle transistor and an output transistor are effected by a fourth "pull-down" transistor, the collector of which is connected to both the collector circuit of the middle transistor and to the base of the output transistor. Only a single bias voltage source is required; and the magnitude of the bias voltage, which determines the amplitude of the output pulses, may be varied over a wide range as a simple means of controlling the power gain of the circuit.



3,789,242
OVERVOLTAGE AND UNDERVOLTAGE DETECTION CIRCUIT
Barry Ira Cantor, Boonton, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Dec. 26, 1972, Ser. No. 318,619
Int. Cl. H03k *5/20, 5/18*
U.S. Cl. 307—235 R **2 Claims**

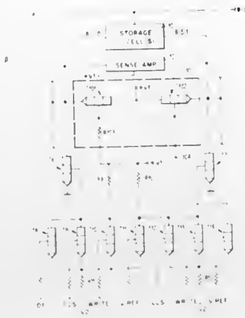


An overvoltage and undervoltage detector circuit is disclosed in which two reference voltage producing circuits have their dissimilar outputs applied to first and second input terminals of a voltage comparator. The dissimilarity of the inputs to the comparator is reversed when a first voltage exceeding a predetermined level forward biases a first diode and raises the potential on one of the comparator input terminals or a second voltage less than a predetermined level forward biases a second diode and lowers the potential on the other comparator input terminal.

3,789,243
MONOLITHIC MEMORY SENSE AMPLIFIER/BIT DRIVER HAVING ACTIVE BIT/SENSE LINE PULL-UP
Nicholas M. Donofrio, and Douglas W. Kemerer, both of Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 5, 1972, Ser. No. 268,988
Int. Cl. H03k *5/08*
U.S. Cl. 307—238 **5 Claims**

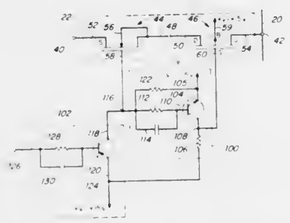
The specification describes a sense amplifier/bit driver circuit having an active bit/sense line pull-up circuit. The active pull-up circuit is shown substantially as two transistors connected between the bit driver circuit and the bit/sense lines. A

normal write operation is performed by pulling one bit/sense line to a down level (ground) potential and retaining the other bit/sense line at an up level (positive) voltage. Immediately after the write operation, recovery time is required to bring



the down level bit/sense line back to the up level for subsequent read/write operations. The pull-up circuit described in the specification is turned on to perform this function and maintained off in order not to interfere with other operations.

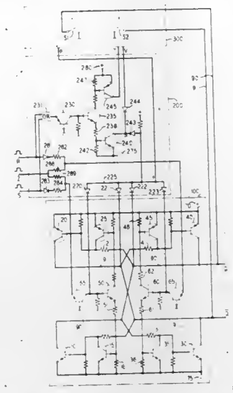
3,789,244
FET ANALOG MULTIPLEX SWITCH
Salvatore R. Provanzano, East Boston, Mass., assignor to Spacetac Incorporated, Bedford, Mass.
Filed Sept. 8, 1972, Ser. No. 287,535
Int. Cl. H03k *17/60*
U.S. Cl. 307—251 **7 Claims**



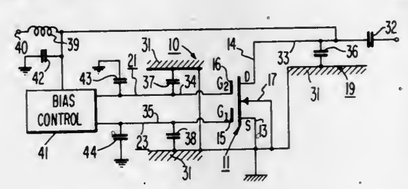
An FET analog switching circuit, including an input terminal and an output terminal, first and second FET's connected together with their primary electrodes connected in series between the input terminal and the output terminal, one of the first and second FET's being an N type and the other being a P type, and means for selectively applying a switching signal of one polarity to the gate of the first FET to turn on the first FET and of the opposite polarity to the gate of the second FET to simultaneously turn on the second FET.

3,789,245
TERNARY MEMORY CELL
Herbert Anton Schneider, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Dec. 26, 1972, Ser. No. 318,208
Int. Cl. H03k *3/286, 3/29*
U.S. Cl. 307—288 **11 Claims**

A two-state regenerative circuit comprising two complementary transistor pairs, i.e., a complementary cell is provided with a third state by an arrangement which, in response to a predetermined signal, latches the cell in a state, otherwise unstable, in which both transistor pairs are nonconductive. A switching circuit provides the cell with low output impedance in the third state.



3,789,246
INSULATED DUAL GATE FIELD-EFFECT TRANSISTOR SIGNAL TRANSLATOR HAVING MEANS FOR REDUCING ITS SENSITIVITY TO SUPPLY VOLTAGE VARIATIONS
Joseph Otto Preisig, Trenton, and Adolph Presser, Kendall Park, both of N.J., assignors to RCA Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 159,777, July 6, 1971, abandoned. This application Feb. 14, 1972, Ser. No. 226,227
Int. Cl. H03k *3/26*
U.S. Cl. 307—304 **9 Claims**



An oscillator circuit is described using a dual gate MOS-FET transistor. Drift of the oscillating frequency of the oscillator circuit caused by drain supply voltage variations is minimized by suitable bias voltages applied to the two gates. The gate bias voltages are derived from the same principle supply, but the gate voltage variations must be nonlinear with respect to the drain voltage variations to achieve frequency stability. The suitable gate voltages are achieved by means of a voltage divider composed of dual gate MOS-FET transistors.

3,789,247
DYNAMICALLY ORDERED BIDIRECTIONAL SHIFT REGISTER HAVING CHARGE COUPLED DEVICES
William F. Beausoleil, Hopewell Junction; Irving T. Ho, Poughkeepsie, and Hwa Nien Yu, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1972, Ser. No. 268,342
Int. Cl. H011 *11/14*
U.S. Cl. 307—304 **6 Claims**

The specification describes charge coupled devices in a bidirectional shift register and having a dynamic ordering capability. Charge coupled devices are shown in a semicon-

ductor structure with FET amplifying circuits, uniquely adapted for bidirectional operation by means of a circuit which changes the order of occurrence of the clocking pulses.



The density of charge coupled devices is preserved together with improved access time resulting from bidirectional operation and dynamic ordering.

3,789,248

HOLDER MEMBER FOR A SEMICONDUCTOR ELEMENT

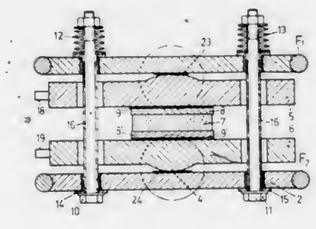
Andre Jaecklin, Goldwandstrasse 35, Ennetbaden, and Otto Scharli, Muhlbergweg 2, Baden, both of Switzerland

Filed July 18, 1972, Ser. No. 272,729

Claims priority, application Switzerland, July 20, 1971, 10713/71

Int. Cl. H01v *7/00*

U.S. Cl. 310—9.4 **6 Claims**



A holder for a semiconductor element includes a pair of spaced support plates each resiliently biased against one of a pair of pressure plates which are located between the support plates. The semiconductor element is held between the pressure plates. The contacting surfaces of the support plates and the pressure plates each has a different radius of curvature. Various embodiments of the contacting surfaces of the support plates and the pressure plates include a convexly shaped projection on one with a convex, concave or planar surface on the other. Further, the contacting surfaces can be provided by an intermediate member positioned between the oppositely facing plates and with the intermediate member having a convex or spherically shaped contacting surface. The contacting surfaces are arranged for transforming a part of the kinetic energy developed under dynamic mechanical stress into frictional heat, such as by providing at least one of the contacting surfaces with a coefficient of friction between 0.025 and 0.3. In a preferred embodiment at least one of the contacting surfaces is provided with a coating of titanium carbide.

3,789,249

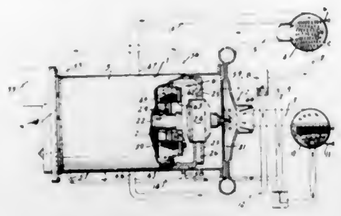
APPARATUS FOR COOLING A HERMETIC MOTOR

Joseph W. Purman, Milwaukee, Wis., assignor to The Louis Allis Company, Milwaukee, Wis.

Continuation of Ser. No. 107,177, Jan. 18, 1971, which is a continuation-in-part of Ser. No. 38,269, May 18, 1970, abandoned. This application Sept. 5, 1972, Ser. No. 286,421

Int. Cl. H02k *9/20*

U.S. Cl. 310—54 **11 Claims**



A hermetically sealed electric motor suitable for use in a refrigeration system has an annular chamber formed about the stator. The chamber is filled with a coolant, such as the system refrigerant. A selected portion of the coolant is supplied by a pipe from the annular chamber to a channel formed by a stationary baffle. A rotor fan located in the channel distributes coolant circumferentially around the motor gap and urges axial flow of the coolant through the gap. Additionally, a dispensing outlet may be formed in the annular chamber to allow coolant to flow to the rotor assembly at the rotor end opposite the channel.

3,789,250

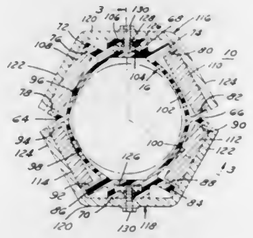
PERMANENT MAGNET DYNAMOELECTRIC MACHINE

Arthur J. Macoit, Riverview, and Theodore G. Apostoleris, both of Ann Arbor, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 4, 1972, Ser. No. 223,636

Int. Cl. H02k *23/04*

U.S. Cl. 310—154 **10 Claims**



A permanent magnet dynamoelectric machine including an armature or rotor and a plastic cup-shaped housing having a substantially cylindrical inner surface portion with means for rotatably supporting the armature or rotor within the substantially cylindrical inner surface of the housing. Four permanent magnets and two ferromagnetic flux path members are mounted in assembled relationship either on the outer surface of the cup-shaped housing or molded within the plastic cup-shaped housing so that plastic material is interposed between the armature or rotor and the permanent magnets.

3,789,251

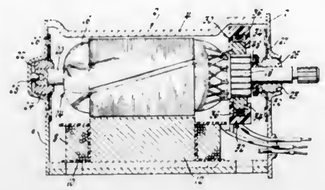
SPRING ARM BEARING RETAINER

Dallas E. King, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 22, 1973, Ser. No. 334,677

Int. Cl. H02k *13/00*

U.S. Cl. 310—239 **4 Claims**



A spring arm bearing retainer performs three functions in a dynamoelectric machine having an armature with a shaft and commutator rotatably supported in a frame and a "floating" brush assembly on the shaft. The main body of the retainer attached to the frame holds a bearing supporting one end of the shaft; and a pair of spaced, parallel, resilient arms projecting from one side of the main body and bent back between the latter and the brush assembly engage the brush assembly to provide axial thrust for the armature against a thrust bearing on the opposite end of the shaft and act as stops to prevent the rotation of the brush assembly with the armature.

3,789,252

TWO-PART STATOR FOR LARGE ROTATING ELECTRICAL MACHINES

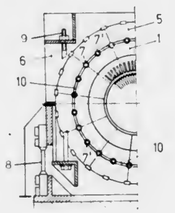
Karl Abegg, Oberrieden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Feb. 14, 1972, Ser. No. 225,991

Claims priority, application Switzerland, Feb. 24, 1971, 2639/71

Int. Cl. H02k *1/12*

U.S. Cl. 310—259 **6 Claims**



A two-part stator for large rotating electrical machines which consists of an outer non-wound stator part sub-divided in the axial direction into annular laminated sections and a unitary inner laminated part to which the winding is applied.

3,789,253

CRUCIBLE FOR VAPORIZING CHEMICALLY ACTIVE ELEMENTS METHOD OF MANUFACTURING THE SAME AND ION SOURCE INCLUDING SAID CRUCIBLE

Jacques Kervizic; Rene Masic; Arvind Shroff, and Robert Jean Warnecke, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed June 22, 1972, Ser. No. 265,303

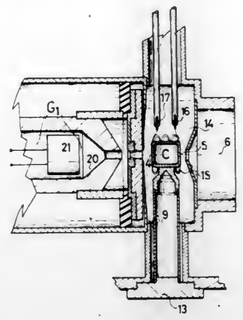
Claims priority, application France, July 6, 1971, 7124682

Int. Cl. H05h *1/02*

U.S. Cl. 313—63 **4 Claims**

The invention relates to ion sources having two ionization chambers and more particularly to chemical and heat resistant crucibles for use with said sources.

The crucible in accordance with the invention is a hollow box of pyrolytic tungsten having two opposite openings in its



lateral wall. The crucible is manufactured from a pyrolytic tungsten deposite made on a copper mandrel which is dissolved in an etching bath.

3,789,254

POST-DEFLECTION FOCUSING TYPE COLOUR CATHODE RAY TUBE

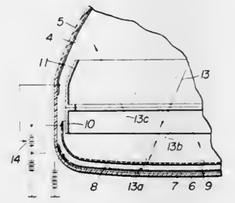
Eiichi Yamazaki, Ichihara, and Hiromi Kanai, Mobara, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 28, 1971, Ser. No. 212,967

Claims priority, application Japan, Dec. 28, 1970, 45/120466

Int. Cl. H01j *29/46*

U.S. Cl. 313—85 S **2 Claims**



In a post-deflection focusing type colour cathode ray tube of the type comprising a shadow mask, a phosphor film formed on the inner surface of the face plate of the tube, a metal back electrode formed on the phosphor film for establishing a high intensity electric field between the metal back electrode and the shadow mask, and an electrode film formed on the inner surface of the funnel of the tube, a source of potential is connected between the shadow mask and the electrode film for applying a potential to the electrode film about 30 to 800 volts higher than the potential of the shadow mask.

3,789,255

NON-SAG INCANDESCENT TUNGSTEN FILAMENT FOR AN INCANDESCENT LAMP

Heinz G. Sell, Cedar Grove, N.J., and Heinz-J. Stepper, Konigsbrunn, Germany, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

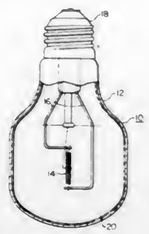
Filed Jan. 12, 1972, Ser. No. 217,162

Int. Cl. H01k *1/04*

U.S. Cl. 313—217 **6 Claims**

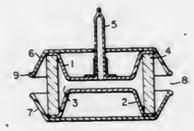
Incandescent lamp incorporates a non-sag tungsten filament having a microstructure comprising a plurality of elongated

and interlocking grains disposed along the axial dimension of the filament. A large number of very minute inert gas bubbles, such as helium bubbles, are included within the filament, and a portion of the bubbles are generally aligned along the axial dimension of the filament and are positioned at the boundaries



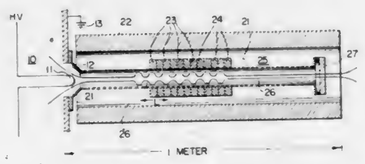
of the interlocking grains which comprise the filament. In the method for making the filament, inert gas atoms, such as helium atoms, are formed within the tungsten and when the filament is incandesced, the atoms migrate to form the very minute helium bubbles.

3,789,256
SHIELDED SPARK GAP DEVICE
Norman K. Osmundsen, Bloomington, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 3, 1972, Ser. No. 250,000
Int. Cl. H01j *1/52*
U.S. Cl. 313—313 **10 Claims**



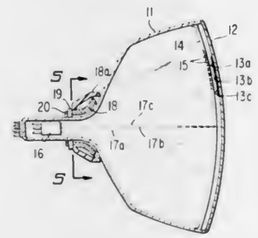
A shielded spark gap device which is essentially independent of external influences. The gap is enclosed in a metallic shielding enclosure which is discontinuous between opposite ends of the gap, so as to provide a capacitance in parallel with the gap, and which shields the gap in such a manner that its sparkover characteristics are not affected by any change in external conditions which may affect the electric field in the region of the gap.

3,789,257
COHERENT MICROWAVE GENERATORS
Moshe Friedman, and Melvin Herndon, both of Washington, D.C., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 14, 1972, Ser. No. 306,466
Int. Cl. H01j *23/16, 29/96*
U.S. Cl. 315—3 **7 Claims**



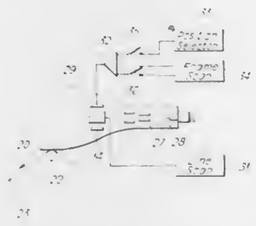
A device for producing intense electromagnetic radiation from the interaction of an intense relativistic electron beam and a spatially modulated magnetic field in combination with a homogenous magnetic field region. The device is magnetically tuneable and capable of producing high level radiation of narrow or wide bandwidth over an extremely large range of wavelengths. The device produces microwave energy of the order of 10^8 to 10^9 watts in the 3 cm to 1 mm wavelength region with a secondary objective to produce electromagnetic energy of the order of 10^8 watts at wavelengths shorter than 1 mm.

3,789,258
ELECTRON BEAM AND DEFLECTION YOKE ALIGNMENT FOR PRODUCING CONVERGENCE OF PLURAL IN-LINE BEAMS
Robert Lloyd Barbin, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.
Filed Apr. 20, 1972, Ser. No. 245,862
Claims priority, application Great Britain, Jan. 14, 1972, 01779/72
Int. Cl. H01j *29/50*
U.S. Cl. 315—13 CG **8 Claims**



In a color television display system in which a plurality of horizontal in-line electron beams are directed toward color phosphor elements of a color picture tube, substantial convergence of the beams at all points on a scanned raster is achieved by transversely positioning the deflection yoke relative to the picture tube while maintaining substantial parallelism between the central longitudinal axes of the yoke and picture tube.

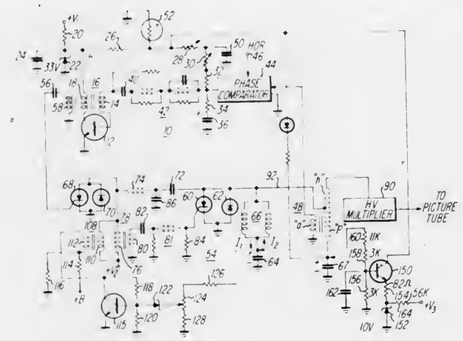
3,789,259
CATHODE RAY TUBES TO FACILITATE RECORDING
Gordon S. J. Allen, Essex, England, assignor to Forward Technology Limited, London, England
Filed May 8, 1972, Ser. No. 251,299
Int. Cl. H01j *29/70*
U.S. Cl. 315—21 PR **11 Claims**



A cathode ray tube with a conventional screen for providing a visible monitoring image is additionally formed with a second output portion on its envelope, the second output portion including a multiplicity of fibre-optics, electrically conductive particles, or other elements for transferring elements

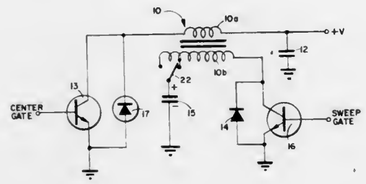
of the image from the internal surface of the envelope wall to the external surface to facilitate recording of an image on a sensitised sheet presented to the external surface. Deflection means guide a recording beam either to the monitoring screen or to the second output portion of the envelope, as required, or alternately to the two output portions of the envelope in rapid succession.

3,789,260
HIGH VOLTAGE PROTECTION CIRCUIT
Paul Raymond Ahrens, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Continuation of Ser. No. 121,250, March 29, 1971, abandoned. This application Mar. 23, 1973, Ser. No. 344,065
Int. Cl. H01j *29/70*
U.S. Cl. 315—22 **7 Claims**



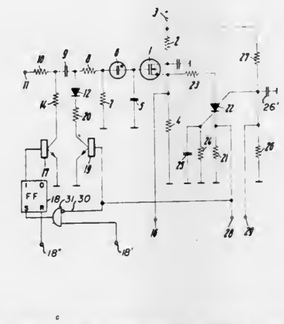
Loss of high voltage regulation in a television receiver can cause an increase in the ultor voltage developed for its picture tube and an increase in the possibility of X-radiation. The described circuit senses the loss of such regulation by detecting high voltage increases beyond a predetermined value and by changing the frequency of the horizontal oscillator, in response, to render the reproduced picture unviewable.

3,789,261
RADAR SWEEP GENERATOR
George P. Cooper, Corona Del Mar, Calif., assignor to North American Rockwell Corporation, Anaheim, Calif.
Filed Apr. 6, 1972, Ser. No. 241,619
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **11 Claims**



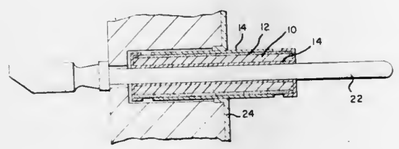
A sweep generator for a displaced-center sector-scan display of a radar system, in which the inductance of the cathode ray tube display device cooperates with a storage capacitor for directly generating a bipolar sweep current waveform utilized by the control yoke. A centering gate responsive to the radar timing, energizes the winding to start the sweep from a filter capacitor of the power supply. During a first polarity portion of the sweep the energized winding is storingly discharged into the capacitor and during the oppositely-polarized second portion of the sweep, a sweep gate allows discharge of the capacitor back into the winding. The winding energy is then discharged at the end of the sweep back into the filter capacitor of the power supply, whereby a very low-power source may be utilized for energizing the sweep generator.

3,789,262
SAWTOOTH SCAN CIRCUIT WITH HOLD FEATURE
Johannes Backwinkel, Hildesheim, Germany, assignor to Blaupunkt-Werke GmbH, Hildesheim, Germany
Filed Sept. 11, 1972, Ser. No. 287,754
Claims priority, application Germany, Sept. 22, 1971, 2147228
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 TD **16 Claims**



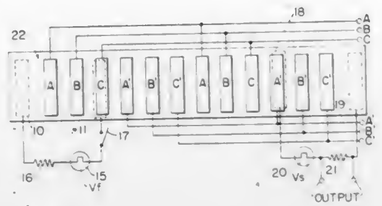
A gas discharge tube isolates the storage condenser of a sawtooth wave generator of an electronic tuning device from the pulses that charge it up and, more rapidly, discharge it in a scanning cycle. A first electronic switch grounds a clamping diode to reverse the polarity of the pulses and thus discharge the storage condenser. A second electronic switch provides a hold function by reducing the amplitude of the charging pulses (taken from a TV line scanning flyback circuit) so that they cannot fire the gas discharge tube.

3,789,263
RF FILTERS WITH GLASS ON A SUBSTRATE
William Baird Fritz, Hershey; John Wayne Tiley, Hatboro, and Neil Harrison Sanders, Carlisle, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 4, 1972, Ser. No. 223,624
Int. Cl. H01j *23/20*
U.S. Cl. 315—39.51 **9 Claims**



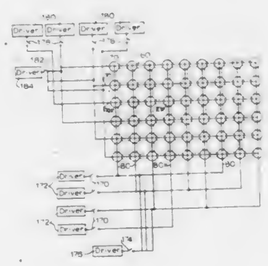
A low pass RF filter for high voltage feed-through to the filament of a magnetron. The filter comprises a ferrite substrate in the form of a sleeve with the outer surface of the sleeve carrying a dielectric layer comprising a lead oxide glass. The dielectric layer also comprises aluminum oxide to provide a rough surface for metal plating without increasing the coefficient of thermal expansion of the dielectric layer relative to the ferrite substrate.

3,789,264
PLASMA SHIFT REGISTER WITH OVERLAPPING GLOW
John L. Janning, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed Nov. 10, 1972, Ser. No. 305,371
Int. Cl. H03k 23/38
U.S. Cl. 315—84.6 5 Claims



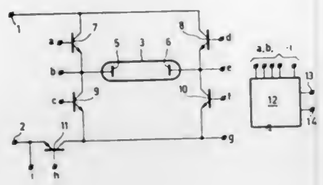
A plasma gas shift register is provided wherein pairs of electrodes overlapping in space are affixed to an insulating substrate and are overcoated with a dielectric layer. A plasma gas is sealed into contact with the dielectric layer. Clocked signals connected to the electrode pairs cause a shift of any discharge existing between one pair of electrodes to the next pair of electrodes overlapping the discharge pair. Input electrode means for causing a discharge in response to one state of input signal and no discharge in response to another state of an input signal are placed opposite the first pair of overlapping in space electrodes. Output electrode means are positioned opposite the last pair of overlapping in space electrodes to detect the presence or absence of a discharge between the last pair of overlapping electrodes.

3,789,265
DISPLAY PANEL
George E. Holz, North Plainfield, N.J., and James Ogle, Paoli, Pa., assignors to Burroughs Corporation, Detroit, Mich.
Continuation-in-part of Ser. No. 881,660, Dec. 3, 1969, abandoned. This application Oct. 4, 1971, Ser. No. 186,415
Int. Cl. H05b 37/00
U.S. Cl. 315—169 TV 10 Claims



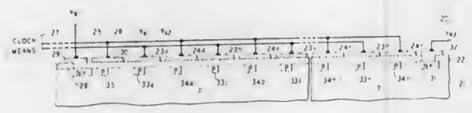
A display panel includes a plurality of rows and columns of display cells, each having an anode and a cathode and including a novel drive arrangement for selecting and energizing one cell at a time.

3,789,266
ARRANGEMENT PROVIDED WITH A LOW-PRESSURE VAPOUR DISCHARGE LAMP
Jan Polman; Jan Evert Van Der Werf, and Peter Cornelis Drop, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed May 2, 1972, Ser. No. 249,526
Claims priority, application Netherlands, May 8, 1971, 7106345
Int. Cl. H05b 37/02
U.S. Cl. 315—194 5 Claims



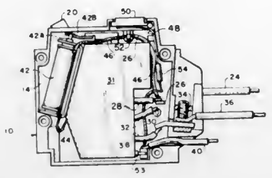
A lighting system comprising a low pressure mercury vapor discharge lamp with means for supplying an intermittent current flow therein. The lamp efficiency is increased by operating it with a maximum pressure of 6 Torr, a duty cycle in the range between 0.35 and 0.65 and at a special switching frequency in the order of 30–60 KHz. A further feature includes means for periodically reversing the direction of current flow in the lamp.

3,789,267
CHARGE COUPLED DEVICES EMPLOYING NONUNIFORM CONCENTRATIONS OF IMMOBILE CHARGE ALONG THE INFORMATION CHANNEL
Robert Harold Krambeck, South Plainfield, and Robert Henry Walden, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed June 28, 1971, Ser. No. 157,509
Int. Cl. H01l 11/14
U.S. Cl. 317—235 R 9 Claims



To ensure predictable directionality of charge transfer in two-phase charge coupled devices (CCD'S), the potential well associated with each half-bit must be asymmetrical so as to enhance charge transfer in the desired direction and to inhibit transfer in undesired directions. In the instant invention, localized portions of immobile charge are disposed under the CCD electrodes and, advantageously, offset with respect to the centers of the electrodes so that suitably asymmetrical potential wells are formed when a suitable voltage is applied to the electrodes. In a presently preferred embodiment, the immobile charge is provided by relatively highly doped surface zones in a semiconductor bulk portion of relatively low doping.

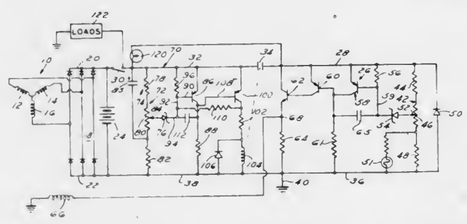
3,789,268
MINIATURE CIRCUIT BREAKER WITH ELECTRONIC TRIPPING MEANS
Keith W. Klein, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.
Filed Dec. 29, 1972, Ser. No. 319,759
Int. Cl. H02h 3/26
U.S. Cl. 317—18 D 12 Claims



A small electric circuit breaker of the type having separable contacts and a manually and automatically operable mechanism for operating the contacts. In addition to the usual prior art automatic operating means, causing opening of the contacts upon the occurrence of predetermined current or voltage magnitude conditions, the circuit breaker includes means for detecting minute ground fault conditions, such as five milliamperes (5 ma.) and for tripping the circuit breaker on the occurrence of such a ground fault. The means for detecting such minute ground fault conditions and for tripping the circuit breaker in response thereto includes signal generating means such as a differential transformer, solid state electronic circuitry, for processing the ground fault signal, and a tripping solenoid. The signal generating means and the electronic circuitry are preferably pre-assembled in a sub-assembly or "ground fault sensing module," before assembly into the circuit breaker.

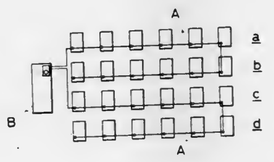
In accordance with the invention, assembly, testing, and salvaging of parts of the ground fault sensing module are facilitated by embedding or "potting" certain portions in the module housing, such as signal-generating transformers, and removably mounting certain other portions, such as electronic signal processing components, at least until certain critical testing of the module is completed. Following such testing, all components may be embedded or "potted" or, in the alternative, the module may be assembled into the circuit breaker without further potting of components.

3,789,269
OVERVOLTAGE PROTECTION CIRCUIT
John A. Holm, Dearborn, and David A. Lapinski, Detroit, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 13, 1970, Ser. No. 27,560
Int. Cl. H02h 3/20
U.S. Cl. 317—23 10 Claims



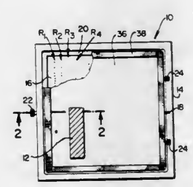
An electrical circuit means for protecting an electrical system from excessive voltage generated by an electrical energy generator that is particularly suited for use in an automotive vehicle. A regulator is connected to the output windings of an electrical energy generator and to the control winding for limiting the energization of the control winding and the magnitude of the voltage produced in the output windings. A solid state switching network is coupled to the output windings of the generator and the regulator for decoupling the output windings from the regulator when the voltage produced in the output windings exceeds a first predetermined level and for maintaining the output windings decoupled from the regulator until the voltage produced in the output windings falls to a second substantially lower predetermined level.

3,789,270
WIRING SYSTEM FOR GROUP TESTING APPARATUS
Hiroshi Yamamoto, Tokyo, Japan, assignor to Kabushiki Kaisha Synapse, President Hiroshi Yamamoto, Tokyo, Japan
Filed Nov. 9, 1971, Ser. No. 196,953
Claims priority, application Japan, Nov. 21, 1970, 45/102949
Int. Cl. G09b 5/00
U.S. Cl. 317—99 5 Claims



A method of forming wire lines and wiring members used therefor for a group tester comprising wire lines linking a master unit and subsidiary units thereof and wires for the subsidiary units both of which are constituted at the same time, the said master unit accumulating test results by connecting in series the wiring members having the said subsidiary units coupled therewith, as response units for examinees who receive tests.

3,789,271
CIRCUIT BOARD ASSEMBLY
James J. Johnston, Cheshire, Conn., assignor to Automatic Equipment Development Corporation, West Haven, Conn.
Filed Nov. 29, 1972, Ser. No. 310,650
Int. Cl. H05k 1/04
U.S. Cl. 317—101 CC 14 Claims



A circuit board assembly comprising a frame having a stack of printed circuit boards mounted in fixed position thereon and having circuit means associated therewith. Each circuit board carries a plurality of resilient electrically conductive pin connectors which project from opposite surfaces thereof and extend through other circuit boards which comprise the stack. A pressure plate supported on the frame in generally parallel relation to the stack includes another circuit board which has circuit means and holes therethrough which receive the pins associated with the stack. Each hole defines a clamping sur-

face and has a cross-sectional area substantially greater than the cross-sectional area of an associated portion of a pin received therein. The pressure plate is supported for shifting movement in one and an opposite direction relative to the frame and transversely of the pins between open and closed positions. When the pressure plate is in its open position, a lead of an associated circuit component may be freely inserted into each hole between the clampin surface thereof and the pin received therein. When the pressure plate is in its closed position, the clamping surface exerts a biasing force on the loead and on the pin associated therewith to clamp the lead in electrically connected engagement with the pin and clamping surface to establish electrical circuit continuity between the leads and circuit means associated with the various circuit boards. A clamping screw on the frame is provided for moving th pressure plate to and releasably retaining it in its closed position.

3,789,272

CIRCUIT ARRANGEMENT FOR RHYTHMIC, INTERMITTENT OPERATION OF SEPARATE MAGNETS

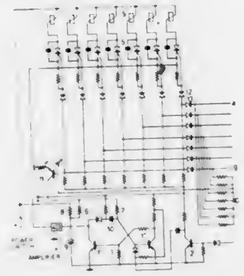
Dietrich Vollhardt, Bremen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 30,648, April 22, 1970. This application Aug. 31, 1972, Ser. No. 285,437

Claims priority, application Germany, May 6, 1969, 1922752; May 3, 1969, 1923037

Int. Cl. H01h *47/32*

U.S. Cl. 317—137 **8 Claims**



A triggering circuit for a plurality of printing solenoids that insures the uniform density of the printed matter by producing actuating pulses of a duration varying as an inverse function of the supply voltage. The natural energy integration of printing solenoids causes the solenoid to print with a uniform force in response to short-duration, high voltage energization, and long-duration, low voltage energization.

3,789,273

LATCH MECHANISM FOR MEMORY DISC CARTRIDGE

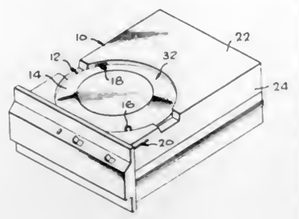
Terence J. O'Brien, San Jose, Calif., assignor to Caelas Memories, Inc., San Jose, Calif.

Filed Sept. 11, 1972, Ser. No. 288,062

Int. Cl. G11b *23/04*

U.S. Cl. 317—141 R **7 Claims**

A disc drive with a cover hold-down mechanism for preventing energization of the drive motor unless the cover of the disc pack is installed properly. The hold-down mechanism includes a pair of brackets pivotally mounted about vertical axes and a pair of arms pivotally mounted about horizontal axes on the brackets. After a disc pack cover is installed, the brackets are pivoted to move the arms over the cover, and the arms pivot upwardly over a beveled periphery of the cover. A switch prevents energization of the drive motor if the arms are not raised. The arms will not be raised if no cover is installed or if the cover is too high for the arms to rise over the beveled cover surface, and in either case, the motor will not be energized. A mechanism for preventing removal of the cover until



the motor has come to a full stop, includes a time delay circuit that releases the hold-down mechanism after a predetermined period which is slightly greater than the time required for the motor to coast to a stop.

3,789,274

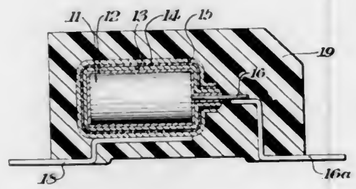
SOLID ELECTROLYTIC CAPACITORS HAVING HARD SOLDER CATHODE COATING

William J. Pfister, Cheshire, and George A. Shirn, Williamstown, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed July 24, 1972, Ser. No. 274,525

Int. Cl. H01g *9/05, 9/06*

U.S. Cl. 317—230 **9 Claims**



A solid electrolytic capacitor has an electrically conductive counterelectrode system that can advantageously be contacted without the use of flux, and can subsequently be used for high temperature applications, without any accompanying deterioration or corrosion difficulties. The counterelectrode system employs a sprayed layer of a high melting tin-lead alloy in contact with a coating of carbon on the solid electrolyte. The tin-lead carbon contacting layer can advantageously have a lead content of 95 percent by weight, thereby insuring a relatively high melting point therefor.

3,789,275

ALTERNATOR RECTIFIER ASSEMBLIES WITH RESINOUS MOLDED MEMBER CONTAINING CIRCUIT PATTERN MOLDED THEREIN

Takahiro Sawano, Kawasaki; Katuhiko Kubota, Yokohama; Masaru Ando, Kawasaki; Moriyasu Wada, Naka; Tohru Murayama, Kawaguchi, and Tadayuki Ozawa, Tokyo, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Saiwai-ku, Kawasaki-shi, Japan

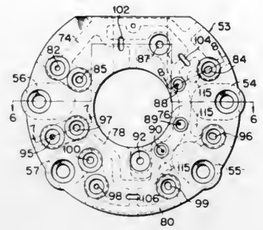
Filed Sept. 27, 1972, Ser. No. 292,544

Claims priority, application Japan, Sept. 30, 1971, 46-89451

Int. Cl. H01l *8/00, 5/00*

U.S. Cl. 317—234 R **17 Claims**

In a semiconductor rectifier assembly of the type wherein lead wires of rectifier elements are electrically connected to a circuit pattern of an insulative substrate there are provided an annular substrate of resinous moulded member containing a conductive sheet with a circuit pattern, a pair of sector shaped plate electrodes secured to the legs of the substrate, and a plurality of semiconductor rectifier elements. One of the electrodes of the rectifier elements is connected to the plate electrode and the other electrode is connected to the circuit pattern through a lead wire extending through the substrate.



3,789,276

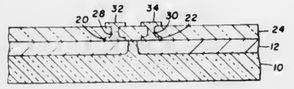
MULTILAYER MICROELECTRONIC CIRCUITRY TECHNIQUES

David R. Sivertsen, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 744,983, July 15, 1968, Pat. No. 3,453,723. This application Aug. 6, 1970, Ser. No. 61,797

Int. Cl. H01l *19/00*

U.S. Cl. 317—235 R **10 Claims**



A microelectronic circuit fabrication technique where an electron beam forms hillocks of single crystal material through a dielectric layer from a single crystal substrate. A single crystal is then grown atop each hillock over the dielectric layer by first epitaxially depositing material using the hillock as a nucleation site. The epitaxially deposited material is next expanded by means of a scanning electron beam into a broad area of single crystal material. This single crystal may be patterned to form component sites. Multilayer structures are formed by covering each previous dielectric layer and component sites with a subsequent dielectric layer and repeating the process of single crystal growth using extensions of the hillocks as nucleation sites.

3,789,277

WOUND CAPACITOR

Herbert C. Craig, Yankeetown, and Walter C. Lamphier, Maitland, both of Fla., assignors to Sprague Electric Company, North Adams, Mass.

Filed Jan. 29, 1973, Ser. No. 327,386

Int. Cl. H01g *1/14*

U.S. Cl. 317—260 **5 Claims**



A wound capacitor employs extended electrodes of discrete foils each in contact with metallized surfaces of the dielectric layers.

3,789,278

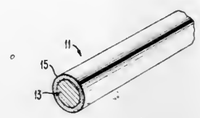
CORONA CHARGING DEVICE

Ronald E. Bingham; Thomas F. Cecil, both of Lexington, Ky.; Guido Galli, Saratoga, Calif., and Gereon E. Poquette, Versailles, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1972, Ser. No. 317,038

Int. Cl. H01j *1/14*

U.S. Cl. 317—262 A **14 Claims**



A negatively biased corona discharge system includes a conductive electrode having a thin inorganic dielectric outer layer bonded thereto which is employed as a corona discharge electrode. The discharge system is utilized for uniformly placing a negative charge on an insulator substrate such as an electrophotographic imaging surface. The coating on the electrode acts to suppress the widely spaced emission nodes common to all negatively biased metal corona discharge electrodes. The coated electrode may, therefore, be placed in close proximity to the substrate which it is charging and operated at low emission densities without sacrificing charge uniformity thereby reducing the power requirement of the corona discharge system.

3,789,279

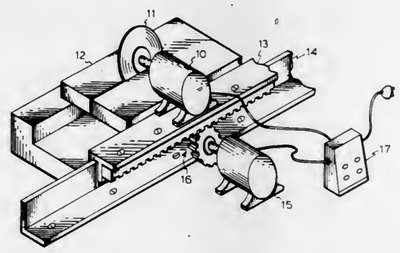
WORK AND FEED CONTROL SYSTEM FOR CUTTING MACHINES

Edward Justing Dempsey, Huntington Beach; David Earl Kent, and Patrick William Hudspeth, both of La Mirada, all of Calif., assignors to Concrete Cutting Equipment, Incorporated, Hawthorne, Calif.

Filed July 21, 1972, Ser. No. 273,685

Int. Cl. G05b *19/24*

U.S. Cl. 318—39 **9 Claims**

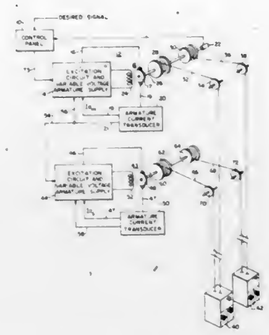


A control system for cutting machines is disclosed in which a desired load is maintained on the cutting motor by use of a servo system regulating power to a feed motor which produces relative motion between the cutting tool and the work. The input to the servo system is a load-level signal proportional to the load current to the cutting motor. That signal is derived by adding signals from current transformers on the power lines to the cutting motor. If the load-level signal exceeds a predetermined threshold, the feed motor is reversed and the servo system is forced to a full speed level. Once the overload condition is relieved, the feed motor is restored to forward drive, but the servo system is limited to a low level for a predetermined period to assure feeding into the work slowly.

3,789,280
MULTICABLE DRUM HOISTING SYSTEM

Eric Oldfield, Burlington, Ontario, Canada, assignor to Westinghouse Canada Limited, Hamilton, Ontario, Canada

Filed Oct. 19, 1971, Ser. No. 190,613
Claims priority, application Canada, Nov. 12, 1970, 097899
Int. Cl. H02p 7/68
U.S. Cl. 318—45 11 Claims

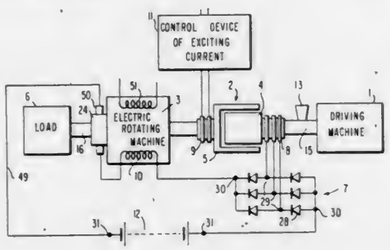


This invention relates to a multi-rope drum hoist wherein two conveyances are to be moved in opposite directions by the hoisting machinery at the same time. Each conveyance is hoisted by the use of two or more ropes, and the tension in the two ropes is equalized by providing a separate hoisting machine for each rope and coupling the hoisting machinery together electrically so that the torque outputs of the respective driving motors driving the separate hoists are essentially equal, thus assuring equal tension in the hoisting ropes.

3,789,281
ELECTRIC CONTROL SYSTEM OF AN ELECTRIC MACHINE ARRANGEMENT COMBINING ELECTROMAGNETIC COUPLING WITH AN ELECTRIC ROTATING MACHINE

Fukuo Shibata, Hyogo, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Hyogo, Japan

Filed May 30, 1972, Ser. No. 257,620
Claims priority, application Japan, May 28, 1971, 46-36746; Sept. 26, 1971, 46-74932
Int. Cl. H02k 17/24
U.S. Cl. 318—696 18 Claims

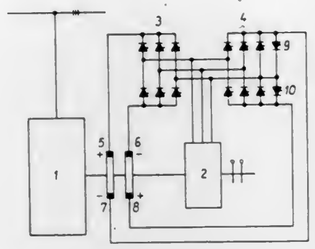


An electromagnetic coupling having two rotors is connected mechanically with an electric rotating machine, an armature winding of the electromagnetic coupling is connected electrically with an armature winding of the electric rotating machine through a converter, and an electric battery group is connected electrically in series with the armature winding of the electric rotating machine and D.C. terminals of the converter. The load of the above electric machine arrangement can be supplied with power properly from the electric battery group and a driving machine such as a prime mover which drives the above electric machine arrangement.

3,789,282
ARRANGEMENT FOR PREVENTING CHATTERING AND SCORING OF DIRECT-CURRENT SLIP-RING BRUSHES

Hermann Harz, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sept. 7, 1972, Ser. No. 286,923
Claims priority, application Germany, Sept. 10, 1971, P 21 46 064.0
Int. Cl. H02k 13/10
U.S. Cl. 318—190 10 Claims

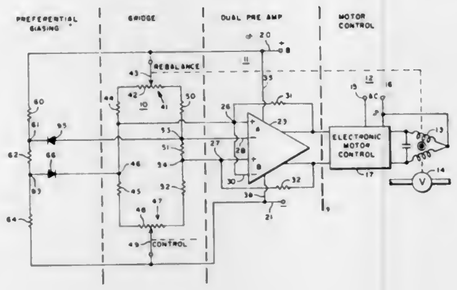


An arrangement is disclosed for preventing chattering and scoring of the slip-ring brushes of a synchronous machine during periods of time when the machine operates without load by supplying a supplementary direct-current to the brushes during these periods. The supplementary current does not flow through the winding of the machine which is connected to the brushes. The brushes are supplied from a source of alternating current through primary rectifiers connected in parallel with each other. A controllable additional rectifying circuit is arranged with respect to one of the rectifiers.

3,789,283
CONDITION CONTROL REVERSIBLE MOTOR SYSTEM

John L. Kabat, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 20, 1973, Ser. No. 333,584
Int. Cl. G05b 1/06
U.S. Cl. 318—295 6 Claims



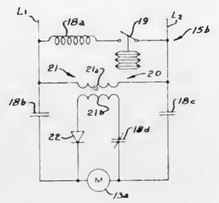
A condition control reversible motor system operates to rebalance a bridge circuit by means of a feedback potentiometer, the potentiometer wiper providing the energization potential to the bridge circuit. A reference voltage source and a lightly back-biased diode are connected to the bridge circuit in order to insure that the system always drives to a preferred

or safe end in the event that the feedback potentiometer wiper open-circuits from the potentiometer resistive element due to dirt or some other defect.

3,789,284
AIR MOVING MEANS DRIVE SYSTEM

Robert F. Miller, Bowling Green, Ohio, assignor to Modine Manufacturing Company, Racine, Wis.

Filed July 6, 1972, Ser. No. 269,500
Int. Cl. H02p 3/24
U.S. Cl. 318—377 10 Claims

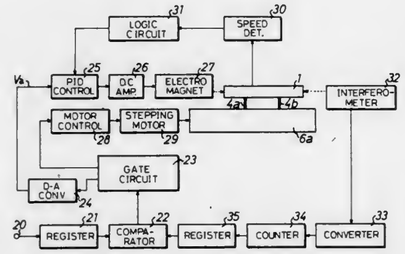


An air moving means drive system wherein a plurality of air moving means, such as motor driven fans, is operated to move air in a preselected direction during concurrent operation thereof. One of the air moving means is cycled on and off and is susceptible in the "Off" condition to reverse rotation by the movement of air by the operating air moving means. Braking means are provided for limiting the reverse speed of the non-operating air moving means. The air moving means may be driven by induction motors and the braking means may comprise dynamic braking means preventing reverse rotation of the nonoperating motor at a speed which would be sufficient to cause continued reverse movement upon an energization thereof which would normally be suitable to operate the motor in the preselected direction from standstill.

3,789,285
POSITION CONTROL SYSTEM USING MAGNETIC FORCE

Junichi Nishizawa, Sendai, Japan, assignor to Handotai Kenkyu, Shinkokai, Miyagi-ken, Japan

Filed Mar. 27, 1972, Ser. No. 238,051
Int. Cl. G05b 11/00
U.S. Cl. 318—687 26 Claims

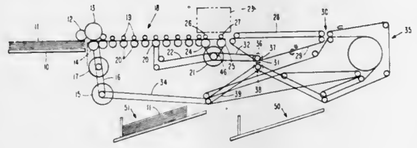


The position control system using magnetic force, in which at least one pole of an electromagnet is opposed to a magnetic substance of a controlled object through an air gap therebetween so that a magnetic circuit including the magnetic substance, the air gap and the electromagnet is provided. The width of the air gap is preset to a value more than a predetermined width when the control current is zero. The controlled object is supported by at least one spring so as to be movable along a direction in which the magnetic force functions between the electromagnet and the magnetic substance. The control current of the electromagnet is controlled for adjusting the magnetic force and also a width of the air gap so as to obtain a desired position of the controlled object along the above mentioned direction. The magnetic flux density of the magnetic circuit substantially saturates at a condition where the air gap reaches a predetermined distance, while an elastic force of the spring is balanced with the magnetic force within the elastic region of the spring at the above-mentioned condition to avoid mutual collision between the controlled object and the electromagnet. The above mentioned principle can be modified for performing two or three dimensional control and rotation control for the controlled object.

3,789,286
SPEED CONTROL FOR STEPPER MOTORS BY TORQUE TRANSFER

Delbert D. Towne, and Michael N. Zell, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 17, 1972, Ser. No. 227,069
Int. Cl. H02k 37/00
U.S. Cl. 318—696 13 Claims



A document transport includes a stepping motor drive for incrementally advancing documents through a read station. The stepper motor drive ejects the documents from the read station to a continuously running stacker transport which conveys the document to one of two stackers. The stacker transport by means of a belt and pulley drives a gear which meshes with a gear coupled to the stepper motor drive by a one-way clutch whereby if the stepper motor drive tries to run faster than the continuously running drive it picks up the load of the stacker transport and is forced to run at the speed thereof. The stepper motor drive is free to stop or increment at any desired speed but it cannot exceed the speed of the stacker transport without picking up the load thereof. The emitter lead angle of the stepper motor drive is set so that the stepping motor would run faster than the stacker transport but the constraint of the stacker transport via the mechanical phase lock forces the stepper motor to run at stacker transport speed and excess torque of the stepper motor is transferred to the stacker transport. In stepper motor drive systems not having a continuously running transport section, the control load can take the form of a synchronous or induction A.C. motor driven at a predetermined speed, i.e., the regulated speed.

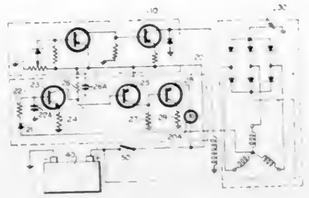
3,789,287
VOLTAGE REGULATING DEVICE FOR VEHICLES

Te-Hsiung Wu, No. 68 Lin Chiang St., Taeipei, China /Taiwan

Filed May 19, 1972, Ser. No. 255,044
Int. Cl. H02j 7/14
U.S. Cl. 320—48 1 Claim

Voltage regulating circuit for use in vehicles comprising a zener diode circuit which monitors the voltage of a battery

and when above a certain level stops energization of a field winding of a generator to thereby stop charging, and when



below a certain level causes one or more transistors to cause energization of the field winding and consequent charging of the battery.

3,789,288

CONVERTER FOR PRODUCING A STABILIZED OUTPUT DIRECT-CURRENT VOLTAGE FROM AN INPUT DIRECT-CURRENT VOLTAGE

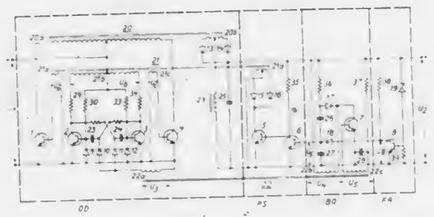
Bengt Holger Assow, Ormingeringen 67, Saltsjo-Boo; Curt Evert Jansson, Lingragen 198, Farsta, and Kjell Ove Rolleberg, Spelvagen 5, Trangsund, all of Sweden

Filed Oct. 19, 1971, Ser. No. 190,597

Claims priority, application Sweden, Nov. 27, 1970, 16069/70

Int. Cl. H02m *3/28*

U.S. Cl. 321—2 **6 Claims**



The present disclosure relates to a converter for producing a stabilized output D.C. voltage from an input D.C. voltage. The stabilization of the output voltage is carried out by means of pulse width regulation of a rectangular wave voltage obtained from the chopped input voltage. The level of the output voltage is sensed by means of a sensing device and compared with a reference voltage, whereby an error signal is obtained. A blocking oscillator device is on one hand triggering a driving stage which controls the chopping of the input voltage, and is on the other hand delivering a saw tooth voltage in order to add the same to the error signal. The sum of said signals is fed to a pulse width control device for controlling said pulse width regulation.

3,789,289

VOLTAGE LEVEL CONTROL FOR D. C.-TO-D. C. CONVERTER

David F. Bell, Woodstock; Girish C. Johari, Kingston, and Edward R. McNulty, Shokan, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1972, Ser. No. 240,083

Int. Cl. H02m *3/32*

U.S. Cl. 321—2 **4 Claims**

A D.C.-to-D.C. converter that employs a current switch chopper with the collectors of two switching transistors feeding opposite ends of a primary of a step up transformer. The transformer has a secondary which resonantly feeds back voltage to the bases of the two switching transistors for converting the voltage from D.C. to A.C. and includes floating comparator means sensing the voltage at the collectors of these transistors to regulate the magnitude of the voltage by comparing that voltage with a reference voltage and then readjusting the current supplied to the floating emitters of the two switching transistors by a third transistor.



3,789,290

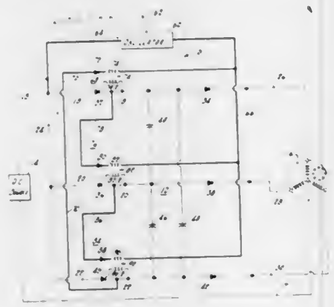
VARIABLE SPEED MOTOR AND DRIVE CIRCUIT

Charles E. Rettig, Brookfield, Wis., assignor to The Louis Allis Company, Milwaukee, Wis.

Filed Dec. 13, 1971, Ser. No. 207,088

Int. Cl. H02m *7/52*; **H02p** *1/26*; **H03k**

U.S. Cl. 321—5 **7 Claims**



A firing circuit for use with a diode isolated, capacitor commutated inverter utilizes the operative state of the inverter for directing the firing or gating pulses to sequentially firable thyristors in the inverter. A plurality of pulse distribution paths are included in the firing circuit, each of which includes the preceding thyristor in the firing sequence so that the operative state of the thyristors controls the operation of the firing circuit.

3,789,291

VOLTAGE COMPENSATED PHASE SHIFTING CIRCUIT

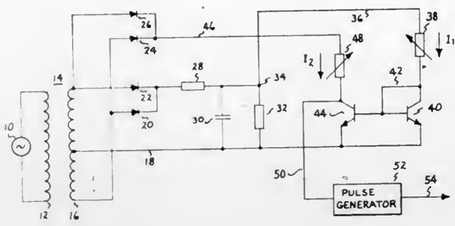
Edward H. Dinger, Waynesboro, Va., and Richard A. Stasior, Liverpool, N.Y., assignors to General Electric Company, Salem, Va.

Filed Mar. 6, 1973, Ser. No. 338,617

Int. Cl. G05f *3/02*; **H03k** *5/20*

U.S. Cl. 323—119 **10 Claims**

A voltage compensated phase shifting circuit is provided through the employment of a pair of matched transistors having substantially identical electrical characteristics and to the bases of which there is applied a common voltage. The collector to emitter circuits of each of the transistors are supplied, respectively, with currents proportional to the average voltage input and to the instantaneous voltage input. By the proper scaling of the two currents, an output signal representative of a desired phase displacement is obtained which output is substantially independent of instantaneous variations in the input voltage.



3,789,292

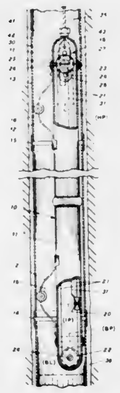
METHOD OF ACCURATELY MEASURING, DEPTHWISE, WELL CASING COLLARS FOR INTERPRETATIVE PURPOSES

Eugene R. Bottoms, Huntington Beach, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 863,064, Oct. 2, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,408

Int. Cl. G01v *1/40, 3/00*

U.S. Cl. 324—34 R **8 Claims**



Method and apparatus for accurately measuring differential distances along a cased well bore penetrating an earth formation by measuring, depthwise, the location of enlarged collars of the casings, using a sensor movably positioned within a mapping sonde traversing a well bore. The sensor is movably attached to the sonde through a transporting assembly; say, consisting of an endless belt driven between two sheaves, and controlled uphole by circuitry at the earth's surface, so as to indicate the location, depthwise, of at least two consecutively located collars of the casings, while the sonde is held stationary within the well bore. Through interpretation of the recorded results, differential movement of subterranean strata adjacent to the map casing can be inferred. Further, as unstable subterranean strata conditions are indicated, preventive measures, such as water flooding, can be undertaken prior to the occurrence of visual evidence, at the earth's surface, of the unstable conditions.

3,789,293

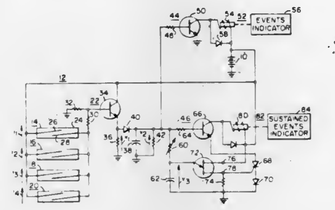
ELECTRICAL CURRENT MONITOR WHICH SEPARATELY INDICATES INDIVIDUAL AND SUSTAINED CURRENT PULSES

John A. Freeze, South Boston, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 15, 1972, Ser. No. 263,053

Int. Cl. G01r *31/02, 31/06, 19/16*

U.S. Cl. 324—51 **13 Claims**



Transformer fault current monitor which provides recorded indications of the number of times any fault currents have occurred and also of the number of times fault currents which have a duration of more than a predetermined length of time have occurred. In one embodiment, a magnetic reed switch is positioned in the magnetic field produced by the monitored current. When the reed switch is closed by a high magnetic field, a voltage is applied to a peak detector circuit. The voltage is peak detected and applied to first and second counting means. The first counting means is activated when the monitored current exceeds a predetermined level. The second counting means is activated when the monitored current exceeds a predetermined level for a predetermined length of time. In another embodiment, magnetic diodes are positioned in the magnetic field produced by the monitored current. The magentic diodes are connected to a differential amplifier which provides an output voltage when a sufficient magnetic field surrounds the diodes. The differential amplifier is connected, through suitable circuitry, to first and second counting means.

3,789,294

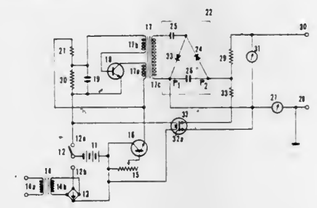
APPARATUS FOR MEASURING INSULATING AND VOLTAGE RESISTANT CHARACTERISTICS OF ARTICLES

Hifumi Nitta, Minokamo, and Mitsutaka Kaneko, Aichi-ken, both of Japan, assignors to Chubu Seiki Kabushiki Kaisha, Aichi-ken, Japan

Filed July 19, 1972, Ser. No. 273,265

Int. Cl. G01r *31/12*

U.S. Cl. 324—54 **3 Claims**



Device for measuring insulating and voltage resistant characteristics of articles such as a high voltage cable wherein a low battery voltage in converted into a high direct current

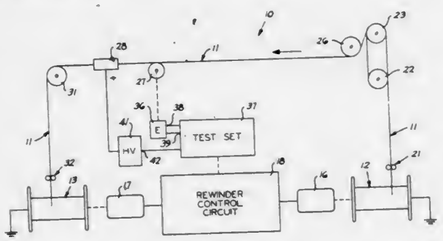
voltage with the aid of successive stages of oscillator, transformer and rectifier circuits whose output is applied across an article to be measured. The input bias of a transistor is changed in a manner such that the output of the circuits is made a given value whereby the insulating and voltage resistant characteristics of the article are measured by observing the indication of a voltmeter and ammeter.

3,789,295

METHODS OF AND APPARATUS FOR DETECTING, CLASSIFYING AND LOCATING INSULATION FAULTS IN INSULATED ELONGATED CONDUCTORS

William Clement Balchunas, and Jose Antonio Mila, both of Atlanta, Ga.; assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Apr. 2, 1973, Ser. No. 347,037
Int. Cl. G01r *31/08, 31/12*
U.S. Cl. 324—54 **15 Claims**



One or a twisted pair of grounded insulated wires are advanced longitudinally past a high voltage electrode maintained at a potential difference with respect to a wire sufficient to produce an arc discharge at a point on the wire containing an insulation fault. The arc discharge is translated to a logic level utilized to trigger a logic circuit discriminator which renders an output gated to identify the fault as a major or minor insulation fault, by comparing a preset number, representing a pulse count scaled to the length of the electrode traversed by the wire plus an arbitrarily determined amount related to the longitudinal extend of the fault, to the total number of pulses similarly scaled, representing the length of wire advanced past the electrode during the period of the arc discharge. If the length of wire advanced past the electrode during the arc discharge therein exceeds the preset length, the fault is identified as major, for example a bare wire or insulation split. Otherwise, the fault is identified as minor, for example, a pinhole. Electrical signals representing minor faults in excess of a predetermined permissible amount or a major fault may be utilized to indicate unacceptable insulated wire and, when utilized with a rewinder apparatus, may operate a control circuit therefor to slow down, stop and reverse the direction of the movement of the wire, and to trigger a fault location counter. The location counter counts up from zero until the direction of the wire is reversed, at which time it counts down to stop the reverse advance of the wire when the count again reaches zero, or a predetermined number, automatically to return the fault to the electrode or a predetermined distance therefrom where it can then be repaired or be removed from the wire.

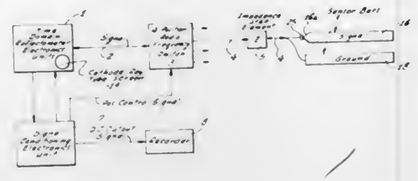
3,789,296

MOISTURE MONITOR SYSTEM

Philip J. Caruso, Jr., 15611 Dell Prado Dr., Hacienda Heights, Calif.; Lyle E. Rasmussen, Arcadia, and Joseph E. Scarbrough, Cypress, both of Calif., assignors to said Caruso, by said Rasmusen and Scarbrough

Filed June 12, 1972, Ser. No. 262,150
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 B **11 Claims**

A time domain reflectometer type of electronic instrument is provided which uses pulse reflectometry techniques for precisely monitoring the water content of a monitored product. The instrument may be used, for example, to monitor the quantity of liquid latex applied as an adhesive backing coating during the manufacture of carpeting. In such a case, the instrument assures a uniform backing of sufficient latex on the carpet to perform its intended function, but without wastage. The instrument, however, has other uses, such as for monitoring the water content in the production of paper, or in textile dying processes, or the like. In the practice of the invention, the product being monitored is passed as a continu-



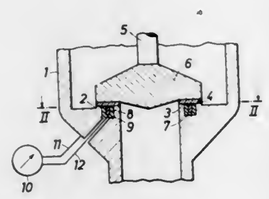
ous sheet through a pair of sensor bars, and the system of the invention measures the effective dielectric constant produced by the product as it passes between the bars. The sensor bars serve as a two-wire transmission line, and the system transmits narrow electric pulses down the transmission line and receives reflected pulses therefrom. The system uses radar principles, however, the signal is completely contained between the two sensor bars and the pulse returns are continuously received from successive points across the product. The size of the return is related to the amount of moisture content at each point along the product.

3,789,297

LEAK DETECTOR

Martin Frolich, Moosstrasse 2, Gumligen, Switzerland

Filed Oct. 4, 1971, Ser. No. 186,316
Int. Cl. G01r *27/02*
U.S. Cl. 324—65 R **10 Claims**



A method of testing the fluid tightness of a sealed joint wherein a pair of electrodes are mounted adjacent the seal and are electrically insulated from each other. An indicator is connected to the electrodes which are constructed and arranged such that leakage of electrically conductive fluid through the seal will actuate the indicator.

3,789,298

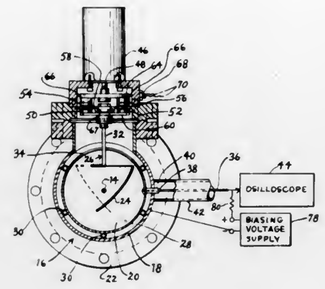
BEAM SCANNER

Raymond G. Herb, Madison, Wis., assignor to National Electrostatics Corp., Middleton, Wis.

Filed July 29, 1971, Ser. No. 167,253
Int. Cl. G01n *27/00*; **G01r** *31/02*
U.S. Cl. 324—71 EB **23 Claims**

A beam scanning electrode is mounted on a rotor and is movable repeatedly across a beam of high energy particles

when the rotor is rotated. The scanning electrode is mounted within a beam tube having a conductive wall to which the scanning electrode is electrically connected, as by a wiping contactor. The impingement of the beam upon the scanning electrode causes the emission of secondary electrons which are gathered by a collector electrode, spaced from the scanning electrode and insulated from the conductive wall. An



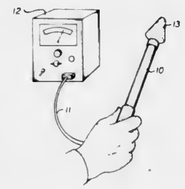
output lead is connected to the collector electrode and is brought out of the tube by a feed-through insulator or the like. In a modified arrangement, the collector electrode comprises a material which scintillates or emits photons due to the impingement of the secondary electrons. The photons are then detected and measured by a photomultiplier or some other photoelectric device.

3,789,299

PROBE FOR RADIATION DETECTOR

Edward E. Aslan, Plainview, N.Y., assignor to The Narda Microwave Corporation, Plainview, N.Y.

Division of Ser. No. 848,620, Aug. 8, 1969, Pat. No. 3,641,439.
This application Nov. 5, 1971, Ser. No. 196,088
Int. Cl. H01q *21/20*; **C01r** *5/22*
U.S. Cl. 324—95 **13 Claims**



An elongated probe of materials having free space characteristics, supports, and antenna means at one end and conducting means aligned with its major axis for interconnection with an appropriate metering device.

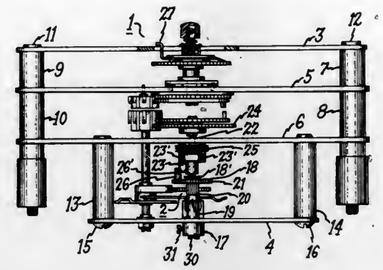
3,789,300

DEMAND METER WITH SELF-ALIGNING BEARING ASSEMBLY

Donald M. Ham, Rochester, N.H., assignor to General Electric Company, Pittsfield, Mass.

Filed Apr. 21, 1972, Ser. No. 246,458
Int. Cl. G01r *19/16*
U.S. Cl. 324—103 R **1 Claim**

A self-aligning bearing assembly comprising a rigidly mounted bearing having a bushing sleeve pivotally mounted within a small-diameter orifice of a passageway through the bearing. The small-diameter orifice is formed by a thin lip portion of the bearing and the mounting arrangement between the bushing sleeve and the bearing comprises a plurality of fulcrum points about which the bushing sleeve is pivotal, within a limited range, thereby to enable it to be moved into axial alignment with a rotatable shaft member that is adapted to be inserted into the bushing sleeve. The other end of the rotatable shaft member is normally supported in a fixed position with respect to the rigidly mounted bearing by a supporting frame; accordingly, pivotal movement of the bushing sleeve affords a self-aligning capability between the end of the shaft that is fixed against radial movement and the rigidly supported bearing.

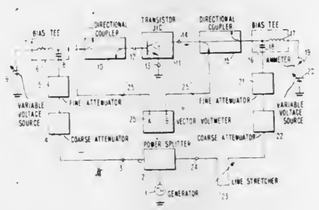


3,789,301

METHOD AND APPARATUS FOR MEASURING THE PARAMETERS OF A TRANSISTOR OR OTHER TWO-PORT DEVICE AT MICROWAVE FREQUENCIES

Shashi Dhar Malaviya, Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,132
Int. Cl. G01r *31/26, 27/04*
U.S. Cl. 324—158 T **38 Claims**

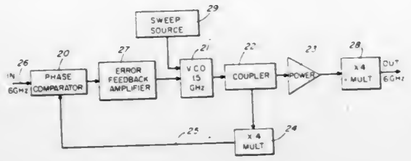


A first sinusoidal signal at a microwave frequency is applied to the input port of a transistor while simultaneously therewith a second sinusoidal signal at the same frequency is applied to the output port. The magnitude and phase of the signals are adjusted to effect successively short-circuit and open-circuit conditions at the input and output ports. For each condition the magnitudes and phases of the incident and reflected waves are measured or determined at the ports. These measurements may then be used to compute four of the usual transistor parameters and to check the self-consistency of the measurement. A second set of measurements may then be made at a different microwave frequency to compute additional transistor parameters. The beta of the transistor may be directly measured at either microwave frequency.

3,789,302
FM HETERODYNE TRANSMITTER

Richard H. Rearwin, Concord, and Fred P. Collins, Carlisle, both of Mass., assignors to Microwave Associates, Inc., Burlington, Mass.

Filed Mar. 31, 1972, Ser. No. 240,217
Int. Cl. H03c *3/08*
U.S. Cl. 325—146 **12 Claims**

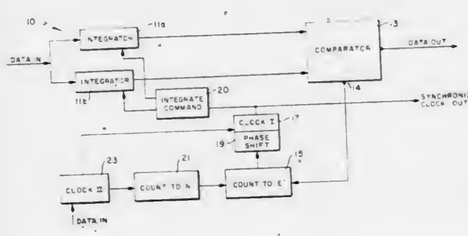


An FM heterodyne transmitter is disclosed useful, for example, in a microwave relay link, using all solid-state components throughout. The transmitter includes an RF amplifier which generates locally a signal having the same frequency as the signal carrier and a phase comparator which accepts both the local and the received signals and provides an error signal responsive to a phase difference between them. The error signal is used in a feedback amplifier loop to correct the local oscillator frequency in the direction which tends to negate the error signal.

3,789,303
METHOD AND APPARATUS FOR SYNCHRONIZING SPLIT-PHASE PCM SIGNALS

Eric J. Hoffman, and Jack C. Loessi, both of Ellicott City, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 1, 1972, Ser. No. 248,822
Int. Cl. H04b *1/16*
U.S. Cl. 325—321 **4 Claims**

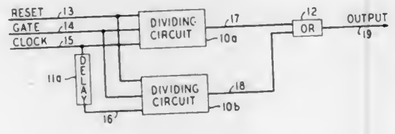


This is a device for resolving ambiguity of the start of a split-phase coded data bit. The device is initially synchronized with the zero crossings or polarity transition points in the coded data. A first integrator integrates the signal over one-half the data bit interval, and holds this value. A second integrator integrates the signal over the successive portion of the data bit interval and these two integrator signals are then compared. When the receiver clock is initially synchronized with a data bit polarity reversal, but not at the start of the data bit interval, the integrated signals will be of the same polarity and the comparator will so indicate this fact. To bring the receiver clock into synchronization with the start of the data bit interval, it is necessary to shift the clock output in time to be synchronized with the next successive polarity reversal or zero crossing. This is accomplished by a counting technique which resolves ambiguity introduced by attendant noise in the data transmission. A counter receives a predetermined number of minimum error signals within a given period of time. These error signals are signals out of the comparator indicating the same polarities for the integrated signals. As noise will sometimes cause this result when the clock is initially properly synchronized, reliability is increased by holding the initial synchronization until a minimum number of error signals are received, indicating the clock is not synchronized.

3,789,304
GATED DIVIDING CIRCUIT WITH REDUCED TIME VARIATION BETWEEN GATING AND AN OUTPUT SIGNAL

Paul Hillard May, Elon College, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 19, 1972, Ser. No. 299,056
Int. Cl. H03k *5/156, 17/04, 21/00*
U.S. Cl. 328—41 **12 Claims**

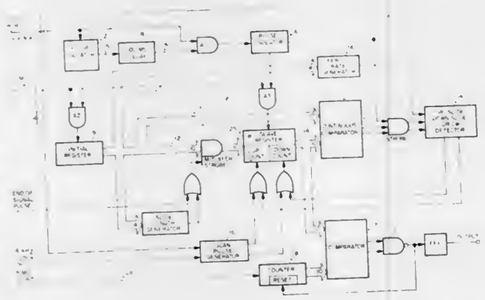


When the gating signal and clock pulses applied to a gated dividing circuit are unsynchronized, the first output produced by the circuit can appear any time within a time period equal to the intervals between the clock pulses. This time period is reduced, in accordance with the present disclosure, by using more than one such circuit, applying delayed versions of the clock input to the added circuits, and then combining the circuit outputs so that an output is produced whenever a predetermined number of the circuits produces a particular output.

3,789,305
TONE BURST TO FREQUENCY CONVERTER

Michael T. Marrero, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 28, 1972, Ser. No. 284,314
Int. Cl. H03d *3/04*
U.S. Cl. 328—140 **6 Claims**

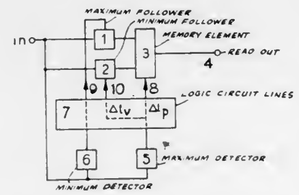


Circuitry in a sonar simulator training device for detecting and reproducing the carrier frequency of a tone burst signal. The carrier is a sinusoid which may be frequency modulated with a linear FM signal (linear slide). The invention measures the frequency and period of the carrier frequency of an incoming tone burst signal, determines whether or not frequency modulation is present, and whether or not the FM results in an increase or decrease in carrier frequency (up slide or down slide). The invention generates a square wave output signal having the tone burst carrier frequency and provides means for generating an up slide or a down slide in the output signal.

3,789,306
APPARATUS FOR DEFINING CONTINUALLY THE ENVELOPE OF THE MAXIMA, THE MINIMA AND/OR MODULATION DEPTH OF A VARYING INPUT SIGNAL

Robert Hendrik Hammerschlag, Gezichtslaan 82, Bilthoven, Netherlands

Filed Sept. 18, 1972, Ser. No. 290,174
Claims priority, application Germany, Sept. 20, 1971, 2147532
Int. Cl. H03k *5/00*
U.S. Cl. 328—150 **17 Claims**



An apparatus for defining continually the envelope of the maxima of a varying input signal, consisting of: a maximum follower, which follows the input signal till a peak is reached and which holds this peak value, and a minimum detector, which gives a logic signal when the input signal has passed a minimum; the said logic signal of the minimum detector introducing the following three actions: firstly the peak value held by the maximum follower is given to a memory element, for example a sample-hold module, the value stored in this memory element being the read-out of the apparatus, secondly the said maximum follower is set back to a zero value and thirdly the maximum follower is released for following the varying input signal in order to measure the next maximum which will replace the previous maximum stored in the memory element when the next minimum is detected by the minimum detector.

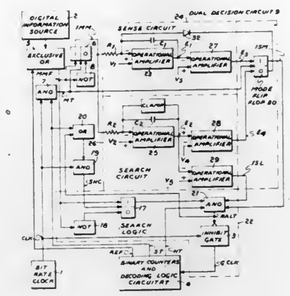
The first and second action can be introduced by a maximum detector. Instead of the memory element one can use a second maximum follower in combination with a maximum selector. The envelope of the minima is defined by a similar apparatus. When an apparatus for defining the maxima is combined with an apparatus for defining the minima one gets an apparatus, which can define continually the modulation depth of a varying input signal.

3,789,307
FRAME SYNCHRONIZATION SYSTEM

James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Continuation of Ser. No. 31,337, April 23, 1970, abandoned.
This application Sept. 20, 1971, Ser. No. 182,120
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **5 Claims**

There is disclosed a framing control circuit for a frame synchronization system. The circuit includes a sense circuit having a first integrator with a relatively long time constant and a first amplitude comparator to detect an out-of-synchronization condition, and a search circuit having a second integrator with a relatively short time constant, a second amplitude comparator and a third amplitude comparator to detect an in-synchronization condition. The third amplitude comparator produces a high output and a mode flip flop having its "1" input coupled to the first comparator produces a high output on its "1" output when an out-of-synchronization condition is present. The simultaneous presence of these two signals activates the search logic of the frame synchronization system. The "0" input of the flip flop is coupled to the second comparator and produces a high output

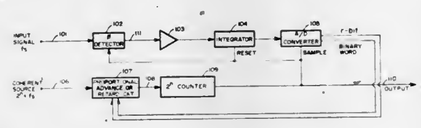


on its "0" output when an in-synchronization condition is present. A diode is coupled between the "0" output of the flip flop and the input of the first integrator, said diode being rendered conductive when the "0" output is low. This diode conduction will reset the first ingegrator to a reference operating level which ensures full use of the time constant thereof and, hence, better protection against accidental phase shift (loss of synchronization) due to a short fade.

3,789,308
DIGITAL PHASE LOCKED LOOP

John R. Lowdenslager, Chappaqua, N.Y., assignor to The Singer Company, New York, N.Y.

Division of Ser. No. 94,263, Dec. 2, 1970, Pat. No. 3,729,674.
This application Dec. 13, 1972, Ser. No. 314,607
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **4 Claims**



A digital phase locked loop is provided for an input signal at a frequency f_s. An n-stage counter is driven with a $2^n \times f_s$ coherent source. The input signal and the output of the n-stage counter are coupled to a phase detector which samples the phase of the input signal. The detected signal is periodically integrated. The integrated signal is coupled to an analog to digital converter whose output controls a pulse advance or retard means which is serially coupled between the coherent source and the counter.

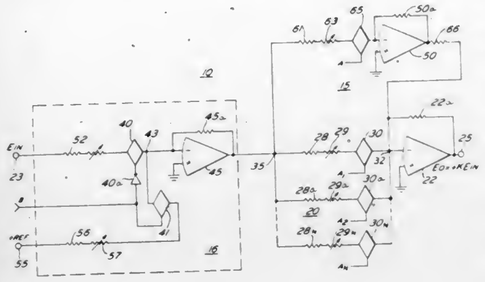
3,789,309
DIGITAL COEFFICIENT ATTENUATOR

Ronald W. Embley, Toms River, N.J., assignor to Electronic Associates Inc., Long Branch, N.J.

Filed Mar. 7, 1973, Ser. No. 338,736
Int. Cl. H03k *5/08;* **H03b** *3/02*
U.S. Cl. 328—169 **11 Claims**

A digital coefficient attenuator having a first and a second amplifier with a ladder network connected between the first amplifier output and the second amplifier input and switcha-

ble in accordance with applied logic signals for providing attenuation at a selected coefficient value. A first analog gate connected between an input signal source and the first amplifier input and a second analog gate is connected between a reference potential source and the first amplifier input. The



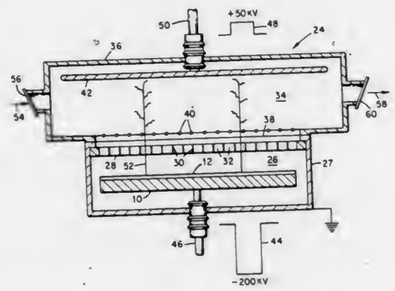
gates are selectively operated so that with the first gate turned on there is produced at the second amplifier output an attenuated input signal in accordance with the selected coefficient value and with the second gate turned on there is produced at the second amplifier output a direct readout of the selected coefficient value.

3,789,310

HIGH-EMISSION COLD CATHODE

Lloyd Mancebo, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 14, 1972, Ser. No. 289,030
Int. Cl. H01s *3/02, 3/09*
U.S. Cl. 330—4.3 **3 Claims**



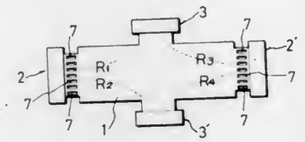
A field-emission cathode having a multitude of field emission points for emitting a copious stream of electrons when subjected to a high field. The cathode is constructed by compressing a multitude of tungsten strips alternately arranged with molybdenum strips and copper ribbons or compressing alternately arranged copper plated tungsten and molybdenum strips, heating the arrangement to braze the tungsten and molybdenum strips together with the copper, machining and grinding the exposed strip edges of one side of the brazed arrangement to obtain a precisely planar surface, etching a portion of the molybdenum and copper to leave the edges of the tungsten strips protruding for electron emission, and subjecting the protruding edges of the tungsten strips to a high electric field to degas and roughen the surface to provide a large number of emitting points. The resulting structure is particularly useful as a cathode in a transversely excited gaseous laser where the cathode is mounted in a vacuum chamber for emitting electrons under the influence of a high electric field between the cathode and an extractor grid. The electrons pass through the extractor grid, a thin window in the wall of the laser chamber and into the laser chamber which is filled with a gaseous mixture of helium, nitrogen and carbon dioxide. A second grid is mounted on the gaseous side of the window. The electrons pass into the laser chamber under the influence of a second electric field between the second grid and an anode in the laser chamber to raise selected gas atoms of the gaseous mixture to appropriately excited states so that a subsequent coherent light beam passing through the mixture transversely to the electron stream through windows in opposite ends of the laser chamber stimulates the excited atoms to amplify the beam.

3,789,311

HALL EFFECT DEVICE

Noboru Masuda, Kawaguchi, Japan, assignor to Denki Onkyo Co., Ltd., Tokyo, Japan

Filed Sept. 13, 1971, Ser. No. 180,029
Int. Cl. H03f *15/00*
U.S. Cl. 330—6 **8 Claims**



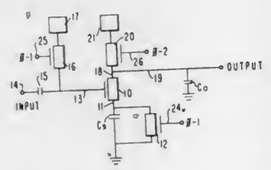
A Hall effect device provided with input terminal sections at both ends and output terminal sections, which are projected, at both sides of the center wherein at least one through hole is provided at a position near the side edge of at least one terminal section and is opened by cutting the side edge of the device so as to adjust unbalanced voltage.

3,789,312

THRESHOLD INDEPENDENT LINEAR AMPLIFIER

Lawrence G. Heller, Essex Junction, and Norbert G. Vogel, Jr., Colchester, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,561
Int. Cl. H03f *3/16*
U.S. Cl. 330—35 **12 Claims**



Low level pulses in the order of 100 millivolts or less can be detected and amplified regardless of variations in the voltage required to turn on the active device used in the amplifier. This is achieved by coupling an active device between a capacitor and a capacitively loaded output line, charging the output line to a reference voltage, applying a level setting voltage to the device to turn on the device; charging the capacitor to a voltage substantially equivalent to the level setting voltage to turn off the device while maintaining it such that any input

signal superimposed on the level setting voltage will cause the device to again turn on and discharge the capacitively loaded output line thereby amplifying and inverting the superimposed input signal.

The invention is particularly useful for sensing random access integrated semiconductor memories.

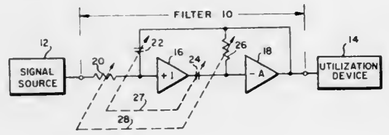
The invention may be employed in either bipolar or field effect transistor technologies.

3,789,313

ACTIVE FILTER CIRCUITS

Albert E. Sanderson, Carlisle, Mass., assignor to Inventronics, Inc., Carlisle, Mass.

Filed May 23, 1972, Ser. No. 256,178
Int. Cl. H03f *1/36*
U.S. Cl. 330—107 **14 Claims**



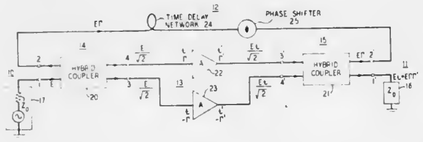
A family of active filter circuits. Each filter has two time constant networks with each network having an element in one loop of a multi-loop feedback circuit for an amplifier. A generalized transfer function
$e_o/e_{in} = as^2 + bs + c/(A+1)T1T2\ s^2 + [(A+1)T1 + T2]s + (A+1)$
describes the operation of each active filter. In this function, A is amplifier gain and T1 and T2 are time constants for the two time constant networks. Some specific circuits have a transfer function in which the coefficients "a" and "c" are 0 and operate as band-pass filters. In these circuits, amplifier gain variations do not affect the resonant frequency, while the resonant frequency can be changed by altering the time constant networks without affecting the quality factor or gain at resonance.

3,789,314

AMPLIFIER UTILIZING INPUT SIGNAL POWER

Henry Richard Beurrier, Chester Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 6, 1971, Ser. No. 204,864
Int. Cl. H03f *1/100*
U.S. Cl. 330—185 **11 Claims**



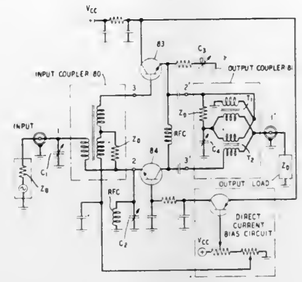
The power from a signal source used to drive an amplifier is usually dissipated in a matching impedance. In accordance with the present disclosure, this input power is conserved and added to the amplifier output power, thereby enhancing the power gain of the amplifier. This technique is particularly advantageous when used with devices having low intrinsic gain.

3,789,315

HYBRID COUPLERS

Henry Richard Beurrier, Chester Twp., Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 1, 1972, Ser. No. 276,912
Int. Cl. H03f *1/00*
U.S. Cl. 330—185 **7 Claims**



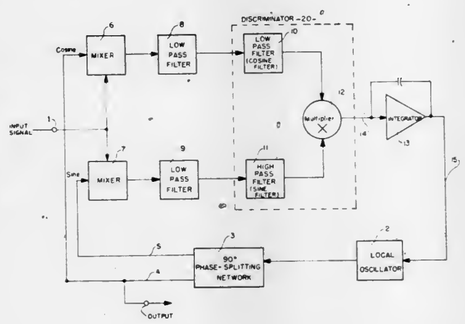
Two, high frequency, broadband hybrid couplers are disclosed. The first comprises three identical coils wound on a common magnetic core. The second comprises two identical 1:1 turns ratio transformers. A coupler is realized by the particular manner in which the windings are connected.

3,789,316

SINE-COSINE FREQUENCY TRACKER

Philip J. Goetz, Pleasantville, and Leon R. Solomon, Ossining, both of N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed June 13, 1973, Ser. No. 369,749
Int. Cl. H03b *3/10*
U.S. Cl. 331—12 **6 Claims**

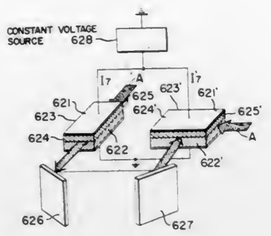


A sine-cosine frequency tracking system is provided for tracking the center of power of a Doppler type input signal. The system of the invention includes a discriminator connected in an error feedback loop, and which develops an error signal whenever the center frequency of the input signal differs from the frequency of a pair of sine-cosine keying signals. The aforesaid discriminator incorporates solid state integrated circuitry, and it is constructed to eliminate the need for difficult trim adjustments which are necessary in the prior art systems. The aforesaid discriminator also serves to improve the accuracy of the system by removing error sources present in the prior art systems.

3,789,317
SIGNAL CONVERTER WHEREIN PHOTOEMISSION TIME CONSTANT IS UTILIZED

Junichi Nishizawa, Sendai, Japan, assignor to Zaiden Hojin Handotai Kenkyu Shinkokai, Miyagi-ken, Japan

Continuation-in-part of Ser. No. 683,920, Nov. 17, 1967. This application Sept. 27, 1971, Ser. No. 184,117
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 C 5 Claims

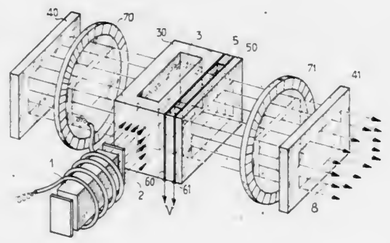


A signal converter, wherein two semiconductor diodes are connected in the forward direction thereof as well as in parallel with a constant voltage source or a constant current source, and wherein a photoemission state of each of the semiconductor diodes is converted by an external light signal so as to perform the flip-flop signal conversion and pulse generation of the emitted light, the time constant of the signal conversion being from 10^{-10} to 10^{-12} second which is smaller by two to three places than the conventional flip-flop circuit utilizing electric signals.

3,789,318
STIMULATED EMISSION RADIATION SOURCE WITH ADJUSTABLE WAVELENGTH

Daniel B. Ostrowsky, and Erich Spitz, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed May 9, 1972, Ser. No. 251,692
Claims priority, application France, May 14, 1971, 7117557
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 C 3 Claims

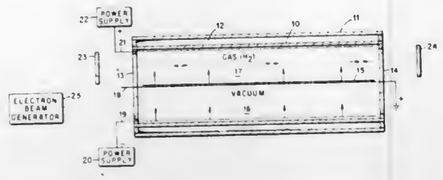


The invention relates to stimulated emission radiation source and more precisely to a dye laser in which the control of the emitted radiation wavelength is effected by varying the quality factor of the resonant cavity by means of a thin film of a nematic liquid crystal arranged between two polarisers, the double-refracting property of the film being controlled by a voltage applied through transparent electrodes.

3,789,319
HYDROGEN ROTATION-VIBRATION OSCILLATOR

Charles K. Rhodes, Pleasanton, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 8, 1972, Ser. No. 250,997
Int. Cl. H01s 3/22, 3/09
U.S. Cl. 331—94.5 8 Claims

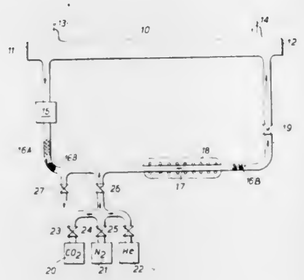


A laser system wherein molecular species of hydrogen and hydrogen isotopes are induced to oscillate on rotational-vibrational levels by subjecting the hydrogen to a transverse beam of electrons of a narrowly defined energy between about 1 and 5 eV, thereby producing high intensity and high energy output.

3,789,320
GAS LASER CIRCULATION SYSTEM

William Dunn Hepburn, Edinburgh, Scotland, assignor to Ferranti Limited, Hollinwood, Lancashire, England

Filed June 19, 1972, Ser. No. 263,948
Int. Cl. H01s 3/02
U.S. Cl. 331—94.5 5 Claims



A gas circulation system for a laser comprises a reaction vessel comprising an empty tube which may be heated to an appropriate temperature, and means for circulating the gas from the laser through the reaction vessel so that the dissociation of the gas which occurs in use is reversed.

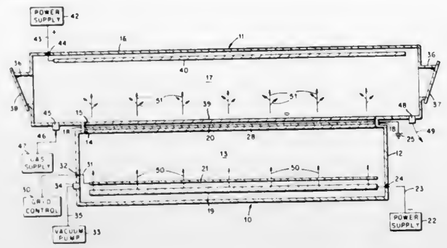
3,789,321
ELECTRON BEAM-PUMPED GAS LASER SYSTEM

Barton Krawetz; Jack B. Long, and Leonard J. Mooney, all of Livermore, Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 14, 1972, Ser. No. 289,029
Int. Cl. H01s 3/02
U.S. Cl. 331—94.5 5 Claims

An electron beam-initiated-and-sustained gas laser system capable of producing uniform, high energy, large-volume electrical discharges in a high-pressure gaseous lasing medium. A

thin metallic window separates the low pressure electron gun cavity from the longitudinally parallel high pressure gas cavity, such that the injected primary electrons create low energy secondary electrons which are swept across the gas cavity by an applied electric field collisionally exciting the gaseous

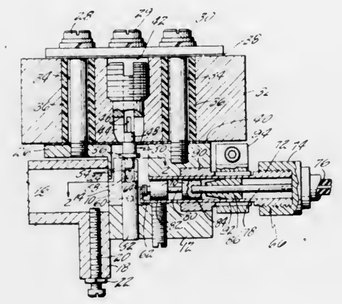


medium. The system is applicable in both the oscillator and amplifier configurations, and is capable, for example, of producing a 10 joule/liter of active volume short (tp ≈1 ns) CO_2 laser pulse, while being operable in a manned area due to the housing being electrically neutral.

3,789,322
MICROWAVE CAVITY TUNING LOOP INCLUDING A VARACTOR

Allan L. Reynolds, White Plains, N.Y., assignor to United Aircraft Corporation, East Hartford, Conn.

Continuation of Ser. No. 156,726, June 25, 1971, abandoned. This application Nov. 24, 1972, Ser. No. 309,568
Int. Cl. H03b 7/06
U.S. Cl. 331—96 1 Claim

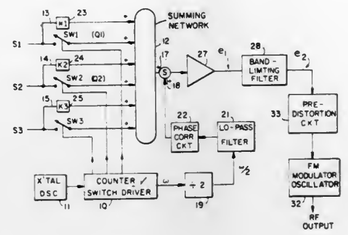


A coupling loop having a varactor in series therewith extends into a microwave cavity, which in one embodiment includes a coaxially aligned transferred electron device (TED) oscillator, with aperture output coupling into a waveguide. Bias for the varactor is applied by coaxial waveguide circuitry, the outer conductor of which is integral with the coupling loop, the circuitry including a low pass filter and a microwave energy absorbing means. Means are provided to ensure that the cavity wall adjacent the varactor is a microwave short circuit. Ancillary structures includes a tellurium copper heat sink, including a collet type heat sink mount for the TED, invar tuning screws in the cavity and waveguide which are formed of aluminum walls, and other structural details.

3,789,323
MULTIPLE INPUT SIGNAL MODULATOR AND METHOD THEREFOR

Robert A. Andersen, Los Altos Hills, and Lawrence A. Maguire, San Jose, both of Calif., assignors to Sigmatek, Inc., Cupertino, Calif.

Filed May 19, 1972, Ser. No. 255,139
Int. Cl. G01r 23/16; H04j 3/04
U.S. Cl. 332—18 16 Claims

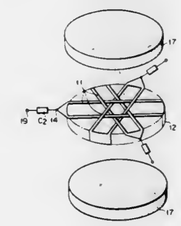


A frequency modulator for either stereo or quadraphonic FM which in addition to summing the sampled audio inputs, also sums continuous fractions of the audio inputs to form the composite signal which modulates the carrier frequency. The fractions of audio inputs which are continuously coupled are adjusted to provide for optimum separation while allowing filter adjustment for optimum phase linearity. A predistortion network for the modulator-oscillator circuit maintains the high separation achieved by the foregoing adjustment.

3,789,324
LUMPED CONSTANT CIRCULATOR

Nobuo Iwase, Zushi, and Soji Okamura, Yokohama, both of Japan, assignors to Tokyo Shibaura Electric Co. Ltd., Kawasaki-shi, Japan

Filed June 1, 1972, Ser. No. 258,801
Claims priority, application Japan, June 18, 1971, 46-43316
Int. Cl. H01p 1/32
U.S. Cl. 333—1.1 7 Claims

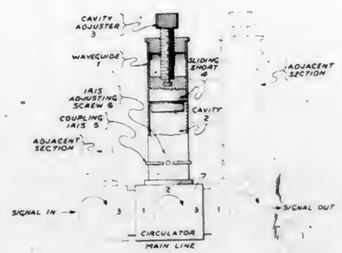


A lumped constant circulator comprising a conductor case; a central assembly consisting of a conductor assembly including at least three insulated conductor strips intersecting each other preferably at an angle of 120°, said conductor strips being each connected at one end to said conductor case and at the other end individually to a respective coaxial connector through a respective serially arranged capacitor; ferrite plates so superposed as to have said central conductor assemply sandwiched therebetween; and magnets for supplying said ferrite plates with a D.C. magnetic field acting perpendicular to their mutually facing surfaces.

3,789,325
VARIABLE FREQUENCY AND COUPLING EQUALIZER AND METHOD FOR TUNING

Murray Hoffman, Liyingston, N.J., assignor to International Telephone and Telegraph, Nutley, N.J.

Filed Nov. 24, 1971, Ser. No. 201,670
Int. Cl. H03h 7/16
U.S. Cl. 333—28 R 7 Claims

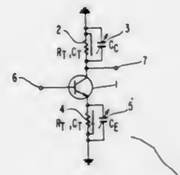


There is provided a variable equalizer adapted for operation in a communications system employing waveguide frequencies with a bandwidth of for example 500 MHz. The variable equalizer comprises a unique cavity arrangement in which substantially independent adjustments are provided for varying the cavity resonant frequency and the signal energy coupling thereto. The cavity is in turn coupled to the middle port of a three-port circulator which constitutes part of a transmission line for the signal energy. The arrangement is adaptable to have a plurality of circulators directly coupled together to form the transmission line, with each being provided with a separate one of the unique dual-adjustable cavity arrangements. In this way, equalization may be provided over extremely wide ranges of operating frequencies. A unique method is also disclosed for tuning such a variable equalizer to provide a substantially flat response across the entire intended operating band of frequencies.

3,789,326
VARIABLE LINE EQUALIZER

Takuya Iwakami, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed Dec. 7, 1972, Ser. No. 313,054
Claims priority, application Japan, Dec. 10, 1971, 46/100331
Int. Cl. H03h 5/00
U.S. Cl. 333—28 R 3 Claims

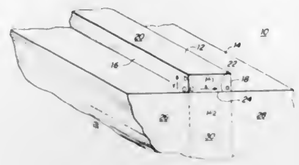


A variable line equalizer comprising a transistor, uniformly distributed RC networks, and variable capacitors provides compensation for coaxial line attenuation over a wide band of frequencies. The band width is determined by the values R_T, C_T, and C_M, where R_T and C_T are the total resistance and capacitance of the distributed networks, and C_M is the maximum of the variable capacities.

3,789,327
MICRO-ACOUSTIC WAVEGUIDE

Richard A. Waldron, Ipswich, England, and Ernest Stern, Concord, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 24, 1972, Ser. No. 256,469
Int. Cl. H03h 7/30, 9/30
U.S. Cl. 333—30 R 17 Claims

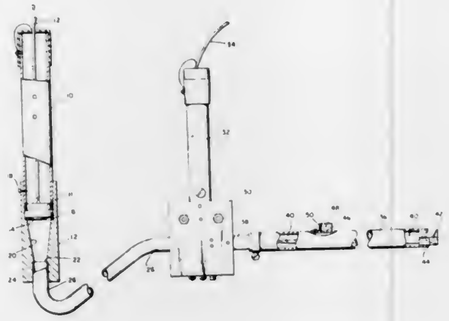


Apparatus is disclosed including a waveguide structure for controlling propagation of elastic waves including a rigid supporting substrate for suppressing propagation and an overlayer of elastic material for sustaining propagation and having a closed, defined, reflecting boundary surface for confining the elastic waves in the transverse dimensions.

3,789,328
ACOUSTICAL DELAY LINE

Milton T. Putnam, Tarzana, Calif., and Duane H. Cooper, Champagne, Ill., assignors to United Recording Electronics Industries, North Hollywood, Calif.

Filed June 22, 1972, Ser. No. 265,388
Int. Cl. H03h 7/30
U.S. Cl. 333—30 12 Claims

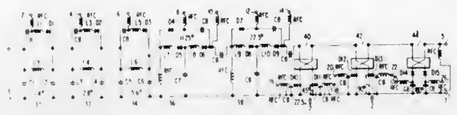


Apparatus for terminating the transmitting line of an acoustical delay line in a tunable cavity having the characteristic impedance of the transmitting line. The cavity is terminated and tunable over the acoustical frequency range by means of selectively located helmholtz resonators operating upon the direct waves and the reflected waves from the terminating device for providing the selectively located resonators to compensate the frequency spectrum for both peaks and dips at different frequencies.

3,789,329
EIGHT BIT DIGITAL PHASE SHIFTER UTILIZING PLURALITY OF SWITCHABLE LOW PASS FILTERS

Gerald E. Johnson, Littleton, Colo., assignor to Martin Marietta Corporation, Washington, D.C.

Filed May 17, 1972, Ser. No. 254,262
Int. Cl. H01p 1/18
U.S. Cl. 333—31 R 9 Claims

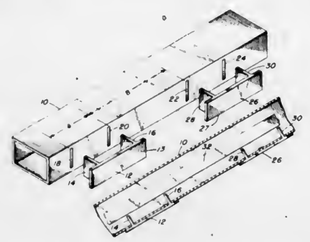


An eight bit digital phase shifter includes a plurality of low pass filter networks to provide the lowest five bits. The first three bits are provided by low pass pi networks, phase shift being controlled by controlling the network series inductance. The next two bits are provided by low pass tee networks, phase shift being controlled by selectively shorting the network series inductance to effectively remove the filter from the phase shifter. The three highest bits are provided by 3dB hybrids.

3,789,330
FERRITE MICROWAVE PHASE SHIFTER WITH INSERTION PHASE MODIFYING MEANS

Earl Dixon, Voorhees Twp., and Norman Richard Landry, Willingboro, both of N.J., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 8, 1972, Ser. No. 313,229
Int. Cl. H01p 1/18
U.S. Cl. 333—31 A 12 Claims



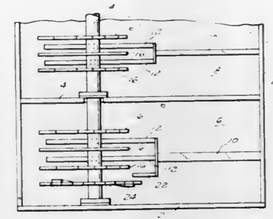
An apparatus for modifying the insertion phase of a ferrite microwave phase shifter. A plurality of transverse metal plates are inserted into the waveguide to change the insertion phase. At least two plates are inserted into the waveguide through slots separated by a predetermined distance to keep the VSWR to a minimum. Each pair of plates introduces a predetermined amount of phase change. A sufficient number of pairs of plates are inserted to bring the insertion phase of the phase shifter within an allowable range of deviation from an ideal figure.

3,789,331
VERNIER TUNING MEANS FOR UHF TUNER OR THE LIKE

Carroll R. Miner, Wilbraham, and Edward Balash, Chicopee, both of Mass., assignors to General Instrument Corporation, Newark, N.J.

Filed Sept. 29, 1972, Ser. No. 293,465
Int. Cl. H03j 3/20
U.S. Cl. 334—82 18 Claims

In a conventional variable capacitor type tuner, in which the rotor plates optionally may be provided with positionally adjustable sections which sequentially and cumulatively come into capacitive relationship with a stator plate of appreciable area, vernier tuning is accomplished by providing an additional stator plate of limited area which cooperates with its own rotor having individually positionable sections of substantially the same angular extent as the corresponding stator and which come sequentially and non-cumulatively into operative relationship with the stator. The individually positionable sections of the vernier rotor may be staggered with respect to the

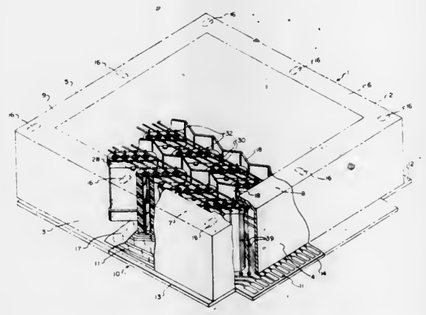


individually positionable sections of the standard rotor for optimum results. The vernier rotor can generally be similar to the standard rotor in having its sections extend generally at right angles to the axis of rotation, in which case where many channels are to be tuned the individual sections of the vernier rotor may encompass the tuning of a limited plurality of said channels, or the sections of the vernier rotor may comprise extensions thereof extending generally parallel to the axis of rotation thereof, in which case a larger number of individual sections can be provided than with conventional rotors.

3,789,332
IN-LINE REED CAPSULE CROSSPOINT MATRIX SWITCH

Khaja M. Jameel, Elmhurst, and Von W. Mueller, Lombard, both of Ill., assignors to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed Feb. 20, 1973, Ser. No. 334,184
Int. Cl. H01h 67/30
U.S. Cl. 335—152 18 Claims



A modular in - line crosspoint matrix switch having reed capsule assemblies each having reed capsules mounted in a bobbin, electromagnetic winding on each bobbin, the reed capsules and windings being wired to form the crosspoint matrix and further having zig-zag shield means arranged between adjacent rows of the bobbins.

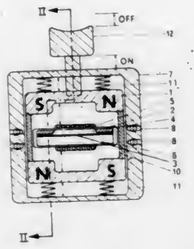
3,789,333
MAGNETO-MOTIVE BISTABLE SWITCHING DEVICES

Waldemar Helmut Kurpanek, Mercator Str. 3, Duesseldorf, Germany

Continuation-in-part of Ser. No. 273,940, July 21, 1972, and a continuation-in-part of Ser. Nos. 149,174, June 2, 1971, abandoned, and Ser. No. 273,941, July 21, 1972, which is a continuation-in-part of Ser. No. 149,174, June 2, 1971, and Ser. No. 273,940, July 21, 1972. This application Sept. 27, 1972, Ser. No. 273,942

Int. Cl. H01h 51/28, 53/06, 36/00

U.S. Cl. 335—207 12 Claims



A magneto-motive bistable switch comprising a hermetically sealed contact container having at least one pair of electrical contact points and a free floating ferro-magnetic contactor. An electro-magnetic coil encircles the contact container which is placed within the magnetic flux of two spring loaded permanent magnets. The switch is electrically tripped by a dc trigger pulse thus energizing the coil to thereby magnetically polarize the ferro-magnetic contactor which is thereupon magnetically attracted towards one permanent magnet respectively thus establishing a bridging relationship with at least one pair of electrical contact points. The switch is manually operated by exterior pressure on a switch knob which changes the distance between permanent magnet and contactor which is thereupon attracted to the respective closer permanent magnet thus executing the switching operation. The switch may function as an ac overload circuit breaker when a contactor with a preestablished curie point is used to indicate a sudden power surge. By attaining the curie temperature it loses its ferro-magnetic qualities and thereupon falls off the contact points due to the force of gravitational attraction and breaks the circuit.

The inventive idea postulates a manually and electrically operable ac and dc switch and overload circuit breaker which functions directionally fully independent (except for the ac overload circuit breaker) is absolutely fireproof and operates within a temperature range of 1,000° Centigrade. The switch comprises a hermetically sealed contact container embodying at least one pair of electrical contact points a free floating ferro-magnetic contactor. An electro-magnetic coil encircling the contact container and the contact container are placed together within the magnetic flux of two spring loaded permanent magnets. The switch is electrically tripped by a dc trigger pulse thus energizing the coil that thereby magnetically polarizes the ferro-magnetic contactor which is thereupon magnetically attracted towards one permanent magnet respectively thus establishing a bridging relationship with at least one pair of electrical contact points. The switch is manually operated by exterior pressure on a switch knob thus changing the distance between permanent magnet and contactor which is thereupon attracted to the respective closer permanent magnet thus executing the switching operation. As an ac overload circuit breaker a contactor with preestablished curie point is applied to indicate a sudden power surge by attaining curie temperature thus losing the ferro-magnetic qualities thereupon falling off the contact points due to the force of gravitational attraction thereby breaking circuit. Resetting is either manually or electrically accomplished.

3,789,334
ELECTRIC PROTECTIVE SWITCH FOR PROTECTION AGAINST FAULT CURRENTS, EXCESS CURRENTS AND SHORT CIRCUITS

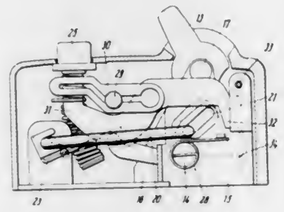
Rolf Goehle, Leimen; Walter Velten, Schwetzingen, and Gunther Knirsch, Bretten, all of Germany, assignors to Brown, Boveri & Cie AG, Mannheim, Germany

Filed Feb. 10, 1972, Ser. No. 225,226

Claims priority, application Germany, Mar. 29, 1971, P 21 15 034.5

Int. Cl. H01h 71/12

U.S. Cl. 335—173 3 Claims



The switch comprises an automatic cutout on circuit breaker and a separate fault current responsive part with a suitable cutout actuating element. A disengaging clutch is provided and permits closing of the automatic cutout only in the ready position of the fault current release.

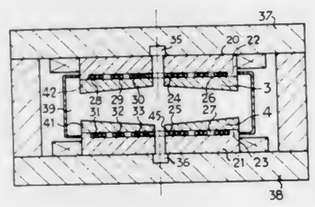
3,789,335
MAGNETIC FOCUSING DEVICE FOR AN ISOCHRONOUS CYCLOTRON

Pierre P. Delphin, and Pierre R. Peironet, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Oct. 4, 1971, Ser. No. 186,202

Int. Cl. H01t 7/00

U.S. Cl. 335—210 9 Claims



This device makes it possible to secure a major improvement in the efficiency of particle accelerators of the isochronous cyclotron type. It comprises a soft magnetic yoke, two circular soft-iron plates protuding from said yoke, first and second sets of soft magnetic sectors facing each other and building up the main airgap of the device, these sectors being respectively carried by two plates, two annular spacings being respectively provided between the sectors and their carrying plate, and correcting magnetic means being positioned within said annular spacings.

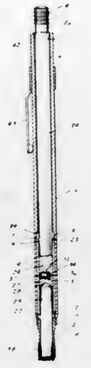
3,789,336
RETRACTIBLE MAGNET HOLDER

Myron K. Gordin, Oskaloosa, Iowa, assignor to G & L Industries, Inc., Oskaloosa, Iowa

Filed Feb. 22, 1973, Ser. No. 334,853

Int. Cl. H01f 7/20

U.S. Cl. 335—285 2 Claims



A retractible magnet holder including a barrel member with an elongated cap member extended outwardly from one end, and a sleeve member fixed in the barrel member adjacent such one end. The barrel member and end cap are composed of a non-magnetic material, and the sleeve member is formed of a magnetic material. A non-magnetic shaft member and an attached magnet are reciprocally movable within the barrel member to a first metal pick-up position wherein the magnet is within the cap member and to a second metal release position wherein the magnet is within the sleeve member. A latch means stops and releasably holds the shaft member and magnet in the second position therefor.

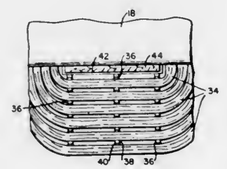
3,789,337
INSULATION STRUCTURE FOR ELECTRICAL APPARATUS

Harry R. Sheppard, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 17, 1971, Ser. No. 209,466

Int. Cl. H01f 27/08

U.S. Cl. 336—60 18 Claims



Insulation structure having filler members which keep the overall insulation structure tight when heated. The filler members are located within the insulation structure at various places and in sufficient quantities, with the shortest dimension of the filler member oriented in the direction in which expansion is desired. As the insulation structure is heated, the shortest dimension of the filler member increases to tighten the insulation structure. The filler member is constructed from a material which tends to reduce its surface area when heated without changing its volume.

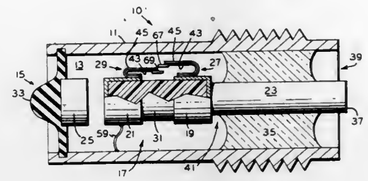
3,789,338
PRESSURE SENSOR DEVICE

Nikolaus A. Szeverenyi, and David F. Thompson, both of Warren, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Oct. 2, 1972, Ser. No. 294,457

Int. Cl. H01h 37/00

U.S. Cl. 337—3 20 Claims



A sensor device senses the presence or absence of pressure. As the pressure about the device exceeds a pre-established level, a movable tip of the device is depressed. A thermally conductive portion of the tip thereby engages a spaced apart portion of an element. This engagement upsets the thermal properties within the device, causing two heat responsive members to disengage. A sensing apparatus is also disclosed which includes the above described device and an electrical circuit which comprises a potential source and a current indicating means. When the above mentioned heat responsive members are engaged, current in the circuit is at a sufficient level to activate the current indicating means. However, when the heat responsive members disengage, the current must pass through a resistive material, thereby lowering the level of current flow. This lower electrical current is then not sufficient to actuate the indicating means.

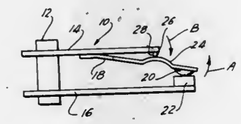
3,789,339
THERMOSTATIC SWITCH

Glenn E. Wehl, North Canton, Ohio, assignor to Portage Electric Products, Inc., North Canton, Ohio

Filed Apr. 16, 1973, Ser. No. 351,162

Int. Cl. H01h 61/00

U.S. Cl. 337—95 5 Claims



A thermostatic switch having a bimetallic electric-contact-carrying blade with a dish-shaped snap portion is provided. "-Creep" opening of the contacts prior to snap-open action is substantially eliminated by forming the terminal arm that carries the bimetallic blade and the fulcrum for the dish-shaped portion of a bimetal positioned to deflect in response to temperature change in a direction opposite to the direction in which the bimetallic blade deflects.

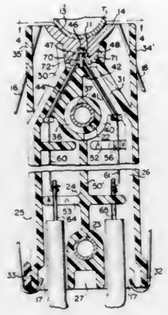
ERRATUM

For Class 338—24 see:
Patent No. 3,789,191

3,789,340
THERMAL SENSING DEVICE FOR CONTROL CIRCUITS

Jay C. Adams, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed July 17, 1972, Ser. No. 272,316
Int. Cl. H01c 7/00
U.S. Cl. 338—28 11 Claims

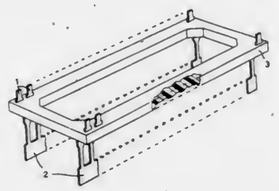


A thermal sensor for application to the exterior of a tube or the like comprises a thermistor supported within a rectangular casing, one end of which is urged by a spring into engagement with the tube. The portion of the casing engaging the tube comprises a heat transfer member having a surface contoured to extensively engage a portion of the tube and having a pair of legs extending inwardly of the casing and straddling the thermistor which is held in a cage-like structure in the interior of the casing. A thermal conducting cement fills voids between the thermistor and the heat transfer member.

3,789,341
CIRCUIT PACKAGE

Claudio Dalmasso, Ivrea, Italy, assignor to Ing. C. Olivetti & C. S.p.A., Ivrea (Torino), Italy

Filed Jan. 20, 1972, Ser. No. 219,419
Claims priority, application Italy, Jan. 29, 1971, 67296/71
Int. Cl. H05k 1/00
U.S. Cl. 339—17 CF 2 Claims

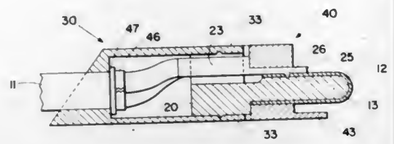


Disclosed is a circuit package which utilizes a collar member made of injected polysulphone plastic to support an integrated circuit board. The plastic collar has imbedded therein a plurality of terminal leads. The collar and terminal lead arrangement is constructed before the integrated circuit board is attached, thereby allowing the high temperature and pressure injection process to be used to form the support collar. Any plastic which is heavily charged with glass or alumina can be used.

3,789,342
ELECTRICAL CONNECTOR

Peter Francis Maheux, Kanata, Ontario, Canada, assignor to Bell-Northern Research Ltd., Ottawa, Ontario, Canada

Filed Jan. 26, 1973, Ser. No. 327,090
Int. Cl. H05k 1/04
U.S. Cl. 339—17 F 8 Claims

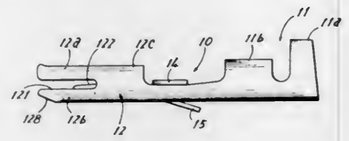


A connector for connecting wire conductors to a flexible circuit. The flexible circuit is formed over one member of connector and the wires each have a terminal attached thereto, the terminals positioned in recesses in a second member of connector. Retaining means hold the flexible circuit and the terminals in position. The two connector members clip together to make electrical contact between terminals and flexible circuit. The connector can be arranged to cooperate with formations on a housing to lock two parts of a housing together.

3,789,343
ELECTRICAL CONNECTOR

Kazuaki Hirokawa, Tokyo, and Tsugio Anbo, Tokorozawa, both of Japan, assignors to Shinagawa Automotive Electric Wire Co., Ltd., Tokyo-to, Japan

Filed June 2, 1972, Ser. No. 259,192
Claims priority, application Japan, June 4, 1971, 46-46205; Feb. 17, 1972, 47-20142; Mar. 22, 1972, 47-34401
Int. Cl. H01r 25/00
U.S. Cl. 339—49 R 18 Claims

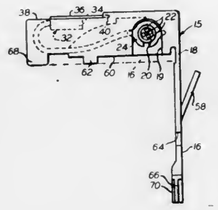


An electrical connector is composed of a pair of hermaphroditic connector members being of the identical structure and dimension and matable with each other. Each hermaphroditic connector member comprises a wire connecting portion at one end region, a fixing portion at a middle region and a mating portion at the other end region. The mating portion is of a tubular-like configuration, preferably of an ellipse-like configuration in section, and has two facing slots each of which extends in an axial direction of the mating portion from a tip end of said tubular-like mating portion to an approximately middle position of the mating portion. The tip portion of the tubular-like mating portion is divided by the slots into two semitubular-like portions. On an inner surface of one of the semitubular-like portion, an inwardly inclined spring tongue is provided. The structure and dimensions of the facing slots, the semitubular-like portion of the mating portion and the spring tongue are respectively predetermined to make the outer surface of the semitubular-like portion which is provided with the spring tongue closely contact the inner surface of another connector member's semitubular-like portion having no spring tongue when the mating portions of both hermaphroditic connector means are mutually inserted. The hermaphroditic connector means are housed in a casing and fixed thereto through the abovementioned fixing portions of the connector means.

3,789,344
ELECTRICAL CONNECTOR FOR TELEPHONE CORDS

William J. Brorein, Whippany, and Nicholas Humen, Bayonne, both of N.J., assignors to General Cable Corporation, New York, N.Y.

Filed Nov. 12, 1971, Ser. No. 198,323
Int. Cl. H01r 13/54, 13/58, 13/40
U.S. Cl. 339—59 M 20 Claims

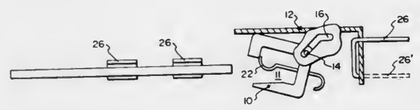


This electrical connector has a housing and a cover hinged together. Conductors and terminals on the conductors are assembled in the housing, and the cover is then swung into closed position where it has a snap lock for holding it closed. The housing has different cavities for receiving each terminal and the upper ends of the cavities are constructed so as to distort as the terminals are inserted and then spring back to hold the terminals and their connected conductors in place. This connector cannot only be assembled in much less time than prior connectors, but in the event of an error in the relation of the terminals, the error can be easily corrected; and repairs are also facilitated since the connector can be reopened without removal of any rivets or other fastenings.

3,789,345
LOW INSERTION/EXTRACTION FORCE PRINTED WIRING BOARD CONNECTOR

William A. Reimer, Wheaton, and Peter K. Gerlach, Oak Park, both of Ill., assignors to GTE Automatic Electric Corporation Laboratories Incorporated, Northlake, Ill.

Filed Oct. 2, 1972, Ser. No. 293,971
Int. Cl. H01r 13/62
U.S. Cl. 339—75 MP 6 Claims

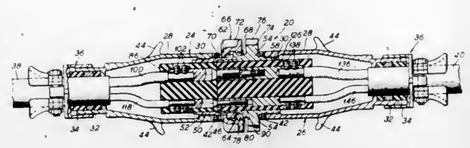


A printed wiring board connector is provided with a plurality of spring contacts and is mounted in a bracket such that it is rotatable about a longitudinal axis. The insertion of a printed wiring board operates to rotate the connector whereby the spring contacts engage the circuits of the board. The forces necessary to insert and extract the board are thereby substantially reduced.

3,789,346
ELECTRICAL COUPLING WITH PRESSURE CONTACTS AND MULTIPLE CONDUCTANCE PATHS

Eric De Brick, Bluefield, W. Va., assignor to West Virginia Armature Company, Bluefield, W. Va.

Filed Sept. 5, 1972, Ser. No. 286,012
Int. Cl. H01r 13/54
U.S. Cl. 339—89 R 6 Claims

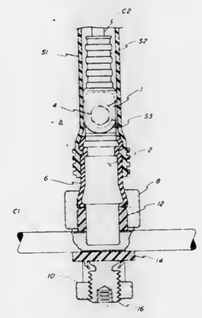


Electrical coupling includes a plug and receptacle. The plug has multiple pin contacts engageable within socket contacts in the receptacle. The pin contacts are split expandable tubes telescopically engageable within bores in the socket contacts which are non-expandable. Auxiliary pressure and contact means includes tapered plugs within the socket contacts, pressed outwardly by springs to engage tapered bores in the tubular pin contacts to expand the latter into substantial electrically conductive engagement with the bores of the socket contacts. Two conductive paths are thereby created between each corresponding pin contact and socket contact. One conductive path is established through the outer surface of the pin contact and the bore of the socket contact, and another conductive path is established through the bore of the pin contact and the tapered plug.

3,789,347
INSULATION PIERCING CONNECTOR FOR UNDERGROUND INSTALLATION

James Joseph Cooper, Jr., St. Louis, Mo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 2, 1972, Ser. No. 222,917
Int. Cl. H01r 9/08, 11/20
U.S. Cl. 339—97 R 11 Claims

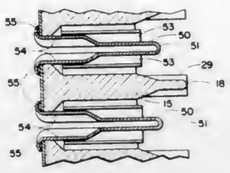


An insulated connector is provided for use in making tap connections to insulated power lines. The connector incorporates an insulation and wire piercing element for establishing electrical connections between a main power line and a tap line. It includes elements which stop the piercing element from cutting beyond a preselected depth.

3,789,348
TERMINAL BLOCK

George Victor Lenaerts; Graham Sterling Laing; Ronald Joseph Morrell, and Wesley Nelson Willis, all of London, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, by said Lenaerts, Morrell and Willis and Bell Northern Research Ltd., Ottawa, Ontario, both of, Canada, by said Laing

Filed Apr. 9, 1973, Ser. No. 349,320
Int. Cl. H01r 9/00
U.S. Cl. 339—198 R 4 Claims

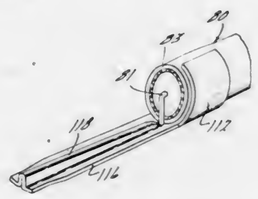


A terminal block, particularly for use in confined spaces such as telephone units, having a plurality of rectangular recesses arranged in rows and columns, the rows extending in the direction of the longitudinal axes of the recesses. An upwardly projecting rib extends between each pair of adjacent rows, each rib having a cross-section which assists in entering a connector into a terminal in a recess. Terminals are held in position by portions extending through holes in the base of the block and rivetted over. The holes have chamfered edges to assist in initial assembly of terminals. The ribs act as separations between rows to prevent contact between adjacent rows of connections permitting a high density of connections.

3,789,349
DISTRIBUTOR CAP ELECTRODE AND CABLE TERMINATION

Ian J. C. Scott, Madison Heights, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Jan. 10, 1973, Ser. No. 322,576
Int. Cl. H01r 15/12
U.S. Cl. 339—223 S 5 Claims



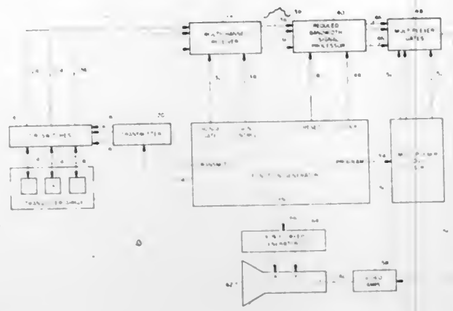
An internal combustion engine distributor cap has a high tension output electrode which is readily insertable in and removable from the distributor cap and serves also as a dependable electrical termination for an ignition spark plug cable.

3,789,350
REDUCED BANDWIDTH PROCESSING FOR ULTRASONIC IMAGE CONVERSION

Albert L. Rolle, Lynn Haven, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 13, 1972, Ser. No. 297,574
Int. Cl. G01s 9/66
U.S. Cl. 340—3 R 8 Claims

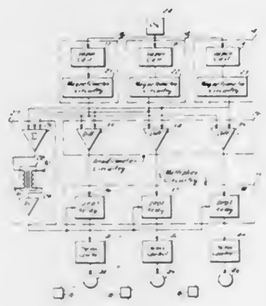
Disclosed is an ultrasonic, image conversion, high definition sonar having a multitude of transducer channels employing improved signal processing in each channel to reduce video bandwidth and switching speed requirements. Signal processing is characterized in each of the multitude of channels by detecting and holding the peak return from a transmit pulse for the remainder of the pulse project period, then holding that peak value for the subsequent pulse project period, during which time the value may be multiplexed for conversion to video signals for a CRT display, or may be applied to elements of an LED array.



3,789,351
GUIDANCE SYSTEM

David W. Feldman, and James C. Slone, Jr., both of Panama City, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 4, 1970, Ser. No. 78,341
Int. Cl. G01r 33/02; G01c 19/30
U.S. Cl. 340—4 R 8 Claims

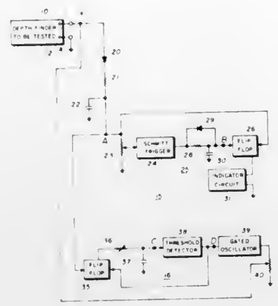


A guidance system is disclosed which employs three total field magnetometer sensors located in a plane and spaced equiangularly about the axis of locomotion. Circuitry is disclosed to combine the outputs of adjacent sensors for operation of a control element positioned at right angles to the plane of the sensors, so as to steer a desired course with respect to a magnetic anomaly in an ambient, i.e., the earth's, magnetic field. Circuitry is also disclosed which is effective to resolve the ambiguity of steering toward or away from the anomaly and, thereby, insure the desired course of steerage.

3,789,352
METHOD AND APPARATUS FOR TESTING DEPTH FINDERS

Eric B. Forsyth, Brookhaven, N.Y., assignor to Ensign Electronics, Inc., Brookhaven, N.Y.

Filed May 25, 1972, Ser. No. 256,789
Int. Cl. H04b 11/00
U.S. Cl. 340—5 C 8 Claims

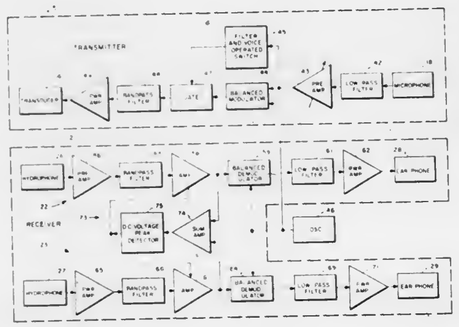


Depth finders are tested and calibrated on the bench without the respective transducer, by generating a delayed pulse responsive to the depth finder's transmitted pulse, the delayed pulse being applied to the depth finder to simulate an echo pulse. Preferably, the echo pulse is in the form of spikes to shock excite the depth finder. A circuit is also provided to indicate the amplitude and width of the transmitted pulse of the depth finder.

3,789,353
DIVER COMMUNICATION SYSTEM

Earl Kent Hunter, Gig Harbor, Wash., and Don G. Smith, Shalimar, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 3, 1973, Ser. No. 320,781
Int. Cl. G01s 3/80
U.S. Cl. 340—5 T 16 Claims

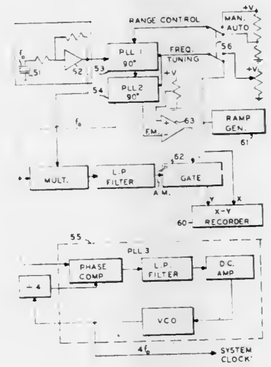


An underwater diver communication system is disclosed as including a voice actuated transmitter for broadcasting speech signals throughout an ambient subaqueous environmental medium combined with a two-channel, binaural, speech signal receiver by means of a common local oscillator connected therebetween which, in turn, effects relative phase enhancement in the channels thereof. In addition, the two channels of said binaural receiver incorporate substantially identical adjustable gain amplifiers, respectively, the gains of which are identically regulated by a single control signal from a unique feedback type of signal amplitude enhancement circuit that is effective to further distinguish the amplitudes of the speech signals being processed within one receiver channel relative to those being processed within the other receiver channel, to thereby facilitate the localization of the speech signals received by said diver from said ambient subaqueous environmental medium.

3,789,354
PASSIVE HOLOGRAPHY SYSTEM

Ronald Frederick Sternberg; Roger Fred Koppelmann, both of Livonia, and Rolf K. Mill, Brighton, all of Mich., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 21, 1972, Ser. No. 308,387
Int. Cl. H04b 11/00
U.S. Cl. 340—5 H 6 Claims



The disclosure deals with a passive holography system for imaging remotely generated coherent acoustical signal source thru the techniques of phase locking a locally controlled, voltage controlled oscillator to the signal and at the same time displaying those signals so that an acoustical spectrum can be sampled and recorded until a desired signal is identified and then a second phase-locked-loop circuit is controlled to automatically track the received incoming signal and generate a reference signal which is coherent with the received signal and which is used by the holographic system to image the source of the received signal.

ERRATA

For Classes 340—8, 340—174 and 340—384 see: Patents Nos. 3,789,400 thru 3,789,402

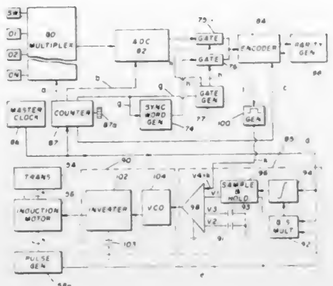
3,789,355
METHOD OF AND APPARATUS FOR LOGGING WHILE DRILLING

Bobbie J. Patton, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 28, 1971, Ser. No. 213,061
Int. Cl. G01v 1/40
U.S. Cl. 340—18 LD 13 Claims

A method and apparatus is described for monitoring at a remote location downhole conditions encountered while drilling a well. A sensed downhole condition is represented by

a binary coded acoustic signal which is transmitted by way of a liquid path, provided by drilling liquid, to the surface of the earth. The acoustic signal, whose phase state represents bit values, is detected at the surface and decoded by way of a



coherent system. Coherency is provided by deriving from the received signal a reference signal which is compared with the received signal to produce an output representative of the sensed condition.

3,789,356

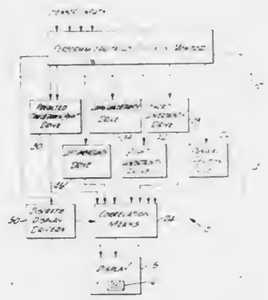
MONITOR DISPLAY MEANS

Harold L. Harenberg, Jr., Long Beach, and James H. Shannon, Westminster, both of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Continuation-in-part of Ser. No. 77,557, Oct. 2, 1970, abandoned. This application July 10, 1972, Ser. No. 270,379

Int. Cl. G08g *5/02*

U.S. Cl. 340—27 NA **11 Claims**



A cockpit display for indicating the assessments made by a performance and failure assessment monitor of the overall performance of an automatic flight control system or of the pilot during the landing maneuver. The display processes signals from the monitor and operates thereon to display a representation of the runway, the expected landing point thereon and the relative uncertainty that the aircraft will land on the predicted spot. After landing the display may show the position of the aircraft on the runway and the expected lateral excursion thereof plus a discrete display of the distance the aircraft will travel before it can be stopped. Other discrete displays are also provided at critical times either to compliment the normal display or in substitution therefor.

3,789,357

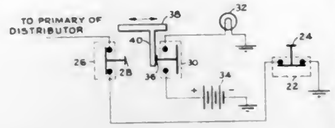
SAFETY APPARATUS FOR DUMP TRUCKS

Albert W. Fritz, Jr., 411 Pear St., Pompano Beach, Fla.

Filed Nov. 8, 1972, Ser. No. 304,722

Int. Cl. B60q *1/00*

U.S. Cl. 340—53 **7 Claims**



Safety apparatus for a dump truck for indicating both opening of the tailgate and lifting of the dump truck bed if the tailgate is closed. A first switch is closed by lifting the bed. A second switch, in series with the first switch, is normally closed and is opened by opening the tailgate. The first and second switches are connected in series with the distributor of the truck, to stall the engine if the bed is lifted while the gate is closed. A second safety circuit includes a switch connected to generate a signal, such as by lighting a lamp, when the tailgate is opened.

3,789,358

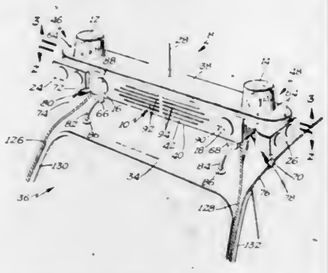
POLICE UTILITY BAR

Richard D. Ellis, 6714 Dudley Ave., North, Minneapolis, Minn.

Filed Feb. 23, 1972, Ser. No. 228,666

Int. Cl. B60q *1/52*

U.S. Cl. 340—87 **6 Claims**



A police utility bar arranged to be mounted across the roof of a police car including a generally "T" shaped hollow housing, twin rotating lights, and a radio antenna mounted on the top surface of the housing, front running lights and a siren mounted in apertures in the front side of the housing, rear running lights mounted in apertures in the rear side of the housing, twin search lights pivotally mounted on the ends of the "T" shaped housing, and two mounting bosses arranged on the bottom surface of the housing to mount and support the utility bar on the roof of the police car in connection with arms extending from the bosses to the roof of the police car and in connection with straps extending from the bosses to the rain gutter of the police car with the lights and siren arranged to be operated and controlled from within the police car.

3,789,359

SYNCHRONISM INDICATOR FOR A CONVOLUTIONAL DECODER

George Cyril Clark, Jr., Indialantic, and Robert Curtis Davis, Melbourne Beach, both of Fla., assignors to Harris-Intertype Corporation, Cleveland, Ohio

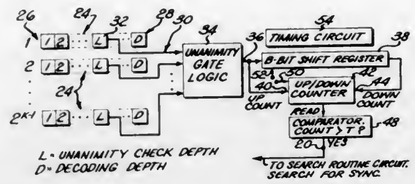
Filed Oct. 4, 1972, Ser. No. 294,768

Int. Cl. G08c *25/00*; **H04l** *1/10*

U.S. Cl. 340—146.1 D **9 Claims**

Apparatus for synchronizing a decoder of convolution codes with a received stream of convolutional code data.

Synchronization is achieved with respect to such problems as bit polarity inversion and incorrect boundaries of branch intervals by examining a number of trial message sequences. The trial message sequences are obtained by an algorithm suggested by Viterbi involving selection of one survivor sequence terminating in each data state of the code. When the decoder is synchronized with the received data stream, the survivor data sequences are very probably all identical at a branch interval near the older-data end of the sequences. When the decoder is not synchronized, the survivor sequences, with high



probability, differ from each other at that branch interval. Loss of synchronism is detected by simultaneously examining the survivor sequences at a branch interval located at a selected number L of branch intervals before the last-received data, L being less than or equal to the decoding depth. If the survivor sequences are not unanimous at depth L a count is registered. If the number of such counts occurring within a test period of B successive branch intervals exceeds a predetermined threshold T, branch synchronism is presumed to be incorrect and a search is initiated for correct synchronism.

3,789,360

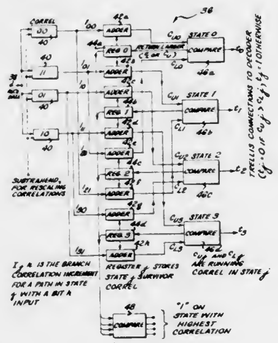
CONVOLUTIONAL DECODER

George Cyril Clark, Jr., Indialantic, and Robert Curtis Davis, Melbourne Beach, both of Fla., assignors to Harris-Intertype Corporation, Cleveland, Ohio

Filed Oct. 13, 1972, Ser. No. 297,404

Int. Cl. H04l *1/10*; **H03k** *13/34*; **G08c** *25/00*

U.S. Cl. 340—146.1 AQ **28 Claims**



A decoder for correcting and decoding convolutional data. Decoding of each digit of sequentially received data is postponed until a plurality of subsequent digits have been received. A message digit is then decoded by comparing the received sequence of data with a limited number of possible messages. The possible message which correlates best with the sequence of convolutional data that was received is temporarily assumed to be the correct sequence for purposes of decoding only the first message digit or perhaps the first few message digits of the data sequence currently being considered. The limited number of possible messages to be compared with the received data are selected at each branch interval by choosing one sequence terminating in each data state. During decoding, the possible messages are represented as sequences of branch transitions among a predetermined number of data states. The transitions among states are traced step by step through the possible message sequences to ascertain the data state of a survivor sequence at the decoding depth. The data state of the highest correlated survivor path is then interpreted into a decoded message bit.

3,789,361

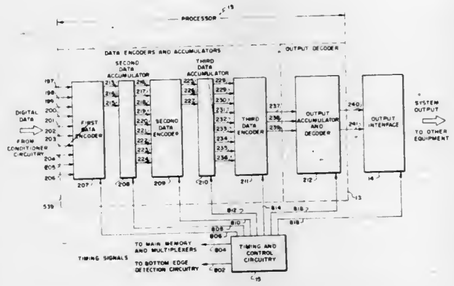
RECOGNITION SYSTEM AND PROCESSOR

Edward Cortez, Rockville, Md., assignor to Fairchild Industries, Inc., Germantown, Md.

Filed Apr. 17, 1972, Ser. No. 244,504

Int. Cl. G06k *9/12*

U.S. Cl. 340—146.3 AQ **9 Claims**



A recognition system for viewing and processing information on an article such as a letter or the like including an optical system for viewing the information, a diode array for converting the viewed image of the information into analog electrical signals, an amplifier for amplifying the analog electrical signals, an input conditioner for converting the amplified analog electrical signals into digital signals and a processor for processing the digital signals to compensate for errors which might be present in the information on the article and in the analog and digital signals.

3,789,362

INDICATING SYSTEM WITH LUMINOUS ELEMENTS

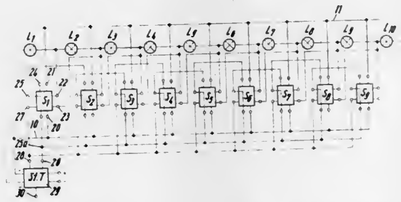
Hans Proiss, and Wilhelm Hegeler, both of Hildesheim, Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Germany

Filed May 10, 1972, Ser. No. 251,901

Claims priority, application Germany, May 13, 1971, 2123736

Int. Cl. H04f *1/00*

U.S. Cl. 340—147 LP **10 Claims**



To control luminous elements, such as small lamps to indicate the received frequency on a scale of a communication receiver, by means of miniaturized electronic circuits without mechanically movable switches, the lamps are connected in a

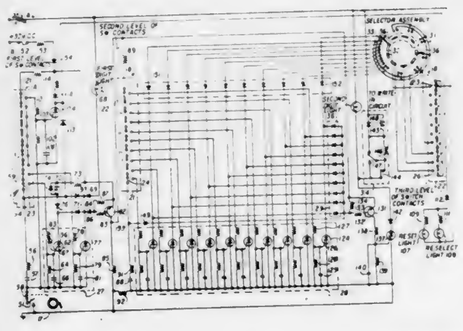
series circuit across a source of supply. Solid state switches are connected to the junctions of the lamps in the series circuit, and having two states, the switches being so controlled that all switches preceding one which is connected to one source terminal are likewise connected to that one source terminal and all switches subsequent to the one which is connected to the one source terminal are connected to the other source terminal, so that only a single lamp will light.

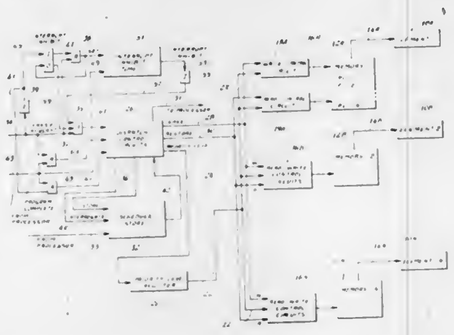
3,789,363

SELECTOR SYSTEM FOR AUTOMATIC PHONOGRAPHS

Ralph E. Petri, Chicago, Ill., assignor to Rock-Ola Manufacturing Corporation, Chicago, Ill.

Filed Oct. 13, 1972, Ser. No. 297,423
Int. Cl. G11b *19/08*; H04g *3/02*
U.S. Cl. 340—162 **17 Claims**





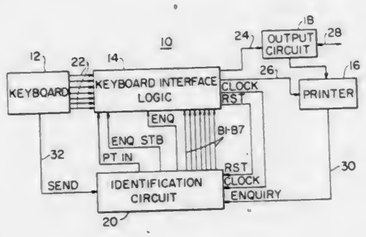
A selector system for coin-operated automatic phonographs employing a plurality of manually operated pushbutton control switches, representing selection digits in conjunction with associated electronic circuitry having a "memory" or information storage capability whereby the activation of a record selector assembly and transfer mechanism to effect the play of a selected recording is preconditioned on predetermined operational sequencing of multiple control switches and circuits as programmed by specific digit combinations.

3,789,364

ADDRESS CODE TERMINAL

Donald J. Moses, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Mar. 17, 1972, Ser. No. 235,597
Int. Cl. H04q *3/00*
U.S. Cl. 340—166 R **10 Claims**



An identification circuit for use in a remote unit, such as a data terminal, is disclosed. The circuit includes a matrix assembled on a printed circuit board and associated logic means. The matrix includes a series of strips having holes. Message programming is accomplished by inserting a diode between corresponding holes of two strips to achieve proper row-column connections. The logic means causes a signal to be applied to the rows of the matrix, one at a time, and the signal appearing at the columns is the desired identification signal. One of the matrix columns is assigned to a stop bit and when this stop bit is detected, the logic means ceases applying the signals to the matrix rows and indicates that the identification message is completed.

3,789,365

PROCESSOR INTERRUPT SYSTEM

Dixson Teh-Chao Jen, Monroe, and Amram Zvi Lotan, Stamford, both of Conn., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed June 3, 1971, Ser. No. 149,474
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **16 Claims**

A method and apparatus for reducing the time required by a data processing system to perform interrupt save and restore operations. The number of required interrupts is reduced by delaying the input processing of service requests by a time which is less than the character time of the fastest device being served by the processor. At the end of the delay interval, an interrupt is generated, and all accumulated service requests processed at once. If the running program is completed during the delay interval, then all waiting service requests are processed at that time. The number of required interrupts is thus significantly reduced.

A memory device is provided for each processor element having values which must be saved when an interrupt occurs. When an interrupt occurs, the values in the elements are simultaneously written into the corresponding memory. When execution of the interrupted program is to resume, the stored values are simultaneously read back into the elements. Each memory may have a plurality of positions so as to permit the stacking of interrupts. The positions may correspond to program priority levels and the reading of information into, or the transfer of information from, a memory may be under control of a program priority indication.

3,789,366

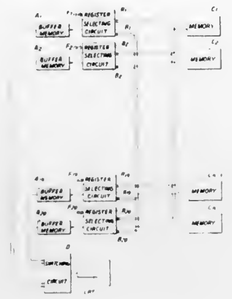
RANDOM-ACCESS MEMORY DEVICE USING SEQUENTIAL-ACCESS MEMORIES

Takayuki Itoh, Kawasaki, Japan, assignor to Takachiho Koeki Kabushiki Kaisha, Osaka-shi, Japan

Continuation-in-part of Ser. No. 26,881, April 9, 1970, abandoned. This application Aug. 15, 1972, Ser. No. 280,798
Claims priority, application Japan, Apr. 18, 1969, 44/29647
Int. Cl. G06f *3/14*; G11c *21/02*
U.S. Cl. 340—172.5 **3 Claims**

A random-access memory device using at least one circulating main memory having a plurality of memory zones al-

located sequentially, and a plurality of circulating buffer memories each having a memory capacity equal to one-*h* th the memory capacity of the circulating main memory and each circulating in the same clock timing as the circulating main memory, the "h" being an integer more than two. Blocks of binary information stored in the main memory are successively read out to selected ones of the buffer memories by



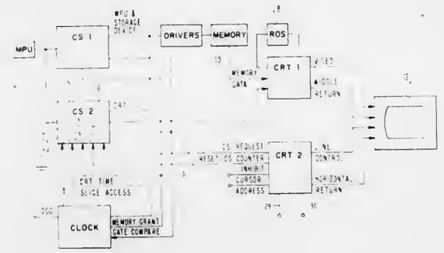
selecting corresponding ones of the memory zones in response to zone selecting coded signals. The number of buffer memories is equal to twice the number of all memory zones of the circulating main memory. The buffer memories are divided into two groups of the same number. The contents of the circulating main memory or memories can be continuously read out by selecting one of the two groups and selecting the buffer memories of the selected group in the desired order.

3,789,367

MEMORY ACCESS DEVICE

Eugene Francis Dumstorff; John Howard Iverson; Phillip Christian Schloss, and Philip Chuck-Yueh Wong, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 29, 1972, Ser. No. 267,264
Int. Cl. G06f *3/00*, *13/00*
U.S. Cl. 340—172.5 **9 Claims**



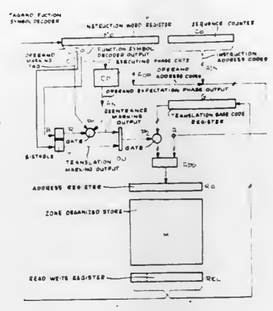
The specification describes a memory access technique wherein a display or other controlled device accesses sequential locations in memory without control unit intervention following an initial address and a selection of operating mode. An interfaced display continously displays data, status, prompting and/or operator guidance information from selected memory locations independent of the system control unit following mode select and an initial address. The display as shown includes a wiggle sweep cathode ray tube display controlled by a series of counters.

3,789,368

PROGRAMME TRANSLATION AND REENTRANCE DEVICE

Denis Derville, Paris, France, assignor to Compagnie International Pour L'Information, Louveciennes, France

Filed Apr. 12, 1972, Ser. No. 243,304
Claims priority, application France, Apr. 21, 1971, 7114102
Int. Cl. G11c *7/00*
U.S. Cl. 340—172.5 **5 Claims**



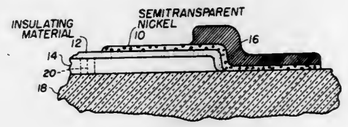
In a multi-programmation digital data system, each translation of a programme with respect to a store is controlled by an organization comprising a translation base code register, the content of said register pointing the zone of the store allotted to the instructions and data of the concerned programme and an adder which adds the content of said register to the addresses of the words of the said concerned programme prior their application to the address register of the store. According to the invention, there is provided a bistable member one of the outputs of which, when activated, marks a condition of translation of a programme and the other output of which, when activated, marks a condition of reentrance of a routine of a programme. Said bistable member is set at the beginning of a translation or a reentrance operation in the system and controls a logical organization which adds the content of said register to any and all addresses for a translation operation and to the addresses which, in a reentrant routine, concern parameters and variables whilst avoiding such an addition to the addresses concerning invariants of the routine.

3,789,369

THIN FILM MIS STORAGE DIODE

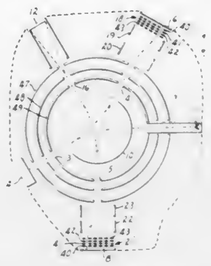
Derek L. Lile, and David A. Collins, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 10, 1972, Ser. No. 270,422
Int. Cl. G11c *11/36*, *11/42*
U.S. Cl. 340—173 LS **10 Claims**



The method of storing information in a MIS light sensitive diode whose photovoltaic response may be altered reproducibly and reversibly by irradiation with suitable wavelength electromagnetic radiation or the temporary application of an electric voltage.

3,789,370
MULTIPLE ELECTRON MIRROR APPARATUS AND METHOD
Jaime A. Bari; Kent N. Maffitt, both of Minneapolis, and Jerry A. Sievers, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed July 18, 1972, Ser. No. 272,779
Int. Cl. G11c 11/26
U.S. Cl. 340—173 CR 26 Claims



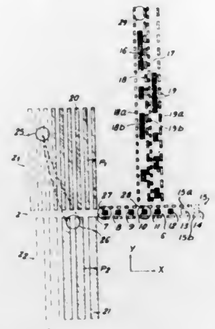
An information storage and retrieval system with a large storage capacity and having a write and a read mode of operation is provided by using a plurality of electron mirrors. Preferably three electron mirrors are used of which one is a modulating electron mirror and the other two are storage electron mirrors with each storage mirror having a plurality of storage areas. The electron beam is directed by a magnetic prism and appropriate biasing of the electron mirrors. During the write mode, the electron beam is mirrored by the modulating mirror and a page (a plurality of bits) of input information presented as a pattern of charge at the modulating mirror modulates the beam. The mirrored electron beam is directed to an addressed storage area of a selected storage mirror where the entire page of information contained in the modulated beam is stored as a pattern of charge. The same page can also be stored at the second storage mirror to improve the reliability of the apparatus during the read mode. During the read mode the electron beam is mirrored without modulation except at a storage mirror to be read where it is directed to a storage area for modulation and is then presented to a readout array where all bits of information represented by the modulation are read simultaneously.

3,789,371
MOSFET MEMORY CELL
Seymour Markowitz, Palos Verdes, Calif., assignor to Lockheed Electronics Company, Inc., Plainfield, N.J.
Filed Nov. 20, 1972, Ser. No. 308,037
Int. Cl. G11c 13/00
U.S. Cl. 340—173 R 4 Claims



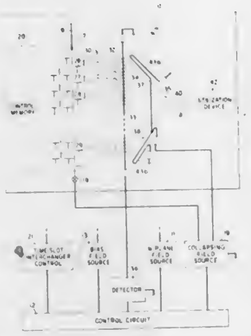
A MOSFET memory cell system wherein a plurality of one transistor per bit cells is combined with a three transistor switching circuit.

3,789,372
SELF TRACKING BEAM ACCESSIBLE MEMORY AND ADDRESSING METHOD THEREFOR
Jean C. Lejon, 16, boulevard Soult, 75012 Paris, France
Filed Jan. 29, 1973, Ser. No. 327,811
Claims priority, application France, Jan. 27, 1972, 7202676
Int. Cl. G11c 5/02, 7/00
U.S. Cl. 340—173 CR 17 Claims



A light beam or an electron beam is deflected by analog methods to one of a plurality of acceptance zones, each serving a multiplicity of words arrayed in one dimension of the memory and accessed by a word selection line or stripe directed in the other dimension of the array. Each word selection line is an extension of a median line of the acceptance zone to which it relates. Pairwise distinctive guiding means are provided in each acceptance zone on either side of the median and as borders on either side of each word selection stripe, of such a kind as to generate a pair of distinctive signals when swept by the access beam. From these signals an error signal is derived and applied to the deflection circuits to provide tracking of the beam. Counting spots on the word selection stripe enable digital circuits to stop the sweep at the precise word address, after which the word is swept to read or write information. Beam tracking may also be provided for word stripes in the same manner as for word selection stripes.

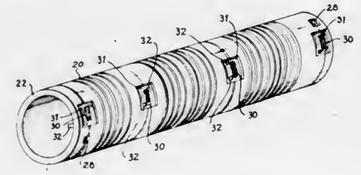
3,789,373
MAGNETIC, SINGLE WALL DOMAIN, OR LOGIC USING CHEVRON DOMAIN PROPAGATING ELEMENTS
Peter Istvan Bonyhard, Edison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 6, 1972, Ser. No. 304,049
Int. Cl. G11c 11/14, 19/00
U.S. Cl. 340—174 TF 8 Claims



Magnetic single wall domain expanders in adjacent domain propagation channels are edge-merged into a common detec-

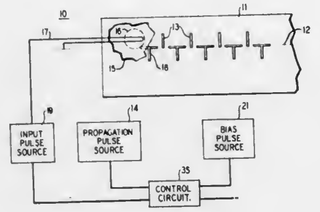
tor stage so that a domain from any of the channels is electrically detectable at that stage. A domain compressor provides magnetic output. The channels in one embodiment are control-memory-gated outputs from different stages of a shift register that is operable in a time slot interchanging mode.

3,789,374
DOMAIN WALL PROPAGATING DEVICE
Philip Sherman, San Diego, Calif., assignor to Instrument Development Laboratories, Inc., Wantagh, N.Y.
Filed Sept. 14, 1972, Ser. No. 288,895
Int. Cl. G11c 19/00, 11/04
U.S. Cl. 340—174 PW 9 Claims



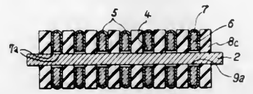
A domain wall propagating device with a magnetic wire wound in grooves on a substrate. Coils wound around the wire are placed in recesses in the substrate. A propagating winding is wrapped around the substrate, and the device may be covered with a magnetic shielding layer. To avoid damaging the magnetic wire during the fabrication of the device, the coils are wound on a tubular mandrel through which the magnetic wire extends. The magnetic wire may be supported in a channel formed between a pair of non-magnetic wires bonded together.

3,789,375
SINGLE WALL DOMAIN NUCLEATOR
Yu-Ssu Chen, New Providence; Joseph Edward Geusic, Berkeley Hgts.; Terence John Nelson, New Providence, and Herbert Meyer Shapiro, Bridgewater, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 3, 1972, Ser. No. 303,327
Int. Cl. G11c 11/14
U.S. Cl. 340—174 TF 11 Claims



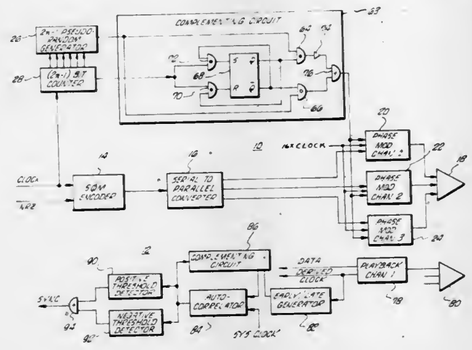
A new mechanism for bubble domain generation permits nucleation with less power than previously expected. A nucleation pulse of a particular form enables the mechanism to be employed without reducing the effective difference between the propagation and nucleation thresholds which impart stability to bubble arrangements.

3,789,376
MATRIX MEMORY DEVICE OF HIGH BIT DENSITY
Shintaro Oshima; Toshihiko Kobayashi, both of Tokyo; Tetsusaburo Kamibayashi, Niza; Akira Okada; Yoshihisa Komazawa, both of Tokyo, and Keigo Komuro, Kanagawa-ken, all of Japan, assignors to Kokusai Denshin Denva Kabushiki Kaisha, Tokyo-to, Japan
Continuation-in-part of Ser. No. 12,393, Feb. 18, 1970, abandoned. This application Nov. 27, 1972, Ser. No. 309,679
Int. Cl. G11c 11/14, 11/04
U.S. Cl. 340—174 PW 5 Claims



A matrix memory device comprising a set of parallel row magnetic lines arranged equally spaced and two sets of parallel column conductive lines arranged equally spaced so as to intersect orthogonally with the row magnetic lines so that one and the other of the two sets of parallel column conductive lines hold insulatively the set of parallel row magnetic lines therebetween to provide memory cells at intersections between the row magnetic lines and the column conductive lines, where at least one set of the two sets of parallel column conductive lines comprises parallel ribbon conductors each having a height more than twice a width thereof and coated with a ferromagnetic thin film except an edge line directed to the row magnetic lines and fixed in an insulation sheet to reduce effectively interference between adjacent memory cells.

3,789,377
PSEUDO-RANDOM SEQUENCE SYNCHRONIZATION FOR MAGNETIC RECORDING SYSTEM
Kermit A. Norris, Duarte, Calif., assignor to Lockheed Electronics Company, Inc., Burbank, Calif.
Filed May 26, 1972, Ser. No. 257,374
Int. Cl. G11b 5/02
U.S. Cl. 340—174.1 G 12 Claims



A synchronization technique for multiple channel magnetic recording systems, is disclosed. The synchronization technique involves the phase modulation of data to be recorded on each of several parallel recording channels in accordance with a repeated pseudo-random sequence. Upon recovery of recorded signals in the respective channels, the phase modulation is detected to reconstruct the pseudo-random sequence which is then auto-correlated to produce a synchronization pulse once each cycle of the pseudo-random

sequence. The synchronization pulses may be employed to overcome the effects of tape skew, jitter, or the like.

3,789,378

TRANSDUCER POSITIONING MECHANISM

Giorgio Bonzano, Montalto Dora; Pier Carlo Lesca, Palazzo Canavese, and Luigi Ponzano, Ivrea, all of Italy, assignors to Ing. C. Olivetti & Co. S.p.A., Ivrea (Torino), Italy

Filed May 23, 1972, Ser. No. 256,022

Claims priority, application Italy, May 24, 1971, 68737 A/71

Int. Cl. G11b *5/56*

U.S. Cl. 340—174.1 C 4 Claims



In a magnetic disc store system, transducers are positioned over tracks on the discs by a stepping motor controlled by a central unit which sends signals over three channels commanding first and second pulse frequencies to be emitted from a pulse generator, which frequencies are applied to a bidirectional counter. The counter controls the motor and the pulses are fed back to the central unit and are there counted to indicate actual transducer position. When the transducers reach the selected position, fine positioning is effected by a push rod which engages a wedge between teeth of a rack attached to the transducers. There is further disclosed an improved mechanism for interchanging disc cartridges with automatic opening and closing of the shutter through which the transducers are introduced and positioned.

3,789,379

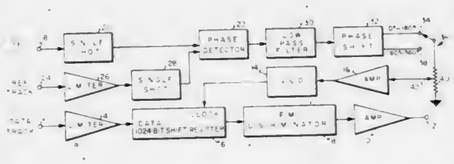
COMPENSATION OF REPRODUCED SIGNAL BY MEASURING A DEVIATION OF RECORDED REFERENCE SIGNAL

Ivars Peter Breikss, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 23, 1973, Ser. No. 335,307

Int. Cl. G11b *5/44*

U.S. Cl. 340—174.1 H 6 Claims



A playback circuit has a first frequency modulated discriminator for discriminating a reference signal reproduced from a recording medium and a second frequency modulated discriminator for discriminating a data signal reproduced from the same recording medium as the reference signal. A shift register storage means is arranged to store the reproduced data signals and to apply them to the second discriminator at a rate determined by a clock signal produced by a voltage controlled oscillator driven by an output signal from the first discriminator.

3,789,380

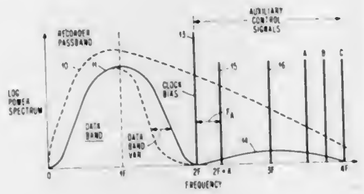
DIGITAL RECORDING AT TWICE NYQUIST BANDWIDTH

Maxwell R. Cannon, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 229,214, Feb. 18, 1972. This application Apr. 9, 1973, Ser. No. 349,574

Int. Cl. G11b *5/02*

U.S. Cl. 340—174.1 G 48 Claims



A digital magnetic recorder uses up to twice the Nyquist bandwidth of a data signal, plus a clock signal at a frequency exactly equal to the bit rate for reliably exchanging data signals with a magnetic media. The frequency response of the recording system is greater than twice the Nyquist bandwidth of the data signals to be recorded. Optionally, additional control signals at frequencies above or below the clock frequency but within the available recorder bandwidth may be recorded. Preferably, in a multitrack magnetic recording system, a signal component is added at a frequency near the clock frequency such that the difference between this signal and the clock has a wavelength on the magnetic media greater than the maximum skew of the multi-track system. Such signal component is usable as a resynchronization pattern. Additionally, write errors are detected during recording with special control indicia recorded on the media indicating such errors. Various forms of indicia are described including special data patterns, special signal components, and the like.

3,789,381

DEVICE FOR MEASURING THE SPECIFIC CONSUMPTION OF INTERNAL COMBUSTION ENGINES

Jean Paul Sibeud, Lyon, France, assignor to Automobiles M. Berliet, Lyon, France

Division of Ser. No. 43,790, June 5, 1970. This application Aug. 30, 1972, Ser. No. 284,711

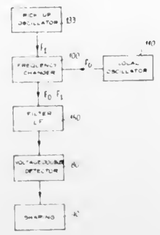
Claims priority, application France, June 6, 1969, 69/18802; Feb. 11, 1970, 70/04845

Int. Cl. G08c *19/12, 19/06*

U.S. Cl. 340—207 R 2 Claims

In a device for the accurate measurement of the specific fuel consumption of internal combustion engines, which utilizes a scale having a pointer movable in front of a dial, the measuring scale carries detector or pick-up means comprising each a first transistorized oscillator circuit with a frequency modulated inductance-capacitance circuit, a second oscillator circuit generating a fixed reference frequency signal, a frequency changer receiving the first and second oscillator circuits signals, a low pass filter means to which is transmitted a reference frequency signal which corresponds to the difference of frequencies of the signals received by the frequency signal, a signal detector connected to the filter and rectifying

through a doubler the HF voltage having passed through the filter and a shaping device connected to the output of the detector for delivering at a low impedance value a high-amplitude logic signal.



3,789,382

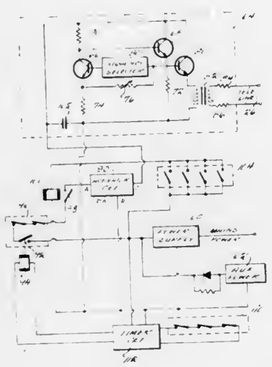
ALARM SYSTEM WITH CENTRAL STATION MONITORING OF KEY OPERATED LOCKS OF A NUMBER OF REMOTE STATIONS

Warren J. Oestreicher, Salt Lake City, Utah, assignor to Centralalarm International, Inc., Salt Lake City, Utah

Filed Aug. 11, 1972, Ser. No. 279,782

Int. Cl. G08b *13/06*

U.S. Cl. 340—213 R 13 Claims



An alarm system with a plurality of sensors at a protected premises, a transmitter circuit connected to the sensors for transmitting a pure sinusoidal signal whose frequency identifies the premises and for ending transmission or modulating the sinusoidal signal whenever one of the sensors detects an alarm condition, a central station connected to a number of receivers for providing an alarm signal when a sensor detects an alarm, a telephone line connecting the transmitter to the central station and an activating circuit at the protected premise including a reed switch mounted within a housing on the interior of the door with a momentary switch and light mounted on the same housing, a key operated tumbler having a magnet mounted thereon on the exterior of the door opposite the housing for closing the reed switch to activate the system.

3,789,383

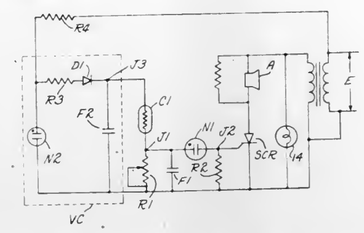
SMOKE DETECTOR WITH MEANS FOR COMPENSATING FOR VARIATIONS IN LIGHT SOURCE BRIGHTNESS DUE TO LINE VOLTAGE VARIATIONS

Alfred W. Vasel, Abington, Mass., assignor to Pyrotector Incorporated, Hingham, Mass.

Filed Dec. 13, 1971, Ser. No. 207,461

Int. Cl. G08b *21/00*; G05f *3/04*

U.S. Cl. 340—237 S 5 Claims



A smoke detector having voltage control circuit for compensating for changes in light brightness caused by variations in line voltage. The voltage control circuit comprises a voltage regulating circuit that provides a higher voltage across the photo-cell detector when the line voltage is lower than normal, and vice versa.

3,789,384

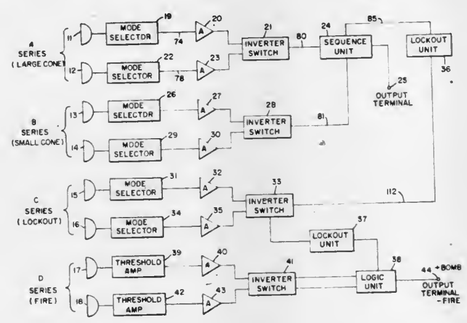
SECURITY SYSTEM OPERATED BY CHANGES IN LIGHT AT SPECIFIED LOCATIONS

Artie E. Akers, Long Beach, Calif., assignor to Lawrence Security Inc., San Francisco, Calif.

Continuation-in-part of Ser. No. 140,808, May 6, 1971. This application Dec. 29, 1972, Ser. No. 319,445

Int. Cl. G08b *13/00*

U.S. Cl. 340—258 B 19 Claims

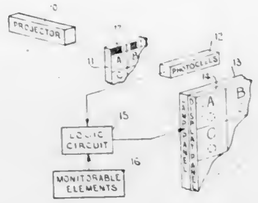


A security system for the detection of moving targets such as intruders and also of fire and explosions. A plurality of sensors such as photoelectric cells or infrared detectors are focused in an inner and outer pattern, such as pairs of nearly coaxial cones, of different slope, for example, to create inner and outer zones of intrusion. The outputs from the sensors are coupled through a sequencing unit which is programmed to yield an output only when intrusion into the inner zone follows intrusion into the outer zone no more quickly than after a predetermined time delay. A fire detection system places sensors in an area to be protected, utilizing the same general type of operation as the intruder protection with some differences. A plurality of lockout sensors sensing ambient light conditions to lockout the sequencing units of the intrusion detection system and fire detection system if the changes are due to changes in the ambient light.

3,789,385
ERROR INDICATING DISPLAY

Christopher Philip Burton, Alderley Edge, England, assignor to International Computers Limited, London, England

Filed June 7, 1972, Ser. No. 260,423
Claims priority, application Great Britain, June 10, 1971, 27,364/71
Int. Cl. G09f 9/42
U.S. Cl. 340—324 R 3 Claims

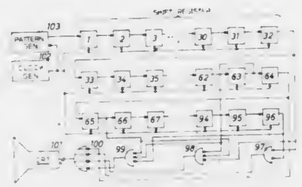


In a display system for indicating error conditions in groups of registers. The names of a group of registers are carried on an exchangeable slide from which they are projected on to a screen. An array of lamps is positioned behind the screen, one lamp being associated with each register name. A code area on each slide is sensed to identify the particular group of registers corresponding to the names on the slide and to control the connection of each one to its associated lamp thus to provide a visual indication of the state of each register in the group.

3,789,386
RESTORATION SYSTEM FOR PATTERN INFORMATION USING AND-TYPE LOGIC OF ADJACENT BITS

Takayuki Itoh, Kawasaki, Japan, assignor to Takachiho Koeki Kabushiki Kaisha, Osaka-shi, Japan

Filed June 30, 1972, Ser. No. 268,137
Int. Cl. G06f 3/14
U.S. Cl. 340—324 AD 6 Claims

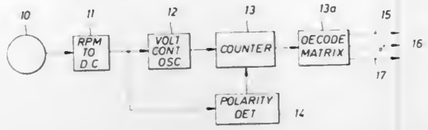


A restoration system is disclosed for restoring omitted dots of dot-typed patterns indicated by an alternate arrangement of black dots and white dots in bilateral scanning lines and vertical scanning lines in which some dots of each of the dot-typed patterns omitted in a pattern generator or in the transmission medium because of noise are restored irrespective of the states of the dots if upper and lower dots and right and left dots adjacent to each of the omitted dots assume predetermined states determined in consideration of the characteristics of the patterns. The dot-typed omitted pattern is temporarily stored in a shift register, and AND logic operations are performed by use of AND circuits to detect the predetermined states.

3,789,387
DYNAMIC MOTION DISPLAY SYSTEM

John B. Hurst, 6445 Brompton St., West University Pl., Dickinson, Tex.

Continuation of Ser. No. 78,881, Oct. 7, 1970, abandoned.
This application Aug. 16, 1972, Ser. No. 281,209
Int. Cl. G01f 15/06; G09f 9/36
U.S. Cl. 340—325 13 Claims

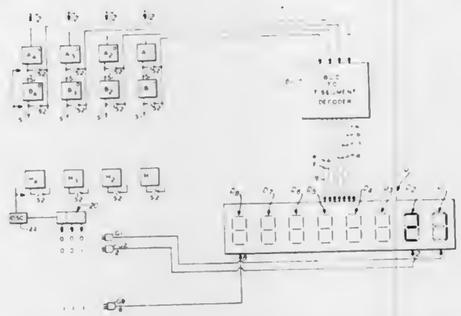


A display system is disclosed for illustrating rotation of pumps, motors or the like, or flow of fluids through pipes in two directions. An electrical signal is derived from the motion device in the form of pulses which are proportional to speed, flow or any other measured parameter. The derived pulse is converted to sequentially coded signals which, in turn, are used to sequentially illuminate a display means. The display means may take the form of superimposed luminescent panels respectively having luminescent indicia sequentially displayed thereon so that sequential illumination of the panels will create the illusion of motion. Alternatively, the display means can be composed of a display member in which sequential luminescent indicia are respectively illuminated by sequential operation of fiber optic bundles. In another alternative form, electrically illuminescent paint or crystals may be disposed on a panel in an indicia for sequential illumination to create the illusion of motion.

3,789,388
APPARATUS FOR PROVIDING A PULSED LIQUID CRYSTAL DISPLAY

Albert H. Medwin, Whippany, N.J., assignor to Ragen Semiconductor, Inc., Whippany, N.J.

Filed Mar. 17, 1972, Ser. No. 235,643
Int. Cl. G09f 9/32
U.S. Cl. 340—336 1 Claim

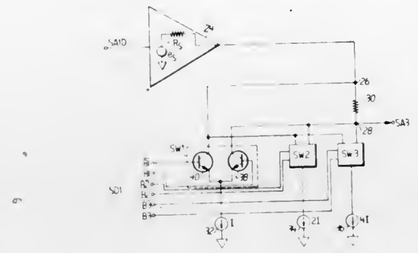


A body of liquid crystal material, normally in a transparent state whose turn-on period for changing into a light scattering state is less in duration than its decay period for returning to the transparent state, is supplied with an intermittent electric field which varies from a potential which is below the turn-on threshold potential of the liquid crystal material to a potential which is equal to or above the threshold or turn-on potential when the light scattering state is desired. The intermittent electric field is refreshed at a sufficiently rapid rate such that to the eye of a human observer the body of liquid crystal material appears to be "on" or in the light scattering state continuously.

3,789,389
METHOD AND CIRCUIT FOR COMBINING DIGITAL AND ANALOG SIGNALS

John G. Lenhoff, Jr., Linthicum, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 31, 1972, Ser. No. 276,288
Int. Cl. H03r 13/17
U.S. Cl. 340—347 AD 12 Claims

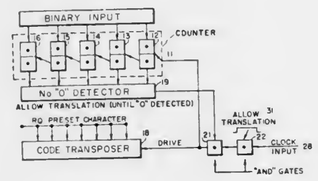


A method and circuit for varying the amplitude of an analog signal in response to a digital signal particularly suited for use in subranged analog to digital converters. The analog signal is applied to one of two junctions interconnected by an impedance such as a resistor and an output signal is taken from the other of the two junctions. A constant current from one or more sources is selectively switched from one of the junctions to the other in response to the digital signal to thereby modify the amplitude of the analog signal by a discrete amount. The total current flow at the junction to which the analog signal is applied and attributable to the constant current source remains essentially constant irrespective of switching thereby minimizing the effects of switching transients. When utilized in connection with a subranged analog to digital converter, the invention eliminates the need for a differential amplifier or other subtracting circuit.

3,789,390
SERIAL CODE TRANSLATOR

Donald C. Burkness, Silver Spring, and William W. Warlick, Jr., Annapolis, both of Md., assignors to the United States of America as represented by the Secretary of the Army

Filed Oct. 7, 1971, Ser. No. 187,246
Int. Cl. H04l 3/00
U.S. Cl. 340—347 DD 17 Claims

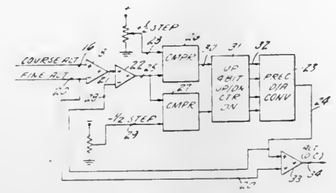


A serial scheme of translation between binary numbers and constant-ratio codes utilizing two storage devices and a train of clock pulses. As one storage device containing the number to be translated is counted down to a reference value, the other storage device is simultaneously counted up from a reference value to the equivalent number. If the number to be translated is a binary number, the equivalent number will be in constant ratio code, and vice-versa.

3,789,391
COURSE/FINE SYNCHRO ALTIMETER CONVERTER

Larry D. Brock, Collinsville; John E. Games, Granby, and John Saunders, East Hartford, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed July 3, 1972, Ser. No. 268,254
Int. Cl. H03k 13/02
U.S. Cl. 340—347 SY 8 Claims

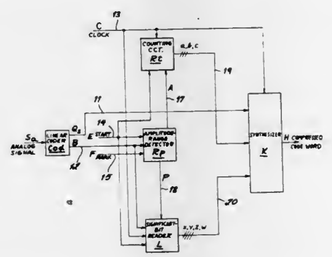


A DC signal representative of the rotary position of a fine synchro altimeter is subtracted from a DC signal representative of the angular position of a coarse synchro altimeter so as to provide a coarse staircase, the step positions of which are accurately aligned with the fine altimeter transition from maximum to minimum altitude indication. This staircase is used to select corresponding voltages, stepwise fashion, which are precisely generated so as to generate a staircase in which the voltage levels, as well as the positioning of the steps, are extremely precise. The fine altimeter voltage is added to the precise staircase so as to generate a precise DC signal of altitude. The voltage outputs of the fine synchro altimeter are resolved to a smooth, linear voltage as the function of altitude by means of electronic resolution equipment employing an RC/CR bridge, the input signals of which are reversed for a range of shaft angles displaced from 0° and 360° rotation; angular and voltage biases are also provided in this signal conditioning.

3,789,392
BINARY-CODE COMPRESSOR

Giampiero Candiani, Milan, Italy, assignor to Societa Italiana Telecommunicazioni Siemens S.p.A., Milano, Italy

Filed Sept. 2, 1971, Ser. No. 177,325
Claims priority, application Italy, Sept. 15, 1970, 29740 A/70
Int. Cl. H03r 13/24
U.S. Cl. 340—347 DD 13 Claims



A 12-bit word, including a polarity of sign bit Q_s and up to seven initial zeroes preceding a group of significant bits, is converted into a compressed eight-bit word which retains the sign bit Q_s in first position and four significant bits X, Y, Z, W in the last positions; the intervening three bits are the binary equivalent of the number of initial zeroes. These intervening

bits are generated by a three-stage reverse counter which is loaded by a starting pulse after arrival of the sign bit and is stepped by successive clock pulses, stopping after seven cycles at the count 0 unless cut off earlier by the arrival of the first "one" following the sign bit in the original word. This first "one", or a timing pulse occurring seven cycles after the starting pulse, initiates the stepping of a shift register in which the bits X, Y, Z, W are entered for subsequent transfer to a synthesizing register also receiving the sign bit Q, and the reading of the reverse counter.

3,789,393

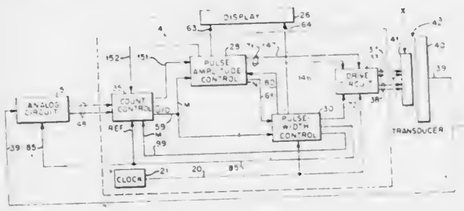
DIGITAL/ANALOG CONVERTER WITH AMPLITUDE AND PULSE-WIDTH MODULATION

Robert W. Tripp, Tuckahoe, N.Y., assignor to Inductosyn Corporation, Valhalla, N.Y.

Filed Oct. 26, 1972, Ser. No. 301,030

Int. Cl. H03k *13/02*

U.S. Cl. 340—347 DA **10 Claims**



Disclosed is a digital-to-analog position-measuring apparatus in which the position-measuring transducer is energized by a combination of differently modulated signals. In one preferred embodiment of the present invention, trigonometrically related (sine-cosine) pulse-width modulated signals are trigonometrically summed with pulse-amplitude modulated signals. The pulse-amplitude modulated signals comprise the fine bits and the pulse-width modulated signals comprise the coarse bits of the apparatus of the preferred embodiment of the present invention.

3,789,394

DEVICE FOR THE EMISSION OF CURRENT-PULSE TRAINS PARTICULARLY BY TELEPHONE AND TELEPRINTER INSTALLATIONS

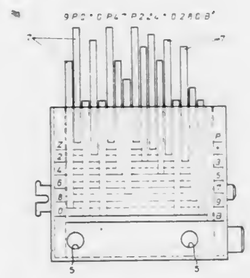
Anton Schaumann, 7701 Volkertshausen, Reuteberg, and Willi Weber, 7701 Volkertshausen, Boriesried, both of Germany

Filed Aug. 18, 1972, Ser. No. 281,959

Claims priority, application Germany, Aug. 27, 1971, 2142870

Int. Cl. G06f *3/02*

U.S. Cl. 340—365 R **35 Claims**



A device, especially adapted for incorporation in telephones and teleprinters in which a preset cassette is inserted into a reader and is operable to control pulse developing circuit means so as to emit a series of pulses programmed in conformity with the preset condition of the respective cassette.

3,789,395

ELECTRO-MECHANICAL POSITION INDICATOR

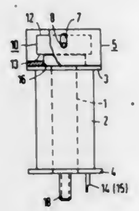
Hans Michels, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 29, 1972, Ser. No. 230,274

Claims priority, application Germany, Mar. 17, 1971, 212854

Int. Cl. G08b *5/24*

U.S. Cl. 340—373 R **6 Claims**



The indicator consists of a coil wrapped around an iron core and a visual target which is rotatably and displaceably supported and which contains a permanent magnet. Upon reversal of the magnetic field in the iron core produced by the coil, the permanent magnet of the visual target is repelled, rotated 180° by the magnetic forces and again attracted. The new position of the visual target is thereby fixed, even if current no longer flows through the coil.

3,789,396

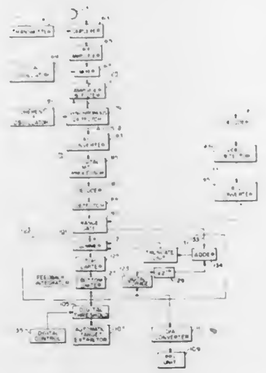
RADAR APPARATUS

John W. Taylor, Jr., Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 6, 1972, Ser. No. 232,150

Int. Cl. G01s *9/02*

U.S. Cl. 343—5 DP **18 Claims**



There is disclosed radar apparatus including a digital feedback indicator which, while including a minimum number of bits, is more precise, - for example, its precision is adequate for automatic target detection - more flexible and more stable than prior-art feedback integrators in which delay lines are used for storage elements. The apparatus includes a feedback

integrating network having digital storage in which is stored, simultaneously for each range cell, a number corresponding to the echo signal newly received at any instant and decremented numbers corresponding to the echo signals previously received. The integrator is supplied with signals of a limited dynamic range to prevent the detection of non-synchronous intereference pulses, regardless of their strength. The integrator includes a top limiter which prevents the accumulation of a strong synchronous echoes to an excessive stored value, a bottom limiter which assures the receipt by the storage of at least a minimum number, and bias which sets the median of the noise in the storage near the minimum number set by the bottom limiter. Two outputs of the feedback integrator are provided: an analog voltage proportional to the stored digital number representing the integrated echo signals, and a Yes-No decision as to whether the stored digital number exceeds a predetermined digital threshold number.

3,789,397

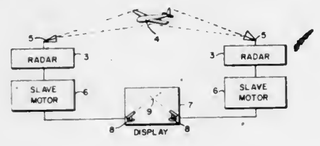
THREE DIMENSIONAL DISPLAY SYSTEM

James W. Evans, Largo, Fla., assignor to Athletic Swing Measurement, Inc., Clearwater, Fla.

Continuation-in-part of Ser. No. 858,628, Sept. 17, 1969, abandoned. This application Dec. 10, 1971, Ser. No. 206,615

Int. Cl. G01s *7/04*

U.S. Cl. 343—7.9 **4 Claims**



A display system for indicating in three dimensions and to a selected scale the position of a remotely observed body or bodies in three dimensional space, the system employing a three dimensional display region and at least two spaced, trainable laser beam assemblies, each of which directs a laser beam along a line which simulates to scale a line of actual direction to the body being observed, and the position of a body being indicated by spot illumination occurring at the intersection of the two beams.

3,789,398

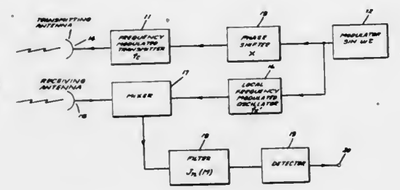
FM-CW RADAR RANGE SYSTEM

Stephen J. Erst, New Haven, Ind., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Mar. 12, 1959, Ser. No. 799,048

Int. Cl. G01s *9/24*

U.S. Cl. 343—14 **12 Claims**



5. A continuous wave radar system comprising: a source of sine wave signals; first means for frequency modulating a carrier frequency with said sine wave signals to provide a first frequency modulated signal; means for transmitting said first frequency modulated signal; second means for frequency modulating a carrier frequency with said sine wave signals to provide a second frequency modulated signal, the carrier frequency of said second frequency modulating means being the same as the carrier frequency of said first modulating means; phase shifting means coupled between said source of sine wave signals and one of said modulating means; means for receiving said first frequency modulated signal reflected from a distant object; means for mixing the received signal with said second frequency modulated signal; band pass filter means coupled to the output circuit of said mixing means and tuned to pass one side band component at least as high as the sixth contained in the output from said mixing means; and detector means coupled to said band pass filter means; and means for providing a fixed phase displacement between said transmitted signal and said other frequency modulated signal sufficient to provide in said one side band a first response peak at close range and a second response peak at a substantially greater range with no response peaks therebetween.

3,789,399

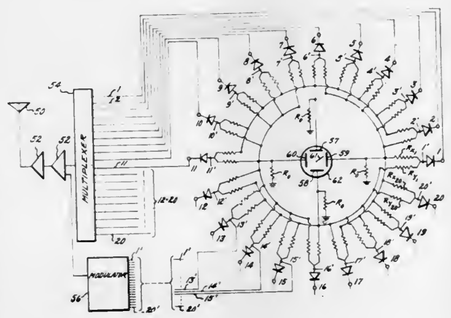
FREQUENCY DISCRIMINATOR DEVICE

Arthur L. Blymiller, Rome, and John E. Snodgrass, Oneida, both of N.Y., assignors to The United States of America as represented by the Secretary of the United States Air Force, Washington, D.C.

Filed Sept. 28, 1961, Ser. No. 141,548

Int. Cl. G01s *9/23, 9/24*

U.S. Cl. 343—14 **5 Claims**



1. A frequency discriminator for monitoring over a wide frequency range of radar pulsed transmission comprising multiplexing means for receiving a plurality of signal pulse trains having progressively differing pulse repetition rates, a plurality of filter means having progressively varying pulse frequency reception rates spanning the range of variation in the pulse repetition rates of said plurality of signal pulse trains, coupling means between said multiplexing means and said filter means whereby each pulsed signal is channelized by said multiplex means into the input of a corresponding channel filter means, a plurality of voltage resolving means receiving the output of at least three of said filter means, and means for indicating the voltage resolution pattern registered at said voltage resolving means.

3,789,400

APPARATUS FOR DESKEWING DATA SIGNALS IN A MULTI-TRACK RECORDING SYSTEM

Marion L. Towns, Bethany, Okla., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

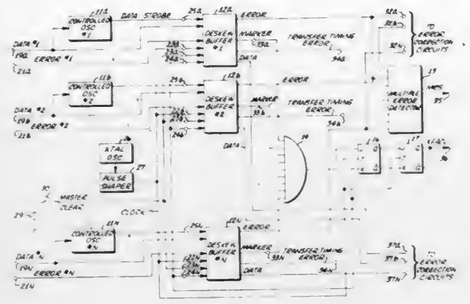
Filed Jan. 26, 1973, Ser. No. 326,707

Int. Cl. G11b *5/44*

U.S. Cl. 340—174.1 B **10 Claims**

Apparatus for deskewing data signals in a multi-track recording system uses a controlled oscillator and a deskewing

buffer for each of the data tracks. Each buffer includes a data shift register, an error shift register and a marker shift register with each register having a plurality of storage cells. The apparatus uses the controlled oscillator and the data signals to



produce marker bits in each buffer. The marker bits are used to synchronously move the error signals and data signals in the buffers and to generate a transfer signal each time a data character has been deskewed.

3,789,401

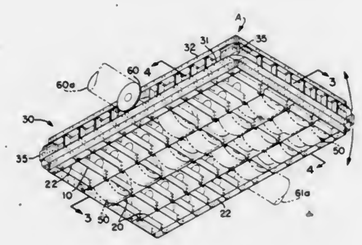
FRAME FOR LOW FREQUENCY SOURCE

John W. Behrendt, La Jolla, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 16, 1971, Ser. No. 115,355

Int. Cl. H04b *13/00*

U.S. Cl. 340—8 S **8 Claims**



A transducer array is supported by a plurality of interconnected longitudinal and lateral fiber-glass members which terminate in a rigid, rectangular frame work defining the limits of a transducer mounting area. All points of juncture between the fiber glass members and the rigid framework are frictionally secured to induce no coupling-induced internal stresses at the juncture points. By mounting the high-energy transducer elements on the fiber-glass members, a tendency for resonance and sympathetic vibration within the supporting structure is dampened to within tolerable limits. Contemporary, rigid frameworks, especially those frameworks that are welded together, resonate with the projection of high-energy acoustic power and tear themselves apart.

3,789,402

ELECTRONIC SIGNAL DEVICE AND METHOD

Richard D. Heywood, 1512 E. Dolphin, Mesa, Ariz., and Charles E. Seagle, 4686 Sycamore Dr., Salt Lake City, Utah

Filed Apr. 1, 1971, Ser. No. 130,284

Int. Cl. G08b *3/00*

U.S. Cl. 340—384 E **10 Claims**



A completely self-contained portable signal device and method including individually programmable timer circuitry which, for example, (a) signals a proper striding sequence by combining a selected lap rate and a selected stride length and electronically reduces the combined information to an audible sound pattern representing a precise stride rate selected for the individual; (b) signals proper spacing over a track by electronically dividing the track distance into a predetermined plurality of segments, combining the track distance with a selected time period and developing an audible sound at spaced time intervals representing each segment of the track distance; and/or (c) signals time increments at any regular interval to define the limits of running and rest periods. The method includes programming the signal device for the specific needs and requirements of use as to striding, spacing or timing or any combination of those functions.

3,789,403

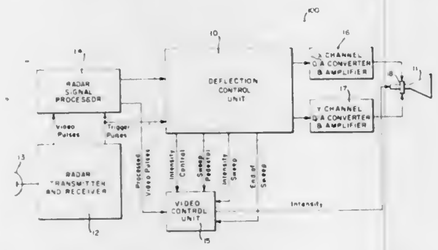
DIGITAL LINE GRAPHICS CONTROL ON RANGE SCALABLE RADAR CRT DISPLAY

Rudolph Dalena, Placentia; Roy K. Onishi, Anaheim, both of Calif., and Donald F. Walker, Boulder, Colo., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed July 24, 1972, Ser. No. 274,544

Int. Cl. G01s *7/22*

U.S. Cl. 343—5 DP **13 Claims**



In a radar PPI display, the cathode-ray tube beam is intensified during a selected sweep in a predetermined pattern to generate an identifying pattern of line segments or dots on the sweep. The pattern is controlled by a range counter used to generate the sweep. Upon scaling the range, the clock pulse rate to the range counter is changed, thereby permitting the same stage, or stages, of the range counter to control intensification of the range sweep.

3,789,404

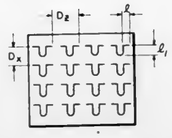
PERIODIC SURFACE FOR LARGE SCAN ANGLES

Benedikt A. Munk, Columbus, Ohio, assignor to The Ohio State University Research Foundation, Columbus, Ohio

Filed Oct. 16, 1968, Ser No. 768,142. The portion of the term of this patent subsequent to Aug. 29, 1989, has been disclaimed.

Int. Cl. H01q *15/14*

U.S. Cl. 343—18 B **12 Claims**



The invention is for a tuned resonant surface utilizing an array of short, loaded dipoles to obtain unity reflection or transmission coefficient over a narrow bandwidth about the desired frequency with said coefficient substantially independent of the angle of incidence of the impinging or radiated electromagnetic signal. Reference is made to the claims for a legal definition of the invention.

3,789,405

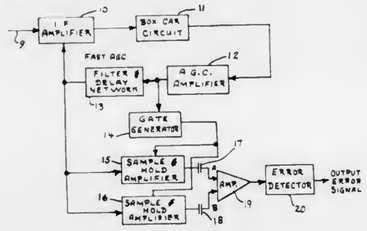
AUTOMATIC STEP ELIMINATOR CIRCUIT TO PREVENT RADAR JAMMING

Alan H. Nielsen, Pompton Plains, N.J., assignor to The United States of America as represented by the Secretary of the United States Air Force, Washington, D.C.

Filed Mar. 29, 1972, Ser. No. 238,706

Int. Cl. G01s *7/36, 9/02*

U.S. Cl. 343—18 E **3 Claims**



An automatic step eliminator circuit to prevent radar jamming is provided wherein the voltage applied to the AGC input of one IF amplifier of a tracking radar is sampled in two parallel sample and hold amplifiers which are instructed by a signal developed by the onset of jamming so that the normal target signal is stored in one channel and the electronic countermeasure (ECM) signal in another. The outputs of both channels are added to develop continuous error signals. The error detector of the tracking radar then receives signals recovered from both jamming and target during alternate intervals and therefor continuously.

3,789,406

APPARATUS FOR SIMULTANEOUSLY TRANSMITTING AND RECEIVING AS WELL AS MIXING TRANSMITTED AND RECEIVED WAVES

Hans Wernli, Wettswil, Switzerland, assignor to Siemens-Albis Aktiengesellschaft, Zurich, Switzerland

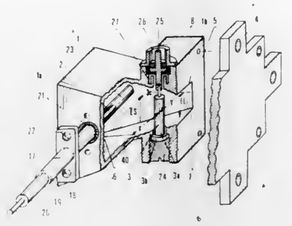
Continuation of Ser. No. 856,269, Sept. 9, 1969, abandoned. This application Dec. 27, 1971, Ser. No. 212,571

Claims priority, application Switzerland, Sept. 25, 1965, 14348/65

Int. Cl. H04b *7/00;* **H01q** *13/00*

U.S. Cl. 343—100 R **7 Claims**

An apparatus for simultaneously transmitting and receiving as well as mixing transmitted and received waves. The transmitted and received waves respectively having perpendicular polarization directions with respect to one another. The apparatus comprises a reflector with an associated primary horn radiator impinging upon the reflector. The primary horn radiator is advantageously flared throughout its length from front to back thereof to provide a tapered hollow space therein. An excitation conductor delivers the waves to be transmitted to the horn radiator. There is provided means for receiving waves captured by the radiator, such receiving



means being arranged in the tapered hollow space of the horn radiator and serves to filter out and remove the received waves as well as a portion of the transmitted waves and to mix these filtered out waves. For the purpose of compensating for non-symmetry in the field of the received wave the receiving means is advantageously arranged in offset relationship with respect to the central lengthwise axis of the horn radiator. Such apparatus has typical utilization in electronic distance measuring environments.

3,789,407

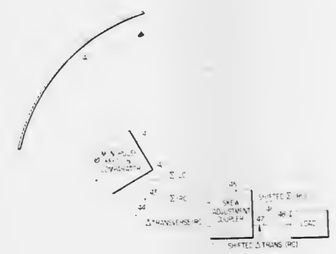
METHOD AND APPARATUS FOR CONTROLLING BEAM SKEW

Jack Rosa, Melbourne Beach, and Homer E. Bartlett, Melbourne, both of Fla., assignors to Harris-Intertype Corporation, Cleveland, Ohio

Filed Feb. 28, 1972, Ser. No. 230,012

Int. Cl. G01s *7/36*

U.S. Cl. 343—100 PE **10 Claims**

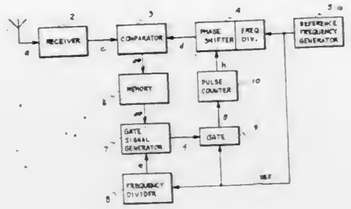


A method and apparatus for correcting radiated beam skew in a circularly polarized offset fed parabolic reflector antenna by the introduction of a difference pattern of one direction of circular polarization in the transverse plane, and adding it to the sum pattern of a corresponding direction of circular polarization to move the sum pattern to the position of the skewed sum pattern of the other direction of circular polarization. Mechanical means are used to boresight the two superimposed patterns.

3,789,408
SYNCHRONOUS SYSTEM

Koji Ichihara, Neyagawa; Hideki Tanaka, Takatsuki; Kazutaka Ishida, Suita, and Minoru Handa, Nishinomiya, all of Japan, assignors to Furuno Electric Company, Limited, Nagasaki-ken, Japan

Filed May 15, 1972, Ser. No. 253,000
Claims priority, application Japan, May 27, 1971, 46/36836
Int. Cl. G01s 1/30
U.S. Cl. 343—105 R 4 Claims



Means for measuring time or phase differences between incoming segmented signals which includes the generation of a segmented reference signal having the same frequency of the incoming signals. A comparator for comparing the phase difference between an incoming signal and the reference signal and means for storing the detected phase difference. Means for producing a control pulse train for dividing said phase difference into n parts where n is the number of segments used for detecting said phase difference and then shifting the phase of each segment of the reference signal by 1/n for each pulse of the control pulse train.

3,789,409
NAVIGATION SYSTEM USING SATELLITES AND PASSIVE RANGING TECHNIQUES

Roger L. Easton, 7704 Oxon Hill Rd., Oxon Hill, Md.

Filed Oct. 8, 1970, Ser. No. 79,307
Int. Cl. G01s 5/14, 11/00
U.S. Cl. 343—112 R 6 Claims



A navigation system wherein the navigator's location is obtained by determining the navigator's distance (or range) from one or more satellites of known location. Each satellite transmits multifrequency signals that are derived from a stable oscillator which is phase synchronized with the navigator's equipment that produces similar multifrequency signals. Phase comparison between the signals received from the satellites and the locally produced signals indicates both the distance between the navigator and the satellites and the navigator's location. In determining his location, the presence of the navigator is not revealed since no interrogatory transmission by him is required.

3,789,410
PASSIVE RANGING TECHNIQUE

Lloyd M. Smith, Canoga Park, and Kanji Frank Sayano, Sepulveda, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 7, 1972, Ser. No. 216,300
Int. Cl. G01s 5/14
U.S. Cl. 343—112 D 5 Claims

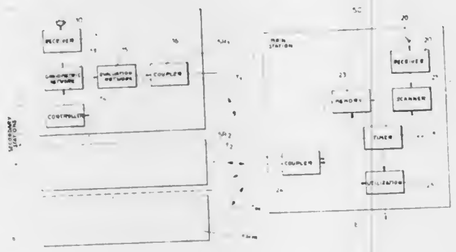


A system for passively determining range to a threat emitter from a single tactical vehicle based upon the change in the difference of phase of a radio frequency carrier between two physically spaced antennas.

3,789,411
RADIOLOCATION SYSTEM

Roger Bataille, Bures/Morainvilliers; Francois P. Maison, Eaubonne, and Pierre Paul Curvale, Verrieres-Le-Buisson, all of France, assignors to Electronique Marcel Dassault, Paris, France

Filed Mar. 25, 1968, Ser. No. 716,704
Claims priority, application France, Mar. 24, 1967, 67100193
Int. Cl. G01s 3/72
U.S. Cl. 343—113 R 20 Claims

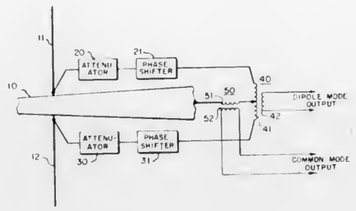


To determine the locations of extraneous sources of radio waves, a central station omnidirectionally monitors a band of frequencies and, upon detecting a radio signal within such band, transmits information of its frequency to a plurality of peripheral stations which thereupon radiogoniometrically ascertain the angle of incidence of the signal having this frequency and relay the magnitude of this angle to the central station.

3,789,412
AIRCRAFT ANTENNA BALANCE TECHNIQUES

Michael G. Keenan, Redwood City; William M. Lynch, Palo Alto, and John H. Priedigkeit, Menlo Park, all of Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 17, 1968, Ser. No. 768,978
Int. Cl. G01s 3/10
U.S. Cl. 343—114 4 Claims

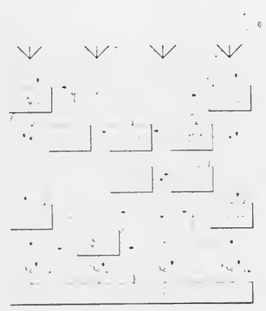


Antenna balance and coupling circuitry for providing rejection of radio frequency signals produced by airframe currents flowing in a vertically polarized dipole antenna installed on an airborne structure.

3,789,413
RADIO NAVIGATION SYSTEM

Gerald F. Ross, Lexington, Mass., and Robert S. Jacobson, Phoenix, Ariz., assignors to Sperry Rand Corporation, New York, N.Y.

Filed June 12, 1972, Ser. No. 261,834
Int. Cl. G01s 5/02; H03b 3/04
U.S. Cl. 343—113 R 9 Claims

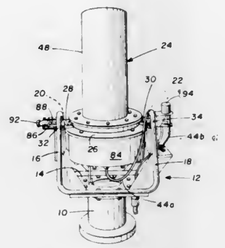


The radio navigation system provides simple instrumentation for transmitting omnidirectional radio waves from a reference location and for determining the azimuth and elevation angles of arrival of the transmitted waves at a remote receiver. An array of paired receiver antennas is employed for the measurement of differences in time of arrival of the transmitted waves at the paired antennas and these values are manipulated by a simple analog computer to yield the desired azimuth and elevation data.

3,789,414
PENDULUM STABILIZATION FOR ANTENNA STRUCTURE WITH PADOME

George B. Bauer, Reston, Va., and Dean S. Thornberg, Salt Lake City, Utah, assignors to E-Systems Inc., Dallas, Tex., by said Thornberg

Filed July 19, 1972, Ser. No. 273,304
Claims priority, application France, Sept. 29, 1971, 7127812
Int. Cl. H01q 3/12, 1/42
U.S. Cl. 343—761 9 Claims



Tactical radio navigation systems provide bearing, distance and identification determining signals generated by a reply transmitter as emitted from an antenna structure. Antenna structures mounted on movable platforms, such as a ship's mast, must be position stabilized to provide maximum power to the bearing and distance signals above the horizon. To stabilize the antenna structure, a supporting yoke mounts to the movable platform. This yoke supports bearings aligned along an axis to provide stabilization in a given direction. Mounted to these bearings are journals extending from the mounting plate of an antenna pedestal. The plate supports the central array of the antenna structure and has a spin motor attached to the underside thereof. This spin motor acts like a pendulum to stabilize the pedestal with reference to the horizon around the desired stabilization direction. Mounted to the output shaft of the spin motor are parasitic elements which rotate around the antenna structure to provide a modulation frequency. When two degrees of stabilization are required, a gimbal ring mounts to the supporting yoke and the pedestal mounts to the gimbal ring. In systems where multiple degrees of stabilization are required, bearings of the yoke are aligned along an axis in the first direction of desired stabilization and bearings of the gimbal ring are aligned along an axis in the second direction of desired stabilization.

3,789,415
APPARATUS FOR WRAPPING CABLES OR THE LIKE AND A ROTATABLE ANTENNA UTILIZING THE SAME

Jack M. Vickland, Palo Alto, Calif., assignor to Philco-Ford Corporation, Blue Bell, Pa.

Filed Dec. 26, 1972, Ser. No. 318,265
Int. Cl. H01q 3/04
U.S. Cl. 343—763 12 Claims

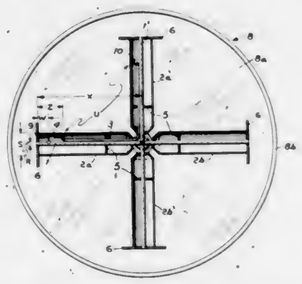
Apparatus for wrapping cables, hoses or the like, leading from fixed structure to a rotatable element such as a mechanical scanning antenna, said apparatus accommodating multiturn rotation of the antenna without subjection of the cables

or hoses to substantial torsional forces. A planetary cable winding and guiding carrier is used, in association with a main



cable-receiving drum which comprises the sun element of a planetary cable take-up system.

3,789,416
SHORTENED TURNSTILE ANTENNA
John A. Kuecken, Pittsford, N.Y., and Michael S. Polgar, Ocean Port, N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Apr. 20, 1972, Ser. No. 246,050
Int. Cl. H01q *21/26*
U.S. Cl. 343—792 **15 Claims**



An electrically short turnstile type antenna array which effectively provides vertical or overhead right or left hand circularly polarized coverage in for example satellite communications from a very restricted space volume as characterized particularly in submarine or aircraft antennas. A pair of electrically short dipoles are arranged normal to each other with the axes thereof intersecting at their mid-points. Coaxially arranged about each leg of these dipoles is an open-ended cylindrical sleeve. The feed to the array is by way of a coaxial cable running to the inside of the coaxial cavity formed by one of the sleeves in an end-feed orientation. A mutual coupling link couples signal energy from the inside of the fed coaxial cavity to the inside of one of the coaxial cavities associated with the other dipole. The entire array is mounted on a support mast less than one-eighth λ from the horizontal base portion of a tin can-shaped ground plane whose vertical sides are sufficiently high to substantially house the array.

3,789,417
CIRCULARLY SYMMETRIC RETRODIRECTIVE ANTENNA
H. Paris Coleman, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jan. 25, 1972, Ser. No. 220,663
Int. Cl. H01Q *3/26*
U.S. Cl. 343—816 **15 Claims**

A method and apparatus for obtaining automatic retrodirective performance from circularly symmetric arrays, and circular continuous aperture antennas. Phased mode sets are provided by a multimodal feed network as a result of modal interconnection methods. All modes in a particular mode set become in phase in the direction of an incoming signal, and as a result, a beam is made to reradiate in that



direction. The method is applicable to two and three-dimensional retrodirective systems and includes both active and passive devices. Also, the reradiated beam width, beam power, and other reradiated beam characteristics including sidelobe functions, are capable of being controlled and adjusted.

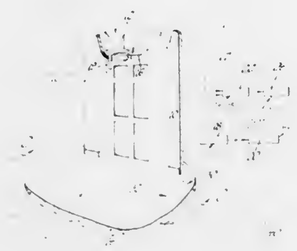
3,789,418
FLEXIBLE ANTENNA FORMED OF OPPOSED CONVEX LAMINATED STRIPS COVERED WITH A HEAT-SHRUNK HOSE
Helmut Reiber, Bauschlott, and Rolf Stapelfeldt, Pforzheim, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Oct. 25, 1972, Ser. No. 300,621
Claims priority, application Germany, Nov. 3, 1971, P 21 54 651
Int. Cl. H01q *9/30*
U.S. Cl. 343—872 **9 Claims**



This invention relates to a laminated antenna for portable radio sets which can be bent or buckled. The antenna lamination consists of two longitudinally staggered groups of transversely cambered steel strips. These strip groups are so disposed in a mirror-inverted arrangement that a biconvex

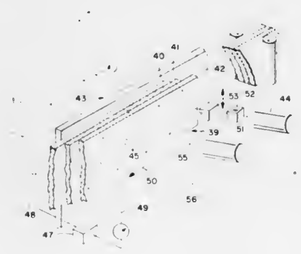
cross section is obtained. Firmly interconnected only at the base of the antenna through a holder, the entire arrangement is covered with a heat-shrunk hose. The biconvex arrangement of the steel strips results in a rigidity equal in both directions of bending. The covering provides protection against atmospheric influences, contamination and injuries and prevents reflections of light.

3,789,419
PLATE ANTENNA WITH PROTECTIVE COVER
Frederick C. Schultz, 15448 Rudland, Roseville, Mich.
Filed July 17, 1972, Ser. No. 272,337
Int. Cl. H01q *1/40*
U.S. Cl. 343—873 **3 Claims**



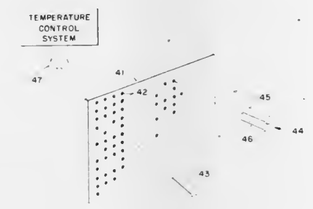
A plate antenna as used, for example, in combination with a proximity door operator system has a capacitive signal plate situated between two shielding panels of fiber glass and cemented to such panels to form a unitary structure which, in turn, is placed below floor level so that anyone passing thereover increases the relative capacitive coupling necessary for related door actuation.

3,789,420
WIDE BAND RECORDING APPARATUS
Richard N. Claytor, Arlington, and Dayton D. Eden, Dallas, both of Tex., assignors to Advanced Technology Center, Inc., Grand Prairie, Tex.
Continuation-in-part of Ser. No. 825,855, May 19, 1969, abandoned. This application Feb. 2, 1971, Ser. No. 112,012
Int. Cl. G01d *15/34*
U.S. Cl. 346—1 **6 Claims**



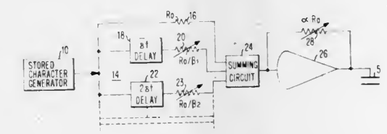
Disclosed is a wide bandwidth recording medium including a thermochromic material which changes reflectance with temperature. Information is recorded on the recording medium by selectively varying temperatures of discrete portions of the thermochromic material with a modulated energy beam such as a laser beam or electron beam. Techniques are described which permit extremely high resolution of data bits to be obtained in the recording medium even though the recording process is a thermal one. Apparatus is also disclosed for erasably and permanently recording information on thermochromic films.

3,789,421
BINARY LOGIC APPARATUS
Jay S. Chivian, 919 Warfield Way, Richardson, Tex.; Richard N. Claytor, 3306 Woodford Dr., Arlington, Tex., and Dayton D. Eden, 6827 Meadow Creek, Dallas, Tex.
Continuation-in-part of Ser. No. 825,677, May 19, 1969, abandoned. This application Feb. 2, 1971, Ser. No. 112,013
Int. Cl. G01d *15/34*
U.S. Cl. 346—1 **8 Claims**



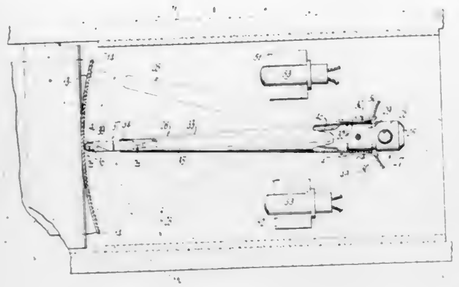
Disclosed are apparatus for recording information in binary form on thermochromic recording media, apparatus for optically and electronically interrogating such recording media, and systems utilizing thermochromic materials for processing data in binary form.

3,789,422
INK DROP COUPLING CAPACITANCE COMPENSATION
John W. Haskell, Endwell, and Sherman H. M. Tsao, Apalachin, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 21, 1972, Ser. No. 291,124
Int. Cl. G01d *18/00*
U.S. Cl. 346—75 **10 Claims**



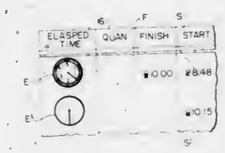
A character generator is connected to the charging electrode of an ink jet printer nozzle through a compensating circuit which modulates the charging voltage applied to each individual ink drop in accordance with the charges on one or more preceding drops in order to compensate for the capacitance effect of the preceding drops on said one individual drop.

3,789,423
DIRECT WRITING RECORDER INCLUDING AN IMPROVED STYLUS ASSEMBLY THEREFOR
Howard Fawcett, Briarcliff Manor, N.Y., assignor to Cambridge Instrument Company, Inc., Ossining, N.Y.
Filed Dec. 6, 1971, Ser. No. 205,027
Int. Cl. G01d *15/10*
U.S. Cl. 346—76 R 16 Claims



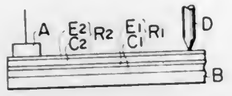
A direct writing recorder having driving means, an arm carried by the driving means and having a cross-sectional area which gradually diminishes from a point adjoining the driving means to its apex, a stylus carried at the apex of the arm and a curved platen carrying the recording medium over which the stylus moves in recording electrical signals.

3,789,424
ELAPSED TIME RECORDER
Vincent Majorino, 1668 Byam Rd., Waterbury, Conn.
Filed Nov. 17, 1971, Ser. No. 199,559
Int. Cl. G07c *1/02*
U.S. Cl. 346—95 12 Claims



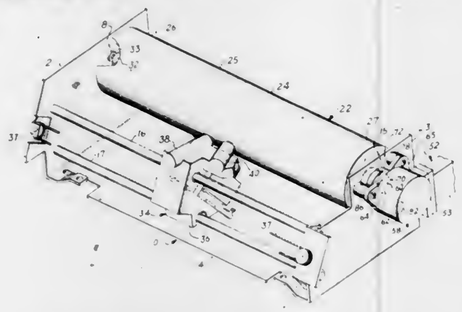
An elapsed time recorder having a card receiver for supporting a record card in a first position and in a second position displaced from the first position. A pair of rotable printing dies spaced apart in the direction of and at a distance substantially equal to the displacement of the card rotate in accordance with passage of time. The face of one of the dies has an annular series of time graduations thereon, whereas the other die face bears a reference mark. Means is provided to bring at least one of the die faces into printing engagement with the card in its first position and at least the other of the die faces into printing engagement with the card in its second position so that the resulting imprints on the card are in overlapping registry with each other. The elapsed time interval between dies may be read directly from the resulting composite imprint on the card. The recorder also includes means for recording the time at the beginning and end of the interval.

3,789,425
ELECTRO-SENSITIVE RECORDING MEDIUM HAVING A PLURALITY OF RECORDING LAYERS
Hiromi Matsushima, Tokyo, Japan, assignor to Colorfax Company Limited, Tokyo-to, Japan
Filed June 9, 1972, Ser. No. 261,392
Claims priority, application Japan, June 13, 1971, 46/41837; Aug. 4, 1971, 46/58820; Dec. 7, 1971, 46/98303
Int. Cl. G01d *15/34*
U.S. Cl. 346—135 10 Claims



An electro-sensitive recording medium comprising a base layer, a plurality of laminated recording layers formed on one surface of said base layer, said recording layers each being comprised of a colored layer having a relatively great resistance value and an electro-conductive layer provided on this colored layer.

3,789,426
FACSIMILE DRIVE APPARATUS
Jan M. Farlow, Fort Wayne, Ind., assignor to Minnesota Mining and Manufacturing Company
Filed Dec. 29, 1972, Ser. No. 319,341
Int. Cl. G01d *15/24*
U.S. Cl. 346—138 8 Claims



The disclosure describes apparatus for reducing jitter in a facsimile system comprising a frame and a rotatable drum having a first end portion, a second end portion and an axis of rotation. A transducer is positioned near the drum in order to produce an image on a document carried by the drum. The first end portion of the drum is rotatably mounted to the frame through a self-aligning bearing. In order to rotate the drum, a DC motor is used to drive a gear reducing unit that is substantially free from backlash. The second end portion of the drum is coupled to the gear reducing unit by a rigid shaft. Resilient members support the shaft with respect to the frame so that any energy due to a component of movement of the shaft in a direction perpendicular to the axis of rotation is absorbed. A spring biases the transducer toward the drum so that the transducer can follow any eccentric movement of the drum due to alignment errors.

DESIGNS

JANUARY 29, 1974

230,103
PROTECTIVE SPORTS HELMET
Harmey S. Hyatt, Jr., General Delivery, Albemarle, N.C. 28001
Filed Mar. 6, 1972, Ser. No. 232,346
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—232



230,104
SLIPPER
Ray E. Larsh, Milwaukee, and Donald I. Urbansky, Thiensville, Wis., assignors to Kleen Test Products, Inc., Milwaukee, Wis.
Filed Oct. 26, 1971, Ser. No. 192,169
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—301



230,105
HAIR BRUSH AND COMB COMBINATION
Martin Newman, 1203 N. Sweetzer 90060, and Alvin L. Frankel, 6038 W. 75th St. 90045, both of Los Angeles, Calif.
Filed Dec. 13, 1972, Ser. No. 314,836
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—21



230,106
CRIB END
Robert V. Jacobs, Los Angeles, Calif., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 25, 1972, Ser. No. 283,835
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—14



230,107
CRIB END
Robert V. Jacobs, Los Angeles, Calif., assignor to Questor Corporation, Toledo, Ohio
Filed Aug. 25, 1972, Ser. No. 283,836
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—14



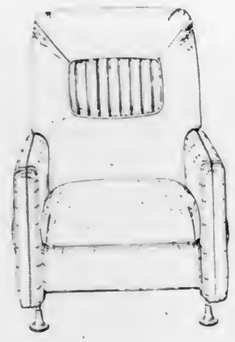
230,108
DISPLAY STAND
James L. Sloan, Rochester, N.Y., assignor to Cross River Products, Inc., Croton-on-Hudson, N.Y.
Filed Sept. 1, 1972, Ser. No. 285,731
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—27



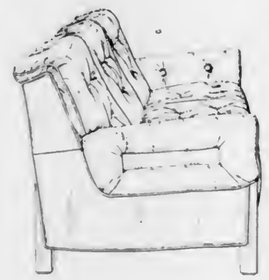
230,109
SUPPORT STAND FOR A HANGING SEAT OR SIMILAR ARTICLE
Phillip A. Gass, 241 S. 89th St., Omaha, Nebr. 68114
Filed Apr. 7, 1972, Ser. No. 242,297
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—29



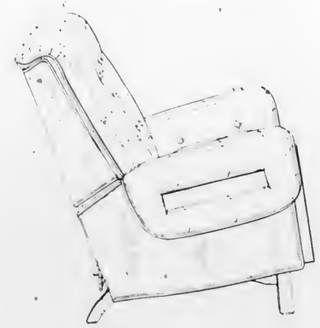
230,110
CHAIR
Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, West Springfield, Mass.
Filed Aug. 30, 1972, Ser. No. 284,940
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—39



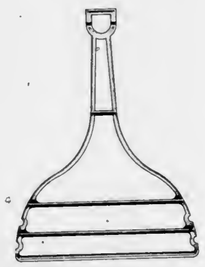
230,111
SOFA
Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, West Springfield, Mass.
Filed Aug. 30, 1972, Ser. No. 284,933
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—63



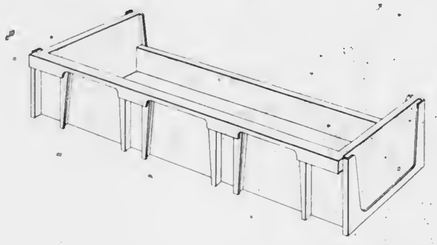
230,112
CHAIR
Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, West Springfield, Mass.
Filed Aug. 30, 1972, Ser. No. 284,938
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—71



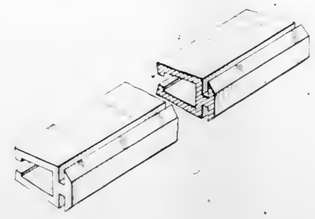
230,113
APPAREL HANGER
David H. Lindemann, 228 SW. 21st Terrace, Fort Lauderdale, Fla. 33312
Filed Aug. 23, 1972, Ser. No. 283,046
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—116



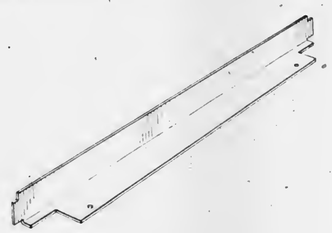
230,114
EXTENSION TRAY FOR A SHELF
Robert Jennee, Upper Saddle River, N.J., assignor to Electronic Assistance Corporation, Fair Lawn, N.J.
Filed Mar. 10, 1972, Ser. No. 233,867
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—181



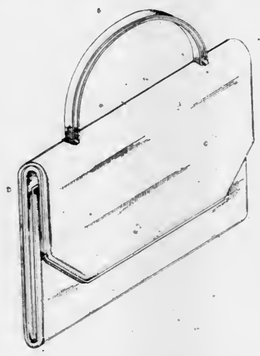
230,115
END CONNECTOR BRACKET FOR SHELVING OR OTHER ARTICLES
Anthony George Beams, London, England, assignor to E. & H. Grace Limited, London, England
Filed Mar. 23, 1972, Ser. No. 237,603
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



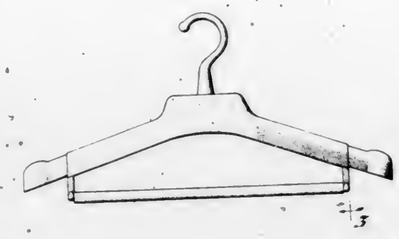
230,116
END SUPPORT FOR HORIZONTAL SHELVING AND OTHER ARTICLES OF FURNITURE
Anthony George Beams, London, England, assignor to E. & H. Grace Limited, London, England
Filed Mar. 23, 1972, Ser. No. 237,604
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



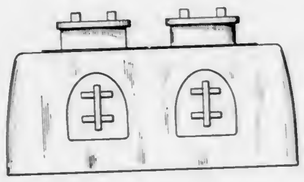
230,117
PORTABLE MAT
Andrew Johnson, 3140 N. 12th St., Philadelphia, Pa. 19133
Filed Apr. 30, 1971, Ser. No. 139,318
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D6—201



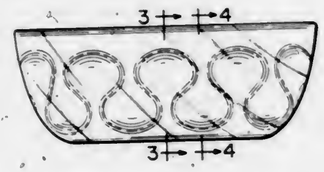
230,118
ADJUSTABLE CLOTHES HANGER
Donald D. Geisler, 12905 N. Miami Ave., Miami, Fla. 33168
Filed Mar. 12, 1973, Ser. No. 340,029
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—249



230,119
GRILL
James T. Sakata, 653 20th Ave., San Francisco, Calif. 94121
Filed Aug. 4, 1971, Ser. No. 169,154
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—11 D



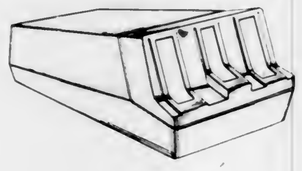
230,120
CASSEROLE
Glenn B. Beckman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Mar. 1, 1972, Ser. No. 231,059
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—28



230,121
DISPENSER FOR CONDIMENTS OR THE LIKE
John W. Downey, Warren, Pa., assignor to Whirley Industries, Inc., Warren, Pa.
Filed Jan. 3, 1972, Ser. No. 215,277
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—52



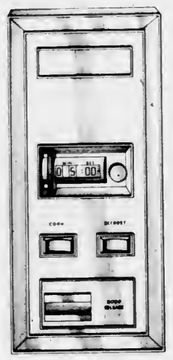
230,122
SCABBARD
Peter K. Bayly, Greensborough, Victoria, Australia, assignor to Wiltshire Cutlery Company Proprietary Limited, South Melbourne, Victoria, Australia
Filed Apr. 3, 1972, Ser. No. 240,899
Claims priority, application Australia Oct. 1, 1971
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—74



230,123
MICROWAVE OVEN CONTROL PANEL
Arthur Franklin Ludvigsen, Burnsville, Minn., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed Mar. 1, 1973, Ser. No. 336,965
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—135



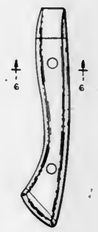
230,124
MICROWAVE OVEN CONTROL PANEL
Arthur Franklin Ludvigsen, Burnsville, Minn., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed Mar. 1, 1973, Ser. No. 337,018
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—135



230,125
KNIFE
Donald Wallance, Croton-on-Hudson, N.Y., assignor to H. E. Lauffer Co., Inc., Somerset, N.J.
Filed July 25, 1972, Ser. No. 274,920
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—137



230,126
KNIFE HANDLE OR SIMILAR ARTICLE
Ross F. Pollard, Amesbury, Mass., assignor to Towle Manufacturing Company, Newburyport, Mass.
Filed Sept. 5, 1972, Ser. No. 286,022
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—150



230,127
WEEDER
Joseph P. Banner, 2550 N. Venice, Tucson, Ariz. 85712
Filed Dec. 27, 1971, Ser. No. 212,840
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—11



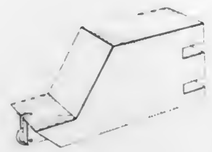
230,128
SNOWMOBILE TOOL
Howard A. Fistler, Utica, and Richard A. Hollingsworth, Mount Clemens, Mich., assignors to HFCO, Mount Clemens, Mich.
Filed Feb. 28, 1972, Ser. No. 230,202
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—26



230,129
HOUSING FOR AN ELECTRIC CAN OPENER
Brian Scott Smith, High Wycombe, England, assignor to Tower Housewares Limited, Staffordshire, England
Filed Nov. 15, 1972, Ser. No. 306,807
Claims priority, application Great Britain Aug. 25, 1972
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D8—36

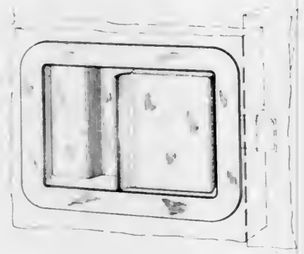


230,130
FREEHAND GLASS CUTTER
Frank Greaves, 20 Shadwick Drive, Weston, Ontario, Canada
Filed Mar. 16, 1972, Ser. No. 235,466
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—51



230,131
NAIL HOLDER
Walter W. Levinson, 101 Conshohocken State Road, Bala-Cynwyd, Pa. 19004
Filed Mar. 1, 1972, Ser. No. 231,056
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—71

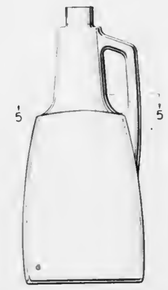
230,132
PADDLE HANDLE RECESSED LOCK
John V. Pastva, Jr., Parma Heights, Ohio, assignor to The Eastern Company, Cleveland, Ohio
Filed Dec. 20, 1971, Ser. No. 210,311
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—109



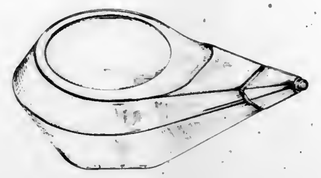
230,133
BOTTLE
Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed May 24, 1972, Ser. No. 256,627
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—1



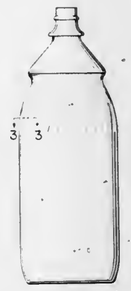
230,134
BOTTLE
Edward J. Kretz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed June 22, 1972, Ser. No. 265,207
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—48



230,135
DISPENSING CONTAINER FOR LIQUIDS
Louis V. Nigro, Saugus, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Apr. 24, 1972, Ser. No. 247,246
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—71



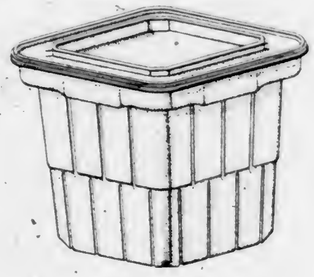
230,136
BOTTLE
Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed May 30, 1972, Ser. No. 258,228
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—158



230,137
CONTAINER FOR COSMETICS OR THE LIKE
Franco Bettonica, Milan, Italy, assignor to Perlier S.p.A., Milan, Italy
Filed May 30, 1972, Ser. No. 258,196
Claims priority, application Italy Jan. 17, 1972
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—168



230,138
PACKAGING CONTAINER FOR FOOD OR THE LIKE
Paul A. Weller, Waukegan, Ill.
(Rte. 1, Box 66A, Union Grove, Wis. 53182)
Filed Feb. 9, 1972, Ser. No. 225,029
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—219

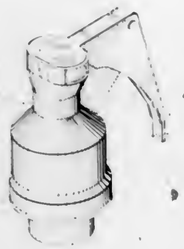


230,139
MULTIFUNCTION UTILITY CAP
Philip D. Bart, Monsey, N.Y.
(30–70 NE. 43rd St., Fort Lauderdale, Fla. 33306)
Filed Jan. 26, 1972, Ser. No. 221,121
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—254



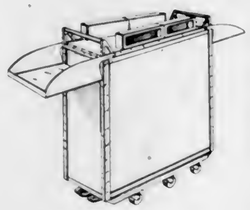


230,140
DISPENSING CAP
Lloyd J. Schimke, Box 1272, Highway 2 E., Minot, N. Dak. 58701
Filed Oct. 12, 1972, Ser. No. 297,156
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—278

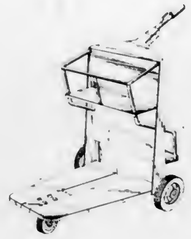




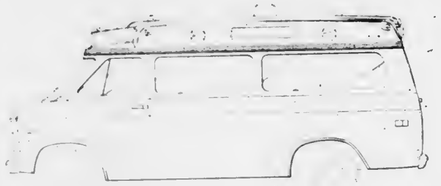
230,141
SERVICE CART
Matthew N. Miller, Woodland Hills, Calif., assignor to Fairchild Industries, Inc., Germantown, Md.
Filed Mar. 8, 1973, Ser. No. 339,135
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—29

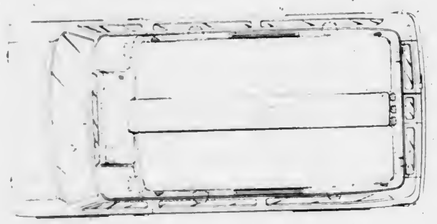


230,142
LUGGAGE CART WITH CHILD SEAT
James M. Muellner, 1777 Stillwater St., White Bear Lake, Minn. 55110
Filed Feb. 2, 1972, Ser. No. 223,059
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—22

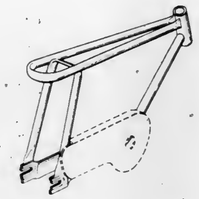


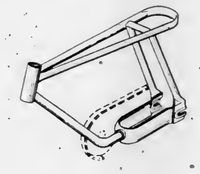
230,143
AMBULANCE BODY
Donald H. Cox, Lima, Ohio, assignor to Sheller-Globe Corporation, Toledo, Ohio
Filed Oct. 27, 1971, Ser. No. 193,239
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—99





230,144
BICYCLE FRAME
Charles L. Voytko, % Hedstrom Co., Bedford, Pa. 15522
Filed Apr. 13, 1973, Ser. No. 350,778
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—111



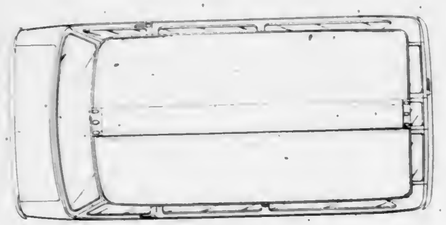


230,145
BICYCLE STAND
Randall N. Johnson, 5947 Poplar St., Commerce City, Colo. 80022
Filed Aug. 23, 1972, Ser. No. 283,223
Term of patent 14 years
Int. Cl. D8—*99*; D12—*11*
U.S. Cl. D12—115

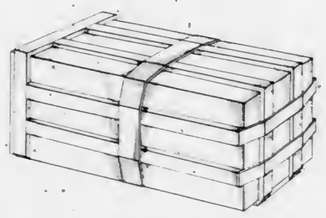


230,146
VAN BODY
Donald H. Cox, Lima, Ohio, assignor to Sheller-Globe Corporation, Toledo, Ohio
Filed Sept. 13, 1971, Ser. No. 180,241
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D14—3 J

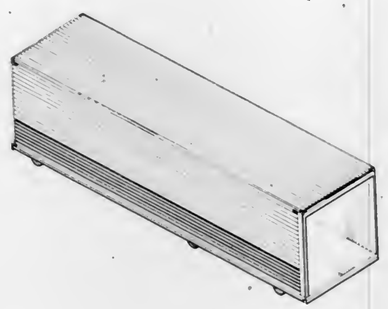




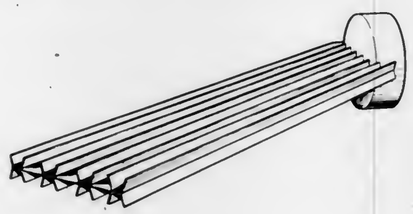
230,147
TRANSPORTABLE REFUSE CONTAINER
Samuel Vincen Bowles, 15680 High Knoll Road, Encino, Calif. 91316
Filed Dec. 9, 1971, Ser. No. 206,592
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D14—3 R



230,148
CARGO TRAILER
L. Ray Wood, 501 Circle Drive, Arlington, Tex. 76011
Filed Nov. 1, 1972, Ser. No. 302,945
Term of patent 7 years
Int. Cl. D12—*10*
U.S. Cl. D14—3 E



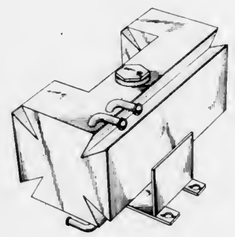
230,149
VIBRATING BODY (SENSOR) FOR MEASURING THE CONCENTRATION OF SOLID PARTICLES IN A SUSPENSION
Berth Ulrik Gustafsson, Osterskar, Sweden, assignor to Projectus Industriprodukter AB, Stockholm, Sweden
Filed Mar. 29, 1972, Ser. No. 239,415
Term of patent 14 years
Int. Cl. D24—*99*; D10—*99*
U.S. Cl. D16—2 C



230,150
POLICE CLUB OR SIMILAR ARTICLE
Lon Richard Anderson, Central City, Iowa, assignor to Monadnock Lifetime Products, Inc., Fitzwilliam N.H.
Filed May 17, 1972, Ser. No. 254,346
Term of patent 14 years
Int. Cl. D22—*02*
U.S. Cl. D22—1



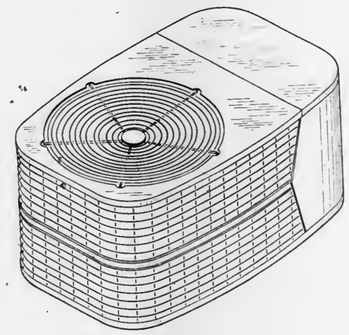
230,151
COMBINED OIL TANK AND MOUNTING MEANS FOR A MOTORCYCLE
Jerry F. Morris, 220 S. Roselle Road, Schaumburg, Ill. 60172
Filed Dec. 27, 1972, Ser. No. 318,726
Term of patent 3½ years
Int. Cl. D12—*11*
U.S. Cl. D23—2



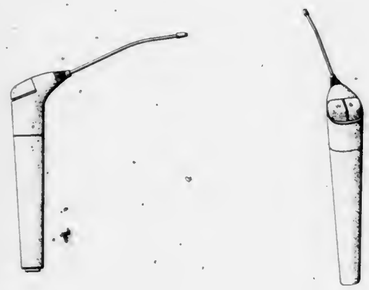
230,152
EAVES TROUGH CLEANING DEVICE
Albert R. Froehlke, 742 33rd St., South Bend, Ind. 46615
Filed Dec. 29, 1971, Ser. No. 213,784
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



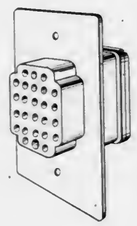
230,153
CASING FOR REFRIGERATION SYSTEM CONDENSING UNITS OR THE LIKE
Walter W. Hoyle, Fayetteville, and Curtis L. Tobin, Chittenango, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.
Filed Dec. 2, 1971, Ser. No. 204,403
Term of patent 3½ years
Int. Cl. D23—*04*
U.S. Cl. D23—139



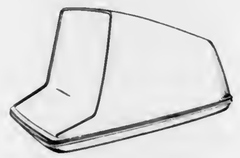
230,154
SYRINGE
Lawrence Emmerson House II, Baltimore, Md., assignor to Litton Medical Products, Inc., Elk Grove Village, Ill.
Filed Mar. 8, 1973, Ser. No. 339,222
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—1 D



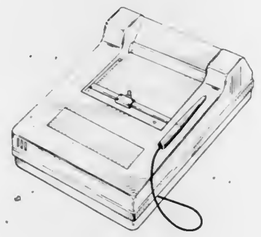
230,155
COMBINED CONDUCTOR JACK AND PLUG ASSEMBLY
Richard E. Brown, Gahanna, Ohio, assignor to Twyco, Inc., Blacklick, Ohio
Filed Aug. 5, 1971, Ser. No. 169,592
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 A



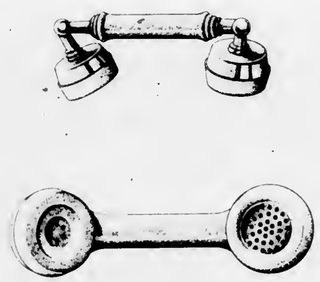
230,156
DATA TERMINAL HOUSING
Donald A. Pahl, Los Altos, and Paul E. Rasmussen, Sunnyvale, Calif., assignors to Vydes, Inc., Whippany, N.J.
Continuation of design application Ser. No. 127,078, Mar. 22, 1971. This application Nov. 1, 1972, Ser. No. 302,684
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C



230,157
CABINET FOR HOUSING APPARATUS PERMITTING THE TRANSMISSION AND RECEPTION OF WRITTEN MATERIAL BY TELEPHONE
James L. Rodgers, Tempe, and Joseph L. Tyrrell, Phoenix, Ariz., assignors to Talos Systems, Inc.,
Filed Oct. 18, 1971, Ser. No. 190,434
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 R

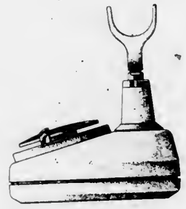


230,158
TELEPHONE HANDSET
Donald Michael Genaro, Haworth, N.J., John Niel McGarvey, Drexel Hill, Pa., and Gordon Elliot Sylvester, Jamaica, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 13, 1973, Ser. No. 350,881
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A

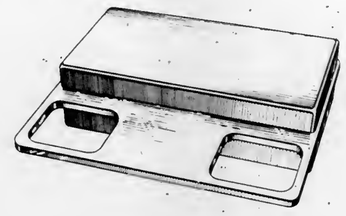


230,159
TELEPHONE STAND
Donald Michael Genaro, Haworth, N.J., John Niel McGarvey, Drexel Hill, Pa., and Gordon Elliot Sylvester, Jamaica, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 13, 1973, Ser. No. 350,882
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A





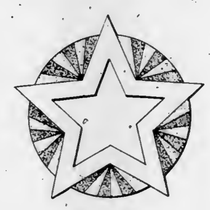
230,160
TELEPHONE STAND
Donald Michael Genaro, Haworth, N.J., John Niel McGarvey, Drexel Hill, Pa., and Gordon Elliot Sylvester, Jamaica, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 13, 1973, Ser. No. 350,905
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



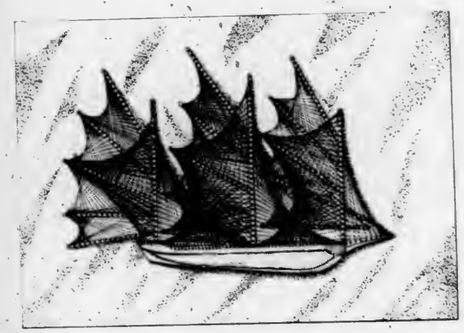
230,161
ANGEL ORNAMENT
Christina Fritsche, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Nov. 21, 1972, Ser. No. 308,481
Term of patent 7 years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B



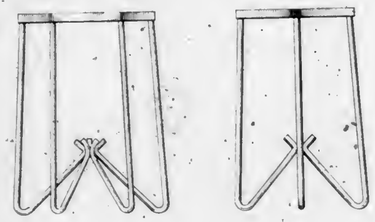
230,162
STAR ORNAMENT
Christina Fritsche, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Nov. 21, 1972, Ser. No. 308,482
Term of patent 7 years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B



230,163
SHIP MODEL WALL PLAQUE
Francis R. Nartowicz, 204 Fort Worth St., Hampton, Va. 23369
Filed Dec. 12, 1972, Ser. No. 314,329
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D29—23 A



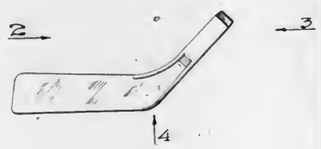
230,164
AQUARIUM STAND
Richard S. Young, Frankenmuth, and Leo E. Hearn, Flint, Mich., assignors to Pentaco Enterprises Corporation, Chesaning, Mich.
Filed June 12, 1972, Ser. No. 261,904
Term of patent 14 years
Int. Cl. D30—*02*; D06—*03*
U.S. Cl. D30—12



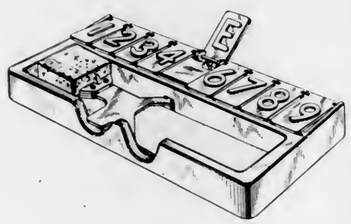
230,165
AQUARIUM STAND
Richard S. Young, Frankenmuth, and Leo E. Hearn, Flint, Mich., assignors to Pentaco Enterprises Corporation, Chesaning, Mich.
Filed June 12, 1972, Ser. No. 261,905
Term of patent 14 years
Int. Cl. D30—*02*; D06—*03*
U.S. Cl. D30—12



230,166
HOCKEY STICK BLADE
Raymond W. Leclerc, Leominster, Mass., (% Mylec Inc., Winchendon Springs, Mass. 01477)
Filed Aug. 13, 1971, Ser. No. 171,804
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 BC



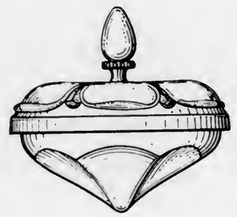
230,167
DICE GAME BOARD
Laurie J. Campbell, Raymond J. Lohr, and Charles M. Kienholz, Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Jan. 3, 1971, Ser. No. 215,237
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 GG



230,168
GOLF TEE
Louis E. Redmon, Rte. 1, Roscommon, Mich. 48653
Filed Jan. 18, 1973, Ser. No. 324,646
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GT



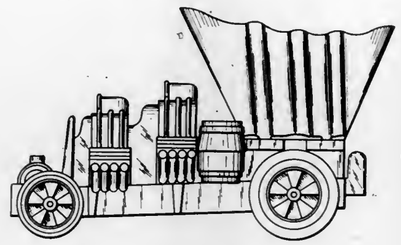
230,169
TOP
Burr Sebring, Barrington, R.I., assignor to Gorham, a division of Textron Inc., Providence, R.I.
Filed Jan. 25, 1972, Ser. No. 220,727
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AH



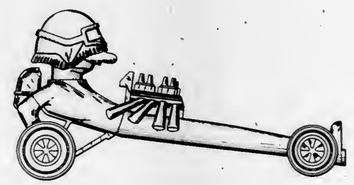
230,170
ROBOT PUSH TOY
Charles H. Hardin, Nashville, Tenn., assignor to Kusan, Inc., Nashville, Tenn.
Filed Feb. 22, 1972, Ser. No. 228,458
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



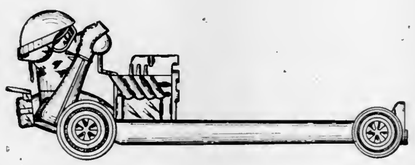
230,171
MINIATURE VEHICLE TOY
Robert B. Lovejoy, Hermosa Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Apr. 19, 1972, Ser. No. 245,682
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



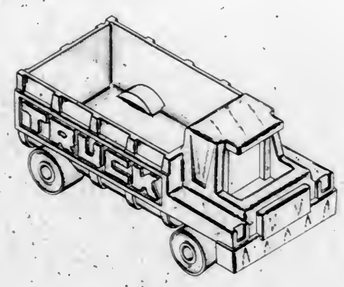
230,172
FIGURE TOY VEHICLE
Adolph E. Goldfarb, Tarzana, Delmar K. Everitt, Woodland Hills, Ronald F. Chesley, La Crescenta, and Richard D. Frierdich, Canoga Park, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Apr. 28, 1972, Ser. No. 248,793
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



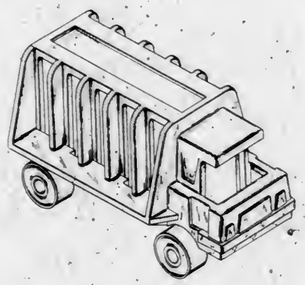
230,173
FIGURE TOY VEHICLE
Adolph E. Goldfarb, Tarzana, Delmar K. Everitt, Woodland Hills, Ronald F. Chesley, La Crescenta, and Richard D. Frierdich, Canoga Park, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Apr. 28, 1972, Ser. No. 248,794
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



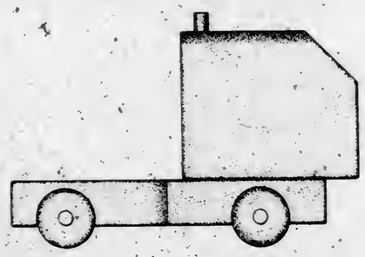
230,174
TOY TRUCK
Gary W. Pimentel, Fountain Valley, and Robert L. Cowell, Manhattan Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Oct. 12, 1972, Ser. No. 297,098
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



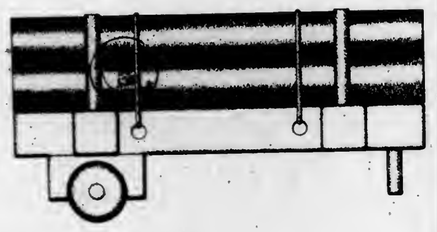
230,175
TOY TRUCK
Gary W. Pimentel, Fountain Valley, and Robert L. Cowell, Manhattan Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Oct. 12, 1972, Ser. No. 297,121
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



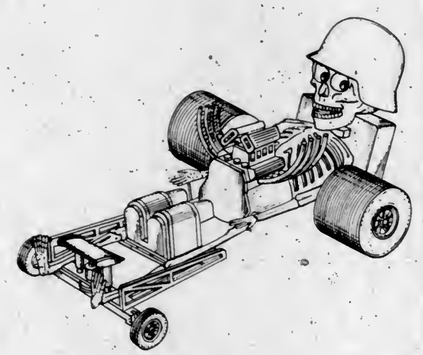
230,176
TOY TRUCK TRACTOR
Gary B. Smart, 3500 Carter Road, Portsmouth, Va. 23703
Filed Oct. 31, 1972, Ser. No. 302,407
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



230,177
TOY LOG TRAILER
Gary B. Smart, 3500 Carter Road, Portsmouth, Va. 23703
Filed Oct. 31, 1972, Ser. No. 302,408
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



230,178
TOY MODEL CAR
George Barris, North Hollywood, Calif., assignor to Zee Toys, Inc., Gardena, Calif.
Filed Dec. 18, 1972, Ser. No. 316,411
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



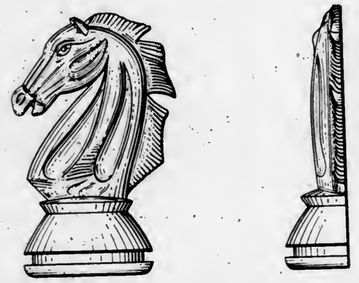
230,179
BALL PROJECTING AND CATCHING TOY
Richard A. Boucher, Northboro, Mass., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed June 5, 1972, Ser. No. 260,040
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 PP



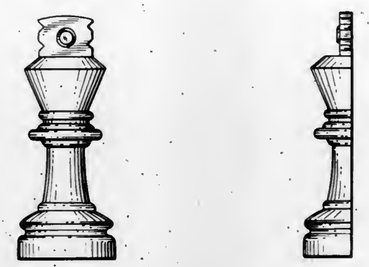
230,180
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,210
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



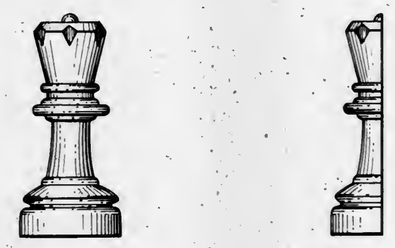
230,181
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,211
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



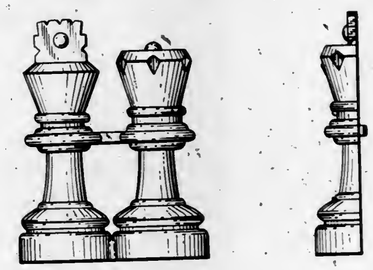
230,182
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,212
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



230,183
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,213
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



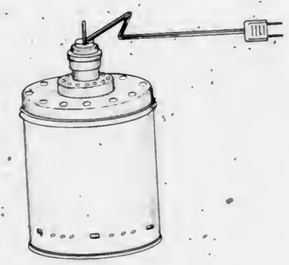
230,184
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,214
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



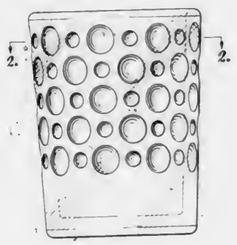
230,185
JEWELRY FINDING
Maurice Silber, 183—07 69th Ave., Fresh Meadows, N.Y. 11365
Filed Feb. 28, 1972, Ser. No. 230,215
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—19 R



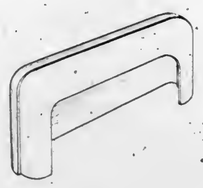
230,186
LAMP FOR PRODUCING SPECIAL LIGHTING EFFECTS
Arley I. Reinmuth, 1022 N. 32nd St., Omaha, Nebr. 68131
Filed Mar. 30, 1972, Ser. No. 239,864
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 E



230,187
CANDLE HOLDER
Richard A. Schultz, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo.
Filed Oct. 17, 1972, Ser. No. 300,398
Term of patent 14 years
Int. Cl. D26—*01*; D7—*01*
U.S. Cl. D48—2



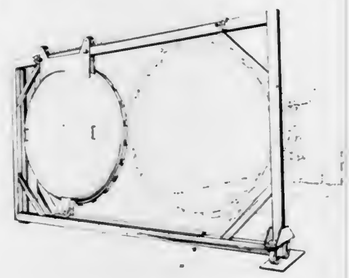
230,188
TABLE LAMP
Giuseppe Longato, Via Makalle 19, Padova, Italy
Filed May 26, 1972, Ser. No. 257,476
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 R



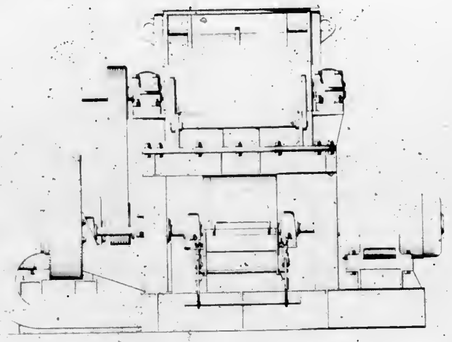
230,189
NIGHT LIGHT
Ernest W. Dietz, Torrance, and Herbert L. Kornfeld, Hollywood, Calif., assignors to Pacific Electricord Company, Gardena, Calif.
Filed June 4, 1973, Ser. No. 365,991
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 F



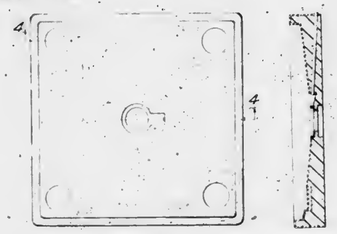
230,190
HORIZONTAL SLIDING DOOR FOR PRESSURE VESSELS
Henry J. Piegza, Clarence, N.Y., assignor to Welding and Steel Fabrication Co., Inc., Tonawanda, N.Y.
Filed Nov. 4, 1971, Ser. No. 195,891
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 R



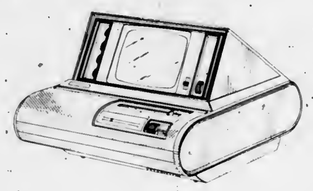
230,191
ONE PASS COMBINATION WOOD HOGGING AND PULVERIZING MACHINE
Harry D. Schutte, Williamsville, N.Y., assignor to Schutte Pulverizer Co., Inc., Buffalo, N.Y.
Filed May 5, 1972, Ser. No. 250,862
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D55—1 B



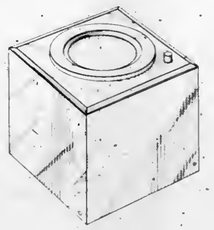
230,192
MACHINE SUPPORT TRAY
James L. Rutzick, 1540 Goodrich Ave., St. Paul, Minn. 55105
Filed July 5, 1972, Ser. No. 269,110
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1 H



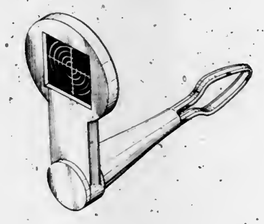
230,193
COMBINED RADIO AND TELEVISION RECEIVER
Osamu Sugihara, Yasunobu Nakamura, Tadashi Sumino, Kazuhiro Ueda, Makoto Terauchi, and Kiyoshi Suzuki, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma City, Osaka, Japan
Filed Dec. 17, 1971, Ser. No. 209,495
Claims priority, application Japan June 18, 1971
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 D



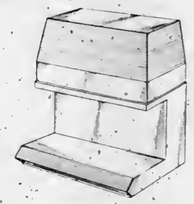
230,194
PORTABLE RADIO RECEIVER
George M. Buckler, Fayetteville, N.Y., assignor to General Electric Company
Filed Jan. 11, 1972, Ser. No. 217,078
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



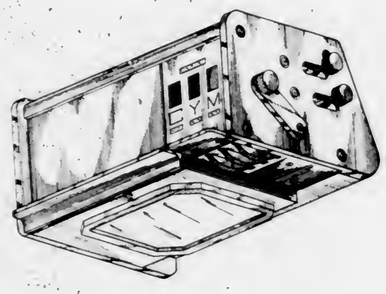
230,195
COLLIMATING DEVICE FOR TELESCOPIC SIGHTS OR SIMILAR ARTICLE
Susumu Fukushima, Tokyo, Japan, and Willard H. Korte, North Miami Beach, Fla., assignors to Tasco Sales, Inc., Miami, Fla.
Filed Apr. 15, 1971, Ser. No. 134,239
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 E



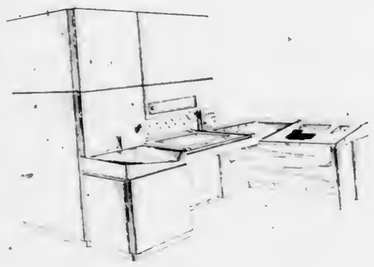
230,196
MICROFICHE CAMERA
Timothy P. Fitzgerald, Playa Del Rey, and William O. Nix, Newport Beach, Calif., assignors to Image Systems, Inc., Culver City, Calif.
Filed June 3, 1971, Ser. No. 149,888
Term of patent 14 years
Int. Cl. D16—*01, 03*
U.S. Cl. D61—1 B



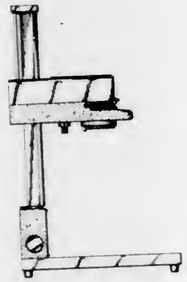
230,197
COLOR LIGHT MIXER FOR A PHOTOGRAPHIC ENLARGER
Robert A. Flieder, Englewood Cliffs, N.J., and James T. Aneshansley, Brooklyn, N.Y., assignors to Berkey Photo, Inc., New York, N.Y.
Filed Feb. 4, 1972, Ser. No. 223,804
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



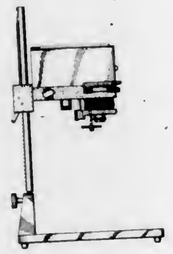
230,198
COMBINED CAMERA, FILM PROCESSOR, AND PRINTER FOR APERTURE CARDS
Thomas C. Laughon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 31, 1972, Ser. No. 276,879
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



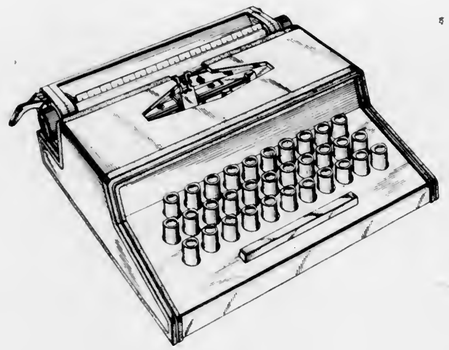
230,199
PHOTOGRAPHIC ENLARGER
Wilmut Pramstraller, Brixen, near Bozen, Italy, assignor to Durst S.p.A. Fabbrica Macchine ed Apparecchi Fototecnici, Bolzano, Italy
Filed Oct. 6, 1972, Ser. No. 295,710
Claims priority, application Italy Apr. 7, 1972
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



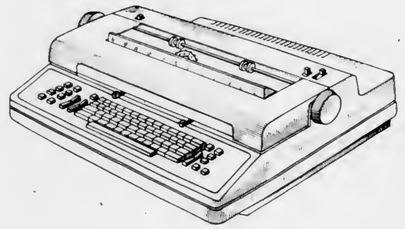
230,200
PHOTOGRAPHIC ENLARGER
Wilmut Pramstraller, Brixen, near Bozen, Italy, assignor to Durst S.p.A. Fabbrica Macchine ed Apparecchi Fototecnici, Bolzano, Italy
Filed Oct. 6, 1972, Ser. No. 295,723
Claims priority, application Italy Apr. 7, 1972
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1 Q



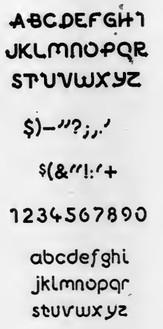
230,201
TYPEWRITER
Bill Gold, Great Neck, N.Y., and Frank C. Fusco, Dyersville, Iowa, assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed Aug. 16, 1972, Ser. No. 281,061
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



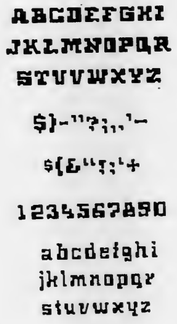
230,202
TYPEWRITER
John S. Kovacs, East Norriton, and Lewis H. Herr, Lansdale, Pa., and Richard H. Penney, New York, N.Y., assignors to Sperry Rand Corporation, New York, N.Y.
Filed Mar. 27, 1972, Ser. No. 238,734
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



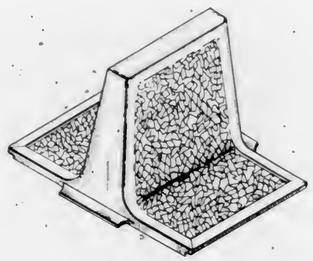
230,203
TYPE FONT
Bodo L. Kretschman, Rochester, N.Y., assignor to The Singer Company, New York, N.Y.
Filed May 26, 1972, Ser. No. 257,481
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—12 B



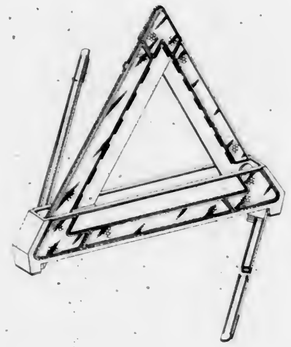
230,204
TYPE FONT
Bodo L. Kretschman, Rochester, N.Y., assignor to The Singer Company, New York, N.Y.
Filed May 26, 1972, Ser. No. 257,482
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—12 B



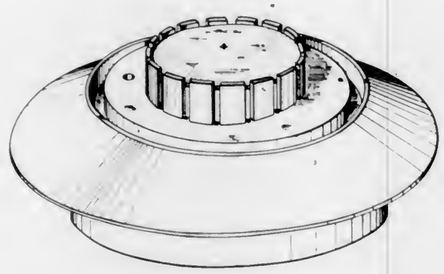
230,205
HANDLE FOR COMBINED PAINT APPLYING TRIMMER AND EDGER
Donald Seip, Somerville, N.J., assignor to Red Devil Inc., Union, N.J.
Filed Dec. 9, 1971, Ser. No. 206,572
Term of patent 7 years
Int. Cl. D8—*05*
U.S. Cl. D64—18



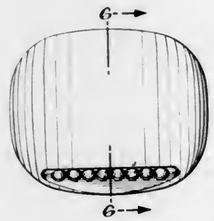
230,206
SIGNAL
Peter Hedgewick, Windsor, Ontario, and Stewart H. Birrell, Clarkson, Ontario, Canada, assignors to Reflex Corporation of Canada Limited, Windsor, Ontario, Canada
Filed Sept. 8, 1972, Ser. No. 287,294
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D72—1 H



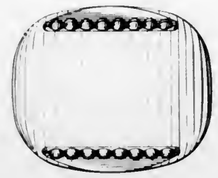
230,207
COMBUSTION PRODUCTS DETECTOR
Richard Jacob Schick, Park Ridge, and John Frederick Walker, Arlington Heights, Ill., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 2, 1973, Ser. No. 337,491
Term of patent 14 years
Int. Cl. D29—*01*
U.S. Cl. D72—1 A



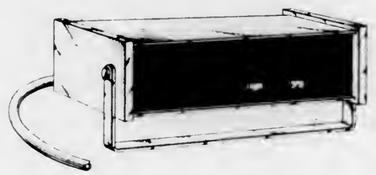
230,208
REFLECTIVE ROADWAY MARKER
Howard A. Schaefer, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Apr. 25, 1973, Ser. No. 354,177
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D72—1 J



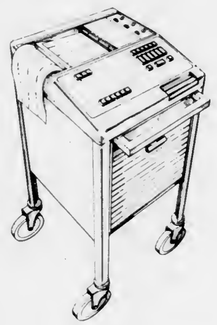
230,209
REFLECTIVE ROADWAY MARKER
Howard A. Schaefer, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Apr. 25, 1973, Ser. No. 354,178
Term of patent 14 years
Int. Cl. D29—*02*
U.S. Cl. D72—1 J



230,210
SPIROMETER MEDICAL APPARATUS
Bernard N. Gray, East Pepperell, and John W. Burke, Melrose, Mass., assignors to Life Support Equipment Corp., Burlington, Mass.
Filed Feb. 26, 1971, Ser. No. 119,434
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D83—1 F



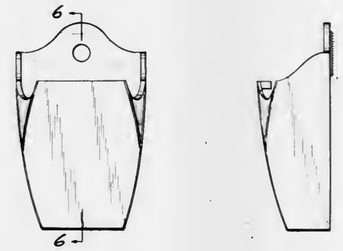
230,211
ELECTROCARDIOGRAPH
Henry E. Fuller, Wayland, Mass., assignor to Parke, Davis & Company, Detroit, Mich.
Filed Aug. 16, 1972, Ser. No. 281,070
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D83—1 F



230,212
COMBINED STETHOSCOPE AND BINAURALS UNIT
Sylvan L. Hart, 545 West End Ave., New York, N.Y. 10024
Filed Apr. 11, 1973, Ser. No. 350,075
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12 R



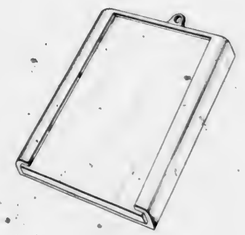
230,213
ASH TRAY
Don O. Benson and Elaine C. Benson, both of R.R. 3, Box 172A, Prior Lake, Minn. 55372
Filed Sept. 18, 1972, Ser. No. 290,213
Term of patent 7 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 H



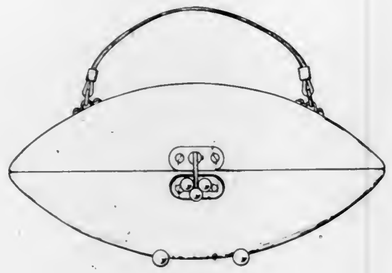
230,214
BOOTJACK
Elmer O. Billingslea, Jr., Rte. 1, Salina, Okla. 74365
Filed Dec. 14, 1972, Ser. No. 315,203
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D86—10 D



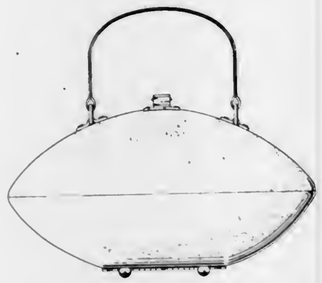
230,215
POCKET COIN CONTAINER
Leo Stein, P.O. Box 1063, F.D.R. Station, New York, N.Y. 10022
Filed Dec. 29, 1971, Ser. No. 213,799
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—3 B



230,216
HANDBAG
Clarence V. Tibbs, P.O. Box 11033, Knoxville, Tenn. 37919
Filed Apr. 26, 1972, Ser. No. 247,916
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



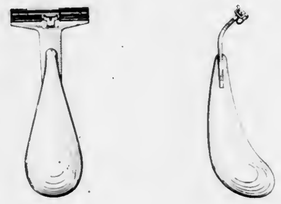
230,217
HANDBAG
Clarence V. Tibbs, 7119 Kingston Pike, Knoxville, Tenn. 37919
Continuation-in-part of abandoned design application Ser. No. 270,962, July 12, 1972. This application Jan. 12, 1973, Ser. No. 323,144
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 F



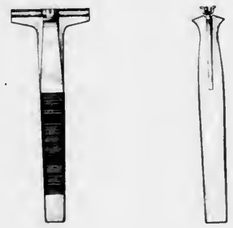
230,218
STAKE
Paul E. Freiling, 1006 Maertin, Fullerton, Calif. 92631, and Joseph E. Smith, 606 Clarion Place, Claremont, Calif. 91711
Filed Oct. 31, 1972, Ser. No. 302,404
Term of patent 14 years
Int. Cl. D21—*04*
U.S. Cl. D88—3 B



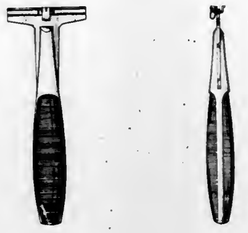
230,219
RAZOR HANDLE
Martin Glaberson, Stratford, and George L. Schick, Trumbull, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Feb. 15, 1973, Ser. No. 332,960
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



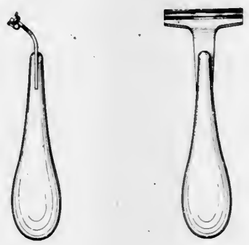
230,220
RAZOR HANDLE
Martin Glaberson, Stratford, and George L. Schick, Trumbull, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Feb. 15, 1973, Ser. No. 332,961
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



230,221
RAZOR HANDLE
Martin Glaberson, Stratford, and George L. Schick, Trumbull, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Feb. 15, 1973, Ser. No. 332,962
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



230,222
RAZOR HANDLE
Martin Glaberson, Stratford, and George L. Schick, Trumbull, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Feb. 15, 1973, Ser. No. 332,963
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



230,223
RAZOR HANDLE
Martin Glaberson, Stratford, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.
Division of design application Ser. No. 250,100, May 3, 1972, which is a continuation-in-part of abandoned design application Ser. No. 191,958, Oct. 22, 1971. Divided and this application July 2, 1973, Ser. No. 375,409
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 29TH DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A-Ok Machine and Tool Company. *See*—
Rahme, Selim R., 3,788,747.

Abbott, Dominic C., and Chen, Godfrey, said Abbott assor. to Abbott Tresses Inc. Wig foundation and wig. 3,788,332, Cl. 132-54.000.

Abbott, John A.; and Mencececi, Samuel A., to FMC Corporation. Revolving linear tube heat exchanger. 3,788,392, Cl. 165-92.000.

Abbott Laboratories. *See*—
Kay, John William Dixon, 3,789,116.

Abbott Tresses Inc. *See*—
Abbott, Dominic C., and Chen, Godfrey (said Abbott assor. to), 3,788,332.

Abe, Kunionu, to Konan Camera Laboratory Company Limited. Optical system of a binocular microscope. 3,788,727, Cl. 350-36.000.

Abegg, Karl, to Aktiengesellschaft Brown, Boveri & Cie. Two-part stator for large rotating electrical machines. 3,789,252, Cl. 2-14-72.

Abell, Frank. Method for establishing vehicle identification, speed and conditions of visibility. 3,788,201, Cl. 95-1.100.

Abex Corporation. *See*—
Langenbach, Bob J., 3,788,761.

Abrahamson, Daniel P. *See*—
Wright, Lawrence W., Tolleson, Leon H., Abrahamson, Daniel P., Thomas, Paul M., and Crile, Eugene F., 3,789,101.

Accra-Point Arrays Corporation. *See*—
Conley, Larry R., 3,789,183.

Acevedo, Raul. Orthodontic dental study model. 3,787,979, Cl. 32-71.000.

Acieries Reunies de Burbach-Eich-Dudelange S.A.: *See*—
Metz, Paul, and Metz, Emile, 3,788,383.

Ackerman, Daniel W., to Universal Instruments Corporation. Wire wrap tool. 3,788,367, Cl. 140-124.000.

Actuated Controls Limited. *See*—
Kent, Graham B., 3,789,171.

Adair, James R., to Wean United, Inc. Shear. 3,788,181, Cl. 83-554.000.

Adams, Jay C., to Ranco Incorporated. Thermal sensing device for control circuits. 3,789,340, Cl. 338-28.000.

Adams, Philip, and Petrocci, Alfonso N., to Millmaster Onyx Corporation. Microbiocidal-naphthenyl imidazolines. 3,788,989, Cl. 252-33.000.

Adams, Robert E., to Columbia Precision Corporation. Comminuter with high shear rotor and stator. 3,788,563, Cl. 241-46.110.

Adams, Robert E., to Columbia Precision Corporation. Ultra fine colloid mill. 3,788,565, Cl. 241-46.110.

Adams, Whitney R., to Scott Paper Company. Pyrolyzed structures. 3,788,938, Cl. 161-159.000.

Adler, Franklin P., to Pullman Transport Leasing Company. Gravity discharge arrangement for hoppers. 3,788,530, Cl. 222-508.000.

Advanced Technology Center, Inc. *See*—
Claytor, Richard N., and Eden, Dayton D., 3,789,420.

AGA Aktiebolag. *See*—
Fahlman, Gosta H., Lundborg, Gunnar; and Westberg, Johan Eric Hayden, 3,788,311.
Knoos, Stellan, Ljungdahl, Soren E. S., and Bostrom, Bertil Ingemar, 3,788,395.
Sandstrom, Jan Erik Stellan, 3,788,312.

Agarwal, Jagdish C., and Wilder, Thomas C., to Kennecott Copper Corporation. Recovery of metal values from manganese nodules. 3,788,841, Cl. 75-103.000.

Agfa-Gevaert N.V.: *See*—
De Cat, Arthur Henri; Sels, Francis Jeanne; Pollet, Robert Joseph, and Willems, Jozef Frans, 3,788,850.
Sels, Francis Jeanne; and Pollet, Robert Joseph, 3,788,852.
Van Paesschen, August Jean; Van Gossum, Lucien Janbaptist; and Preim, Jan Josef, 3,788,856.
Van Poucke, Raphael Karel; and Pollet, Robert Joseph, 3,788,857.
Willems, Jozef Frans; Sels, Francis Jeanne; Pollet, Robert Joseph; and De Cat, Arthur Henri, 3,788,851.

Aherin, Daniel A. Hammer with nail holder. 3,788,373, Cl. 145-30.00r.

Ahrens, Paul Raymond, to RCA Corporation. High voltage protection circuit. 3,789,260, Cl. 315-22.000.

Aihara, Mitsuo: *See*—
Idei, Gijun; Onoyama, Atsushi; Aihara, Mitsuo; Suzuki, Seigo; Egawa, Hideharu; and Yamaga, Eiichi, 3,788,058.

Aisin Seiki Kabushiki Kaisha. *See*—
Ojima, Kenji, 3,788,164.

Ajinomoto Co.: *See*—
Iida, Yutaka; Hishinuma, Kazuo; Hikuma, Motohiko; Shirakawa, Tadashi; and Sakai, Susumu, 3,788,952.

Akagi, Kaurd; and Tanaka, Katushi, to Daihatsu Kogyo Co., Ltd. and Kyohuto Kaihatsu Kogyo Co., Ltd. Floor surface cleaning and dressing apparatus. 3,787,916, Cl. 15-4.000.

Akers, Artie E., to Lawrence Security, Inc. Security system operated by changes in light at specified locations. 3,789,384, Cl. 340-258.00b.

Akerstrom, Stig Hjalmar Johannes: *See*—
Kagedal, Sven Lennart; and Akerstrom, Stig Hjalmar Johannes, 3,788,948.

Akeyama, Masameto: *See*—
Tomita, Yoshifumi; and Akeyama, Masamoto, 3,787,939.

Akins, Herbert J., Sr. Submersible pump. 3,788,771, Cl. 417-88.000.

Aktiengesellschaft Brown, Boveri & Cie: *See*—
Abegg, Karl, 3,789,252.
Stracke, Wilfried; and Zimmermann, Max, 3,788,944.

Alber, Roger L. Long-life sudsing blend and pad incorporating same. 3,788,999, Cl. 252-91.000.

Albers, Bernd G.: *See*—
Dieckman, Robert W.; Albers, Bernd G.; and Mrozek, John W., 3,788,237.

Albright & Wilson, Limited: *See*—
Bennett, Brian Garner; and Holmes, William Samuel, 3,788,986.

Aldous, Douglas Eric William, to Tensator, Limited. Spiral springs and methods of making them. 3,788,631, Cl. 267-156.000.

All-Steel Inc.: *See*—
Massaccesi, Raymond A., 3,788,701.
Swanquist, Wesley W., 3,788,582.

Allegheny Ludlum Industries, Inc.: *See*—
Beigay, Jack M.; Choby, Edward G., Jr.; and Kaferlf, Joseph S., 3,788,112.
Muscatell, Francis L.; Ramachandran, Sundaresan; and Reen, Orville W., 3,788,836.

Allen, Benigene. Hand truck. 3,788,659, Cl. 280-5.240.

Allen, Byron W. Industrial plate glass cutter's table. 3,788,533, Cl. 225-96.500.

Allen, George Cyrus: *See*—
Levy, Leon B.; and Allen, George Cyrus, 3,789,018.

Allen, George H., to Kendall Company, The. Process for randomizing card webs. 3,787,930, Cl. 19-106.00r.

Allen, Gordon S. J., to Forward Technology Limited. Cathode ray tubes to facilitate recording. 3,789,259, Cl. 315-21.0pr.

Allen, Herbert, to Cameron Iron Works, Inc. Gate valve. 3,788,600, Cl. 251-214.000.

Allenspach, Heinz; and Meier, Eugen, to Mettler Instruments Co., AG. Force measuring apparatus including sensitivity selection means. 3,788,410, Cl. 177-25.000.

Alley, Ralph D.; and Sheridan, David S., to Sherwood Medical Industries Inc. Cardiovascular catheter. 3,788,328, Cl. 128-350.00r.

Allied Chemical Corporation: *See*—
Curtis, Omer E., Jr.; Tuller, Harold W.; and Nussbaum, Ralph W., 3,789,038.
Litke, Alvin Carl, 3,788,802.
Nittinger, Russell H.; and Taylor, Donald O., 3,788,423.
Sievenpiper, Frederic Leory; and Bement, Elmore, 3,788,811.
Soliman, Frank Yassin, 3,788,923.

Alling, Richard L., to Torrington Company, The. Bearing adapter. 3,788,715, Cl. 308-217.000.

Allis, Louis, Company, The: *See*—
Purman, Joseph W., 3,789,249.
Rettig, Charles E., 3,789,290.

Allis-Chalmers Corporation: *See*—
Cole, David R.; and Worrix, Matthew L., 3,789,172.
Drone, Gary A.; and Schnepp, James M., 3,788,419.
Kemnitz, Robert H., 3,788,569.

Alpert, Seymour B.: *See*—
Wolk, Ronald H.; Chervenak, Michael C.; and Alpert, Seymour B., 3,788,973.

Alphons Glutz-Blolzheim A.G.: *See*—
Husler, Balthasar, 3,788,021.

Alps Motorola, Inc.: *See*—
Hirano, Takeshi, 3,788,649.
Mizumoto, Yoshio, 3,789,161.

Aluminium Company of America: *See*—
Eiland, Ehrlich M., 3,788,886.

Alza Corporation: *See*—
Michaels, Alan S., 3,788,322.

American Cyanamid Company: *See*—
Werneke, Michael Francis, 3,788,467.

American Cystoscope Makers Inc.: *See*—
Hall, Richard W., 3,788,303.

American Home Products Corporation: *See*—

Thomas, Douglas W., 3,788,523.
American Optical Corporation: *See*—
Shoemaker, Arthur H., 3,788,732.
American Seating Company: *See*—
Raymond, David W.; Lewis, Robert E.; and Quigley, Robert E., 3,788,608.
American Stress Wire Corporation: *See*—
Andrews, James S., 3,787,957.
AMP Incorporated: *See*—
Fritz, William Baird; Tiley, John Wayne; and Sanders, Neil Harrison, 3,789,263.
Anbo, Tsugio: *See*—
Hirokawa, Kazuaki; and Anbo, Tsugio, 3,789,343.
Andersen, Robert A.; and Maguire, Lawrence A., to Sigmatek, Inc. Multiple input signal modulator and method therefor. 3,789,323, Cl. 332-18.000.
Anderson, Carl P.: *See*—
Vartanian, Perry H., Jr.; Markaris, Michael J.; and Anderson, Carl P., 3,788,441.
Anderson, Charles W.: *See*—
Beck, Russell R.; George, David B.; and Anderson, Charles W., 3,789,097.
Anderson, Emil G.: *See*—
Rice, Macon D.; and Anderson, Emil G., 3,788,379.
Anderson, Harold E., to McCulloch Corporation. Low impedance capacitor discharge system and method. 3,788,293, Cl. 123-148.00e.
Anderson, James J.; Camacho, Vasco G.; and Kinney, Robert E., to Mobil Oil Corporation. Cyclic phosphonate esters and their preparation. 3,789,091, Cl. 260-927.00r.
Anderson, Robert F: Direct reading measuring instruments. 3,787,982, Cl. 33-166.000.
Anderson, Walter F., Jr.: *See*—
Madjid, Abdul Hamjd; Vaala, Allen R.; Anderson, Walter F., Jr.; and Pedulla, Joseph, Jr., 3,788,818.
Ando, Masaru: *See*—
Sawano, Takahiro; Kabota, Katuhiko; Ando, Masaru; Wada, Moriyasu; Murayama, Tohru; and Ozawa, Tadayuki, 3,789,275.
Andreas, Ehrhardt: *See*—
Greenlay, Charles A.; and Andreas, Ehrhardt, 3,788,562.
Andress, Harry J., Jr., to Mobil Oil Corporation. Lubricating compositions. 3,788,993, Cl. 252-51.50a.
Andrews, James S., to American Stress Wire Corporation. Method and apparatus for tensioning and anchoring tensioning members. 3,787,957, Cl. 29-452.000.
Ane, Jean-Pierre; Teillard, Jean-Paul; and Ouere, Emile, to Societe Nationale Industrielle Aerospatiale. Flow limiter. 3,788,352, Cl. 137-523.000.
Anheuser-Busch, Incorporated: *See*—
Teng, James; Lucas, James M.; and Pyler, Richard E., 3,788,984.
Apostoleris, Theodore G.: *See*—
Macoit, Arthur J.; and Apostoleris, Theodore G., 3,789,250.
Arenson, Edwin M., to Black Sivalls & Bryson, Inc. Method of vaporizing and combining a liquefied cryogenic fluid stream with a gas stream. 3,788,825, Cl. 48-190.000.
Argabright, Perry: *See*—
Presley, C. Travis; Argabright, Perry; and Smith, Ronald E., 3,789,030.
Arita, Koshei: *See*—
Kinemura, Masao; and Arita, Koshei, 3,789,196.
Arkansas Rock and Gravel Co.: *See*—
Holland, John H., 3,788,504.
Armand, Harold A., to Texas Instruments, Incorporated. Pressure measuring apparatus and method. 3,788,144, Cl. 73-411.000.
Armour and Company: *See*—
Artar, Orhan G.; and Ross, Charles W., 3,788,209.
Armstrong Cork Company: *See*—
Sigman, Daniel M., Jr., 3,788,872.
Arnold Associates, Inc.: *See*—
Arnold, Steven, 3,788,012.
Arnold, Harmon W.: *See*—
Foy, Charles L.; and Arnold, Harmon W., 3,787,922.
Arnold, Howard K.: *See*—
Neidorf, Samuel W.; and Arnold, Howard K., 3,788,343.
Arnold, Orlan M.; and Vancini, Carlo A., to Peabody Engineering Corporation. Gas cleaning apparatus. 3,788,045, Cl. 55-238.000.
Arnold, Steven, to Arnold Associates, Inc. Modular building structure elements of slabs with central support posts. 3,788,012, Cl. 52-73.000.
Aro Corporation, The: *See*—
German, Dale F.; and Clark, Allen L., 3,788,598.
Arp, Leon J.: *See*—
Arp, Leon J.; and Varnum, James M. (said Varnum assor. to said), 3,788,313.
Arp, Leon J.; and Varnum, James M., said Varnum assor. to said Arp, Leon J. Respirator apparatus. 3,788,313, Cl. 128-145.800.
Arps, Hilbert. Casting mold apparatus. 3,788,591, Cl. 249-187.000.
Arrigo, Anthony L., to Baxter Laboratories, Inc. Method of forming spinal needle. 3,788,119, Cl. 72-324.000.
Artar, Orhan G.; and Ross, Charles W., to Armour and Company. Smokehouse rack. 3,788,209, Cl. 99-349.000.
Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Nakajima, Tohru; and Niiho, Masaaki, 3,787,988.
Asahi-Dow, Limited: *See*—
Iwami, Isamu; Kawasaki, Hironobu; and Kinoshita, Hideo, 3,789,035.
Izawa, Shinichi; Toyama, Kunio; Sugawara, Yoshiaki; Tanaka, Tsutomu; and Okamoto, Hidehiro, 3,789,054.
Asai, Fujio, to Kabushiki Kaisha Matsuya Tekkosho. Method of knitting gloves. 3,788,103, Cl. 66-65.000.
Ashibe, Kfitaro. Method and apparatus for automatically separating entangled springs. 3,788,456, Cl. 198-220.00a.
Ashland Oil Inc.: *See*—
Robin, Michael; and Schulte, Sheldon R., 3,789,067.
Taft, David D.; and Schmidt, Roger A., 3,789,044.
Askew, Herbert Frank: *See*—
Elliott, John Scotchford; Crail, Ian Robert Henry; and Askew, Herbert Frank, 3,788,990.
Aslan, Edward E., to Narda Microwave Corporation, The. Probe for radiation detector. 3,789,299, Cl. 324-95.000.
Associated Engineering, Limited: *See*—
Buxton, Alan, 3,788,961.
Assow, Bengt Holger; Jansson, Curt Evert; and Rolleberg, Kjell Ove. Converter for producing a stabilized output direct-current voltage from an input direct-current voltage. 3,789,288, Cl. 321-2.000.
Astra-Sjuco; a division under Astra-Gruppen A/S: *See*—
Jacobsen, Bjarne Hamilton, 3,788,325.
Ateliers Diederichs: *See*—
Guallo, Maxime, 3,788,360.
Athletic Swing Measurement, Inc.: *See*—
Evans, James W., 3,788,647.
Evans, James W., 3,789,397.
Athy, Lawrence F., Jr., Rushing, Sandy S., Jr., and Nicholson, Gordon B., III, to Southwestern Manufacturing Company. Pressure responsive valve system. 3,788,341, Cl. 137-209.000.
Audi NSU Auto Union Aktiengesellschaft. *See*—
Rossie, Egbert; and Barke, Bernd, 3,788,686.
Audio Devices, Inc.: *See*—
Wakeman, Alfred W.; and Manierre, Robert L., 3,788,574.
Auric Corporation. *See*—
Kosowsky, Leo N., Lovejoy, Curtis N.; and Cunniff, John G., 3,788,963.
Austin, Lewis M.; Denman, Robert R.; O'Donnell, Thomas P.; and Veres, Frank, to Owens-Illinois, Inc. Molding of lightweight glass articles and apparatus therefor. 3,788,828, Cl. 65-33.000.
Australasian Training Aids Proprietary Limited: *See*—
Knight, Lindsay Charles; Finch, Colin Maxwell, Walden, Noel Harry Fred; and Racz, George, 3,788,748.
Automatic Equipment Development Corporation. *See*—
Johnston, James J., 3,789,271.
Automobiles M. Berliet. *See*—
Sibeud, Jean Paul, 3,789,381.
Avco Corporation: *See*—
Partos, Stephen E., 3,788,762.
Ayaki, Susumu; and Shimano, Masaru, to Hitachi, Ltd. Burst amplifier for color television receivers. 3,789,141, Cl. 178-69.5ch.
Ayton, Ian F.; Hartling, Donald C.; Kossoff, Joseph; and Osborne Brian G., to Mattel, Inc. Combination figure and walking simulator with means for swivelling said figure. 3,787,999, Cl. 46-110.000
Babayan, Eduard P., to Hitco. Epoxy curing agent. 3,789,071, Cl. 260-553.00r.
Babcock & Wilcox Company, The. *See*—
Krippene, Brett C.; Peterson, Morris W.; and Marshall, David M., 3,788,796.
Modrak, Thomas M.; and Curtis, Robert W., 3,788,282.
Babcock, Clarence L.; Busdiecker, Robert A.; and Hagedorn, Erwin C. Crystallized glass ceramics and process for forming same. 3,788,865, Cl. 106-39.700.
Baberowski, Waldemar; and Spiess, Karl, to Industriewerk Schaeffler OHG. Novel vibratory conveyor. 3,788,449, Cl. 198-107.000.
Bachmann, Horst, to Fernseh G.m.b.H. Optical system for color television cameras. 3,789,135, Cl. 178-5.40e.
Bachus, Charles E. Morter debris cleanout apparatus. 3,788,017, Cl. 52-122.000.
Backwinkel, Johannes, to Blaupunkt-Werke GmbH. Sawtooth scan circuit with hold feature. 3,789,262, Cl. 315-27.0td.
Badia, Michel: *See*—
Patrie, Jos; Lefebvre, Jacques; Segond, Roger; and Badia, Michel, 3,788,956.
Bagby, Thomas L., to Caterpillar Tractor Company. Apparatus for reclaiming collet hose fittings. 3,787,950, Cl. 29-237.000.
Bailey, Carl W., III: *See*—
Falkehag, Sten, II; and Bailey, Carl W., III, 3,788,808.
Bailey, John D., to Pullman Incorporated. Freight car door latching device. 3,788,007, Cl. 49-449.000.
Bailey, John D., to Pullman Incorporated. Railroad freight car door track and threshold design. 3,788,239, Cl. 105-378.000.
Bailey, John M.; Kranc, Stanley J.; and De Keyser, Richard A., to Caterpillar Tractor Company. Fuel injection system. 3,788,546, Cl. 239-120.000.
Bailey Meter Company: *See*—
Cohen, Kenneth W., 3,788,593.
Baker, David R.; and Yin, Robert I., to Fibreboard Corporation. Carton blanks printed with a heat sealable composition and method thereof. 3,788,876, Cl. 117-38.000.
Baker, Freling E.: *See*—
Webb, Wells A.; and Baker, Freling E., 3,788,496.
Baker, James T.: *See*—
Weber, Carl; Shroyer, Larry L.; and Baker, James T., 3,789,210.
Baker Oil Tools Inc.: *See*—
Curington, Alfred R., 3,788,409.

Baker Perkins Inc.: *See*—
Levi, George A., 3,788,799.
Balash, Edward: *See*—
Miner, Carroll R.; and Balash, Edward, 3,789,331.
Balchunas, William Clement; and Mila, Jose Antonio, to Western Electric Company, Incorporated. Method of and apparatus for detecting, classifying and locating insulation faults in insulated elongated conductors. 3,789,295, Cl. 324-54.000.
Baldwin, Edwin C.; and Wrenner, Warren R., to International Business Machines Corporation. Electron beam deflection control apparatus. 3,789,185, Cl. 219-121.0eb.
Baldwin, Richard R.; and Rule, Bruce J., to Hewlett-Packard Company. Optical dilatometer. 3,788,746, Cl. 356-106.000.
Balentino, Frank, Jr., to National Can Corporation. Guide rail for a conveyor. 3,788,457, Cl. 198-204.000.
Balevsky, Anguel Tonchev; Nikolov, Ivan Dimov; Nenov, Dragan Iliev; and Momchilov, Emil Nikolov, to Niitm Pri Ban. Machine for casting under pressure. 3,788,790, Cl. 425-242.000.
Balfanz, Glenn F., Jr. Lawn edging structure. 3,788,001, Cl. 47-33.000.
Ball, Frank J., to Westvaco Corporation. Method for removing sulfur dioxide from waste gases and recovering a concentrated stream of sulfurdioxide. 3,789,110, Cl. 423-539.000.
Ballast-Nedam Groep N.V.: *See*—
Hartman, Cornelis, 3,788,146.
Balogh, Roy, to McCabe-Powers Body Company. Control system for a derrick. 3,788,425, Cl. 182-148.000.
Bangor Punta Operation, Inc.: *See*—
Van Gilst, Carl, 3,788,280.
Banham, John Anthony Door fastening units. 3,788,679, Cl. 292-40.000
Bar-O-Matic Sales Co.: *See*—
Neidorf, Samuel W.; and Arnold, Howard K., 3,788,343.
Barber-Colman Company: *See*—
Crandall, Charles B.; and Wieneke, Frederick L., 3,787,938.
Barbin, Robert Lloyd, to RCA Corporation. Electron beam and deflection yoke alignment for producing convergence of plural in-line beams. 3,789,258, Cl. 315-13.0cg.
Barbini, Aldo, to Consiglio Nazionale delle Ricerche. Swinging apparatus for supporting containers for seaweed cultures or the like. 3,788,611, Cl. 259-54.000.
Barenyi, Bela; and Busch, Gerhard, to Daimler-Benz Aktiengesellschaft. Arrangement of the drive and support of windshield wipers. 3,788,681, Cl. 296-28.00r.
Bari, Jaime A.; Maffitt, Kent N.; and Sievers, Jerry A., to Minnesota Mining and Manufacturing Company. Multiple electron mirror apparatus and method. 3,789,370, Cl. 340-173.0er.
Barkan, Philip; Barton, Robert S., Skreiner, Klaus M.; and Tognella, Ugo R., to General Electric Company. Earthquake-protective support system for electrical apparatus. 3,789,174, Cl. 200-168.00r.
Barke, Bernd. *See*—
Rossie, Egbert; and Barke, Bernd, 3,788,686.
Barkmann, Herman G., to Q-dot Corporation. Heat exchange system. 3,788,388, Cl. 165-32.000.
Barlow, George Joseph, to Honeywell Information Systems, Inc. Self-checking digital storage system. 3,789,204, Cl. 235-153.0am.
Barney, Walter W. Coded magnetic card and system for encoding and sensing the same. 3,788,617, Cl. 235-61.12m.
Barre, Jean-Gabriel: *See*—
Holt, Terence Albert; and Barre, Jean-Gabriel, 3,787,915.
Barrera, Roberto Gonzalez *See*—
Rubio, Manuel; and Leal, Victor Mario, 3,788,139.
Barrett, Monroe C.: *See*—
Fachini, Robert M.; Kenna, Fenton L., Jr.; Barrett, Monroe C.; Nickla, Louis E.; and Graham, Robert L., 3,788,495.
Bartlett, Homer E.: *See*—
Rosa, Jack; and Bartlett, Homer E., 3,789,407.
Bartlett, Philip Lee, to Du Pont de Nemours, E. I., and Company. Solid lubricant additives dispersed in perfluoroalkyl ethers with perfluoroalkyl ether acid dispersants. 3,788,987, Cl. 252-25.000.
Barton, James C.; Christensen, Jon C.; and Mueller, James R., to Caterpillar Tractor Company. Vehicle seat. 3,788,697, Cl. 297-307.000.
Barton, Robert S.: *See*—
Barkan, Philip; Barton, Robert S.; Skreiner, Klaus M.; and Tognella, Ugo R., 3,789,174.
BASF Wyandotte Corporation: *See*—
Stephenson, Orlando W., III; and Schmidt, John E., 3,788,966.
Bashaw, Arthur E. Watercraft with rotatable floating pontoons. 3,788,256, Cl. 114-39.000.
Bataille, Roger; Maison, Francois P.; and Curvale, Pierre Paul, to Electronique Marcel Dassault. Radiolocation system. 3,789,411, Cl. 343-113.00r.
Batdorf, Jack B.; and Weiss, Steven M., to Hercules Incorporated. Concrete compositions or mixes and additive therefor. 3,788,869, Cl. 106-93.000.
Batsch, Guy, to Societe Civile Textile dite Socitex. Twisting devices for filaments. 3,788,057, Cl. 57-77.400.
Battelle Development Corporation: *See*—
Crites, Nelson A.; and Schaer, Glenn R., 3,788,955.
Strohecker, Daniel E., 3,788,128.
Battelle Memorial Institute: *See*—
Crites, Nelson A., 3,788,186.
Schneider, Karl; Cuenoud, Gerard; Bouladon, Gabriel; and Zuppiger, Paul, 3,788,232.
Batts, John H.: *See*—
Garrison, Judd F.; and Batts, John H., 3,788,488.
Batts, John Thomas, Inc.: *See*—
Garrison, Judd F.; and Batts, John H., 3,788,488.
Bauer, George B.; and Thornberg, Dean S., said Thornberg assor. to E-System, Inc. Pendulum stabilization for antenna structure with radome. 3,789,414, Cl. 343-761.000.
Bauerle, Mathias, GmbH, Firma: *See*—
Lehmann, Werner, 3,788,638.
Baumann, Reinhold; Kunze, Ernst-Gunter; Lauerbach-Lehmeier, Robert; Striebich, Alfred; and Rothe, Hans-Joachim, to Zimmer Aktiengesellschaft. Process for the production of regenerate. 3,789,026, Cl. 260-2.300.
Baxter Laboratories, Inc.: *See*—
Arrigo, Anthony L., 3,788,119.
Bayer Aktiengesellschaft: *See*—
Breer, Karl, 3,788,337.
Kalz, Dietmar; Wolfrum, Gerhard; and Neeff, Rutger, 3,788,810.
Nassenstein, Heinrich; and Fitzky, Hans-Georg, 3,788,728.
Traubel, Harko; and Klebert, Wolfgang, 3,789,027.
Traubel, Harro; Weber, Karl-Arnold; Koch, Otto; and Konig, Klaus, 3,788,887.
Beakbane, Henry, (Fortox) Limited: *See*—
Knowles, Peter M., 3,788,377.
Bear, Fred B.; and Jefferey, Owen E., to Victor Comptometer Corporation. Adjustable bow sight. 3,787,984, Cl. 33-265.000.
Bearden, Roby, Jr.; MacMullin, Robert B.; Lewis, William E.; and Welty, Albert B., Jr., to Esso Research and Engineering Company. Process for the desulfurization of petroleum oil stocks. 3,788,978, Cl. 208-208.00n.
Beaudoin, Yvon; and Gingras, Claude A., said Beaudoin assor. to said Gingras, Claude A. Multiple-speed transmission with reverse drive. 3,788,167, Cl. 74-762.000.
Beausoleil, William F.; Ho, Irving T.; and Yu, Hwa Nien, to International Business Machines Corporation. Dyanmically ordered bidirectional shift register having charge coupled devices. 3,789,247, Cl. 307-304.000.
Beck, Russell R.; George, David B.; and Anderson, Charles W., to Kennecott Copper Corporation. Process for producing pelletized metal sulfide materials. 3,789,097, Cl. 264-82.000.
Beck, Warren R.; and Sweeny, Norman P., to Minnesota Mining and Manufacturing Company. Incompressible, conformable structure containing cellular particles. 3,787,908, Cl. 5-348.0wb.
Beckman Instruments, Inc.: *See*—
Rohrbaugh, Donald G., 3,788,815.
Rohrbaugh, Donald G.; and Pearson, William R., 3,788,816.
Becton, Dickinson, and Company: *See*—
Kitzie, John, 3,788,602.
Becton, Dickinson Electronics Company: *See*—
Wilner, Leslie B., 3,788,149.
Bednarczyk, Julian F.; and Gate, James M., to Westinghouse Electric Corporation. Two-piece bladed diaphragm for an axial flow machine. 3,788,767, Cl. 415-217.000.
Beebe, Raymond A., to Massey-Ferguson, Inc. Pneumatic seed dispenser. 3,788,518, Cl. 221-211.000.
Behrendt, John W., to United States of America, Navy. Frame for low frequency source. 3,789,401, Cl. 340-8.00s.
Beier, Helmut; Handke, Siegfried; and Konczal, Wolfgang, to Siemens Aktiengesellschaft. Electric compressed-gas circuit breaker. 3,789,175, Cl. 200-148.00r.
Beiertz, Hans, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Dyeing polyamide bonded fleece by dwelling with method complex azo dyestuffs. 3,788,807, Cl. 8-26.000.
Beigay, Jack M.; Choby, Edward G., Jr.; and Kaferlf, Joseph S., to Allegheny Ludlum Industries, Inc. Mechanical shaping. 3,788,112, Cl. 72-46.000.
Beisch, Hanspeter E.; and Kaman, Frank A., to Skil Corporation. Safety retracting mechanism for the lower guard of a portable saw. 3,787,973, Cl. 30-391.000.
Bell, David F.; Johari, Girish C.; and McNulty, Edward R., to International Business Machines Corporation. Voltage level control for D.C.-to-D.C. converter. 3,789,289, Cl. 321-2.000.
Bell, Heinz G.; and Stepper, Heinz J., to Westinghouse Electric Corporation. Non-sag incandescent tungsten filament for an incandescent lamp. 3,789,255, Cl. 313-217.000.
Bell, Larry E. Boat guide device. 3,788,502, Cl. 214-84.000.
Bell Northern Research Ltd.: *See*—
Lenaeris, George Victor; Laing, Graham Sterling; Morrell, Ronald Joseph; and Willis, Wesley Nelson (said Laing assor. to), 3,789,348.
Bell Telephone Laboratories, Incorporated: *See*—
Beurrier, Henry Richard, 3,789,314.
Beurrier, Henry Richard, 3,789,315.
Bonyhard, Peter Istvan, 3,789,373.
Bridges, Thomas James; and Nguyen, Van-Tran, 3,789,235.
Cantor, Barry Ira, 3,789,242.
Chen, Yu-Ssu; Geusic, Joseph Edward; and Nelson, Terrence John, 3,789,375.
Heightley, John Donnell, 3,789,206.
Hess, William Emil, Jr., 3,789,241.
Kotwicki, Allan Joseph, 3,789,199.
Krambeck, Robert Harold; and Walden, Robert Henry, 3,789,267.
Larsen, Arthur Bertel, 3,789,132.
Major, Norman Lionel, 3,789,146.
May, Paul Hillard, 3,789,304.

Medill, David Gordon; and O'Neill, John Francis, 3,789,152.
Medill, David Gordon, 3,789,154.
Schneider, Herbert Anton, 3,789,245.
Unger, Burton Abram, 3,788,911.
Yarnell, Charles Frederick, 3,788,898.

Bell-Northern Research Ltd.: *See*—
Maheux, Peter Francis, 3,789,342.

Belvedere, Paul C. Protective face mask and padding material therefor. 3,787,895, Cl. 2-9.000.

Bement, Elmore: *See*—
Sievenpiper, Frederic Leory; and Bement, Elmore, 3,788,811.

Benasutti, Louis D.; and Chernek, Joseph D., to General Motors Corporation. Waterline retractor for refrigerator cabinet. 3,788,094, Cl. 62-339.000.

Bendix Corporation, The: *See*—
Miller, Donald L., 3,788,099.
Sliney, John T., 3,788,579.

Benjamin, Milton L.; Walker, David D.; and Miles, Wilbur N., to Erickson Tool Company. Instant change tool holder. 3,788,658, Cl. 279-75.000.

Bennett, Brian Garner; and Holmes, William Samuel, to Albright & Wilson, Limited. Production of nitrogen and phosphorous-containing compounds. 3,788,986, Cl. 252-1.000.

Bennett, James R., to Evans Products Company. Car shipping apparatus. 3,788,238, Cl. 105-368.00r.

Bergstrom, Theodore R., to Minnesota Mining and Manufacturing Company. Filter. 3,788,486, Cl. 210-496.000.

Bergwerksverband G.m.b.H.: *See*—
Juntgen, Harald; Knoblauch, Karl; Zundorf, Dieter, and Gappa, Gunther, 3,788,985.

Beringer, Monique: *See*—
Buchmann, Paul, and Beringer, Monique, 3,788,471.

Berkowitz, Sidney, to FMC Corporation. Formulating with a non-burning chlorinated dry bleach. 3,789,000, Cl. 252-95.000.

Bernard, Andre; Gagne, Pierre; Gras, Georges; and Neel, Jean, to Societe Civile dite Soltex. Textile material coated with a waterproofing agent. 3,788,884, Cl. 117-121.000.

Bernstein, Jack: *See*—
Narayanan, Venkatachala L.; and Bernstein, Jack, 3,789,073.

Bernstein, Jack, to Squibb, E. R., & Sons, Inc. Carboxamides. 3,789,072, Cl. 260-557.00b.

Berrange, Aubrey Ralph, to South African Inventions Development Corporation. Impact roller apparatus. 3,788,757, Cl. 404-124.000.

Berry Metal Company: *See*—
Bintrim, Donald D., 3,788,235.

Bertinetti, Emilio Alberto: *See*—
Cigala, Vincenzo, and Bertinetti, Emilio Alberto, 3,788,155

Besnyo, George Frank: *See*—
Brown, William B.; Besnyo, George Frank, and Hornor, Eugene Marshall, 3,788,213.

Besser, Paul J.: *See*—
Mee, Jack E.; and Besser, Paul J., 3,788,896.

Bessette, Oliver Edward, to RCA Corporation. High density isolated multi-channel magnetic circuit transducer. 3,789,156, Cl. 179-100.20c.

Beta Crafts, Incorporated: *See*—
Hasselbach, Arthur, 3,788,590.

Bethlehem Steel Corporation: *See*—
Gelles, Nicholas; Shiley, Paul J., and Casella, Michael D., 3,788,690.
Miller, Timothy W., 3,788,624.
Peoples, Richard A., 3,788,272.
Stephens, Paul F., 3,788,864.

Beurrier, Henry Richard, to Bell Telephone Laboratories, Incorporated. Amplifier utilizing input signal power. 3,789,314, Cl. 330-185.000.

Beurrier, Henry Richard, to Bell Telephone Laboratories, Incorporated. Hybrid couplers. 3,789,315, Cl. 330-185.000.

Beymer, Glen E. Extension for a mobile continuous siding machine. 3,788,115, Cl. 72-181.000.

Billeri, Fulvio: *See*—
Billeri, Tullio; and Billeri, Fulvio, 3,788,004.

Billeri Ricardo & Frigli S.n.c.: *See*—
Billeri, Tullio; and Billeri, Fulvio, 3,788,004.

Billeri, Tullio; and Billeri, Fulvio, to Billeri Ricardo & Frigli S.n.c. Systems for opening and closing access apertures in the outer walls of tannery paddle tumbles and the like. 3,788,004, Cl. 49-41.000.

Billi, G. & C., S.p.A.: *See*—
Billi, Giorgio, 3,788,104.

Billi, Giorgio, to Billi, G. & C., S.p.A. Yarn changer for multi-feed circular knitting machines. 3,788,104, Cl. 66-138.000.

Bindernagel, Ali; and Mattheis, Friedrich Karl, to Kocks, Friedrich, Firma. Rolls. 3,787,942, Cl. 29-125.000.

Bingham, Ronald E.; Cecil, Thomas F.; Galli, Guido; and Poquette, Gereon E., to International Business Machines Corporation. Corona charging device. 3,789,278, Cl. 317-262.00a.

Binkley Company, The: *See*—
Kiselewski, Donald L., 3,788,019.

Binks-Bullows, Limited: *See*—
Guise, Frank, 3,788,554.

Bintrim, Donald D., to Berry Metal Company. Support structure for turn wheel of cable-driven chair lift. 3,788,235, Cl. 104-191.000.

Bio/Physics Systems, Inc.: *See*—
Friedman, Mitchell; Kamentsky, Louis A.; and Klinger, Isaac, 3,788,744.

Birchall, James Derek, and Cassidy, John Elward, to Imperial Chemical Industries, Limited. Fibrous materials. 3,788,885, Cl. 117-126.0af.

Bish, Raymond C. Saddlebag-travel case for a motorcycle. 3,788,532, Cl. 224-31.000.

Bishop, Billy H. Fluid lift mechanism and underground housing. 3,788,197, Cl. 92-77.000.

Bishop, Gerald B., to Ford Motor Company. Accelerator pump system 3,788,615, Cl. 261-34.00a.

Bjorn, James M.; and Johnson, C. Walter. Frame for hanging folders in file cabinets. 3,788,718, Cl. 312-184.000.

Black and Decker Manufacturing Company: *See*—
Ehrlich, Stephen Jeffrey, 3,788,049.

Black Clawson Fiberclaim, Inc., mesne: *See*—
Marsh, Paul G., 3,788,568.

Black Sivalls & Bryson, Inc.: *See*—
Arenson, Edwin M., 3,788,825.

Blackmer, David E. Compander with control signal logarithmically related to the instantaneous RMS value of the input signal. 3,789,143, Cl. 179-15.55r.

Blackwell, Robert E., to Westinghouse Electric Corporation. Flow meter. 3,788,141, Cl. 73-194.00b.

Blair, Boyd C., to Brackett Stripping Machine Co., Inc. Glue applying device. 3,788,270, Cl. 118-5.000

Blakely Industries: *See*—
Blakely, James T., 3,788,362

Blakely, James T., to Blakely Industries. Automatic loom filling winder 3,788,362, Cl. 139-247.000.

Blaupunkt-Werke GmbH: *See*—
Backwinkel, Johannes, 3,789,262
Prolss, Hans; and Hegeler, Wilhelm, 3,789,362.

Bloomfield, Roger D., to Uniflo Systems Company. Valve for levitated vehicle track. 3,788,231, Cl. 104-23.05.

Blount, Eric Albert, to Marconi Company Limited, The. Tracker ball arrangements. 3,789,218, Cl. 250-231.05e

Blymiller, Arthur L., and Snodgrass, John E., to United States of America, Air Force. Frequency discriminator device. 3,789,399, Cl. 343-14.000.

Boehland, Robert R., Jr., to Feather Hill Industries, Inc. Feeder for clinging type birds. 3,788,279, Cl. 119-52.00r.

Boehringer Ingelheim G.m.b.H.: *See*—
Kruger, Gerd; Zipp, Otmar; Keek, Johannes; Nickl, Josef; Machleidt, Hans; Ohnacker, Gerhard; Engelhorn, Robert; and Puschmann, Sigfrid, 3,789,125

Boeing Company, The: *See*—
Henson, Alfred J., and Lewis, Richard W., 3,789,198

Boettcher, Clifford T., and Creasman, David O., deceased (by Creasman, Frances S., administratrix). Automatic and semi-automatic reel tenders. 3,788,575, Cl. 282-86.50r

Bolex International SA: *See*—
Oulevay, Serge, and Thevenaz, Jean, 3,788,736

Bolt Associates, Inc.: *See*—
Chelminski, Stephen V., 3,788,402

Bonner, Alvin T., Sr., to Singer Company, The. Universal knife block for tufting machines. 3,788,245, Cl. 112-79.00r

Bonnett, Charles O. Windrow controller. 3,788,053, Cl. 56-399.000

Bonomo, Otto A.: *See*—
Valente, Raymond L., and Bonomo, Otto A., 3,787,947.

Bonyhard, Peter Istvan, to Bell Telephone Laboratories, Incorporated Magnetic, single wall domain, or logic using chevron domain propagating elements. 3,789,373, Cl. 340-174.0tf.

Bonzano, Giorgio; Lesca, Pier Carlo; and Ponzano, Luigi, to Olivetti, Ing., C., & C., S.p.A. Transducer positioning mechanism. 3,789,378, Cl. 340-174.10c.

Booth, Richard L., to Taylor, S. G., Chain Company, Inc. Chain inspection and repair system. 3,788,062, Cl. 59-35.000

Borg-Warner Corporation: *See*—
Holdeman, John W.; and McMillen, Kenneth G., 3,788,075.
Johnson, Raymond E., Miller, Wendell E.; and McMillen, Kenneth G., 3,788,077.
Shuey, Scott James; Smith, Wallace Leland; and Wilk, Harold G., 3,788,764.

Borneman, Lawrence A., to Dick, A. B., Company. Stencil duplicator with master making and pneumatic handling features. 3,788,221, Cl. 101-116.000.

Bornett, Charles B.; and Morrison, Larry A., to Diebold, Incorporated. Pneumatic tube carrier end closure construction. 3,788,577, Cl. 243-35.000.

Borst, Walter. Ball-pitching device. 3,788,297, Cl. 124-7.000.

Bosch, Robert, G.m.b.H.: *See*—
Kurz, Hanns; and Linder, Siegfried, 3,788,964.
Leutner, Volkmar; and Romes, Roman, 3,788,775.
Schwerin, Guenther, 3,788,709.
Van der Kolk, Hans-Jurgen, 3,788,773.

Boschen, William O.; and Grieshaber, Otto A., to Carter, Ralph B., Company. Waste water process tank control facility. 3,788,472, Cl. 210-103.000.

Bose, Robert N. Method for accelerating the molding cycle by blanketing with dry carbon dioxide gas. 3,789,093, Cl. 264-37.000.

Bostrom, Bertil Ingemar: *See*—
Knoos, Stellan; Ljungdahl, Soren F. S.; and Bostrom, Bertil Ingemar, 3,788,395.

Bottoms, Eugene R., to Chevron Research Company. Method of accurately measuring, depthwise, well casing collars for interpretative purposes. 3,789,292, Cl. 324-34.00r.

Bouchard, Joseph. Sterilizing apparatus. 3,789,228, Cl. 250-993.000.

Bouladon, Gabriel: *See*—
Schneider, Karl; Cuenoud, Gerard, Bouladon, Gabriel; and Zuppiger, Paul, 3,788,232.

Bowe, Bohler & Weber KG: *See*—
Burger, Hurst, 3,787,986

Bowler, Lauren L., to General Motors Corporation. Anti-theft system including a pushbutton electronic combination ignition lock and transmission shift control. 3,788,422, Cl. 180-114.000.

Bowman, Brian, to British Steel Corporation. Arc furnaces. 3,789,127, Cl. 13-12.000

Boyer, Wilhelm: *See*—
Ritter, Josef, Gott, Hans, Ritter, Klaus, Gamillscheg, Otto; Boyer, Wilhelm, and Ritter, Gerhard, 3,788,122.

Bozoian, Michael; Krugler, Allen D., Jr.; and Radin, Bernard G., to Ford Motor Company. Electric circuitry for vehicle speed responsive system. 3,788,421, Cl. 180-105.00r.

Brackett Stripping Machine Co., Inc.: *See*—
Blair, Boyd C., 3,788,270

Braddon, David V.: *See*—
Falkehag, Sten I., and Braddon, David V., 3,789,043.

Bragg, Kenneth R., to Parker-Hannifin Corporation. Fuel tank inerting system with means to improve thermal stability of fuel. 3,788,039, Cl. 55-160.000

Bragg, Kenneth R., and Kenyon, Richard L., to Parker-Hannifin Corporation. Fuel tank inerting system. 3,788,040, Cl. 55-160.000.

Brahler, George R. Container closure. 3,788,512, Cl. 220-25.000.

Bramard, James L., and Palm, Robert J. Vehicle wheel and spider therefor. 3,788,705, Cl. 301-9.0dn

Bramerd Manufacturing Co.: *See*—
Lippman, Aaron H., 3,788,107.

Brandt, Alan: *See*—
Rabenhorst, David W.; Brandt, Alan, Darnell, Kenneth E., and George, James F., 3,788,162

Brass, Robert L. Toy mail box. 3,787,987, Cl. 35-1.000.

Braun, Ernst: *See*—
Braun, Gert, and Braun, Ernst, 3,788,458

Braun, Gert, and Braun, Ernst, to Halbach & Braun. Conveyor trough connecting joint construction. 3,788,458, Cl. 198-204.000

Braun, Peter: *See*—
Buttner, Gert; Hartmann, Adolf, and Braun, Peter, 3,789,031.

Braun, W., Company: *See*—
Lerner, Nathan B., 3,787,904

Brayton Cycle Improvement Associates, mesne: *See*—
Nebgen, William H., 3,788,066

Brazzel, Ronald D.: *See*—
Shell, Don C.; Tanner, David A.; and Brazzel, Ronald D., 3,788,037.

Breer, Karl, to Bayer Aktiengesellschaft. Apparatus and process for mixing components which react quickly with one another, more especially for the production of foam materials. 3,788,337, Cl. 137-1.000

Breglia, Denis R., Mohon, Windell N.; and Mulson, Joseph F., to United States of America, Navy. Laser direct fire simulator employing refractive media. 3,788,733, Cl. 350-287.000

Breikss, Ivars Peter, to Honeywell Inc. Compensation of reproduced signal by measuring deviation of recorded reference signal 3,789,379, Cl. 340-174.10h

Bremner, David F., to National Cash Register Company, The. Price setting keys and method of transferring price to printer. 3,789,193, Cl. 235-61.11r

Bresson, Clarence R., and Cobb, Raymond L., to Phillips Petroleum Company. Novel multifunctional hydroxy compounds. 3,789,069, Cl. 260-514.00j

Brettrager, Donald R.: *See*—
Cheek, John M., and Brettrager, Donald R., 3,788,198

Breunsbach, Maurice C., to Spirolet Corporation. Nozzle. 3,788,353, Cl. 137-604.000

Breunsbach, Maurice C., to Spirolet Corporation. Liquid injection adaptor. 3,788,557, Cl. 239-401.000.

Brewer, John A. Piston engine. 3,788,286, Cl. 123-43.00c

Brewer, Robert W., to General Motors Corporation. All-metal check valve for air injection system. 3,788,071, Cl. 60-293.000.

Brezina, Jan. Automatic cigarette lighter. 3,789,187, Cl. 219-261.000.

Bridges, Thomas James, and Nguyen, Van-Tran, to Bell Telephone Laboratories, Incorporated. Far infrared coherent radiation source employing charge carrier spin nonlinearity in a magnetic field. 3,789,235, Cl. 307-88.300.

Bridigum, Robert J.: *See*—
Glass, William H.; and Bridigum, Robert J., 3,788,769

Brillon, Jacques, to L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Cryogenic gas traps. 3,788,096, Cl. 62-55.500

British Iron and Steel Research Associates, The: *See*—
Hoyle, Geoffrey; and Longbottom, David Melvin, 3,788,381.

British Petroleum Company Limited, The: *See*—
Cook, Terence John, and Olive, Martin Frederick, 3,789,082.

British Steel Corporation: *See*—
Bowman, Brian, 3,789,127

Brock, Larry D.; Games, John E.; and Saunders, John, to United Aircraft Corporation. Course/fine synchro altimeter converter. 3,789,391, Cl. 340-347.00c.

Brock, Robert James; Hansen, Paul Bernard; and Wilson, John C., to Kimberly-Clark Corporation. Nonwoven laminate containing bonded continuous filament. 3,788,936, Cl. 161-148.000.

Broerman, Arthur B. Medical adhesive solvent composition. 3,789,118, Cl. 424-45.000.

Brooks, Frank W.; and Naismith, Thomas D., to General Motors Corporation. Disc brake and wheel assembly. 3,788,429, Cl. 188-18.00a.

Brorein, William J.; and Humen, Nicholas, to General Cable Corporation. Electrical connector for telephone cords. 3,789,344, Cl. 339-59.00m.

Brose, Peter, to Sick, Erwin, Firma. Needle monitoring device for circular knitting machines. 3,788,105, Cl. 66-157.000.

Brotherton, Thomas Kemper: *See*—
Colomb, Henry Octave, Jr.; Treeker, David John; and Brotherton, Thomas Kemper, 3,789,042.

Brown, Boveri & Cie Aktiengesellschaft: *See*—
Goehle, Rolf; Velten, Walter; and Knirsch, Gunther, 3,789,334.

Brown, Boveri & Company Limited: *See*—
Winter, Peter, 3,789,233.

Brown, Hazel V.: *See*—
Brown, William B.; Besnyo, George Frank; and Hornor, Eugene Marshall, 3,788,213.

Brown, Malcolm B., to United States of America, Navy. Ordnance handling device. 3,788,680, Cl. 294-81.00r.

Brown, William B.; deceased (by Brown, Hazel V.; representative); Besnyo, George Frank; and Hornor, Eugene Marshall, to Western Electric Company, Incorporated. Methods of and apparatus for marking successive sections of an elongated material. 3,788,213, Cl 101-37.000.

Brown, William David; and Thomson, Richard Noel, to Dunlop Limited. Inflatable seals. 3,788,651, Cl. 277-34.000

Brown, William J., to Chemplex Company American Can Company. Continuous forms leader. 3,788,536, Cl. 226-91.000

Bru, Michel, to Ets J. J. Carnaud & Forges de Basse-Indre. Sheet feeding cylinder. 3,788,639, Cl. 271-53.000.

Bruer, James D.; Buddington, Donald L.; and Klein, Walter F., to International Business Machines Corporation. Dictation apparatus with disc loading, feeding, and ejecting feature. 3,789,160, Cl. 179-100.20z.

Brumett, Billy M., to Hawley Manufacturing Corporation. Spring securement means for sealing web. 3,788,208, Cl. 98-115.0vm.

Brundage, Horace W.: *See*—
Evans, Robert A.; and Brundage, Horace W., 3,787,920.

Brunel University: *See*—
Jeffries, Thomas Oliver, 3,788,234.

Bruning, Leslie. Drain guard for contact lens. 3,788,485, Cl. 210-474.000.

Bruno, Joseph S.: *See*—
Harper, Robert J., Jr., Gautreaux, Gloria A.; Bruno, Joseph S., and Donoghue, Matthew J., 3,788,804.

Brunswick Corporation: *See*—
Strong, William A., 3,788,267.

Brusa, Ugo. Electric furnace for heating and melting scrap iron and steel. 3,789,126, Cl. 13-10.000.

Buchmann, Fred J.; Eidt, Clarence M., Jr.; Mason, Ralph B.; and Hamner, Glen P., to Esso Research and Engineering Company. Hydrocracking process utilizing mixed nonnoble metal catalyst. 3,788,974, Cl. 208-59.000.

Buchmann, Paul; and Beringer, Monique, to Soleo Basel AG. Dialysis apparatus. 3,788,471, Cl. 210-94.000.

Buckbee-Mears Company: *See*—
Frantzen, John J.; and Lund, Charles M., 3,788,912.

Budd, Allan L.; Baxter, Robert E.; and Greenberg, Jonathan S., to Monitor Labs, Inc. Gas permeation tube and method for the filling thereof. 3,788,545, Cl. 239-34.000.

Buddington, Donald L.: *See*—
Bruer, James D.; Buddington, Donald L.; and Klein, Walter F., 3,789,160.

Buechler, Lester W., to Systems Research Laboratories, Inc. Distance indicating optical probe. 3,788,741, Cl. 356-4.000.

Buchow, William H.; Mohrbacker, William J.; and Mihulowicz, George, to Rexnord, Inc. Lubricant system for drive and support of concrete mixer drum. 3,788,610, Cl. 259-177.000.

Bukama GmbH Hanover: *See*—
Lange, Wilfried, 3,788,195.

Bunker-Ramo Corporation, The: *See*—
Jen, Dixson Teh-Chao; and Lotan, Amram Zvi, 3,789,365.

Burger, Edgar P., to Ford Motor Company. Rain cap for exhaust pipe. 3,788,072, Cl. 60-324.000.

Burger, Hurst, to Bowe, Bohler & Weber KG. Blower for vehicle-drying installation. 3,787,986, Cl. 34-229.000.

Burkness, Donald C., and Warlick, William W., Jr., to United States of America, Army. Serial code translator. 3,789,390, Cl. 340-347.0dd.

Burlington Northern, Inc.: *See*—
Slusher, Leonard G., 3,788,498.

Burns, Bland Calvin. Vacuum sewage conveying with vacuum operated valve. 3,788,338, Cl. 137-1.000.

Burns, Louis O., to General Signal Corporation. Actuator unit. 3,788,194, Cl. 91-386.000.

Burns, William E.; and Taylor, Robin, to Interlake Inc. Transfer car arrangement. 3,788,499, Cl. 214-16.40b.

Burri, Hans, to Heberlein & Co. AG. Apparatus for selectively changing the sense of rotation of the twist tube of a false-twist machine. 3,788,056, Cl. 57-77.450.

Burroughs Corporation: *See*—
Holz, George E.; and Ogle, James, 3,789,265.

Kupsky, George Andrew, 3,787,940.
Burton, Christopher Philip, to International Computers, Limited. Error indicating display. 3,789,385, Cl. 340-324.00r.
Bury, George John, to Illinois Tool Works Inc. Alternate action switch convertible to momentary by putting latch on different pivot. 3,789,173, Cl. 200-153.00j.
Busch, Francis R., to General Electric Company. Gas conditioning and analyzing system. 3,788,813, Cl. 23-232'00e.
Busch, Gerhard: *See—*
Barenyi, Bela; and Busch, Gerhard, 3,788,681.
Busdiecker, Robert A.: *See—*
Babcock, Clarence L.; Busdiecker, Robert A.; and Hagedorn, Erwin C., 3,788,865.
Buslik, Walter Siegbert, to International Business Machines Corporation. Magnetic tape cartridge and storage apparatus. 3,788,576, Cl. 242-199.000.
Buttner, Gert; Hartmann, Adolf; and Braun, Peter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Copolyester fibers and filaments having defined shrinking properties. 3,789,031, Cl. 260-75.00t.
Buxton, Alan, to Associated Engineering, Limited. Plastic coatings for articles and a method of producing same. 3,788,961, Cl. 204-181.000.
Byrd, Jerry A. Garbage can rack. 3,788,583, Cl. 248-146.000.
Cachat, John F., to Park-Ohio Industries Inc. Modified inductor for inductively heating valve seats. 3,789,180, Cl. 219-10.570.
Caflisch, Edward G.; Reed, Denvil E., Jr., and Williamson, Kenneth D., to Union Carbide Corporation. Process for upgrading dripolene. 3,788,979, Cl. 208-255.000.
Cahn, Robert L. Receptacle carrier for an automatic conveying system. 3,788,451, Cl. 198-131.000.
Califano, Frank L.; and Laszlo, Joseph, to Flintkote Company, The. Method for making tile products. 3,788,925, Cl. 156-269.000.
California Controls Company. *See—*
West, Benjamin W., 3,788,350.
California Institute of Technology. *See—*
George, Nicholas, 3,788,743.
Callus Memories, Inc. *See—*
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Camacho, Vasco G. *See—*
Anderson, James J.; Camacho, Vasco G.; and Kinney, Robert E., 3,789,091.
Camarasa, Mario, and Kraus, Bernhard Josef, to Esso Research and Engineering Company. Purification of internal combustion engine exhaust gas. 3,788,070, Cl. 60-290.000.
Cambridge Instrument Company, Inc. *See—*
Fawcett, Howard, 3,789,423.
Cameo, Incorporated. *See—*
Terral, Ben D., and McGowen, Harold E., Jr., 3,788,397.
Cameli, Nazzareno. *See—*
Longi, Paolo; Cameli, Nazzareno; Valvassori, Alberto; Parodi, Sandro; and Cervi, Remo, 3,789,036.
Cameron, Clyde Fraser, to Victoria Industries, Ltd. Mechanical jack. 3,788,604, Cl. 254-108.000.
Cameron Iron Works, Inc. *See—*
Allen, Herbert, 3,788,600.
Camp, John W. A., to Ford Motor Company. Clutch release bearing. 3,788,437, Cl. 192-98.000.
Campanella, Samuel Joseph; Suyderhoud, Henri George; and Onufry, Michael, Jr., to Communications Satellite Corporation (Comsat). Echo canceller with variable threshold. 3,789,165, Cl. 179-170.200.
Campau, Walter J., to Chrysler Corporation. Shock absorbing starter clutch mechanism. 3,788,151, Cl. 74-7.000a.
Campbell, Roger G., Sr.; Goff, Richard E., Jr.; and Priestley, Joseph A., to Johnson & Johnson. Narrow elastic fabric for use as waistband in articles of apparel. 3,788,365, Cl. 139-421.000.
Campbell, Roger G., Sr.; Goff, Richard E., Jr.; and Guay, Normand D., to Johnson & Johnson. Narrow elastic fabric. 3,788,366, Cl. 139-421.000.
Canadian General Electric Company, Limited. *See—*
Thayer, Victor R., 3,789,113.
Candiani, Giampiero, to Societa Italiana Telecomunicazioni Siemens S.p.A. Binary-code compressor. 3,789,392, Cl. 340-347.00dd.
Cannon, Maxwell R., to International Business Machines Corporation. Digital recording at twice nyquist bandwidth. 3,789,380, Cl. 340-174.10g.
Canon Kabushiki Kaisha. *See—*
Sugiura, Muneharu; and Hirose, Ryusho, 3,788,731.
Cantor, Barry Ira, to Bell Telephone Laboratories, Incorporated. Overvoltage and undervoltage detection circuit. 3,789,242, Cl. 307-235.00r.
Cantrell, C. M., 40% to Petrek, John P. Interphase mass transfer process from lamina flowing films .005 in. thick. 3,788,954, Cl. 203-89.000.
Caraway, Mitchell R.: *See—*
Simmons, Smith H., and Caraway, Mitchell R., 3,788,018.
Carborundum Company: *See—*
Loricchio, Domingos, 3,789,050.
Carbuny, Max, to Westinghouse Electric Corporation. Gas monitoring system. 3,788,742, Cl. 356-5.000.
Cardinal Industries Incorporated: *See—*
Staab, Donald C., 3,788,704.
Carlisle, Denis Richard, and Nichols, John Joseph, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defense in Her Britannic Majesty's Government of the. Fuel burners. 3,788,067, Cl. 60-39.74b.
Carlson, Floyd E. Radial piston pump. 3,788,779, Cl. 417-462.000.
Carlson, Kenneth G. Flow-thru palletizer and depalletizer. 3,788,497, Cl. 214-6.00p.
Carlson, Paul E.; and Schimmel, Ralph U., to Mack Trucks, Inc. Transmission shifting apparatus. 3,788,157, Cl. 74-364.000.
Carney, Richard William James, and De Stevens, George, to Ciba-Geigy Corporation. Tertiary aminoacids as anti-inflammatory agents. 3,789,123, Cl. 424-310.000.
Carossino, Andre, to Messrs. Neumo Armaturenfabrik Apparatebau Metallgiesserei GmbH. Debarring tool. 3,787,972, Cl. 30-317.000.
Carpenter, Edward J., and Leyde, Warren L., to Pacific Technology, Inc. Simulated load forecast and control apparatus. 3,789,201, Cl. 235-151.210.
Carpenter, Guy H., and Ross, Ernest E., to Perma Glas-Mesh Corporation. Apparatus for applying pressure sensitive adhesive to glass fiber mesh material. 3,788,271, Cl. 118-33.000.
Carpenter, Loyde M.; Kiser, James W., and Leonard, Lee V., to General Electric Company. Actuating mechanism for a limit switch having elongated pivotally mounted actuating member. 3,789,177, Cl. 200-172.00a.
Carpenter, William L., to Synalloy Corporation. Method for liquid treatment of textile material webs. 3,788,809, Cl. 8-152.000.
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Miller, Kenneth H., 3,788,778.
Carrona, John J. *See—*
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Carter, Ivor W., and Scott, Ian J. C., to Chrysler Corporation. Distributor actuator unit with solenoid advance. 3,788,290, Cl. 123-117.00a.
Carter, James L., and Sinfelt, John H., to Esso Research and Engineering Company. Method for preparation of catalysts. 3,788,020, Cl. 252-442.000.
Carter, Ralph B., Company. *See—*
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Caruso, Philip J., Jr. *See—*
Caruso, Philip J., Jr.; Rasmussen, Lyle E.; and Scarbrough, Joseph E. (said Rasmussen and said Scarbrough assors. to said), 3,789,296.
Caruso, Philip J., Jr.; Rasmussen, Lyle E.; and Scarbrough, Joseph E.; said Rasmussen and said Scarbrough assors. to said Caruso, Philip J., Jr. Moisture monitor system. 3,789,296, Cl. 324-58.50b.
Casco Products Corporation. *See—*
Welk, Horace B., Jr., 3,788,357.
Casella, Michael D. *See—*
Gelles, Nicholas; Shiley, Paul J.; and Casella, Michael D., 3,788,690.
Casey, Robert, to Caterpillar Tractor Company. Clamping mechanism for side shiftable backhoe. 3,788,674, Cl. 280-456.000.
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Cassidy, John Elward. *See—*
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Castela, Andre; and Joubert, Philippe, to Institut Francais du Petrole, des Carburants et Lubrifiants. Apparatus for applying a substantially constant tension to an elongated member connected to an installation subject to alternating movements. 3,788,073, Cl. 60-413.000.
Castela, Andre, and Joubert, Philippe, to Institut Francais du Petrole, des Carburants et Lubrifiants. Device supplying a working fluid under a determined pressure. 3,788,074, Cl. 60-413.000.
Caterpillar Tractor Company. *See—*
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Bailey, John M.; Kranc, Stanley J.; and De Keyser, Richard A., 3,788,546.
Barton, James C.; Christensen, Jon C.; and Mueller, James R., 3,788,697.
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Hart, Cullen P.; and Rosenberger, Paul C., 3,788,166.
Scheidt, James E., and White, Robert W., 3,788,401.
Catherall, Reginald; and Knowles, Susan, to Solartron Electronic Group Limited. Function generation by approximation employing interative interpolation. 3,789,203, Cl. 235-152.000.
Cecil, Thomas F.: *See—*
Bingham, Ronald E.; Cecil, Thomas F.; Galli, Guido; and Poquette, Gereon E., 3,789,278.
Cegedur Societe de Transformation de l'Aluminum Pechiney: *See—*
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Celanese Corporation: *See—*
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Centralalarm International, Inc.: *See—*
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Centre Technique de Cuir: *See—*
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Centro Sperimentale Metallurgico S.p.A.: *See—*
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Chabot, Serge. Hoist assembly for use on scaffolds. 3,788,424, Cl. 182-129.000.
Chafetz, Harry; Cullen, William P.; and Miller, Edward F., to Texaco Inc. Method for treating nitrogen-containing polymeric dispersants. 3,789,076, Cl. 260-583.00n.
Chandler, William T. Crash bar bracket assembly. 3,788,688, Cl. 292-92.000.
Charter Enterprises, Inc.: *See—*
West, James L., Jr., 3,788,086.
Chatourel, Pierre: *See—*
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Chaurand, Patrice; Magnan, Regis; and Coquery, Jean-Paul, to Progil and Ciments Lafarge. Process of manufacturing anhydrous calcium sulfate form II and products obtained by this process. 3,789,111, Cl. 423-555.000.
Chaussy, Leon-Michel. *See—*
Wenzel, Werner, and Chaussy, Leon-Michel, 3,788,838.
Chauvet, Edmond, and Prevote, Andre, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Sheet positioning apparatus. 3,788,634, Cl. 269-154.000.
Check, John M., and Brettrager, Donald R., to Raycon Corporation. Fluid supported rectangular slide unit. 3,788,198, Cl. 92-86.000.
Cheever, Leo H.: *See—*
Williams, Thurston V., and Cheever, Leo H., 3,788,009.
Chelminski, Stephen V., to Bolt Associates, Inc. Automatically self-regulating variable-stroke variable-rate and quiet-operating pile drive apparatus. 3,788,402, Cl. 173-91.000.
Chemische Werke Huls A.G.: *See—*
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Chemplex Company American Can Company: *See—*
Brown, William J., 3,788,536.
Chen, Godfrey. *See—*
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Chen, Yu-Ssu, Geusic, Joseph Edward, and Nelson, Terrence John, to Bell Telephone Laboratories, Incorporated. Single wall domain nucleator. 3,789,375, Cl. 340-174.0tf.
Chernek, Joseph D. *See—*
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Chervenak, Michael C. *See—*
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Chester, Frank S., Johnson, Claude O., Kavanagh, Ira Keith; and van Horik, Leonard R., to McDonnell, Douglas, Corporation. Method of forming honeycomb. 3,788,117, Cl. 72-296.000.
Chevron Research Company. *See—*
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Chicago Bridge & Iron Company. *See—*
Delahunty, Terry Wayne, 3,788,385.
Childers, Clifford W., and Clark, Earl, to Phillips Petroleum Company. Blends of styrene/acrylonitrile copolymers with block copolymers containing lactones and a resinous or rubbery polymer. 3,789,084, Cl. 260-873.000.
Childress, Lorenza S.; and Gundrum, Ralph J., to International Business Machines Corporation. Circle or arc generator for graphic display. 3,789,200, Cl. 235-151.000.
Chilimoniuk, Wlodzimierz. *See—*
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Chivian, Jay S., Claytor, Richard N., and Eden, Dayton D. Binary logic apparatus. 3,789,421, Cl. 346-1.000.
Cho, Antonio. Adjustable angle plate arrangement. 3,788,633, Cl. 269-60.000.
Choby, Edward G., Jr.: *See—*
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Chomczyk, Wlodzimierz; and Chilimoniuk, Wlodzimierz, to Wyzsza Szkola Inzynierska. Intake-valve-free compressor. 3,788,780, Cl. 417-493.000.
Chomerics, Inc.: *See—*
Seeger, Richard E., Jr.; and Coulter, John G., 3,789,167.
Christensen, Jon C.: *See—*
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Christiano, Victor: *See—*
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Christie, Ian Robert Arthur; and Ward, John Joseph Bernard, to International Lead Zinc Research Organization, Inc. Electrodeposition of chromium. 3,788,957, Cl. 204-51.000.
Christy, Daniel Lamar. Machine for dispensing and distributing dry flowable materials. 3,788,529, Cl. 222-314.000.
Chrysler Corporation: *See—*
Campau, Walter J., 3,788,151.
Carter, Ivor W.; and Scott, Ian J. C., 3,788,290.
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Chubu Seiki Kabushiki Kaisha: *See—*
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Church, Peter K.; and Knutson, Oliver J., to Kaman Sciences Corporation, mesne. Method of impregnating porous refractory bodies with inorganic chromium compound. 3,789,096, Cl. 264-60.000.
Ciba-Geigy Corporation: *See—*
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Riccio, Pasquale R., 3,788,556.
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Thornton, Marvin L.; and Riccio, Pasquale R., 3,788,526.
Cigala, Vincenzo; and Bertinetti, Emilio Alberto. Reinforced molded plastic pulleys. 3,788,155, Cl. 74-230.010.
Cincinnati Milacron Chemicals Inc.: *See—*
Hechenbleikner, Ingenuin A.; Hussar, John F.; Koeniger, Arthur F.; and Pressler, Robert L., 3,789,064.
Cincinnati Mine Machinery Co., The: *See—*
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Clancy, Lawrence F.; Lee, Emil B., Jr.; Smart, William O.; and Yancey, John W., to Caterpillar Tractor Company. System for cooling an hydraulic excavator. 3,788,418, Cl. 180-68.00r.
Clark, Adrian Percy, to Plessey Telecommunications Research Company. Code division multiplex system. 3,789,149, Cl. 179-15.0bc.
Clark, Allen L.: *See—*
German, Dale F.; and Clark, Allen L., 3,788,598.
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Clark, George Cyril, Jr.; and Davis, Robert Curtis, to Harris-Intertype Corporation. Synchronism indicator for a convolutional decoder. 3,789,359, Cl. 340-146.10d.
Clark, George Cyril, Jr.; and Davis, Robert Curtis, to Harris-Intertype Corporation. Convolutional decoder. 3,789,360, Cl. 340-146.1aq.
Clark, James M., to International Telephone and Telegraph Corporation. Frame synchronization system. 3,789,307, Cl. 328-155.000.
Clarke, James A., to Dow Chemical Company, The. Oxazolidinone modified triglycidyl ether of trihydroxy triphenyl methane and derivatives thereof. 3,789,053, Cl. 260-47.0en.
Clay, Robert: *See—*
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Claytor, Richard N.; and Eden, Dayton D., to Advanced Technology Center, Inc. Wide band recording apparatus. 3,789,420, Cl. 346-1.000.
Clifton, John R.; and Edwards, Gary S., to United States of America, Navy. Jet ignition device for a pyrotechnic fuze. 3,788,227, Cl. 102-7.00r.
Clough, Roy L., Jr., to Xodar Corporation. Agitating and aerating apparatus. 3,788,616, Cl. 261-64.00r.
Cloyd, Harold S., to Nosco Plastics, Incorporated. Plug valve. 3,788,599, Cl. 251-181.000.
Cobb, Raymond L.: *See—*
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Cocca, Theodore F.; and Sanders, Paul J., to Spacetac Incorporated. Method of making resistor. 3,787,965, Cl. 29-620.000.
Cogar Corporation: *See—*
Finster, Leslie P.; Petkovsek, Richard J.; and Reader, Trevor D., 3,788,571.
Cohen, Howard. Calibrated bracket securing means. 3,787,976, Cl. 32-14.00a.
Cohen, Hyman L.; King, James R., Jr.; and Minsk, Louis M. Novel polymers and photographic elements containing same. 3,788,855, Cl. 96-84.00r.
Cohen, Kenneth W., to Bailey Meter Company. Fluidic timer. 3,788,593, Cl. 251-28.000.
Cole, David R.; and Worrix, Matthew L., to Allis-Chalmers Corporation. Switch operating device with spiral spring charging means and cam release means. 3,789,172, Cl. 200-153.0sc.
Cole, Raymond C.; Hittel, William C.; and Donaghy, James G., to International Playtex Corporation. Methods and apparatus for constructing knitted brassiere blanks and brassieres. 3,789,098, Cl. 264-103.000.
Colebrand, Limited: *See—*
Tusch, Nicholas Norbert; Watson, Robert Ian; and Taylor, Jack, 3,788,273.
Coleman Company, Inc., The: *See—*
Steffes, William J., 3,788,336.
Vincent, Marcel, 3,788,412.
Coleman, H. Paris, to United States of America, Navy. Circularly symmetric retrodirective antenna. 3,789,417, Cl. 343-816.000.
Colgate-Palmolive Company: *See—*
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Colin, Jean Paul, to Societe Financiere et Industrielle des Ateliers et Chantiers de Bretagne. Coupling device of use inter alia for the connection between a barge and a pusher tug. 3,788,259, Cl. 114-235.00a.

Colin, Jean Paul, to Societe Financiere et Industrielle des Ateliers et Chantiers de Bretagne. Locking device more particularly for connection between a barge and a pusher tug. 3,788,261, Cl. 114-235.00a.
Collins, Arthur J. Container closure. 3,788,510, Cl. 215-40.000.
Collins, David A.: *See*—
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Collins, Fred P.: *See*—
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Colomb, Henry Octave, Jr., Trecker, David John, and Brotherton, Thomas Kemper, to Union Carbide Corporation. Radiation curable dinorbornene compositions. 3,789,042, Cl. 260-17.4cl.
Colonna, Jean, to Gaz de France. Safety flap-valve. 3,788,595, Cl. 251-58.000.
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Colovas, Denny D., Logan, John S., and Skruch, Richard R., to Ford Motor Company. Guided transportation system. 3,788,233, Cl. 104-88.000.
Colt Industries Operating Corporation. *See*—
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Columbia Broadcasting System, Inc.: *See*—
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Conklin, Clement L., Jr., to United States of America, Army. Valve reference system for high acceleration environment. 3,788,351, Cl. 137-5\2.100.
Conley, Larry R., to Accra-Point Arrays Corporation. Through-insulation welding method and apparatus. 3,789,183, Cl. 219-92.000.
Connell, Lehman J., and Johnson, Jeffrey L., to General Motors Corporation. Energy absorber for collapsible steering columns or the like. 3,788,148, Cl. 74-492.000.
Consiglio Nazionale delle Ricerche. *See*—
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Consolidated Foods Corporation. *See*—
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Container Corporation of America. *See*—
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Conway, Walter D. Apparatus for filtration. 3,788,483, Cl. 210-416.000.
Cook, James J. Stack-wall. 3,788,026, Cl. 52-749.000.
Cook, Terence John; and Olive, Martin Frederick, to British Petroleum Company Limited, The. Isomerisation of paraffin hydrocarbons. 3,789,082, Cl. 260-683.680.
Cooper, Duane H.: *See*—
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Cooper, George P., to North American Rockwell Corporation. Radar sweep generator. 3,789,261, Cl. 315-27.0td.
Cooper, James Joseph, Jr., to International Telephone and Telegraph Corporation. Insulation piercing connector for underground installation. 3,789,347, Cl. 339-97.00r.
Coppa, Anthony P. Three-dimensional folded structure with curved surfaces. 3,788,934, Cl. 161-17.000.
Coquery, Jean-Paul: *See*—
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Coquillion, Jean; deceased (by Coquillion, Marie-Josephe, executrix); and Jay, Pierre, to Progil. Chlorinated dielectric liquids. 3,788,998, Cl. 252-65.000.
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Cozad, Douglas D.: *See*—
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Creasman, Frances S.: *See*—
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Creighton, Stephen Mark, Mitchell, David Lawrence, and Kay, William Chee, to Research Counsil of Alberta. Seedling container 3,788,003, Cl. 47-56.000
Crile, Eugene E.: *See*—
Wright, Lawrence W., Tolleson, Leon H., Abrahamson, Daniel P., Thomas, Paul M., and Crile, Eugene F., 3,789,101
Crites, Nelson A., to Battelle Memorial Institute. Stress indication 3,788,186, Cl. 85-62.000
Crites, Nelson A., and Schaer, Glenn R., to Battelle Development Corporation. Encapsulation. 3,788,955, Cl. 204-25.000
Crompton & Knowles Corporation. *See*—
Gardiner, Robert A., 3,788,387
Kronoff, Clarence R., and Hayden, Donald F., 3,788,361
Crooks, James W., to Smith, R. L., Gear Company. Winch mechanism 3,788,607, Cl. 254-186.00r
Crystal, Richard G. *See*—
Wellman, Russel F., and Crystal, Richard G., 3,788,994
Cuenoud, Gerard. *See*—
Schneider, Karl, Cuenoud, Gerard, Bouladon, Gabriel, and Zuppiger, Paul, 3,788,232
Cuevas, Ephraim A., to PPG Industries, Inc. Method of producing high purity lithium chloride. 3,789,059, Cl. 260-437.00r
Cullen, William P. *See*—
Chaletz, Harry, Cullen, William P., and Miller, Edward F., 3,789,076.
Cunnell, James. Wheel trim retention. 3,788,707, Cl. 301-37.00p
Cunniff, John G. *See*—
Kosowsky, Leo N., Lovejoy, Curtis N., and Cunniff, John G., 3,788,963
Curington, Alfred R., to Baker Oil Tools Inc. Percussion bits. 3,788,409, Cl. 175-410.000
Curtis, Omer E., Jr., Tuller, Harold W., and Nussbaum, Ralph W., to Allied Chemical Corporation. Production of low molecular weight polyanhydrides and epoxy compositions derived therefrom 3,789,038, Cl. 260-17.200.
Curtis, Robert W.: *See*—
Modrak, Thomas M., and Curtis, Robert W., 3,788,282
Curvale, Pierre Paul: *See*—
Bataille, Roger; Maison, Francois P., and Curvale, Pierre Paul, 3,789,411.
Curzon, Joseph H. Rubber plumber. 3,787,905, Cl. 4-256.000.
Custom Tool & Machine Co., Inc.: *See*—
Nelson, Leonard, 3,788,635.
Cutlas Gear & Mfg, Inc.: *See*—
Prulter, Clarence M., 3,788,435.
Cutshall, Charles E., to Elco Industries, Inc. Controlled-drive sealing fastener. 3,788,185, Cl. 85-1.0jp.
Cutter Laboratories, Inc.: *See*—
Davis, Loren Roger; and Kirkland, Walter Dean, 3,788,524.
Da Rocha, Carlos: *See*—
Propice, Roger; and Da Rocha, Carlos, 3,788,440.
Dai Nippon Insatsu Kabushiki Kaisha. *See*—
Takeuchi, Satoshi; and Saito, Hachiro, 3,788,738.
Daihatsu Kogyo Co., Ltd.: *See*—
Akagi, Kaurd; and Tanaka, Katushi, 3,787,916.
Daimler-Benz Aktiengesellschaft: *See*—
Barenyi, Bela; and Busch, Gerhard, 3,788,681.
Dale Refrigeration Company: *See*—

Lauterbach, William E., 3,788,093
Dalena, Rudolph, Onishi, Roy K.; and Walker, Donald F., to Hughes Aircraft Company. Digital line graphics control on range scalable radar CRT display. 3,789,403, Cl. 343-5.0dp.
Dalmasso, Claudio, to Olivetti, Ing., C., & C., S.p.A. Circuit package. 3,789,341, Cl. 339-17.0cf.
Daniel, Arnold, and Richey, Joseph Burdette, II. Metal casting apparatus. 3,788,382, Cl. 164-150.000.
Daniels, Dennis, to U.S. Amada, Ltd. Tapping head for punch press 3,788,760, Cl. 408-130.000
Darnell, Kenneth E. *See*—
Rabenhorst, David W.; Brandt, Alan, Darnell, Kenneth E.; and George, James F., 3,788,162
Dausch, Ernst, Kubler, Friedrich; Hempel, Theodor; and Fuchs, Franz, to SKF Kugellagerfabriken GmbH. Apparatus for carrying and loading top-rollers in a drawing machine. 3,787,933, Cl. 19-267.000
Davis, Delles T., to Development Research Ltd. Safety zone fuel system for mobile direct service units. 3,788,755, Cl. 404-1.000.
Davis, Ira K., to Fowler, Sam B. Cutting apparatus. 3,788,175, Cl. 83-83.000
Davis, Loren Roger, and Kirkland, Walter Dean, to Cutter Laboratories, Inc. Additive container. 3,788,524, Cl. 222-209.000
Davis, Robert Curtis. *See*—
Clark, George Cyril, Jr., and Davis, Robert Curtis, 3,789,359
Clark, George Cyril, Jr., and Davis, Robert Curtis, 3,789,360.
Dawbarn, Henry D., to Thiokol Chemical Corporation. Tufted pile fabrics and backings therefor. 3,788,364, Cl. 139-420.00r.
Dawson, Clarence G., to FFI, Inc. Plastic wheel assembly for overhead conveyors. 3,787,925, Cl. 16-107.000
Dawson, Theodore R. Container with cup liners and cup holders 3,788,487, Cl. 211-49.00d
De Angelis, Andrea Lucio. Method for the elimination and possible recovery of the floating polluting substances, mineral oils in particular, from sheets of water and boat fitted to this aim. 3,788,481, Cl. 210-242.000
De Brick, Eric, to West Virginia Armature Company. Electrical coupling with pressure contacts and multiple conductance paths 3,789,346, Cl. 339-89.00r
De Bruyn, William I. *See*—
Leggelaar, Claude, and De Bruyn, William I., 3,788,006
De Cat, Arthur Henri. *See*—
Willems, Jozef Frans, Sels, Francis Jeanne, Pollet, Robert Joseph, and De Cat, Arthur Henri, 3,788,851
De Cat, Arthur Henri, Sels, Francis Jeanne, Pollet, Robert Joseph, and Willems, Jozef Frans, to Agfa-Gevaert N.V. Surface-active compounds for use as coating aids for film-forming coating compositions. 3,788,850, Cl. 96-67.000
De Hartog, Jan J., to Fokker V.F.W. N.V. Open framework, especially for building purposes. 3,788,024, Cl. 52-648.000
De Keyser, Richard A. *See*—
Bailey, John M., Krane, Stanley J., and De Keyser, Richard A., 3,788,546
De Laval Turbine Inc. *See*—
Rusak, Vasil, 3,788,765
De Luca, Robert D., to Corning Glass Works. Ionic treatment of glass optical waveguide fibers. 3,788,827, Cl. 65-30.000
De Ramis, Angelika Zankl. *See*—
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De Stevens, George. *See*—
Carney, Richard William James, and De Stevens, George, 3,789,123
DeClaire, James H. *See*—
Gray, Thomas J., DeClaire, James H., and Tucker, Herbert D., 3,788,664
Degnoa, Peter A., and Sutton, Charles B., to General Motors Corporation. Ball bearing with a unitary separator-seal. 3,788,714, Cl. 308-187.200
Degremont Societe Generale d'Epuration et d'Assainissement. *See*—
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Dehne, Axel G., to Hughes Aircraft Company. Double acting expander ending and cryostat. 3,788,088, Cl. 62-6.000
Deike, Robert F. Container anchor rack. 3,788,584, Cl. 248-154.000
Delahunty, Terry Wayne, to Chicago Bridge & Iron Company. Dry type, liquid-solid cooling system. 3,788,385, Cl. 165-2.000.
Delphin, Pierre P., and Perronet, Pierre R., to Thomson-CSF. Magnetic focusing device for an isochronous cyclotron. 3,789,335, Cl. 335-210.000
Demag Aktiengesellschaft. *See*—
Nieboer, Pieter, 3,788,621
Demaray, Merlin E., to Ranco, Incorporated. Multiple zone air conditioning system. 3,788,386, Cl. 165-2.000.
Dempsey, Edward Justing, Kent, David Earl; and Hudspeth, Patrick William, to Concrete Cutting Equipment, Incorporated. Work and feed control system for cutting machines. 3,789,279, Cl. 318-39.000.
Denker, James M., to Nutron Corporation. Fluid controlling. 3,788,339, Cl. 137-115.000.
Denki Kaguku Kogyo Kabushiki Kaisha: *See*—
Suzuki, Tadao, 3,788,792.
Denki Onkyo Co., Ltd.: *See*—
Masuda, Noboru, 3,789,311
Denman, Robert R.: *See*—
Austin, Lewis M.; Denman, Robert R., O'Donnell, Thomas P.; and Veres, Frank, 3,788,828.
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Kilroy, Eugene J., Jr.; Du Breuil, Philip B.; and Dennison, Scott C., 3,787,998.
Dera, Alain Joseph: *See*—
Gelin, Jacques Andre; and Dera, Alain Joseph, 3,788,285.
Derragon, Don C., Jr. to Motor Coach Industries, Inc. Reverse balance flow valve assembly for refrigerant systems. 3,788,394, Cl. 165-134.000.
Derville, Denis, to Compagnie Internationale pour l'Informatique. Programme translation and reentrance device. 3,789,368, Cl. 340-172.500.
Design Dimension, Inc.: *See*—
Taylor, James F., 3,787,910.
Detig, Robert H., to Xerox Corporation. Fixing method utilizing intermediate heat transfer. 3,788,873, Cl. 117-21.000.
Deutsch Fastener Corporation: *See*—
Gulistan, Bulent, 3,788,123.
Development Research Ltd.: *See*—
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Devm, O. K., Inc.: *See*—
Leonhardt, Theodore C., 3,787,992.
Di Stefano, Vittorio, to Centro Sperimentale Metallurgico S.p.A. Quantitative analyzer for liquid-solid chromatography or for electrophoresis and method for its use. 3,788,969, Cl. 204-299.000.
Dia-Print Company, Inc., The: *See*—
Lambert, Daryl G., 3,788,216
Lambert, Daryl Gene, 3,788,215.
Diamond Shamrock Corporation: *See*—
Faunce, John Porter, 3,788,839.
Schenker, Barry A.; Malkin, Irving; and Taylor, Kirman, 3,789,022.
Volgstadt, Frank R.; and Semancik, John R., 3,789,030.
Dick, A. B., Company: *See*—
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Laben, Wallace J.; and Tonkin, Kenneth J., 3,788,220.
Diebold, Incorporated: *See*—
Bornett, Charles B.; and Morrison, Larry A., 3,788,577.
Dieckman, Robert W.; Albers, Bernd G.; and Mrozek, John W., to Pennsylvania Engineering Corporation. Schnabel car. 3,788,237, Cl. 105-367.000.
Dieckmann, George W., Jr., to Food Equipment Corporation. Curved-path slat belt conveyor. 3,788,455, Cl. 198-182.000.
Diem, Rudolf, to SKF Kugellagerfabriken GmbH. Roller support and drive arrangement for roller testing devices. 3,787,983, Cl. 33-174.00q.
Diery, Helmut, Rittner, Siegbert, and Lorke, Horst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Metal working agents. 3,788,991, Cl. 252-33.600.
Dillenberg, Horst. Aqueous electrolytic stripping bath. 3,788,958, Cl. 204-146.000.
Dinger, Edward H., and Stastor, Richard A., to General Electric Company. Voltage compensated phase shifting circuit. 3,789,291, Cl. 323-119.000.
Dinnerstein, Albert J.: *See*—
Willinger, Allan H.; and Dinnerstein, Albert J., 3,788,277.
Ditscheid, Hans Leo, to Felten & Guilleaume Aktiengesellschaft. Air-insulated coaxial high-frequency cable. 3,789,129, Cl. 174-28.000.
Dittrich, Werner: *See*—
Tschunt, Edgar; and Dittrich, Werner, 3,788,450.
Dixon, Earl; and Landry, Norman Richard, to United States of America, Navy. Ferrite microwave phase shifter with insertion phase modifying means. 3,789,330, Cl. 333-31.00a.
Dobo, Emerick J., to Monsanto Company. Orifice assembly for extruding low-viscosity melts. 3,788,786, Cl. 425-72.000.
Doepke, Donald G. H., to General Electric Company. Refuse compactor having a pivotally arranged ram face member. 3,788,212, Cl. 100-229.00a.
Doherty, Lewis S., II, to Doherty-Silentaire. Top discharge roof ventilator. 3,788,207, Cl. 98-42.000.
Doherty-Silentaire: *See*—
Doherty, Lewis S., II, 3,788,207.
Dokuho, Tomoji; Hashimoto, Kiyoshi; and Okada, Masaru, to Japan Exlan Company Limited. Producing multi-color dyed acrylic textile containing wool with acid, direct and cationic dyes. 3,788,805, Cl. 8-21.00a.
Dolbear, Geoffrey E.; and Nagee, John S., Jr., to Grace, W. R., & Co. Hydrocarbon cracking with both a zeolite and Pt-U-alumina in the matrix. 3,788,977, Cl. 208-120.000.
Domecki, Edward H. Shrimp splitting and cleaning apparatus. 3,787,928, Cl. 17-71.000.
Domer, John T., to Whirlpool Corporation. Oven door mounting means. 3,788,300, Cl. 126-21.00r.
Donaghy, James G.: *See*—
Cole, Raymond C.; Hittel, William C.; and Donaghy, James G., 3,789,098.
Donaldson, George R., to Universal Oil Products Company. Simultaneous production of aromatic hydrocarbons and isobutane. 3,788,975, Cl. 208-60.000.
Dondy, Morris, to Texaco Inc. Preparation of hydrocarbylamine salt of thiocyanic acid. 3,789,075, Cl. 260-583.00r.
Donner, Arno Sten. Combination muzzle-loading mortar barrel and projectile. 3,788,188, Cl. 89-1.00f.
Donofrio, Nicholas M.; and Kemerer, Douglas W., to International Business Machines Corporation. Monolithic memory sense amplifi-

er/bit driver having active bit/sense line pull-up. 3,789,243, Cl. 307-238.000.

Donoghue, Matthew J.: *See—*
Harper, Robert J., Jr.; Gautreaux, Gloria A.; Bruno, Joseph S.; and Donoghue, Matthew J., 3,788,804.

Donowitz, Howard; and O'Hara, William J. Surgical implant device. 3,788,327, Cl. 128-350.00r.

Doring, Gerhard, to Jenoptik Jena G.m.b.H. Device for rapid switching of inductors. 3,789,237, Cl. 307-104.000.

Dorma-Baubeschlag GmbH & Co., KG: *See—*
Jentsch, Dietrich, 3,787,924.

Dorr, Karl-Heinz; Grimm, Hugo; and Kola, Rolf, to Metallgesellschaft Aktiengesellschaft. Absorber for sulfur trioxide. 3,788,043, Cl. 55-237.000.

Dortenzo, Alexander T., to Pennsylvania Engineering Corporation. Steel converter vessel pollution control method and apparatus. 3,788,619, Cl. 266-13.000.

Dotco, Inc.: *See—*
Snider, Philip A., 3,788,603.

Douthitt, Merton H., to SCM Corporation. Apparatus for sorption of gas. 3,788,047, Cl. 55-387.000.

Dove, Harold Daniel. High dielectric electronic packaging material. 3,788,939, Cl. 161-93.000.

Dow Chemical Company, The: *See—*
Clarke, James A., 3,789,053
Kropscott, Earle L.; and Wittenbach, Gerald R., 3,789,100.
Lane, Robert E., Jr., 3,789,063.

Dowty Hydraulic Units Limited: *See—*
Kempson, Bertram Carl; and Nicholls, James Andrew, 3,788,063

Doyle, James H., to Master Specialties Company. Method for compressing and synthesizing a cyclic analog signal based upon half cycles. 3,789,144, Cl. 179-15.55t.

Dray, Robert F., to Feed Screws, Inc. Mixing element for extruder screw. 3,788,612, Cl. 259-182.000.

Dresser Industries, Inc.: *See—*
Dysart, Theodore R., 3,788,408.
Marsh, Barry T., 3,788,127.
Wilson, Billy Fred, 3,789,219.
Youmans, Arthur H., 3,789,217.

Drone, Gary A.; and Schnepp, James M., to Allis-Chalmers Corporation. Vehicle frame including radiator and fan mounting. 3,788,419, Cl. 180-68.00r.

Drop, Peter Cornelis: *See—*
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Du Breuil, Philip B.: *See—*
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Du Pont de Nemours, E. I., and Company: *See—*
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French, John Parsons, 3,788,962.
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Irani, Farhad A., 3,789,009.
Klopping, Hein L., 3,789,122.
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Short, Oliver A., 3,788,833.
Stiles, Alvin B., 3,789,019.
Thompson, Darrell R., 3,788,996.

Dubourg, Jean, to Rhone-Poulenc S.A. Lubricant compositions for the cold shaping of metals. 3,788,988, Cl. 252-32.500.

Dukess, Joseph. Multiple compartment tube with resilient divider. 3,788,520, Cl. 222-94.000.

Dumoulin, Joseph; and Obsomer, Marc, to Solvay & Cie. Process for the preparation of vinyl chloride polymers grafted on polymers of ethylene. 3,789,083, Cl. 260-878.000.

Dumstorff, Eugene Francis; Iverson, John Howard, Schloss, Phillip Christian; and Wong, Philip Chock-Yueh, to International Business Machines Corporation. Memory access device. 3,789,367, Cl. 340-172.500.

Dunlavy, Alfred R. Hearing aid construction. 3,789,163, Cl. 179-107.00s.

Dunlop Limited: *See—*
Brown, William David; and Thomson, Richard Noel, 3,788,651.

Dunn, Kenneth H. Automatic firearm. 3,788,190, Cl. 89-196.000.

Dupre, John. Automatic saturation analysis. 3,788,812, Cl. 23-230.00b.

Durst, Jack R.; and Winters, William C., to Pillsbury Company, The. Hydromilling of wheat. 3,788,861, Cl. 426-385.000.

Dusseau, Andress: *See—*
Kim, Sung Soo; and Dusseau, Andress, 3,788,318.

Dyck, Gerhard, to Dyckes Sprinkler Co., Ltd. Stacked valve system. 3,788,344, Cl. 137-271.000.

Dyckes Sprinkler Co., Ltd.: *See—*
Dyck, Gerhard, 3,788,344.

Dye, John F., to Kendall Company, The. Spinal needle. 3,788,320, Cl. 128-221.000.

Dyna Magnetic Devices, Inc.: *See—*
Sebesta, George J., 3,789,166.

Dysart, Theodore R., to Dresser Industries, Inc. Rock bit water deflector and separator. 3,788,408, Cl. 175-337.000.

E-System, Inc.: *See—*
Bauer, George B., and Thornberg, Dean S. (said Thornberg assor to), 3,789,414.

Eannarino, Joseph M.; Granieri, Michael S., Jr.; and Michaelson, Henry W. Child-safe pill dispenser. 3,788,517, Cl. 221-154.000.

Earl, Allan E.: *See—*
Stewart, Graham G.; and Earl, Allan E., 3,788,910.

Eastman Kodak Company: *See—*
Gade, John N.; and MacKay, James D., 3,787,954.
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Mengel, Lloyd A., 3,788,519.
Meyer, Robert J., and Westacott, Harry L., 3,788,349.
Stahly, Frederick August, and Merrill, Stewart Henry, 3,788,995.
Tuite, Robert J., 3,788,854.
Wroblewski, Richard J., 3,788,572.

Easton, Roger L. Navigation system using satellites and passive ranging techniques. 3,789,409, Cl. 343-112.00r.

Eberhard, Frank A. Hydrotherapy bath tub. 3,788,306, Cl. 128-66.000.

Ebert, Robert J. Shoe polishing machine. 3,787,918, Cl. 15-31.000.

Eden, Dayton D.: *See—*
Chivian, Jay S., Claytor, Richard N., and Eden, Dayton D., 3,789,421
Claytor, Richard N., and Eden, Dayton D., 3,789,420

Edgar, William D., Sustarsic, John D., and Konzler, Roymond C., to Koppers Company, Inc. Coke quenching car. 3,788,236, Cl. 105-254.000

Edwards, Gary S.: *See—*
Clifton, John R.; and Edwards, Gary S., 3,788,227.

Eff, Christian A., to General Electric Company. Domestic solid waste incinerator. 3,788,243, Cl. 110-8.00r

Egawa, Hideharu: *See—*
Idei, Gijun; Onoyama, Atsushi, Aihara, Mitsuo; Suzuki, Seigo, Egawa, Hideharu, and Yamaga, Eiichi, 3,788,058

E.G.O. Elektro-Gerate Blanc and Fischer: *See—*
Fischer, Karl; Gossler, Gerhard; and Kigherer, Robert, 3,789,189

Ehrlich, Donald J., to Monon Trailer Inc. Trailer construction. 3,788,682, Cl. 296-28.00m

Ehrlich, Stephen Jeffrey, to Black and Decker Manufacturing Company. Wheel mounting assembly for lawn and garden type tools and the like. 3,788,049, Cl. 56-16.900

Eichelman, George H., Jr.: *See—*
Shapiro, Eugene; Crane, Jacob, and Eichelman, George H., Jr., 3,788,902

Eichner, Fred N.; and Kocher, Leo F., to United States of America, Atomic Energy Commission. Environmental dosimeter of the thermo-luminescent type. 3,789,227, Cl. 250-484.000

Eidt, Clarence M., Jr.: *See—*
Buchmann, Fred J., Eidt, Clarence M., Jr., Mason, Ralph B., and Hamner, Glen P., 3,788,974.

Eikenberry, John N.: *See—*
Goering, Harlan L.; Eikenberry, John N.; and Koermer, Gerald S., 3,789,060.

Eiland, Ehrlich M., to Aluminium Company of America. Method for producing an opaque coating. 3,788,886, Cl. 117-132.0bf.

Elbe, Maximo, to Colorant Schmuckstein GmbH, Firma. Brilliant having plural rings of facets, each having an odd number of facets. 3,788,097, Cl. 63-32.000.

Elco Chemicals Inc.: *See—*
Young, David W., 3,789,008.

Elco Industries, Inc.: *See—*
Cutshall, Charles E., 3,788,185

Electronic Associates, Inc.: *See—*
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Electronique Marcel Dassault: *See—*
Bataille, Roger; Maison, Francois P.; and Curvale, Pierre Paul, 3,789,411.

Elkem A/S: *See—*
Flood, Hakon; and Seltveit, Arne, 3,788,866.

Elliott, Curtis H., Jr., to Grace, W. R., & Co. Process for producing crystalline zeolite. 3,789,107, Cl. 423-329.000.

Elliott, John Scotchford; Crail, Ian Robert Henry; and Askew, Herbert Frank. Lubricating compositions. 3,788,990, Cl. 252-33.400.

Elliott, Robert A.: *See—*
Kojiro, Katsuto; and Elliott, Robert A., 3,788,949.

Ellis, Richard D. Police utility bar. 3,789,358, Cl. 340-87.000.

Eltro GmbH & Company: *See—*
Menke, Franz, 3,788,745.

Elwick, Keith D., to Starling, Inc. Ground engaging hay bale rolling apparatus. 3,788,052, Cl. 56-341.000.

Embley, Ronald W., to Electronic Associates, Inc. Digital coefficient attenuator. 3,789,309, Cl. 328-169.000.

Emerson, William C., to Xerox Corporation. Chain bead drive apparatus. 3,788,454, Cl. 198-168.000.

Emhart Corporation: *See—*
Lattke, Horst G., 3,788,637.

Engelhorn, Robert: *See—*
Kruger, Gerd; Zipp, Otmar; Keck, Johannes; Nickl, Josef; Machleidt, Hans; Ohnacker, Gerhard; Engelhorn, Robert; and Puschmann, Sigfrid, 3,789,125.

Engels, Heinrich, to Siemens Aktiengesellschaft. Ring canal blower. 3,788,766, Cl. 415-531.000.

Engelsmann, Dieter: *See—*
Greiner, Joachim; Engelsmann, Dieter; Gersch, Josef; Landbrecht, Franz; Muller, Rudolf; Wenger, Wolfgang; and Wiedemann, Otto, 3,789,157.

Ensign Electronics, Inc.: *See—*
Forsyth, Eric B., 3,789,352.

Epperlein, Helmut; and Hoscheler, Edgar, to Holzapfel, Christian, K.G. Element for bridging the juncture between adjacent structural components. 3,788,022, Cl. 52-403.000.

ERCO Industries, Limited: *See—*
Rapson, William Howard, 3,789,108.

Ercoli, Alberto; and Gardi, Rinaldo, to Warner-Lambert Company. 17α,21-Orthobutyrates of 6α,9α-difluorohydrocortisone and 6α,9α-difluoroprednisolone, compositions containing same and the use thereof. 3,789,121, Cl. 424-241.000.

Erickson Tool Company: *See—*
Benjamin, Milton L., Walker, David D.; and Miles, Wilbur N., 3,788,658

Erst, Stephen J., to International Telephone and Telegraph Corporation. FM-CW radar range system. 3,789,398, Cl. 343-14.000.

Esso Production Research Company: *See—*
Matthews, Jamie F., Jr., 3,788,084.

Esso Research and Engineering Company: *See—*
Bearden, Roby, Jr., MacMullin, Robert B., Lewis, William E.; and Welty, Albert B., Jr., 3,788,978.
Buchmann, Fred J.; Eidt, Clarence M., Jr.; Mason, Ralph B.; and Hamner, Glen P., 3,788,974
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Henry, H. Clarke; Gilbert, John B.; and Sosnowski, John, 3,788,972
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Etablissements Rousselet: *See—*
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Ethyl Corporation: *See—*
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Lehikoinen, U. Albert, and Franklin, Gerald, 3,788,908.
Wells, Ronald L., 3,788,823.

Ets J. J. Carnaud & Forges de Basse-Indre: *See—*
Bru, Michel, 3,788,639.

Evans, Brent R. Mathematical board game apparatus. 3,788,644, Cl. 273-134.0ad

Evans, Clarence F. Fused igniting dispenser. 3,788,222, Cl. 102-37.004.

Evans, James W., to Athletic Swing Measurement, Inc. Swing measurement system. 3,788,647, Cl. 273-186.00a.

Evans, James W., to Athletic Swing Measurement, Inc. Three dimensional display system. 3,789,397, Cl. 343-7.900.

Evans Products Company: *See—*
Bennett, James R., 3,788,238

Evans, Robert A., and Brundage, Horace W., to Consolidated Foods Corporation. Vacuum cleaner suction tool with orbital nozzles for cleaning deep pile shag rugs. 3,787,920, Cl. 15-416.000.

Everlasting Valve Company: *See—*
Fitzgerald, Thomas W., 3,788,346.

EVG Entwicklungs- und Verwertungsgesellschaft m.b.H.: *See—*
Ritter, Josef; Gott, Hans; Ritter, Klaus; Gamillscheg, Otto; Boyer, Wilhelm, and Ritter, Gerhard, 3,788,122.

Ex-Cell-O Corporation: *See—*
Sutton, Robert S., 3,788,657.

Excelermatic, Inc.: *See—*
Kraus, Charles E., 3,788,713.

Fa. Hunnebeck GmbH: *See—*
Markewitz, Wolfgang; and Mischke, Fritz, 3,788,494.

Fachini, Robert M.; Kenna, Fenton L., Jr.; Barrett, Monroe C.; Nickla, Louis E.; and Graham, Robert L., to International Harvester Company. Automatic bale handling device. 3,788,495, Cl. 214-6.00b.

Fagerstå Aktiebolag: *See—*
Loovist, Kaj Ragnar, 3,787,943.

Fahlman, Gosta H.; Lundborg, Gunnar; and Westberg, Johan Eric Hayden, to AGA Aktiebolag. Tubular diving equipment. 3,788,311, Cl. 128-142.300.

Fairchild Camera and Instrument Corporation: *See—*
Lehrer, William L., 3,788,723.

Fairchild Industries, Inc.: *See—*
Cortez, Edward, 3,789,361.

Falen, Walter S.; and Giardina, Anthony J., to General Motors Corporation. Fuel injection system. 3,788,287, Cl. 123-52.0mv.

Falkehag, Sten I.; and Braddon, David V., to Westvaco Corporation. Elastomer stabilization with lignin-based materials. 3,789,043, Cl. 260-17.500.

Falkehag, Sten, II; and Bailey, Carl W., III, to Westvaco Corporation. Dyestuff compositions containing sulfomethylated phenolic-formaldehyde resin dispersants stabilized with urea or ammonia. 3,788,808, Cl. 8-34.000.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Beiertz, Hans, 3,788,807.
Buttner, Gert; Hartmann, Adolf; and Braun, Peter, 3,789,031.
Diery, Helmut; Rittner, Sieghert; and Lorke, Horst, 3,788,991.
Heiskel, Elmar; and Last, Hartmut, 3,789,028.
Hille, Ernst; Hoyer, Ernst; Meininger, Fritz; and Rottmann, Johannes, 3,788,801.
Klatt, Peter; Seeger, Karl; and Wilborn, Wolfgang, 3,788,296.

Farian, Gerhard; and Fink, Willi, to Kaltenbach & Voigt. Dental handpiece of straight or angle type. 3,787,977, Cl. 32-27.000.

Farlow, Jan M., to Minnesota Mining and Manufacturing Company, mesne. Facsimile drive apparatus. 3,789,426, Cl. 346-138.000.

Farrington, Bob H. Fluorescent bulb handling apparatus. 3,788,693, Cl. 294-20.000.

Faunce, John Porter, to Diamond Shamrock Corporation. Method for incorporating metals into molten metal baths. 3,788,839, Cl. 75-93.00r.

Fawcett, Howard, to Cambridge Instrument Company, Inc. Direct writing recorder including an improved stylus assembly therefor. 3,789,423, Cl. 346-76.00r.

Fazzani, Raymond John, to Torrington, Company, The. Tailpipe forming mechanism. 3,788,116, Cl. 72-296.000.

Feather Hill Industries, Inc.: *See—*
Boehland, Robert R., Jr., 3,788,279.

Featherman, Daniel J., to Featherman, Fetherman and Fetherman. Erectible shelving. 3,788,490, Cl. 211-176.000.

Featherman, Fetherman and Fetherman: *See—*
Featherman, Daniel J., 3,788,490.

Federal Cartridge Corporation: *See—*
Merritt, Edward E., 3,788,224.

Federal Tool & Plastics, a division of VCA Corporation: *See—*
Ostrowsky, Efrem M., 3,788,549.

Feed Screws, Inc.: *See—*
Dray, Robert F., 3,788,612.

FEI, Inc.: *See—*
Dawson, Clarence G., 3,787,925.

Feit, Louis; and Krause, Irving A., to International Telephone and Telegraph Corporation. Arrangement for synchronizing the recording of a plurality of signals an a recording medium. 3,789,159, Cl. 179-100.0zs.

Fejer, Mark E.: *See—*
Nesbitt, John D.; and Fejer, Mark E., 3,788,832.

Feldman, David W.; and Slone, James C., Jr., to United States of America, Navy. Guidance system. 3,789,351, Cl. 340-4.00r.

Feldmann, Robert G., to Pyroil Company, Inc. Windshield scraper. 3,787,921, Cl. 15-105.000.

Felten & Guilleaume Aktiengesellschaft: *See—*
Ditscheid, Hans Leo, 3,789,129.

Felthuis, Jacob: *See—*
Van Laar, Jacobus; and Felthuis, Jacob, 3,788,622.

Fend, Fritz: *See—*
Stahl, Karl-Heinz; Stahl, Werner; and Fend, Fritz, 3,788,547.

Fensom, Harry William, to Post Office, The. Side-tone reducing circuit for a telephone subscribers instrument. 3,789,155, Cl. 179-81.00a.

Fernald, Robert A.: *See—*
Goldie, Charles H.; and Fernald, Robert A., 3,789,214.

Fernseh G.m.b.H.: *See—*
Bachmann, Horst, 3,789,135.

Ferranti Limited: *See—*
Hepburn, William Dunn, 3,789,320.

Ferrario, Franco. Conducting fluid type inertia responsive switch for motor vehicles. 3,789,170, Cl. 200-61.470.

Ferstenberg, Charles, to Tenneco Chemicals, Inc. Web transfer system. 3,788,535, Cl. 226-88.000.

Feuerbacher, David George; and Smith, Mary Kay Hrneir, to Texaco Inc. Method for inhibiting adsorption of surfactant in secondary oil recovery. 3,788,399, Cl. 166-274.000.

Fibreboard Corporation: *See—*
Baker, David R.; and Yin, Robert I., 3,788,876.

Fichtel & Sachs AG: *See—*
Koller, Manfred, 3,788,630.
Pfister, Bruno, 3,788,289.

Fichter KG, Firma: *See—*
Fichter, Roland, 3,788,777.

Fichter, Roland, to Fichter KG, Firma. Miniature electric fan. 3,788,777, Cl. 417-411.000.

Ficker, Stefan: *See—*
Kaeppler, Gerhard; Ficker, Stefan; and Pergande, Wilfried, 3,788,046.

Figari, Jorge Galvez. Process for collection and treatment of garbage. 3,788,027, Cl. 53-24.000.

Fillmore, Richard Plumb; and Heuner, Robert Charles, to RCA Corporation. Electronic firing circuit. 3,788,226, Cl. 102-70.20r.

Finch, Colin Maxwell: *See—*
Knight, Lindsay Charles; Finch, Colin Maxwell; Walden, Noel Harry Fred; and Racz, George, 3,788,748.

Fink, Werner: *See—*
Von Grunberg, Hubertus; Fink, Werner; and Kircher, Dieter, 3,788,710.

Fink, Willi: *See—*
Farian, Gerhard; and Fink, Willi, 3,787,977.

Finster, Leslie P.; Petkovsek, Richard J.; and Reader, Trevor D., to Cogar Corporation. Tape cartridge loading and positioning system. 3,788,571, Cl. 242-195.000.

Firth, Arthur Jose, 600 Machine Tools Limited. Trip device for use in a feed mechanism of a machine. 3,788,158, Cl. 74-412.0tl.

Fischer, Christopher L., to Raychem Corporation. Universally jointed chilling tool. 3,788,692, Cl. 294-19.00r.

Fischer, Karl; Gossler, Gerhard; and Kigherer, Robert, to E.G.O. Elektro-Gerate Blanc and Fischer. Electrical cooking appliance. 3,789,189, Cl. 219-464.000.

Fitzgerald, Thomas W., to Everlasting Valve Company. Flangeless valve. 3,788,346, Cl. 137-330.000.

Fitzky, Hans-Georg: *See*—
Nassenstein, Heinrich, and Fitzky, Hans-Georg, 3,788,728.

Fives Lille-Cail: *See*—
Postel-Vinay, Francis, 3,788,445.
Postel-Vinay, Francis, 3,788,446.

Fleischmann, Lewis W., to Westinghouse Electric Corporation. Flow control apparatus. 3,788,310, Cl. 128-142.000.

Flex-O-Lators, Inc.: *See*—
Foy, Charles L.; and Arnold, Harmon W., 3,787,922.

Flintkote Company, The: *See*—
Califano, Frank L.; and Laszlo, Joseph, 3,788,925.

Flood, Hakon; and Seltveit, Arne, to Elkem A/S. Method of producing refractory material. 3,788,866, Cl. 106-69.000.

Florjancic, Peter. Device for the framing of photographic slides. 3,788,031, Cl. 53-123.000.

Fluid Device Corporation: *See*—
Richards, George B., 3,788,090.

FMC Corporation: *See*—
Abbott, John A.; and Mencacci, Samuel A., 3,788,392.
Berkowitz, Sidney, 3,789,000.
Kraft, Robert E., 3,788,492.
Mencacci, Samuel A., 3,788,375.
Pelmulder, John P.; Meister, Cornelius, and Monroe, Darrell W., 3,788,470.
Rudbarg, Frank, 3,789,188.
Stephanoff, Louis J., 3,788,447.
Varney, Robert E., 3,788,453.

Fokker-V.F.W. N.V.: *See*—
De Hartog, Jan F., 3,788,024.

Folkens, Dieter; and Moritz, Rolf, to Olympia Werke AG. Printing apparatus for business machines. 3,788,214, Cl. 101-96.000.

Folkesson, Bertil; Nilsson, Lennart, and Sjostrand, Uno, to Tetra Pak Developpment S.A. Device for packing machines. 3,788,028, Cl. 53-51.000.

Food Equipment Corporation: *See*—
Dieckmann, George W., Jr., 3,788,455.

Ford Motor Company: *See*—
Bishop, Gerald B., 3,788,615.
Bozoian, Michael; Krugler, Allen D., Jr., and Radin, Bernard G., 3,788,421.
Burger, Edgar P., 3,788,072.
Camp, John W. A., 3,788,437.
Colovas, Denny D.; Logan, John S., and Skruch, Richard R., 3,788,233.
Harrison, Robert S.; and Lunsford, Max W., 3,788,288.
Holm, John A.; and Lapinski, David A., 3,789,269.
Macoit, Arthur J.; and Apostoleris, Theodore G., 3,789,250.
Mistopoulos, Chris, Jr., 3,788,005.
Mittman, Jerome J., 3,787,944.
Perkins, Norman W., 3,788,698.
Sielk, Werner, 3,788,160.
Toth, Steve, 3,788,295.
Wu, Tao-Yuan, 3,788,291.

Forsyth, Eric B., to Ensign Electronics, Inc. Method and apparatus for testing depth finders. 3,789,352, Cl. 340-5.000e.

Forward Technology Limited: *See*—
Allen, Gordon S. J., 3,789,259.

Foster, Robert E.: *See*—
Budd, Allan L.; Foster, Robert E.; and Greenberg, Jonathan S., 3,788,545.

Fowler, Ronald James; Freeh, Edward James, and Koenig, David Mark, to Industrial Nucleonics Corporation. Dryer control system and method. 3,787,985, Cl. 34-45.000.

Fowler, Sam B.: *See*—
Davis, Ira K., 3,788,175.

Fox, Everett D.; Schaefer, John P.; and Leliaert, Raymond M., to Wheelabrator-Frye Inc. Grease gun and coupling. 3,788,427, Cl. 184-105.00c.

Fox, Gary L.: *See*—
Hotz, Kenneth J., Jr.; Steiner, Edward; and Fox, Gary L., 3,788,628.

Fox Industries, Inc.: *See*—
Scheffel, Carl W., 3,788,758.

Fox, William P. Hand-loaded pin chuck. 3,788,537, Cl. 227-142.000.

Foy, Charles L.; and Arnold, Harmon W., to Flex-O-Lators, Inc. Edge protector. 3,787,922, Cl. 16-1.000.

Frabill Manufacturing Co.: *See*—
Matras, Earl L.; Matras, Frank D.; and Herad, Donald J., 3,788,642.

Franklin Electric Subsidianes, Inc.: *See*—
Oxley, Arthur R., 3,788,411.

Franklin, Gerald: *See*—
Lehikoinen, U. Albert; and Franklin, Gerald, 3,788,908.

Frantzen, John J.; and Lund, Charles M., to Buckbee-Mears Company. System suitable for controlling etching without the aid of an etchant resistant. 3,788,912, Cl. 156-6.000.

Frappier, Robert H.; Tanner, Hal W., Jr.; and Wagers, William O., to International Paper Company. Method of making rolled edge sealed corrugated paperboard. 3,788,920, Cl. 156-202.000.

Freedman Arteraft Engineering Corporation: *See*—
Hosmer, Max E., 3,788,717.

Freedman, Norman S., granted to United States Atomic Energy Commission under the provision of 42 U.S.C. 2182; Horsting, Carel W., Lawrence, Walter F.; and Carrona, John J. Thermo-electric modular structure and method of making same. 3,787,958, Cl. 29-472.30.

Freeh, Edward James: *See*—
Fowler, Ronald James, Freeh, Edward James, and Koenig, David Mark, 3,787,985.

Freewater, Milton: *See*—
Hiatt, Frank S., and Freewater, Milton, 3,788,268.

Freeze, John A., to Westinghouse Electric Corporation. Electrical current monitor which separately indicates individual and sustained current pulses. 3,789,293, Cl. 324-51.000.

Frenck, John Parsons, to Du Pont de Nemours, E. I., and Company. Apparatus for monitoring the corrosion rate of metal by the polarization resistance method. 3,788,962, Cl. 204-195.00e.

Freund Inc. Co., Ltd.: *See*—
Tsujino, Takuichi, 3,789,117.

Frick, Heinrich; Halder, Niklaus, and Vogler, Willy, to Hoffmann-La Roche Inc. Method for producing chromanols. 3,789,086, Cl. 260-345.500.

Fried, David W., to Millar Elevator Industries, Inc. Elevator safety control circuit for preventing elevator door from opening at floor with fire. 3,788,428, Cl. 187-29.00r.

Fried. Krupp Gesellschaft mit beschrankter Haftung: *See*—
Lingemann, Heinz, 3,788,210.

Friedman, Harry G., to Medtronic, Inc. Body implantable lead. 3,788,329, Cl. 128-418.000.

Friedman, Mitchell; Kamentsky, Louis A., and Klinger, Isaac, to Bio/Physics Systems, Inc. Method and apparatus for photoanalysis. 3,788,744, Cl. 356-39.000.

Friedman, Moshe, and Herndon, Melvin, to United States of America, Navy. Coherent microwave generators. 3,789,257, Cl. 315-3.000.

Fries, William, to Rohm & Haas Company. Selective separation of cyanide from waste streams by adsorption process. 3,788,983, Cl. 210-28.000.

Friesen, Theodore. Self-cleaning endless belt. 3,788,461, Cl. 198-229.000.

Fritz, Albert W., Jr. Safety apparatus for dump trucks. 3,789,357, Cl. 340-53.000.

Fritz, William Baird; Tiley, John Wayne, and Sanders, Neil Harrison, to AMP Incorporated. RF filters with glass on a substrate. 3,789,263, Cl. 315-39.510.

Frohch, Martin. Leak detector. 3,789,297, Cl. 324-65.00r.

Fuchs, Franz: *See*—
Dausch, Ernst, Kubler, Friedrich, Hempel, Theodor, and Fuchs, Franz, 3,787,933.

Fuji Electrochemical Co. Ltd.: *See*—
Kobayashi, Sethin, Torii, Michihiro, and Okuda, Masanao, 3,788,924.

Fuji Photo Film Co., Ltd.: *See*—
Honjo, Satoru, and Fukushima, Osamu, 3,788,930.
Matsukawa, Hiroharu, Saeki, Keiso, and Katayama, Shizuo, 3,789,015.
Nakazawa, Yoshiyuki, Nakamura, Yoshuharu, Sueyoshi, Tohru, and Sato, Akira, 3,788,859.
Osawa, Sadao, Tamai, Yasuo, and Takimoto, Masaaki, 3,788,845.
Sato, Masamichi; and Takahashi, Isozi, 3,788,844.
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Taguchi, Seiichi, and Mizuki, Euchi, 3,788,849.

Fujisawa, Mitsumaro: *See*—
Sato, Wasuke; Iriko, Fumio, Yamamoto, Sadao, Fujisawa, Mitsumaro; and Hatakeyama, Shigeyuki, 3,788,199.

Fujitsu Limited. *See*—
Saito, Yoshihiro; Okada, Tomoo; Odera, Eiichi, and Matsuzawa, Teruyuki, 3,789,147.

Fukui, Takasuke: *See*—
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Fukushima, Osamu: *See*—
Honjo, Satoru; and Fukushima, Osamu, 3,788,930.

Furrer, Frank: *See*—
Shah, Arvind; and Furrer, Frank, 3,789,145.

Furuno Electric Company, Limited: *See*—
Ichihara, Koji, Tanaka, Hideki; Ishida, Kazutaka; and Handa, Minoru, 3,789,408.

Fusari, Salvatore A.; and Loeck, Leslie M., to Parke, Davis, & Company. Stabilized molded sublingual nitroglycerin tablets. 3,789,119, Cl. 424-78.000.

Fusco, Ralph L.; and White, Robert A., to Wood Industries, Inc. Walk-in rotary printing machine unit. 3,788,218, Cl. 101-180.000.

G & I. Industries, Inc.: *See*—
Gordin, Myron K., 3,789,336.

Gabalda, Carlos Matas. Device for double twisting textile yarn. 3,788,055, Cl. 57-58.720.

Gabriel, Frank K., to Westinghouse Electric Corporation. Interstage disc cavity removable temperature probe. 3,788,143, Cl. 73-346.000.

Gade, John N.; and MacKay, James D., to Eastman Kodak Company. Scroll winding and loading method. 3,787,954, Cl. 29-430.000.

Gadelius, Gustaf Shiro, to Gadelius Inter S.A. Method and apparatus for manufacturing reinforced plastic cylinders. 3,788,916, Cl. 156-74.000.

Gadelius Inter S.A.: *See*—
Gadelius, Gustaf Shiro, 3,788,916.

GAF Corporation: *See*—
Tellier, Jacques C. T., 3,788,881.

Gaghardi, D. Donald. *See*—
Klein, Stewart F.; and Gaghardi, D. Donald, 3,788,803.

Gaghardi, Frances Dodge: *See*—
Klein, Stewart F.; and Gaghardi, D. Donald, 3,788,803.

Gagne, Pierre. *See*—
Bernard, Andre, Gagne, Pierre, Gras, Georges; and Neel, Jean, 3,788,884.

Gainer, John L., to University of Virginia, The. Process for increasing oxygen diffusivity. 3,788,468, Cl. 210-59.000.

Gallagher, John P., to Dick, A. B., Company. Blade for scraping liquids from a relatively moving surface. 3,788,219, Cl. 101-425.000.

Galli, Guido. *See*—
Bingham, Ronald F.; Cecil, Thomas F., Galli, Guido; and Poquette, Gereon F., 3,789,278.

Games, John F.: *See*—
Brock, Larry D.; Games, John F.; and Saunders, John, 3,789,391.

Games, John F., to United Aircraft Corporation. Analog divider and navigation computer. 3,789,197, Cl. 235-150.270.

Gamillscheg, Otto: *See*—
Ritter, Josef, Gott, Hans, Ritter, Klaus, Gamillscheg, Otto, Boyer, Wilhelm, and Ritter, Gerhard, 3,788,122.

Gappa, Gunther: *See*—
Juntgen, Harald, Knoblauch, Karl, Zundorf, Dieter, and Gappa, Gunther, 3,788,985.

Gardi, Rinaldo: *See*—
Ercoli, Alberto, and Gardi, Rinaldo, 3,789,121.

Gardner, Robert A., to Crompton & Knowles Corporation. Temperature control apparatus for extruders. 3,788,387, Cl. 165-27.000.

Gardner, Conrad O. Feedback modulation of exhaust gases in internal combustion engines. 3,788,284, Cl. 123-119.00a.

Gardner, Lloyd F., to Phillips Petroleum Company. Hydrodehalogenation catalyst. 3,789,016, Cl. 252-437.000.

Gardner Denver Company: *See*—
Post, Roger F.; and Herschler, Michael G., 3,788,776.

Garner, Norman. Computation device and method. 3,788,541, Cl. 235-61.00j.

Garrett, Carl Eugene, Kinsley, William Henry, Jr., and Moody, Larry Dean, to Western Electric Company, Incorporated. Methods of manufacturing waterproof cable. 3,789,099, Cl. 264-174.000.

Garrison, Judd F., and Batts, John H., to Batts, John Thomas, Inc. Slack, tie and coat hanger. 3,788,488, Cl. 211-123.000.

Garzia, Aldo, to Istituto Chemioterapico Italiano S.p.A. Prophylaxis and treatment of cardiac 3,4,5-trialkoxyphenylalkanoic acids and salts thereof. 3,789,070, Cl. 260-521.00r.

Gate, James M.: *See*—
Bednarczyk, Julian F., and Gate, James M., 3,788,767.

Gates Rubber Company, The: *See*—
Miller, Arthur W.; Stuemky, Robert F.; and Morse, George F., 3,788,098.

Gause, Raymond L., and Glenn, C. G., to United States of America, National Aeronautics and Space Administration. Manual actuator. 3,788,163, Cl. 74-594.600.

Gautreaux, Gloria A.: *See*—
Harper, Robert J., Jr.; Gautreaux, Gloria A.; Bruno, Joseph S.; and Donoghue, Matthew J., 3,788,804.

Gaylord, Asa K., to Gaylord Industries. Electrostatic precipitator for high temperature operation. 3,788,041, Cl. 55-129.000.

Gaylord Industries: *See*—
Gaylord, Asa K., 3,788,041.

Gaylord, John A. Denture holding means. 3,787,974, Cl. 32-3.000.

Gaz de France: *See*—
Colonna, Jean, 3,788,595.

Ge Ga Gesellschaft fur Gasetechnik Lotz KG: *See*—
Lotz, Horst K., 3,788,620.

Gebr. Hofman K.G., Maschinenfabrik: *See*—
Muller, Richard, 3,788,147.

Geck, Gunter, and Langhammer, Hans Jurgen, to Klockner-Werke AG. Method for melting particulate metal. 3,788,837, Cl. 75-55.000.

Geisel, Charles E., to Container Corporation of America. Caulking cartridge filling and seaming machine. 3,788,035, Cl. 53-282.000.

Geistlich, Ed, Sohne A.G. fur Chemische Industrie: *See*—
Pfirrmann, Rolf Wilhelm, 3,789,056.

Gelin, Jacques Andre; and Dera, Alain Joseph, to Regie Nationale des Usines Renault. Electronic fuel injection control device. 3,788,285, Cl. 123-32.0ea.

Gelles, Nicholas; Shiley, Paul J., and Casella, Michael D., 1/2 to Bethlehem Steel Corporation and 1/2 to Rose Iron Works, Inc. Billet turning wrench. 3,788,690, Cl. 294-17.000.

General American Transportation Corporation: *See*—
Wagner, Robert F.; Kubiak, Edward J.; and Rollo, Edward J., Jr., 3,787,901.

General Cable Corporation: *See*—
Brorein, William J.; and Humen, Nicholas, 3,789,344.

General Dynamics Corporation: *See*—
Weisinger, Martin Donald, 3,788,926.

General Electric Company: *See*—
Barkan, Philip; Barton, Robert S.; Skreiner, Klaus M.; and Tognella, Ugo R., 3,789,174.
Busch, Francis R., 3,788,813.
Carpenter, Loyde M.; Kiser, James W.; and Leonard, Lee V., 3,789,177.
Dinger, Edward H.; and Stastor, Richard A., 3,789,291.
Doepke, Donald G. H., 3,788,212.
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Guth, Lauren W., 3,788,347.
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Houst, Douglas R., Jones, Kenneth R.; and Lajmeister, Bruce R., 3,788,050.
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Kawahata, Masayuki; and Price, Kenneth R., 3,788,967.
Klebe, Johann F.; and Windish, Thomas J., 3,789,052.
Klebe, Johann F.; and Wroblewski, Henry A., 3,789,055.
Klein, Keith W., 3,789,268.
Morelock, Charles R., 3,788,893.
Rose, Richard Stephen; and Clark, Burton Parker, 3,788,191.
Schleben, Harold G., Sr.; and Pettinga, Robert, 3,788,189.
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General Foods Corporation: *See*—
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General Instrument Corporation: *See*—
Miner, Carroll R., 3,788,152.
Miner, Carroll R.; and Balash, Edward, 3,789,331.

General Mills Chemicals, Inc.: *See*—
Coury, Arthur J.; Rogier, Edgar R.; Schwebke, Gerald L.; and Cozad, Douglas D., 3,789,045.

General Motors Corporation: *See*—
Benasutti, Louis D.; and Chernek, Joseph D., 3,788,094.
Bowler, Lauren L., 3,788,422.
Brewer, Robert W., 3,788,071.
Brooks, Frank W.; and Naismith, Thomas D., 3,788,429.
Connell, Lehman J.; and Johnson, Jeffrey L., 3,788,148.
Degioia, Peter A.; and Sutton, Charles B., 3,788,714.
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Gray, Thomas J.; DeClaire, James H.; and Tucker, Herbert D., 3,788,664.
Greenleaf, Jack T., 3,787,960.
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Geng, Peter; Gueniat, Robert, Zollinger, Alfred; Luscher, Walter, Schawalder, Hansjorg; and Tschanen, Hanspeter, to Gericke & Co. Apparatus for filling a receptacle with compacted pulverulent material. 3,788,368, Cl. 141-67.000.

George, David B.: *See*—
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George, James F.: *See*—
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George, Lyle R. Trailer hitch. 3,788,673, Cl. 280-423.00r.

George, Nicholas, to California Institute of Technology. Laser receiver system. 3,788,743, Cl. 356-28.000.

George, Nicholas. Image quality rating system. 3,788,749, Cl. 356-239.000.

Gericke & Co.: *See*—
Geng, Peter; Gueniat, Robert; Zollinger, Alfred; Luscher, Walter; Schawalder, Hansjorg; and Tschanen, Hanspeter, 3,788,368.

Gerlach, Peter K.: *See*—
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Giacoma, Frederick Alfred, Jr.; Godbold, Channing W.; and Stephens, Richard Wilson, to Monsanto Company. Explosion relief cover restraint. 3,788,514, Cl. 220-89.00a.

Giardina, Anthony J.: *See—*
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Giesselmann, Gunter; Schreyer, Gerd; and Weigert, Wolfgang Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of hydrogen peroxide by the anthraquinone process. 3,789,114, Cl. 423-588.000.

Gilbert, John B.: *See—*
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Gilman, Paul B., Jr.; and Haefner, John A., to Eastman Kodak Company. Photographic elements comprising complexes of titanium dioxide and an organic ligand. 3,788,853, Cl. 96-69.000.

Gingras, Claude A.: *See—*
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Ginzel, Severin: *See—*
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Girard, Rene Fernand Victor; and Gidon, Marie-Claire, to Societe Industrielle Bull-General Electric (Societe Anonyme) Process for treating substrates in order to reduce the magnetic angular dispersion of thin ferromagnetic films deposited on such substrats. 3,788,897, Cl. 117-236.000.

Gitlitz, Melvin H.: *See—*
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GK Systems, Inc.: *See—*
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Glasa, Stefan. Ink Cartridge for tubular writing pen. 3,788,754, Cl. 401-135.000.

Glass, Earl M., to Johnson, Howard, Company Clam shcing machine 3,788,176, Cl. 83-114.000

Glass, Marvin, & Associates: *See—*
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Glass, William H., and Bridgum, Robert J., to Westinghouse Air Brake Company. Combined air and hydraulic fluid supply apparatus and control therefor. 3,788,769, Cl. 417-26.000

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Goering, Harlan L.; Eisenberry, John N.; and Koermer, Gerald S., to Wisconsin Alumni Research Foundation. Fluorinated camphor derivatives and europium and praseodymium chelates thereof. 3,789,060, Cl. 260-429.200.

Goetz, Philip J., and Solomon, Leon R., to Singer Company, The. Sine-cosine frequency tracker. 3,789,316, Cl. 331-12.000.

Goff, James R., to Nelson, Robert T. Apparatus for treatment of vertically disposed surfaces. 3,788,010, Cl. 51-9.000.

Goff, Richard E., Jr.: *See—*
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Campbell, Roger G., Sr.; Goff, Richard E., Jr.; and Guay, Normand D., 3,788,366.

Goldblatt, Maxwell; and McInteer, Berthus B., to United States of America, Atomic Energy Commission. Highly enriched multiply labeled stable isotopic compounds as atmospheric tracers. 3,788,814, Cl. 23-232.00r.

Goldie, Charles H.; and Fernald, Robert A., to United States of America, Atomic Energy Commission. Irradiation apparatus. 3,789,214, Cl. 250-354.000.

Gomer, William T.: *See—*
Matter, William L.; and Gomer, William T., 3,789,120.

Goodman, James W., Jr. Easily adjustable protective head gear. 3,787,894, Cl. 2-3.00r.

Goodrich, B. F., Company, The: *See—*
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Graff, Eugene A., and Heytmeijer, Herman R., to Westinghouse Electric Corporation. Yttrium phosphate vanadate phosphor. 3,789,014, Cl. 252-301.40p

Graffman, Johan Holger Injection nozzle for liquid fuel 3,788,559, Cl. 239-533.000.

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Gray, Thomas J., DeClaire, James H., and Tucker, Herbert D., to General Motors Corporation Shoulder belt storage retainer 3,788,664, Cl. 280-150.05b.

Green, Donald T., and Snarr, James L., to Imagex, Inc. X-ray tire inspection machine 3,789,226, Cl. 250-360.000.

Greenberg, Jonathan S.: *See—*
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Greenlay, Charles A., and Andreas, Ehrhardt, to Hazemag Hartzerkleinerungs- und Zement-Maschinenbau Gesellschaft m b H Recovery of asbestos fibers from asbestos ore 3,788,562, Cl. 241-4.000

Greenleaf, Allen H., to Itek Corporation. Multielement window 3,788,730, Cl. 350-179.000.

Greenleaf, Jack T., to General Motors Corporation. Process for manufacturing curved channeled members. 3,787,960, Cl. 29-477.000.

Greenview Manufacturing Company: *See—*
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Gregori, Werner K. H., to Rober-Bohm Limited. Foamed plastic concrete form with fire resistant tension member. 3,788,020, Cl. 52-309.000.

Gregory, Robert B., to GK Systems, Inc. Mixing section for extruder feed screw. 3,788,614, Cl. 259-191.000.

Greiner, Joachim, Engelsmann, Dieter, Gersch, Josef, Landbrecht, Franz; Muller, Rudolf, Wenger, Wolfgang, and Wiedemann, Otto. Shielding device for overlapping the front face of a magnetic head in magnetic tape cartridges of the compact cassette type. 3,78,157, Cl. 179-100.2oz.

Grieshaber, Otto A.: *See—*
Boschen, William O.; and Grieshaber, Otto A., 3,788,472.

Griffith, David B. Filter means. 3,788,330, Cl. 131-10.500.

Griffith, Terry L.: *See—*
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Grimm, Hugo: *See—*
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Grimmer, Jon M.: *See—*
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Groh, Gunther; and Tiemens, Ulf, to U.S. Philips Corporation. Producing images of parts of an object which lie at different depths by means of holographic tomography. 3,788,726, Cl. 350-3.500.

Grosholz, Rainer: *See—*
Haraszti, Tegze; and Grosholz, Rainer, 3,788,904.

Gross, Edward F. Device for joining canvas boards. 3,787,934, Cl. 24-85.00r.

Grunert, Hellmuth, to Prameta Prazisionsmetall- und Kunststofferzeugnisse G. Baumann & Co. Boring device to fasten hinge frames or the like. 3,788,759, Cl. 408-115.000.

GTE Automatic Electric Laboratories Incorporated: *See—*
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Szeverenyi, Nikolaus A.; and Thompson, David F., 3,789,338.

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Gueniat, Robert: *See—*
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Guise, Frank, to Binks-Bullows, Limited. Liquid spraying apparatus. 3,788,554, Cl. 239-332.000

Gulf & Western Industries, Inc.: *See—*
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Gulf Research & Development Company: *See—*
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Gulstan, Bulent, to Deutsch Fastener Corporation. Flaring tool. 3,788,123, Cl. 72-391.000.

Gulla, Michael, to Shipley Company, Inc. Regeneration of spent etchant 3,788,915, Cl. 156-19.000.

Gumbelevicius, John, to McDonnell Douglas Corporation. Chemical milling of titanium, refractory metals and their alloys. 3,788,914, Cl. 156-18.000

Gundrum, Ralph J.: *See—*
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Guntrum, William F., Pexton, Harold W.; and Shores, Michael P., to Honeywell Information Systems, Inc. Method of fabricating a multihead magnetic transducer assembly. 3,787,963, Cl. 29-603.000.

Guth, Lauren W., to General Electric Company. Single hose coupling system 3,788,347, Cl. 137-355.170.

Haagensen, Duane B., to Matsushita Electric Industrial Co., Ltd. Microwave oven with premixing of wave energy before delivery to its heating cavity. 3,789,179, Cl. 219-10.550.

Haak, Gunter, to Union Special Maschinenfabrik G.m.b.H. Multistage device for the control of the air supply for pneumatic aligning members 3,788,251, Cl. 112-252.000

Haberle, Wilhelm Device for producing a swivelling motion in a linearly moving member 3,788,154, Cl. 74-99.000.

Haberll, Wilhelm Coupling 3,788,434, Cl. 192-26.000.

Haefner, John A.: *See—*
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Hagedorn, Erwin C.: *See—*
Babcock, Clarence L.; Busdiecker, Robert A.; and Hagedorn, Erwin C., 3,788,865.

Hagemann, Hermann, Pedain, Josef, and Zankl, Erich; deceased (by Zankl, Helga, Zankl, Walter, and De Ramis, Angelika Zankl; heirs). Polyurethanes based on aryloxycarbonylisocyanates. 3,789,033, Cl. 260-77.5th.

Hager, C. & Sons Hinge Manufacturing Co.: *See—*
Peterson, Francis C., 3,787,923

Hager, Robert Bonner: *See—*
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Hahn, Inc.: *See—*
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Hair, George R.: *See—*
Hefernan, William; Hair, George R.; and Nielsen, John G., 3,788,032

Haith, Marshall M.; and Lentz, Robert A. Electronic system for viewer response to television program stimuli 3,789,136, Cl. 178-5.80r.

Halbach & Braun: *See—*
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Halcon International, Inc.: *See—*
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Halder, Niklaus: *See—*
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Hale, James C., to Victor Complometer Corporation. Compressed gas gun with trigger operated hammer release latching structures. 3,788,298, Cl. 124-11.00r.

Hall, Glen Henry. Article handling system. 3,788,694, Cl. 294-67.0bc.

Hall, Richard W., to American Cystoscope Makers Inc. Orthogonally deflectable endoscope. 3,788,303, Cl. 128-4.000.

Ham, Donald M., to General Electric Company. Demand meter with self-aligning bearing assembly. 3,789,300, Cl. 324-103.00r.

Hammar, Algot P. Tool for removing insulation from electrical wires. 3,787,969, Cl. 30-140.000.

Hammerschlag, Robert Hendrik. Apparatus for defining continually the envelope of the maxima, the minima and/or modulation depth of a varying input signal. 3,789,306, Cl. 328-150.000.

Hammond, Fred H., Jr., to Kendall Company, The, mesne. Peel adhesion apparatus and method. 3,788,135, Cl. 73-150.00a.

Hamner, Glen P.: *See—*
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Handke, Siegfried: *See—*
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Handotai Kenkyu Shinkokai: *See—*
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Hansen, Paul Bernard: *See—*
Brock, Robert James; Hansen, Paul Bernard; and Wilson, John C., 3,788,936.

Hanson, William J., to Xerox Corporation. Magnetic shielding apparatus. 3,788,275, Cl. 118-637.000.

Hara, Hajime: *See—*
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Haraszti, Tegze; and Grosholz, Rainer, to Licentia Patent-Verwaltungs-G.m.b.H. Method of producing an integrated solid state circuit. 3,788,904, Cl. 148-186.000.

Hare, Thomas R.; and Segerstrom, Clifford C., to Shell Oil Company. Particulate solids tube loading apparatus. 3,788,370, Cl. 141-125.000.

Harenberg, Harold L., Jr.; and Shannon, James H., to McDonnell Douglas Corporation. Monitor display means. 3,789,356, Cl. 340-27.0na.

Harhen, Paul F., to Sage Laboratories, Inc. Microwave heating apparatus. 3,789,178, Cl. 219-10.550.

Harney, Ralph P., to Oak Industries Inc. Selective coding system for subscription television. 3,789,131, Cl. 178-5.100.

Harper, Robert J., Jr.; Gautreaux, Gloria A.; Bruno, Joseph S.; and Donoghue, Matthew J., to United States of America, Agriculture. Process for dyeing durable press cellulosic fabric with basic dyes. 3,788,804, Cl. 8-18.000.

Harrico Developments Limited: *See—*
True, Harry Edward, 3,788,106.

Harris, William H. Oyster handling apparatus. 3,788,448, Cl. 198-56.000.

Harris-Intertype Corporation: *See—*
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Clark, George Cyril, Jr.; and Davis, Robert Curtis, 3,789,360.

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Harrison, David; and Sainz, Paul R., to Ransburg Electro Coating Corporation. Apparatus for projecting plural component material upon a suitable base. 3,788,555, Cl. 239-336.000.

Harrison, Robert S.; and Lunsford, Max W., to Ford Motor Company. Carburetor throttle valve positioner. 3,788,288, Cl. 123-97.00b.

Hart, Cullen P.; and Rosenberger, Paul C., to Caterpillar Tractor Company. Speed responsive locking differential. 3,788,166, Cl. 74-710.500.

Hartling, Donald C.: *See—*
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Hartman, Cornelis, to Ballast-Nedam Groep N.V. Device for analysing the grain classification of a soil sample. 3,788,146, Cl. 73-432.00r.

Hartmann, Adolf: *See—*
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Hartness, Robert G.: *See—*
Hartness, Thomas P.; and Hartness, Robert G., 3,788,034.

Hartness, Thomas P.; and Hartness, Robert G. Grid set for an article loading machine. 3,788,034, Cl. 53-248.000.

Harz, Hermann, to Siemens Aktiengesellschaft. Arrangement for preventing chattering and scoring of direct-current slip-ring brushes. 3,789,282, Cl. 318-190.000.

Hashimoto, Hiroshi; and Matsumura, Toshio, to Kabushiki Kaisha Hattori Tokeiten. Non-magnetic composite having a constant modulus of elasticity. 3,788,822, Cl. 29-196.100.

Hashimoto, Kiyoshi: *See—*
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Haskell, John W.; and Isao, Sherman H. M., to International Business Machines Corporation. Ink drop coupling capacitance compensation. 3,789,422, Cl. 346-75.000.

Hassel, Ernst; and Schmenn, Adolf, to Schaefer, Fritz, GmbH. Shelving units. 3,788,242, Cl. 108-111.000.

Hasselbach, Arthur, to Beta Crafts, Incorporated. Molding apparatus. 3,788,590, Cl. 249-95.000.

Hastings Fiber Glass Products, Inc.: *See—*
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Hatakeyama, Shigeyuki: *See—*
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Hathaway, John G., to General Motors Corporation. Grommet sealing arrangement. 3,788,655, Cl. 277-212.00f.

Hattori, Kenichi: *See—*
Kitsuda, Toshiyuki; Yamakawa, Choji; and Hattori, Kenichi, 3,788,868.

Hattori, Saburo; and Imaki, Naoshi, to Mitsubishi Chemical Industries, Ltd. Process for producing acyloxydodecatrienes. 3,789,066, Cl. 260-497.00a.

Hauptschein, Murray: *See—*
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Haussman, Gerhard; and Schulz, Gunter, to Zinser-Tertilmaschinen Gesellschaft mit beschrankter Haftung. Apparatus for transporting and storing yarn pirns or the like. 3,788,054, Cl. 57-34.00r.

Hawkins, Robert D. System for driving heat motor. 3,788,064, Cl. 60-36.000.

Hawley Manufacturing Corporation: *See*—
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Hawthorne, Vaughn L., and Lundstrom, Ronald H., to Keystone Industries, Inc. Coupler centering draft gear. 3,788,493, Cl. 213-20.000.

Hay, Leon, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Progedes Georges Claude. Process for purifying gas mixtures containing particularly CO as impurity. 3,789,106, Cl. 423-247.000.

Hayashi, Toshio: *See*—
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Hayashibara Company: *See*—
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Hayden, Arthur G. Vapor detector safety system. 3,789,231, Cl. 307-9.000.

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Hayes, Robert L.: *See*—
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Hazelett, Earl T., Jr., to Continental Homes, Inc. Method for forming a flanged concrete panel having a planer central section. 3,789,102, Cl. 264-295.000.

Hazemag Hartzerkleinerungs- und Zement-Maschinenbau Gesellschaft m.b.H.: *See*—
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Heanue, Paul T., to Lipe Rollway Corporation. Bar excursion controller. 3,787,914, Cl. 10-162.500

Heberlein & Co. AG: *See*—
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Hechenbleikner, Ingenuin A., Hussar, John F., Koeniger, Arthur F., and Pressler, Robert L., to Cincinnati Milacron Chemicals Inc. Sulfur-containing esters of substituted hydroxyphenylalkanoic acids. 3,789,064, Cl. 260-473.00S

Heckathorn, Loyd E., to Towner Manufacturing Company. Trencher with adjustable stabilizer bar. 3,787,989, Cl. 37-90.000

Heckman, Gertrude E. Shower with oil reservoir. 3,788,553, Cl. 239-315.000.

Hegren, Richard H., to Teletype Corporation. Signal boost for shift register. 3,789,239, Cl. 307-221.00e

Hefernan, William, Hair, George R., and Nielsen, John G., to International Inpak Incorporated. Method and apparatus for forming article-holding display packages. 3,788,032, Cl. 53-141.000

Hegeler, Wilhelm: *See*—
Prolss, Hans; and Hegeler, Wilhelm, 3,789,362.

Hehl, Karl. Injection molding machine. 3,788,788, Cl. 425-192.000

Hehl, Karl. Clamping unit with a turning plate for an injection molding machine. 3,788,794, Cl. 425-450.000

Heid, Christian, and Heinrich, Ernst, to Cassella Farbwerke Mainkur Aktiengesellschaft. Mixtures of 1-aminoanthraquinone-3,4-(N)-benzacridone dyestuffs and process for dyeing polyester fibers therewith. 3,788,806, Cl. 8-25.000

Heidel, Klaus, to Chemische Werke Huls A.G. Aqueous air-and oven-drying coating compositions. 3,789,046, Cl. 260-23.70a

Heightley, John Donnell, to Bell Telephone Laboratories, Incorporated. Threshold logic overflow detector for a three-input adder. 3,789,206, Cl. 235-172.000

Heim Universal Corporation: *See*—
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Heiskel, Elmar, and Last, Hartmut, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Coated foamable styrene polymer particles. 3,789,028, Cl. 260-2.50b

Heitmann, Hans-Gunter, and Kelp, Fritz, to Kraftwerk Union Aktiengesellschaft. Steam power plant, especially with a boiling water nuclear reactor. 3,788,068, Cl. 60-106.000

Held, Manfred, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Warhead, particularly for fighting ships. 3,788,225, Cl. 102-56.000

Heller, Lawrence G.; and Vogel, Norbert G., Jr., to International Business Machines Corporation. Threshold nfdependent linear amplifier. 3,789,312, Cl. 330-35.000.

Helwig, Lawrence E.; and Murray, Michael V., to United States Steel Corporation. Method for producing adherent, ductile zinc coating on ferrous substrates by vacuum deposition. 3,788,877, Cl. 117-62.000.

Hemmelsbach, Richard J., to Space Age Industries, Inc. Anchor means for portable building structure. 3,788,335, Cl. 135-1.00r

Hempel, Theodor: *See*—
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Henry, H. Clarke; Gilbert, John B., and Sosnowski, John, to Esso Research and Engineering Company. Process for the manufacture of lubricating oils by hydrocarcking. 3,788,972, Cl. 208-59.000

Henry, Jules: *See*—
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Hensley, Ralph T.: *See*—
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Henson, Alfred J.; and Lewis, Richard W., to Boeing Company, The. Vehicle location monitoring system. 3,789,198, Cl. 235-150.270.

Hentsch, Helmut O., to Continental Can Company, Inc. Control temperature blow stick for injection mold apparatus. 3,788,548, Cl. 239-132.300.

Hepburn, William Dunn, to Ferranti Limited. Gas laser circulation system. 3,789,320, Cl. 331-94.500

Herad, Donald J.: *See*—
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Herubel, Jean Frederic, to Schlomberger, N. & Cie Guebwiller. Comb for textile machine. 3,787,931, Cl. 19-129.00b

Hess, William Emil, Jr., to Bell Telephone Laboratories, Incorporated. Electronic pulse amphfier circuits. 3,789,241, Cl. 307-255.000

Heuner, Robert Charles: *See*—
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Graff, Eugene A., and Heytmeijer, Herman R., 3,789,014

Heywood, Richard D., and Seagle, Charles F. Electronic signal device and method. 3,789,402, Cl. 340-384.00e

Hiatt, Frank S., and Freewater, Milton. Traffic warning signal for use on vehicles. 3,788,268, Cl. 116-28.00r

Hicks, George P., and Updike, Stuart J., to Du Pont de Nemours, E. I., and Company. Enzyme gel and use therefor. 3,788,950, Cl. 195-103.50r

Hijikata, Akimitsu: *See*—
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Hille, Ernst, Hoyer, Ernst, Meininger, Fritz, and Rottmann, Johannes, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of fast dyeings and prints on fibrous material containing hydroxyl groups or nitroge. 3,788,801, Cl. 8-1.00p

Hillsdale Industries, Inc.: *See*—
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Hirano, Takeshi, to Alps Motorola, Inc. One-point-balance adjusting device. 3,788,649, Cl. 274-1.00r

Hird, Cletus V. Steerable toboggan. 3,788,661, Cl. 280-22.000

Hirokawa, Kazuaki, and Anbo, Tsugio, to Shinagawa Automotive Electric Wire Co., Ltd. Electrical connector. 3,789,343, Cl. 334-49.00r

Hirose, Hidenori, Tsubosaki, Masaaki, Sugiyama, Masayoshi, Skkita, Akira, and Kito, Mitsuo, to Kabushiki Kaisha Kohjin. Method for producing biaxially molecule-oriented polycaproamiderresin film. 3,788,503, Cl. 214-95.000

Hirose, Ryusho: *See*—
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Hirsch, Ernest G., and Nelson, George L., to New England Power Company. Process for removing ash from precipitators. 3,788,469, Cl. 210-73.000

Hirschhorn, Isidor S., and Tannenbaum, Stanley, to Ronson Corporation. Chemical ignition system for a cigarette lighter using an ignition aid. 3,788,798, Cl. 431-267.000

Hirtz, Alfred Georges Jean, and Mech, Christian Andre Lucien, to Societe Rateau. Sealing devices for rotating shafts. 3,788,652, Cl. 277-71.000

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Hodosh, Milton, to Research Corporation. Plastic bone composition and method of making same. 3,789,029, Cl. 260-2.50r

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Hoffman, Eric J., and Loessi, Jack C., to United States of America, Navy. Method and apparatus for synchronizing split phase PCM signals. 3,789,303, Cl. 325-321.000

Hoffman, Murray, to International Telephone and Telegraph Corporation. Variable frequency and coupling equalizer and method for tuning. 3,789,325, Cl. 333-28.00r

Hoffmann La Roche Inc.: *See*—
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Holm, Kurt Anders, to Valdcholms Aktiebol AG. Conveyor. 3,788,459, Cl. 198-218.000

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Holt, Terence Albert, and Barre, Jean Gabriel, to Centre Technique de Cuir. Device for mounting the toe and heel ends of a shoe upper. 3,787,915, Cl. 12-8.100

Holz, George F., and Ogle, James, to Burroughs Corporation. Display panel. 3,789,265, Cl. 315-169.0ts

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Hotz, Kenneth J., Jr.; Steiner, Edward, and Fox, Gary L., to Wright, Barry, Corporation. Pneumatic isolator. 3,788,628, Cl. 267-65.00r

Hough, Harold L., and Wierzbicki, Julian J., to GTE Sylvania, Incorporated. Lighting fixture. 3,788,560, Cl. 240-51.11t.

Houst, Douglas R., Jones, Kenneth R., and Lameister, Bruce R., to General Electric Company. Impact absorber for rotary mower blade. 3,788,050, Cl. 56-295.000.

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Ichihara, Koji, Tanaka, Hideki, Ishida, Kazutaka, and Handa, Minoru, to Furuno Electric Company, Limited. Synchronous system. 3,789,408, Cl. 343-105.00r.

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Idei, Gijun; Onoyama, Atsushi; Aihara, Mitsuo; Suzuki, Seigo; Egawa, Hideharu; and Yamaga, Eiichi, to Tokyo Shibaura Electric Co., Ltd. Electronic digital clock apparatus. 3,788,058, Cl. 58-23.00r.

Idelson, Elbert M., to Polaroid Corporation. Ligands which are also silver halide developing agents. 3,789,062, Cl. 260-463.000.

Iida, Yutaka; Hishinuma, Kazuo; Hikuma, Motohiko; Shirakawa, Tadashi; and Sakai, Susumu, to Ajinomoto Co. Apparatus for controlling the fermentation of volatile organic compounds. 3,788,952, Cl. 195-127.000.

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Iwase, Nobuo; and Okamura, Soji, to Tokyo Shibaura Electric Co. Ltd. Lumped constant circulator. 3,789,324, Cl. 333-1.100.

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Jackson, Burtis R. Easily installed belt. 3,788,156, Cl. 74-238.000.

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Janning, John L., to National Cash Register Company, The. Plasma shift register with overlapping glow. 3,789,264, Cl. 315-84.600.

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Johnson, Raymond Arthur, to U.M.C. Industries, Inc. Money-handling device with pivotal escron platform. 3,788,333, Cl. 133-2.000.

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Jones, William T., to Goodyear Tire & Rubber Company, The. Tear cutter. 3,788,172, Cl. 83-9.000.

Joseph, Eugene Stephen. Apparatus for performing fabricating operations on sheet material, and a combination of punch and die members for incorporation in such apparatus. 3,788,118, Cl. 72-324.000.

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Jurisich, Peter L. Method of making a reinforced laminates in combination with a core material. 3,788,927, Cl. 156-290.000.

Kabat, John L., to Honeywell Inc. Condition control reversible motor system. 3,789,283, Cl. 318-295.000.

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Kalz, Dietmar; Wolfrum, Gerhard; and Neeff, Rutger, to Bayer Aktiengesellschaft. Process for the dyeing of synthetic fibre materials with quinophthalone dyestuffs from organic solvents. 3,788,810, Cl. 8-162.00r.

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Kawamura, Yasukazu: Watch with an electronic buzzer 3,788,060, Cl. 58-38.000

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Kim, Sung Soo, and Dusseau, Andress: Expandable cannula, especially for medical purposes 3,788,318, Cl. 128-214.400

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Klatt, Alfred, Isernhagen, Fritz, Weise, Lutz; and Reinecke, Erich, to Westinghouse Bremsen- und Apparatebau GmbH: Wheel slip control apparatus having quick closing valves. 3,788,592, Cl. 251-25.000.

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Knight, Lindsay Charles, Linch, Colin Maxwell, Walden, Noel Harry Fred, and Racz, George, to Australasian Training Aids Proprietary Limited: Indicating the passing of a projectile through an area in space 3,788,748, Cl. 356-141.000

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Knoos, Stellan, Ljungdahl, Soren E. S., and Bostrom, Bertil Ingemar, 50% to AGA Aktiebolag: Fluid pressurized cover device. 3,788,395, Cl. 165-169.000

Knowles, Peter M., to Beakbane, Henry, (Fortox) Limited: Corrugated covers for reciprocating machinery parts 3,788,377, Cl. 160-84.00r.

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Kollar, John, to Halcon International, Inc: Process for preparing vicinal glycol esters from olefins. 3,789,065, Cl. 260-497.00r

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Kosseim, Alexander J.; and Somekh, George S., to Union Carbide Corporation: Process for the separation of aromatic hydrocarbons from a mixed hydrocarbon feedstock. 3,789,077, Cl. 260-674.0be.

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Krambeck, Robert Harold; and Walden, Robert Henry, to Bell Telephone Laboratories, Incorporated. Charge coupled devices employing nonuniform concentrations of immobile charge along the information channel. 3,789,267, Cl. 317-225.00e.

Kramer, Jack M.; and Sitabkhan, Abdul N., to HTL Industries, Inc. Protection system. 3,788,666, Cl. 280-150.0ab.

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Krekeler, Claude B., to Cincinnati Mine Machinery Co., The. Chain for mining machine and the like. 3,788,711, Cl. 305-58.000.

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Krieg, Adrian H. Metal forming tool. 3,788,192, Cl. 90-40.000.

Krippene, Brett C.; Peterson, Morris W., and Marshall, David M., to Babcock & Wilcox Company, The. Fuel burner. 3,788,796, Cl. 431-2.000.

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Kruger, Gerd; Zipp, Otmar; Keck, Johannes; Nickl, Josef; Maehledt, Hans; Ohnacker, Gerhard; Engelhorn, Robert; and Puschmann, Sigfrid, to Boehringer Ingelheim G.m.b.H. Pharmaceutical compositions containing halo-substituted 2-amino-benzylamine-amides. 3,79,125, Cl. 424-324.000.

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Laauwe, Robert H. Aerosol package. 3,788,521, Cl. 222-94.000.

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Lacroix, Jean Paul. Differential type driving wheels system. 3,788,420, Cl. 180-74.000.

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Lambert, Daryl Gene, to Dia-Print Company, Inc., The. Printer with screen frame lift and squeegee support rivot means. 3,788,215, Cl. 101-123.000.

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Lee, Conrad E., to Pako Corporation. Device for transporting film through a series of rollers. 3,788,153, Cl. 74-68.000.

Lee, Delbert R. Device for retrieving submerged golf balls and on driving range. 3,788,506, Cl. 214-356.000.

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Lee, Hanju, and Stahl, David E. Pressure equilization and purging system for heatless adsorption systems. 3,788,036, Cl. 55-25.000.

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Linde, Bjorn H:Son: *See*—
Martensson, Kjell Halvard; Linde, Bjorn H:Son; Palsson, Jan-Frederik; and Jerre, Sven Torsten, 3,788,033.

Linder, Siegfried: *See*—
Kurz, Hanns; and Linder, Siegfried, 3,788,964.

Lindsay, Harold W. Rotary cutter. 3,788,625, Cl. 266-105.00a.

Lindstrand, Bengt: *See*—
Netterstedt, Sture; and Lindstrand, Bengt, 3,789,181.

Lingemann, Heinz, to Fried. Krupp Gesellschaft mit beschrankter Haftung. Apparatus for forming packaged coils of wire. 3,788,210, Cl. 100-7.000.

Lion Fat and Oil Co., Ltd.: *See*—
Susuki, Rinnosuke; Hoshi, Hiroshi; and Umeya, Kaoru, 3,788,919.

Lipe Rollway Corporation: *See*—
Heanue, Paul T., 3,787,914.

Lippman, Aaron H., to Brainerd Manufacturing Co. Door lock. 3,788,107, Cl. 70-93.000.

Litke, Alvin Carl, to Allied Chemical Corporation. Paper dyed with water soluble benzothiazolylphenylazobarbituric acid dyestuffs. 3,788,802, Cl. 8-7.000.

Littmann, David, to Minnesota Mining and Manufacturing Company. Segment cutter. 3,787,968, Cl. 30-124.000.

Ljbrink, Eduard: *See*—
Piepers, Gijsbrecht Gerhardus; Vons, Leonard Hendrik; van der Linde, Aart; and Ljbrink, Eduard, 3,789,184.

Ljungdahl, Soren F. S.: *See*—
Knoos, Stellan; Ljungdahl, Soren F. S.; and Bostrom, Bertil Ingemar, 3,788,395.

Lloyd, Clarence Robert: *See*—
Neel, Robert M.; Lloyd, Clarence Robert; and Johnson, Robert C., 3,788,331.

Lloyd, Norman E.: *See*—
Thompson, Kenneth N.; Johnson, Richard A.; and Lloyd, Norman E., 3,788,945.

Lloyd, Richard L. Door locking means. 3,788,689, Cl. 292-304.000.

Lockheed Electronics Company: *See*—
Markowitz, Seymour, 3,789,371.

Lockheed Electronics Company, Inc.: *See*—
Norris, Kermit A., 3,789,377.

Loeck, Leslie M.: *See*—
Fusari, Salvatore A.; and Loeck, Leslie M., 3,789,119.

Loessi, Jack C.: *See*—
Hoffman, Eric J.; and Loessi, Jack C., 3,789,303.

Loewen, Jacob L. Foldable table and bench assembly. 3,788,696, Cl. 297-159.000.

Loew's Theatres, Inc.: *See*—
Kirschstein, Werner P.; and Wagner, John R., 3,788,125.

Logan, Hubert. Remote control starting device for internal combustion engine. 3,788,294, Cl. 123-179.0bg.

Logan, John S.: *See*—
Colovas, Denny D.; Logan, John S.; and Skruch, Richard R., 3,788,233.

Lohrberg, Karl: *See*—
Muller, Jurgen; and Lohrberg, Karl, 3,788,968.

Long, Jack B.: *See*—

Krawetz, Bartor Long, Jack B., and Mooney, Leonard J., 3,789,321

Longbottom, David Melvin *See*—
Hoyle, Geoffrey, and Longbottom, David Melvin, 3,788,381

Longi, Paolo, Cameli, Nazzareno, Valvassori, Alberto, Parodi, Sandro, and Cervi, Remo, to Montecatini Edison S.p.A. Process for preparing saturated and unsaturated elastomeric copolymers of ethylene and/or higher alpha-olefins 3,789,036, Cl. 260-80.700

Loovist, Kaj Ragnar, to Fagersta Aktiebolag Roller for hot and cold rolling and method of making the same 3,787,943, Cl. 29-125.000

Lorenz, Howard L., and Rosser, Eugene P., said Rosser assor. to Noble Drilling Corporation Method and arrangement for protecting and guiding drilling bit. 3,788,407, Cl. 175-317.000

Loricchio, Domingos, to Carborundum Company Process and compositions of rubber vulcanizates with silicone polymerizates 3,789,050, Cl. 260-41.50r

Lorke, Horst *See*
Diery, Helmut, Rittner, Siegbert, and Lorke, Horst, 3,788,991

Loseries, Peter, and Hayashi, Toshio, to Minolta Camera Co., Ltd. and Lenz, Klaus, G.m.b.H. Swinging sector camera shutter with warming unheater 3,788,204, Cl. 95-55.000

Losfeld, Andre Universal projectile 3,788,230, Cl. 102-74.000

Lossie, Robert A. Flexible hose connector 3,788,676, Cl. 285-247.000

Lotan, Amram Zvi *See*—
Chen, Dyson Leh-Chao, and Lotan, Amram Zvi, 3,789,365

Lotz, Horst K., to Gr.Ge.Ga Gesellschaft fur Gasetechnik Lotz KG Device for supporting a horizontally positioned strand in a continuous casting plant 3,788,620, Cl. 266-23.000

Love, Leonard Sidney Treatment apparatus 3,788,477, Cl. 210-195.000

Love, Olen J., to Malone, H. B. and Malone, Gary Fish hook setter 3,787,994, Cl. 43-15.000

Lovejoy, Curtis N. *See*—
Kosowsky, Leo N., Lovejoy, Curtis N., and Cunniff, John G., 3,788,963

Lowdenslager, John R., to Singer Company, The, mesne Digital phase locked loop 3,789,308, Cl. 328-155.000

Lowell, Francis C., Rorlin, Matthew Rosenberg, Paul, and Sax, Robert L., to Research Frontiers, Inc Thermal convection flow light valve 3,788,729, Cl. 350-160.00r

Lucas, James M. *See*—
Long, James, Lucas, James M., and Pyler, Richard E., 3,788,984

Lugowski, Rinaldo L., and Sclacero, Rinaldo, to Gonaar Corporation Extended time meter construction 3,788,439, Cl. 194-61.000

Lukas, George N. Work positioning table 3,788,632, Cl. 169-20.000

Lund, Charles M. *See*—
Frantzen, John J.; and Lund, Charles M., 3,788,912

Lundberg, Gunnar *See*—
Fahlman, Gosta B., Lundberg, Gunnar, and Westberg, Johan Ha-
Hayden, 3,788,311

Lundgren, Jens Ove, to Rorkonsult Jor Fjarrvarme i Orebro AB Method of fitting piping for a hot or cold fluid 3,788,083, Cl. 61-72.100

Lundstrom, Ronald H. *See*
Hawthorne, Vaughn F., and Lundstrom, Ronald H., 3,788,493

Lunsford, Max W. *See*—
Harrison, Robert S., and Lunsford, Max W., 3,788,288

Luscher, Walter *See*—
Geng, Peter, Guenat, Robert, Zollinger, Alfred, Luscher, Walter, Schawalder, Hansporg, and Ischanen, Hanspeter, 3,788,368

Lyle, Phra D. *See*—
Klink, Jerome P., Lyle, Phra D., and Griffith, Terry L., 3,788,826

Lynch, William M. *See*—
Keenan, Michael G., Lynch, William M., and Priedigkeit, John H., 3,789,412

Lyon, George E., 10% to Lee, Raymond, Organization, Inc., The Colored-coded gas container bands 3,787,993, Cl. 40-306.000

Lyon, Ralph L. *See*—
Lyon, Richard S., and Lyon, Ralph L., 3,789,109

Lyon, Richard S., and Lyon, Ralph L., to United McGill Corporation Method for cleaning a gas 3,789,109, Cl. 423-481.000

Lyon, William B., and Schaeffer, William D., to Graphic Arts Technical Foundation Methods and apparatus for paper testing 3,788,117, Cl. 73-159.000

M & T Chemicals, Inc. *See*—
Reifenberg, Gerald H., and Gruhz, Melvin H., 3,789,057

MacAlpine, Alexander D. Kick stand 3,788,671, Cl. 280-303.000

Macchi, Romualdo Assembly method for beam structures 3,788,023, Cl. 52-74.000

Machine Tools Limited *See*—
Firth, Arthur Jose, 3,788,158

Machleidt, Hans *See*—
Kruger, Gerd, Zipp, Otmar, Keck, Johannes, Nickl, Josef, Machleidt, Hans, Ohnacker, Gerhard, Engelhorn, Robert, and Puschmann, Sigfrid, 3,789,125

Mack Trucks, Inc. *See*—
Carlson, Paul E., and Schimmel, Ralph U., 3,788,157

MacKay, James D. *See*—
Grade, John N., and MacKay, James D., 3,787,954

MacKenzie, George D., to TRW, Inc. Resistance material and electrical resistor made therefrom 3,788,997, Cl. 252-63.500

MacMullin, Robert B. *See*—
Bearden, Roby, Jr.; MacMullin, Robert B.; Lewis, William E., and Welty, Albert B., Jr., 3,788,978

Macont, Arthur J., and Apostoleris, Theodore G., to Ford Motor Company Permanent magnet dynamoelectric machine 3,789,250, Cl. 310-154.000

Mader, Siegfried R., and Matthews, John W., to International Business Machines Corporation Method of preparing dislocation crystals 3,788,890, Cl. 117-201.000

Madjid, Abdul Hamid, Vaala, Allen R., Anderson, Walter F., Jr., and Pedulla, Joseph, Jr., to Research Corporation Method for growing crystals using a semipermeable membrane 3,788,818, Cl. 23-300.000

Maeda, Riichi, to Nissan Motor Company, Limited Valve for abruptly relieving fluid under pressure 3,788,596, Cl. 251-69.000

Maffitt, Kent N. *See*—
Batt, Jamie A., Maffitt, Kent N., and Sievers, Jerry A., 3,789,370

Magnan, Regis *See*—
Chaurand, Patrice, Magnan, Regis, and Coquery, Jean Paul, 3,789,111

Magnetic Seal Corporation *See*
Place, Bruce S., 3,788,650

Maguire, Lawrence A. *See*
Andersen, Robert A., and Maguire, Lawrence A., 3,789,323

Mahony, Peter Francis, to Bell Northern Research Ltd. Electrical connector 3,789,342, Cl. 339-17.000

Mahlmann, James Patrick, to General Foods Corporation Process for producing coffee extract 3,788,860, Cl. 426-433.000

Maier, Ludwig, to Monsanto Company Halovinylene 1,2 bis(phosphonic esters) 3,789,092, Cl. 260-932.000

Maison, Francois P. *See*
Bataille, Roger, Maison, Francois P., and Curvale, Pierre Paul, 3,789,311

Major, Norman Lionel, to Bell Telephone Laboratories, Incorporated Overload monitor for transmission systems 3,789,146, Cl. 179-15.00f

Majorino, Vincent Elapsed time recorder 3,789,424, Cl. 346-95.000

Malaney, Samuel T., and McManers, John W., to Underwood, William, Company Maintaining the water level in baking beans 3,788,302, Cl. 126-374.000

Malaviya, Shashi Dhar, to International Business Machines Corporation Method and apparatus for measuring the parameters of a transistor or other two-port device at microwave frequencies 3,789,301, Cl. 324-158.000

Malby, Robert E., Jr., McComb, Walter D., and Schave, Richard D., to Libbey-Owens-Ford Company Inspecting glass 3,788,750, Cl. 356-239.000

Malkin, Irving *See*
Schenker, Barry A., Malkin, Irving, and Taylor, Kirman, 3,789,022

Malm, Marvin Forest, to International Telephone and Telegraph Corporation Call park circuit for an automatic telephone switching system 3,789,153, Cl. 179-27.00d

Malone, Gary *See*—
Love, Olen J., 3,787,994

Malone, H. B. *See*
Love, Olen J., 3,787,994

Mancebo, Lloyd, to United States of America, Atomic Energy Commission High-emission cold cathode 3,789,310, Cl. 330-4.300

Manco Mfg. Co. *See*
Valente, Raymond F., and Bonomo, Otto A., 3,787,947

Mandley, Donald J., to General Motors Corporation Multiple hardness O rings 3,788,654, Cl. 277-229.000

Manerre, Robert F. *See*
Wakeman, Alfred W., and Manerre, Robert F., 3,788,574

Marathon Oil Company *See*—
Presley, C. Travis, Argabright, Perry, and Smith, Ronald F., 3,789,010

Marconi Company Limited, The *See*—
Blount, Eric Albert, 3,789,218

Marcovitch, Jacob, to Rotary Profile Anstalt Apparatus for and method of rolling articles 3,788,114, Cl. 72-83.000

Marforio, Nerino, to Rimoldi, Virginio, & C., S.p.A. Sewing apparatus with automatic workpieces stacking means 3,788,248, Cl. 112-121.290

Marforio, Nerino, to Rimoldi, Virginio, & C., S.p.A. Lubricant purification filter for sewing machines 3,788,252, Cl. 112-256.000

Margerum, John D., to Hughes Aircraft Company Photopolymerization systems with tetrazolium salt 3,788,858, Cl. 96-115.00p

Marmer, Ralph F. Stringed instrument with a sounding plate 3,788,183, Cl. 84-291.000

Markaris, Michael J. *See*—
Vartanian, Perry H., Jr., Markaris, Michael J., and Anderson, Carl P., 3,788,441

Markewitz, Wolfgang, and Mischke, Fritz, to Fa. Hunnebeck GmbH. Apparatus to facilitate the extraction of a room form 3,788,494, Cl. 214-1.00b

Markey, Francis J., to General Motors Corporation Pedal travel measuring tool 3,788,131, Cl. 73-132.000

Markley, Finley W., to United States of America, Atomic Energy Commission Folded membrane dialyzer 3,788,482, Cl. 210-321.000.

Markowitz, Seymour, to Lockheed Electronics Company, MOSFET memory cell 3,789,371, Cl. 340-174.00r.

Markowski, Stanley J., to United Aircraft Corporation. Annular combustion chamber for dissimilar fluids in swirling flow relationship. 3,788,065, Cl. 60-39.020

Marrero, Michael T., to United States of America, Navy Tone burst to frequency converter 3,789,305, Cl. 328-140.000

Marsh, Barry T., to Dresser Industries, Inc. Leak detection apparatus. 3,788,127, Cl. 73-40.000.

Marsh, Paul G., to Black Clawson Fiberclaim, Inc., mesne. Recovery of salvageable components from waste material 3,788,568, Cl. 241-69.000.

Marsh, Robert L. Protective jacket and base for pressure vessel. 3,788,511, Cl. 220-9.00r

Marsh Stencil Machine Company *See*—
Rabelow, Harold H., 3,788,217

Marshall, David M. *See*—
Krippene, Brett C.; Peterson, Morris W., and Marshall, David M., 3,788,796

Martensson, Kjell Halvard, Linde, Bjorn H:Son; Palsson, Jan-Frederik; and Jerre, Sven Torsten, to Tetra Pak International AB. Packaging machine. 3,788,033, Cl. 53-186.000.

Martt, Milford F. Electrical brake assembly 3,788,432, Cl. 188-138.000.

Martin Engineering Company *See*—
Matson, Carl G., 3,788,527

Martin, Helmut, to Kabel- und Metallwerke Gutehoffnungshutte Aktengesellschaft. Process and apparatus for forming annular corrugations in metal tubing 3,788,113, Cl. 72-77.000.

Martin Marietta Corporation. *See*—
Johnson, Gerald F., 3,789,329

Maruyama, Koichi *See*—
Yamazaki, Eiichi, Maruyama, Koichi, and Ueda, Toshio, 3,788,200

Maryland Cup Corporation *See*—
Ruff, Stanley, 3,788,463

Maschinenfabrik & Gresserei Netstal A.G. *See*—
Munz, Paul, 3,788,791

Masic, Rene *See*—
Kervizic, Jacques, Masic, Rene, Shroff, Arvind, and Warnecke, Robert Jean, 3,789,253

Mason, H. C., & Associates, Inc. *See*—
Mason, Howard C., 3,788,371

Mason, Howard C., to Mason, H. C., & Associates, Inc. Saw apparatus with disk bed support for lumber 3,788,371, Cl. 144-312.000.

Mason, Ralph B. *See*—
Buchmann, Fred J., Fidt, Clarence M., Jr., Mason, Ralph B.; and Hamner, Glen P., 3,788,974

Mason, Wylie A., Jr. Multiple panel laminating press 3,788,211, Cl. 100-93.00p

Massaccesi, Raymond A., to All-Steel Inc. Chair construction. 3,788,701, Cl. 297-455.000

Massachusetts Institute of Technology *See*
Waldron, Richard A., and Stern, Ernest (said Stern assor. to), 3,789,327.
Wilson, David G., and Smith, Ora F., 3,788,466.

Masseron, Alain Olivier Felix. Stabiliser apparatus for multi-directional movement of a camera 3,788,585, Cl. 248-178.000.

Massey-Ferguson (Australia) Limited. *See*—
Stiff, Rodney Allan, and Ruback, Keith Leonard, 3,788,048.

Massey-Ferguson, Inc. *See*—
Beebe, Raymond A., 3,788,518

Master Specialties Company *See*—
Doyle, James H., 3,789,144.

Masuda, Noboru, to Denki Onkyo Co., Ltd. Hall effect device. 3,789,311, Cl. 330-6.000

Mathes, Homer B. *See*—
Price, Edward W., and Mathes, Homer B., 3,788,126.

Mathews, Frederic M., to Honeywell Inc. Automatically releasable arrow holding device for a crossbow. 3,788,299, Cl. 124-35.00r

Matlen, Abraham J. *See*—
Orossy, David J., and Matlen, Abraham J., 3,789,190.

Matras, Earl L., Matras, Frank D., and Herad, Donald J., to Frabill Manufacturing Co. Basketball backboard and coal structure. 3,788,642, Cl. 273-1.50r

Matras, Frank D. *See*—
Matras, Earl L., Matras, Frank D., and Herad, Donald J., 3,788,642

Matson, Carl G., to Martin Engineering Company. Quick-Release aerator for introducing high pressure air into a container to facilitate dispensing 3,788,527, Cl. 222-195.000.

Matsukawa, Hiroharu, Saeki, Keiso, and Katayama, Shizuo, to Fuji Photo Film Co., Ltd. Process for producing microcapsules containing oily hydrophobic liquid 3,789,015, Cl. 252-316.000

Matsumoto, Tsuyoshi, to Mitsubishi Denki Kabushiki Kaisha. Inertia sliding type internal combustion engine starter. 3,788,150, Cl. 74-7.00r.

Matsumura, Shiro, Shin, Hiroshi; Sugano, Jumchiro; Yoshii, Tadashi; Kuriyama, Yasuhisa, and Komaki, Takeshi, to Mitsubishi Gas Chemical Company, Inc. Process for preparing a highly selective catalyst used in the production of hydrogen peroxide. 3,789,115, Cl. 423-588.000.

Matsumura, Toshio: *See*—
Hashimoto, Hiroshi, and Matsumura, Toshio, 3,788,822.

Matsumura, Wakuo, to Unitika Kabushiki Kaisha. Apparatus for producing undrawn polyamide films having uniform physical characteristics. 3,788,789, Cl. 425-230.000.

Matsuo Electric Company: *See*—
Tomiwa, Hiroshi, 3,787,961.

Matsushima, Hiromi, to Colorfax Company, Limited. Electro-sensitive recording medium having a plurality of a recording layers. 3,789,425, Cl. 346-135.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Haagensen, Duane B., 3,789,179.

Matsuzawa, Teruyuki: *See*—
Saito, Yoshihiro; Okada, Tomoo; Odera, Eiichi; and Matsuzawa, Teruyuki, 3,789,147.

Mattel, Inc.: *See*—
Ayton, Ian F.; Hartling, Donald C.; Kossoff, Joseph; and Osborne, Brian G., 3,787,999.
Kilroy, Eugene J., Jr.; Du Breuil, Philip B.; and Dennison, Scott C., 3,787,998.

Matter, William L.; and Gomer, William T., to Mead Johnson & Company. Sulfamoyl azide process and composition for lowering blood pressure. 3,789,120, Cl. 424-226.000.

Mattheis, Friedrich Karl: *See*—
Bindernagel, Ali; and Mattheis, Friedrich Karl, 3,787,942.

Matthews, Jamie F., Jr., to Esso Production Research Company. Recovery of marine pipelines. 3,788,084, Cl. 61-73.300.

Matthews, John W.: *See*—
Mader, Siegfried R.; and Matthews, John W., 3,788,890.

May, Paul Hillard, to Bell Telephone Laboratories, Incorporated. Gated dividing circuit with reduced time variation between gating and an output signal. 3,789,304, Cl. 328-41.000.

Mayaud, Edith Ellen, and Pearlman, Samuel, to RCA Corporation. Method for printing negative tolerance matrix screen structure for a cathode-ray tube. 3,788,846, Cl. 96-36.000.

Mayfield, Lawrence T.: *See*—
Mayfield, Robert W.; and Mayfield, Lawrence T., 3,788,797.

Mayfield, Robert W.; and Mayfield, Lawrence T. Fuel oil burner lead control mechanism. 3,788,797, Cl. 431-186.000.

McCabe-Powers Body Company: *See*—
Balogh, Roy, 3,788,425.

McCauley, Albert P., to SCM Corporation. Control method for fume incinerators. 3,789,104, Cl. 423-210.000.

McCloeklin, Samuel B., to Owatonna Tool Company Hydraulic system. 3,788,781, Cl. 417-401.000.

McCloskey, Albert R., to Heim Universal Corporation. Ball bearing assembly. 3,788,708, Cl. 308-6.00c.

McComb, Walter D.: *See*—
Malby, Robert E., Jr.; McComb, Walter D.; and Schave, Richard D., 3,788,750.

McCombs, Jay. Flush tank water-regulating attachment. 3,787,902, Cl. 4-67.00a.

McCord Corporation: *See*—
Leichtl, Ludwig, 3,788,685.

McCormick, James B., to Pelam, Inc. Expandable sponge pad electrode for use with a electrocardiograph instrument or the like. 3,788,317, Cl. 128-2.06e.

McCoy, Frederic C., to Texaco Inc. Solubilizing process. 3,789,003, Cl. 252-127.000.

McCulloch Corporation: *See*—
Anderson, Harold E., 3,788,293.
Jackson, Robert V., 3,789,229.

McDermott, David C.; and Seymour, Errol V., to Shell Oil Company. Integrated barge tow with recessed bottom. 3,788,263, Cl. 114-235.00r.

McDonnell, Douglas, Corporation: *See*—
Chester, Frank S.; Johnson, Claude O.; Kavanagh, Ira Keith; and van Horik, Leonard R., 3,788,117.
Gumbelevicius, John, 3,788,914.
Harenberg, Harold L., Jr.; and Shannon, James H., 3,789,356.
Waters, Elmer Dale, 3,788,389.

McDowell-Wellman Engineering Company: *See*—
Mercer, James R., 3,788,522.

McDuffee, Paul E., Sr. Fender mounted rear view mirror. 3,788,734, Cl. 350-289.000.

McGee, Thomas D., to Iowa State University Research Foundation. Artificial bone or tooth prosthesis material. 3,787,900, Cl. 3-1.000.

McGowen, Harold E., Jr.: *See*—
Terral, Ben D.; and McGowen, Harold E., Jr., 3,788,397.

McGraw-Edison Company: *See*—
Schmidt, Jacob E., 3,788,900.

McInteer, Berthus B.: *See*—
Goldblatt, Maxwell; and McInteer, Berthus B., 3,788,814.

McKeown, Bamon; Metcalfe, John Leonard; and Pratt, Arthur James, to Lever Brothers Company. Product for the treatment of cellulosic fabrics to improve coarse substance. 3,789,040, Cl. 260-17.300.

McLean, Robert E., to Rival Manufacturing Company. Can opener with power pierce, automatic shut-off, and removable cutter mounting plate. 3,787,967, Cl. 30-4.00r.

McManers, John W.: *See*—
Malaney, Samuel T.; and McManers, John W., 3,788,302.

McMillan, Ian; and Prest, Jeffrey, to Imperial Chemical Industries Limited. Solvent compositions. 3,789,004, Cl. 252-171.000.

McMillan, Ian; and Prest, Jeffrey, to Imperial Chemical Industries Limited. Solvent compositions. 3,789,005, Cl. 252-171.000.

McMillan, Ian; and Prest, Jeffrey, to Imperial Chemical Industries Limited. Solvent compositions. 3,789,006, Cl. 252-171.000.

McMillen, Kenneth G.: *See*—
Holdeman, John W.; and McMillen, Kenneth G., 3,788,075.
Johnson, Raymond E.; Miller, Wendell E.; and McMillen, Kenneth G., 3,788,077.

McMillen, Leanne S.: *See*—
Holdeman, John W.; and McMillen, Kenneth G., 3,788,075.
Johnson, Raymond E.; Miller, Wendell E.; and McMillen, Kenneth G., 3,788,077.

McMullen, Earl Wayne, to Hastings Fiber Glass Products, Inc. Shotgun stick. 3,788,691, Cl. 294-19.00r.
McNally, Donald E., to Steelcase Inc. Torsion rod chair iron. 3,788,586, Cl. 248-373.000.
McNaughton, Andrew; and Hutchison, Bruce D. Protective appliance for use during painting. 3,788,274, Cl. 118-506.000.
McNeil, John A. Vortex flash separator. 3,788,044, Cl. 55-204.000
McNulty, Edward R.. *See—*
Bell, David F.; Johari, Girish C.; and McNulty, Edward R., 3,789,289.
McQueen, Edwin D., and Spicer, Thomas L., to Teletype Corporation Tiltable display screen assembly. 3,789,140, Cl. 178-7.810.
McWilliams, Joseph E. Steering control for power driven mobile conveyors. 3,788,444, Cl. 198-2.000.
McWilliams, Joseph E. Balanced extendible mobile conveyor. 3,788,452, Cl. 198-139.000.
Mead Corporation, The. *See—*
Morphis, Charles W.; and Hilburn, Bennie D., 3,787,951.
Mead Johnson & Company: *See—*
Matter, William L.; and Gomez, William T., 3,789,120.
Measuregraph Company, The: *See—*
Somogye, Steve, Jr., 3,787,981.
Mech, Christian Andre Lucien: *See—*
Hirtz, Alfred Georges Jean; and Mech, Christian Andre Lucien, 3,788,652.
Medill, David Gordon, and O'Neill, John Francis, to Bell Telephone Laboratories, Incorporated. Data format converter. 3,789,152, Cl. 179-99.000.
Medill, David Gordon, to Bell Telephone Laboratories, Incorporated. Switchhook status signaling arrangement. 3,789,154, Cl. 179-99.000.
Mednick, Leo, deceased (by Shipon, Shirley S., executrix). Drapery 3,788,376, Cl. 160-19.000
Medtronic, Inc.: *See—*
Friedman, Harry G., 3,788,329.
Medwin, Albert H., to Ragen Semiconductor, Inc. Apparatus for providing a pulsed liquid crystal display. 3,789,388, Cl. 340-336.000.
Mee Industries, Inc.: *See—*
Mee, Thomas R., 3,788,542
Mee, Jack E., and Besser, Paul J., to North American Rockwell Corporation. Method for producing bubble domains in magnetic film-substrate structures. 3,788,896, Cl. 117-235.000.
Mee, Thomas R., to Mee Industries, Inc. Environmental control method and apparatus. 3,788,542, Cl. 239-2.00r.
Meek, Harry M.. *See—*
Miner, Robert J.; and Meek, Harry M., 3,788,829.
Mefina S.A.: *See—*
Simmen, Robert, and Chabloz, Olivier, 3,788,229.
Meier, Carl H.; and White, Robert P., to Gulf & Western Industries, Inc. Digital counter and timer with multiplex setting and readout 3,789,195, Cl. 235-92.001.
Meier, Eugen. *See—*
Allenspach, Heinz, and Meier, Eugen, 3,788,410
Meier, Eugen, to Mettler Instrumente, AG. Temperature compensated measuring apparatus. 3,788,134, Cl. 73-141.0ab
Meincer, John H., to Owens-Illinois, Inc. Unitized palletless load 3,788,462, Cl. 206-65.00s
Meininger, Fritz. *See—*
Hille, Ernst, Hoyer, Ernst, Meininger, Fritz; and Rottmann, Johannes, 3,788,801
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Menecacci, Samuel A., to FMC Corporation. Evaporator having moving heat exchange tubes. 3,788,375, Cl. 159-25.00a
Mengel, Lloyd A., to Eastman Kodak Company. Apparatus for piercing a container. 3,788,519, Cl. 222-83.500
Menke, Franz, to Eltro GmbH & Company. Method for measuring range of vision. 3,788,745, Cl. 356-104.000
Mensenkamp, Ewald, and Cordes, Phil Heinrich, to Stahlwerke Peine-Salzgitter AG. Method of inhibiting corrosion of metal surfaces 3,788,880, Cl. 117-70.00s
Menzi, Ulrich, to Paillard S.A. Character selection and impression control mechanism for typewriter. 3,788,443, Cl. 197-16.000.
Mercer, James R., to McDowell-Wellman Engineering Company. Nozzle structure for injection molding machine. 3,788,522, Cl. 222-146.00r.
Merrill, Stewart Henry: *See—*
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Merritt, Edward E., to Federal Cartridge Corporation. Nested wad column and method of shot shell loading. 3,788,224, Cl. 102-42.00c.
Messenger, Joseph U., to Mobil Oil Corporation. Lost circulation control. 3,788,406, Cl. 175-72.000.
Messerschmidt, Jurgen. *See—*
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Schmidt, Gunther, 3,788,069.
Messersmith, Eugene, to Synthane-Taylor Corporation. Pawl bar assembly. 3,788,460, Cl. 198-221.000.
Messrs. Neumo Armaturenfabrik Apparatebau Metallgiesserei GmbH. *See—*
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Metz, Paul, and Metz, Emile, to Acieries Reunies de Burbach-Eich-Dudelange S.A. Apparatus for the continuous extraction of electroslag remelted metals. 3,788,383, Cl. 164-156.000
Meyer, Earl W., Jr., Carter, Ivor W., and Scott, Ian J. C., to Chrysler Corporation. Ignition distributor device with insulative shutter type rotor. 3,789,168, Cl. 200-19.00r
Meyer, Robert J., and Westacott, Harry L., to Eastman Kodak Company. Liquid circulation apparatus. 3,788,349, Cl. 137-565.000
Michaels, Alan S., to Alza Corporation. Drug delivery device with means for maintaining device in environment of use. 3,788,322, Cl. 128-260.000
Michaelson, Henry W. *See—*
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Middleton, Horace, and Tomine, Frank, to Salem Corporation. Rabble for rotary hearth furnace. 3,788,800, Cl. 432-235.000
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Miller Brewing Company. *See—*
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Miller, David T., to Statham Instruments, Inc. Thermodynamic cycles 3,788,091, Cl. 62-175.000
Miller, David T., to Statham Instruments, Inc. Thermodynamic cycles 3,788,092, Cl. 62-175.000
Miller, Donald L., to Bendix Corporation, The. Flexible coupling. 3,788,099, Cl. 64-12.000.
Miller, Edward F.: *See—*
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Miller, Glenn A., to Goodyear Tire & Rubber Company, The. Hose manufacture. 3,787,956, Cl. 29-451.000
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Miller, Kenneth H., to Carrier Corporation. Electrodynamic linear motor operated gas compressor. 3,788,778, Cl. 417-417.000.
Miller, Leo C. Stair traversing mechanism for hand truck. 3,788,413, Cl. 180-8.00a.
Miller, Lester L., to Du Pont de Nemours, E. I., and Company. Thermosetting coating composition of an alkyd resin mixture and aliphatic polyisocyanate cross-linking agent. 3,789,037, Cl. 260-16.000.
Miller, Marjorie A. Urine shield. 3,787,903, Cl. 4-134.000
Miller, Reginald T. Fin-keel catamaran. 3,788,257, Cl. 114-39.000.
Miller, Robert F., to Modine Manufacturing Company. Air moving means drive system. 3,789,284, Cl. 318-377.000.

Miller, Stephen A.: *See—*
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Miner, Carroll R., to General Instrument Corporation. Indexed TV tuner. 3,788,152, Cl. 74-10.18D.
Miner, Carroll R., and Balash, Edward, to General Instrument Corporation. Vernier tuning means for UHF tuner or the like. 3,789,331, Cl. 334-82.000
Miner, Robert J., and Meek, Harry M., to Owens-Illinois, Inc. Method for making glassware. 3,788,829, Cl. 65-79.000.
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Misenti, Angelo J., and Notari, Gennaro V., to Combustion Engineering, Inc. Automatic control rod latching device. 3,788,943, Cl. 176-35.000.
Mistopoulos, Chris, Jr., to Ford Motor Company. Window regulator mechanism. 3,788,005, Cl. 49-103.000.
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Mittman, Jerome J., to Ford Motor Company. Method of assembling a gas turbine regenerator assembly. 3,787,944, Cl. 29-157.30r.
Miya, Masami, to Nepon Kabushiki Kaisha (Nepon Company, Ltd.). Nestable boat on a knock down plan. 3,787,911, Cl. 9-2 00s.
Miyashita, Yoshio: *See—*
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Miyazaki, Toru. Two-four channel changeover circuit for a cartridge-type tape player. 3,789,162, Cl. 179-100.2ea.
Mizuba, Seth Setsuo: *See—*
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Mizumoto, Yoshio, to Alps Motorola, Inc. Amplifier circuitry for two-four channel cartridge type tape player. 3,789,161, Cl. 179-100.20z.
Mobil Oil Corporation: *See—*
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Moen, Alfred M. Faucet construction. 3,788,356, Cl. 137-625.170.
Moertel, George B.; and Johnston, James R., to Textron, Inc. Gapped and cleaned seam-type slide fastener chains and method and apparatus for making the same. 3,787,952, Cl. 29-408.000.
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Moll, Philipp; and Goebbels, Wolfgang, to Moll Apparatebau GmbH. Machine for the stitching of buttonholes on garments. 3,788,247, Cl. 112-121.120.
Momchilov, Emil Nikolov: *See—*
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Moore, Cecil L. Control assembly for jet boat. 3,788,265, Cl. 115-12.00r.
Moore, Robert E., to Sun Research and Development Co. Haloadamantanes. 3,789,089, Cl. 260-648.00r.
Moore, Thomas J.; and Holko, Kenneth H., to United States of America, National Aeronautics and Space Administration. Diffusion welding in air. 3,787,959, Cl. 29-482.000.
Mora, Maria. Packet nasal inhaler. 3,788,316, Cl. 128-200.000.
Morelock, Charles R., to General Electric Company. Coated filaments. 3,788,893, Cl. 117-216.000.
Morgan, Robert E., to General Motors Corporation. Rotary engine oil metering pump. 3,788,782, Cl. 418-84.000.
Morini, Emilio, to Societa Applicazioni Gomma Antivibranti "Saga" S.p.A. Shock absorber for use as a fender for ships. 3,788,260, Cl. 114-219.000.
Morishita, Yasumatsu: *See—*
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Morrell, Albert Maxwell, to RCA Corporation. Methods of manufacture of color picture tubes. 3,788,848, Cl. 96-36.100.
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Morris, William F., Jr. Cube ice separator and screening apparatus. 3,788,566, Cl. 241-73.000.
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Muller, Jurgen; and Lohrberg, Karl, to Metallgesellschaft Aktiengesellschaft. Layered electrode. 3,788,968, Cl. 204-290.00r.

Muller, Richard, to Gebr. Hofman K.G., Maschinenfabrik. Device for the balancing of out of balance bodies especially vehicle wheels. 3,788,147, Cl. 73-459.000.

Muller, Rudolf: *See—*
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Mulvey, Gerard Edmund. Modular ceiling construction. 3,788,206, Cl. 98-40.0dl.

Munk, Benedikt Aa., to Ohio State Univeristy Research Foundation, The. Periodic surface for large scan angles. 3,789,404, Cl. 343-18.00b.

Munz, Paul, to Maschinenfabrik & Gressérei Netstal A G. Closure nozzle with a movable cover for an injection molding machine. 3,788,791, Cl. 425-245.000.

Murayama, Tohru: *See—*
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Murphree, Francis J., to United States of America, Navy. Multipath sonar simulator. 3,789,128, Cl. 35-10.400.

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Musser, John J., to Reintjes, Geo. P., Co., Inc. Designing and building furnace structures with single size brick. 3,788,015, Cl. 52-80.000.

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N L Industries, Inc.: *See—*
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Nagasawa, Takeshi; Kuroiwa, Katsumasa, and Narita, Kouichi, to Nitto Boseki Co., Ltd. Glass fiber-reinforced epoxy resin or polyester resin composition and method for manufacturing same. 3,789,049, Cl. 260-40.00r.

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Nakajima, Tohru, and Niiho, Masaaki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Method and electronic machine for teaching arithmetic computation. 3,787,988, Cl. 35-31.00r.

Nakamura, Yoshuharu: *See—*
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Nakayama, Eiji, Box wrench. 3,788,169, Cl. 81-177.0uj

Nakazawa, Seinosuke, to Ikegai Tekko Kabushiki Kaisha. Apparatus for heat sealing the overlapping end portions of an elongated thermoplastic strapping band. 3,788,933, Cl. 156-513.000.

Nakazawa, Yoshiyuki; Nakamura, Yoshuharu; Sueyoshi, Tohru; and Sato, Akira, to Fuji Photo Film Co., Ltd. Fine grain silver halide photographic emulsion containing hemicyanine sensitizing dye. 3,788,859, Cl. 96-139.000.

Nalco Chemical Company: *See—*
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Nam, Joon Woo; and Choi, Ung So, to Korea Institute of Science and Technology. Compressed air seutcher. 3,787,929, Cl. 19-85.000.

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Narabu, Jiro, to Seibu Gomu Kagaku Kabushiki Kaisha. Assembled fender unit. 3,788,082, Cl. 61-48.000.

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Narayanan, Venkatachala L., and Bernstein, Jack, to Squibb, E. R., & Sons, Inc. Adamantylalkylaminoalkyl benzamides. 3,789,073, Cl. 260-558.00a.

Narda Microwave Corporation, The: *See—*
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Narita, Kouichi: *See—*
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Narres, Hans-Dieter: *See—*
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Nashizawa, Junichi, to Zaiden Hojin Handotai Kenkyu Shinkokai. Signal converter wherein photoemission time constant is utilized. 3,789,317, Cl. 331-94.50c.

Nassenstein, Heinrich, and Fitzky, Hans-Georg, to Bayer Aktiengesellschaft. Increase in the transmitting information capabilities of wave image-forming systems. 3,788,728, Cl. 350-96.0wg.

National Can Corporation. *See—*
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Neeff, Rutger: *See—*
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Neel, Robert M., Lloyd, Clarence Robert, and Johnson, Robert C., to Reynolds, R. J., Tobacco Company. Solvent recovery in tobacco treating process. 3,788,331, Cl. 131-143.000.

Negishi, Kazuo, to Victor Company of Japan, Limited. System for recording and reproducing digital signals. 3,789,139, Cl. 178-6.60a.

Neidorf, Samuel W., and Arnold, Howard K., to Bar-O-Matic Sales Co. Liquid dispensing apparatus. 3,788,343, Cl. 137-209.000.

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Nelson, Leonard, to Custom Tool & Machine Co., Inc. Machine tool vise. 3,788,635, Cl. 267-244.000.

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Nelson, Scott N. Mathematical cube puzzle. 3,788,645, Cl. 273-156.000.

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Nenov, Dragan Iliev. *See—*
Balevsky, Anguel Tonchev, Nikolov, Ivan Dimov, Nenov, Dragan Iliev, and Momchilov, Emil Nikolov, 3,788,790.

Nepon Kabushiki Kaisha (Nepon Company, Ltd.): *See—*
Miya, Masami, 3,787,911.

Nesbitt, John D., and Fejer, Mark E., to Institute of Gas Technology. Process for pre-treating and melting glassmaking materials. 3,788,832, Cl. 65-134.000.

Neste Oy: *See—*
Huttunen, Jouko, 3,788,929.

Netter, Felix P. Small vehicle lift. 3,788,414, Cl. 180-8.710.

Netterstedt, Sture, and Lindstrand, Bengt, to Rostfria Tak AB. Method of spirally winding strip metal about a pipe, and securing adjacent strips by welding. 3,789,181, Cl. 219-62.000.

Neumann, Friedmund. *See—*
Wiechert, Rudolf, and Neumann, Friedmund, 3,789,087.

New England Clock Company: *See—*
Tornquist, Nils M.; Kneeland, Howard, and Sessions, William K., Jr., 3,788,061.

New England Power Company. *See—*
Hirsch, Ernest G.; and Nelson, George L., 3,788,469.

Newell, George F., to Westinghouse Electric Corporation. Time compression of audio signals. 3,789,137, Cl. 178-6.600.

Newkirk, John D.: *See—*
Seale, Virgil L.; Svarz, Jerry J.; Goretta, Louis A.; Newkirk, John D.; Hunter, Wood E., and Sibert, Frederick J., 3,789,074.

Newton, Jack W.: *See—*
Rostler, Fritz S.; White, Richard M., and Newton, Jack W., 3,788,883.

Nguyen, Van-Tran: *See—*
Bridges, Thomas James, and Nguyen, Van-Tran, 3,789,235.

Nicholls, James Andrew: *See—*
Kempson, Bertram Carl; and Nicholls, James Andrew, 3,788,063.

Nichols, John Joseph: *See—*
Carlisle, Denis Richard, and Nichols, John Joseph, 3,788,067.

Nicholson, Gordon B., III: *See—*
Athy, Lawrence F., Jr.; Rushing, Sandy S., Jr.; and Nicholson, Gordon B., III, 3,788,341.

Nickl, Josef: *See—*
Kruger, Gerd, Zipp, Otmar; Keck, Johannes; Nickl, Josef; Machleidt, Hans; Ohnacker, Gerhard; Engelhorn, Robert; and Puschmann, Sigfrid, 3,789,125.

Nickla, Louis E.: *See—*

Fachini, Robert M.; Kenna, Fenton L., Jr.; Barrett, Monroe C.; Nickla, Louis E.; and Graham, Robert L., 3,788,495.

Nickles, Lawrence H., to General Motors Corporation. Variable vanes. 3,788,763, Cl. 415-147.000.

Nieboer, Pieter, to Demag Aktiengesellschaft. Charging head for a metallurgical furnace. 3,788,621, Cl. 266-27.000.

Nielsen, Alan H., to United States of America, Air Force. Automatic step eliminator circuit to prevent radar jamming. 3,789,405, Cl. 343-18.00e.

Nielsen, John G.: *See—*
Hefernan, William; Hair, George R.; and Nielsen, John G., 3,788,032.

Niiho, Masaaki. *See—*
Nakajima, Tohru; and Niiho, Masaaki, 3,787,988.

Niitm Pri Ban: *See—*
Balevsky, Anguel Tonchev; Nikolov, Ivan Dimov; Nenov, Dragan Iliev; and Momchilov, Emil Nikolov, 3,788,790.

Nikolov, Ivan Dimov. *See—*
Balevsky, Anguel Tonchev; Nikolov, Ivan Dimov; Nenov, Dragan Iliev, and Momchilov, Emil Nikolov, 3,788,790.

Nilsson, Lennart. *See—*
Folkesson, Bertil; Nilsson, Lennart; and Sjostrand, Uno, 3,788,028.

Ninomiya, Mikio. *See—*
Ito, Shoichi, Ninomiya, Mikio, and Uchida, Hidekuni, 3,789,068.

Nippon Accumulator Kabushiki Kaisha: *See—*
Taki, Hiroaki, 3,788,358.

Nippon Electric Company, Limited. *See—*
Iwakami, Takuya, 3,789,326.

Nippon Kokan Kabushiki Kaisha. *See—*
Mimino, Tohru, Nara, Shuuroku; Miyashita, Yoshio; and Nishikawa, Katsuhiko, 3,788,843.

Nippon Oil Co., Ltd.: *See—*
Otsuki, Yutaka, Hara, Hajime, and Imai, Nobuo, 3,789,090.

Nishiguchi, Shigeo, and Okatani, Masahiko, to Tokusyu Aerosol Company, Ltd. Automatic intermittent spray valve for pressurized packaging. 3,788,550, Cl. 239-337.000.

Nishikawa, Katsuhiko. *See—*
Mimino, Tohru, Nara, Shuuroku, Miyashita, Yoshio; and Nishikawa, Katsuhiko, 3,788,843.

Nishimatsu, Shigeru. *See—*
Yoshida, Isao, Tokuyama, Takashi, Nishimatsu, Shigeru; and Ikeda, Takahide, 3,787,962.

Nishizawa, Junichi, to Handotai Kenkyu Shinkokai. Position control system using magnetic force. 3,789,285, Cl. 318-687.000.

Nissan Motor Company. *See—*
Ishii, Yasushi, 3,789,148.

Nissan Motor Company, Limited. *See—*
Maeda, Riichi, 3,788,596.
Usui, Keizauburo, and Yamaguchi, Michio, 3,788,669.

Nitta, Hifumi, and Kaneko, Matsutaka, to Chubu Seiki Kabushiki Kaisha. Apparatus for measuring insulating and voltage resistant characteristics of articles. 3,789,294, Cl. 324-54.000.

Nittinger, Russell H., and Taylor, Donald O., to Allied Chemical Corporation. Plenum chamber. 3,788,423, Cl. 181-33.00k.

Nitto Boseki Co., Ltd. *See—*
Nagasawa, Takeshi, Kuroiwa, Katsumasa, and Narita, Kouichi, 3,789,049.

Nix, Donald Frederick. *See—*
Morrison, Howard J., and Nix, Donald Frederick, 3,788,643.

Noble Drilling Corporation: *See—*
Lorenz, Howard F., and Rosser, Eugene P. (said Rosser assor. to), 3,788,407.

Noble, Jack E.; and Johnston, Richard P., to United States of America, Health, Education and Welfare. Energy converter to power circulatory support systems. 3,788,772, Cl. 417-207.000.

Nolan, George J.; and Hogan, Robert J., to Phillips Petroleum Company. Dehydrogenation. 3,789,078, Cl. 260-680.00e.

Noll, James L.; and Zens, John F., to General Motors Corporation. Occupant restraint system. 3,788,665, Cl. 280-150.0ab.

Nolte, Gerhard, Rabowsky, Hans, Krause, Johannes; and Narres, Hans-Dieter, to Knapsack Aktiengesellschaft. Process for recovering mercury. 3,788,842, Cl. 75-109.000.

Noone, Thomas M., to Richardson Company, The. Synthetic composite and process for preparing. 3,788,882, Cl. 117-76.00t.

Norcross, Sterling E. Lock for wheeled vehicle. 3,788,108, Cl. 70-233.000.

Nordson Corporation: *See—*
Vilagi, Burton J.; and Stumphauzer, William C., 3,788,561.

Noreen, Dennis L. Combination athletic garment. 3,788,314, Cl. 128-159.000.

Norris, Kermit A., to Lockheed Electronics Company, Inc. Pseudo-random sequence synchronization for magnetic recording system. 3,789,377, Cl. 340-174.10g.

North American Rockwell Corporation: *See—*
Cooper, George P., 3,789,261.
Mee, Jack E.; and Besser, Paul J., 3,788,896.
Molina, Orlando G., 3,789,221.

Northern Electric Company Limited: *See—*
Lenaeris, George Victor, Laing, Graham Sterling; Morrell, Ronald Joseph; and Willis, Wesley Nelson (said Lenaerts, Morrell and said Willis assors. to), 3,789,348.

Nosco Plastics, Incorporated: *See—*
Cloyd, Harold S., 3,788,599.

Notari, Gennaro V.: *See—*
Misenti, Angelo J.; and Notari, Gennaro V., 3,788,943.

Novkov, Raymond E., to Warner & Swasey Company, The. Locking pin mechanism for securing tool bits to tool holders. 3,787,941, Cl. 29-96.000.

Nussbaum, Ralph W.: *See—*
Curtis, Omer E., Jr.; Tuller, Harold W.; and Nussbaum, Ralph W., 3,789,038.

Nutron Corporation: *See—*
Denker, James M., 3,788,339.

Oak Industries Inc.: *See—*
Harney, Ralph P., 3,789,131.

O'Brien, Terence J., to Callus Memories, Inc. Latch mechanism for memory disc cartridge. 3,789,273, Cl. 317-141.00r.

Obsomer, Marc. *See—*
Dumoulin, Joseph; and Obsomer, Marc, 3,789,083.

Ochsner, Arnold. Apparatus for producing colored patterns in embroidery machines. 3,788,246, Cl. 112-83.000.

O'Connor, Chadwell. Steam engine. 3,788,193, Cl. 91-243.000.

Oden, Earl Clarence. Method of crystallizing using magnetic materials. 3,788,819, Cl. 23-300.000.

Odera, Eiichi: *See—*
Saito, Yoshihiro; Okada, Tomoo; Odera, Eiichi; and Matsuzawa, Teruyuki, 3,789,147.

Odom, George H. Mooring device. 3,788,258, Cl. 114-230.000.

O'Donnell, Thomas P.: *See—*
Austin, Lewis M.; Denman, Robert R.; O'Donnell, Thomas P.; and Veres, Frank, 3,788,828.

Oestreicher, Warren J., to Centralalarm International, Inc. Alarm system with central station monitoring of key operated locks of a number of remote stations. 3,789,382, Cl. 340-213.00r.

Ogata, Fumimaro; and Nagamine, Katsuhiko, to Kanegafuchi Boseki Kabushiki Kaisha and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A. Polyolefin-polyamide composite filaments having an improved adhering property and a method thereof. 3,88,940, Cl. 111-173.000.

Ogle, James: *See—*
Holz, George E.; and Ogle, James, 3,789,265.

Ogle, Robert W., to IMS Limited. Mini dropper. 3,788,528, Cl. 222-209.000.

O'Hara, William J.: *See—*
Donowitz, Howard; and O'Hara, William J., 3,788,327.

Ohashi, Youitu: *See—*
Yamamoto, Masayuki; Kobayashi, Kazuo; and Ohashi, Youitu, 3,788,905.

Ohio State Univeristy Research Foundation, The: *See—*
Munk, Benedikt Aa., 3,789,404.

Ohnacker, Gerhard: *See—*
Kruger, Gerd; Zipp, Otmar; Keck, Johannes; Nickl, Josef; Machleidt, Hans; Ohnacker, Gerhard; Engelhorn, Robert; and Puschmann, Sigfrid, 3,789,125.

Ojima, Kenji, to Aisin Seiki Kabushiki Kaisha. Transfer gear assembly. 3,788,164, Cl. 74-665.00t.

O.K. Tool Company, The: *See—*
Williams, Thurston V.; and Cheever, Leo H., 3,788,009.

Okada, Masaru: *See—*
Dokubo, Tomoji; Hashimoto, Kiyoshi; and Okada, Masaru, 3,788,805.

Okada, Tomoo: *See—*
Saito, Yoshihiro; Okada, Tomoo; Odera, Eiichi; and Matsuzawa, Teruyuki, 3,789,147.

Okamoto, Hidehiro: *See—*
Izawa, Shinichi; Toyama, Kunio; Sugawara, Yoshiaki; Tanaka, Tsutomu; and Okamoto, Hidehiro, 3,789,054.

Okamura, Soji: *See—*
Iwase, Nobuo; and Okamura, Soji, 3,789,324.

Okatani, Masahiko: *See—*
Nishiguchi, Shigeo; and Okatani, Masahiko, 3,788,550.

Okuda, Masanao: *See—*
Kobayashi, Sethin; Torii, Michihiro; and Okuda, Masanao, 3,788,924.

Oldfield, Clarence E. Collapsible shoehorn. 3,788,531, Cl. 223-118.000.

Oldfield, Eric, to Westinghouse Canada Limited. Multicable drum hoisting system. 3,789,280, Cl. 318-45.000.

O'Leary, Richard P.; and Kapr, Charles F. Cooling towerwater control system. 3,788,340, Cl. 137-93.000.

Olin Corporation: *See—*
Shapiro, Eugene; Crane, Jacob; and Eichelman, George H., Jr., 3,788,902.
Vancil, Rayburn D., 3,788,667.

Olive, Martin Frederick: *See—*
Cook, Terence John; and Olive, Martin Frederick, 3,789,082.

Olivetti, Ing., C., & C., S.p.A.: *See—*
Bonzano, Giorgio; Lesca, Pier Carlo; and Ponzano, Luigi, 3,789,378.
Dalmasso, Claudio, 3,789,341.

Olympia Werke AG: *See—*
Folkens, Dieter; and Moritz, Rolf, 3,788,214.

Olympus Optical Co., Ltd.: *See—*
Takahashi, Nagashige, 3,788,304.

O'Neill, John Francis: *See—*
Medill, David Gordon; and O'Neill, John Francis, 3,789,152.

Onishi, Roy K.: *See—*

Dalena, Rudolph; Onishi, Roy K., and Walker, Donald F., 3,789,403.

Ono, Minoru; and Momoi, Toshimitu, to Hitachi, Ltd. Silicon nitride on silicon oxide coatings for semiconductor devices. 3,788,913, Cl. 156-11.000.

Onoyama, Atsushi: *See*—
Idei, Gijun; Onoyama, Atsushi; Aihara, Mitsuo; Suzuki, Seigo, Egawa, Hidcharu; and Yamaga, Eiichi, 3,788,058.

Onufry, Michael, Jr.: *See*—
Campanella, Samuel Joseph; Suyderhoud, Henri George; and Onufry, Michael, Jr., 3,789,165.

Orizio, Paolo. Pattern disc for tubular multiple-drop knitting machines. 3,788,101, Cl. 66-60.00a.

Ormiston, Robert A.: *See*—
Sweeney, Thomas E.; Condit, Philip M., and Ormiston, Robert A., 3,788,578.

Ormond, Alfred Newman. Low interaction multi load cell system for measuring thrust. 3,788,130, Cl. 73-117.400.

Ornstein, Jacob L., to Texas Instruments, Incorporated. Composite thermostat material. 3,788,821, Cl. 29-195.500.

Orosy, David J.; and Matlew, Abraham J., to Matlen, Abraham J. Temperature regulation for electrical heater. 3,789,190, Cl. 219-497.000.

Orthuber, Richard Kaspar, to International Telephone and Telegraph Corporation. Image intensifier and method of making an electron multiplier therefor. 3,788,831, Cl. 65-111.000.

Osaka, Kazuhiro Sugae, to Showa Sargent Ltd. Pin-tumbler lock cylinder. 3,788,110, Cl. 70-358.000.

Osawa, Sadao; Tamai, Yasuo; and Takimoto, Masaaki, to Fuji Photo Film Co., Ltd. Process for forming dye images. 3,788,845, Cl. 961-1.00r.

Osborne, Brian G.: *See*—
Ayton, Ian F.; Hartling, Donald C.; Kossoff, Joseph, and Osborne, Brian G., 3,787,999.

OSF Industries, Limited: *See*—
Sobel, Sydney Murray, 3,788,378.

Oshima, Shintaro; Kobayashi, Toshihiko; and Kamibayashi, Tetsusaburo, to Kokusai Denshin Denwa Kabushiki Kaisha. Matrix memory device of high bit density. 3,789,376, Cl. 340-174.0ma

Osmundsen, Norman K., to Westinghouse Electric Corporation. Shielded spark gap device. 3,789,256, Cl. 313-313.000.

Ostrowsky, Daniel B.; and Spitz, Erich, to Thomson-CSF. Stimulated emission radiation source with adjustable wavelength. 3,789,318, Cl. 331-94.50c.

Ostrowsky, Efrem M., to Federal Tool & Plastics, a division of VCA Corporation. Plastic dispensing nozzle with pouring spout with removable seal. 3,788,549, Cl. 239-309.000.

Othmer, Donald F. Sewage treatment system. 3,788,476, Cl. 210-194.000.

Otsuki, Yutaka; Hara, Hajime; and Imai, Nobuo, to Nippon Oil Co., Ltd. Process for the production of conjugated diene liquid polymers. 3,789,090, Cl. 260-669.00p.

Ouere, Emile. *See*—
Ane, Jean-Pierre; Teillard, Jean-Paul; and Ouere, Emile, 3,788,352.

Oulevay, Serge; and Thevenaz, Jean, to Bolex International SA. Procedure and device for synchronising cinematographic cameras with a projector. 3,788,736, Cl. 352-180.000.

Outboard Marine Corporation: *See*—
Strang, Charles D., 3,788,266.

Owatonna Tool Company: *See*—
McClocklin, Samuel B., 3,788,781.

Owens-Corning Fiberglas Corporation: *See*—
Klink, Jerome P., Lyle, Phra D.; and Griffith, Terry L., 3,788,826.

Owens-Illinois, Inc.: *See*—
Austin, Lewis M.; Denman, Robert R., O'Donnell, Thomas P.; and Veres, Frank, 3,788,828.
Meincer, John H., 3,788,462.
Miner, Robert J.; and Meek, Harry M., 3,788,829.
Reither, Thomas D.; and Trease, Ralph E., 3,788,321

Oxley, Arthur R., to Franklin Electric Subsidianes, Inc. Strainweigh balance. 3,788,411, Cl. 177-211.000.

Ozawa, Tadayuki: *See*—
Sawano, Takahiro; Kabota, Katuhiko; Ando, Masaru, Wada, Moriyasu; Murayama, Tohru; and Ozawa, Tadayuki, 3,789,275.

Pachaly, Robert W., to Gulf Research & Development Company. Process for obtaining deuterium from hydrogen-containing components and the production of heavy water therefrom. 3,789,112, Cl. 423-580.000.

Pacific Technology, Inc.: *See*—
Carpenter, Edward J.; and Leyde, Warren L., 3,789,201.

Paelian, Owen; Rister, Donald R., and Kellar, Richard L., to Toroid Corporation. Force sensing transducer. 3,788,133, Cl. 73-141.00a.

Paillard S.A.: *See*—
Menzi, Ulrich, 3,788,443.

Painelli, Daniele, to Colgate-Palmolive Company. Detergent containing enzyme and coarse perborate particles. 3,789,001, Cl. 252-99.000.

Pako Corporation: *See*—
Lee, Conrad E., 3,788,153.

Palac, Kazimir, to Zenith Radio Corporation. Method of processing a color cathode-ray tube. 3,787,937, Cl. 25-25.130.

Palm, Robert J.: *See*—
Brainard, James L.; and Palm, Robert J., 3,788,705.

Palmer, Beverly F.: *See*—
Hoadley, Harvey O., Wolfe, Robert N.; Palmer, Beverly F.; and Van Heyningen, Roger S., 3,788,171.

Palsson, Jan-Frederik. *See*—
Martensson, Kjell Halvard, Linde, Bjorn H.Son, Palsson, Jan-Frederik, and Jerre, Sven Torsten, 3,788,033.

Panel Technology Inc., mesne. *See*—
Milgram, Alvin A., 3,788,722

Pantel, Wolfgang, to Kernan, Hans. Machine for cutting rigid foam blocks. 3,788,178, Cl. 83-171.000.

Pappers, Rudolf, Hohberg, Georg, and John, Kurt, to Knauer GHHH & Co., KG Maschinenfabrik. Apparatus for manufacturing concrete pipes, particularly shaft rings. 3,788,793, Cl. 425-432.000.

Park, Jack H., to Texaco Inc. Method and apparatuses for transmission of data from the bottom of a drill string during drilling of a well. 3,788,136, Cl. 73-151.000.

Park-Ohio Industries Inc.: *See*—
Cachat, John F., 3,789,180

Parke, Davis, & Company. *See*—
Fusari, Salvatore A.; and Loeck, Leslie M., 3,789,119.

Parker, Herbert William Mansfield, to Pyrotenax Limited. Tamper proof electrical cables. 3,789,130, Cl. 174-113.000

Parker-Hannifin Corporation. *See*—
Bragg, Kenneth R., 3,788,039
Bragg, Kenneth R.; and Kenyon, Richard L., 3,788,040
Johnson, Kenneth R., 3,788,348
Lansky, Zdenek J.; and Claar, Leslie M., 3,788,076

Parlier, Roger Ernest Keylock. 3,788,111, Cl. 70-364.00r

Parodi, Sandro. *See*—
Longi, Paolo, Cameli, Nazzareno, Valvassori, Alberto, Parodi, Sandro, and Cervi, Remo, 3,789,036

Partos, Stephen E., to Avco Corporation. Self-lubricated pump with means for lubricant purification. 3,788,762, Cl. 415-74.000

Pasek, James E.; Shea, James M., and Tobin, Michael F., to General Motors Corporation. Method of fabricating an expanded tube connection. 3,787,945, Cl. 29-157.400.

Pasieka, John F., and Sorli, Duncan C., to Polaroid Corporation. Photographic apparatus and system for processing large format, self-developing film unit. 3,788,205, Cl. 95-93.000.

Patil, Arvind S., and Singer, John Jacob, Jr., to Grace, W. R., & Co. Recycling of ion exchange regenerant chemicals. 3,788,960, Cl. 204-180.00p.

Patin, Pierre. Method and apparatus for use in tunnelling. 3,788,087, Cl. 61-84.000.

Patrie, Jos, Lefebvre, Jacques, Segond, Roger, and Badia, Michel, to Cegedur Societe de Transformation de l'Aluminum Pechiney. Electrolytic coloring of anodized aluminum. 3,788,956, Cl. 204-35.00n

Patton, Bobbie J., to Mobil Oil Corporation. Method of and apparatus for logging while drilling. 3,789,355, Cl. 340-18.01d

Paulange, Serge. Welding current generator having two interconnected sources. 3,789,230, Cl. 307-1.000

Paynter, John D.. *See*—
Lewis, William E., and Paynter, John D., 3,788,835.

Peabody Engineering Corporation. *See*—
Arnold, Orlan M., and Vancini, Carlo A., 3,788,045.

Pearlman, Samuel. *See*—
Mayaud, Edith Ellen, and Pearlman, Samuel, 3,788,846.

Pearson, William R. *See*—
Rohrbaugh, Donald G., and Pearson, William R., 3,788,816.

Pebler, Alfred R.. *See*—
Yannopoulos, Lymperios N., and Pebler, Alfred R., 3,788,725.

Peck, Reese A., and Wilson, Raymond F., to Texaco Inc. Coke suppressing additive. 3,788,970, Cl. 208-22.000

Pedain, Josef. *See*—
Hagemann, Hermann; Pedain, Josef, and Zankl, Erich, 3,789,033.

Pedulla, Joseph, Jr.: *See*—
Madjid, Abdul Hamid, Vaala, Allen R., Anderson, Walter F., Jr., and Pedulla, Joseph, Jr., 3,788,818.

Peironet, Pierre R.: *See*—
Delphin, Pierre P., and Peironet, Pierre R., 3,789,335.

Pelam, Inc.: *See*—
McCormick, James B., 3,788,317.

Pelmulder, John P., Meister, Cornelius; and Monroe, Darrell W., to FMC Corporation. Method of filtering liquids. 3,788,470, Cl. 210-78.000.

Pennington, William; and Pennington, William, III. Frameless water bed. 3,787,907, Cl. 5-348.0wb.

Pennington, William, III. *See*—
Pennington, William, and Pennington, William, III, 3,787,907.

Pennsylvania Engineering Corporation. *See*—
Dieckman, Robert W.; Albers, Bernd G., and Mrozek, John W., 3,788,237.
Dortenzo, Alexander T., 3,788,619.

Pennwalt Corporation: *See*—
La Lande, William Alfred, Jr., Hauptschein, Murray; and Hager, Robert Bonner, 3,789,088.

Penny, Robert Elton, to International Business Machines Corporation. Photosensitive document detector with automatic compensation. 3,789,215, Cl. 250-206.000.

Peoples, Richard A., to Bethlehem Steel Corporation. Apparatus for treating a flux coating. 3,788,272, Cl. 118-47.000.

Performance Industries, Inc.: *See*—
Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E., 3,787,971.

Pergande, Wilfried: *See*—

Kaeppler, Gerhard; Ficker, Stefan, and Pergande, Wilfried, 3,788,046.

Perger, Julius M., to General Motors Corporation. Mudflap and rock ejector combination for a rear dump vehicle. 3,788,668, Cl. 280-154.50r.

Perkin-Elmer Corporation, The: *See*—
Slavin, Sabina; and Kahn, Herbert L., 3,788,752.

Perkins, Norman W., to Ford Motor Company. Seat recline mechanism. 3,788,698, Cl. 297-373.000.

Permá Glas-Mesh Corporation: *See*—
Carpenter, Guy H.; and Ross, Ernest E., 3,788,271.

Perry, Eli; and Strazik, William F., to Monsanto Company. Process for the separation of diene from organic mixtures. 3,789,079, Cl. 260-681.50r.

Perry, Eli; and Strazik, William F., to Monsanto Company. Process for the separation of diene from organic mixtures. 3,789,080, Cl. 260-681.50r.

Perry, James C., to General Motors Corporation. Dual fuel system. 3,788,283, Cl. 123-3.000.

Petersen, Raymond N. Camping unit. 3,788,670, Cl. 280-203.000.

Peterson, Francis C., to Hager, C., & Sons Hinge Manufacturing Co. Hinge with torsion bar. 3,787,923, Cl. 16-184.000.

Peterson, Morris W.: *See*—
Krippene, Brett C.; Peterson, Morris W.; and Marshall, David M., 3,788,796.

Petkovsek, Richard J.: *See*—
Finster, Leslie P.; Petkovsek, Richard J.; and Reader, Trevor D., 3,788,571.

Petrek, John P.: *See*—
Cantrell, C. M., 3,788,954.

Petri, Ralph E., to Rock-Ola Manufacturing Corporation. Selector system for automatic phonographs. 3,789,363, Cl. 340-162.000.

Petrocci, Alfonso N.: *See*—
Adams, Phillip; and Petrocci, Alfonso N., 3,788,989.

Pettinga, Robert. *See*—
Schleben, Harold G., Sr., and Pettinga, Robert, 3,788,189.

Pexton, Harold W. *See*—
Guntrum, William E.; Pexton, Harold W.; and Shores, Michael P., 3,787,963.

Pfirrmann, Rolf Wilhelm, to Geistlich, Ed, Sohne A.G. fur Chemische Industrie. o-Phenylsuccinimido-halo-sulphonamidobenzenes. 3,789,056, Cl. 260-239.600.

Pfister, Bruno, to Fichtel & Sachs AG. Air-cooled internal combustion engine with speed control. 3,788,289, Cl. 123-103.00b.

Pfister, William J., and Shirn, George A., to Sprague Electric Company. Solid electrolytic capacitors having hard solder cathode coating. 3,789,274, Cl. 317-230.000.

Pharmacia AB. *See*—
Kagedal, Sven Lennart, and Akerstrom, Stig Hjalmar Johannes, 3,788,948.

Philco-Ford Corporation. *See*—
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Phillips Petroleum Company. *See*—
Bresson, Clarence R., and Cobb, Raymond L., 3,789,069.
Childers, Clifford W., and Clark, Earl, 3,789,084.
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Myers, John W., 3,789,024.
Nolan, George J.; and Hogan, Robert J., 3,789,078.
Rostler, Fritz S., White, Richard M.; and Newton, Jack W., 3,788,883.
Walker, Darrell W., 3,789,017.

Pick, William Albert, to Honeywell Inc. Diaphragm seal arrangement. 3,789,176, Cl. 200-168.00g.

Piekarek, Egbert Diethelm. *See*—
Schneider, Wolfgang, Piekarek, Egbert Diethelm; and Thommes, Stefan, 3,788,580.

Piepers, Gijsbrecht Gerhardus, Vons, Leonard Hendrik; van der Linde, Aart, and Lijbrink, Eduard, to Reactor Centrum Nederland. Air-excluding spot-welding method for making heat-exchange grid. 3,789,184, Cl. 219-117.00r.

Pieroh, Ernst Albrecht. *See*—
Hoyer, Georg-Alexander; and Pieroh, Ernst Albrecht, 3,789,061.

Pillsbury Company, The: *See*—
Durst, Jack R.; and Winters, William C., 3,788,861.
Schacht, Henry Neil, 3,787,926.

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Pioneer Electronic Corporation: *See*—
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Pitner, Alfred, to Nadella. Sealing device for a universal joint. 3,788,100, Cl. 64-17.00a.

Place, Bruce S., to Magnetic Seal Corporation. Rotary seal. 3,788,650, Cl. 277-38.000.

Plant, Ernest M., II, to General Motors Corporation. Rack and pinion steering gear. 3,788,159, Cl. 74-422.000.

Plessey Telecommunications Research Company: *See*—
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Plizak, Bruno T., to United States of America, Navy. Heat exchange system. 3,788,393, Cl. 165-109.000.

Poetsch, Karl Friedrich: *See*—
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Pokorney, Charles F., to Koehring Company. Tumble packing apparatus. 3,788,029, Cl. 53-59.000.

Polaroid Corporation: *See*—
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Polgar, Michael S.: *See*—
Kuecken, John A.; and Polgar, Michael S., 3,789,416.

Polit, Neil A.; Snowdon, Donald R.; and Watson, Donald W., to Xerox Corporation. Apparatus and method for binding a stack of sheets. 3,788,921, Cl. 156-216.000.

Pollet, Robert Joseph: *See*—
De Cat, Arthur Henri; Sels, Francis Jeanne; Pollet, Robert Joseph; and Willems, Jozef Frans, 3,788,850.
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Willems, Jozef Frans; Sels, Francis Jeanne; Pollet, Robert Joseph; and De Cat, Arthur Henri, 3,788,851.

Polman, Jan; Van der Werf, Jan Evert; and Drop, Peter Cornelis, to U.S. Philips Corporation. Arrangement provided with a low-pressure vapour discharge lamp. 3,789,266, Cl. 315-194.000.

Polsak, Edwin Mark; and Kalfas, Donald Joseph, to Combustion Engineering, Inc. Combustion chamber including dry and wet collection of particulate matter. 3,788,244, Cl. 110-8.00r.

Polymet Corporation: *See*—
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Ponzano, Luigi: *See*—
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Poquette, Gereon E.: *See*—
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Portage Electric Products, Inc.: *See*—
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Portec, Inc.: *See*—
Steltz, Douglas C., 3,788,501.

Post Office, The: *See*—
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Post, Roger L.; and Herschler, Michael G., to Gardner-Denver Company. Compressor unloading control. 3,788,776, Cl. 417-295.000.

Postel-Vinay, Francis, to Fives Lille-Cail. Apparatus for recovering bulk material from a pile. 3,788,445, Cl. 198-36.000.

Postel-Vinay, Francis, to Fives Lille-Cail. Apparatus for recovering bulk material from a pile. 3,788,446, Cl. 198-36.000.

Potsch, George; and Poetsch, Karl Friedrich, to Sun Industries Incorporated. Slitter for display packages and similar products. 3,788,180, Cl. 83-449.000.

Poulsen, Peder Ulrik. Method for the continuous production of fiber reinforced plastic pipes of variable wall thickness. 3,788,918, Cl. 156-171.000.

PPG Industries, Inc.: *See*—
Cuevas, Ephraim A., 3,789,059.
Spindler, Robert G., 3,789,191.
Spindler, Robert G., 3,789,192.
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Prampart, Joseph, to Societe Financiere et Industrielle des Ateliers et Chantiers de Bretagne. Facility for controlling the orientation of variable-pitch screw blades. 3,788,768, Cl. 416-157.000.

Pratt, Arthur James: *See*—
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Preim, Jan Josef: *See*—
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Preisig, Joseph Otto; and Presser, Adolph, to RCA Corporation. Insulated dual gate field-effect transistor signal translator having means for reducing its sensitivity to supply voltage variations. 3,789,246, Cl. 307-304.000.

Presentey, Shelley M. Open switch bypass circuit. 3,789,238, Cl. 307-119.000.

Presley, C. Travis; Argabright, Perry; and Smith, Ronald E., to Marathon Oil Company. Gel composition. 3,789,010, Cl. 252-316.000.

Presser, Adolph: *See*—
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Pressler, Robert L.: *See*—
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Pribish, Bernard A.: *See*—
Morse, Donald B.; and Pribish, Bernard A., 3,788,174.

Price, Edward W.; and Mathes, Homer B. Pulsed end-burning T-burner. 3,788,126, Cl. 73-35.000.

Price, Kenneth R.: *See*—
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Priedigkeit, John H.: *See*—
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Printing Plate Supply Company: *See*—
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Pro-Tech, Inc.: *See*—
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Profiltex S.A.: *See*—
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Progil: *See*—
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Prolss, Hans, and Hegeler, Wilhelm, to Blaupunkt-Werke GmbH. Indicating system with luminous elements. 3,789,362, Cl. 340-147.01p.

Propice, Roger; and Da Rocha, Carlos, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Coin operated apparatus. 3,788,440, Cl. 194-99.000.

Propst, Howard B.: *See*—
Propst, Robert L.; and Propst, Howard B., 3,788,276.
Propst, Robert L.; and Propst, Howard B., 3,788,278.

Propst, Robert L.; and Propst, Howard B., to Miller, Herman, Research Corporation. Animal marking apparatus and method. 3,788,276, Cl. 119-1.000.

Propst, Robert L.; and Propst, Howard B., to Miller, Herman, Research Corporation. Animal marking apparatus and method. 3,788,278, Cl. 119-51.00r.

Provanzano, Salvatore R., to Spacetac Incorporated. FET analog multiplex switch. 3,789,244, Cl. 307-251.000.

Pruckmayr, Gerfried, to Du Pont de Nemours, E. I., and Company. Ethylene copolymer dispersions for flame retardation and fibrous articles coated therewith. 3,789,047, Cl. 260-28.50r.

Prucnal, Paul J.: *See*—
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Prulter, Clarence M., to Cutlas Gear & Mfg. Inc. Automatic hub for four wheel drive vehicles and the like. 3,788,435, Cl. 192-35.000.

Prymelski, Franz: *See*—
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Pullman Incorporated: *See*—
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Purman, Joseph W., to Allis, Louis, Company, The. Apparatus for cooling a hermetic motor. 3,789,249, Cl. 310-54.000.

Puschmann, Sigfrid: *See*—
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Pyler, Richard E.: *See*—
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Pyroil Company, Inc.: *See*—
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Pyrotector Incorporated: *See*—
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Pyrotenax Limited: *See*—
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Q-dot Corporation: *See*—
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Qonaar Corporation: *See*—
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Quigley, Robert E.: *See*—
Raymond, David W.; Lewis, Robert E.; and Quigley, Robert E., 3,788,608.

Quinn, Peter H. Ice hockey garment. 3,787,892, Cl. 2-2.000.

Quintana, Elias D.: *See*—
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Rabelow, Harold H., to Marsh Stencil Machine Company. Reinforced stencil assembly with foldable, adhesive covering guardian strip. 3,788,217, Cl. 101-128.100.

Rabenhorst, David W.; Brandt, Alan; Darnell, Kenneth E.; and George, James F., to Johns Hopkins University, The. Pseudo-isotropic filament disk structures. 3,788,162, Cl. 74-572.000.

Rabowsky, Hans: *See*—
Nolte, Gerhard; Rabowsky, Hans; Krause, Johannes; and Narres, Hans-Dieter, 3,788,842.

Racz, George: *See*—
Knight, Lindsay Charles; Finch, Colin Maxwell; Walden, Noel Harry Fred; and Racz, George, 3,788,748.

Racz, Nick S. Laminated cookware. 3,788,513, Cl. 220-64.000.

Radin, Bernard G.: *See*—
Bozoian, Michael; Krugler, Allen D., Jr.; and Radin, Bernard G., 3,788,421.

Ragen Semiconductor, Inc.: *See*—
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Rahme, Selim R., to A-Ok Machine and Tool Company. Headlamp aiming device having a protective housing. 3,788,747, Cl. 356-121.000.

Ramachandran, Sundaresan: *See*—
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Ranco Incorporated: *See*—
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Demaray, Merlin F., 3,788,386

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Rapuano, Robert: *See*—
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Rasmussen, James M.: *See*—
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Rasmussen, Ole-Bendt. Method of manufacturing a laminated fibro-filamentary or film structure which is partly delaminated. 3,788,922, Cl. 156-244.000

Rasmussen, Richard A., and Jimenez, Mariano, Jr., 1/3 to Rasmussen, James M. Utility cart. 3,788,662, Cl. 280-47.110

Ravreby, Fred A. Modular shoe rack. 3,788,241, Cl. 108-6.000

Rawson, Robert E. Putting stroke analyser. 3,788,646, Cl. 273-183.00e.

Rayburn, Charles C., to Illinois Tool Works, Inc. Apparatus for assembling and winding a strip about head wires. 3,787,949, Cl. 29-203.00d

Raychem Corporation: *See*—
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Rayeon Corporation: *See*—
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Raymond, David W.; Lewis, Robert E.; and Quigley, Robert E., to American Seating Company. Modular folding rail. 3,788,608, Cl. 256-59.000.

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Rees, Richard Watkin, and Reinhardt, Hans-Georg, to Du Pont de Nemours, E. I., and Company. Reinforced resin compositions. 3,789,051, Cl. 260-41.00a.

Regie Nationale des Usines Renault: *See*—
Gelin, Jacques Andre; and Dera, Alain Joseph, 3,788,285.
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Rehfeld, Frederick: *See*—
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Rehm, Karl; and Schwarz, Hermann, to Licentia Patent-Verwaltungs-G.m.b.H. Rotating suction drum for data carriers. 3,788,636, Cl. 271-4.000.

Reiber, Helmut, and Stapelfeldt, Rolf, to International Standard Electric Corporation. Flexible antenna formed of opposed convex laminated strips covered with a heat-shrunk hose. 3,789,418, Cl. 343-872.000.

Reid, Luther J., Jr.: *See*—
Suryanarayana, Yelagondahally S.; and Reid, Luther J., Jr., 3,789,021.

Reifenberg, Gerald H.; and Gitlitz, Melvin H., to M & T Chemicals, Inc. Process for preparing symmetrical triorganotin halides. 3,789,057, Cl. 260-429.700.

Reimer, William A.; and Gerlach, Peter K., to GTE Automatic Electric Laboratories, Incorporated. Low insertion/extraction force printed wiring board connector. 3,789,345, Cl. 339-75.0mp.

Reimers, George W.; Rholl, Stephen A.; and Khalafalla, Sanaa E., to United States of America, Interior. Device and process for magneto-gravimetric particle separation using non-vertical levitation forces. 3,788,465, Cl. 209-1.000.

Reinecke, Erich: *See*—
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Reinhardt, Hans-Georg: *See*—
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Reintjes, Geo. P., Co., Inc.: *See*—
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Reither, Thomas D.; and Trease, Ralph E., to Owens-Illinois, Inc. Hypodermic syringe with improved adhesive. 3,788,321, Cl. 128-221.000.

Reno, Frederick. Clutch actuating mechanism with automatically determined free play. 3,788,438, Cl. 192-110.00r.

Research Corporation: *See*—
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Research Frontiers, Inc.: *See*—
Lowell, Francis C.; Rorline, Matthew; Rosenberg, Paul; and Sax, Robert E., 3,788,729.

Rettig, Charles E., to Allis, Louis, Company, The. Variable speed motor and drive circuit. 3,789,290, Cl. 321-5.000.

Rexnord, Inc.: *See*—
Buelow, William H.; Mohrbacker, William J.; and Mihulowicz, George, 3,788,610.

Rexroth, G. L., GmbH: *See*—
Roesslein, Helmuth, 3,788,774.

Reynolds, Allan L., to United Aircraft Corporation. Microwave cavity tuning loop including a varactor. 3,789,322, Cl. 331-96.000.

Reynolds, Dwight W.: *See*—
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Reynolds Metals Company: *See*—
Singleton, Ogle R., Jr., and Ward, Bennie Ray, Jr., 3,788,824.
Wilson, Calvin L., 3,787,955.

Reynolds, R. J., Tobacco Company: *See*—
Neel, Robert M.; Lloyd, Clarence Robert; and Johnson, Robert C., 3,788,331.

Rheinische Braunkohlenwerke AG: *See*—
Wenzel, Werner; and Chaussy, Leon-Michel, 3,788,838.

Rhodes, Charles K., to United States of America, Atomic Energy Commission. Hydrogen rotation-vibration oscillator. 3,789,319, Cl. 331-94.500.

Rhodes, Warren L., to Xerox Corporation. Justification apparatus. 3,788,203, Cl. 95-4.500.

Rholl, Stephen A.: *See*—
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Rhone-Poulenc S.A.: *See*—
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Riccio, Pasquale R.: *See*—
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Riccio, Pasquale R., to Ciba-Geigy Corporation. Compressed air operated dispenser with hydraulic force multiplying means. 3,788,556, Cl. 239-349.000.

Riccio, Pasquall R.: *See*—
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Rice, Macon D.; and Anderson, Emil G. Readily releasable interconnecting means for panels. 3,788,379, Cl. 160-235.000.

Richard, Yves Robert; Le Roi, Marly; and Mignot, Jean Marcel, to Degremont Societe Generale d'Epuration et d'Assainissement. Method and apparatus for treating liquids. 3,788,981, Cl. 210-20.000.

Richards, George B., to Fluid Device Corporation. Fluid control systems. 3,788,090, Cl. 62-139.000.

Richards, Glenn L., to Stromberg Carlson Corporation. Solid state crosspoint switch. 3,789,151, Cl. 179-18.0gf.

Richardson Company, The: *See*—
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Richardson, John. Portable porch unit for mobile homes. 3,788,016, Cl. 52-66.000.

Richardson, Lilian. Hand knitting device. 3,788,102, Cl. 66-60.000.

Richardson Manufacturing Company, Inc.: *See*—
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Richardson, Raymond W., to Richardson Manufacturing Company, Inc. Device for attaching tine extensions to cutter bar. 3,788,051, Cl. 56-318.000.

Richey, Joseph Burdette, II: *See*—
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Rickettson, Donald F. Flexible bearer. 3,788,253, Cl. 112-402.000.

Riedel, Franz, to Kieserling, Th., & Albrecht. Mechanism for radial adjustment of tools in rotary tubular tool holders of shaving machines or the like. 3,788,170, Cl. 82-20.000.

Rieder, Guido: *See*—
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Rimoldi, Virginio, & C., S.p.A.: *See*—
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Marforio, Nerino, 3,788,252.

Rister, Donald R.: *See*—
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Ritchie, Kim, to Motorola, Inc. Liquid diffusion depant source for semiconductors. 3,789,023, Cl. 252-518.000.

Ritter, Gerhard: *See*—
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Ritter, Josef; Gott, Hans; Ritter, Klaus; Gamillscheg, Otto; Boyer, Wilhelm; and Ritter, Gerhard, to EVG Entwicklungs- und Verwertungsgesellschaft m.b.H. Bending machine for wire or strip. 3,788,122, Cl. 72-384.000.

Ritter, Klaus: *See*—
Ritter, Josef; Gott, Hans; Ritter, Klaus; Gamillscheg, Otto; Boyer, Wilhelm; and Ritter, Gerhard, 3,788,122.

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Rival Manufacturing Company: *See*—
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Roberts, Donald W., to United States of America, Navy. Recovery hook assembly. 3,788,262, Cl. 114-235.00r.

Roberts, James C. Sprinkler unit. 3,788,552, Cl. 239-276.000.

Roberts, Kent S.: *See*—
Roberts, Stanley D.; and Roberts, Kent S., 3,788,716.

Roberts Mfg., Inc.: *See*—
Roberts, Stanley D.; and Roberts, Kent S., 3,788,716.

Roberts, Stanley D.; and Roberts, Kent S., to Roberts Mfg., Inc. Work cabinet for sewing machine. 3,788,716, Cl. 312-29.000.

Robin, Michael; and Schulte, Sheldon R., to Ashland Oil Inc. Method of inhibiting sulfone formation in sulfonations. 3,789,067, Cl. 260-505.00e.

Robinson & Sons Limited: *See*—
Robinson, Charles Portland, 3,788,323.

Robinson, Charles Portland, to Robinson & Sons Limited. Sanitary wear. 3,788,323, Cl. 128-291.000.

Robinson, Peter, to Imperial Chemical Industries Limited. Method of cleaning. 3,789,007, Cl. 252-171.000.

Rock-Ola Manufacturing Corporation: *See*—
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Rockwell International Corporation: *See*—
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Rogers, Rudy E.: *See*—
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Rogers, Winston L. Saliva ejector chin clamp. 3,787,978, Cl. 32-33.000.

Rogier, Edgar R.: *See*—
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Rohr-Bohm Limited: *See*—
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Rohm & Haas Company: *See*—
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Rohrbaugh, Donald G., to Beckman Instruments, Inc. Chemical sample reactor module. 3,788,815, Cl. 23-253.00r.

Rohrbaugh, Donald G.; and Pearson, William R., to Beckman Instruments, Inc. Chemical analysis rotary module. 3,788,816, Cl. 23-253.00r.

Rolle, Albert L., to United States of America, Navy. Reduced bandwidth processing for ultrasonic image conversion. 3,789,350, Cl. 340-3.00r.

Rolleberg, Kjell Ove: *See*—
Assow, Bengt Holger; Jansson, Curt Evert; and Rolleberg, Kjell Ove, 3,789,288.

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Romes, Roman: *See*—
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Ronson Corporation: *See*—
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Rosa, Jack; and Bartlett, Homer E., to Harris-Intertype Corporation, mesne. Method and apparatus for controlling beam skew. 3,789,407, Cl. 343-100.0pe.

Rosaen, Oscar E. Fluid pumps and motors. 3,788,783, Cl. 418-108.000.

Rose Iron Works, Inc.: *See*—
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Rose, Richard Stephen; and Clark, Burton Parker, to General Electric Company. Burst firing, single barrel, armament. 3,788,191, Cl. 89-155.000.

Rosenberg, Paul: *See*—
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Rosser, Eugene P.: *See—*
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Rossie, Egbert; and Barke, Bernd, to Audi NSU Auto Union Aktiengesellschaft. Car body for motor vehicles. 3,788,686, Cl. 296-146.000.
Rostfria Tak AB: *See—*
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Rotary Profile Anstalt: *See—*
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Rowley, David S. Rear-view mirror system. 3,788,735, Cl. 350-302.000.
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Ruback, Keith Leonard: *See—*
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Rubenstein, Raymond D., to International Harvester Company. Hydrostatic transmission check valves with automatic unloading. 3,788,078, Cl. 60-464.000.
Rubio, Manuel, and Leal, Victor Mario, to Barrera, Roberto Gonzalez. Method and apparatus for testing adhesive properties of dough-like material. 3,788,139, Cl. 73-169.000.
Rudbarg, Frank, to FMC Corporation. Insulated pipe line for heated materials. 3,789,188, Cl. 219-301.000.
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Rule, Bruce J.: *See—*
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Runge, Charles H. Wire nut wrench. 3,787,948, Cl. 29-203.00h.
Rusak, Vasil, to De Laval Turbine Inc. Low specific speed compressor. 3,788,765, Cl. 415-213.000.
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Ryder, Robert. Earphone assembly. 3,789,164, Cl. 179-156.00r.
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Sarkisian, Arthur, and Murphy, Charles P., to International Telephone and Telegraph Corporation. Grouting composition. 3,788,081, Cl. 61-36.00r.
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Sato, Masamichi, to Fuji Photo Film Co., Ltd. Charging method for relatively movable electrophotographic means and corona means. 3,789,223, Cl. 350-325.000.
Sato, Msamichi, Honfo, Satoru, and Komaki, Takao, to Fuji Photo Film Co., Ltd. Process for charging electrophotographic materials. 3,789,224, Cl. 250-325.000.
Sato, Wasuke, Iriko, Fumio, Yamamoto, Sadao, Fujisawa, Mitsumaro, and Hatakeyama, Shigeyuki, to Showa Denko K.K. Method for manufacturing heavy duty bags. 3,788,199, Cl. 93-80.000.
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Scheidt, James E.; and White, Robert W., to Caterpillar Tractor Company. Hydraulic circuit with valve to provide semi-float control of a dozer blade. 3,788,401, Cl. 172-801.000.
Schenkels, Ferdinand Jose Maria; and Verboven, Ghislain Felix Alfons Arthur. Method of manufacturing gas-filled lamps. 3,788,724, Cl. 316-20.000.

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Schmidt, Jacob E., to McGraw-Edison Company. Air-depolarized primary battery. 3,788,900, Cl. 136-86.00a.
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Schneider, Herbert Anton, to Bell Telephone Laboratories, Incorporated. Ternary memory cell. 3,789,245, Cl. 307-288.000.
Schneider, Karl, Cuenoud, Gerard, Bouladon, Gabriel, and Zuppiger, Paul, to Battelle Memorial Institute. Transport system. 3,788,232, Cl. 104-88.000.
Schneider, Walter. Garbage bin. 3,788,720, Cl. 312-211.000.
Schneider, Wolfgang, Piekarek, Egbert Diethelm, and Thommes, Stefan, to Klein, Schanzlin & Becker Aktiengesellschaft. Apparatus for mounting movable devices. 3,788,580, Cl. 248-14.000.
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Shumaker, Charles Storer, to Wean United, Inc. Method and apparatus for tensioning strip. 3,788,534, Cl. 226-4.000.
Shyne, James J.; and Milewski, John V., to General Technologies Corporation. High shear-strength fiber-reinforced composite body. 3,788,935, Cl. 161-141.000.
Siberf, Frederick J.: *See*—
Seale, Virgil L.; Svarz, Jerry J.; Goretta, Louis A.; Newkirk, John D.; Hunter, Wood E.; and Sibert, Frederick J., 3,789,074.
Sibeud, Jean Paul, to Automobiles M. Berliet. Device for measuring the specific consumption of internal combustion engines. 3,789,381, Cl. 340-207.00r.
Sick, Erwin, Firma: *See*—
Brose, Peter, 3,788,105.
Sielk, Werner, to Ford Motor Company. Operating mechanism for a motor vehicle sliding roof. 3,788,160, Cl. 74-51.00r.
Siemens Aktiengesellschaft: *See*—
Beier, Helmut; Handke, Siegfried; and Konczal, Wolfgang, 3,789,175.
Engels, Heinrich, 3,788,766.
Harz, Hermann, 3,789,282.
Michels, Hans, 3,789,395.
Tschunt, Edgar; and Dittrich, Werner, 3,788,450.
Siemens-Albis Aktiengesellschaft: *See*—
Wernli, Hans, 3,789,406.
Siemund, Herbert A., to Greenview Manufacturing Company. Reversible sponge rubber mop, brush or duster. 3,787,919, Cl. 15-244.0ch.
Sievenpiper, Frederic Leory; and Bement, Elmore, to Allied Chemical Corporation. Solvent compositions for solvent dyeing and dyestuff solutions prepared therefrom. 3,788,811, Cl. 8-175.000.
Sievers, Jerry A.: *See*—
Bari, Jaime A.; Maffitt, Kent N.; and Sievers, Jerry A., 3,789,370.
Sigman, Daniel M., Jr., to Armstrong Cork Company. Method of embossing. 3,788,872, Cl. 117-10.000.
Sigmatek, Inc.: *See*—
Andersen, Robert A.; and Maguire, Lawrence A., 3,789,323.
Sigmon Corporation: *See*—
Sigmon, James W., 3,788,653.
Sigmon, James W., to Sigmon Corporation. Rotary fluid seal. 3,788,653, Cl. 277-70.000.
Siksai, Anthony. Automated animated display device. 3,787,991, Cl. 40-106.520.
Silbereisen, Hermann; Winterberg, Felix; and Ginzel, Severin. Hydraulic metal powder press. 3,788,787, Cl. 425-78.000.
Silver, Frederick. Strip-chart holder. 3,787,990, Cl. 40-86.00r.
Simard, Albert. Fish Scaling machine. 3,787,927, Cl. 17-64.000.
Simmen, Robert; and Chabloz, Olivier, to Mefina S.A. Fuse for nongyratory missiles. 3,788,229, Cl. 102-74.000.
Simmons, Smith H.; and Caraway, Mitchell R., to Standard Fabricated Products Co., The. Prefabricated multi-story stair assembly. 3,788,018, Cl. 52-185.000.
Simon, Paul; and Jones, Robert E., Jr., to International Business Machines Corporation. Method for manufacturing a magnetic head. 3,787,964, Cl. 29-603.000.
Simone, Dominic; and Herman, Daniel F., to N L Industries, Inc. Cellulose acetate butyrate film forming composition containing titanium dioxide microoxide. 3,789,039, Cl. 260-17.00r.
Simpson, Carl H. Neck sling pad. 3,788,308, Cl. 128-94.000.
Sinfelt, John H.: *See*—
Carter, James L.; and Sinfelt, John H., 3,789,020.
Singer Company, The: *See*—
Bonner, Alvin T., Sr., 3,788,245.
Goetz, Philip J.; and Solomon, Leon R., 3,789,316.
Weisz, William, 3,788,249.
Singer Company, The, mesne: *See*—
Lowdenslager, John R., 3,789,308.
Singer, John Jacob, Jr.: *See*—
Patil, Arvind S.; and Singer, John Jacob, Jr., 3,788,960.
Singleton, Ogle R., Jr.; and Ward, Bennie Ray, Jr., to Reynolds Metals Company. Aluminous metal brazing materials. 3,788,824, Cl. 29-197.500.
Sitabkhan, Abdul N.: *See*—
Kramer, Jack M.; and Sitabkhan, Abdul N., 3,788,666.
Sivertsen, David R., to Texas Instruments, Incorporated. Multilayer microelectronic circuitry techniques. 3,789,276, Cl. 317-235.00r.
Sjostrand, Uno: *See*—
Folkesson, Bertil; Nilsson, Lennart; and Sjostrand, Uno, 3,788,028.
SKF Kugellagerfabriken GmbH: *See*—
Dausch, Ernst; Kubler, Friedrich; Hempel, Theodor; and Fuchs, Franz, 3,787,933.
Diem, Rudolf, 3,787,983.
Skil Corporation: *See*—
Beisch, Hanspeter E.; and Kaman, Frank A., 3,787,973.
Skinner, James R., to M.V. Engineering & Mfg., Inc. Holder for disc-like objects. 3,788,464, Cl. 206-.820.
Skkita, Akira: *See*—
Hirose, Hidenori; Tsubosaki, Masaaki; Sugiyama, Masayoshi; Skkita, Akira; and Kito, Mitsuo, 3,788,503.
Skreiner, Klaus M.: *See*—
Barkan, Philip; Barton, Robert S.; Skreiner, Klaus M.; and Tognela, Ugo R., 3,789,174.
Skruch, Richard R.: *See*—
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Slavin, Sabina; and Kahn, Herbert L., to Perkin-Elmer Corporation. The Gas flow controller for a heated sample cell. 3,788,752, Cl. 356-36.000.
Slick Corporation, The: *See*—
Kaeppler, Gerhard; Ficker, Stefan; and Pergande, Wilfried, 3,788,046.
Sliwa, John T., to Bendix Corporation, The. Aircraft control system using inertially sensed data. 3,788,579, Cl. 244-77.00a.
Sloane, R. & G., Manufacturing Company, Inc.: *See*—
Wise, Eugene H., 3,788,928
Slone, James C., Jr.: *See*—
Feldman, David W.; and Slone, James C., Jr., 3,789,351.
Slusher, Leonard G., to Burlington Northern, Inc. Self-tightening dunnage. 3,788,498, Cl. 214-10.50r.
Smart, William O.: *See*—
Clancy, Lawrence F.; Lee, Emil B., Jr., Smart, William O.; and Yancey, John W., 3,788,418.
Smeets, Joseph Gerard Alphons, to International B. F. Goodrich-Europe B.V. Method and apparatus for preheating an uncured rubber tire. 3,788,785, Cl. 425-32.000.
Smith, Don G.: *See*—
Hunter, Earl Kent; and Smith, Don G., 3,789,353.
Smith, John A.; and Miller, Stephen A., to Columbia Broadcasting System, Inc. Toy blocks having panelled construction. 3,787,996, Cl. 46-25.000.
Smith, Lloyd M.; and Sayano, Kanji Frank, to United States of America, Navy. Passive ranging technique. 3,789,410, Cl. 343-112.00d.
Smith, Lucille G.: *See*—
Smith, Theodore M., 3,788,656.
Smith, Mary Kay Hrncir: *See*—
Feuerbacher, David George; and Smith, Mary Kay Hrncir, 3,788,399.
Smith, Ora E.: *See*—
Wilson, David G.; and Smith, Ora E., 3,788,466.
Smith, R. L., Gear Company: *See*—
Crooks, James W., 3,788,607.
Smith, Richard N., to Sybron Corporation. Electrodialytic recovery of acid and insoluble products from spent liquors. 3,788,959, Cl. 204-180.00p.
Smith, Ronald E.: *See*—
Presley, C. Travis; Argabright, Perry; and Smith, Ronald E., 3,789,010.
Smith, Theodore M., to Smith, Lucille G. and Smith, Theodore M.; trustees. Radio active tool holder. 3,788,656, Cl. 279-1.00a.
Smith, Theodore M.; trustees: *See*—
Smith, Theodore M., 3,788,656.
Smith, Wallace Leland: *See*—

Shuey, Scott James; Smith, Wallace Leland; and Wilk, Harold G., 3,788,764.
Smolka, Thomas Gordon; and Hrachowitz, Franz, to Gertsch AG. Spring lock. 3,788,660, Cl. 280-11.35t.
Smoot, Edward H., to Schlegel Manufacturing Company, The. Spare tire removal system. 3,787,953, Cl. 29-427.000.
Snarr, James L.: *See*—
Green, Donald T.; and Snarr, James L., 3,789,226.
Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A.: *See*—
Ogata, Fumimaro; and Nagamine, Katsuhiko, 3,788,940.
Snider, Philip A., to Dotco, Inc. Rotary flow control valve for air operated tools and the like. 3,788,603, Cl. 251-345.000.
Snodgrass, John E.: *See*—
Blymiller, Arthur L.; and Snodgrass, John E., 3,789,399.
Snowdon, Donald R.: *See*—
Polit, Neil A.; Snowdon, Donald R.; and Watson, Donald W., 3,788,921.
Sohel, Sydney Murray, to OSF Industries, Limited. Floor area divider. 3,788,378, Cl. 160-135.000.
Societa Applicazioni Gomma Antivibranti "Saga" S.p.A.: *See*—
Morini, Emilio, 3,788,260.
Societa Italiana Telecomunicazioni Siemens S.p.A.: *See*—
Candiani, Giampiero, 3,789,392.
Societe Civile dite Soltex: *See*—
Bernard, Andre; Gagne, Pierre; Gras, Georges; and Neel, Jean, 3,788,884.
Societe Civile Textile dite Socitex: *See*—
Batsch, Guy, 3,788,057.
Societe de Travaux d'Electricite et d'Electronique du Languedoc: *See*—
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Societe Financiere et Industrielle des Ateliers et Chantiers de Bretagne: *See*—
Colin, Jean Paul, 3,788,259.
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Prampart, Joseph, 3,788,768.
Societe Industrielle Bull-General Electric (Societe Anonyme): *See*—
Girard, Rene Fernand Victor; and Gidon, Marie-Claire, 3,788,897.
Societe Nationale Industrielle Aerospatiale: *See*—
Ane, Jean-Pierre, Teillard, Jean-Paul; and Ouere, Emile, 3,788,352.
Societe Rateau: *See*—
Hirtz, Alfred Georges Jean, and Mech, Christian Andre Lucien, 3,788,652.
Soeda, Katsuji, to Yamamoto Electric Industrial Co., Ltd. System for stopping sewing machine needle at predetermined position. 3,788,250, Cl. 112-219.00a.
Solartron Electronic Group Limited. *See*—
Catherall, Reginald; and Knowles, Susan, 3,789,203.
Soleo Basel AG: *See*—
Buchmann, Paul; and Beringer, Monique, 3,788,471.
Solman, Frank Yassin, to Allied Chemical Corporation. Silica-filled, high molecular weight polyolefin. 3,788,923, Cl. 156-244.000.
Solomon, Leon R.: *See*—
Goetz, Philip J.; and Solomon, Leon R., 3,789,316.
Solter, Helmut Adolf, to Schat Davits, Limited. Winch mechanism for lowering a lifeboat, launch or the like, suspended from two falls, into the water and hoisting it out of the water. 3,788,606, Cl. 254-185.000.
Solvay & Cie: *See*—
Dumoulin, Joseph; and Obsomer, Marc, 3,789,083.
Somekh, George S.: *See*—
Kosseim, Alexander J.; and Somekh, George S., 3,789,077.
Somekh, George Solomon: *See*—
Kubek, Daniel John; Kosseim, Alexander Jean-Marie; and Somekh, George Solomon, 3,788,980.
Somogye, Steve, Jr., to Measuregraph Company, The. Fabric measuring and cost computing apparatus. 3,787,981, Cl. 33-133.000.
Sonneman, Robert, to Sonneman, Robert, Associates, Inc. Counterbalanced lamp. 3,789,213, Cl. 240-69.000.
Sonneman, Robert, Associates, Inc.: *See*—
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Sopinski, Zygmunt J.: *See*—
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Sorenson, Charles E.; and Grimmer, Jon M., to Hahn, Inc. Highclarence agricultural vehicle. 3,788,416, Cl. 180-27.000.
Sorli, Duncan C.: *See*—
Pasieka, John F.; and Sorli, Duncan C., 3,788,205.
Sosnowski, John: *See*—
Henry, H. Clarke; Gilbert, John B.; and Sosnowski, John, 3,788,972.
South African Inventions Development Corporation: *See*—
Berrange, Aubrey Ralph, 3,788,757.
Southwestern Manufacturing Company: *See*—
Athy, Lawrence F., Jr.; Rushing, Sandy S., Jr.; and Nicholson, Gordon B., III, 3,788,341.
Space Age Industries, Inc.: *See*—
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Spacetac Incorporated: *See*—
Cocca, Theodore F.; and Sanders, Paul J., 3,787,965.
Provanzano, Salvatore R., 3,789,244.
Spadini, Paolo. Alarm wrist watch. 3,788,059, Cl. 58-23.0ba.
Sperry Rand Corporation: *See*—
Ross, Gerald F.; and Jacobson, Robert S., 3,789,413.
Spicer, Thomas L.: *See*—
McQueen, Edwin D.; and Spicer, Thomas L., 3,789,140.
Spiess, Karl: *See*—
Baberowski, Waldemar; and Spiess, Karl, 3,788,449.
Spindler, Robert G., to PPG Industries, Inc. Temperature sensor. 3,789,191, Cl. 338-24.000.
Spindler, Robert G., to PPG Industries, Inc. Electrically heated window with a temperature sensor. 3,789,192, Cl. 219-522.000.
Spirolet Corporation: *See*—
Breunsbach, Maurice C., 3,788,353.
Breunsbach, Maurice C., 3,788,557.
Spitz, Erich: *See*—
Ostrowsky, Daniel B.; and Spitz, Erich, 3,789,318.
Sprague Electric Company: *See*—
Craig, Herbert C.; and Lamphier, Walter C., 3,789,277.
Pfister, William J.; and Shirn, George A., 3,789,274.
Square D Company: *See*—
Yazvac, Thomas A., 3,789,169.
Squibb, E. R., & Sons, Inc.: *See*—
Bernstein, Jack, 3,789,072.
Narayanan, Venkatachala L.; and Bernstein, Jack, 3,789,073.
St. Amand, Pierre; and Koff, Irwin, to United States of America, Navy. Uniform size particle generator. 3,788,543, Cl. 239-2.00r.
Staab, Donald C., to Cardinal Industries Incorporated. Water system in multiple grooving of pavement. 3,788,704, Cl. 299-18.000.
Stabilus Industrie- und Handelsgesellschaft mbH: *See*—
Stemmler, Hansjorg, 3,788,587.
Stade, Bertil; and Hoglund, Edward. Emission-free exhaust pipe joint and clamp therefor. 3,788,677, Cl. 285-367.000.
Staedtler, J. S.: *See*—
Glombitza, Klaus, 3,787,980.
Stahl, David E.: *See*—
Lee, Hanju; and Stahl, David E., 3,788,036.
Stahl, Karl-Heinz: *See*—
Stahl, Karl-Heinz; Stahl, Werner; and Fend, Fritz (said Stahl, Werner, and said Fend, Fritz, assors. to said), 3,788,547.
Stahl, Karl-Heinz; Stahl, Werner; and Fend, Fritz, said Stahl, Werner, and said Fend, Fritz, assors. to said Stahl, Karl-Heinz. Spraying apparatus. 3,788,547, Cl. 239-129.000.
Stahl, Werner: *See*—
Stahl, Karl-Heinz; Stahl, Werner; and Fend, Fritz, 3,788,547.
Stahlwerke Peine-Salzgitter AG: *See*—
Mensenkamp, Ewald; and Cordes, Phil Heinrich, 3,788,880.
Stahly, Frederick August; and Merrill, Stewart Henry, to Eastman Kodak Company. Liquid electrographic developers. 3,788,995, Cl. 252-62.100.
Standal, George M. Sprinkler drive. 3,788,551, Cl. 239-242.000.
Standard Brands, Incorporated: *See*—
Thompson, Kenneth N.; Johnson, Richard A.; and Lloyd, Norman E., 3,788,945.
Standard Fabricated Products Co., The: *See*—
Simmons, Smith H.; and Caraway, Mitchell R., 3,788,018.
Standard Oil Company, The: *See*—
Talsma, Herbert, 3,789,041.
Stapelfeldt, Rolf: *See*—
Reiher, Helmut; and Stapelfeldt, Rolf, 3,789,418.
Starling, Inc.: *See*—
Elwick, Keith D., 3,788,052.
Starr, Fowler K. Support cushion for childrens and invalids seats. 3,788,699, Cl. 297-390.000.
Stastor, Richard A.: *See*—
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Statham Instruments, Inc.: *See*—
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Miller, David T., 3,788,092.
Steelcase Inc.: *See*—
McNally, Donald E., 3,788,586.
Steffes, William J., to Coleman Company, Inc., The. Tent stake. 3,788,336, Cl. 135-15.0oc.
Steiner, Edward: *See*—
Hotz, Kenneth J., Jr.; Steiner, Edward; and Fox, Gary L., 3,788,628.
Steingass, August, & Sohn, Firma: *See*—
Semisch, Gunter, 3,788,014.
Steinmann, Eugene B., Jr. Automobile trunk lock opening tool. 3,788,168, Cl. 81-3.00r.
Steltz, Douglas C., to Portec, Inc. Adjustable mounting for refuse dump truck packer plate. 3,788,501, Cl. 214-83.300.
Stemmle, Denis J., to Xerox Corporation. Moving bin sorting apparatus. 3,788,640, Cl. 271-64.000.
Stemmler, Hansjorg, to Stabilus Industrie- und Handelsgesellschaft mbH. Resilient column. 3,788,587, Cl. 248-400.000.
Stephanoff, Louis J., to FMC Corporation. Linear motor conveyor. 3,788,447, Cl. 198-41.000.
Stephens, Paul F., to Bethlehem Steel Corporation. Refractory sand molds and cores. 3,788,864, Cl. 106-38.300.
Stephens, Richard Wilson: *See*—
Giacoma, Frederick Alfred, Jr.; Godbold, Channing W.; and Stephens, Richard Wilson, 3,788,514.
Stephenson, Orlando W., III; and Schmidt, John E., to BASF Wyandotte Corporation. Electrical connections for metal electrodes. 3,788,966, Cl. 204-256.000.
Stepper, Heinz J.: *See*—

Bell, Heinz G.; and Stepper, Heinz J., 3,789,255.
Stern, Ernest. *See*—
Waldron, Richard A.; and Stern, Ernest, 3,789,327.
Sternberg, Ronald Frederick; Koppelmann, Roger Fred; and Mill, Rolf K., to United States of America, Navy. Passive holography system. 3,789,354, Cl. 340-5.00h.
Stewart, Graham G.; and Earl, Allan E., to Labatt Breweries of Canada, Limited. Extraction and purification of maltotriose and maltotetrose. 3,788,910, Cl. 195-41.000.
Stewart, Stanly J. Elongated liquid marker. 3,788,753, Cl. 401-134.000.
Stiff, Rodney Allan; and Ruback, Keith Leonard, to Massey-Ferguson (Australia) Limited. Trash separator for sugar cane harvesters. 3,788,048, Cl. 55-406.000.
Stiles, Alvin B., to Du Pont de Nemours, E. I., and Company. Preparation of catalysts useful in oxidation of SO gases. 3,789,019, Cl. 252-440.000.
Still, Carl, Firma: *See*—
Tippmer, Kurt; and Laufhutte, Dieter, 3,789,105.
Stone, Charles W., to Zimmerman, D. W., Mfg., Inc. Apparatus for moving an object along a predetermined path. 3,788,491, Cl. 212-25.000.
Stop-Motion Devices Corporation: *See*—
Tellerman, Edward M., 3,788,363.
Stracke, Wilfried; and Zimmermann, Max, to Aktiengesellschaft Brown, Boveri & Cie. Nuclear power plant having a closed gas cooling circuit. 3,788,944, Cl. 176-60.000.
Strang, Charles D., to Outboard Marine Corporation. Multi-powerhead outboard motor. 3,788,266, Cl. 115-17.000.
Strazik, William F.: *See*—
Perry, Eli; and Strazik, William F., 3,789,079.
Perry, Eli; and Strazik, William F., 3,789,080.
Striebich, Alfred: *See*—
Baumann, Reinhold; Kunze, Ernst-Gunter; Lauerbach-Lehmeier, Robert; Striebich, Alfred; and Rothe, Hans-Joachim, 3,789,026.
Strohecker, Daniel E., to Battelle Development Corporation. Humidity indication. 3,788,128, Cl. 73-73.000.
Stromberg Carlson Corporation: *See*—
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Strong, William A., to Brunswick Corporation. Anti-cavitation means for marine propulsion device. 3,788,267, Cl. 115-17.000.
Stuemky, Robert E.: *See*—
Miller, Arthur W.; Stuemky, Robert E.; and Morse, George E., 3,788,098.
Stumphauzer, William C.: *See*—
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Suchka, Michael B., to Lakeland Enterprises, Inc., mesne. Seedling tray insert. 3,788,002, Cl. 47-34.130.
Sueyoshi, Tohru: *See*—
Nakazawa, Yoshiyuki; Nakamura, Yoshiharu; Sueyoshi, Tohru; and Sato, Akira, 3,788,859.
Sueyoshi, Toshihiko; and Kozawa, Mitsuo, to Japan Steel Works Ltd. Process for injection molding polyester preforms. 3,789,103, Cl. 264-329.000.
Sugahara, Eisuke. Weaf resistant guides for clutch shoe. 3,788,436, Cl. 192-88.00b.
Sugano, Junichiro. *See*—
Matsumura, Shiro; Shin, Hiroshi; Sugano, Junichiro; Yoshii, Tadashi; Kuriyama, Yasuhisa; and Komaki, Takeshi, 3,789,115.
Sugawara, Yoshiaki. *See*—
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Sugiura, Muneharu; and Hirose, Ryusho, to Canon Kabushiki Kaisha. Two point focus variable magnification lens system. 3,788,731, Cl. 350-184.000.
Sugiyama, Masayoshi. *See*—
Hirose, Hidenori; Tsubosaki, Masaaki; Sugiyama, Masayoshi; Skita, Akira; and Kito, Mitsuo, 3,788,503.
Sullivan, James D., to Monsanto Company. Functional fluid compositions. 3,788,992, Cl. 252-47.500.
Sumitomo Electric Industries, Ltd.: *See*—
Takeo, Keinosuke; Katsumata, Tomoaki; and Hijikata, Akimitsu, 3,788,120.
Sun Electric Corporation: *See*—
Trussell, Gerald C., 3,788,129.
Sun Industries Incorporated: *See*—
Potsch, George; and Poetsch, Karl Friedrich, 3,788,180.
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Sun Research and Development Co.: *See*—
Moore, Robert E., 3,789,089.
Suryanarayana, Yelagondahally S.; and Reid, Luther J., Jr., to Ciba-Geigy Corporation. Catalyst for the production of cyanuric chloride. 3,789,021, Cl. 252-446.000.
Sustarsic, John D.: *See*—
Edgar, William D.; Sustarsic, John D.; and Konzler, Roymond C., 3,788,236.
Susuki, Rinnosuke; Hoshi, Hiroshi; and Umeya, Kaoru, to Lion Fat and Oil Co., Ltd. Method of manufacturing artificial logs. 3,788,919, Cl. 156-184.000.
Sutton, Charles B.: *See*—
Degioia, Peter A.; and Sutton, Charles B., 3,788,714.
Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E., to Performance Industries, Inc. Carpet trim cutter. 3,787,971, Cl. 30-293.000.
Sutton, Robert S., to Ex-Cell-O Corporation. Tool holder for use with automatic tool changing apparatus. 3,788,657, Cl. 279-173.000.
Suyderhoud, Henri George: *See*—
Campanella, Samuel Joseph; Suyderhoud, Henri George; and Onufry, Michael, Jr., 3,789,165.
Suzuki, Akira; Kinoshita, Shushi; and Ueda, Takeshi, to Kobe Steel, Ltd. Method of processing steel material having high austenitic grain-coarsening temperature. 3,788,903, Cl. 148-12.100.
Suzuki, Seigo: *See*—
Idei, Gijun; Onoyama, Atsushi; Aihara, Mitsuo; Suzuki, Seigo; Egawa, Hideharu; and Yamaga, Eiichi, 3,788,058.
Suzuki, Shizuo: *See*—
Watanabe, Teruji; Fukui, Takasuke; and Suzuki, Shizuo, 3,789,234.
Suzuki, Tadao, to Denki Kaguku Kogyo Kabushiki Kaisha. Apparatus for fabricating synthetic resin articles by double rotation of a mold. 3,788,792, Cl. 425-429.000.
Svarz, Jerry J.: *See*—
Seale, Virgil L.; Svarz, Jerry J.; Goretta, Louis A.; Newkirk, John D.; Hunter, Wood E.; and Sibert, Frederick J., 3,789,074.
Swanquist, Wesley W., to All-Steel Inc. Connector for non-metallic sheathed cable. 3,788,582, Cl. 248-56.000.
Sweeney, Thomas E., Condit, Philip M., and Ormiston, Robert A. Semi-rigid airfoil for airborne vehicles. 3,788,578, Cl. 244-3.280.
Sweeny, Norman P.: *See*—
Beck, Warren R.; and Sweeny, Norman P., 3,787,908.
Switzgable, Harold. Adjustable garage door lock. 3,788,678, Cl. 292-7.000.
Sybron Corporation: *See*—
Crandall, William B.; and Lee, Charles M., Jr., 3,788,874.
Smith, Richard N., 3,788,959.
Symmons, Paul C. Single handle water mixing valve. 3,788,354, Cl. 137-625.400.
Syndiloy Corporation: *See*—
Carpenter, William T., 3,788,809.
Synthane-Taylor Corporation: *See*—
Messersmith, Eugene, 3,788,460.
Systems Research Laboratories, Inc.: *See*—
Buechler, Lester W., 3,788,741.
Szakasits, Julius J., to Shell Oil Company. Disc conveyor flame ionization detectors. 3,788,479, Cl. 210-198.00c.
Szeverenyi, Nikolaus A., and Thompson, David F., to GTE Sylvania Incorporated. Pressure sensor device. 3,789,338, Cl. 337-3.000.
Taft, David D.; and Schmidt, Roger A., to Ashland Oil Inc. Novel cured compositions prepared from the reaction of a polyisocyanate and a hydroxybenzoic acid capped epoxide containing material. 3,789,044, Cl. 260-18.0tn.
Taguchi, Seiichi, and Mizuki, Enchi, to Fuji Photo Film Co., Ltd. Negative-working photographic process utilizing heat bleachable thin layer of a dye. 3,788,849, Cl. 96-48.0lhd.
Taisho Pharmaceutical Co., Ltd.: *See*—
Ito, Shoichi; Ninomiya, Mikio; and Uchida, Hidekuni, 3,789,068.
Takachiho Koeki Kabushiki Kaisha: *See*—
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Takahashi, Isozi: *See*—
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Takahashi, Nagashige, to Olympus Optical Co., Ltd. Endoscope. 3,788,304, Cl. 128-6.000.
Takeo, Keinosuke; Katsumata, Tomoaki; and Hijikata, Akimitsu, to Sumitomo Electric Industries, Ltd. Apparatus for hot-stretching steel wire and cable. 3,788,120, Cl. 72-342.000.
Takeuchi, Satoshi; and Saito, Hachiro, to Dai Nippon Insatsu Kabushiki Kaisha. Method for recording a visible image on a substrate by using an electroconductive toner. 3,788,738, Cl. 355-17.000.
Taki, Hiroaki, to Nippon Accumulator Kabushiki Kaisha. Device for mounting a bladder in an accumulator. 3,788,358, Cl. 138-30.000.
Takimoto, Masaaki: *See*—
Osawa, Sadao; Tamai, Yasuo; and Takimoto, Masaaki, 3,788,845.
Talsma, Herbert, to Standard Oil Company, The. Melamine-formaldehyde resins containing calcium carbonate. 3,789,041, Cl. 260-17.300.
Tamai, Yasuo: *See*—
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Tamei, Fumio: *See*—
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Tanaka, Katushi: *See*—
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Tanaka, Tsutomu: *See*—
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Tanaka, Yoshio, to Ideal Soap Company. Continuous process for producing transparent soap having pearlescent qualities. 3,789,011, Cl. 252-367.000.
Tannenbaum, Stanley: *See*—
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Tanner, David A.: *See*—
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Tanner, Hal W., Jr.: *See*—
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Tauster, Samuel J., to Esso Research and Engineering Company. Catalyst impregnation technique. 3,789,025, Cl. 252-465.000.
Taylor, Donald O.: *See*—
Nittinger, Russell H.; and Taylor, Donald O., 3,788,423.
Taylor, Jack: *See*—
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Taylor, James B., to Trans-Canada Resources Ltd. Process for plugging formations. 3,788,405, Cl. 175-72.000.
Taylor, James F., to Design Dimension, Inc. Amphibious vehicle. 3,787,910, Cl. 9-1.001.
Taylor, John W., Jr., to Westinghouse Electric Corporation. Radar apparatus. 3,789,396, Cl. 343-5.0dp.
Taylor, Kirman: *See*—
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Taylor, S. G., Chain Company, Inc.: *See*—
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Teggelaar, Claude; and De Bruyn, William T., to Wolverine Industries, Inc. Self-releasing frictional window sash balance. 3,788,006, Cl. 49-417.000.
Teillard, Jean-Paul: *See*—
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McQueen, Edwin D.; and Spicer, Thomas L., 3,789,140.
Tellerman, Edward M., to Stop-Motion Devices Corporation. Control means for textile producing machines. 3,788,363, Cl. 139-336.000.
Tellier, Jacques C. T., to GAF Corporation. Ink receiving matte sheet materials overcoated with alkylated vinylpyrrolidone polymers. 3,788,881, Cl. 117-73.000.
Tendler, Robert K. Wall hanger. 3,788,588, Cl. 248-467.000.
Teng, James; Lucas, James M.; and Pyler, Richard E., to Anheuser-Busch, Incorporated. Method of removing oil spills. 3,788,984, Cl. 210-30.000.
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Tensator, Limited: *See*—
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Terada, Toshimichi, to Hitachi, Ltd. Device for gaining random access to video signal information for use in video tape recorders. 3,789,138, Cl. 178-6.60a.
Terenzoni, Amerigo. Method for making a fabricated wooden product. 3,788,372, Cl. 144-316.000.
Terral, Ben D., and McGowen, Barold E., Jr., to Cameo, Incorporated. Kickover tool. 3,788,397, Cl. 166-117.500.
Terry, Raymond M. Smoke generator. 3,788,301, Cl. 126-59.500.
Teton, Alvan. Gas concentration measuring. 3,788,124, Cl. 73-19.000.
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Tharp, Jack L. Roller bearing for logging truck and trailer. 3,788,672, Cl. 280-404.000.
Thayer, Victor R., to Canadian General Electric Company, Limited. Modified system for heavy water production. 3,789,113, Cl. 423-580.000.
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Thomas, Douglas W., to American Home Products Corporation. Overcap safety mechanism for an aerosol container. 3,788,523, Cl. 222-153.000.
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Thompson, Darrell R., to Du Pont de Nemours, E. I., and Company. Coating compositions containing polymeric dispersing aids. 3,788,996, Cl. 252-62.540.
Thompson, David F.: *See*—
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Thompson, Kenneth N.; Johnson, Richard A.; and Lloyd, Norman E., to Standard Brands, Incorporated. Process for isomerizing glucose to fructose. 3,788,945, Cl. 195-31.00f.
Thomson, John Ira; and Hensley, Ralph T., 10% to Lee, Raymond, Organization, Inc., The. Roll paper dispenser. 3,788,573, Cl. 242-55.200.
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Thornblad, Rulf Filip Gunnar, to Globelite Batteries Canada, Limited. Storage batteries. 3,788,901, Cl. 136-170.000.
Thornton, Marvin L.; and Riccio, Pasquall R., to Ciba-Geigy Corporation. Compressed air aspirating and propellant actuated fluid product dispenser. 3,788,525, Cl. 222-193.000.
Thornton, Marvin L.; and Riccio, Pasquale R., to Ciba-Geigy Corporation. Compressed air operated dispenser with mechanical force multiplying means. 3,788,526, Cl. 222-193.000.
Thorpe, Merle L., to Humphreys Corporation. Method of rock cutting employing plasma stream. 3,788,703, Cl. 299-14.000.
Tiemens, Ulf: *See*—
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Tiley, John Wayne: *See*—
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Tilley, Henry T. Hydraulic front-wheel propulsion system for harvesting vehicles. 3,788,415, Cl. 180-26.00r.
Tippmer, Kurt; and Laufhutte, Dieter, to Still, Carl, Firma. Ammonia-hydrogen sulfide-cycle scrubbing method for crude coke oven cases. 3,789,105, Cl. 423-234.000.
Tobin, Michael F.: *See*—
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Toboll, Carl L. Bulk material handling system. 3,788,702, Cl. 298-22.0ae.
Toczyski, Stevan Leslaw. Mixing apparatus and method. 3,788,609, Cl. 259-5.000.
Tognella, Ugo R.: *See*—
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Tomita, Yoshifumi; and Akeyama, Masamoto, to Hitachi, Ltd. Method of manufacturing shadow masks. 3,787,939, Cl. 29-25.110.
Tomiwa, Hiroshi, to Matsuo Electric Company. Chip-shaped, non-polarized solid state electrolytic capacitor and method of making same. 3,787,961, Cl. 29-570.000.
Tonkin, Kenneth J.: *See*—
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Fazzani, Raymond John, 3,788,116.
Toth, Steve, to Ford Motor Company. Valve stem oil seal and lubricator. 3,788,295, Cl. 123-188.00p.
Towne, Delbert D.; and Zell, Michael N., to International Business Machines Corporation. Speed control for stepper motors by torque transfer. 3,789,286, Cl. 318-696.000.
Towner Manufacturing Company: *See*—
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Towns, Marion L., to Honeywell Information Systems, Inc. Apparatus for deskewing data signals in a multi-track recording system. 3,789,400, Cl. 340-174.10b.
Toyama, Kunio: *See*—
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Traubel, Harko; and Klebert, Wolfgang, to Bayer Aktiengesellschaft. Microporous sheet structure. 3,789,027, Cl. 260-2.5ay.
Traubel, Harro; Weber, Karl-Arnold; Koch, Otto; and Konig, Klaus, to Bayer Aktiengesellschaft. Fiber fleeces and synthetic leathers. 3,788,887, Cl. 117-135.500.
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Triggiani, Leonard V.; and Sanchez, Moises G., to Grace, W. R., & Co. Process for preparing multi-component nuclear fuels. 3,789,013, Cl. 252-301.10s.
Trihey, John Massey, to Vulcan Australia Limited. Apparatus for producing folded strip material. 3,788,121, Cl. 72-381.000.
Trimble, Lester B.; and Sopinski, Zygmunt J., to Jo-Line Tools, Inc. Torque wrench. 3,788,132, Cl. 73-139.000.
Tripp, Robert W., to Inductosyn Corporation. Digital/analog converter with amplitude and pulse-width modulation. 3,789,393, Cl. 340-347.00a.
Trocino, Frank S. Method of extracting wax from bark. 3,789,058, Cl. 260-412.800.
True, Harry Edward, to Harrico Developments Limited. Apparatus for printing on textile fabric. 3,788,106, Cl. 18-5.00d.
Trussell, Gerald C., to Sun Electric Corporation. Select signal engine diagnosing apparatus. 3,788,129, Cl. 73-116.000.
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Tuffs, Howard L., to Pyrotector Incorporated. Fire extinguishing system and valve for use therewith. 3,788,400, Cl. 169-11.000.
Tuite, Robert J., to Eastman Kodak Company. Photographic element containing an oil-soluble vinylene brightening agent. 3,788,854, Cl. 96-82.000.
Tuite, Robert J. Brightening composition containing a hydrophilic colloid and an oil-soluble vinylene brightening agent. 3,789,012, Cl. 252-301.20w.
Tuller, Harold W.: *See*—
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Tura, Natale G. Devices for piercing tubes in closed pressure systems and for charging the latter. 3,788,345, Cl. 137-318.000.
Turtle, Quentin C., to General Signal Corporation. Electroacoustical flow metering apparatus. 3,788,140, Cl. 73-194.00a.
Tusch, Nicholas Norbert; Watson, Robert Ian; and Taylor, Jack, to Colebrand, Limited. Underwater spraying apparatus. 3,788,273, Cl. 118-50.000.
Tyler, Robert P., to Wallace-Murray Corporation. Cutting tools with round face tooth inserts. 3,788,182, Cl. 83-835.000.
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Uchida, Hidekuni: *See*—
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Ueda, Nanji: *See*—
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Ujiie, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Apparatus for constructing substantially circular cross-section vessel by welding. 3,788,384, Cl. 164-252.000.
Ujiie, Akira; Shimoyama, Hiroshi; and Ueda, Nanji, to Mitsubishiki Jukogyo Kabushiki Kaisha and Koike Sanso Kogyo Kabushiki Kaisha. Cutting torch. 3,788,558, Cl. 239-424.000.
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Longi, Paolo; Cameli, Nazzareno; Valvassori, Alberto; Parodi, Sandro; and Cervi, Remo, 3,789,036.
Van den Bulcke, Emile Oscar Julien. Method and apparatus for cooling wire rod. 3,788,618, Cl. 266-3.00r.
Van der Kolk, Hans-Jurgen, to Bosch, Robert, G.m.b.H. Hydraulic control and regulating apparatus for an adjustable pump. 3,788,773, Cl. 417-213.000.
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Van Dommelen, Johannes A. W. J.: *See*—
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Van Gossum, Lucien Janbaptist: *See*—
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Van Laar, Jacobus; and Felthuis, Jacob, to Hoogovens Ijmuiden B.V. Furnace. 3,788,622, Cl. 266-32.000.
Van Lookeren Campagne, Nicolaas, to Shell Oil Company. Process and waste-heat boiler for cooling soot-containing synthesis gas. 3,788,281, Cl. 122-7.00r.
Van Paesschen, August Jean; Van Gossum, Lucien Janbaptist; and Preim, Jan Josef, to Agfa-Gevaert N.V. Plural coated sheet material containing photosensitive semiconductive particles. 3,788,856, Cl. 96-87.00r.
Van Poucke, Raphael Karel; and Pollet, Robert Joseph, to Agfa-Gevaert N.V. Method of incorporating photographic adjuvants into hydrophilic colloids. 3,788,857, Cl. 96-100.000.
Van Raalte, John A.; and Christiano, Victor, to RCA Corporation. Method of producing a window device. 3,788,892, Cl. 117-212.000.
Vancil, Rayburn D., to Olin Corporation. Vehicle safety device. 3,788,667, Cl. 280-150.0ab.
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Vartanian, Perry H., Jr.; Markaris, Michael J.; and Anderson, Carl P., to SCM Corporation. Editing typewriter with corresponding motion of recorder elements. 3,788,441, Cl. 197-1.00r.
Vasel, Alfred W., to Pyrotector, Incorporated. Smoke detector with means for compensating for variations in light source brightness due to line voltage variations. 3,789,383, Cl. 340-237.00s.
Vause, Arthur Samuel, to Thorn Electrical Industries, Limited. Electrically conductive components. 3,788,721, Cl. 316-17.000.
Vddeholms Aktiebol AG: *See*—
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Verth, Joachim Zur; and Prymelski, Franz, to Verth, Joachim Zur. Xylolith building boards and sheets. 3,788,870, Cl. 106-108.000.
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Vincent, Marcel, to Coleman Company, Inc., The. Snowmobile suspension system. 3,788,412, Cl. 180-5.00r.
Vjecsner, Paul. Envelope lock. 3,788,539, Cl. 229-77.000.
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Vollhardt, Dietrich, to U.S. Philips Corporation. Circuit arrangement for rhythmic, intermittent operation of separate magnets. 3,789,272, Cl. 317-137.000.
Volpe, Richard L., to Rockwell International Corporation. Loom reed motion. 3,788,359, Cl. 139-26.000.
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Wasson, Daniel Aaron: *See—*
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Watanabe, Mike Fukuichi. Outrigger line release. 3,787,995, Cl. 43-43.120.
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Hanson, William J., 3,788,275.
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Yabagida, Yoshio: *See—*
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Yackiw, Charles; and Williams, Fred, to Schlegel Manufacturing Company, The. Belt line weather seal. 3,788,008, Cl. 49-496.000.
Yamada, Masatora, to Mitsubishi Petrochemical Company, Limited. Disposing device for synthetic resin waste. 3,788,567, Cl. 241-247.000.
Yamaga, Eiichi: *See—*
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Yamamoto Electric Industrial Co., Ltd.: *See—*
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Yamamoto, Hiroshi, to Kabushiki Kaisha Synapse, President Hiroshi Yamamoto. Wiring system for group testing apparatus. 3,789,270, Cl. 317-99.000.

Yamamoto, Masayuki; Kobayashi, Kazuo; and Ohashi, Youitu, to Hitachi, Ltd. Semiconductor device and method of producing the same. 3,788,905, Cl. 148-187.000.
Yamamoto, Sadao: *See*—
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Yamazaki, Eiichi; Maruyama, Koichi; and Ueda, Toshio, to Hitachi, Ltd. Exposure device for manufacturing colour picture tubes. 3,788,200, Cl. 95-1.000.
Yamazaki, Eiichi; and Kanai, Hiromi, to Hitachi, Ltd. Post-deflection focusing type colour cathode ray tube. 3,789,254, Cl. 313-85.00s.
Yamazaki, Tatsuya; and Morishita, Yasumatsu, to Ryobi, Ltd. Spinning reel for fishing. 3,788,570, Cl. 242-84.21r.
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Yannopoulos, Lymperios N.; and Pebler, Alfred R., to Westinghouse Electric Corporation. Method of dosing an incandescent lamp with a controlled amount of halogen-containng material. 3,788,725, Cl. 316-20.000.
Yarnell, Charles Frederick, to Bell Telephone Laboratories, Incorporated. Fabrication of negative electrodes in lead-acid batteries. 3,788,898, Cl. 136-27.000.
Yazvac, Thomas A., to Square D Company. Handle interlock arrangement for a pair of electric circuit breakers. 3,789,169, Cl. 200-50.00c.
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Yoshida, Isao; Tokuyama, Takashi; Nishimatsu, Shigeru; and Ikeda, Takahide, to Hitachi, Ltd. Insulated gate field effect transistors and method of producing the same. 3,787,962, Cl. 29-571.000.
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Kurimoto, Masashi; and Yoshida, Mikihiko, 3,788,946.
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Youmans, Arthur H., to Dresser Industries, Inc. Water production system having means to selectively profile vary borehole fluid flow. 3,789,217, Cl. 250-265.000.
Young, David W., to Elco Chemicals Inc. Composition for maintaining the integrity of aqueous media. 3,789,008, Cl. 252-180.000.
Yu, Hwa Nien: *See*—
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Yuken Kogyo Company, Ltd.: *See*—
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Zahner, John C., to Mobil Oil Corporation. Process for separating uranium isotopes. 3,788,038, Cl. 55-17.000.
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Zankl, Walter: *See*—
Hagemann, Hermann; Pedain, Josef; and Zankl, Erich, 3,789,033.
Zaromb, Solomon. Electrochemical power generation apparatus and methods. 3,788,899, Cl. 136-86.00a.
Zawadzki, George Z., to Von Duprin, Inc. Safety exit latch bolt retainer. 3,788,687, Cl. 292-92.000.
Zeilman, Mary C. Safety security vest. 3,788,309, Cl. 128-134.000.
Zeiser, Donald K. Precision electronic tuning device. 3,788,184, Cl. 84-454.000.
Zeitlin, Edward J. Pressure operated modulating meter for regulating a flue damper. 3,788,795, Cl. 431-13.000.
Zell, Michael N.: *See*—
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Zellweger Ltd.: *See*—
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Zimmern, Bernard. Globoid worm fluid-flow machines. 3,788,784, Cl. 418-153.000.
Zinser-Tertilmaschinen Gesellschaft mit beschrankter Haftung. *See*—
Haussman, Gerhard; and Schulz, Gunter, 3,788,054.
Zipp, Otmar: *See*—
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Zsoldos, Frank J., Jr., and Kowalski, Anna. Color control of water that is recirculated. 3,788,982, Cl. 210-24.000
Zuest, Max. Anchor for attaching dental partial or full artificial denture. 3,787,975, Cl. 32-5.000.
Zundorf, Dieter. *See*—
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TO WHOM

PATENTS WERE ISSUED ON THE 29TH DAY OF JANUARY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and of the original registrations.

Eckerle, Otto. Wear (and tear-) compensating high-pressure gear pump. Re. 27,901, 1-29-74, Cl. 418—71.
Eckerle, Otto. Wear (and tear-) compensating high-pressure gear pump. Re. 27904, 1-29-74, Cl. 418—71.
Estelle, Weems E., H. Rangel, and P. M. Petrucci, to General Science Corp. Particle counting system. Re. 27,902, 1-29-74, Cl. 235—92.
Fluidtech Corp.: *See*—
Osheroff, Gene W. Re. 27,907.
Fogarty, Charles P. Space delivery system. Re. 27,903, 1-29-74, Cl. 244—1.
General Science Corp.: *See*—
Estelle, Weems E., Rangel, and Petrucci. Re. 27,902.
Midland-Rose Corp.: *See*—
Whiteman, Donald R. Re. 27,905.
Nutter, Dale E.: *See*—
Nutter, Irvin E., and D. E. Re. 27,908.
Nutter, Irvin E., deceased, by the First National Bank and Trust Co., executor, and D. E. Nutter, 30% to M. C. Nutter, 20% to N. N. Pantaleoni. Fluid contact tray. Re. 27,908, 1-29-74, Cl. 261—114.
Osheroff, Gene W., to Fluidtech Corp. Apparatus for air condition systems. Re. 27, 907, 1-29-74, Cl. 165—22.
Petrucci, Pasquale M.: *See*—
Estelle, Weems E., Rangel, and Petrucci. Re. 27,902.
Nutter, Martha C.: *See*—
Nutter, Irvin E., D. E., and Pantaleoni. Re. 27,908.
Rangel, Henry: *See*—
Estelle, Weems E., Rangel, and Petrucci. Re. 27,902.
Toepper, George G., to Universal Oil Products Co. Reinforced flexible connector. Re. 27,906, 1-29-74, Cl. 285—55.
Universal Oil Products Co.: *See*—
Toepper, George G. Re. 27,906.
Whiteman, Donald R., to Midland-Ross Corp. Grappler-spreader for cantilever-boom trucks. Re. 27,905, 1-29-74, Cl. 214—147.

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Duffett, William E.: *See*—
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Mack, Grace H., Jessel, and Duffett. 3,454.
Mack, Grace H., Jessel, and Duffett. 3,460.
Jessel, Walter H., Jr., and Duffett. 3,458.
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Hannaford, John G. 3,453.
Hall, G. B.: *See*—
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Hannaford, John G., to Granny Spur Enterprises. Apple tree. 3,453, 1-20-74, Cl. 34.
Holmquist, Philip W., W. H. Jessel, Jr., and W. E. Duffett, said Jessel and said Duffett assor. to said Holmquist. Chrysanthemum plant. 3,459, 1-29-74, Cl. 74.
Jessel, Walter H., Jr.: *See*—
Mack, Grace H., Jessel, and Duffett. 3,454.
Holmquist, Philip W., Jessel, and Duffett. 3,459.
Mack, Grace H., Jessel, and Duffett. 3,460.
Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,458, 1-29-74, Cl. 78.
Larus, Charles T.: *See*—
Larus, John R. and C. T. 3,461.
Larus, John R., and C. T. Larus, to Selected Glads, Inc. New and distinct variety of gladiolus. 3,461, 1-29-74, Cl. 85.
Machin, Barrie J., and G. B. Hall, to Yoder Brothers, Inc. Chrysanthemum plant. 3,455, 1-29-74, Cl. 74.
Mack, Grace H., W. H. Jessel, Jr., and W. E. Duffett, said Jessel and said Duffett assors. to Grace H. Mack. Chrysanthemum plant. 3,454, 1-29-74, Cl. 75.
Mack, Grace H., W. H. Jessel, Jr., and W. E. Duffett, said Jessel and said Duffett assors. to said Mack. Chrysanthemum plant. 3,460, 1-29-74, Cl. 75.
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Banner, Joseph P. Weeder. 230,127, 1-29-74, Cl. D8—11.
Barris, George, to Zee Toys, Inc. Toy model car. 230,178, 1-29-74, Cl. D34—15.
Bart, Philip D. Multifunction utility cap. 230,139, 1-20-74, Cl. D9—254.
Bayly, Peter K., to Wiltshire Cutlery Co. Proprietary Ltd. Scabbard. 230,122, 1-29-74, Cl. D7—74.
Beams, Anthony G., to E. & H. Grace Ltd. End connector bracket for a shelf or other article. 230,115, 1-29-74, Cl. D6—191.
Beams, Anthony G., to E. & H. Grace Ltd. End support for horizontal shelving. 230,116, 1-29-74, Cl. D6—191.
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Bettonica, Franco, to Perlier S.p.A. Container for cosmetics or the like. 230,137, 1-29-74, Cl. D9—168.
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Birrell, Stewart H.: *See*—
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Bowles, Samuel V. Transportable refuse container. 230,147, 1-29-74, Cl. D14—3.
Brown, Richard E., to Twyco, Inc. Combined conductor jack and plug assembly. 230,155, 1-29-74, Cl. D26—1.
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Downey, John W., to Whirley Industries, Inc. Dispenser for condiments or the like. 230,121, 1-29-74, Cl. D7—52.

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Fitzgerald, Timothy P., and W. O. Nix, to Image Systems, Inc. Microfiche camera. 230,196, 1-29-74, Cl. D61—1.

Flieder, Robert A., and J. T. Aueshausley, to Berkey Photo, Inc. Color light mixer for a photographic enlarger. 230,197, 1-29-74, Cl. D61—1.

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Froehlke, Albert R. Eaves trough cleaning device. 230,152, 1-29-74, Cl. D23—34.

Fukushima, Susumu, and W. H. Korte, to Tasco-Sales, Inc. Collimating device for telescopic sights or similar article. 230,195, 1-29-74, Cl. D57—1.

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3,788,257
219 3,788,260
230 3,788,258
235A 3,788,259
3,788,261
235R 3,788,262
3,788,263

CLASS 115
1R 3,788,264
12R 3,788,265
17 3,788,266
3,788,267

CLASS 116
28R 3,788,268
173 3,788,269

CLASS 117
10 3,788,872
21 3,788,873
23 3,788,874
36.2 3,788,875
38 3,788,876
62 3,788,877
62.2 3,788,878
68.5 3,788,879
70S 3,788,880
73 3,788,881
76T 3,788,882
100R 3,788,883
121 3,788,884
126AF 3,788,885
132BF 3,788,886
135.5 3,788,887
139.5A 3,788,888
201 3,788,889
3,788,890
212 3,788,891
3,788,892
216 3,788,893
217 3,788,894
218 3,788,895
235 3,788,896
236 3,788,897

CLASS 118
5 3,788,270
33 3,788,271
47 3,788,272
50 3,788,273
504 3,788,274
637 3,788,275

CLASS 119
1 3,788,276
29 3,788,277
51R 3,788,278
52R 3,788,279
99 3,788,280

CLASS 122
7R 3,788,281
34 3,788,282

CLASS 123
3 3,788,283
32EA 3,788,285
43C 3,788,286
52MV 3,788,287
97B 3,788,288
103B 3,788,289
117A 3,788,290
3,788,291
119A 3,788,284
122A 3,788,292
148E 3,788,293
179BG 3,788,294
188P 3,788,295

CLASS 124
7 3,788,297
11R 3,788,298
35R 3,788,299

CLASS 126
21R 3,788,300
59.5 3,788,301
374 3,788,302

CLASS 128
2F 3,788,305
2.06E 3,788,317
4 3,788,303
6 3,788,304
66 3,788,306
77 3,788,307
94 3,788,308
134 3,788,309
142 3,788,310
142.3 3,788,311
3,788,312
145.8 3,788,313
159 3,788,314
173H 3,788,315
200 3,788,316
214B 3,788,319
214.4 3,788,318
221 3,788,320
3,788,321
260 3,788,322
268 3,788,296
291 3,788,323
295 3,788,324
303R 3,788,325
305 3,788,326
350R 3,788,327
3,788,328
418 3,788,329

CLASS 131
10.5 3,788,330
143 3,788,331

CLASS 132
54 3,788,332

CLASS 133
2 3,788,333
4R 3,788,334

CLASS 135
1R 3,788,335
15PE 3,788,336

CLASS 136
27 3,788,898
86A 3,788,899
3,788,900
170 3,788,901

CLASS 137
1 3,788,337
3,788,338
93 3,788,340
115 3,788,339
209 3,788,341
3,788,343
218 3,788,342
271 3,788,344
318 3,788,345
330 3,788,346
355.17 3,788,347
512.1 3,788,351
523 3,788,352
542 3,788,348
565 3,788,349
596.18 3,788,350
604 3,788,353
625.11 3,788,355
625.17 3,788,356
625.4 3,788,354
805 3,788,357

CLASS 138
30 3,788,358

CLASS 139
26 3,788,359
122N 3,788,360
124 3,788,361
247 3,788,362
336 3,788,363
420R 3,788,364
421 3,788,365
3,788,366

CLASS 140
124 3,788,367

CLASS 141
67 3,788,368
114 3,788,369
125 3,788,370

CLASS 144
312 3,788,371
316 3,788,372

CLASS 145
30R 3,788,373

CLASS 148
11.5R 3,788,902
12.1 3,788,903
186 3,788,904
187 3,788,905

CLASS 149
2 3,788,909
6 3,788,906
22 3,788,907
42 3,788,908

CLASS 150
1 3,788,374

CLASS 156
3 3,788,911
6 3,788,912
11 3,788,913
18 3,788,914
19 3,788,915
74 3,788,916
82 3,788,917
171 3,788,918
184 3,788,919
202 3,788,920
216 3,788,921
244 3,788,922
3,788,923
249 3,788,924
269 3,788,925
286 3,788,926
290 3,788,927
294 3,788,928
307 3,788,929
3,788,930
309 3,788,931
499 3,788,932
513 3,788,933

CLASS 159
25A 3,788,375

CLASS 160
19 3,788,376
84R 3,788,377
135 3,788,378
235 3,788,379

CLASS 161
17 3,788,934
93 3,788,939
141 3,788,935
148 3,788,936
158 3,788,937
159 3,788,938
173 3,788,940
182 3,788,941

CLASS 164
26 3,788,380
52 3,788,381
150 3,788,382
156 3,788,383
252 3,788,384

CLASS 165
2 3,788,385
3,788,386
22 Re.27,907
27 3,788,387
32 3,788,388
45 3,788,389
65 3,788,391
74 3,788,390
92 3,788,392
109 3,788,393
134 3,788,394
169 3,788,395

CLASS 166
.5 3,788,396
117.5 3,788,397
269 3,788,398
274 3,788,399

CLASS 169
11 3,788,400

CLASS 172
801 3,788,401

CLASS 173
91 3,788,402
115 3,788,403
139 3,788,404

CLASS 174
28 3,789,129
115 3,789,130

CLASS 175
72 3,788,405
3,788,406
307 3,788,407
337 3,788,408
410 3,788,409

CLASS 176
191.D 3,788,942
35 3,788,943
60 3,788,944

CLASS 177
25 3,788,410
211 3,788,411

CLASS 178
5.1 3,789,131
5.4AC 3,789,134
5.4ST 3,789,132
5.4E 3,789,135
5.4R 3,789,133
5.8R 3,789,136
6.6A 3,789,138
3,789,139
6.6 3,789,137
7.81 3,789,140
69.5CB 3,789,141

CLASS 179
15AL 3,789,148
15BC 3,789,145
3,789,149
3,789,146
15BF 3,789,142
15BS 3,789,143
15.55R 3,789,144
15.55T 3,789,150
18ET 3,789,147
18FA 3,789,151
18GF 3,789,153
27D 3,789,155
81A 3,789,152
99 3,789,154
100.2CA 3,789,162
100.2C 3,789,156
3,789,158
100.2S 3,789,159
100.2Z 3,789,157
3,789,160
3,789,161
107S 3,789,163
156R 3,789,164
170.2 3,789,165
184 3,789,166

CLASS 180
5R 3,788,412
8A 3,788,413
26R 3,788,415
27 3,788,416
64A 3,788,417
68R 3,788,418
3,788,419
74 3,788,420
105R 3,788,421
114 3,788,422

CLASS 181
33K 3,788,423

CLASS 182
129 3,788,424
148 3,788,425

CLASS 184
1E 3,788,426
105C 3,788,427

CLASS 187
8.71 3,788,414
29R 3,788,428

CLASS 188
18A 3,788,429
72.6 3,788,430
109 3,788,431
138 3,788,432
314 3,788,433

CLASS 192
26 3,788,434
35 3,788,435
88B 3,788,436
98 3,788,437
110R 3,788,438

CLASS 194
61 3,788,439
99 3,788,440

CLASS 195
11 3,788,910
31F 3,788,945
31R 3,788,946
51R 3,788,947
68 3,788,948
100 3,788,949
103.5R 3,788,950
120 3,788,951
127 3,788,952

CLASS 197
1R 3,788,441
16 3,788,443
181 3,788,442

CLASS 198
2 3,788,444
36 3,788,445
3,788,446
41 3,788,447
56 3,788,448
107 3,788,449
131 3,788,450
3,788,451
139 3,788,452
153 3,788,453
168 3,788,454
182 3,788,455
204 3,788,457
3,788,458
218 3,788,459
220A 3,788,456
221 3,788,460
229 3,788,461

CLASS 200
5A 3,789,167
19R 3,789,168
50C 3,789,169
61.47 3,789,170
83S 3,789,171
148R 3,789,175
153SC 3,789,172
153J 3,789,173
168G 3,789,176
168R 3,789,174
172A 3,789,177

CLASS 202
173 3,788,953

CLASS 203
89 3,788,954

CLASS 204
25 3,788,955
35N 3,788,956
51 3,788,957
146 3,788,958
180P 3,788,959
3,788,960
181 3,788,961
195C 3,788,962
206 3,788,963
224M 3,788,964
234 3,788,965
256 3,788,966
277 3,788,967
290R 3,788,968
299 3,788,969

CLASS 206
.82 3,788,464
65S 3,788,462
3,788,463

CLASS 208
22 3,788,970
57 3,788,971
59 3,788,972
3,788,973
3,788,974
60 3,788,975
89 3,788,976
120 3,788,977
208M 3,788,978
255 3,788,979
333 3,788,980

CLASS 209
1 3,788,465
79 3,788,466
167 3,788,467

CLASS 210
20 3,788,981
24 3,788,982
28 3,788,983
30 3,788,984
33 3,788,985
59 3,788,468
73 3,788,469
78 3,788,470
94 3,788,471
103 3,788,472
112 3,788,473
137 3,788,474
167 3,788,475
194 3,788,476
195 3,788,477
197 3,788,478
198C 3,788,479
237 3,788,480
242 3,788,481
321 3,788,482
416 3,788,483
447 3,788,484
474 3,788,485
496 3,788,486

CLASS 211
49D 3,788,487
123 3,788,488
163 3,788,489
176 3,788,490

CLASS 212
25 3,788,491
55 3,788,492

CLASS 213
20 3,788,493

CLASS 214
1H 3,788,494
6B 3,788,495
6C 3,788,496
6P 3,788,497
10.5R 3,788,498
16.4B 3,788,499
41 3,788,500
83.3 3,788,501
84 3,788,502
147G Re.27,905
152 3,788,504
3,788,505
356 3,788,506
620 3,788,507

CLASS 215
40 3,788,508
3,788,510
42 3,788,509

CLASS 219
10.55 3,789,178
3,789,179
10.57 3,789,180
62 3,789,181
69C 3,789,182
92 3,789,183
117R 3,789,184
121EB 3,789,185
130 3,789,186
261 3,789,187
301 3,789,188
464 3,789,189
497 3,789,190
522 3,789,192

CLASS 220
9R 3,788,511
25 3,788,512
64 3,788,513
89A 3,788,514

CLASS 221
90 3,788,516
154 3,788,517
211 3,788,518

CLASS 222
83.5 3,788,519
94 3,788,520
3,788,521
146R 3,788,522
153 3,788,523
193 3,788,525
3,788,526
195 3,788,527
209 3,788,524
3,788,528
314 3,788,529
508 3,788,530

CLASS 223
118 3,788,531

CLASS 224
31 3,788,532

CLASS 225
96.5 3,788,533

CLASS 226
1 3,788,515
4 3,788,534
88 3,788,535
91 3,788,536

CLASS 227
142 3,788,537

CLASS 229
23R 3,788,538
72 3,788,540
77 3,788,539

CLASS 235
61R 3,788,541
61.11R 3,789,193
61.12M 3,788,617
92PC Re.27,902
92PK 3,789,194
92T 3,789,195
132A 3,789,196
150.27 3,789,197
3,789,198
150.5 3,789,199
151 3,789,200
151.21 3,789,201
151.33 3,789,202
152 3,789,203
153AC 3,789,205
153AM 3,789,204
172 3,789,206
183 3,789,207

CLASS 239
2R 3,788,542
3,788,543
11 3,788,544
34 3,788,545
120 3,788,546
129 3,788,547
132.3 3,788,548
242 3,788,551
276 3,788,552
309 3,788,549
315 3,788,553
332 3,788,554
336 3,788,555
337 3,788,550
349 3,788,556
401 3,788,557
424 3,788,558
533 3,788,559
553.5 3,788,561

CLASS 240
6.4R 3,789,208
7.1R 3,789,209
7.3 3,789,210
10R 3,789,211
51.11R 3,788,560
52R 3,789,212
69 3,789,213

CLASS 241
4 3,788,562
46A 3,788,564
46.11 3,788,563
3,788,565
69 3,788,568
73 3,788,566
214 3,788,569
247 3,788,567

CLASS 242
55.19A 3,788,574
55.2 3,788,573
84.21R 3,788,570
86.5R 3,788,575
195 3,788,571
199 3,788,576
210 3,788,572

CLASS 243
35 3,788,577

CLASS 244
1SD Re.27,903
3.28 3,788,578
77A 3,788,579

CLASS 248
14 3,788,580
22 3,788,581
56 3,788,582
146 3,788,583
154 3,788,584
178 3,788,585
373 3,788,586
400 3,788,587
467 3,788,588
488 3,788,589

CLASS 249
95 3,788,590
187 3,788,591

CLASS 250
206 3,789,215
3,789,220
211R 3,789,216
231SE 3,789,218
264 3,789,219
265 3,789,217
302 3,789,221
325 3,789,222
3,789,223
3,789,224
331 3,789,225
354 3,789,214
360 3,789,226
484 3,789,227
492 3,789,228

CLASS 251
25 3,788,592
28 3,788,593
58 3,788,594
3,788,595
69 3,788,596
129 3,788,597
149.6 3,788,598
181 3,788,599
214 3,788,600
304 3,788,601
312 3,788,602
345 3,788,603

CLASS 252
1 3,788,986
25 3,788,987
32.5 3,788,988
33 3,788,989
33.4 3,788,990
33.6 3,788,991
42.7 3,789,003
47.5 3,788,992
51.5A 3,788,993
62.1 3,788,994
3,788,995
62.54 3,788,996
63.5 3,788,997
65 3,788,998
91 3,788,999
95 3,789,000
99 3,789,001
3,789,002
171 3,789,004
3,789,005
3,789,006
3,789,007
180 3,789,008
301.1S 3,789,013
301.2W 3,789,012
301.4P 3,789,014
313S 3,789,009
316 3,789,010
3,789,015
367 3,789,011
437 3,789,016
3,789,017
439 3,789,018
3,789,063
440 3,789,019
442 3,789,020
446 3,789,021
462 3,789,022
465 3,789,025
466PT 3,789,024
518 3,789,023

CLASS 254
108 3,788,604
150FH 3,788,605
185 3,788,606
186R 3,788,607

CLASS 256
59 3,788,608

CLASS 259
5 3,788,609
54 3,788,611
177 3,788,610
182 3,788,612
185 3,788,613
191 3,788,614

CLASS 260
2.3 3,789,026
2.5AY 3,789,027
2.5B 3,789,028
2.5R 3,789,029
16 3,789,037
17R 3,789,039
17.2 3,789,038
17.3 3,789,040
3,789,041
17.4CL 3,789,042
17.5 3,789,043
18TN 3,789,044
3,789,045
23.7A 3,789,046
28.5R 3,789,047
29.6NR 3,789,030
30.2 3,789,048
40R 3,789,049
41A 3,789,051
41.5R 3,789,050
47CZ 3,789,052
47EN 3,789,053
47ET 3,789,054
51R 3,789,055
75NT 3,789,032
75T 3,789,031
77.5AM 3,789,034
77.5TB 3,789,033
78.5T 3,789,035
80.7 3,789,036
239.6 3,789,056
345.5 3,789,086
397.3 3,789,087
412.8 3,789,058
429.2 3,789,060
429.7 3,789,057
437R 3,789,059
455B 3,789,061
463 3,789,062
473S 3,789,064
497A 3,789,066
497R 3,789,065
505E 3,789,067
507R 3,789,068
514J 3,789,069
521R 3,789,070
553R 3,789,071
557B 3,789,072
558A 3,789,073
561N 3,789,074
583N 3,789,076
583R 3,789,075
648F 3,789,088
648R 3,789,089
669P 3,789,090
674SE 3,789,077
680E 3,789,078
681.5R 3,789,079
3,789,080
683.15D 3,789,081
683.68 3,789,082
873 3,789,084
878 3,789,083
897B 3,789,085
927R 3,789,091
932 3,789,092

CLASS 261
34A 3,788,615
64R 3,788,616
114R Re.27,908

CLASS 264
37 3,789,093
45 3,789,094
51 3,789,095
60 3,789,096
82 3,789,097
95 3,788,503
103 3,789,098
174 3,789,099
219 3,789,100
261 3,789,101
295 3,789,102
329 3,789,103

CLASS 266
3R 3,788,618
13 3,788,619
23R 3,788,620
27 3,788,621
32 3,788,622
33R 3,788,623
34T 3,788,624

CLASS 267
9C 3,788,626
64R 3,788,627
65R 3,788,628
3,788,630
66 3,788,629
156 3,788,631

CLASS 269
20 3,788,632
60 3,788,633
154 3,788,634
244 3,788,635

CLASS 271
4 3,788,636
13 3,788,637
51 3,788,638
53 3,788,639
64 3,788,640

CLASS 273
1M 3,788,641
1.5R 3,788,642
102.1G 3,788,643
134AD 3,788,644
156 3,788,645
183C 3,788,646
186A 3,788,647

CLASS 274
1R 3,788,649
23B 3,788,648

CLASS 277
34 3,788,651
38 3,788,650
70 3,788,653
71 3,788,652
212F 3,788,655
229 3,788,654

CLASS 279
1TS 3,788,657
1A 3,788,656
75 3,788,658

CLASS 280
5.24 3,788,659
11.35T 3,788,660
22 3,788,661
43.11 3,788,675
47.11 3,788,662
150AB 3,788,663
3,788,665
3,788,666
3,788,667
3,788,669
150SB 3,788,664
154.5R 3,788,668
203 3,788,670
303 3,788,671
404 3,788,672
423R 3,788,673
456 3,788,674

CLASS 285
55 Re.27,906
247 3,788,676
367 3,788,677

CLASS 290
40 3,789,229

CLASS 292
7 3,788,678
40 3,788,679
92 3,788,687
3,788,688
304 3,788,689

CLASS 294
17 3,788,690
19R 3,788,691
3,788,692
.20 3,788,693
67BC 3,788,694
81R 3,788,680

CLASS 296
28M 3,788,682
28R 3,788,681
35A 3,788,683
36 3,788,684
65A 3,788,685
146 3,788,686

CLASS 297
6 3,788,695
159 3,788,696
307 3,788,697
373 3,788,698
390 3,788,699
442 3,788,700
455 3,788,701

CLASS 298
22AE 3,788,702

CLASS 299
14 3,788,703
18 3,788,704

CLASS 301
9DN 3,788,705
37P 3,788,706
3,788,707

CLASS 303
7 3,788,709
21F 3,788,710

CLASS 305
58 3,788,711

CLASS 307
1 3,789,230
9 3,789,231
10LS 3,789,232
17 3,789,233
88P 3,789,234
88.3 3,789,235
96 3,789,236
104 3,789,237
119 3,789,238
221C 3,789,239
223C 3,789,240
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